

IVS4G-Q06 EN V1.0

Precautions

Safety Precautions

- **DO NOT** look directly at the sun, lasers, or any other strong light sources.
- **DO NOT** touch or wipe the optical lens with hands or hard objects.
- **DO NOT** disassemble or modify this device without authorization.

DO NOT connect the Type-C port when it is wet or damp, ensure the interface is dry.

- Place the device properly during use. Avoid bending, crushing, or damaging the cables.

Packing List

No.	Name	Quantity
1	Vehicle AI System Main Unit	1 unit
2	Infrared Thermal Imager	1 unit
3	Type-C Power Cable	1 piece
4	GMSL Video Cable	1 piece
5	User Manual	1 piece (electronic version)
6	Certificate of Conformity & Warranty Card	1 piece

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Thank you for choosing this product. To help you operate the device safely and properly, and to make full use of its performance, we recommend that you read this manual carefully before use. Should you have any questions, please do not hesitate to contact us.

1. Product Overview

The IVS4G-Q series in-vehicle infrared thermal imaging night vision system is a high-performance AI vision product designed with a compact form factor. It can see clearly through harsh environments such as darkness, strong light, heavy rain, and dense fog, delivering clear road views and granting drivers vision beyond human capabilities. The product is suitable for various types of vehicles and can be installed and used immediately. With multiple adjustable detection ranges and a wide field of view, combined with intelligent algorithms, it can detect and highlight key targets such as pedestrians and vehicles in real time, providing all-weather situational awareness for drivers and significantly enhancing driving safety. In addition, its rugged construction offers vibration resistance and waterproofing, enabling it to withstand demanding in-vehicle operating conditions.

2. Features

The IVS4G-Q series in-vehicle infrared thermal imaging night vision system integrates high-performance imaging, intelligent warning, and user-friendly operation. Its main features are as follows:

1. High-Definition Display and Imaging

- Equipped with a 4-inch 720×720 TFT LCD touchscreen, delivering clear and detailed images.
- Supports real-time infrared image display with manually adjustable screen brightness.
- Offers multiple pseudo-color modes such as White Hot, Black Hot, and Iron Red, adapting to different scenarios and viewing preferences.

2. Intelligent Warning and Assistance

- Built-in intelligent recognition algorithms that automatically detect and highlight risk targets such as pedestrians and vehicles.
- Features voice alarm functionality to alert the driver of surrounding dangers in real time.

3. Image Recording and Output

- Supports photo capture and video recording for documenting driving processes and key events.
- Supports Wi-Fi connection to mobile devices for real-time image viewing, video playback, and file transfer.

4. Power Supply and Compatibility

- Powered via Type-C interface for simple connection and compatibility with common in-vehicle power sources.
- Ready to use immediately upon installation, suitable for a wide range of vehicle models and retrofit requirements.

5. Human-Machine Interaction and Language

- Features a responsive touchscreen interface for intuitive and convenient operation.
- Supports Chinese/English menu switching to accommodate different user preferences.

3、Appearance Introduction

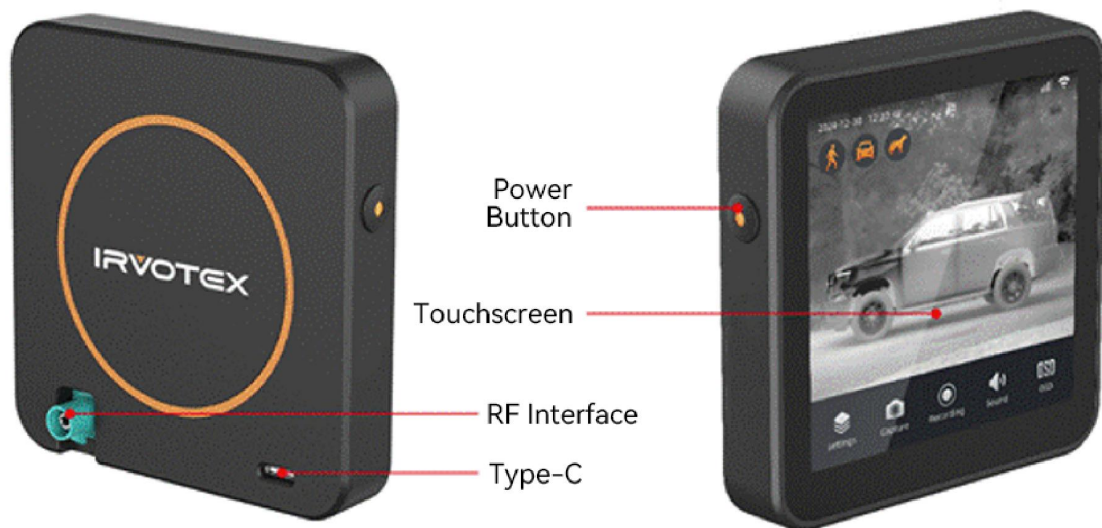


Figure 1 Main Unit



Figure 2 Infrared Thermal Imager

1. Type-C Power/Data Interface

This product is equipped with a standard Type-C interface, supporting 5V power supply and high-speed data transmission. It is compatible with mainstream in-vehicle power sources and devices, offering simple and reliable connection. The interface design complies with general safety standards, ensuring stable power delivery and good compatibility under various usage conditions.

2. GMSL Video Transmission Interface

The product adopts a GMSL (Gigabit Multimedia Serial Link) high-speed serial interface with a FAKRA connector, enabling long-distance, anti-interference transmission of high-resolution video signals. This ensures stable and clear image data communication between the in-vehicle camera and display devices.

4、Product Specifications

IVS4G-Q06-CN	
Product Name	Intelligent In-Vehicle AI System
Product Model	IVS4G-Q06
Detector Parameters	
Type	Uncooled VOx Microbolometer
Resolution/pixels	640×512/12 μm
Spectral Band	8~14 μm
Frame Rate	50Hz
Optical Parameters	
Objective Lens	6.6mm
Field of View	H39°

Device Information	
Display	4 英寸 LCD 720×720
Interface	GMSL/FAKRA/Type-C
Wi-Fi Transmission	Wi-Fi
External Power Supply	Type-C (5V/2A)
Power Wastage	≤6W
Protection Rating	IP67 (Thermal Camera); IP54 (Host machine)
Operation Temperature	-20℃~+70℃
Weight	≤180g (Host machine); ≤380g (Thermal Camera)
Dimensions	96×92×18mm (Host machine); 130×124×58mm (Thermal Camera)
Intelligent Recognition	Support
Thermal imager	Roof installation

Note: Specifications are subject to change without prior notice.

5. Installation Method

A MagSafe magnetic ring is provided on the back of the main unit, allowing it to be attached to a vehicle magnetic mount for secure placement within the cockpit.

Note: The magnetic mount is a recommended accessory and must be purchased separately by the user; it is not included with the product.



Figure 3 Schematic Diagram of Main Unit Mount Installation

The bottom of the infrared thermal imager is equipped with 3 rubber-coated magnets, which can be firmly attached to a steel vehicle roof without the need for additional 3M adhesive.



图错误！未定义书签。 热像仪安装示意图

Figure 4 Schematic Diagram of Thermal Imager Installation

If the vehicle roof is made of non-magnetic materials such as aluminum alloy or tempered glass, please follow the steps below to install using the supplied 3M foam tape:

- **Cleaning:** Wipe the bottom of the device and the mounting surface on the roof with alcohol to remove grease and dust, then allow to dry completely.
- **Application:** Remove the backing paper from one side and apply the tape to the bottom of the device, then remove the other side and position it correctly before pressing into place.
- **Pressing:** Press firmly and hold for at least 30 seconds.
- **Curing:** Allow to sit for 24 hours before use; maximum adhesive strength is achieved after 72 hours.

