ZENTRON

Thermal imaging device

ZEN M Series

User Manual

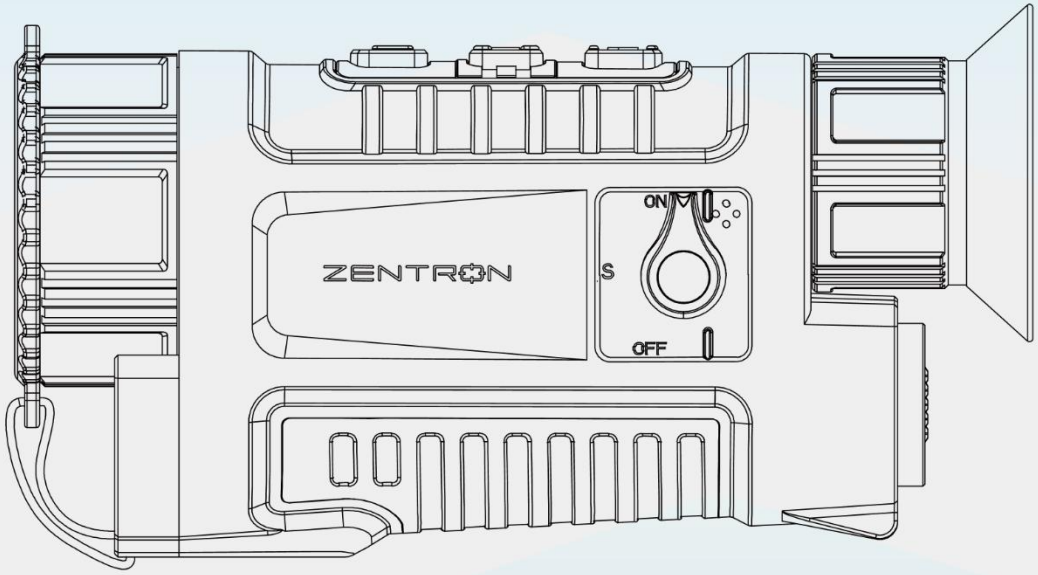


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1. Important Safety Information

1.1 Environmental Warnings

- Avoid direct exposure of lens to intense light sources such as the sun or lasers.
- Operating temperature: -20°C to +50°C
- Do not store at extreme temperatures.
- When used in extremely cold environments, the battery life of the device will be reduced. This is normal and does not indicate a malfunction of the device.

1.2 Ergonomics and Handling

- Take breaks during extended use to avoid fatigue.
- Keep out of reach of children – small parts may be hazardous.
- After using the device, please close the lens cover of the device to prevent sharp objects from scratching the lens of the device.
- Disassembling or repairing equipment through unofficial channels will invalidate the repair policy.

1.3 Battery and Charging Safety

- Use only manufacturer-approved 18650 batteries.
- Do not reverse battery polarity.
- Only charge between 0°C and 50°C.
- Never leave batteries unattended during charging.
- When the device is idle for a long time, the battery should be removed.
- Do not use 18650 batteries with USB charging interface, as it will damage the device charging compartment.

2. Specifications

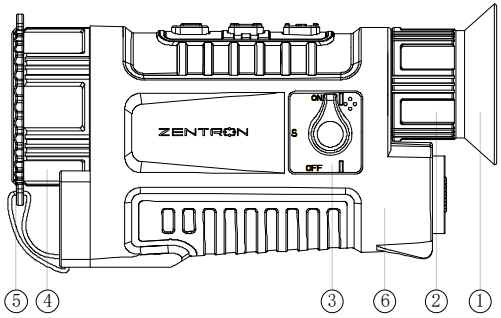
ZEN series	M6 PRO			M6	
	Includes 50mm, 35mm interchangeable lenses				
	50mm	35mm	25mm	35R	25R
Detector type	VOx uncooled			VOx uncooled	
Resolution	640 x 512			640 x 512	
Pixel size	12μm			12μm	
Framerate	50Hz			50Hz	
Spectral range	8~14um			8~14um	
NETD	≤18mK			≤18mK	
Optics					
Objective lens	50mm f1.0	35mm f1.0	25mm f1.0	35mm f0.9	25mm f0.9
Field of view	8.8°(H)x7°(V)	12.5°(H)x10°(V)	17.5°(H)x14°(V)	12.5°(H)x10°(V)	17.5°(H)x14°(V)
Close-up range	5 yards			5 yards	
Detection range	2800 yards	1950 yards	1312 yards	1950 yards	1312 yards
Optical magnification	2.1x	1.9x	1.4x	1.9x	1.4x
Laser rangefinder					
Safety class for laser	Class 1			Class 1	
Wavelength	905nm			905nm	
Max. measuring range	1312 yards			1312 yards	
Measurement accuracy	±1			±1	
Min. measuring rang	5 yards			5 yards	
Display parameters					
Display type	OLED			OLED	
Display resolution	1920 x 1080			1920 x 1080	

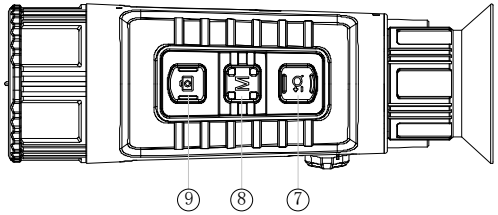
ZEN series	M6 PRO			M6	
	Includes 50mm, 35mm interchangeable lenses				
	50mm	35mm	25mm	35R	25R
Functions					
E-zoom	2.1~16.8x	1.9~15.2x	1.4~11.2x	1.9~15.2x	1.4~11.2x
Palettes	White hot/Black hot/Tint/Iron red/...			White hot/Black hot...	
Start up time	Less than 5 seconds			Less than 5 seconds	
Wi-Fi & Bluetooth & Mic	Support			Support	
Sensors	Accelerometer & digital compass			Accelerometer & digital compass	
Built-in memory	64GB			64GB	
Electronics					
Battery	1x18650			1x18650	
Max. battery life	7 hours			7 hours	
USB interface	Type-C			Type-C	
Physical					
Size (inch)	6.29x2.67x3.18	5.45x2.16x3.18		5.9x2.16x3.18	
Weight	13.05 oz	11.64 oz	11.85 oz	12.34 oz	12.55 oz
Environmental					
Housing material	Magnesium			Magnesium	
Protection level	IP67			IP67	
Operation temp	-4°F~122°F			-4°F~122°F	
Storage temp	-40°F~122°F			-40°F~122°F	

