



## TFN TK33M Helmet-Mounted Low-Light Night Vision Goggles



### Product Introduction

The TK33M is a professional binocular (dual-eye), monocular-objective helmet-mounted night vision device designed for low-light and nighttime operations. Built with advanced image intensifier tubes and a precision optical system, it delivers high resolution and exceptional clarity. Lightweight and compact, the TK33M can be used hands-free with standard PASGT/ACH/MCH helmets, or as a handheld monocular. Interchangeable objective lenses (1×, 3×, 4×, 5×, and custom options) allow flexible magnification and observation range. Features include automatic brightness control, bright light protection, anti-glare, and a built-in infrared illuminator. Ideal for military surveillance, border patrol, law enforcement, hunting, and nighttime vehicle or aircraft maintenance.

### Product Key Selling Points

High-Resolution Optics for Crystal Clear Night Vision

Equipped with a premium Generation II+ image intensifier tube (57 – 72 lp/mm resolution) and a high signal-to-noise ratio (21 – 25), the TK33M produces sharp, detailed images even under starlight or quarter-moon conditions. This means you can identify targets at distances up to 245 meters under low light, reducing false identifications and improving mission safety. No more guessing in the dark – see every contour and movement with confidence.

Extended Battery Life for All-Night Missions

Powered by two standard AA batteries, the TK33M runs continuously for up to 80 hours with the infrared illuminator off, and 40 hours with IR on. This industry-leading endurance ensures you won't be left in darkness during long patrols, surveillance operations, or night shifts. Forget frequent battery changes or carrying heavy power packs – the TK33M keeps you operational through the entire night.

Interchangeable Lenses for Versatile Magnification

The TK33M accepts multiple objective lenses (1×, 3×, 4×, 5×, and custom focal lengths). Switch from a wide 40° field of view (1×) for close-quarters navigation to a narrow 10° FOV



(4×) for long-range observation up to 800 meters. Whether you need situational awareness or target identification at distance, one device adapts to your mission. No need to buy separate fixed-magnification units.

Rugged, All-Weather Construction

Built to withstand extreme conditions, the TK33M operates in temperatures from -40° C to +50° C and stores safely from -50° C to +70° C. With 98% relative humidity resistance and protection against dust, corrosion, and moisture, it's ready for jungle, desert, or arctic environments. The built-in anti-glare and bright light protection prevent tube damage from sudden light exposure. You can rely on this device when the environment turns brutal.

Hands-Free Helmet Mount with Smart Indicators

The TK33M mounts directly onto PASGT, ACH, and MCH helmets via a soft helmet bracket, leaving your hands free for weapons handling, climbing, or note-taking. Built-in low-battery and IR-on indicators in the eyepiece keep you informed without breaking your field of view. The diopter adjustment range (+5/-6) accommodates most users, and the removable anti-fog brow guard ensures clear vision in humid or cold conditions. Operate intuitively under stress – no complex menus or awkward buttons.

### Product Specifications

Parameter	Value
Product Model	TK33M
Image Intensifier Grade	Super Generation II+ (Gen 2+)
Magnification (optional lenses)	1× / 3× / 4× / 5× (1× and 4× standard)
Field of View (degrees)	40° (1×) / 10° (4×)
Observation Distance	220m (1×) / 800m (4×)
Resolution (lp/mm)	57 - 72
Signal-to-Noise Ratio	21 - 25
Diopter Adjustment Range	+5 to -6
Dimensions (mm)	183 × 132 × 58
Weight (grams)	500 (1× configuration) / 900 (4× configuration)
Power Source	2 × AA batteries (standard, not rechargeable)
Operating Voltage (VDC)	2.8 ± 0.8
Continuous Operation Time	IR off: 80 hours; IR on: 40 hours
Operating Temperature	-40° C to +50° C
Storage Temperature	-50° C to +70° C
Relative Humidity (at 25° C)	98%
Detection Range (Quarter Moon)	275 - 300 m
Detection Range (Cloudy)	240 - 275 m
Recognition Range (Quarter Moon)	225 - 245 m
Recognition Range (Cloudy)	150 - 165 m
Bright Light Protection	Yes (anti-glare, auto brightness control)
Built- in IR Illuminator	Yes



