

VISION ENHANCEMENT IMAGER

User Manual



Thank you for choosing this product. Please read this Guide before use and properly keep it for future reference. We hope that the product meets your expectations.

V1.0.0

1 Product overview

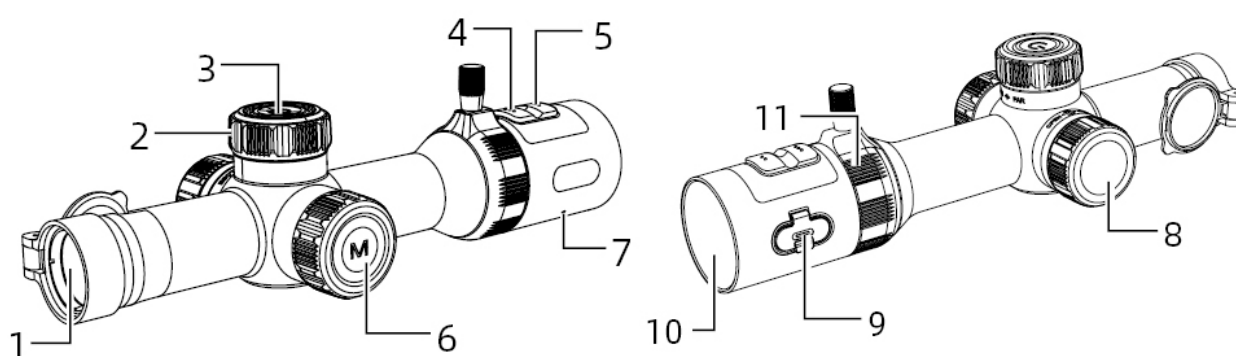
1.1 Product introduction

This product infrared thermal imaging sight is designed in classic white light LPVO structure, and equipped with an advanced 12μm HD infrared detector and a 1920×1080 HD AMOLED display, presenting users with more clear and detailed visual effects under the support of powerful Hyper Light image algorithm. The product has been optimized in detail design to be lightweight and for easy use. The advanced central focusing scheme is adopted for easy focusing, and the leading shutter-free scheme is adopted for immersive hunting without interference.

1.2 Main functions

- Smart sleep: This function allows the device to enter the standby/wake-up mode by changing the angle. This function makes the device switch to the sleep mode to save energy and extend the battery life.
- Application connection: After the device is connected to the mobile via the hotspot, the TargetIR app can function for photographing, video recording, parameter setting and software upgrading.
- Super-resolution algorithm: Resolution reconstruction is achieved based on AI learning model, providing you with excellent visual experience in image detail.
- Quick zoom: Simple zoom ring is designed for easy and quick zoom-in.
- Shutterless design: The latest shutterless design is adopted for full silent hunting.
- BTC function: When the function is on, the BTC function will automatically position the center point of the reticle into the center of the screen after zeroing.

1.3 External key



Description on function of the device shown in the above figure

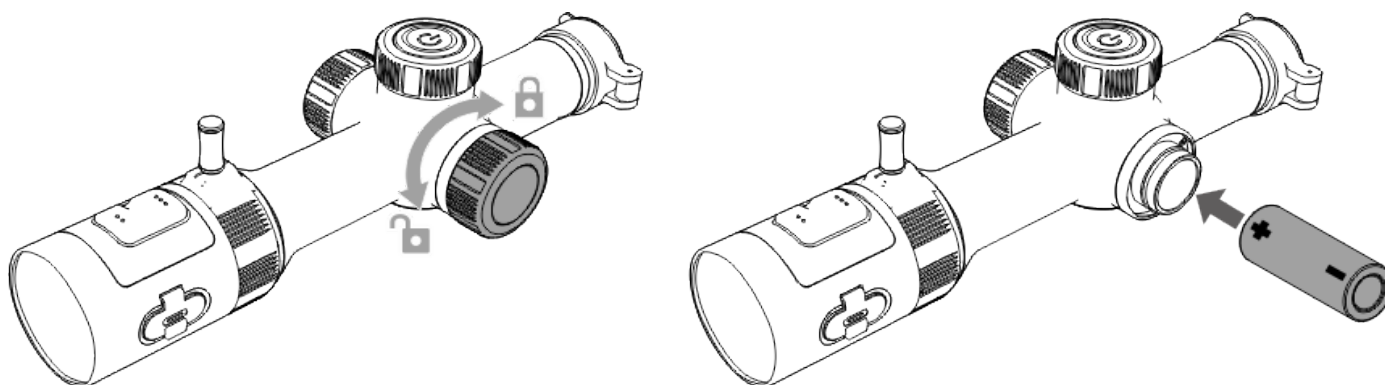
No.	Device name	Functions
1	Objective lens module	Focus on infrared light to the detector for imaging
2	Focusing knob	Rotate to adjust the focal length
3	 Power button	Power-off status: ● Long press: Power on Real-time screen in power-on status: ● Short press: Calibrate ● Long press: Screen off or power off Menu screen in power-on status: ● Short press: Exit menu
4	 Button A	Default the photographing function ● Short press: Photographing ● Long press: Video recording
5	 Button B	Scenario switching is defaulted if USB rangefinder is not inserted ● Short press: switch the scenario mode ● Long press: No response The function of ranging is defaulted if USB rangefinder is inserted ● Short press: Ranging

		● Long press: Switch the ranging modes
6	M Menu knob	Real-time screen: ● Short press: Open the shortcut menu ● Long press: Open the main menu ● Rotate: Switch the color palettes Menu screen: ● Short press: Confirm ● Long press: Return to the previous page ● Rotate: move options
7	Microphone	Recording audio
8	Battery compartment	Battery installation
9	Data interface	Charging transmission data
10	Screen	Observation interface, supporting touch control
11	Zoom-in knob	Zoom in and zoom out the images

2 Preparation before use

2.1 Battery installation

- A. Rotate the battery compartment cover button anticlockwise to open the battery compartment;
- B. Insert battery according to the positive and negative indications;
- C. Rotate the battery compartment cover button clockwise to lock the battery compartment;



2.2 Power supply mode

Adapter charging and battery power supply can be realized in the device.

Adapter charging:

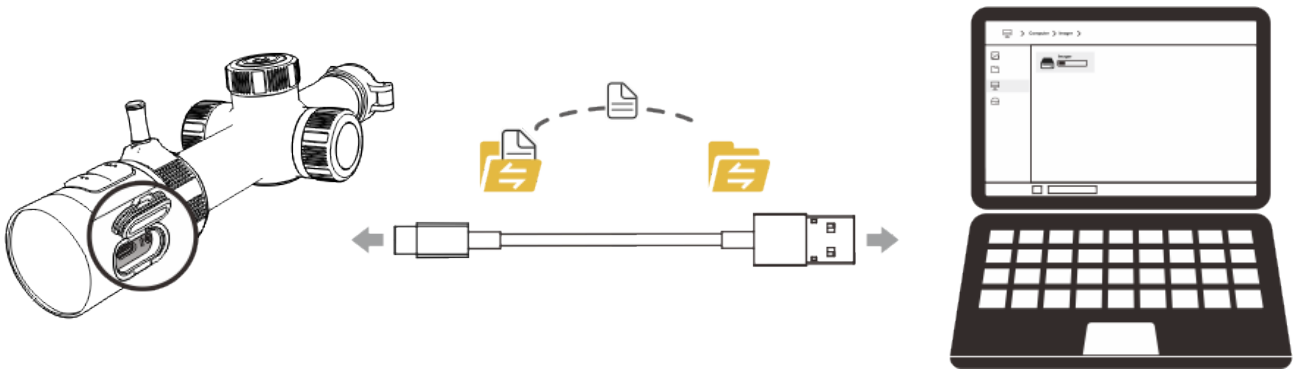
Open the USB cover, and connect the device to the power supply with the standard adapter of the product for charging.

Battery power supply:

Power supply can be realized after the battery is installed according to the battery installation steps.

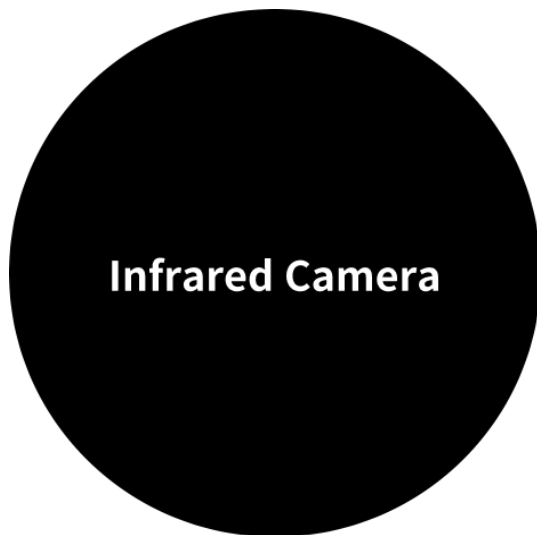
2.3 Data transmission

1. Start the device to ensure it is in power-on state;
2. Connect the device to a PC via a USB-C cable;
3. Access the data stored in the device on the PC side;
4. The USB-C cable is used to connect the device and the PC for charging.



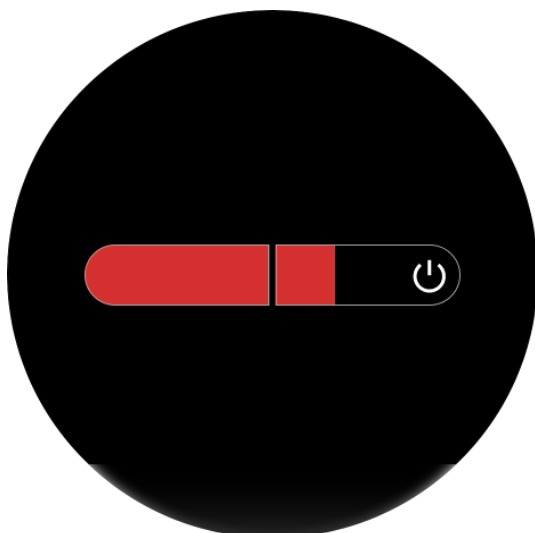
2.4 Power-on

Long press the power button in the power-off state until a startup screen appears in the eyepiece, indicating that the device has been started successfully.



2.5 Power-off

Long press the power button in the power-on state to display the shutdown progress bar, and release until the progress bar turns red for successful shutdown.



2.6 Display off

Long press the power button in the power-on state to display the shutdown progress bar, and release before the progress bar turns red to enter the Display off mode.



2.7 Display on

In the Display off mode, triggering the any device button can wake up the screen.

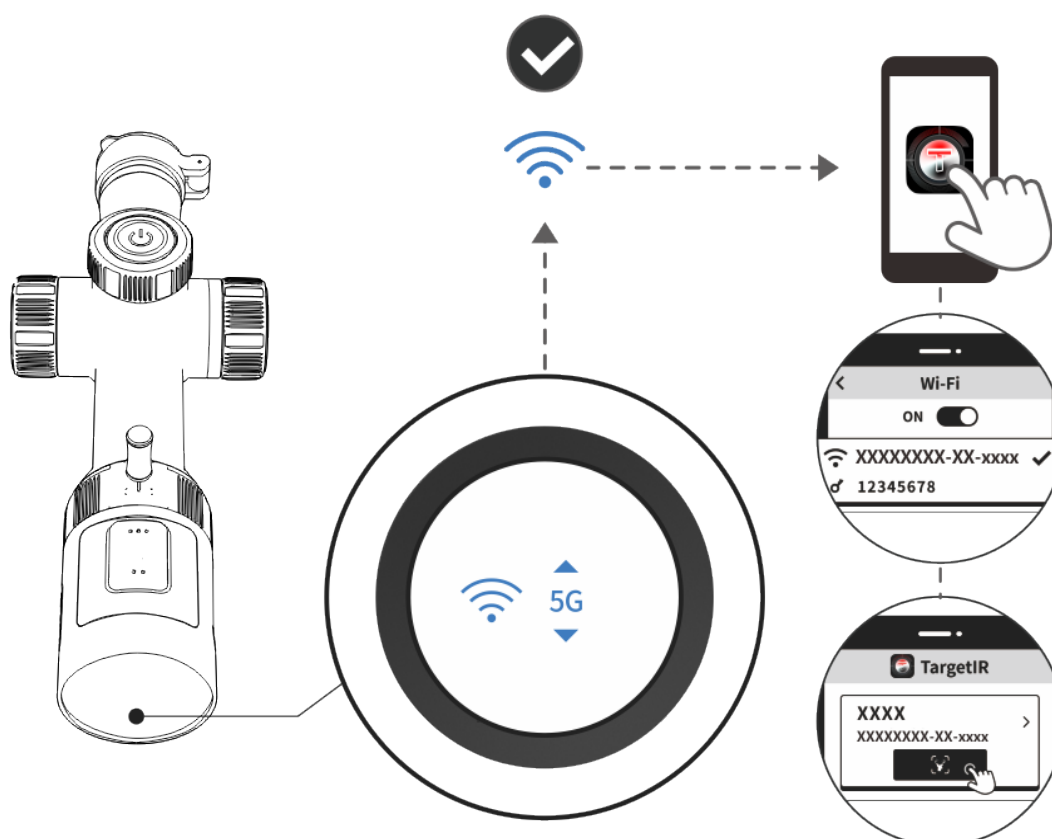
2.8 Focusing

Rotate the focusing knob counterclockwise for the observation of far-field scenes.

