

ACTi

Physical Security End-to-End Solution Provider

White Paper | AI Cameras

AI CAMERAS

A practical white paper for intelligent video analytics, event automation, and AI-ready surveillance system design

AI Cameras ACTi Corporation

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Document purpose

This white paper explains what AI cameras mean in professional video surveillance and how they should be specified, deployed, and evaluated. It is written for system integrators, consultants, security managers, facility managers, and procurement teams that need intelligent detection, event classification, searchable metadata, and reliable alarm workflows across physical security projects.

The document references ACTi public product information for the AI Cameras category and ACTi corporate information. It avoids model-specific naming so the content remains useful even as individual part numbers or product generations change.

Reading guide

Use Sections 3 and 4 to define AI-camera requirements, Section 5 to map use cases, Section 6 to check system architecture, and Section 7 to align ACTi camera form factors with project needs.

1. Executive Summary

AI cameras help surveillance teams move from passive video recording to event-driven security operations. Instead of relying only on manual monitoring or basic pixel-change motion detection, AI cameras analyze video content to classify people, vehicles, license plates, faces, objects, movement direction, behavior patterns, and abnormal events.

ACTi describes its AI camera offering as combining quality-driven camera hardware with deep learning AI features. The public AI Cameras page highlights AI functions such as face recognition, face detection, people detection, intrusion detection, line crossing, incorrect direction, loitering, tracking, license plate detection, ALPR, vehicle detection, vehicle counting, object-based motion detection, missing object, unattended object, tampering, and audio detection. [1]

For system integrators, AI cameras create differentiation when proposals are built around operational outcomes rather than camera count alone. For consultants and end users, the correct specification should define the target event, target size, camera view, lighting condition, analytics rule, metadata requirement, recording rule, alarm priority, verification method, and response procedure.

Core message

AI cameras should be specified as part of a complete detection, verification, recording, and response system. The analytics algorithm is important, but project success also depends on image quality, lens selection, field of view, installation height, scene complexity, network design, VMS/NVR integration, alarm workflow, evidence retention, cybersecurity, and user training.

Key takeaways

- AI-camera value comes from turning video into structured events that operators can verify and act on.
- Deep learning analytics can support people, vehicle, face, license plate, object, and behavior-based event detection.
- Clear source video remains essential; poor lighting, poor angle, wrong lens, or excessive target distance can reduce analytics reliability.
- Edge analytics can reduce operator workload by filtering routine motion and prioritizing meaningful events.
- VMS/NVR integration, event search, alarm notification, and evidence export are essential parts of an AI-camera project.

Procurement principle: Do not specify AI only as a feature checkbox. Specify the operational event, target distance, field of view, analytics rule, verification method, alarm handling, recording, retention, search, export, and operator response together.

2. About ACTi Corporation

ACTi Corporation is the writer and publisher of this document. ACTi is a Taiwan-based international company founded in 2003 and serving customers in more than 100 countries. ACTi states that it has more than 20 years of security-industry experience and has been a pioneer in video-based security technology development and innovation. [2]

ACTi positions itself as a physical security end-to-end solution provider. Its ecosystem includes IP cameras, recording platforms, VMS, access control, central management, system health management, AI-enabled video technologies, and third-party system integration. [2]

This broader ecosystem matters for AI-camera projects. A camera may classify an object or generate an event, but the project succeeds only when operators can receive alarms, verify the scene, record the right stream, search events, export evidence, and maintain system health.

