ThermalTronix

TT-807LD-HTI

Thermal Image Camera

User Manual

! Warnings, Cautions and Notes

Definitions

! **WARNING** Could cause bodily injury or death.

! **CAUTION** Could cause damage to equipment or permanent loss of data.

! **NOTE** provides useful information to the operator.

! **Important Information – Read before using the Instrument**

! **WARNING** – Laser Radiation is emitted from this device. **Do Not** stare into Laser Beam. **Class 2 Laser, 635 nm, 0.9mW**

! **CAUTION** - Never point the lens directly toward a strong radiation source (ie. Sun, direct or reflected laser beam, etc), with power on or power off, as damage may result to the thermal detector used inside. **Permanent damage may result!**

! **CAUTION -** The original shipping carton should be kept for use for future transportation. Do not drop, shake or impact the thermal imager excessively, in use or during transportation.

! **CAUTION -** Store the unit in its original case in a cool, dry, well-ventilated area away from strong electromagnetic fields.

! **CAUTION -** Protect the surface of the lens from being stained or damaged by foreign objects such as sludge or chemicals. Please replace the lens cap after use.

! **CAUTION -** Please remember to backup image data regularly to avoid losing important data.

! **NOTE** - For maximum measurement accuracy, allow 3 to 5 minutes for

camera to stabilize after initial power up.

! **NOTE** - Each camera is factory calibrated. It is recommended that calibration be performed every 12 months.

! **CAUTION -** Do not open case. Unit does not contain any user serviceable parts. Repair should be performed by factory authorized technicians only.

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Introduction

Thank you for choosing Intellisystem Instruments "TT-807LD-HTI" hand-held infrared thermal imager.

Features

TT-807LD-HTI includes the following features:

- 11 user selectable color palettes

- 11 user selectable languages

- 8 X digital zoom

- 10 removable spot measurements

- 5 areas measurements

- 2 lines measurements

- Shortcut key custom

- Auto focus

- Manual focus

- Bluetooth

- WIFI

- Power save mode

- LCD brightness adjustment

- Video Output- NTSC or PAL

- Network settings

- Time/date settings

- Restore factory settings

- SD card unload, formatting

- SD card capture, video saving

- Voice capture or text annotation

- Continuous image capture

- Alarm screenshots

- Alarm video
- Isotherm
- Temperature measurement settings
- Built in Emissivity Table list of common materials
- CMOS visible image and storage
- Thermal image and CCD image fusion
- High/low temperature fusion

Upgrades and Options

TT-807LD-HTI is factory upgradeable for Wide Angle or Telephoto Lenses.

Applications:

Preventive maintenance

- Power industry: Power line and power facility thermal state checking; problem and defect diagnosis.
- Electrical system: Identify potential circuit overloads.
! Mechanical system: Reduce downtime and avoid catastrophic failure.

Construction science

- Roof: Quick identification of water penetration problems.
- Structure: Commercial and residential energy audits.
- Moisture detection: Determine root cause of moisture and mildew.
! Evaluation：Evaluate the resolution to ensure the area completely dry.

Others

- Iron and steel industry: Inspect steel refining and rolling processes; diagnose hot-blast stove defects; detect the embryo temperature of armor plate, etc.
- Firefighting: Forest fire prevention and detection of latent ignition source. Preventive detection on specific materials of auto-ignition. Detection

of potential spark ignition sources.

- Medical: Human body surface temperature detection and screening.

! Petro/chemical: Oil pipeline status inspection; material surface temperature detection; insulation inspection; power equipment status, etc.

1.1 Standard accessories

- Infrared thermal image camera (with wrist strap and lens)
- Shoulder strap
- Carrying case
- Video out cable
- Lithium ion batteries（2）
- Charging dock
- Lithium battery charger
- Lens cap
- User manual, Infrared report and analysis software system CD
- SD card
- SD card reader
- Network cable (Minu-USB to RJ45)

1.2 Optional accessories

- External 0.5x wide-angle lens
- External 2x,3x telescopic lens
- Carrying case
- AC adapter (include power line)
- Europe standard power line
- Tripod

2 Camera overview

2.1 Function keys

[1] Power key

Press and hold the Power Key for > 3 seconds to power on/off the camera

! **Note**: After powering off, please wait ten seconds before powering the camera on again

[2] Menu/Confirm key

Includes **Up**, **Down**, **Left**, **Right** and **Menu/Confirm** (center) keys. Function varies with operation mode.

In **Menu mode**, it is used for menu selection. **Up** and **Down** keys are for same level of menu operation. **Left** and **Right** keys are for different levels menu operation. **Confirm** key (center) is to activate the menu and confirm the choice.

In **Image mode**, press **Up** or **Down** key to activate X2 digital zoom. The screen will display "X2" in the upper left corner. Press **Up** or **Down** key to return to the original image.

In **Spot Measurement** editing mode (activated immediately after adding a spot or by selecting via the **A** key), press the **Menu** key to pop up the attribute box. Press four navigation keys to move the spot location.

In line temperature measurement editing mode (activated immediately after adding a line or by selecting via the **A** key), press the **Menu** key to pop up the attribute box. If measurement line is horizontal, press **Up** and **Down** keys to move the line location, press **Left** and **Right** keys to move the reference line. If measurement line is vertical, press **Left** and **Right** keys to move the line; press **Up** and **Down** keys to move the reference line.

In area measurement editing mode (activated immediately after adding an area or by selecting via the **A** key), press the **Confirm** key to pop up the attribute box. Select in the attribute box the parameter to be edited, either size or position. Press the four navigation keys to move the area location or change the size of the area.

[3] Cancel/Auto Focus key (Marked "C")

- Pressing and releasing the **C** key cancels the present operation when in M**enu** mode.

- Pressing and releasing the **C** key when an image is frozen or being viewed from memory, will return to real-time measurement status.

- When a parameter is selected, such as a measurement cursor, pressing the **C** key will delete the highlighted measurement.

- Press and hold the Key for > 3 seconds to auto focus

[4] Freeze/Save key (Marked "S")

Used for freezing or saving thermal image. Short press the key once to freeze the image, Press C to return to real-time measurement. Short press the key twice to save the image. In file management, press the key to choose whether delete the chosen image or video.

[5] Select/Auto key (Marked "A")

The "A" or attribute button performs 3 functions.

a) The first function is modification of selected parameters. It is obtained by a quick press and release (less than 2 seconds), with this functions to modify their parameters. Subsequent presses will "scroll" through the available parameters. The selected function will be highlighted in yellow.

b) The second function is calibration. Press and hold the Key for > 3 seconds for auto calibration to get accurate temperature measurement result.

c) The third function is blue tooth. Open blue tooth, select the image, short press to send the image.

[6] F1 Trigger/Shortcut key

The standard configuration is to save the image

[7] Laser switch

Short press to turn on the laser, press again to turn off. In menu there is auto turn off laser option, the standard configuration is 60s.

[8] F2 Key

Short press to switch thermal image /CCD image/fusion mode.

Long press to turn on the LED light. In menu there is auto turn off LED light option, the standard configuration is 60s.

[9] F3 User –defined Key

The standard configuration is to switch temperature range

F1, F3 is user-defined key, except standard configuration, it can define below functions:

Image playback, record-short press to enter image playback or start taking video.

Light-press once to turn on the light, press again to turn off the light.

Spot, area temperature- press once to add spot or area, press again to delete the spot or area.

LCD brightness adjustment- press once to pop out LCD brightness adjustment bar.

Fusion transparency-press once to pop out fusion transparency bar.

[10] Microphone

Used for voice annotation when saving the image

2.2 Interface

[11] Video output

It is a video output interface

[12] Network interface

Use network cable (Minu-USB to RJ45) to connect Internet

[13] SD card slot

Accepting standard size SD card such as supplied 8GB capacity card, for device upgrade or image storage

[14] Power interface

External power input interface. Power source should be +12VDC. Center pin is positive terminal

3 Basic operation

3.1 Battery Installation and Replacement

3.1.1   Inserting or removing battery

Battery compartment is located at the end of the camera, below the viewfinder.

Insert the battery (the battery contacts must face into the battery compartment), promote it until the battery lock is locked.


Triangle
mark up

When inserting the battery, note the triangle mark direction should upwards, do not overexert to damage the camera or battery

Prevent stay slot

Lock button

! CAUTION: Use only original manufacturer replacement battery. Use of incorrect battery may result in physical or electrical damage to the instrument due to incorrect voltage or physical size difference.

3.1.2   **Replacing battery**

When battery has approximately 5% charge remaining, the warning will be displayed and the instrument will turn off in approximately 10 seconds.
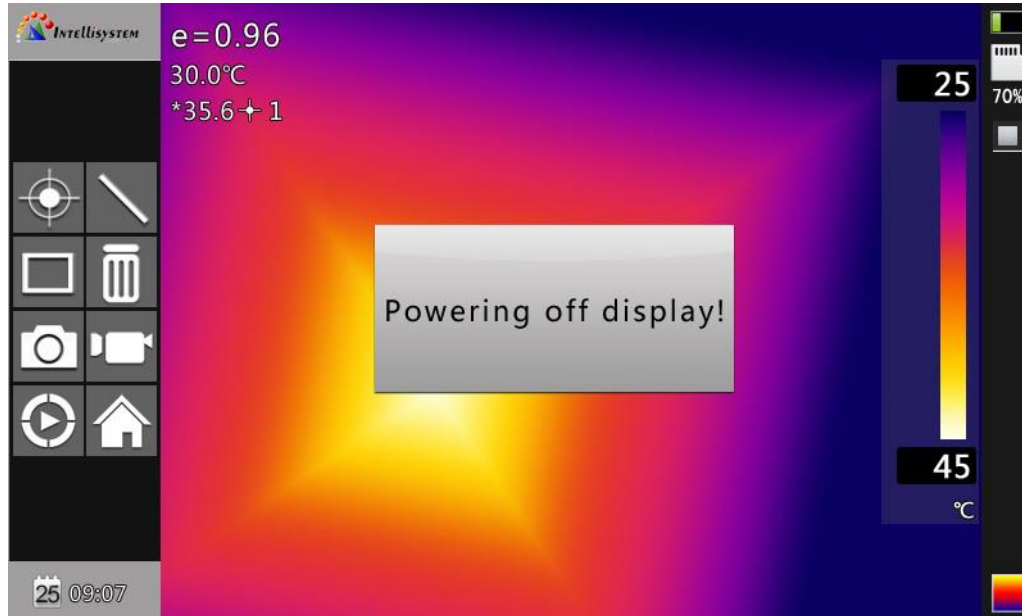
Powering off display

It's better to replace batteries now.

