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› WnewTools NF-521 Handheld Thermal Imaging Camera User Manual

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WnewTools NF-521 Handheld Thermal Imaging Camera User Manual

Model: NF-521

1. INTRODUCTION

The WnewTools NF-521 is a handheld thermal imaging camera designed for efficient temperature measurement and fault detection. It features a 2.4-inch TFT LCD display that visualizes hot and cold spots, enabling users to observe temperature changes effectively. This device is a valuable tool for various applications, including electrical, building, mechanical, and heating system inspections.

Key features include:

- 2-megapixel visible light lens.
- 2.4-inch TFT LCD Display for clear thermal and visible image merging.
- Temperature measurement range: -10°C to 400°C.
- 32x32 pixel infrared resolution with a 33° Field of View.
- Adjustable emissivity from 0.1 to 0.99.
- Integrated 8GB memory card for image and data storage.
- Rechargeable Li-ion battery via micro USB interface.



Figure 1: WnewTools NF-521 Handheld Thermal Imaging Camera. This image shows the overall design of the thermal imager, highlighting its ergonomic grip and the integrated display screen.

2. PRODUCT OVERVIEW AND COMPONENTS

Familiarize yourself with the various parts of your NF-521 thermal imaging camera.



Figure 2: Labeled components of the NF-521. This diagram points out key features such as the SD card slot, USB interface, UP/DOWN/OK/Menu keys, Return key, Thermometer lens, Infrared camera, and Trigger.

2.1 Package Contents

Upon unpacking, ensure all items are present:

- NF-521 Thermal Imaging Camera (1 unit)
- Memory Card (8GB, pre-installed or separate) (1 unit)
- USB Charging Cable (1 unit)
- Power Adapter (1 unit)
- User Manual (1 unit)

3. SETUP AND INITIAL USE

3.1 Charging the Battery

1. Locate the Micro USB port on the device.
2. Connect the provided USB charging cable to the camera and the power adapter.
3. Plug the power adapter into a standard electrical outlet.
4. The charging indicator (if present) will illuminate. Allow sufficient time for a full charge before first use.

3.2 Inserting the Memory Card

The device typically comes with an 8GB memory card pre-installed. If not, or if you need to replace it:

1. Locate the SD card slot (refer to Figure 2).
2. Gently insert the memory card with the contacts facing down until it clicks into place.

4. OPERATING INSTRUCTIONS

4.1 Powering On/Off

- To power on: Press and hold the power button (usually the green button, refer to Figure 2) until the display illuminates.
- To power off: Press and hold the power button again until the display shuts down.

4.2 Basic Measurement

1. Point the thermal imager at the target object.
2. The screen will display the thermal image and temperature readings.
3. Press the trigger (refer to Figure 2) to capture an image. The image will be saved to the memory card.



Figure 3: The NF-521 in operation, showing a thermal image on its 2.4-inch screen. The display indicates temperature readings and the thermal distribution of the scanned area.

4.3 Navigation and Menu Options

Use the UP, DOWN, OK/Menu, and Return keys (refer to Figure 2) to navigate through the device's menu and adjust settings such as:

- **Emissivity:** Adjust this setting (0.1-0.99) to match the material being measured for accurate readings.
- **Color Palettes:** Select different color schemes (e.g., Rainbow, Iron Red, Black and White) to visualize temperature differences.
- **Temperature Units:** Switch between Celsius (°C) and Fahrenheit (°F).
- **Image Blending:** Merge visible and infrared images for enhanced detail.

