# TFN TK22M Helmet-Mounted Night Vision Monocular


## Product Introduction

The TK22M is a high-performance, helmet-mounted night vision monocular designed for professionals and outdoor enthusiasts who demand reliable low-light observation. Featuring a premium green phosphor image intensifier tube, the TK22M delivers crisp, high-resolution imagery in near-total darkness. Its lightweight, compact body mounts securely to standard helmet brackets (Wilcox style), leaving both hands free for navigation or mission-critical tasks. Built to withstand harsh environments, the device is water-resistant (IP67), shockproof, and operates flawlessly from -40° C to 60° C. With an integrated adjustable infrared illuminator and intelligent brightness control, the TK22M provides exceptional situational awareness for security patrols, hunting, camping, search & rescue, and property surveillance.

## Product Key Selling Points

☑ Superior Low-Light Imaging with Green Phosphor Tube

The TK22M utilizes a Gen 2+ green phosphor image intensifier, offering exceptional resolution (55–60 lp/mm) and high photoelectric sensitivity. Unlike cheaper digital night vision, this analog optical system produces smooth, real-time images without lag or pixelation. Whether under starlight or moonlight, you'll identify targets clearly up to 200 meters. The familiar green display reduces eye strain during extended use, making it ideal for all-night patrols or wilderness navigation.

☑ True Hands-Free Helmet Integration

Designed for tactical and outdoor applications, the TK22M mounts directly to standard helmet shrouds (Wilcox/J-arm compatible). The quick-release mechanism allows instant attachment or removal without tools. Once mounted, the monocular flips up when not needed and locks securely in the down position. This frees both hands for weapon handling, climbing, map reading, or radio operation – a critical advantage for security guards in large properties or hunters moving through dense terrain.

☑ Ultra-Long Battery Life for Extended Missions

Powered by a single CR123A lithium battery, the TK22M delivers up to 50 hours of continuous operation (IR off) and 25 hours with intermittent IR use. An automatic power-off circuit prevents accidental drain. The battery compartment is sealed against moisture and dirt, and the low-battery LED warning gives you 2+ hours to swap cells. Field operators no longer need to carry armfuls of spare batteries – one extra CR123A covers a full weekend of surveillance or camping.

☑ Rugged, All-Weather & Impact-Resistant Build

Rated IP67 waterproof and dustproof, the TK22M survives immersion in 1 meter of water for 30 minutes. Its magnesium alloy housing withstands drops from 1.5 meters onto concrete, and internal optics are nitrogen-purged to prevent fogging in freezing rain or humid jungles. Rubber armoring provides a non-slip grip even with gloves. Whether guarding a remote construction site or trekking through wet mountain trails, you can rely on the TK22M to function when cheap night vision devices fail.

☑ Built-in Adjustable IR Illuminator with Auto-Gate Protection

The TK22M features a variable-output infrared LED (850nm, invisible to naked eye) that illuminates up to 100 meters in total darkness. Unlike fixed-output models, you can dial brightness from low (close navigation) to high (long-range identification). The auto-gating circuit protects the tube from sudden bright light (e.g., headlights or muzzle flashes) while automatically adjusting gain for optimal contrast. Experience seamless transition from pitch-black forest to semi-lit urban backstreets without manual fiddling.

**Product Specifications**

| Parameter | Specification |
|---|---|
| Image Intensifier Tube | Gen 2+ (Green Phosphor) |
| Resolution | 55 – 60 lp/mm (center minimum) |
| Magnification | 1x (optional 3x or 5x lens available) |
| Field of View | 40° ± 2° |
| Objective Lens | F1.2, 27mm focal length |
| Eye Relief | 15 mm |
| Diopter Adjustment | -4 to +4 D |
| Close Focus Distance | 0.25 m |
| Detection Range (starlight) | 200 m (human target) |
| Detection Range (with IR) | 250 m |
| Infrared Illuminator | 850nm LED, adjustable output (0 – 100 mW) |
| IR Beam Pattern | Flood to spot (manual zoom) |
| Automatic Brightness Control | Yes, with Auto-Gate protection |
| Bright Light Cutoff | Yes (tube protection) |
| Battery Type | 1 x CR123A (3V lithium) |
| Battery Life (IR off) | Up to 50 hours |
| Battery Life (IR 50% duty) | ~25 hours |
| Low Battery Indicator | Flashing LED in eyepiece |

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|---|---|
| Housing Material | Magnesium alloy + rubber armor |
| Water/Dust Protection | IP67 (waterproof up to 1m for 30 min) |
| Operating Temperature | -40° C to +60° C |
| Storage Temperature | -50° C to +70° C |
| Shock Resistance | 1.5 m drop test on concrete |
| Weight (with battery) | 345 g |
| Dimensions (L x W x H) | 145 x 115 x 58 mm |
| Mount Interface | Standard helmet shroud (Wilcox style, J-arm not included) |
| Tripod Mountable | Yes (1/4"-20 thread) |

