Pocket-sized Thermal Camera

Quick Start Guide

Thank you for purchasing this product. Please read this manual before use and carefully collect it for future reference. Pictures are only for information, take practicality as standard.

IMPORTANT

This is a general manual covering multiple thermal cameras in one product line, so some functions and descriptions in the manual may not apply to specific thermal camera.

PRECAUTIONS

Please always follow the following precautions strictly:
- Keep the device as stable as possible to prevent shaking violently.
- Do not use the device at operating temperatures not allowed nor place it in an environment at a storage temperature not allowed.
- Do not align the device with strong thermal emitters, such as the sun, lasers and spot welders.
- Do not expose the device in a dusty or moist environment. Prevent water from splashing onto the device when using it in an environment with water. Cover the lens when not using the device.
- Place the device and all its accessories into a special packing box when not using it.
- Do not block any hole on the device.
- Do not knock at, throw or vibrate the device or its accessories so as to prevent damages.
- Please do not disassemble the device so as to prevent it from being damaged possibly and you from losing warranty.
- Do not use the device in an environment exceeding its operating temperature so as to prevent possible damages.
- Do not apply dissolvable or similar liquid to the device and cables so as to

prevent possible damages.

- The device is powered by a lithium-ion battery so users must follow the following precautions strictly in order to use it safely:
- Never try to open or dismantle the battery.
- Do not place the battery in a high temperature environment or nearby a high temperature object.
- Do not short-circuit the battery.
- Do not put the battery in a moist environment or in the water.
- Once the liquid leaked from the battery enters eyes, flush the eyes with clear water immediately and take corresponding medical cares.
- Please charge the battery as introduced in the manual and follow the charging steps and precautions. Wrong charging may heat or damage the battery or even cause injuries.
- Wipe the device as described below:
    1) Non-optical surfaces: Use clean and soft cloth to wipe non-optical surfaces of the thermal imager when necessary.
    2) Optical surfaces: Please avoid staining the optical surface of lens when using the thermal imager, especially avoid touching the lens with hands since the sweat on the hands may leave traces on the lens and corrode the optical coating on the lens surface. When the optical lens surface is stained, wipe it with special lens wiping paper.

**Precautions for use of batteries:**
- The battery can be charged repeatedly. However, the battery is a vulnerable part. If standby time of the device is largely shortened, please replace its battery with an original one provided by the company.
- If the device operates for a long time especially at high temperatures, its surface will warm up normally. When it's hot, please stop charging it and move it to the shade. Please avoid touching hot surfaces for a long time.

