Thermal Scope with Laser Rangefinder Manual

Model：ONT-OSP-5XMAG

【Contents】

【Safety Guidelines】

⚠ Choking Hazard

Children must use this product under parental supervision. Please keep packaging materials (such as plastic bags, rubber bands, etc) away from children, as there is a risk of suffocation.

⚠ Fire Hazard

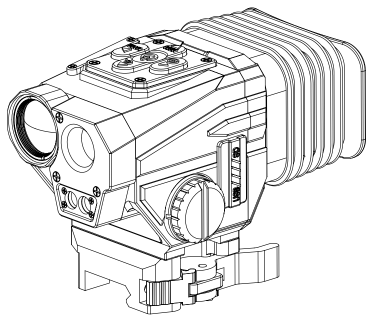
Do not expose the product, especially the lens, to direct sunlight to avoid fire risk and product damage. Do not place it in high-temperature environments. Do not leave the thermal imaging camera in a car during hot weather or under direct sunlight. Also, avoid placing it near heating equipment, as this may affect performance.

⚠ Do Not Disassemble the Product

Do not disassemble the product without permission. If the product fails, please contact the dealer.

【Use Environment and Precautions】

The thermal imager should be stored in a soft bag. The operating environment should be between -13°F and +122°F, with relative humidity not exceeding 80%.
Thermal Imager should be stored in a clean and dry place to avoid moisture, mold, heavy pressure, mechanical damage, and solar radiation.
Try to avoid rain or fog, and prevent falling, bumping and collision.
If you find that the image on the display screen is jumping, the green grid lines are on, or the screen is not lit, it means that the voltage is too low and needs to be charged .
If you need to clean the optical surfaces of the objective lens or eyepiece, first blow off the fine sand and dust, then wipe the surface with a soft cloth.



【Product Description】

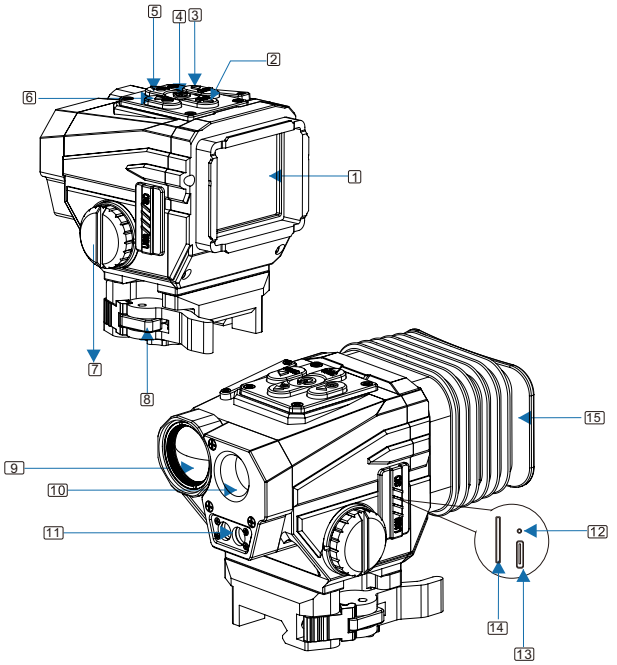
This product combines state-of-the-art uncooled sensor technology with advanced infrared thermal imaging in a hybrid platform. It features a 384 × 288 thermal imaging sensor with a 12 µm pixel pitch, which delivers both night vision and thermal imaging capabilities, paired with a high-resolution 2K CMOS night vision sensor. Thermal and night vision modes can be used independently or simultaneously, giving users maximum flexibility in any environment.

With target detection and built-in laser ranging both effective up to approximately 1,300 yards, the system provides long-range target acquisition and precise distance measurement. Its high-sensitivity 50/60 Hz detector delivers sharp, ghost-free, real-time imaging, while the 2-inch high-definition display produces crisp, detailed visuals for comfortable observation during extended use.

For enhanced versatility, the unit includes multiple color palettes with seven thermal imaging modes—White Hot, Black Hot, Metal Hot, Hottest Red, Green Hot, Dark Brown, and Rainbow—and three night vision options—Full Color, Black & White, and Fluorescent Green. A simple one-button interface allows users to switch effortlessly between imaging modes, adapting quickly to changing viewing conditions and operational requirements.

Scope of application:

Wild nature observation, animal search and rescue, emergency search and rescue, law enforcement inspections, night patrols, mountain search and patrols, personal sports and outdoor sports, security patrols, etc.



