DIGITAL INFRARED NIGHT VISION USER MANUAL

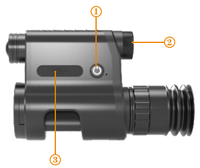
Overview

This product adopts low illumination at night, Sony dynamic CMOS sensor imported from Japan, and external infrared light for auxiliary lighting, which can obtain excellent observation effect no matter in day or night. The novel patented internal structure design greatly improves the observation effect and observation experience. The built-in infrared color filter greatly improves the observation effect of the device during the day, reduces the overexposure under the natural light, restores more realistic colors, and truly realizes the dual-use of day and night. The color of observation during the day is more realistic, the observation target at night is clearer, and the observation distance can reach 200m under the condition of total darkness. It combines the functions of taking pictures, tape-recording and video-recording, and can record beautiful moments even at night.

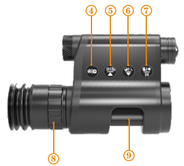
It is mainly used for outdoor night vision, animal observation, hunting, outdoor adventure, search and rescue, and can be used with gun sniper scope to complete the night hunting.

Interfaces

Right View



Left View



❶ Power on & off
❷ Battery Compartment Cap
❸ SD Card Slot /HDMI /Type-C Charging Interface
❹ Menu/Open Local Disk for photo
❺ Upward Select /IR Fill Light /WIFI Switch
❻ Downward Select / Zoom (+) / Zoom (-) / Black and White Color Mode Switch
❼ OK Button / Video / Red dot laser Switch
❽ Eyepiece Lens Focusing Rotation Ring
❾ Objective Lens Focusing Rotation Ring

Front View

Rear View

❶ Infrared IR Stretchable Fill Light
❷ Red-dot Laser-assisted Positioning Indicator
❸ Objective Lens
❹ Eyepiece Lens

Working Principle

The TR-IR NV100 digital night vision device collects external light through the objective lens, and then converts the optical signal into electrical signal through the digital CMOS sensor module. Finally, the optical signal is transmitted to the micro liquid crystal display (LCD), so as to view the image on the LCD screen on the eyepiece.

LCD display image can be magnified by 2x/3x/4x/5x (optional). The TR-IR NV100 digital night vision device has a powerful built-in IR (infrared) fill light, which can clearly view the external environment in low ambient light conditions or even in complete darkness.

Installation Instructions

Battery Installation
Please use one 3.7V 18500 Li-ion battery. Remove battery compartment cap and make sure setting the positive polar towards to the direction inward.Put the cap back and screw it until tight.
Adjustments
After the battery is installed, firstly adjust the eyepiece diopter, rotate the night vision device eyepiece diopter adjustment ring until the four-corner text icon on the screen is clearly displayed (no need to see the image clearly), and then adjust the night vision device objective lens focusing ring until the target is clearly seen; If it is used together with an optical telescope, it is necessary to install a circular adapter and fix it behind the optical telescope. The focusing ring of the objective lens of the night vision device can be rotated until the reticle of the optical telescope is clearly seen, and then the basic adjustment is completed.
Adapter Installation
❶ Connect the night vision device to the adapter, put it into the eyepiece of the optical telescope until the bottom, and observe the gap between the adapter and the eyepiece of the optical telescope. It is recommended that the gap between the adapter and the eyepiece of the optical telescope be less than 0.1mm, and the adapter is suitable for eyepieces with a diameter of ≤45mm. If the gap is insufficient, you can wrap it with electrical glue until the gap is less than 0.1mm. The reticle of the optical telescope can be seen clearly by adjusting the focusing ring of the objective lens of the night vision device, and the reticle of the optical telescope can be rotated by turning the night vision device, and finally the adapter screw can be fixed with the hexagon socket.
❷ On the TR-IR NV100 device, use an L-shaped hexagonal screwdriver to turn the hexagonal screw that locks the night vision device and the snap ring counterclockwise, then you can separate the adapter.