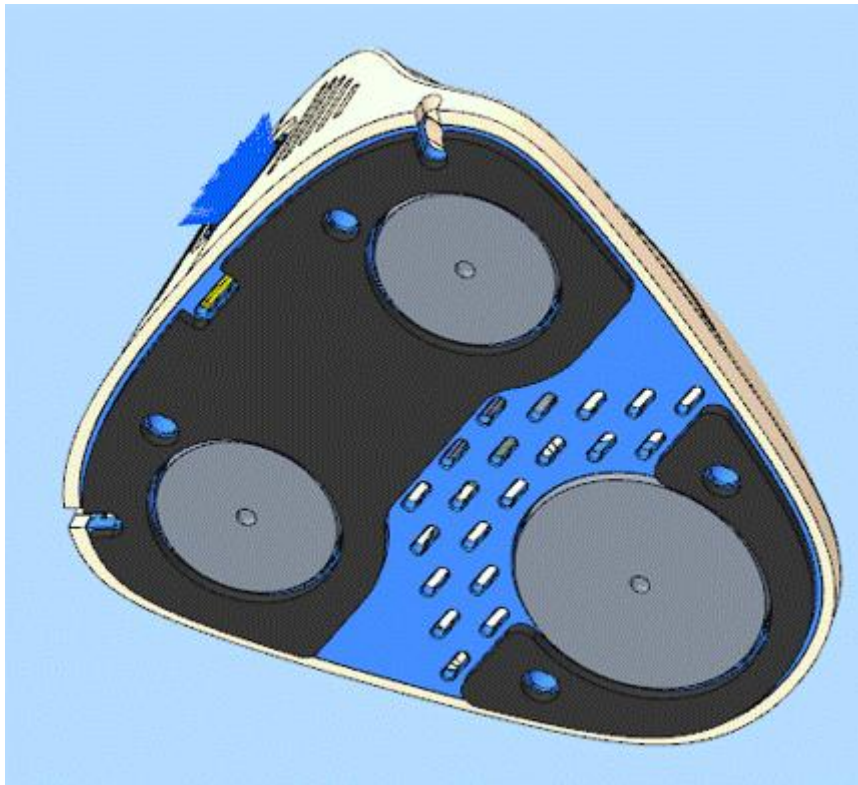


Figure 5 Schematic Diagram of Thermal Imager Bottom

System Connection

Please complete the system connection by following the steps below:

1. **Video Connection:** Connect the GMSL video cable connector (male) of the thermal imager to the corresponding FAKRA interface (female) on the main unit, and tighten the locking mechanism.
2. **Power Connection:** Insert one end of the USB cable into the Type-C interface of the

main unit, and the other end into the vehicle's Type-C power outlet.

3. Connection Check: Verify that all interfaces are fully inserted and locked, ensuring a secure and reliable connection.



Figure 6 Schematic Diagram of System Connection

6、 Main Interface and Menu

Main Interface

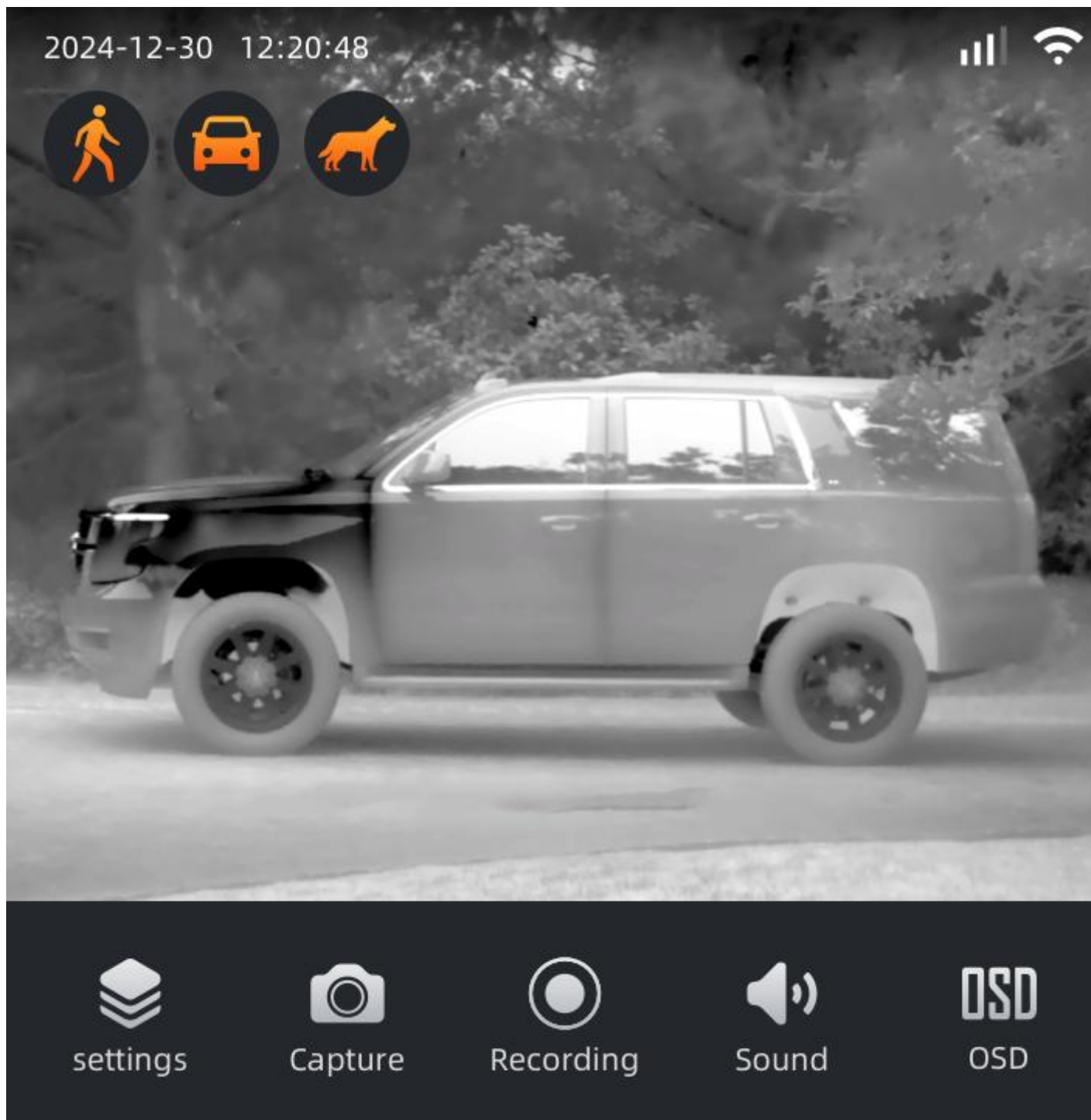


Figure 7: Main Interface

7. Operation Introduction

7.1 Power On / Power Off

- **Power On:** With power connected, press and hold the power button for about 1 second. The device will start up and display the boot screen.
- **Power Off:** When the device is on, press and hold the power button for about 5 seconds until the screen turns off.
- **Screen On/Off Toggle:** Briefly press the power button to turn the screen off or on.

7.2 Menu

After powering on and entering the main interface, tap the "Menu" icon to access the menu page.



Figure 8 Main Menu

7.3 Menu - General

After powering on the device, tap the "General" icon in the main screen menu bar to enter the general settings interface. Here you can adjust the screen brightness and alarm volume, and select an alarm tone from three available ringtones.

