Thermal Camera

Quick Start Guide

This manual may be inconsistent with the product due to product enhancements or version changes, please refer to the actual product.

- Content -

01 NOTES

This is a general manual that covers multiple thermal cameras in a product line, indicating that certain functions and instructions are not applicable to your specific model of thermal camera.

02 PRECAUTIONS

The following precautions shall be strictly followed at any time:

1. Keep the equipment in use stably to the greatest extent and avoid violent shaking.
2. Do not use or store the instrument in an environment exceeding the allowable operating temperature or storage temperature of equipment.
3. Do not directly align the equipment at high-intensity heat radiation sources, such as the sun, lasers and spot welders.
4. Do not expose the equipment to the environments with dust or damp. The instrument shall be avoided from water during the use in an environment with water. The instrument not in use shall be covered with lens cap.
5. The instrument and all accessories shall be placed in the dedicated packaging box if the equipment is not used.
6. Do not block the holes on the equipment.
7. Do not tap, throw or shake the instrument and accessories to avoid damage.
8. Do not disassemble this machine by yourself, which may damage the equipment and cause the void warranty rights.
9. Do not use the equipment in an environment exceeding its operating temperature, which may damage the equipment.

10. Soluble or similar liquids are not allowed in the equipment, which may damage the equipment.
11. The following measures shall be taken when wiping the equipment:

- Non-optical surface: When necessary, the non-optical surface of thermal camera can be wiped by the clean and soft cloth.
- Optical surface: The optical surface of lens shall be prevented from pollution when using the thermal camera. Particularly, the lens cannot be touched by hands, as the sweat on hands will leave marks on the lens glass and may corrode the optical coated layer on the glass surface. The polluted surface of optical lens (if any) shall be wiped carefully with dedicated lens paper.

03 INSTRUCTIONS ON CHARGING OF INFRARED THERMAL CAMERA

Safety Instructions

1. Carefully read and follow all instructions in this Manual.
2. Do not charge or use the infrared thermal camera in an explosive environment.
3. Do not expose the infrared thermal camera to the environments with rainwater or damp.
4. Do not attempt to disassemble or repair the infrared thermal camera by yourself to avoid electric shock or equipment damage.
5. Use the original charger and batteries to ensure charging effect and safety.

Pre-charging Preparations

1. Ensure the infrared thermal camera, charger and batteries in a dry state.
2. Ensure the same voltage of charger and power socket.
3. Ensure that the power socket is well grounded.

Charging Steps

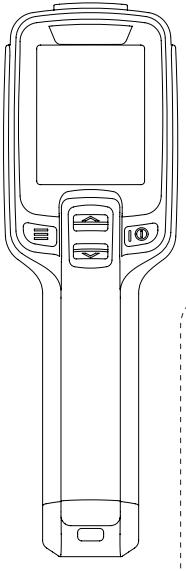
1. Insert the charger into the power socket, and ensure that the plug is tightly plugged.
2. Connect the other end of charger to the charging port of infrared thermal camera, and ensure that they are firmly connected.
3. Turn on the power switch of infrared thermal camera. At this time, the equipment screen is on with the battery icon displayed, indicating that charging starts.
4. Full-grid screen ON icon indicates that charging is completed.

04 INTRODUCTION TO PRODUCT

This is a tool-type handheld temperature measurement infrared thermal camera with two resolutions, i.e. 120*90 and 256*192. It is equipped with laser, lamps and visible light, and can be connected to an external PC to meet the services demand in different occasions.

05 LIST OF ITEMS

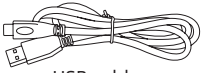
- Thermal camera (including battery) 1
- Quick Start Guide 1
- Data download card 1
- USB cable 1
- List of Items 1



Thermal camera (including battery)

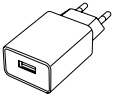
Quick Start Guide

Data download card



USB cable

Wristband



European plug

Australian plug

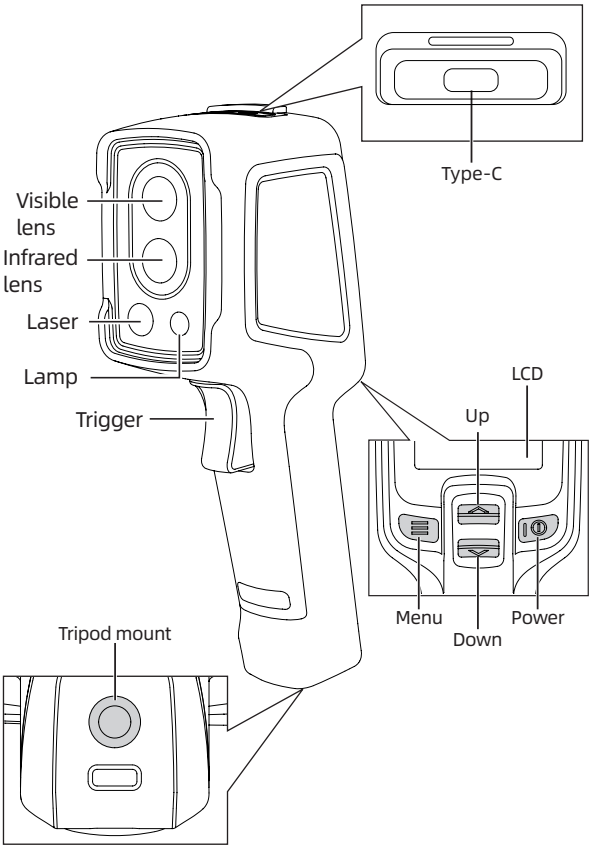
Standard plug

US plug

UK plug

Corresponding plugs for product assembly in different regions

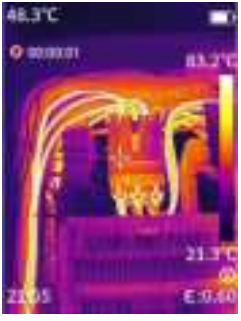
06 PRODUCT COMPONENTS



07 BASIC OPERATION

【Photographing and Video Recording】

On the real-time observation interface, short press the "Trigger" to freeze the image, and select the corresponding button to save or cancel based on the prompt on the current interface.



