PTZ CAMERA

AI-Enabled PTZ Camera

The AI-Enabled PTZ Camera by NIRIKHON (Model NK N716FIRC-HS20X-Y) delivers razor-sharp 8MP 4K Ultra HD imaging with 33x optical zoom, engineered for long-range institutional surveillance and command & control operations. With 360° continuous pan and AI auto tracking of up to 16 targets, it ensures precise, uninterrupted threat monitoring. Smart dual-light IR up to 150m and active voice/flash deterrence deliver mission-critical, 24/7 perimeter reliability.

AI-Enabled PTZ Camera | Official Brochure



SOLUTION SNAPSHOT

8MP 4K Ultra HD (3840×2160)	**33x Optical Zoom, 4.5–148.5mm Motorized Lens**	**360° Continuous Pan with AI Target Auto-Tracking**
Smart Dual-Light IR, 120–150m Range	**Voice Siren & White Light Flash Alert**	**IP66 Full Metal with 4000V Surge Protection**

OVERVIEW

Built for Real Operations

01

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CAPABILITIES

Key Features & Product Modules

02

33x Motorized Auto-Iris Lens Optical Assembly

A precision motorized lens spanning 4.5–148.5mm delivers 33x optical zoom with automatic iris control, enabling sharp, detailed identification from extended operational distances. Built for reliable long-range visual reconnaissance across wide-area coverage zones.

8MP 4K Sony IMX415 High-Sensitivity CMOS Sensor

The Sony IMX415 sensor captures native 8MP 4K Ultra HD (3840×2160) imagery, delivering forensic-grade clarity even in challenging lighting conditions. Engineered for consistent, high-fidelity image reproduction across demanding surveillance environments.

SigmaStar SSC378QE High-Performance SoC Processor

This dedicated processing engine drives real-time 4K video encoding, AI analytics, and multi-target tracking simultaneously. Delivers the computational power required for uninterrupted intelligent surveillance operations.

Precision High-Speed Pan/Tilt Servo Motor Mechanism

Enables smooth 360° continuous pan and -15° to 90° tilt coverage, supporting up to 256 preset positions and 8 patrol groups. Built for consistent, repeatable long-term operational accuracy across extended monitoring cycles.

Smart Dual-Light IR & White Light Illuminator Array

Combines infrared illumination up to 150m with warm white light up to 60m, sustaining clear day-and-night visibility. Ensures continuous, uninterrupted monitoring capability regardless of ambient lighting conditions.

Full-Duplex Two-Way Audio & Active Deterrence Module

Integrated microphone and speaker enable real-time two-way communication, while voice siren and white light flash functions provide active on-site deterrence. Strengthens rapid-response capability directly from centralized command interfaces.

Network Interface & Alarm Input/Output Relay Controller

A dedicated RJ45 Ethernet interface with PoE+ (802.3at) support simplifies power and data integration, while dedicated alarm input/output ports enable linked security responses. Built for dependable, low-maintenance network connectivity.

IP66 All-Weather Metal Housing & 4000V Surge Shield

A rugged, fully sealed metal enclosure rated IP66 withstands harsh outdoor conditions, while integrated 4000V lightning protection safeguards internal electronics from power surges. Engineered for long-term durability in demanding field deployments.

Software, Benefits & Outcomes

Real-Time Live Monitoring & Multi-Stream Control

Renders live 4K PTZ command feeds in real time, giving operators immediate 360° situational visibility with full 33x zoom control.

- Full-resolution live feed rendering without frame drops
- Instant switching between mainstream, sub-stream, and third-stream views
- Digital overlay of live PTZ position and zoom level
- Multi-monitor extended display support for command posts
- Live snapshot capture directly from active stream

High-Speed PTZ Pan, Tilt & Optical Zoom Control

Provides direct operator command of 360° continuous pan, tilt, and 33x optical zoom for real-time long-range target acquisition.

- Joystick-style directional pan/tilt control from the interface
- Precision digital zoom slider synced with 33x optical range
- Speed-adjustable PTZ movement (0.5°–60°/sec)
- One-click return to home/default position
- A-B scan pattern configuration for repetitive sweep coverage

Automated Preset Position, Patrol & Cruise Group Management

Enables operators to configure and deploy automated patrol routes across up to 256 preset positions and 8 cruise groups.

- Preset position creation and naming (up to 256)
- Patrol group scheduling with configurable dwell time
- Cruise group sequencing across up to 16 positions per patrol
- Manual override during active patrol cycles
- Patrol schedule assignment by time-of-day

AI-Powered Smart Auto-Tracking & Target Classification

Automatically detects, classifies, and tracks moving targets in real time, sustaining coverage of up to 16 simultaneous subjects.

- Human/vehicle/non-motor vehicle classification toggle
- Auto-tracking sensitivity adjustment per zone
- Manual target lock override during active tracking
- Simultaneous multi-target tracking status display
- Tracking event logging for post-incident review

AI Perimeter Protection & Line Crossing Intrusion Analytics

Delivers configurable virtual boundary monitoring, generating instant alerts on line-crossing and intrusion events across designated zones.

