Questions and answers.

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Questions & Answers

Please find all the questions which were asked during the 'i for intelligence' live broadcast on October 26th 2017.
You can find the answer by clicking on the question below.

If you would like to watch the broadcast again, please click here. If you have some further questions after watching the broadcast, please do not hesitate to contact your Bosch Security Systems representative.

Q1. Have the built-in video analytics functions received approval by any security accreditation body, such as CPNI in the UK?

Q2. Please explain how secure the camera is in the event of it being used as a means of hacking a company network and thereby putting all company data at risk?

Q3. Do you have software for people-counting?

Q4. Are there any specific market segments or industries on which Bosch Security Systems are focusing?

Q5. How will IoT be implemented in older vehicles? Are any upgrades required/possible?

Q6. Is there a processor built into the cameras? Or is other hardware required to process the images

Q7. Can you provide more information regarding your video analytics roadmap? When will video analytics be built-in to your cameras?

Q8. How soon can we expect Bosch IoT solutions that help improve agriculture, providing the cost of the entire system doesn't substantially increase?

Q9. How do you see the future of analog video signal in cameras?

Q10. What type of 4K video security (CCTV) cameras can Bosch provide?

Q11. Can smart cameras control traffic lights regardless of queues or volume of cars on the road?

Q12. At present, what are the features of the 'i' cameras?

Q13. Can the built-in video analytics of the Bosch cameras be applied for the security of large perimeters, like those found at airports?

Q14. Are you planning to launch a solar-powered camera?

Q15. When will Bosch cameras feature H.265 compression?

Q16. Which analytics are supported by the cameras, and how many analytics can be supported concurrently?

Q17. Are there any plans to further develop the current video analytics algorithms built-in to the Bosch range of cameras?

Q18. Is Bosch offering a facial recognition solution together with Milestone?

Q19. Can Bosch cameras offer facial recognition capabilities with Milestone video management software used as the front end?

Q20. Will Bosch be providing License Plate Recognition (LPR) at the edge with their intelligent product offering?
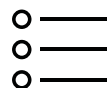
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Q21. For which type of IoT applications can intelligent video security cameras be used? And, how can video data be combined with data provided by other business intelligence systems?

Q22. Is audio analytics possible with the new i cameras?

Q23. And what about face recognition in conjunction with the latest i cameras?

Q24. Does Bosch have projects related to the usage of drones/UAV (Unmanned Aerial Vehicle) in civil security applications?

Q25. Can intelligent cameras (featuring built-in video analytics) control/trigger other systems on the basis of captured information?

Q26. On roads and in tunnels, camera-based Automatic Incident Detection Systems have been in place for some time, but their performance is lagging behind. Is Bosch planning to enhance this application?

Q27. As I understand, IoT focuses on collecting low-bandwidth sensor data. Video streaming is bandwidth-consuming, so how does this fit together?

Q28. What about power efficiency inside the camera? How we can make it more intelligent in power sensing?

Q29. Did you develop any specific technology to protect the security and privacy of captured video? What about the security of IoT objects?

Q30. Do you comply with any security evaluation standards for your products?

Q31. Where do you think the intelligence for applications beyond security is needed? In the camera, or server, or perhaps in the cloud?

Q32. Bosch offers 2 types of built-in video analytics. What are the main differences between these two technologies.

Q33. Is there any kind of cooperation between Bosch Security Systems and the Bosch automotive division?
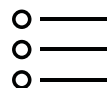
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Q01. Have the built-in video analytics functions received approval by any security accreditation body, such as CPNI in the UK?

In the past, our video analytics were i-LIDS accredited for sterile zones. However, this program is no longer active.

Q02. Please explain how secure the camera is in the event of it being used as a means of hacking a company network and thereby putting all company data at risk?

The first level of defense will be the enforcement of a strong password at the initial set-up of the camera. Additionally, most Bosch IP video devices come with an onboard security chip that provides functionality similar to crypto SmartCards and the built-in Trusted Platform Module (TPM). This chip acts like a safe for critical data, protecting certificates, keys, licenses, etc. against unauthorized entry, even when the camera is physically opened to gain access. Bosch IP video devices have been subjected to more than thirty thousand (30,000) vulnerability and penetration tests performed by independent security vendors. Thus far, there have been no successful cyberattacks on a device secured under our guidance.