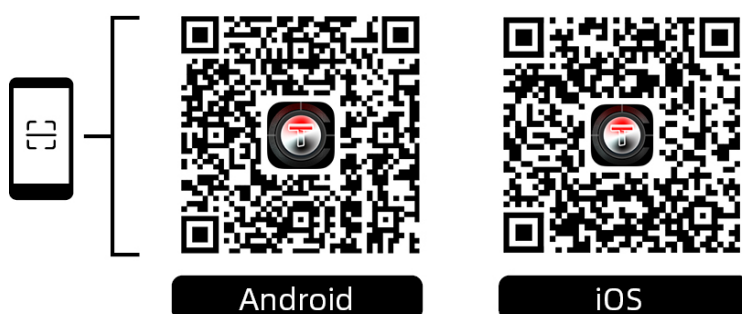
Rotate the focusing knob clockwise for the observation of near-field scenes.

2.9 Connect the mobile APP

1. Start the device to ensure it is in power-on state;
2. Turn on the WiFi hotspot on the device;
3. Search the WiFi hotspot name of the device through the mobile phone and connect WiFi;
4. Open the TargetIR APP on the mobile phone to get the real-time image of the device. Then you can control and access the device.



Scan the QR code to install TargetIR APP



2.10 Device firmware update

Upgrading through mobile APP:

1. Connect the device to the TargetIR APP via WIFI (See Section 2.9);
2. Enter the device management interface of TargetIR APP, and click OTA to enter the

interface, where the current version can be viewed.

3. Click to "check for updates". If there is a latest version available, the latest version number and the download button will be displayed. (If no latest version is available, it will prompt that the current version is the latest and no download button will be displayed)

4. Disconnect the WIFI between the mobile and the device, and click the download button to download the upgrade package.

(Note: For mobile phones using iOS system, it is not necessary to disconnect the WIFI between the phone and the device, but click to download directly. For Android phones, follow Step 4)

5. After the upgrade package is downloaded, connect the phone to the device via WiFi, and click the upgrade button on the phone APP to transmit the upgrade package to the device;

6. After the transmission is completed, the device end will receive a pop-up prompt for upgrading or not;

7. Click "Upgrade" on the device. Then, an upgrade progress bar will appear and the device will automatically restart after the upgrade is completed.

Upgrading through computer:

1. Connect the device to the computer;

2. Put the upgrade package into the root directory of the device;

3. Manually restart the device, so that the device will automatically upgrade, and the upgrade progress will be displayed on the screen;

4. The device will restart automatically after the upgrade is completed.

Note: It is required to ensure that the battery power is above 30% for upgrading.

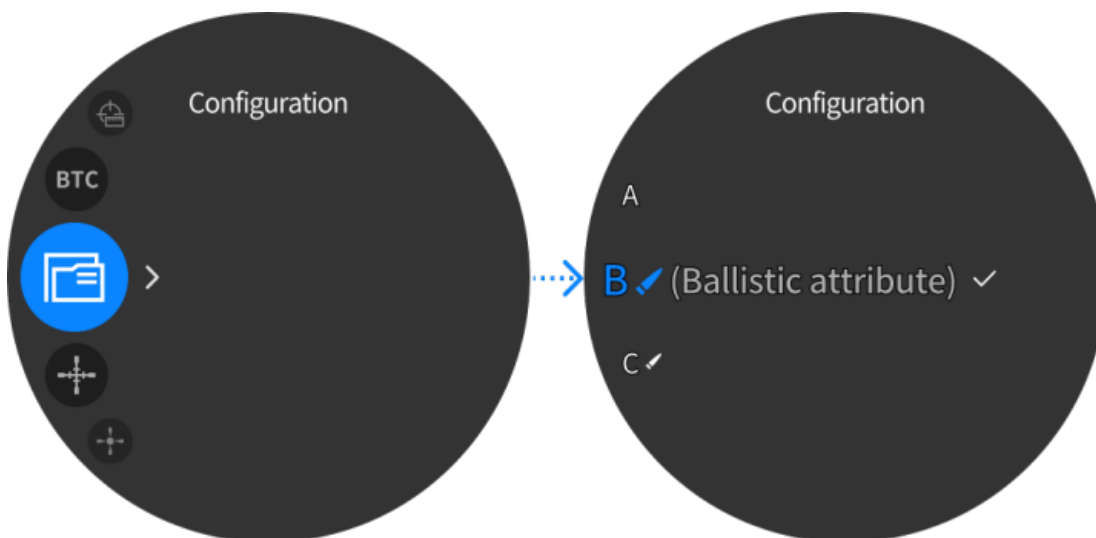
2.11 Reticle and zeroing

Long press the Menu knob to open the menu, then rotate the Menu knob to move the cursor to reticle and zero calibration, and short press the Menu knob to enter the sub-menu.



2.11.1 Configuration

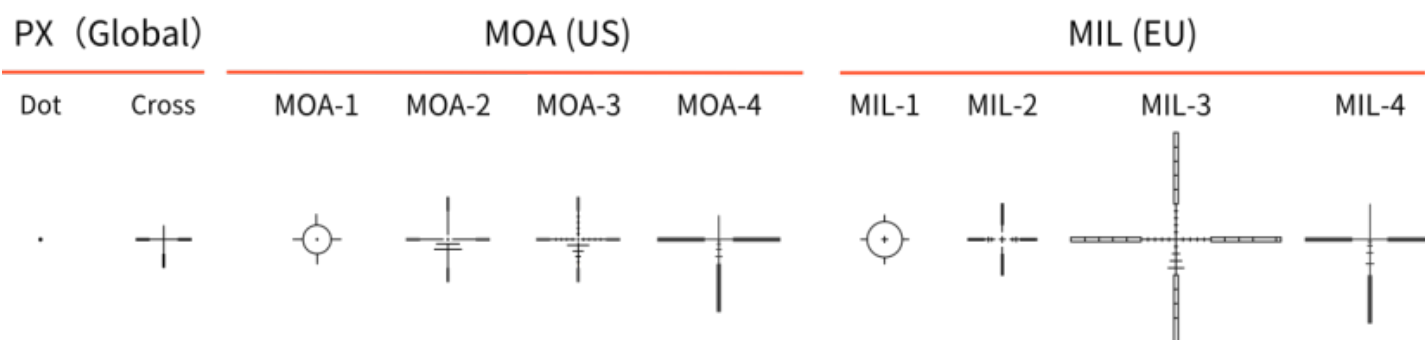
The configuration can be selected by switching within A ~ J. In each configuration, 1 group of reticle setting, 1 group of reticle center indication and 5 groups of zero calibration range can be saved respectively.



2.11.2 Reticle settings

2.11.2.1 Reticle style

Ten reticle styles are available for selection.



2.11.2.2 Reticle color

Five colors are available for selection, which are set in the sequence of cyan/green /white /black/red.



2.11.2.3 Reticle brightness

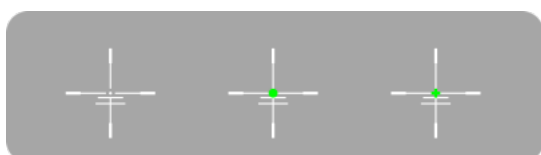
Five levels of brightness are available for setting, with brightness increasing successively from 1 to 5.



2.11.3 Reticle center point settings

2.11.3.1 Style

The following styles of the reticle center point are available for selection: dot, cross or OFF.



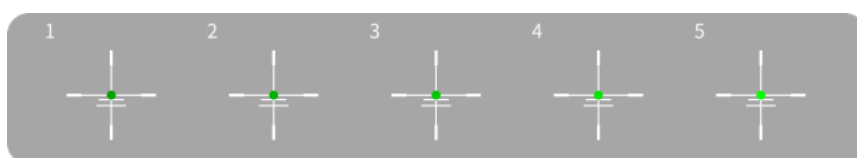
2.11.3.2 Color

Five colors are available for selection, which are set in the sequence of cyan/green/white/black/red.



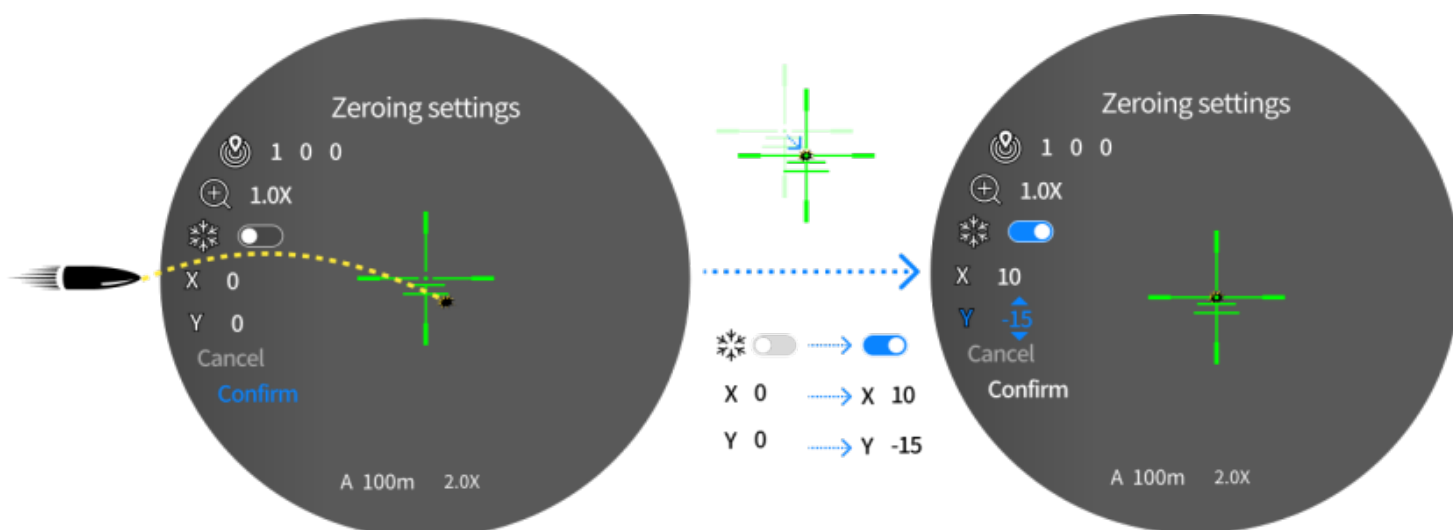
2.11.3.3 Brightness

Five levels of brightness are available for setting, with brightness increasing successively from 1 to 5.