**Product Features**

**Section 1: See Clearly in Near-Total Darkness – No More Blind Spots**

Conventional flashlights or headlamps give away your position and ruin natural night vision. The TK22M's Gen 2+ green phosphor intensifier amplifies ambient starlight, moonlight, or skyglow up to 40,000 times, producing a bright, flicker-free green image. Even on a moonless, overcast night, you can distinguish trees, trails, animals, or intruders from 200 meters away. For pitch-black environments (basements, deep forests, underground facilities), the built-in adjustable IR illuminator provides covert lighting invisible to human eyes. This eliminates the "black hole" problem faced by standard night vision goggles. Security guards patrolling large warehouses, campers navigating after sunset, or homeowners checking a dark backyard will never again feel blind – the TK22M turns absolute darkness into a visible, navigable landscape.

**Section 2: Hands-Free Operation for Critical Tasks – Increase Situational Awareness**

Carrying a handheld night vision device forces you to choose between seeing and doing. You cannot simultaneously hold a monocular, climb a fence, operate a two-way radio, or defend yourself. The TK22M solves this pain point with a rugged helmet mount that fully frees your hands. Once attached to a standard helmet shroud (compatible with most tactical, bump, or climbing helmets), the monocular positions itself perfectly in front of one eye while leaving your other eye adapted to natural light – preserving peripheral awareness. The unit flips up out of the way when you need unmagnified vision or want to consult a map. This hands-free design is indispensable for: hunters tracking game while cradling a rifle, first responders extracting casualties from debris, or property owners walking a large perimeter with a guard dog on leash. You gain complete freedom of movement without losing your night vision capability.

**Section 3: Extreme Reliability in Harsh Weather – No Fogging or Water Damage**

Standard consumer night vision devices often fail when exposed to rain, humidity, or sudden temperature changes. Internal fogging renders the optics useless, and water ingress destroys sensitive electronics. The TK22M is engineered for the worst conditions. Its O-ring-sealed magnesium housing achieves IP67 waterproofing – you can drop it in a puddle, use it in pouring rain, or accidentally submerge it during a stream crossing, and it will keep working. The optical path is nitrogen-purged, eliminating internal condensation even when moving from an air-conditioned vehicle into a 90% humidity jungle. The rubber armor protects against salt spray, dust storms, and accidental bumps. For security teams working outdoors year-round, mountain

rescuers in snowstorms, or livestock farmers checking fences at dawn, the TK22M performs when cheap gear quits. No more missed intruders because your night vision fogged up – the TK22M stays crystal clear.

**Section 4: Intelligent Brightness Protection – No More Blinding or Tube Damage**

A sudden burst of light – car headlights, a security floodlight, or a muzzle flash – can permanently damage sensitive image intensifier tubes or temporarily blind the user. The TK22M's auto-gating power supply and automatic brightness control (ABC) solve this critical issue. When the sensor detects a sudden bright source, the gating circuit reduces tube voltage thousands of times per second, instantly dimming the output to a safe, viewable level. Unlike unprotected tubes that develop burn-in or lose sensitivity, the TK22M shuts down gain to a safe level and recovers instantly when the bright source passes. This allows you to scan areas near roads, buildings with security lights, or urban environments without risking your expensive equipment. Law enforcement conducting surveillance near lit parking lots, or hunters moving from dark woods to moonlit clearings, will appreciate the seamless adaptation – no blinding flare, no tube damage, just reliable vision.

**Section 5: Ultra-Lightweight for All-Day Comfort – No Neck Strain or Fatigue**

Traditional night vision goggles (especially military surplus units) can weigh over 700 grams, causing neck fatigue, headaches, and balance issues after just an hour of wear. The TK22M weighs only 345 grams including battery – less than a can of soda. This featherlight design dramatically improves comfort during extended operations. The low profile keeps the center of gravity close to your helmet, reducing leverage and the "floppy" sensation. Users with smaller frames or those wearing the unit for multi-hour security shifts will notice less strain on the cervical spine. The included padded helmet bracket distributes weight evenly, and the monocular can be detached to use as a handheld unit for quick spot checks. Whether you are a security officer doing a 12-hour overnight patrol, a rancher checking livestock every two hours, or a camper scanning the horizon before bed, the TK22M's light weight means you'll actually keep it on instead of leaving it in the truck.