3.2 Battery safety and usage

➢ Batteries should be stored in an ambient temperature of -4°F (–20°C) to 67.9°F (+20°C). Lithium batteries will self-discharge during storage, so they should be fully charged before storage. Self-discharge may affect long-term battery performance. Furthermore, it is recommended that the battery should be charged in a set time, as below;
Ambient temperature of:
● -4°F (–20°C) to 67.9°F (+20°C), once every 6 months
● 67.9°F (+20°C) to 113°F (+45°C), once every 3 months
● 113°F (+45°C) to 149°F (+60°C), once every month
➢ Battery should have greater than 50% charge prior to recharge.
➢ The ambient temperature for charging should be 32°F (0°C) to 104°F (+40°C). If under 32°F (0°C), the battery capacity will be diminished; if over 104°F (+40°C), the battery may overheat, resulting in permanent

damage.

! **WARNING:**

! Never disassemble, incinerate or puncture battery

! Never short circuit the battery

! Keep battery dry

! Keep out of reach of children

! Always dispose of battery in accordance with local, state and federal regulations

3.3 Quick access

3.3.1 Capture an image

- After installing the battery, press and hold the power key (≥3 seconds) until the display comes on. After approximately 50 seconds, the power on routine will finish and the camera will start its measurements.

- Remove the lens cap and aim at the target. Adjust the focus for the clearest target thermal image.

- Press A key for auto calibration to get the best image

- **! NOTE**: Failure to properly focus the camera will result in increased measurement error. When the image quality become worse or ghost image appeared, please press button A for a long time to compulsion in force.

3.3.2 Temperature measurement

➢ If no measurement cursors are on screen, add a measurement spot, area or line by pressing **MENU** and selecting Measurement. Press **CONFIRM** and scroll left or right to select the proper measurement

parameter. Aim the cursor indicator onto the target object on the screen. The temperature will be displayed in the upper right corner of the screen. For highest accuracy measurements, force a calibration cycle by pressing the **A** key for 3 seconds until "**Calibrating**" appears in upper left portion of display.

- If you want to measure the current thermal image in detail, press S key to freeze the image for on-screen analysis. Save the image if future analysis is desired.

- If the target object's temperature is lower or higher than the limits of the camera, it will display <XXX° or >XXX° with XXX being the min or max temperature of the selected range.

- To modify the measurements attributes, select the measurement parameter, and then press the **Confirm** key. The screen will display the settings dialog box. The below figures are spot, line and area measurement respectively.

Point Properties	◄
Emissivity	0.97 >
Distance	2.00 >
Measure Type	>
Ref object	off >

Spot attributes dialog box

Spot attributes can amend emissivity, distance and reference temperature. When **Set Ref** is set as **Yes**, the displayed values of other measurements will be their delta from this measurement.

Line attributes dialog box

Line attributes can amend emissivity, distance, highest temperature, lowest temperature, average temperature, max temperature difference, the cross-point temperature and reference temperature. Press A key for up and down switch. When **Set Ref** is set as **Yes**, the displayed values of other measurements will be their delta from this measurement.

Area attributes dialog box

Area attributes can amend emissivity, distance, highest temperature, lowest temperature, average temperature, max temperature difference and reference temperature. Left and right key for choice, press A key for up and down switch. When **Set Ref** is set as **Yes**, the displayed values of other measurements will be their delta from this measurement.

! NOTE：Thermal camera can only select one reference temperature object

3.3.3 Freeze and save image

There are three ways to save the image:

1. Press **S** key to freeze the image and then select" Save" to save the image, or select "**Cancel**" to exit the operation.

2. Press **Menu** key to activate the main menu. Choose **File->Save** and the system will initiate the save cycle.

3. With the "Trigger" parameter, located in Setup->Sys. Setup->Trigger, set to "Save Key", pulling and releasing the trigger key will initiate the save cycle.

3.3.4 Viewing stored Images

Two ways to open the image file：

1. Press the Ok key to activate the main menu, select "File Manager" menu, then select the \submenu (via the arrow keys to select)

2. Click the "Preview" option in the floating panel to open the selected file (via the left and right keys to switch selection)

● After you open the image, you could use upper and lower sections of the playback control panel keys to playback the current store images.

● Press Cancel key to exit and return to the current state.

3.3.5 Export saved images

Can use card reader to download, delete, and format the TF files.

! Note：It is recommended to use the thermal camera curing formatting capabilities in software for SD card format

3.3.6 LED screen settings

There are two ways for settings: 1. Press **Menu** key to activate the main menu. Choose **general settings->LCD brightness adjustment** to adjust LED screen brightness. 2. Set shortcut key to LCD brightness adjustment to adjust LED screen brightness.

3.3.7   **Menu operating instructions**

● Keyboard operation: press the "OK" button to pop up the floating panel, use left and right arrow keys on the floating panels to select the icon, click "OK" key to enter the relevant interface.

● Main menu interface: via "up and down" key to select the menu icon, click "OK" key to enter the submenu.

● Sub-menu interface: via "up and down" key to select, if there's the ">" mark, using right-click to enter the lower menu

● Parameter interface: The "up and down" key is to modify, the "left and right" key is to choose

● <   > means modify the setting of the current menu.

● Press the "OK" button to confirm the changes, save and return to the previous menu, press the "C" key to cancel the changes and return to the previous menu.

●   Cancel and return to the previous menu button； Save and return to the previous menu button. (For touch screen)

●   Switch button, by the left and right keys to modify the switch settings

4 Operation guide

4.1 Graphic interface description

4.1.1   Screen graphic interface

Screen graphic interface

[1] Company logo

[2] Emissivity： the current emissivity setting

[3] Reference Temperature： Fixed reference temperature

[4] Result： Indicates the temperature value of the target object. Black and

yellow denotes the temperature value of the selected object.

[5] Spot temperature measurement：white crosshair

[6] System time： the current system time

[7] Battery status: Indicates the current battery status.

[8] Manual/auto enhancement mode: choose manual or auto mode

[9] Min temperature： indicate minimum value of the palette

 [10] Palette： palette bar. User can choose different palettes

[11] Calibration/freeze：indicate the calibration status or freeze status

[12] Wifi：wifi is open will change along with wifi signal

[13] Bluetooth：select Bluetooth function

[12] Max temperature：indicate the max value of the palette

[13] Battery status：indicate the current battery status

[14] Lens：0.5x or 2x

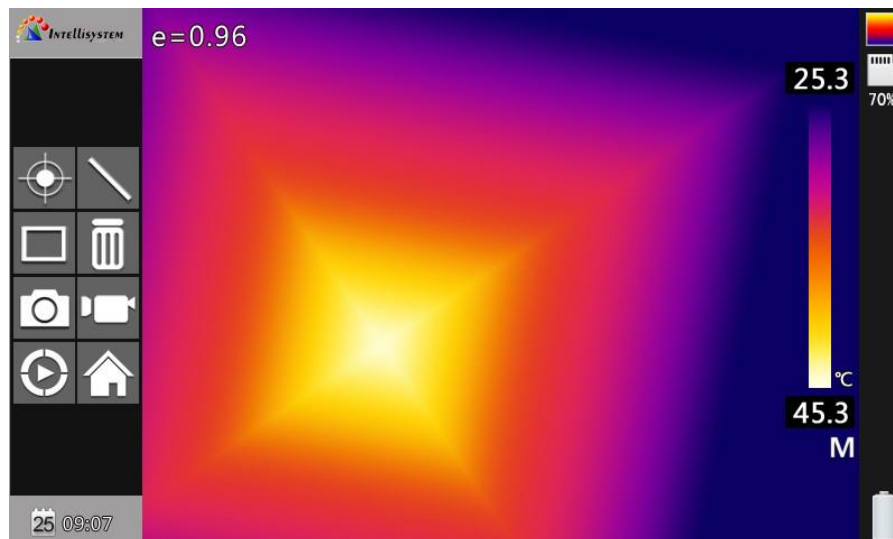**[15] Record**：current record status。

Continuous capture mark 　；

Record mark

[16 SD card：indicate the TF card load status

[17] Mode switch：current mode。
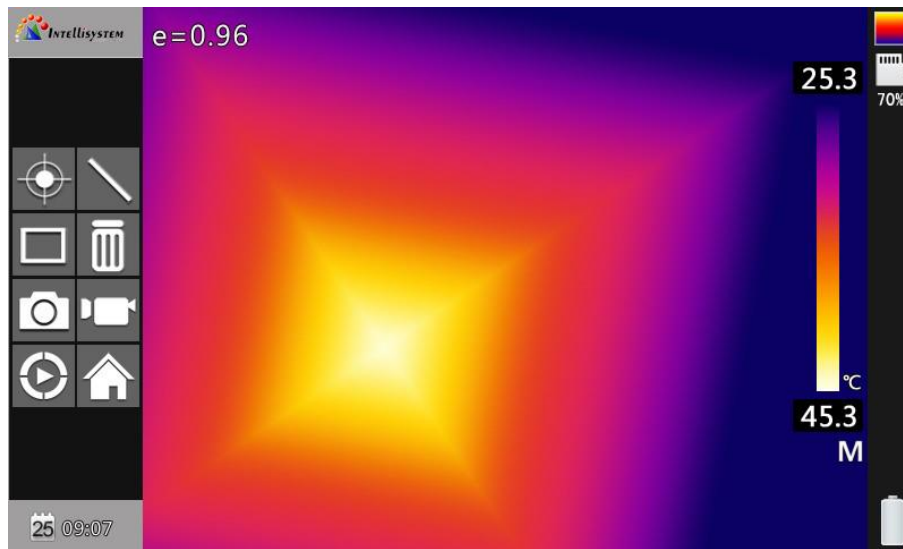
IR mode 　, CCD mode 　, fusion mode 　。