2.11.4 Zeroing setting

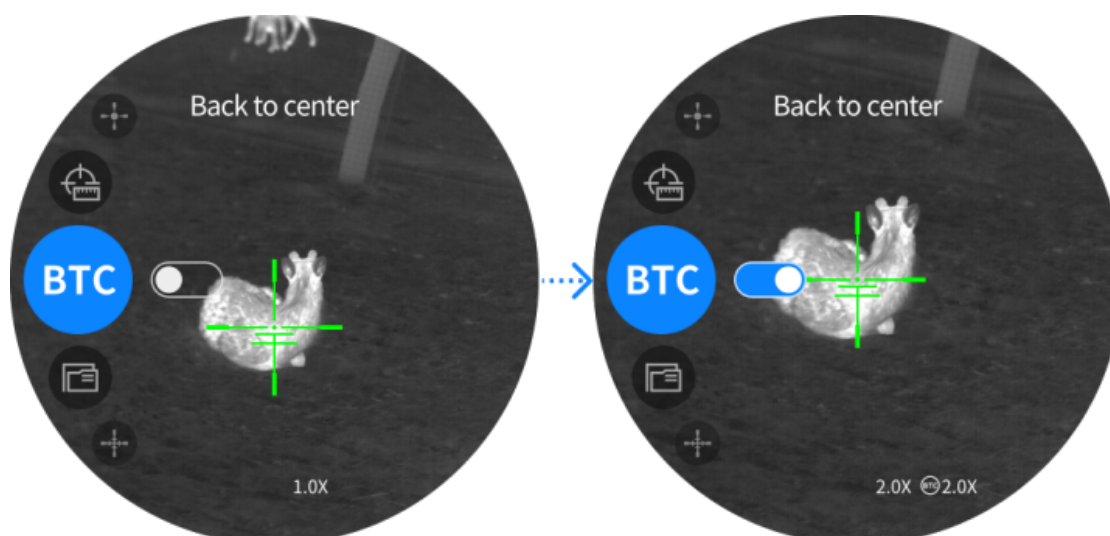
Long press the menu key to open the main menu and enter Zero Calibration Setting - Zero Calibration Setting. Zero calibration is required in a professional shooting range. There are two default shooting distances, i.e. 100 and 200, for zero calibration settings. Three "Custom Distance Configuration" menus are reserved, and the zero calibration settings at different distances are saved independently. Taking 100 for example, the steps are as follows:



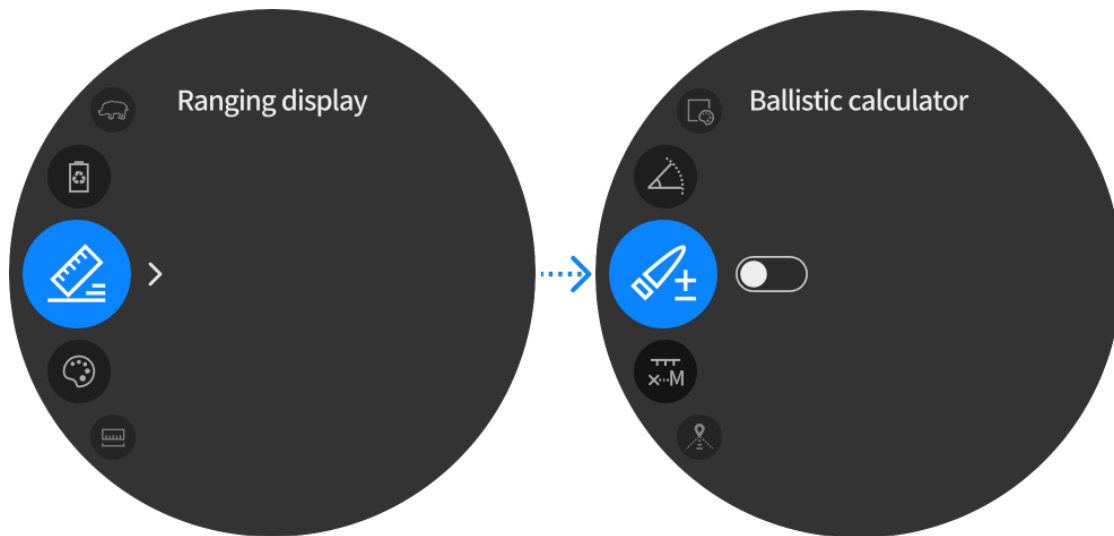
1. Operate the menu knob to enter the "Main Menu-Zero Calibration Settings" menu interface to select 100, and start setup.
2. Enter the separate interface of "Zeroing settings" to check if the X/Y coordinates are zero (default to zero for the first zero calibration).
3. Align the center point of the reticle with that of the target, stabilize the gun as much as possible, and fire a bullet.
4. In case of any deviation of the firearm due to vibration, the center of the reticle shall be re-adjusted to the extent of coinciding with the center point of the target. Then, select "Freeze Screen" (this operation aims at preventing the deviation caused by manual movement of the sight during trajectory adjustment).
5. At this moment, rotate the function wheel to adjust the "X" value and "Y" value until the reticle aligns with the point of impact. Select and click "Confirm" to complete zeroing.
6. Aim with and refire the target by the zero-calibrated reticle. At this time, the impact point of bullet shall be located at the center of the reticle. In case of deviation, repeat the above steps to continue adjusting.

2.11.5 BTC

BTC can be set to be ON/OFF. In ON state, the BTC function will automatically position the center point of reticle to the center of the screen after zero calibration, so that the user has a more comfortable view and it is easier to maintain focus on the target. In OFF state after zero calibration, the coordinate of the center point of reticle will not affect the movement of the screen.

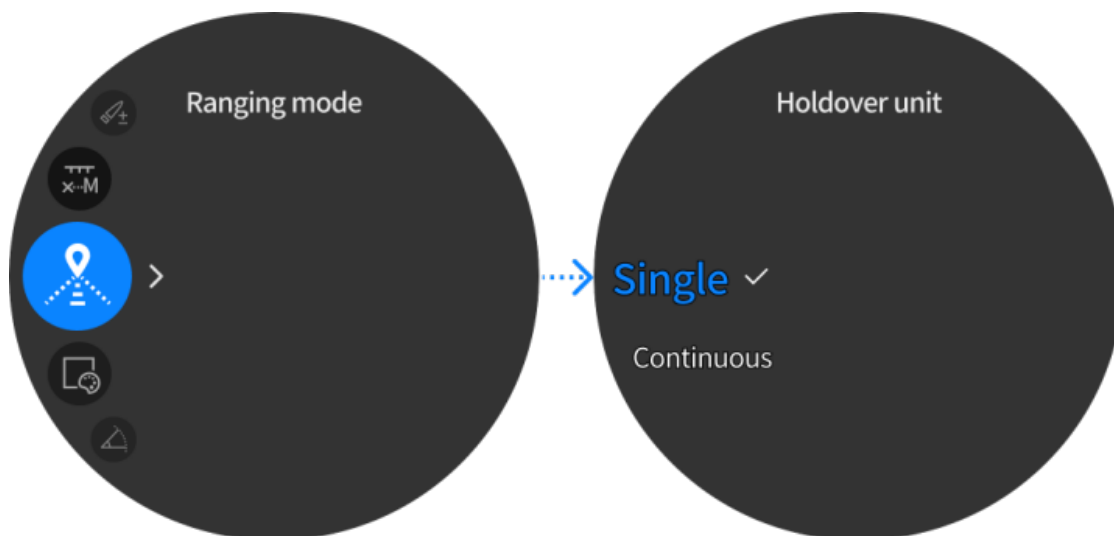


2.12 Ranging display (with external range finder)



2.12.1 Ranging mode

Enter the shortcut menu - Ranging display - Ranging mode, where single ranging/continuous ranging can be selected.



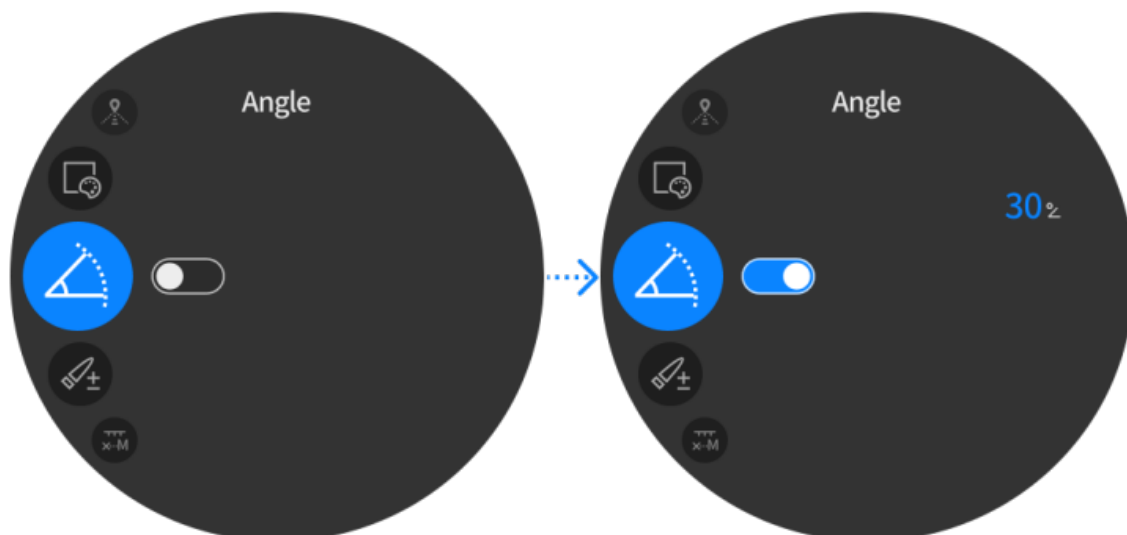
2.12.2 Ranging cursor color

Four cursor colors can be set: "Blue/White/Green/Orange".



2.12.3 Angle

The angle can be set to be ON/OFF. In ON state, the angle information can be displayed when there is ranging information on the interface.



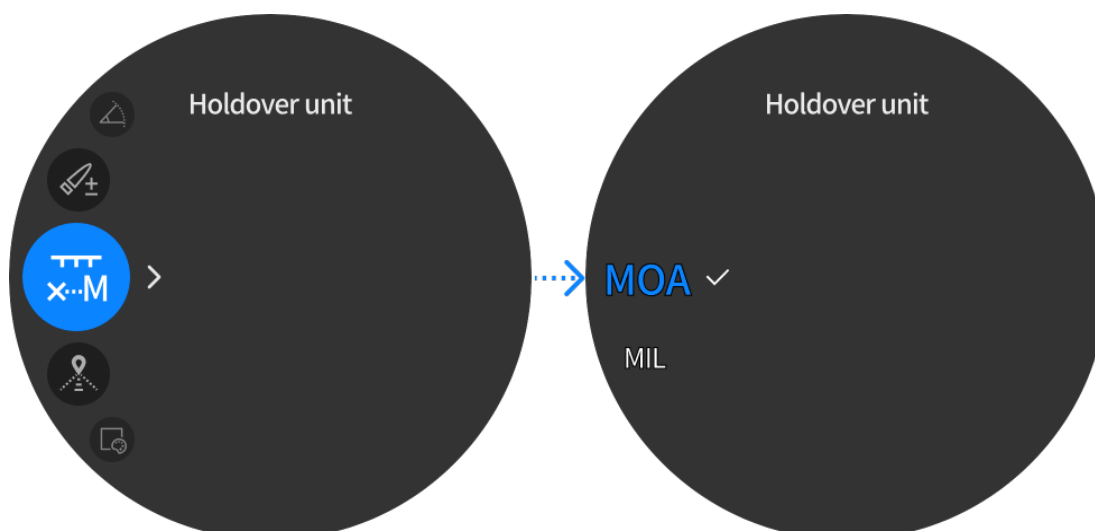
2.12.4 Ballistic calculator

Serial number	Precondition 1	Precondition 2	Trigger condition	Result
1	Obtain Ballistic configuration from TargetIR Ballistics APP	In the menu open Ballistic Calculator	If there is an external rangefinder: When short press the ranging button and device interface displays the distance information.	Show Ballistic compensation point & correction amount
2			If connected to the APP in real time: When the device side acquires the distance information sent by the APP in real time and device interface displays the distance information.	

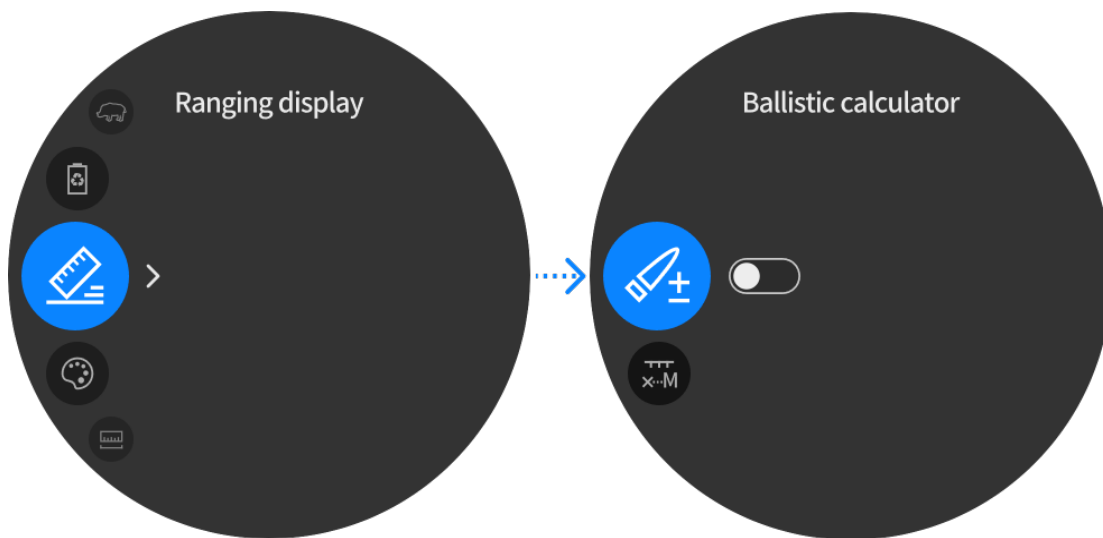


2.12.5 Holdover

The unit of holdover can be switched between MOA/MIL.