**Applications & Pain Points Solved**

| Scenario | Customer Pain Point | TK22M Solution |
|---|---|---|
| Large Property Security (construction sites, farms, warehouses) | Security guards cannot cover every corner with fixed lights; handheld flashlights create shadows and announce their position. Intruders exploit dark zones. | The TK22M provides covert, hands-free vision across 200+ meters. Guards see intruders before being seen. Built-in IR illuminator reveals hiding spots without visible light. |
| Night Hunting & Varmint Control (hogs, coyotes, predators) | Hunters need to spot game in complete darkness but can't use white lights that spook animals. Handheld thermals are heavy and expensive. | TK22M's Gen 2+ tube detects animal heat signatures indirectly via reflected starlight. The green phosphor display is familiar and less fatiguing. Helmet mount lets hunters keep both hands on the rifle (with separate aiming device). |
| Backcountry | Campers struggle to navigate trails | TK22M's Gen 2+ tube detects animal |

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|---|---|---|
| Camping & Hiking | after sunset, find firewood, or identify animals near the tent. Headlamps ruin night adaptation and drain fast. | heat signatures indirectly via reflected starlight. The green phosphor display is familiar and less fatiguing. Helmet mount lets hunters keep both hands on the rifle (with separate aiming device). |
| Search & Rescue (SAR) in remote areas | SAR teams often work in overcast, moonless conditions or dense forest canopy where even starlight is blocked. Carrying heavy gear slows response. | TK22M’s manual gain control and high-sensitivity tube penetrate deep shade. At 345g, it adds negligible weight to rescue packs. Hands-free design allows simultaneous use of GPS, radio, and medical equipment. |
| Nautical & Marina Surveillance | Boat owners and marina staff need to spot unauthorized boarders, drift debris, or mooring lines at night. Salt spray and fog easily ruin standard electronics. | IP67 waterproof and nitrogen-purged optics resist salt corrosion and internal fogging. Compact size stores in life jacket pocket. Rubber armor withstands impacts on wet decks. |

**Q&A**

Q1: Can the TK22M be used during the daytime?
A: No, the TK22M is a dedicated night vision device with a Gen 2+ intensifier tube. Exposing it to bright daylight (even briefly) without the lens cap or a pinhole cap can permanently damage the tube. Always keep the objective lens covered with the supplied daylight cap when using the device in daylight conditions. For daytime use, simply flip the monocular up out of your line of sight. There are “daylight-safe” night vision units, but the TK22M is optimized for low-light performance and requires this precaution.

Q2: What helmets are compatible with the TK22M?
A: The TK22M uses a standard Wilcox-style shroud interface (also known as “USGI” or “bayonet” mount). It fits most tactical helmets (Ops-Core, Team Wendy, MICH, ACH, PASGT), as well as many climbing and bump helmets equipped with a compatible shroud. The included J-arm (mounting bracket) attaches to the monocular and slides into the shroud. If your helmet has a different mount system (e.g., Norotos), you can purchase an adapter separately. Bicycle or skate helmets without shroud are not compatible without modification.

Q3: What is the actual viewing distance? How far can I see a person?
A: Under clear starlight (quarter moon or better), you can reliably detect a standing human at 200 meters (650 feet). With the IR illuminator on high in total darkness, detection extends to 250 meters (820 feet). Recognition (identifying clothing, equipment, facial features) is typically 120–150 meters. Note that dense fog, rain, or heavy foliage will reduce range. These figures represent real-world performance for the Gen 2+ tube – budget night vision often claims 300+ meters but cannot deliver usable contrast.

Q4: Does the IR illuminator produce any visible glow? Can animals or people see it?

A: The TK22M’s illuminator uses an 850nm wavelength LED. It is not completely invisible – some people with very high sensitivity may see a faint red glow from the emitter lens when looking directly at it from close range. Most animals (including deer, hogs, and dogs) are not disturbed by 850nm light. For true covert operations where zero visible signature is required, consider a 940nm aftermarket illuminator (sold separately). However, 940nm has 30% less output. The TK22M’s illuminator also has a “covert” low setting that reduces any potential glow.

Q5: How do I clean and store the TK22M? Can I use alcohol wipes on the lens?
A: Use only a blower brush or microfiber cloth designed for optics. Do NOT use alcohol, ammonia, or paper products – they will damage lens coatings. For the exterior rubber armor, wipe with a damp cloth and mild soap. Always remove the battery before long-term storage. Store the device in a cool, dry place (10° C – 25° C) with the included lens caps on. If stored for more than 3 months, operate the unit for 15 minutes every 3 months to keep the tube’s internal components conditioned. Avoid exposure to direct sunlight even when stored.

**Package Contents**

| Item | Quantity |
|---|---|
| TK22M Night Vision Monocular (green phosphor, Gen 2+) | 1 unit |
| Helmet Mount J-Arm (standard Wilcox interface) | 1 pc |
| Skull Crusher Headmount (alternative to helmet use) | 1 pc (optional depending on version) |
| Lens Cap for Objective (with pinhole daylight filter) | 1 pc |
| Eyepiece Rubber Cover | 1 pc |
| CR123A Lithium Battery | 1 pc |
| Microfiber Lens Cleaning Cloth | 1 pc |
| User Manual & Quick Start Guide | 1 set |
| Desiccant Silica Gel Bag | 2 pcs |
| Hard Carry Case (impact-resistant, IP67-rated) | 1 pc |
| Lanyard (breakaway design) | 1 pc |

Note: Helmet not included. For customers requiring a mounting system, we also offer a compatible tactical helmet (sold separately).