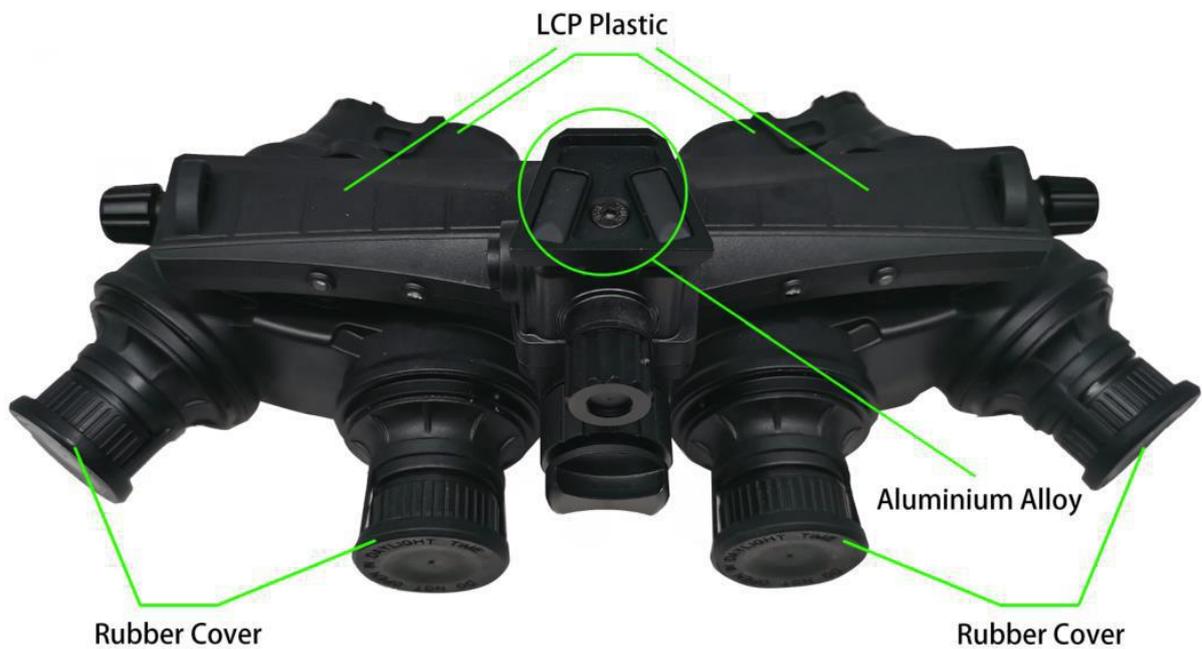




Ground Panoramic Night Vision Goggles

NORTIS GPNVG18G(18W) PRO

User manual



Description and features

NORTIS GPNVG 18G(18W) Pro is upgraded version based on GPNVG plus.

With new technology, we have developed an improved ground panoramic night vision goggles called GPNVG Pro, the purpose of GPNVG is to give the operator more information under goggles, allowing people to more quickly move through the OODA Loop (Observe, Orient, Decide, Act). The most striking feature of the GPNVG is the presence of four separate image intensifier tubes with four separate objective lenses arrayed in a panoramic orientation. The center two lenses point forward like traditional dual-tube goggles, giving the operator more depth perception, while two more tubes point slightly outward from the center to increase peripheral view. The two tubes on the right and the two on the left are spliced at the eyepieces. The operator sees the two center tubes somewhat overlapping the two outer tubes to produce an unprecedented 120° FOV. This is an absolute game-changer for the SOF community. The two right and two left tubes are housed in merged assemblies and are hung from a bridge, giving operators interpupillary adjustment options. They can also be easily removed and operated as independent handheld viewers. The IPD of the two system can be adjusted on the tubes bridge.

The NORTIS GPNVG 18G(18W) Pro is not only powered by a battery on the device, but also by a remote battery packs, tethered to the unit via a cable. It comes with a pack that accepts four 3.0-Volt CR123A batteries that tend to power the unit for 50-80 hours (IR off). The remote battery packs provides a secondary function as a counterweight, which is needed considering the goggle weights about 780g.

System adjustment and placement is key in providing the best image to the operator. One of the main adjustments for focus in a night vision goggle is the diopter. Diopter focus adjustment is traditionally achieved by rotating a diopter focus ring. This adjusts focus of the goggles as it is in relation to the individual wearer's eye(s). The challenge presented by the panoramic lens assembly of the GPNVG is that the rear lenses are "fused" together, almost like a prism. This is what gives the operator the overlapping images from the forward and angled tubes. But it also keeps the goggles from being able to have diopter rings for focus. So, the diopter adjustments are done with interchangeable diopter windows that stand off the lens. The kit comes with various windows that clip onto the rear lens housings and range from +0.5 to -2.5. So, the operator must ensure adjustments are made prior to going outside the wire because doing so in the field requires the other adjustment windows to be carried along.