Helmet Compatibility	PASGT, ACH, MCH
Water/Dust/Corrosion Resistance	Yes

## Product Features

### Section 1: High-Resolution Imaging in Extreme Low Light

The TK33M uses a Generation II+ image intensifier tube with resolution between 57 and 72 line pairs per millimeter, combined with a signal-to-noise ratio of 21 – 25. This translates into exceptionally clear, low-noise images even under quarter-moon or heavily clouded skies. For end users, this means you can distinguish friend from foe, identify suspicious movements, or read vehicle license plates from over 200 meters away. No more blurry or grainy images that lead to misidentification. Whether you are a border guard scanning a treeline or a hunter tracking game before dawn, the TK33M gives you the visual fidelity to make fast, accurate decisions – drastically reducing operational risk and improving mission success rates.

### Section 2: Long Battery Life for Extended Field Operations

Powered by two widely available AA batteries, the TK33M offers up to 80 hours of continuous use without the infrared illuminator, and 40 hours with the IR on. This eliminates the need to carry multiple heavy battery packs or worry about recharging in remote areas. For military scouts, law enforcement officers on stakeouts, or wildlife observers, this means you can stay in the field for multiple nights without interruption. The built-in low-battery indicator inside the eyepiece warns you well before power runs out, allowing timely replacement. Compare this to typical night vision units that last only 20 – 30 hours – the TK33M keeps you operational longer, reducing downtime and logistics burdens.

### Section 3: Interchangeable Lenses for Any Observation Task

The TK33M allows you to swap objective lenses to change magnification and field of view. With the standard 1× lens, you get a wide 40° field for close-range navigation, vehicle driving, or indoor searches. Switch to the available 4× lens (10° FOV) and you can observe targets up to 800 meters away. Optional 3× and 5× lenses are also available, plus custom focal lengths. This versatility means you don't need to buy separate devices for different missions. A single TK33M body serves as both a wide-angle navigational aid and a long-range surveillance tool. For professionals who face varying operational distances – from urban alleys to open fields – this adaptability is a game changer, saving both budget and carrying weight.

### Section 4: All-Weather Reliability and Environmental Hardiness

Rated for operation from -40° C to +50° C and storage from -50° C to +70° C, the TK33M thrives in the world's harshest climates. Its housing resists corrosion, dust, and moisture, and it functions at 98% relative humidity without internal fogging (aided by the included anti-fog brow guard). The automatic brightness control and bright light protection circuit prevent damage from sudden light flashes or laser illumination. For users operating in arctic winters, desert nights, or tropical rainforests, this ruggedness ensures the device won't fail when you need it most. No more worrying about condensation inside the tube or the device shutting down due to cold – the TK33M is built to work where others freeze or drown.



### Section 5: Hands- Free Helmet Mount with Intuitive Controls

The TK33M mounts securely to PASGT, ACH, and MCH helmets via the supplied soft helmet bracket. This frees both hands for weapon handling, map reading, radio operation, or climbing – critical for tactical operators. The diopter ring ( $\pm 5$ ) is easy to adjust even with gloves on, and the built-in IR illuminator can be activated with a simple button press. Two inside-the-eyepiece LEDs indicate low battery and IR-on status, so you never have to remove the device to check settings. The removable anti-fog visor prevents breath condensation on cold nights. These human-centric design choices reduce cognitive load and operating errors, allowing you to focus on the mission, not the gear. Whether you are a soldier on a night raid or a mechanic fixing an aircraft in the dark, the TK33M stays out of your way – and works exactly when you need it.