1.Display 2.Down adjustment button/menu button 3.Right adjustment button
4.Power button 5.Up adjustment button/zoom in button 6.Left adjustment button
7.Battery compartment 8.Mount 9.Thermal imaging lens
10.Digital lens 11.Laser Ranging Module 12.Indicator lights
13.Type-c interface 14.SD card 15.Eyecup

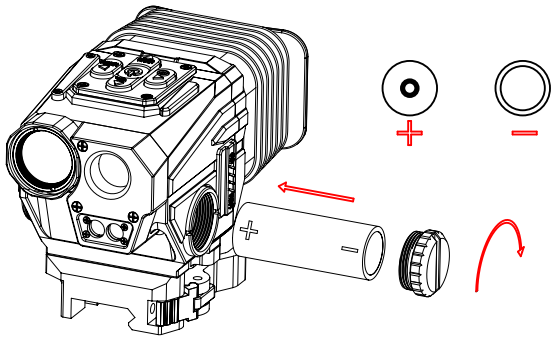
【Charging Batteries】

The thermal imager battery is a 3.7V lithium battery, model 18500, which is rechargeable and can provide more than 4 hours of use. Please remember to charge the battery before first use.

Battery Charging Method:
a) Unscrew the battery compartment cover
b) Adjust the positive and negative poles of the battery, install the battery in the battery compartment with the positive pole facing inward and the negative pole facing outward, and rotate the battery compartment cover to close
c) Connect the power adapter to the Type-C charging cable and insert the other end into the port on the device
d) After the connection is successful, the power indicator on the device lights up red. At this time, the device is turned on and the mark will flash in the lower left corner of the display, indicating that the charging is normal
e) During normal charging, press the power button to turn off the device to shorten the charging time

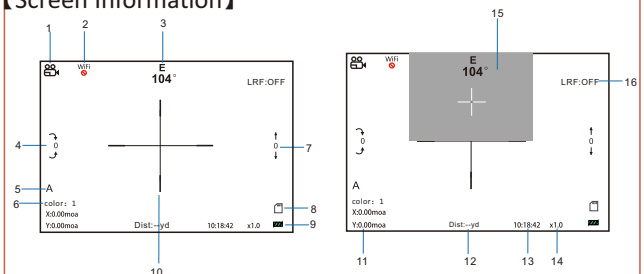
【Battery Installation】

Open the battery cover and take out one 18500 battery (minimum 3.7V). Insert the batteries into the compartment with the positive poles facing inward. Tighten the battery cover, press the power button, and look through the eyepiece to see if the internal display is lit. If it is, the batteries are installed correctly.
If the display does not turn on, please check the following:
1.Are the batteries type 18500?
2.Are the batteries installed in the correct direction?
3.Is the battery cover tightened securely?
4.Do the batteries have sufficient power?
After confirming all four points, try turning on the device again until it functions normally.



Battery Installation Diagram

【Screen Information】



1:Recording Status 2:WiFi Display 3:Compass Display
4:Pitch angle 5:Storage A/B/C 6:Color Mode
7:Tilt angle 8:Memory Card Display 9:Battery Level Display
10:Reticle Display 11:Reticle position 12:Measured distance display
13:Date 14:Magnification 15:Picture-in-Picture Display
16:Ranging status display

【Power On】

◆Open the lens cover and short press the power button to turn on the device.

【Power Off】

◆Regardless of the device's state, long press the button (for 3 seconds) to power off the device.

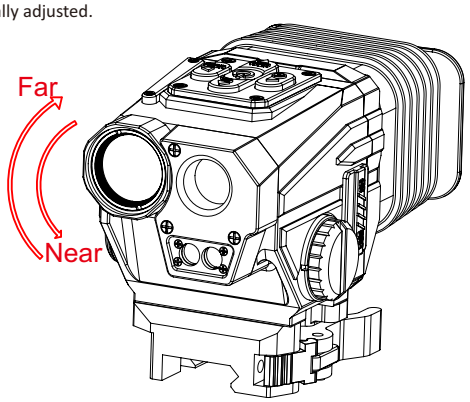
【Landscape Observation】

◆After turning on the device, view the image on the display screen and direct the objective lens toward the target. Adjust the focus as needed for a clear image.

【Focus】

◆Thermal Mode: Adjust the focus by rotating the thermal lens until the target image appears sharp.

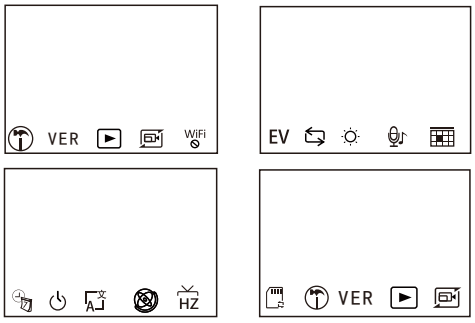
◆Digital Mode: The digital lens features a fixed-focus design and cannot be manually adjusted.



