INTEOX EDGE

September/October 2020 | Issue No. 2

THE NEW NORMAL: HOW APPS HELP THE INDUSTRY TO EASILY CUSTOMIZE SOLUTIONS
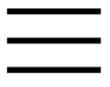
Editor's letter

In our inaugural issue, we began to set the stage for how the security industry must evolve to keep pace with the Internet of Things (IoT) and Artificial Intelligence (AI). These innovations offer unique ways to use connected security devices beyond their intended applications by tapping the power of data.

Repurposing 100% of captured data coupled with an open platform principle lets customers decide what information they want to use and ultimately transforms camera devices into IoT sensors for any purpose imaginable. In this issue we share more of the latest developments.

Amidst the pandemic, using and making sense of data is crucial. Our feature story centers on the new normal and explains how the development of software apps take advantage of video analytics data to help integrators easily customize solutions that meet their customer's needs. These apps can also help businesses emerge from our new reality stronger and employees return to work safely.

With more connected devices, how do you effectively manage firmware updates while ensuring security? Robert Haase, senior product manager, responsible for Bosch Video Systems end-to-end security and device management, sheds light on the importance of remote device management and why it's necessary for installers and integrators to get on board now.

In "New Stuff," we reveal the details of the first MIC products built on the INTEOX open camera platform from Bosch. This platform enables third-parties to develop customer-

specific apps based on a common language, leveraging all the valuable data from built-in Intelligent Video Analytics and Camera Trainer. These apps can be added to the cameras as new functionalities afterward. System Integrators using MIC inteox cameras can easily customize solutions for the most extreme environments by taking advantage of a complete suite of apps available today via the Security & Safety Things Application Store, also highlighted in this section.

Plus, we offer tips for navigating the S&ST Application Store to make the most of your visit and answer your questions related to INTEOX.

Let's keep moving forward!

