INSTRUCTION MANUAL

Your excellent helper in cable test!
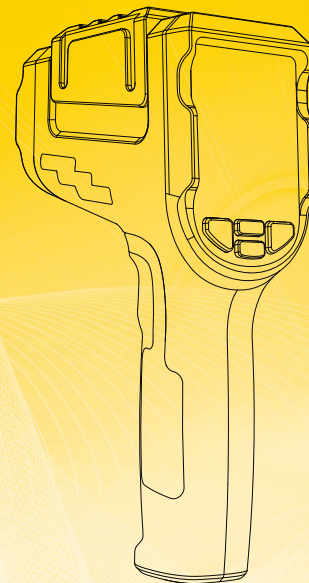
ORIGINAL AUTHENTIC

Patented products, Counterfeiting not allowed

VER: V2

⚠ Please read the manual carefully before operating this unit.

✪ 1. Thermal Imager NF-522 / NF-523 is powered by lithium battery 3.7V 5000mAh.

✪ 2.Forbidden to be used in the place with dusty, humid and high temperature.

✪ 3.Please use a charger that meets the specifications, otherwise the device may be damaged.

✪ 4.Please do not disassemble the device. Device's repairing and maintenance should under the guidance of professionals.

✪ 5.Please note device with automatic shutdown features, please set the automatic shutdown time according to your need.

✪ 6.Do not operate the communication line during a lightning storm. Please pay attention to lightning strike and your safety.

Table of Contents

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Thermal Imager is a kind of device which uses thermal imaging technology to take the temperature and observe the heat distribution on the surface of natural objects.

Any natural object will radiate infrared radiation to its surroundings. Thermal imaging technology refers to the use of optical imaging objective lens and infrared detector to receive the infrared radiation energy of the measured target and reflect it to the photosensitive element of the infrared detector, so as to obtain a circular figure of the thermal distribution on the surface of the object.

This thermal image corresponds to the thermal distribution field on the surface of the object. Generally speaking, infrared thermal imaging is to transform the invisible infrared energy emitted by an object into a visible thermal image, that is, the image of temperature distribution on the target surface.
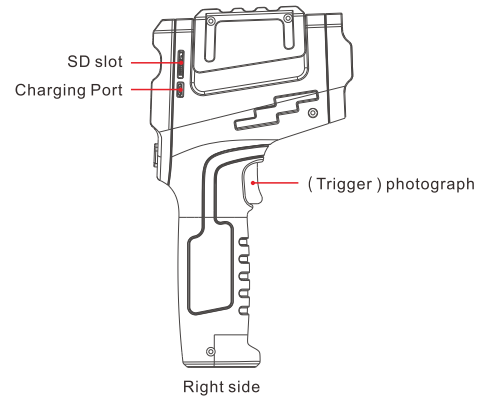
NF-523

NF-522

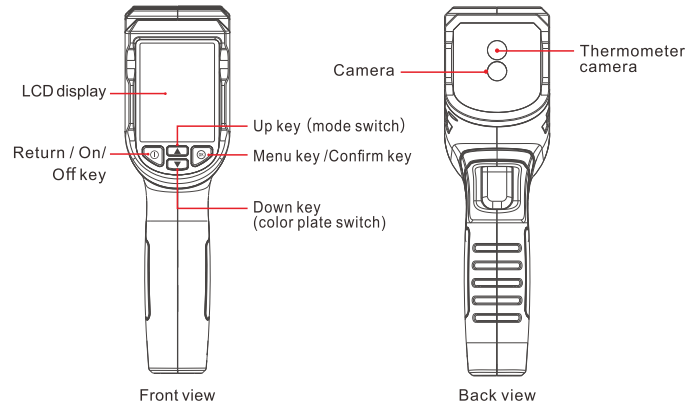## 1. Product Structure Introduction

LCD display

Up key (mode switch)

Return / On/ Off key

Menu key /Confirm key

Down key (color plate switch)

Front view

Camera

Thermometer camera

Back view

SD slot

Charging Port

(Trigger) photograph

Right side

2. Instructions

1. On / Off

In the shutdown state, press the 🔘 key (about 6 seconds) until the welcome interface appears and release to complete the start up.

In the power on state, press the 🔘 key (about 3 seconds) when not enter any setting interface, until the shutdown confirmation interface appears. Press the 🔘 key to cancel the shutdown and press the 🆗 key to confirm the shutdown.

