TFN HTM150

Handheld Multi-Functional Fusion Thermal Imaging Reconnaissance Device

Product Introduction

The HTM150 is a compact, lightweight, and rugged handheld fusion thermal imaging device designed for 24/7 reconnaissance, surveillance, and target acquisition. It integrates dual high-definition observation channels – a 6.2MP visible light camera and an 0.8MP thermal imager – enabling clear imaging in both daylight and complete darkness. Built-in GPS/BeiDou positioning, a digital compass, and a laser rangefinder allow rapid self-location and precise target positioning. The device captures geotagged photos and videos, supports HDMI and Wi-Fi streaming, and offers long battery life with four 18650 cells. Ideal for military, law enforcement, search & rescue, and outdoor security operations.

Product Key Selling Points

☑ Dual-Channel High-Definition Observation for Day & Night

The HTM150 features a 6.2MP visible light sensor for crisp daytime details and an 80,000-pixel thermal sensor for heat-signature detection in total darkness. Seamlessly switch between infrared and visible modes, and apply three thermal palettes (white hot, black hot, pseudo-color) to adapt to any environment – ensuring you never miss a target, whether at dawn, dusk, or pitch-black night.

☑ Precision Target Positioning with Multi-Sensor Fusion

Integrated GPS, BeiDou, digital compass, and laser rangefinder work together to provide real-time self-location and accurate target coordinates. After a single laser ranging measurement (up to multiple echoes), the device instantly calculates and displays the target's latitude, longitude, and elevation. This eliminates guesswork and drastically reduces response time for artillery adjustment, search coordination, or asset tracking.

☑ Intelligent Wi-Fi Connectivity & Remote Control

The built-in Wi-Fi hotspot (WPA2 encrypted) allows secure streaming of live video to smartphones, tablets, or computers. Operators can remotely view the image and control basic

functions from a safe distance. This is invaluable for covert surveillance, team collaboration, or when the device is mounted on a tripod or mast. Up to 20 characters custom password ensures data security.

☑ Long Endurance & Flexible Power Options

Powered by four standard 18650 batteries (3.7V each), the HTM150 offers extended field operation. A smart battery icon warns when power runs low. For even longer missions, connect an external 5–9V DC source via the aviation connector – the device automatically switches to external power without interruption. No more anxiety about sudden shutdowns during critical tasks.

☑ Rugged, Ergonomic & All-Weather Ready

Designed for harsh environments, the HTM150 comes in a waterproof carrying case with shock-absorbing foam. The binocular eyepiece features adjustable diopter (-4D to +4D) for eyeglass wearers. Proximity sensor automatically turns off the screen when your eye moves away, saving power and preventing light leakage. A standard 1/4″ tripod mount adds stability for long-duration observation.

Product Specifications

Parameter Category	Specification Detail
Model	HTM150 Handheld Multifunctional Fusion Thermal Imaging Reconnaissance Device
Visible Light Sensor	6.2 megapixels
Thermal Sensor	0.8 megapixels (80k pixels)
Image Modes	Infrared (white hot, black hot, pseudo-color), Visible light
Digital Zoom	1.0x – 4.0x stepless (step 0.1)
Diopter Adjustment	-4D to +4D
Laser Rangefinder	Multiple echo support, single or continuous ranging
Ranging Unit	Meter / Foot
Positioning System	GPS / BeiDou / Dual-mode hybrid
Coordinate Systems	Geographic coordinate system, Gauss coordinate system (CGCS2000)
Coordinate Units	UTM, MGRS, Degree Minute Second, Degree Minute
Elevation Unit	Meter / Foot
Digital Compass	Azimuth, pitch, roll; angle units: Degree, Mils (6000/6400), Grads
Magnetic Declination	Manual or automatic (based on positioning)
Video Output	Micro HDMI (digital)
Wireless	Wi-Fi 802.11 b/g/n (AP mode), WPA2 or no encryption, custom password
Storage	Internal memory, supports photo (JPG) and video (AVI)
Photo / Video Overlay (OSD)	Optional on/off for time, coordinates, zoom, angles
Battery	4 × 18650 (nominal 3.7V, range 2.5V–4.2V)

