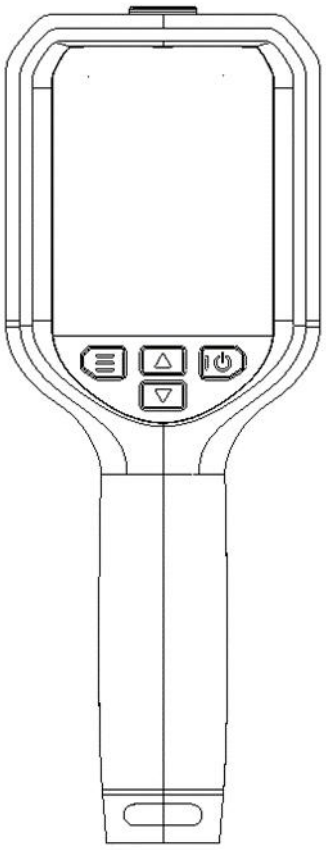
Portable Thermal Camera

VOT-T306A/VOT-T606A

User Manual V0.1



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www.votinfrared.com

Version History

DATE	VER.	DISCRIPTION
202508	V0.1	Release version

PREFACE

This section is aim to ensure users properly operate the product for preventing operational hazards or property damage according to this manual. Before using this product, please carefully read the user manual and keep it properly for future reference.

Summary

This manual is for portable thermal imager.

Symbolic Convention

The symbols in the document are explained as follows.

SYMBOL	DISCRIPTION
 **Note**	It indicates supplements and explains to the main text
 **Caution**	It indicates important actions or potential risks to users for preventing injury and property loss.
 **Warning**	It indicates a potential high risk that may occur if not avoided

NOTES

During operation, all national and local electrical safety regulations must be strictly followed.

Please contact the service center where you purchased if the device malfunctions. Do not disassemble or modify the device in any way. (The company shall not be liable for any issues by unauthorized modifications or repairs.)

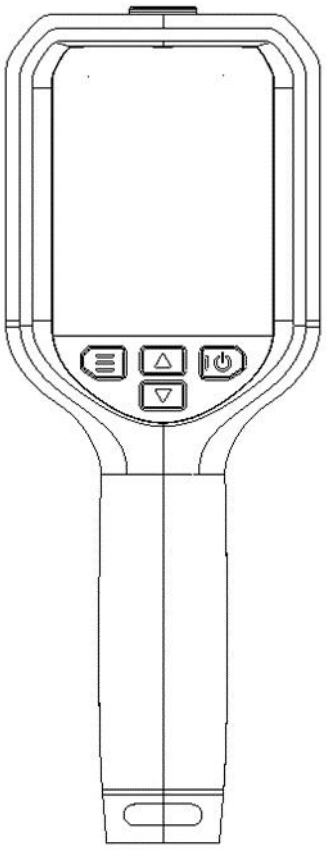
Do not use in high, low, or humid environments. Refer to the parameter table of the device for specific temperature and humidity requirements.

Do not direct the device's detector toward intense light sources like the sun or other high-temperature objects, as this may damage the detector.

Do not place the device in environments with corrosive gases, as they may cause damage.

Avoid placing the device in direct sunlight, in poorly ventilated areas, or near heat sources such as heaters or radiators (neglecting this may lead to fire hazards).

Please keep all original packaging materials of the device in good condition. It will use in repackaging and returning the device to the manufacturer for after-sales service in case of any issues. We shall not be liable for accidental damage to the device during transportation caused by non-original packaging materials.



Press and hold the power key at the top left corner for approximately 2 seconds to power on the device. The screen will turn on automatically.

Note: Press the return key at any interface to exit menus level by level.

CONTENT

1.General Settings

After the infrared detector starts up, press the left key to enter General Settings, use Up/Down keys to select options.

The main menu of General Settings includes six core modules: 1.1 Temperature Measurement Tools, 1.2 Temperature Measurement Parameters, 1.3 Super Resolution Settings, 1.4 File Viewer, 1.5 System Settings, 1.6 About Device.

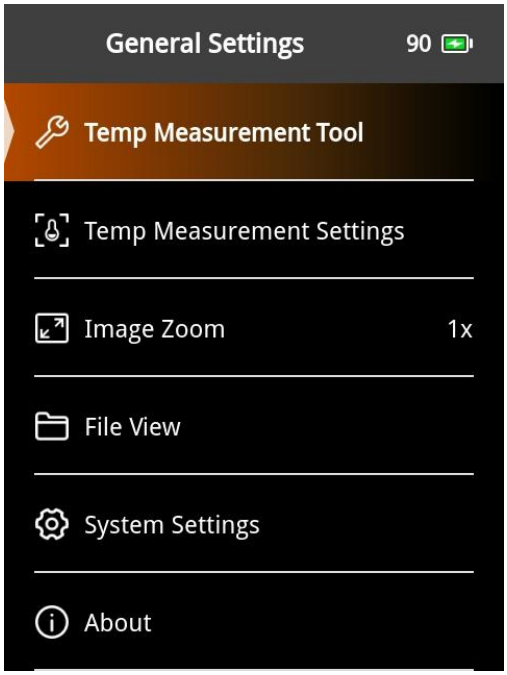


Figure 1-1

1.1Temperature Measurement Tools

Press the Confirm key to enter Temperature Measurement Tools, as shown：

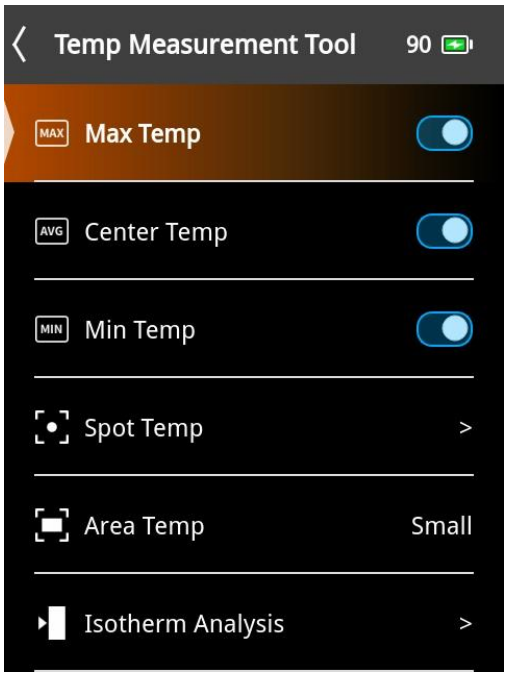


Figure 1.1-1

This menu contains six functions: Max Temperature, Center Temperature, Min Temperature, Spot Temperature Measurement, Area Temperature Measurement, Isotherm Analysis. Press the Return key to exit back to the upper menu.

1.1.1 Max Temperature

Use Up/Down navigation keys to select Max Temperature, press Confirm to turn its display on/off. The screenshot shows the function enabled.

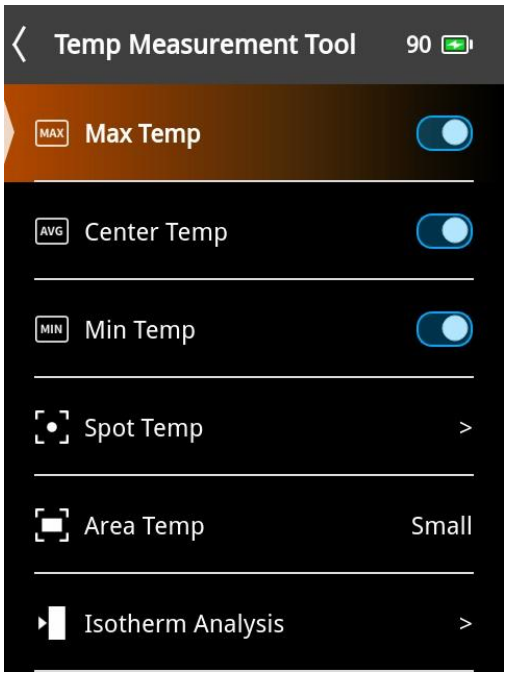


Figure 1.1.1-1

1.1.2 Center Temperature

Use Up/Down navigation keys to select Center Temperature, press Confirm to turn its display on/off. The screenshot shows the function enabled.

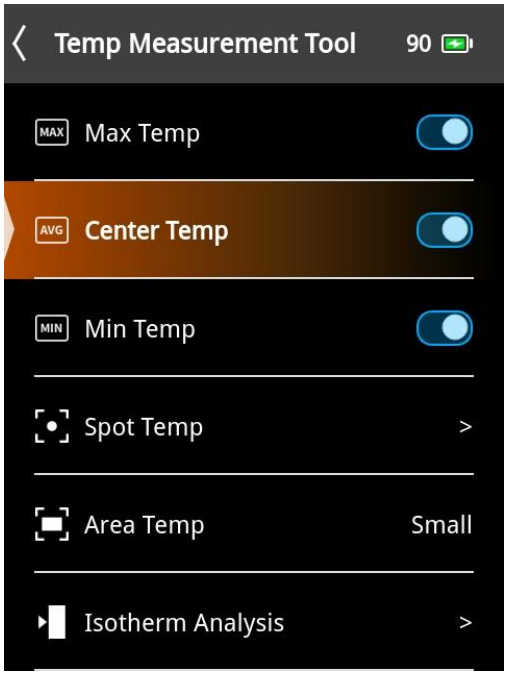


Figure 1.1.2

1.1.3 Min Temperature

Use Up/Down navigation keys to select Min Temperature, press Confirm to turn its display on/off. The screenshot shows the function enabled.

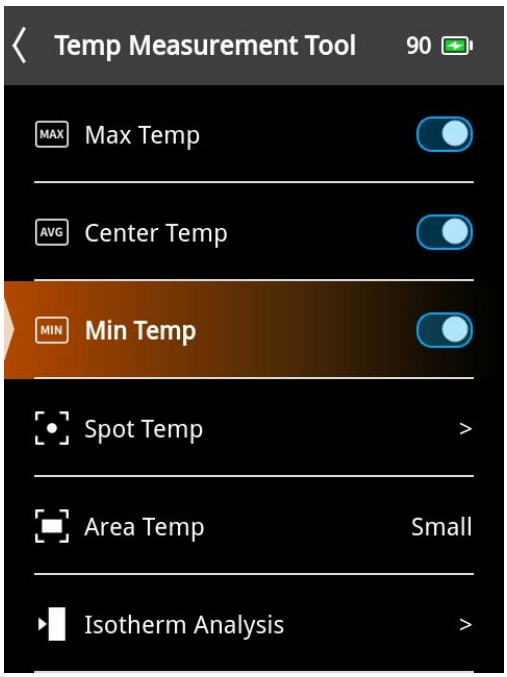


Figure 1.1.3

1.1.4 Spot Temperature Measurement

Select Spot Temperature Measurement and press Confirm to open spot parameter configuration page (Figure 1.1.4-1).

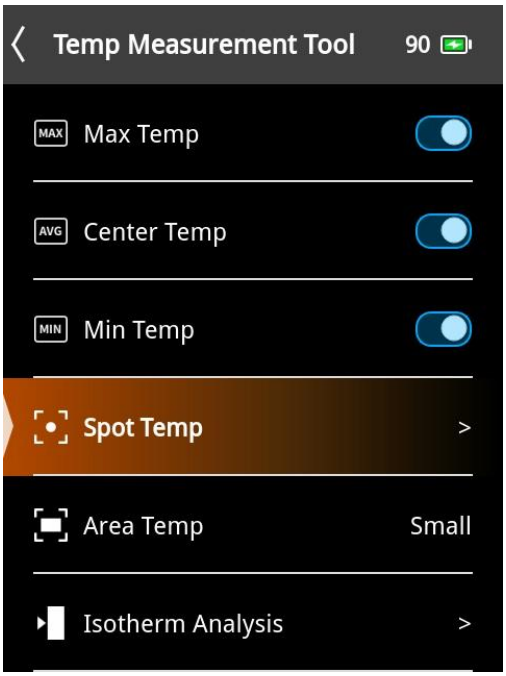


Figure 1.1.4-1

The page supports parameter setup for four measurement spots. Take Spot 1 as an example: press Confirm to activate Spot 1 display (Figure 1.1.4-2).