2. Up and down key shortcut selection mode

🔼 key (display mode) present in turn: infrared mode / infrared edge detection mode / dual light fusion mode.

| Infrared mode | Infrared edge detection mode | Dual light fusion mode |
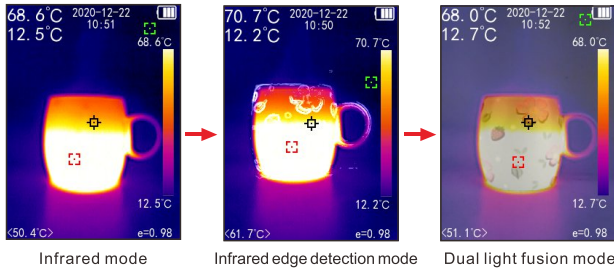
🔼 key (color plate switch) display in turn: white heat / black heat / Rainbow 1 / Rainbow 2 / Purple / orange / iron gray / high temperature high contrast / high/low temperature high contrast. (NF-522/NF-523)

Color plate switching sequence of NF-522/NF-523 shown as below

White heat ▸ Black heat ▸ Rainbow 1 ▸ Rainbow 2 ▸ Purple

High / low temperature high contrast ◂ High temperature high contrast ◂ Iron gray ◂ Orange
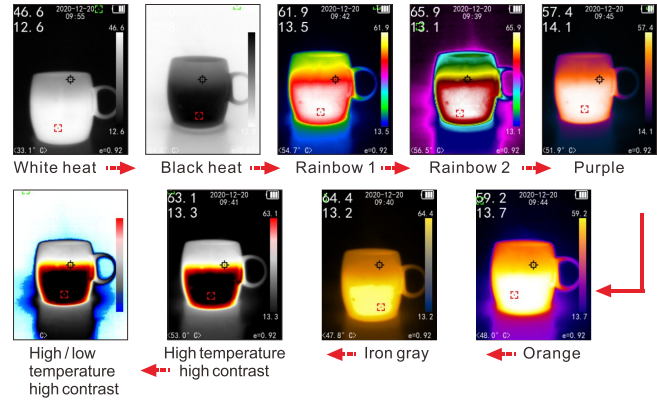
3. Temperature measurement

When not enter any setting interface, the black center point on the screen represents the temperature value of the point, and the numerical value is displayed in the lower left corner of the screen; the red dot represents the maximum temperature of the whole screen, and the numerical value is displayed in the upper left corner.

The green dot represents the lowest temperature of the whole screen, and the numerical value is displayed under the right color board, shown as right side.

4. Photography

When not enter any setting interface, press trigger key to enter the photography interface. Press OK key to save and press key to give up.

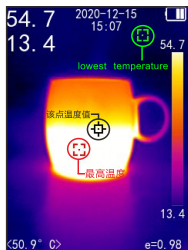## 5. Unit switching

When the device system is on, press OK key, press key to select the unit, press OK key to activate, press key to adjust the unit value, and press key to exit. The unit includes: ℃/℉/ K.

6. Reflectivity

It represents the thermal reflectivity of the surface of the object. When measuring different objects, the numerical value should be adjusted to the corresponding reflectivity, so the temperature measurement will be accurate.

When the system is on, press OK key, press key to select emissivity , press OK key to activate, press key to adjust emissivity, and press key to exit. Emissivity: 0.1-1.0 adjustable.

7. Shutter spacing

The large interval shutter can make the image clear and the temperature measurement accurate. Industrial temperature measurement interval is generally 3 minutes; temperature measurement interval is generally 1 minute.

8. Document management

Before enter any interface, press OK to select file management, and then you can view pictures option and view video option; select the object to view and enter the interface; if there is no content, prompt no content and return.

Press key to view other pictures or videos In the picture viewing state, press the trigger key, you can switch the display of the corresponding visible light image.

In the video viewing state, press the trigger key to play or pause the video.Press OK to enter the delete current picture option or delete current video option; continue to press OK to delete, and press key to cancel.

3. Settings

1. Language switching

In the main menu, press Up and Down keys to move the cursor to more settings, press OK key, and then press key to select the language, press OK key to activate, press key to select the language you need, after selection, press key to save and exit.
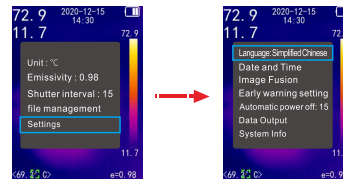
As shown in the pictures below

2. Date and time

In Settings menu, press Up and Down key to select the date and time option; press OK to enter the modification, select 00 / 01 / 01 00:00 12 (year / month / day/hour/minute: 12-hour or 24-hour time display);press Up and Down key to add or subtract; press OK to confirm and enter the next item; when all settings were completed, press key to save and exit.

3. Image Fusion

The technology is used to adjust the fusion position of visible light and infrared light, switch the display mode to dual light fusion mode, and aim the thermal imager at the heat source to be adjusted at the same time; then press [OK] to select settings option, press [OK] to select image fusion option.

Image zooming is used to adjust the magnification of visible light, so as to be consistent with the size of infrared image. Adjust the cursor up and down to select image zooming. Press [OK] key, the interface will disappear, and the red font value will appear in the middle and lower position. Then press [▲] [▼] key to adjust until the size of infrared image object is the same as that of visible light image object. Press [⊙] to confirm and return.

