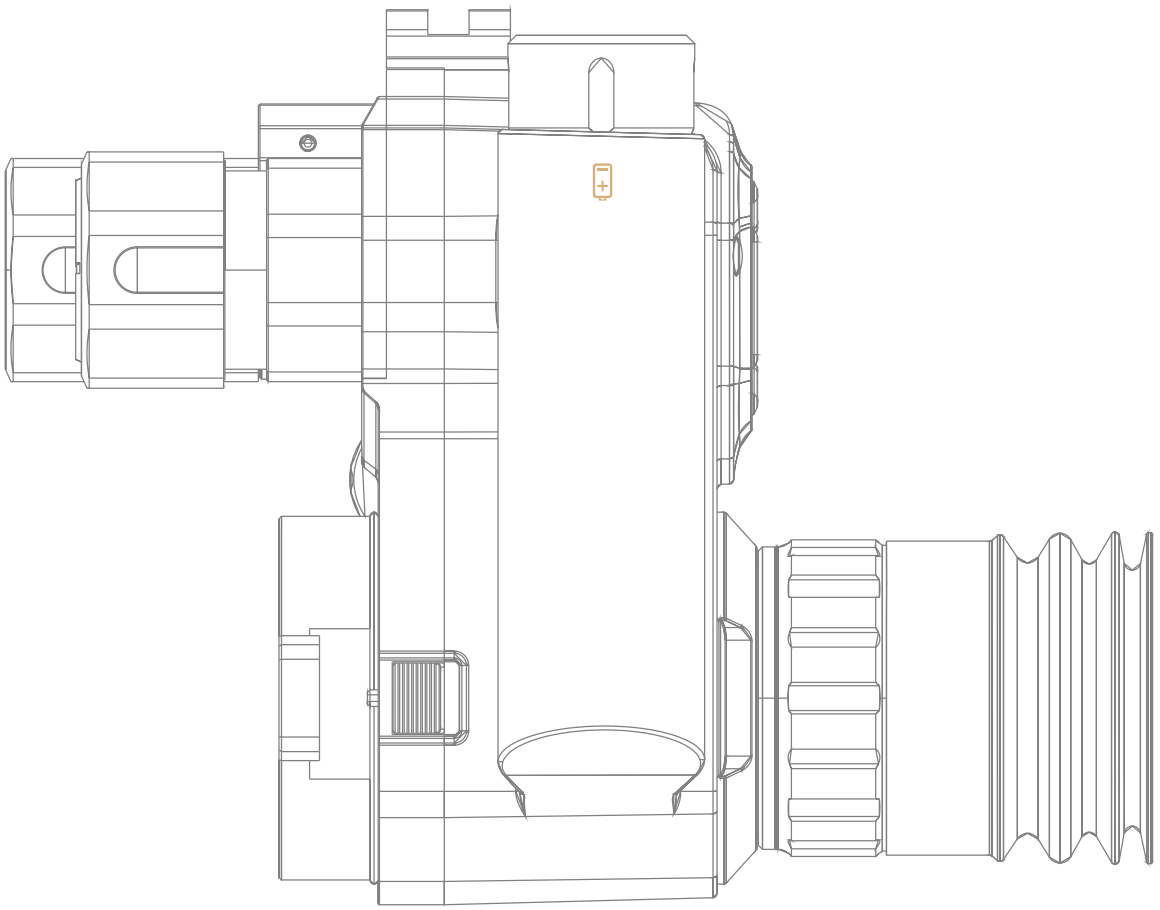
TEN RINGS®
see far & see clear



User Manual

TR-IR-LRF NV201 / 201Pro

Show you a farther world clearly

see far & see clear

DIGITAL DAY & NIGHT VISION SCOPE

TR-IR-LRF NV201 / 201Pro

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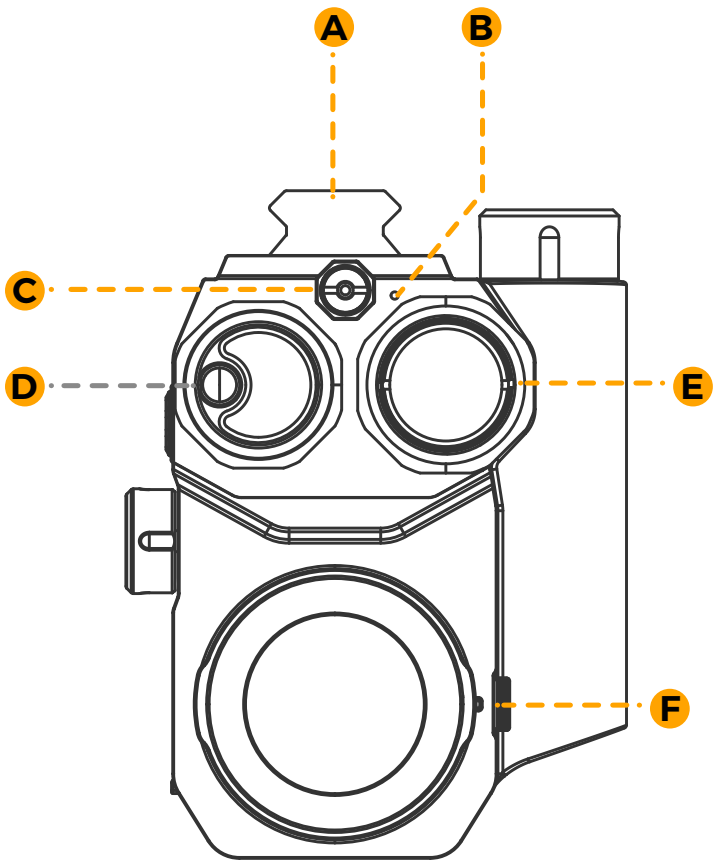
Overview

TR-IR-LRF NV201/201Pro adopts low illumination at night, Sony dynamic CMOS sensor, external IR illuminator. You can obtain excellent observation results both day and night. The novel structure patent design greatly improves the observation effect and experience, and the built-in infrared color filter greatly improves the observation effect of the equipment, reduces the overexposure under natural light during the day, and restores more realistically. TR-IR-LRF NV201/201Pro integrates the laser ranging finder to accurately grasp the target distance while observing or shooting and the ranging distance can reach 1000m.