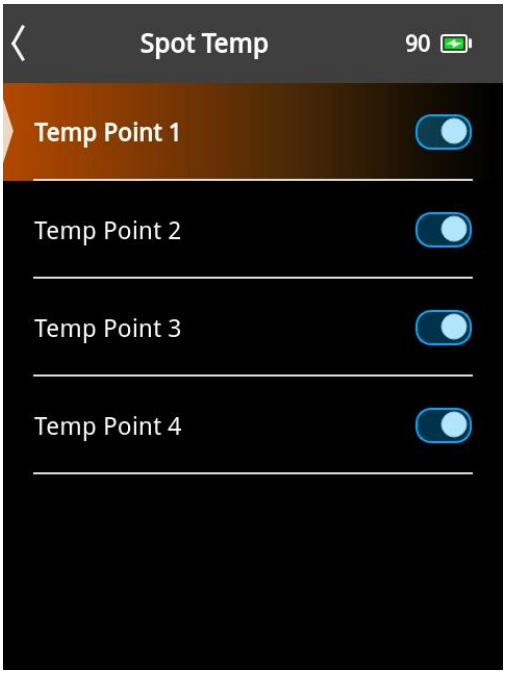


Figure 1.1.4-2

1.1.5 Area Temperature Measurement

Use Up/Down navigation keys to select Area Temperature Measurement, press Confirm to switch modes: Off, Large Area, Medium Area, Small Area.

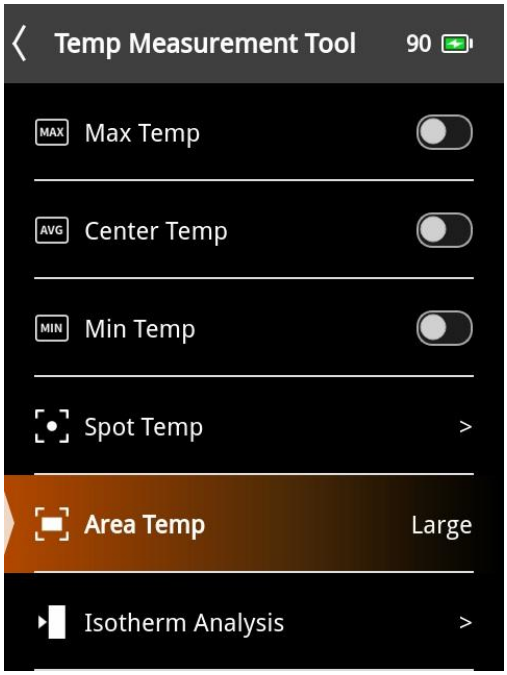


Figure 1.1.5-1

Figure 1.1.5-2: Mode set to Small Area：

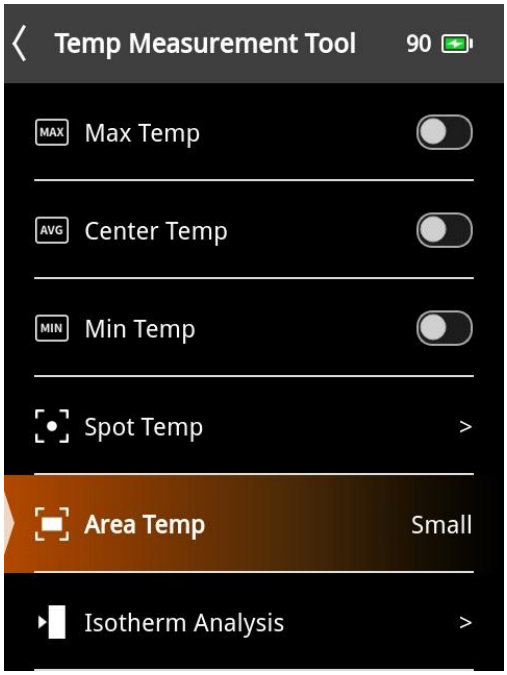


Figure 1.1.5-2

1.1.6 Isotherm Analysis

Select Isotherm Analysis and press Confirm to enter its configuration page (Figure 1.1.6-1). Press Confirm again to open advanced settings (Figure 1.1.6-2).

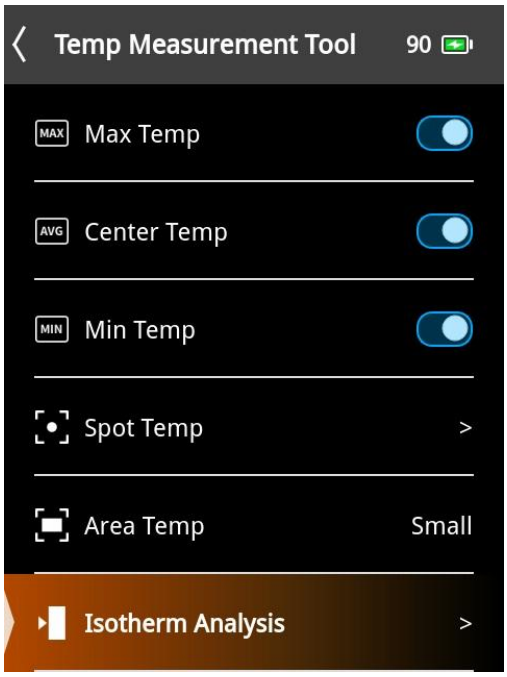


Figure 1.1.6-1

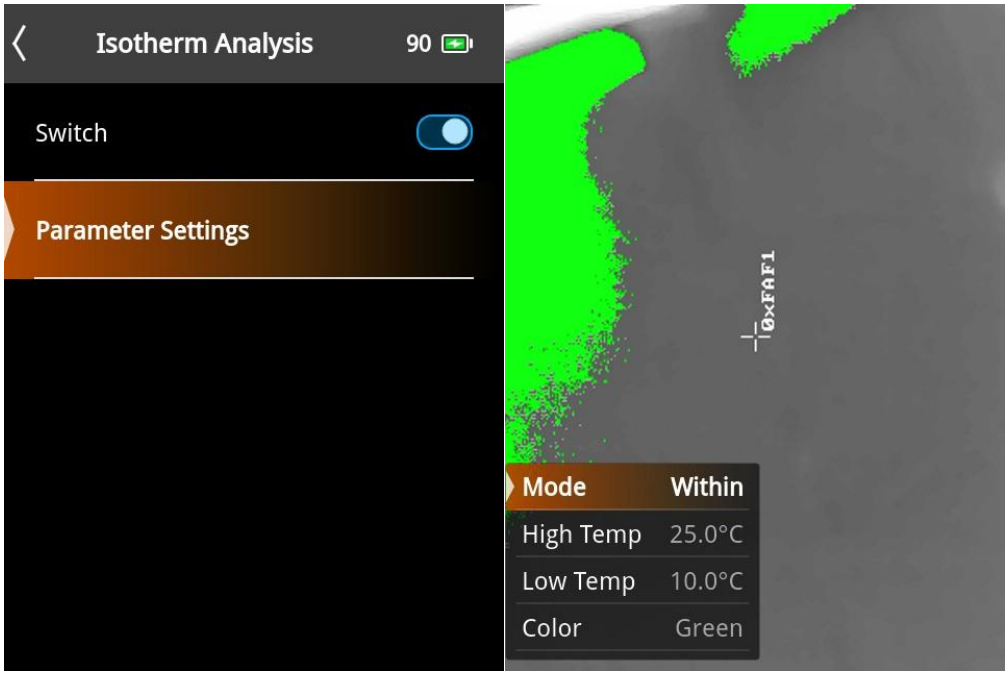


Figure 1.1.6-2

Four adjustable parameters for Isotherm Analysis: Mode, High Temperature Threshold, Low Temperature Threshold, Isotherm Color.

1. Mode: 4 options – Above Threshold, Below Threshold, Within Range, Outside Range; toggle with Confirm key.

2. High Temperature Threshold: Upper limit of temperature span. Press Confirm then adjust value via Up/Down keys.

3. Low Temperature Threshold: Lower limit of temperature span. Press Confirm then adjust value via Up/Down keys.

4. Isotherm Color: Marker color for qualified temperature points; options: Black, Red, Green, White; toggle with Confirm key.

Function logic: Any point with temperature higher than High Threshold or lower than Low Threshold will be highlighted in the selected Isotherm Color.
Example: If Isotherm Color is Black, all points above 25.5℃ or below 10℃ will turn black.

1.2 Temperature Measurement Parameters

Use Up/Down navigation keys to select Temperature Measurement Parameters (Figure 1.2-1). Press Confirm to enter configuration page (Figure 1.2-2).

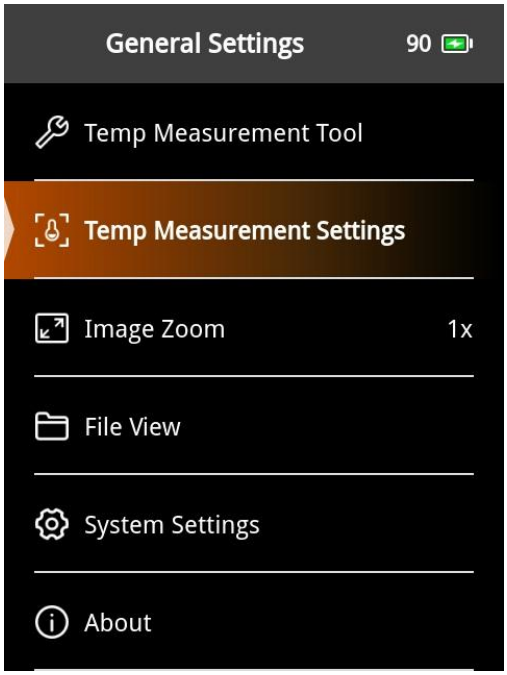


Figure 1.2-1

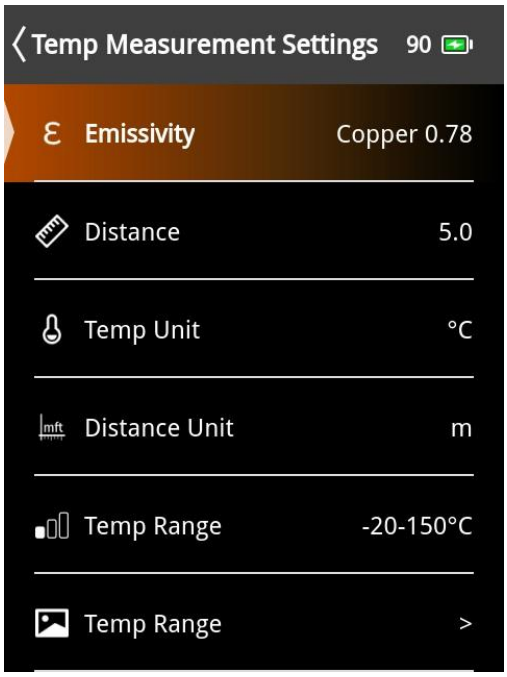


Figure 1.2-2

Six adjustable parameters: Emissivity, Distance, Temperature Unit, Distance Unit, Temperature Measurement Gear, Temperature Span, Alarm Settings.

1.2.1 Emissivity

Use Up/Down navigation keys to select Emissivity (Figure 1.2.1-1).

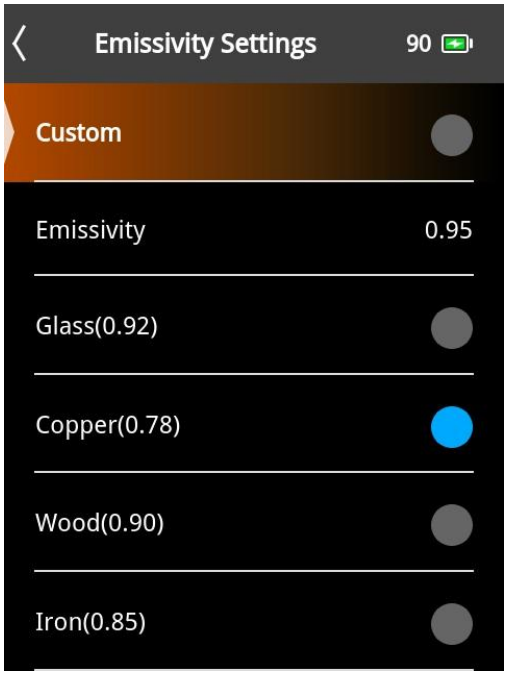


Figure 1.2.1-1

Custom Mode: Emissivity value editable after pressing Confirm.

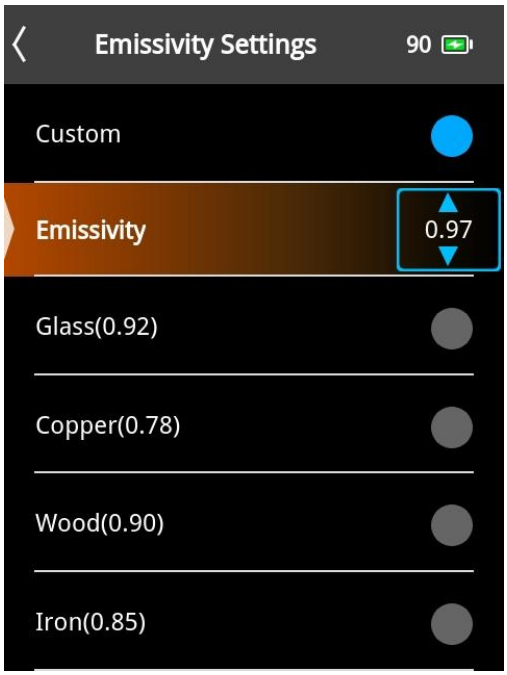


Figure 1.2.1-2

Preset Material Mode: Emissivity value hidden; system loads fixed emissivity for selected material.