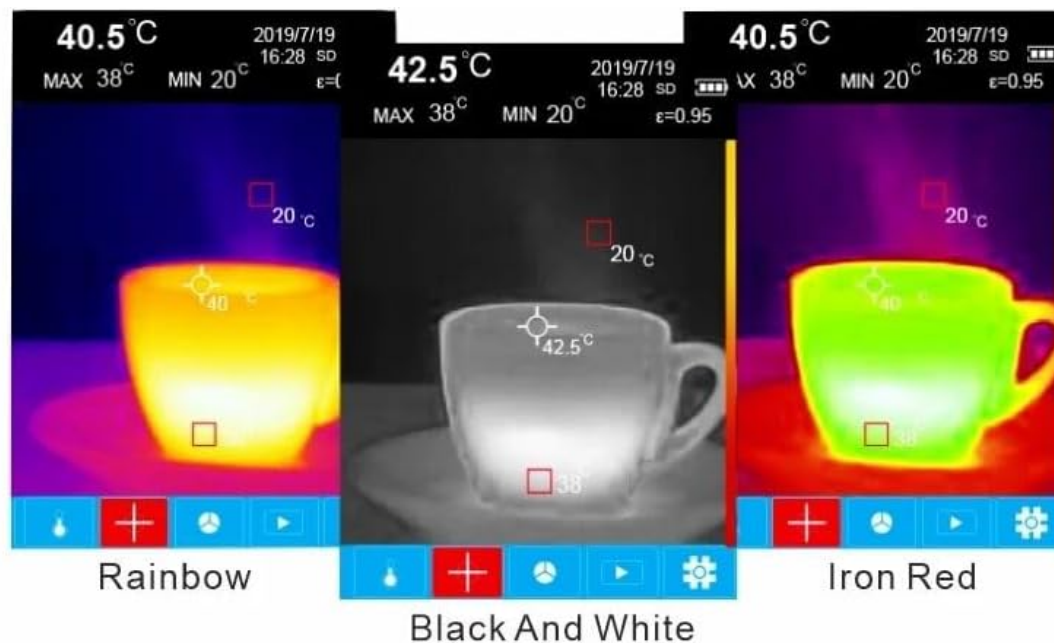


Figure 4: Examples of different thermal color palettes available on the NF-521, including Rainbow, Black and White, and Iron Red, which help in visualizing temperature variations.

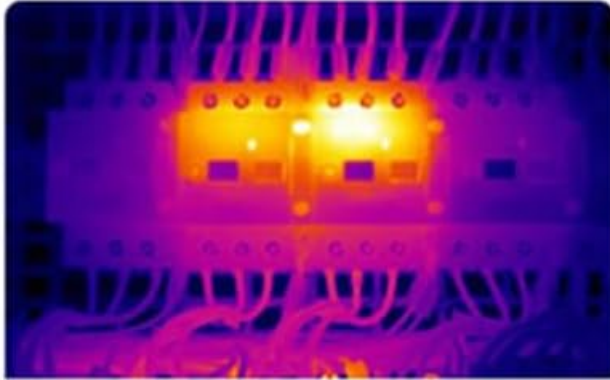
5. APPLICATIONS

The NF-521 thermal imaging camera is suitable for a wide range of diagnostic and inspection tasks:

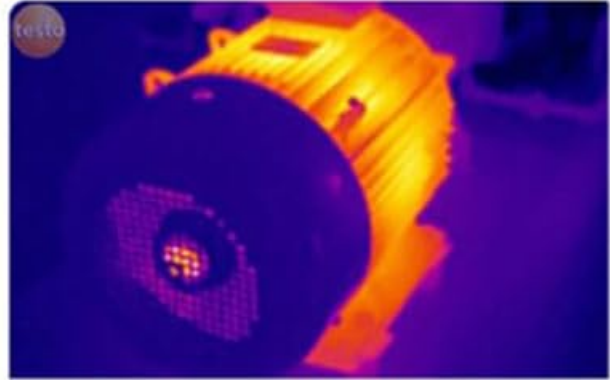
- **Electrical Inspection:** Identify overheating components, loose connections, or imbalanced loads in electrical panels and circuits.
- **Building Inspection:** Detect insulation deficiencies, moisture intrusion, air leaks, and HVAC system issues.
- **Mechanical Inspection:** Monitor machinery for abnormal heat signatures indicating friction, wear, or impending failure.
- **Heating System Measurement:** Evaluate the performance of heating elements, radiators, and underfloor heating systems.

WIDE RANGE OF USES

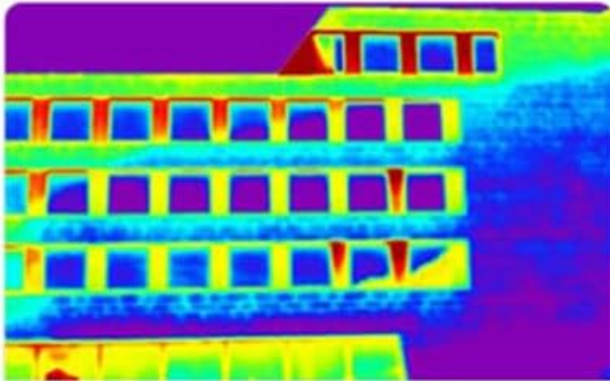
For car engine overhaul, transformer room line maintenance, air conditioner repair, etc.



