



V1.0 202207

TU Ursa Major Series **Thermal Imaging Attachment User Manual**

Thank you for choosing our product. Please thoroughly go through user manual before operation and keep it well for future reference. We hope that the product can meet your expectations.

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DISCLAIMERS

The products (hardware&software) provided in this instruction manual may contain defects, errors or malfunctions. The company doesn't provide warranties of any kind, either express or implied, including, but not limited to warranties of merchantability, quality satisfaction, fitness for a particular purpose, and non-infringement of third-party rights.

The company does not compensate for any special, incidental, accidental or indirect damages, including but not limited to loss of business profits, losses resulting from loss of data or documents, caused by the use of this manual or the company's products.

To the maximum extent permitted by the law, The company's liabilities shall not exceed the amount you paid for the product.

After the product is connected to the internet, it could be exposed to the risks including but not limited to network attack, hacker attack, network virus, etc. The company is irresponsible for abnormal operation of the product, information leakage and other problems caused by this, but will provide you with technical support in a timely manner.

Products can sense motion detection and fire events when properly installed and configured, but cannot prevent accidents or personal injury or property damage.

When using this product, please strictly abide by the laws of use. You agree that this product is for civilian use only and shall not be used for infringing the rights of third parties, medical, safety equipment or other applications where product failure may cause danger to life or personal injury, weapons of mass destruction and biological weapons. Nuclear explosion, any unsafe nuclear energy use or danger or the violation of humanitarianism, any loss or liability caused by the above uses will be borne by yourself. In the event of a conflict between the foregoing and applicable law, the law shall prevail.

IMPORTANT INSTRUCTIONS

This manual is a general manual for a series of products, which means that the product of a specific model you receive might differ from the picture herein. Please refer to the actual product received.

This user manual is prepared for the convenience of users to use and know our products. We have tried our best to ensure the accuracy of its contents, but we are still unable to guarantee its completeness since our products have been continuously updated and upgraded. The Company reserves the right to modify the manual at any time without notice.

CAUTIONS

DANGERS

- 1) Please charge the battery with the method described in this manual, and follow the charging steps and cautions. Wrong charging will cause the battery to heat up or be damaged or even result in personal injury.
- 2) Do not attempt to open or disassemble the battery at any time. Once the battery leaks and causes liquid to enter human eyes, the eyes shall be rinsed with clean water immediately and medical care shall be taken.

WARNINGS

- 1) Please try to keep the device stable and avoid violent shaking during its use.
- 2) Please do not use or store the device at a temperature higher than the permitted operating temperature or storage temperature.
- 3) Do not point the device directly at high-intensity thermal radiation sources, such as the sun, lasers, spot welders, etc..
- 4) Please do not block the holes on the device.
- 5) Please do not beat, throw or shake the device and accessories in case of damage.
- 6) Please do not disassemble the device by yourself, which may cause its damage and loss of warranty rights.
- 7) Please do not use soluble or similar liquids for the device and cables, which may cause damage to the device.
- 8) Please do not use the device at a temperature higher than its operating temperature, which may cause its damage.
- 9) Please observe the following measures when wiping the device:
For the non-optical surface, use a clean soft cloth to wipe the non-optical surface of the thermal camera when necessary.
For the optical surface, please avoid staining the optical surface of the lens when using the thermal camera and especially avoid touching the lens with your hands because sweat stains on your hands will leave a mark on the lens glass and may corrode the optical coating on the glass surface. When the surface of the optical lens is contaminated, wipe it carefully with specialized lens paper.
- 10) Please do not place the battery in a high temperature environment or near high-temperature objects.
- 11) Please do not make the positive and negative poles of the battery short-

circuited.

- 12) Please do not place the battery in a humid environment or water.

! NOTES

- 1) Please do not expose the device to dust or moisture. Avoid splashing water on the instrument during use in an environment with water. Cover the lens when the device is not in use.
- 2) Please put the device and all accessories in the special packing box when it is not in use.

CHAPTER 1 PRODUCT INTRODUCTION

Guide TU Thermal Scope retains the appearance of a traditional daylight scope and perfectly integrates latest premium thermal imaging technology. The design of this scope accommodates long-term operating habits of users. TU series adopts 400x300/640x480 high- sensitivity thermal detector with three different lens options of 25mm,35mm,50mm, and its 10 sets of zero calibration configuration make it convenient to switch between different instruments.

CHAPTER 2 STORAGE AND TRANSPORTATION

In order to prevent danger and property loss, please read this manual carefully before using the device and strictly abide by it during its use. Please keep the manual properly after reading it.

STORAGE:

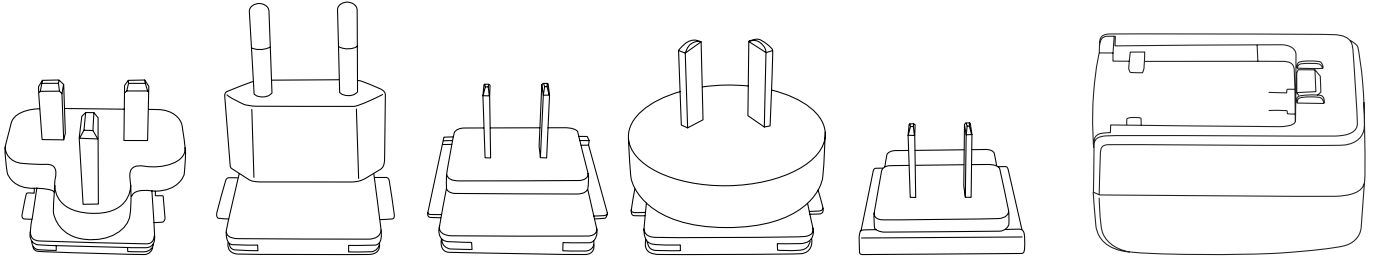
1. The packaged product shall be stored in well-ventilated and clean rooms at $-40^{\circ}\text{C} \sim 70^{\circ}\text{C}$, without condensing or corrosive gas ,under relative humidity of not more than 95%;
2. Please regularly charge it every 3 months.

TRANSPORTATION

The product shall be protected from rain and water and from being inverted .There should be no violent vibration and impact during transportation and circulation. It shall be handled with care and throwing is prohibited during transportation.

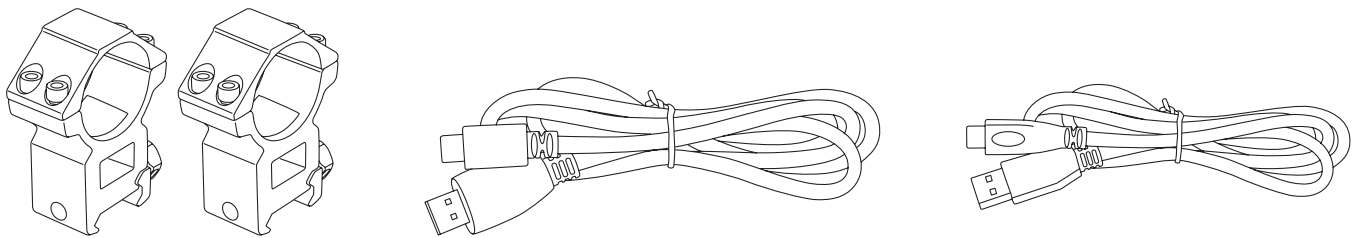
CHAPTER3 LIST OF ITEMS

Standard items include



EU/CN/UK/US/AU PLUG

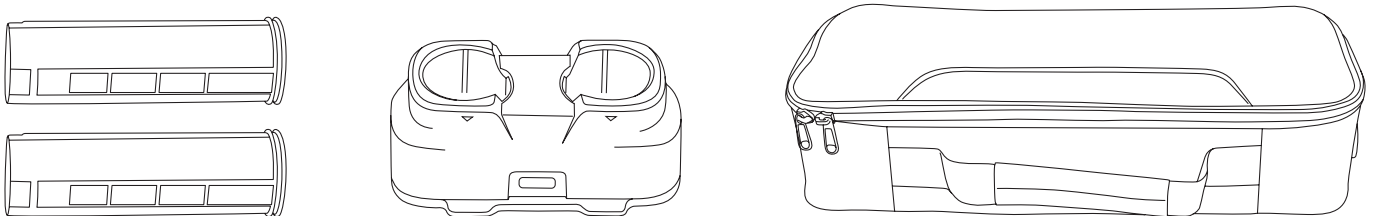
POWER ADAPTER



PICATINNY SUPPORT

MICRO HDMI CABLE

TYPE C CABLE

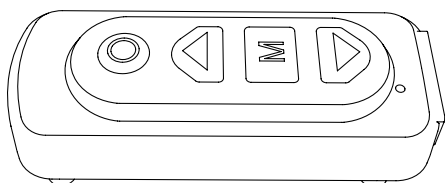


BATTERY

CHARGER

CARRYING BAG

Optional accessories



REMOTE CONTROL

CHAPTER 4 TECHNICAL SPECIFICATION

| Product Name | | Thermal Imaging Attachment | | | | | |
|------------------|--------------------------|--|------------------|------------------|------------------|------------------|------------------|
| Model | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
| Detector | Resolution | 400×300 @17μm | 400×300 @17μm | 400×300 @17μm | 640×512 @12μm | 640×512 @12μm | 640×512 @12μm |
| | Package | Metal | | | | | |
| | Detector resolution | 400×300 | 400×300 | 400×300 | 640×480 | 640×480 | 640×480 |
| | Spectral | 8-14μm | | | | | |
| | NETD | ≤50mk @ 25°C | | | | | |
| Lens | Focal length | 25mm F1.1 | 35mm F1.2 | 50mm F1.2 | 25mm F1.0 | 35mm F1.0 | 50mm F1.0 |
| | Focusing | manual | | | | | |
| | FOV | 15.49×11.65 | 11.1×8.33 | 7.78×5.84 | 17.46×13.14 | 12.52×9.41 | 8.78×6.59 |
| Image | Frame rate | 50Hz | | | | | |
| | Electronic amplification | 1x-4x | | | 1x-8x | | |
| Power | Battery | 1×18650(built-in) + 1×customized battery(extra-position) | | | | | |
| | Charging | Chargeable,type c | | | | | |
| Device interface | USB | type c, can be powered and charged;can read memory card data | | | | | |
| | Video interface | micro HDMI | | | | | |
| | WIFI | 2.4GHz, 802,11 b/g/n,maximum range- 15m | | | | | |
| | Bluetooth | Bluetooth remote control, can be connected to the device for wireless control | | | | | |
| | External extension | External connection slot, expandable external monitor and external laser pointer, etc. (TBD) | | | | | |
| | Pipe diameter | 30mm | | | | | |

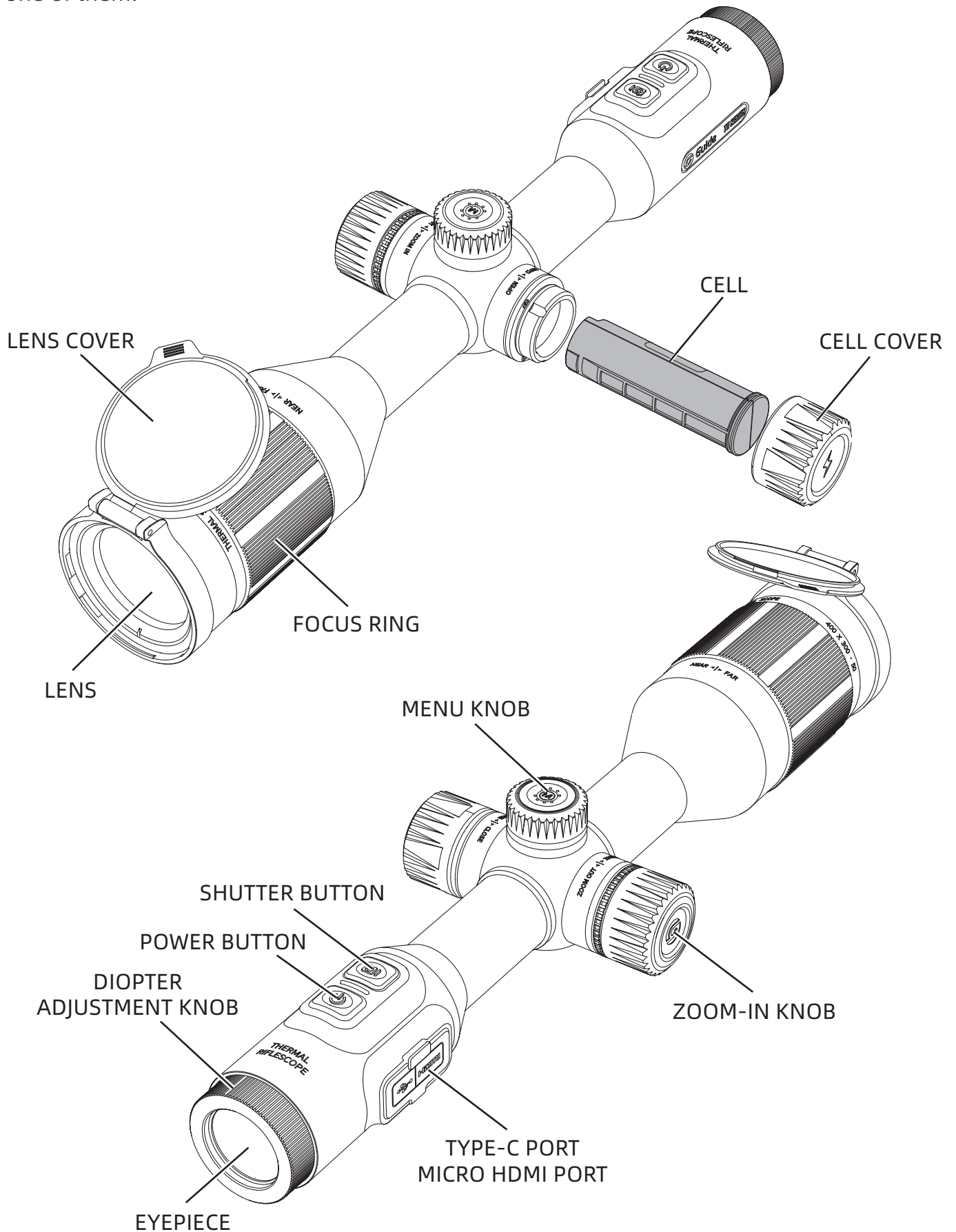
| Product Name | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
|----------------|-------------------------------|--|-----------|------------|------------|------------|------------|
| Display System | OLED | 0.39Inches OLED | | | | | |
| | Resolution | 1024×768,Full screen display (equal scaling) | | | | | |
| | Dioptre | -4 - +4 | | | | | |
| | Distance of exit pupil | 48mm | | | | | |
| | Diameter of exit pupil | 8mm | | | | | |
| | Eyepiece magnification | 14× | | | | | |
| | Device magnification | 1.6X~6.4X | 2.3X~9.2X | 3.2X~12.8X | 1.4X~11.2X | 2.0X~16.0X | 2.8X~22.4X |
| | Video output format | HDMI | | | | | |
| Button | Power on/off | Yes | | | | | |
| | Menu knob (pressable) | Yes | | | | | |
| | Shooting/Recording | Yes | | | | | |
| | Zoom-in knob | Yes | | | | | |
| Function | Sliding and Magnifying | Yes | | | | | |
| | Adjusting screen brightness | 5 levels | | | | | |
| | Adjusting detector brightness | 10 levels | | | | | |
| | Adjusting detector contrast | 10 levels | | | | | |
| | Image quality enhancement | Power on/off | | | | | |
| | Adjusting Scene mode | Support natural, highlight, enhanced mode | | | | | |
| | Stadiametric rangefinder | Yes | | | | | |
| | Super energy-saving mode | Power on/off | | | | | |
| | Photo | yes, Support instant continuous shooting | | | | | |
| | Video | yes, Support instant video recording | | | | | |

| Product Name | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
|-------------------------|--------------------------|---|-------|-------|-------|-------|-------|
| Function (Continued) | WIFI | The WIFI can be used to transmit photos and the device can be operated through the mobile phone APP within 15 meters (In an open and distraction-free environment) | | | | | |
| | Color palettes | white hot、black hot、adjustable red hot 1、adjustable red hot 2、adjustable red hot 3、green hot、iron red、blue hot (adjustable red hot: the threshold displayed on red hot can be adjusted in reference to Level /span) | | | | | |
| | Hot track | Yes | | | | | |
| | Compensation Mode | scene compensation/shutter compensation/automatic compensation | | | | | |
| | Automatic power-off | off(Do not enter power-off mode) ,the automatic power-off time can be set to 15/30/60 minutes | | | | | |
| | Auto Stand-by | off(Do not enter sleep state), the Auto Stand-by time can be set to 5/10/15 min. | | | | | |
| | Charging indicator light | Switch that controls the indicator light of the charging port . | | | | | |
| | Language settings | English/Russian/German/French/Chinese | | | | | |
| | Time settings | Yes | | | | | |
| | Watermark settings | Yes | | | | | |
| | PIP | yes, there are top left, top middle, and top right positions to choose from with scale mark. | | | | | |
| | Restore default | Yes | | | | | |
| | EMMC | Yes, can be formatted(16GB chip capacity) | | | | | |
| | External ranging | Yes | | | | | |
| | Bluetooth | Power on/off | | | | | |
| | Zero calibration | 50m/100m/200m/300m/500m | | | | | |
| | Model | 10 types | | | | | |
| | Scale mark type | 10 types in total | | | | | |
| | Scale mark color | black/white/yellow/green/red/blue | | | | | |
| | Scale mark brightness | 10 levels | | | | | |
| | One-click calibration | yes | | | | | |
| | Hardware upgrade | The hardware of each module can be upgraded directly through the memory card on the machine | | | | | |

| Product Name | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
|------------------------|---|---|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| System | Power-on time | ≤12s@25°C | | | | | |
| | Power-on interface | GUIDE/neutral (customizable) ;You can directly upgrade the boot screen with JPG format pictures | | | | | |
| | Product appearance | The appearance of daylight scope,30mmtube diameter,GUIDE/neutral (customizable tag) | | | | | |
| Environment adaptation | Working temperature | -30°C ~ 50°C(external power supply only below-20°C) | | | | | |
| | Storage temperature | -45°C ~ 70°C | | | | | |
| | Humidity | 10% ~ 95% under working and storage environment without condensing | | | | | |
| | Impact | 500G/1ms | | | | | |
| | Vibration | 10Hz ~ 150Hz ~ 10Hz 0.15mm IEC60068-2-6 | | | | | |
| | Dust-proof / Water proof | IP67 | | | | | |
| | Certification | RoHS certification report、CE certification report、FCC certification report、EAC certification report、WEEE(Germany、UK、Ireland、Dutch、Denmark、Finland、Sweden、Poland、Czechoslovakia、Hungary、Switzerland、Spain、Italy、Portugal、Belgium、Austria、France)、UN 38.8 | | | | | |
| Package | Standard items | Thermal Imaging Attachment、type c cable、5V2A adapter(US/EU/AU/EU)、customized battery×2、customized charger (desktop charger) 、micro HDMI video cable、Picatinny support×2 | | | | | |
| | Color | Black | | | | | |
| | Weight (Not including eye patch or battery) | ≤930g | ≤940g | ≤950g | ≤980g | ≤980g | ≤990g |
| | Size((Not including eye patch) | ≤ 367×107 ×69mm | ≤ 67×107 ×69mm | ≤ 377×107 ×69mm | ≤ 367×107 ×69mm | ≤ 367×107 ×69mm | ≤ 377×107 ×69mm |

CHAPTER 5 PRODUCT COMPONENTS

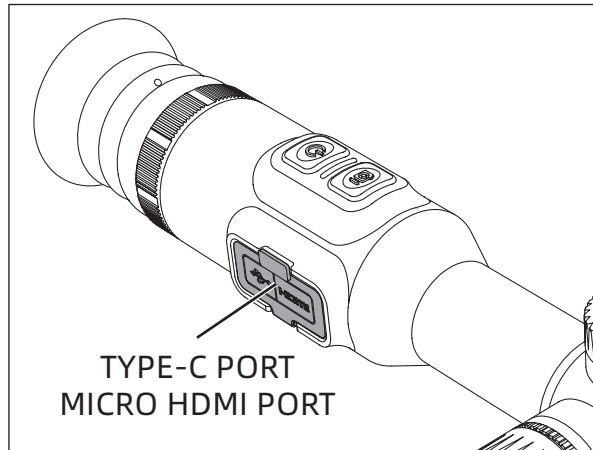
This manual is applicable to many models of this series, and the illustration is only one of them.



