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Thermal Master P1

Thermal Master P1 Thermal Camera User Manual

Model: P1 for USB-C Devices

1. Introduction

The Thermal Master P1 is a compact, high-performance thermal imaging camera designed to connect directly to your USB-C enabled iPhone, Android phone, tablet, or Windows device. It transforms your device into a powerful thermal inspection tool, capable of detecting heat signatures for various applications such as home inspections, electrical diagnostics, HVAC maintenance, and automotive repairs. This manual provides essential information for setting up, operating, maintaining, and troubleshooting your P1 thermal camera.



Figure 1: Thermal Master P1 Thermal Camera in use.

2. What's in the Box

Please check the contents of your package to ensure all items are present:

- P1 Thermal Camera Body
- Protective Zipper Carry Case
- 50cm USB-C Extension Cable
- Quick Start Guide



Figure 2: Packaging list for the Thermal Master P1.

3. Setup

3.1. Compatibility

The Thermal Master P1 is designed for broad compatibility with USB-C devices:

- **iOS Devices:** Compatible with iPhones and iPads featuring a USB-C port.
- **Android Devices:** Works with most Android smartphones and tablets equipped with a USB-C port.
- **Windows PC:** Can be connected to Windows PCs with a USB-A port using the provided extension cable and a USB-A to USB-C adapter (not included).

Note: If your Android phone is running Android 10, please upgrade to a later version or download the compatible app from the Thermal Master website for optimal performance.



Figure 3: Thermal Master P1 device compatibility.

3.2. App Installation

To use your Thermal Master P1, you need to download the official**Thermal Master APP**:

1. **For iOS Devices:** Search for "Thermal Master" in the Apple App Store.
2. **For Android Devices:** Search for "Thermal Master" in the Google Play Store.
3. Download and install the app. No login or registration is required to access all features.



Figure 4: Thermal Master App download instructions.

3.3. Connecting the Device

The Thermal Master P1 is designed for plug-and-play operation:

1. Ensure the Thermal Master APP is installed and open on your device.
2. Plug the P1 thermal camera directly into your device's USB-C port. The extended Type-C plug (+2mm) is designed to work with most phone cases.
3. Alternatively, for hard-to-reach areas or flexible positioning, connect the P1 to your device using the included 50cm USB-C extension cable.
4. The app should automatically detect the camera and display the thermal image.