Instructions for Use

Turn On / Off
Long press "⏻" the power button until the text "Ten rings" pops up on the display.
Eyepiece Lens Focusing
Eyepiece lens focusing, also known as diopter adjustment, aims to enable users with different eyesight to clearly see the text icons on the screen. Turn the eyepiece lens focusing ring until the on-screen icon is clearly visible.
Note: just make sure that you can see clearly the icons on the screen, not the image inside the screen. If the objective lens is not properly adjusted, the image may be not clear. The same person only needs to adjust one eye once.
Objective Lens Focusing
Before focusing the objective lens, please confirm whether the eyepiece lens focusing (diopter) has been completed, aim at the target you want to see, adjust the focusing ring of the objective lens so that the target image can be clearly seen.
Fill Light Adjustment
Long press the "" button, and enter the black and white mode after hearing the "click" sound. Then press the " " button once to turn on the infrared light, and press the " " button again to adjust the level of the fill light (set IR1-3 and close), and adjust the focusing fill light by rotating and stretching the cover of the fill light.
Laser Adjustment
Short press the " " button to turn on/off the laser red dot indicator.
Menu Operation Instructions
❶ Reticle center position Adjustment
Press the "" menu button, and press the " " button to select the "Reticle Setting" option, and then pop up X/Y/Reset All/Exit and other options, select the X menu button and adjust the X coordinate position of the center of the reticle. Press " " and " " to adjust the X coordinate of the center line. After completion, press " " to return to the previous menu. Then select the Y menu button and press " " and " " to adjust the Y coordinate of the center line. After completion, press " " to return to the previous menu. Choose "Reset all "can cancel all the X/Y configuration and go back to default state. Then select "Exit" to return to the main menu.

Instructions for Use

❷ Language
Press the "" menu button firstly and press the " " button to select the "Language" option, and press the " " button to enter the sub-menu and press the " " button to select the "Language" option, and then on the pop-up sub-menu select one of eight languages, including "English", "Francais", "Espanol", "Portugues", "Deutsch", "Italiano", "Simplified Chinese", "русский язык". After confirmation, the system can realize the switch of the the corresponding language.
❸ Default Color
Press the " " menu button firstly and press the " " button to select the option "Default color", and press the " " button to enter the sub-menu, and press the " " button to select the "Default Color " option, then press " " to select the required color mode.
❹ IR brightness
Press the "" menu button firstly and press the " " button to select the " IR Brightness" option, and press the " " button to enter the sub-menu, the sub-menu button will pop up "Off" and other 3 levels of fill light intensity selection switch: "IR1", "IR2", "IR3" then press the " " button to select the " IR Brightness" option. To save battery power, this switch is not saved by default and will be turned off after restarting. However, in black and white mode, it can be adjusted and turned off by adjusting the " " fill light adjustment button.
❺ LCD brightness
Press the "" menu button firstly and press the " " button to select the "LCD Brightness" option, and press the " " button to enter the sub-menu, and press the " " button to select the "LCD Brightness" option, and then adjust the brightness on the pop-up sub-menu button, including "1(Super Dark)", "2(Dark)", "3(Normal)", "4(Bright)", and "5(Super Bright)".
❻ Exposure
Press the "" menu button firstly and press the " " button to select the"Exposure "option, and press the " " button to enter the sub-menu, and press the " " button to select the "Exposure " option, and then select "+2/3" or "+1/3", "+0.0", "-1/3"or other parameters on the pop-up sub-menu button. After confirmation, the system can realize the corresponding exposure compensation intensity.
❼ Automatic Recording
Press the "" menu button firstly and press the " " button to select the "Automatic Recording" option, and press the " " button to enter the sub-menu, and press the " " button to select the "Automatic Recording "option, and then select "On" or "Off" on the sub-menu button that pops up. After confirmation, the system can determine whether to automatically video-recording when next power-on.
❽ Loop Recording
Press the "" menu button firstly and press the " " button to select the "Loop Recording" option, and press the " " button to enter the sub-menu, and press the " " button to select the "Loop Recording" option, and then select one of the options of "Off", "3 minutes", "5 minutes", "10 minutes" on the pop-up sub-menu button. After confirmation, the system can determine whether to automatically loop recording when next power-on.
❾ Audio synchronization
Press the "" menu button firstly and press the " " button to select the "Audio synchronization" option, and press the " " button to enter the sub-menu, and press the " " button to select the "Audio synchronization" option, and then select "On" or "Off" on the pop-up sub-menu button to select whether to record video with voice input.
❿ Data stamp
Press the "" menu button firstly and press the " " button to select the "Data Stamp" option, and press the " " button to enter the sub-menu, then press the " " button to select the "Data Stamp" option, and then select "On" or "Off" on the pop-up sub-menu button to select whether to show the date label for videos and photos.
⓫ WIFI
Press the "" menu button firstly and press the " " button to select the "WIFI " option, and press the " " button to enter the sub-menu, and press the " " button to select the "WIFI" option, and then select "On" or "Off" on the sub-menu button. After confirmation, the system can realize the On / Off of the WIFI.

