

**Our focus is** to alert you when needed  
and help you quickly retrieve the correct data

Intelligent Video Analysis

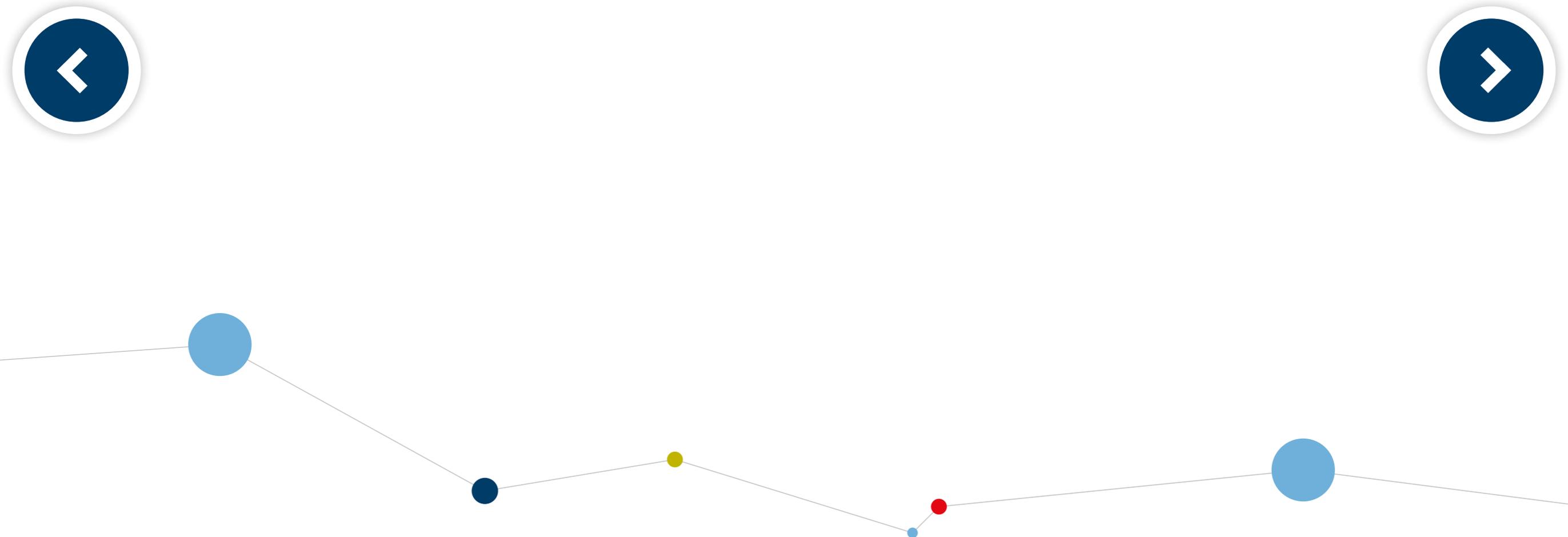


**BOSCH**  
Invented for life

## Adding sense and structure

When it comes to video surveillance, the buzz is about IP. Although, there are still millions of analog installations throughout the world, it is a fact that nowadays network cameras are being applied more often in video surveillance projects. And there are good reasons to make the change to IP.

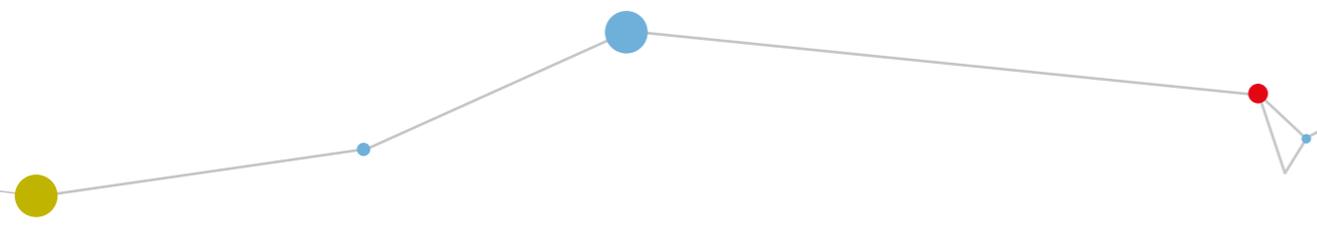
The most obvious advantage is image quality. In today's video surveillance applications there is an ever increasing demand for more detail, and hence higher resolution for enhanced retrospective analysis. IP video surveillance is about delivering the highest quality of relevant IP video. It means delivering the correct data when you need it, under all circumstances, anywhere, and at the lowest costs and network strain.



