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NOYFA NF-523

NOYFA Thermal Camera NF-523 User Manual

Industrial Infrared Thermal Imager

1. INTRODUCTION

Thank you for choosing the NOYFA NF-523 Thermal Camera. This device is an industrial-grade infrared thermal imager designed for precise temperature measurement and clear thermal imaging. It features a 320x240 infrared resolution and a temperature range of -40°C to 330°C, making it suitable for various professional applications.

Please read this manual thoroughly before operating the device to ensure safe and effective use.



Figure 1: Front and back view of the NOYFA NF-523 Thermal Camera.

2. SAFETY INFORMATION

To prevent electric shock, injury, or damage to the device, observe the following safety precautions:

- Do not operate the device if it appears damaged or is not functioning properly.
- Do not attempt to disassemble or modify the device. Refer all servicing to qualified personnel.
- Keep the device away from water, moisture, and extreme temperatures.
- Use only the specified charging accessories.
- Avoid pointing the thermal camera directly at high-intensity energy sources (e.g., lasers, sun) as this may damage the sensor.
- Ensure proper ventilation during charging.

3. PACKAGE CONTENTS

Verify that all items are present in your package:

- NOYAFa NF-523 Thermal Camera
- USB Charging Cable
- User Manual
- Lithium Ion Battery (pre-installed or separate)

4. PRODUCT FEATURES

The NOYAFa NF-523 Thermal Camera offers the following key features:

- **High IR Resolution:** 320x240 thermal imaging resolution for clear and detailed thermal maps.
- **Wide Temperature Range:** Measures temperatures from -40°C to 330°C.
- **2.8-inch TFT LCD Display:** Provides a clear view of thermal images and data.
- **Multi-Mode and Multi-Scene Use:** Adaptable for various applications including automotive maintenance, fire-fighting, building inspection, and property maintenance.
- **Lightweight and Portable:** Easy to carry and operate.
- **USB Interface:** Convenient for charging and data transfer.
- **Durable Battery:** Equipped with a 3.7V 5000mAh Lithium Ion battery for extended operation.
- **Drop Test Resistance:** Designed to withstand drops from up to 2 meters (6.5 feet).
- **Visible Light Camera:** Integrates a visible light camera for capturing high-resolution visual images alongside thermal data.

5. DEVICE LAYOUT

Familiarize yourself with the components and controls of your NF-523 Thermal Camera:

View Thermal Imagery In Different NF-522 / NF-523 shown as below

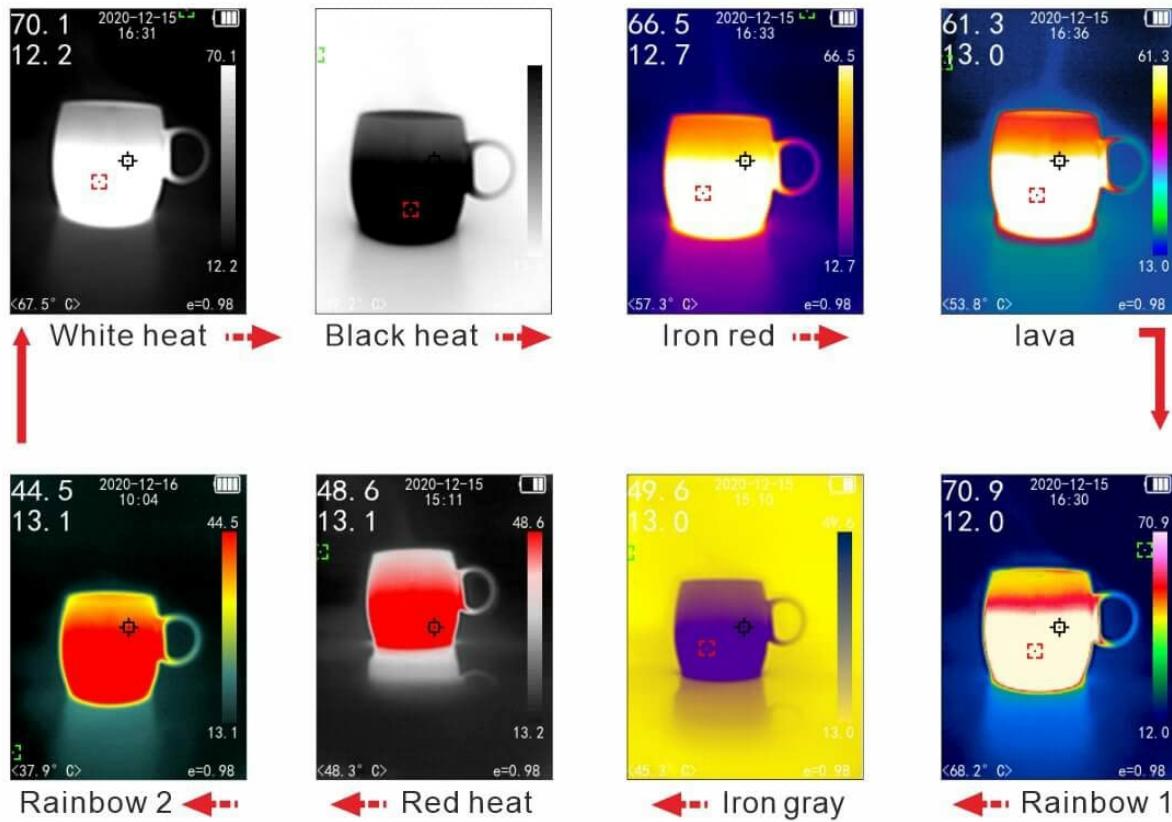


Figure 2: Labeled components of the NF-523 Thermal Camera.