Note: WIFI starts with "TenRings" and the default password is 12345678. You need to download the corresponding PPshow software from Apple store,or from our official website.
⓬ Date/Time
Press the "" menu button firstly and press the " " button to select "Date/Time" option, and press the " " button to enter the sub-menu, and press the " " button to select"Date/Time" option. Cursor choice in the year position, press " " or " " button to adjust the year. After the adjustment, press the " " button to jump to the month setting, press the " " or " " button to adjust the month. After the adjustment, press the " " button to jump to date setting, press the " " or " " button to adjust the date. After the adjustment, press the " " button to jump to hour setting, press " " or " " button to adjust the hour. After the adjustment, press the " " button to jump to minute setting, press " " or " " button to adjust the minute.
After the adjustment, press the " " button to jump to second setting, press " " or " " button to adjust the second .After the adjustment, press the " " button to jump to date display format. Press " " or " " to select three display formats: "YY/MM/DD", "MM/DD/YY", "DD/MM/YY". After confirmation, you can press the menu button to exit.
⓭ Format
Press the "" menu button firstly and press the " " button to select "Format" option, and press the " " button to enter the sub-menu, and then on the pop-up sub-menu select "TF Card", press the " " button to confirm. After confirmation, "Cancel" and "ok" options will pop up, press " " button again to select "ok" option, and finally press " " button to format the memory card, please choose carefully, the data cannot be recovered after deletion!
⓮ Default Setting
Press the "" menu button firstly and press the " " button to select the "Default Setting" option, and press the " " button to enter the sub-menu, and then on the pop-up sub-menu select "ok" or "Cancel", press " "button to select "ok" option, and press the" " button to restore the system to the factory default settings, please operate carefully!
⓯ Version
Press the "" menu button firstly and press the" " button to select the "Version" option, then software version information will be displayed on the screen by pressing the " " button.

Instructions for Shortcut Button Operation

❶ " " Button
After turn on, press for a short time (<1s) to pop up the menu option, and long press (>1s)to take a photo;
❷ " " Button
Press a short time(<1s) to turn on/off the Red-dot Laser, long press (≥1s) to open the video recording function;
❸ " " Button
Press for a short time (<1s) to do infrared fill light and level adjustment, long press (≥1s) to turn on & off " WIFI ";
❹ " " Button
Press for a short time (<1s) to realize Zoom (+) / (-), long press (≥1s) to switch to black & white / color mode;

Installation diagram of TR-IR NV100 and sniper scopes

❶ Take out the night vision device and the metal adapter and connect them by following the steps below.

