TOOLTOP TT-ET14S+Macro lens

TOOLTOP ET14S 2-in-1 Thermal Imager & Multimeter User Manual

Model: TT-ET14S+Macro lens

Introduction

This user manual provides comprehensive instructions for the safe and effective operation of your TOOLTOP ET14S 2-in-1 Thermal Imager and Multimeter. This device integrates a high-resolution thermal camera with a full-featured digital multimeter, offering a versatile tool for various diagnostic and inspection tasks. Please read this manual thoroughly before use and retain it for future reference.

Safety Information

Always adhere to the following safety precautions to prevent injury or damage to the device:

- Do not attempt to disassemble or modify the device.
- Ensure the device is turned off before connecting or disconnecting test leads.
- Do not exceed the maximum input ratings for voltage, current, or temperature.
- Use appropriate personal protective equipment (PPE) when working with electrical circuits or high temperatures.
- Keep the device away from water, dust, and extreme temperatures.
- Refer to the warning label on the back of the device for additional safety instructions.

What's in the Box

Verify that all items listed below are present in your package:

- ET14S Thermal Imager & Multimeter
- Macro Lens
- Instrument Storage Bag
- Multimeter Probes (Test Leads)
- Data Line (USB Cable)
- Product Manual

- Packaging Box

Image: Components included in the ET14S package, showing the main unit, macro lens, storage bag, multimeter probes, data cable, and product manual.

Product Overview

The TOOLTOP ET14S combines a high-resolution thermal imager with a precise digital multimeter. It features a 2.8-inch IPS high-definition screen for clear display of both thermal images and electrical measurements.

Image: Front view of the ET14S device, illustrating its dual functionality as a thermal imager and multimeter with its display screen and control buttons.

Image: A detailed view of the ET14S screen, showing both a thermal image overlay and digital multimeter readings simultaneously.

Key Features:

- **ISR240x240 Thermal Camera:** Upgraded imaging pixels of 240x240 and 25Hz image capture frequency for detailed thermal analysis.
- **High-precision Multimeter:** 9999 counts True RMS multimeter for accurate electrical measurements.
- **Long Battery Life:** Up to 8 hours of continuous use with a universal 18650 rechargeable battery.
- **Compact and Portable:** Ergonomic design with a 2.8-inch screen and innovative stand.
- **Wide Temperature Range:** -20°C to +550°C with ±2°C or ±2% accuracy.
- **Optional Macro Lens:** For detailed inspection of small components like PCBs.

Setup

1. Battery Installation and Charging:

The ET14S uses a rechargeable 18650 lithium battery. Ensure the battery is properly installed and charged before first use.

1. Locate the battery compartment on the back of the device.
2. Open the compartment cover.
3. Insert the 18650 battery, observing the correct polarity (+/-).
4. Close the battery compartment cover securely.
5. Connect the device to a power source using the provided USB data line for charging. The charging indicator will show the charging status.

Image: The ET14S with its battery compartment open, illustrating the removable 18650 lithium battery and the USB charging port.

2. Attaching the Macro Lens (Optional):

For detailed inspection of small objects or PCB boards, attach the included macro lens.

1. Locate the macro lens attachment point on the top of the device, near the thermal camera lens.

2. Align the macro lens with the attachment mechanism.
3. Slide or clip the macro lens into place until it is securely fastened over the thermal camera lens.
4. To remove, gently slide or unclip the macro lens.

Image: The ET14S device highlighting the optional macro lens and demonstrating its capability for detailed thermal inspection of small components like PCBs.

Operating Instructions

1. Powering On/Off:

Press and hold the power button (usually located on the side or front panel) to turn the device on or off.

2. Navigating the Interface:

The ET14S features a user-friendly interface with dedicated buttons for different functions. Use the navigation buttons (up, down, left, right, OK/Enter) to move through menus and select options.

3. Thermal Imaging Mode:

In thermal imaging mode, the screen displays a real-time infrared image. The device automatically detects and displays temperature readings for the hottest and coldest points, as well as a central spot temperature.

Image: The ET14S screen showing a thermal image with temperature distribution and specific temperature readings for analysis.

- **Palette Selection:** Use the menu to select different color palettes (e.g., Iron, Rainbow, Gray) to visualize temperature differences.
- **Emissivity Adjustment:** Adjust emissivity settings based on the material being inspected for accurate temperature measurements.
- **Image Capture:** Press the designated button to capture and save thermal images.

4. Multimeter Mode:

The ET14S functions as a full-featured True RMS multimeter. Connect the test leads to the appropriate input jacks (COM, VΩHz, A) and select the desired measurement function using the rotary dial or function buttons.

Image: The ET14S screen displaying various multimeter readings, including voltage, resistance, and frequency, demonstrating its electrical measurement capabilities.