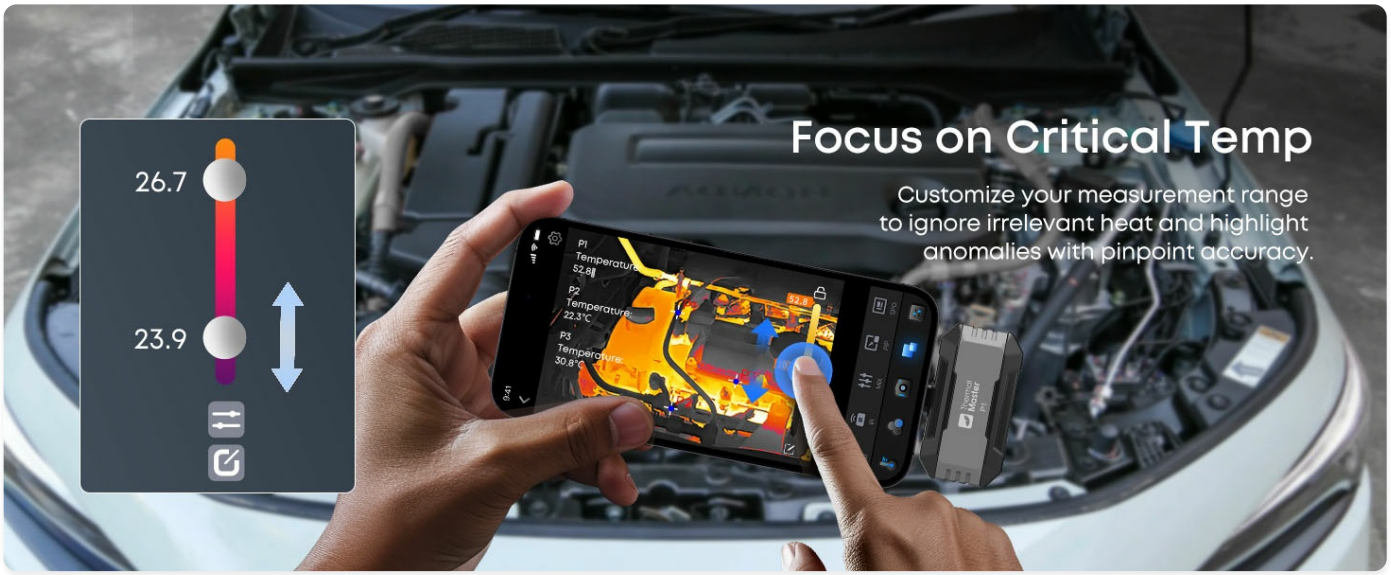


Figure 5: Plug & Play connection of the P1 camera.

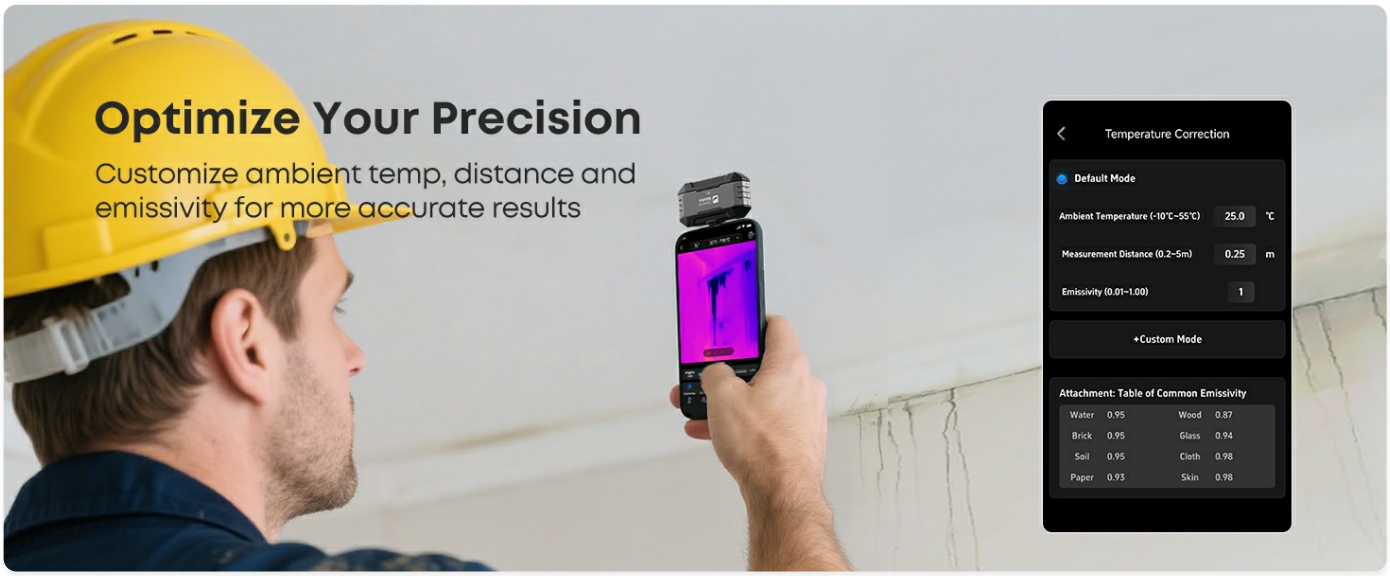


Figure 6: Using the 50cm extension cable and extended USB-C connector.

4. Operating Instructions

4.1. Basic Operation

Once connected, the Thermal Master APP provides a user-friendly interface for thermal analysis:

- **Real-time Thermal Imaging:** The app displays a live thermal feed from the camera.
- **Temperature Readouts:** Spot temperatures, high/low temperature points, and temperature ranges are displayed on the screen.
- **Navigation:** Use on-screen controls to access various features and settings.

Your browser does not support the video tag.

