PVS-31 Night Vision Binocular
Operation Manual

Warning

a) It is strictly prohibited to place the night vision binocular under strong light and open the protective cover of it during the day. If the night vision need to be used during the day, the objective lens training cover must be installed before use. Don’t aim the night vision at a point light source for a long time.

b) Low Voltage Indication: When the device is powered on, if a red dot starts to flash in the field of view through the eyepiece, the battery should be replaced in a timely manner.

c) The infrared strobe on the external battery box can be detected by the enemy's night vision device. To reduce the risk of detection, the infrared strobe should only be turned on under specific conditions, and make sure it is turned off when not in use.

Product Features

The PVS-31 night vision binocular is a high-performance head-mounted device painstakingly devel
oped with reference to the currently active US head-mounted night vision. The night vision device is an image intensification system mainly used for nighttime combat. It uses the faint visible light and near-infrared light at night to form images. It is used in conjunction with a bulletproof helmet to provide users with a directly visible night vision image, improving nighttime combat effectiveness. Combat personnel can complete various nighttime combat and training tasks. It has the characteristics of an ultra-large field of view, high definition, no distortion, light weight, high strength, etc. (The for military nighttime equipment.

Technical specifications:

Model: PVS-31
Structural Mode: Arbitrarily flippable binoculars with double barrels
Flip Detection: Automatic detection, power off when flipped upwards
Power Supply : AA batteries / AAx4 external battery box
Battery Usage Time: Internal battery usage is more than 15 hours, and the usage time with an external battery box is more than 50 hours
Installation Method: Head-mounted (standard American helmet interface)

Control Mode: ON/IR/AUTO
Overall Power Consumption: < 0.1W
Battery Capacity: 800-3200maH
Battery Life: 40-100H
Optical Magnification: 1X
FOV: 40 +/-2°(or 50 +/-2° optional)
Optical Axis Parallelism: < 0.1 degree
Image Intensifier: Gen2+(or Gen3 optional)

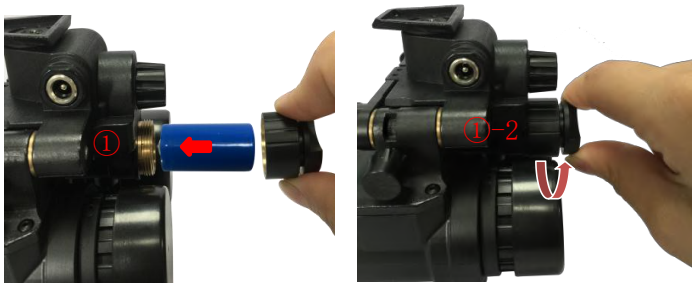
Optical Aperture: F1.18 22.5mm
Optical MTF: 120LP/mm
Optical Distortion: 3% Max
Relative Illuminance: >75%
Optical Coating: Ultra-wideband multi-layer optical antireflection coating
Focus Adjustment Range: 250mm-∞
Focus Adjustment Method: Manual
Exit Pupil Distance: 30
Eyepiece Diameter: ≥26mm
Diopter Range: 0 diopter (+/-5 degrees optional)
Interpupillary Distance Adjustment Method: continuous adjustment

Interpupillary Distance Adjustment Range: 50-80mm
Interpupillary Distance Locking Method: Manual locking
Auxiliary Light Source: 850nm 20mW
Applicable Temperature: -40--+55℃
Humidity Range: 5%-95%
Waterproof Grade : IP65(or IP67 optional）

Dimensions: 115x105x85
Weight (without battery): 560g

1. Battery installation:

As shown in Figure ①-1, insert a lithium battery (refer to the polarity markings on the battery) into the battery compartment of the night vision binocular, and align the battery cover with the threads of the battery compartment and turn it clockwise. Tighten it, as shown in Figure ①-2, to complete the battery installation.



2. Power on

As shown in Figure ②, rotate the operation switch one position clockwise. Turn the knob until it points to the "ON" position, and the system will be powered on.

At this time, the system starts to operate, and the image tube lights up. (When rotating clockwise successively, the positions are: OFF/ON/IR/AUTO/OFF). In the IR position, the infrared auxiliary light source is turned on; in the AUTO position, the system enters the automatic mode.

3. Interpupillary distance adjustment

This night vision binocular is equipped with an interpupillary distance adjustment knob. After the user wears the product, they can turn the interpupillary distance adjustment knob forward or backward to adjust the interpupillary distance, as shown in Figure ③. Different users can adjust it according to the distance between their own eyes and for comfort until it suits the distance between their eyes.

4. Eyepiece adjustment

Select a target with moderate ambient brightness and adjust the eyepiece without opening the objective lens cover. As shown in Figure ④, rotate the eyepiece handwheel clockwise or counterclockwise to match the diopter of the human eye. When the clearest target image can be observed through the eyepiece, the eyepiece adjustment is completed. Different users need to readjust according to their own eyesight conditions.

