TOPDON TC002C Duo

TOPDON TC002C Duo Thermal Camera User Manual

Model: TC002C Duo

1. INTRODUCTION

This manual provides comprehensive instructions for the safe and effective operation of your TOPDON TC002C Duo Thermal Camera. The TC002C Duo is a compact thermal imaging device designed to connect directly to your USB-C compatible iPhone, iPad, or Android device, transforming it into a powerful thermal imager. It is engineered for a wide range of applications, from home inspections to automotive diagnostics, by visualizing temperature differences.

Image 1.1: The TOPDON TC002C Duo Thermal Camera connected to a smartphone.

2. PRODUCT OVERVIEW AND KEY FEATURES

- **Universal USB-C Compatibility:** The TC002C Duo is designed for seamless integration with all USB-C smartphones and tablets, including iOS, Android, and Windows devices. *Note: Not compatible with Mac devices or Android 16 devices temporarily.*

- **Super Resolution Thermal Imaging (TISR):** Enhances 256x192 infrared thermal imaging to a sharper 512x384 resolution, revealing finer details.

- **High Refresh Rate:** Features a 25Hz refresh rate for smooth, real-time heat tracking, suitable for dynamic environments.

- **High Thermal Sensitivity:** With a sensitivity of 40mK, it can detect subtle temperature variations.

- **Extensive Temperature Range:** Capable of reading temperatures from -4°F to 1022°F (-20°C to 550°C) with an accuracy of ±2°C or 2%.

- **Compact and Portable Design:** Measuring 2.8" x 1.7" x 0.55" (71x42x14mm) and weighing 1.1 oz (30g), it is easy to carry and use on the go.

- **TopInfrared App Control:** Utilizes the dedicated TopInfrared App for comprehensive device control, thermal imaging, smart tools, and guided analysis.

- **Dual Lens Setup:** Integrates both thermal and visual cameras for side-by-side imaging, providing a clearer understanding of heat distribution in context.

3. WHAT'S IN THE BOX

- TC002C Duo Thermal Imager
- USB-C to USB-C Cable
- USB-C to Lightning Cable
- Quick User Guide
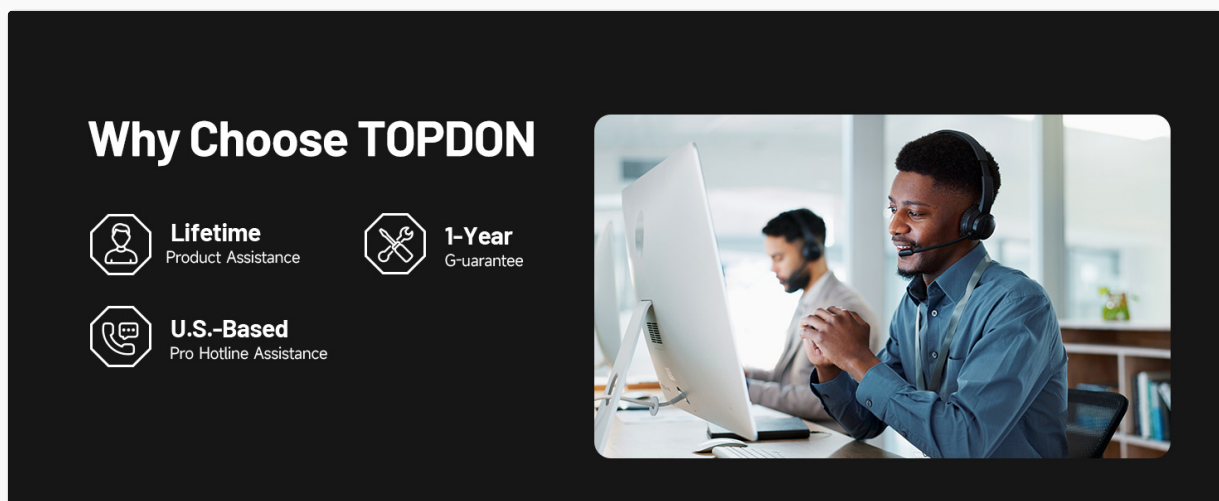- Carrying Bag
- Cleaning Cloth
- Packing Box

Image 3.1: Contents of the TOPDON TC002C Duo package.

4. SETUP INSTRUCTIONS

1. **Download the TopInfrared App:** Locate and download the 'TopInfrared' application from your device's app store (App Store for iOS, Google Play Store for Android).

