

TR SERIES THERMAL SCOPE

TR650 | TR630 | TR620 | TR450 | TR430 | TR420



USER MANUAL

V1.0.0

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DISCLAIMERS

This product is intended for civilian use only and must not be used in ways that infringe upon the rights of others, nor in medical, safety equipment, or other applications where product failure could pose a danger to life or cause personal injury. In the event of a conflict between this provision and applicable law, the law shall prevail.

IMPORTANT INSTRUCTIONS

Thank you for choosing our product. Please thoroughly read the user manual before operation and keep it for future reference. All photos are for reference only, and specifications are subject to the actual product.

This guide is a general overview for a series of products, meaning the product you receive may differ from the description in the guide. The actual product you receive takes precedence.

This guide is intended to introduce our products to users. We strive to ensure the guide's accuracy, but we cannot guarantee its completeness due to continuous product upgrades. We reserve the right to modify the guide at any time without prior notice.

CAUTIONS

DANGER

Please charge the battery using the method described in this guide, and follow the specified charging procedure and precautions. Improper battery charging can cause overheating, damage, and even physical injury.

1. Do not attempt to open or disassemble the battery at any time.

The internal battery can only be charged through the USB-C port. The external battery does not charge the internal battery. The optic draws power from the external battery first, and from the internal battery when the external one is depleted.

WARNING

This scope contains advanced electronics. To prolong its lifespan, avoid any undue physical damage or violent actions.

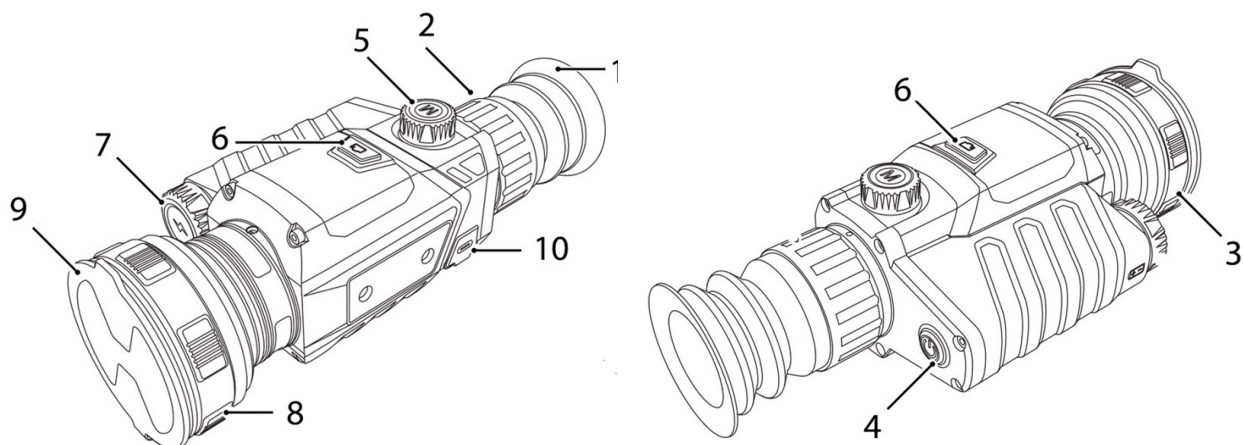
1. Do not use or store the equipment in an environment that exceeds the allowable operating or storage temperature.
2. Do not directly aim the equipment at high-intensity thermal radiation sources, such as the sun, lasers, or spot welding machines.
3. Avoid allowing debris to enter any ports on this optic.
4. Do not knock, throw, or vibrate instruments and accessories to avoid damage.
5. Any modification, alteration, or attempt to disassemble this scope will void the user's warranty. All repairs must be made through Athlon Optics.
6. Avoid contaminating this scope with oils or solvents.

Please observe the following measures when wiping this scope:

- Non-optical surface: Use a clean, soft cloth to wipe the non-optical surfaces of the thermal scope.
- Optical surface: Avoid contaminating the optical lens surfaces. Do not touch the objective lens with your hands. Oils and solvents can degrade the lens coatings. If the optical lens surface is polluted, use special lens paper to wipe it carefully.
- Do not place the battery in high temperatures or near high-temperature objects.
- Do not short circuit the positive and negative poles of the battery.
- Do not expose the battery to moisture or water.

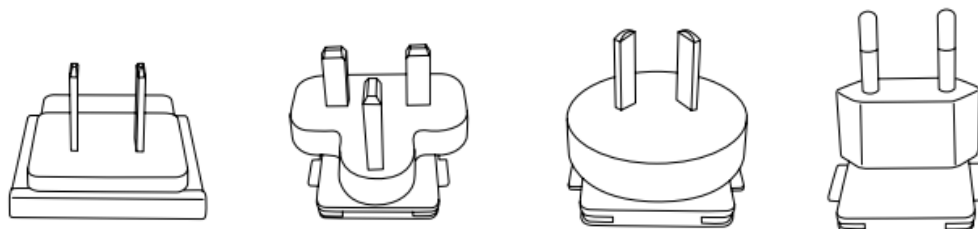
Only use the original chargers and adapters provided with this scope.