Why ACTi is relevant to AI-camera projects

ACTi strength	Project relevance
End-to-end system scope	AI cameras can be planned together with NVR, VMS, CMS, access control, alarms, third-party systems, and health management instead of being treated as isolated devices.
Clear video as a foundation	AI analytics require usable source video. Image quality, lens selection, exposure control, low-light performance, and frame rate should support the target event.
AI-enabled platform	Projects can combine intelligent detection, classification, tracking, metadata, event review, alarm workflows, and evidence export.
Compliance and project fit	ACTi public pages reference compliance considerations such as NDAA, TAICS, vertical-market requirements, and adaptable project needs. [1]

3. Definition of "AI Cameras"

An AI camera is a network video camera that uses built-in analytics to interpret visual or audio information and convert selected scene activity into structured events. In physical security, AI cameras are used to detect and classify people, vehicles, faces, license plates, objects, directions, area entries, line crossings, loitering, tampering, and other events that require faster operator attention.

ACTi states that deep learning AI is available in several quality-driven camera types, including PTZ, zoom bullet, zoom dome, and zoom multi-imager cameras. ACTi also highlights that AI can be made affordable without requiring AI software licenses. [1]

Project teams should treat AI as both a detection technology and an operational workflow: what event matters, where it must be detected, which rule triggers an alert, what video verifies the event, who receives it, and whether the recorded evidence remains searchable after the event.

AI cameras vs. related concepts

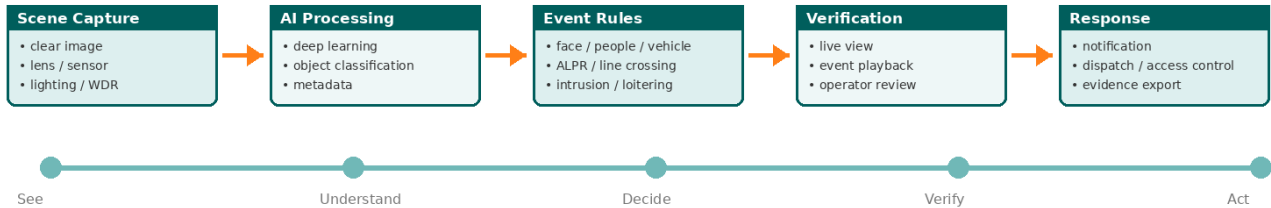
Term	Meaning	Common misunderstanding
AI camera	Camera with built-in analytics that can classify or interpret scene activity and generate event metadata.	It is not automatically accurate in every scene; installation geometry and image quality still matter.
Deep learning AI	Analytics approach trained to recognize patterns such as people, vehicles, faces, license plates, or selected behaviors.	The algorithm does not replace proper field of view, lighting, lens, and validation.
Machine learning analytics	Built-in analytics that classify or filter events based on learned patterns or configured rules.	It is broader than one feature; the exact supported events should be checked per camera category.
Video motion detection	Traditional detection based mainly on pixel changes or motion in the image.	It is not the same as object classification or behavior-aware AI detection.
Metadata	Structured event information such as object type, time, rule, direction, area, or alarm result.	Metadata is useful only if the VMS/NVR can store, search, and display it.

Visual concept

AI-camera value is created when the system converts complex video scenes into verified, actionable events. The diagram below summarizes the operational chain from image capture to response.

How AI Cameras Turn Video into Actionable Events

From scene capture to analytics, verification, recording, and response workflow



Design principle: AI accuracy depends on clear source video, correct scene setup, usable rules, integration, and response.

Design note

An AI camera creates value when it can detect the relevant event early enough for the organization to respond. The complete chain must be planned: scene coverage, analytics rule, image quality, event metadata, visible verification, alarm delivery, recording, playback, export, and response.

4. Core Technical Concepts

Camera selection should begin with the operational problem. The goal is to preserve usable video and metadata at the distance, angle, lighting condition, movement speed, and response workflow that matter to the project. The following concepts help teams avoid under-designed specifications.