Our engineer design a new structure to solve this problem, and making the diopter can be adjust from +1.5 to -2.5. (Above image show diopter adjust knob).

The GPNVG utilizes commercially-available gen2+ or Gen3 36.7x30 image intensifier tubes like Photonix MX10160, which are the same as used by our NORTIS 31G(31W) goggles. These tubes are good for maintenance because they use solder-free replaceable tube design. This is a very welcome feature since the modular L3 tubes do not require a whole operation to replace. Some quick work with common tools, and the tube replacement is done. In fact, the entire goggle has been designed with maintenance in mind. One of the biggest issues with NVG's (and just about any highly technical device) is maintenance of damaged/non-functioning equipment. This is often a lengthy process that requires a unit to be without equipment for a while because devices require specialty tools and facilities for repair. The GPNVG has a totally modular chassis with a fully serviceable bridge.

Using the NORTIS GPNVG 18G(18W) Pro is a very unique experience, the effect is improved a lot than the American similar item (GPNVG-18).

For someone who has grown accustomed to the narrow FOV of standard goggles, the night looks completely different with 120° (American L3Harris GPNVG-18 only 97°). There is no loss of visual acuity in the outer channels, so image looks as crisp in the widest parts as it does in the traditional "zone 1." There is a slight wave of blocked image in the overlap, but it is minor and you only "see" an overlap of three images since your brain melds the two center tubes (just like any binocular system).

After wearing the goggles for about five minutes, your brain does not even see the slight black semi-circle where the overlap occurs.

Technical specifications:

Modele	NORTIS GPNVG 18G (18W) Pro
Structural mode	Head mounted turnover four-eyed GPNVG
Image intensifier	GEN2+
Magnification	1X
FOM	1600 - 1800
Resolution center (lp/mm)	64 - 68
Phosphor Type	P43(P22) or P(45)
Luminance Gain	8000 - 12000
Signal To Noise Ratio	25 - 28
Instalation	Head mounted (standard American helmet interface)
Control mode	ON/IR/Auto
FOV (°)	Horizontal 120 +/-2° Vertical 50 +/-2°
Coaxiality	<0.1°
Lens system	F1.18 22.5mm
Focus range (m)	0.25 - ∞
Focus mode	Manual focus facility
Eye relief	20-40mm
Aperture	8mm
Diopter	+0.5~-2.5
IPD adjust type	Arbitrary continuously adjustable
IPD adjust range	50-80mm
IPD lock type	Manual lock
IR	850nm 20mW
Power supply (volt)	2.6-4.2 V
Battery type	CR123Ax1, External battery pack (CR123Ax4)
Battery capacity	800-3200maH
Battery life (hours)	30 - 80H
Power dissipation	<0.2W
Power supply (volt)	2.6-4.2 V
Temperature range	-40/+55 °C
Humidity range	5%-95%
Waterproof	IP65 (IP67 available)
Dimensions	155x136x83mm
Weight	780g (without battery)

How to use

1. Battery installation

As image 1, put a CR123A battery in the house by correct direction, clockwise rotate the cover and tighten.



2. Turn on

As image 2, clockwise rotate power switch, make it at ON position, the device turn on and system working. 3 different working mode for you to choose. At "ON" only tube working, at "IR", tube and IR both working, at "AUTO" the IR will auto turn on or shut off according to outside light level.



3. IPD adjusting

It design with IPD adjusting knob at the side of the bridge, user can rotate the knob for adjusting, as image 3. First, let the left eye aim at left eyepiece, look through be a circle view, same as right eye, close the left eye and see if the right eye can see the image clearly, back to left eye and adjust the IPD accordingly. it can fit different users.



4. Diopter adjusting

Choose a suitable light level target, do not remove the objective cover, adjust the diopter as image 4, turn the knob clockwise and counterclockwise to fit eyes, diopter adjusting stop when view the clearest target image. Both left and right use the same way.



