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Standard Motion Alarm vs Smart Alarm

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What Standard Motion vs Smart Alarm Does

In GCXONE, every alarm reaching operators originated from a detection event on a camera or sensor.

The detection method determines the quality, volume, and accuracy of those alarms. Standard Motion

Detection produces high volumes of false alarms that drain operator attention and risk triggering Event

Overflow protection. Smart Alarms use on-device AI to deliver only verified, actionable events.

Why It Matters

The detection method used by customer devices directly affects platform performance and service

quality. Sites using Basic Motion are the most common source of Event Overflow incidents. CSMs receive

escalations from customers complaining that alarms stopped arriving — typically because their device was

suppressed due to overflow. Talos shows Alarm Limit Exceeded errors when multiple poorly-configured

devices on the same site collectively exceed the site-level threshold. Operators report alarm fatigue when

monitoring sites running Basic Motion on outdoor cameras.

Customers who switched from Basic Motion to IVS report significantly fewer alarm-related complaints.

Overflow incidents drop to near-zero on sites using Smart Alarms. Operator handling time improves

because incoming alarms represent verified events. ZenMode and NOVA99x add additional AI filtering on

top of IVS-sourced alarms for maximum precision.

How It Works

Standard Motion Detection

Standard Motion Detection (also called Basic Motion) is the simplest and oldest form of camera-side alarm triggering. It works by comparing consecutive video frames: if enough pixels change between frames, the camera concludes that "motion" has occurred and fires an alarm.

The camera's firmware divides the image into a grid of zones. For each zone, it calculates the difference in pixel brightness between the current and previous frame. If the change exceeds a configured threshold, an alarm event is generated and sent immediately to GCXONE.

What it triggers on

- Humans and vehicles (desired)
- Wind moving trees, grass, or curtains
- Rain, fog, or snow
- Passing headlights and light reflections
- Insects flying close to the lens
- Camera shake from wind or vibration

Impact on GCXONE

- High alarm volume: Outdoor cameras in motion detection mode can generate hundreds of alarms per hour under normal environmental conditions.
- Operator fatigue: Processing a constant stream of false alarms reduces operator alertness and increases the risk of missing genuine events.
- Event Overflow risk: Exceeding 25 alarms in a 5-minute window triggers GCXONE's Event Overflow protection, which discards all further alarms from the device during that window.

Smart Alarm (IVS / Intelligent Detection)

Smart Alarms — also called IVS (Intelligent Video System) events, or AI events — use the camera or NVR's built-in AI processor to analyze the scene before generating any alarm signal. Instead of reacting to pixel changes, the system identifies specific object types and behaviors.

Common Smart Alarm types

- **Line Crossing Detection:** Triggers when a person or vehicle crosses a user-defined virtual line in the field of view. Direction-aware (e.g., entry only).
- **Intrusion Detection:** Triggers when a person or vehicle enters and remains within a defined zone for a minimum duration.
- **Human Detection:** Triggers only when a human is positively identified in frame — ignores animals, vehicles, and environmental movement.
- **Vehicle Detection:** Triggers only on confirmed vehicle presence — useful for car parks, perimeters, and road access control.

Impact on GCXONE

- **Near-zero false alarms:** Environmental triggers are filtered at the source, before any data reaches GCXONE.
- **Reduced alarm volume:** Sites that previously generated 200+ alarms per day often drop to under 20 with smart alarm configuration.
- **Overflow protection compatibility:** Smart alarms rarely approach the 25 alarm per 5-minute threshold, making Event Overflow a non-issue.
- **AI stack compatibility:** Smart alarms work alongside GCXONE's NOVA99x and ZenMode layers for further false alarm reduction and event grouping.

Key Capabilities

The following illustrates how each detection method processes a scene and delivers (or does not deliver) alarms to GCXONE:

Standard Motion Flow

1. Camera detects pixel change
2. Immediate alarm fired
3. GCXONE receives alarm
4. Operator reviews — often a false alarm
5. High volume → possible Event Overflow

Smart Alarm (IVS) Flow

1. Camera AI analyzes the scene
2. Non-human/vehicle triggers ignored
3. Validated alarm sent to GCXONE
4. Operator reviews — genuine event
5. Low volume → No overflow risk

At a Glance: Feature Comparison

CRITERIA	STANDARD MOTION DETECTION	SMART ALARM (IVS)
Detection Method	Pixel-change analysis	Edge-side AI / IVS engine
Triggered By	Any movement (wind	insects
False Alarm Rate	High	Low
Alarm Volume	Very High	Low
Event Overflow Risk	High	Very Low
Operator Workload	Heavy	Manageable
GCXONE AI Compatible	Limited	Yes — NOVA99x
NXGEN Recommendation	Not Recommended	Strongly Recommended

How to Switch to Smart Alarms

Switching a camera from Basic Motion to IVS requires a configuration change on the physical device. This is typically done via the camera's web UI or through the NVR interface:

- Step 1: Access the camera's web interface or the NVR configuration panel.
- Step 2: Navigate to Smart Event or IVS settings (location varies by manufacturer — see device-specific guides on gcxone.pages.dev/docs/devices).
- Step 3: Disable Basic Motion Detection if it is enabled.
- Step 4: Enable Line Crossing Detection or Intrusion Detection. Draw the detection zone to cover the area of interest.
- Step 5: Set the target filter to Human or Vehicle (or both) to exclude environmental triggers.
- Step 6: In GCXONE, verify the incoming alarm type is correctly mapped to the appropriate alarm code. Use Alarm Mapping settings to confirm.
- Step 7: Monitor alarm volume over 24–48 hours and confirm that overflow events are no longer triggered.

Best Practices

Recommendation for CSMs: When a customer reports alarm gaps, missed events, or unexpected silences — always check first whether their cameras are using Basic Motion Detection. In most cases, switching to IVS resolves the issue entirely without any platform-side changes.

- Switch outdoor cameras to IVS first — they are the most common source of false alarms and overflow incidents.
- Always set a target filter (Human or Vehicle) when enabling IVS — without it, the AI engine may still trigger on animals or environmental movement.

- Monitor alarm volume for 24–48 hours after switching to confirm that overflow events are no longer triggered.
- Pair IVS with GCXONE's NOVA99x and ZenMode for maximum alarm precision and event grouping.