Step1: Clamp the convex hull of the adapter into the groove of the TR-IR NV100 as shown in Figure (1)

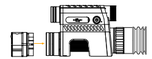


Figure (1) adapter fastening step 1 Schematic diagram

Step2: Stick the other end of the metal adapter into the groove of the TR-IR NV100 as shown in Figure (2)

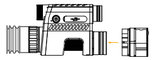


Figure (2) adapter fastening step 2 schematic diagram

Step3: After both ends of the buckle are stuck into the slot, make the metal adapter and the TR-IR NV100 in the same plane, tighten the reinforcement screws, and fix, as shown in Figure (3)

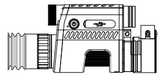


Figure (3) Effect picture of adapter installation completed

❷ Connect the TR-IR NV100 fixed with the metal adapter to the sniper scope. The specific operations are as follows:

Step1: This product is equipped with plastic gaskets of different thicknesses (1mm/2mm/3mm). Choose a plastic spacer that fits the scope and place it inside the adapter so that its surface fits snugly against the inside of the adapter, as shown in Figures (4) and (5).

Figure (4)
Installation plastic gasket diagram

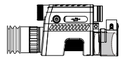


Figure (5) Plastic gasket completed schematic diagram

Step2: After installation, insert the TR-IR NV100 with metal adapter into the eyepiece end of the sniper lens (into the deepest part of the sniper lens and adapter), Then adjusted the quick clip for initial fixation, as shown in Figure (6).

Figure (6) Sniper scope and night vision equipment installation diagram

Step3: Initially fix the night vision and sniper goggles, then turn on the night vision, visually inspect the screen of the TR-IR NV100 fine-tune the metal adapter left, right, up and down, so that the sniper scope display image can be completely displayed on the screen of the TR-IR NV100 and then adjusted the quick clip of the metal adapter, as shown in Figure (7)

Figure (7) Sniper scope and night vision installation renderings completed

The installation and connection are complete.

❸ adjust the picture definition

Step1: Eyepiece adjustment

Adjust the eyepiece diopter adjustment knob until the prompt icon in the upper left corner can be clearly displayed, as shown in Figure (9)

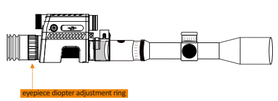


Figure (8) Eyepiece diopter adjustment display effect

Figure (9) Comparison chart before and after eyepiece adjustment

Step2: Objective lens focusing adjustment

Rotate the focus ring of the objective lens clockwise or counterclockwise until the target picture can be clearly displayed. Meanwhile, the cross sight line picture of the sniper lens can also be clearly displayed, as shown in Figure. (10) and (11) to complete the objective lens adjustment.

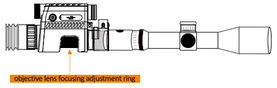


Figure (10) Diagram of objective lens focusing adjustment

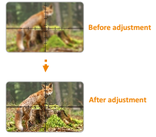


Figure (11) Objective lens focusing adjustment to complete the display effect

Note: If the picture displayed on the screen is incomplete after the adapter is connected with the sniper scope, it is necessary to manually adjust the connection between the sniper scope and the adapter. You can fine-tune the connection between the adapter and the sniper scope upward, downward, left and right. The picture displayed in which direction is offset needs to be adjusted in the opposite direction.

⚠ Warning

❶ Do not look directly at the IR infrared fill light in a short distance,otherwise it will cause damage to the eyes!
❷ The infrared light of this product will gather a lot of energy when it is on. It is strictly prohibited to aim at combustible objects in close range, otherwise it may cause fire. Please turn off the IR infrared light or go to sleep mode when it is not in use!
❸ This product needs to be adapted to an optical telescope with focusing function, otherwise it may not work!
❹ Due to the design of optical path, some telescopes may not be suitable for this product!
❺ Never look at the sun through this night vision device (or any other optical instrument). It may permanently damage your eyes and equipment!

❻ Do not walk, run, or use any form of transportation (bicycle, motorcycle, car, etc.) when viewing through TR-IR NV100, which may prevent you from fully understanding your surroundings, including any potential obstacles or other hazards in your path!
❼ This product is not waterproof. Do not use or store in humid environments.