3. Features

- High-sensitivity thermal sensor
- AMOLED display with adjustable brightness
- Picture-in-Picture mode
- Multiple thermal palettes
- Built-in microphone and video recorder
- Built-in ranging module
- Wi-Fi & Bluetooth enabled

4. Components and Controls





No.	Component
1	Eyeshade
2	Diopter adjustment handwheel
3	Power button
4	Objective lens
5	Lens cap
6	Battery cover
7	Zoom button
8	Menu button
9	Capture button

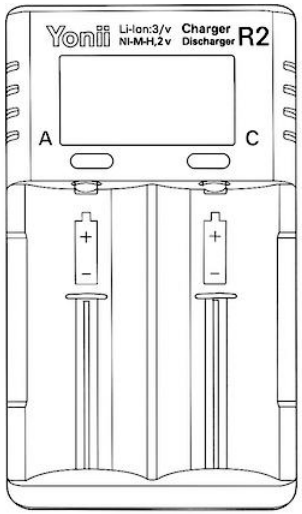
5. Button Operation

M Series		
Button	**Short Press**	**Long Press**
⏻	Standby mode/Wake up device	Power on/off
M	Quick menu	Main menu
🔍+	Measuring distance	Zoom
📷	Take a picture	Start/stop recording video
🔍+M		NUC

6. Battery Charging Instructions

Compatible Battery:

Supports only **18650 lithium-ion rechargeable batteries**.



Charging Steps:

1. **Insert Batteries:**
   Place the 18650 batteries into the charger, matching the correct polarity (+/−) as indicated.

2. **Power On:**
   Connect the charger to a USB power source using the included USB-C cable.

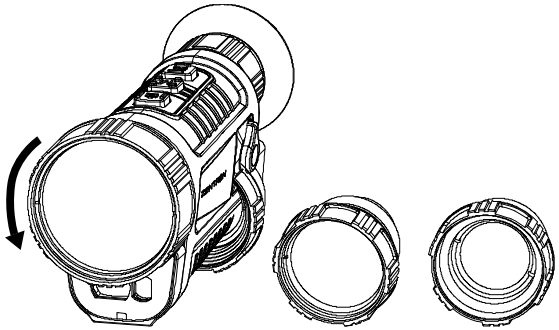
3. **Monitor Charging:**
   Charging status and battery level are displayed on the **LCD screen**. The screen shows real-time voltage, charging progress, and battery condition.

4. **Important Notes:**
   - Do not reverse battery polarity.
   - Do not use 18650 batteries with a built-in USB port.
   - Only charge between **0°C and 50°C**.
   - Remove batteries when not in use for extended periods.
   - Avoid overcharging or leaving the charger unattended.

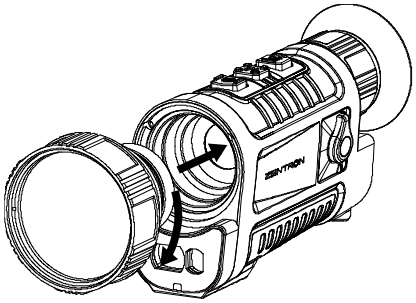
7. Replacing the Lens

The M6 Pro comes standard with two lenses: 50mm and 35mm. If a 25mm lens is needed, it can be purchased separately.
The following steps explain how to replace the lens:

- Hold the lens with one hand and rotate it counterclockwise to remove it.

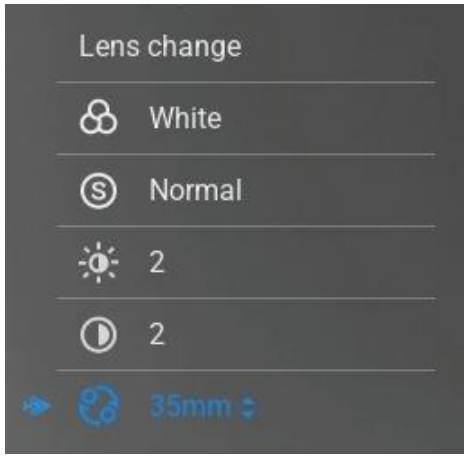


- Hold the replacement lens with one hand and rotate it clockwise to tighten.



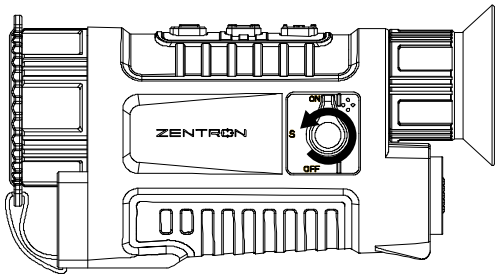
Note:
During the lens replacement process, avoid letting dust enter the device or settle on the lens.

- Short press the quick menu button to select "Lens change".



- Continue short pressing the quick menu button to select the parameter matching the lens.

8. Startup & Standby



Powering On:

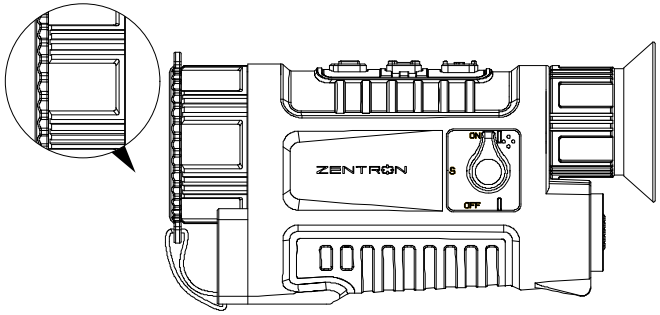
- Rotate the power switch to the "ON" position.

Powering Off:

- Rotate the power switch to the "OFF" position.

