

# User Manual

TR-IR NV200 / 200Pro





see far & see clear



# DIGITAL DAY & NIGHT VISION SCOPE



**TR-IR NV200 / 200Pro**

# Contents

<b>Overview</b>	<b>01</b>
<b>Interfaces</b>	<b>02-04</b>
<b>Working Principle</b>	<b>05</b>
<b>Installation Instructions</b>	<b>05</b>
Battery Installation.....	05
Focusing Adjustments.....	05
Adapter Connection.....	06
Sniper Scope Installation .....	06
<b>Instructions for Use</b>	<b>06</b>
Turn On/Off.....	06
Eyepiece Lens Focusing .....	06
Objective Lens Focusing.....	07
Fill Light Adjustment .....	07
<b>Menu Operation Instructions</b>	<b>07</b>
Reticle Center Position Adjustment .....	07
Language .....	08
Picture in Picture .....	08
G Sensitivity .....	08
Pitch Angle.....	08
Default Color.....	09
LCD Brightness.....	09
IR Illuminator.....	09
Exposure.....	10
Automatic Recording .....	10
Loop Recording.....	10
Playback .....	10
Audio Synchronization .....	10
Date Stamp.....	11
WiFi .....	11
Date/Time.....	12
Format.....	12
Default Setting .....	12
Version.....	13
<b>Instructions for Shortcut Button Operation</b>	<b>13</b>
<b>Installation Diagram</b>	<b>14-17</b>
<b>Warning</b>	<b>17</b>
<b>Maintenance</b>	<b>18</b>
<b>Troubleshooting</b>	<b>19-20</b>
<b>Technical Specifications</b>	<b>21-23</b>
<b>Package Contents</b>	<b>23</b>

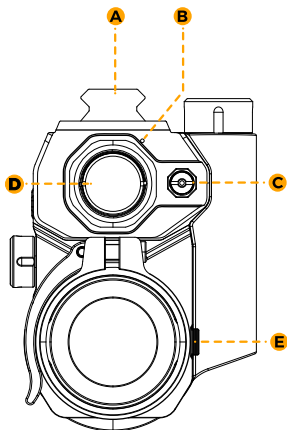
## Overview

TR-IR NV200/200Pro 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 observation experience, and the built-in infrared color filter greatly improves the observation effect of the equipment during the day, reduces the overexposure under natural light during the day, and restores more realistically.

TR-IR NV200/200Pro 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 continuous working time can reach more than 5 hours, meeting the requirement of using without changing the battery all night. 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 the operator to obtain the ability to observe fast-moving targets. At the same time, it is equipped with high-quality and high-performance objective lens, making it safe and reliable without being afraid of strong light. When installed on a tripod for long-distance night observation, the night observation distance can reach 300 meters, and it can be connected to cameras, video cameras, and wireless image transmission equipment.

TR-IR NV200/200Pro is a rear clip-on model. The built-in WiFi module allows users to record and share videos, and comes with a Type-C interface for external power supply and data copying at the same time. It supports video recording and exporting. It is mainly used in outdoor night shooting, hunting, outdoor adventure, search and rescue, and can be clipped onto a sniper scope to complete night hunting.

## Interfaces

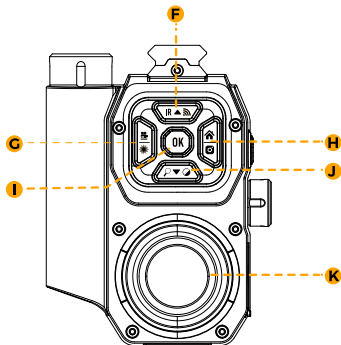


**Front View**

- A** Picatinny rails, 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 of targets at close range;
- D** IR Illuminator for observation at night to make the image clearer;
- E** Latch, which is used to insert socket holes and reinforce the connection between the adapter and the TR-IR NV200/200Pro;

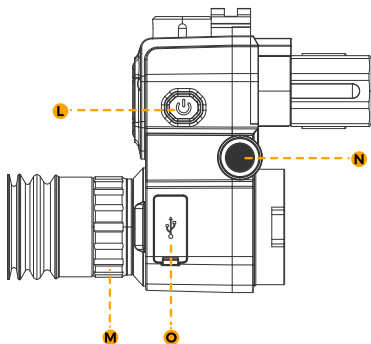


## Interfaces



**Back View**

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



**Left View**

- L** Power button, power on/off the device;
- M** Eyepiece lens focusing rotation ring;
- N** Objective lens focusing rotation ring;
- O** TF card slot / HDMI interface/ Type-C power & data Interface.