TR-IR-LRF NV201/201Pro strengthens the waterproof design and reaches the protection level of IP67. Using a single built-in rechargeable battery with a low power consumption design, the model can continuously work up to 8 or 4 (201Pro) hours. In addition, it has advanced fast start-up performance, fast imaging in 3 seconds after booting, which significantly improves the user's quick response ability. The high refresh rate design enables users to observe fast-moving targets effectively. At the same time, equipped with high-quality and high-performance objective lens, it ensures safety and reliability without fear of strong light. When installed on a tripod for distant night observation, the night observation distance can reach 300 meters. It can be connected to cameras, video cameras, and wireless image transmission equipment. At the same time, it integrates the ranging function, and realizes the accurate grasp of the target distance while observing.

TR-IR-LRF NV201/201Pro is a rear clip-on model that uses a adapter to fix with rifle scope, equipped with a detachable 905nm infrared rangefinder module, ensuring accurate testing of the target distance. The built-in WiFi module allows users to record and share videos, and it comes with a Type-C interface for external power supply and data copying at the same time. With support for video recording and exporting, it is mainly used in outdoor night shooting, hunting, outdoor adventure, search and rescue, and it can be clipped on sniper scope to complete night hunting.

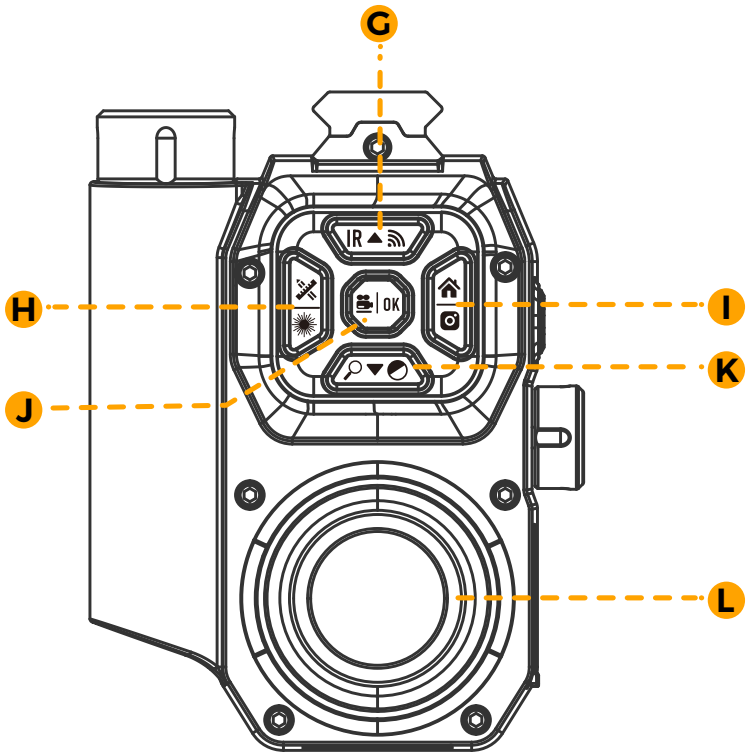
Interfaces



Front View

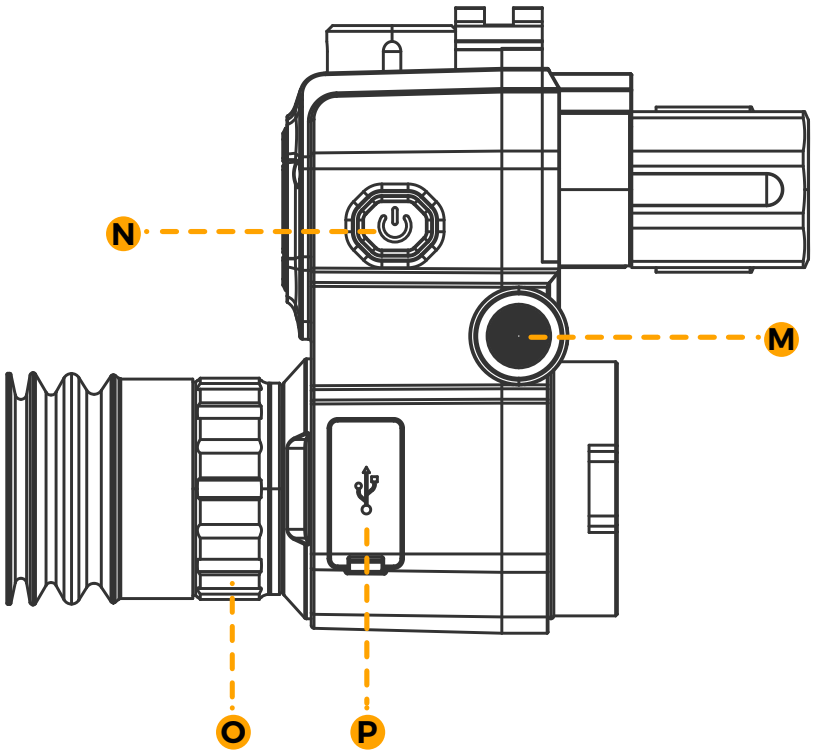
- **A** Picatinny rail, used for the installation of another IR flashlight;
- **B** Photosensitive sensor, detects the brightness of external ambient light, and automatically switches to night vision mode;
- **C** Laser red dot for fast positioning targets at close range;
- **D** Laser range finder, used to measure the distance from the target;
- **E** IR Illuminator for observation at night to make the image clearer;
- **F** Latch, used to insert socket holes and reinforce the connection between the adapter and the TR-IR-LRF NV201/201Pro.