Standby Mode:

- Rotate the power switch to the "S" position.

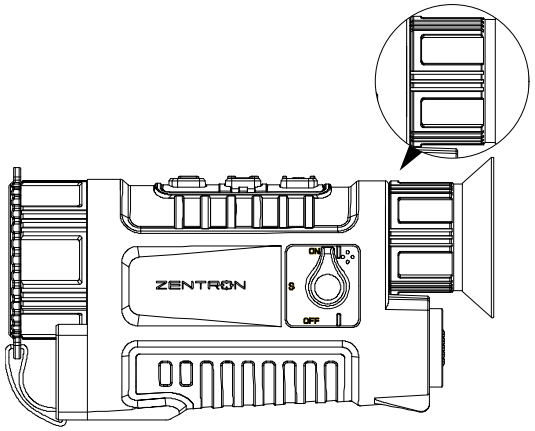


- Auto standby available in menu settings (3–10 min).

9. Focusing

Diopter Adjustment:

- Rotate eyepiece until UI elements are sharp.



Objective Lens Focus:

- Rotate lens ring until target object appears clear. If the target distance changes, refocus accordingly.

10. Status Bar Overview



NO.	Description
1	Zoom
2	Scene mode
3	LRF switch
4	NUC Shutter
5	Electronic compass
6	Time
7	WiFi
8	Bluetooth
9	Battery

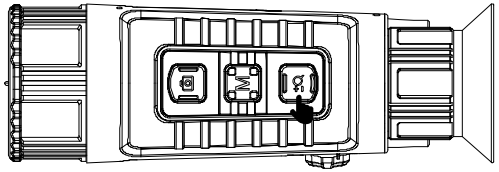
11. Calibration

NUC (Non-Uniformity Correction):

- **Auto**: Triggered regularly by device.
- **Manual**: Press and hold both the Zoom button and the Capture button simultaneously.
- **External**: Close lens cap, press and hold both the Zoom button and the Capture button simultaneously.

12. Digital Zoom

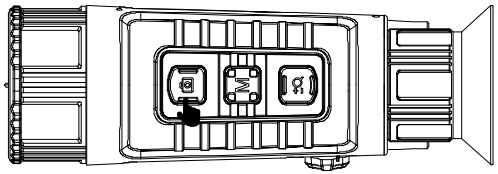
Long press Zoom button to toggle:



- 1×, 2×, 4× , 8× zoom levels.

Zoom affects both main and PiP window.

13. Photographing & Video Recording



Take Photo:

- Short press the shutter button → brief freeze with photo icon.



Record Video:

- Long press Capture button → recording icon and timer.
- Press again to stop.



RAV Mode:

- Automatically records 10 to 30 seconds before and 10 to 30 seconds after a recoil event.

All media saved in internal 32GB/64GB memory.

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14. Measure Distance

The M Series is equipped with an integrated LRF module, which can be used to measure the distance to a target. When measuring distance, please hold the device steady and avoid shaking to ensure measurement accuracy.
This feature provides two distance measurement modes: Continuous and Single. The operation differs depending on the selected mode. You can switch modes via Main Menu > Advanced Settings > LRF.

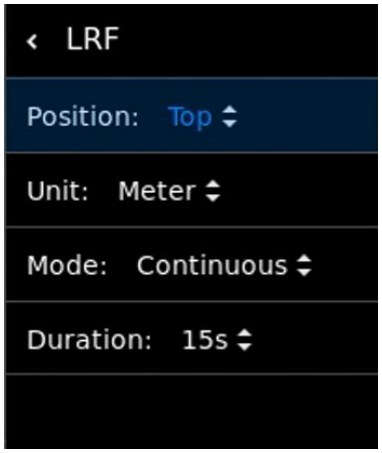
Warning: Laser radiation emitted by this device can cause eye injuries, skin burns, or ignite flammable materials. Ensure no person or flammable material is positioned in front of the laser lens before activating the laser ranging function.
The device's battery is below 5%, LRF will be automatically disabled.

- Continuous: Short press the Zoom button to start measuring. The device will perform continuous measurements for a preset duration and then stop automatically. You can also stop it early by short pressing the Zoom button again.

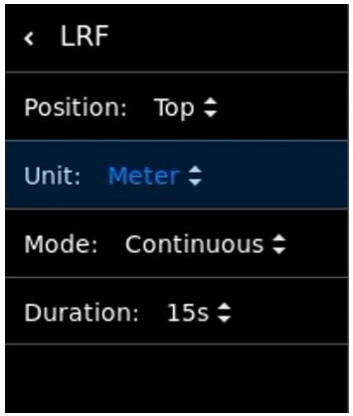


- Single: Short press the Zoom button to perform a single distance measurement each time.

- Position：Top、Mid



- Unit：Meter、Yard



- Mode：Continuous、Single



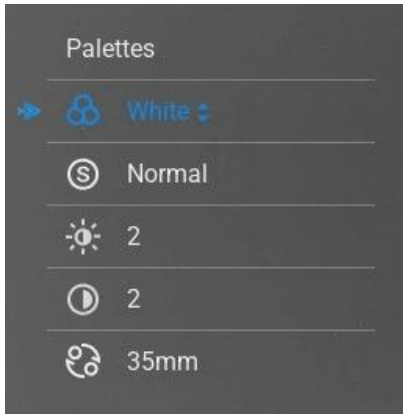
- Duration：15、30、45、60 sec



15. Quick Menu

Press Menu briefly to enter:

- Palettes.
- Scene Mode.
- Screen Brightness(1–15).
- Contrast (1–5).
- Lens change (M6 Pro)



Use Zoom/Capture to navigate, Menu to modify, long press Menu to save and exit.

16. Main Menu

The Main Menu provides full control of all advanced settings. Access it by **long pressing the Menu button** on the home screen. Navigate with the **Zoom/Capture buttons**, short press the Menu button to edit or enter a submenu, and long press the Menu button to save and return to the previous level.