How Bosch secures its video security cameras, and other network components, is explained on the following webpage:
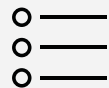
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Q03. Do you have software for people-counting?

The people-counting algorithm is a standard function of all intelligent Bosch cameras that feature either Essential Video Analytics or Intelligent Video Analytics.

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Q04. Are there any specific market segments or industries on which Bosch Security Systems are focusing?

Regarding our video security solutions, we are mainly focusing on retail (large), transportation (airports, railway, traffic-monitoring (ITS), including tunnels and bridges), public authorities, including city surveillance, and industrial (focus-critical infrastructures).

Q05. How will IoT be implemented in older vehicles? Are any upgrades required/possible?

This doesn't fall within the scope of Bosch Security Systems.

Q06. Is there a processor built into the cameras? Or is other hardware required to process the images?

Depending on the type of video analytics required for a particular customer application (Essential Video Analytics or Intelligent Video Analytics), the Bosch cameras with built-in video analytics offer enough processing power for both image and video analytics tasks. The Bosch cameras equipped with Intelligent Video Analytics feature an additional video analytics chip for enhanced processing power, which is often required for mission-critical applications. No additional hardware is required.
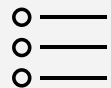
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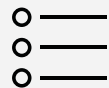
Q07. Can you provide more information regarding your video analytics roadmap? When will video analytics be built-in to your cameras?

What are now known as 'i cameras' already feature built-in video analytics. Depending on the application, there is a choice between Essential Video Analytics or Intelligent Video Analytics. Thereafter, overall requirements such as indoor/outdoor, fixed or moving and light sensitivity need to be considered in order to select the right camera.

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Q08. How soon can we expect Bosch IoT solutions that help improve agriculture, providing the cost of the entire system doesn't substantially increase?

This falls outside the scope of Bosch Security Systems. How IoT will impact agriculture is dealt with by other Bosch divisions. Please refer to the following website for more information:

Learn more

Q09. How do you see the future of analog video signal in cameras?

The video security market, as well as applications beyond the video security domain, will further transition towards network video solutions. Long-term, our expectation is that analog video will become obsolete.

Q10. What type of 4K video security (CCTV) cameras can Bosch provide?

Bosch currently offers the following 4K solutions:

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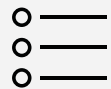
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Q11. Can smart cameras control traffic lights regardless of queues or volume of cars on the road?

Yes. In principle, cameras with built-in video analytics (smart cameras) can be used to analyze the scene and control traffic lights during all traffic densities.

Q12. At present, what are the features of the 'i' cameras?

All 'i' cameras feature built-in intelligence (Essential Video Analytics or Intelligent Video Analytics) depending on the camera model, which is supported by the latest platform offering:
▶ Highest image quality
▶ Latest data security measures
▶ A bitrate reduction of up to 80% by using the latest management techniques
▶ A future-proof solution with H.265 video encoding
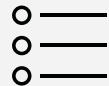
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Q13. Can the built-in video analytics of the Bosch cameras be applied for the security of large perimeters, like those found at airports?

Yes. For example, the Bosch DINION IP thermal 8000 cameras are ideal for ensuring early detection in airport perimeter situations. By combining thermal images and built-in Intelligent Video Analytics, the cameras are highly effective in mission-critical applications that require video content analysis over larger distances (up to 610 meters). More information about these cameras can be found here:

Learn more

Another option for securing a perimeter would be to combine starlight technology (low-light) with built-in video analytics. For more details visit:

Learn more

The latest solutions for perimeter protection are the MIC IP starlight 7000i and MIC IP fusion 9000i. By combining a rugged design with built-in Intelligent Video Analytics, they're specifically designed for the most demanding environments. Discover more about the MIC IP cameras here:

Learn more

Q14. Are you planning to launch a solar-powered camera?

It is an interesting idea, but there are no plans at the moment.

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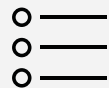
Q15. When will Bosch cameras feature H.265 compression?