4.1.2　Floating bar interface

Floating bar interface

Floating bar interface：from left to right, up to down is adding spot, adding line, adding area, delete, taking photo, record, playback and main menu
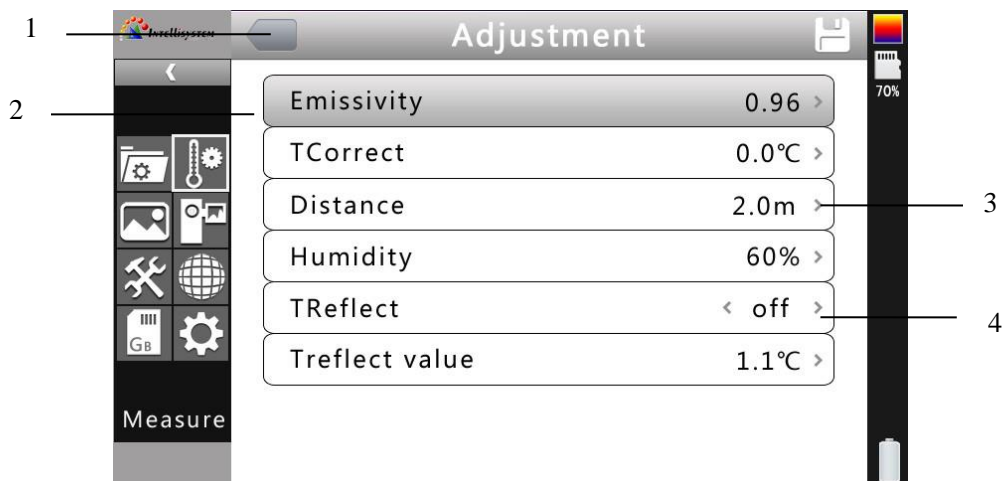
4.1.3 Main menu

Main Menu

The main menu items: display the main menu item, namely the document management, temperature settings, image settings, camera settings, general settings, network settings, SD card management and system setting.

4.1.4 Sub-menu interface

Sub-menu interface

 [1] Figure name: Displays the name of the dialog box. The name of the dialog box as shown in the example is "temperature measurement setting.

[2] Item title: A dialog box may contain more than one item. As shown in the above figure

[3] Item Content: each item corresponds to the content of a project, the left and right keys to make changes, ">" indicates the lower menu.

[4] Parameter options: press the left button to select a different parameter.

4.2 Measurement Object Adding

This feature is used to increase or clear the measuring object. The following dialog box pops up, press the Enter key, floating menu pops up, select the temperature measurement target to add and press the Enter key.

Temperature Measurement Object Adding Menu

If select " ", then press OK key, then the all the objects will be cleared.

! NOTE: When you delete a single temperature measurement object, directly press "A" key and choose the object, then press the "C" key to delete.

4.3 Recording

This function is used to save the video, save format to MP4. Pressing the Enter key, floating menu pops up, select video and press the Enter key, as shown below
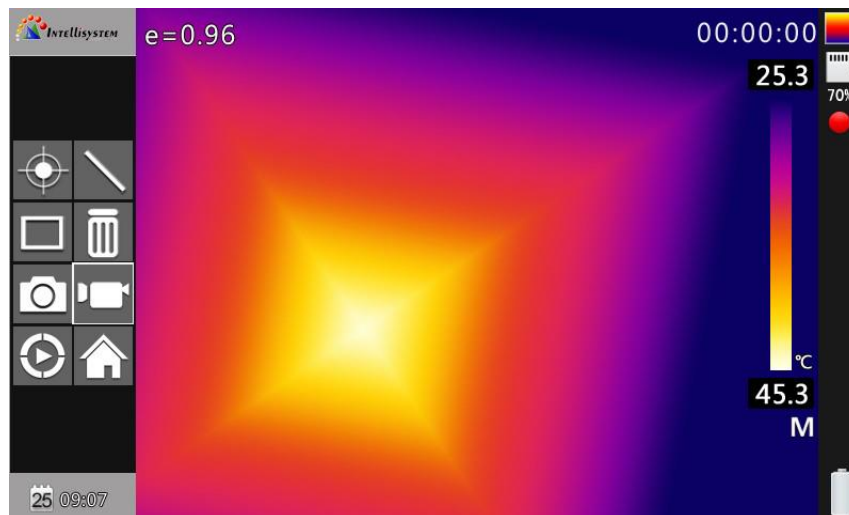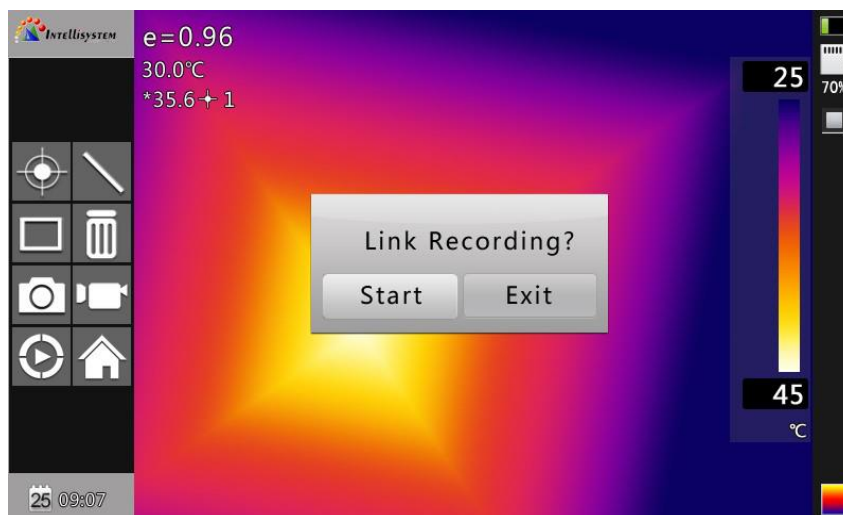
Recording Figure

Press stop key to end the recording, and return to the current operation status

4.4 Photo

This item is for photo. And back up in the JPG format. Pop up the floating menu after pressing confirming key. Then finish the photo. If turn up function of mark. Backup note will pop up in the OSD as followed.

Voice record note for photo

Continuous photos mark will appear in the status column if set the
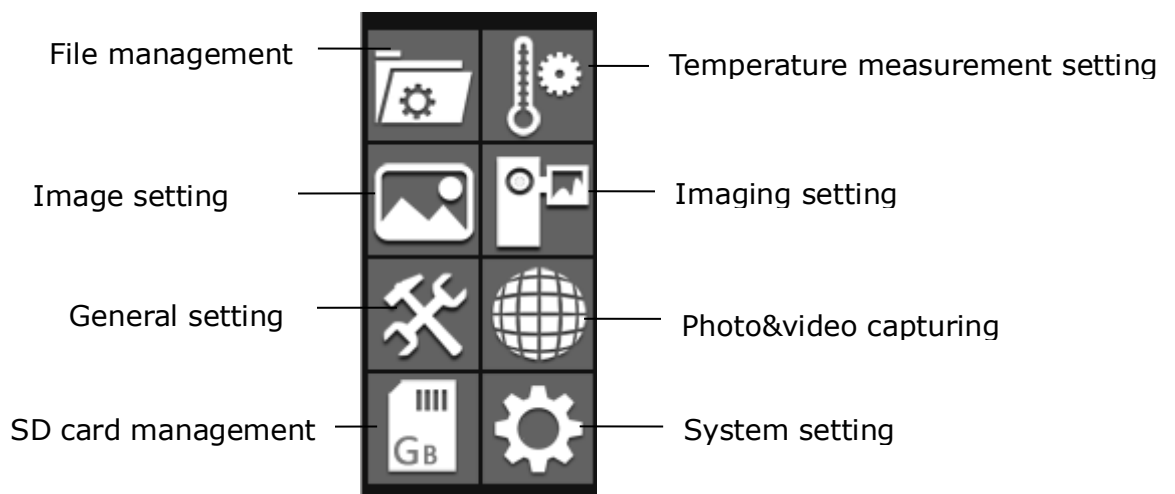
continuous photo   .

4.5 Preview

This item is for the preview files of backup. Press confirming key. Pop up the floating items, select preview and press confirming key will appears as followed.
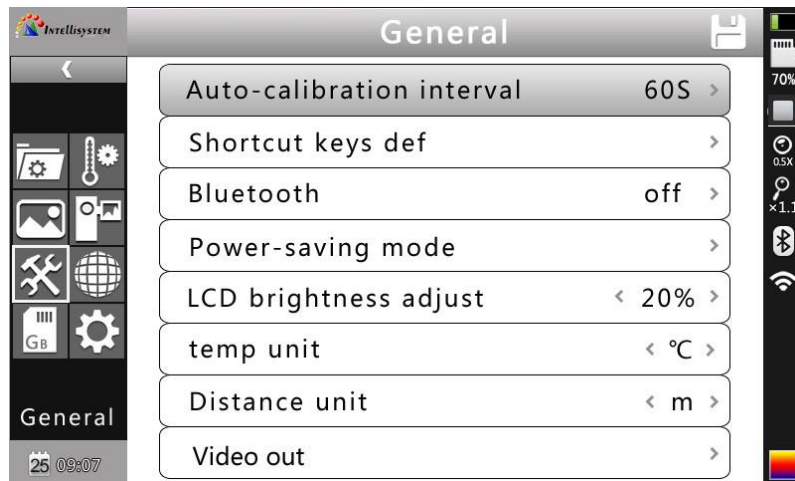

Preview OSD

Switch to files by pressing key of left or right. Open it and it appears in the

screen by pressing confirming key. Press C key to quit

4.6 Settings

File management — Temperature measurement setting

Image setting — Imaging setting

General setting — Photo&video capturing

SD card management — System setting

Main OSD

4.6.1 General setting

General setting OSD

Press confirming key will pop up the panel and select the SETTING to open the main menu. Select the general setting in the main menu. General setting OSD will pop up after pressing confirming key. Users could set the time of auto calibration / definition of shortcut key /Bluetooth/pattern of power saving/ brightness adjustment of LCD / unit of temperature / unit of distance/external video output switch. totally 8 items. Switch to items by pressing key of up or down. Change the value by pressing key of left or right. ">" means secondary-menu and enter the menu by pressing key of right .

