

Invented for life



BOSCH

Deploy Bosch AI-driven Video Analytics in Milestone XProtect®

In partnership with



Version 1.0
May 2024

Bosch Cameras Connected to Milestone Video Management Software

Together, Bosch and Milestone Systems (hereafter: Milestone) deliver integrated video security solutions that are responsible, innovative, and easy to use. This combination allows customers to explore the intelligence and efficiency of business-enabling video solutions.

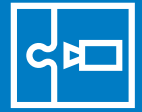
Bosch and Milestone have been collaborating for more than 20 years already. Around the world there are more than 1,200,000 Bosch camera sensors connected to Milestone XProtect® Video Management Software (VMS). The open architecture of Milestone XProtect® is attractive to connect with and build upon: it connects with software and sensors from >400 other companies and offers modern application programming interfaces (APIs) for seamless integration building. Cameras from Bosch work with all versions of Milestone XProtect®, and also with Milestone Husky IVO™ and Milestone Kite Surveillance as a Service (VSaaS) offering¹. Bosch is one of the very few Milestone Platinum Technology Partners out there.



20 years
working
together



Globally
trusted
solutions



1.2M
Bosch devices
integrated into
Milestone

Works better together



Scalable



Proven



Innovative

- **Milestone open ecosystem allows for easy integration with other systems**
- **Bosch is Milestone Platinum Technology Partner**
- **Bosch cameras work with all Milestone offerings**

Bosch Video Analytics

Bosch offers a menu of Intelligent Video Analytics that deliver highly-accurate data, are easy to use, future proof, and integrate seamlessly with Milestone XProtect®. Whether your needs are simple or advanced, we always have an intelligent video analytics solution to choose from:

<p>Intelligent Video Analytics (IVA) Pro Buildings</p> <p>is ideal for basic intrusion detection and operational efficiency in and around buildings. It can reliably detect, count, and classify static objects such as persons and vehicles in crowded scenes, and comes standard with all of the latest Bosch camera series, including the 3100i, 5100i, 7100i and 8100i³ series cameras.</p>	<p>Intelligent Video Analytics (IVA) Pro Perimeter²</p> <p>is well suited for reliable long-range intrusion detection, alongside perimeters of buildings, energy facilities, and airports even in extreme weather. Based on advanced background subtraction, it can detect crawling, rolling, and other suspicious movements, and comes standard with the Bosch 7100i and 8100i³ series cameras. With other camera series it can be purchased as an add-on.</p>	<p>Intelligent Video Analytics (IVA) Pro Traffic²</p> <p>is designed for intelligent transportation systems (ITS) applications such as counting and classification of vehicles, including subclasses – such as bicycles, motorcycles, cars, trucks and busses – as well as Automatic Incident Detection. It can be purchased with the Bosch 5100i, 7100i and 8100i³ series cameras.</p>	<p>Intelligent Video Analytics (IVA) Pro Intelligent Tracking</p> <p>is designed to give Bosch 7100i series pan-tilt-zoom (PTZ) cameras the ability to follow a camera-detected object when the camera is in motion. It can be purchased as a compliment to the above IVA Pro solutions and works with the Bosch AUTODOME 7100i or MIC 7100i cameras.</p>	<p>Intelligent Video Analytics (IVA) Pro Visual Gun Detection⁴</p> <p>is designed for automatic detection and classification of people and brandished firearms. This version of IVA might not be available in all regions worldwide³. It can be purchased with the Bosch 5100i, 8100i³ series and with the DINION 7100i camera.</p>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Table Notes:
¹ Through a bridge device and using the ONVIF protocol, Bosch cameras can be easily connected to Milestone Kite.
² Camera calibration ensures best detection range and accuracy. It also enables object speed and geolocation. Bosch offers advanced (AI) assisted calibration [methods](#).
³ The Bosch 8100i family will be released in the second half of 2024.
⁴ Available in North America and selected other regions. Please check with your Bosch contact person.



For more information on compatibility between Bosch cameras and versions of Bosch IVA Pro, also in light of projects with Milestone, please visit [Bosch video selector](#).

What Bosch IVA Pro analytics do you need?