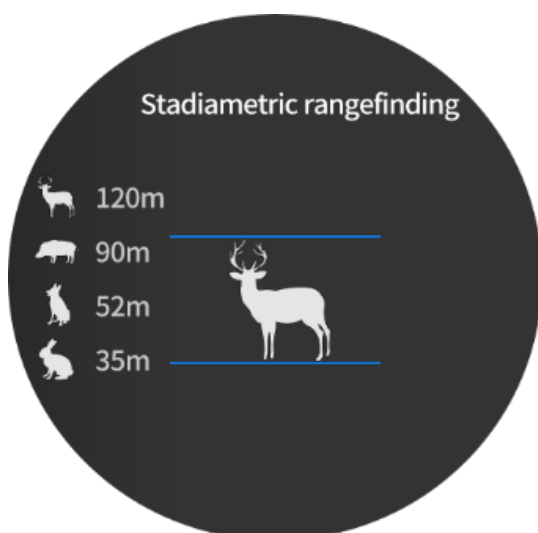


2.13 Ranging display (without external range finder)



2.14 Rough ranging (without external range finder)

Open the shortcut menu and enter the rough ranging. Rough ranging is to estimate the range of the target based on the two horizontal lines on the screen and the assumed height of the target. With the position of the lower horizontal line for rough ranging unchanged, move the upper horizontal line to the right position by rotating the Menu knob.



3 Quick start

3.1 First language setting

To select language at the first startup, rotate the Menu knob to select the language, short press the Menu knob to confirm the language selection, and then enter the main interface. Different languages can be set through the same operation in the language setting menu.



Note: For secondary language setting, refer to Section 6.1.

3.2 Calibration

Short press the on/off button to complete the calibration action.

3.3 Photograph

Short press the shortcut of photographing to enable the device to take a photo.

3.4 Recording

Long press the shortcut of photographing for the device to record videos, and short press the shortcut of photographing during video recording to take a photo. Long press again to stop the device and save the video file.

3.5 Shortcut menu

Short press the Menu knob to call out the shortcut menu on the device.

3.6 Main menu

Long press the Menu knob to call out the main menu of the device.

3.7 Smooth scaling

In the real-time screen, rotate the zoom knob clockwise to smoothly scale up the screen, and rotate the zoom knob counterclockwise to smoothly scale down the screen.

3.8 Move menu and option

In the ON state with menu called out, rotate the Menu knob to switch the menu options.

3.9 Confirm the option

In the ON state with menu called out, short press the Menu knob to confirm the selection.

3.10 Exit menu

In the ON state with menu called out, long press the Menu knob to return the previous menu options without saving the setting.

4 Shortcut menu

4.1 Pseudo color

Open the shortcut menu and enter the palette, where the Menu knob can be rotated to select the palette, such as white heat, black heat, red heat, iron red, blue heat, green heat or dark brown.

Palette can be set differently based on the observation environment and personnel requirements to display different target and background colors.



4.2 Ranging display (with external range finder)

See Section 2.12.

4.3 Ranging display (without external range finder)

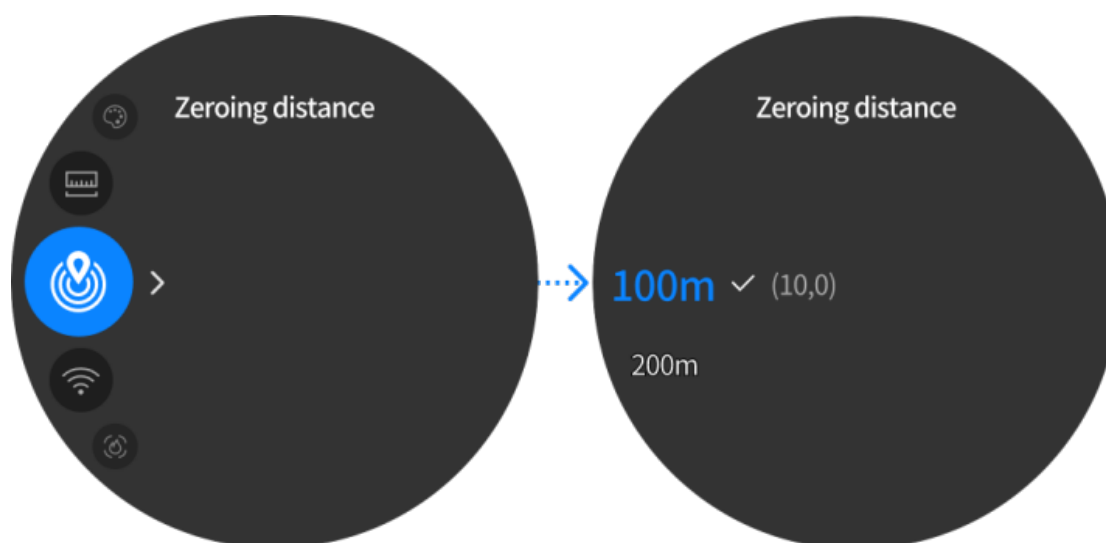
See Section 2.13.

4.4 Rough ranging (without external range finder)

See Section 2.14.

4.5 Zeroing distance

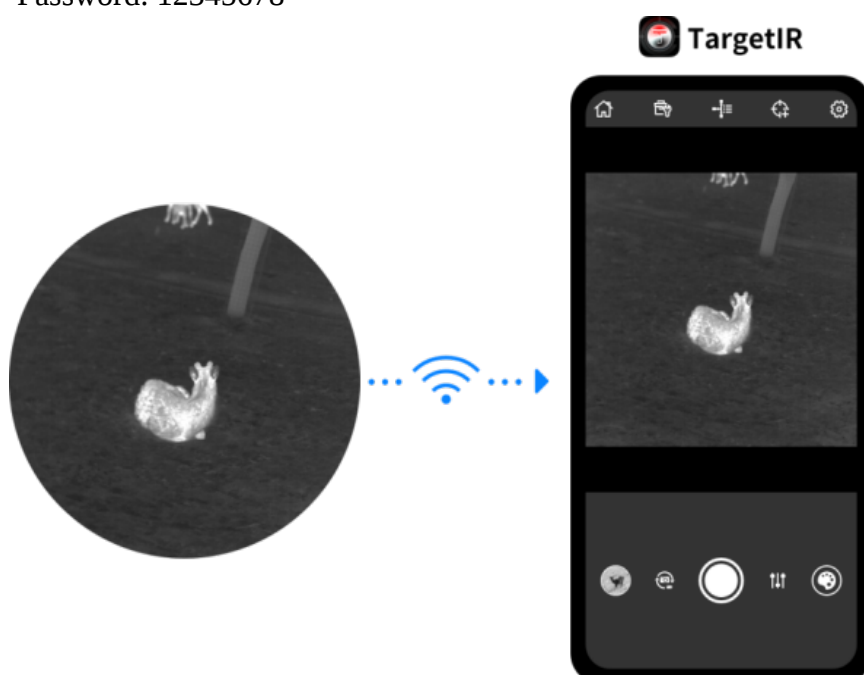
Switch the zeroing distance option, where the zeroing distance can be selected quickly: 100, 200, or a custom zeroing distance.



4.6 WIFI

Enter WIFI setting and rotate Menu knob to set up the WiFi hotspot in two frequency bands, 2.4G or 5G. After being connected through the mobile client and device, real-time images can be transmitted to the mobile APP, and the device can be operated through the mobile APP. WiFi account: Infrared Camera-XXXX (X represents the last four digits of the MAC address)

Password: 12345678



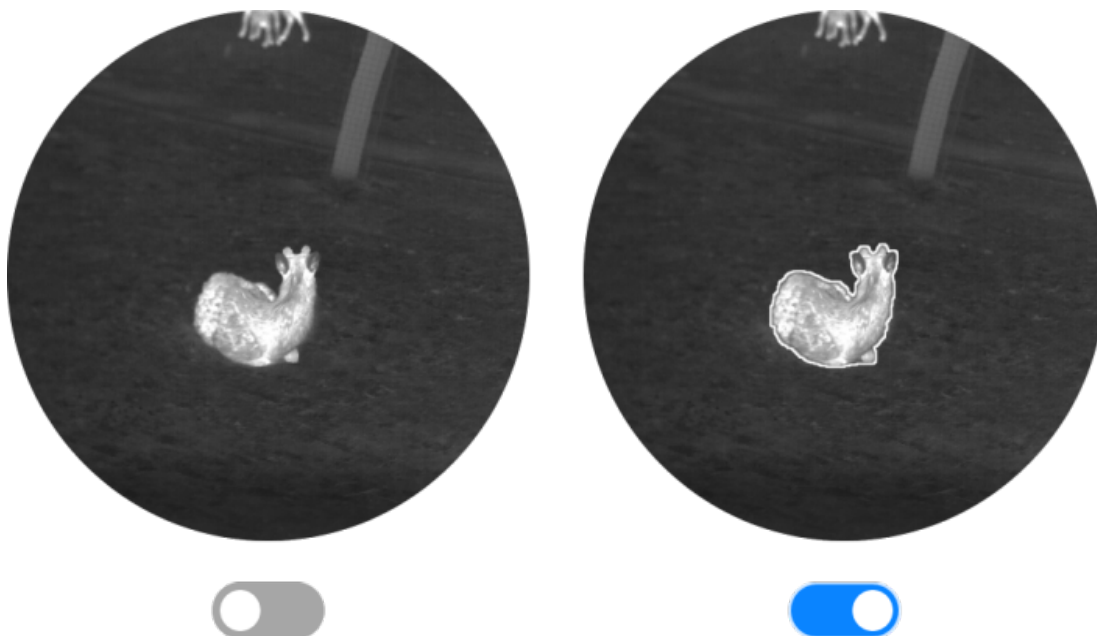
4.7 Hot track

When the device is turned on, the hot track cursor is displayed, which automatically tracks the target point of highest temperature on the screen.



4.8 Image outlining

After startup, the contours of the targets having temperature differences from surrounding environment will be drawn in the real-time screen to highlight the targets.



4.9 Super energy-saving

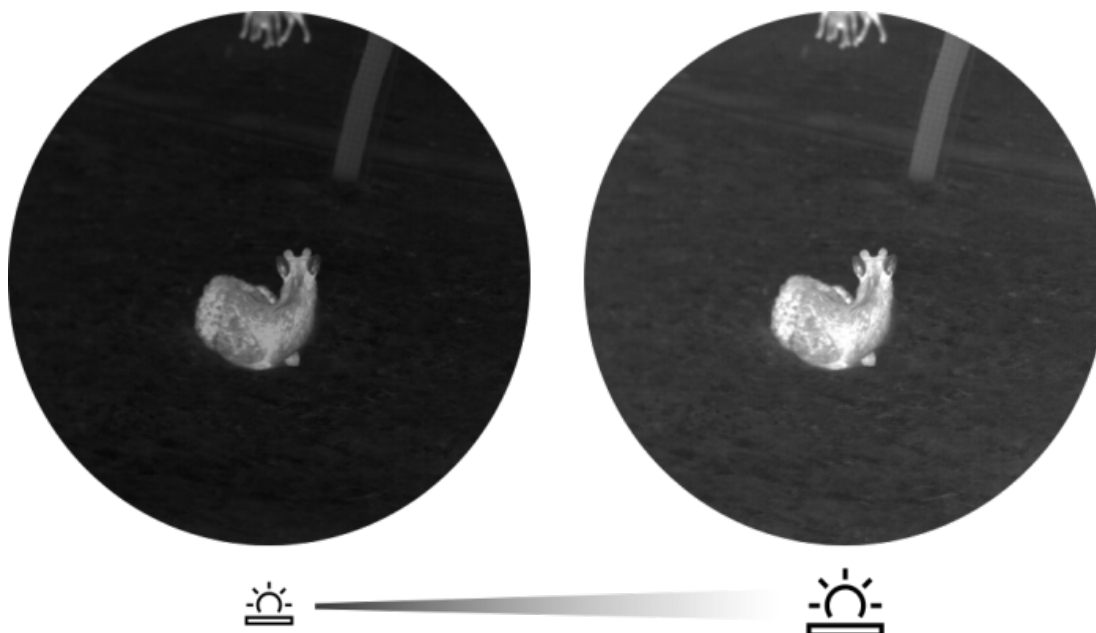
If the super energy-saving mode is switched on, a super power-saving icon appears, and the OLED brightness is nonadjustable and fixed at 20%. In this case, WIFI, hotspot tracking and image outlining functions cannot be turned on. If these functions are already turned on, they will be turned off directly.