PRODUCT COMPONENTS

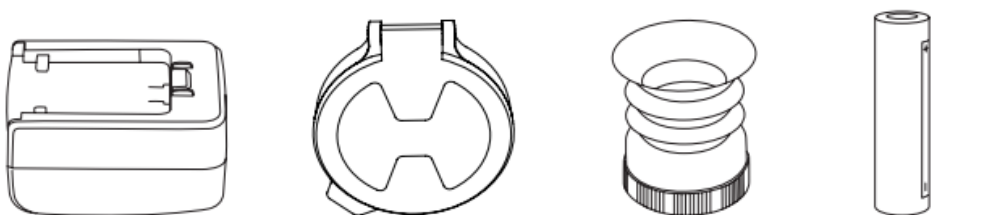


N°	Part name	Function
1	Eyepiece	Observe the real-time imaging and operation screen of equipment
2	Diopter regulation of equipment	Turn and regulate the eyepiece diopter to meet the clear observation effect of human eyes
3	Lens zoom ring	Turn left to zoom in Turn right to zoom out
4	Power Switch	Short press: shutter compensation/wake-up/exit menu
5	Menu button	Short press: bring up the shortcut menu/confirm to save the settings Long press: bring up the main menu/exit the current menu without saving Clockwise rotation when menu is not called out: image multiplication Anti-clockwise rotation when menu is not called out: image reduction
6	Camera button	Short press: Photographing Long press: Start/save recording
7	Battery compartment	Space to accommodate battery
8	Objective lens	Focus on infrared light to the detector for imaging
9	Lens cap	Lens protection
10	Type-C interface	Connect adapter, PC and external screen via type-C cable

LIST OF ITEMS



Plug of American, British, Australian, European standard

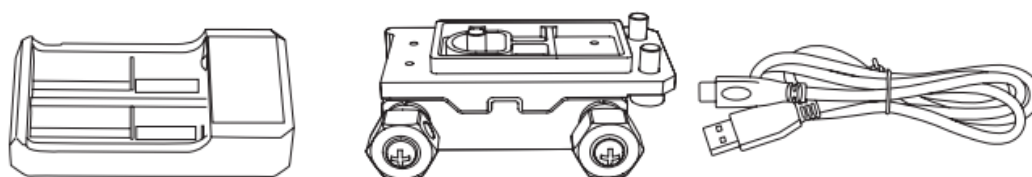


5V2A adapter

Lens cover

Eye mask

18650 Battery

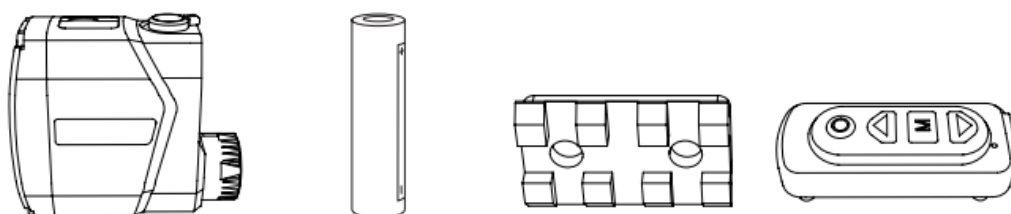


Charger

Sight base

Type-C cable

OPTIONS



Laser ranger

18650 Battery

Dovetail guide

Bluetooth remote
control

OPERATION INSTRUCTION

3.1 QUICK START

3.1.1 USB TYPE C & MICRO HDMI

The external port with a USB cable can be connected to an external power supply to power the device but can't be used to charge the battery. The power supply icon as shown below can be seen in the lower left corner of the screen.



3.1.2 POWER SUPPLY

Power supply is activated once the battery is installed following the correct installation steps. As the battery's power level changes, the power level indicator will appear in the middle of the screen, with the illuminated portion showing the remaining battery power. After powering on and entering the real-time screen, the appropriate icon indicating the battery's power level will be displayed in the lower left corner of the screen.

The power level is as follows:

High external battery power level 

Medium-high external battery power level 

Medium external battery power level 

Medium-low external battery power level 

Low external battery power level 

Very low external battery power level 

3.1.3 POWER BUTTON

◆ POWER ON

Long press the power button while the device is powered off until a startup screen appears in the eyepiece, indicating that the device has successfully started.



OPERATION INSTRUCTION

◆ POWER OFF

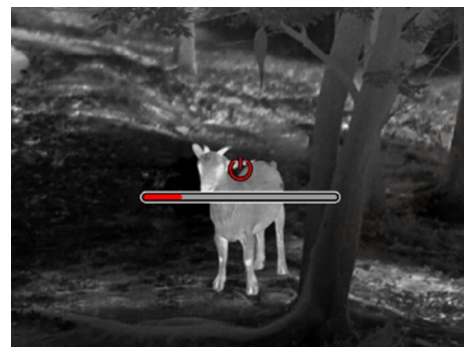
A. Manual power-off: long press and hold the power button, the power-off progress bar will be displayed, and the power-off is completed after the progress bar is finished.

B. Automatic power-off: in the set automatic power-off time, without any button operation, the scope will power down.

◆ POWER OFF

A. Manual power-off: long press and hold the power button, the power-off progress bar will be displayed, and the power-off is completed after the progress bar is finished.

B. Automatic power-off: in the set automatic power-off time, without any button operation, the scope will power down.



◆ DISPLAY ON

In display off mode, press any button to wake the screen

◆ DISPLAY OFF

Press and hold the power button, the progress bar of power-off will be displayed. Before the progress bar is finished, release the power-off button to cancel the power off process and activate the display off mode.

3.1.4 LANGUAGE SETTING

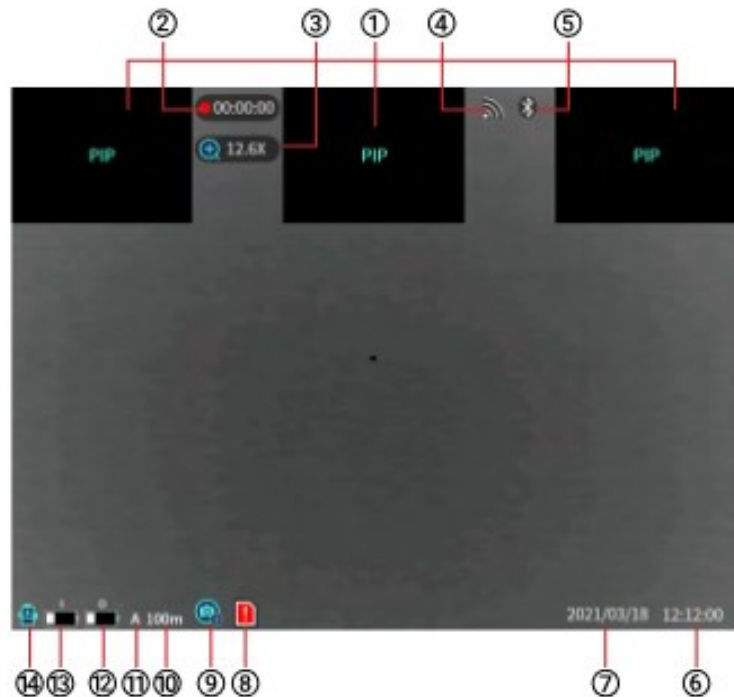
When the scope is powered on for the first time, rotate the "Menu Knob" to scroll through and select the language. Short press the "M Button" to confirm your language selection and proceed to the Home interface. Long press the "M Button" to return to the language selection screen.