Time of Auto calibration：Set time interval of auto calibration to get better thermal image and improve the precision. The unit is second
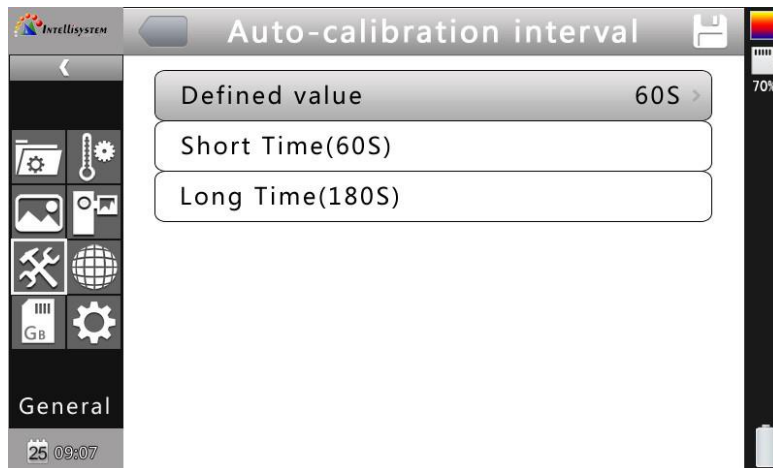
Auto calibration OSD

Shortcut key : Users could set the Functions of shortcut key. System offers image saving, temperature range switch, image playback, record, LED light, OLED light brightness adjustment, transparency adjustment, adding or delete spot, adding or delete area options for choice. When select shortcut key of light. It will open the lighting. Then it closes. When select shortcut key of spot 1. It will add or remove the spot 1. When select shortcut key of area 1. It will add or remove the area 1. When select shortcut key of record. It starts to record. When select shortcut key of photo. It starts to save the photos you took.

Shortcut key setting

Power saving：Screen off and power off

Time of screen off：If without any operation, thermal imaging camera will screen off to save power。Press any key except the power key，thermal imaging camera will screen on 。This function is not valid when time is set to 0 minute.
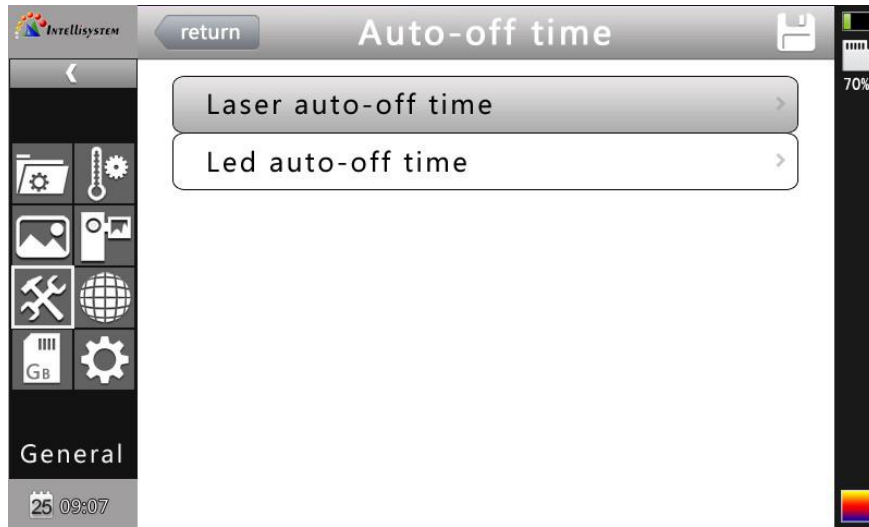
Time of power off：If without any operation，thermal imaging camera will power off to save power. This function is not valid when time is set to 0 minute.
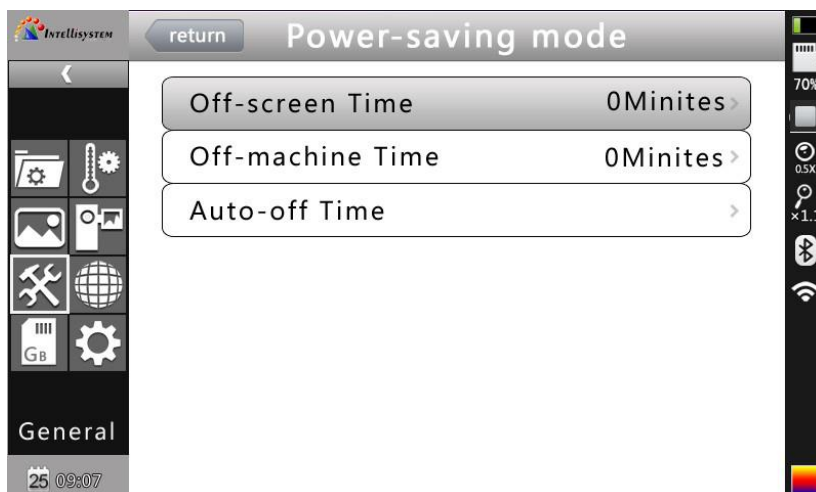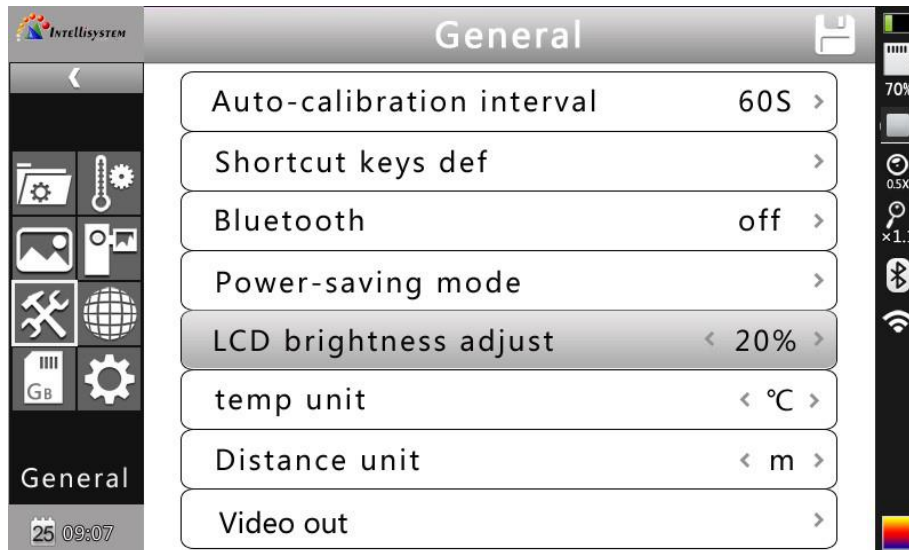

Power saving OSD

Auto off time：include laser and LED auto off time, used for auto off when

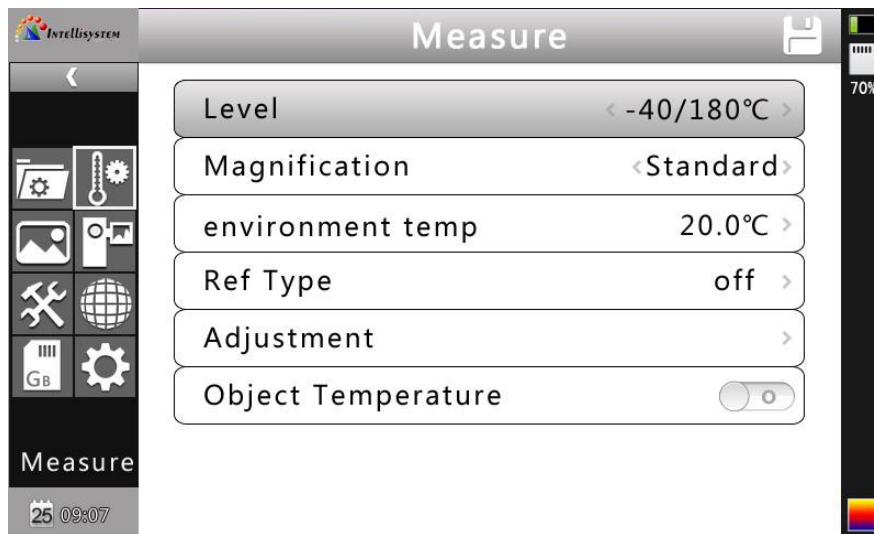the laser or LED turn on, the default time is 60s

Auto off time OSD

LCD brightness adjustment: It is valid when changing the brightness

LCD brightness adjust OSD

4.6.2 Temperature measurement setting

Temperature measurement setting menu

Press OK button to call out the Setting Menu. Select "Measuring Setting", then press "OK" again to call out the setting interface. In this interface, level, magnification, Environment Temp, Ref Temp, adjustment, object temperature can be set. Use UP &Down button to select," >" means there is sub menu, press Right Button to enter the sub menu.

Level: Seeing the Measuring Level of the thermal camera.

Magnification：Seeing the Magnification and the different Temp range.

Environment Temp：It will automatically detect the Environment Temp after the camera start-up.
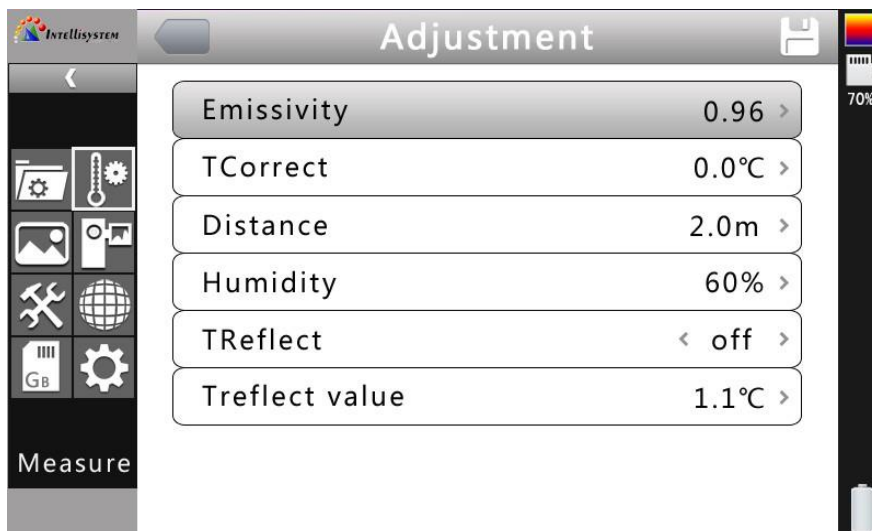
Ref Temp：When it is enabled, the target temperature shown on the LCD is the D-Value between the real temp and the Ref-Temp.
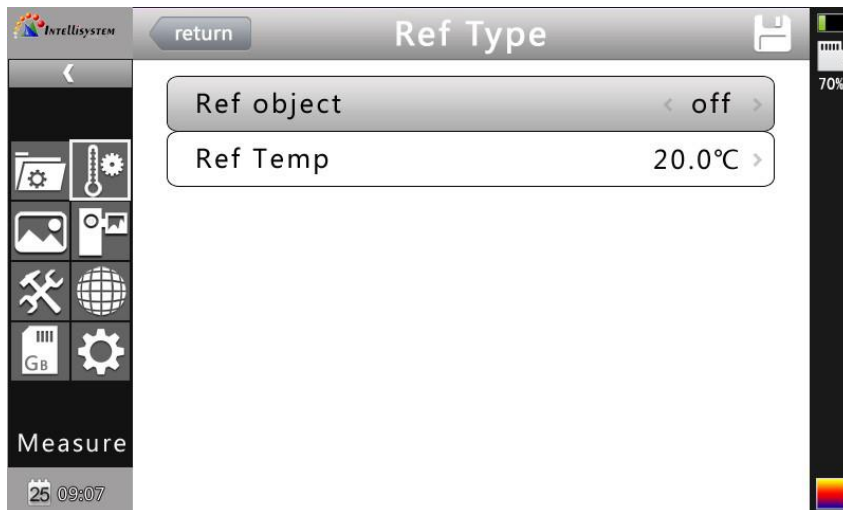
Ref Temp Menu