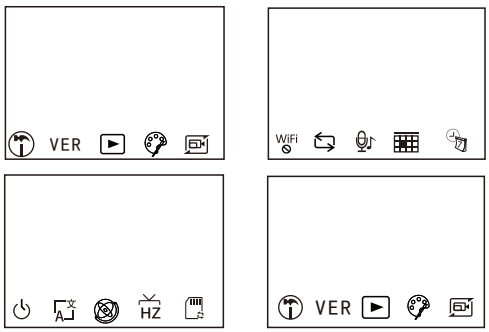
【Power On and Introduction of Menu 】

◆After powering on, long press the MENU button to enter the main menu interface

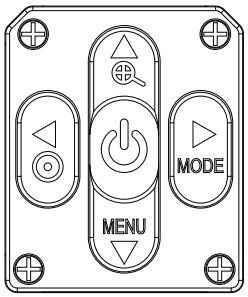
Digital vision mode menu interface



Thermal imaging mode menu interface



【Product Button Operation Details】



Short press:Turn on the device
Start/pause recording
Confirm in menu mode

Long press：Turn off the device

Short press:Turn on/off ranging mode

Long press:Switch Reticle Color

MODE Short press:Switch image mode — Long Press:Reticle adjustment

Short Press:Digital zoom — Long Press:Turn Picture-in-Picture On/Off

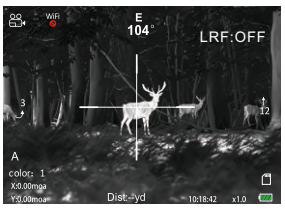
MENU Short Press:Switch Digital color mode /Thermal mode — Long Press:Enter the Menu

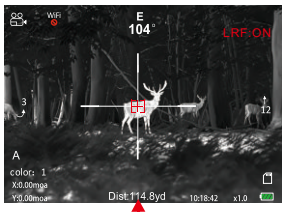
【Detailed Introduction of Buttons】

	Button	Click	Press and Hold for 3 Seconds
⏻	Product Interface	Turn On	
	Main Interface	Start/Stop video	Power Off
	Menu Interface	Confirm Option	
	Submenu	Confirm Option	
	Replay Interface	Play/Pause Confirm Option	
▲	Main Interface	Digital Zoom	Turn Picture-in-Picture On/Off
	Menu Interface		
	Submenu	Switch Option	
	Replay Interface		
MENU ▼	Main Interface	Switch Digital color mode/Thermal mode	Enter the Menu Interface
	Menu Interface		
	Submenu	Switch Option	
	Replay Interface		
▶ MODE	Main Interface	Switch image mode	Enter Reticle adjustment
	Menu Interface	Switch Option	
	Submenu		
	Replay Interface	Switch Option	
◀	Main Interface	Turn on/off ranging mode	Switch Reticle Color
	Menu Interface	Switch Option	
	Submenu		
	Replay Interface	Switch Option	

【Laser Rangefinder】

◆ After power-on, press the ◀ button to enable the LRF (laser rangefinder) function. The on-screen indicator will change from “LRF: OFF” to “LRF: ON”. Aim at the target, and the measured distance will appear at the bottom of the display. The device supports continuous ranging. To turn off the LRF, press the ◀ button again after measurement.
Note: In thermal imaging mode, switching image modes will automatically disable the LRF function if it is currently active.
The distance unit can be toggled between Y (yards) and M (meters). When the unit is set to MOA, the measured value is displayed in YD (yards); when set to MRAD, it is displayed in M (meters).
For detailed instructions, please refer to the “Unit Switch” function on page 24.





Measured distance display

【Precautions for Using the LRF Function】

⚠ WARNING!

◆This product has a maximum ranging distance of 1,300 yards (approx. 1200 m). Actual range may be less than the rated value due to factors such as target surface reflectivity, color, material, and ambient lighting.

◆Do not use the rangefinder in confined spaces or block the ranging window, as strong laser reflection may damage the module. Avoid prolonged continuous use; it is recommended to limit each ranging session to 30 seconds with at least a 1-minute interval between sessions to prevent overheating

◆Never aim the device at the sun or intense light sources (e.g., searchlights, laser pointers), as this may damage the internal detector and potentially harm your eyes. Do not look directly at the sun through the eyepiece, as it can burn the retina and cause permanent vision loss.

◆Do not point the laser beam at the eyes of people or animals.

⚠ NOTE!

◆Ranging results are affected by target angle, surface smoothness, and reflectivity. When measuring highly reflective targets (e.g., mirrors, glass, puddles), reading errors or failure to obtain a range may occur; this is normal.