- **Voltage Measurement (AC/DC):** Select V~ for AC voltage or V- for DC voltage.
- **Current Measurement (AC/DC):** Select A~ for AC current or A- for DC current. Ensure correct lead connection for current measurements.
- **Resistance (Ω), Continuity, Diode:** Select the Ω symbol for resistance, continuity buzzer, or diode test.
- **Capacitance (F), Frequency (Hz), Duty Cycle (%):** Select the appropriate symbols for these measurements.
- **Non-Contact Voltage (NCV):** Use the NCV function to detect AC voltage without direct contact.
- **Data Hold:** Press the HOLD button to freeze the current reading on the display.
- **Range Selection:** The device typically features auto-ranging, but manual range selection may be available.

Applications

The TOOLTOP ET14S is a versatile tool suitable for a wide range of applications, including but not limited to:

- **Power System Maintenance:** Identifying overheating components in electrical panels, circuit breakers, and wiring.
- **Underfloor Heating Inspection:** Locating heating elements and identifying blockages or leaks in radiant heating systems.
- **Automobile Maintenance:** Diagnosing engine overheating, checking brake temperatures, and inspecting electrical systems.
- **PCB Board Repair and Electronic Inspection:** Pinpointing hot spots on circuit boards, identifying faulty components, and verifying thermal performance.
- **Pipeline Heating Inspection:** Detecting insulation failures or blockages in industrial pipelines.
- **Home Inspection:** Identifying insulation gaps, moisture intrusion, and HVAC issues.

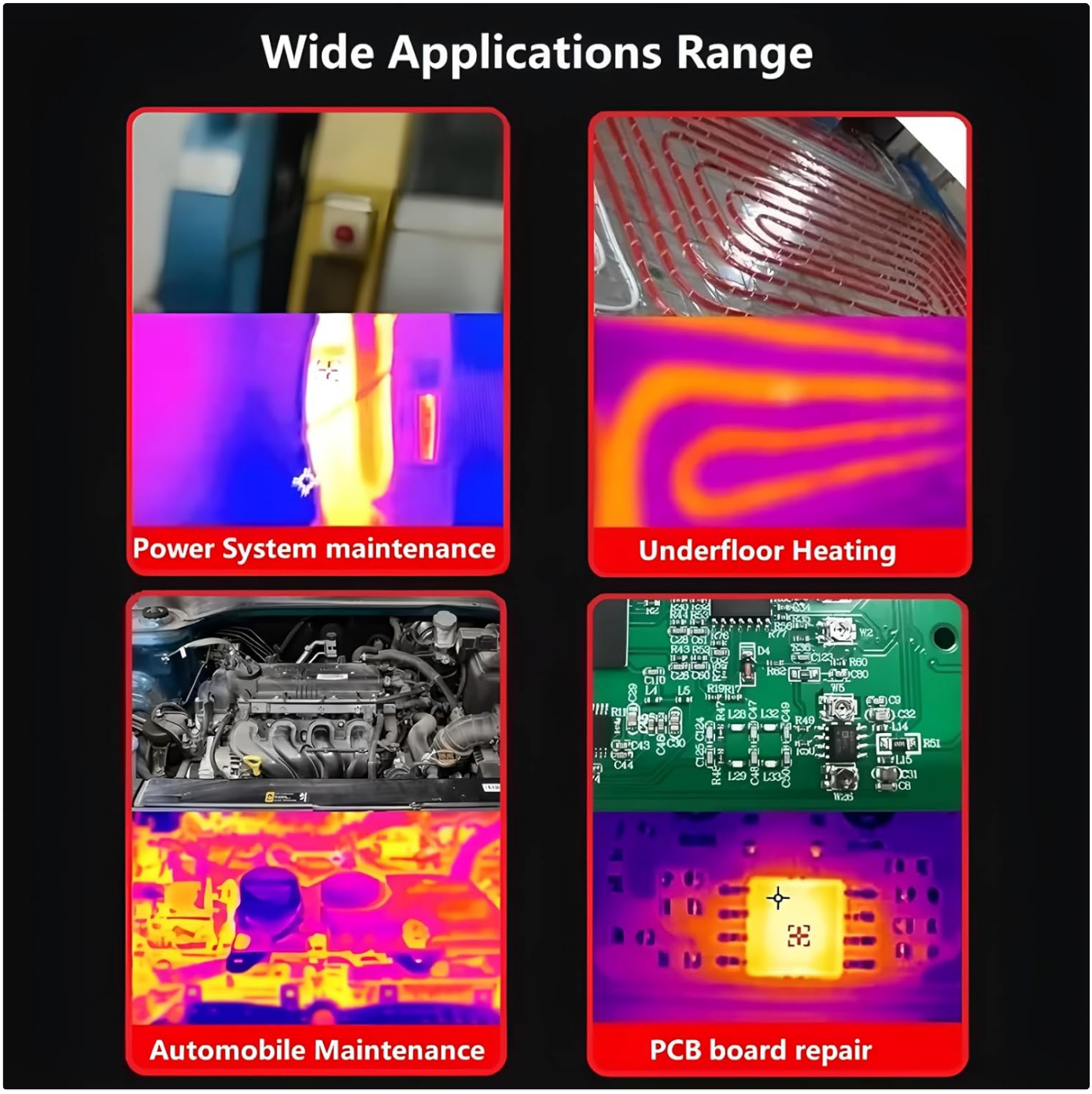


Image: A visual representation of the wide range of applications for the ET14S, including power system maintenance, underfloor heating, automobile diagnostics, and PCB board repair.