2. **Connect the Thermal Camera:**
   - For USB-C devices: Directly plug the TC002C Duo into your device's USB-C port.
   - For Lightning port devices (older iPhones/iPads): Use the provided USB-C to Lightning cable to connect the thermal camera to your device.
   - For devices with protective cases: If the camera does not fit directly, use the provided USB-C extension cable to connect the camera to your device.

3. **Launch the App:** Open the TopInfrared app. You may be prompted to agree to terms of service and grant necessary permissions (e.g., camera access). Confirm these prompts to proceed.

4. **Initial Calibration:** The camera may perform a brief self-calibration upon first connection or when switching modes. This is normal.

5. **Adjust Temperature Units:** Within the app settings, you can switch between Celsius (°C) and Fahrenheit (°F) for temperature readings.

Image 4.1: The TC002C Duo demonstrating universal USB-C compatibility with various devices.

5. OPERATING INSTRUCTIONS

5.1. Real-time Thermal Imaging

Once connected and the app is running, the screen will display a live thermal view. Hotter areas will typically appear in warmer colors (e.g., yellow, orange, red), while cooler areas will appear in cooler colors (e.g., blue, purple).
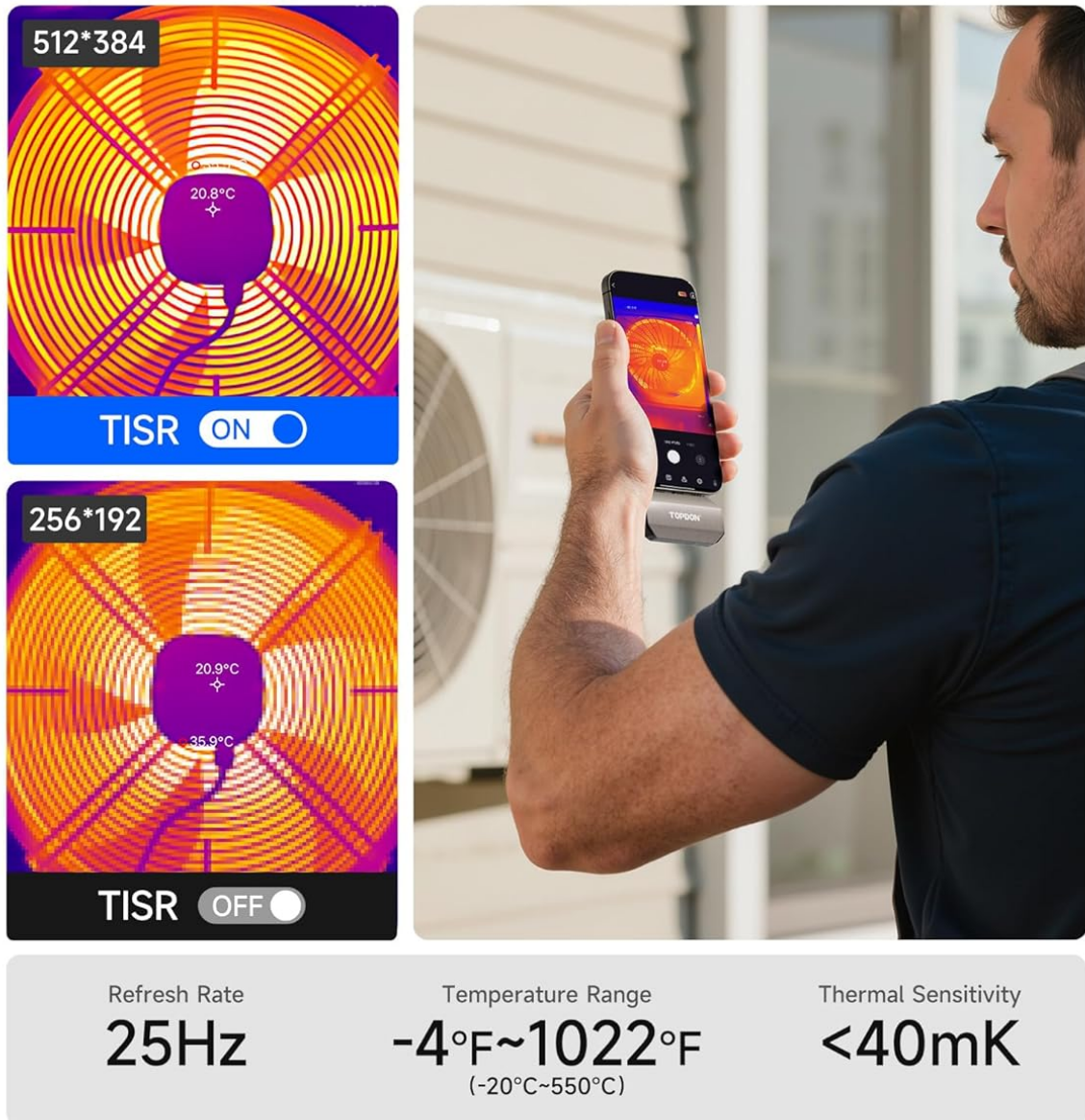
Image 5.1: Comparison of standard IR resolution and enhanced TISR resolution.

