



TFN TK12M Helmet-Mounted Night Vision Monocular



Product Introduction

The TK12M Helmet-Mounted Night Vision Monocular is a compact, lightweight device designed for hands-free observation in low-light environments. Weighing only 120g, it features a 1x optical lens with 5x digital zoom, allowing users to focus on distant targets quickly. Powered by a rechargeable 14500 lithium battery (750mAh) and supporting 5V/2A charging via universal adapter, this night vision monocular delivers reliable daytime color imaging and enhanced black-and-white night vision. Its IPX4 water-resistant rating ensures operation in light rain or splashes, making it ideal for security patrols, outdoor adventures, and industrial inspections. With simple operation and helmet-mountable design, the TK12M is a cost-effective entry point into digital night vision technology.

Product Key Selling Points

Ultra-Light Helmet-Mountable Design

Weighing only 120g, the TK12M eliminates neck fatigue during extended missions. Its helmet-mountable design frees both hands for climbing, writing, or operating other equipment. Whether you are a security officer on night patrol or a camper hiking in darkness, the lightweight construction ensures you barely notice the device until you need it. The low-profile mounting system keeps the monocular stable, preventing vibration blur. Say goodbye to bulky night vision goggles that cause headaches – TK12M brings all-day comfort to nocturnal observation.

5X Digital Zoom with 1X Optical Base

The combination of 1x optical lens and 5x digital zoom offers flexible observation from wide field of view to detailed close-ups. While maintaining the natural 1x perspective for situational awareness, you can instantly zoom in 5x to identify faces, license plates, or animal markings at moderate distances. The digital zoom is smooth and responsive, allowing you to track moving subjects without losing focus. Perfect for wildlife watchers needing to examine a bird's feather details or security personnel verifying perimeter breaches – zoom in without physically moving closer.

Day & Night Dual-Use with Clear Black-and-White Night Vision

Unlike single-purpose devices, the TK12M provides full-color imaging during daylight and



high-contrast black-and-white night vision after sunset. The built-in infrared illuminator (standard feature for night vision at this class) enables observation in total darkness. You can seamlessly transition from bright daytime patrol to midnight surveillance without changing equipment. This dual-use capability saves cost and storage space, making it an ideal choice for hobbyists, rural homeowners, and night fishing enthusiasts who need one reliable tool for 24-hour protection.

IPX4 Water-Resistant for All-Weather Reliability

With an IPX4 rating, the TK12M withstands rain, splashes, and high humidity – essential for outdoor use. Whether you are caught in a sudden downpour while hiking or inspecting a leaking pipe in a damp basement, the electronic components remain protected. Note that IPX4 is not submersible, but it handles sweat, drizzle, and accidental splashes from puddles or kitchen sinks. This durability extends the product’s lifespan and gives users confidence to carry the monocular in rugged environments like mountain trails, farms, or coastal areas where morning dew is common.

Long-Lasting Rechargeable Lithium Battery

Powered by a standard 14500 rechargeable lithium battery (750mAh capacity), the TK12M offers hours of continuous operation on a single charge. The battery is user-replaceable, so you can carry spare 14500 cells for extended missions. Charging is simple via any 5V/2A adapter (110 - 220V included), allowing top-ups from power banks, car chargers, or laptop USB ports. No more hunting for discontinued proprietary batteries – the TK12M uses an industry-standard size. Perfect for camping trips, overnight stakeouts, or emergency preparedness where reliable power matters.

Product Specifications

Parameters	Details
Optical Magnification	1x
Digital Magnification	5x
Daytime Image	Full color
Night Vision Image	Black and white (with infrared assist)
Battery Type	Rechargeable lithium battery 14500, 750mAh
Charging Power	5V/2A
Power Adapter	110- 220V universal adapter
Screen Brightness Adjustment	Not available
Time Setting Function	Not available
Water Resistance	IPX4
Protection Rating	IPX4
Weight	120g (device only)
Mounting Type	Helmet mount compatible
Infrared Illuminator	Built-in (standard specification)
Effective Night Vision Range	Up to 100m (depending on ambient light)
Operating Temperature	-10° C to 50° C (14° F to 122° F)
Storage Temperature	-20° C to 60° C (-4° F to 140° F)



Note: Night vision range may vary based on battery level and environmental conditions.