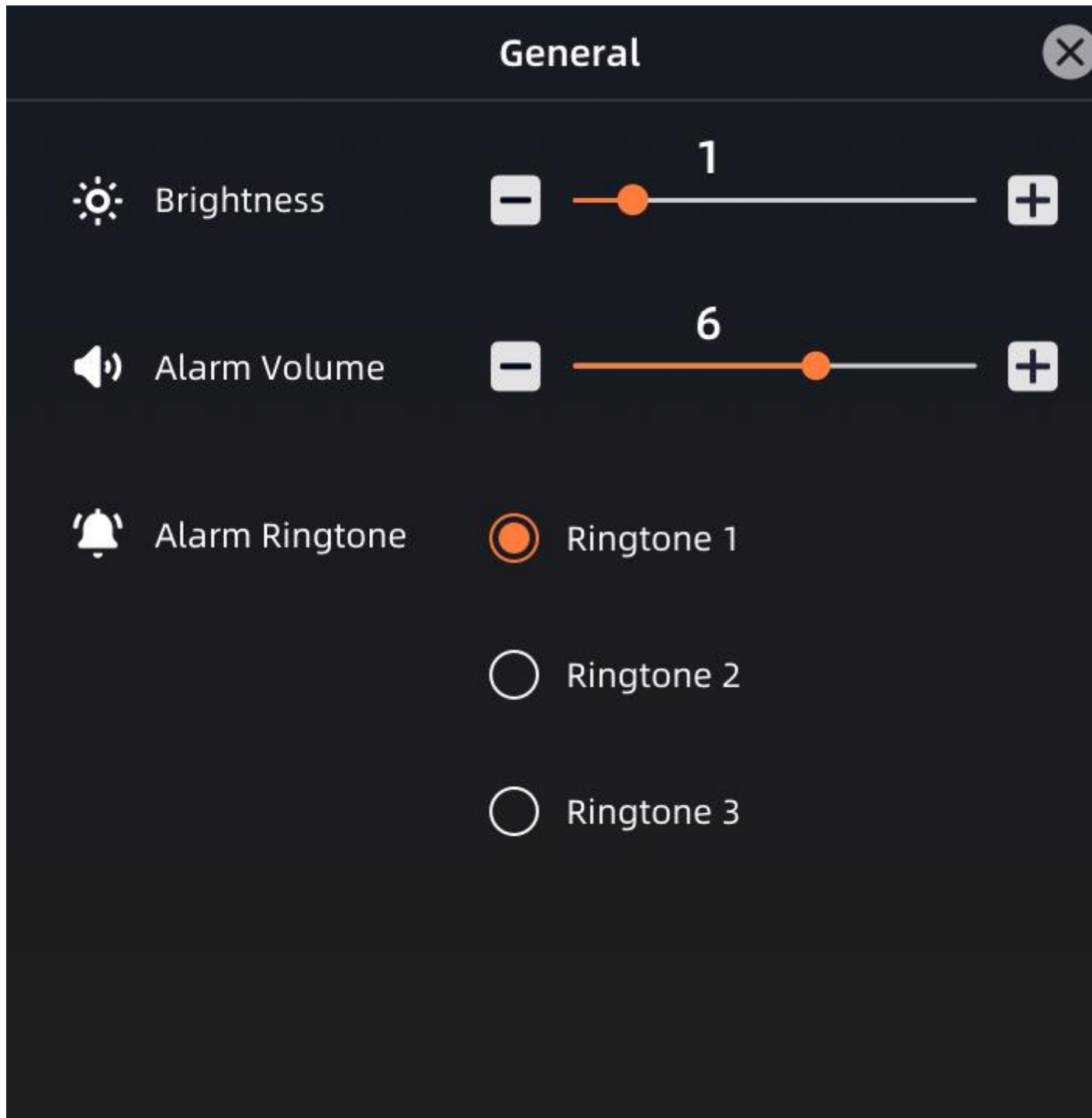


Figure 9 General Menu

The "General" settings menu provides personalized adjustments for basic visual, audio, and notification parameters of the device. All changes are saved and take effect

immediately.

1. Screen Brightness

- **Function:** Controls the backlight intensity of the device display. Increase brightness in bright environments for better visibility; decrease brightness in dark environments to save power and reduce eye strain.
- **Operation:** After entering this option, a slider bar will appear. Drag the slider to the right to increase screen brightness, or to the left to decrease it.

2. Alarm Volume

- **Function:** Independently adjusts the volume level of alarms, warnings, and notifications from the device.
- **Operation:** After entering this option, use the slider bar to adjust. Drag the slider to the right to increase alarm volume, or to the left to decrease it.

3. Alarm Ringtone

- **Function:** Selects the specific alert sound type to be played when the device triggers an alarm.
- **Operation:** This option is an expandable menu. Tap or select "Alarm Ringtone" to enter the submenu listing all available ringtone files. In the submenu, each ringtone name is preceded by a selection indicator (hollow circle). Tap the desired ringtone name (e.g., Ringtone 2), and the indicator will change to a filled or selected state, confirming that the ringtone has been set as the current alarm tone.

7.4 Menu - Display

When the device is on, tap the "Display" icon in the menu bar on the main screen to enter the display settings interface.

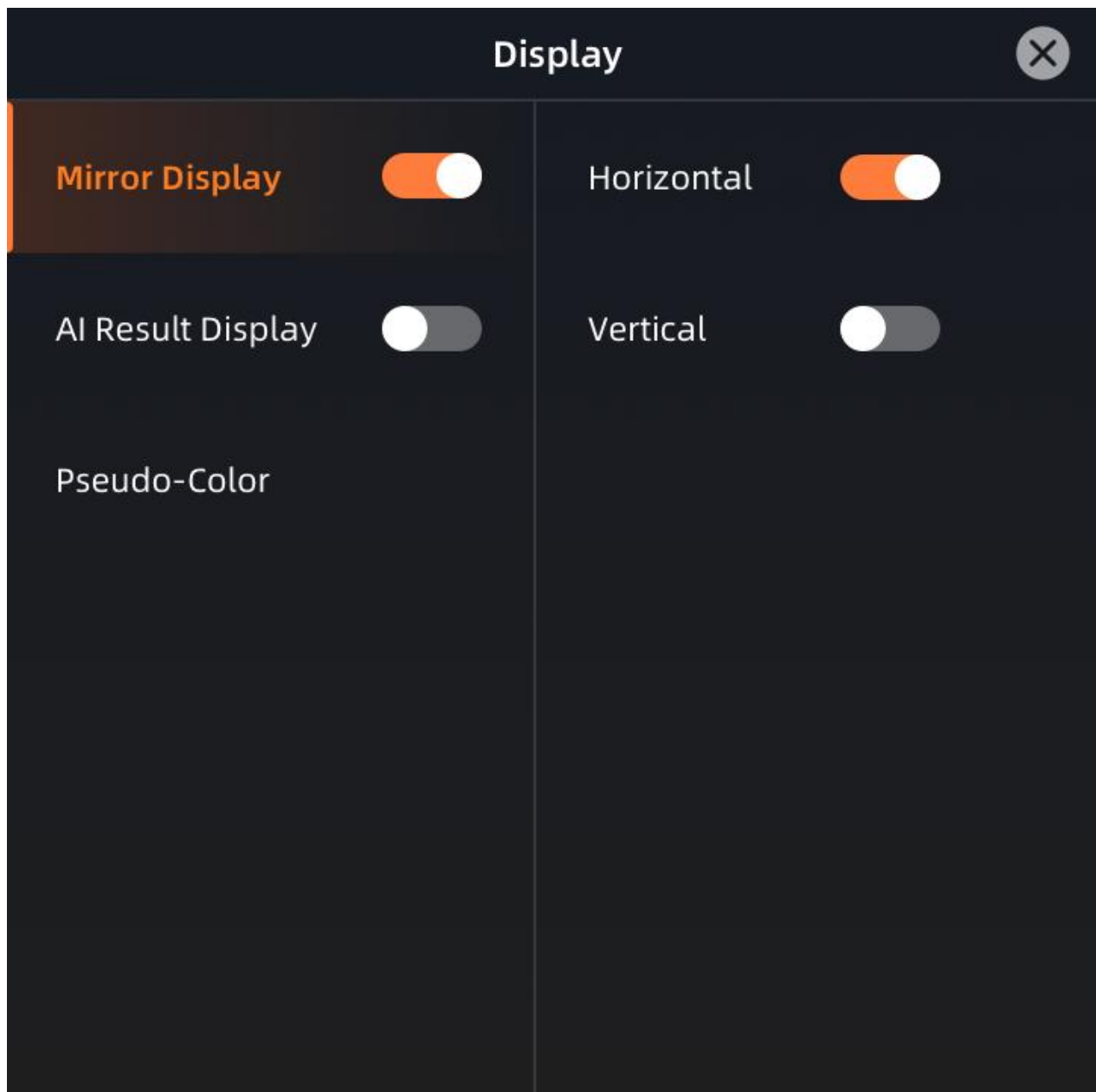


Figure 10 Display Menu

1) Mirror Display

- Switch Control
- Function: Mirror Display is a real-time image orientation correction system that uses digital flip technology to resolve view inversion issues caused by physical installation.
- Operation: Swipe left to turn off, swipe right to turn on.