External Power	DC 5－9V via aviation connector
Interfaces	Aviation connector (DC/USB/RS232), Micro HDMI, 1/4〞 tripod mount
Proximity Sensor	Yes (auto screen on/off)
Microphone	Built-in
Operating Temperature	Not specified, but all-weather design
Waterproof Protection	Splash-proof (battery cover must be properly locked)
Dimensions	Not specified (compact handheld)
Weight	Lightweight (not specified)
Accessories Included	Waterproof storage case, battery charger (optional), aviation cable, video cable, quick start guide, user manual

Product Features

Section 1: Seamless Day-Night Fusion Imaging for Uninterrupted Surveillance

The HTM150 eliminates the traditional limitation of separate day and night optics. By combining a high-resolution visible light sensor (6.2MP) with a sensitive thermal imager (80k pixels), the device provides clear imagery regardless of lighting conditions. During daytime, you can capture fine details such as vehicle license plates, facial features, or terrain markers. After sunset or in heavy smoke/fog, the thermal channel reveals heat signatures － humans, vehicles, or hidden warm objects. Switching between modes is instantaneous via a dedicated function key. This fusion capability solves the pain point of carrying two separate devices or missing critical moments when changing equipment. Security teams, hunters, and first responders can maintain visual awareness 24/7 without interruption.

Section 2: One-Button Laser Ranging with Instant Target Geolocation

Manually estimating distance and calculating target coordinates is slow, error- prone, and dangerous in high- stress situations. The HTM150 integrates a laser rangefinder that, with a single short press, measures the distance to a target. If GPS/BeiDou signals are available, the device immediately computes the target’s absolute geographic coordinates (latitude, longitude, elevation) and displays them on screen. For complex environments with multiple echoes (e.g., foliage or windows), you can manually select the desired return echo. This feature drastically reduces the time needed to call for fire support, report enemy positions, or guide rescue teams. Even without satellite signals, the distance reading alone is invaluable for navigation and range estimation.

Section 3: Smart Power Management and Flexible Field Charging

Nothing fails a mission faster than a dead battery. The HTM150 addresses this with a four- cell 18650 battery bay － a standard, widely available battery format. You can carry pre- charged spares and swap them in seconds. The battery level is displayed as a clear icon (full, half, low, red warning). When not in use for extended periods, the device automatically shuts down to preserve power. For extended operations, connect an external 5- 9V DC source via the aviation port; the device will seamlessly switch to external power, saving internal batteries for backup. Additionally, the proximity sensor turns off the OLED screen when your eye moves away,

extending battery life even further. Whether you’re on a week-long patrol or a 24-hour stakeout, power anxiety is eliminated.

Section 4: High-Precision Digital Compass with Adaptive Magnetic Declination

A conventional compass is easily affected by local magnetic fields and requires manual declination adjustment. The HTM150’s built-in 3-axis digital compass provides real-time azimuth, pitch, and roll readings. It supports both manual and automatic magnetic declination correction – when GPS/BeiDou has a fix, the device automatically retrieves the local declination value, ensuring true north reference. This is critical for accurate navigation and target bearing transmission. Before a mission, you can perform a quick planar calibration or a full spatial calibration (three rotations) to achieve high accuracy (80-100 points). The angle can be displayed in degrees, mils (6000/6400), or grads, suiting military or civilian preferences. No more confusion or errors from magnetic interference.

Section 5: Complete Data Management: Capture, Geotag, Review & Share

Collecting evidence or intelligence is only half the task – you must be able to retrieve and share it. The HTM150 allows one-button photo capture (JPG) and long-press video recording (AVI). Every file can be overlaid with OSD information (time, coordinates, zoom level, compass angles) – this is court-ready evidence or actionable intel. Files are stored internally and can be browsed on the device’s playback interface, where you can view thumbnails, play videos, and delete unwanted clips. Connect the device to a Windows PC via the USB aviation cable – it appears as a mass storage device for easy backup. Alternatively, use Wi-Fi to stream live video to a remote monitor. This solves the pain point of cumbersome file extraction and ensures that critical recordings are always accessible.