OPERATION INSTRUCTION

3.2 HOME SCREEN LIST

- 1) PIP: left top, middle top, right top display
- 2) Recording duration
- 3) Magnification power
- 4) WiFi connected
- 5) Bluetooth on
- 6) Time
- 7) Date
- 8) Internal memory full warning
- 9) Recording mode indication
- 10) Zero in distance
- 11) Zero profile
- 12) External battery capacity indication
- 13) Internal battery capacity indication
- 14) Eco-mode on



FUNCTION DESCRIPTION

4.1 QUICK MENU

◆ ZOOM KNOB

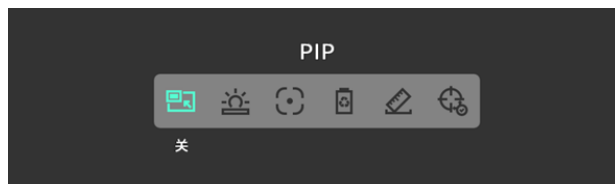
When the device is turned on, rotate the zoom knob in the ZOOM-IN direction to enlarge the image. Turning the zoom knob clockwise will increase the image magnification in 0.1X increments until the maximum magnification is reached. To reduce the image size, rotate the zoom knob in the ZOOM-OUT direction. Turning the knob counterclockwise will decrease the image magnification by 0.1X increments until it reaches the minimum value.

◆ SHORTCUT MENU

When the power is turned on and the menu is not activated, short press the "M Button" to display the shortcut menu options.

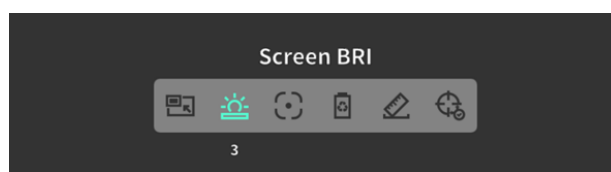
◆ PIP

After Picture in Picture is turned on, there are three PIP positions to choose from: upper left, upper middle, and upper right



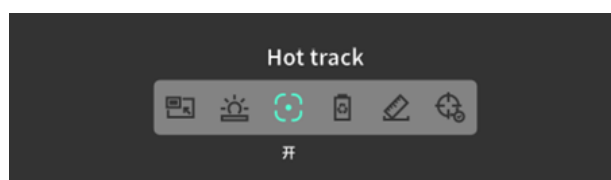
◆ SCREEN BRIGHTNESS

The screen brightness can be adjusted across 10 levels, ranging from 1 to 10.



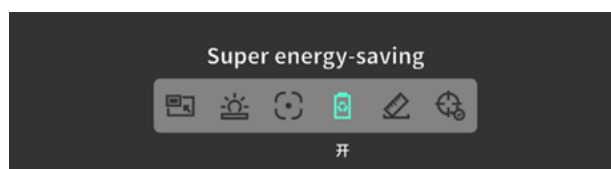
◆ HOT TRACK

When hot track is turned on, a white box cursor is displayed to automatically track the highest temperature spot in the entire field



◆ SUPER ENERGY SAVING

After turning on, switch the device to low power consumption mode. At this time, the screen brightness is fixed at 20% and cannot be adjusted, and WIFI cannot be used at the same time.

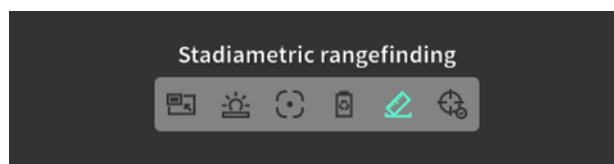


FUNCTION DESCRIPTION

◆ STADIAMETRIC RANGEFINDING

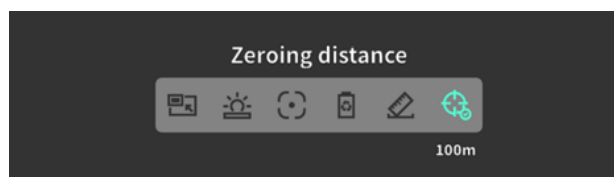
The position of the lower horizontal line remains unchanged and rotate the Menu knob to move the upper horizontal line until the spacing between the two lines is equal to the Image height of the target.

The distance from the target can be estimated by referring to the approximate ranging values of the four animals (rabbit - 14", coyote - 21", wild boar - 30", and deer - 36") in the upper left corner.