CHAPTER 6 OPERATION INSTRUCTION

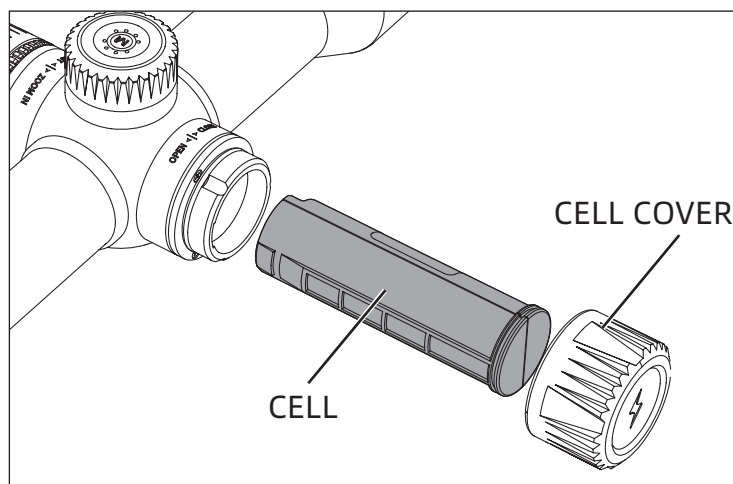
6.1 QUICK START

6.1.1 USB Type C & Micro HDMI



- **USB Type C interface**
Through the external interface supporting USB cable, it can be connected to an external power supply, and the product can be charged.
The output specification of the external power supply to charge the product is 5V2A.
- **Micro HDMI**
Through the external interface supporting video cable, the external power supply and external screen can be connected simultaneously, and the image of the thermal imager can be output to the external monitor for display.

6.1.2 Power supply



- **Power charging:**
When using the product for the first time, be sure to use the supporting USB

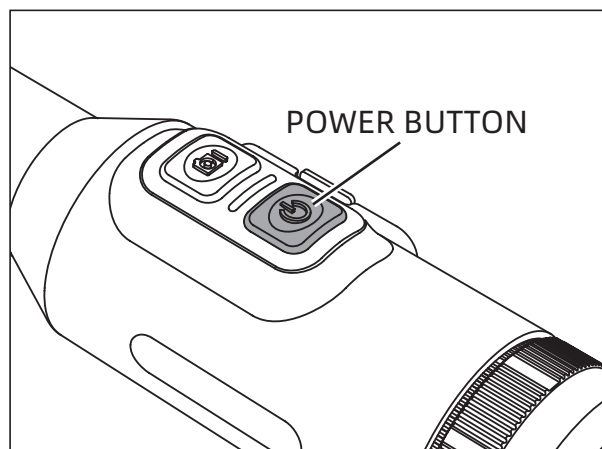
charger for at least 4 hours. When charging, please open the USB cover on the side of the product, insert the matching Type C USB charging cable, and connect to the power supply to charge.

When charging, the charging indicator turns red. When the charging is completed, the charging indicator turns green.

- **Battery disassembly:**

If the product is equipped with a battery, the battery cover is the entrance for removing and installing the battery. Please insert the battery in the direction shown in the figure, do not force the battery in.

6.1.3 Power on/off



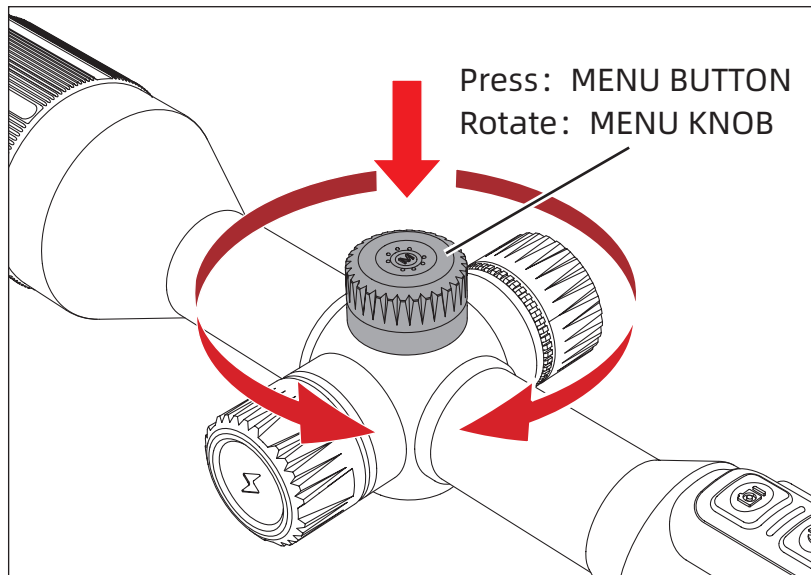
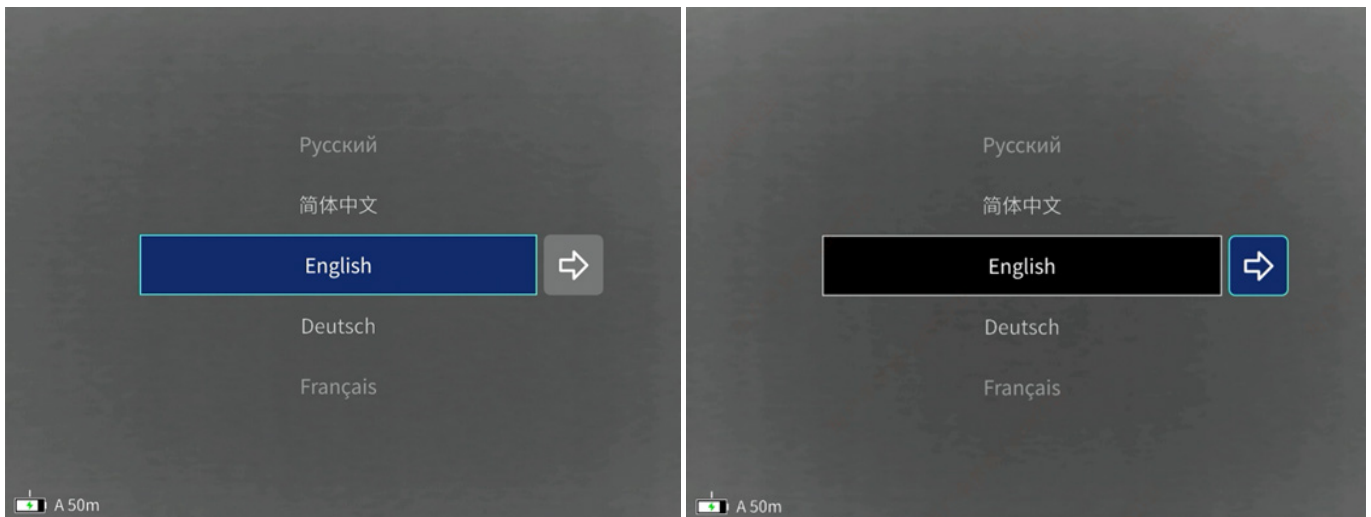
- **Power on/button:**

Long press the "Power button" until the boot image appears in the eyepiece, then the boot is successful; long press the "Power button" to display the shutdown progress bar, which continues until the progress bar is completed and the shutdown is successful.

- **Display off/Display on:**

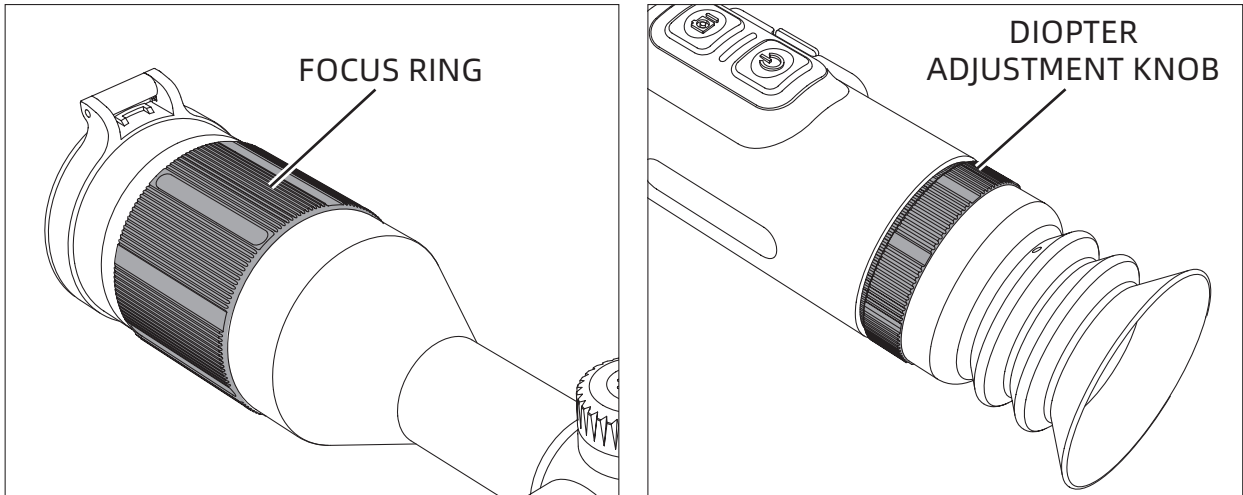
Press and hold the "power button" to display the shutdown progress bar. Before the progress bar is completed, release the "power button" to cancel the shutdown and enter the Display off mode. Press any button to wake up the screen.

6.1.4 Language Settings



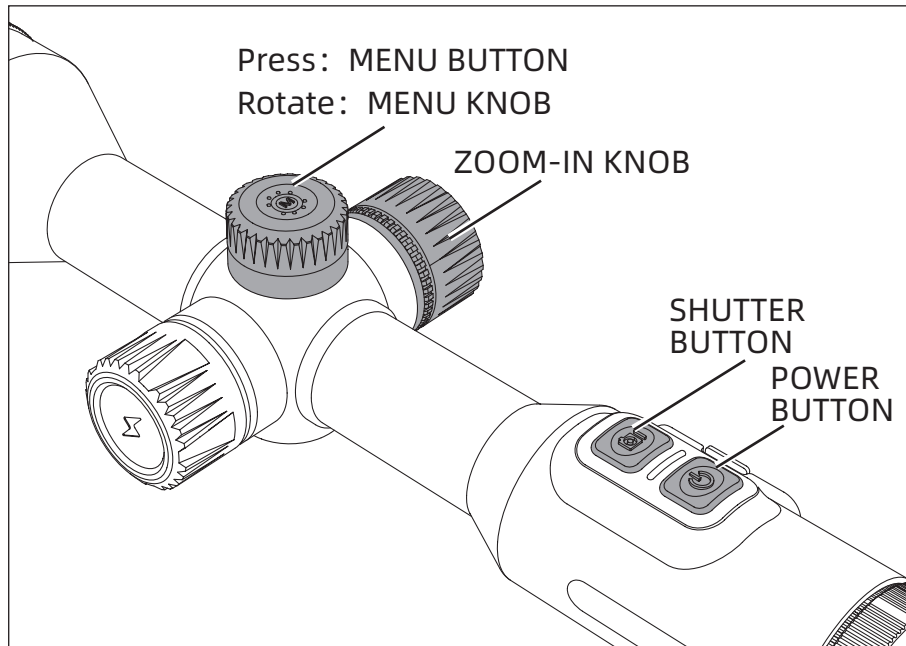
When the device is powered on for the first time to select the language, rotate the "Menu Knob" to scroll up and down to select the language; Short press the "Menu Key" to move to the "Arrow Keys", short press the "Menu Key" again to confirm the language selection and jump to the Home interface; long press The "Menu key" returns to the language scrolling selection.

6.1.5 Focusing



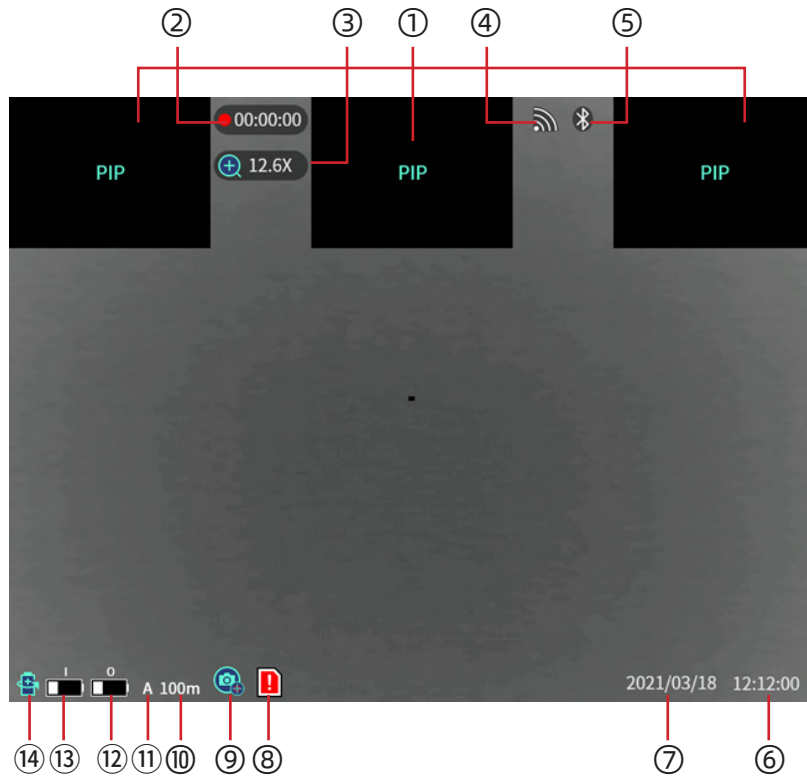
- **Dioptré Adjustment**
After the thermal imager is powered on, rotate the dioptré adjustment knob to correct the individual differences in dioptré of different users until a clear image is observed.
- **Focal Distance Adjustment**
After the thermal imager is turned on, it should be aimed at the observation target. When the distance to the observation target changes, the image may be blurred. Turn the lens focusing ring to refocus until the target image is clear.

6.2 BUTTON DESCRIPTION



| Button | Current device status | Rotation | Short Press | Long Press |
|-----------------|-----------------------|--------------------------|-----------------------|---------------------------|
| Power button | Power on | / | Compensation | Display off/off |
| | Power off | / | / | Power on |
| | Display off | / | Display on | / |
| Shooting button | Menu bar not shown | / | shooting | / |
| | Menu bar not shown | / | / | Start video recording |
| | video-recording | / | / | video-recording completed |
| Menu Knob | Menu bar not shown | Switch to color palettes | / | / |
| | Menu bar display | Toggle options | / | / |
| Menu button | Menu bar not shown | / | Shortcut menu | Menu |
| | Menu bar display | / | Select current option | Return to previous option |
| Zoom-in knob | Menu bar not shown | Zoom in or zoom out | / | / |
| | | / | Integer magnification | / |

6.3 HOME SCREEN LIST



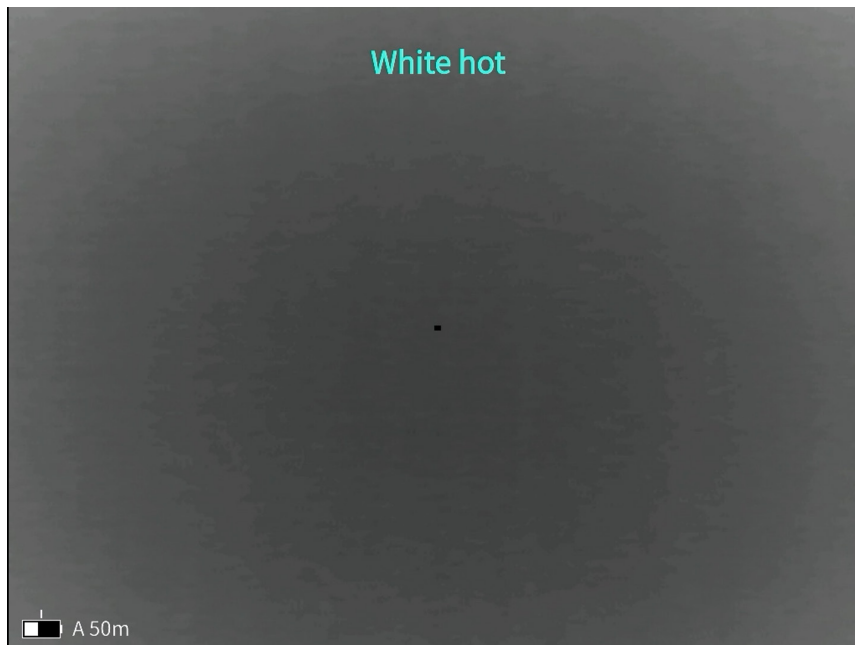
- ① PIP: left top, middle top, right top display
- ② Recording duration: Recording status and duration display
- ③ Magnification Power: Magnification value display
- ④ WiFi: WiFi is on and connected status is displayed
- ⑤ Bluetooth: Bluetooth on-status display
- ⑥ Time: Time display
- ⑦ Date: Date display
- ⑧ SD card: SD card full status display
- ⑨ Recording mode: shooting/recording mode
- ⑩ Zero calibration distance: Zero calibration distance display
- ⑪ Model configuration: Model configuration display
- ⑫ External power: External power display
- ⑬ Built-in power: Built-in power display
- ⑭ Super energy-saving mode: Super energy-saving mode is on

CHAPTER 7 FUNCTION DESCRIPTION

7.1 QUICK START

- **Menu knob**

Color palette: When the power is turned on and the menu is not called up, turn the "menu knob" and turn it counterclockwise to switch between white hot/black hot/adjustable red hot/iron red/blue hot/green hot.