Interfaces



Back View

- **G** Upward / IR Illuminator / WiFi switch;
- **H** Ranging button / Laser red dot switch / Leftward;
- **I** Menu / Photo / Rightward;
- **J** OK button / Video;
- **K** Downward / Zoom (+) or Zoom (-) / Black & white or Color mode Switch;
- **L** Eyepiece lens.



Left View

M Objective lens focusing rotation ring;

N Power button, power on/off the device;

O Eyepiece lens focusing rotation ring;

P TF card slot / HDMI interface/ Type-C power & data Interface.

Working Principle

The TR-IR-LRF NV201/201Pro digital day & night vision scope collects external light through the objective lens, and then converts the optical signal into electrical signal through the digital CMOS sensor module. This signal is then transmitted to the CPU chipset for processing in the format of MIPI signals. Finally, the electrical signal is transmitted to the OLED screen, allowing users to view the image on the OLED screen on the eyepiece.

The TR-IR-LRF NV201/201Pro digital day & night vision scope features a powerful high brightness dimmable IR Illuminator that can help image objects clearly and display them on the OLED screen in low light and total darkness. The OLED display screen has high resolution and adjustable brightness. The image display adopts digital zoom, allowing users to magnify the displayed image by 1x, 2x, 3x, 4x, and 5x (optional).

The infrared laser ranging module emits a very thin laser beam towards the target during operation, and the photoelectric element receives the laser beam reflected by the target. The timer measures the time from the launch to the reception of the laser beam, and calculates the distance from the observer to the target. Finally, it is displayed on the OLED screen.

Installation Instructions

Battery Installation

Please use one 3.7V 18650 Li-ion battery. Remove battery compartment cap and make sure to set the positive polar towards to the direction inward. Put the cap back and screw it until tight.

Focusing Adjustments

After the battery is installed, firstly adjust the eyepiece diopter, rotate the eyepiece lens focusing rotation ring until the four-corner text icon on the screen is clearly displayed (no need to see the image clearly), then

adjust the objective lens focusing rotation ring until the target is clearly seen. If it is used together with an optical telescope, it is necessary to install a adapter connection and fix it behind the optical telescope. The focusing ring of the objective lens of the digital day & night vision scope can be rotated until the reticle of the optical telescope is clearly seen, and then the basic adjustment is completed.

Adapter Connection

Connect the digital day & night vision scope to the adapter. When the adapter is inserted into the groove of the device, the adapter and the device can be fixed with the hexagon socket head screw.

Sniper Scope Installation

Insert the optical telescope eyepiece until the bottom, and observe the gap between the adapter and the optical telescope eyepiece. It is recommended that the gap between the adapter and the eyepiece of the optical telescope should be less than 0.1mm, and the adapter is suitable for eyepieces with a diameter of ≤48mm. If the gap is insufficient, fill gaps with the supplied rubber shims. By adjusting the focusing wheel of the digital day & night vision scope objective lens, you can see the reticle of the optical telescope, turn the device to make the reticle of the optical telescope horizontal, and finally fix the ferrule with the hexagon socket.

Instructions for Use

Turn On / Off

A. Long press the button(3s) to enter "Power on/off" mode.
B. When at the "power on" status, short press the button(1s) to enter "wake-up/sleep" mode.

Instructions for Use

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 rotation 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. Aiming at the target you want to see, adjust the focusing rotation ring of the objective lens so that the target image can be clearly seen.

Fill Light Adjustment

Long press the black & white mode button, and enter the black & white mode after hearing the "click" sound. Then press the IR button to adjust the level of the fill light (set IR 1-3 and close), and adjust the focusing fill light by stretching the fill light.

Menu Operation Instructions

1. Reticle Center Position Adjustment

Press the ⌂ button, and press the OK button to select the "Reticle Center Position Adjustment" option, long press(3s) the OK button and then pop up with Reset/Save two options, select the “Reset” and adjust the XY coordinate

position of the center of the reticle. Press ▲ and ▼ to adjust the Y coordinate of the center line. Press ◀ and ▶ to adjust the X coordinate of the center line. After completion, press "ok" button to select the “Save”. Choose "Reset" can cancel all the X/Y configuration and go back to default state.

※ This feature is only available for certain batches of products.

2. Language

Languages, include "Chinese / English / Spanish / Portuguese / French / German / Italian / Polish / Turkish / Russian". After confirmation, the system can realize the switch of the corresponding language.

3. Picture in Picture

Press the ⌂ button firstly and press the ▼ button to select the option "Picture in Picture", and press the OK button to enter the "PIP" option, then pop up with options such as "Off/2x/4x/6x". When finished, press the OK button to return to the previous menu. You can choose 2x/4x/6x magnification according to the actual observation requirements, or turn off this function. This function is turned off by default.

4. Ranging

Press the ⌂ button firstly and press the ▼ button to select the option "Ranging", and press the OK button to enter the"Ranging" option, and then pop up with the "Off/Single Ranging/Continuous Ranging/Ranging unit". Users can choose the appropriate ranging mode according to your needs."Off": Turn off the ranging mode; "Single Ranging": Press the OK

button to select it and return to the first-level menu interface. Press the button again to return to the desktop, and "0.0ft" will pop up in the lower right corner of the reticle. Aiming at the target, short press the button to carry out a single ranging, and press and hold the button until the ranging data in the lower right corner of the reticle disappears, and exit the ranging mode. "Continuous Ranging": After pressing the OK button to select, the prompt interface "Battery life will be shortened" will pop up, press "OK" to enter the "Continuous Ranging Mode" to return to the menu. At the same time, "0.0ft" will pop up in the lower right corner of the cross sight. Aiming at the target, short press the button to carry out continuous ranging, the distance value of the test will be updated in real time. The update frequency is 1Hz, press and hold button until the ranging data in the lower right corner of the reticle disappears and exits the ranging mode; The "Ranging unit" option can be used to set the distance measurement unit. Press the and to select the distance unit "m/ft", and then press the OK button to select and exit.