Object temperature：When turn on object temperature, the temperature target display the object temperature in the bottom right corner.

4.6.3   Adjustment

Adjustment Menu

Press OK button to call out the "Adjustment" under menu "Measuring Setting". In this menu, Emissivity, TCorrect, Distance, Humidity, reflect can be set. Use UP &Down button to select, use LEFT & Right to set the value." >" means there is sub menu, press Right Button to enter the sub menu.

Emissivity： Different target has different emissivity, so the user can set

different emissivity for different target. If it is not set, then will

use default setting. Attached Common emissivity table for

reference.

Tcorrect：Correct the target Temperature.

Distance：Setting the distance between the camera and the target to make

sure exact measuring. Set the real distance if the distance is

shorter than 10 meters. (unit 0.5m)

Humidity：Set the humidity of the using environment.

TReflect：It will only have functioned after it is enabled. Can use fixed temp

as reference temperature.

4.6.4   Image settings

Image Setting Menu

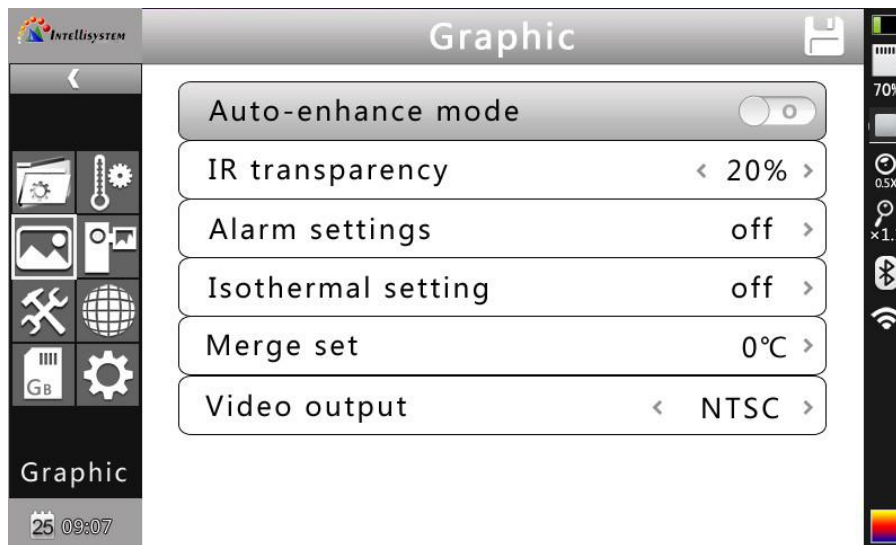Press OK button to call out the Image setting menu under "Setting". In this

menu, **Manual/Auto-Enhance Mode, IR transparency, Alarm setting,**

Isotherm, IR fusion, video output can be set. Use UP &Down button to

select, use LEFT & Right to set the value." >" means there is sub menu, press

Right Button to enter the sub menu.

Manual/Auto/Auto-Enhance Mode：Adjust the image quality for the user

to get better image for analysis purpose

When Auto-Enhance Mode is activated, can switch between manual and automatic. Press "A "button will enter manual mode, it can adjust the pallet with "UP, Down, LEFT, Right" buttons. Press "C" will return into Auto Mode.

When Auto-Enhance Mode is deactivated, can switch between manual and automatic. Press "A "button will enter manual mode, it can adjust the pallet with "UP, Down, LEFT, Right" buttons. Press "C" will return into Auto Mode.

The modes can be switched with the Auto-enhance mode Button.

If select auto mode, the camera will automatic adjust the sense of hierarchicy of the image.

If select "Auto-Enhancement ", both High temp target and low temp target can be viewed in the image.

If Select Manual mode, User can set the pallet value to adjust the image quality.

> Press "UP" button to increase the level range, press Down to decrease the level range. Press Left button to reduce the upper limit, increase the bottom limit; Press RIGHT button to increase the upper limit, decrease the bottom limit
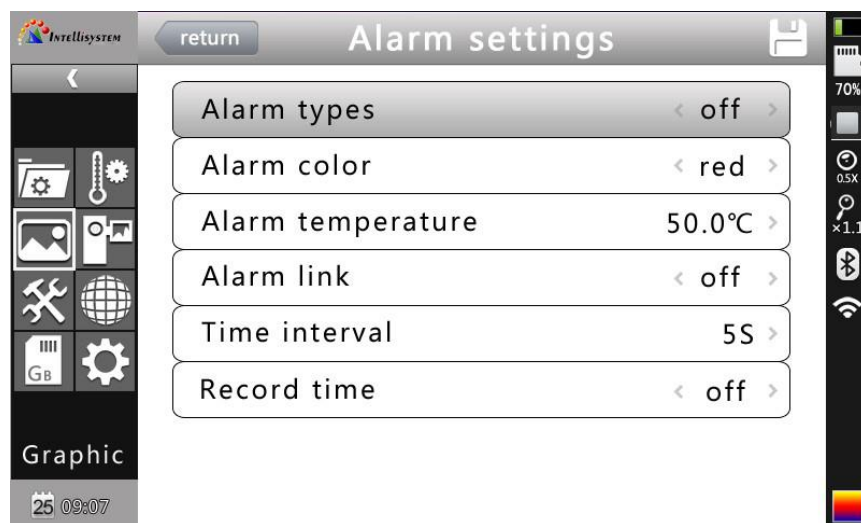
Alarm Setting

Alarm Types：It is only functioned when measuring. User cab set alarm OFF, High **temp alarm**, Low temp alarm here. It will alarm when proper setting is selected. Alarm color can be set in "Alarm Color"

Alarm Color：The color of the target area shown on the LCD will be changed into the alarm color set when the temperature is over the alarm temp. Nine color types can be selected. If "colorless "is selected, then the color will not change when alarm.

Alarm Temperature：Setting alarm Temperature. Only functioned when it is enabled。

Alarmlink：It will automatic saved when there is alarm including snapshots and video record.

Time Interval：Set the alarm link time interval.

**Alarm video time**：set alarm video time, can choose to turn off

Isotherm Setup Menu

Isotherm：Activates the Isotherm display by displaying the image in the set temperature range by the specified color.

Isotherm Color：9 colors available for your choice, setting to off, disables the feature.

Isotherm low value：Set the Isotherm low value

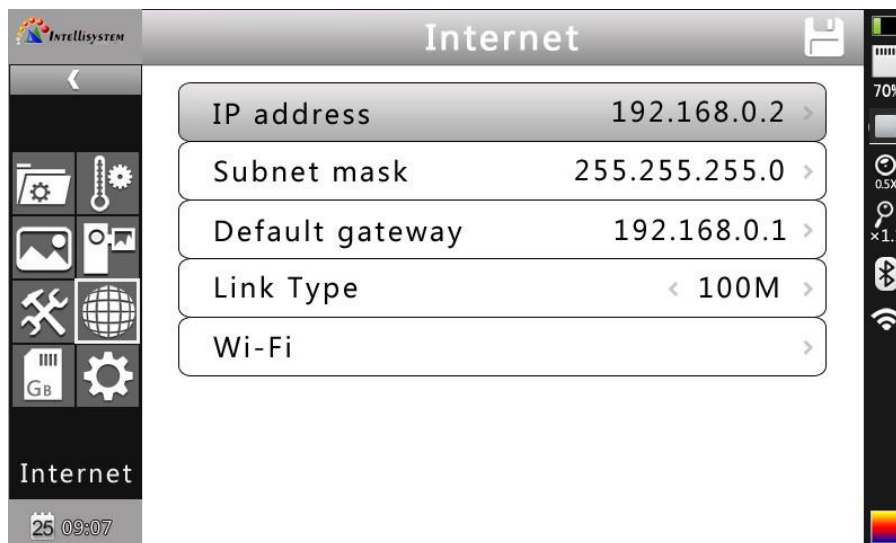**Isotherm upper value**：Set the Isotherm upper value
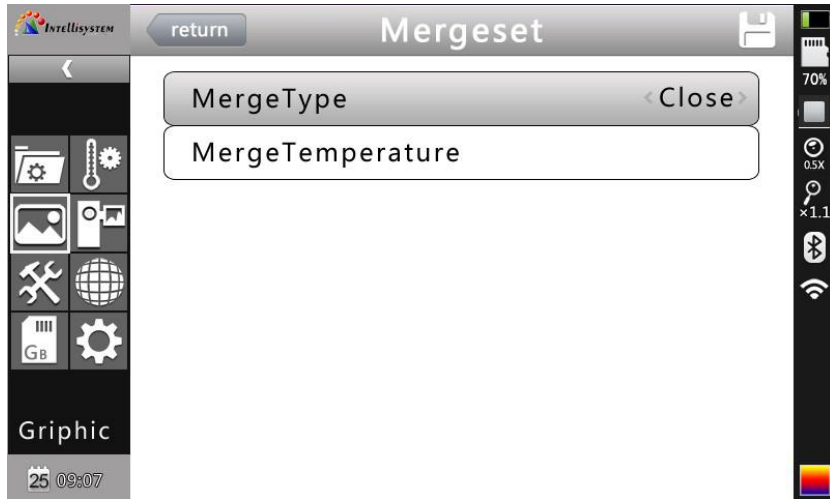
IR Fusion High & Low temperature Menu

IR Fusion High & Low temperature：

It consists of three options--IR Fusion High Temp, IR fusion Low Temp, and OFF. Set IR Fusion High Temp, when the actual temperature is higher than the temperature of IR fusion set up, CCD image will be shown. Vice versa.