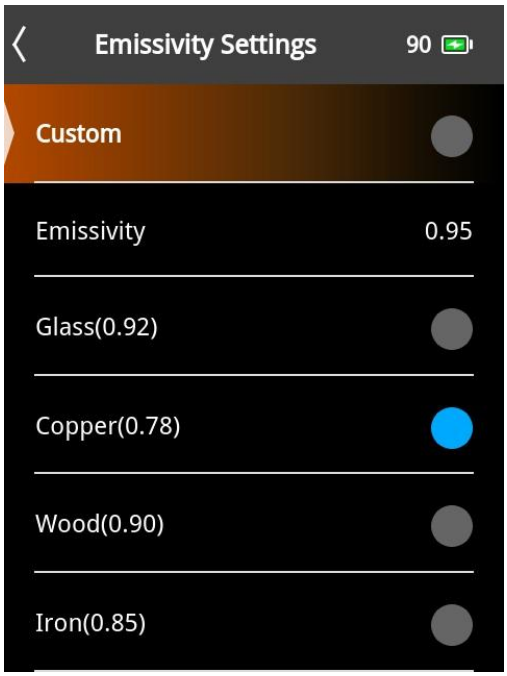


Figure 1.2.1-3

Press Confirm to open emissivity value list. Select target value with Up/Down

keys, press Confirm to save, then return to exit.

1.2.2 Distance

Use Up/Down navigation keys to select Distance (Figure 1.2.2-1).

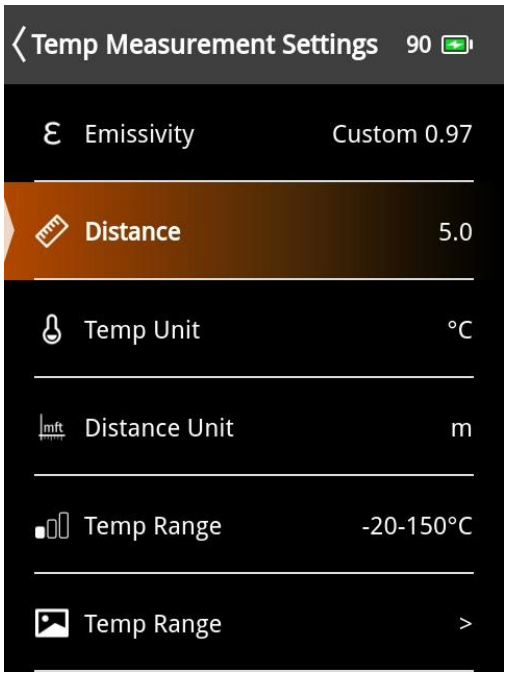


Figure 1.2.2-1

Press Confirm then adjust value via Up/Down keys (Figure 1.2.2-2).

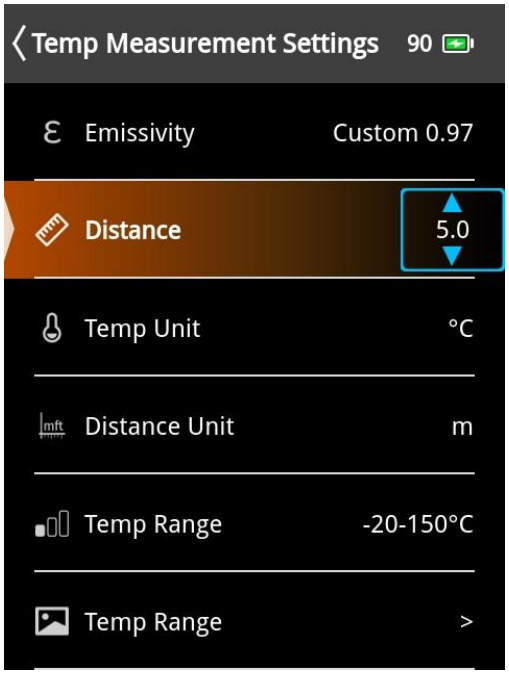


Figure 1.2.2-2

1.2.3 Temperature Unit

Use Up/Down navigation keys to select Temperature Unit (Figure 1.2.3-1).

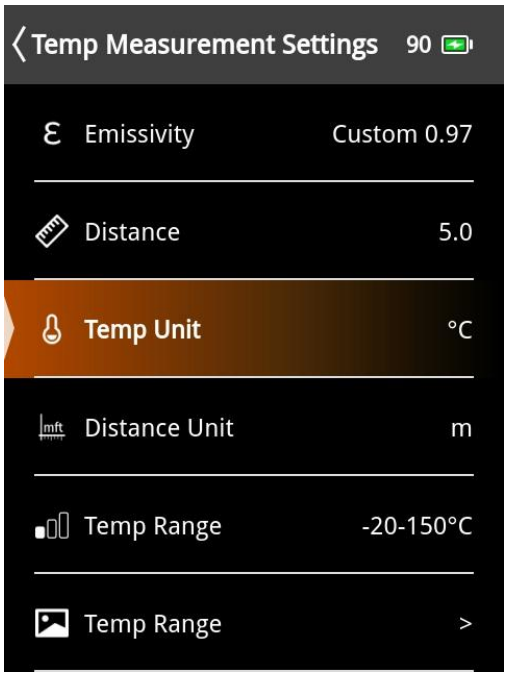


Figure 1.2.3-1

Available units: Celsius (℃), Fahrenheit (℉), Kelvin (K). Toggle with Confirm key; default unit: Celsius (℃).

1.2.4 Distance Unit

Use Up/Down navigation keys to select Distance Unit (Figure 1.2.4-1).

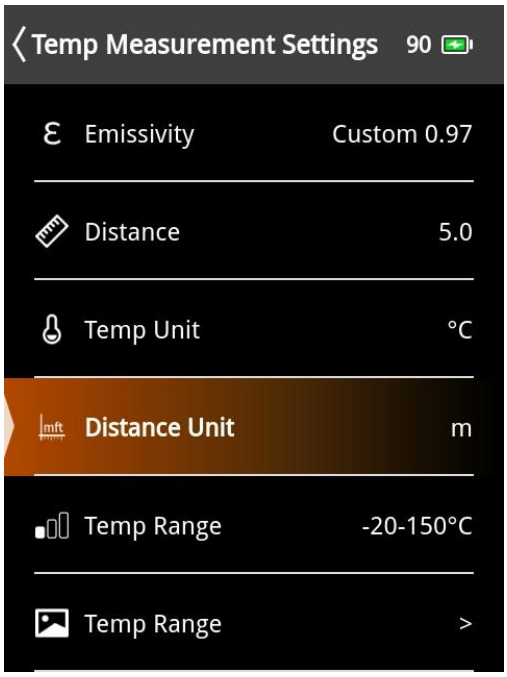


Figure 1.2.4-1

Options: Meter (m), Foot (ft); switch with Confirm key.

1.2.5 Temperature Measurement Gear

Use Up/Down navigation keys to select Temperature Measurement Gear (Figure 1.2.5-1).

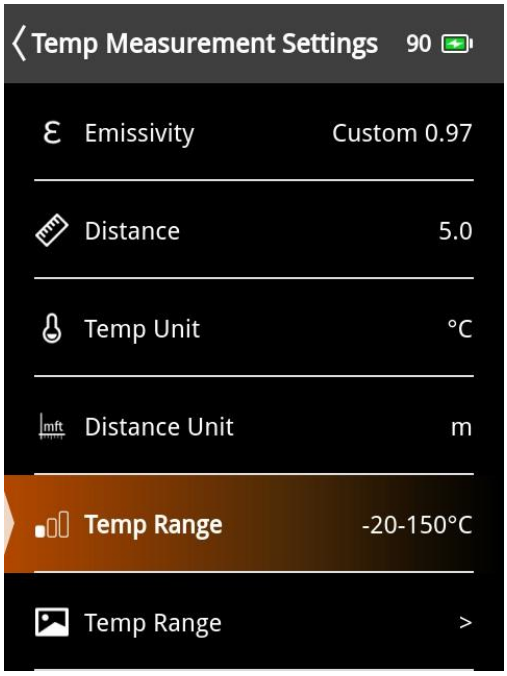


Figure 1.2.5-1

Three gear options: -20~150℃, 0~650℃, Auto Gear. Select target gear via Confirm key (Figure 1.2.5-2).

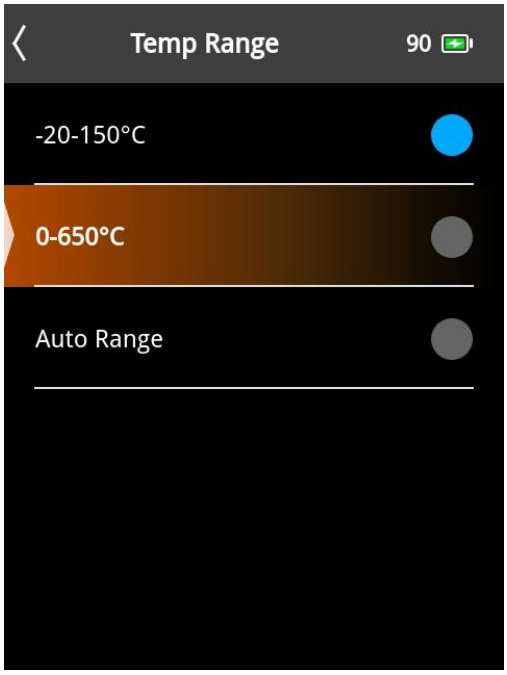


Figure 1.2.5-2

1.2.6 Temperature Span

Use Up/Down navigation keys to select Temperature Span, press Confirm to open configuration page (Figure 1.2.6-1).

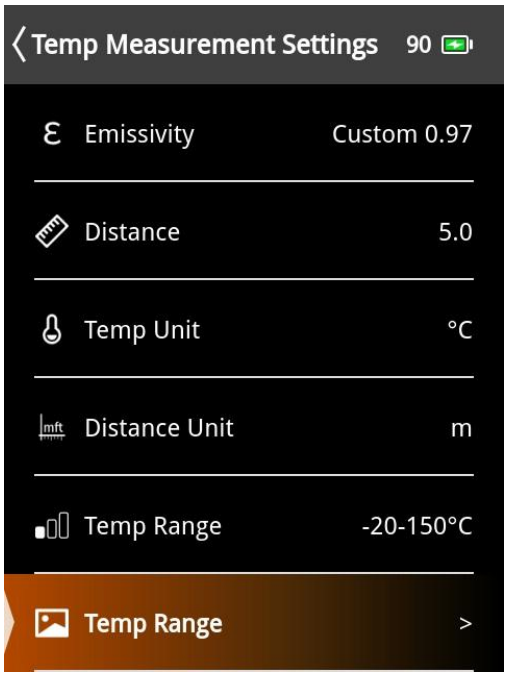


Figure 1.2.6-1

Two operation modes: Auto / Manual, toggle via Confirm key (Figure 1.2.6-2).