5. G Sensitivity

Press the button firstly and press the button to select the option "G sensitivity", and press the OK button to enter the "G sensitivity" option, and then pop up with three options such as "high/medium/low". Press OK button to select the desired items, and return to the previous menu. Users can choose the option according to actual needs.

6. Pitch Angle

Press the button firstly and press the button to select the option "Pitch Angle", and press the OK button, select the "Pitch Angle" option, and then pop up with the "off/on" option, press the OK button to select

the desired item, and return to the previous menu. Users can choose to turn the pitch angle on or off according to the actual needs of the real-time display.

7. Default Color

Press the button firstly and press the button to select the option "Default Color", and press the OK button to enter the sub-menu, and press the button to select the "Default Color" option, then press OK button to select the required color mode.

8. LCD Brightness

Press the button firstly and press the button to select the "LCD Brightness" option, then adjust the brightness on the pop-up sub-menu, including "1(Super Dark)", "2(Dark)", "3(Normal)", "4(Bright)", and "5(Super Bright)".

9. IR Illuminator

Press the button firstly and press the button to select the "IR Illuminator" option, and press the OK button to enter the sub-menu.
The sub-menu will pop up with "Off", "Auto" 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. when in black & white mode, it can be adjusted and turned off by adjusting the IR button.

Menu Operation Instructions

Note: The "Auto" option is related to the sensor. After choosing "Auto" option, the IR Illuminator will be automatically on when the environment light is low and automatically off when the environment light is bright.

10. Exposure

Press the button firstly and press the button to select the "Exposure" option, and press the OK 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. After confirmation, the system can realize the corresponding exposure compensation intensity.

11. Automatic Recording

Press the button firstly and press the button to select the "Automatic Recording" option, and press the OK 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 that pops up. After confirmation, the system will automatically enter the recording mode to record the external scenery in real time.

12. Loop Recording

Press the button firstly and press the button to select the "Loop Recording" option, and press the OK 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. After confirmation, the system will automatically enter the loop recording mode to record the external scenery in real time and in a loop.

13. Playback

A. Press the button to enter the playback; B. Delete: Press " ▲ " ,▼ ", " ◀ ", " ▶ " to select the file you want to delete and short press the OK button, click the button, then pop up with"Delete Current/Delete All" option; Exit: long press OK button(3s) to return or exit

14. Audio Synchronization

Press the button firstly and press the ▼ button to select the "Audio Synchronization" option, and press the OK button to enter the sub-menu. And press the ▼ button to select the "Audio Synchronization" option, then select "On" or "Off" on the pop-up sub-menu to select whether to record video with voice input.

15. Date Stamp

Press the button firstly and press the ▼ button to select the "Date Stamp" option, and press the OK button to enter the sub-menu, then press the ▼ button to select the "Date Stamp" option, and then select "On" or "Off" on the pop-up sub-menu to select whether to show the date label for videos and photos.

16. WiFi

Press the button firstly and press the ▼ button to select the "WiFi" option, and press OK button to enter the sub-menu, and press ▼ button to select the WiFi option, and then select "On" or "Off" on the sub-menu. After confirmation, the system can realize the On / Off of the WiFi.

Note: WiFi starts with "Ten Rings" and the default password is 12345678. You need to download the corresponding "TenRings Shots" software from APP store, or scan the QR code attached to this manual. The password can be changed on the APP

Menu Operation Instructions

17. Date/Time

Press the button firstly 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 OK button to jump to the month setting, press the or button to adjust the month. After the adjustment, press the OK button to jump to date setting, and press the or button to adjust the date. After the adjustment, press the OK button to jump to hour setting, and press or button to adjust the hour. After the adjustment, press OK button to jump to minute setting, and press or button to adjust the minute. After the adjustment, press the OK button to jump to second setting, and press or button to adjust the second. After the adjustment, press the button to jump to date display format. Press up or down to select three display formats: "YY/MM/DD", "MM/DD/YY", "DD/MM/YY". After confirmation, you can press the button to exit.

18. Format

Press the button firstly and press the button to select "Format" option, and press the OK button to enter the sub-menu, and then select "TF Card" on the pop-up sub-menu, press the OK button to confirm. After confirmation, "Cancel" and "OK" options will pop up, press button again to select "OK" option, and finally press OK button to format the memory card. Please choose carefully because the data cannot be recovered after deletion!

19. Default Setting

Press the button firstly and press the button to select the "Default Setting" option, and press the OK button to enter the sub-menu, and

then select "OK" or "Cancel" on the pop-up sub-menu. Press ▼ button to select "OK" option, and press the OK button to restore the system to the factory default settings. Please operate carefully!

20. Version

Press the ⌂ button firstly and press the ▼ button to select the "Version" option, then software version information and serial number will be displayed on the screen by pressing the OK button.

Instructions for Shortcut Button Operation

1. ⌂/● Button

   Short press (<1s) to the menu option, and long press (≥1s)to take a photo;

2. 📹/OK Button

   Short press (<1s) to do item select, long press (≥1s) to open the video recording function;

3. IR/▲/((•)) Button

   Firstly, long press the ◒ (>1s) to switch to black & white mode, then short press(<1s) the IR button to adjust the IR Illuminator (IR1-3/Off) long press (≥1s) to turn on & off WiFi;

4. 🔍/▼/◒ Button

   Short press (<1s) to realize Zoom (+) or (-), long press (≥1s) to switch to black & white or color mode;