5 Function of main menu

5.1 Screen brightness

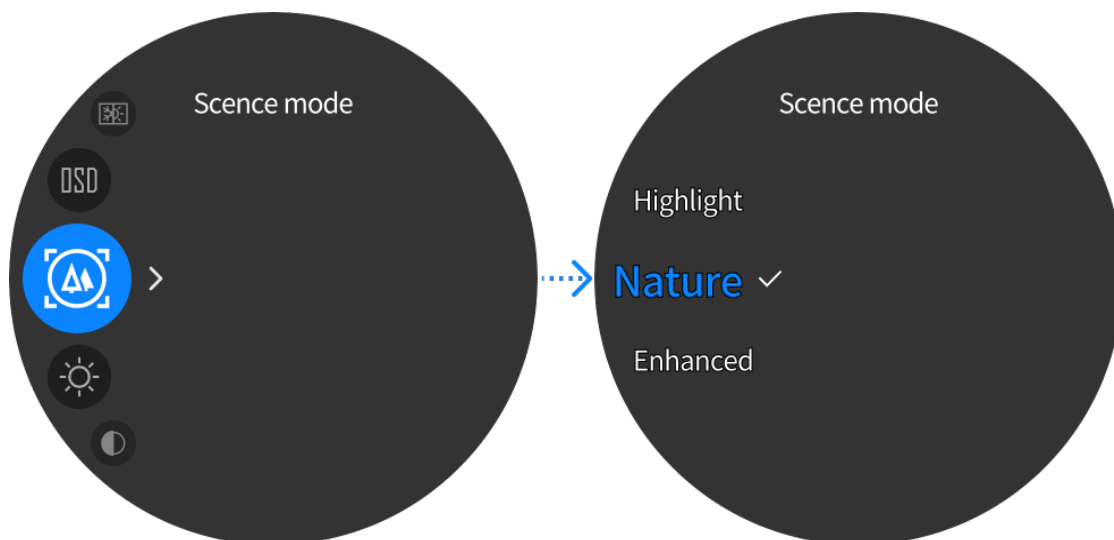
Long press the menu knob to open the main menu, set the screen brightness, and rotate the Menu knob to select the screen brightness with 1-5 levels available. Larger number indicates higher brightness of the image on the screen.



5.2 Image setting

5.2.1 Scene mode

Optional setting: Three scenario modes, i.e. Natural/Enhance/Highlight, are settable, and the user is able to select and set up the mode according to the real-time scene, achieving the optimal imaging results.



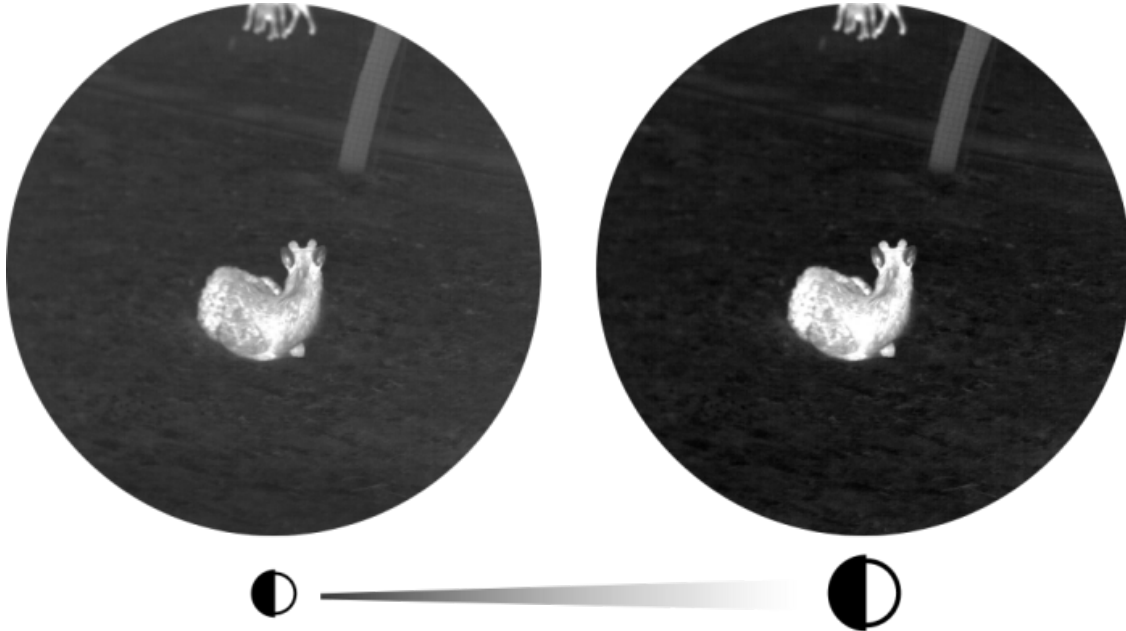
5.2.2 Brightness

There are 5 levels of brightness available starting from 1 to 5. Larger number indicates higher brightness of the image on the screen.



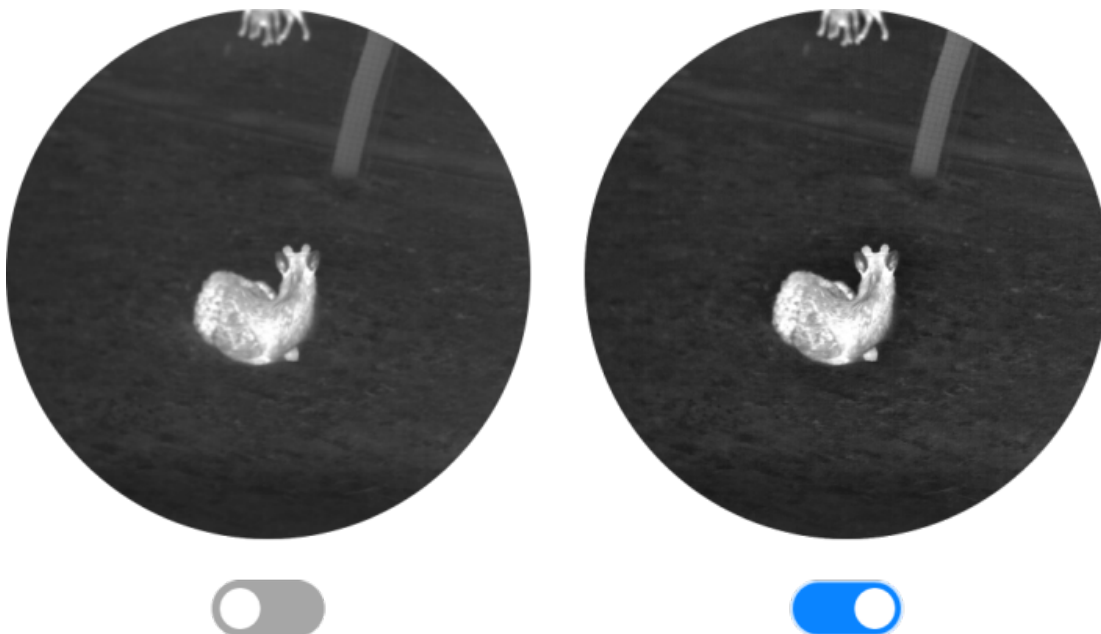
5.2.3 Contrast

There are 5 levels of contrast available starting from 1 to 5. Larger number indicates higher contrast of the image on the screen.



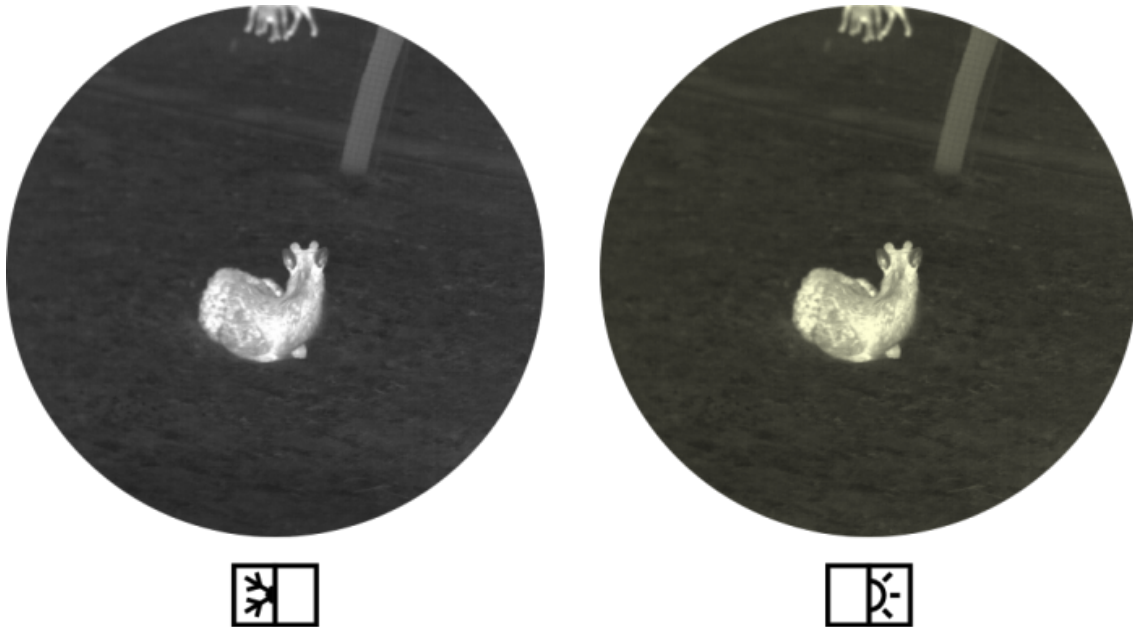
5.2.4 Screen enhancement

Enable the adjustable imaging quality and highlight the target details in real time.

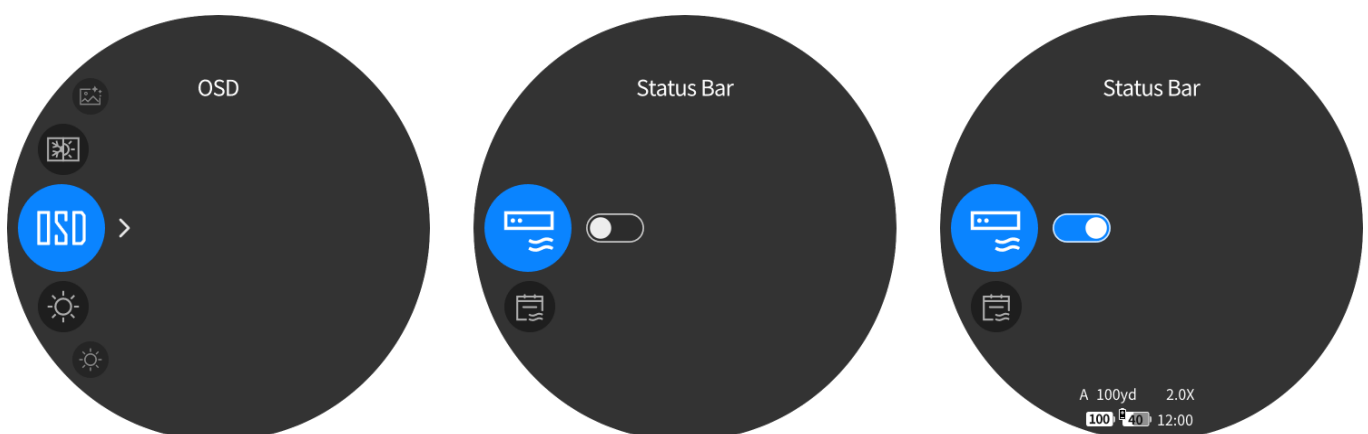


5.2.5 Color tone

The cold/warm color tone of the real-time screen can be switched. Cold color tone: Make the image clear with rich details and highlighted target. Warm color tone: Make the image softer to avoid visual fatigue caused by long-term use.



5.2.6 OSD (on-screen display)



5.2.6.1 Status bar OSD

Status bar OSD can be set to be ON/OFF.

If the status bar OSD is enabled, the icons of the enabled functions will be displayed in the status bar and the captured pictures/videos. If the OSD is disabled, no icon will be displayed in the status bar and the captured pictures/videos.