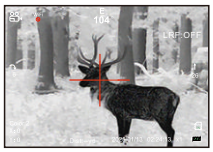
◆Ranging accuracy may decrease in rain, snow, fog, strong light, or when measuring through glass. It is advisable to use the device in good weather conditions.

◆When the rangefinder is active, “LRF: ON” will appear on the screen. Press the button to turn it off when not in use to save power.

【Picture-in-picture mode】

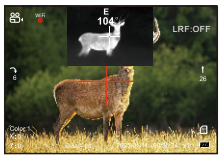
◆Dual-sensor night vision device, combining low-light vision and thermal imaging. To activate the picture-in-picture mode, power on the device and long-press the button. When the device is in digital imaging mode, the picture-in-picture display shows thermal imaging; when the device is in thermal imaging mode, the picture-in-picture display shows the digital image.

Digital mode



Thermal imaging mode

Picture-in-picture mode



Picture-in-picture mode

【Zero Calibration】

How to sight the unit:

1. Preparation:

◆ Secure the Rifle: Place the rifle on a stable rest (e.g., sandbags, bipod, or shooting bench). A vise isn’t mandatory with one-shot zeroing, but stability helps.

◆Select a Target: Use a thermal-visible target at your desired zero distance (e.g., 100 yards for hunting). Options include:

• Heated Targets: Hand warmers, hot water bottles, or chemical heat packs taped to a target board.

• Foil or Reflective Targets: Aluminum foil or IR-reflective patches (e.g., from IR.Tools) that stand out.

2. Enter Zeroing Mode:

◆Navigate to the zeroing or calibration menu.

◆This mode prepares the scope to freeze the image after a shot.

3. Fire a Single Shot:

◆Aim at the center of the thermal target’s heat signature using the reticle.

◆Fire one round, keeping the rifle as steady as possible to minimize recoil-induced movement.

◆Press the OK button (e.g.,“Freeze” or“Snapshot”) to capture the thermal image showing the bullet’s impact.

4. Handle the Frozen Picture:

◆Why It Freezes: The frozen image lets you see the bullet hole’s heat disruption (or impact on a heated target) relative to the reticle without needing to keep the rifle aimed or check the target manually.

◆Adjust the Reticle: Use the scope’s windage (left/right) and elevation (up/down) controls (usually arrow buttons) to move the reticle to the bullet’s impact point on the frozen image.

◆For example, if the bullet hit low-left, move the reticle down and left to align with the hole.

◆No physical turret adjustments are needed; the scope digitally shifts the reticle.

◆Unfreeze: Once adjusted, exit the freeze mode (often by pressing the same button or saving the profile). The scope returns to live view with the reticle now aligned.

5. Verify the Zero:

◆Fire a confirmation shot (or a 3-shot group if preferred) at the same target.

◆Check the impact point through the scope (use zoom or Picture-in-Picture mode to see details).

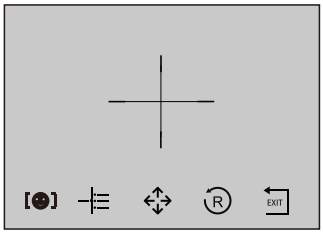
◆If the shots are off, repeat the freeze-and-adjust process until the reticle and impact align
(sub-MOA accuracy is typical for a good zero).

6. Save the Zero:

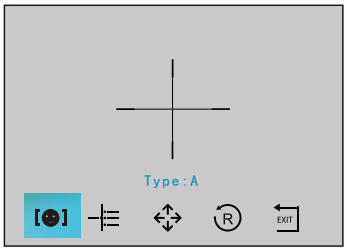
◆Press the button in the scope menu to save the zero point settings and lock the settings for that rifle/ammo combo.

【Reticle Adjustment】

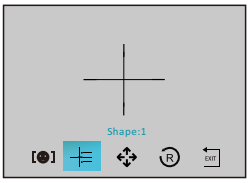
◆In the main interface, long press MODE to enter the reticle adjustment main interface, and the options (as shown below) will appear.

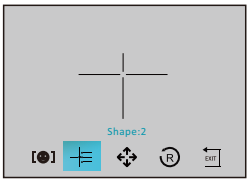


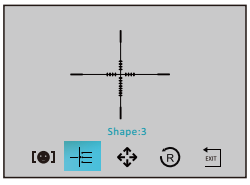
1.Press the ◀ MODE ▶ button to select the "[●]" option, press the ▲ MENU ▼ button to select the Data Type A/B/C stored when the user last used it, and press the ⏻ button to save.