5. ✎/✺ Button

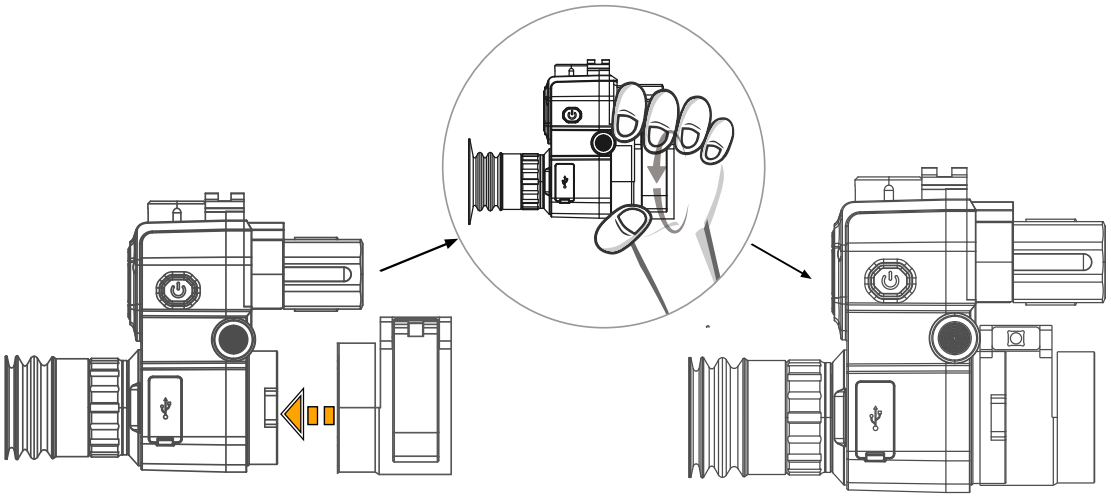
   Short press (<1s) to turn on or off the laser red dot (before ranging) ; long press (≥3s) to enter the ranging mode. then short press (≥1s) to start ranging.

Installation Diagram

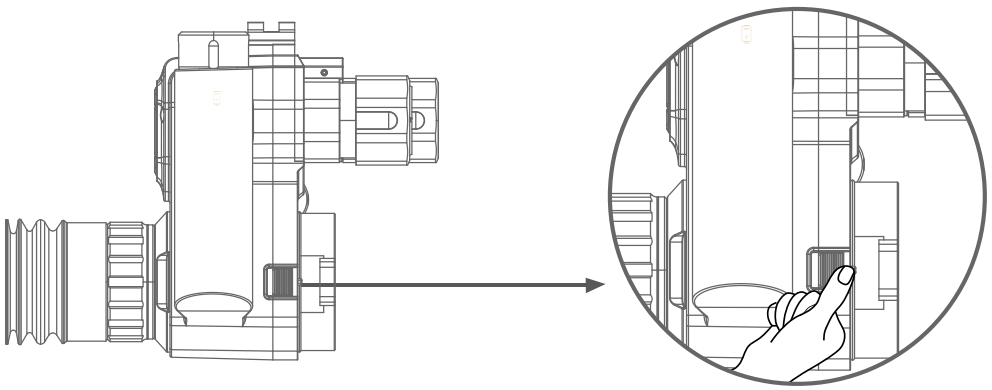
Installation diagram of TR-IR-LRF NV201/201Pro on sniper scope

1. Take out the night vision device and the metal adapter.

Installation: Align the grooves of the adapter with the convex grooves of the night vision device, and then tighten the adapter clockwise. When the needle of the latch slides into the hole of the adapter, installation is complete.

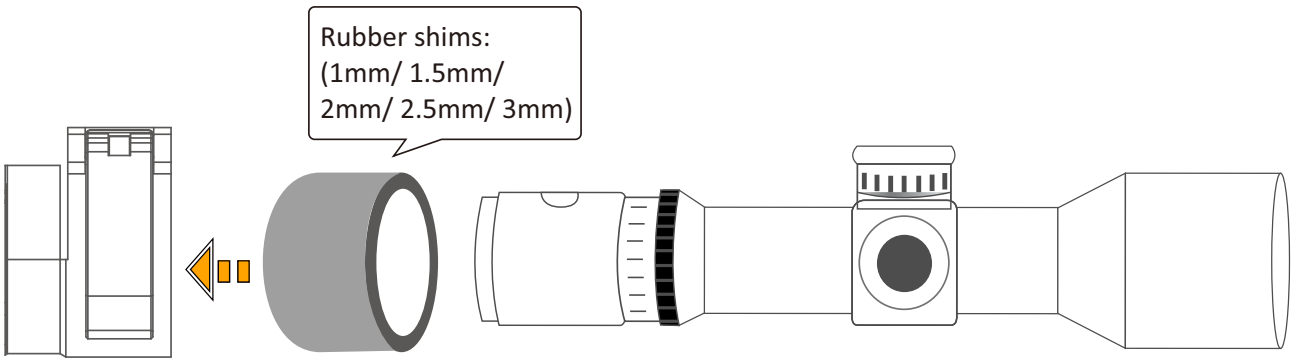


Separation: Pull the latch backwards, and then rotate the adapter counterclockwise.



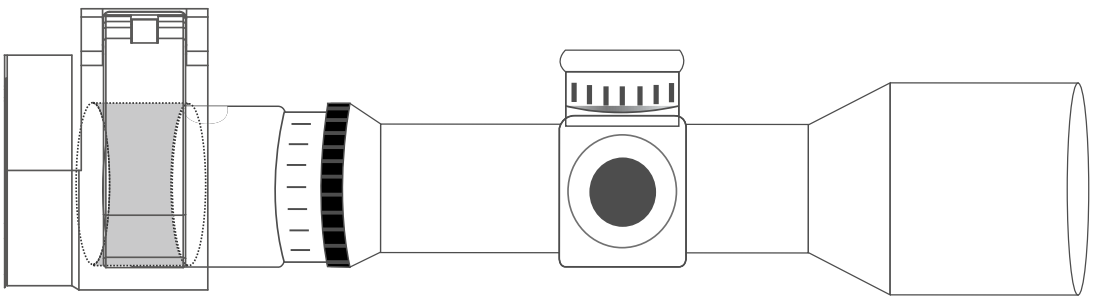
2. Connect the metal adapter with the sniper scope installed to the night vision device by the following steps.