Left and right adjustment is used to set the left and right cursors of visible light and infrared; up and down adjustment is used to set the up and down coordinates of visible light and infrared. The adjustment method is the same as above.

4. Alarm setting

The first line in the upper left corner of the screen represents the maximum temperature of the whole picture, and the second line represents the minimum temperature of the whole picture;

In the alarm setting menu, the high temperature value means that if the temperature of the whole picture exceeds this value, it will alarm (the high temperature value will turn red); the low temperature value means that if the temperature of the whole picture is lower than this value, it will alarm (the low temperature value will turn red); after adjusting these two values, turn on the alarm switch.

5. Video

When no setting interface is entered, long press the trigger key until 30s appears in the middle and lower position of the screen, release the trigger key and start recording; the default recording time is 30 seconds, and a prompt box will appear after the recording is finished; the confirm key means save, and the power key means cancel; If you want to end the video recording in advance, just short press [⊙] the trigger key again.

6.Automatic shutdown

When enter settings interfaces, move the cursor to the auto shutdown option, and press [OK] to set the auto shutdown. There are 15 minutes, 30 minutes, and 1 hour to choose. After setting the auto shutdown time, press [⊙] to save and exit.

7.Data Output

The system has built-in 2GB storage space, which can play video content of pictures. Insert the TF card into the card and hold it for about 2 seconds, and the TF Card icon will appear in the upper right corner. Select settings - data output option.

8. System information

When enter settings interfaces, move the cursor to the system information option, and press to [OK] check the details of the whole device.

9. Charging

When power on, the battery symbol in the upper right corner of the screen represents the current power. When the battery symbol turns red, it means that it needs to be charged right now, otherwise it will be automatically shut down due to low power. When charging, use the Micro USB data cable and plug it into the 5V charger for charging.

When the charger powers on, the charging symbol in the upper right corner of the screen turns green and the charging status is dynamically displayed. When power off, the battery symbol in the center of the screen dynamically displays the charging state.

4. Packing List

1	Main engine (with 8G memory card and lithium battery)	1pcs
2	Data cable	1pcs
3	Toolkit	1pcs
4	Instruction manual	1pcs
5	Certificate / warranty card	1pcs

5. Examples of Floor Heating Blockage or Water Leakage Detection

Floor heating pipe

1. Starting from the main gate of hot water pipe (if there are more than 2 channels of hot water pipe), it is recommended to open one of the channels for separate test and carry out the elimination method test.

Test to find the blockage

2.Iron red mode is recommended for thermal imaging, and the red areas on the display represents the location and direction of the hot water pipe.

3. Check the way along the red direction, if the red area disappears, it means it is blocked here. If the red area is in pieces, it means water leakage here.

6. Scene application

1. The investigation of automobile maintenance

2. The investigation of fire-fighting and rescue work

3. Ancient building's repair and maintenance

4. Air and water leakage and other property maintenance

5.The maintenance of living quarters, office building and production power

6. Installation and maintenance of floor heating, radiator and water heater Search for small animals in 7.buildings (including termite control)

6. Technical Parameter

Thermal imaging parameters	Model	NF-522	NF-523
	Thermal imaging resolution	200x150	320x240
	Angle of view	35°x 26°	56°x 42°
	Temperature Range	-40℃- 330℃	
	Thermal sensitivity	65mK	
	Image frame rate	9Hz	
	Color plate	White heat /Black heat Rainbow/1 Rainbow2/Purple /Orange /Iron gray/ High temperature high contrast /High and low temperature high contrast.	
	Accuracy	Ambient temperature 25℃, Distance 0.3M	Ambient temperature 25℃, Distance 1M
	Emissivity	0.1 - 1.0 (can be adjusted)	
	Spectral response	8 -14µm	
	Visible resolution	300,000 pixels (640x480)	
	Display mode	Infrared mode /infrared edge detection mode /dual light fusion mode	
	Focus Mode	Fixed	
	Storage medium	Built in 2G	
General parameters	Language	Chinese / English (can be selected)	
	Image saving format	Bitmap (BMP) image	
	Display type	2.8 inch TFT LCD	
	Screen resolution	240X320	
	Automatic shutdown features	15 seconds / 30 seconds / 1 minute (can be selected)	
	Temperature unit	℃ / °F / K (can be selected)	
	Working temperature	-10℃ - 45℃	
	Memory card	8GB Mini TF Card	
	Battery	3.7V / 5000mAh	
	Drop test	2 meters, (6.5 inches)	
	Shutter interval	15 seconds / 30 seconds / 1 minute	
	Product size	60mm*120mm*210mm	

8. Explanation of The Problem

Number	Problem	Solution
01	Inaccurate temperature measuring	Factory temperature test conditions: emissivity: 0.95, the ambient temperature is about 25 degrees, 56mm diameter blackbody, the distance is 30cm; if the measurement is incorrect, you can move the instrument to change the distance from the target to get a close temperature value.
02	Other	Please contact technical support if there is machine fault happens.