Sincerely,
Your editorial team

Pieter van de Looveren | Kristine Bruneau
Roel Smolenaers | Werner Wijnholds

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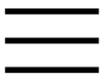
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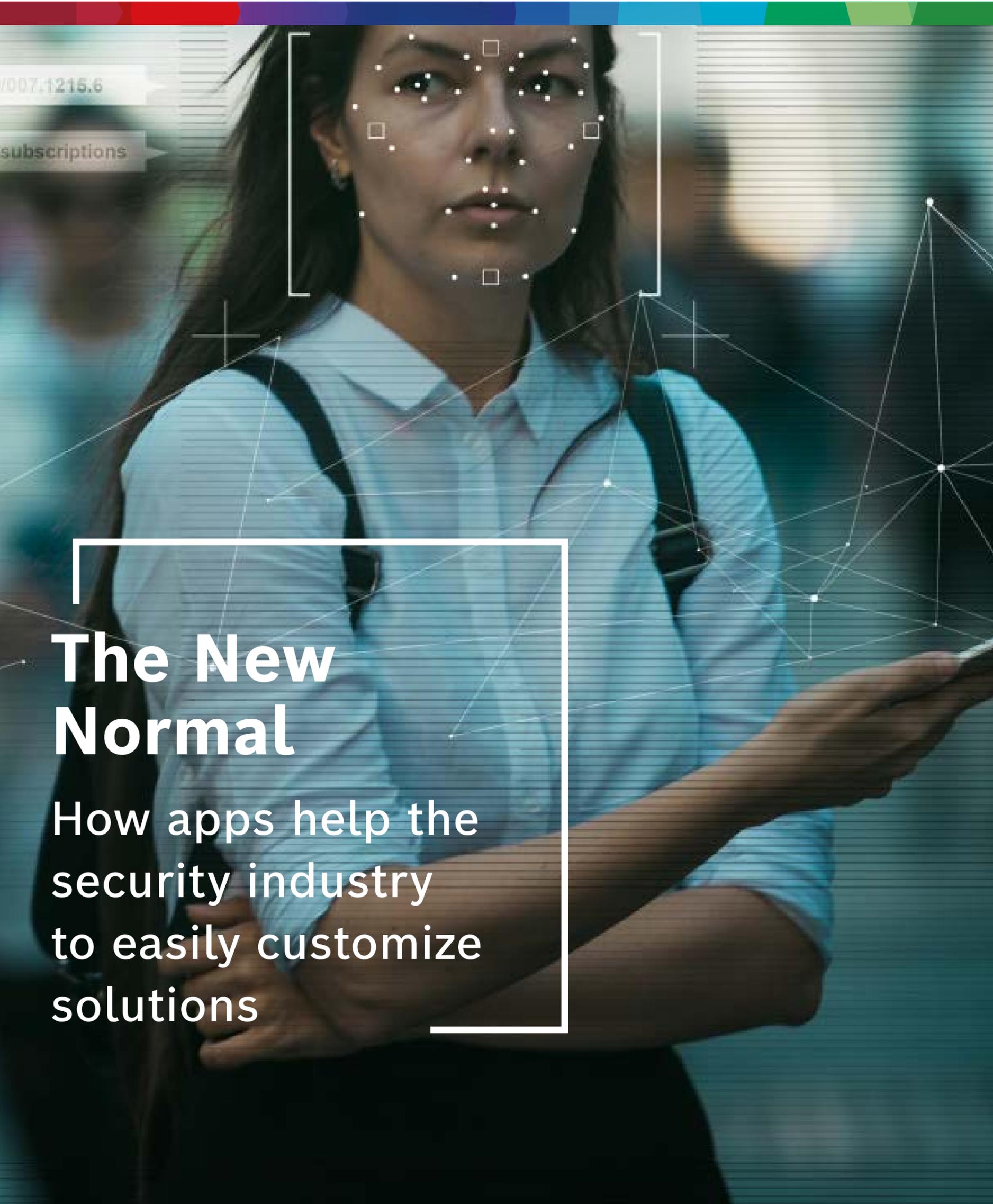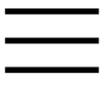
The New Normal

How apps help the security industry to easily customize solutions

We are living in a new normal that is still taking shape, globally. Consumers are apprehensive about the future, reluctant to make shopping trips, and return to office buildings.

Recent surveys show that **60%** of shoppers are afraid of grocery shopping, with **73%** making fewer trips to physical stores.

While businesses and employers are doing their best to alleviate fears and create safe environments in and around their facilities, recent surveys show that 60% of shoppers are afraid of grocery shopping, with 73% making fewer trips to physical stores. Returning to the workplace is also causing unease, as 66% of employees report feeling uncomfortable about returning to the office after COVID-19. These types of situations contribute to an increasingly higher cost of doing business. New safety measures and technologies are necessary, including updates to sanitation protocols and interior architecture to reduce the transmission of COVID-19. Companies will spend billions without support from insurance and amidst more considerable, macroeconomic challenges.

Returning to the workplace is also causing unease, as **66%** of employees report feeling uncomfortable about returning to the office after COVID-19.

As these changes transpire, smart security technology will play an essential role in helping organizations minimize the spread of COVID-19, ultimately saving lives, ensuring business continuity, and increasing business opportunities.

Imagine building managers, retail shop owners, and other stakeholders could reduce costs by leveraging new functionality from their existing security infrastructure. Equipping video security cameras with AI-driven image analysis capabilities

can meet new health regulations and address any business challenge that presents itself.

This scenario is exactly where video analytics algorithms come into play as open security camera platforms promise new opportunities.

An open platform approach

Based on the open platform approach of the Open Security & Safety Alliance (OSSA), Security & Safety Things (S&ST) established a common IoT infrastructure and operating system (OS) for video security devices. Having a common infrastructure and single OS enables integrators to easily add functionality to their video security cameras by installing apps that meet varying customer needs. The common infrastructure, including a development environment, an application store, and a device management portal, brings unprecedented collaboration, opportunity, harmony, and innovation to the security and safety arena.