Step1: The product is equipped with rubber shims of different thickness (1mm/1.5mm/2mm/2.5mm/3mm). Choose a suitable rubber shim and place it snugly inside the adapter.

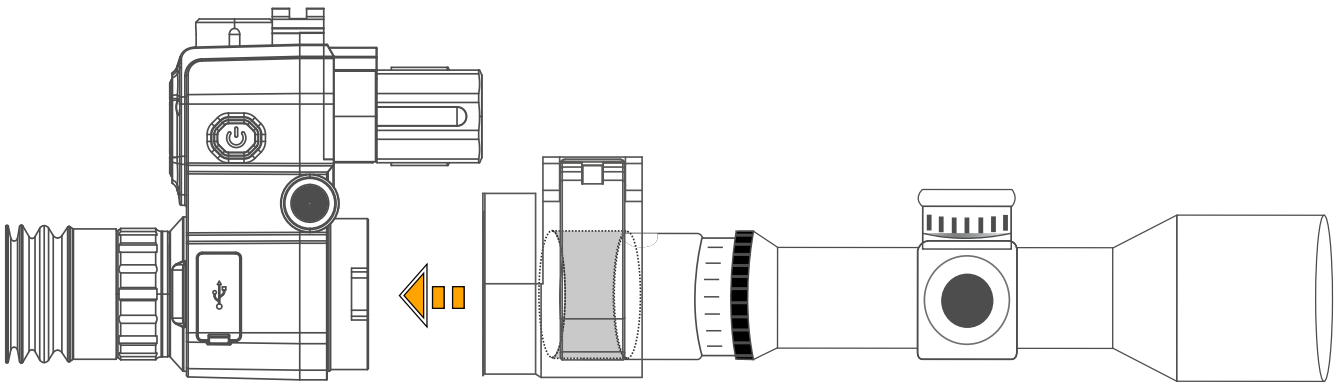


Installation rubber shim diagram

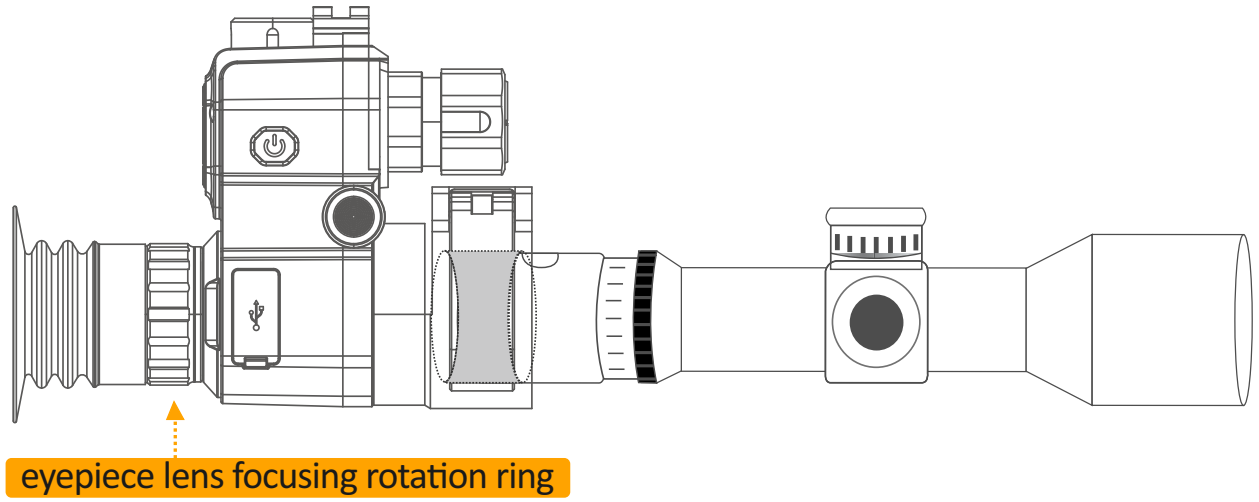
Step2: Insert the adapter into the eyepiece of the sniper lens. Noted that the deepest joint does not exceed the empty slot of the adapter.



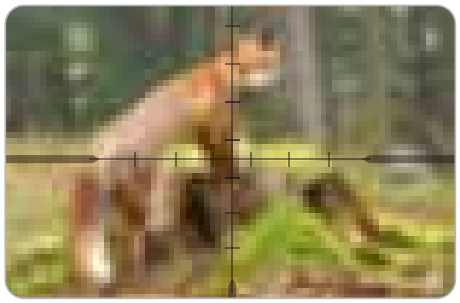
Step3: Align the grooves of the adapter with the convex grooves of the night vision device, and then tighten the adapter clockwise.



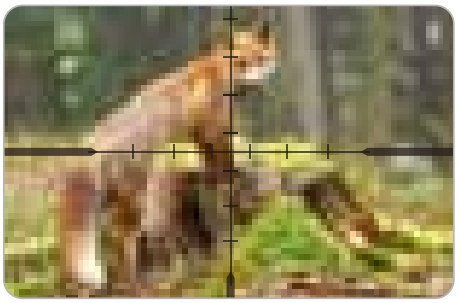
Step4: Initially fix the night vision device and sniper scope, then turn on the device to visually inspect its screen. Loosen the adapter wrench to fine-tune the sniper scope so that the reticle can be centered horizontally on the device's screen. Finally, tighten the adapter wrench.



Installation Diagram



Before adjustment



After adjustment

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, leftward and rightward. The picture displayed in which direction is offset needs to be adjusted in the opposite direction.

If the image on the screen is still unclear after adjusting the focus ring of the objective lens, try the following:
1. Adjust the focus ring of the optics scope;
2. Rotate the optics scope eyepiece counterclockwise 3 times to stretch the edge of the eyepiece, and then attach the adapter, then adjust the objective focus ring again until you can see the crosshair clearly.