Product Features

Section 1: Hands-Free Operation via Helmet Mounting

The TK12M is specifically designed for helmet mounting, allowing users to keep both hands completely free during night operations. Traditional handheld night vision devices force you to constantly hold them up to your eye, which quickly tires your arm and makes multitasking impossible. With the TK12M attached to a standard helmet shroud, you simply flip the monocular down when needed and flip it up when not in use. This solves the critical pain point for security guards who need to write reports while monitoring dark areas, for climbers who require both hands on ropes, or for hunters carrying a rifle. The helmet mount distributes the 120g weight evenly, eliminating neck strain. You can now conduct hours-long patrols without fatigue, and the quick flip-up functionality ensures you never miss a moment to transition between normal vision and night vision. For search and rescue teams, this hands-free design means you can carry a stretcher, use a radio, or navigate with a map while maintaining night vision awareness – dramatically improving operational safety and efficiency.

Section 2: 5X Digital Zoom for Detailed Identification

One of the biggest frustrations with basic night vision monoculars is the inability to see fine details at a distance. The TK12M solves this with a smooth 5x digital zoom, built on a 1x optical base that preserves wide-angle situational awareness. Digital zoom works by cropping and magnifying the sensor image, allowing you to visually enlarge the central area without moving closer to the subject. For example, a security guard monitoring a dark parking lot can zoom in to clearly read a license plate from 50 meters away. A wildlife observer can identify specific feather patterns on a nocturnal owl without disturbing it. This feature directly addresses the pain point of “I saw something moving but couldn’t tell what it was.” The zoom control is intuitive and maintains image stability when the monocular is helmet-mounted. While higher zoom reduces brightness slightly as a trade-off, the 5x range strikes an optimal balance for most tactical and outdoor scenarios. You can now verify threats or points of interest with confidence, reducing false alarms and unnecessary approaches.

Section 3: Continuous Day-to-Night Transition Without Changing Gear

Many users waste money buying separate daytime binoculars and night vision scopes, then struggle to switch between them during dusk. The TK12M eliminates this hassle by offering full-color images in daylight and black-and-white night vision after dark – all in the same device. The built-in photosensor automatically adjusts settings, or you can manually activate the infrared illuminator as ambient light fades. This solves the pain point of discontinuity during twilight hours, the most critical time for predators and intruders. A rural homeowner can use the TK12M to scan fields at sunset (color mode), then seamlessly continue monitoring after complete darkness (night mode) without fumbling with two devices. Similarly, night fishermen can spot bait activity in dim light and later observe shorelines in pitch black. The transition is instantaneous, ensuring you never miss a moment of action. This all-in-one capability also reduces the cost and weight of



carrying separate optics – a huge benefit for backpackers, survivalists, and security personnel who need to travel light.

Section 4: IPX4 Water Resistance for Unpredictable Weather

Outdoor and security operations don’t pause for rain. Many entry-level night vision devices lack any water protection, making them useless in drizzle or fog – or worse, permanently damaged. The TK12M’s IPX4 rating means it resists water splashes from any direction, so you can continue working in light rain, morning dew, or near splashing water (e.g., docks, fountains, or industrial washdown areas). This solves the real-world pain point of “I can’t trust my gear in bad weather.” While not submersible, IPX4 is perfectly adequate for patrol guards walking through a storm, campers cooking in light drizzle, or inspectors checking dark machinery in a humid factory. The sealed housing also prevents dust and debris ingress, making the device more reliable over time. For users in coastal or high-humidity regions, this protection ensures the internal electronics won’t corrode quickly. You can now rely on the TK12M daily, regardless of weather forecasts – just wipe it dry after use and store it properly. This durability translates to lower long-term replacement costs and fewer mission interruptions.

Section 5: Rechargeable Standard Battery with Universal Charging

Proprietary batteries and odd charging cables are a nightmare for anyone working in remote areas. The TK12M uses a common 14500 rechargeable lithium battery (750mAh), the same size as many flashlights and vape devices. When power runs low, you can swap in another 14500 cell in seconds, avoiding downtime. The charging port accepts 5V/2A via micro USB or similar standard connector (adapter included), meaning you can recharge from any power bank, car USB port, solar panel, or laptop. This solves the pain point of “my night vision died and I have no way to charge it.” For extended trips, carry a 4-pack of spare 14500 batteries – they are lightweight and cheap. Unlike built-in non-removable batteries that render the device useless after a few years, the TK12M’s replaceable design extends product lifespan. The included 110-220V adapter works globally, making it perfect for international travelers, sailing crews, or off-grid cabins. You’ll never be left in the dark due to a dead battery again.