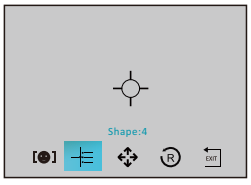


2. Press the ◀ MODE ▶ button to select adjustment. When the "⊣≡" option is selected, Press the ▲ MENU ▼ button to switch between four reticle styles;

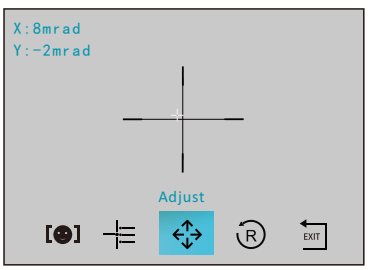




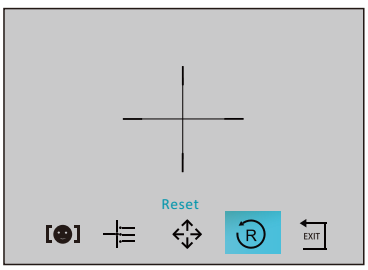




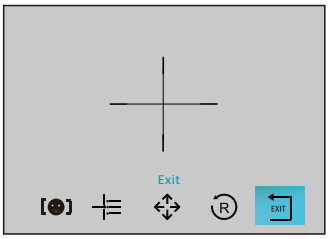
3. Press the ◀ MODE ▶ button to select adjustment. When the "✥" option is selected, press the ⏻ button to enter the reticle adjustment interface. Press the ◀ MODE ▶ button to adjust the position of the X axis of the reticle. Press the ▲ MENU ▼ button to adjust the position of the Y axis. After adjustment, press the ⏻ button to save.



4. Press the ◀ MODE ▶ button to select the fourth option (Reset). When "Ⓡ" is selected, pressing the ⏻ button will reset the above adjustments and return to the main interface.

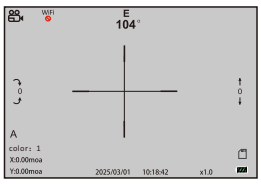


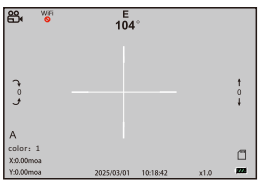
4. Press the ◀ MODE ▶ button to select the fifth option and exit. When "EXIT" is selected, press the ⏻ button again to save the adjustment and return to the main interface.

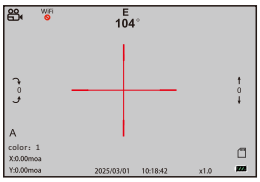
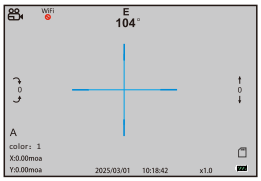
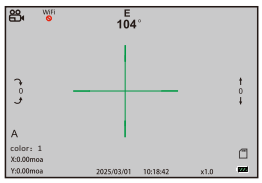


【Reticle Color】

◆In the main interface, long press the ◀ button to switch the reticle color, there are five color in total.

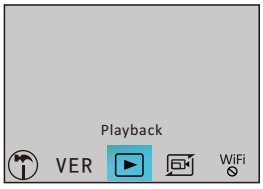


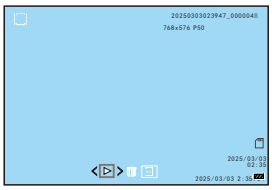


【Playback】

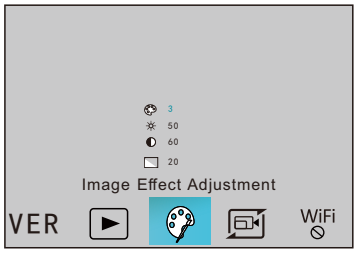
◆Long press the MENU button to enter the menu. Then press the ◀ ▶ MODE button to select "playback" in the menu interface.Short press the ⏻ button to enter the submenu, then press ◀ ▶ MODE to select a video to watch. Press the ⏻ button to confirm. Press the ⏻ button during video playback to pause the video, and press the ⏻ button again to resume normal playback.





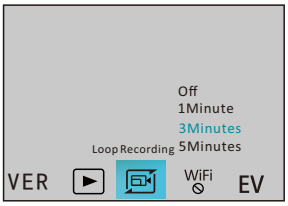
【Image Effect Adjustment】

◆In thermal imaging mode, long press the MENU button to enter the menu. Then press the ⏻ button to select Image Effect Adjustment in the menu interface. Press the ◀ ▶ MODE button to select the adjustment option, and then press the ▲ MENU ▼ button to adjust the parameters. After adjustment, press ◀ or ▶ MODE to save and exit.