➢ Wi-Fi

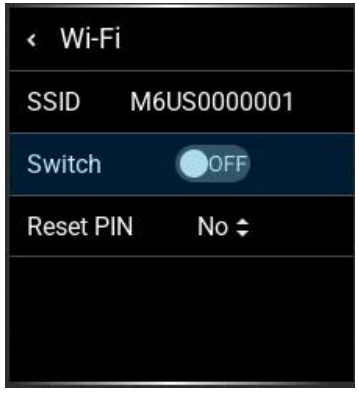
This option enables or disables Wi-Fi, allowing the device to connect to mobile apps (e.g., ZSYNC) for remote control, image preview, and firmware updates. When enabled, the device will broadcast its SSID for connection.

Toggle wireless connection for app control and file transfers.

- On / Off.



NOTE: Displays SSID on activation. You can check the Wi-Fi name (SSID) in Advanced Settings > Wi-Fi. The default password is 12345678. If forgotten, go to Advanced Settings > Wi-Fi > Reset PIN to reset the password.

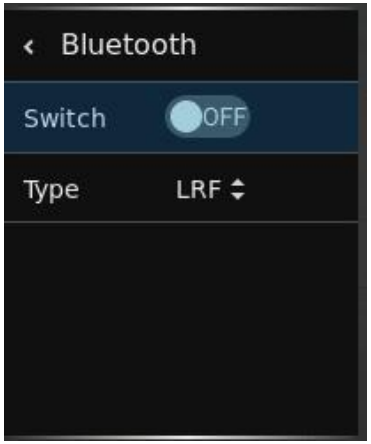


➢ Bluetooth

Bluetooth allows pairing with external accessories such as laser rangefinders or remote controls. Once paired, the device will recognize and show the connection status.

Pair with compatible external devices (e.g. rangefinder).

- On / Off.



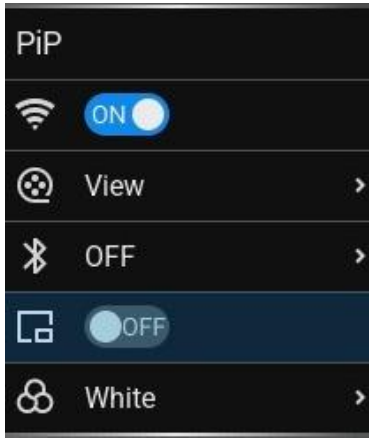
➢ PiP (Picture in Picture)

PiP mode displays a magnified sub-window centered at the top of the screen, assisting in precision aiming while maintaining full situational awareness. Ideal for long-range targeting.



Overlay a magnified view centered at the top of the main screen.

- On / Off.

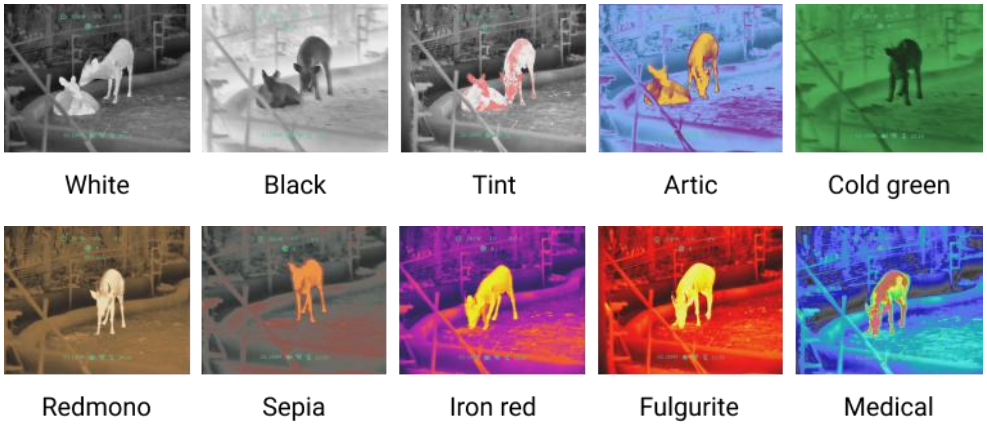


➢ Palettes

Thermal palettes control how the device translates heat differences into visual colors. Users can switch between various false-color schemes for better target visibility under different environmental conditions.

Change thermal display color schemes.

- White Hot / Black Hot / Red Mono / Rainbow / Arctic / Iron Red / Green White / Tint / Sepia / Fulgurite / Cold Green / White Highlight.

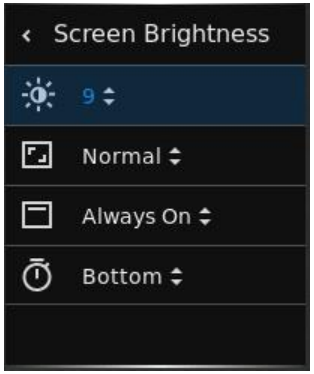


➢ Display Settings

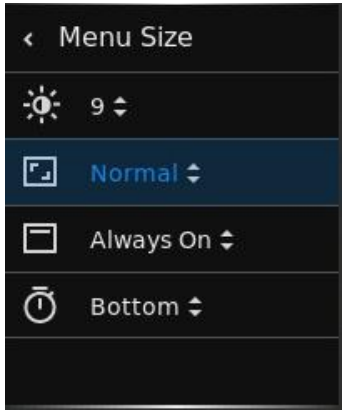
Adjust screen brightness, menu scale, status bar visibility, and location to ensure optimal display readability across lighting environments.

Personalize display preferences.

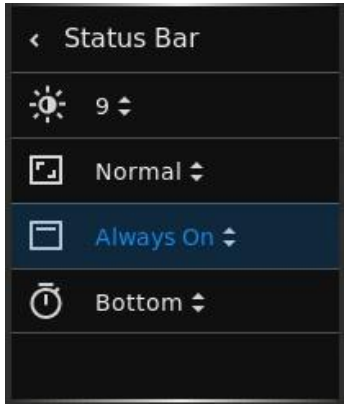
- Screen Brightness(1–15).