The latest 'i' cameras already feature H.265 video encoding. Below is an overview of the available products:

Commercial type number	Image	SAP number	Description
FLEXIDOME IP indoor 4000i			
NDI-4502-A		F.01U.316.645	Fixed dome 2MP AVF H.265
NDI-4502-AL		F.01U.316.646	Fixed dome 2MP AVF H.265 IR
FLEXIDOME IP indoor 5000i			
NDI-5503-A		F.01U.316.655	Fixed dome 5MP AVF H.265
NDI-5503-AL		F.01U.316.656	Fixed dome 5MP AVF H.265 IR
FLEXIDOME IP outdoor 4000i			
NDE-4502-A		F.01U.316.649	Fixed dome 2MP AVF H.265 IP66
NDE-4502-AL		F.01U.316.650	Fixed dome 2MP AVF H.265 IP66 IR
FLEXIDOME IP outdoor 5000i			
NDE-5503-A		F.01U.316.662	Fixed dome 5MP AVF H.265 IP66
NDE-5503-AL		F.01U.316.787	Fixed dome 5MP AVF H.265 IP66 IR
DINION IP 4000i/5000i/6000i IR			
NBE-4502-AL		F.01U.328.212	IR IP bullet 1080p AVF H.265 IP67 SMB
NBE-5503-AL		F.01U.328.213	IR IP bullet 5Mp AVF H.265 IP67 SMB
NBE-6502-AL		F.01U.328.214	IR IP bullet 1080p AVF H.265 IP67 starlight SMB
AUTODOME IP 4000i			
NDP-4502-Z12		F.01U.319.485	PTZ dome 2MP 12x clear indoor surface
NDP-4502-Z12C		F.01U.319.475	PTZ dome 2MP 12x clear indoor in-ceiling
AUTODOME IP 5000i/5000i IR			
NDP-5502-Z30		F.01U.319.476	PTZ dome 2MP 30x clear IP66 pendant
NDP-5502-Z30C		F.01U.319.480	PTZ dome 2MP 30x clear indoor in-ceiling
NDP-5502-Z30L		F.01U.319.481	IR PTZ dome 2MP 30x IP66 pendant
MIC IP starlight 7000i			
MIC-7502-Z30B		F.01U.319.988	PTZ camera 2MP HDR 30x IP68, black
MIC-7502-Z30W		F.01U.319.989	PTZ camera 2MP HDR 30x IP68, white
MIC-7502-Z30G		F.01U.319.990	PTZ camera 2MP HDR 30x IP68, gray

For more information, or for easy comparison, please refer to our video product selector:

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Q16. Which analytics are supported by the cameras, and how many analytics can be supported concurrently?

Depending on the camera model, Bosch offers:
▶ Essential Video Analytics, or
▶ Intelligent Video Analytics.

Essential Video Analytics offers 15 different video analytics rules and is perfect for small and medium businesses, large retail stores and commercial buildings for advanced intrusion detection, enforcing health and safety regulations (e.g. no-parking zones or detecting blocked emergency exits), and analyzing behavior in retail environments. The camera-based, real-time processing can also be used to issue loitering alarms, detect left objects and people or objects entering a pre-defined field.

Intelligent Video Analytics is a state-of-the-art solution for the ultimate in video analytics, offering 17 different video analytics rules and is specifically designed for the most demanding environments. Ideal for mission-critical applications, like the perimeter protection of airports, critical infrastructures and government buildings, border patrol, ship-tracking and traffic-monitoring (e.g. wrong-way detection, traffic-counts and monitoring roadsides for parked cars). Intelligent Video Analytics can do everything that Essential Video Analytics does, with the added measure of being able to differentiate between genuine security events and known false triggers, such as challenging environments created by snow, wind (moving trees), rain, hail, and water reflections. Or, applications that require video content analysis over large distances. Cameras with Intelligent Video Analytics are also extremely resistant against vibrations caused by punishing winds, city traffic or bicycles parked against the camera pole; situations that could make video data more difficult to interpret.

Both of these smart video analytics can combine up to 8 of the 15/17 available rules, to make complex tasks easy and minimize false alarms.

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Q17. Are there any plans to further develop the current video analytics algorithms built-in to the Bosch range of cameras?

It has been our long-standing belief that the logical next-step for security is to enable customers to interpret, and subsequently repurpose, these huge amounts of video data. This means that video analytics, and specifically video analytics built-in to the cameras, will be a necessity. To that end, video analytics has been a main development area for Bosch Security Systems since 1999.