◆ ZEROING DISTANCE

Zeroing distance can be adjusted and stored at distance of 50, 100, 200, 300, 500 in yard or meter. The shortcut menu offers quick access to choose from the preset five distances

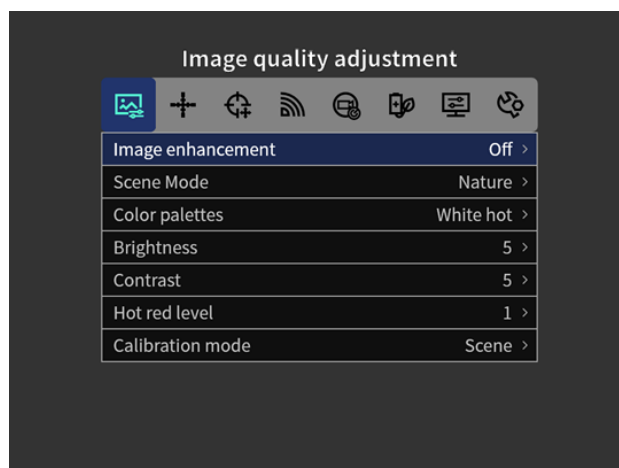


4.2 MAIN MENU OPERATION

After turning on the scope, long press the M Button to activate the main menu. This action also allows you to exit and return to the main category level after saving a setting change. Short press the M Button to select a category or a setting, save changes, and exit the setting. Rotate the Menu Knob to cycle through categories, individual settings, and values of individual settings. The main menu will stay on for 12 seconds without any input; long press the M Button to reactivate it if it turns off.

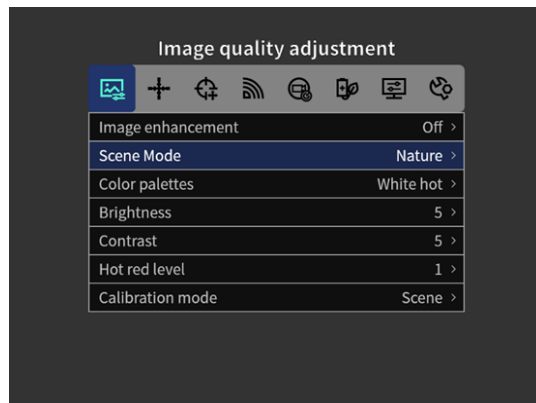
◆ IMAGE QUALITY ADJUSTMENT

Image Enhancement: Turn on to enhance the image quality

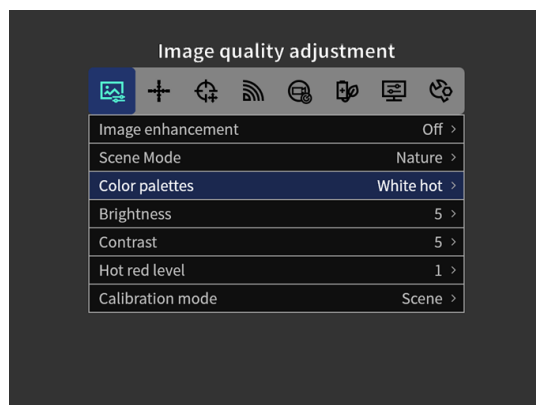


FUNCTION DESCRIPTION

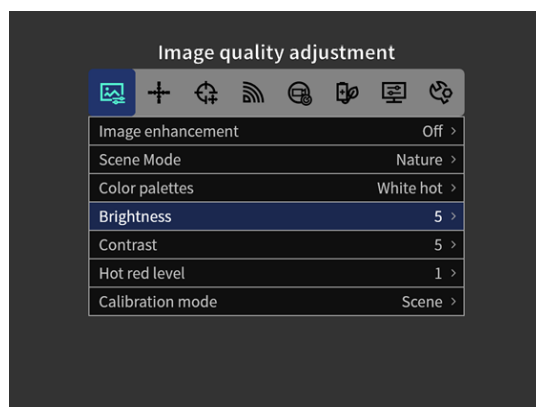
Scene Mode: Three scene modes, natural/enhanced/highlight, can be set.



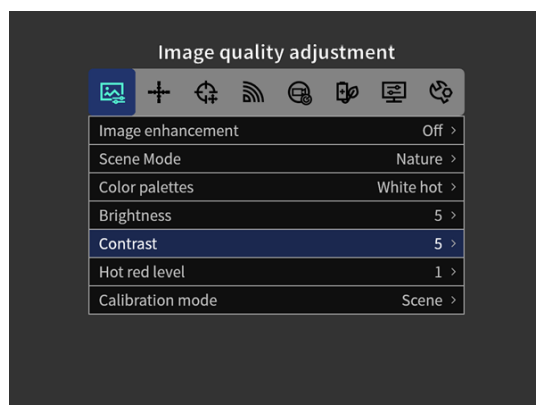
Color Palettes: Can be set in white hot/black hot/adjustable red hot/iron red/blue hot/green hot.



Brightness: Detector brightness can be adjusted within 1-10 levels.

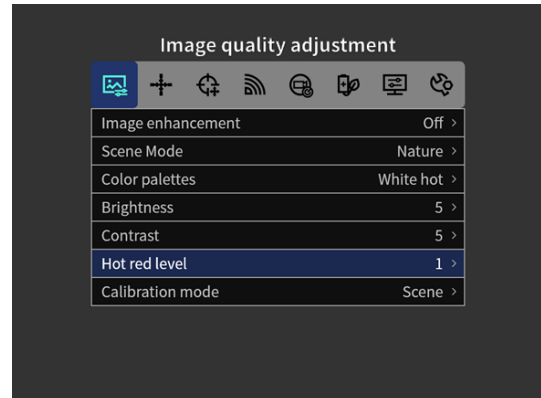


Contrast: Contrast can be adjusted within 1-10 levels.