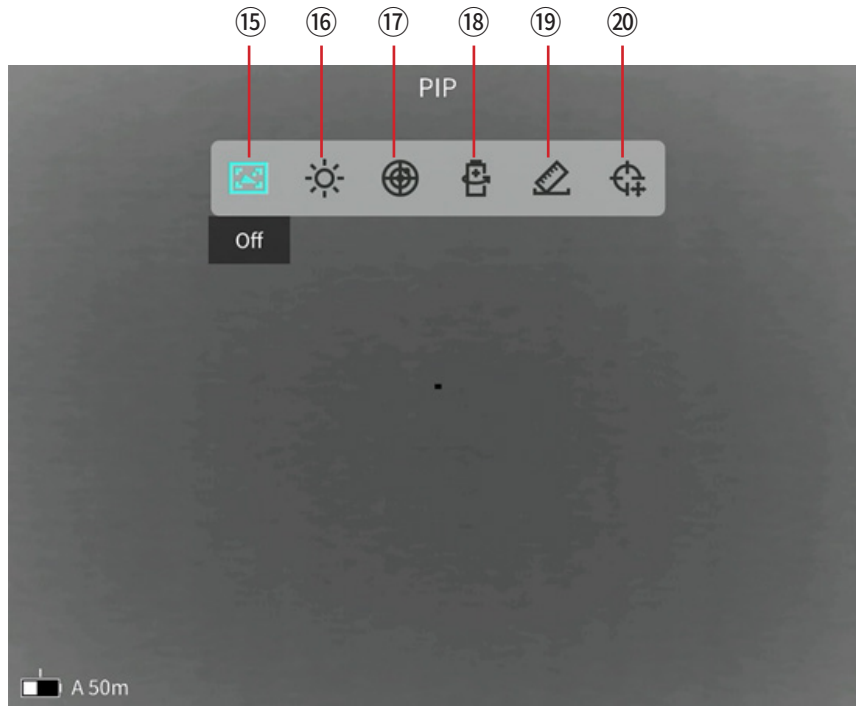
- **Zoom-in knob**

Zoom-in/Zoom-out: When it is turned on and in the menu, and the rough distance measurement is not called up, rotate clockwise, and the imaging screen will be enlarged to the maximum value in steps of 0.1; if rotated counterclockwise, the imaging screen will be reduced to the minimum value in steps of 0.1.

Integer magnification: When it is turned on and in the menu, and the rough distance measurement is not called up, short press the knob and it can be multiplied by integer.

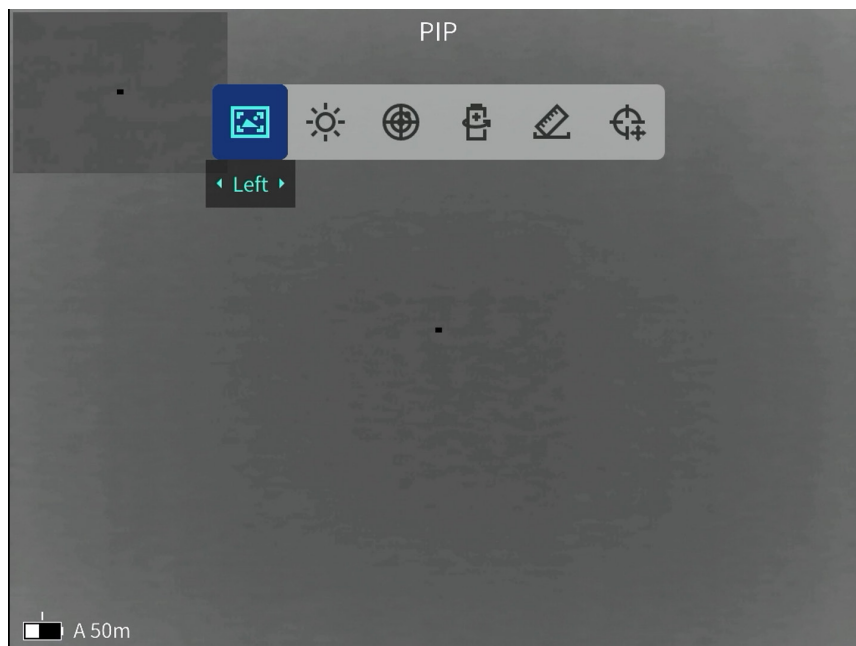
- **Shortcut menu**

When the power is turned on and the menu is not called up, short press the "Menu key" to display the shortcut menu options.



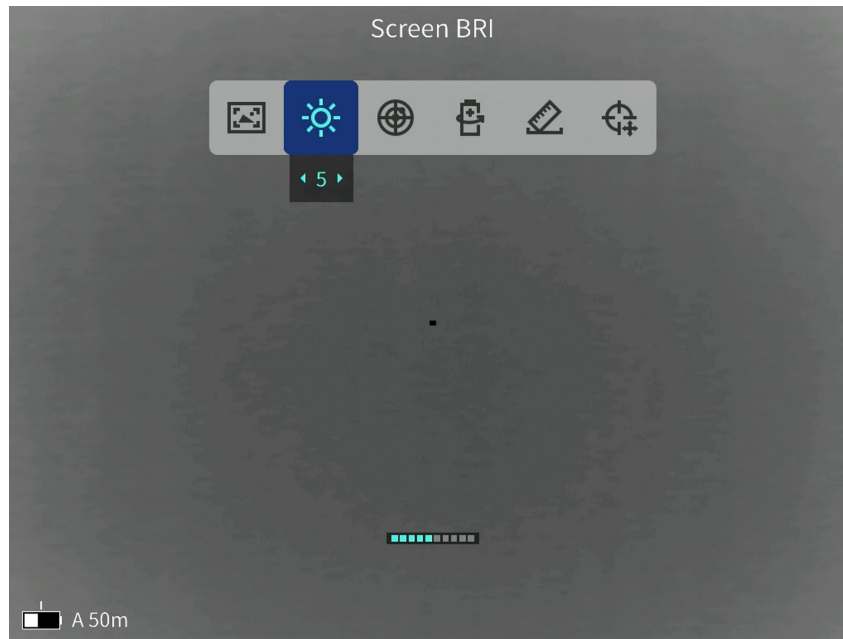
- ⑮  **PIP:**

After the function is turned on, there are three positions: upper left, upper middle, and upper right for 2x magnification.



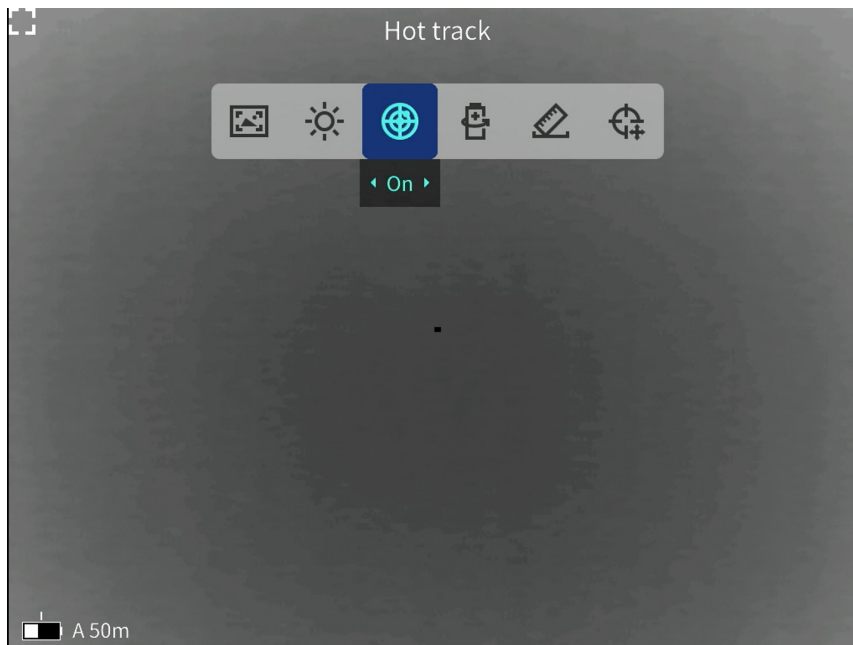
①⑥  **Screen BRI:**

screen BRI can be adjusted, a total of 1-10 levels.



①⑦  **Hot track:**

When the function is turned on, a white box cursor is displayed to track the highest temperature point in the whole image.

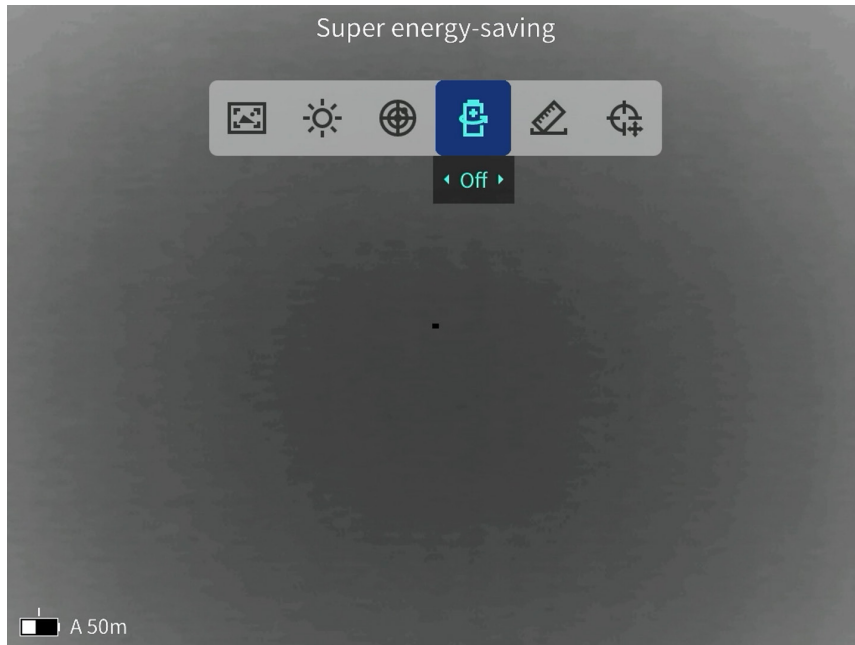


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Super energy-saving:

Turn on and switch to low power consumption mode, the brightness of the display is fixed at 20%. WiFi cannot be turned on, if the current WiFi is already turned on, turn off the WiFi, and the shooting recording function cannot be turned on. If it is currently in the shooting recording mode, it will prompt to turn it off.

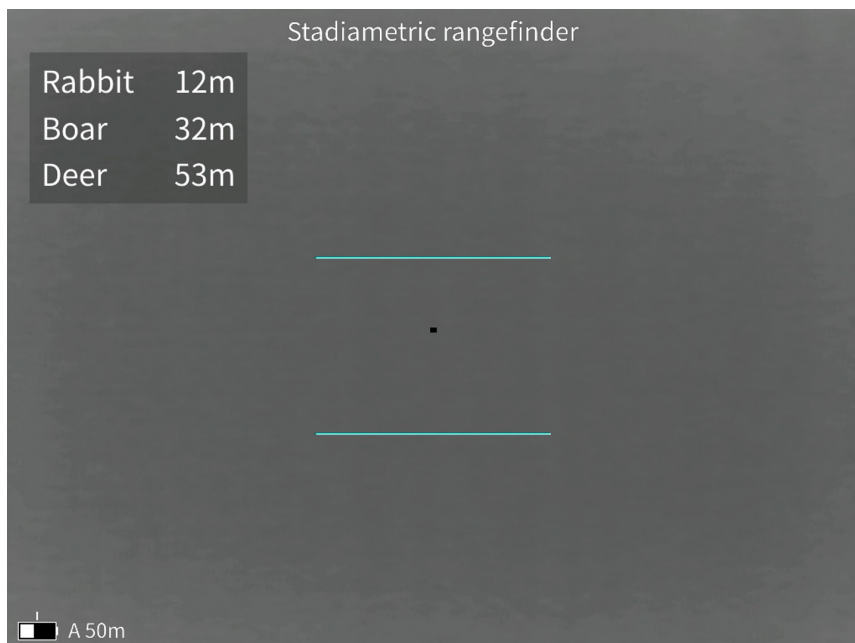


19



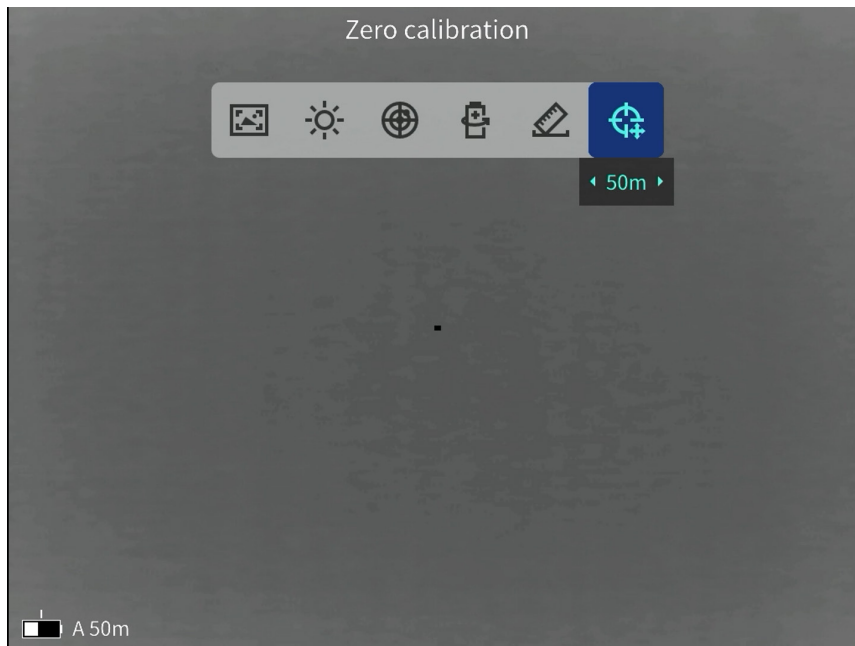
Stadiametric rangefinder:

The reference height of a rabbit is 35cm, the reference height of a wild boar is 90cm, and the reference height of a deer is 150cm. Calculate the stadiametric distance of the rabbit, wild boar and deer. After the rough ranging is turned on, the display interface is as follows, the position of the lower horizontal line remains unchanged, and the upper horizontal line can be moved by rotating the menu knob to estimate the target distance.



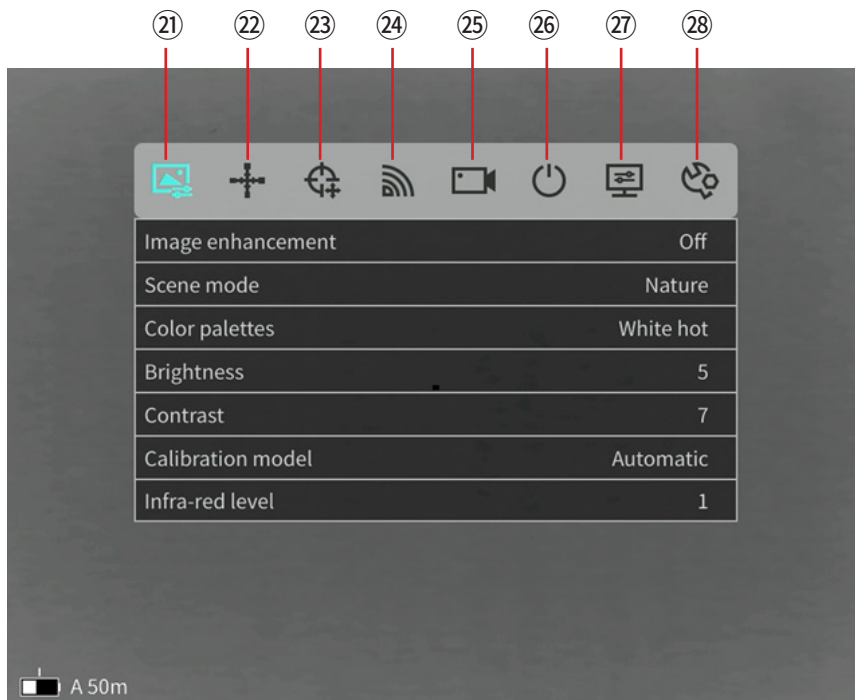
20  **Zero calibration:**

You can quickly adjust the current zero calibration distance, and the optional distance is 50m, 100m, 200m, 300m, 500m. Set the appropriate value according to the zero calibration shooting distance or actual shooting distance.



7.2 Main menu operation

When the device is turned on and the menu is called up, long press the "Menu key" to display the main menu options.