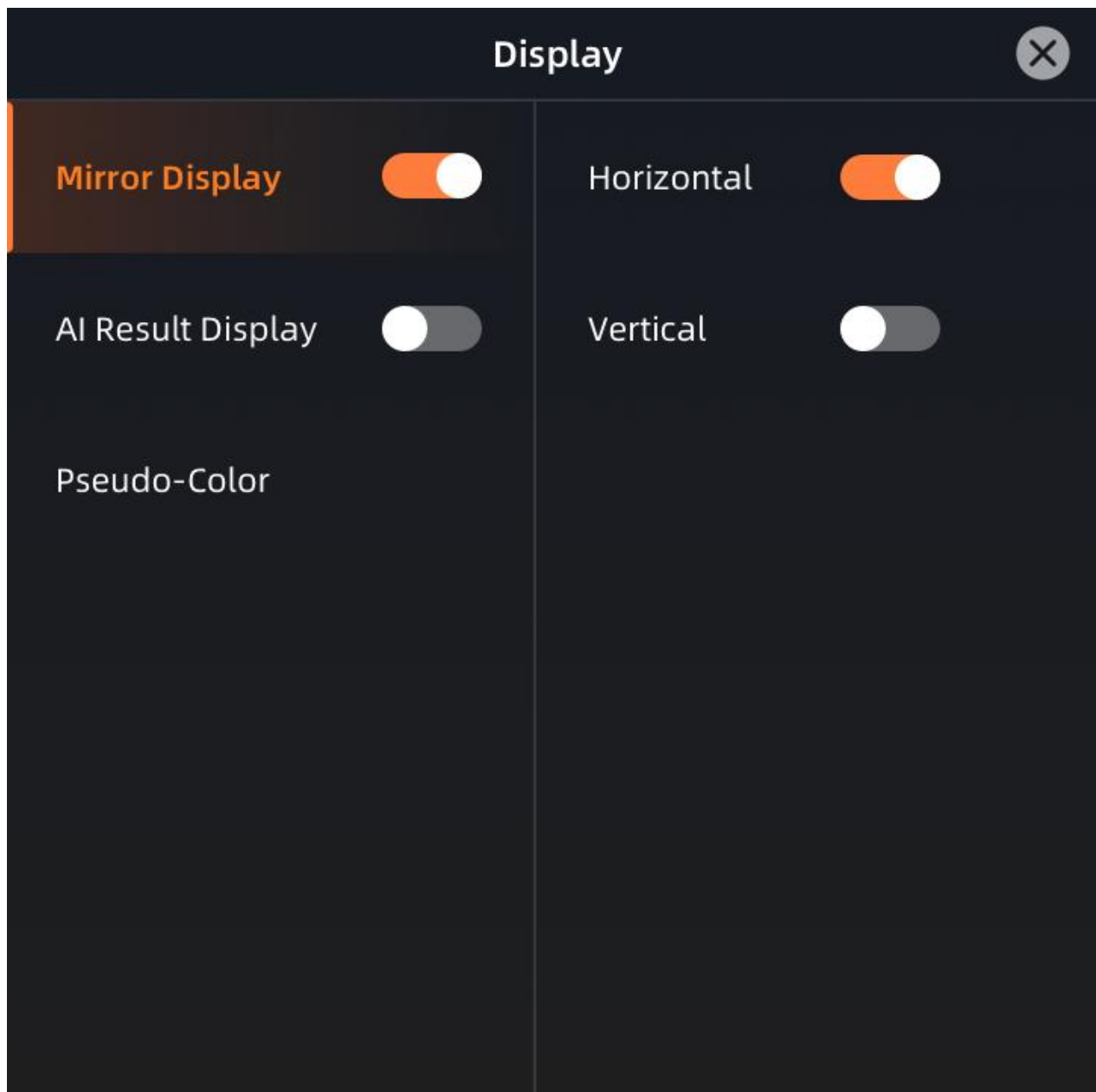


Figure 11 Mirror Display

Submenu:

- Horizontal Flip: Flips the image left to right along the vertical axis. Swipe left to turn off, swipe right to turn on.
- Vertical Flip: Flips the image top to bottom along the horizontal axis. Swipe left to turn off, swipe right to turn on.

2. AI Result Display

- Function: Vehicles, pedestrians, and common animals identified by AI will be displayed on the screen in real time.
- Operation: Swipe left to turn off, swipe right to turn on.

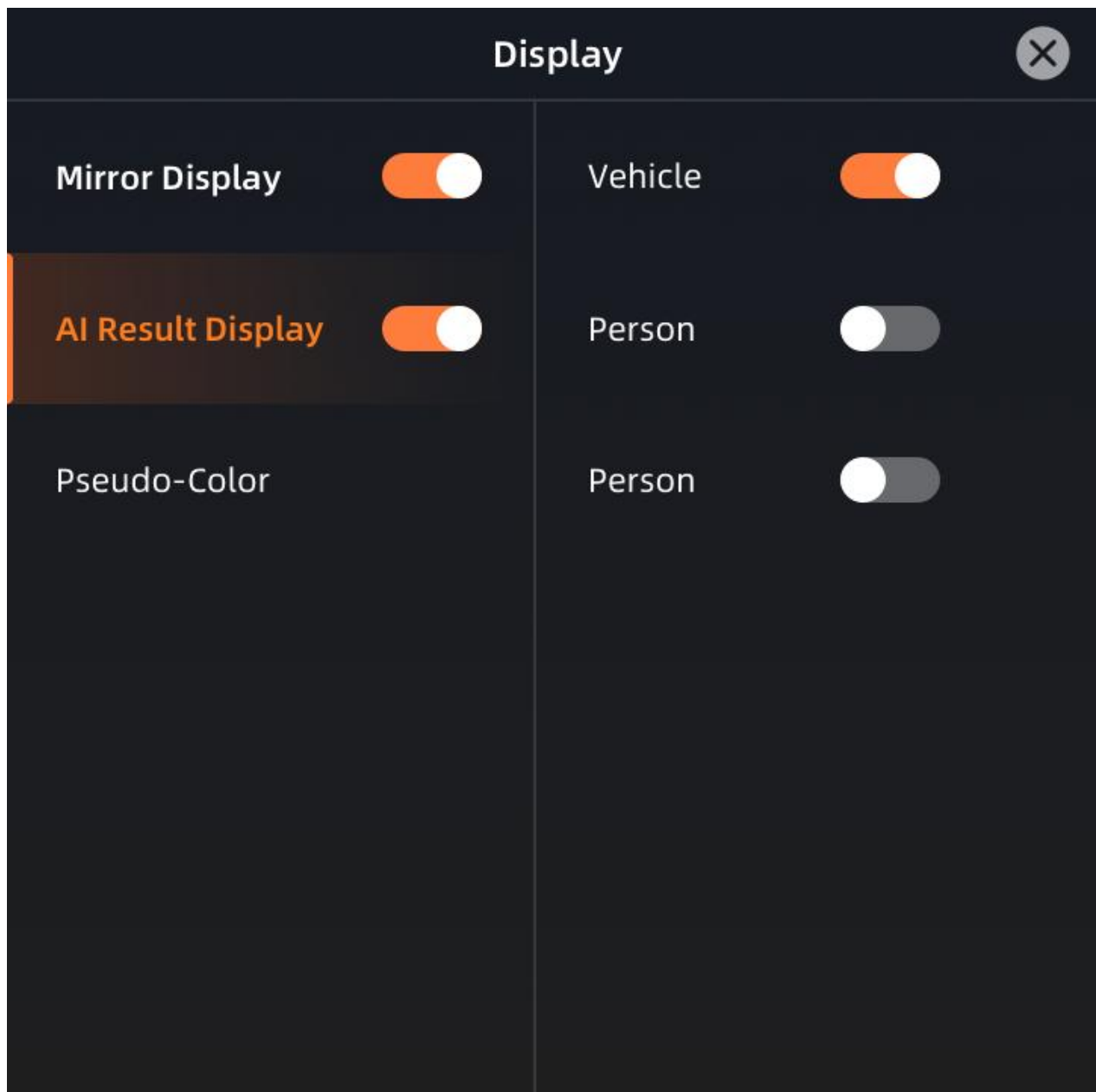


Figure 12 AI Result Display

Submenu:

- Vehicle: Vehicle markers are identified by AI. Swipe left to turn off, swipe right to turn on.
 - Pedestrian: Pedestrian markers are identified by AI. Swipe left to turn off, swipe right to turn on.
 - Common Animals: Common animal markers are identified by AI. Swipe left to turn off, swipe right to turn on.
3. Pseudo-Color Mode
- Function: Infrared images can be switched to Black Hot, White Hot, or Iron Red modes to display thermal maps in different color schemes.

- Operation: Tap the desired pseudo-color mode (Black Hot/White Hot/Iron Red), and the image will switch to the corresponding color effect in real time.