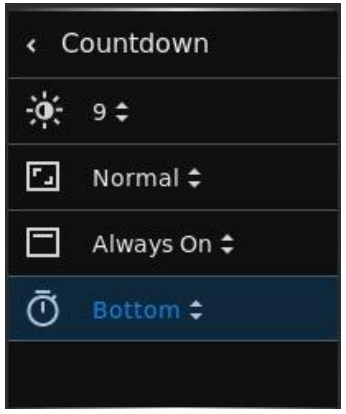
- Menu Size: Normal / Small.



- Status Bar: Auto Hide / Always On.

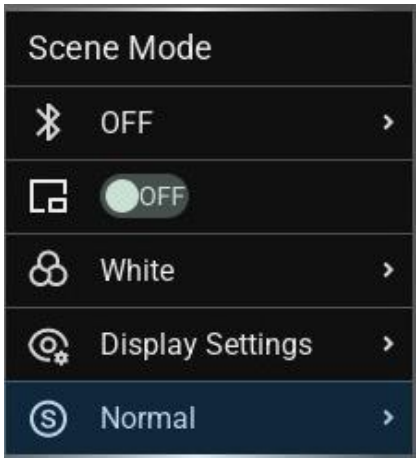


- Countdown Location: Bottom / Mid.

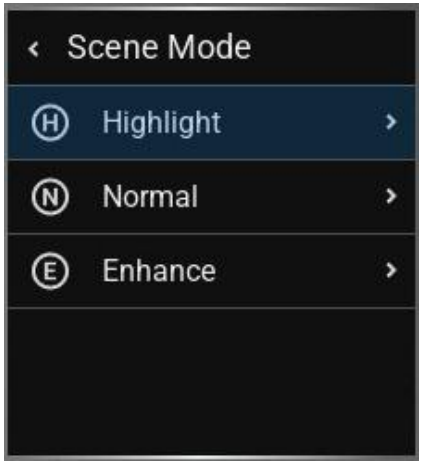


➢ Scene Mode

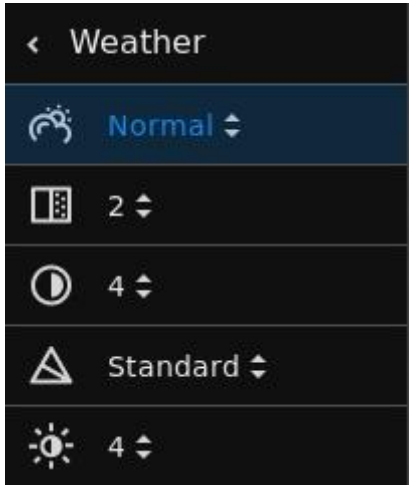
There are three scene modes that can be switched via the Quick menu. Users can customize the Display Settings for each mode, such as weather, denoise, and contrast, enabling fast and effective transitions between different environments for optimal viewing.



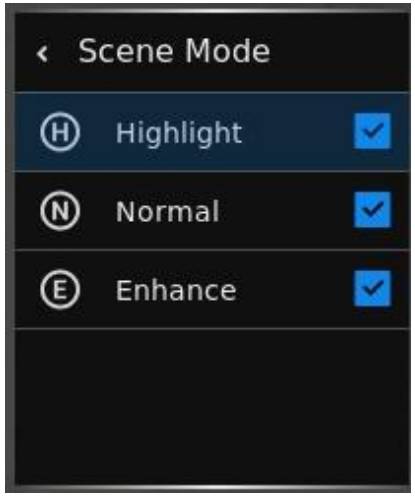
- Three Scene Modes: Normal / Highlight / Enhance.



- Editable parameters: Weather, Denoise, Contrast, Sharpness, Brightness.

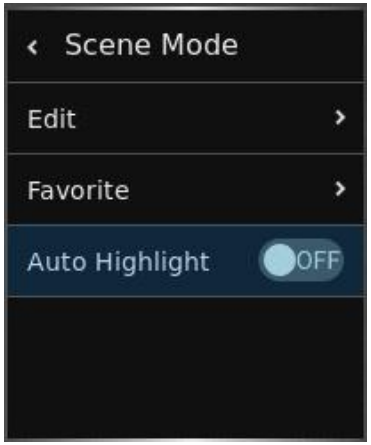


- Favorite: The selected scene mode can be switched via the Quick menu.



- Auto Highlight: On / Off.

  When this feature is enabled, the device automatically switches to Highlight mode after shooting, making it easier to detect and locate targets while eliminating the hassle of manually switching scene modes.



➢ Media

Browse and view stored photos and videos.

- Thumbnail grid, with album categorized by month.

➢ NUC Shutter

Control thermal sensor calibration.

When switched to Auto mode, the status bar displays an icon with the letter A(Auto); in Manual mode, it shows M(Manual); in External mode, it shows E(External).

- Press and hold the menu button to enter the main menu.

- Select Advanced Settings.



- Auto: The device automatically triggers image calibration at regular intervals without user action.

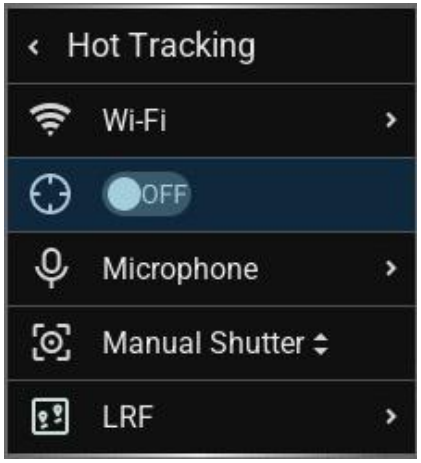
- Manual: User initiates calibration manually by long pressing the Zoom button.

- External: Close the lens cap and long press the Zoom button to calibrate.

➢ Hot Tracking

Enable or disable Hot Tracking.

- Press and hold the menu button to enter the main menu.
- Select Advanced Settings.
- On / Off.



- When enabled, a frame appears on the screen to highlight the hottest point detected in the scene.

➢ MIC

Enable or disable ambient audio recording.

- Press and hold the menu button to enter the main menu.
- Select Advanced Settings.
- On / Off.



- Gain: -5~5.

  Adjust microphone gain level

➢ Menu Sorting

Reorder items in Main Menu.