Considering this, wouldn't it be great if your security cameras understand what they see? Your camera system could automatically trigger alarms and alert you when needed. It could also detect relevant information, like moving objects in the scene, and dynamically optimize image processing to ensure perfect exposure of the object of interest at all times. Recordings could be tagged, so that data can be found instantly from hours of stored video. Your camera could even decide to stream only relevant video and therefore reduce network strain. In other words, wouldn't it be great to add sense and structure to your video material? Intelligent Video Analysis (IVA) from Bosch does all this for you and much more. It gives you an intelligent IP video solution that proactively supports you, automatically carrying out tasks that would otherwise need to be done manually by security staff or operators. At Bosch, we offer you superior intelligence and, analytics at the edge, by means of Intelligent Video Analysis. With IVA, our focus is to alert you when needed and help you quickly retrieve the correct data.

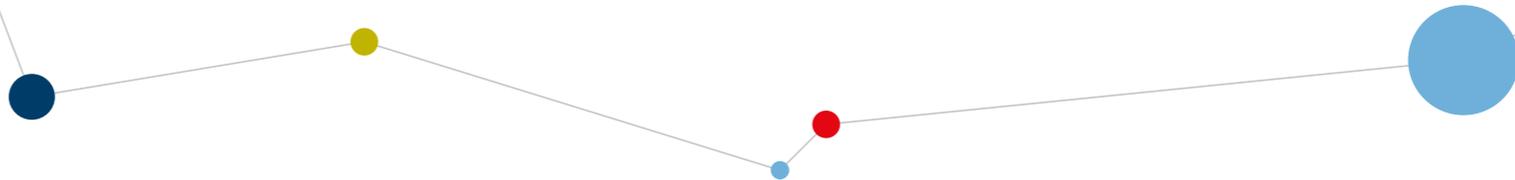


Watch the  
**IVA movie**



## Alerting you when needed

No matter how few or how many cameras your video surveillance system uses, monitoring everything effectively presents a serious challenge. After viewing for only 20 minutes, an operator, can miss 90% of the activity on a screen. IVA analyzes the real-time images continuously to instantly detect suspicious events and alerts you when needed. This helps operators or security personnel to spend more time on other tasks, and respond only to important events. And, since you cannot be everywhere at once, IVA can also alert you via your mobile device if needed. Setting-up IVA rules is straightforward via the intuitive menu and allows you to specify what event, or combination of events, will trigger an alarm. By smartly combining up to 8 of 15 available IVA rules, complex tasks are made easy and false alarms are reduced to a minimum. Image stabilization ensures the capture of real movement instead of movement caused by the camera itself. Advanced algorithms enable IVA to intelligently adapt to changes in, for example, lighting and environment. Disturbances caused by rain, snow, clouds, leaves blowing in the wind, can be filtered out to ensure the highest reliability.



*Fact: After viewing for only 20 minutes you can miss 90% of the activity on a screen*



*Fact: Searching through video is difficult and time consuming*





## Quickly retrieve the correct data

Searching through hours of stored video is difficult and time consuming when looking for the correct data. IVA captures data on everything that happens within each monitored scene. Content analysis information, in the form of metadata, is stored alongside the video images and adds sense and structure to it. The metadata contains details on all objects entering or leaving the monitored scene like speed, direction, color, and much more. Analysis of the scene content is not limited to live scenes. IVA can also provide event recognition during playback of recorded video. You can even find events that were originally not set up as an alert. Forensic search offers an unique solution to simply review your archive video using new detection criteria.

The metadata describing the specific image details are kept as simple text strings. These are much smaller and easier to search through than the hours of recorded video images. By searching the metadata using smart search criteria you can instantly retrieve the correct data from hours of stored video. Metadata can also be used to deliver irrefutable forensic evidence or to optimize business processes based on, for example, people counting or crowd density information.