- **LCD Display:** Shows thermal images, temperature readings, and menu options.
- **Up Key (Mode Switch):** Navigates menus upwards or switches display modes.
- **Return / On-Off Key:** Powers the device on/off and returns to the previous menu.
- **Down Key (Color Plate Switch):** Navigates menus downwards or changes color palettes.
- **Menu Key / Confirm Key:** Accesses the main menu or confirms selections.
- **Camera:** Visible light camera lens.
- **Thermometer Camera:** Infrared thermal sensor lens.
- **Charging Port:** USB port for charging the device.
- **SD Slot:** For inserting a microSD card to store images and data.
- **Trigger (Photograph):** Button to capture thermal images.

6. SETUP

6.1. Battery Installation and Charging

1. Ensure the device is powered off.
2. Locate the battery compartment (if applicable, typically at the handle base).
3. Insert the provided Lithium Ion battery, ensuring correct polarity.
4. Connect the USB charging cable to the device's charging port and plug the other end into a suitable USB power adapter (not included) or computer USB port.
5. The charging indicator will show the charging status. Charge the device fully before first use.

6.2. SD Card Insertion

1. Locate the SD slot on the side of the device.
2. Insert a compatible microSD card (up to 32GB, not included) into the slot until it clicks into place.
3. To remove, gently push the card in until it springs out.

7. OPERATING INSTRUCTIONS

7.1. Power On/Off

- To power on, press and hold the **Return / On-Off Key** until the display illuminates.
- To power off, press and hold the **Return / On-Off Key** until the device shuts down.

7.2. Basic Measurement

1. Point the thermal camera at the object or area you wish to measure.
2. The LCD display will show a real-time thermal image with temperature readings. The central crosshair indicates the spot measurement area.
3. The highest and lowest temperatures within the field of view may also be displayed.

7.3. Capturing Images

- To capture a thermal image, press the **Trigger (Photograph)** button located on the handle.
- The image will be saved to the inserted microSD card.

7.4. Menu Navigation

- Press the **Menu Key** to access the main menu.
- Use the **Up Key** and **Down Key** to navigate through menu options.
- Press the **Menu Key / Confirm Key** again to select an option.
- Press the **Return / On-Off Key** to exit the menu or go back.

8. IMAGING MODES AND COLOR PALETTES

The NF-523 offers multiple imaging modes and color palettes to visualize temperature differences effectively. You can switch between these using the **Up Key (Mode Switch)** and **Down Key (Color Plate Switch)**.



Figure 3: Overview of available color imaging modes.



Figure 4: Examples of thermal imagery displayed with various color palettes.

Common color palettes include:

- **Iron Red:** Often used for general thermal imaging, showing hot areas in brighter reds/yellows.
- **Rainbow:** Provides a full spectrum of colors to represent temperature variations, useful for detailed analysis.
- **Red Black:** Highlights hot spots in red against a darker background.
- **Black Heat:** Displays hotter areas as darker shades.
- **White Heat:** Displays hotter areas as brighter shades.
- **Iron Gray:** A grayscale palette with an emphasis on iron-like colors for temperature differentiation.

9. MAINTENANCE

9.1. Cleaning

- Wipe the device clean with a soft, dry cloth.
- For stubborn dirt, use a slightly damp cloth with mild soap, then wipe dry immediately.
- Do not use abrasive cleaners, solvents, or harsh chemicals.

- Keep the camera lenses clean and free from dust or smudges for optimal image quality. Use a lens cleaning cloth if necessary.

9.2. Battery Care

- Charge the battery regularly, even if the device is not in use, to maintain battery health.
- Avoid fully discharging the battery frequently.
- Store the device in a cool, dry place when not in use for extended periods.

10. TROUBLESHOOTING

If you encounter issues with your NF-523 Thermal Camera, refer to the following common solutions:

- **Device does not power on:** Ensure the battery is charged. Connect the charger and try again. Check if the battery is correctly installed.
- **Display is blank or frozen:** Try restarting the device by holding the power button. If unresponsive, allow the battery to fully discharge and then recharge.
- **Inaccurate temperature readings:** Ensure the lens is clean. Check the emissivity settings if adjustable (refer to advanced settings in the device menu). Ensure the measurement distance is appropriate for the target size.
- **Cannot save images:** Verify that a compatible microSD card is inserted correctly and has sufficient free space. Check if the card is locked (read-only).
- **Short battery life:** Ensure the battery is fully charged. Reduce screen brightness if possible. Consider replacing the battery if it's old and capacity has significantly degraded.

If the problem persists, contact customer support for further assistance.

11. SPECIFICATIONS

Feature	Specification
IR Resolution	320x240
Temperature Range	-40°C to 330°C (-40°F to 626°F)
Angle of View	56° x 42°
Thermal Sensitivity	65mK
Image Frame Rate	9Hz
Display Type	2.8-inch TFT LCD
Battery Type	1 Lithium Ion battery (3.7V 5000mAh)
Connectivity Technology	Infrared, USB
Product Dimensions	18 x 8 x 10 cm
Product Weight	500 g
Drop Test	2 meters (6.5 inches)
Included Components	NF-523 unit

Feature	Specification
Country of Origin	China

12. COMPLIANCE AND SUPPORT

12.1. Certifications

The NOYAFA NF-523 Thermal Camera complies with the following standards:

- **CE:** Conforms to European Union health, safety, and environmental protection standards.
- **FCC:** Complies with Federal Communications Commission regulations.
- **RoHS:** Restriction of Hazardous Substances compliant.
- **ISO 9001:** Manufactured under an ISO 9001 certified quality management system.

12.2. Customer Support

For technical assistance, warranty inquiries, or service, please contact your NOYAFA retailer or visit the official NOYAFA website for support information.