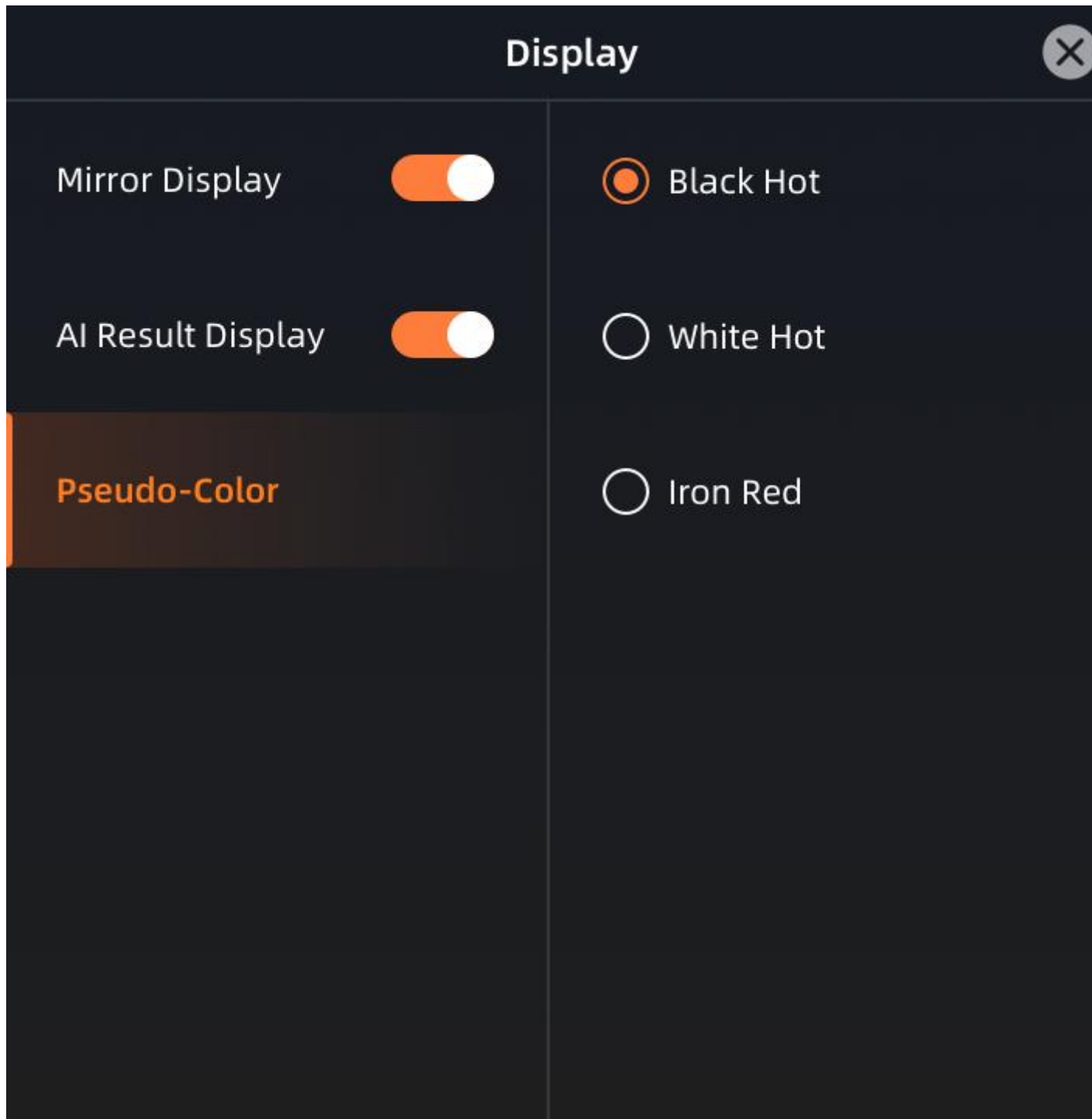


Figure 13 Pseudo-Color Display

Submenu

The device provides the following three pseudo-color modes. Tap to switch:

- Black Hot: High-temperature areas are displayed in black.

- White Hot: High-temperature areas are displayed in white.
- Iron Red: Temperature distribution is displayed in iron red tones.

7.5 Menu - Alarm

After powering on, enter the menu bar from the main screen and tap the "Alarm" icon to access the voice alarm strategy settings interface.

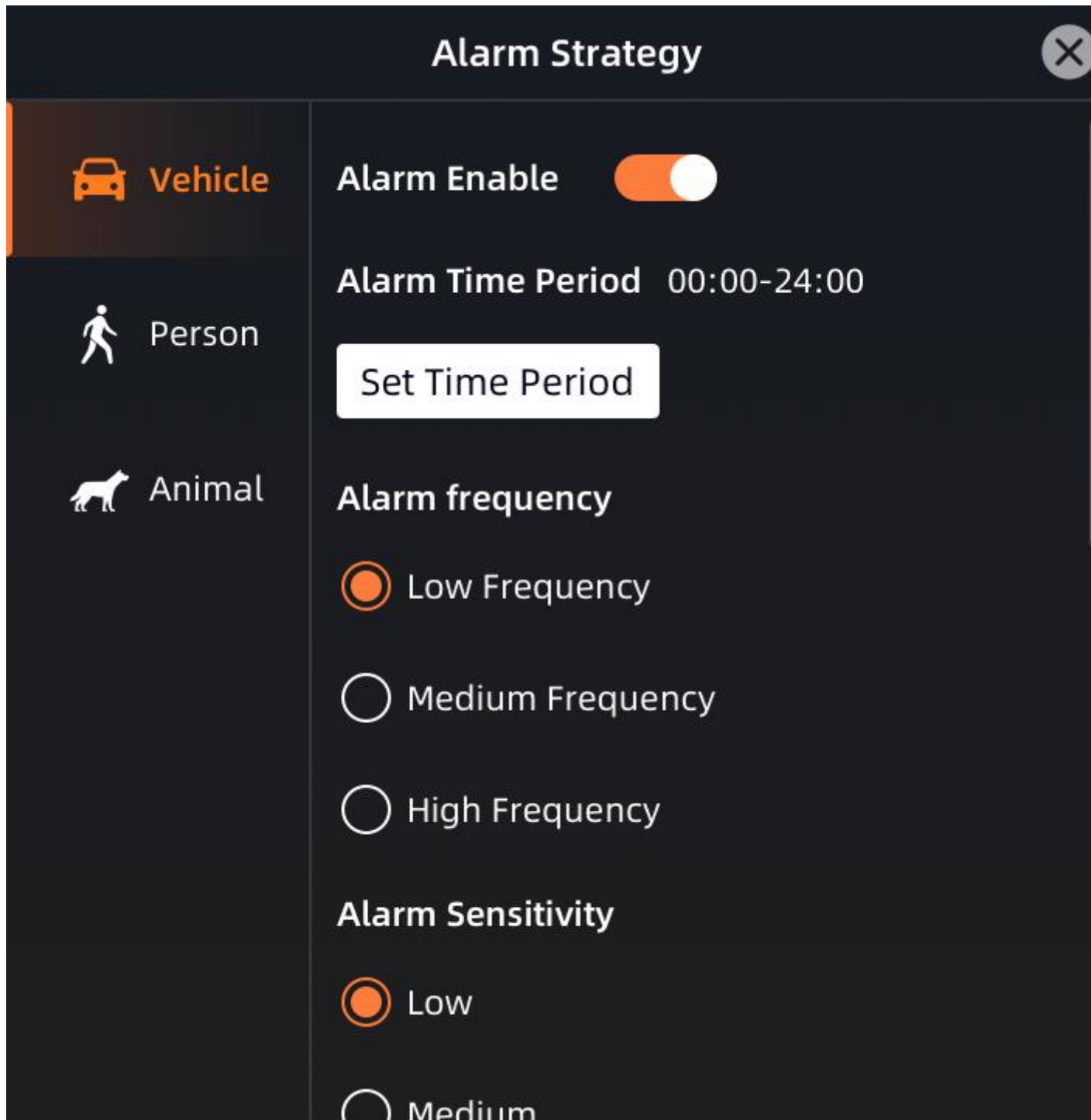


Figure 14 Alarm Strategy Menu

1) Vehicle

- **Function:** When enabled, the system will issue a voice alert upon detecting vehicles, assisting the driver in perceiving surrounding vehicles in a timely manner.
- **Operation:** Controlled via a toggle switch — swipe right to enable, swipe left to disable.

2) Pedestrian

- **Function:** This feature is used to set the voice alarm mode for pedestrian detection. You can flexibly select the alarm timing based on driving scenarios.
- **Operation:** Choose one of the following three alarm states:
 - **Always Alarm:** Voice alarm is enabled around the clock.
 - **Scheduled Alarm:** Voice alarm is enabled only during a custom time period.
 - **Off:** Pedestrian detection voice alarm is disabled.