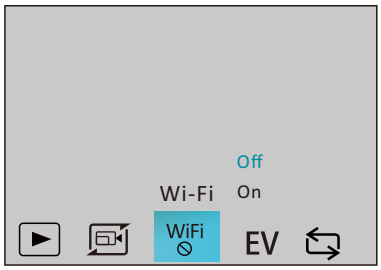
【Loop Recording】

◆Press and hold the MENU button to enter the menu. In the Press menu interface, select Loop Recording Adjustment. Press ▲ MENU ▼ to select the loop recording time. You can choose to turn it off or record for 1 minute, 3 minutes, 5 minutes, or 10 minutes. After confirming, press and hold the MENU button to save and exit.



【Wi-Fi】

◆Press and hold the MENU button to enter the menu, then press ◀ ▶ MODE to select Wi-Fi in the menu interface. Press ▲ MENU ▼ to select On/Off, and after confirming, press and hold the ▲ MENU ▼ button to save and exit.



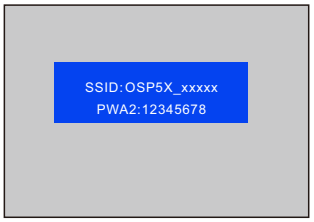
◆WIFI connection steps

1.Install the mobile phone app:

You can use the "OptiScopeCam"APP connect to the device. The app supports real-time image transmission, photo capture,video recording, and otherfeatures. It is available for download on Google play and iOS app stores.

2. Connection Steps:

A) Open wifi and connect on your mobile device;
(the password is the default 12345678)



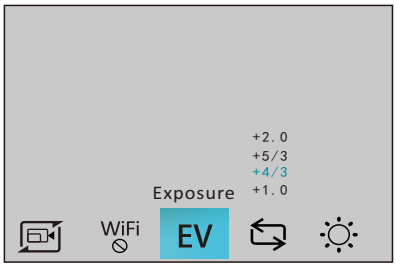
B) Open roadcam app on your phone;

C) Click on camera icon;

D) This should now pull up real time image from device;

【Exposure】

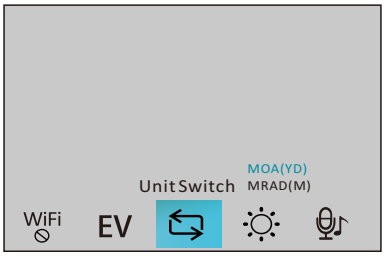
◆In night vision mode, long press the MENU button to enter the menu, press ◀ ▶ MODE to select exposure compensation.In the menu interface, press ▲ MENU ▼ to select the exposure level, and long press the MENU button to save and exit after confirming.



【Unit Switch】

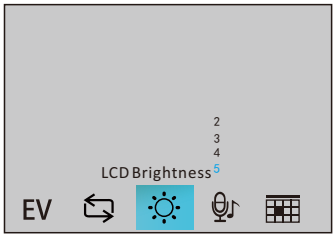
◆Press and hold the MENU button to enter the menu. In the menu interface, press ◀ ▶ MODE to select Unit Switch, press ▲ MENU ▼ to select MOA/MRAD, and then press and hold the MENU button to save and exit.

NOTE:It can switch the distance unit for LRF and the calibration unit. MOA is paired with YD, and MRAD is paired with Meter.



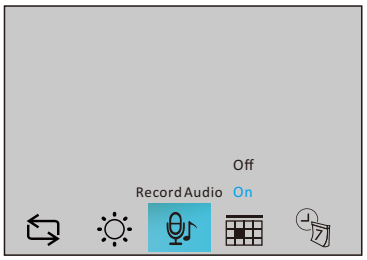
【LCD Brightness】

◆Press and hold the MENU button to enter the menu, then press ◀ ▶ MODE to select LCD Brightness Adjustment in the menu interface. Press ▲ MENU ▼ to select the brightness level, and after confirming, press and hold the MENU button to save and exit.



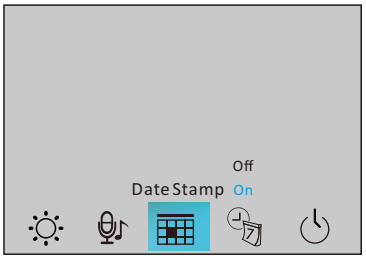
【Record Audio】

◆Press and hold the MENU button to enter the menu, then press ◀ ▶ MODE to select Video and Audio in the menu interface. Press ▲ MENU ▼ to select On/Off, and then press and hold the MENU button to save and exit.



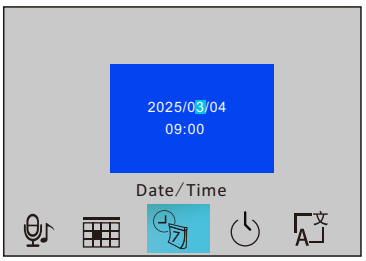
【Date Stamp】

◆Press and hold the MENU button to enter the menu, then press ◀ ▶ MODE to select the Date Label in the menu interface. Press ▲ MENU ▼ to select On/Off. After confirming, press and hold the MENU button to save and exit.