Q18. Is Bosch offering a facial recognition solution together with Milestone?

Yes. With Milestone, and other partners like Fujitsu, Hewlett Packard and Illisis.

Q19. Can Bosch cameras offer facial recognition capabilities with Milestone video management software used as the front end?

Yes. The Bosch cameras can be used in combination with Milestone video management software and a server-based facial recognition solution. These facial recognition solutions are either offered by Fujitsu, Hewlett Packard or Illisis, combined with Milestone's video management software, XProtect.
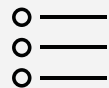
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Q20. Will Bosch be providing License Plate Recognition (LPR) at the edge with their intelligent product offering?

With partners like ISS we have optimized our regular camera portfolio. Now a selected set of regular Bosch video security cameras can be used to capture high quality images of license plates for recognition applications. Combined with the SecurOS AUTO License Plate Recognition (LPR/ANPR) solution from ISS, users can accurately capture license plate information at 130mph (210km/h) even in more testing weather conditions such as light fog, rain and snow.

Q21. For which type of IoT applications can intelligent video security cameras be used? And, how can video data be combined with data provided by other business intelligence systems?

Intelligent video security cameras featuring built-in video analytics can be used for all kinds of applications requiring business intelligence data. For example, in a retail environment, while securing the main entrance to their premises, retailers can gather business statistics like people-count simultaneously. Or, while securing the cash register area to prevent ‚sweet-hearting', the camera's metadata can also be used to trigger an alarm in case the number of people in a queue exceeds the pre-defined threshold. Video analytics (metadata) can also be used to ensure no one enters or leaves the store using the emergency exit. The camera can also trigger an alarm should the emergency exit become blocked by an object – increasing the safety of customers and employees.

Another example is transportation. Metadata collected from various cameras can be used to:
▶ Identifying traffic density over certain periods of time.
▶ Collect the number of objects divided per category, like bicycle, pedestrian, car or truck over a certain period.
▶ Provide average speed and maximum speed per object class in a given time period.

Other examples where video data and, more specifically, metadata can be used are:

▶   Delivering data to identify interruptions and patterns in airport traffic.
▶   Collecting density information to optimize public transport time schedules.
▶   Providing business intelligence to make the most efficient use of available storage space at harbor terminals

Depending on customer requirements and processes, the possibilities are limitless.

On the subject of how metadata collected from multiple cameras can be combined with data from other business intelligence systems, this will be a customer-specific question involving multiple parties to ensure data is merged in the most practical way.

Q22. Is audio analytics possible with the new i cameras?

Currently, our intelligent cameras can only be set at a frequency-specific threshold for loudness.

Q23. And what about face recognition in conjunction with the latest i cameras?

Facial recognition solutions can be offered by Bosch, together with partners like NEC, IBM, KiwiSecurity, AnyVision, Milestone and ISS.

Q24. Does Bosch have projects related to the usage of drones/UAV (Unmanned Aerial Vehicle) in civil security applications?

No.

Q25. Can intelligent cameras (featuring built-in video analytics) control/trigger other systems on the basis of captured information?

Yes. If pre-defined criteria are met, the camera can trigger other systems to perform certain tasks. For example, the in-store public address system can be activated to broadcast a personalized message to request another cash register to be opened in the event of the camera detecting that the number of people in a queue exceeds the pre-defined threshold.

Q26. On roads and in tunnels, camera-based Automatic Incident Detection Systems have been in place for some time, but their performance is lagging behind. Is Bosch planning to enhance this application?

We are continuously enhancing the performance of camera-based Automatic Incident Detection Systems. A recent example is the new Eurasia tunnel. Here, together with our customers, we have substantially improved performance using a smart mix of Bosch's network cameras, including the latest built-in video analytics, to meet the varying requirements of the total installation.

Please refer to the following webpage for more information:

Learn more
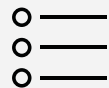
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Q27. As I understand, IoT focuses on collecting low-bandwidth sensor data. Video streaming is bandwidth-consuming, so how does this fit together?

In the case of a camera being used as smart sensor, it's not required to show, record or stream video images. Also, these cameras could only stream associated metadata without video, therefore requiring limited bandwidth. In the future, depending on the application, the focus will not be on the image itself, but the data the camera generates.