Video 1: User Guide for Thermal Master P1, demonstrating app features and usage.

4.2. Key Features

- **160x120 IR Resolution with X³ Enhancement:** The P1 intelligently enhances its native 160x120 IR resolution to 320x240 for sharper thermal details, powered by Thermal Master X³ algorithms.

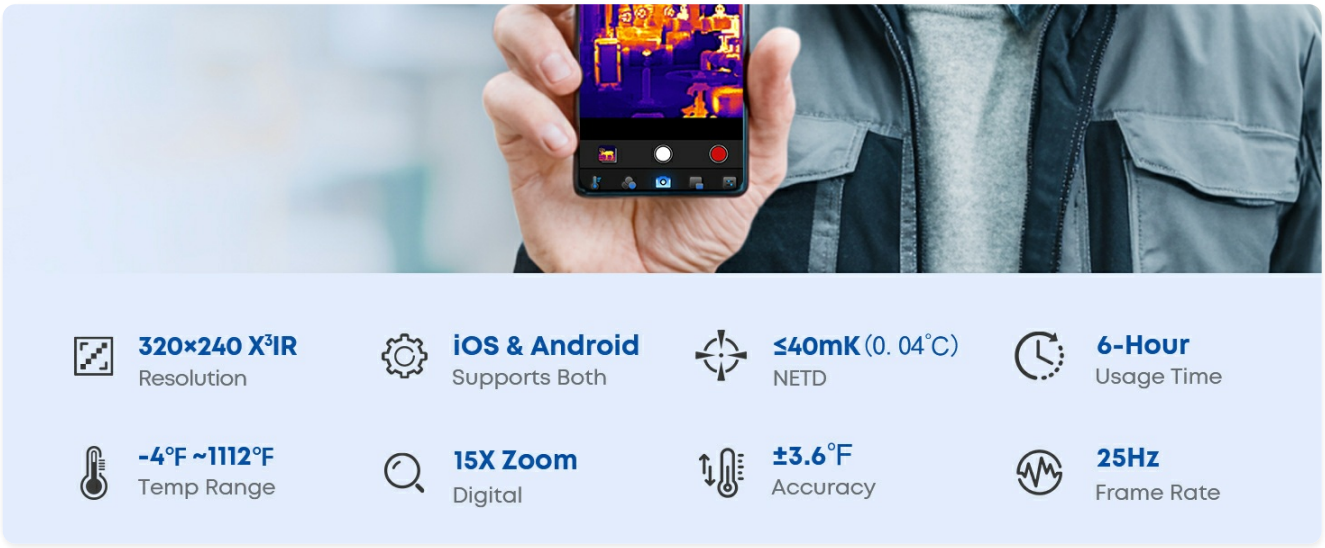


Figure 7: X³ Image Enhancement for sharper thermal details.

- **Wide Temperature Range & High Accuracy:** Measures temperatures from -4°F to 1112°F (-20°C to 600°C) with

±2°C / ±3.6°F accuracy using TruePix Precision Temp Measurement.



Figure 8: Precision Temperature Monitoring capabilities.

- **15x Digital Zoom & Wide Field of View:** Zoom in from 1-15x with two-finger gestures for precision, or scan large areas with a 52°×39° field of view.