- Press the Menu button to switch menu items, and use the Up/Down buttons to move positions.
- Select System Settings.



➢ Compass Calibration

Guide to recalibrate electronic compass.

- Press and hold the menu button to enter the main menu.

- Select Advanced Settings.

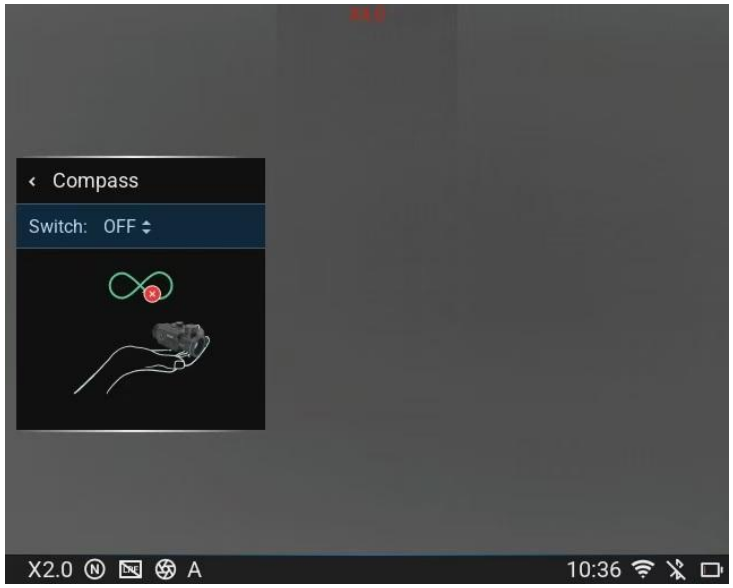


- Requires manual motion in specific directions until green icon appears.



- Users can choose between two display styles or disable the display, as shown below.







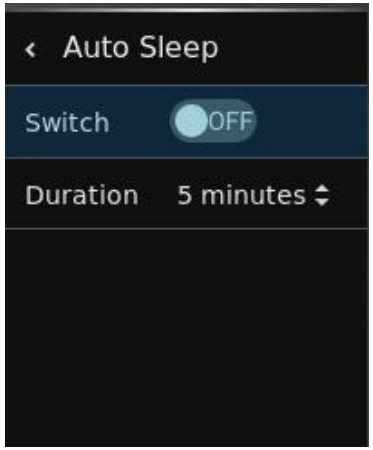
➢ Auto Sleep

When the device's pitch angle exceeds 65 degrees or the roll angle exceeds 45 degrees, it will enter standby mode after the preset period of inactivity.

- Press the Menu button to switch menu items, and use the Up/Down buttons to move positions.
- Select System Settings.



- Delay: 3 / 5 / 10 min.

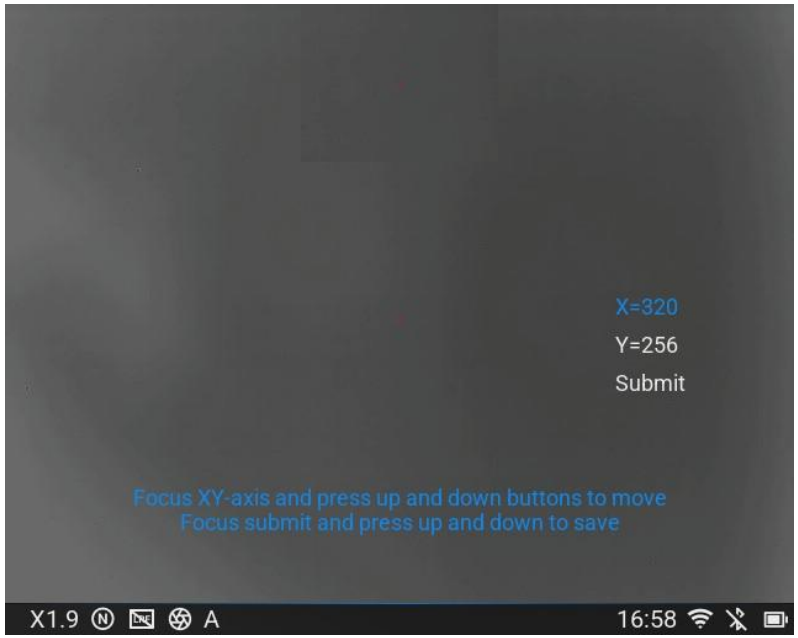


➢ Pixel Correction

Fix defective (hot/stuck) pixels manually.

- Press and hold the menu button to enter the main menu.
- Select Advanced Settings.
- Select the Pixel Correction function to enter the Pixel Correction screen and the coordinate position of the reticle (X axis, Y axis) will be displayed in the center of the screen.
- Find the bad pixels in the screen.
- Press the menu button to toggle the x and y axes and press the up and down buttons to adjust the position of the x and y axes. Press the menu button to calibrate the bad pixels.
- Repeat the above operations to continue selecting bad pixels.

- When the calibration is done, press and hold the menu button to exit the pixel correction.



➢ Time/Date

Manually set time and date.

- Press and hold the menu button to enter the main menu.
- Select System Settings.
- Year, month, day, hour, minute, and second can be set individually.
- Used to display time in the status bar.
- Required for accurate file naming.

➢ Language

Choose device interface language.

- Press and hold the menu button to enter the main menu.
- Select System Settings.
- English / Deutsch / Italiano / Čeština / Magyar / Español / Français.

➢ Reset Settings

Restore factory defaults (non-destructive).

- Press and hold the menu button to enter the main menu.
- Select System Settings.
- Confirmation required.

➢ Erase Media

Delete all saved photos and videos from internal storage.

- Press and hold the menu button to enter the main menu.
- Select System Settings.
- Confirmation required.

➢ About

View firmware version, serial number, and hardware ID.