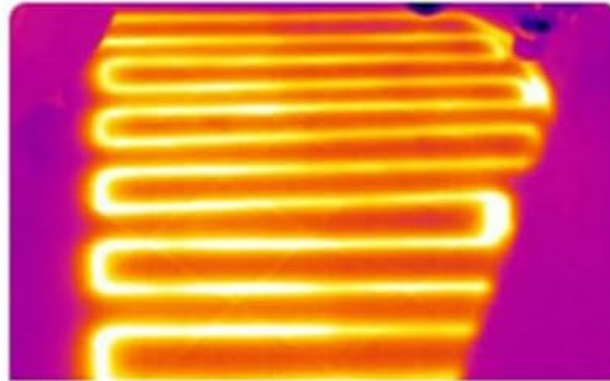
Electrical inspection



Mechanical inspection



Building inspection



Heating system measurement

Figure 5: Visual examples of the NF-521's wide range of uses, including electrical inspection, mechanical inspection, building inspection, and heating system measurement.

6. MAINTENANCE

6.1 Cleaning

- Use a soft, dry cloth to clean the camera body.
- For the lens and screen, use a lens cleaning cloth and a specialized cleaning solution if necessary. Avoid abrasive materials.

6.2 Storage

- Store the device in a cool, dry place, away from direct sunlight and extreme temperatures.
- If storing for extended periods, ensure the battery is partially charged (around 50%) to prolong its lifespan.

6.3 Battery Care

- Avoid fully discharging the battery frequently.
- Charge the battery regularly, even if the device is not in use, to maintain battery health.

7. TROUBLESHOOTING

7.1 Device Does Not Power On

- Ensure the battery is sufficiently charged. Connect the device to the charger and try again.
- Verify the power button is pressed and held correctly.

7.2 Inaccurate Temperature Readings

- Check and adjust the emissivity setting to match the material being measured.
- Ensure the lens is clean and free from obstructions.
- Verify the measurement distance is within the recommended range.

7.3 Cannot Save Images

- Check if the memory card is correctly inserted.
- Ensure there is sufficient space on the memory card.
- Try formatting the memory card (this will erase all data, back up important files first).

8. SPECIFICATIONS

The following table outlines the technical specifications of the NF-521 Thermal Imaging Camera:

PRODUCT PARAMETERS

Infrared temperature measurement	
Temperature measurement range	-10~400℃
Basic accuracy	±2% or ±2.0℃
Emissivity	adjustable 0.1~0.99
Measuring resolution	0.1℃
Response time	150ms
Spectral band	8~14um
Thermal imaging technique	
Thermal imaging resolution	32*32 (1024 pixels)
Electronic shutter	No
Visible light camera	2 megapixels
Display resolution	Thermal imaging, thermal mixing, digital camera
Color palettes	Ironbow,iridescence ,Grayscale
Infrared spectral bandwidth	8~14um
FOV	33° horizontal
IFOV	18 mrad
Thermal imaging sensitivity	150mk
Frame rate	≤9Hz
Image format	BMP
General parameters	
Monitor	2.4 "TFT LCD
Display resolution	320*240 pixels
Battery	3.7V/2600mAh
Automatic shutdown function	Yes
Certification	CE
SD card	8GB TF card
Working temperature	-10℃~45℃
Drop proof	2m
Standard accessories	manual, USB cable, 8GB micro TF card

Figure 6: Detailed product parameters and specifications for the NF-521 thermal imager.

Category	Parameter	Value
Infrared Temperature Measurement	Temperature Measurement Range	-10~400℃
	Basic Accuracy	±2% or ±2.0℃
	Emissivity	Adjustable 0.1~0.99
	Measuring Resolution	0.1℃
	Response Time	150ms
	Spectral Band	8~14um

Category	Parameter	Value
	Thermal Imaging Resolution	32*32 (1024 pixels)
Thermal Imaging Technique	Electronic Shutter	No
	Visible Light Camera	2 megapixels
	Display Resolution	Thermal imaging, thermal mixing, digital camera
	Color Palettes	Ironbow, Iridescence, Grayscale
	Infrared Spectral Bandwidth	8~14μm
	FOV (Field of View)	33° horizontal
General Parameters	Monitor	2.4" TFT LCD
	Display Resolution	320*240 pixels
	Battery	3.7V/2600mAh Li-ion
	Automatic Shutdown Function	Yes
	Certification	CE
	SD Card	8GB TF card
	Working Temperature	-10°C~45°C

9. WARRANTY AND SUPPORT

For information regarding warranty coverage, technical support, or service, please refer to the warranty card included with your product or contact WnewTools customer service directly. Contact details are typically provided in the product packaging or on the official WnewTools website.

ASK A QUESTION ABOUT THIS MANUAL

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After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

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