- When charging the device, it's suggested to use original batteries and charge cables provided by the company.
- Battery charging time varies with temperatures and its use.
- When the battery level is low, the system will give a low battery level prompt.
- When the battery level is too low, the system will be turned off automatically.
- If the device gives no response when the power button is pressed, the battery has been run out and the device can be launched only after being charged with an original charger for more than 10 minutes.
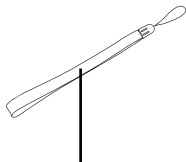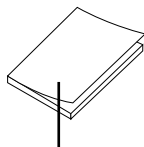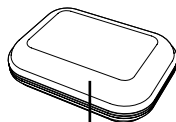
CHAPTER 1 LIST OF ITEMS
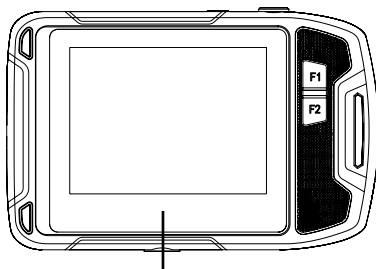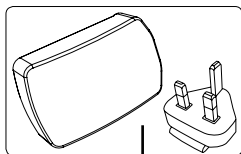
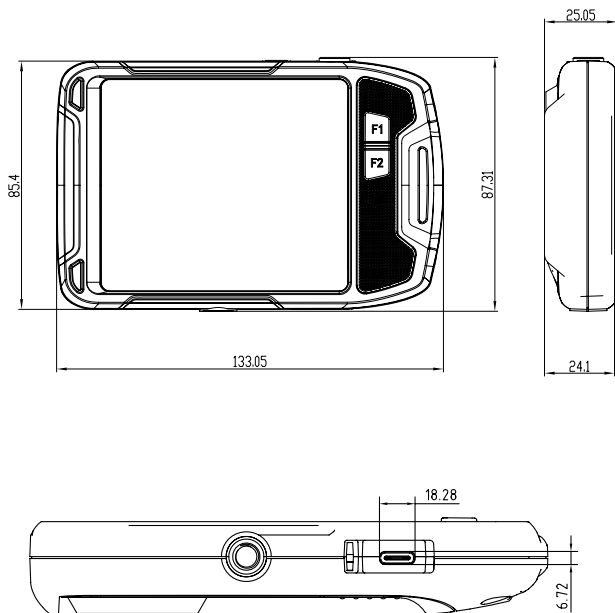Thermal camera
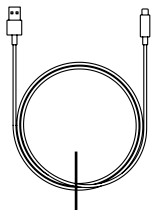
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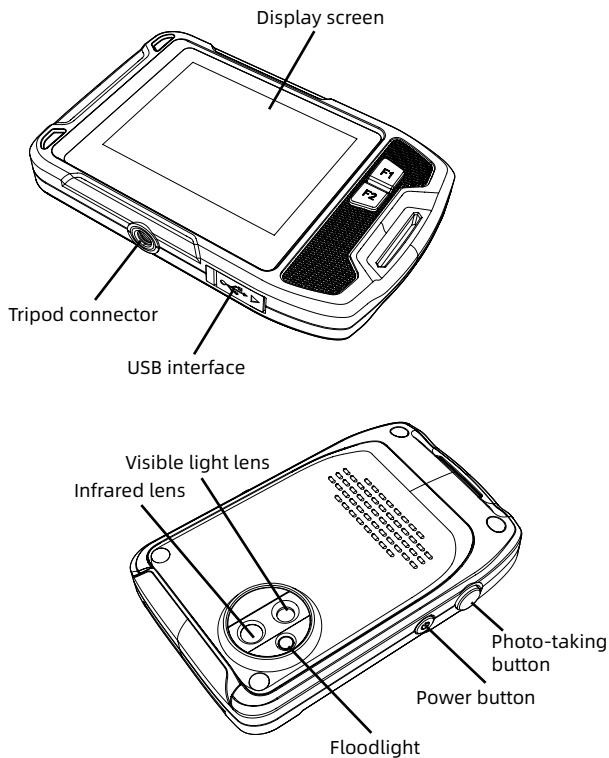
Wrist strap

Manual

Flexible package

Download card

Charging adapter

CHAPTER 2 APPEARANCE

2.1 Product size

2.2 Product component

Display screen

Tripod connector

USB interface

Visible light lens

Infrared lens

Photo-taking button

Power button

Floodlight

CHAPTER 3 BASIC OPERATIONS

3.1 Image saving

In live view mode, press the physical button or double-click on the screen to save the image. the thermal camera saves both thermal and visible light images.

3.2 View and deletion of pictures

When you save an image, the image is stored on the internal memory of the thermal camera. To display this image again, you can recall it from the camera's internal memory.

3.2.1 Steps to view pictures:

1. Click on the camera screen to pop up the menu toolbar.
2. Select the gallery and slide up or down to preview all the images in the gallery.
3. To switch between thermal image and visible light image, enter the single image viewing mode and click the visible light icon to view.

3.2.2 Steps to delete a single picture:

1. When viewing a single picture, tap the screen to pop up the menu toolbar.
2. Select "Delete" icon to delete the image.

3.2.3 Steps to delete multiple pictures:

1. Enter thumbnail mode, click the "Select" menu to enter the selected image mode.
2. Select the image to be deleted. The selected image has the " ✓ " logo and click " 🗑 " to delete the image.

3.2.4 Steps to delete all pictures:

1. Click on the camera screen to pop up the menu toolbar.
2. Select "Setting" to enter the setup menu.
3. In the dialog box, enter "Information" bar and select "Reset Settings".
4. Select "Delete All Images" in the dialog box to delete all images.

3.3 Change the image mode

1. Picture-in-picture mode: The thermal camera can display infrared images and enhance the target boundary with visible light images in details.
2. Visible light mode: The thermal camera only displays the visible light image shot by the digital camera.
3. MIF mode: The thermal camera can display both infrared and visible light images, making target details clearer and boundaries enhanced.
4. Infrared mode: The thermal camera can display a complete infrared image.

3.4 Add analysis object

Steps:

1. Click on the camera screen to pop up the menu toolbar.
2. Select "Analysis Object" icon to pop up the submenu toolbar.
3. Select points and areas on the submenu toolbar, add, delete, or center them in real-time mode, and display maximum temperature or minimum temperature, or maximum temperature and minimum temperature simultaneously when selecting zone temperature measurement.