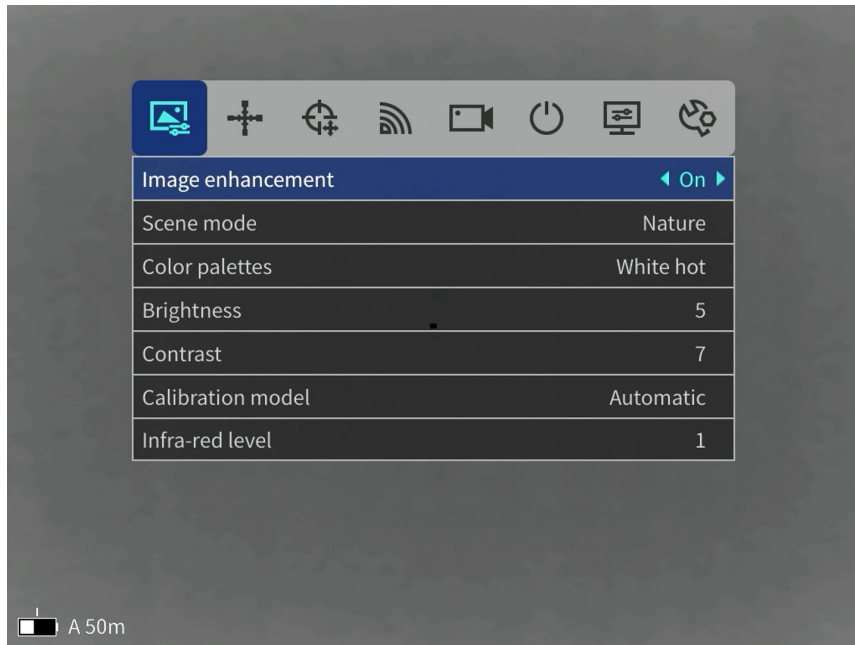


21

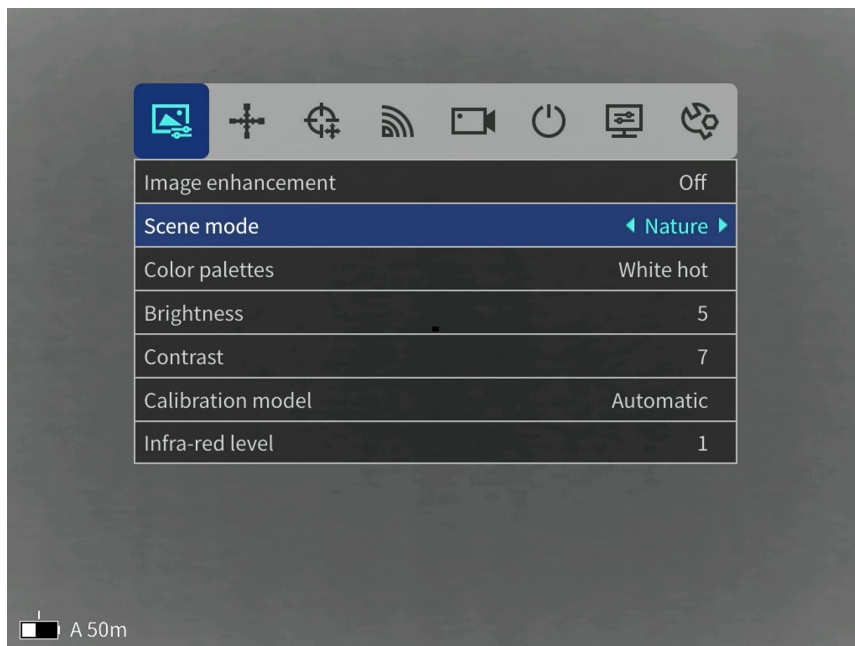


image enhancement

- **Image enhancement:** Turn on to adjust the image quality.

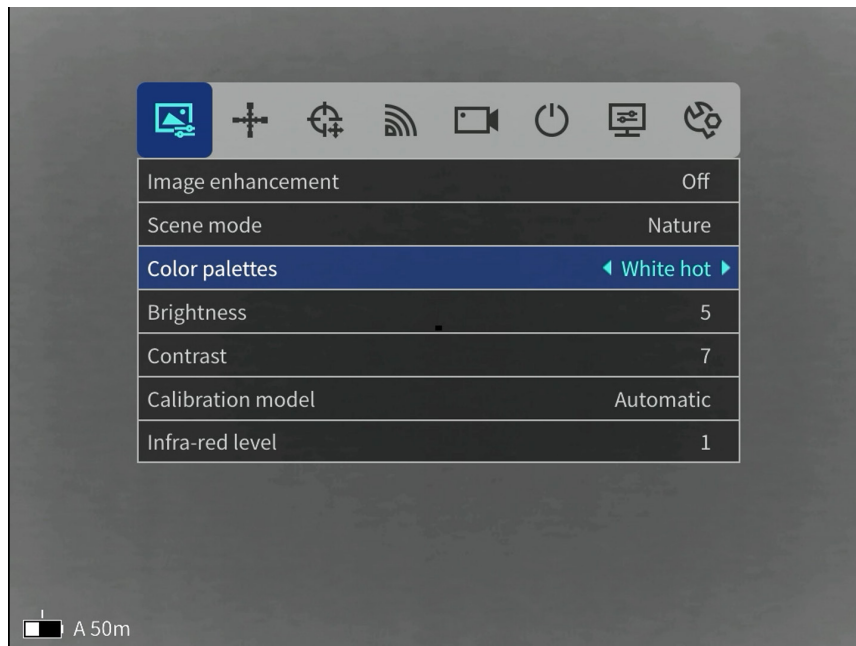


- **Scene mode:**
Three scene modes of natural/enhanced/highlight can be set.



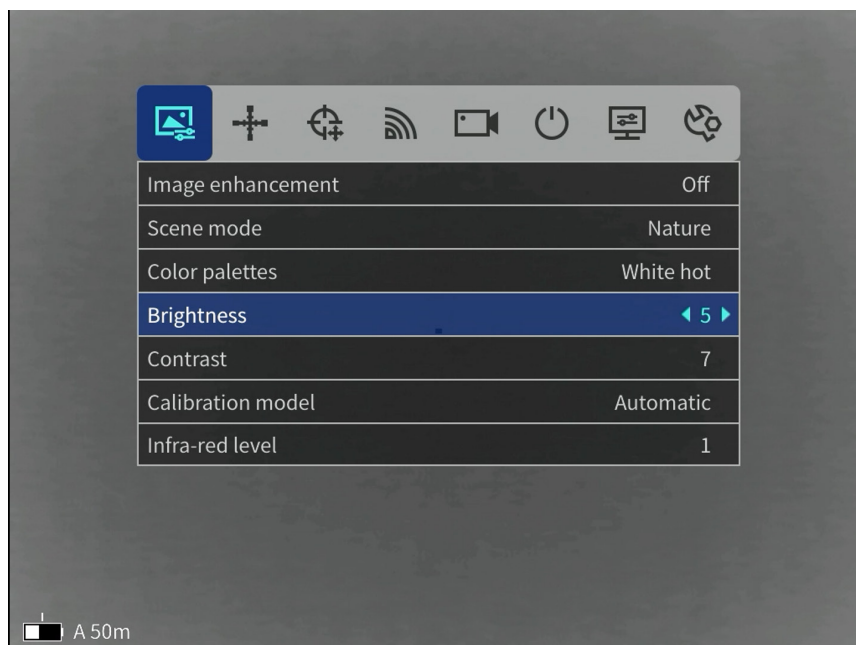
- **Color palettes:**

Adjustable in white hot/black hot/adjustable red hot/iron red/blue hot/green hot.



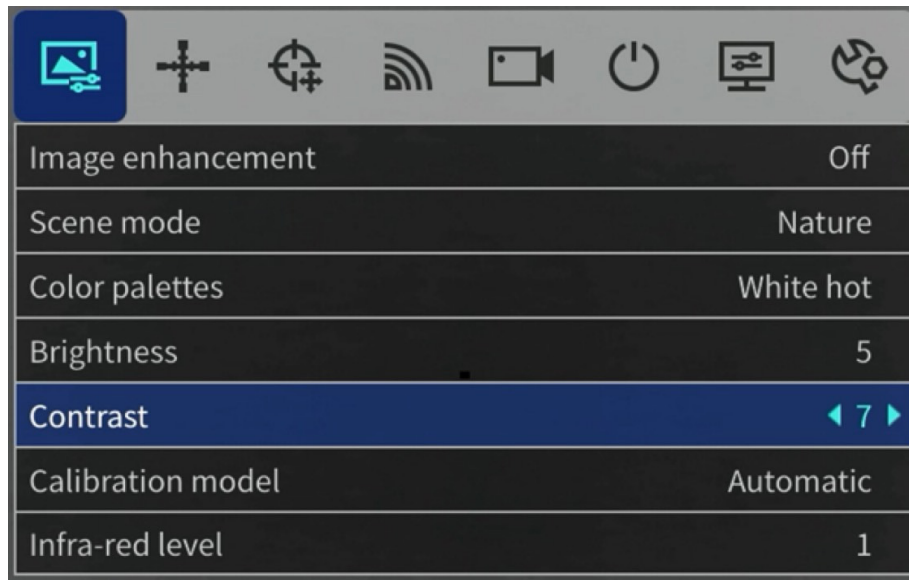
- **Brightness:** Detector brightness can be adjusted, 1-10 levels adjustable.

Note: The value of adjusted brightness will be saved in the current scene mode.



- **Contrast:** Contrast can be adjusted, 1-10 levels adjustable.

Note: The value of adjusted contrast will be saved in the current scene mode.



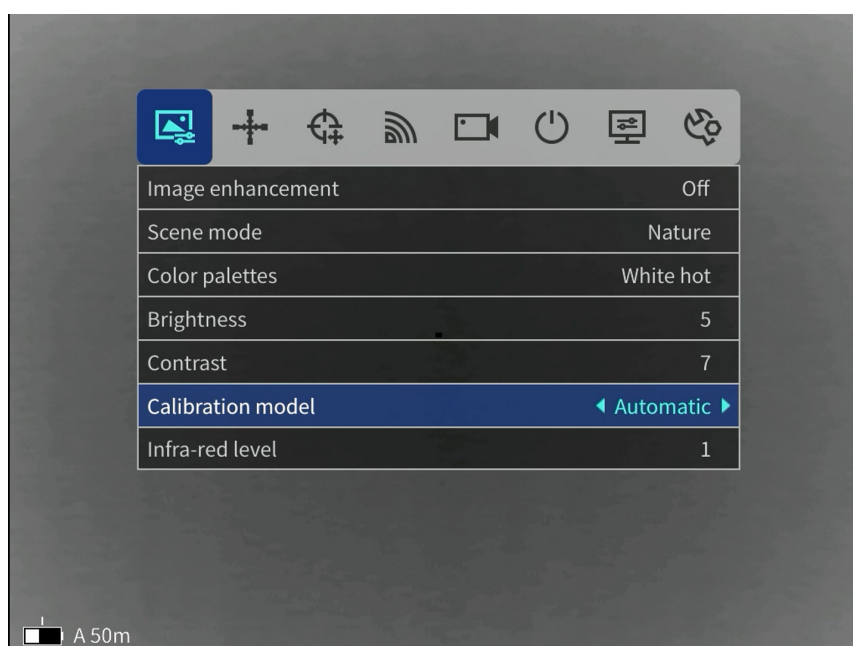
- **Compensation model:**

Three compensation modes can be set: Auto Compensation/Scene Compensation/Shutter Compensation.

Automatic compensation: The device automatically corrects the image quality, no operation is required.

Scene compensation : Users can manually correct the image quality according to their needs, and the lens cover needs to be covered before compensation.

Shutter Compensation: Users can manually correct the image quality according to their needs, and the device shutter is closed to compensate.



Infra-red level: Red hot level can be adjusted, a total of 1-10 levels.

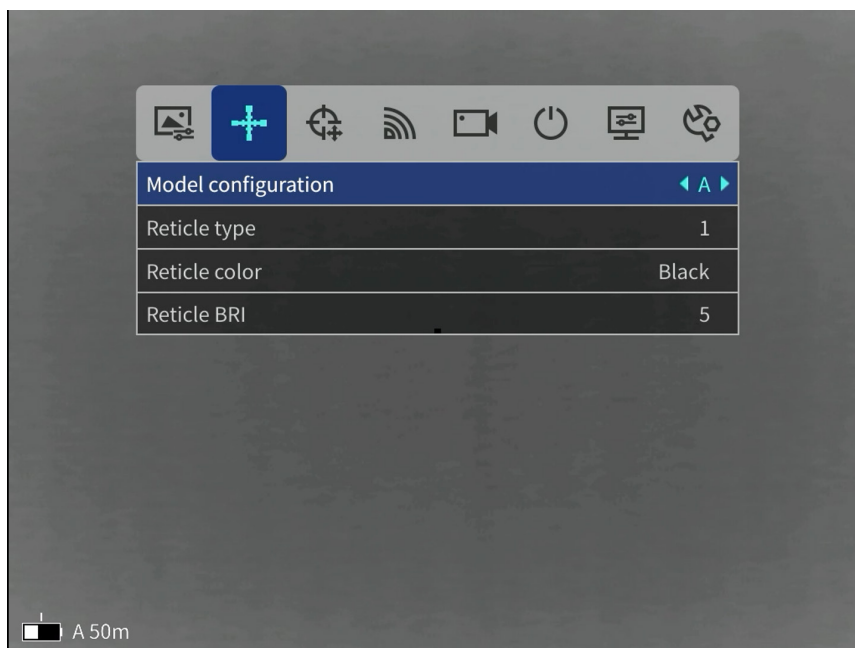
Note: When entering the red hot level, the image is switched to red hot in real time, and when exiting, it returns to the original color palette. The value of the red hot level is saved in the current scene mode.



② Reticle settings

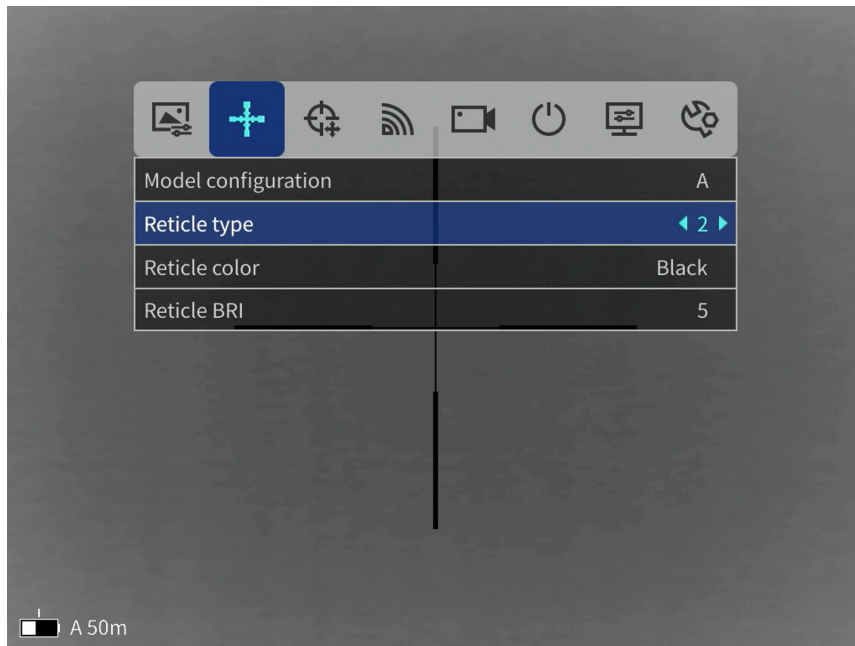
- **Model configuration:**

Optional A-J settings, save 10 groups of zero calibration parameters : sorting reticle types, split reticle color, dividing reticle brightness, zero calibration distance and zero calibration parameters.



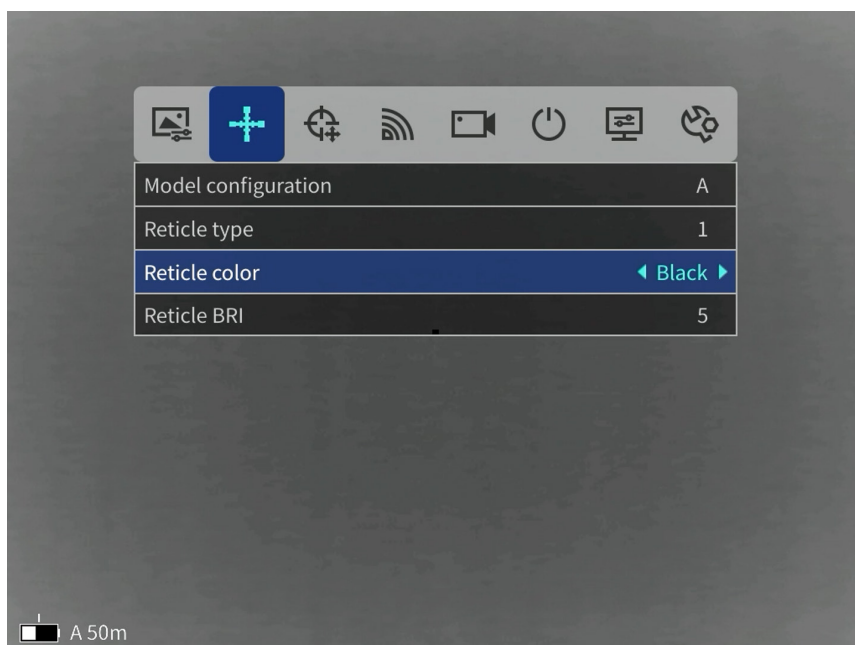
- **Reticle type:**

There are 10 reticle types to choose from. For details, please refer to Chapter 8.



- **Reticle color:**

Available in black/white/yellow/green/blue/red, 6 types in total.



- **Reticle BRI:**

Reticle BRI can be adjusted, a total of 1-10 levels.

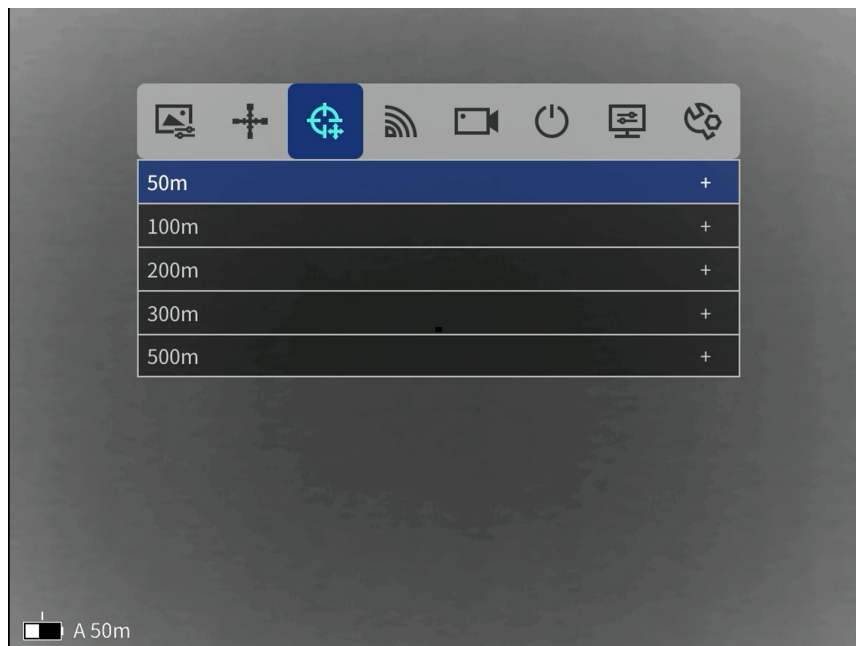


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Zero calibration settings

- **Zero calibration settings:** optional 50 m, 100 m, 200 m, 300 m, 500 m, manual zero calibration editing, editing X, Y values, adjusting the reticle position.