## Intelligent Tracking



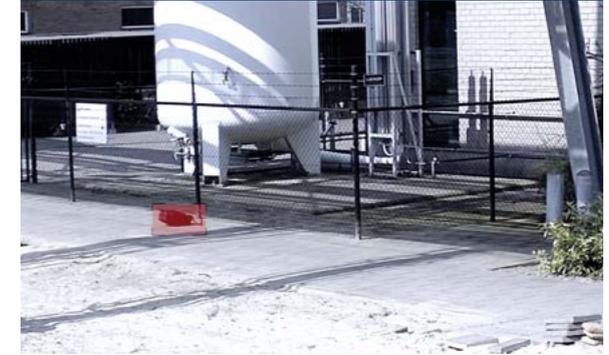
## Perimeter protection



## Enforcing regulations



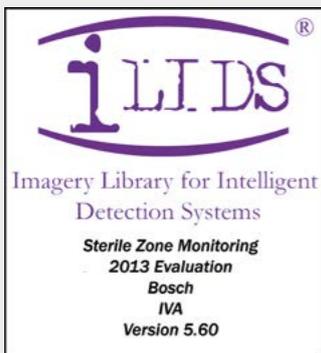
## Securing public spaces



## Intelligence at the edge

Bosch ensures the highest quality and reliability of video analytics by putting Intelligent Video Analysis at the edge. That's why every single IVA camera can operate independently without the need for a central analytics server – so no single point of failure. This is called distributed or decentralized intelligence. If one camera or encoder fails, the rest of the system remains at full performance. Expanding the system is therefore also easy. Network strain and storage requirements can be reduced by only streaming what is needed, since the analysis is done in the camera. With intelligence at the edge, our focus is to significantly enhance system robustness and flexibility while reducing costs.

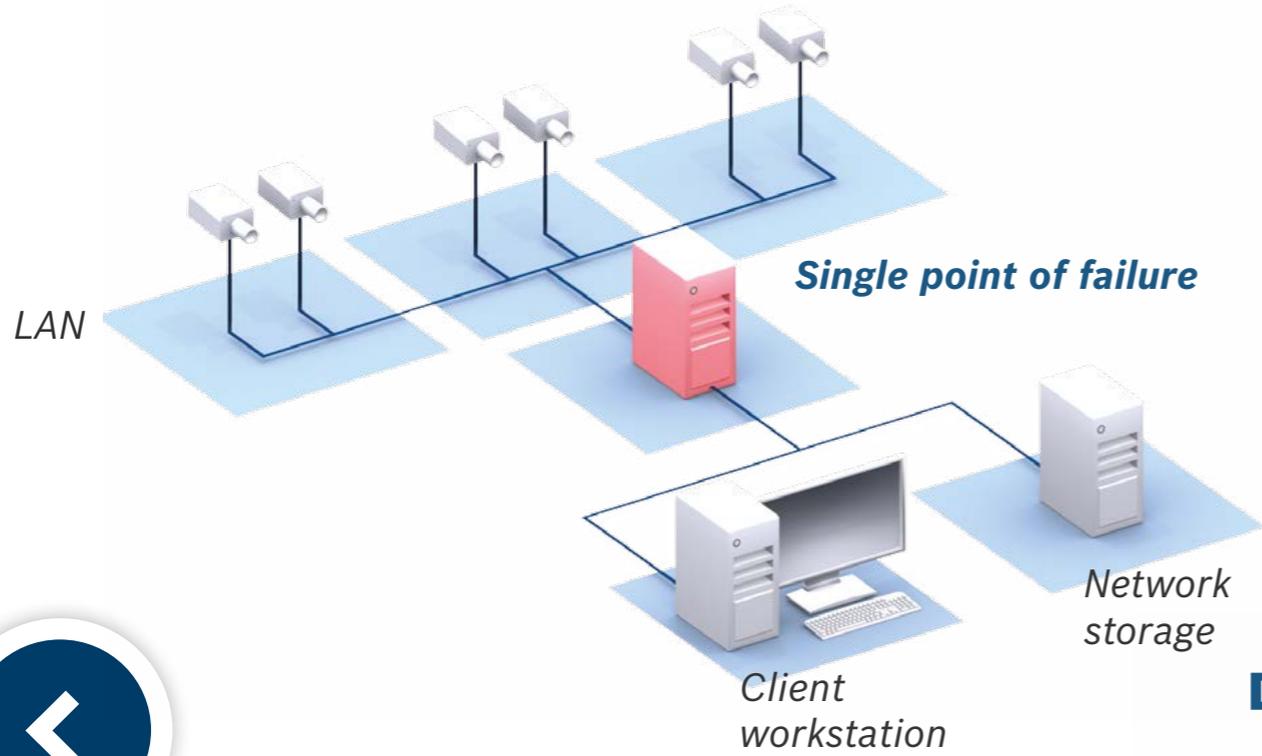
For every single IVA camera you can choose a wide variety of advanced IVA alarm rules, ranging from perimeter protection (fence climbing), enforcing health & safety regulations (parking in restricted areas), intelligent tracking of moving objects to securing public spaces (idle object). By smartly combining up to 8 of 15 these IVA rules, complex tasks are made easy and false alarms are reduced to a minimum.