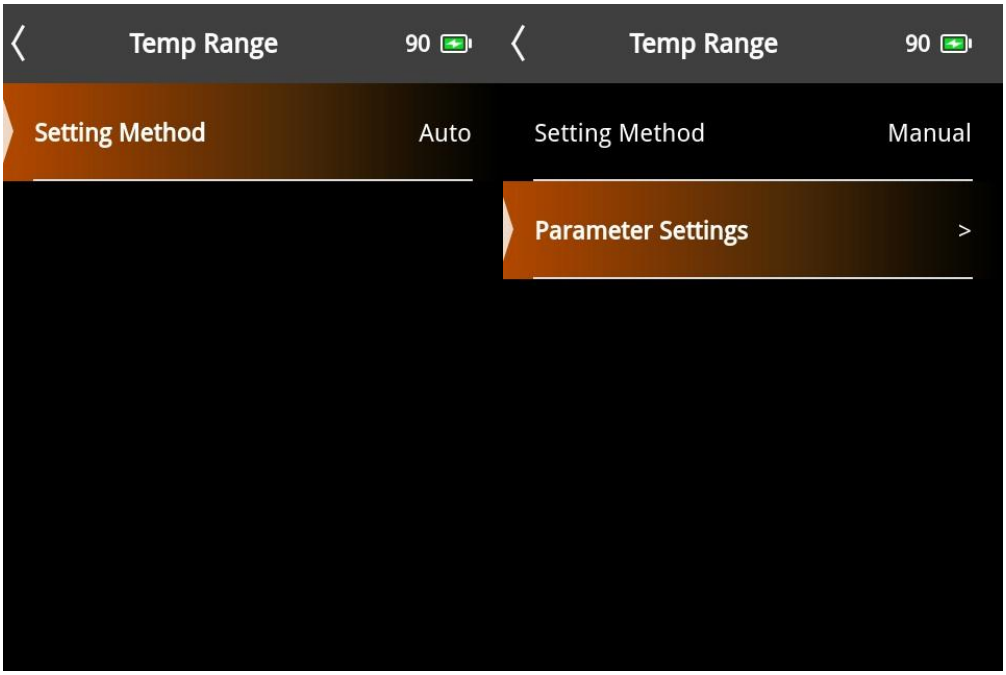


Figure 1.2.6-2

Manual Mode Operation:

1. Select Parameters with Up/Down keys, press Confirm to edit.

2. Select Max Temp / Min Temp, adjust value: Up key = Increase, Down key = Decrease (Figure 1.2.6-3).

3. Press Return to exit editing.

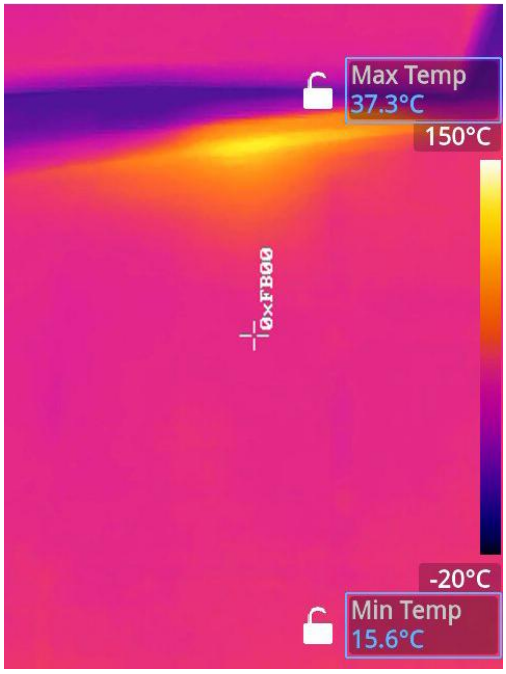


Figure 1.2.6-3

1.2.7 Alarm Settings

Use Up/Down navigation keys to select Alarm Settings, press Confirm to open configuration page.

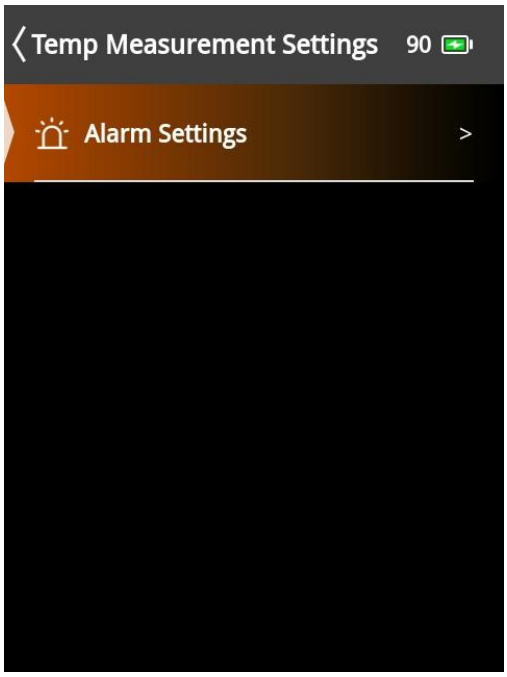


Figure 1.2.7

Configurable items: Global High Temp Alarm, Global High Threshold, Global Low Temp Alarm, Global Low Threshold, Spot Index, Spot High Temp Alarm, Spot High Threshold, Spot Low Temp Alarm, Spot Low Threshold.

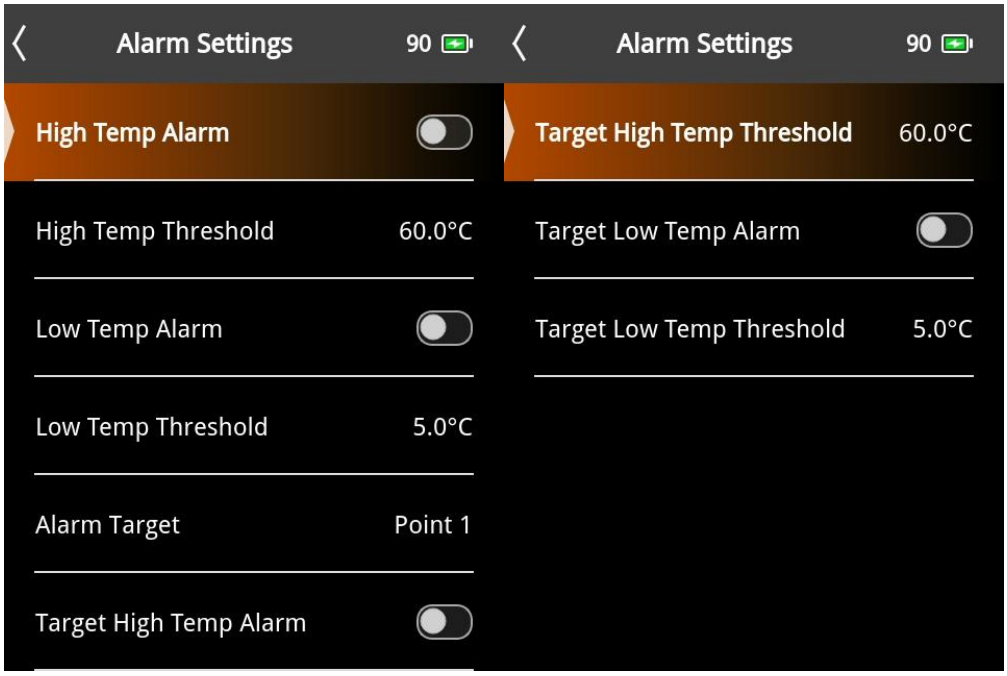


Figure 1.2.7

The infrared detector supports two independent alarm systems: full-screen global temperature alarm & single spot independent alarm, both with switch controls and customizable trigger thresholds.

(1) Global Alarm Configuration

- High Temp Alarm: When enabled, the device triggers audio-visual alert if the maximum temperature in frame exceeds High Threshold; threshold value user-adjustable.
- Low Temp Alarm: When enabled, the device triggers audio-visual alert if the minimum temperature in frame drops below Low Threshold; threshold value user-adjustable.

(2) Single Spot Alarm Configuration

- Spot Index: Select the target measurement spot for independent alarm setup (e.g., Spot 2).
- Spot High Temp Alarm: Trigger audio-visual alert when temperature of selected spot exceeds Spot High Threshold.
- Spot Low Temp Alarm: Trigger audio-visual alert when temperature of selected spot drops below Spot Low Threshold.

(3) Logic Rule

- Global alarms and single spot alarms work independently and can be activated simultaneously. A buzzer sound will play once an alarm condition is met.

1.3 Image Zoom

Use Up/Down navigation keys to select Image Zoom, press Left key to adjust zoom magnification.

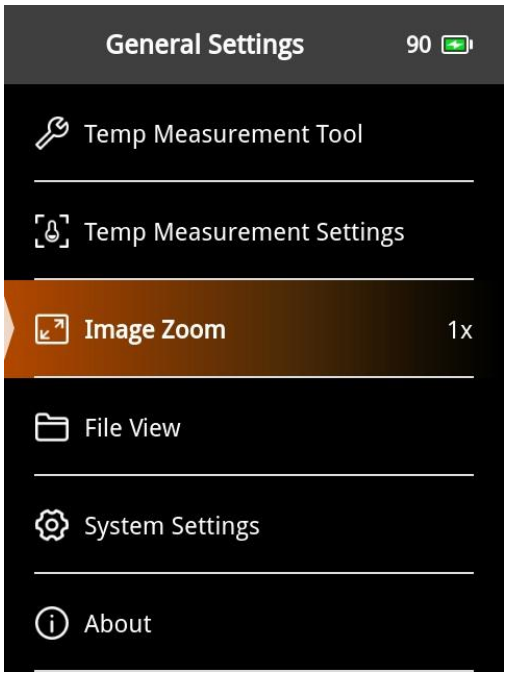


Figure 1.3

1.4 File Viewer

Use Up/Down navigation keys to select File Viewer, press Confirm to open image browsing page.

Images are stored in date-named folders by month. Select target date folder with Up/Down keys and press Confirm to view all photos taken on that day (Figure 1.4-1).

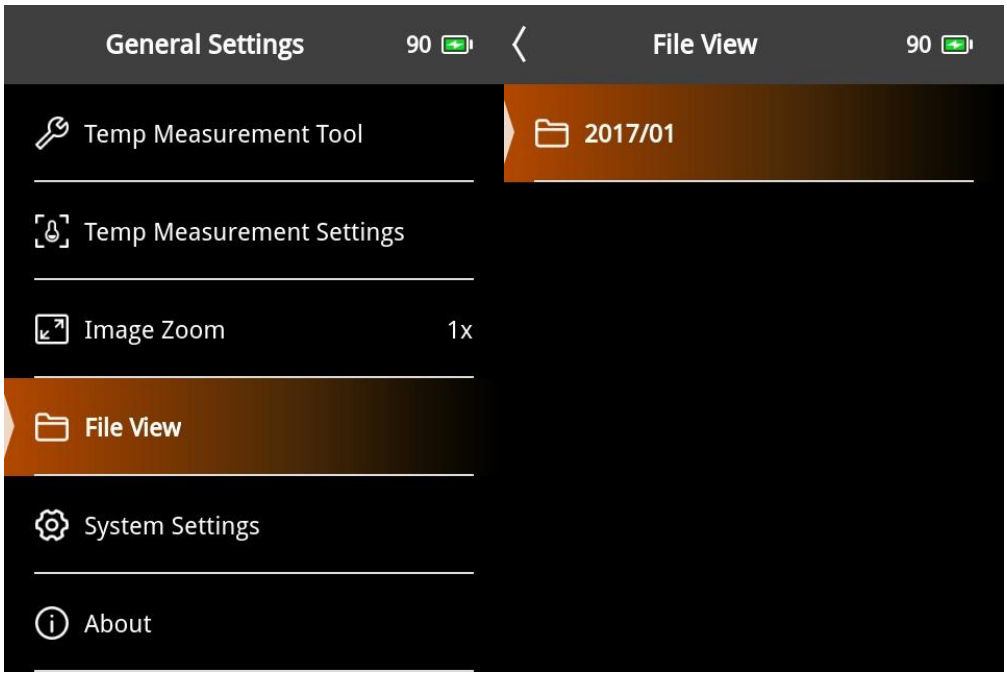


Figure 1.4-1

Select a single image with Up/Down keys and press Confirm to enter Fullscreen preview (Figure 1.4-2).

Figure 1.4-2

Press Confirm to open delete menu, press Confirm again to delete the photo (Figure 1.4-3).

Figure 1.4-3

Video playback and deletion operate similarly:

1. Select video file and press Confirm to pop up playback menu.
2. Press Confirm again to start playback, press once more to stop.
3. Use Down key to select Delete and press Confirm to remove video file.

Figure 1.4-4

1.5 System Settings

Use Up/Down navigation keys to select System Settings, press Confirm to enter configuration page (Figure 1.5-1 / Figure 1.5).