4.6.5   Network settings

Network Setup Menu

Press the menu button to show up the floating panel and choose the "setup" option to active the main menu. Select "Network function.

IP Address： This IP address must be the only one, cannot be conflicted with the other IP address of the same network segment.

Sub network mask： Divide the segment of the sub network.

Default network gateway: Set the gateway address to realize the communication among different segment.

4.6.6   SD card management
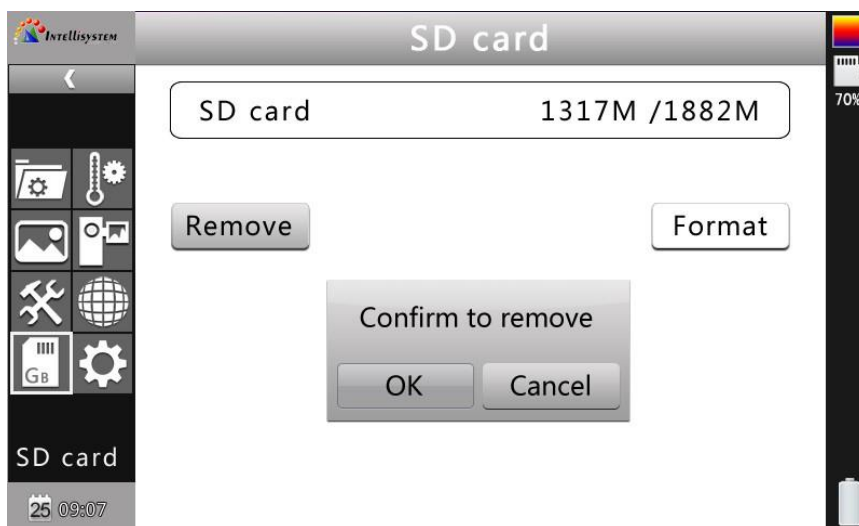
SD Card Management Figure

SD Card Format Figure

Press the Enter key to pop up floating panel, then select "Settings" option to activate the main menu, select the "SD Card Management item in the setup menu.
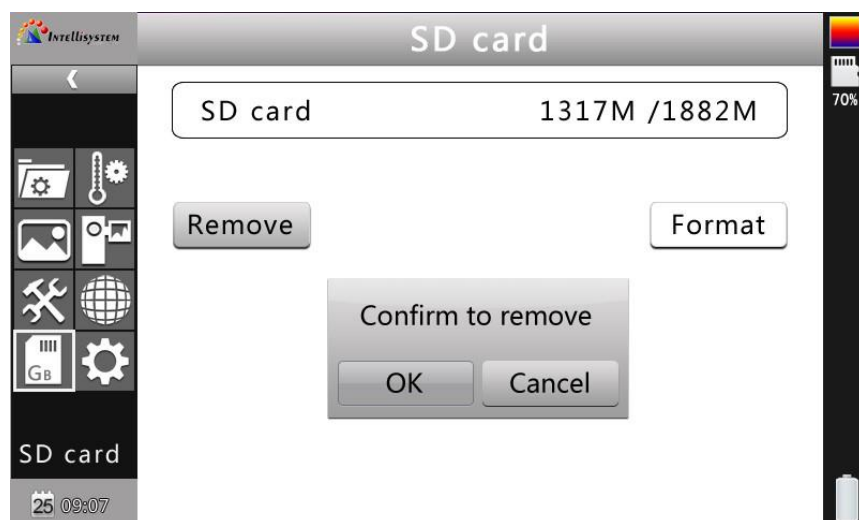
Unload：Unload SD card.

Format：This function is used to format the SD card. Select the formatting options, pressing the confirm key to format, press cancel or "C" key to cancel the formatting

! Note：Verify that the file is no longer needed or have been backed up before formatting; after formation, the saved thermal imaging pictures will be lost unrecoverable. If format by PC, please select FAT32 to format the card

4.6.7 **Capture setting**
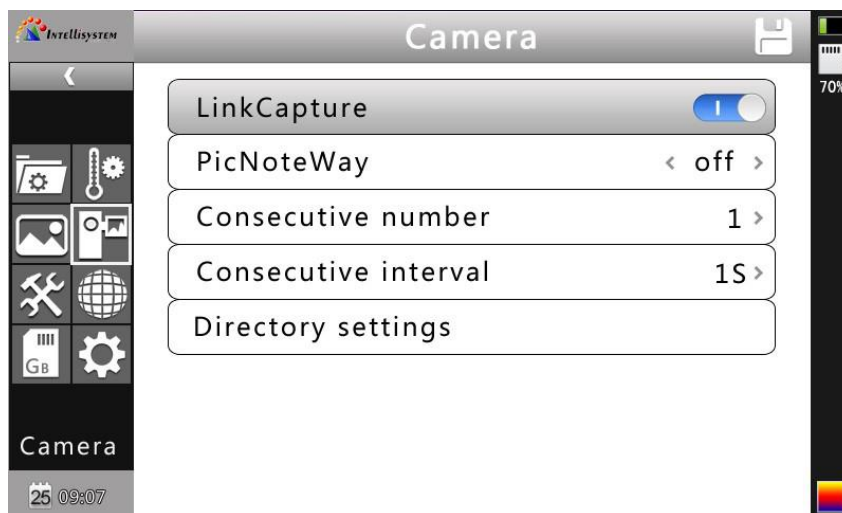
Capture setting menu

Pressing confirm key to pop up the floating panel, then select "capture Settings" option to activate the main menu, selected the camera settings option

Associated Pictures：This function is to associate the infrared images with digital image, to save the picture together.

Image annotation mode：This option has two kinds of annotations, audio annotations and text annotations. Audio annotations is to add voice when you save the picture; text annotation is to add text messages when save the image.

CS Shots：Set Continuous capture the number of sheets can be set for 1,

3, 5, 10 shots.

Continuous Capture Interval： can be 0.5s or 1s.

Menu Setting：
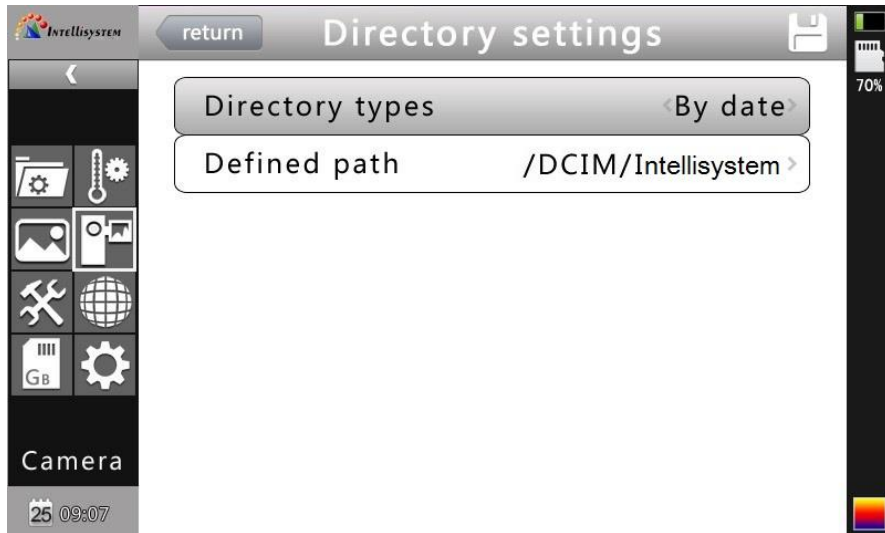
Menu Setting

Set the path to save the file, directory type can be set by custom, by month, by date. In preview mode, the playback file path set by directory type

4.6.8 System settings
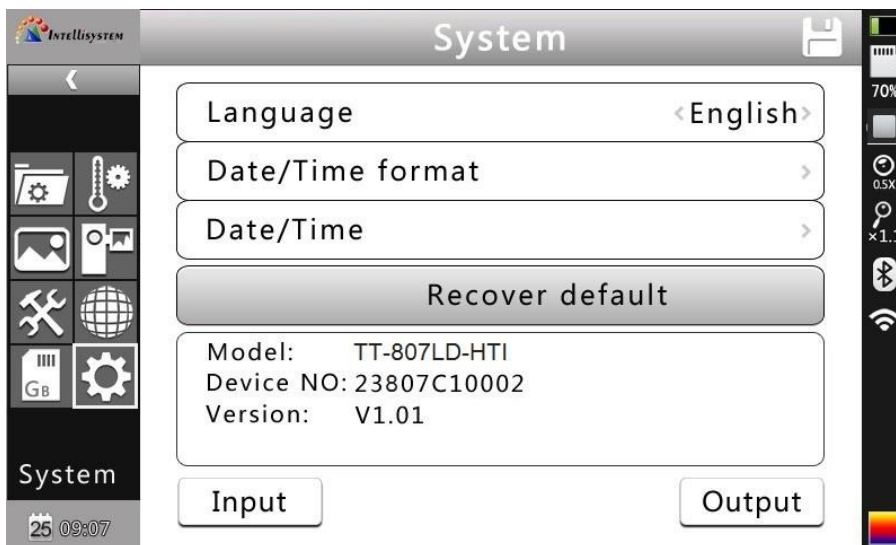
System Setting Menu

Press the Enter key to pop up "Settings" option to activate the main menu, select "System Settings" item in the setup menu. Users can customize the set system language, time / date formats, time / date, restore the factory value items. Pressing the up/down key to switch the setting, use left and right arrow keys to set the contents of the setting. The ">" indicates that there's a lower-level menu, use right-click to enter.