Underlining our robustness, IVA V5.60 is listed in the CSE<sup>1</sup>.  
 “i-LIDS® approved **primary detection system** for **operational alert** use in **sterile zone monitoring** applications” and “i-LIDS® approved **event based recording system** for **sterile zone monitoring** applications”

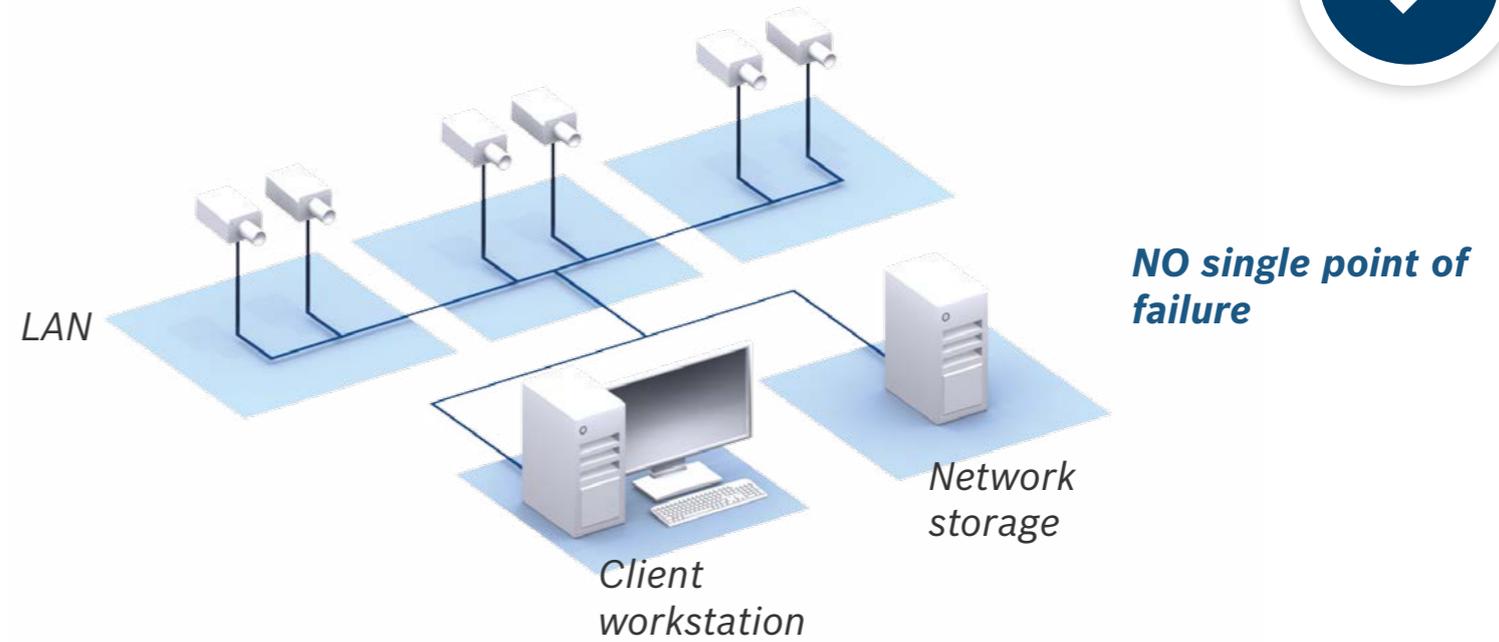
<sup>1</sup>Catalogue of Security Equipment (CSE)