Applications & Pain Points Solved

Scenario	Customer Pain Point	How HTM150 Solves It
Military reconnaissance & forward observation	Dangerously exposing position to manually measure distance and coordinates to enemy targets.	Laser rangefinder + GPS/BeiDou instantly calculates target coordinates without shouting or secondary devices. The thermal channel detects hidden heat sources even through smoke or foliage.
Law enforcement night patrol & pursuit	Suspects flee into dark alleys or rural areas; standard flashlights reveal officer position and have short range.	Thermal imaging sees body heat from hundreds of meters, even in complete darkness. The device is lightweight and can be operated with one hand, leaving the other free for weapon or radio.
Search & rescue (SAR) in wilderness or disaster zones	Finding missing persons in dense forest, fog, or rubble at night is time-critical and visually impossible.	Thermal mode highlights human body heat against cold background. Built-in compass and GPS allow SAR teams to mark found victims’ coordinates and guide other responders. Record video for later analysis.
Border security & anti-smuggling	Smugglers use darkness and camouflage;	Dual-channel observation (thermal + visible) defeats camouflage. Wi-Fi streaming allows a

	conventional cameras fail. Officers need to record evidence covertly.	second officer to monitor from a vehicle. OSD overlay creates legally admissible evidence with timestamps and location.
Wildlife observation & anti-poaching	Animals are most active at dawn/dusk; rangers need to observe from a distance without disturbing them or being detected.	The near-silent operation and optional screen-off (proximity sensor) prevent light leakage. Thermal mode locates warm-blooded animals through brush. Photos/videos can be geotagged to map poaching hotspots.

Q&A

Q1: Can I use standard 18650 batteries from other brands, or must I buy the original ones?
A: Yes, the HTM150 accepts any standard 18650 lithium-ion cell (3.7V nominal, 2.5–4.2V range). However, for consistent performance and safety, we recommend using high-quality protected cells. The original batteries provided by the manufacturer meet the required discharge characteristics. Using mismatched or damaged batteries may affect battery level indication or cause operational issues.

Q2: How do I transfer photos and videos to my computer?
A: There are two easy methods. First, connect the included aviation cable to the device's multi-port and plug the USB end into a Windows PC – the device will appear as a removable drive (mass storage). Second, remove the internal memory (if user-accessible) or use the device's Wi-Fi to stream and download files (requires compatible app). The user manual provides step-by-step instructions.

Q3: Does the thermal imager work through glass, rain, or fog?
A: Thermal imaging detects long-wave infrared radiation, which does not penetrate glass (you will see the reflection of your own heat). Rain and heavy fog attenuate the signal, reducing effective range. However, the HTM150's thermal channel performs significantly better than visible cameras in light fog, smoke, or haze. For best results, keep the lens clean and avoid pointing through window glass.

Q4: How often should I calibrate the compass, and what is the difference between planar and spatial calibration?
A: Calibrate the compass whenever you notice azimuth errors or after traveling to a new geographic area with different magnetic conditions. Planar calibration (two rotations) is quick and corrects most errors; it is sufficient for general use. Spatial calibration (three rotations) achieves higher accuracy (80–100 points) and is recommended for precision military or surveying tasks. Always perform calibration away from large metal objects or power lines.

Q5: The screen turns off immediately after power-on. Is the device broken?
A: No, this is the normal behavior of the auto-sleep (proximity sensor) function. The HTM150 detects when your eye is near the eyepiece. If you power on without looking into the eyepiece,

the screen may remain off to save power and prevent light leakage. Simply bring your eye close to the binocular eyepiece – the screen will turn on automatically. You can also disable this feature in the system menu (Display Settings > Auto Sleep > Off).

Package Contents

HTM150 Handheld Multi- Functional Fusion Thermal Imaging Device *1
Waterproof shock- resistant storage case *1
Battery charger (for 18650 cells) *1 (Optional)
18650 rechargeable battery * 4 (Optional)
Aviation cable (DC/USB/RS232) * 1 (For external power, USB mass storage, serial communication)
Micro HDMI video cable * 1 (For external monitor output)
Quick start guide * 1 (Multi- language)
User manual (detailed) *1 (This document)
Lens cleaning cloth *1