Concept	Practical meaning
Image quality and source video	AI accuracy depends on clear source video. Resolution, exposure, WDR, low-light performance, shutter speed, focus, compression, and cleanliness of the scene affect results.
Lens, field of view, and target size	A wide view covers more area, while a narrower view improves target detail. Specify detection distance, object size, mounting height, and expected event together.
Deep learning categories	AI projects may involve face, people, vehicle, license plate, object, tampering, audio, and behavior-related detection categories. [1]
Edge analytics	Processing inside the camera can create events before video reaches the recorder, reducing unnecessary review and helping operators focus on relevant incidents.
Rules, zones, and thresholds	Line crossing, area entry, intrusion, loitering, incorrect direction, vehicle counting, or object rules must match the scene and operational risk.
Metadata and event search	Metadata should be stored with time, camera, rule, object type, event priority, and related video so incidents can be searched and exported later.
Integration and workflow	NVR/VMS, CMS, alarm pop-up, email or app notification, access control, audio, and third-party systems determine how AI events become action.

Specification interpretation

An AI camera can still underperform if the field of view is too wide, the object is too small, lighting is poor, the wrong rule is configured, or the VMS/NVR does not preserve event metadata. Conversely, a moderate camera design can perform well when image quality, scene geometry, analytics rules, verification, recording, and response are planned together.

Capability matrix

Scene challenge to AI-camera capability matrix

Match the monitoring problem with the full camera and system settings required for usable detection, verification, and evidence.

Scene challenge	What can go wrong	Capabilities to specify
General intrusion detection	Routine motion, animals, shadows, or lighting changes create too many false alarms.	people/vehicle classification, intrusion zones, line crossing, schedule, sensitivity, event verification
Vehicle access and traffic flow	Vehicles are visible but not classified, counted, or linked to the correct event.	vehicle detection, vehicle counting, line crossing, direction rules, lane view, recording metadata
License plate recognition	The plate is too small, blurred, overexposed, angled, or not linked to the access workflow.	ALPR-ready view, shutter control, lighting, plate capture distance, whitelist/blacklist workflow
Face-related applications	Faces are too small, side-facing, masked, poorly lit, or processed without a clear policy.	face detection/recognition, controlled view, lighting, enrollment workflow, privacy and retention policy
Crowd or area management	People counts or area entries are inaccurate because the scene is too crowded or the rule is poorly placed.	people counting, enter/exit rules, object area counting, calibration, validation against site SOP
Object and behavior monitoring	Missing or unattended objects, loitering, tampering, or audio events are not escalated correctly.	object rules, loitering duration, tampering detection, audio detection, alarm priority, review workflow

How to use this matrix

Use the matrix during site survey and proposal design. Each monitoring problem should be translated into a camera requirement, a network/recording requirement, and an operator-review requirement. This reduces the risk of specifying AI hardware while leaving the rest of the system unable to preserve or use the captured event.

5. High-Value Applications

AI cameras are most valuable where teams need event classification, faster verification, reduced false alarms, searchable evidence, or automation across large camera systems. ACTi highlights AI categories for face, people, license plate, vehicle, object, tampering, and audio-related detection. [1]

Application	Operational value	Typical locations
Perimeter and intrusion security	Prioritize people and vehicle events while reducing nuisance alarms from routine motion.	Campuses, logistics yards, utilities, warehouses, restricted outdoor zones
Access and entrance monitoring	Detect people, vehicles, direction, entry into forbidden areas, or selected access events.	Building entrances, gates, parking lots, lobbies, loading docks
Traffic and parking operations	Support vehicle detection, vehicle counting, traffic-jam awareness, license plate capture, and incident review.	Parking facilities, road entrances, campuses, residential communities, industrial parks
Retail and commercial operations	Improve event search, crowd or area awareness, loitering detection, and incident verification.	Retail stores, shopping areas, office buildings, mixed-use facilities
Education and healthcare safety	Support controlled-zone monitoring, people detection, abnormal behavior review, and faster operator response.	Schools, hospitals, clinics, dormitories, public areas
Industrial and critical infrastructure	Strengthen intrusion detection, vehicle movement awareness, object rules, and multi-site monitoring.	Factories, plants, substations, transport hubs, energy facilities

Value by stakeholder

Stakeholder	Main benefit
System integrator	Stronger differentiation when proposals are built around detection accuracy, event workflow, and total solution design.
Consultant	Clearer specification language for target events, target size, scene geometry, analytics rules, metadata, integration, and evidence export.
Security / safety manager	Reduced manual monitoring load, faster verification, more actionable alarms, and better incident reconstruction.
Procurement team	A more defensible buying decision based on application fit, compliance readiness, licensing model, and system-level evidence workflow.