### Applications & Pain Points Solved

Scenario	Customer Pain Point	TK33M Solution
Military night patrols & reconnaissance	Soldiers cannot see enemies or terrain features in total darkness, leading to ambushes or accidents. Heavy equipment limits mobility.	The TK33M mounts to standard helmets, keeping hands free for weapons. With 275 – 300m detection range under quarter moon, soldiers identify threats early. 80-hour battery life supports multi-night missions.
Border & coastal surveillance	Smugglers operate at night; fixed cameras have blind spots. Operators need portable, long-range observation.	Using optional 4 $\times$ lens, the TK33M sees up to 800m. Lightweight (500g) and weather-proof, it can be carried for hours. IR illuminator helps search dark coves or dense brush.
Law enforcement & evidence collection	Officers struggle to search dark buildings, alleys, or wilderness for suspects or evidence. Flashlights give away their position.	Passive night vision (IR off) allows covert observation. The 40 $^{\circ}$ wide field is perfect for room-to-room searches. When needed, built-in IR illuminator lights up close areas without visible light.
Nighttime vehicle / aircraft maintenance and pilotage	Mechanics or pilots cannot see engine bays, landing gear, or taxiways in pitch dark. Handheld lights tie up one hand and create glare.	Helmet-mounted design frees both hands for tools or controls. Anti-glare and auto brightness prevent tube damage from welding arcs or landing lights. Works from -40 $^{\circ}$ C, ideal for flight line use.
Wildlife observation & hunting	Hunters and biologists cannot approach animals at night without spooking them. Red flashlights or white light scare game away.	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: Does the TK33M work in total darkness?

A: Like all passive night vision devices, the TK33M requires some ambient light (starlight, moonlight, or sky glow) to amplify the image. In completely dark environments (e.g., basements, deep caves, or overcast nights with no moon), you must turn on the built-in infrared illuminator. With IR on, you can see clearly up to about 30 – 50 meters indoors or in dense woods. For outdoor use under quarter moon or better, no IR is needed.

Q2: Can I use the TK33M while wearing eyeglasses?

A: Yes. The diopter adjustment ranges from +5 to -6, which accommodates most nearsighted or farsighted users without glasses. If you have strong astigmatism or prefer to keep your glasses on, the rubber eyecup can be folded back to provide extra eye relief. The helmet mount also allows fore-aft positioning to fit glasses comfortably.

Q3: What helmets are compatible?

A: The included soft helmet bracket works with PASGT, ACH, and MCH helmets – the most common military and law enforcement helmets worldwide. It also fits many climbing or industrial helmets with a front mounting shroud. For custom helmets, bracket adapters are available separately. The device can also be used as a handheld monocular without the helmet mount.

Q4: How do I protect the image tube from bright light damage?

A: The TK33M features automatic brightness control (ABC) and bright light shut-off protection. When a sudden bright light (headlights, muzzle flash, or laser) enters the lens, the system reduces gain instantly or temporarily cuts power to the tube. This prevents “burn-in” or permanent damage. However, prolonged exposure to direct sunlight or high-power lasers should still be avoided – always keep the lens cap on when not in use.

Q5: What is included in the package?

A: Standard package includes: TK33M night vision body (with 1× lens mounted), 4× foldable objective lens, soft helmet mount bracket, anti-fog brow guard, lens cleaning cloth, two AA batteries, user manual, and a hard carrying case. Optional accessories (3×/5× lenses, weapon mount, IR laser illuminator) are sold separately. See “Product Packaging & Configuration” below for details.

### Package Contents

Standard Package Contents:

Item	Quantity
TK33M night vision main unit (with built-in 1× objective lens)	1
4× foldable catadioptric (reflective) objective lens	1
Soft helmet mounting bracket (compatible with PASGT/ACH/MCH)	1
Anti-fog brow guard / moisture shield	1
Lens cleaning cloth (microfiber)	1
AA alkaline batteries (1.5V each)	2
User manual (English, including safety and maintenance instructions)	1



Hard protective carrying case (water- resistant, foam- lined)	1
---	---

Optional Accessories (sold separately):

- 3× and 5× objective lenses
- Custom focal length lenses (upon request)
- Weapon rail mount for IR laser illuminator (compatible with Picatinny)
- External high- power IR illuminator
- Sacrificial window / anti- laser filter
- Demist shield for extreme humidity

Note: Specifications and package contents may be updated without prior notice. Refer to the official product manual for the latest information. One- year warranty on manufacturing defects, with lifetime maintenance support.