5.2.6.2 Date OSD

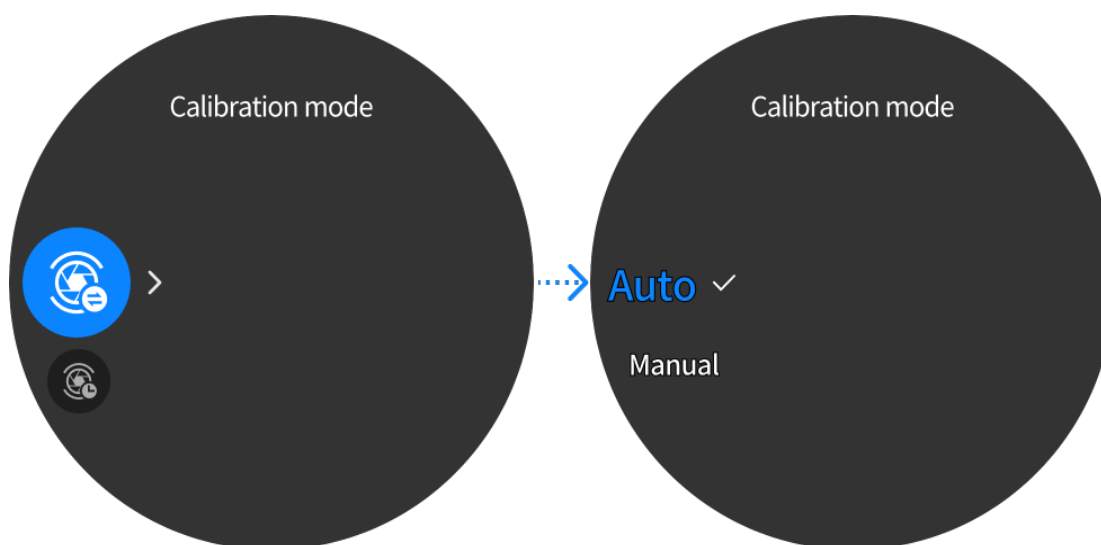
Date OSD can be set to be ON/OFF.

If the date OSD is enabled, the icon of date will be displayed in the lower right corner of the real-time preview screen and the captured pictures/videos. If the date OSD is disabled, no icon of date will be displayed in the lower right corner of the real-time preview screen and the captured pictures/videos.

5.3 Calibration setting

5.3.1 Calibration mode

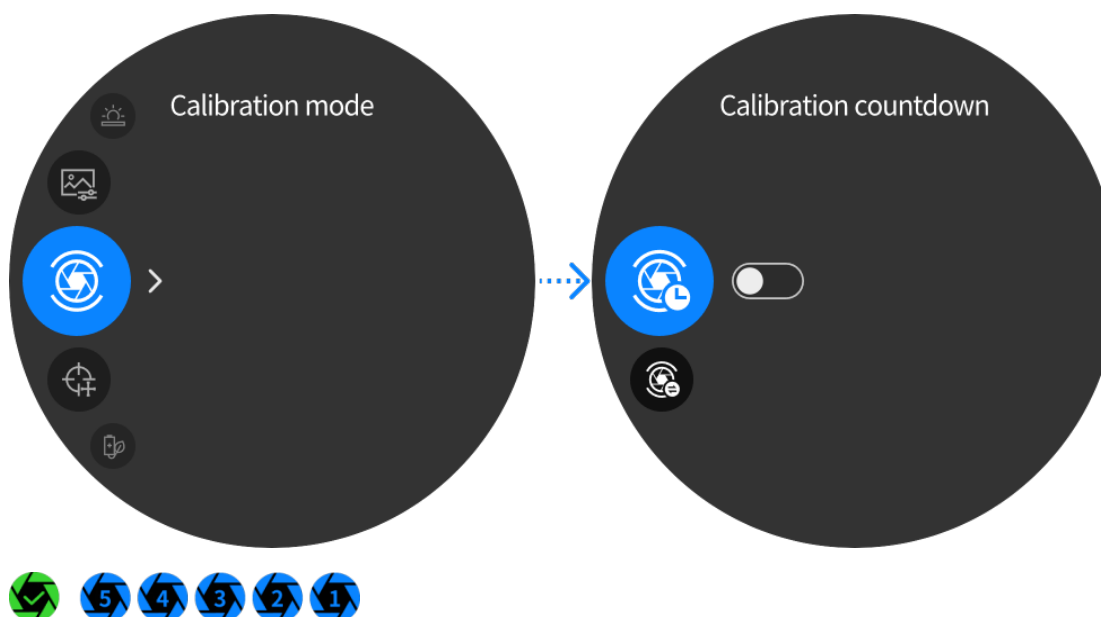
Regarding the setup of screen calibration method, there are two calibration methods available, i.e. manual calibration or automatic calibration. In the manual calibration mode, the calibration is triggered after short pressing the power button in the real-time screen. In the automatic calibration mode, the device is capable of self-adaptive calibration operation.



5.3.2 Calibration countdown

Calibration countdown can be set to be ON/OFF.

When the function is enabled, the countdown will be displayed in the first 5 seconds of each automatic calibration. When the function is disabled, the countdown will not be displayed in the first 5 seconds of each automatic calibration.



5.4 Reticle and zero calibration

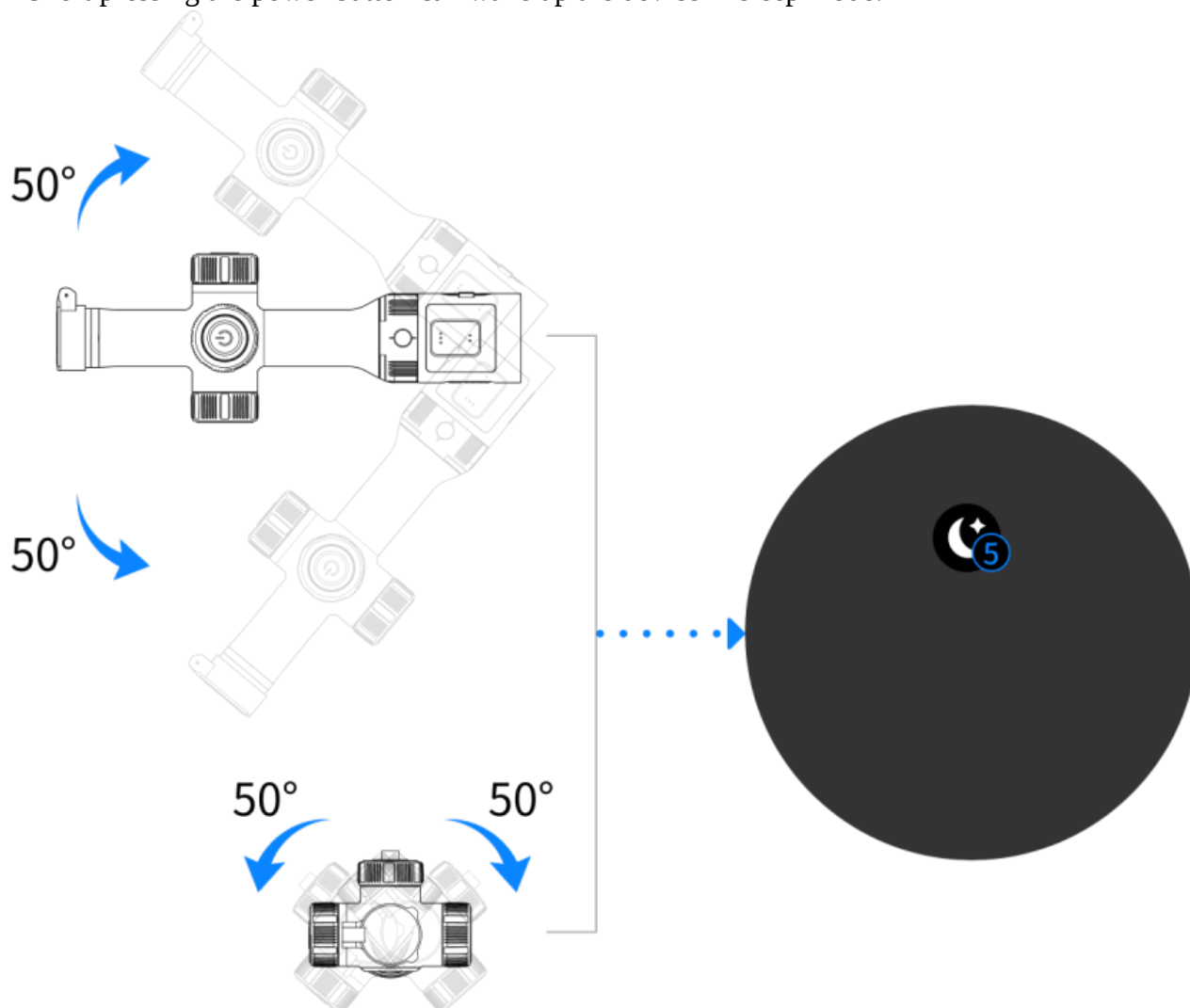
See Section 2.11.

5.5 Battery setting

5.5.1 Smart sleep

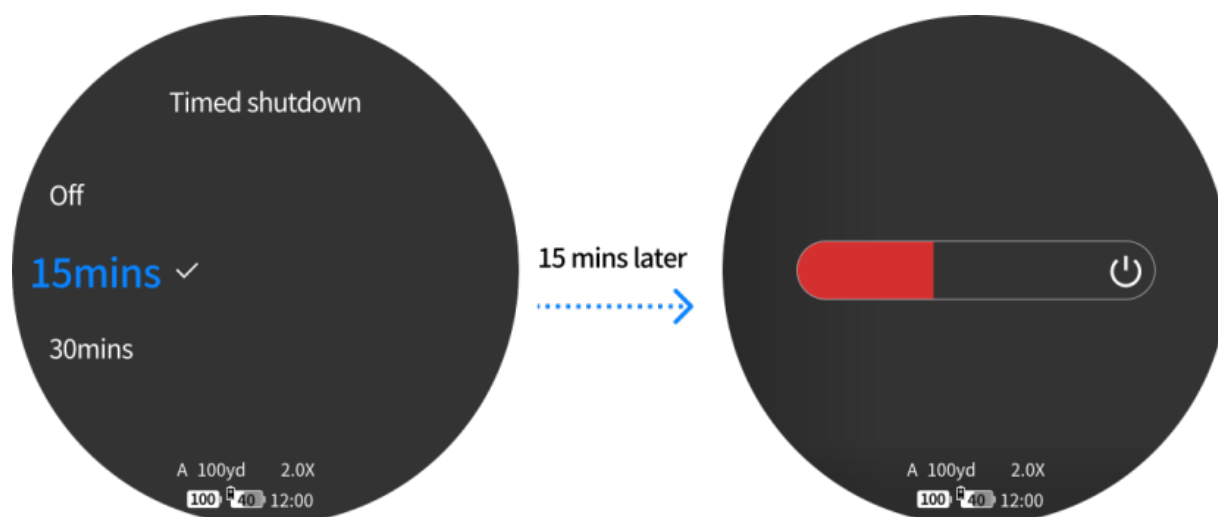
Smart sleep can be set to be ON/OFF.

After smart sleep is enabled, if the measured roll angle or pitch angle of device is $\geq 50^\circ$ respectively (in the reference condition with the top of device upwards) and the WiFi/Bluetooth/external screen/PC are not connected, the sleep countdown will be activated in case of no operation within 3min. After the countdown ends, the device will enter the sleep mode. Short pressing the power button can wake up the device in sleep mode.



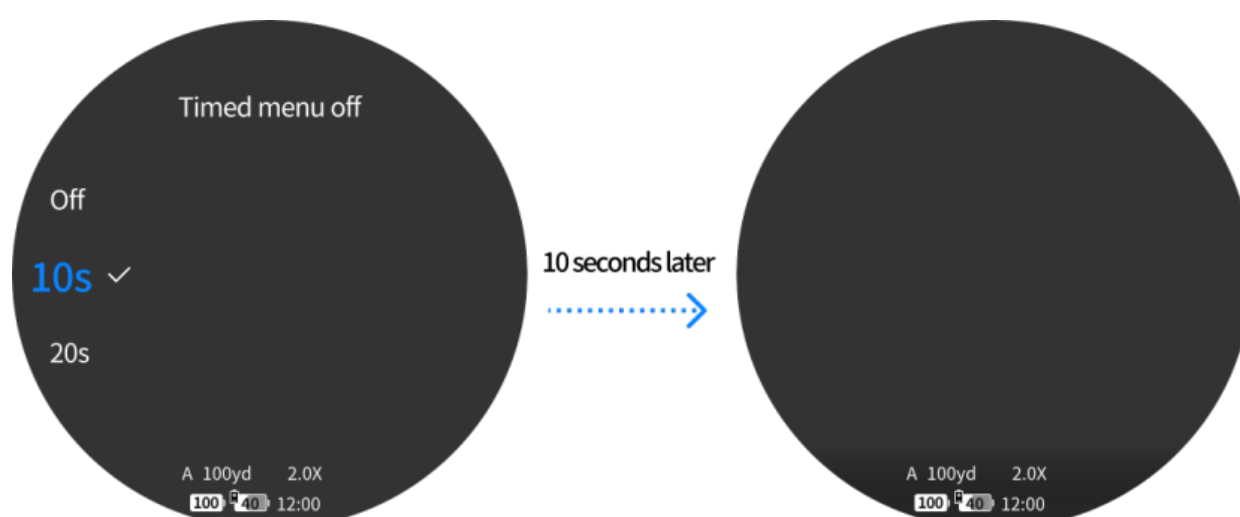
5.5.2 Timed shutdown

The timed shutdown time can be set to 15/30/60mins in the "Timed Shutdown" menu. In case of no operation within the set time and no connection of WiFi/Bluetooth/external screen/PC, the shutdown countdown will be activated. After the countdown ends, the device is shut down.