3.5 Change the color palette

Steps:

1. Click on the camera screen to pop up the menu toolbar.

2. Select the palette icon, as well as white heat, black heat, iron oxide red, hot iron, medical, and Arctic ribbons as needed.

3.6 Turn on floodlight and flashlight

Steps:

1. Click on the camera screen to pop up the menu toolbar.
2. Click on one of the followings:
- Flash (use the thermal camera light as flash when taking pictures).
- Floodlight (turn on the thermal camera light and use it as a flashlight).

3.7 Set emissivity

Emissivity parameter set according to the type of measured object surface

Steps:

1. Click on the camera screen to pop up the menu toolbar.
2. Select "Setting" to enter the setup menu.
3. Select the emissivity and display the following two ways:
   Custom: Display a list of parameter values, and you can select one of them.
   Material: Emissivity of common objects.

3.8 Set reflective temperature

This parameter is used to compensate for the radiation reflected by the object.

Steps:

1. Click on the camera screen to pop up the menu toolbar.
2. Select "Setting" to enter the setup menu.
3. Select "Reflective Temperature" and the corresponding values.

3.9 Change distance

This parameter refers to the distance between the target and the camera lens.

Steps:

1. Click on the camera screen to pop up the menu toolbar.
2. Select "Setting" to enter the setup menu.
3. Select the distance and set it according to the target object.

3.10 Local

1. Save visible light:

    Select this menu for access, and there are two options: 320×240 and 640×480.

    The default resolution is 320×240, indicating that the resolution of visible light image you save is 320×240.

2. Auto power-off:

    Select this menu for access and there are three menus of "never", "5 minutes" and "20 minutes" respectively.

    Select 5 minutes, indicating that the device will shut down automatically after 5 minutes from the user's non-operation of the device.

3. Date & time and their formats:

    Select this menu for access to change the current device date, time, and format.

4. Full temperature marker:

    After setting this parameter, the maximum temperature and minimum temperature on the full screen can be seen in the real-time mode.

5. Alarm settings:

    After setting this parameter, high/low temperature alarm is possible.

6. Screen luminance:

    The backlight brightness of device can be selected through the slider mode.

7. Language:

    Set the language type as needed.

8. Unit:

    This parameter allows you to change the temperature and distance units.

3.11 Cloud service

When you are in severe environment and cannot find and report faults in a timely and effective manner, or need more professional engineers to help you analyze the problem, you can upload the captured pictures to the cloud server

anytime and anywhere. Other engineers will log in and download images for analysis and feedback.

Steps:

1. Click on the camera screen to pop up the menu toolbar.
2. Select "Setting" to enter the setup menu.
3. Select the "Cloud Service" function and connect to wifi. For the first login, you need to register an account. This device supports registration via mobile phone number or email.
4. After logging in as prompted, log in to the cloud server.
5. Enter the gallery menu and select "Cloud Album" to synchronize local images.
6. At this point, the user can open the analysis software to log in to the cloud account on the PC side, download the picture for analysis and feedback.

CHAPTER 4 OTHERS

Emissivity of common objects

Material	Emissivity	Material	Emissivity
Wood	0.85	Black paper	0.86
Water	0.96	Polycarbonate	0.8
Brick	0.75	Concrete	0.97
Stainless steel	0.14	Copper oxide	0.78
Adhesive tape	0.96	Cast iron	0.81
Aluminum plate	0.09	Rust	0.8
Copper plate	0.06	Gypsum	0.75
Dark aluminum	0.95	Paint	0.9
Human skin	0.98	Rubber	0.95
Asphalt	0.96	Soil	0.93
PVC material	0.93		

CHAPTER 5 ANALYSIS OF COMMON PROBLEMS

Symptom	Cause	Measure
Boot failure	Low battery	Reuse battery after charging
	Plug of external power source is not inserted properly	Pull the plug and reinsert it in proper place
	Battery life expires	Replace with new battery
IR image is not clear	Lens have misted up or been polluted	Clean lens with specialized equipment
Visible light image is not clear	Surrounding environment is too dark	Provide lighting
	There is vapor in front of visible light or the visible light is polluted	Clean the front-end of visible light with specialized equipment
Temperature measurement is inaccurate	Set the relevant parameters for temperature measurement incorrectly.	Change parameter setting or restore the default parameters.
	Temperature measurement starts immediately after start-up	To ensure temperature measurement accuracy, we recommend you to start temperature measurement 5-10 minutes after start-up
	Long time no calibration	To ensure accurate temperature measurement result, we recommend you to send back the thermal imager for calibration once a year.