Earlier this year, Bosch introduced its INTEOX camera platform – based on OSSA's open camera platform principles that seamlessly connects to S&ST's common IoT infrastructure.

Thanks to the fully open principle of INTEOX, system integrators can freely add apps from S&ST's Application Store to any camera based on OSSA's open platform approach. These apps give cameras the flexibility to go beyond their basic functionality, giving integrators a quick and simple way to customize security solutions with multiple apps.

In turn, app developers can focus their resources on leveraging the data generated by INTEOX's built-in Artificial Intelligence (AI) to introduce more innovative software solutions that system integrators and end users can apply to any situation.

As smart buildings and IoT-connected technology platforms continue to evolve, the possibilities are endless for AI-enabled apps. Apps that can automate video data analysis produce critical business intelligence that can assist with re-opening measures as companies emerge from the COVID-19 pandemic.

Detecting whether or not an individual is wearing a face mask or other personal protective equipment (PPE) through facial detection algorithms is just one of many scenarios in which new apps or software solutions could provide value. Contact tracing is another field where access control combined with video analytics and rich metadata can make all the difference.

Overall, open camera platforms help the world imagine a future where saving lives, ensuring business continuity, and initiating new business opportunities will arrive simply from a software update. And this is just the beginning.

The INTEOX open camera platform combines built-in Intelligent Video Analytics from Bosch with superb performance, a commonly used open OS, and the ability to securely add software apps afterward.
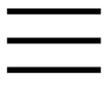
The importance of remote device management Q&A

Interview

With the launch of the INTEOX open camera platform, Bosch is also introducing a renewed cloud infrastructure. In this interview, **Robert Haase**, senior product manager, responsible for Bosch Video Systems end-to-end security and device management, discusses the importance of remote device management and how it benefits installers and system integrators in today's mainly offline security industry.

What is remote device management?

Let me, first of all, set the stage for the topic. After moving from analog to IP cameras, our industry is now transitioning from CCTV to the Internet of Things (IoT). Increasing connectivity in the age of IoT yields many benefits and opportunities. However, managing and maintaining many devices, sometimes across multiple dispersed sites, is challenging and costly, especially if you want to keep your system

up-to-date and secure. You need to manage updates, certificates, device lifecycles, and more, which is time-consuming and repetitive.

In addition, we see two new trends. The first is that our products have become more powerful and sophisticated in terms of software and firmware, e.g. artificial intelligence (AI), but also more complex. With cameras, we are talking about "computers with a lens." The second is that cost pressures increase for our customers who need to manage and maintain their video systems with an onboard expert.

> " In the future, remote device management will become essential to every security system's foundation, bringing customers peace-of-mind. "

Robert Haase

In light of these trends, we, as Bosch, strive to support our customers with a state-of-the-art secure device management solution. Remote device management is a combination of Bosch tools and services for secure, transparent, and cost-effective video asset management along the lifecycle of our products. In the future, remote device management will become essential to every security system's foundation, bringing customers peace-of-mind.

Bosch has been offering Remote Portal for a few years, right? What is different now?
We have been offering Remote Portal for all Bosch IP cameras since 2016. Early on, we realized that the digital age will change the way our customers and we work. Having a free, cloud-based service offering complements our products and establishes an end-to-end solution to address any new needs. This is why we started to invest in that field years ago. We were ahead of the curve when we started. As the environment has significantly evolved and matured, we now benefit from the experience gained from starting early.

Parallel to developing our new INTEOX platform, we started to modernize our cloud infrastructure to benefit from all the technological progress made and to stay ahead of new challenges. The difference with INTEOX is that we evolved from

single firmware file updates to modularized updates of complementary system components, consisting of operating system patches, firmware functionality updates, and application updates, to name a few. These changes make it easier for our customers to stay up to date and secure while reducing the risk of breaking integrations, since a security patch in the OS does not affect the firmware functionality. This implies, however, that update intervals will be shortened and to effectively manage costs you eventually need to consider remote services, to automatically take over certain uncritical tasks, avoiding time-consuming trips on site.