Maintenance

1. Cleaning:

Wipe the device with a soft, damp cloth. Do not use abrasive cleaners or solvents. Ensure the lenses are clean and free of dust or smudges for optimal thermal imaging performance.

2. Battery Care:

To prolong battery life, charge the device regularly and avoid completely draining the battery. If storing for extended periods, charge the battery to approximately 50% and store in a cool, dry place.

3. Storage:

Store the ET14S in its provided storage bag or a protective case when not in use to prevent damage from impacts or dust. Avoid storing in areas with extreme temperatures or high humidity.

Troubleshooting

Problem	Possible Cause	Solution
Device does not power on.	Low or depleted battery. Incorrect battery installation.	Charge the battery. Ensure the battery is inserted with correct polarity.
Inaccurate temperature readings.	Incorrect emissivity setting. Lens is dirty. Object is too far or too close.	Adjust emissivity for the target material. Clean the thermal lens. Ensure proper measurement distance.
Multimeter readings are unstable or incorrect.	Loose test lead connections. Incorrect function selected. Battery low.	Check and secure test lead connections. Verify the correct measurement function is selected. Charge the battery.
Screen is blank or frozen.	Software glitch.	Perform a hard reset by holding the power button for 10-15 seconds, or remove and reinsert the battery.

Specifications

Feature	Specification
Thermal Resolution	240x240 pixels
Frame Rate	25Hz
Temperature Range	-20°C to +550°C (-4°F to +1022°F)
Temperature Accuracy	±2°C or ±2% (whichever is greater)
Measurement Resolution	0.1°C / 0.1°F
Multimeter Counts	9999 counts (True RMS)
Display Screen	2.8-inch IPS High-Definition LCD
Battery Type	Rechargeable 18650 Lithium Battery

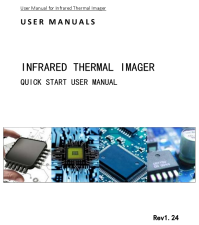
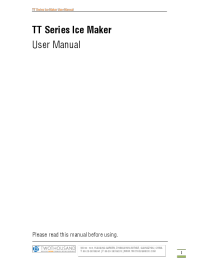
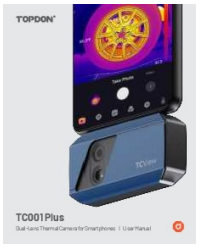
Feature	Specification
Battery Life	Up to 8 hours (continuous use)
Item Weight	1 Kilogram (2.2 Pounds)
Dimensions	7.87 x 5.91 x 3.94 inches (Package Dimensions)
Certifications	CE, RoHS

Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or contact TOOLTOP customer service directly. The EU spare part availability duration is 1 year.
Manufacturer: TOOLTOP
Item Model Number: TT-ET14S+Macro lens
For further assistance, please visit the official TOOLTOP website or contact their authorized service centers.

Related Documents - TT-ET14S+Macro lens

	TOOLTOP ET693C Handheld Thermal Imager Camera User Manual Comprehensive user manual for the TOOLTOP ET693C handheld thermal imager camera, detailing features, specifications, operation, analysis software, and precautions. Features 256*192 resolution, 512*384 Super IR, and industrial-grade precision.
	Digi-Sense 20250-66 Digital Multimeter with Thermal Imager User Manual Comprehensive user manual for the Digi-Sense 20250-66 Digital Multimeter with Thermal Imager, detailing its features, operation, safety instructions, and technical specifications. Includes guidance on using the Bluetooth mobile app and thermal imaging capabilities.
	Tooltop ET692A Infrared Thermal Camera Instruction Manual This manual provides instructions for the Tooltop ET692A Infrared Thermal Camera, covering its overview, operating procedures, measurement principles, charging instructions, and technical specifications. It is designed for industrial use in fields such as fire fighting, archaeology, traffic, agriculture, and electronics manufacturing.

	[TOOLTOP ET14C Infrared Thermal Imager Quick Start User Manual] Comprehensive quick start user manual for the TOOLTOP ET14C Infrared Thermal Imager, covering safety instructions, technical specifications, operating procedures, system settings, and usage with upper computer software.
	[TT Series Ice Maker User Manual] User manual for the TWOTHOUSAND TT Series Ice Maker, providing specifications, installation, operation, maintenance, and troubleshooting guidance.
	[TOPDON TC001 Plus Dual-Lens Thermal Camera for Smartphones User Manual] User manual for the TOPDON TC001 Plus, a dual-lens thermal camera for smartphones. Learn about product overview, safety precautions, operating instructions for mobile and computer use, specifications, FAQs, warranty, and compliance information.