Language：Set the languages

Time / Date Format：
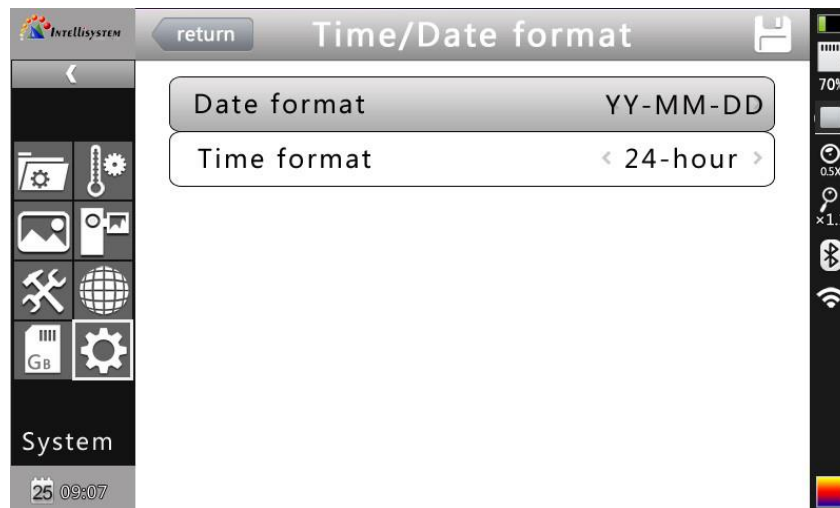
Time/Date Setting Menu

Change the format of the time/date

Time Setting：
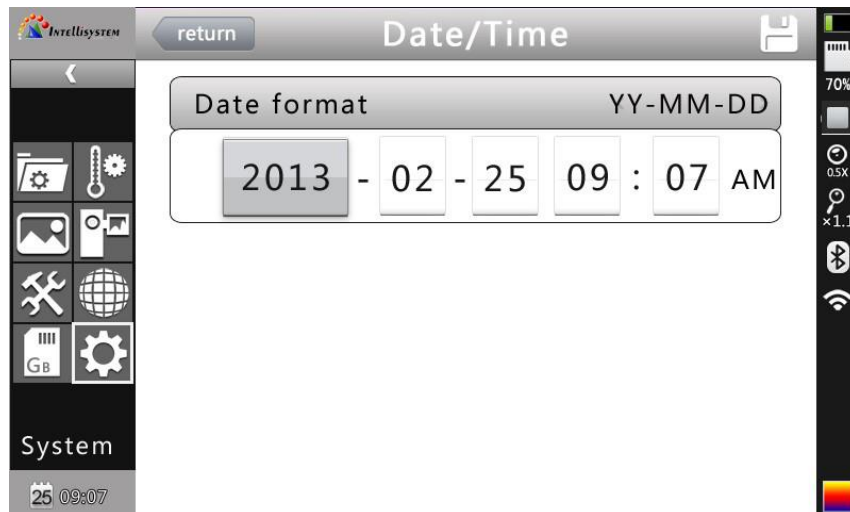
Time Setting Menu

Customer can via the Time Setting menu to set the thermal imaging camera's time. After the setting, the data the time will be saved.

Users can customize to set the year, month, day, hour, minute entries. Press the left and right key to do the settings.

! Note: When left unused for a long time, due to the limited internal battery power, the thermal imaging camera need to re-adjust the system time.

Restore the factory settings： This function is used to restore the factory settings. Pressing the confirmation button, the setting menu will come up, continue to press the confirm key system to restore the factory settings. When pressing the cancel button to exit, the restore the factory settings will be cancelled. The details of the thermal imaging camera' factory parameters listed please see the Annex parameter table.
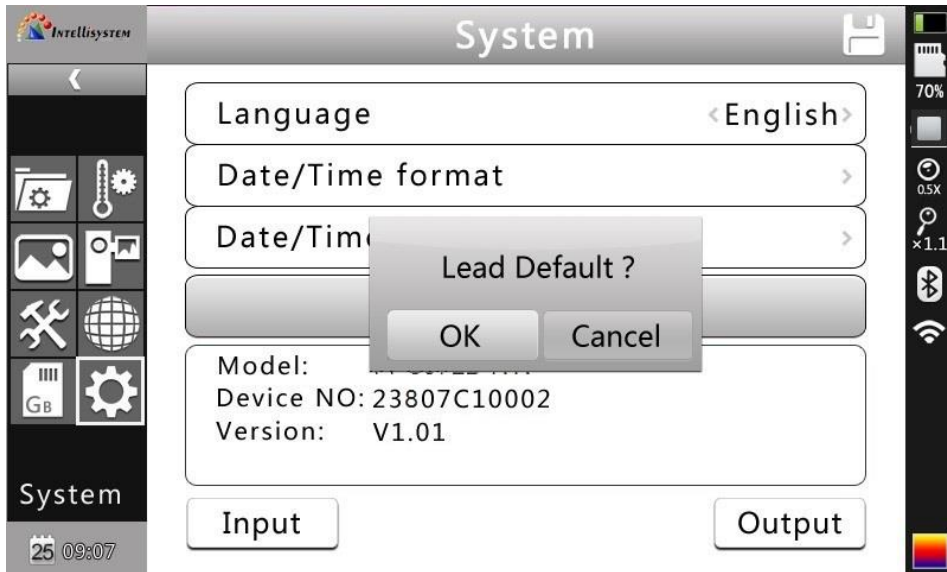
Recover Factory Setting

! Note： Recover factory setting will cancel all user-defined parameters.

System Version Info：

System Version Figure

Display thermal imaging device model, device number, software version number and MAC address

Import: New SD card the Create DCIM / Import directory on the SD card, import the fixed file name as PicNote.cfg

File Name Form：

[Note]

Note1 =

Note2 =

Note3 =

Each line is not more than 20 words. After the import is complete, restart the instrument to take effect.

Export: TF card, make sure the SD card is in the machine, then select the menu and then click the Export button to export the contents stored in the TF card the DCIM / Export directory.

4.7 File management

4.7.1 Playback

Two modes of playback：
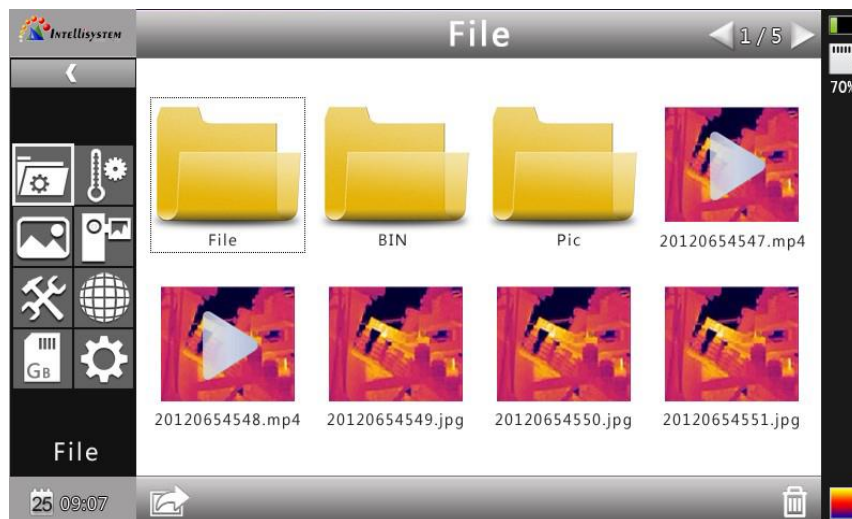
File Management Figure

1. File management mode: press the Enter key to pop up floating panel select "Settings" option to activate the main menu, select the file management menu in the setup menu, press the confirm button to open the infrared image in the storage. The image arrangement format has abalone grid, press the upper, lower, left, and right arrow keys can switched the stored image. Pressing the "C" key to exit open image and return to the measurement state.
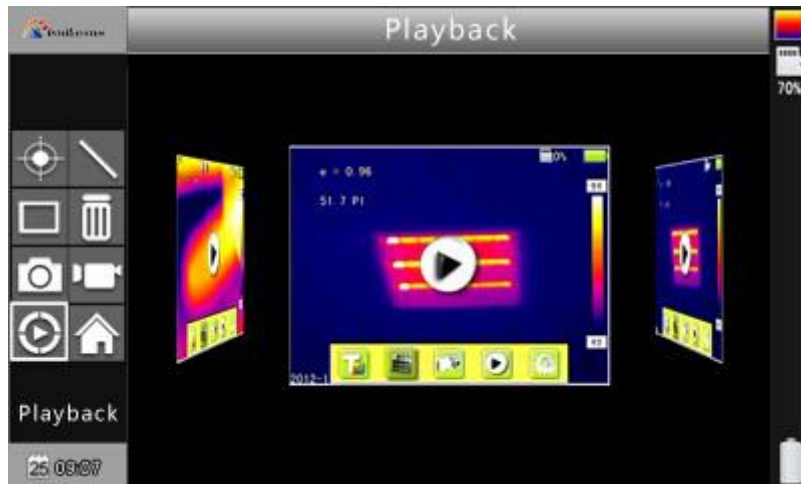
Preview Mode Figure

2. Preview mode: press the OK button to pop-up floating panel to select "Preview" option, enter the preview mode. Through the left and right keys to switch selection, selected press the OK button to enter the playback. Pressing the "C" key to exit open image and return to the measurement state.
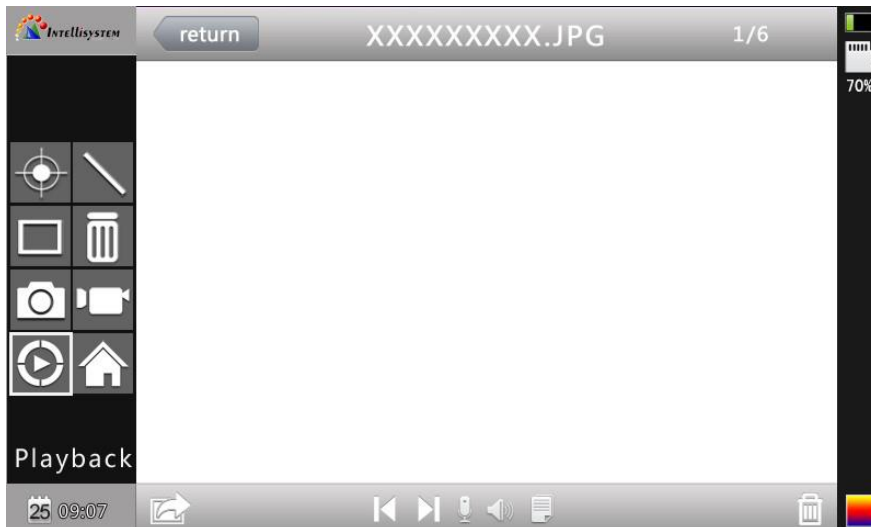
Video Playback Interface