6. System Architecture

AI cameras should be designed as a system architecture. The camera creates video, events, and metadata, but the full solution must preserve operational value through control, transmission, recording, storage, live viewing, playback, search, export, alarm handling, and response. If any layer is under-designed, the project may lose preventive or evidential value.

Reference AI Camera System Architecture

End-to-end workflow from intelligent edge cameras to VMS, storage, notification, and operational response



Key architecture question: Can operators detect the right event, verify it quickly, search it later, export proof, and act consistently?

Architecture layers

Layer	Role in AI-camera surveillance
Field layer	AI cameras, lens, field of view, target distance, mounting height, lighting, weather exposure, enclosure, and maintenance access.
Network layer	PoE, switching, uplink capacity, fiber or wireless links, VLANs, latency, cybersecurity controls, and bandwidth headroom.
Recording layer	NVR or VMS storage, codec, bit rate, frame rate, retention period, redundancy, backup, playback performance, and export workflow.
Analytics layer	AI rules, zones, classification, confidence, object type, event metadata, schedules, rule priority, and false-alarm control.
Management layer	Client software, web access, CMS, user permissions, event review, health management, and multi-site monitoring.
Response layer	Operator SOPs, access-control actions, guard dispatch, escalation, incident reporting, evidence export, and audit trail.

Architecture warning: A camera that looks excellent in a datasheet can still underperform if image quality, alarm logic, network control, recording profile, display layout, storage retention, event search, or operator response workflow is poorly planned.

7. ACTi Product Portfolio Overview

ACTi positions its AI Cameras category as a portfolio for intelligent detection across multiple installation needs. The public page highlights deep learning AI camera models, no AI license required, face recognition, ALPR, people and vehicle analytics, resolution up to 20MP, IR distance up to 250 meters, frame rate up to 120fps under 2MP mode, anti-corrosion and anti-explosion options, a wide range of compliances, and several camera types including PTZ, zoom bullet, zoom dome, and zoom multi-imager cameras. [1]

Portfolio categories

Category	Where it fits	Use-case fit
AI box / cube	Compact indoor or controlled-area monitoring where installation simplicity and localized intelligent detection are important.	Small rooms, entrances, service areas, equipment zones
AI bullet	Directional indoor or outdoor surveillance with fixed-view coverage and robust mounting.	Perimeters, gates, driveways, loading docks, yards
AI dome / turret	Lower-profile installation where tamper resistance, indoor aesthetics, or compact mounting are preferred.	Commercial buildings, schools, healthcare sites, offices
AI zoom bullet / zoom dome	Adjustable optical view for tuning target size, distance, and analytics performance during deployment.	Entrances, parking lots, corridors, access points, mid-range perimeters
AI multi-imager	Multiple views from one installation point where several directions must be monitored.	Intersections, building corners, large entrances, parking areas
AI PTZ / speed dome	Movable observation with presets, tracking, and operator-controlled verification across larger scenes.	Large outdoor spaces, campuses, industrial yards, public areas
AI NVR / VMS ecosystem	Recording, live view, playback, event management, search, export, CMS, and integration layer.	Single-site and multi-site projects requiring end-to-end workflow

Portfolio-level capabilities to confirm

- Required form factor, mounting method, coverage area, target distance, target size, and environmental condition.
- Required analytics category: people, vehicle, face, license plate, object, tampering, audio, or behavior-based event.
- Required resolution, frame rate, lens, IR distance, WDR, low-light performance, and compression settings.
- Recorder/VMS compatibility, event metadata, bit rate, retention, playback, evidence export, CMS, and remote access requirements.
- Environmental casing, operating temperature, weatherproofing, anti-corrosion needs, vandal resistance, and maintenance access.
- Cybersecurity and compliance requirements such as NDAA, TAICS, firmware policy, secure access, and regional availability.