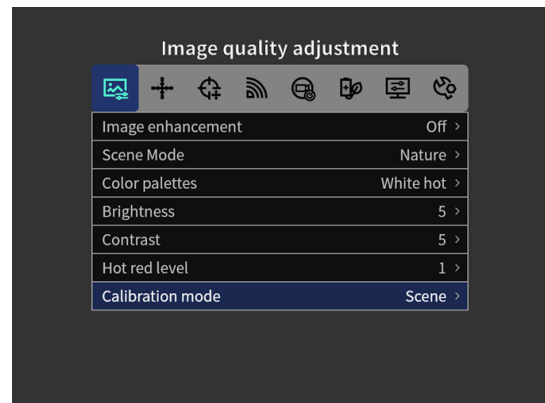


FUNCTION DESCRIPTION

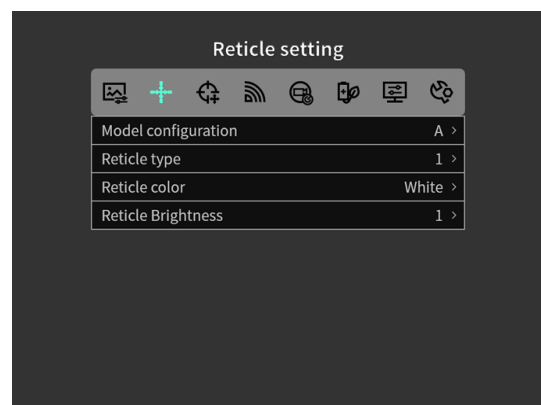
Red Hot Level: Red hot level can be adjusted within 1-10 levels.



Calibration mode: Scene/Shutter Mode can be set through the Main Menu. Scene Mode sets short pressing the power button to capture an even temperature surface to refresh the thermal sensor. The best way to perform Scene Mode compensation is doing it with the lens cap closed. Shutter Mode sets short pressing the power button to close the device shutter and create an even temperature surface to refresh the thermal sensor.

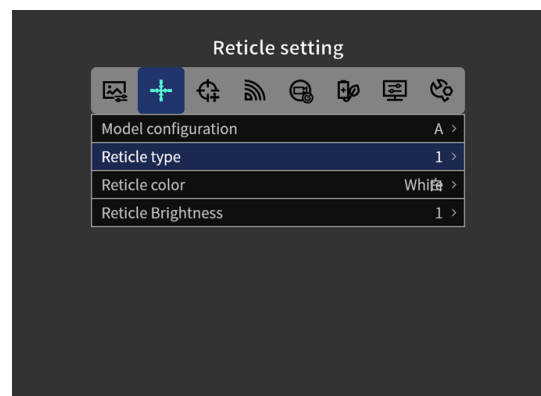


Profile Configuration: 10 profiles of zero parameters can be saved: reticle types, reticle color, reticle rightness, zeroing distance, and zeroing locations.



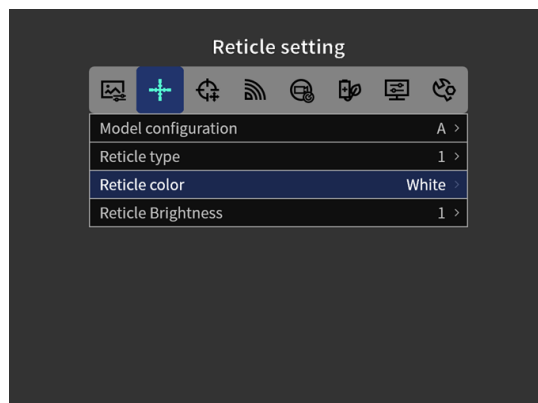
◆ RETICLE SETTINGS

Reticle Type: 10 reticles types in total can be selected.

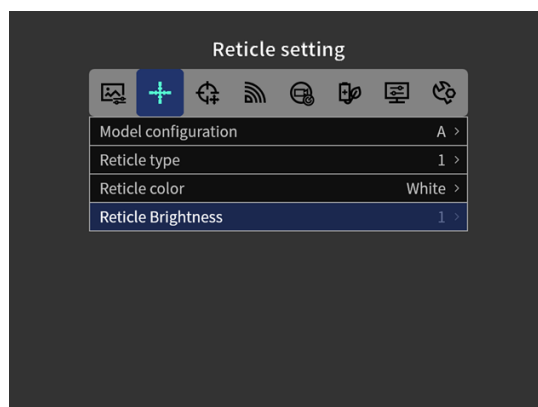


FUNCTION DESCRIPTION

Reticle color: Can be selected in black/white/yellow/green/blue/red, 6 types in total .

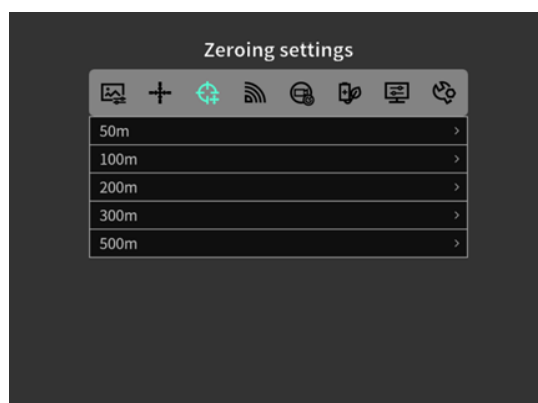


Reticle brightness: Reticle brightness can be adjusted within 1-10 levels.

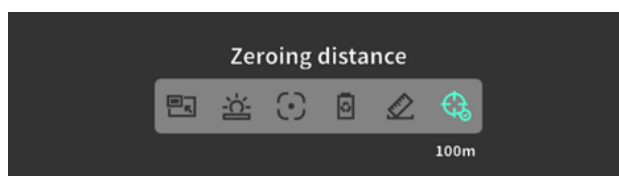


◆ ZEROING SETTINGS

Zeroing Settings: Set zeroing distance at 50, 100, 200, 300, 500 yard or meter, freeze first point of impact screen shot, edit X, Y values, confirm and save zero position



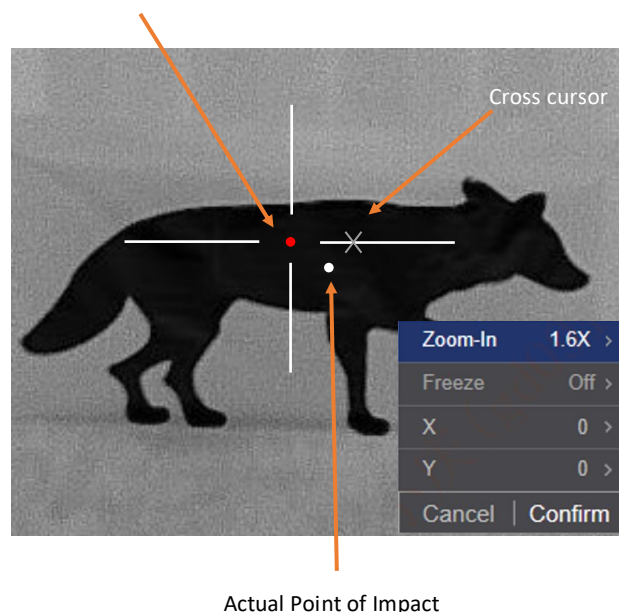
One Shot Zeroing: Prior to using the one shot zero function, you must set the Zeroing distance by accessing the short menu.