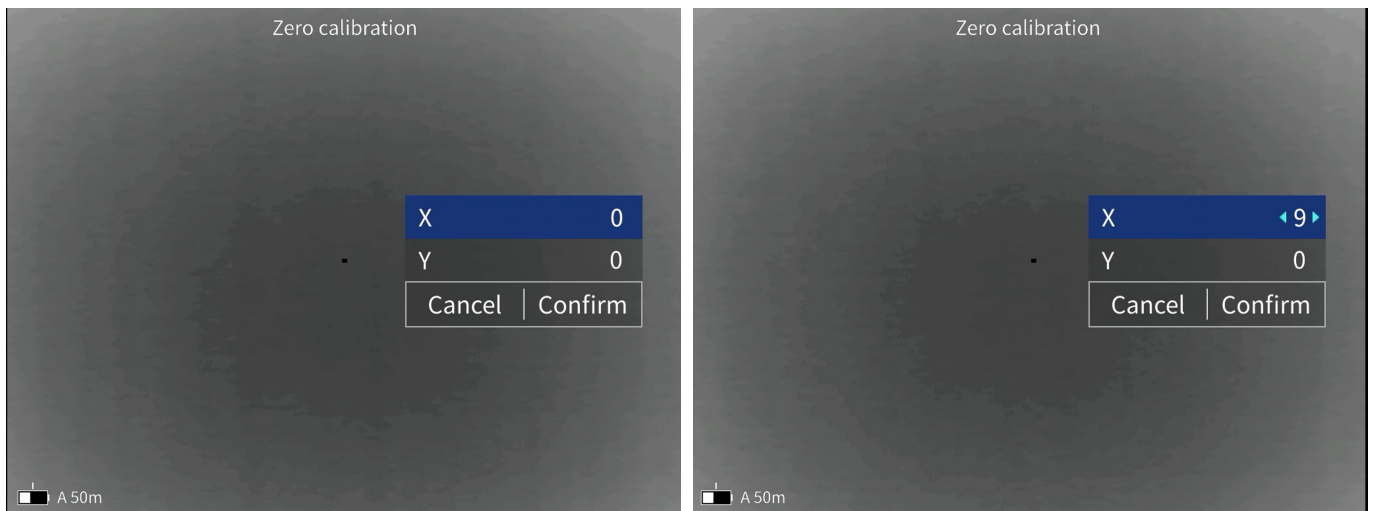
Zero calibration steps are as follows:

Every time you enter the zero calibration interface, the magnification value of the screen is the minimum , and you can use the magnification knob to

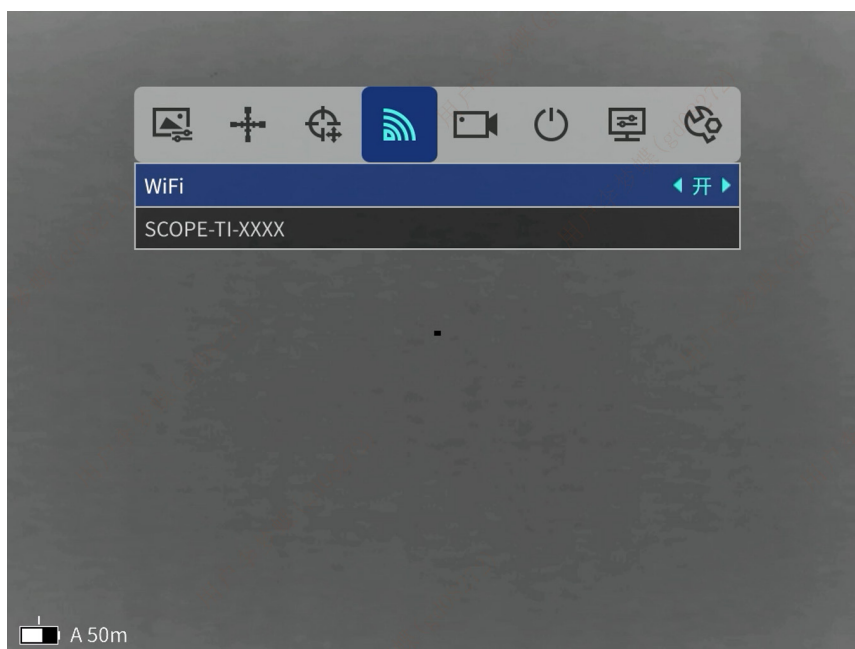
adjust it.

Enter the zero calibration interface, aim at the expected hit point with the center of the current reticle, shoot, and measure the relative distance between the actual impact point and the expected hit point.

According to the relative distance, select "X" or "Y" direction, move the center point of the current reticle to the actual impact point, and the white cross cursor represents the current position before the current reticle moves.



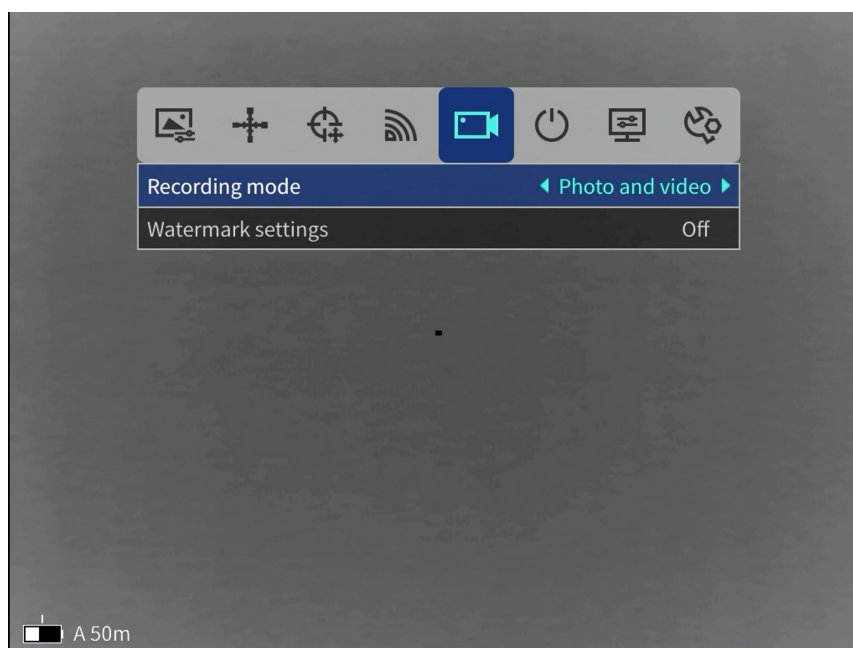
24



- **WiFi switch:** When the mobile client-side and the device are connected, real-time video can be transmitted to the mobile.
- **WiFi name:** SCOPE-TI-xxxx

Note: Search and download the 'Targetir'App on the mobile phone market, open the APP, and find the WiFi name of 'Scope-Ti-X2XXX 'in the mobile phone WIFI settings, entering the password' 12345678 ', you can operate remotely by successful connection. You can operate the device through the APP, access the photos/videos on the device, and perform operations such as photo/video playback, sharing, and deletion. For details, please refer to Section 9.2 of this user manual.

25 Record settings



Record mode: After it is turned on, you can choose from single shot/shooting photo/shooting record.

- **Single shot and single record:** trigger shooting and video recording through the camera button
- **Shooting photos:** automatically record the images when shooting, and take 10 images continuously within 1s
- **Shooting record:** Automatically record 3s before shooting and 7s after shooting

The photo record information is as follows:

Record format: JPG format

Record file:/DCIM/GUIDECAMERA

The video record information is as follows:

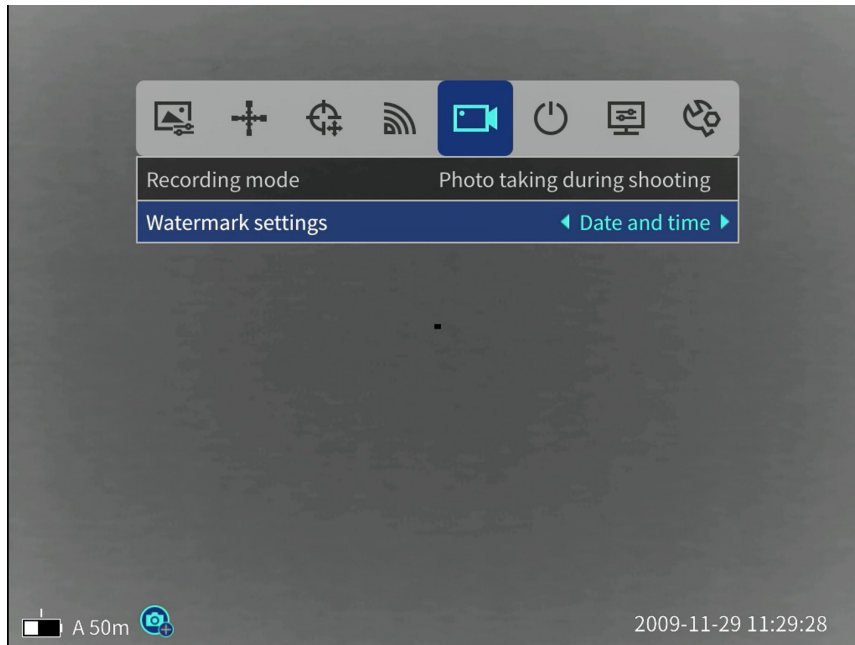
Record format: H264 encoded MP4 format

Record file:/DCIM/GUIDEVIDEO

Video resolution: 1024×768

Video frame: 50Hz

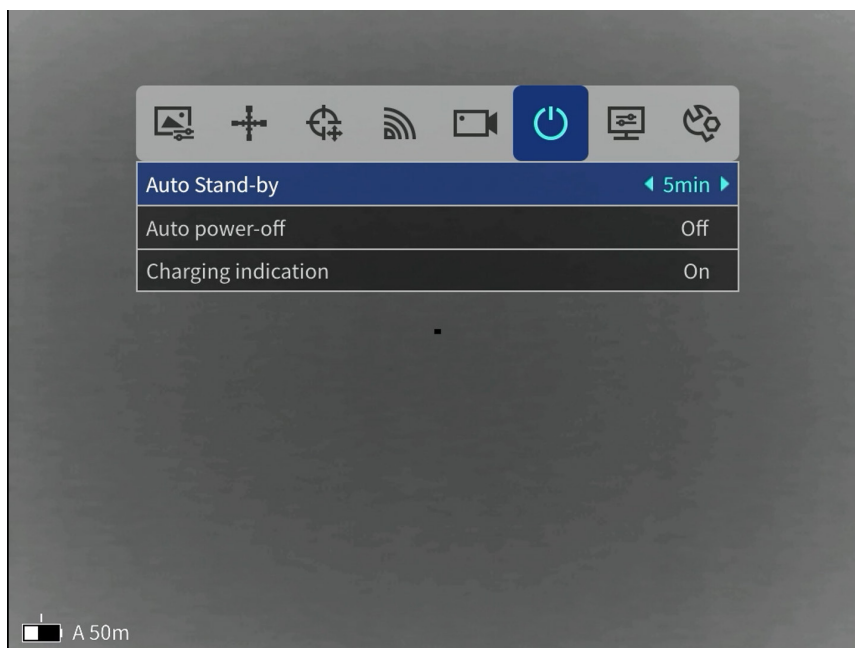
Watermark settings: When turned on, it can be selected from Time Only/
Date Only/Time Date/Off.



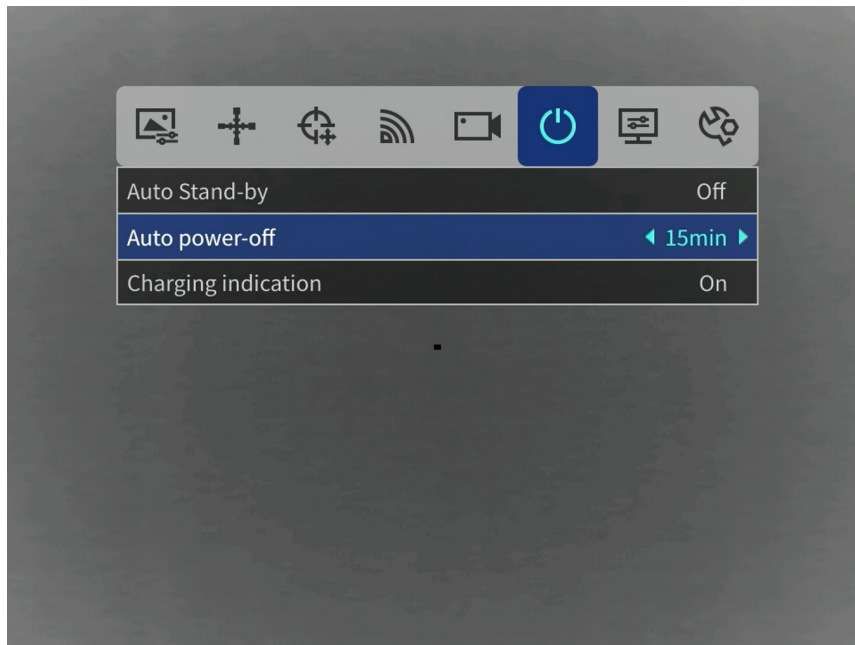
26



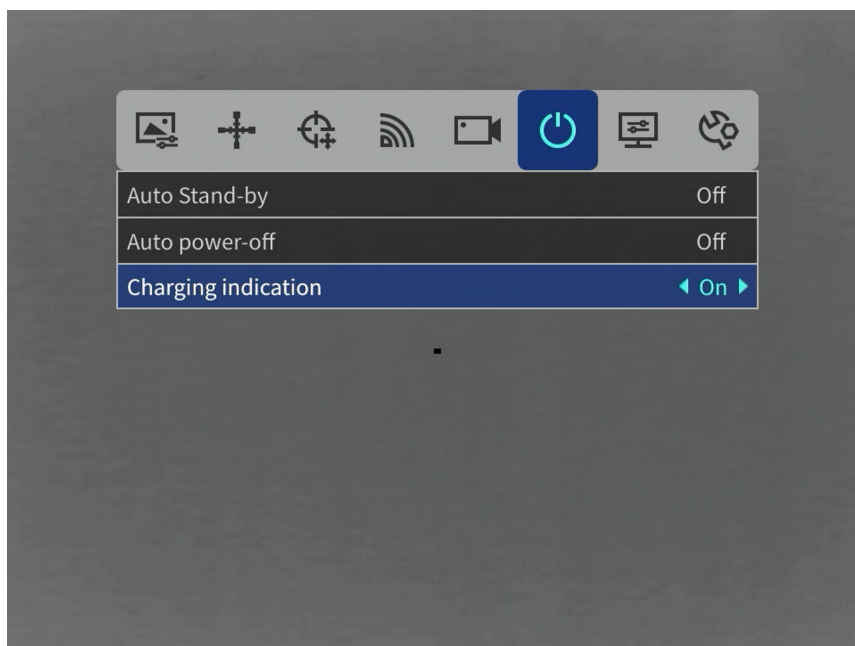
Power-saving settings



- **Auto stand-by:** 5/10/15 minutes of automatic sleep time can be set. If there is no any operation during the setting time, enter the sleep state.
- **Auto power-off:** The automatic power-off time can be set to 15/30/60 minutes. If there is no key operation at the set time, it will enter the power-off countdown, and the device will be powered off after the countdown ends.



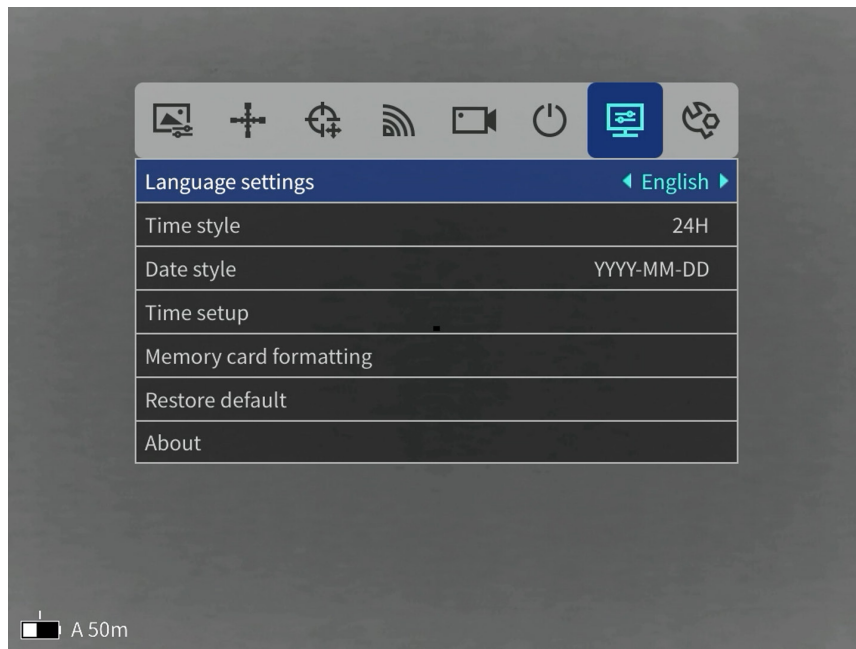
- **Charging indication:** the switch that controls the indicator light of the charging port.