5. Objective lens adjustment

The purpose of adjusting the objective lens is to clearly see objects at different distances. Before adjusting the objective lens, please adjust the eyepiece according to the aforementioned method. When adjusting the objective lens, please select a relatively dark ambient target. As shown in Figure ⑤, open the objective lens cover, aim at the target, and rotate the objective lens focusing handwheel clockwise or counterclockwise until the clearest ambient image is seen, completing the objective lens adjustment. When observing targets at different distances, the objective lens needs to be readjusted according to the aforementioned method.

6.Working modes

The operation switch of this product has five positions, with a total of four modes. In addition to the power-off (OFF) mode, there are three working modes: "ON", "IR", and "AT", corresponding to the normal working mode, the infrared auxiliary lighting on mode, and the automatic mode respectively, as shown in Figure ②.

6. Infrared mode

When the ambient illumination is extremely low (in a completely dark environment) and the night vision goggles cannot observe a clear image, turn the operation switch one more position clockwise. As shown in Figure ②, the system enters the "IR" mode. At this time, the built-in infrared auxiliary lighting of this product is turned on to ensure normal use in a completely dark environment. Note: In the infrared mode, if encountering similar equipment, the target is likely to be exposed.

8.Automatic mode

The automatic mode is different from the "IR" mode. The automatic mode activates the ambient detection sensor, which can detect the ambient illumination in real time and control the operation of the system with reference to the ambient illumination. In an extremely low or completely dark environment, the system will automatically turn on the infrared auxiliary lighting. When the ambient illumination can meet the normal observation requirements, the system will automatically turn off the "IR". When the ambient illumination reaches 40-100Lux, the entire system will automatically turn off to protect the photosensitive core components of the night vision device from being damaged by strong light.

9. Head mount installation

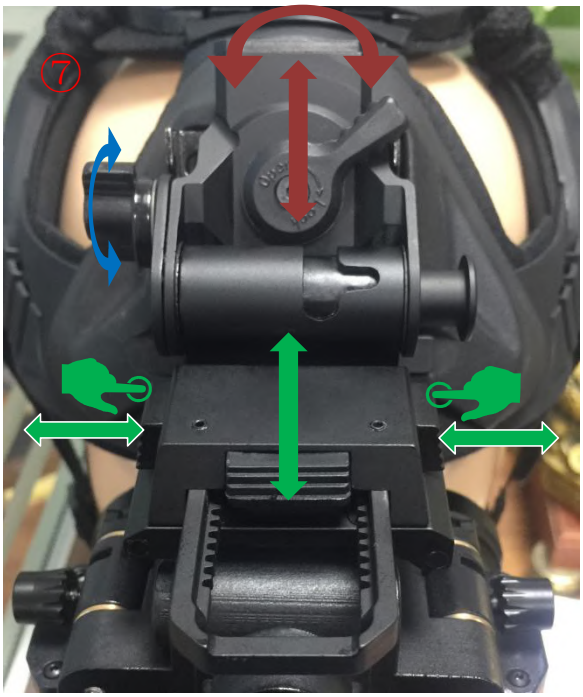
First, adjust the device of the helmet mount to the unlocked state, as shown in Figure ⑥-1. Push the buckle of the device of the helmet mount to the right, so that the lock core retracts into the device of the helmet mount, as shown in the state of Figure ⑥-2.

Then, align the mount buckle of the helmet mount with the universal device slot of the soft helmet, as shown in Figure ⑥-3. At the same time, push the buckle of the device of the helmet mount to the left with force, so that the lock core pops out and locks the helmet, as shown in the state of ⑥-4.

After the device of the helmet mount is installed on the helmet, align the end of the universal fixture of the night vision binocular near the eyepiece with the device slot of the helmet mount, and press it

inward with force as shown in ⑥-5 until you hear a "click" sound. After confirming that there is no looseness, you can release your hand, and the installation of the night vision goggles is completed. (Note: When disassembling this product from the device of the helmet mount, as shown in Figure ⑥-5, press the button indicated by the orange arrow in the orange circle with force.)

10. Head mount adjustment



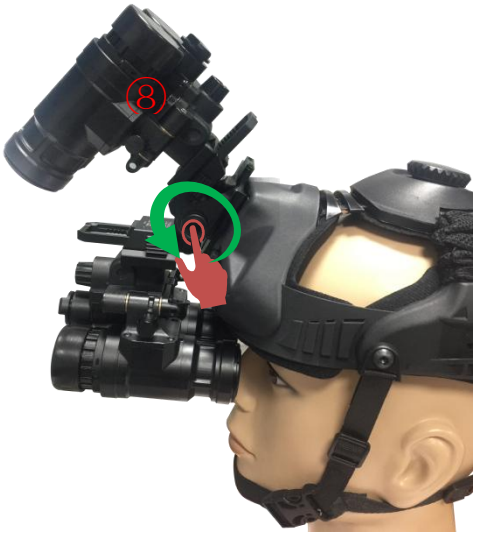
To ensure the comfort of users when using this system, the helmet mount system is designed with a perfect fine-tuning structure to meet the needs of different users.