On the real-time observation interface, long press the "Trigger" to record videos. After recording, short press the "Trigger" or "Menu" to save videos.

【Gallery】

On the real-time observation interface, press the "Menu" to enter the menu, select "Gallery", and then press the "Menu" to enter the gallery, displaying: View Pictures, View Videos, and Delete All.

Users may select the corresponding menu for operation based on their own needs.

【Dimming Mode】

On the real-time observation interface, long press the "Menu" until that the symbol [A] is shown at the top left of screen for

dimming mode setting. Three dimming modes are available in this machine, i.e. automatic dimming (A), semi-automatic dimming (S), and manual dimming (M).

1. After long pressing the "Menu" for dimming mode setting, switch A-S-M successively by short pressing the "Up/Down".
2. The ΔT value is adjustable through S as the semi-automatic dimming mode. In the S mode, short press the "Up/Down" to select the value to be adjusted. Select the up arrow, and short press the "Menu" to increase the ΔT value. Select the down arrow, and short press the "Menu" to decrease the ΔT value.
3. The Tmax and Tmin values are adjustable through M as the semi-automatic dimming mode. In the M mode, short press the "Up/Down" to select the value to be adjusted. Select the up arrow, and short press the "Menu" to simultaneously increase the Tmax and Tmin values. Select the down arrow, and short press the "Menu" to simultaneously decrease the Tmax and Tmin values. Select the left arrow, and short press the "Menu" to increase the Tmin value and to decrease the Tmax value. Select the right arrow, and short press the "Menu" to increase the Tmax value and to decrease the Tmin value.
4. A is the automatic dimming mode. The value depends on the real-time scenario to be shot, and cannot be manually adjusted.

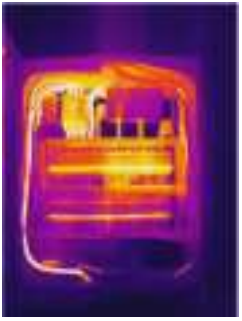
5. Short pressure the "Return" to save and quit.

【Image Mode】

On the real-time observation interface, short press the "Up/ Down" to select the image mode. There are four image modes available in this machine, i.e. IR (infrared) mode, VL (visible light) mode, MIF (fusion) mode and PIP (picture in picture) mode.

Ordinary infrared mode:

Ordinary MIF mode:



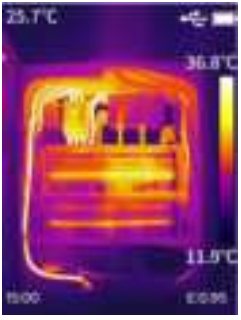
Visible light mode:

Ordinary PIP mode:

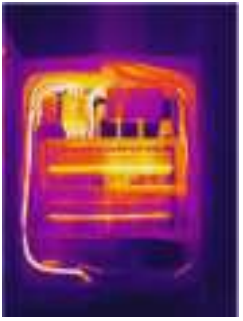
【Super-resolution Mode】

On the real-time observation interface, press the "Menu" to enter the first-level menu. Short press the "Up/Down" to select the super-resolution mode switch, and short press the "Menu" to enable/shut down the super-resolution mode. Images will be clearer in details if taken at the super-resolution mode, with more obvious contrast and sharpness.

Before super-resolution:



After super-resolution:



【Temperature Measurement Parameters】

Temperature measurement parameters will affect the accuracy of temperature measurement results, and they shall be properly set in advance before temperature measurement.

1. Temperature measurement range: An appropriate temperature measurement range is selected based on the temperature of the measured target.
2. Emissivity: adjusted based on the emissivity of the measured target. There is the emissivity of common objects for this machine, and the emissivity is customizable.

3. Reflection temperature: temperature impact of the currently observed target ambient temperature on the target.
4. Target distance: Corresponding distance parameters of equipment are adjusted based on the distance of the measured target for more accurate temperature measurement.

【Emissivity of common objects】

Materials	Emissivity	Materials	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
Black aluminum	0.95	Paint	0.9
Human skin	0.98	Rubber	0.95
Asphalt	0.96	Soil	0.93
PVC plastic	0.93		

08 FAQS

Fault	Cause	Measures
Start failure	Low battery	Start the device after charging for 10 minutes
	The plug of the external power supply is not plugged in place	Unplug, reconnect and push it into place
	Battery life has expired	Replace the battery with a new one
Infrared image is not clear	The lens is covered with water vapor or contaminated	Clean the lens with dedicated device
Visible light image is not clear	The environment is too dark	Take proper lighting measures
	Water vapor or contamination in the front end of visible light	Clean the visible light front end with dedicated device
Inaccurate temperature measurement	The parameters related to temperature measurement are not set correctly	Change the parameter settings or restore the default parameter values directly
	Measure temperature immediately after startup	To ensure the accuracy of temperature measurement, we recommend to start temperature measurement after 5 ~ 10 minutes when the device is turned on
	No calibration for a long time	For accurate temperature measurement results, we recommend to calibrate the thermographic camera once a year

FCC warning:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment 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 equipment 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 equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

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

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.

This device complies with 21 CFR 1040.10 and 1040.11. Class 2 Laser Product —LASER RADIATION,DO NOT STARE INTO BEAM. Laser label of the device as below:

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

特别声明：说明书版本将会在产品技术改进后更新。

Notice:or any technical improvement, we will specify in the latest user manual.