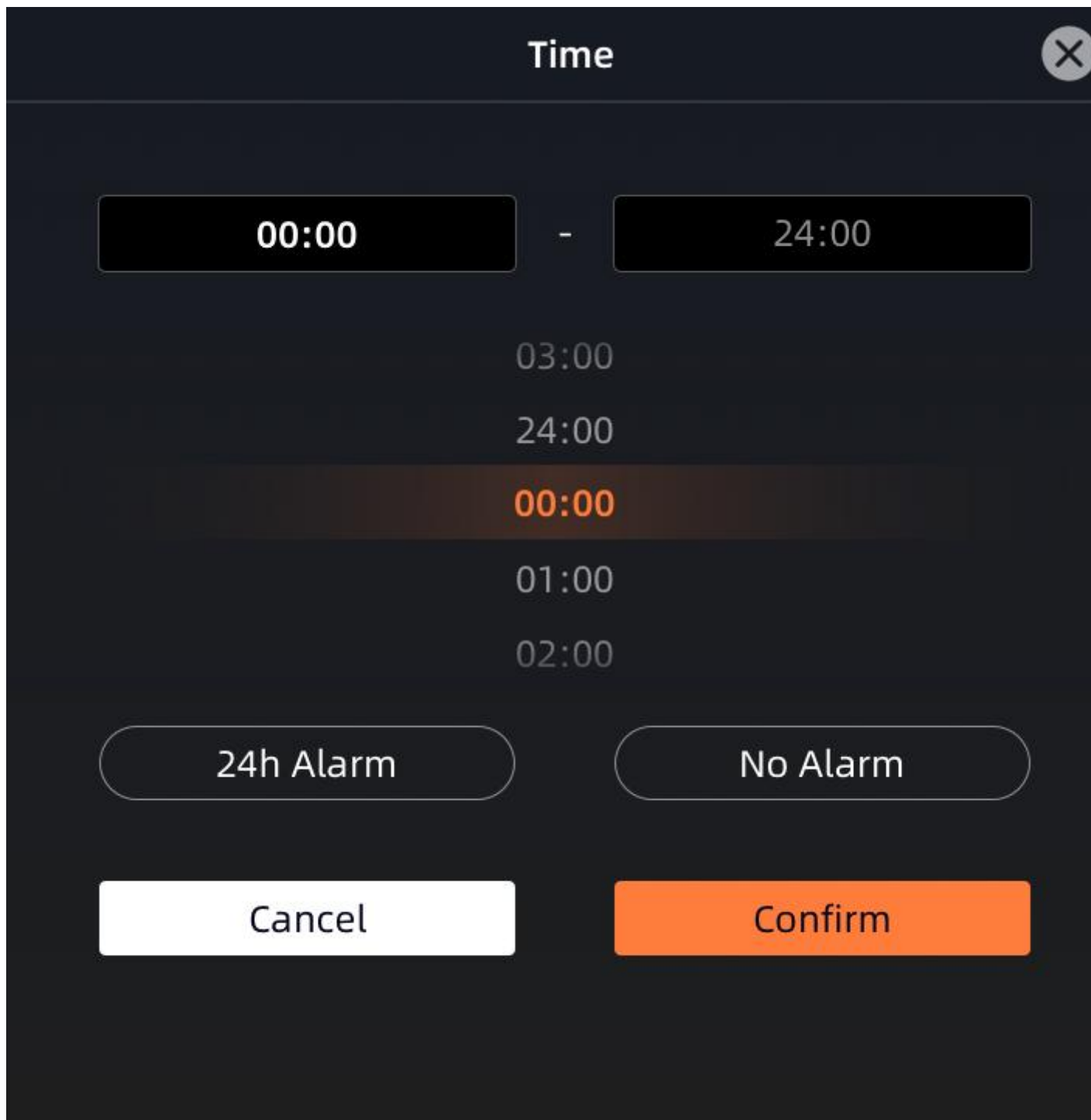


Figure 15 Alarm Time

3) Common Animals

- **Function:** This feature is used to set the voice alarm frequency for common animal detection.

Submenu

- **Alarm Frequency:** This feature is used to set the voice alarm frequency for animal detection. You may choose from three levels as needed: Low, Medium, or High.

- **Alarm Sensitivity:** This feature is used to set the effective detection distance for animal detection, offering three levels: Low, Medium, and High. The Low level provides the farthest effective distance, while the High level provides the nearest effective distance.

7.6 Management

When the device is on, tap the "Management" icon in the menu bar on the main screen to enter the management settings interface.

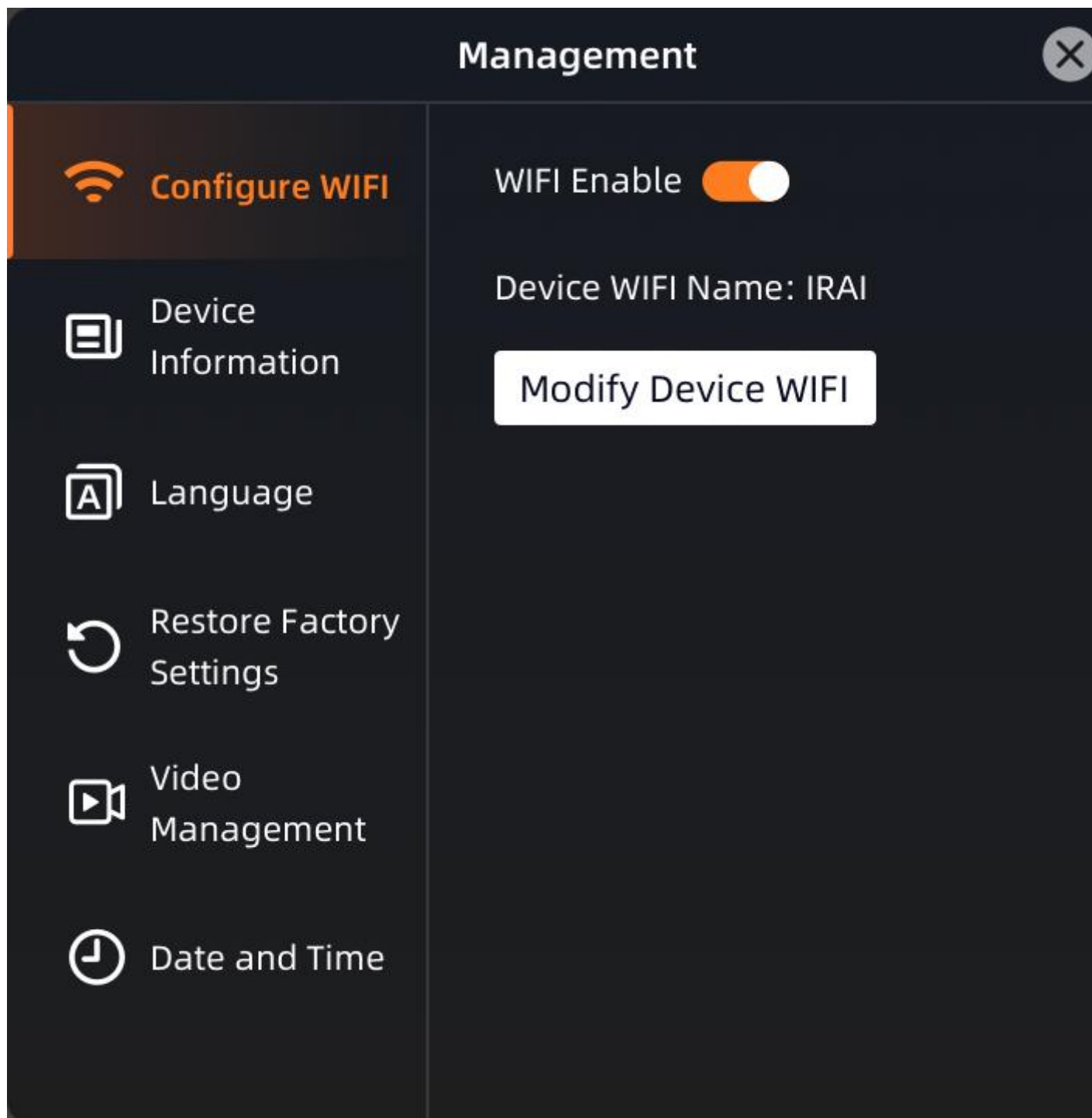


Figure 16 Management Menu

Submenu

- **Configure Wi-Fi:** Tap to enter, where you can enable/disable Wi-Fi and modify the network name (SSID) and password.
- **Device Information:** This feature is used to view the current system version details of the device, including software and hardware version information.