Also, a connected device is a more secure device as you have an immediate benefit from new updates and patches that we provide as Bosch. The Remote Portal allows continuous health monitoring. Online statistics and alerts provide actionable data for fast response time and will allow for predictive maintenance in the near future. We will see more and more hybrid setups where on-premise components of a video system interact with counterparts in the cloud – going beyond device management – to a world of custom-made solutions built on data that creates new value.

i

Remote Portal is the gateway for third-party app deployment on Bosch's open camera platform, INTEOX. Remote Portal enables you to establish a connection to the Security & Safety Things Application Store to purchase and download apps for installation and management on INTEOX cameras. Read an independent review of Remote Portal at *Security Electronics and Network Magazine*.

Is the cloud infrastructure from Bosch the same as the online environment from Security & Safety Things (S&ST)?

The two infrastructures are independent of one another and complement each other. Remote Portal focuses on Bosch devices and offers corresponding services that only we, as the vendor, can provide for our entire portfolio. S&ST focuses on our INTEOX cameras only, because they are based on the joint open platform approach with the Open Security & Safety Alliance (OSSA). S&ST specializes in offering remote services regarding third-party app management, enabling our customers to tailor our products to their specific use cases.

What exactly can you do with online device management?

Well…a lot to be honest. Basically from anywhere in the world, you can organize and monitor the status of your devices across sites and check if they work properly and securely after they were deployed. If there is an issue, you get a notification. You can act immediately to try to troubleshoot the problem by accessing a camera's web interface from the portal or logging in to your Remote Portal account from your Configuration Manager to interact with the devices, as if you are on site. You can also receive notifications when a new firmware version is

available, which you can then easily deploy to multiple devices at once with just one click.

Of course, there is more to come…and the best thing is that everything I just mentioned is free of charge.

Does the security system always need to be connected?
Being connected comes with having the most convenience and the greatest transparency on device status, including notifications, and subsequent verification can be triggered and acted upon immediately. Every remote access event is tracked and logged in the portal and can be reviewed for full transparency.

> " Basically from anywhere in the world, you can organize and monitor the status of your devices across sites. "

Robert Haase

However, customers who want more control over their system can connect it on demand. For example, if the end user faces an issue, the system can be reconnected so a technical expert can access the system remotely, if the end user allows. This can be as simple as plugging in a network cable when it is needed.

Beyond that, we also work on solutions that cater to customers where no external connectivity is allowed.

Will customers be able to manage all their Bosch security devices?
Yes, the IoT is not only relevant for cameras. It essentially stands for Internet of Things. We will thus see more and more integrated solutions in video and across (security) domains, especially in the context of a connected building. This is a clear strategy we have as Bosch Building Technologies as a whole.

Bosch has some software offerings like Project Assistant and Configuration Manager that make our customers' life easier, how do they work together with remote device management?
Since the introduction of the free Bosch Project Assistant app in 2018, we have made significant progress with increasing