5.5.3 Timed menu off

The time to automatically close the menu can be set to 10/20/60 seconds. If no operation is performed within the set time, the menu will be closed.



5.6 Record setting

5.6.1 Audio

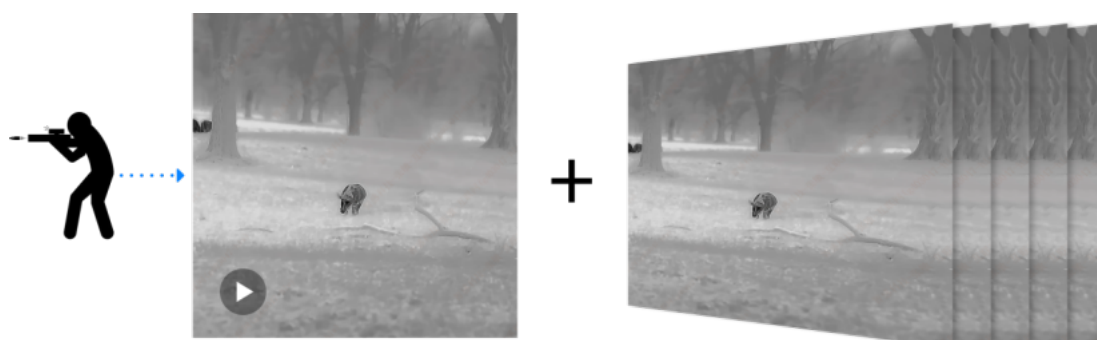
The audio function can be set to be ON/OFF. After being enabled, the audio will be synchronized to the .mp4 file at the time of video recording. The sound will be played synchronously when the video is played. If the audio is turned off, the recorded video is voiceless.



5.6.2 Intelligent Video Recording

5.6.2.1 Intelligent video recording ON/OFF

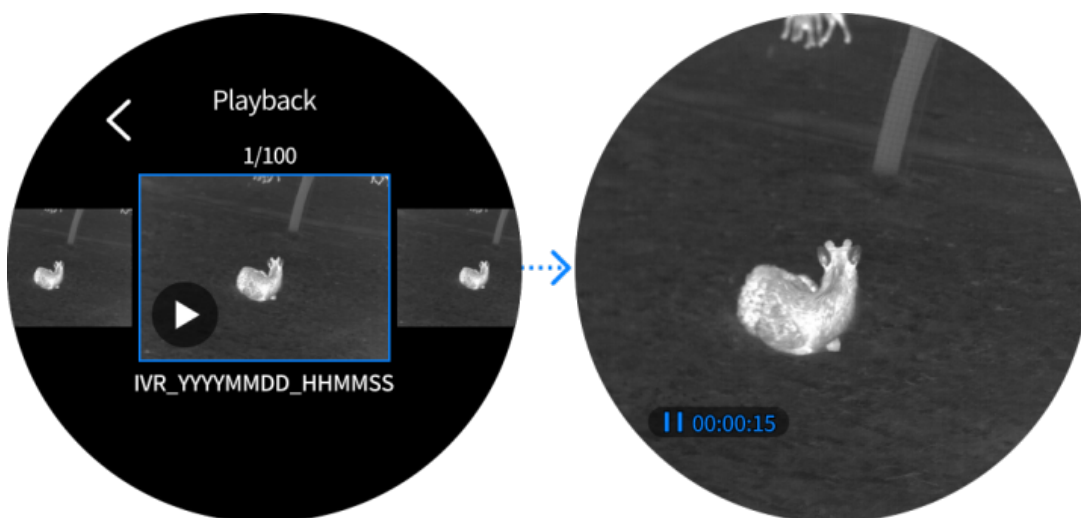
Intelligent video recording ON/OFF can be set. When the function is enabled, a video (first 5 seconds of vibration - last 10 seconds of vibration) and 5 photos will be automatically recorded if external vibrations are detected.





5.6.2.2 Playback

Enter Intelligent Video Recording - Playback, where the videos recorded by Intelligent Video Recording can be played back.



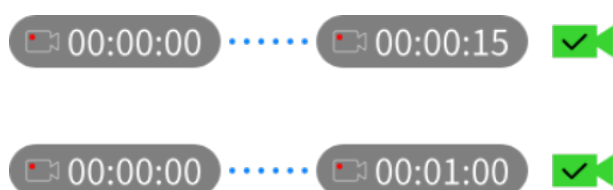
5.6.2.3 Sensitivity

Enter Intelligent Video Recording - Sensitivity Setting. The sensitivity is divided into 1-5 levels. The higher the level, the greater sensitivity, and the easier it is to trigger.



5.6.3 Time-limited video recording

With the time-limited video recording ON/OFF, the duration can be set at 15s or 60s. When the device is enabled for video recording, the video will be automatically ended and saved after the set duration is over.



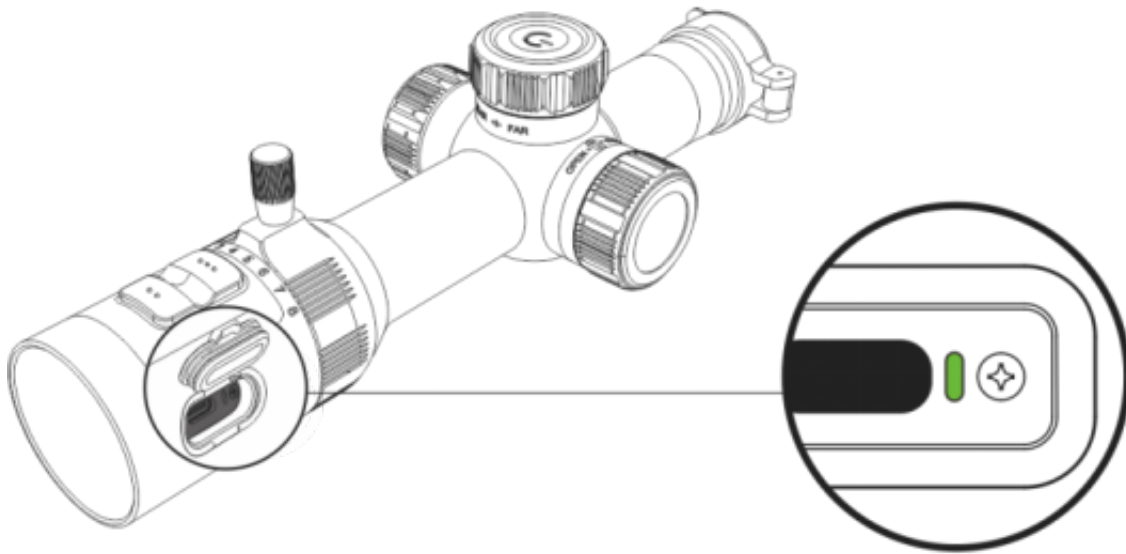
5.7 Indication setting

5.7.1 Charging indication

The charging indicator can be set ON/OFF.

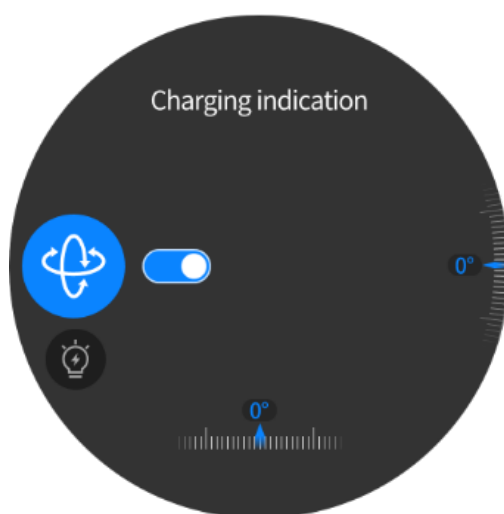
In the OFF state, the indicator will not light up during charging.

In the ON state, the charging indicator (breathing) will flash when the battery is in the charging state and the battery power is <100%. The charging indicator will be always on when the battery power is $\geq 100\%$.



5.7.2 Hold indication

Hold indication can be set to be ON/OFF. In the ON state, the pitch angle and roll angle of the held device can be displayed in the real-time screen. The device is in the reference state when its top is upward and parallel to the horizontal plane (pitch angle & roll angle = 0°).



6 General settings

6.1 Language settings

Enter the "Language Settings" menu to switch 18 languages: English /Russian /German /French /Italian/Spanish/Japanese/Korean/Polish/Romanian/Norwegian/Swedish/Danish/Czech/Slovak/Hungarian/Finnish/Portuguese. After the language is set, the device language is switched to and displayed in the corresponding language.



6.2 Unit setting

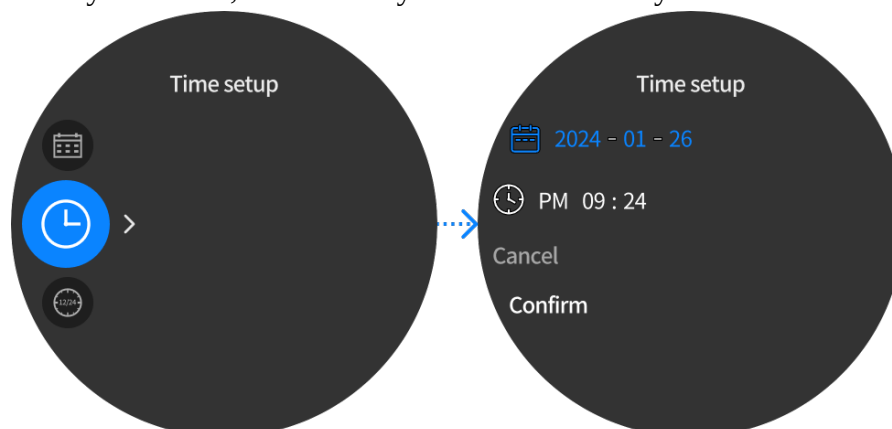
Meters and yards are available for option, and the ranging and target distance can be calculated and displayed in the selected unit.



6.3 Date

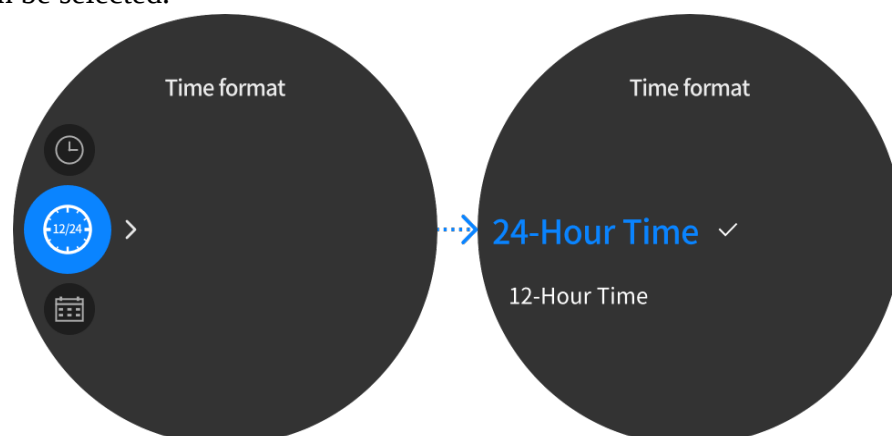
6.3.1 Time setting

Select to enter the "Time Settings" menu interface to adjust the time and date of device. After confirming that they are saved, the device system time will be synchronized.



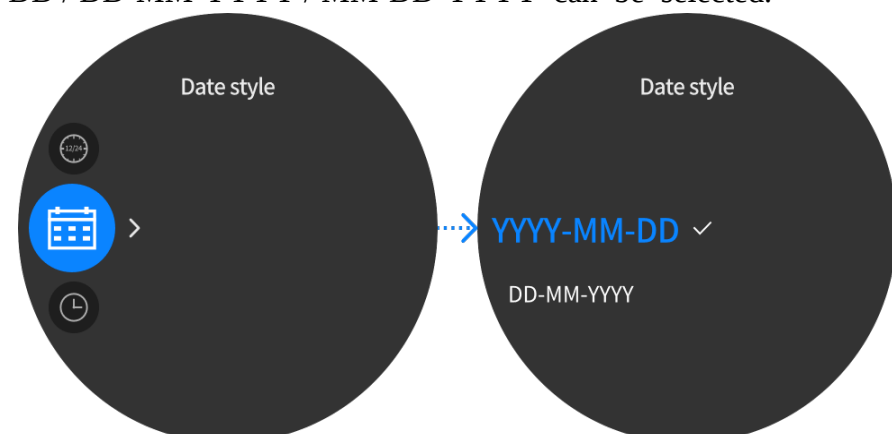
6.3.2 Time format

Select and enter the "Time Format" menu, where the manifestation form of time watermark as 12H/24H can be selected.