17. Connecting to ZSYNC App

App Installation:

iOS

Android

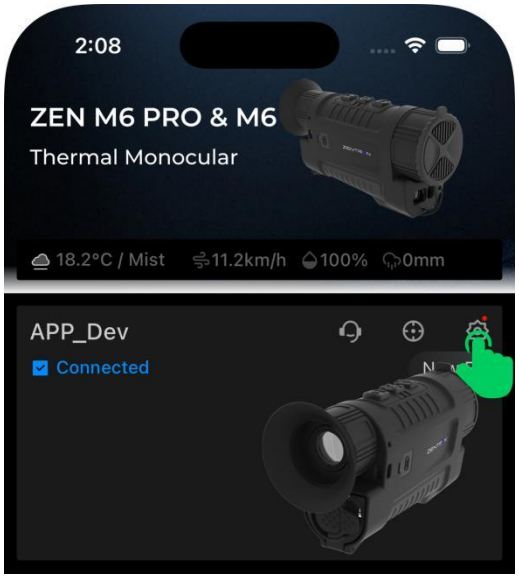
- Download **ZSYNC** from App Store (iOS) or Google Play (Android).

Connecting:

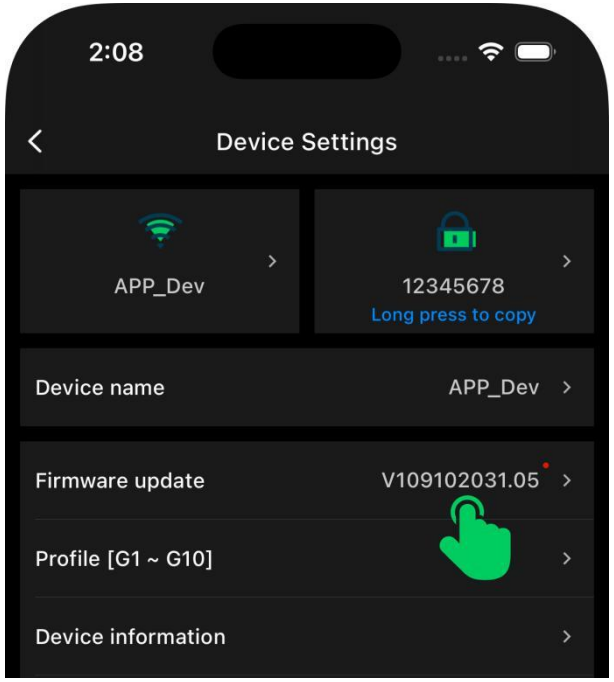
1. Turn on device Wi-Fi (Main Menu > Wi-Fi > On).
2. Note SSID displayed in Main Menu > Advanced Settings > Wi-Fi.
3. On your phone, go to WLAN settings and connect to the same SSID.
    - Default password: 12345678.
4. Open ZSYNC App → Tap connected device → View real-time image or access media.

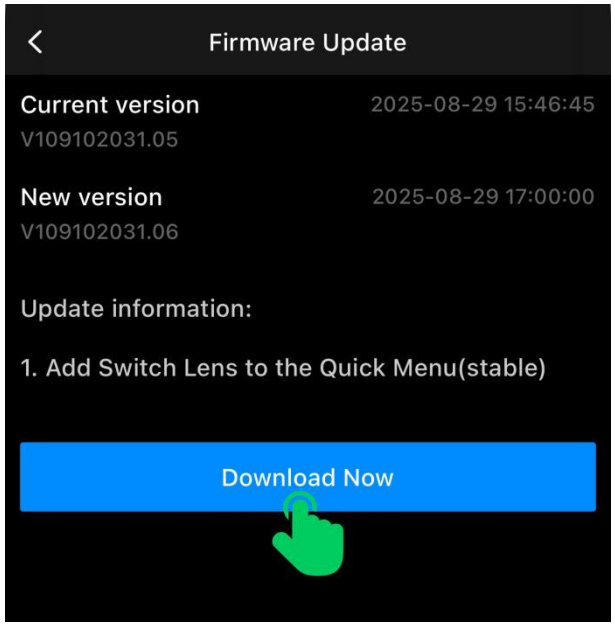
18. Firmware Update

1. Connect mobile device to the unit via Wi-Fi.
2. Open **ZSYNC App** → Tap Settings ⚙.

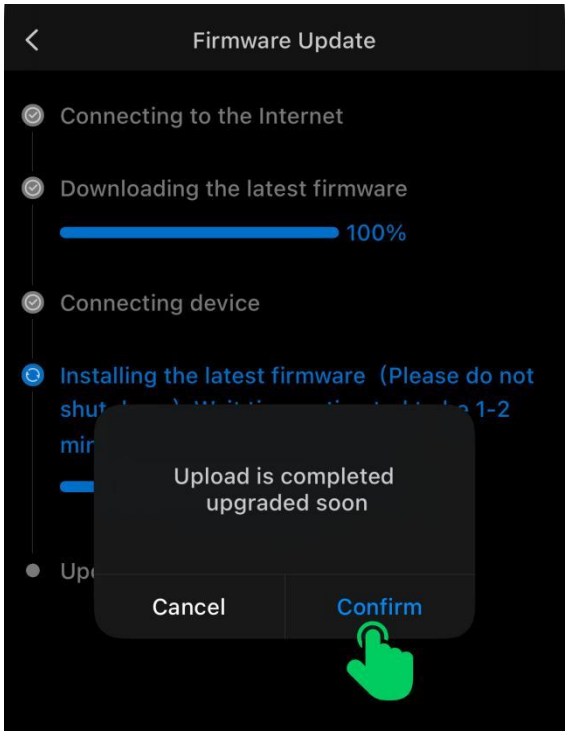


3. Select **Firmware update** → Tap **Download Now.**





4. Follow prompts to complete installation.



5. Device will automatically restart and apply updates.

Important: Do not disconnect during upgrade. Ensure battery >50% or connect external power.

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19. File Transfer to PC

When connected via USB-C cable:

1. Power on the device.
2. Connect to a PC via cable.
3. Device will appear as a USB drive. Double-click to open and view files.
4. Open folders by date to view:
    - The device stores captured photos and videos in its USB drive.
    - Users can copy them to their computer.
    - Photos (.jpg).
    - Videos (.mp4).