5.2. App Features and Modes

- **Temperature Monitoring:** View real-time temperature variations and waveform changes.

- **High/Low Temperature Alarms:** Customize temperature limits with colorful displays to alert you to critical temperature points.

- **Photo & Video Recording:** Capture thermal images and videos directly through the app to document findings.

- **AI Detection:** Utilize AI-assisted features for enhanced analysis and interpretation of thermal data.

- **Rotatable Design:** The camera's design allows for flexible positioning to capture images from various angles.

- **Color Palettes:** Choose from 10 predefined color palettes or create custom ones for clearer and more flexible thermal imaging.
- **3D Thermal Mapping:** Pinpoint issues faster with clear, visual temperature contrast across your image using intuitive 3D overlays.
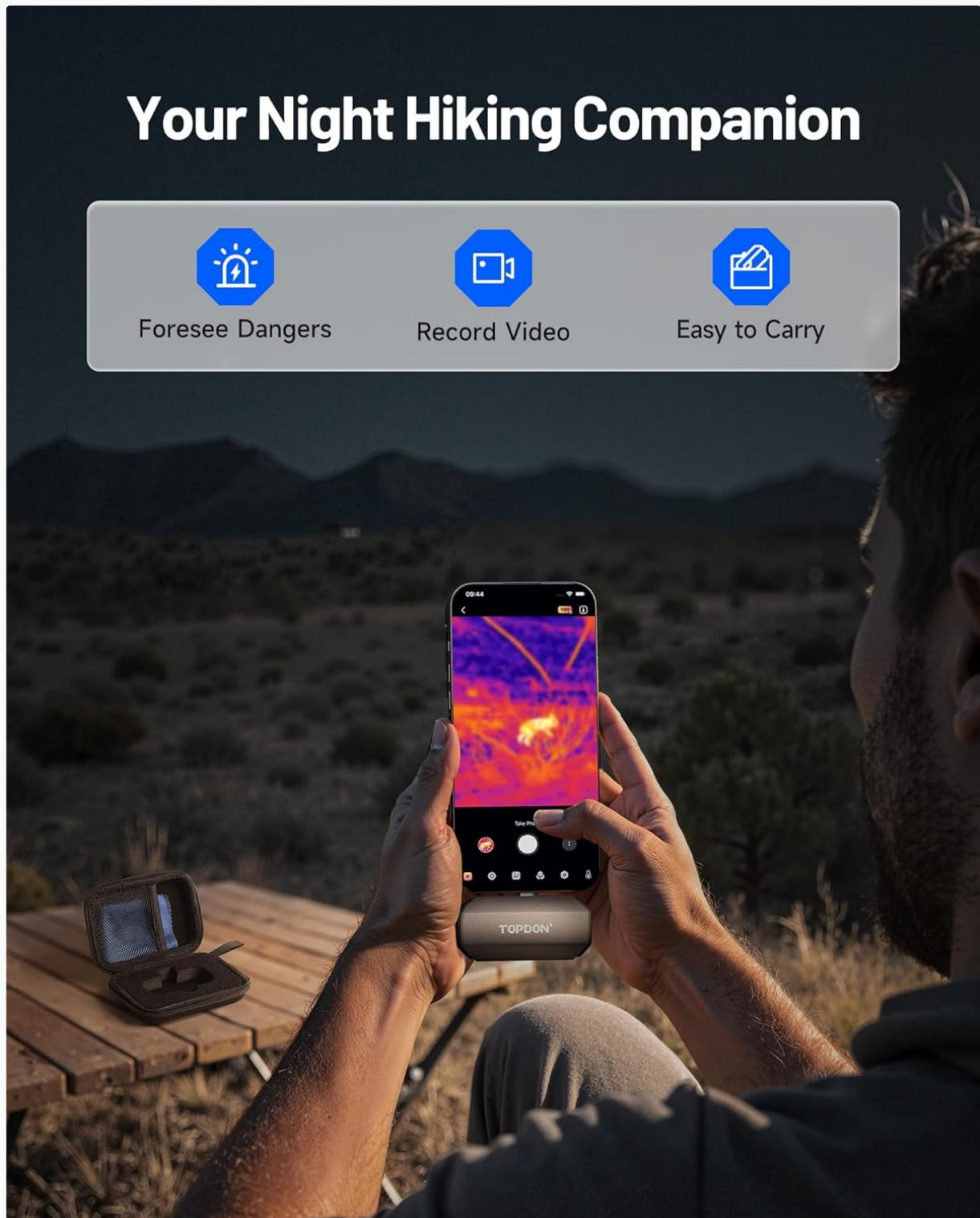