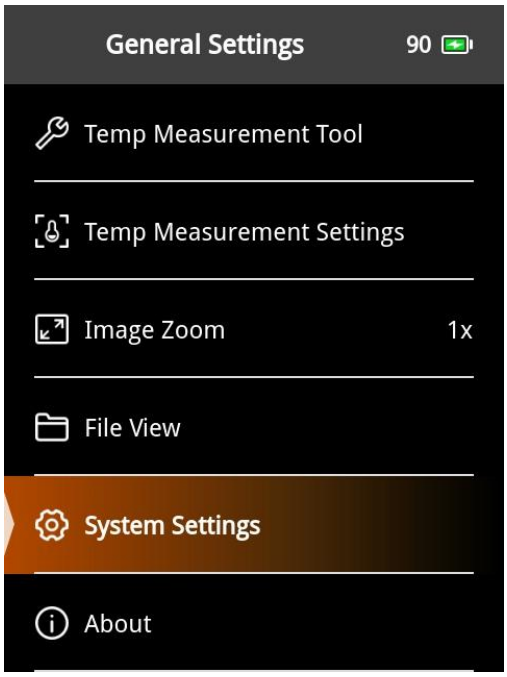


Figure 1.5-1

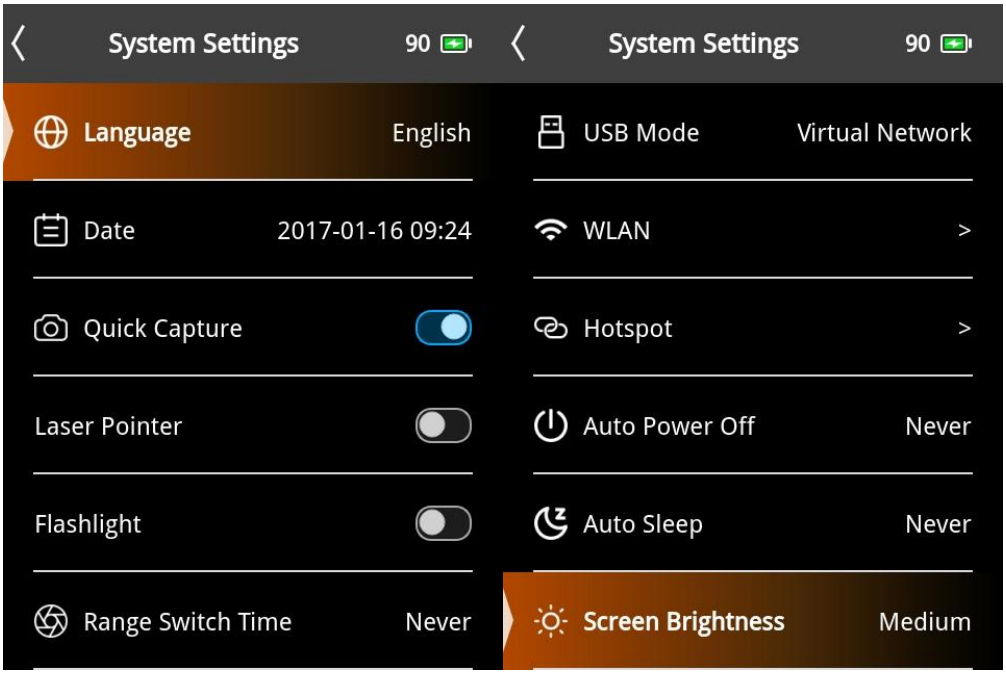


Figure 1.5

1.5.1 Language

9 language options available: Simplified Chinese, Traditional Chinese, English, etc. Default: Simplified Chinese.

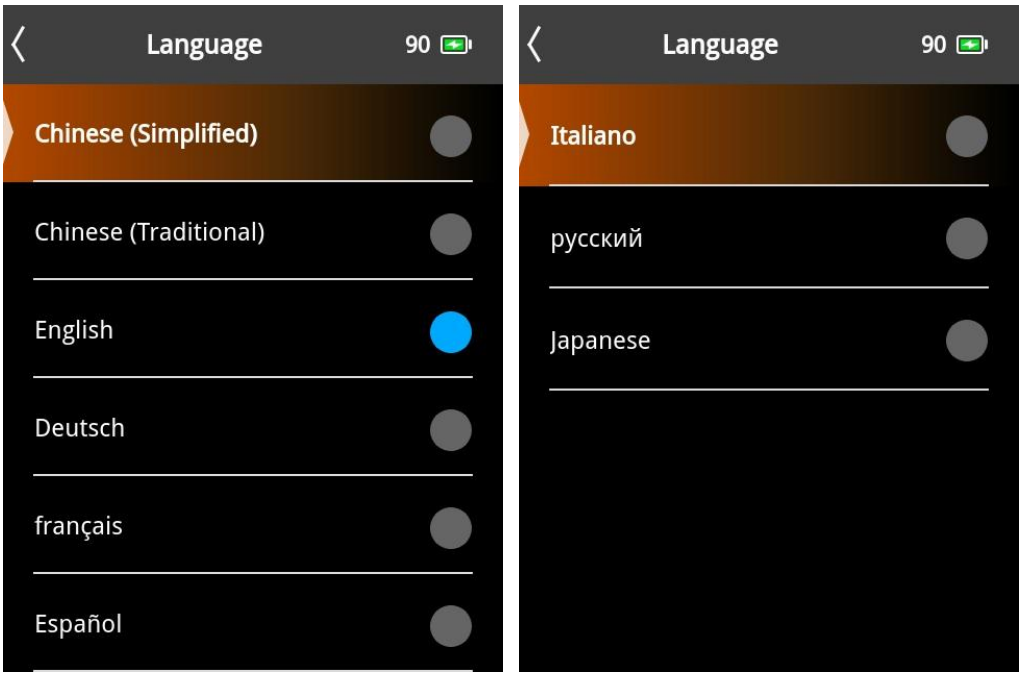


Figure 1.5.1-1

1. Select Language with Up/Down keys, press Confirm to open language list (Figure 1.5.1-1).

2. Select target language via Up/Down keys, press Confirm to apply. Example: Switch to English, interface updates as Figure 1.5.1-2.

Figure 1.5.1-2

1.5.2 Date & Time

Use Up/Down navigation keys to select Date & Time; the right side displays current system time of the infrared detector (Figure 1.5.2-1).

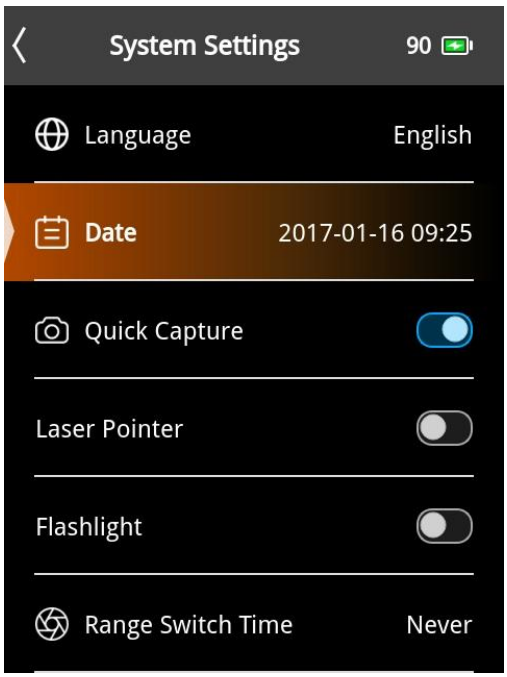


Figure 1.5.2-1

Press Confirm to enter time configuration page (Figure 1.5.2-2).

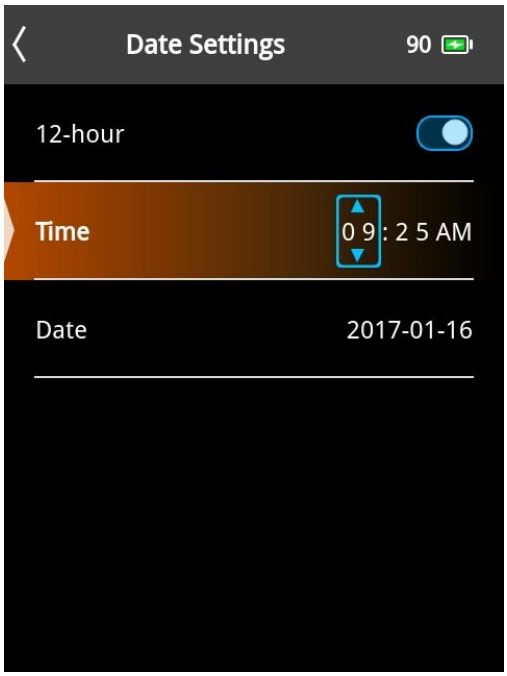


Figure 1.5.2-2

Adjustable items: 12-hour format toggle, Time value, Date value.

- Switch between 12h / 24h format with navigation keys.
- Select Time / Date field and adjust numbers via Up/Down keys.
- All edits will be synchronized to the device's system clock after saving.

1.5.3 Quick Capture

Use Up/Down navigation keys to select Quick Capture (Figure 1.5.3).

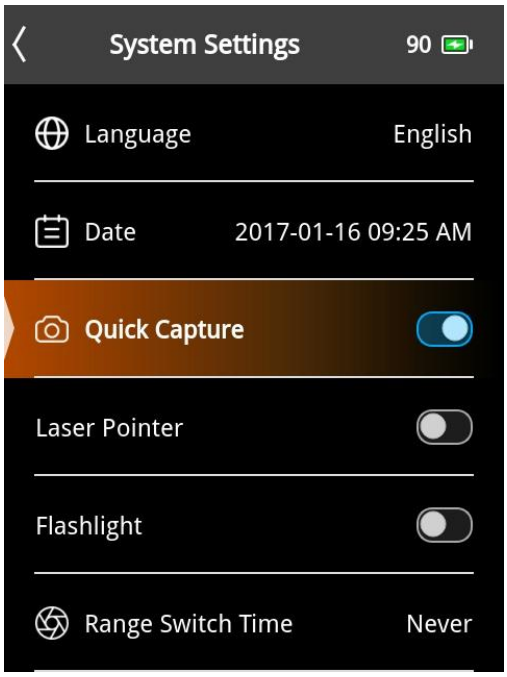


Figure 1.5.3

This is a function toggle in System Settings, default disabled. When enabled, the infrared detector captures images in simplified one-click mode.

1.5.4 Laser Positioning Indicator

Use Up/Down navigation keys to select Laser Positioning Indicator (Figure 1.5.4).

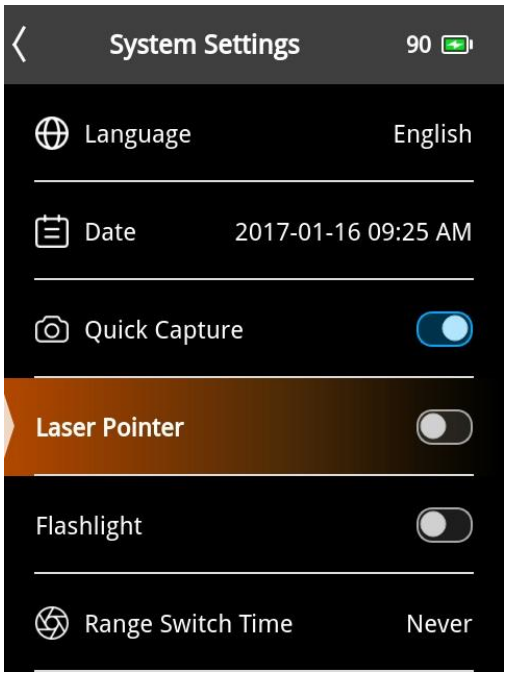


Figure 1.5.4

This function toggle is enabled by default. Once activated, the infrared detector emits a laser dot to mark the corresponding thermal imaging target on visible light frame, facilitating target identification and marking, improving detection efficiency and positioning accuracy.

1.5.5 Illumination Fill Light

Use Up/Down navigation keys to select Illumination Fill Light (Figure 1.5.5).

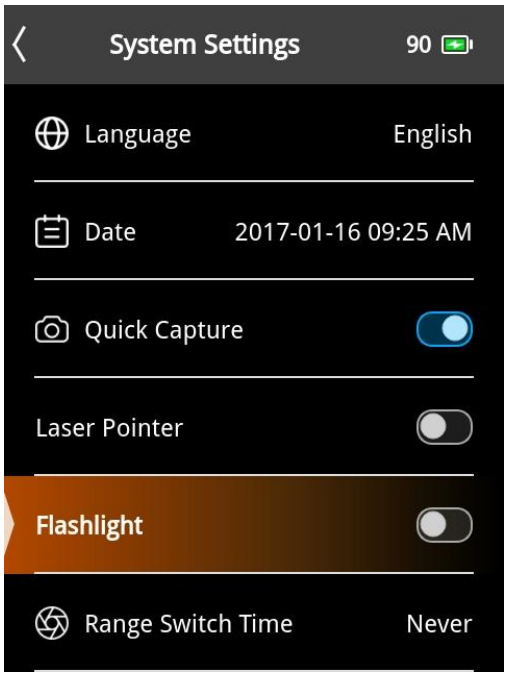


Figure 1.5.5

This function toggle is enabled by default. When turned on, the built-in LED light illuminates the scene for visible light shooting in dark or night environments to improve frame clarity.

1.5.6 Gear Switch Duration

Use Up/Down navigation keys to select Gear Switch Duration (Figure 1.5.6).

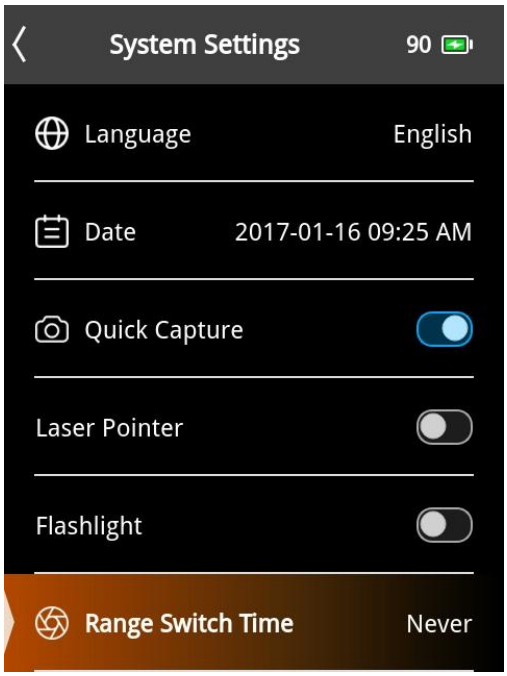


Figure 1.5.6

Press Confirm to toggle modes: Off, 30 Seconds, 1 Minute, 2 Minutes.