the efficiency of deploying video projects. This year, Project Assistant 1.4 allows you to register your cameras to the Remote Portal during the commissioning phase and connect cameras to the cloud, with only the basic settings completed. The remaining fine-grained configuration of, for example, Intelligent Video Analytics, can be done remotely via the Configuration Manager at a later time.
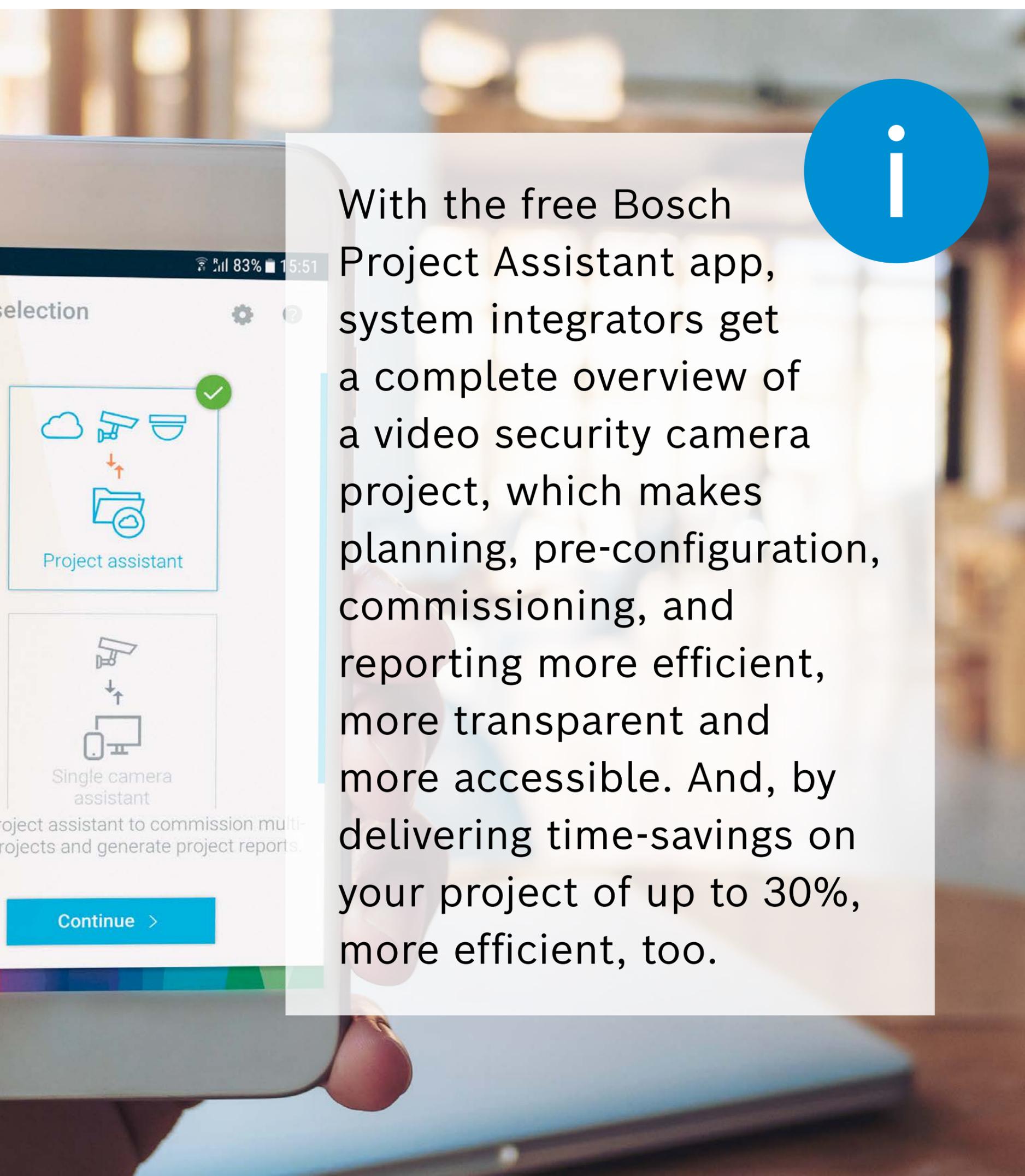
With the free Bosch Project Assistant app, system integrators get a complete overview of a video security camera project, which makes planning, pre-configuration, commissioning, and reporting more efficient, more transparent and more accessible. And, by delivering time-savings on your project of up to 30%, more efficient, too.

In recent years, we have seen many large security and data breaches affecting millions of users. What is your perspective? How does Bosch handle data security?