- Up to 4 configurable virtual tripwires and intrusion zones
- Area entry/exit detection zone configuration
- Real-time intrusion alert pop-up on command dashboard
- Zone-specific sensitivity calibration
- Historical intrusion event log with timestamp

Active Deterrence Triggering

Allows operators to instantly trigger on-site voice siren and white light flash deterrence in response to detected threats.

- One-click manual siren and flash activation
- Automated deterrence triggering on alarm linkage
- Configurable deterrence duration and intensity
- Deterrence event logging for audit review
- Scheduled deterrence activation windows

Smart Event Timeline Search & Synchronized Video Playback

Enables rapid retrieval of recorded 4K footage synchronized with AI event tags for efficient forensic review.

- Calendar and timeline-based footage navigation
- Event-tagged bookmarking (motion, intrusion, tracking)
- Variable-speed scrubbing for frame-level review
- Synchronized playback across multiple stream types
- Exportable footage segments with metadata

Centralized Multi-Site VMS & NVR Network Management

Consolidates PTZ units across multiple institutional sites into a single ONVIF-compliant centralized management framework.

- Site-wise camera grouping and hierarchy mapping
- Centralized NVR/VMS integration via ONVIF Profile S/G/T/M
- Cross-site alert consolidation dashboard
- Bandwidth-aware feed prioritization by site
- Centralized firmware and configuration push

Multi-Tiered Role-Based Access & User Privilege Control

Enforces hierarchical access permissions, ensuring only authorized personnel can control PTZ functions or system settings.

- Administrator, operator, and viewer privilege tiers
- Granular permission assignment per user role
- Session-based access logging per user
- Time-restricted access provisioning
- Instant access revocation for compromised credentials

Automated System Health, Bandwidth & Storage Diagnostics

Continuously monitors system performance, network bandwidth, and storage capacity to ensure sustained operational readiness.

- Real-time bandwidth utilization monitoring
- MicroSD/NAS storage capacity alerts
- Automated system health status reporting
- Network connectivity diagnostic checks
- Scheduled diagnostic report generation

SPECIFICATION

Technical Details

05

8MP 4K ULTRA HD (3840×2160)
✓ Included

33X OPTICAL ZOOM, 4.5–148.5MM MOTORIZED LENS
✓ Included

360° CONTINUOUS PAN WITH AI TARGET AUTO-TRACKING
✓ Included

SMART DUAL-LIGHT IR, 120–150M RANGE
✓ Included

VOICE SIREN & WHITE LIGHT FLASH ALERT
✓ Included

IP66 FULL METAL WITH 4000V SURGE PROTECTION
✓ Included

AUTOMATED PATROL CONFIGURATION
✓ Included

MULTI-TARGET AI TRACKING CAPACITY
✓ Included

TWO-WAY COMMUNICATION SYSTEM
✓ Included

MULTI-STREAM VIDEO COMPRESSION
✓ Included

POWER-LOSS POSITION RECOVERY
✓ Included

HIGH-CAPACITY EDGE STORAGE
✓ Included

OPEN-STANDARD VMS INTEROPERABILITY

✓ Included

PERIMETER INTRUSION ANALYTICS

✓ Included

QUESTIONS

Frequently Asked Questions

07

Q. How does the system maintain image stability during 33x optical zoom operation at long range?

A. The motorized auto-iris lens assembly is engineered for precision optical zoom control across the full 4.5–148.5mm range, supporting stable, high-clarity imaging during extended zoom operation. Procurement teams evaluating stabilization performance under field vibration or wind-load conditions should request additional confirmation of electronic/optical image stabilization specifications, as this was not explicitly detailed in the confirmed specification set.

Q. What is the reliability of AI auto-tracking accuracy when monitoring up to 16 simultaneous targets?

A. The system supports simultaneous detection and tracking of up to 16 AI-classified targets, with human, vehicle, and non-motor vehicle classification applied at a detection range of 2–20 meters. Tracking performance is designed for consistent operation under standard field conditions; procurement officers requiring accuracy benchmarks under high-density or adverse-weather scenarios should request supplementary field-test validation during technical evaluation.

Q. How reliable is the 120–150m dual-light night vision system across varying environmental conditions?

A. The Smart Dual-Light illumination system combines infrared range up to 150m with warm white light up to 60m, supporting automatic or manual switching for continuous day-and-night operation. This dual-mode design is built to sustain visibility across standard low-light and nighttime conditions consistent with 24/7 operational requirements.

Q. Does the 4000V surge protection ensure equipment reliability during extreme weather events, including lightning-prone conditions?

A. es. The unit incorporates built-in 4,000V lightning protection alongside an IP66-rated, all-weather metal housing rated for continuous operation between -30°C and +65°C. This configuration is designed to safeguard internal electronics against voltage surges and environmental stress in outdoor, lightning-exposed installations.

Ready to deploy AI-Enabled PTZ Camera?

Talk to Nirikhon for product consultation, installation planning, integration support, and enterprise deployment.

Hotline: 09647 120 120 | Website: www.nirikhon.com