Applications & Pain Points Solved

Scenario	Customer Pain Point	TK12M Solution
Night security patrols in warehouses or construction sites	Guards need both hands for flashlights, radios, or keys; handheld night vision forces them to sacrifice mobility.	Helmet-mounted design keeps hands free; 5x zoom identifies intruders from safe distance; 120g weight prevents neck fatigue during 8- hour shifts.
Camping and night hiking	Campers struggle to see trail markers or camp activities after sunset; bulky equipment discourages carrying extra gear.	Ultra-light (120g) clips onto helmet or head strap; day/night dual use replaces both binoculars and night scope; IPX4 survives sudden rain.
Wildlife observation & nocturnal animal research	Researchers disturb animals with bright flashlights; standard	Passive black- and- white night vision with IR illuminator (invisible to most animals); 5x digital zoom examines



	monoculars lack zoom for detail identification.	nesting habits or fur patterns without approaching.
Rural property monitoring (livestock, barns, gardens)	Farmers cannot check distant sheds or fences at night without bright lights, which can startle animals or alert trespassers.	TK12M offers covert observation via helmet mount; 1x optical field of view covers large areas; rechargeable battery allows all-night monitoring with spare cells.
Industrial equipment inspection in low-light environments	Maintenance workers need to see inside dark machinery or crawlspaces but cannot bring bulky lighting into tight areas.	Compact size (120g) fits into tool pouch; hands-free operation when helmet-mounted; built-in IR illuminator reveals hidden cracks or leaks without external lights.

Q&A

Q1: Can the TK12M record video or take photos?

A: The TK12M is a pure observation monocular – it does not have photo or video recording capabilities. It is designed for real-time viewing only. If you need recording, consider upgrading to our TK12M Pro model (sold separately). For most security and outdoor uses, this keeps the device simple, affordable, and lightweight.

Q2: How far can I see clearly in complete darkness?

A: With the built-in infrared illuminator activated, you can identify human-sized objects up to approximately 100 meters (328 feet) in total darkness. In low-light conditions (e.g., moonlight or distant city glow), the effective range extends to 150 meters. Actual range depends on battery level, humidity, and target reflectivity. For longer distances, an external IR flashlight can be added.

Q3: Is the helmet mount included in the package?

A: The standard TK12M package includes the monocular body, battery, charger, and USB cable – but the helmet mount bracket is sold separately. We offer a compatible helmet mount kit as an optional accessory. Many customers also use universal head straps or DIY mounts. This keeps the base price lower for users who do not need helmet mounting.

Q4: Can I use regular AA batteries instead of the 14500?

A: No. The TK12M is designed exclusively for 3.7V 14500 rechargeable lithium batteries. Using 1.5V AA alkaline batteries will not provide sufficient voltage, and the device will not power on. However, standard 14500 cells are widely available online and in electronics stores. We recommend buying spares to ensure continuous operation during long missions.

Q5: Does the TK12M work through glass (e.g., car windows or home windows)?

A: It works through glass, but you may experience glare or reflection from the infrared light if you are using the IR illuminator indoors with a window. For best results, turn off the IR or press the monocular directly against the glass to eliminate reflections. During daytime, glass does not



affect image quality. For covert observation through windows at night, use external IR sources placed away from the glass.

Package Contents

- 1 × TK12M Helmet-Mounted Night Vision Monocular (main unit)
- 1 × 14500 Rechargeable Lithium Battery (750mAh)
- 1 × Battery Charger (supports 5V/2A input)
- 1 × USB Charging Cable (standard length)
- 1 × Universal Power Adapter (110- 220V, compatible worldwide)
- 1 × Lens Cleaning Cloth (microfiber)
- 1 × User Manual (English + multi-language quick guide)
- 1 × Protective Carrying Pouch (soft fabric with drawstring)

Note: Helmet mount bracket is not included – available as a separate accessory. Please contact sales for bundle options.