⚠ Warning

1. Do not look directly at the IR Illuminator in a short distance, otherwise it will cause damage to the eyes!
2. 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 infrared light or go to sleep mode when it is not in use!
3. This product needs to be adapted to an optical telescope with focusing function, otherwise it may not work!

4. Due to the design of optical path, some telescopes may not be suitable for this product!
5. Never look at the sun through this night vision device (or any other optical instrument). It may permanently damage your eyes and equipment!
6. Do not walk, run, or use any form of transportation (bicycle, motorcycle, car etc.) when viewing through TR-IR-LRF NV201/201Pro. Doing so may prevent you from fully understanding your surroundings, including any potential obstacles or other hazards in your path!

Maintenance

When using the TR-IR-LRF NV201/201Pro digital night vision device, please follow the following recommendations, guidelines and precautions:

1. Keep the device away from any heating, direct sunlight, moisture, air conditioning vents or other heating equipment.
2. Always store the device in a suitcase in a dry, well-ventilated space with a temperature above +15℃ (60℉) and below +48℃ (118℉). Do not store near heating equipment, in direct sunlight or high humidity (above 70%).
3. Clean the optical lens with camera lens cleaning products, and clean the outside of the device with a clean soft cloth.
4. If the device is not used for more than a few weeks, please remove the battery.
5. 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.

6. Do not open the device or attempt to repair the device in other ways.
7. Do not pour alcohol or any other liquid directly into the lens surface.
8. 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.
9. Do not attempt to remove the eyepiece, as the LCD display may be damaged.
10. 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.
11. Wait at room temperature for at least 3 hours after the equipment is operated at temperatures below zero degrees Celsius to prevent the accumulation of condensed water on the internal surface of the lens and the consequent atomization caused by extreme temperature differences.

Troubleshooting

1. The device does not turn on

1. 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.
2. Replace the battery.
3. Clean the battery compartment, especially the contact points.

Troubleshooting

2. Image Fuzzy

1. Refocus by adjusting the objective lens focusing adjustment ring.
2. Adjust the diopter setting by rotating the eyepiece as necessary until the display icon is clear.
3. 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 a decrease in 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".

1. Check if the insertion method of the TF card is correct.
2. Press the menu button and format the TF card.

Technical Specifications

Product Model	TR-IR-LRF NV201 I TR-IR-LRF NV201Pro
Product Name	Digital Day & Night Vision Scope
Power Supply	
Power Supply Mode	3.7V Li-ion battery
Voltage Range	3.5-4.2V
Power Consumption	1W(IR is not turned on)
Working Time with Battery	⩽8h
Objective Lens Parameters	
Magnification	2X
Pixel	5M
Focal Length	16mm (fixed focus), manual focus
Objective Lens Size	Φ16
View(ft@100yds)	22°×16°
Eyepiece Lens Parameters	
Entrance Pupil Diameter	6mm
Magnification Power	18X I 14X
Eye Relief	35mm/50mm
Focusing Angle Range	−5D~+5D
Operation Control	Manual focus

Technical Specifications

System Parameters

Sensor Resolution	1080P (1920 × 1080)	4K (3840×2160)
Internal RAM	2Gb	4Gb
Measurement Range	5-1000m	
Video Resolution	1920x1080@30fps	3840X2160@30fps
Image Format	JPG	
Display Resolution	1024x768	
Display Size	OLED 0.39"	
WiFi	802.11b/g/n	
Storage Type	TF Card (support 4G~128G)	
Infrared Power/Wavelength	2W/3W/5W three gears, 850nm/940nm	
Geomagnetism	3-axis Gyroscope	
Reticle Shape	6 Types	
Picture-in-Picture Enhanced Magnification	Support	
Playback	Support	
Video Transmission	HDMI/WiFi	
Type-C Interface	Battery charge and data transfer	
Language	Chinese / English / Spanish / Portuguese / French / German / Italian / Polish / Turkish / Russian	

Connection Adapter

Size	≥48mm

Reliability	
Mean Time Between Failures	>50000h

Mechanical	
Dimensions (L*W*H)	143*82*113（mm）
Housing	Plastic & aluminium alloy
Body Color	Black
Net Weight	≈360g

Environmental	
Operating Temperature	-25℃~50℃
Storage Temperature	-30℃~75℃

Package Contents

1. TR-IR-LRF NV201/201Pro: 1pc
2. USB Type-C power & data cable: 1pc
3. Connection Adapter: 1pc
4. User Manual: 1pc
5. Warranty Card: 1pc
6. Battery Charging Stand: 1pc
7. Quick Start Guide: 1pc
8. Screwdriver: 1pc
9. Rubber shims
Thickness:
1mm (44mm~47mm) : 1pc
1.5mm (43.5mm~46.5mm) : 1pc
2mm (42mm~44mm) : 1pc
2.5mm (41.5mm~43.5mm) : 1pc
3mm (40mm~42mm) : 1pc
10. Seal
For adapter: 1pc
For battery cover: 1pc
11. Velvet pouch: 1pc

TenRings Shots APP

Download on the **Android**

GET IT ON App Store

Rapid connection

Connect phone to device via WiFi.
Enjoy rocket speed.