Image 5.2: TopInfrared App interface showcasing various features.

5.3. Guided Home Inspection

The app includes a built-in step-by-step home inspection guide to assist users in identifying common issues such as insulation leaks, electrical hotspots, plumbing problems, and pest detection.
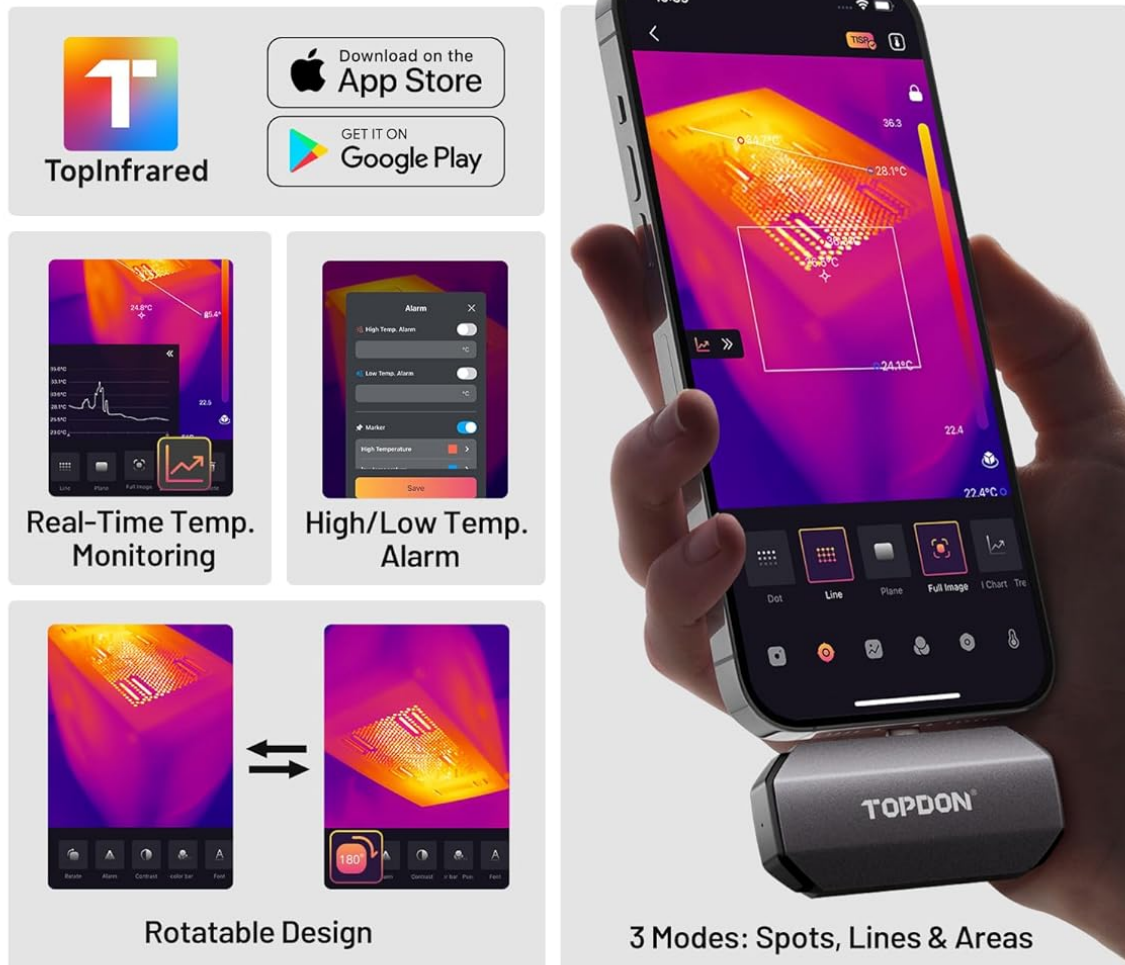
Image 5.3: Guided home inspection feature in the TopInfrared App.