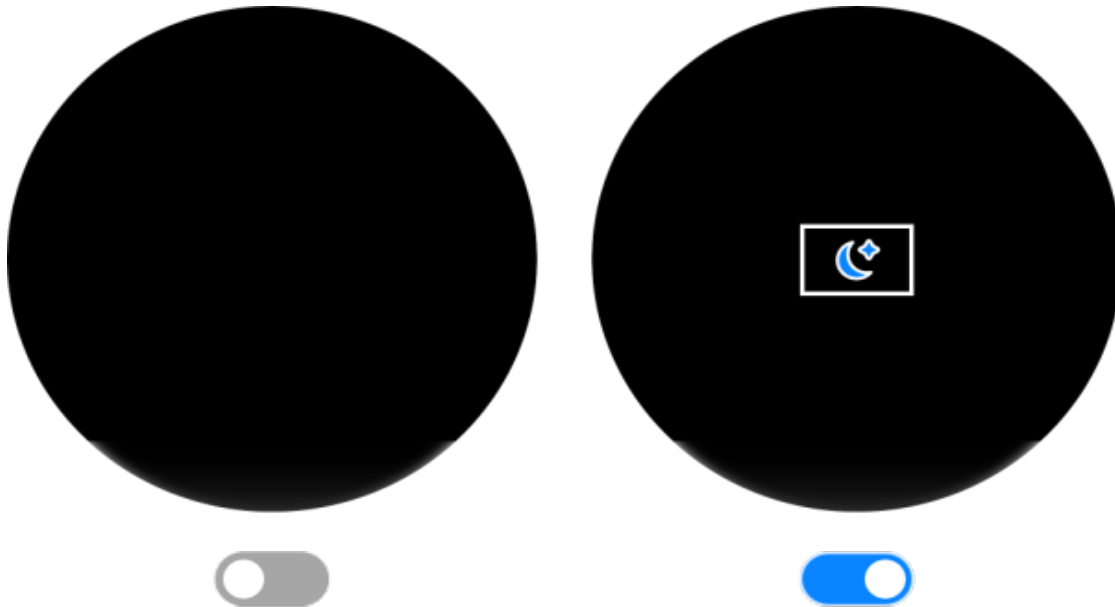
6.3.3 Date style

Select to enter the "Date Style" menu, where the manifestation forms of date watermark as YYYY-MM-DD / DD-MM-YYYY / MM-DD-YYYY can be selected.



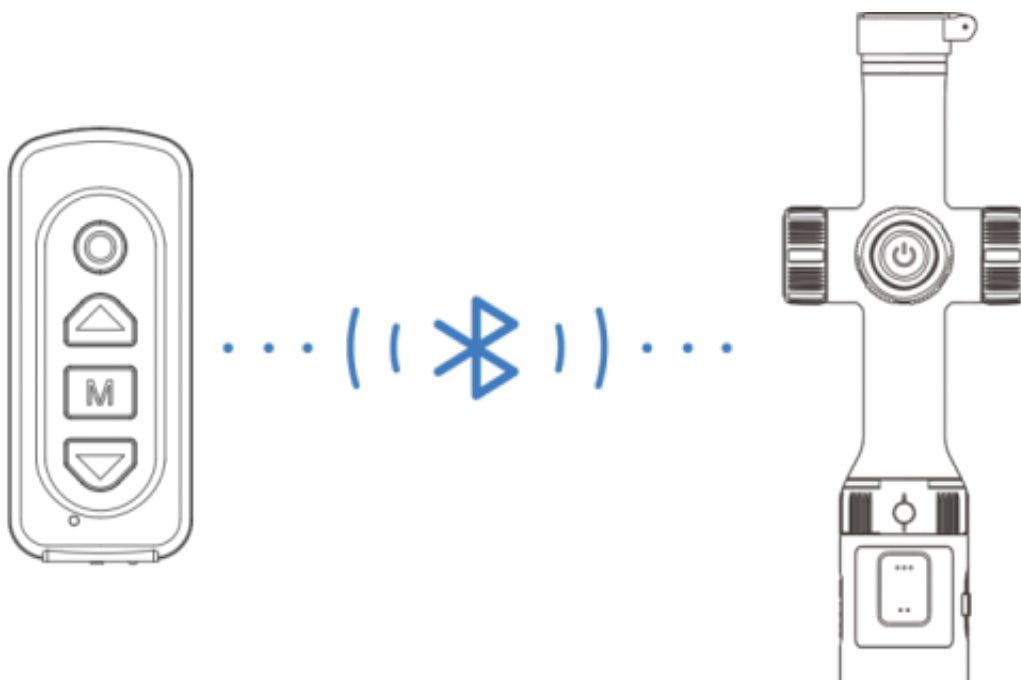
6.4 Screen-off display

The "Screen-off Display" can be set to be ON/OFF. After being enabled, the device is in the display off condition, and the "Standby" icon is displayed on the screen. Press any button on the device to restore the screen display.



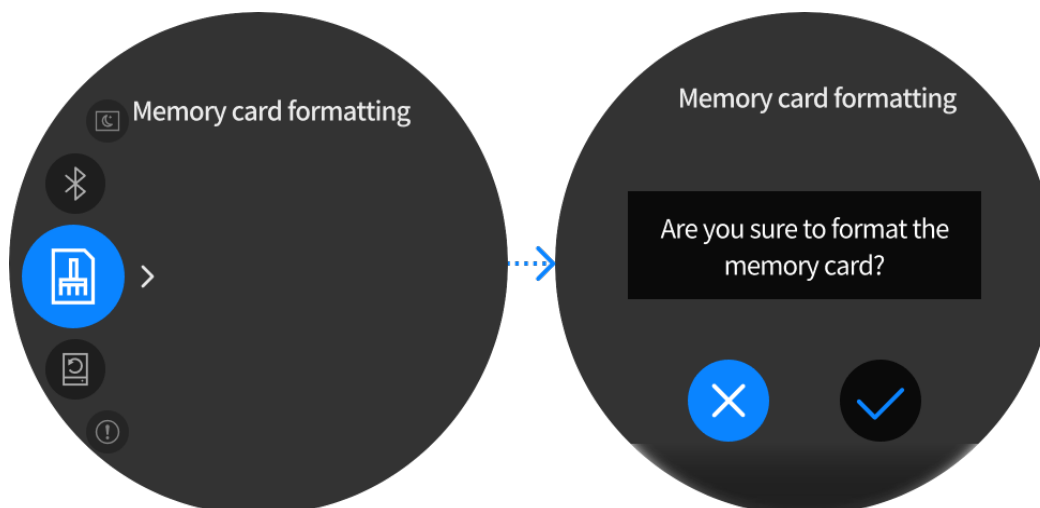
6.5 Bluetooth

Bluetooth can be set to be ON/OFF. When enabled, the Bluetooth remote control can be connected, to control the device.



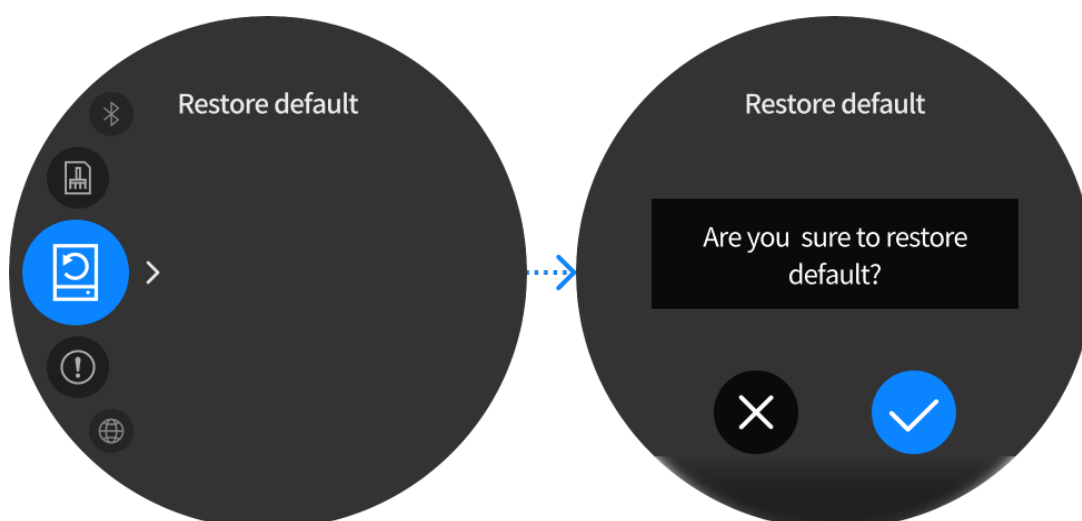
6.6 Memory card formatting

Select to enter the "Memory Card Formatting" menu interface, where the memory card formatting can be selected. After selecting "Yes", the memory card is formatted, and all files in the memory card of the device can be deleted. After selecting "No", operation is canceled.



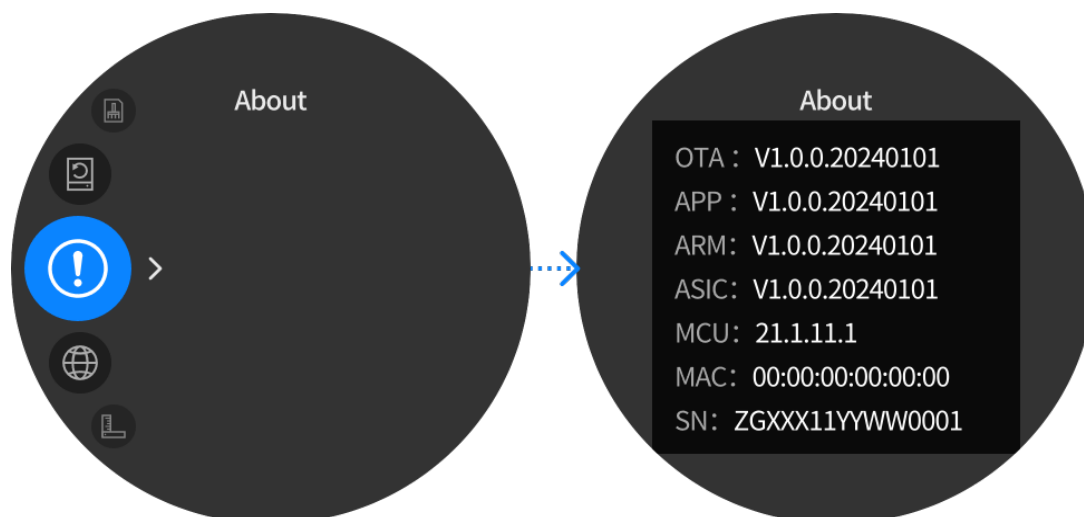
6.7 Restore default

Select to enter the "Restore Default" menu interface, where the default restoration can be set. After selecting "Yes", the device will automatically restart, a language guide interface will be shown, and all parameters will be restored to factory settings. After selecting "No", operation is canceled.



6.8 About

Select to enter the menu interface, where the information, such as device software version and MAC address, can be viewed.



7 Accessories list

Device × 1, battery × 2, battery charging block × 1, data cable × 1, adapter plug × 1, 5V2A adapter × 1, quick detach mount × 1, portable bag × 1, Safety Information Sheet × 1, Operation Guidance × 1, and Warranty Card × 1

8 Guide for common troubleshooting

1. The device cannot be powered on.

Solution: Replace the battery or connect the adapter to power on.

2. Device prompts that it is disabled to take photos/videos.

Solution: The memory space of the device is full, and it is necessary to format the memory card or disconnect the device from the computer.

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

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

4. The screen turns off during use.

Solution: Short press the composite knob to wake up and light the screen.

5. The device imaging is blurry during use

Solution: Rotate the lens to manually focus until the display is clear.

9 Storage and transportation

9.1 Storage:

1. Storage conditions for the packaged product: well-ventilated and clean indoor space at $-30\sim 60^{\circ}\text{C}$, with $\leq 95\% \text{RH}$, and no condensed or corrosive gas;
2. Please take it out and charge it at regular intervals of 3 months.

9.2 Transportation:

Avoid rain, water immersion, upside down, violent vibration and impact during transportation.

Handle with care and do not throw the product.



Avoid pointing the device at intense heat sources(e.g.,the sun,lasers,welders)to prevent damage.