The naming conventions for photos and videos are:

- zentron_image_YYYY_MM_DD_HH_mm_ss.jpg.
- zentron_video_YYYY_MM_DD_HH_mm_ss_auto.mp4.
- zentron_video_YYYY_MM_DD_HH_mm_ss_manual.mp4.
- auto.mp4 is the video automatically recorded by the Prerecord function.
- manual.mp4 is the manually recorded video.
- YYYY_MM_DD_HH_mm_ss represents year, month, day, hour, minute, and second.

20. Maintenance & Cleaning

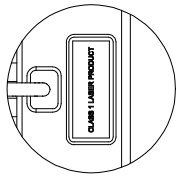
- **Lens:** Use provided microfiber cloth. Do not use alcohol or coarse material.
- **Body:** Wipe with soft damp cloth. Avoid solvents.
- **Storage:** Keep dry, store in provided bag.
- **Charging Port:** Avoid dust buildup.
- **Battery:** Charge every 3 months during long-term storage. Avoid full depletion.

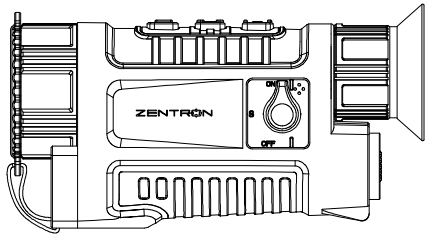
21. Troubleshooting (FAQ)

Issue	Possible Cause / Solution
Device won't turn on	Check battery orientation / charge level
Wi-Fi not visible	Ensure Wi-Fi is enabled in main menu
App fails to connect	Forget Wi-Fi, reconnect / Restart device
Image is blurry	Adjust lens focus / Eyepiece diopter
Reticle is misaligned	Perform zeroing again / Reset profile
Video not recording	Ensure sufficient storage space
Battery drains fast	Enable Auto Sleep, disable Wi-Fi and Bluetooth

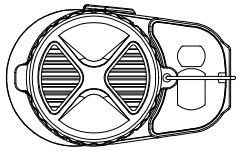
22. Caution

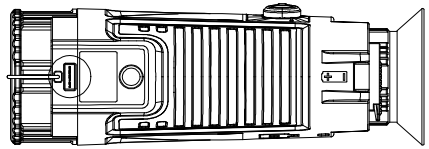
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.











1. Laser safety levels are classified according to IEC 60825-1: 2014.
2. The laser module information is as follows :

- Wavelength: 905nm
- Maximum single pulse energy: 0
- Laser safety level：Class 1
- Pulse width：0
- Repetition frequency：1-5hz

Note：Semiconductor laser, without Maximum single pulse energy and Pulse width parameters.

23. Regulatory Information

EU Conformity Statement
This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the 2011/65/EU and its amendment directive 2015/863/EU.
Frequency Bands and Power (for CE)
The frequency bands and transmitting power (radiated and/or conducted) nominal limits applicable to the following radio equipment are as follows:
Wi-Fi 2.4 GHz (2.4 GHz to 2.4835 GHz), 20 dBm



Directive 2012/19/EU (WEEE Directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info

24. Legal & Compliance

If this equipment does cause harmful interference to radio or television reception,

which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different

from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

25. Contact & Support

For technical support, warranty service, or general inquiries:

- Website: zentronusa.com
- Email: info@zentronusa.com

Users can also submit feedback and contact our European agents through our ZSYNC app.

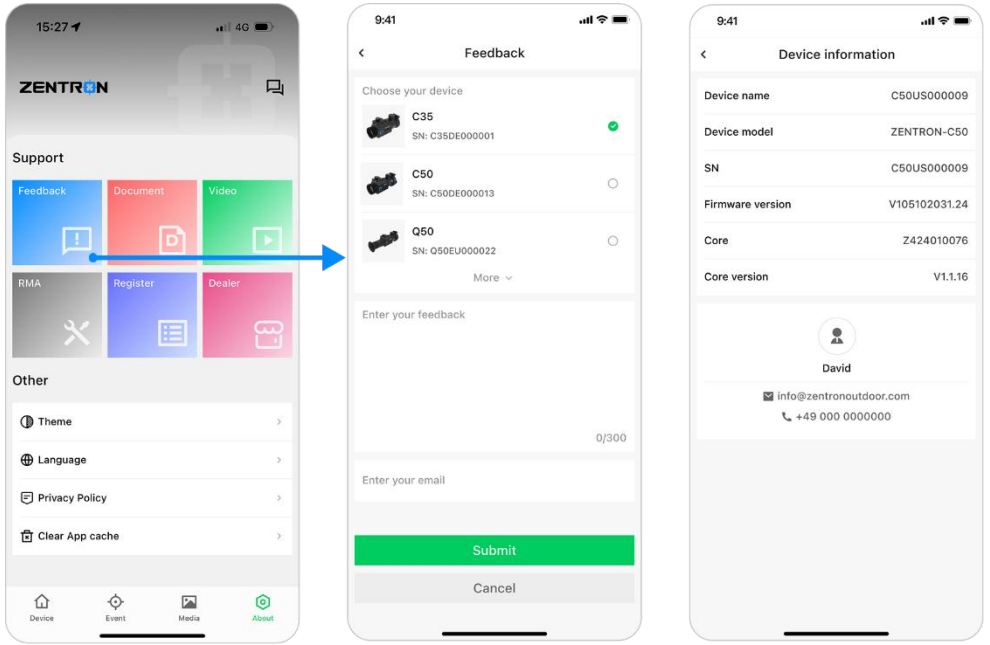
Step 1:

Connect your device to the ZSYNC app, then navigate to the "About" page. Find the submenu "Feedback" under Support.

Step 2:

Tap on "Feedback" to report any issues you encountered or to share your valuable experience using our products. Our team is here to help and will respond promptly.

At Zentron, we value your experience. You're welcome to share any feedback regarding product usage, technical issues, or suggestions for improvement. Our professional technical support team is committed to responding within 24 hours.



Step 1 Step 2

zentronusa

ZENTRON

ZENTRON USA

info@zentronusa.com

zentronusa.com