5.4. PC Analysis with TopView

For advanced analysis, the TopView software (Windows compatible) allows you to view, compare, and analyze thermal images in detail on a larger screen, ideal for reports and diagnostics. *Note: Mac is not supported.*

6. APPLICATIONS

The TC002C Duo thermal camera is a versatile tool suitable for various professional and personal applications:

- **Home Inspections:** Identify insulation gaps, drafts, and moisture issues.

- **HVAC Diagnostics:** Detect blockages, leaks, and inefficiencies in heating, ventilation, and air conditioning systems.

- **Electrical Inspections:** Locate overheating components, loose connections, and circuit overloads.

- **Automotive Diagnostics:** Examine engine components, brakes, and exhaust systems for abnormal heat signatures.

- **Plumbing:** Detect hidden water leaks behind walls or under floors.

- **Pest Detection:** Identify areas where pests may be nesting by detecting their body heat.

- **Outdoor Activities:** Useful for observing wildlife or tracking heat signatures from a safe distance (up to 16.4ft / 5m).

7. SPECIFICATIONS

Feature	Specification
Item Model Number	TC002C Duo
IR Resolution	256 x 192
Super Resolution (TISR)	512 x 384
Temperature Range	-4°F to 1022°F (-20°C to 550°C)
Temperature Accuracy	±2°C or 2%
Refresh Rate	25Hz
Thermal Sensitivity	<40mK
Dimensions	2.8" x 1.7" x 0.55" (71x42x14mm)
Weight	1.1 oz (30g)
Compatibility	USB-C iPhone, iPad, Android, Windows PC (Mac not supported)

8. MAINTENANCE

- **Cleaning:** Use the provided cleaning cloth to gently wipe the camera lens and body. Avoid abrasive materials or harsh chemicals.

- **Storage:** Store the thermal camera in its protective carrying bag when not in use to prevent damage.

- **Software Updates:** Regularly check the TopInfrared app for software updates to ensure optimal performance and access to new features.

9. TROUBLESHOOTING

- **Camera Not Detected:** Ensure the camera is securely plugged into your device's USB-C port. If using an extension cable or adapter, ensure all connections are firm. Restart the TopInfrared app or your device if the issue persists.

- **App Compatibility:** The device is not compatible with Mac operating systems or Android 16 devices at this time. Verify your device's operating system version.

- **Inaccurate Readings:** Ensure the camera lens is clean and free from obstructions. Check the app settings for correct temperature units (°C/°F) and emissivity settings for the surface being measured.

- **Poor Image Quality:** Verify that the TISR (TOPDON Image Super Resolution) feature is enabled in the app settings for enhanced resolution.

10. WARRANTY AND SUPPORT

- **1-Year Guarantee:** The TOPDON TC002C Duo Thermal Camera comes with a 1-year guarantee covering manufacturing defects.

- **Lifetime Product Assistance:** TOPDON provides lifetime assistance for its products.

- **24/7 US-Based Customer Service:** For any inquiries or support needs, contact TOPDON's customer service available 24/7.

Related Documents - TC002C Duo

	[TOPDON TC002C Duo Thermal Infrared Camera User Manual](#) User manual for the TOPDON TC002C Duo thermal infrared camera, providing instructions for setup, mobile and PC usage, accuracy verification, warnings, and technical specifications.
	[TOPDON TCView Thermal Imaging Camera User Manual](#) User manual for the TOPDON TCView Thermal Imaging Camera, detailing its features, operation with Android devices and Windows PCs, specifications, and FAQs. Learn how to capture and analyze thermal images.
	[TOPDON TC003 Thermal Imaging Camera: Features, Specs, and FAQs](#) Explore the TOPDON TC003, a high-resolution thermal imaging camera with advanced features for various applications. Discover its specifications, functions, and answers to frequently asked questions.

	[TOPDON TC003 Thermal Imaging Camera User Manual](#) Comprehensive user manual for the TOPDON TC003 Android-based thermal imaging camera. Learn about its features, buttons, ports, standalone mode operation, specifications, FAQ, warranty, and FCC compliance.
	[TOPDON TCView Thermal Imaging Camera User Manual](#) User manual for the TOPDON TCView Thermal Imaging Camera, detailing its features, usage with mobile devices and PCs, specifications, FAQ, and warranty information.
	[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.