5. Focus adjusting

Focus adjusting at the objective lens, please adjust the eyepiece before adjust objective. Please choose dark light level and open the cover, as image 5, aim at target, turn the objective ring clockwise and counterclockwise, till you see the clearest image, focus adjusting finished. The focus should adjust again when you view the different distance target



6. Working Mode

The switch has 4 position (OFF, ON, IR, AT(Auto)), and 3 working mode(except OFF), showed as above image 2;

OFF: Device shut off and not working;

ON: Device turn on and working, the IR does not working;

IR: Both device and IR are working;

AT(Auto): IR auto shut off or turn on according to light level around;

7. IR mode

When the light level low(fully dark), the device could not see clear image, rotate the knob to IR position, the build-in IR light will turn on, the device can be used again. Note: You are easy to be found when IR working;

8. AUTO mode

It is different with IR mode, AUTO mode start the light level sensor, it transfer the level value to the controlling system, the IR will turn on when the light level is low or fully dark, the IR will auto shut off when light level is higher enough. The whole system will auto shut off when the light level above 40Lux, the tubes will be protected.

FAQ

1. Tube not working

- I. Please check if battery in right direction;
- II. Check if the battery has enough power;
- III. Confirm if the light level is too high(almost like night level);

2. View image not clear

- I: Check if eyepiece and objective lens dirty;
- II: If the objective lens cover opening at night condition, please do not open it at day light;
- III: Check if the diopter adjust to the right position;
- IIII: Check if focusing to right position;
- V: If turn on the IR at fully dark condition;

3. Auto testing not work

When the auto shut off function does not work at high light level, please check if the sensor is cover;

Notice:

1. Anti glare

The device design with auto anti-glare function, it will shut off at high light condition. Even though, repeated strong light exposure will also accumulate damage, so please do not put it in strong light environment for a long time or many times, so as to avoid permanent damage to the device.

2. Moisture-proof

This NVD design with waterproof inner structure, normal IP65 waterproof, the IP67 optional, well long term humid environment will also slowly cause damage to the device, so please store the it in dry environment.

3. Using and storage

It is high precision photoelectric products, please operate it according to this user manual, please take the battery out if do not use it for long time. Please keep it in a dry, ventilated and cool environment, and pay attention to shading, dustproof and impact proof.

4. Please do not open and fix it by yourself when the device is damaged during normal using or improper using, please contact our dealers for after sales service.

Manufacturer's warranty, warranty conditions

The manufacturer guarantees conformity of the quality of the device with the requirements of the technical conditions, if the consumer observes all conditions and principles of storage, transportation and use.

The warranty period begins on the day the buyer takes possession of the item. The warranty period for all products is generally 24 months (batteries 6 months) from the date of purchase according to the Civil Code and 12 months according to the Commercial Code, unless the manufacturer sets a longer warranty period (complaint directly to the manufacturer's service).

The service life of the electro-optical converter without loss of sensitivity is at least 10,000 hours if the rules of use are followed.

The warranty only applies to manufacturing defects and material defects. Does not apply to products with internal or external mechanical, chemical or thermal damage. Also, the warranty does not cover malfunctions caused by inappropriate handling of the device, opening of the device and intervention by an unauthorized person, damage by natural elements, inappropriate storage, unprofessional handling and use of inappropriate batteries. The warranty also does not cover theft of the device. The right to warranty repair expires if the damage was caused by mechanical damage, operating the product in inappropriate conditions (chemically aggressive environment, dusty, humid, strong magnetic field), any breach of the seal or obvious interference with the product. The warranty also expires in the event of a defect caused by a natural disaster. Light damage to the device is easily detectable with diagnostic equipment and is not covered by the warranty. Using the device reduces the life of the electro-optical converter, which is considered as natural wear and tear of the device.

The customer is obliged to make a claim for possible mechanical damage to the goods (device) immediately after receiving the goods. Later complaints will not be accepted.

If it is found during the complaint that the defect occurred in a way that is excluded from warranty repairs, or if the defect does not appear on the product, the owner is obliged to pay all possible costs associated with handling, testing and the costs of delivering the device to the service center. If the customer is interested, we will provide paid post-warranty service.

Warning

Do not switch on the device in daylight with the lens cover folded!

Do not aim the device at a direct light source. The device may be damaged!

If you do not use the device for 24 hours or more, it is necessary to remove the batteries from the battery case and store them separately.

Please read this instruction manual carefully before handling the night vision goggles!

Improper and inappropriate use of the device may damage it and void the manufacturer's warranty.

If you have any questions regarding the use of the device or service, please contact your dealer or the manufacturer.

We reserve the right to change the text, description or images in the user manual.

Manufacturer:

Office: JLV, s.r.o., Pod Velingom 257, 027 44 TvrDOSIN, Slovakia

tel.: +421 949 825 090

e-mail: nortis@jlvtechnology.sk

www.jlvtechnology.sk