Objects, situational rules and camera calibration



TABLE 1: Intelligent Video Analytics Pro + other features combined with Milestone XProtect®

		IVA Pro Buildings ³	IVA Pro Perimeter ³	IVA Pro Traffic ³	IVA Pro Int. Tracking ^{3,6}	IVA Pro Gun Detection ^{3,5}
OBJECTS	Detect, alarm upon, and visualize the following objects^{1,7}					
	Detect static objects	✓	-	✓	-	✓
	Detect moving objects	✓	✓	✓	-	✓
	Object type main class: Person and/or pedestrian	✓	✓	✓	-	✓
	Object type main class: Vehicle	✓	✓	✓	-	-
	Vehicle type sub class: Bicycle, motorcycle, car, truck and bus	-	✓ (some)	✓ (all)	-	-
	Object type main class: Gun (Gun-in-hand) ⁵	-	-	-	-	✓
	Camera trainer (train your own object class of choice)	-	✓	-	-	-
SITUATIONS	Detect and alarm upon the following situations^{2,9}					
	Object crossing one or multiple line(s)	✓	✓	✓	-	✓
	Object within, entering, exiting a pre-defined zone	✓	✓	✓	-	✓
	Object loitering in an area related to radius and time	✓	✓	✓	-	✓
	Object started or stopped moving	✓	✓	✓	-	✓
	Count objects crossing a virtual line ⁴	✓	✓	✓	-	✓
	Count objects within a pre-defined zone ⁴	✓	✓	✓	-	✓
	Queueing of people or congestion of vehicles	✓	✓	✓	-	-
	Crawling and rolling persons and intruders	-	✓	-	-	-
	Idle/left or removed objects	✓	✓	✓	-	-
	Objects with certain size, speed ⁸ , direction and colors	✓ ⁸ /-	✓	✓	-	✓
	Manual or AI auto-tracking of camera-detected objects	-	-	-	✓	-
CALIBRATION	Assisted measurement-based calibration	-	✓	✓	-	-
	Map-based calibration	-	✓	✓	-	-
	AI based auto-calibration	-	-	✓	-	-

General Note: All newest Bosch cameras come with at least 1 pre-defined variant of IVA PRO onboard. Depending on your camera model and project needs, additional IVA PRO license fees may apply.

¹ Even when the camera is moving. Visualization happens by placing bounding boxes around the detected object.

² Maximally 16 situations from the list can be combined.

³ Configuration takes place outside of XProtect®, in the Bosch configuration Manager, but object classifications will be visualized and can generate alarms in XProtect®.

⁴ In XProtect® one can setup a rule that alarms (live or in playback) upon a specific 'counted' value. Or enable simple object counting upwards (i.e., addition) through the Bosch Enhanced Metadata Plugin.

⁵ Available in North America and selected other regions. Please check with your Bosch contact person.

⁶ IVA Pro Intelligent Tracking works with both IVA Pro Buildings and IVA Pro Traffic and inherits the available object classes, respectively.

⁷ IVA PRO Traffic comes with all vehicle sub-classes, IVA PRO Perimeter only with selected. Please consult IVA PRO data sheets for exact information about detectable object sub classes.

⁸ In order to detect speed or geolocation with any camera, it needs to be calibrated. IVA PRO Buildings cannot be calibrated.

⁹ Detectable objects in those situations differ per IVA PRO pack. See first row of this table for more information on detectable objects.

Bosch Features and Video Analytics available in Milestone XProtect®

Basic integrated functionality

Bosch and Milestone offer all kinds of integrated functionality when connecting Bosch cameras to Milestone XProtect®. Use below table to discover which basic integrated functionality exists, whether it works in live view and/or in playback, and if it's integrated natively (i.e., without the need for any additional software) or through a free-of-charge software plug-in by Bosch, available in the Download Area.



Bosch Download Area

Free-of-charge plug-ins with Milestone Bosch Video Analytics

TABLE 2: Basic integrated functionality and software plug-in requirement in combination with Milestone XProtect®

		Live (real-time)	Playback (recordings)	Natively integrated into XProtect	Bosch Enhanced Metadata plug-in	Bosch Dewarping plug-in
BASIC INTEGRATIONS	Automatic alarm follow-up by XProtect® rules engine	✓		✓		
	De-warping of 360° or panoramic cameras	✓	✓			✓
	Adding trajectory lines with moving objects ¹	✓	✓		✓	
	Camera wiper control for cameras with wiper function ²	✓			✓	
	Camera heater control for cameras with heating function ²	✓			✓	
	Place bounding boxes around detected objects ³	✓	✓	✓	✓	
	Motion detection (through XProtect® or Bosch "detect any object")	✓		✓		
	Camera sabotage or tampering detection alerts ⁴	✓		✓		
	SD card recording on-camera	✓		✓		

Table Notes:

¹ This feature marks the historic trajectories of moving objects with a colored line.

² Ability to turn on/off the functionality in Milestone XProtect®

³ After detected objects have been configured in the Bosch configuration manager, they will appear with bounding boxes in XProtect®

⁴ After camera tampering has been configured in the Bosch configuration manager, it can be alarmed for in XProtect®

Advanced objects, alarms, notifications and cloud-based verification

Bosch cameras equipped with IVA Pro can detect, alarm upon and visualize a variety of objects – such as persons, vehicles and firearms – in combination with XProtect®. Subsequently, those detected objects can be linked to all kinds of alarms and notifications – such as for crossing a line, traversing a route, loitering in an area, counting objects, queueing, and much more. Up to 16 of those alarms and notifications, of which maximally 3 line crossing situations, can be combined per camera. Use below table to discover which objects Bosch cameras can detect, and which alarms and notifications can be configured in combination with XProtect®. The table will also show whether functionality works in live view and/or in playback, and if it's integrated natively (i.e., without the need for any additional software) or through a free-of-charge software plug-in by Bosch, available in the Download Area.