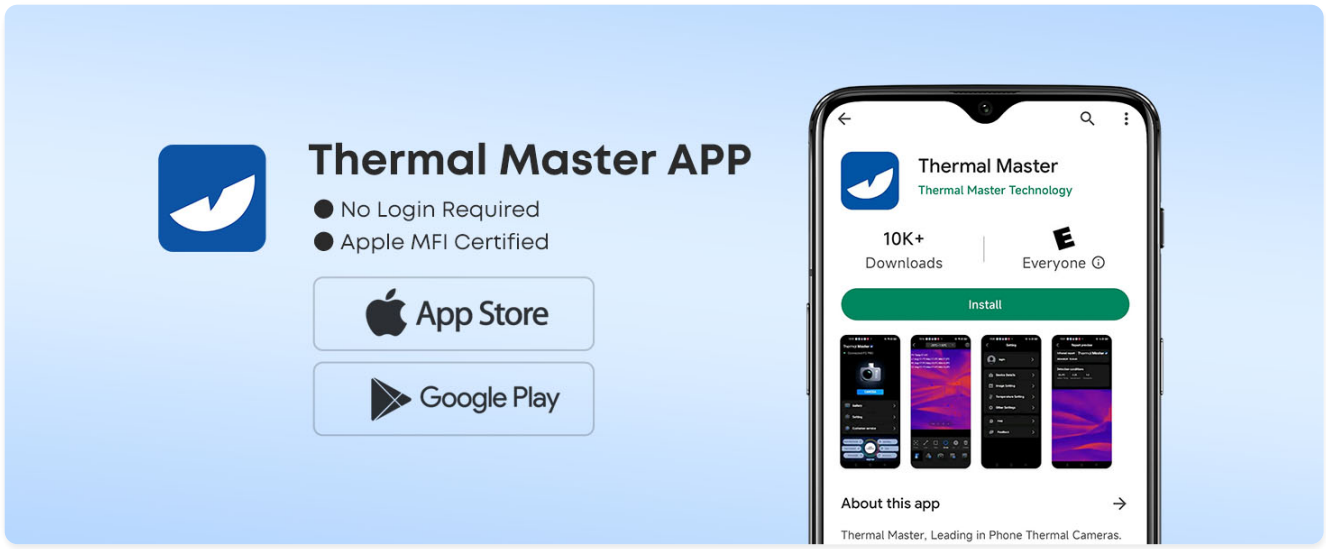


Figure 9: Utilizing the 15x Digital Zoom feature.

- **Adjustable Temperature Span:** Customize your measurement range to ignore irrelevant heat and highlight anomalies with pinpoint accuracy.



Figure 10: Adjusting temperature span for focused analysis.

- **Infrared Color Palettes:** Choose from 12 infrared color palettes to visualize temperature differences effectively.
- **High/Low Temperature Alarm:** Set alarms for high and low temperatures with audible and vibration alerts.

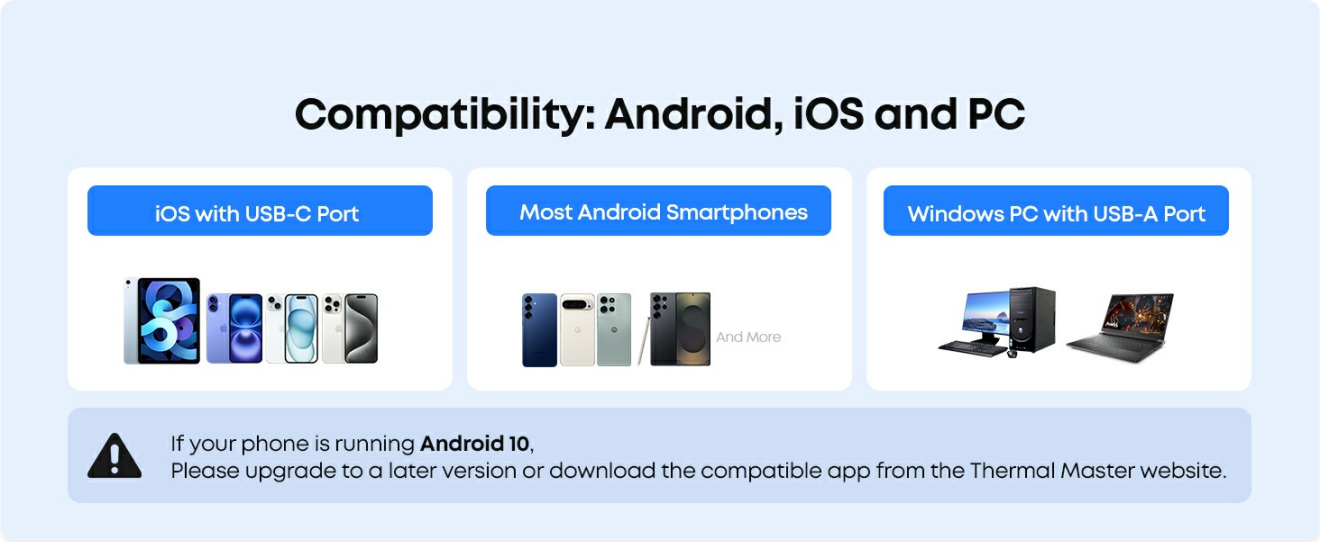


Figure 11: High-Low Temperature Alarm and 12-Color Palette options.