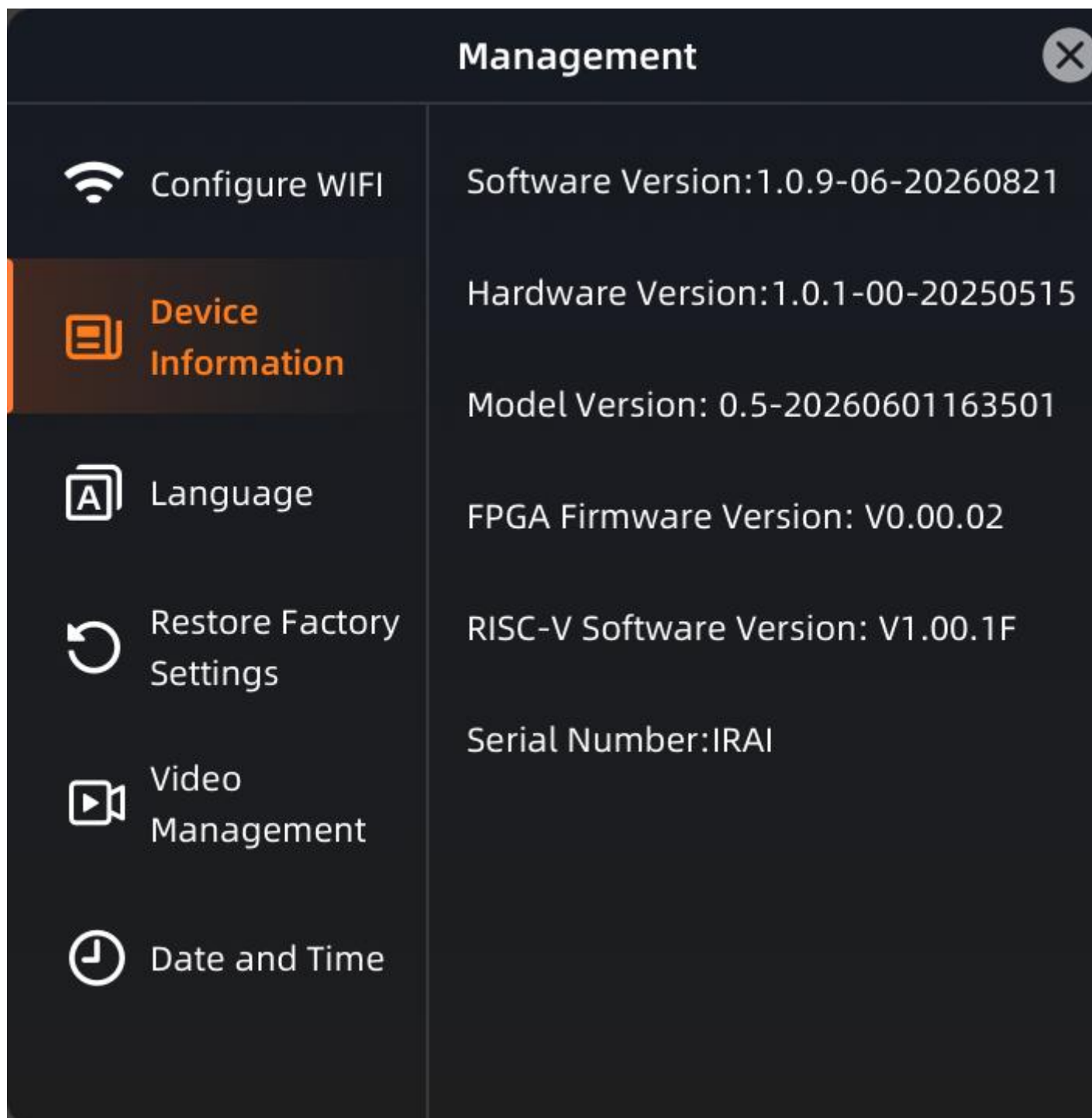


Figure 17 Device Information

Language Settings: This feature allows you to switch between Chinese and English.

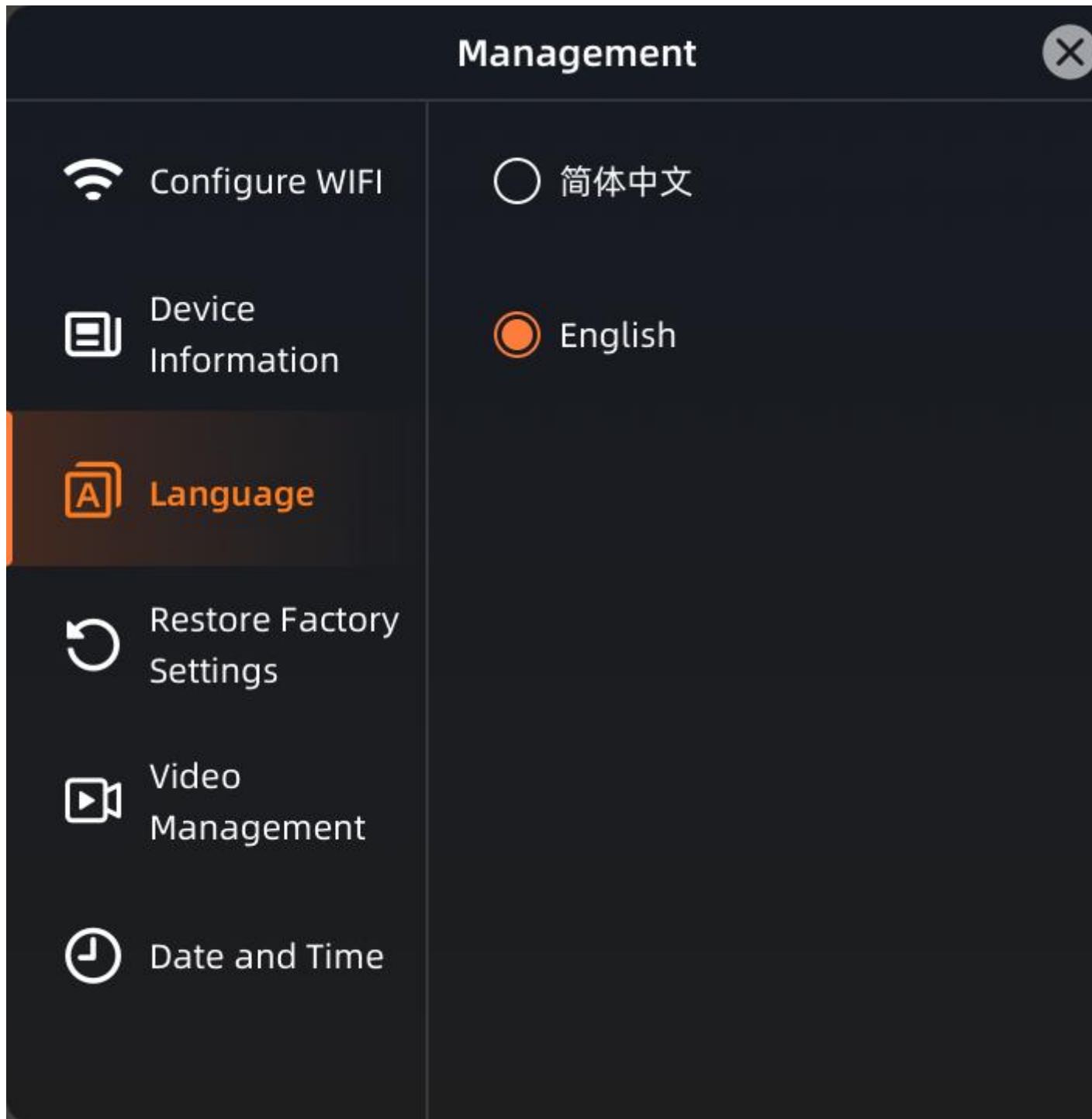


Figure 18 Language Settings

●Restore Factory Settings: This function will clear all user data and custom settings, restoring the device to its original state.

Tap the [Restore Factory Settings] button.

The system will display a confirmation dialog box clearly indicating the consequences of the operation.

Tap [Confirm] to perform the reset; tap [Cancel] to abandon the operation and return.

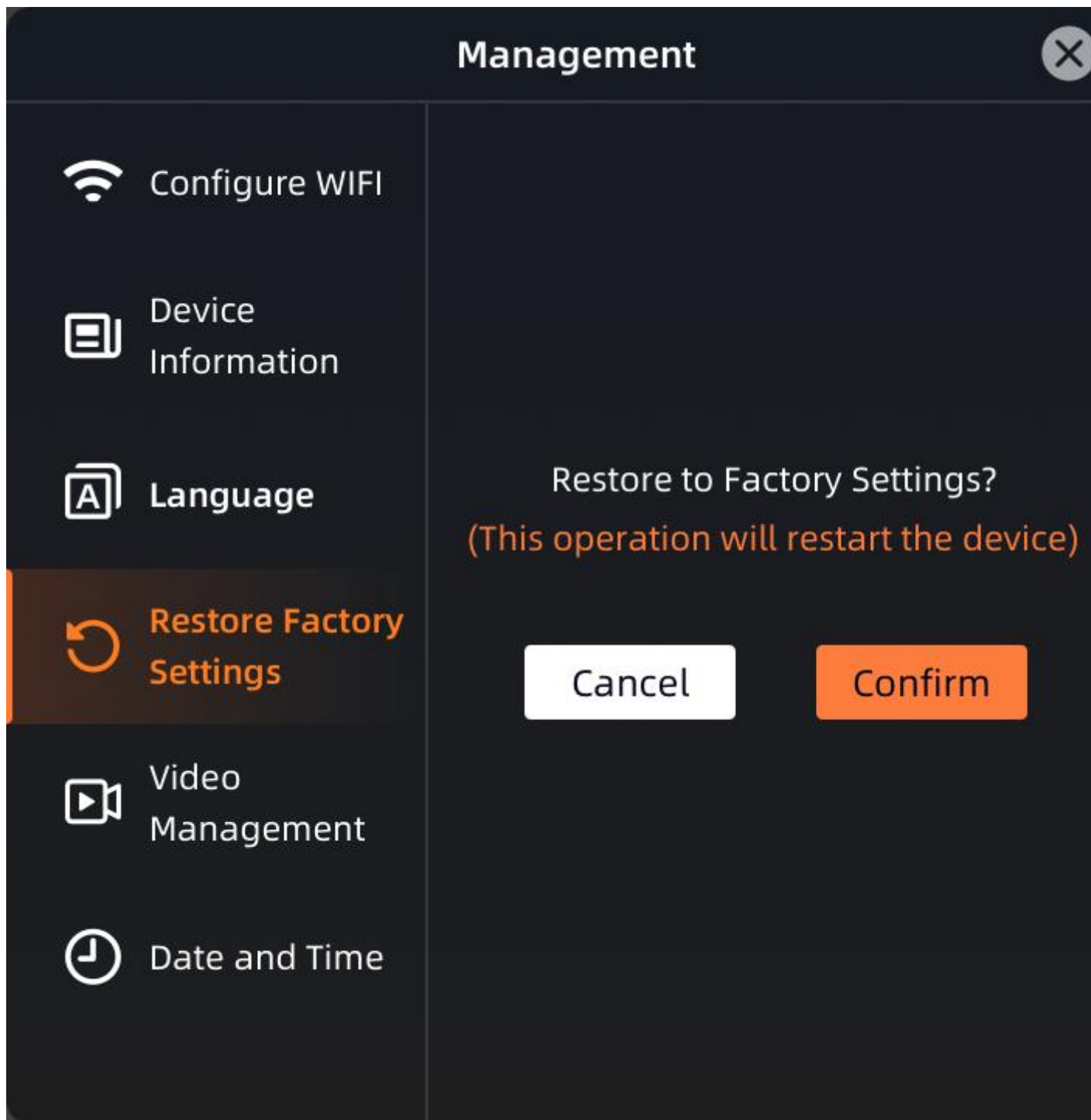


Figure 19 Restore Factory Settings

- Recording Management: This function is used to manage video recording files and allows for deletion operations. Tap "Clear Recordings" to delete all video files.