Bosch Download Area

Free-of-charge plug-ins with
Milestone Bosch Video Analytics

As of the second half of 2024, camera-detected objects can be optionally verified through a secure Bosch cloud, directly from out of XProtect®, by using the free-of-charge Bosch AI Gateway plug-in. This solution is subject to an additional annual Bosch license per camera, which will activate cloud-based AI alarm verification, and which will significantly reduce false alarms.

- License: **CBS-AAV-VGD** for cloud-based visual firearm verification
- License: **CBS-AAV-PER** for cloud-based human and vehicle verification

TABLE 3: Advanced Bosch Intelligent Video Analytics combined with Milestone XProtect®

		Live (real-time)	Playback (recordings)	Natively integrated into XProtect	Bosch Forensic Search plug-in	Bosch Enhanced Metadata plug-in	Bosch AI Gateway plug-in
OBJECTS	Detect, alarm upon, and visualize the following objects¹						
	Person (main class): Pedestrian	✓ ³	✓	✓ ³	✓	✓	
	Vehicle (main class): Bicycle, motorcycle, car, truck and bus	✓ ³	✓	✓ ³	✓	✓	
	Gun (Gun-in-hand) ⁵	✓ ³	✓	✓ ³	✓		
	Cloud-verify above detected objects directly in XProtect®	✓					✓
	Camera trainer (train your own object of choice)	✓ ³	✓	✓ ³			
ALARMS & NOTIFICATIONS	Detect and alarm upon the following situations²						
	Object crossing one or multiple line(s)	✓ ³	✓	✓ ³	✓		
	Object within, entering, exiting a pre-defined zone	✓ ³	✓	✓ ³	✓		
	Object traversing a route	✓ ³	✓	✓ ³	✓		
	Object loitering in an area related to radius and time	✓ ³	✓	✓ ³	✓		
	Object started or stopped moving	✓ ³	✓	✓ ³	✓		
	Count persons and vehicles crossing a line ⁴	✓ ³		✓ ³		✓ ⁴	
	Count persons and vehicles within a pre-defined zone ⁴	✓ ³		✓ ³		✓ ⁴	
	Queueing of people or congestion of vehicles	✓ ³	✓	✓ ³	✓		
	Crawling and rolling persons and intruders	✓ ³	✓	✓ ³	✓		
	Left or removed objects	✓ ³	✓	✓ ³	✓		
	Objects with certain size, speed/geolocation, direction or aspect ratio	✓ ³	✓	✓ ³	✓		
	Manual or AI auto-tracking of camera-detected objects	✓ ³				✓	

General Note: This table assumes for each feature the most extended version of Bosch video analytics (IVA). Use pages 3 and 5 of this brochure or consult Bosch.

¹ Even when the camera is moving. Visualization happens by placing bounding boxes around the detected object.

² Maximally 16 situations from the list can be combined, of which 3 line crossings.

³ Configuration takes place outside of XProtect®, in the Bosch configuration Manager, but can generate alarms in XProtect®.

⁴ In XProtect® one can setup a rule that alarms (live or in playback) upon a specific 'count' value. Or enable plain object counting through the Bosch Enhanced Metadata Plug-in.

⁵ Available in North America and selected other regions. Please check with your Bosch contact person.



Other Bosch resources for projects with Milestone XProtect®

Please find below QR codes with additional resources that could be helpful when working with Bosch video systems and Milestone XProtect®:



More information

The global partnership between Bosch and Milestone



Bosch page

On the Milestone Technology Partner Finder



PowerPoint Presentation

The global partnership between Bosch and Milestone



Specifications

Bosch and Milestone specifications for architects and engineers



YouTube Tutorial videos

Bosch Video Systems capabilities with Milestone XProtect®



Milestone Supported Device List

Find all supported Bosch devices with Milestone XProtect®



Bosch Download Area

Free-of-charge plug-ins with Milestone XProtect®

Bosch Security and Safety Systems

Protecting lives, buildings and assets is our aim. Our product portfolio includes video security, intrusion detection, fire detection and voice evacuation systems as well as access control and management systems. Professional audio and conference systems for communications of voice, sound and music complete the range.

Bosch Security and Safety Systems

To learn more about Video Systems please visit www.boschsecurity.com

© Bosch Security Systems, 2024

Modifications reserved and errors reserved

 www.facebook.com/BoschSecurity

 www.youtube.com/BoschSecurity