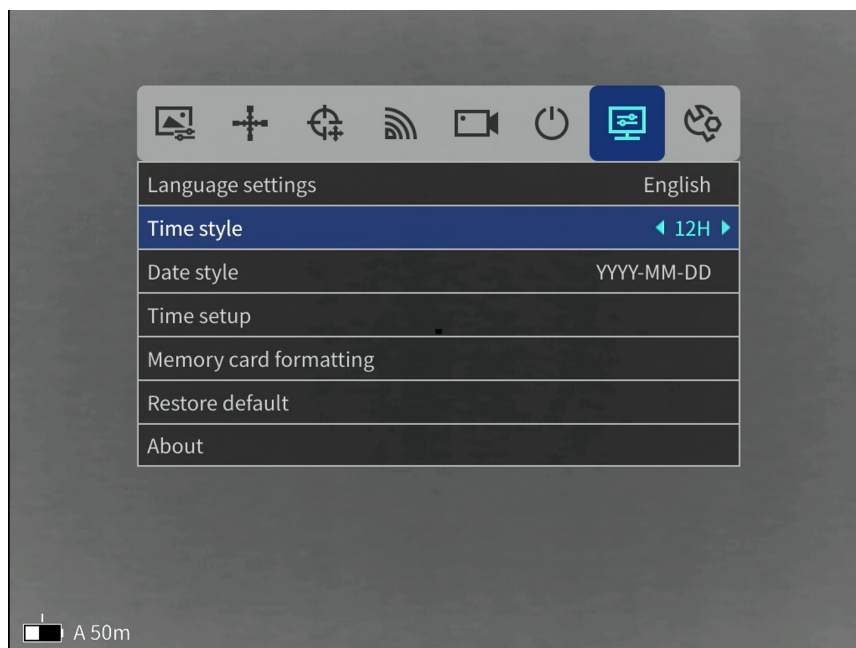
27



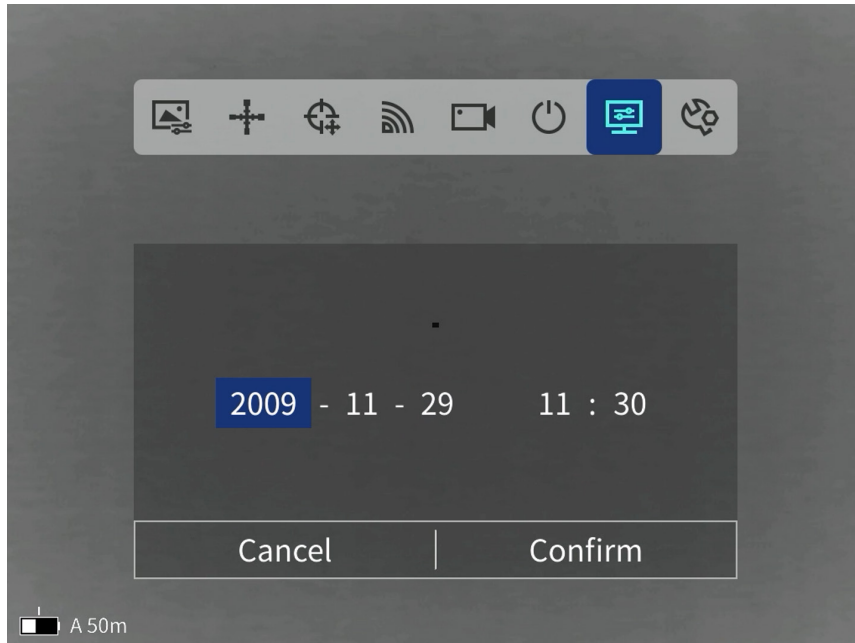
Local settings



- **Language settings:** Chinese/English/Russian/German/French can be chosen from
- **Time style:** choose from 12H/24H

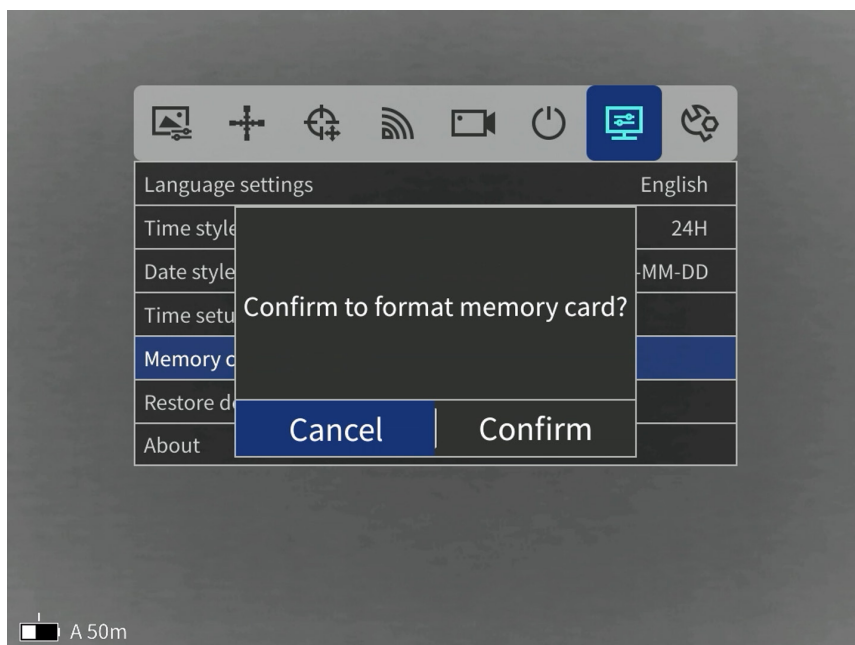


- **Date style:** choose from YYYY-MM-DD/MM-DD-YYYY/DD-MM-YYYY
- **Time setup:** Enter the time adjustment interface, rotate the menu knobs to move between each option, press the menu key to enter the next level adjustment state. At this time, rotate the menu knob and move between the specific time.



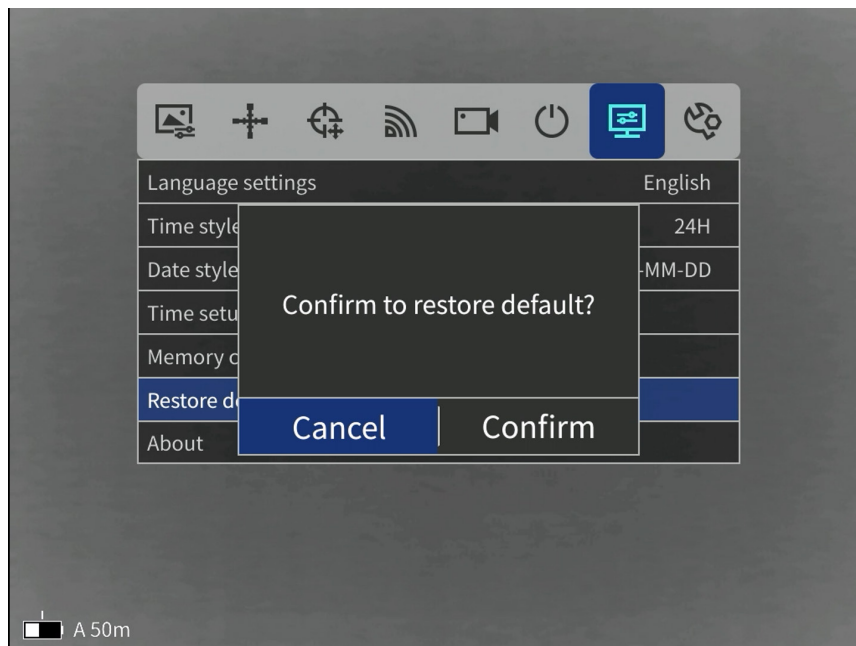
- **Memory card formatting:** You can choose to format the memory card, select 'Yes' to format the memory card, select 'No' to cancel the operation.

SELECT WITH CAUTION !

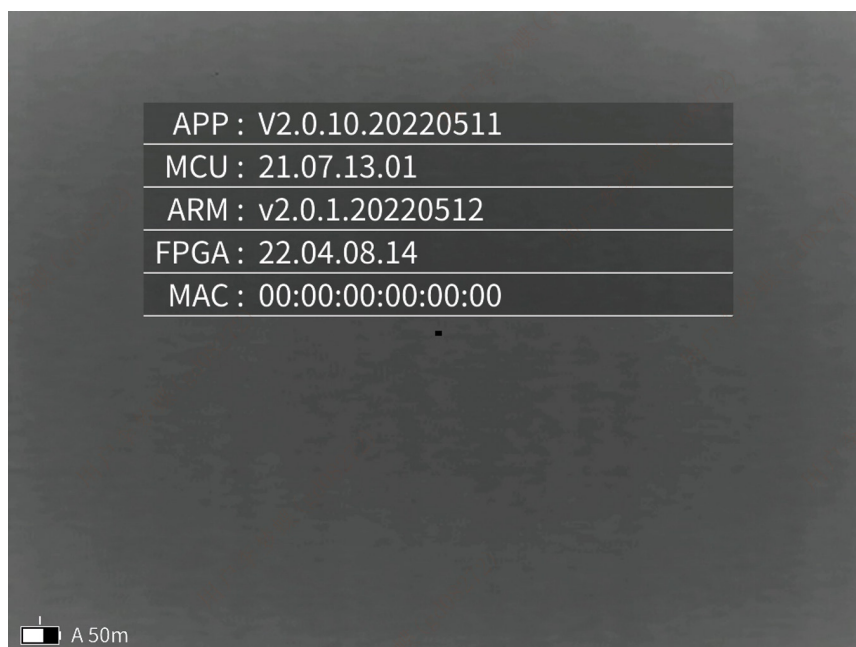


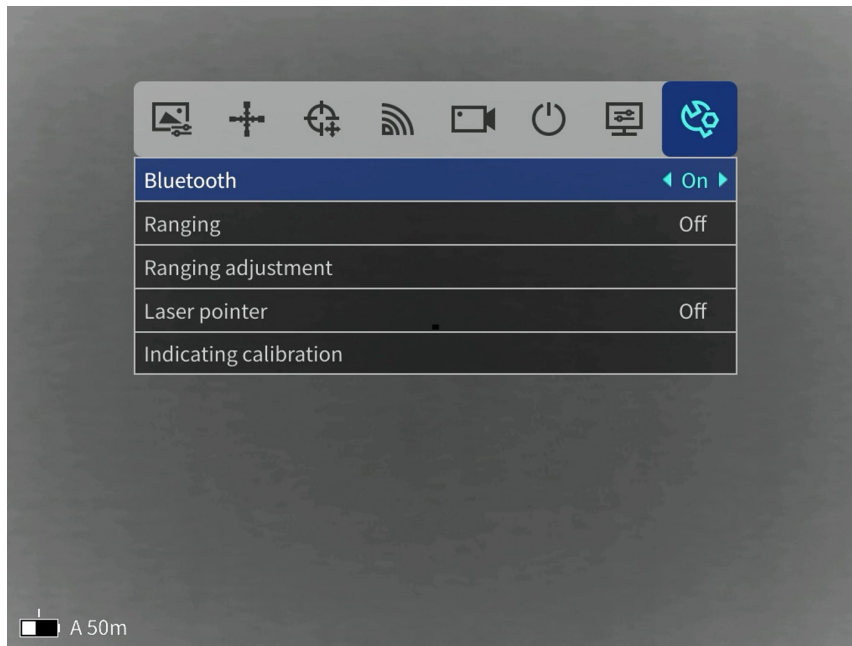
- **Restore default:** You can choose whether to restore the default value. Select 'Yes' to restore all parameters to factory settings; select 'No' to cancel the operation.

SELECT WITH CAUTION !







- **About:** Check the current device information.(This figure is for reference display only)





- **Remote control:** After it is turned on, the Bluetooth icon flickered, and the Bluetooth remote control will be searched. The device is randomly connected to the remote control. After the connection is successful, the Bluetooth icon that does not flicker appears and the riflescope can be controlled using the Bluetooth remote control.

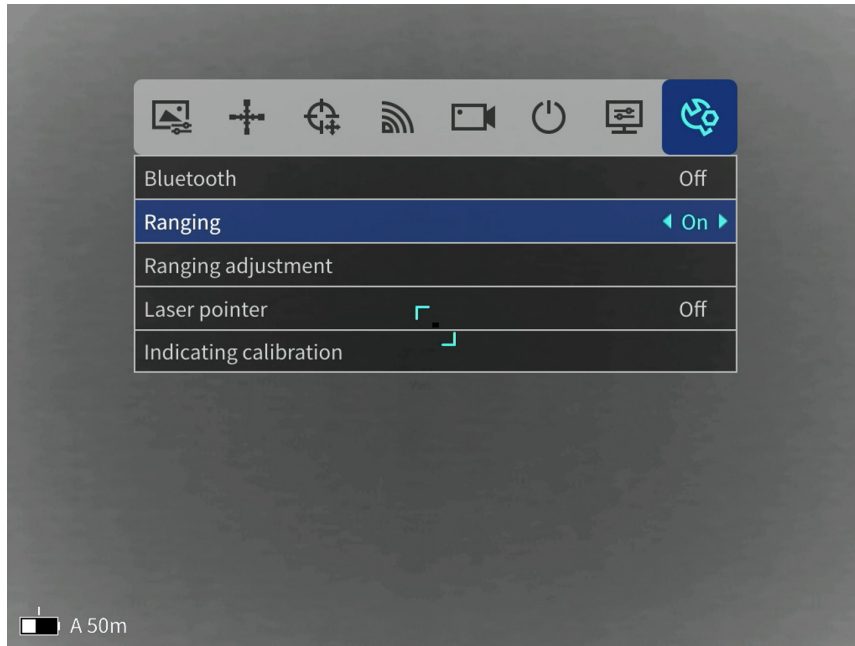
The bluetooth remote has 1 hardware switch and 4 buttons. Among them, the hardware switch controls the on and off of the remote control itself. The 4 buttons correspond to the 4 buttons on the device side respectively, as shown in the figure below.

| Remote controller button | Operation | Function | Current State |
|---|---------------------------------|--|--------------------|
|  | Press | Compensation | Menu bar not shown |
| | Press to cancel halfway through | Display off | |
|  | Press | Take Photo | Menu bar not shown |
| | Long press | Menu movement | Menu bar display |
|  | Press | Zoom out | Menu bar not shown |
| | | Shortcut menu | Menu bar not shown |
| | Long press | To next menu Confirm option | Menu bar display |
| | | Main menu | Menu bar not shown |
|  | Press | Return/Exit last level Cancel setting | Menu bar display |
| | | Start recording/Finish recording | Menu bar not shown |
| | Long press | Function/Option toggle down or right | Menu bar display |
| | Long press | Zoom in | |

Note: It needs to be used with optional accessories.

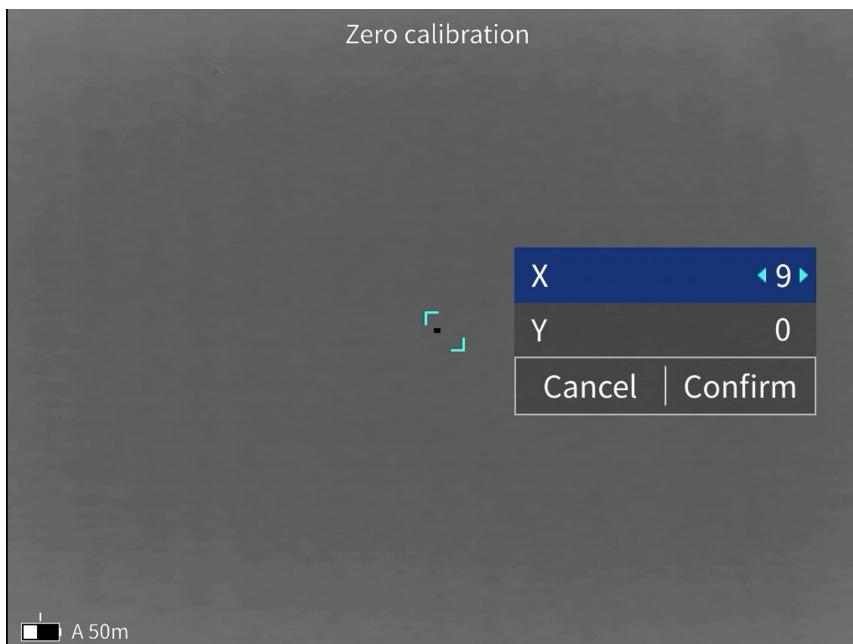
- **Rangefinder:** External ranging (cursor), which can control the external ranging cursor switch. Control the on/off of the input of external ranging information. The blue ranging cursor and distance information will be displayed on the OLED. When zooming in, the center of the cursor needs to remain on the target indication point.

Note: It needs to be used with optional accessories.

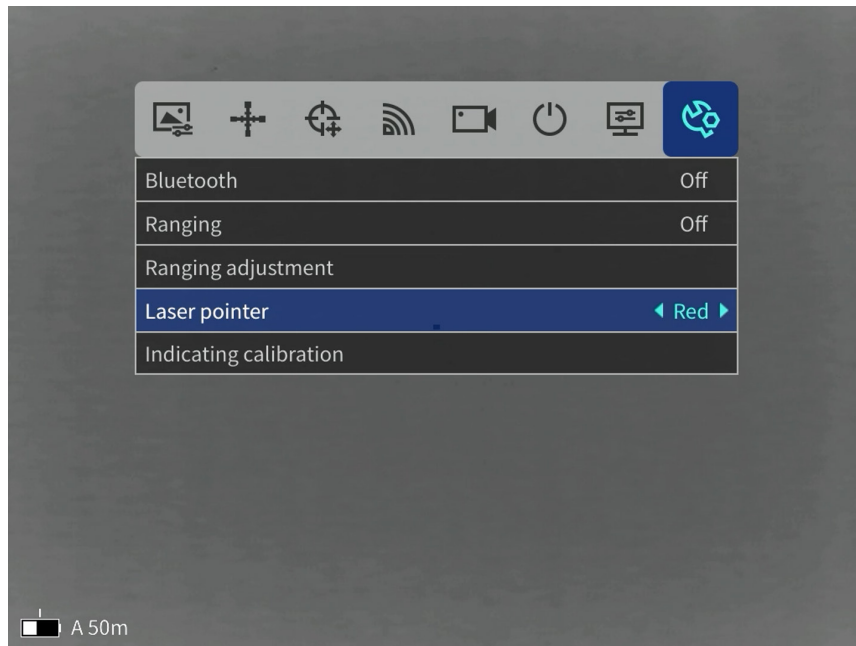


- **Zero calibration:** When entering the ranging coordinate position adjustment interface, the default electronic magnification of the screen is 1X. At this time, rotate the menu knob or zoom knob to adjust the abscissa/ordinate.

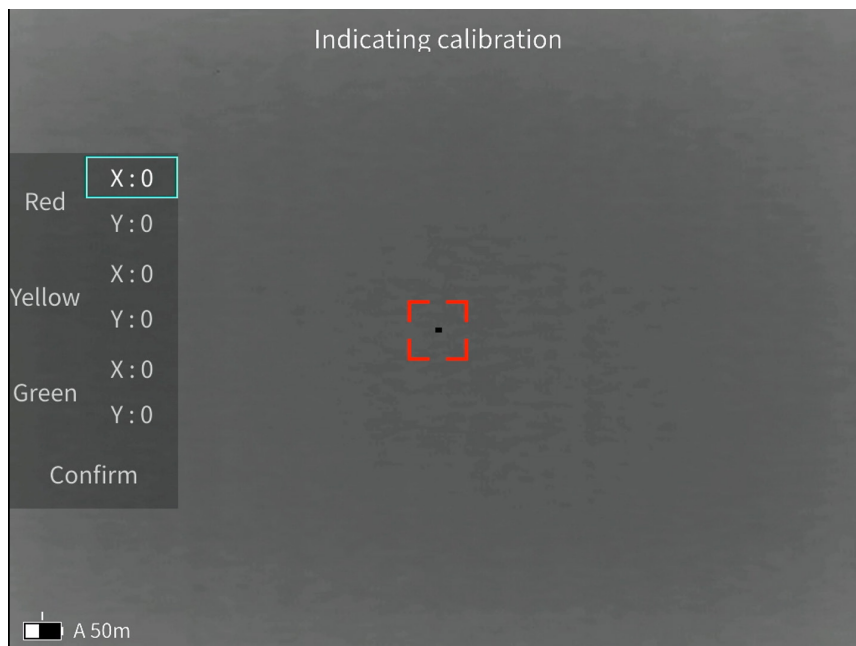
Note: It needs to be used with optional accessories.