Project note: Product availability, detailed specifications, compliance status, recorder compatibility, and regional part numbers should be confirmed from the latest ACTi product pages, datasheets, firmware release notes, and quotation documents before project submission.

8. Related Keywords and Terminology

The following keyword reference groups collect common terms related to AI video surveillance, intelligent detection, event metadata, video analytics, system architecture, and project procurement.

Core topic keywords

AI camera, AI security camera, AI surveillance camera, AI IP camera, intelligent camera, smart camera, deep learning camera, machine learning camera, network AI camera, edge AI camera, video analytics camera, intelligent video surveillance

AI analytics keywords

deep learning AI, machine learning analytics, edge analytics, object classification, people detection, vehicle detection, face detection, face recognition, license plate detection, automatic license plate recognition, ALPR camera, object-based motion detection

People and behavior keywords

intrusion detection, forbidden area detection, people line crossing, people enter area detection, incorrect direction detection, people loitering detection, people tracking, crowd detection, object area counting, alarm verification

Vehicle and traffic keywords

vehicle detection, vehicle counting, traffic jam detection, vehicle line crossing, vehicle enter area detection, vehicle incorrect direction detection, parking lot analytics, gate monitoring, entrance monitoring, traffic surveillance

Object and safety keywords

missing object detection, unattended object detection, object loitering detection, tampering detection, audio detection, abnormal event detection, event rule, alarm rule, smart event, intelligent alert

Image quality keywords

high resolution AI camera, 20MP surveillance camera, low-light AI camera, WDR AI camera, IR surveillance camera, long-range IR camera, autofocus zoom camera, multi-imager AI camera, PTZ AI camera, dome AI camera

Application keywords

perimeter security camera, critical infrastructure surveillance, retail analytics camera, school security camera, healthcare security camera, parking lot surveillance, warehouse security, logistics security, commercial building security, industrial site surveillance

Common question phrases

what is an AI camera, how do AI cameras work, what is the difference between AI cameras and motion detection, when do I need an AI camera, how to specify AI cameras for intrusion detection, how to integrate AI cameras with NVR or VMS, how to use AI cameras for people detection, what is ALPR camera, how to reduce false alarms with AI cameras, how to search AI camera events

System and architecture keywords

IP camera system, AI NVR system, VMS video analytics, CMS surveillance, remote monitoring, multi-site surveillance, system health management, video retention planning, alarm event search, evidence export workflow, AI camera bandwidth planning, ACTi AI camera

Procurement and project keywords

AI camera specification, AI camera selection guide, surveillance camera white paper, camera for system integrators, camera for consultants, camera for end users, NDAA security camera, TAICS security camera, AI camera for perimeter security, AI camera for access control

Source notes

Ref.	Source
[1]	ACTi Corporation, "AI Cameras," official product category page. URL: https://www.acti.com/products/ai-cameras . Accessed: June 16, 2026.
[2]	ACTi Corporation, "About ACTi," official corporate page. URL: https://www.acti.com/corporate/about . Accessed: June 16, 2026.

Revision note: This document is a marketing and technical education white paper. It is not a regulatory certification, privacy-law opinion, final system design, or guaranteed performance statement. Always validate camera placement, target distance, field of view, lighting, analytics rules, recording settings, storage, VMS control, evidence export, and operator workflow in the target scene before deployment.

Prepared by ACTi Corporation

For AI camera projects, confirm camera type selection, lens, analytics requirements, recording platform, compliance requirements, mounting accessories, and regional availability with your ACTi sales contact or authorized system integrator.
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