FUNCTION DESCRIPTION

Go to Zeroing Settings interface via the main menu, select the same distance preset by short cut menu to start zeroing in process. Aim the reticle center to the center of the target, and hold the rifle as stable as possible and fire a bullet. Rotate the menu knob to turn on the freeze option in the pop-up window showing “X” and “Y” while making sure the light green X (cross cursor) still pointing at the center of target. After the image is frozen, short press M Button and then rotate the Menu knob to select and adjust the value of “X” (move left and right) or “Y” (move up and down) to move the center of the reticle until it overlaps with the actual point of impact.

Center of reticle



Use menu knob to select the “Confirm” option in the Pops up window, and short press the M button to confirm it. Each rotation of the Menu knob moves the center of the reticle by 1px. The cross cursor represents the original aiming point before any adjustment was made.

◆ XY AXIS SHIFT CORRESPONDS TO OFFSET @ 100 m/Y

	System	TR420	TR430	TR450	TR620	TR630	TR650
@100Y offset range	Inch	0.47	0.34	0.23	0.78	0.56	0.39
@100m offset range	CM	1.30	0.93	0.65	2.17	1.55	1.09

FUNCTION DESCRIPTION

◆ WIFI

WiFi On/Off:

When the phone APP and the Scope are connected, real-time video can be transmitted to the phone.

WiFi Name: SCOPE –TI-XX-XXX



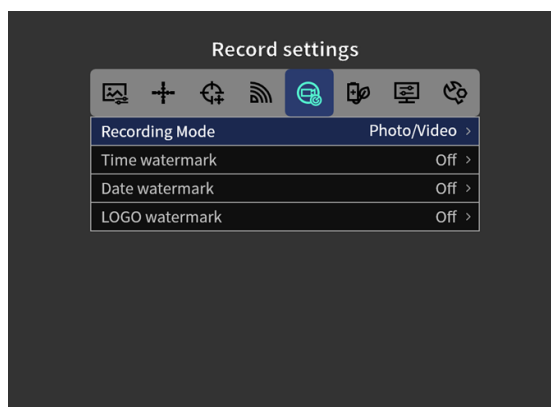
NOTE: Search and download Athlon Thermal APP in the mobile phone APP store, open the APP, find the WiFi name 'Cronus SCOPE-IT-XXX' in the settings of mobile phone WiFi, and enter the password '12345678', to start remote operation after successful connection.

◆ RECORD SETTINGS

Record Mode:

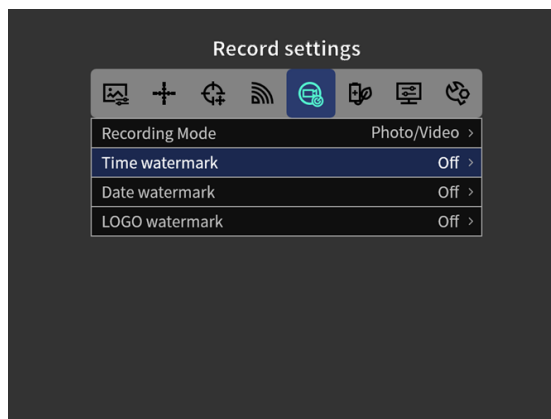
After it is turned on, you can set the below three modes:

- **Manually record:** Short press shutter button to record and long press to stop
- **Automatically take pictures:** Automatically take 10 pictures continuously within 1s upon firing
- **Automatically record video:** Automatically record 3s video before and 7s after upon firing



Watermark Settings:

When turned on, it can be selected from Time Only/ Date Only/ Logo Only /Off



FUNCTION DESCRIPTION

◆ POWER SETTING

Auto Stand by:

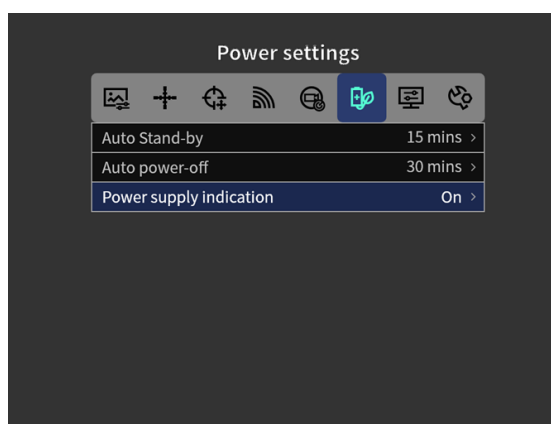
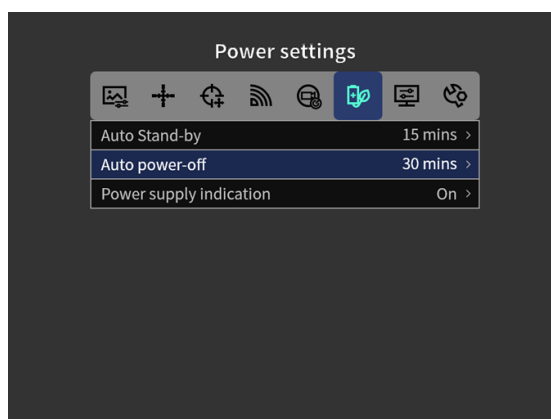
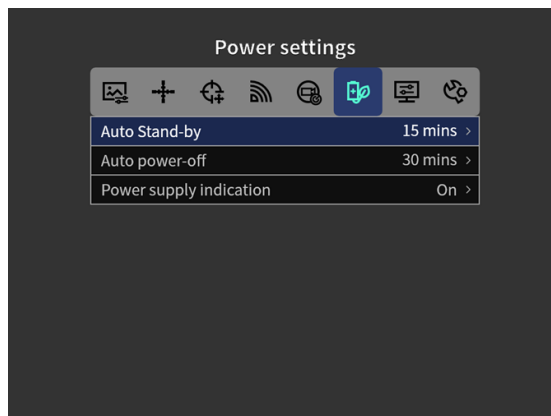
The Auto Stand By time can be set to 5/10/15 mn. If there is no operation within the set time, the scope will enter sleep mode.