Video playback interface: Via the left and right key to select the play button on the status bar, press the "confirm" key to take effect on the next key to show and hide the playback status bar (press the "on" button is displayed, press the "next" button is hidden). The icon buttons from left to right is as follow: play /

pause, stop, rewind, fast-forward, the former one, the next.
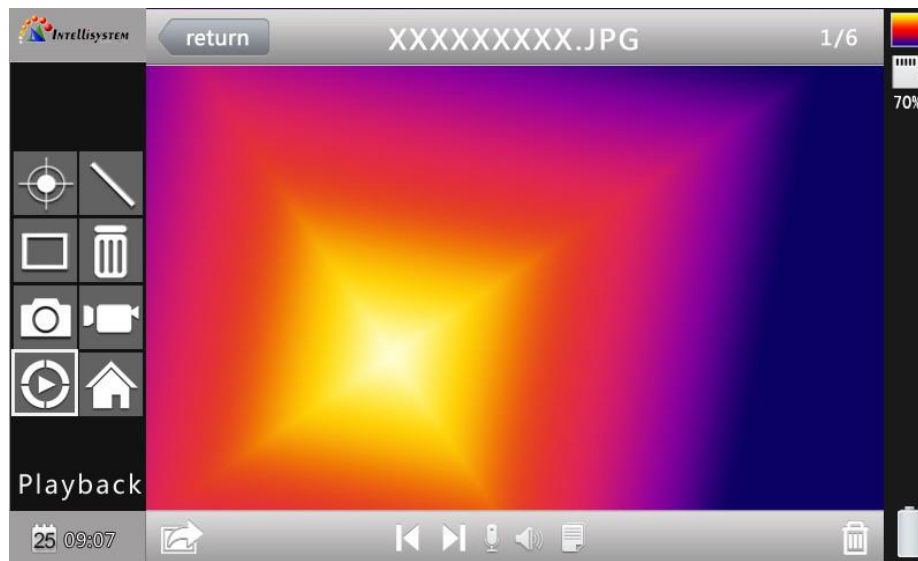
Image Playback Interface

The image playback interface: Via the left, right key to select the play button on the status bar, press the "confirm" key to take effect on the next key to show and hide the playback status bar (press the "on" button is displayed, press the "next" button is hidden).

The icon buttons from left to right is as follows: the former one (above), the next (paragraph), sound recording, voice playback, text playback.

4.7.2   Delete

This function is used to delete data stored in files on the TF card. Open File Manager by the up and down keys to select the file you want to delete, press the "S" key to bring up the prompt box, delete the currently selected image files when the Enter key is pressed, the image voice or text comments will also be deleted, then press the "C" key to undelete.
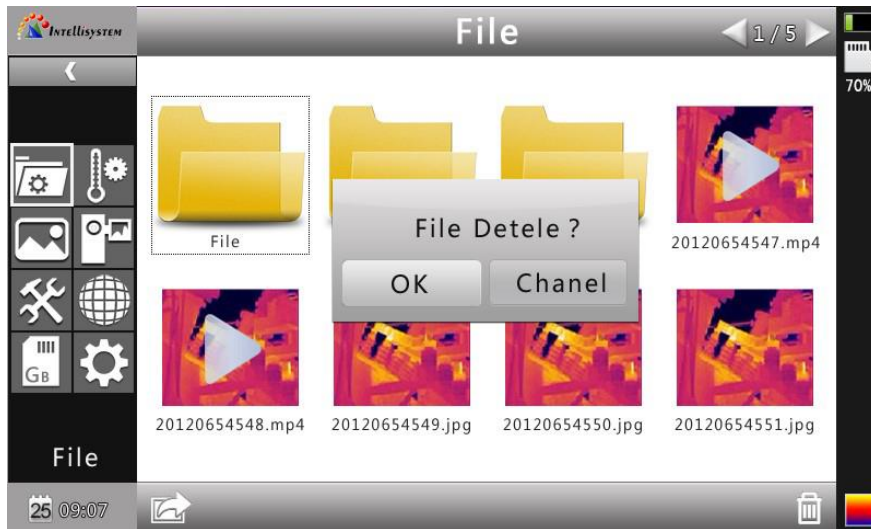
File Delete Figure

! Note： Before deletion, make sure that the file is no longer needed or have backup, the deleted image cannot be recovered.

5 Specifications

Items		ThermalTronix TT-807LD-HTI
Detector characteristics	Detector type	Un-cooled FPA micro-bolometer
	Array size/format	640x480
Image characteristics	Field of view/min focus distance	24°×18°/0.3m
	Spatial resolution（IFOV）	0.65mrad
	Thermal sensitivity	≤0.03℃@30℃
	Frame frequency	50/60Hz
	Focus	Auto/Menu electronics focus
	Digital zoom	8×, continuous zoom
	Spectral range	8-14um
	Built-in CCD camera	5.0 million pixels, LED lights
Image display	LCD display	5'' High resolution color touch LCD, 800 x 480
	Image	Fast switch between infrared image and CCD image, with fusion and picture in picture function
Measurements	Temperature ranges	-40℃ ~ +650℃
	Accuracy	± 2 °C or ± 2% of reading, whichever is greater
	Measurement correction	Automatic / manual
	Measurement mode	Up to 10 movable spots. Up to 5 movable areas (maximum, minimum and average temperature). Movable lines. Line profile. Isotherms. Temperature difference. Alarm (voice, color)
	Image control	Color palette 11 palettes changeable
		Auto/manual gain and brightness
	Setup functions	Date/time, temperature unit, language
	Emissivity correction	Variable from 0.01 to 1.0

	Background temperature correction	Automatic corrections according to user input
	Atmospheric transmission correction	Automatic correction according to user input object distance, humidity and temperature
Image storage	Storage card	CF card(8G)
	Mode	Auto/manual saving, single thermal images and CCD image link saving, thermal and CCD fusion saving.
	Thermal image format	JPEG (with radiometric information) MPEG4(with radiometric information)
	CCD image format	JPEG、MPEG4
	Voice annotation	Input via built-in microphone up to 60 seconds of digital voice clip per image stored with image
	Text annotation	Yes
Laser pointer	Laser locator	Class 2, 1mw/635nm(red), IEC 60 285
Power source	Battery type	Li-Ion, rechargeable
	Battery operating time	3 hours continuous operation
	Battery charging mode	Intelligent charger or power adaptor 12V(optional) to random charge
	Power saving	Auto-sleep and auto-shut down
	External power	10-15V DC
Environment	Operating temperature	-15℃～+50℃
	Humidity	≤95％ (non-condensing)
	Encapsulation	IP54
Physical characteristics	Tripod mounting	1/4"-20-UNC
	Weight	1.7kg
	Dimension	245*180*150mm
	External DC input	YES
	Video output	PAL/NTSC
	Communication port	Bluetooth; RJ45

6 Troubleshooting

Please follow the table below to diagnose and correct the problem. If problem
still exists, please contact our service department.

Problem	Cause & Solution
The camera does not power on.	● Battery not installed or installed incorrectly →Install battery or re-install battery ● Battery is out of power. →Change battery. ● "Power off" protection is enabled →Wait for 5 seconds and reboot.
The camera powers off automatically.	● Battery is out of power. →Change battery ● Auto Off Time option is enabled →Set as None.
Battery depletion is too fast	● Environmental temperature is too low ● Rechargeable battery is not charged completely. →Recharge the battery. ● Rechargeable battery is out of power completely and cannot be recharged. →Change to new battery.
No thermal image	● Lens cover is not removed. →Remove lens cover. ● In image freeze status →Press C key to exit.
Thermal image is white-black.	● White-black palette is selected →Select normal palette.

Appendix A

Common material emissivity（FYI）

Material	Surface	Temperature °C	Emissivity（ε）
Aluminum	Non- oxidized	100	0.20
	Oxidized	100	0.55
Brass	Burnished to Brown	20	0.40
	Dull luster	38	0.22
	Oxidized	100	0.61
Copper	Seriously Oxidized	20	0.78
Iron	Oxidized	100	0.74
	Rusty	25	0.65
Cast iron	Oxidized	200	0.64
	Non- Oxidized	100	0.21
Wrought iron	Quarry-faced	25	0.94
	Polished	38	0.28
Nickel	Oxidized	200	0.37
Stainless steel	Oxidized	60	0.85
Steel	Oxidized	200	0.79
Common brick	Surface	20	0.93
Concrete	Surface	20	0.92
Glass	Polished plate	20	0.94
Lacquer	White	100	0.92
	Black	100	0.97
Carbon	Smoke black	25	0.95
	Candle soot	20	0.95
	Rough lead surface	20	0.98
Oil paint	Value of 16 colors	100	0.94
Paper	White	20	0.93
Sand soil	Surface	20	0.90
Timber	Dressed	20	0.90
Water	Distilled water	20	0.96
Skin	Human	32	0.98
Ceramic	Thin	21	0.90
	Thick	21	0.93

Appendix B

Factory default parameter setting table

Table.1 Measurement temperature setting table

Parameter	Value	
	LT3	LT7
Temperature Range	-20 ~ 350°C	-20 - 180°C
Lens	Standard	
Temp Unit	°C	
Ref Type	Off	
Ref Temp	30°C	

Table.2 Measurement temperature correction table

Parameter	Value
Emissivity	0.96
Correct	0°C
Ambient Temp	Off

Table.3 Analysis setting table

Parameter	Value
Temp Alarm	Off
Alarming Temp	50.0°C
Alarming Color	None
Isotherm Color	Off
Isotherm Temp	50.0°C
Isotherm Width	1.0°C

Table.4 System setting table

Parameter	Value
Language	English
Brightness	60S
Auto Calib	60%
Video Mode	Laser sight
Quick Access	NTSC
Standby Time	5 mins
Auto Off Time	15 mins