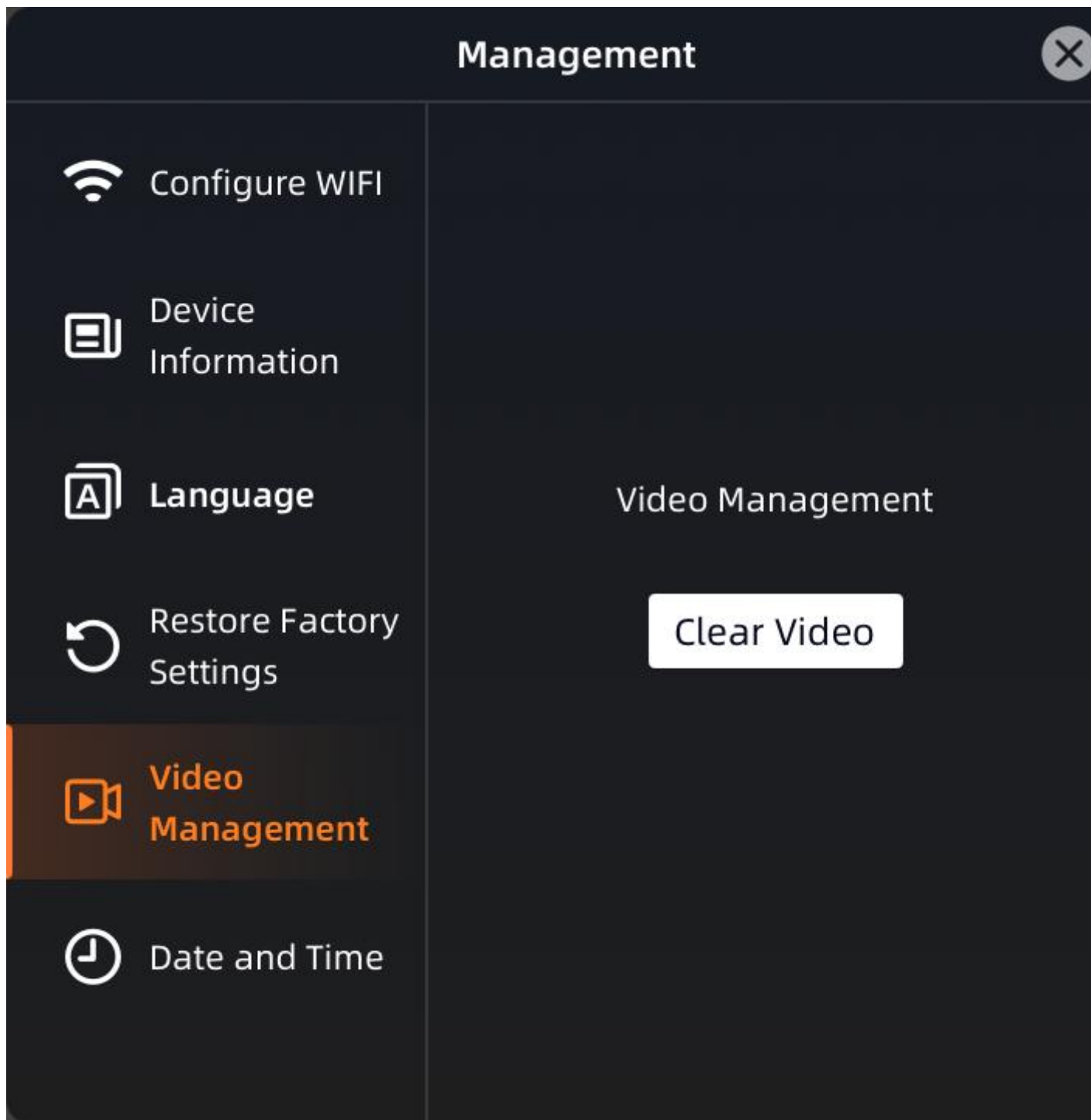


Figure 20 Recording Management

7.7 Photo Capture

After powering on and entering the main screen, tap the "Photo" icon to capture and save the current image (see Figure 21).

7.8 Video Recording

After powering on and entering the main screen, tap the "Record" icon to start recording; tap the icon again to stop and save the recording (see Figure 21).

After powering on and entering the main screen, tap the "Sound" icon to turn the device sound on or off (see Figure 21).

After powering on and entering the main screen, tap the "OSD" icon to toggle the on-screen display information overlay. This feature is used to superimpose character information such as time, date, etc. on the monitoring image (see Figure 21).



Recorded image data can be copied to a computer. Follow the steps below:

- Figure 22 IRAI Directory

-

Figure 23 Main Unit Storage Directory

5) In the storage directory, double-click the "video" folder to open it, then copy the desired video data to the computer.



Figure 24 Image Data Copying Schematic

8. Other Functions

To operate the device or view data via a mobile phone, please download and install the official App. For detailed operating instructions, please refer to the built-in help within the App or the separate *App User Guide*.

9. Precautions

- 1) Do not point the thermal imager at the sun or other intense heat sources (whether powered on or off), as this may cause permanent damage to the detector.
- 2) This product requires a 5V/2A DC power supply. Please be sure to use a power adapter of the specified rating. Before use, confirm that the voltage of the power supply equipment matches the requirement to avoid damage to the device.
- 3) The operating ambient temperature range of this product is -20°C to +70°C. Please ensure use within this temperature range.
- 4) When using in a humid environment, be sure to keep the Type-C interface dry to prevent short circuits.
- 5) Routine maintenance that operators may perform includes cable inspection and replacement, equipment cleaning, and basic functional checks to ensure the instrument remains in good technical condition.
- 6) In the event of equipment failure, do not disassemble it yourself. Immediately contact an authorized dealer or the manufacturer. Unauthorized disassembly will result in equipment damage and void the warranty.
- 7) Certain metal components (silver-colored metal, copper-colored metal) in this product have been tested and found to contain lead (Pb) in excess of 0.1% by weight. This substance is included in the EU REACH Candidate List of Substances of Very High Concern (SVHC).
- 8) For detailed information on the names, contents, and safe use of SVHC substances in this product, please contact us through the following channels. We will provide the information free of charge within 45 days:
- 9) Website: <https://irvotex.com/>
- 10) Compliance Email: irvotex@votinfrared.com
- 11) Telephone: 400-661-8812

- 12) FCC Statement
- 13) This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device 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 device and the receiver.
 - Connect the device to 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.
- 14) Note: Any changes or modifications to this device not expressly approved by the manufacturer may void your authority to operate this equipment.
- 15) This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

10. Common Troubleshooting Guide

1. The device cannot power on?

Check whether the power adapter output specification is 5V/2A. If the voltage is abnormal, try replacing the power cord and try again.

2. The screen image is frozen or the touchscreen is unresponsive?

Please turn off the power and unplug the power cord. Wait for more than 30 seconds, then reconnect and power on again.

3. Other abnormal situations?

Please first confirm that all cables are firmly connected, then try restarting the device, and consult the "Common Troubleshooting Guide" section in this manual for solutions. If the problem persists, please save the device model and purchase information, describe the fault in detail, and contact our after-sales service team.

11. Storage and Transportation

1. Storage Conditions

- **Environmental Requirements:** The device, when packaged, should be stored indoors in a well-ventilated environment free of corrosive gases. The storage temperature range is -40°C to +85°C, and relative humidity should be ≤95%.

- **Long-Term Storage Recommendation:** For extended storage, it is recommended to power on the device and run it for approximately 12 hours once a month to allow the internal Real-Time Clock (RTC) battery to charge and discharge properly, maintaining battery health.

2. Transportation Requirements

During transportation and handling, please note the following:

- Protect against water and moisture. Avoid rain or water immersion.
- Do not invert or drop the device. Avoid severe vibration and impact.
- Handle with care during transport, ensuring the packaging remains secure and stable.