Maintenance

When using the TR-IR NV100 digital night vision device, please follow the following recommendations, guidelines and precautions:
❶ Keep the device away from any heating, air conditioning vents or other heating equipment, direct sunlight and moisture.
❷ Always store the device in a suitcase in a dry, well-ventilated space with a temperature above +15°C (60°F) and below +48°C (118°F). Do not store near heating equipment, direct sunlight or high humidity (above 70%).
❸ Clean the optical lens with camera lens cleaning products, and clean the outside of the device with a clean soft cloth.
❹ If the device is not used for more than a few weeks, please remove the battery.
❺ Do not drop or shake the device in other ways. Although it has a rugged shockproof design for outdoor use, the device contains complex digital circuitry that can be damaged in extreme circumstances.
❻ Do not open the device or attempt to repair the device in other ways.
❼ Do not pour alcohol or any other liquid directly onto the lens surface.
❽ Do not use paper products (such as newspaper, textbook paper, etc.) to clean the surface of the lens and unit, because it may damage the coating.
❾ Do not attempt to remove the eyepiece, as the LCD display may be damaged.
❿ Do not place the device in direct sunlight or rain.The device is waterproof, but not suitable for prolonged use which exposed to moisture and cannot be immersed in water.
⓫ Wait at room temperature for at least 3 hours after the equipment is operated at temperatures below zero degrees Celsius to avoid the accumulation of condensed water on the internal surface of the lens and the consequent atomization temperature difference due to extreme conditions.

Troubleshooting

(1). The device does not turn on
❶ Reinstall the battery and ensure that the polarity (+/- terminal) direction is correct. Please refer to the silkscreen instructions on the battery installation direction on the cover.
❷ Replace the battery.
❸ Clean the battery compartment, especially the contact points.
(2). Image Fuzzy
❶ Refocus by adjusting the objective lens focusing ring.
❷ Adjust the diopter setting by rotating the eyepiece as necessary until the display icon is clear.
❸ Check the condition of the objective lens surface and eyepiece, and clean it if necessary.
(3). In low-light conditions, the image disappears or degrades in quality.
First make sure you are in night mode and activate infrared lighting, while bright light sources (such as street lamps at night) may cause reduced visibility or contrast, keep the device away from the light source and the visibility will be restored immediately.
(4). Images viewed or recorded at night appear black and white.
This is a normal phenomenon and color cannot be reproduced in dim conditions when infrared lighting is used as the primary source of light.
(5). When taking photos or recording videos, it is prompted that "Please insert TF card".
❶ Check if the insertion method of the TF card is correct.
❷ Press the menu button and format the TF card.

Specifications

Model	TR-IR NV100
Magnification (Digital Zoom)	5X Max
Eyepiece Magnification	18X
Objective Lens Size	Φ32
View(ft@100yds)	23.6' x 21'
Maximum Viewing Distance	200m
Battery	18500x1
Service Time	> 5h(IR on@1W)
Working voltage	3.7V (Typical Value)
Adapter	Less than 48mm
Video Resolution	1920x1080@30fps
Video Format	AVI
Eyepiece Resolution	1024x768
Infrared Power / Wavelength	5W/850nm
Storage Type	TF Card (Support 4G~64G)
Working Temperature	-10~50 ℃
Working Humidity	≤80%
Size	142.5*47*74.2mm
Weight	264g

Accessories

1. TR-IR NV100: 1pc
2. USB Type-C adapter cable: 1pc
3. Connection adapter: 1pc
4. Manual: 1pc
5. Warranty Card: 1pc
6. Battery Charging Stand: 1pc
7. Plastic gaskets
   Thickness:
   1mm （ϕ44mm~ϕ47mm）: 1pc
   2mm （ϕ42mm~ϕ44mm）: 1pc
   3mm （ϕ40mm~ϕ42mm）: 1pc

FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could a
void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.