Q28. What about power efficiency inside the camera? How we can make it more intelligent in power sensing?

Bosch cameras equipped with built-in Essential Video Analytics offer a powerful platform, including a high-performance processor that efficiently balances its processing power between video analytics tasks and video encoding. On the other hand, Bosch cameras offered for mission-critical applications feature built-in Intelligent Video Analytics and offer 2 processors, one dedicated to video encoding and another dedicated to video analytics tasks.
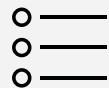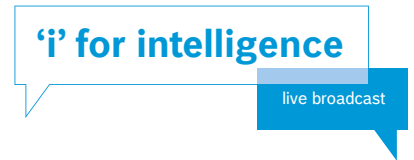
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Q29. Did you develop any specific technology to protect the security and privacy of captured video? What about the security of IoT objects?

All data captured by our cameras is directly encrypted at hardware level using a cryptographic key, which is safely stored in a unique built-in Trusted Platform Module (TPM). There is, however, little point focusing on the security of a single component when there's an entire infrastructure to consider. That's why all network-wide communications between Bosch cameras, storage devices and video management solutions are assigned an authentication key (Bosch factory default or customer-specific certificates). This electronic signature makes it possible to verify the legitimacy of network components like cameras or storage units, and viewing clients, to ensure an infrastructure of trust is built long before network-wide communications start. Protection of privacy is tackled by offering easy ways to manage user access rights, ensuring only authorized users have access to data. Together with partners such as Genetec, Bosch can offer complete end-to-end data security solutions.

More information about how Bosch secures the various components can be found on following website:

Learn more

Q30. Do you comply with any security evaluation standards for your products?

Bosch IP video devices have been subjected to more than thirty thousand (30,000) vulnerability and penetration tests performed by independent security vendors. Thus far, there have been no successful cyberattacks on a device secured under our guidance.

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Q31. Where do you think the intelligence for applications beyond security is needed? In the camera, or server, or perhaps in the cloud?

It depends on the application. It will more than likely be a combination of edge (camera built-in), server and cloud-based video analytics. However, Bosch strongly believes that, regardless the application, it makes sense to employ intelligent cameras offering built-in video analytics. By acting autonomously, these cameras enable pre-processing or pre-interpretation of data. By focusing on the point where data is captured, cameras with built-in intelligence enable users to reduce network strain and storage requirements by streaming only the data they need, such as video footage that includes the metadata, or the metadata alone. It depends what suits your application best.

Intelligence at the edge also makes your surveillance infrastructure more robust and reliable. Every 'smart camera' operates independently without the need for a central analytics server. Decentralizing intelligence in this way means there's no single point of failure, so if one camera or encoder fails, the rest of the system maintains full performance. It also improves scalability by enabling you to add cameras to your network wherever they are needed. Another advantage of your camera understanding what it sees, is that it can detect relevant information, like moving objects in the scene, and dynamically optimize how the image is processed to ensure perfect exposure of the object of interest at all times.

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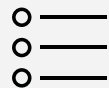
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Q32. Bosch offers 2 types of built-in video analytics. What are the main differences between these two technologies.

Bosch offers Essential Video Analytics and Intelligent Video Analytics

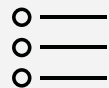Essential Video Analytics is ideal for standard applications to support:
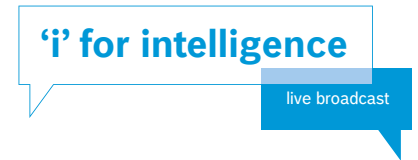▶ Business intelligence
▶ Advanced intrusion detection
▶ Quick retrieval of data
▶ Alerts when needed

Intelligent Video Analytics is specifically developed for extreme situations. It offers everything Essential Video Analytics does, plus:
▶ Enables analysis over large distances
▶ Is extremely resistant against vibrations
▶ Is ideal for extreme weather conditions
▶ Offers Intelligent Tracking of objects

Q33. Is there any kind of cooperation between Bosch Security Systems and the Bosch automotive division?

The research and development facilities for both the automotive division and security systems are based in Hildesheim. As a result, the base analytics algorithms developed for autonomous driving are also used for the video analytics built-in to Bosch video security cameras.

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