## Working Principle

The TR-IR NV200/200Pro 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 NV200/200Pro digital day & night vision scope features a powerful high brightness dimmable IR illuminator that can help to image object clearly and display them on the OLED screen in low light and total darkness scenery. 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).

## Installation Instructions

### Battery Installation

Please use one 3.7V 18650 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.

### Focusing Adjustments

After installing the battery, 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), and then adjust the objective lens focusing rotation ring until the target is clearly seen; If used in conjunction with an optical telescope, it is necessary to install a adapter connection and fix it behind the optical telescope. Rotate the focusing ring of the objective lens on the digital day & night vision scope 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 be less than 0.1mm, and the adapter is suitable for eyepieces with a diameter of  $\leq 48\text{mm}$ . 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.

### 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.

## Instructions for Use

**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, and 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 the **OK** button (3s) 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.

## Menu Operation Instructions



### 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". Then 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. 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 the **OK** button to select the desired items, and return to the previous menu. Users can choose the option according to actual needs.

### 5. 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 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.

## Menu Operation Instructions





### 6. Default Color

Press the  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  button to select the required color mode.

### 7. 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)".

### 8. IR Illuminator





Press the  button firstly and press the  button to select the "IR Illuminator" option, and press the  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.

**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.





## 9. Exposure

Press the  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. After confirmation, the system can realize the corresponding exposure compensation intensity.







## 10. Automatic Recording

Press the  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 that pops up. After confirmation, the system will automatically enter the recording mode to record the external scenery in real time.

## 11. Loop Recording



Press the  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. After confirmation, the system will automatically enter the loop recording mode to record the external scenery in real time and in a loop.

## 12. Playback





A. Press the  button to enter the playback; B. Delete: Press "", "", "", "" to select the file you want to delete and short press the 






## Menu Operation Instructions

button, click the  button, then pop up with "Delete Current/Delete All" option; Exit: long press  button(3s) to return or exit





### 13. Audio Synchronization

Press the  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 to select whether to record video with voice input.

### 14. Date Stamp

Press the  button firstly and press the  button to select the "Date Stamp" option, and press the  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.






















### 15. WiFi

Press the  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. After confirmation, the system can realize the On / Off of the WiFi.







WiFi starts with "Ten Rings" and the default password is

**Note:** 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.




## 16. 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  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, and press the  or  button to adjust the date. After the adjustment, press the  button to jump to hour setting, and press  or  button to adjust the hour. After the adjustment, press  button to jump to minute setting, and press  or  button to adjust the minute. After the adjustment, press the  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.

## 17. Format

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

## 18. Default Setting

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

## Menu Operation Instructions

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!

### 19. 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 entry or exit the menu option, and long press (≥1s) to take a photo.

#### 2 OK Button

Short press(<1s) to do item select.

#### 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

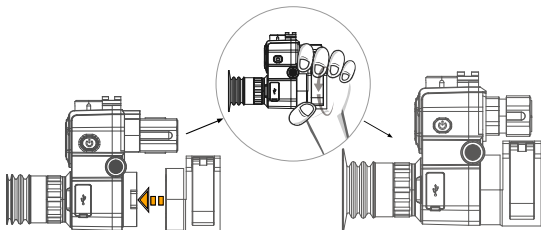
Short press (<1s) to turn on or off the laser red dot (before ranging); long press (≥1s) to open the video recording function;

## Installation Diagram

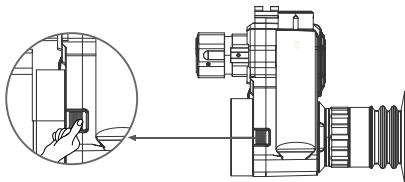
### Installation diagram of TR-IR NV200/200Pro on sniper scope