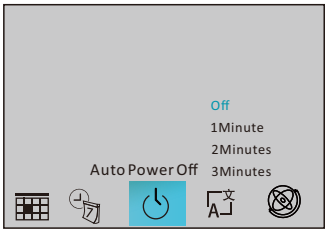
【Date/Time】

◆Long press the MENU button to enter the menu, then press ◀ ▶ MODE to select Date/Time in the menu interface. Press the ⏻ button to enter the adjustment interface. Press the ◀ ▶ MODE button to adjust the position, press the ▲ MENU ▼ button to adjust the value.After adjustment, press the ⏻ button to save and exit。



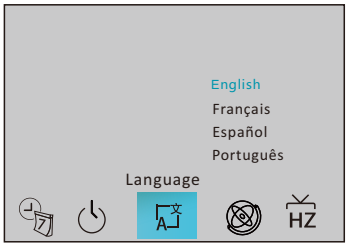
【Auto Power Off】

◆Press and hold the MENU button to enter the menu. Press ◀ ▶ MODE to select Auto Shutdown in the menu interface. Press ▲ MENU ▼ to select Shutdown or Auto Shutdown after 1 minute, 3 minutes, 5 minutes, or 10 minutes. After confirming, press and hold the MENU button to save and exit.



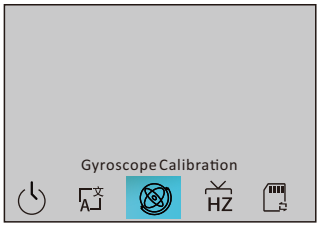
【Language】

◆Press and hold the MENU button to enter the menu, then press ◀ ▶ MODE to select the language in the menu interface.Press ▲ MENU ▼ to select Deutsch, Italiano, Simplified Chinese, Traditional Chinese, Русский, 日本語, English, Français, Español, Português. Press and hold the MENU button to save and exit.



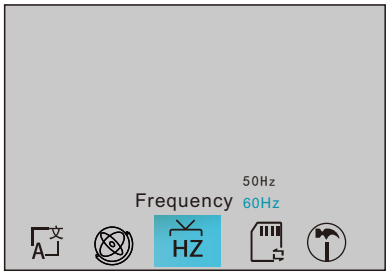
【Gyroscope Calibration】

◆Press and hold the MENU button to enter the menu. In the menu interface, press ◀ ▶ MODE to select Gyroscope Calibration. Press the ⏻ button to start automatic calibration. When the calibration is completed, it will automatically save and exit.



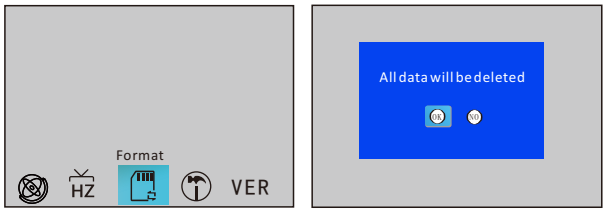
【Frequency】

◆Press and hold the MENU button to enter the menu. On the menu interface, press ◀ ▶ MODE to select the light source frequency. Press the ▲ ESC MENU ▼ button to select 50Hz/60Hz. After confirming, press and hold the MENU button to save and exit.



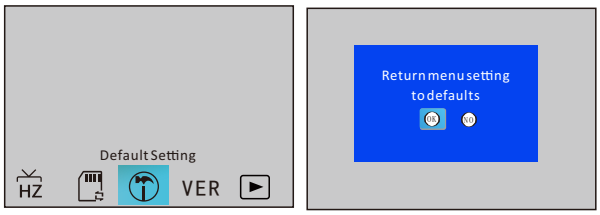
【Format】

◆Press and hold the MENU button to enter the menu. In the menu interface, press ◀ ▶ MODE to select Format. Press the ⏻ button to enter the submenu. Press the ◀ ▶ MODE button to select OK/NO. Press the ⏻ button to confirm and return.



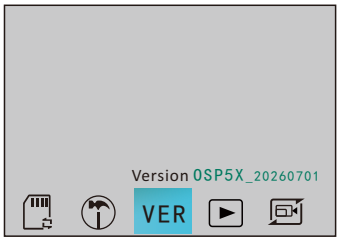
【Default Setting】

◆Press and hold the MENU button to enter the menu.Then press ◀ ▶ MODE to select Settings in the menu interface. Press the ⏻ button to enter the submenu. Press the ◀ ▶ MODE button to select OK/NO. Press the ⏻ button to confirm and return.