Auto Power-Off:

The automatic Power-off time can be set to 15/30/60 minutes. If there is no operation within the set time, the power-off will be activated, and the scope will be powered off.

Power supply indication:

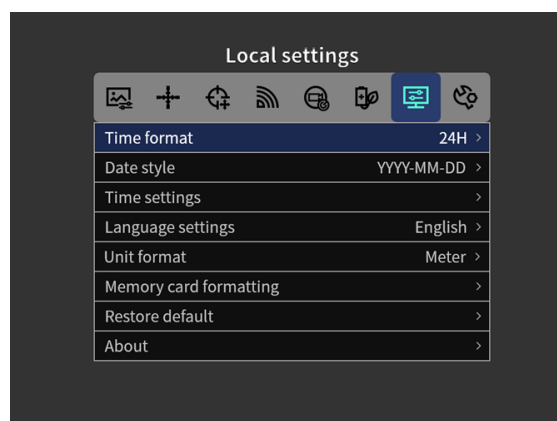
Switch that turns On/Off the charging port indication light.



◆ LOCAL SETTINGS

Date Formats:

selectable between
12H / 24H



FUNCTION DESCRIPTION

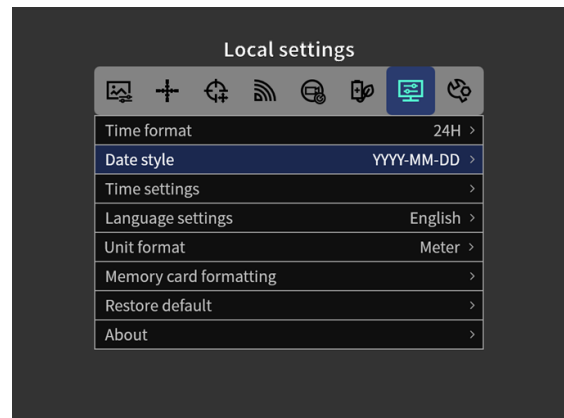
Time Formats:

Optional from:

YYYY-MM-DD

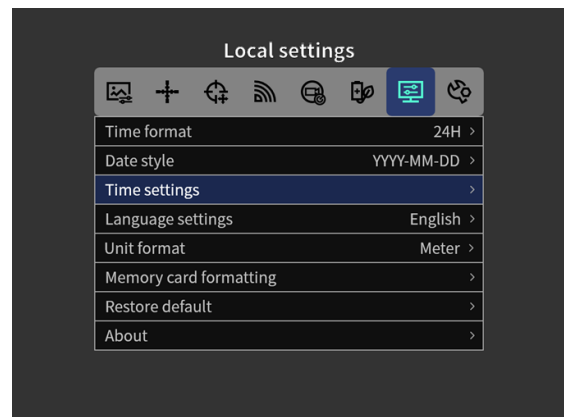
MM-DD-YYYY

DD-MM-YYYY



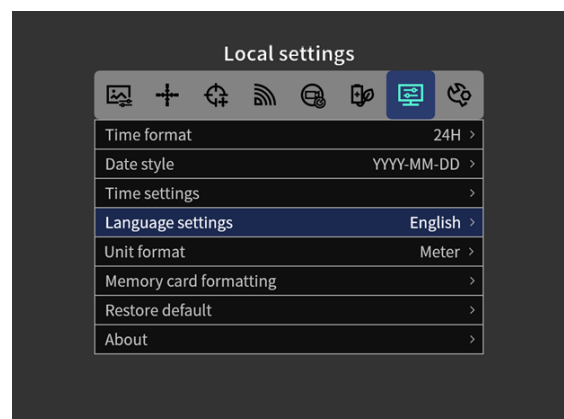
Time Settings:

Enter the Time Setup, rotate the Menu knob to move among different options, and press the "M" button to enter the next level adjustment, and then rotate the Menu knob to move between the specific time value



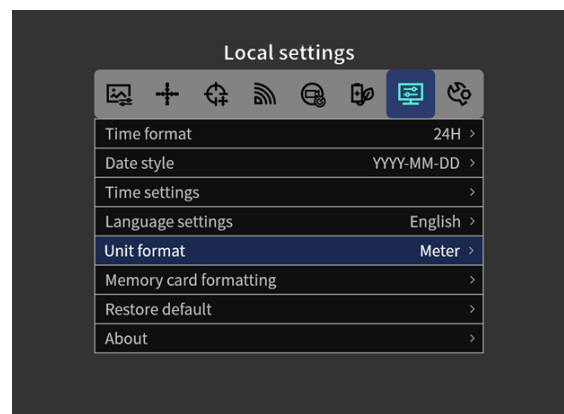
Language Settings:

Available in English/Russian/German/French/Spanish/Italian/Japanese/Korean/Polish/Romanian/Norwegian/Swedish/Danish/Czech/Slovak/Hungarian/Finnish