#### 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.

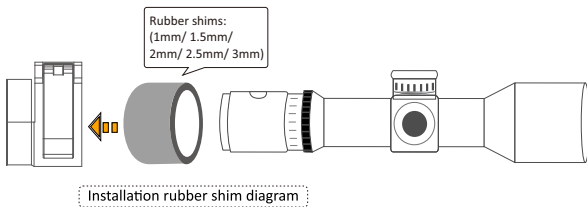


**Separation:** Pull the latch backwards, and then rotate the adapter counterclockwise.

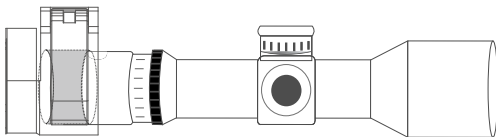


## 2. Connect the metal adapter with the sniper scope installed to the night vision device by the following steps.

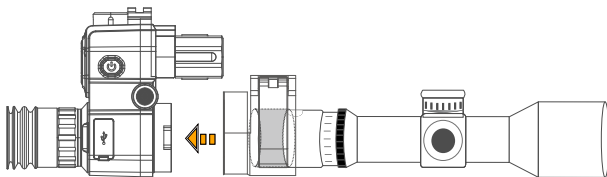
**Step1:** The product is equipped with rubber shims of different thickness (1mm/1.5mm/2mm/2.5mm/3mm). Choose a suitable rubber shim and place it snugly inside the adapter.



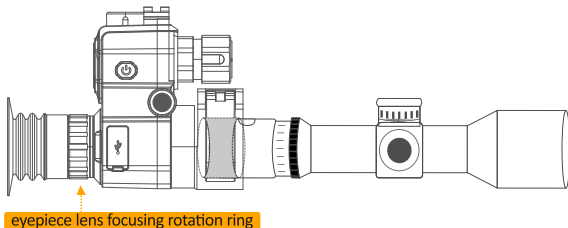
**Step2:** Insert the adapter into the eyepiece of the sniper lens. Noted that the deepest joint does not exceed the empty slot of the adapter.



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



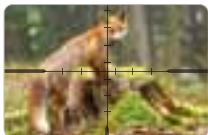
**Step4:** Initially fix the night vision device and sniper scope, then turn on the device to visually inspect its screen. Loosen the adapter wrench to fine-tune the sniper scope so that the reticle can be centered horizontally on the device's screen. Finally, tighten the adapter wrench.



## 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

- ❶ Do not look directly at the IR Illuminator 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 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!

- 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 NV200/200Pro. 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 NV200/200Pro 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°C (60°F) and below +48°C (118°F). 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.



## Maintenance

- 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 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

- 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 NV200   TR-IR NV200Pro
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
Field of View	22°×16°

### Eyepiece Lens Parameters

Entrance Pupil Diameter	6mm
Magnification Power	18X   14X
Eye Relief	35mm/50mm
Focusing Angle Range	-5D~+5D
Operation Control	Manual focus

### System Parameters

Sensor Resolution	1080P   4K (1920 × 1080) (3840 × 2160)
-------------------	-------------------------------------------



## Technical Specifications

### System Parameters

Internal RAM	2Gb	I	4Gb
Video Resolution	1080P (1920x1080@30fps)		4K (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		
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
----------------------------	---------

## Technical Specifications

### Mechanical

Dimensions (L*W*H)	143*82*113 (mm)
Housing	Plastic & aluminium alloy
Body Color	Black
Net Weight	≈330g

### Environmental

Operating Temperature	-25°C~50°C
Storage Temperature	-30°C~75°C

## Package Contents

- |                                                                                                                                                                        |                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| 1. TR-IR NV200/200Pro: 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<br>Thickness:<br>1mm (44mm~47mm) : 1pc<br>1.5mm (43.5mm~46.5mm) : 1pc<br>2mm (42mm~44mm) : 1pc<br>2.5mm (41.5mm~43.5mm) : 1pc<br>3mm (40mm~42mm) : 1pc | 10. Seal<br>For adapter: 1pc<br>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

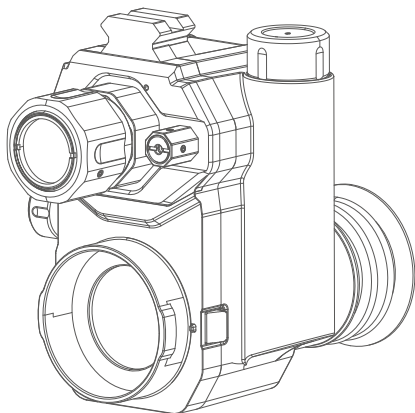
IP67 rated design creates protection from the rain, snow, even when it drops into one meter of the water for up to 60 minutes.



Can be used temporarily at 1M water depth











Shenzhen Ten Rings Optics Co., Ltd.

E-mail: [info@tenrings.cn](mailto:info@tenrings.cn)

Web: [www.tenrings.cn](http://www.tenrings.cn)



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