## Centralized intelligence

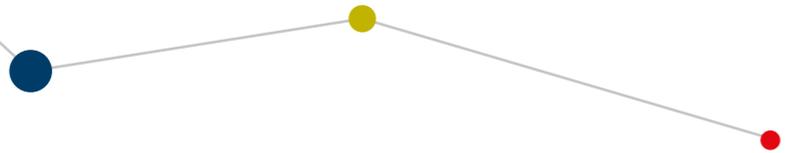


Video analytics with a central analytics server

## Decentralized intelligence

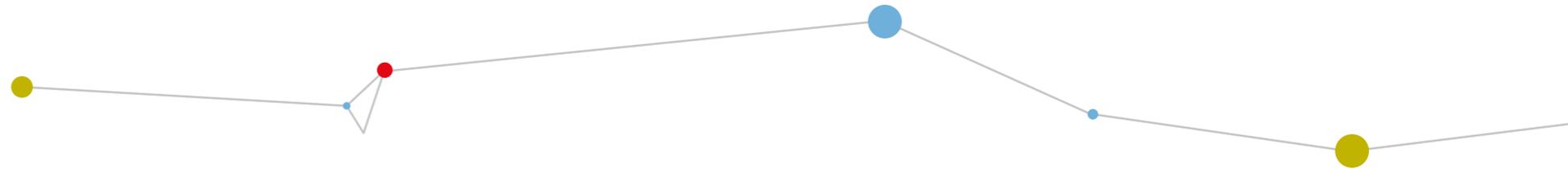


Intelligence at the edge with IVA cameras from Bosch



## Future proof solution

Together with our Automotive division Bosch continuously develops its advanced IVA algorithms to deliver the most reliable and robust solution for IP video surveillance and beyond. These non-stop improvements ensure the latest techniques are being applied. Functionality of existing systems are improved via software upgrades, offering you a future proof solution. Scaling your system to meet future requirements is easy by simply adding IVA cameras or encoders. Integration with third party software is simplified since IVA is built into our cameras. By integrating our IVA cameras you can also get access to our unique IVA events, graphical user interface (GUI) overlays or forensic search functions.