Unit format:

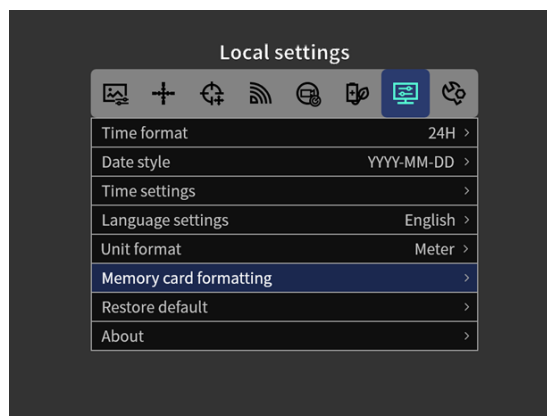
Meter or Yard



FUNCTION DESCRIPTION

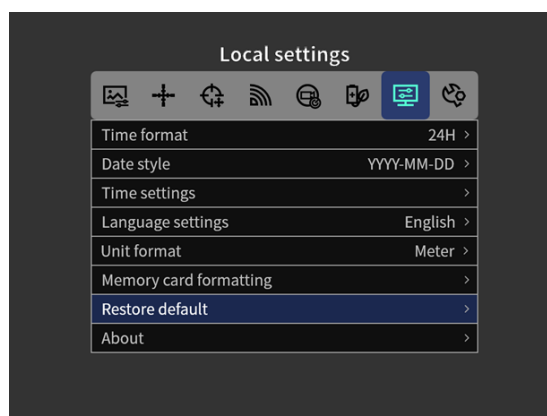
Memory Card formatting:

Select Memory formatting. Select "Confirm" to confirm formatting, and select "Cancel" to cancel the operation



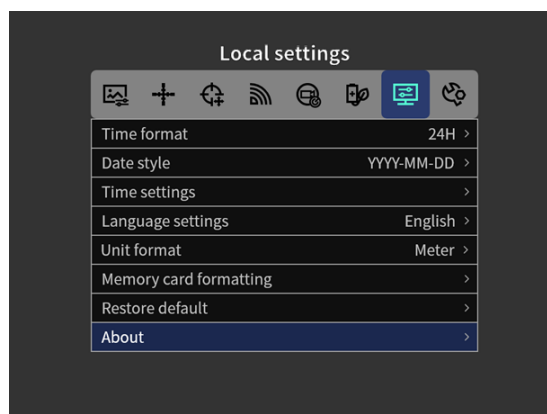
Restore Default:

You can choose to restore the factory settings. Select "Confirm" to restore all parameters to factory settings; Select "Cancel" to cancel the operation



About:

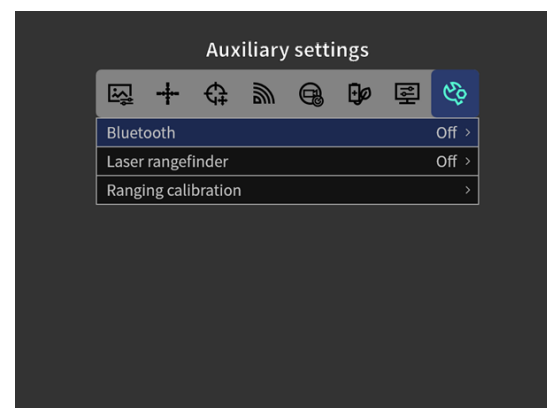
Check the current device in the APP version number and MAC address



◆ AUXILIARY SETTINGS

Bluetooth:

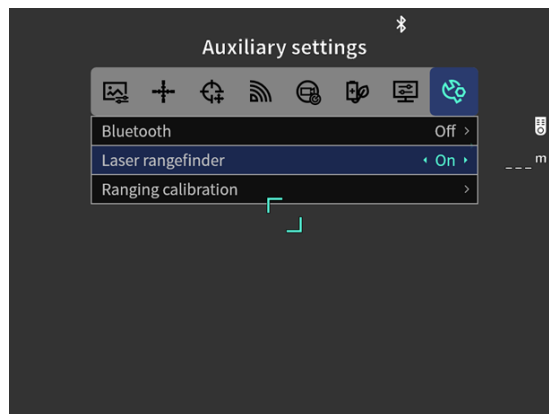
Turn « ON » if you want to connect a Bluetooth remote control to control the device remotely.



FUNCTION DESCRIPTION

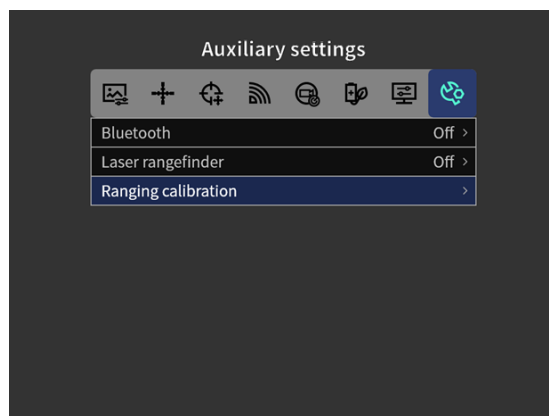
Laser Rangefinder:

The continuous/single ranging switch can be set, and the ranging operation can be carried out according to the setting after opening.



Ranging calibration:

The position of the ranging cursor on the screen can be set so that it is displayed at the actual ranging cursor.



4.3 SOFTWARE CONNECTION

WiFi Connection:

- 1) Download the 'TargetIR' APP on your mobile phone;
- 2) Turn on product's WiFi via main menu
- 3) Enter the mobile phone WiFi setting, select the WiFi name of "SCOPE ATS XX-xxxx', enter the password '12345678' to connect;
- 4) Return to "TargetIR" APP on your mobile phone



**Guide
sensmart**

Toll free: 1-385-333-4520

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Ogden, UT 84403

GUIDEIR-THERMAL.COM