- **Laser indicator:** After it's turned on, there will be indicator cursor in the center of the screen. The indicator cursor has three colors: red, yellow, and green.



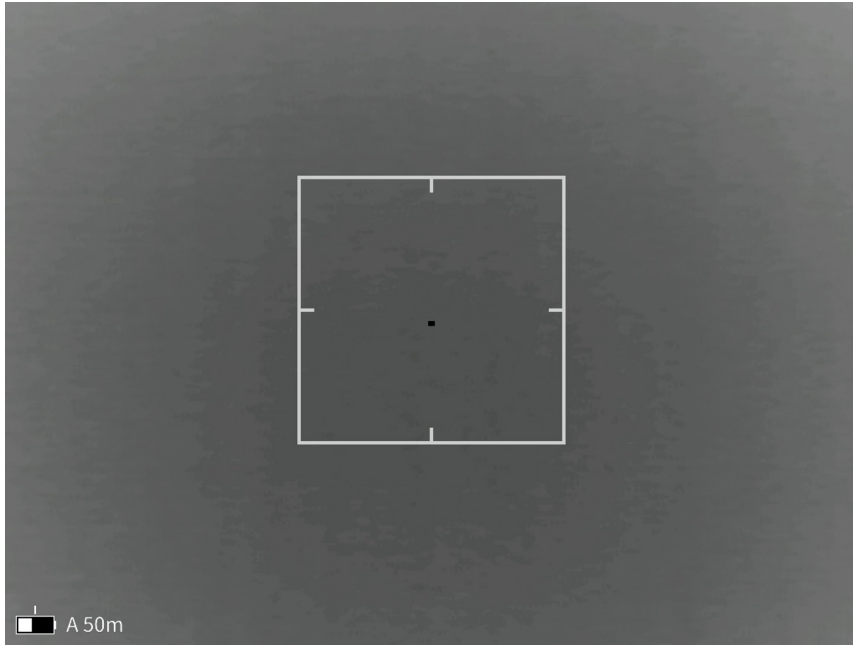
- **Indication calibration:** laser indication calibration, edit the X, Y value to adjust the indication cursor position.



7.3 Photos & Videos

- **photos**

When the camera is turned on and the menu is not called up, press the "Photo Key", take a picture and freeze 300ms and then restore the real-time image.



- **videos**

When the camera is turned on and the menu is not called up, long press the "Photo Button" to start recording, and long press again to end recording.

During the recording process, short press the "Photo Button" to take a photo and freeze it for 300ms, and then restore the real-time image.



CHAPTER 8 RETICLE DESCRIPTION

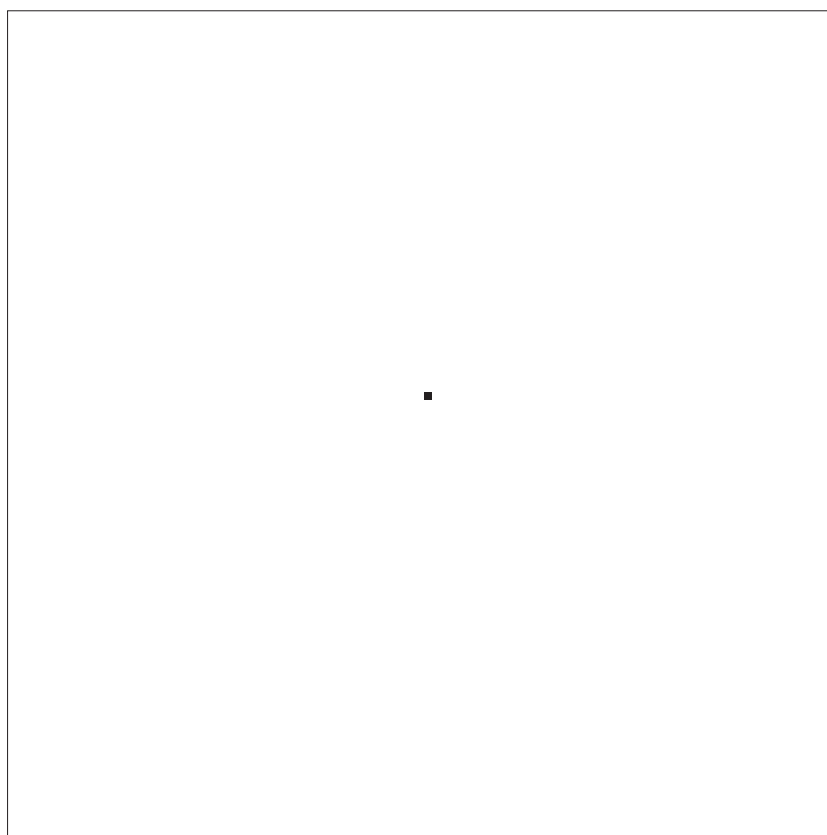
There are ten different types of reticles in this series.

The reticle scale value applies in the following two cases: reticle

- i. When the magnification of the monitor is set to the minimum value;
- ii. When "PIP "is activated

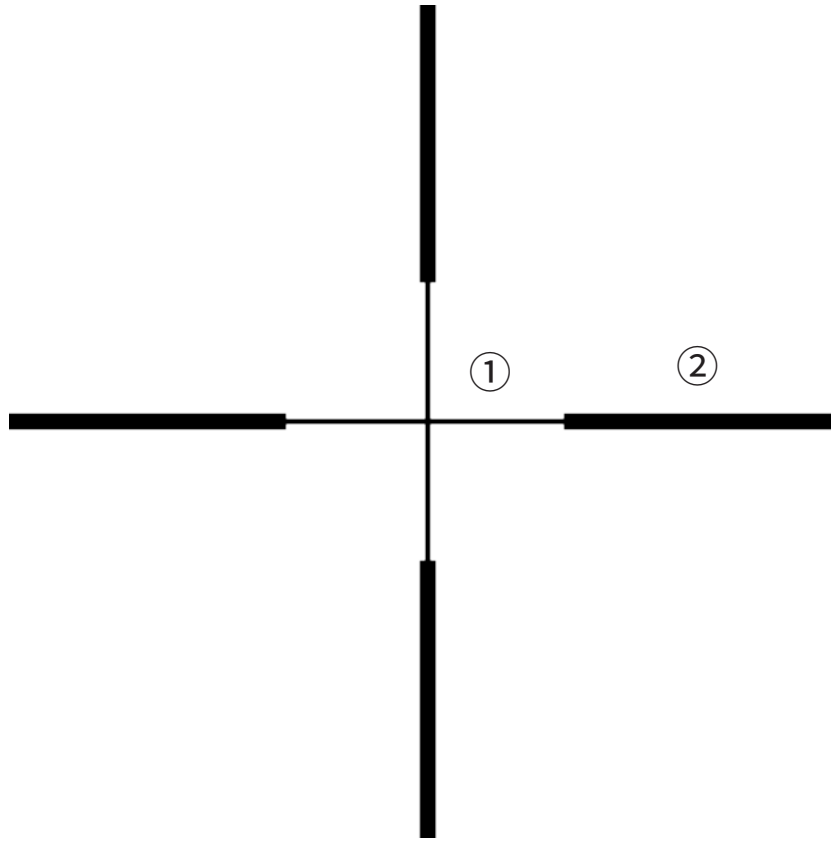
- **Reticle 1:**

There is only one point, the length and width are the same as the thin line width of the reticle.



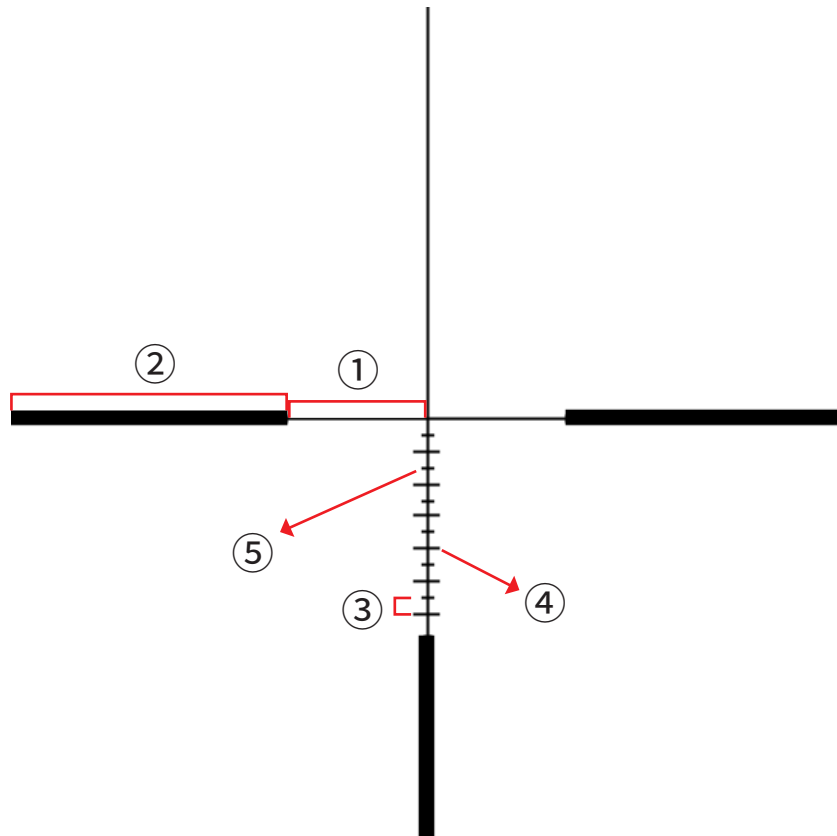
| Model | IFOV/mrad | Mil-Dot | MOA | px/mil | cm@100m |
|-------|-----------|---------|------|--------|---------|
| TU420 | 0.27 | 0.27 | 0.91 | 3.76 | 2.66 |
| TU430 | 0.19 | 0.19 | 0.65 | 5.27 | 1.90 |
| TU450 | 0.13 | 0.13 | 0.46 | 7.53 | 1.33 |
| TU620 | 0.3 | 0.3 | 1.03 | 3.33 | 3.00 |
| TU630 | 0.21 | 0.21 | 0.74 | 4.67 | 2.14 |
| TU650 | 0.15 | 0.15 | 0.52 | 6.67 | 1.50 |

• **Reticle 2:**



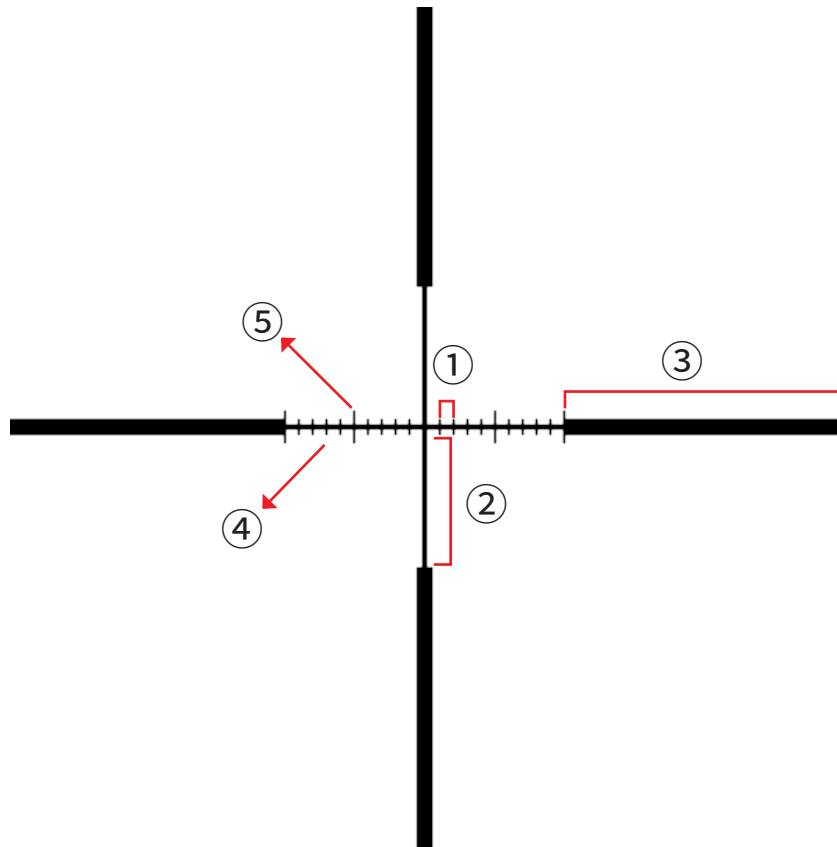
| Model | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
|-----------|---|-------|-------|-------|-------|-------|-------|
| mil | ① | 10 | 10 | 10 | 10 | 10 | 10 |
| | ② | 20 | 20 | 20 | 20 | 20 | 20 |
| cm @ 100m | ① | 100 | 100 | 100 | 100 | 100 | 100 |
| | ② | 200 | 200 | 200 | 200 | 200 | 200 |

• **Reticle 3:**



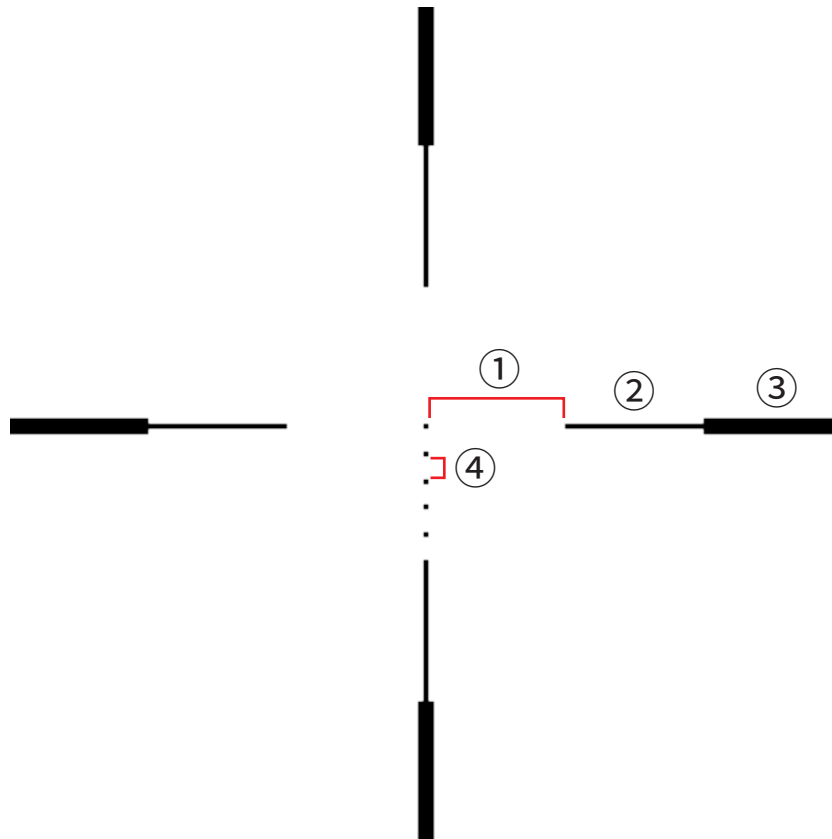
| Model | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
|------------|---|-------|-------|-------|-------|-------|-------|
| mil | ① | 10 | 10 | 10 | 10 | 10 | 10 |
| | ② | 20 | 20 | 20 | 20 | 20 | 20 |
| | ③ | 1 | 1 | 1 | 1 | 1 | 1 |
| | ④ | 2 | 2 | 2 | 2 | 2 | 2 |
| | ⑤ | 1 | 1 | 1 | 1 | 1 | 1 |
| cm @ 100 m | ① | 100 | 100 | 100 | 100 | 100 | 100 |
| | ② | 200 | 200 | 200 | 200 | 200 | 200 |
| | ③ | 10 | 10 | 10 | 10 | 10 | 10 |
| | ④ | 20 | 20 | 20 | 20 | 20 | 20 |
| | ⑤ | 10 | 10 | 10 | 10 | 10 | 10 |

• **Reticle 4:**



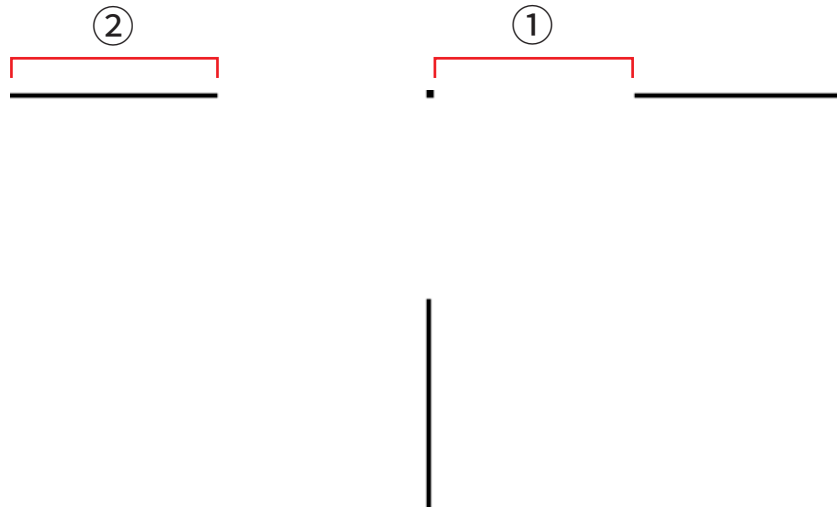
| Model | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
|------------|---|-------|-------|-------|-------|-------|-------|
| mil | ① | 1 | 1 | 1 | 1 | 1 | 1 |
| | ② | 10 | 10 | 10 | 10 | 10 | 10 |
| | ③ | 20 | 20 | 20 | 20 | 20 | 20 |
| | ④ | 1 | 1 | 1 | 1 | 1 | 1 |
| | ⑤ | 2 | 2 | 2 | 2 | 2 | 2 |
| cm @ 100 m | ① | 10 | 10 | 10 | 10 | 10 | 10 |
| | ② | 100 | 100 | 100 | 100 | 100 | 100 |
| | ③ | 200 | 200 | 200 | 200 | 200 | 200 |
| | ④ | 10 | 10 | 10 | 10 | 10 | 10 |
| | ⑤ | 20 | 20 | 20 | 20 | 20 | 20 |