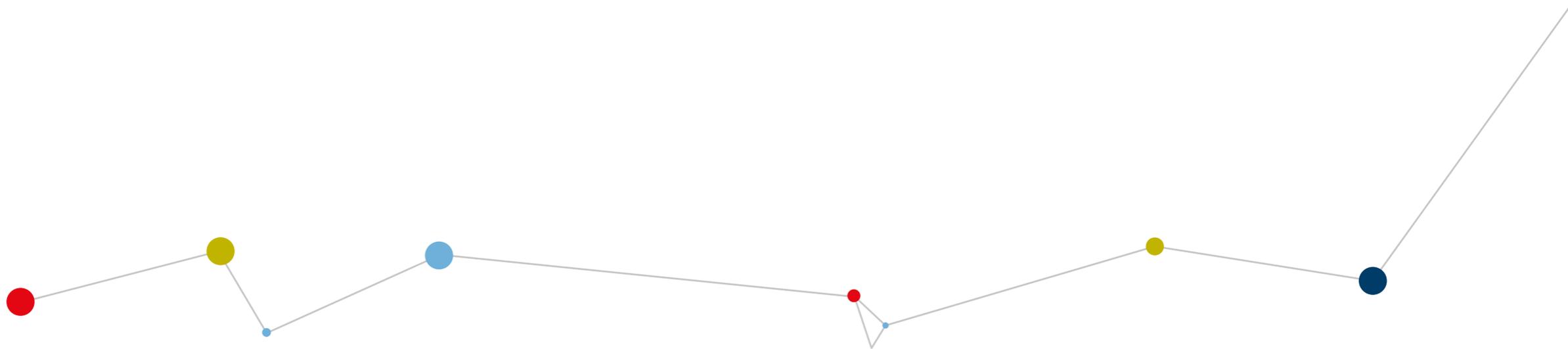


# Intelligent Video Analysis alarm rules

Application	An automatic alarm is triggered when
Tampering	<ul style="list-style-type: none"> <li>the camera is moved away from its original position</li> <li>the camera is blocked by a cover or paint</li> <li>the camera is blinded by laser pointers</li> </ul>
Perimeter protection	<ul style="list-style-type: none"> <li>someone or something crosses one or more imaginary lines (line crossing)</li> <li>someone or something enters leaves or stays in a (restricted) area (object in field or idle object)</li> <li>someone climbs a fence</li> </ul>
Enforcement of health and safety regulations	<ul style="list-style-type: none"> <li>someone enters a one-way street the wrong way (trajectory tracking)</li> <li>someone or something is blocking an emergency exit</li> <li>a car is parked in a no parking zone or restricted area</li> </ul>
Securing public spaces	<ul style="list-style-type: none"> <li>someone lingers for too long in a parking area or at an ATM (loitering)</li> <li>a suspicious object is left behind (idle object)</li> <li>certain crowd density levels are exceeded or a crowd is formed</li> </ul>
Property protection (e.g. museum)	<ul style="list-style-type: none"> <li>an object is being removed (removed object)</li> <li>someone is trying to touch an object</li> </ul>
Crowd monitoring	<ul style="list-style-type: none"> <li>people are moving in the wrong direction on an escalator</li> <li>certain crowd density levels are exceeded</li> <li>the number of people exceed certain pre-defined levels (people counting)</li> <li>conditions change such as size, speed, direction, color, and aspect ratio (crouching)</li> <li>within a specified time span (for example someone falling down)</li> </ul>



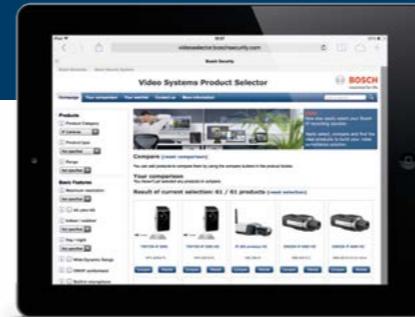
Further applications	Description
Face snapshots	The camera automatically captures a face snapshot. Ideal to further enhance security of public spaces, museums, office buildings and many other applications. Facial snapshots can also be used as input for 3rd party face recognition software vendors
Automatic tracking of objects	Automatically track moving objects based on predefined alarm rules or by using a simple click. Never lose track of objects of interest, further enhancing the security of many applications
Optimizing business processes	People counting information (normal and bird's eye view perspective), crowd density information, object or person movement information can also ideally be used for marketing intelligence purposes and to optimize business processes



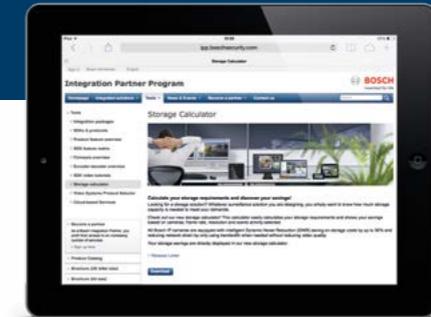
## A Tradition of Quality and Innovation

For over 125 years, the Bosch name stands for quality and reliability. Bosch is the global supplier of choice for innovative technology, backed by the highest standards for service and support.

Bosch Security Systems proudly offers a wide range of security, safety, communications and sound solutions that are relied upon every day in applications around the world, from government facilities and public venues to businesses, schools and homes.



Easily select and compare products with our online tool



Calculate your storage requirements

## Bosch Security Systems

To learn more about Video Systems, please visit [www.boschsecurity.com/hdsecurity](http://www.boschsecurity.com/hdsecurity)

Follow us on:



**“We focus on alerting you when needed and help you to quickly retrieve the correct data”**