【Version】

◆Long press the MENU button to enter the menu. In the menu interface, press ◀ ▶ MODE to select the version to view it.



【Basic Parameters】

Thermal Imaging Parameters

Category	Item	Parameter
Optical Parameters	Sensor	384*288
	Pixel pitch	12 μm
	Objective Lens Diameter	19mm
	FOV	8°X 6°
Technical Parameter	Resolution (pixels)	768x576
	Thermal Sensitivity	≤25mk
	Detection Range	1000m
	Frame Rate (Hz)	50
	Digital Zoom	1x 2x 3x 4x
	Battery Operating Time	4 hours+
	Equipment Power Supply	18500 Lithium Battery (Rechargeable)
Other	Size (Length x Width x Height)	81x69x67mm
	Weight	375g

Night Vision Parameters

Category	Item	Parameter
Optical Parameters	Sensor Type	CMOS
	Frame Rate (Hz)	60
	Objective Lens Diameter	12mm
	FOV	6.4°X 4.6°
Technical parameter	Resolution (pixels)	2k
	Magnification	1-5x
	Display	2 Inches HD IPS (800x600)
	Shock	≤1000g
	USB	TYPE-C
	Battery Operating Time	4 hours+
	Equipment Power Supply	18500 Lithium Battery (Rechargeable)
Other	Size (Length x Width x Height)	81x69x67mm
	Weight	375g

【Standard Configuration】

Name	Quantity
USB Cable	1
Color Box	1
External Power Adapter	1
User Manual	1
Rechargeable Battery	18500x2
Lens Cleaning Cloth	1
Phillips Driver	1
Battery charger	1
Warranty Card	1

【Maintenance and Cleaning】

It is recommended to maintain the product appropriately to ensure its service life. Attempting to disassemble or repair the equipment will void the warranty.

When there are stains on the display screen, objective lens filter cover, or objective lens of this machine, first blow away any dust and debris on the optical components. Then use a lens cleaning cloth to gently wipe the lens. To remove oil stains or dry water spots, use a cloth or cotton swab with a small amount of denatured alcohol.

【Troubleshooting】

Do not return the product without prior authorization. Doing so may result in the loss of the product for any reason, such as sending it to the wrong address or other unexpected package-related issues.

◆This unit will not turn on:

1. This product uses a special battery, please be sure to use the factory-configured battery and charger.

2. Check if the battery power is sufficient. If necessary, reinstall the battery.

◆Image is darker:

Make sure to open the filter cover on the objective and turn on the IR Illuminator adjust accordingly.

Display brightness and IR Illuminator brightness for bright and clear images.

◆There are bright spots or black spots on the display:

1. The dots appearing on the display are caused by the sensor production technology, not a defect.

◆The image is out of focus:

1. Make sure there is no dust or condensation on the objective or eyepiece.

2. Make sure to adjust the eyepiece diopter settings for your specific vision until you can see the product clearly.Content on the internal display of the product.

3. After ensuring the display contents are clearly visible, adjust the focusing handwheel on the side of the objective lens. Adjust the focus as needed for different viewing distances.

◆Image flickering:

This is common if the unit is looking at or pointed in the direction of a bright light source.
Refrain from bright light.If blinking under normal viewing conditions, then it may be caused by low battery power.

【Warranty】

The warranty period is five years from the date of purchase, please keep proof of purchase in a safe place. If you have any questions about the product, please contact our distributor first. Many questions and doubts can be resolved under telephone guidance. If it still can't be solved after telephone guidance, you can send the product to our customer service center for repair. If the fault occurs outside the warranty period or man-made damage is not covered by our warranty terms, we will carry out paid maintenance.

【Precautions for Returning Goods】

◆Ensure that the product is properly packaged and properly protected before transportation/mailing; Try to use the original packaging as much as possible.
◆When returning the product, please include the purchase voucher, warranty card, a brief explanation of the malfunction, your contact information, and the recipient's detailed address.

⚠

Attention: Dust and Moisture Proof!

◆After using waterproof products in high humidity environments, store them after the moisture has dissipated and the products have dried.

◆Non waterproof products should not be used in high humidity environments, otherwise it may cause damage to product performance.

◆After using at the seaside, gently soak a clean soft cloth with water and wipe off any remaining salt on the surface of the mirror body.

◆If not used for a long time, please clean the lens and body thoroughly, put the product in a bag, place it in a ventilated and dry place, and add an appropriate amount of desiccant to prevent moisture.

CE FC RoHS 2026.07

THERMAL SCOPE WITH LASER RANGEFINDER