- **Picture-in-Picture (PIP) Function:** Combine thermal and visual images for enhanced context.
- **Automatic Temperature Point Tracking:** Automatically track the hottest and coldest points in the frame.
- **Photo & Video Capture:** Instantly capture thermal images and videos for documentation and sharing.
- **Free Professional Report Generation:** Analyze photos and videos, and generate detailed reports directly from the app.



Figure 12: Free Professional Data Analysis and Report Generation.

4.3. Optimizing Temperature Measurement Accuracy

For the most accurate temperature readings, utilize the app's calibration functions:

- **Ambient Temperature:** Input the current ambient temperature of your environment.
- **Measurement Distance:** Specify the distance between the camera and the object being measured.
- **Emissivity:** Adjust the emissivity setting based on the material of the object you are inspecting. Different materials emit infrared energy differently. The app provides a table of common emissivity values (e.g., water 0.95, wood 0.87, brick 0.95, glass 0.94, soil 0.95, cloth 0.98, paper 0.93, skin 0.98).



Figure 13: Temperature Correction settings for optimized precision.

5. Maintenance

To ensure the longevity and optimal performance of your Thermal Master P1 camera:

- **Cleaning:** Gently wipe the camera lens and body with a soft, dry, lint-free cloth. Do not use abrasive cleaners, solvents, or harsh chemicals.
- **Storage:** When not in use, store the camera in its protective zipper case to prevent dust, scratches, and impact damage. Store in a cool, dry place away from direct sunlight and extreme temperatures.
- **Handling:** Avoid dropping the device. While it has 1-meter drop protection, excessive force can cause damage.

6. Troubleshooting

If you encounter issues with your Thermal Master P1, try the following solutions:

- **Camera Not Detected / No Image:**
  - Ensure the camera is fully inserted into the USB-C port.
  - Close and reopen the Thermal Master APP.
  - Restart your smartphone/device.
  - Check if your device's USB-C port is clean and free of debris.
  - Verify your device's compatibility (USB-C port, Android version if applicable).
- **App Crashing or Freezing:**
  - Ensure your app is updated to the latest version.
  - Clear the app's cache (Android) or reinstall the app.
  - Ensure your device has sufficient memory and processing power.
- **Inaccurate Temperature Readings:**
  - Perform calibration within the app by adjusting ambient temperature, measurement distance, and emissivity (refer to Section 4.3).
  - Ensure the camera lens is clean.
  - Avoid measuring through glass or water, as thermal cameras detect surface temperatures and cannot see through these materials.

If the problem persists, please contact Thermal Master customer support.

7. Specifications

Feature	Specification
IR Resolution	160x120 (Enhanced to 320x240 with X^3 algorithms)
Thermal Sensitivity (NETD)	0.04°C (40mK)
Frame Rate	25Hz
Temperature Range	-4°F to 1112°F (-20°C to 600°C)
Accuracy	±2°C / ±3.6°F
Field of View (FOV)	52°×39°
Digital Zoom	1-15x
Power Consumption	0.32W (Powered by device)
Runtime	5-8 hours (depending on host device battery)
Waterproof Rating	IP54
Drop Protection	1-meter

Product Dimensions	2.36 x 1.18 x 0.39 inches
Item Weight	0.6 ounces

8. Warranty and Support

8.1. Warranty Information

- **Returns:** 30-day free returns.
- **Replacement:** 2-year no-hassle replacement for any quality problems.

8.2. Customer Support

Thermal Master is committed to providing excellent customer service:

- **Technical Support:** Professional technical support and solutions are available for the lifetime of the product.
- For assistance, please visit the official Thermal Master website or contact their customer service through the platform where you purchased the product.



Figure 14: Thermal Master's commitment to reliability and service.

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