• **Reticle 5:**



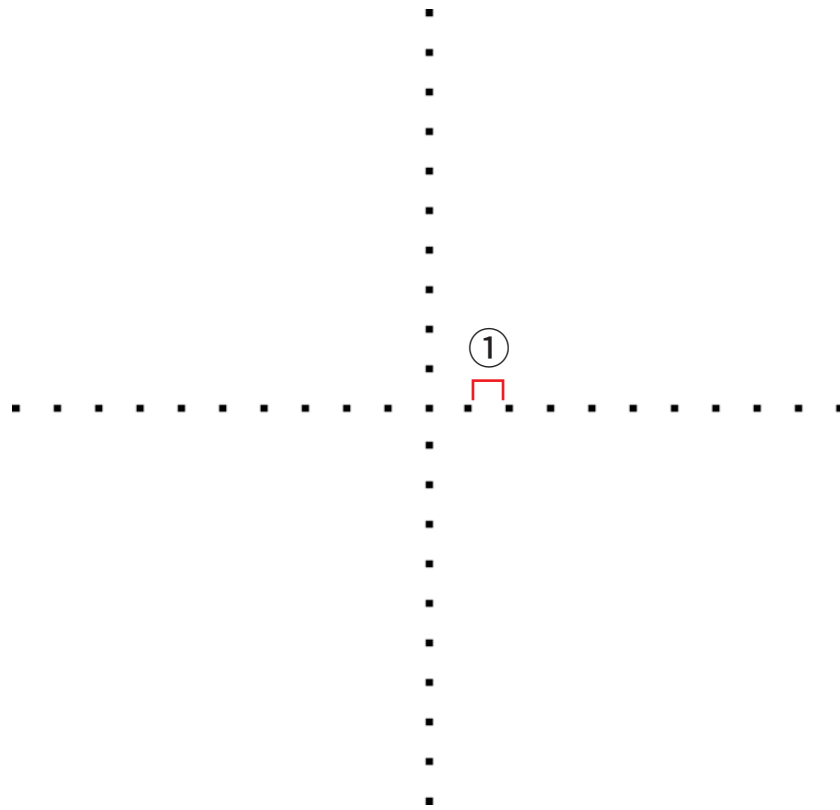
| Model | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
|------------|---|-------|-------|-------|-------|-------|-------|
| mil | ① | 10 | 10 | 10 | 10 | 10 | 10 |
| | ② | 10 | 10 | 10 | 10 | 10 | 10 |
| | ③ | 10 | 10 | 10 | 10 | 10 | 10 |
| | ④ | 2 | 2 | 2 | 2 | 2 | 2 |
| cm @ 100 m | ① | 100 | 100 | 100 | 100 | 100 | 100 |
| | ② | 100 | 100 | 100 | 100 | 100 | 100 |
| | ③ | 100 | 100 | 100 | 100 | 100 | 100 |
| | ④ | 20 | 20 | 20 | 20 | 20 | 20 |

- Reticle 6:



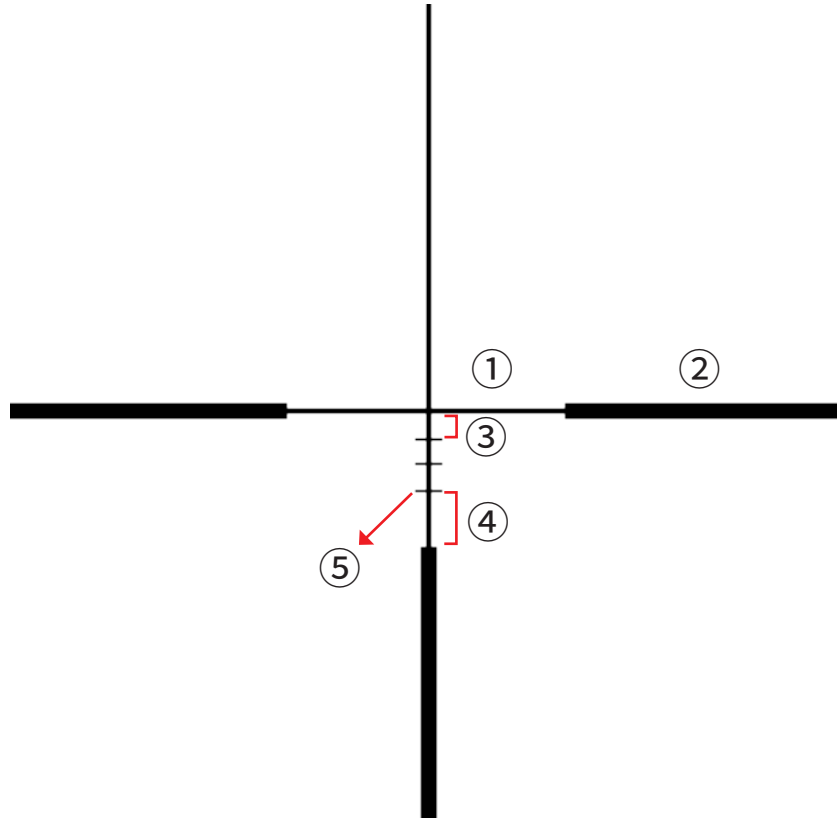
| Model | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
|-------|---|-------|-------|-------|-------|-------|-------|
| mil | ① | 15 | 15 | 15 | 15 | 15 | 15 |
| | ② | 15 | 15 | 15 | 15 | 15 | 15 |
| | ① | 150 | 150 | 150 | 150 | 150 | 150 |
| | ② | 150 | 150 | 150 | 150 | 150 | 150 |

• **Reticle 7:**



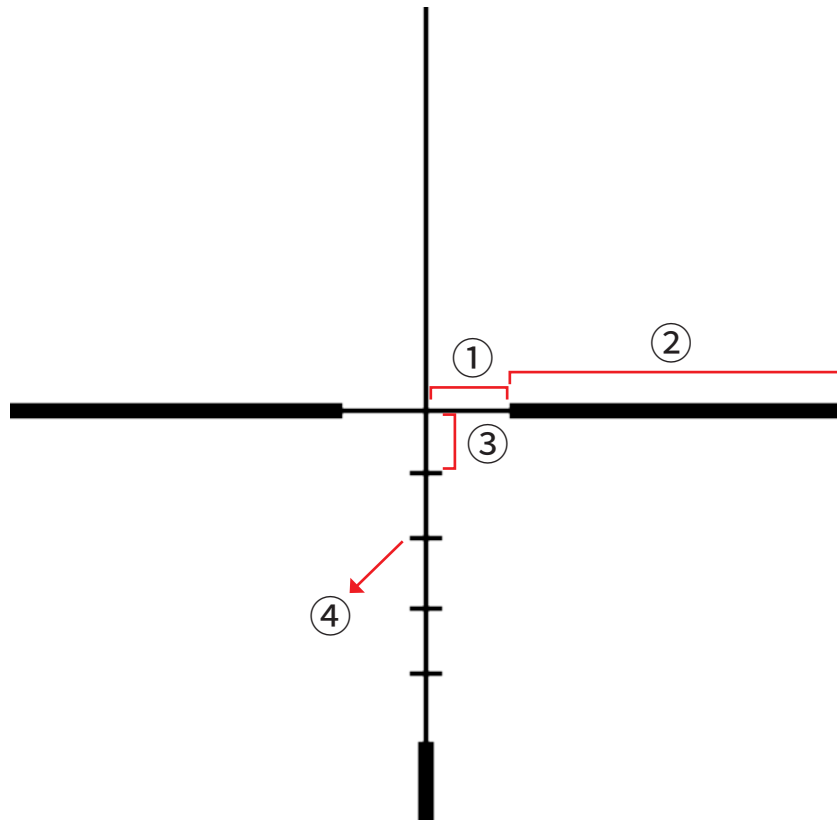
| Model | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
|------------|---|-------|-------|-------|-------|-------|-------|
| mil | ① | 2 | 2 | 2 | 2 | 2 | 2 |
| cm @ 100 m | ① | 20 | 20 | 20 | 20 | 20 | 20 |

• **Reticle 8:**



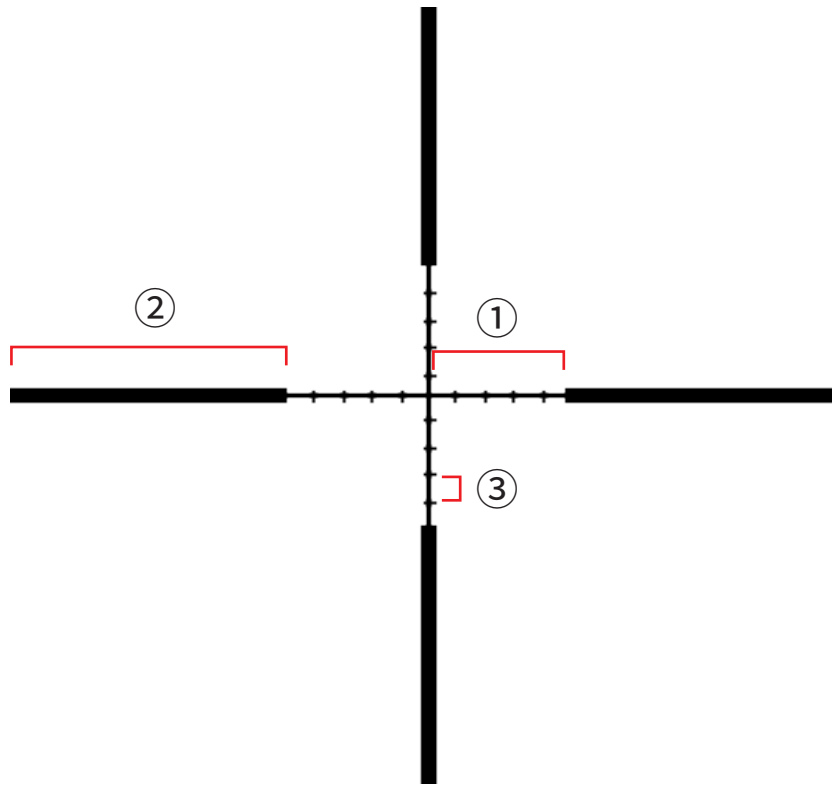
| Model | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
|------------|---|-------|-------|-------|-------|-------|-------|
| mil | ① | 10 | 10 | 10 | 10 | 10 | 10 |
| | ② | 20 | 20 | 20 | 20 | 20 | 20 |
| | ③ | 2 | 2 | 2 | 2 | 2 | 2 |
| | ④ | 4 | 4 | 4 | 4 | 4 | 4 |
| | ⑤ | 2 | 2 | 2 | 2 | 2 | 2 |
| cm @ 100 m | ① | 100 | 100 | 100 | 100 | 100 | 100 |
| | ② | 200 | 200 | 200 | 200 | 200 | 200 |
| | ③ | 20 | 20 | 20 | 20 | 20 | 20 |
| | ④ | 40 | 40 | 40 | 40 | 40 | 40 |
| | ⑤ | 20 | 20 | 20 | 20 | 20 | 20 |

• **Reticle 9:**



| Model | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
|------------|---|-------|-------|-------|-------|-------|-------|
| mil | ① | 5 | 5 | 5 | 5 | 5 | 5 |
| | ② | 25 | 25 | 25 | 25 | 25 | 25 |
| | ③ | 5 | 5 | 5 | 5 | 5 | 5 |
| | ④ | 2 | 2 | 2 | 2 | 2 | 2 |
| cm @ 100 m | ① | 50 | 50 | 50 | 50 | 50 | 50 |
| | ② | 250 | 250 | 250 | 250 | 250 | 250 |
| | ③ | 50 | 50 | 50 | 50 | 50 | 50 |
| | ④ | 20 | 20 | 20 | 20 | 20 | 20 |

• **Reticle 10:**



| Model | | TU420 | TU430 | TU450 | TU620 | TU630 | TU650 |
|------------|---|-------|-------|-------|-------|-------|-------|
| mil | ① | 10 | 10 | 10 | 10 | 10 | 10 |
| | ② | 20 | 20 | 20 | 20 | 20 | 20 |
| | ③ | 2 | 2 | 2 | 2 | 2 | 2 |
| cm @ 100 m | ① | 100 | 100 | 100 | 100 | 100 | 100 |
| | ② | 200 | 200 | 200 | 200 | 200 | 200 |
| | ③ | 20 | 20 | 20 | 20 | 20 | 20 |

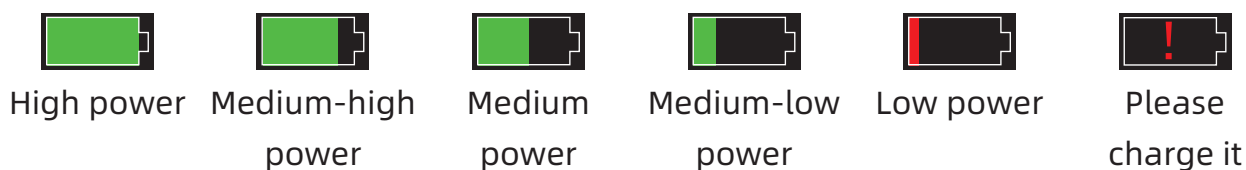
CHAPTER 9 OTHER INSTRUCTIONS

9.1 Power display

Power display:

When the thermal imager is turned on and the battery level changes, the battery indicator is displayed in the upper right corner of the screen, and the lighted part of the battery indicator shows the remaining battery power.

After booting into the real-time image, the icon corresponding to the above battery level will be displayed in the upper right corner of the screen. The power levels are as follows:



Note: When the battery is low, please replace or charge the battery in time!

9.2 Software connection

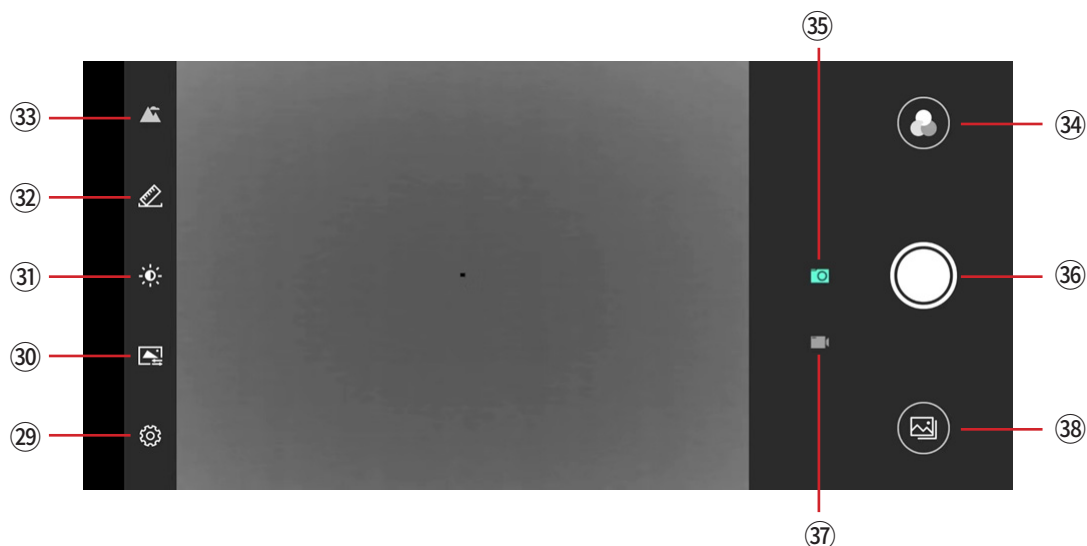
WiFi connection

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







Note: In order to ensure reliable Wi-Fi signal connection and stable data transmission, please try to ensure that the connection distance is within 15m, and there are no obstacles (such as partition walls, etc.).

App function description





Control the device on the APP: After the APP is successfully connected to the device's WiFi, the device can be remotely operated.



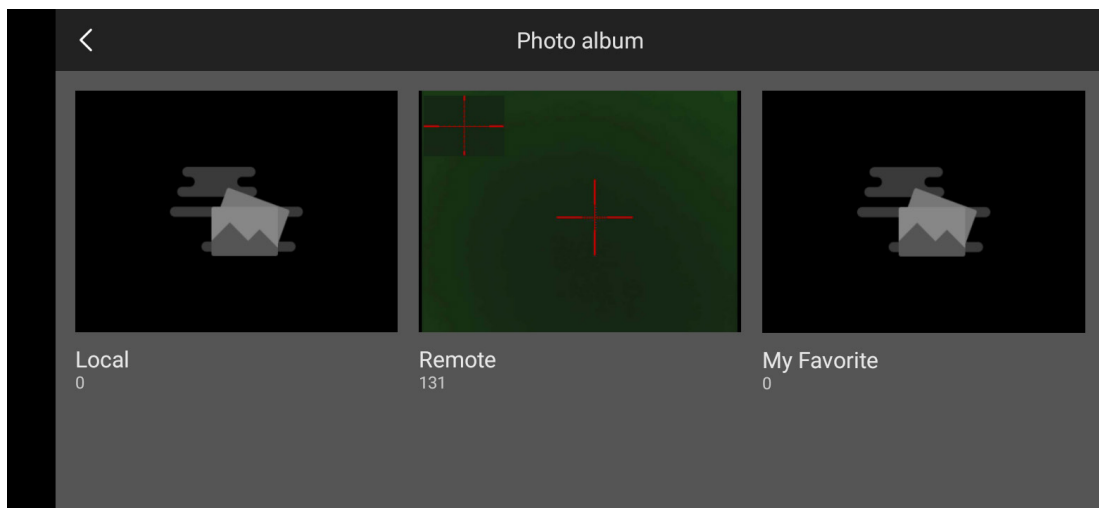
Function icon:

- ②9  reticle settings、 common settings
- ③0  hot track、 PIP、 image enhancement
- ③1  brightness adjustment、 contrast adjustment
- ③2  Stadiametric rangefinder
- ③3  natural/enhanced/highlight mode
- ③4  white hot/black hot/red hot/iron red/blue hot/green hot

Other icons:

- ③5  shooting status display
- ③6  Shooting/recording control key
- ③7  Recording status display
- ③8  APP gallery entry

• Access files on the APP



Local album: after the APP is connected to device's WIFI, the location of the file would be stored on the APP after pictures/videos were taken, and the files would be automatically saved to the local photo album of the mobile phone; the pictures/videos can be collected, shared and deleted.

Remote device: after the APP is connected to device's WIFI, the location of the file would be stored on the APP after pictures/videos were taken; the photos/videos can be downloaded, deleted and so on, and the files would be automatically saved to the local photo album of the mobile phone.

My Favorites: The location where the App's files in the local album are stored after they are added to my favorites.

CHAPTER 10 Common troubleshooting guide

1、 The device failed to be powered on.

Solution: Replace the battery or connect the adaptor to charge.

2、 The device has trouble in taking pictures/videos

Solution: The internal storage space of the device is full and the memory card needs to be formatted

3、 The time displayed on the device does not match the actual time

Solution: Reset the time and date of the device in the menu.

4、 The screen goes off during the use

Solution: Short press any button to wake up from sleep and light up the screen

5、 Image displayed on the device is blurry during operation

Solution: turn the lens to focus manually until the image is clear.