Capture the moments

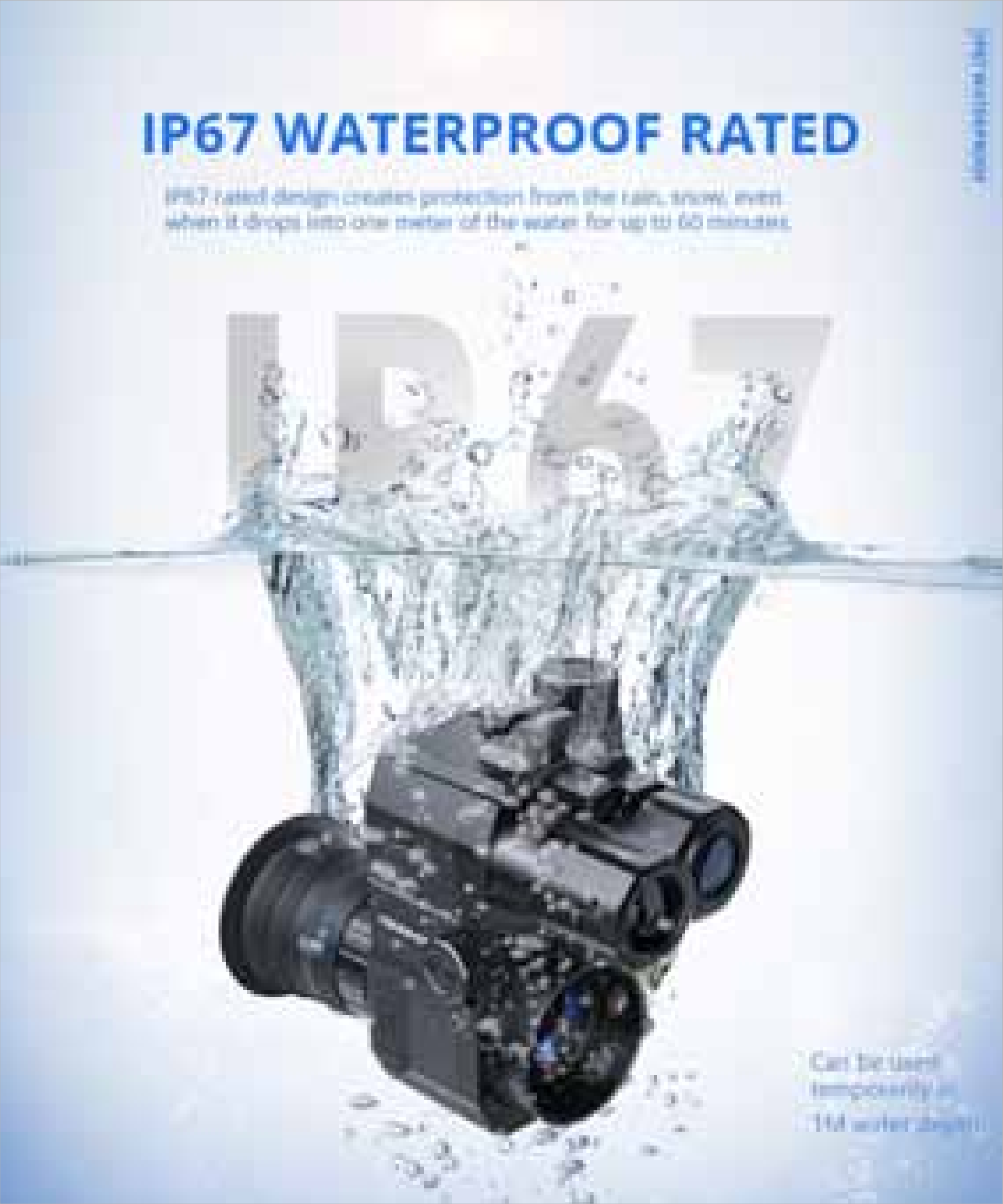
Easily control your device to
record or take photos

File Management

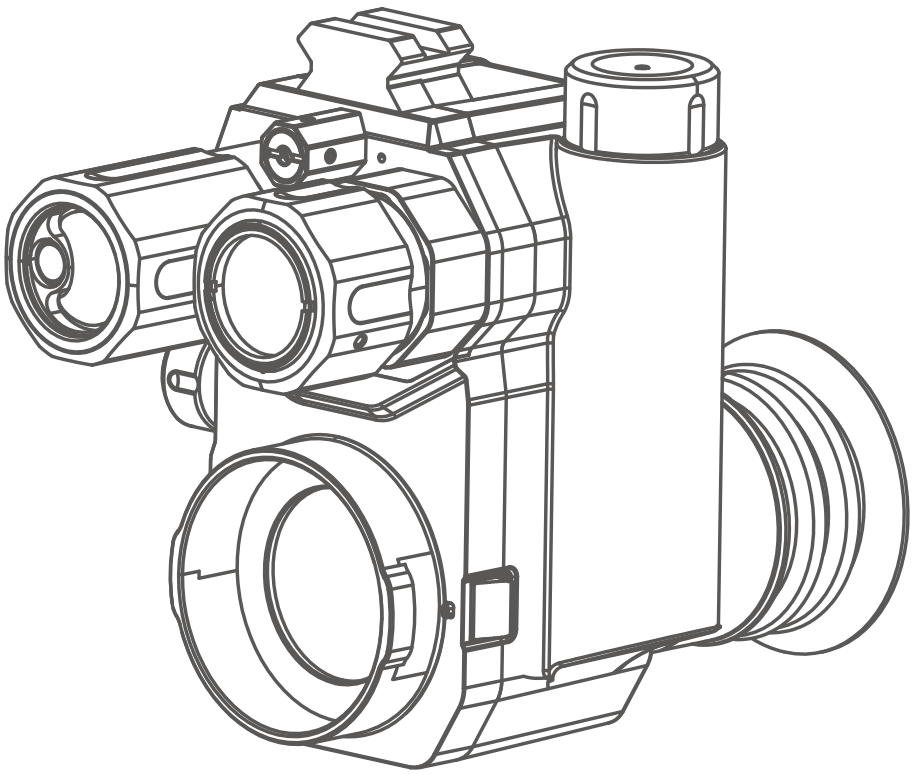
Preview, edit, download. Embrace
worry-free administration

IP67 WATERPROOF RATED

IP67 rated design creates protection from the rain, snow, even when it drops into one meter of the water for up to 60 minutes.



Can be used temporarily at 1M water depth



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Note: Design and specifications are subject to change without prior notice.