1.5.7 USB Mode

Use Up/Down navigation keys to select USB Mode (Figure 1.5.7-1).

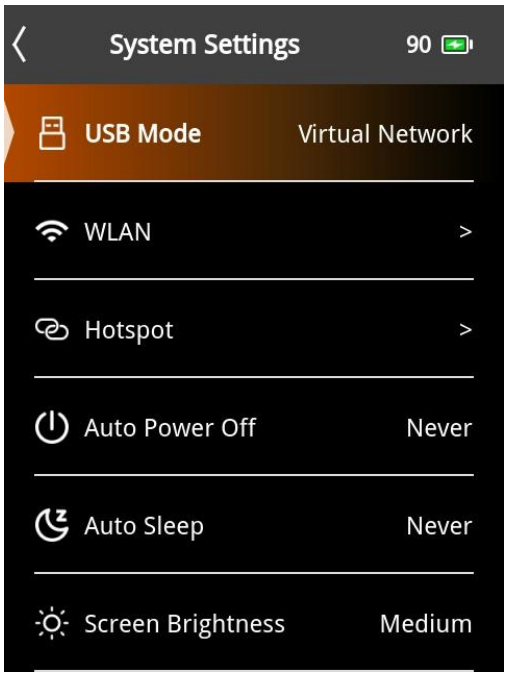


Figure 1.5.7-1

Press Confirm to open configuration page (Figure 1.5.7-2).

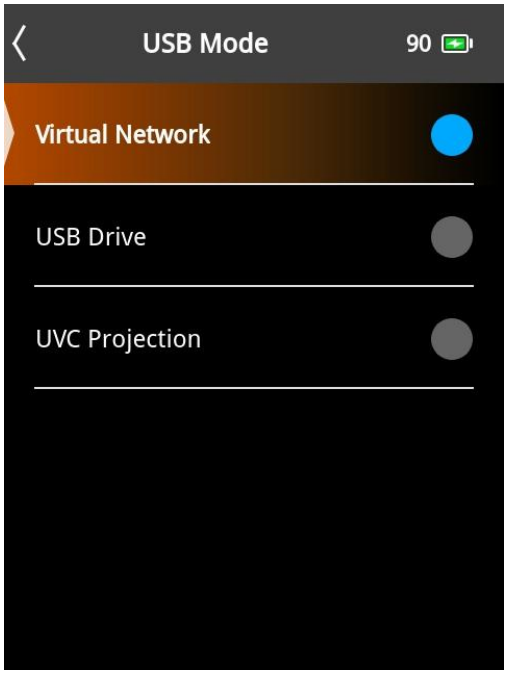


Figure 1.5.7-2

This setting defines the infrared detector’s working mode when connected to PC via USB cable. Current selection: Virtual Network Mode.

1. Virtual Network Mode: USB port converts to virtual network interface for SSH connection.

2. USB Mass Storage Mode: The infrared detector is recognized as removable disk on PC; users can directly copy, export photos and videos from internal storage.

3. UVC Cast Mode: Real-time thermal frame transmission to PC via USB; paired with dedicated software for screen casting, video recording and remote monitoring.

1.5.8 WLAN

Use Up/Down navigation keys to select WLAN (Figure 1.5.8-1).

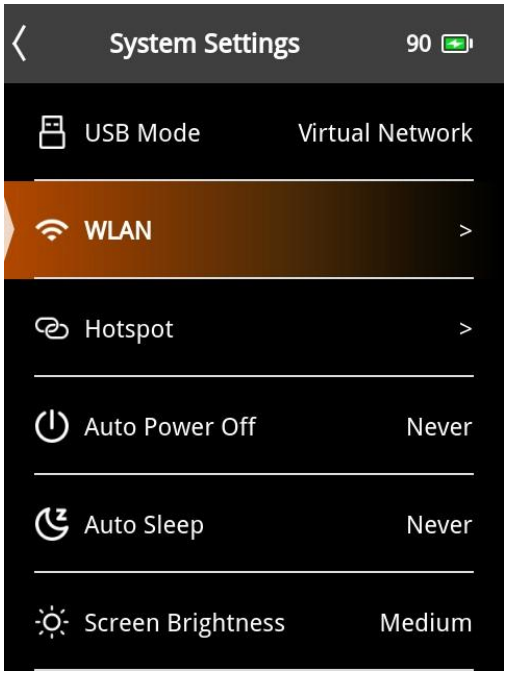


Figure 1.5.8-1

Press Confirm to enable Wi-Fi (Figure 1.5.8-2).

Figure 1.5.8-2

The infrared detector automatically scans surrounding wireless signals after Wi-Fi activation. Wi-Fi enables remote thermal image transmission, real-time casting, remote control and data review via PC software.

1.5.9 Hotspot

Use Up/Down navigation keys to select Hotspot (Figure 1.5.9-1).

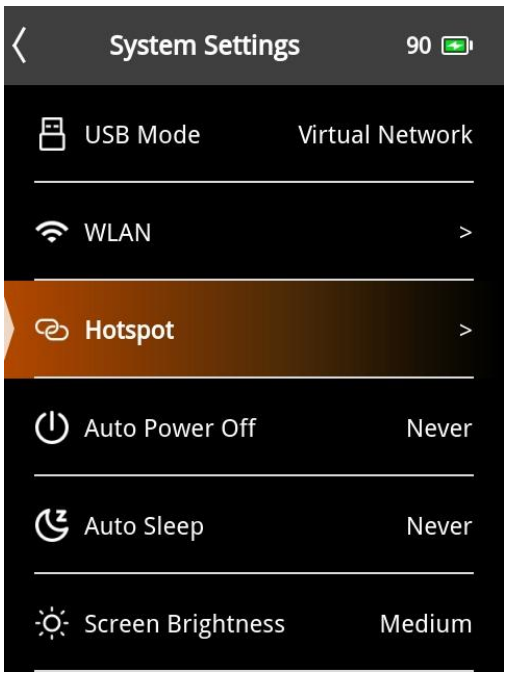


Figure 1.5.9-1

Press Confirm to turn on hotspot (Figure 1.5.9-2).

Figure 1.5.9-2

When hotspot is enabled, the infrared detector acts as a Wi-Fi access point for mobile phones and other terminals. The page displays hotspot name, password and quick connection QR code. Connected devices can view real-time thermal frames, transfer image files or remotely control the detector via APP.

1.5.10 Auto Power Off

Use Up/Down navigation keys to select Auto Power Off (Figure 1.5.10-1).

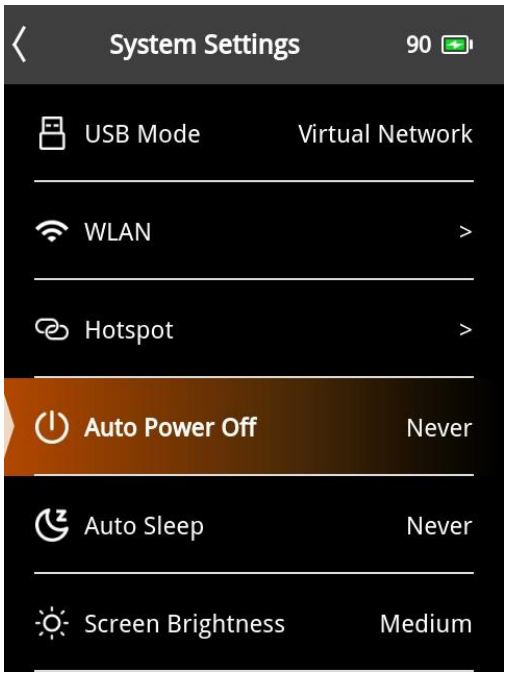


Figure 1.5.10-1

Press Confirm to open settings (Figure 1.5.10-2).

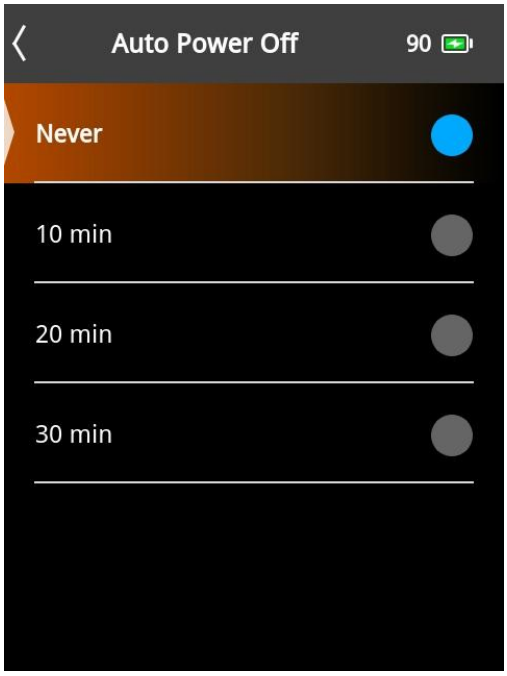


Figure 1.5.10-2

This function sets idle duration before automatic shutdown to save power. Current option: Never (function disabled). Time options: 10min / 20min / 30min. The infrared detector will shut down automatically if no key operation within selected duration.

1.5.11 Auto Sleep

Use Up/Down navigation keys to select Auto Sleep (Figure 1.5.11-1).

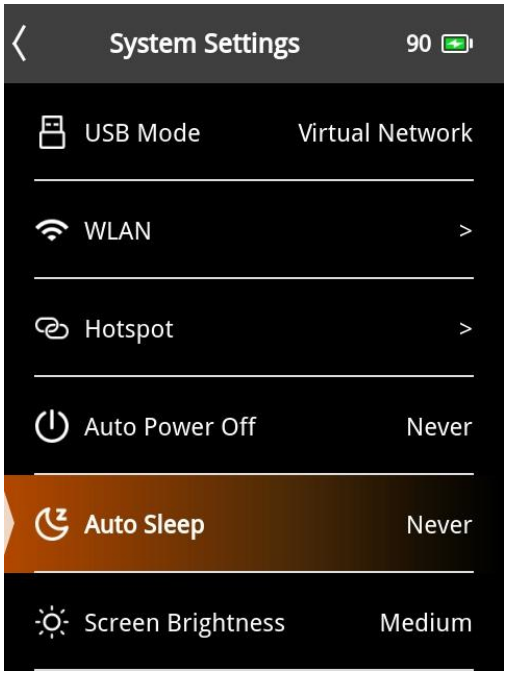


Figure 1.5.11-1

Press Confirm to open settings (Figure 1.5.11-2).

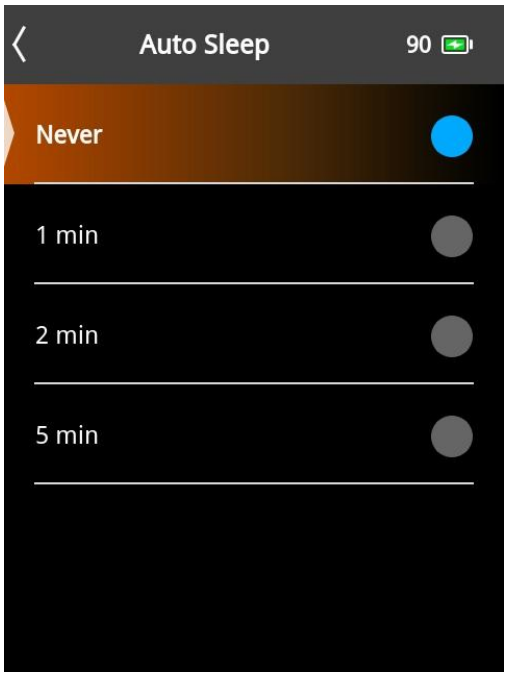


Figure 1.5.11-2

This function sets idle duration before screen backlight turns off to reduce power consumption and extend battery life. Current option: Off (screen always on). Time options: 1min / 2min / 5min. The screen enters low-power sleep after idle timeout; press any key to wake up.

1.5.12 Screen Brightness

Use Up/Down navigation keys to select Screen Brightness (Figure 1.5.12).