Up and Down Adjustment: When you need to adjust the up and down distance between the eyepiece of the night vision and your eyes, first turn the locking knob in the direction marked "Open" to unlock it. After unlocking, you can make up and down adjustments. After adjusting the eyepiece of the product to the most suitable observation height, turn the locking knob in the direction marked "lock" to lock it, completing the up and down adjustment, as shown in the brown diagram in Figure ⑦.

Front and Back Adjustment: When you need to adjust the front and back distance between the eyepiece of the night vision binocular and your eyes, press the front and back adjustment buckles on both sides of the night vision binocular assembly at the same time, and do not release your hand. Slide the night vision assembly back and forth. After adjusting to an appropriate position, release your hand and it will lock automatically, completing the front and back adjustment, as shown in the green diagram in Figure ⑦.

Flip Fine-tuning: The flip fine-tuning knob has two positions. When rotated 180 degrees clockwise or counterclockwise, the angle between the eyepiece of the night vision and your eyes can be finely adjusted, as shown in the blue diagram in Figure ⑦.

11.Head mount flip, left and right flip of the night vision



After the product has been worn, during actual use, if you do not need to use the night vision temporarily, you can flip the night vision onto the helmet. This will neither affect the current line of sight nor make it convenient for use at any time. When you need to observe with the naked eye, press the flip button of the helmet

mount, and you can flip the night vision assembly upwards. When the rotation angle reaches the 170-degree position, release the flip button of the 171-helmet mount, and the system will automatically 172-lock the flipped state; when you need to lower 173-the night vision assembly for observation, you 174-also need to press the flip button of the helmet 175- mount first, and the night vision assembly will 176-automatically return to the working position and lock in the working position. When flipping the night vision assembly onto the helmet, the night vision will automatically turn off. When returning to the working position, the night vision will automatically turn on and work normally. As shown in Figure ⑧.

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This product can also be flipped left and right during use. When you need separate observation , the side that is not needed can be flipped to the left or right, making it convenient for the user to observe with one naked eye and use one of the eyepieces.
When flipping one side of the night vision onto the helmet, the night vision on the flipped side will automatically turn off. When returning to the working position, it will automatically turn on and work normally. As shown in Figure ⑨.

11. **Alternative battery**

This product has a built-in alternative battery interface. When the power of the built-in battery is insufficient, the user can connect the backup power supply through the power connection port. As shown in Figure ⑩.

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Troubleshooting of common problems:

1. Not Lighting Up
   a. Please check if the batteries are installed in the wrong direction. b. Check if the batteries have power. c. Confirm that the ambient light should not be too strong (it needs to be close to a nighttime environment).
2. Unclear Image
   a. Check if the eyepiece and the objective lens are dirty. b. In a nighttime environment, check if the objective lens cover is opened (do not open the cover during the day). c. Confirm if the

diopter of the eyepiece is adjusted properly (refer to the eyepiece diopter adjustment operation). d. Confirm if the objective lens focusing is adjusted properly (refer to the objective lens focusing operation). e. In a completely dark environment, confirm if the infrared auxiliary light source is turned on.

3. Automatic Detection Not Working

   a. In the automatic mode, when the automatic strong light protection does not work, please check if the ambient detection area is blocked. b. In the flipped state, if the night vision system does not automatically turn off, or when it is installed on the helmet and placed in the normal observation position, the system cannot turn on normally. Please check if the connection and fixation position between the helmet mount and the product is correct. (Refer to the head mount installation operation).

Precautions:

1. Protection Against Strong Light

   This night vision is designed with an automatic strong light protection device, which will automatically protect the system when encountering strong light. Although the strong light protection function can ensure that the product is not damaged by strong light to the greatest extent, repeated exposure to strong light will still cause cumulative damage. Therefore, please do not place the product in a strong light environment for a long time or repeatedly to avoid permanent damage to the product.

2. Moisture Prevention

   The night vision is designed with a waterproof function, and its maximum waterproof ability can reach IP67 (optional). However, a long-term humid environment will still slowly corrode the product and cause damage to it. Therefore, please store the product in a dry environment.

3. Use and Storage

   The night vision is a high-precision optoelectronic product. Please operate it strictly according to the instructions for use. When not in use for a long time, please take out the batteries, store the product in a dry, ventilated, and cool environment, and pay attention to shading, dust prevention, and impact prevention.

If it is damaged during use or due to improper use, please do not disassemble or repair it without permission. Please contact the dealer directly.