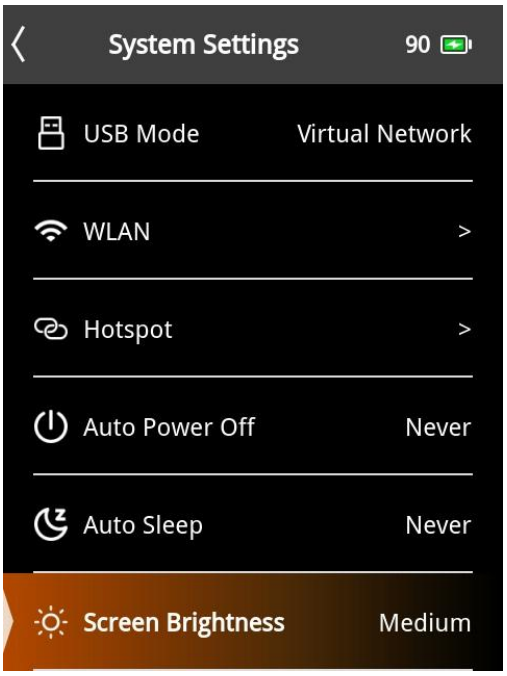


Figure 1.5.12

Press Confirm to switch brightness levels: Low / Medium / High; current setting: Medium.

1.5.13 Fusion Distance

Use Up/Down navigation keys to select Fusion Distance (Figure 1.5.13).

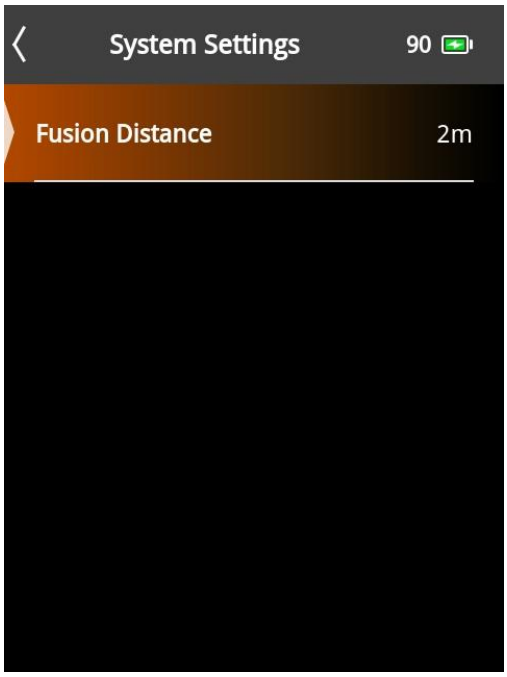


Figure 1.5.13

1.6 About Device

Use Up/Down navigation keys to select About Device (Figure 1.6-1).

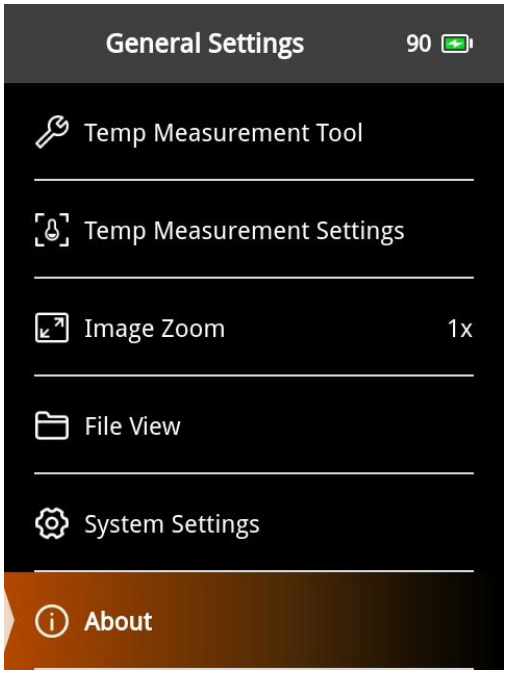


Figure 1.6-1

Press Confirm to open page (Figure 1.6-2).

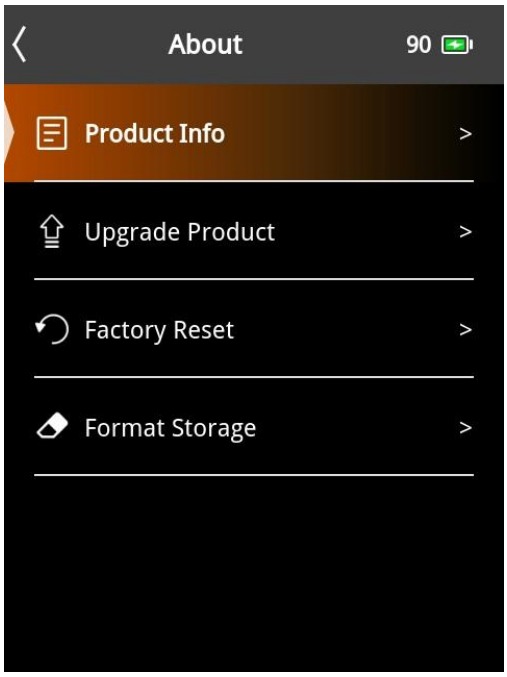


Figure 1.6-2

This menu contains four core functions:

1. Device Information: Check model, serial number, firmware version for equipment verification and after-sales service.

2. Firmware Upgrade: Load firmware packages to update system software for bug fixes and new features. Keep sufficient power and avoid power cut during upgrade.

3. Factory Reset: Restore all parameters to factory default to resolve abnormal settings; stored files will not be erased.

4. Storage Format: Erase all photos and videos in internal storage to free space; all data will be permanently deleted after formatting, operate with caution.

1.6.1 Device Information

Figure 1.6.1

This page displays hardware and system identity information:

- Model: VOT-T306A (official model for product specification differentiation)
- Storage Capacity: 256MB (internal storage for captured photos and temperature data)
- Serial Number: T306A-F00031 (unique identifier for warranty and technical support)
- Firmware Version: V1.0.9 (current operating system version for upgrade reference)

1.6.2 Firmware Upgrade

Pre-upgrade preparation:

1. Switch the infrared detector to USB Mode (Figure 1.6.2-1).
2. Copy upgrade package to path: This PC\X2000 MTP\SD Card (Figure 1.6.2-3).

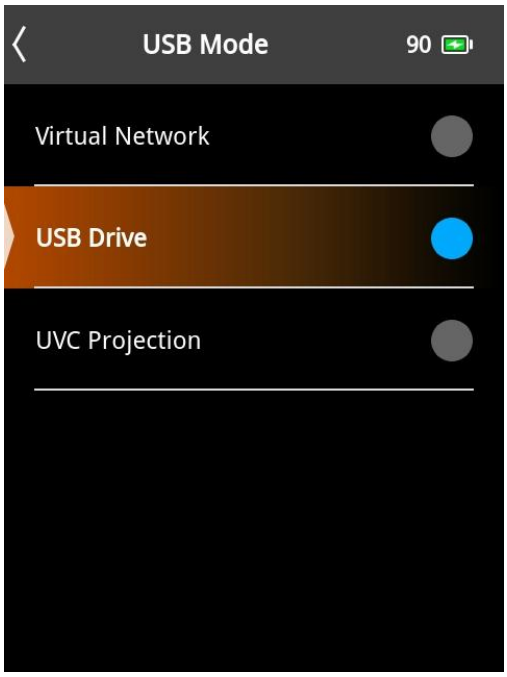


Figure 1.6.2-1

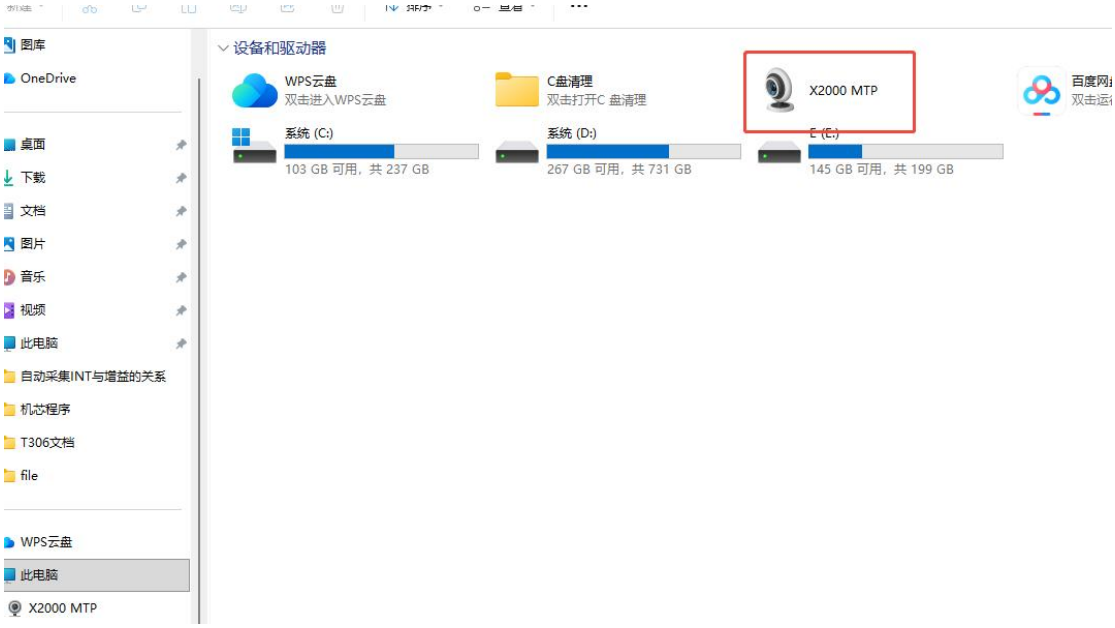


Figure 1.6.2-2

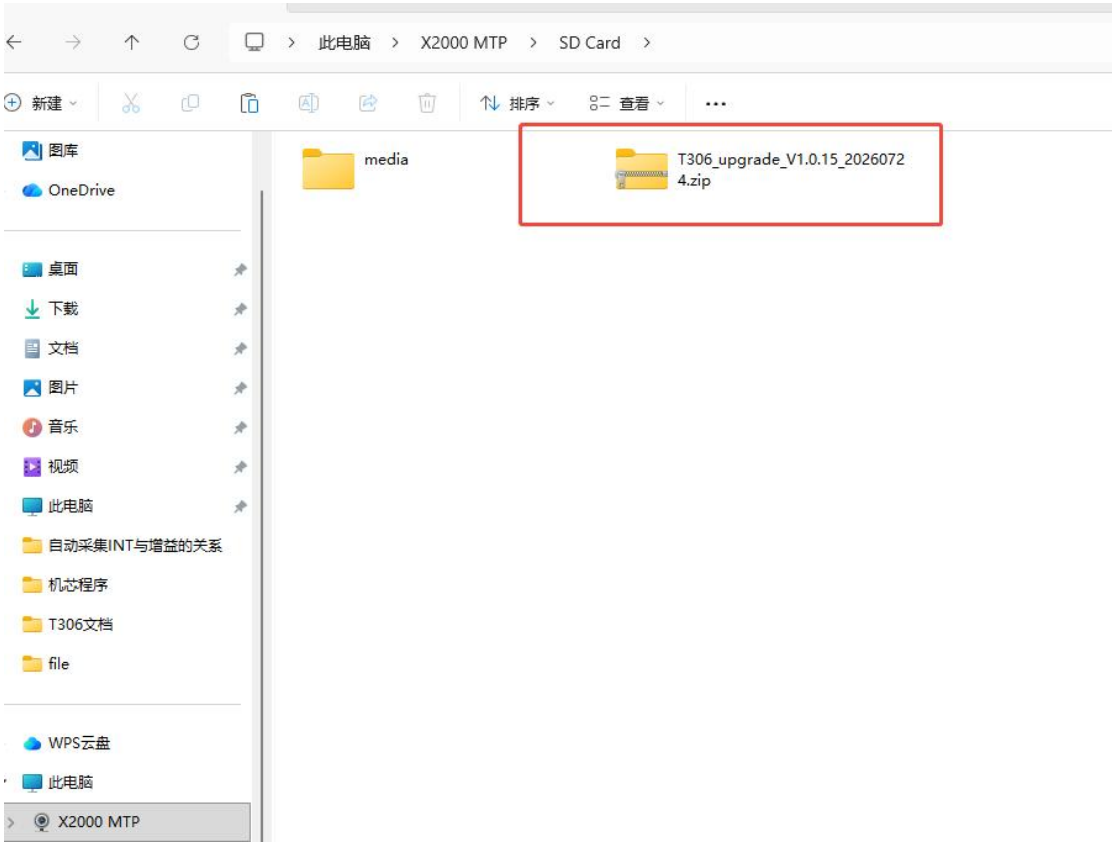


Figure 1.6.2-3

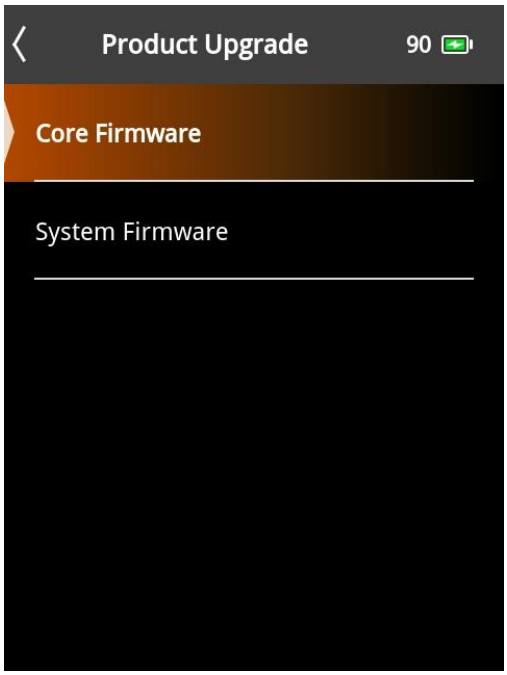


Figure 1.6.2-4

Enter About Device menu under System Settings to start upgrade. Two independent upgrade items available:

1. Core Module Firmware: Driver and algorithm program for infrared detector; upgrade improves temperature accuracy, image processing and hardware compatibility.

2. System Firmware: Operating system, UI and file management software; upgrade fixes system bugs, optimizes interaction and adds new functions.

Operation: Save firmware files to detector storage, select target item to start upgrade. Notes: Keep sufficient power and avoid power loss during process. One automatic reboot and one manual reboot will occur during upgrade, both normal behaviors.

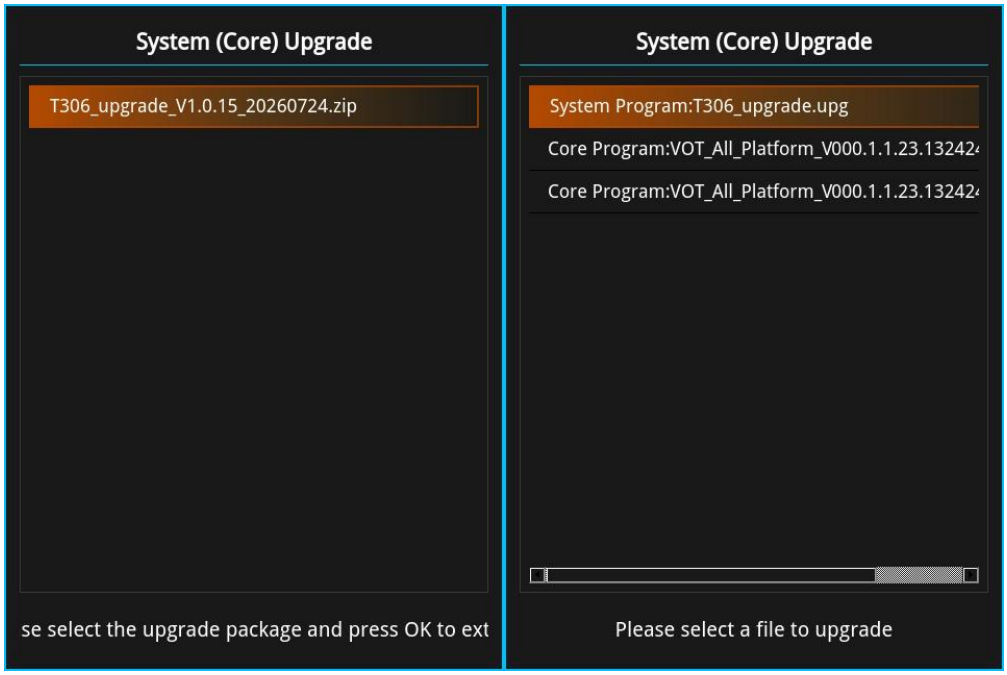


Figure 1.6.2-5

1.6.3 Factory Reset

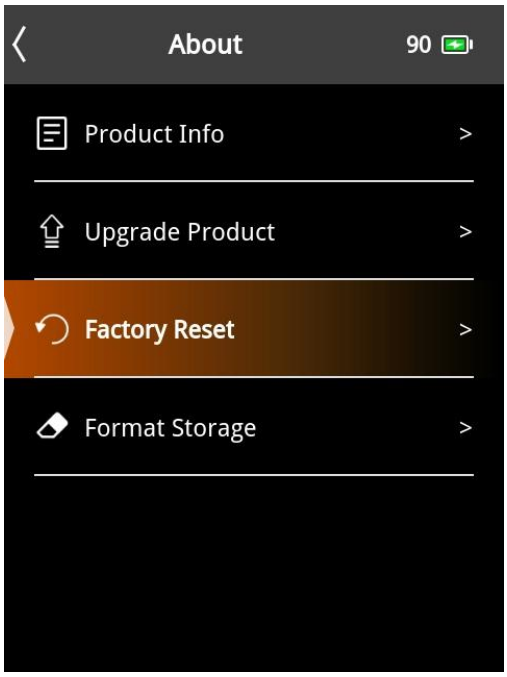


Figure 1.6.3

After selecting Factory Reset and pressing Confirm, a warning pop-up appears: "Confirm factory reset? All user configurations will be cleared." Use Up/Down keys to select Confirm / Cancel, press Confirm to execute.

1.6.4 Storage Format

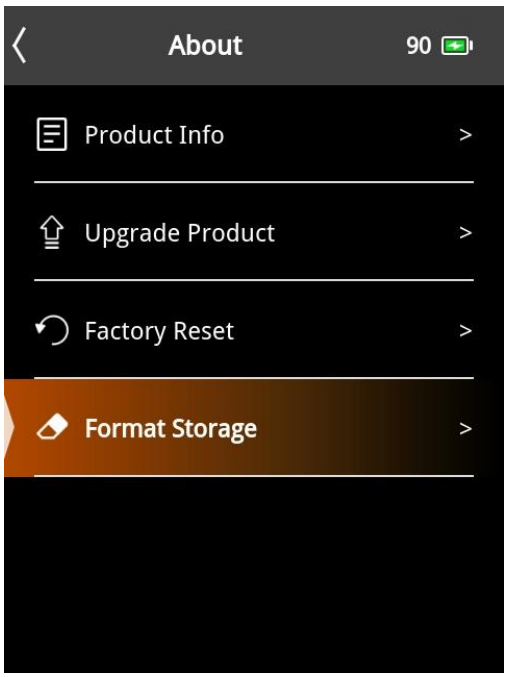


Figure 1.6.4

Formatting erases all photos, videos and temperature data stored locally to release storage space. After selecting Storage Format and pressing Confirm, a warning pop-up appears: "Confirm format storage? All data will be permanently deleted." Use Up/Down keys to select Confirm / Cancel, press Confirm to execute.

2. Palette Settings

After the infrared detector starts up, press Down key to switch thermal color palettes. Default palette: Iron Red. Toggle with Down navigation key. Six palettes available: White Hot, Black Hot, Iron Red, Rainbow, Lava, Amber. Select target palette to apply instantly.

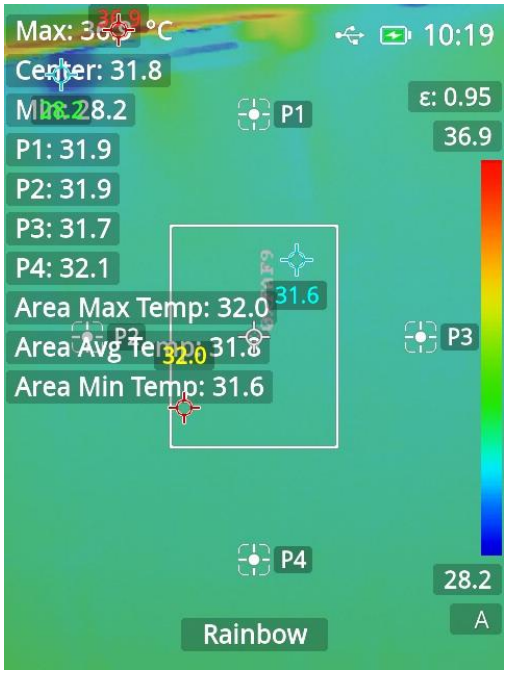


Figure 2

3.Preview Modes

After the infrared detector starts up, press Up key to switch preview modes. Four modes: Infrared Only, Visible Light Only, Picture-in-Picture, Dual Light Fusion.

Figure 3-1: Infrared Only Mode

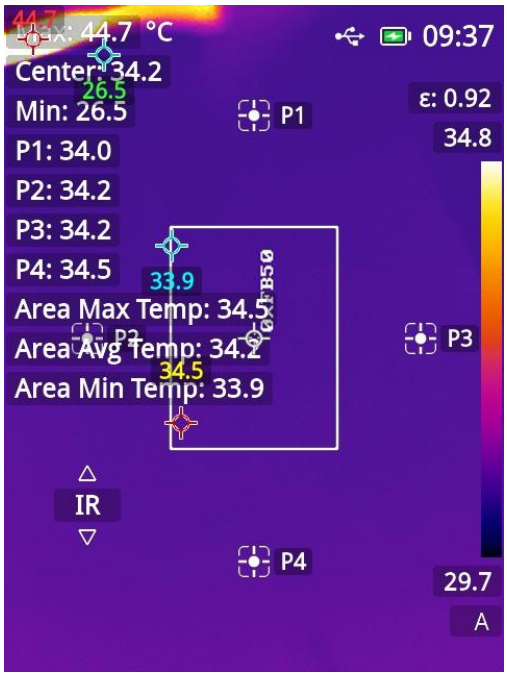


Figure 3-1

Figure 3-2: Visible Light Only Mode

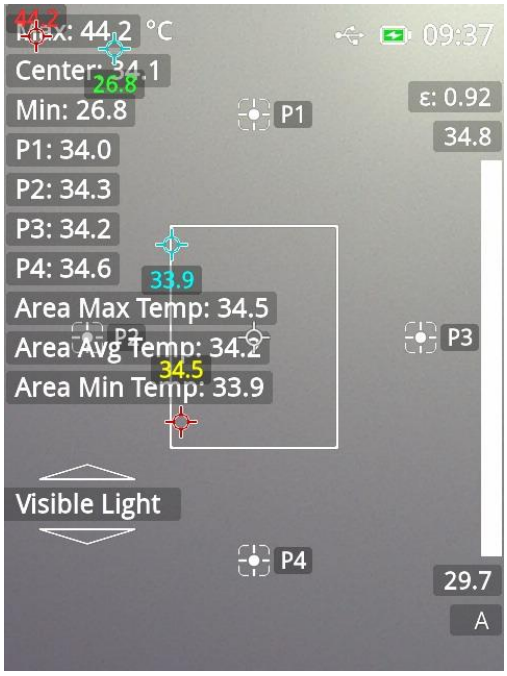


Figure 3-2

Figure 3-3: Picture-in-Picture Mode

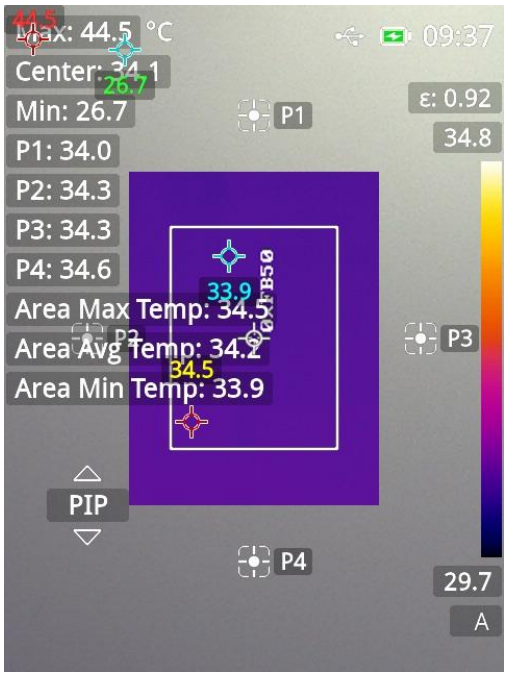


Figure 3-3

Figure 3-4: Dual Light Fusion Mode

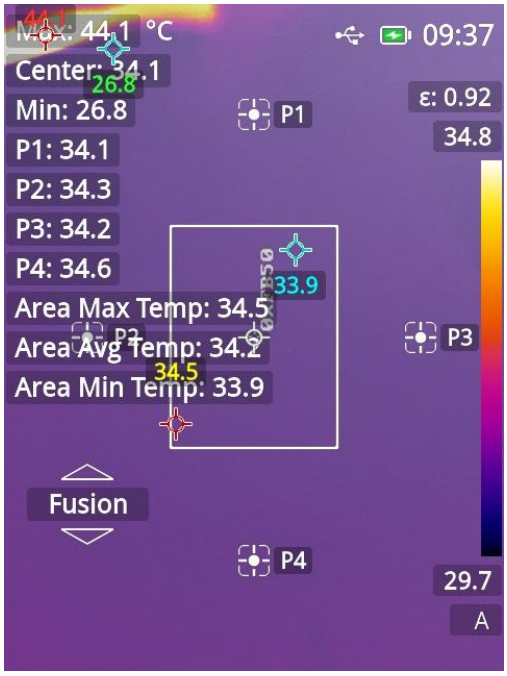


Figure 3-4