Cyber and data security is always an important topic and has to be taken more seriously, if you ask me. Too often, we hear comments like "never change a running system" in the industry and when talking to our customers. This mindset needs to change. Breaches caused by "black hat hackers" look for the weakest link in a system, which they infiltrate until they find what they want. These weakest links are, in most cases, characterized by outdated software. This is why you should keep the software and firmware in your entire system up to date, as it mitigates attack vectors caused by vulnerabilities a hacker can exploit. The answer often is that "we have a CCTV system," so it is air-gapped from the outside world. However, as the latest breach at Twitter has proven, the greatest threats or weakest links are actually humans in the organization. Social engineering is in fact the most common cause for breaching a system. Only then can the attacker start looking for outdated software.

At Bosch we pursue a multi-faceted approach:

▶ We have mandatory hardware as well as software design and development processes focusing on security, which are based on international standards

▶ We systematically conduct penetration tests and work with external security researchers

▶ We systematically monitor relevant publications

▶ Our products are securely configured by default

▶ We support our customers by providing corresponding product documentation and hardening guides

What do you say to someone who is reluctant to manage projects and customer cameras online and prefers the offline way of working?

The future is online and it's time to get on board. Integrators can work with customers remotely to perform service when they can't meet face to face, which is especially important during the current pandemic. Integrators want to limit time on a customer site and remote device management is ideal. Some of the benefits include keeping people safe, minimizing contact, increasing efficiency, reducing costs, and ensuring the highest security using strong encryption and certificates on the device and in the cloud.

> " The future is online and it's time to get on board. "
>
> Robert Haase
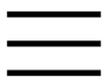
New
stuff

① **MIC inteox 7100i**

② **Security & Safety Things Application Store**

① Introducing: MIC inteox 7100i Taking a new world of exciting possibilities to the extremes

Rugged by design, the Bosch range of MIC IP cameras represent outstanding security and safety in the most demanding environments. Bosch takes this principle further, introducing the MIC inteox 7100i camera line.
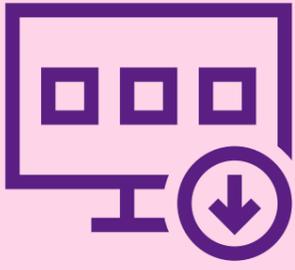
Select one or multiple applications available in the Security & Safety Things Application Store

Use built-in Video Analytics and Camera Trainer technology to tailor the solution to detect user-specific objects or situations

Securely install and execute applications on INTEOX cameras
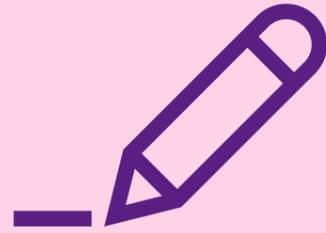
Create your own customer-specific applications

INTEOX

MIC inteox 7100i

These cameras run on the INTEOX open camera platform, enabling app developers and system integrators to easily develop and use unlimited software apps based on a common language while leveraging all the valuable data from built-in Intelligent Video Analytics and Camera Trainer.

With no need to reinvent the wheel, developers can instantly tap into a whole new world of opportunities for data usage, producing apps that immediately meet business needs. System integrators can customize security solutions with ease to satisfy specific, evolving customer requirements by adding apps and deploying them into INTEOX cameras.

All INTEOX cameras follow the Open Security & Safety Alliance (OSSA) open architecture specifications. One of the unique features of INTEOX cameras is the freedom to choose apps. Customers can mix and match apps from the S&ST Application Store, select Bosch-developed apps, or work with developers to create a novel solution.

The built-in Intelligent Video Analytics perfectly matches the robust design of the MIC inteox 7100i cameras. The camera can differentiate between actual security events and known false triggers in challenging environments like

snow, wind (moving trees), rain, hail, and water reflections. It also enables the detection of objects over vast distances. In addition to their open architecture, all MIC inteox models (basic and enhanced) share the same DNA as the rest of the MIC camera family. They are taking a new world of possibilities to extremes.
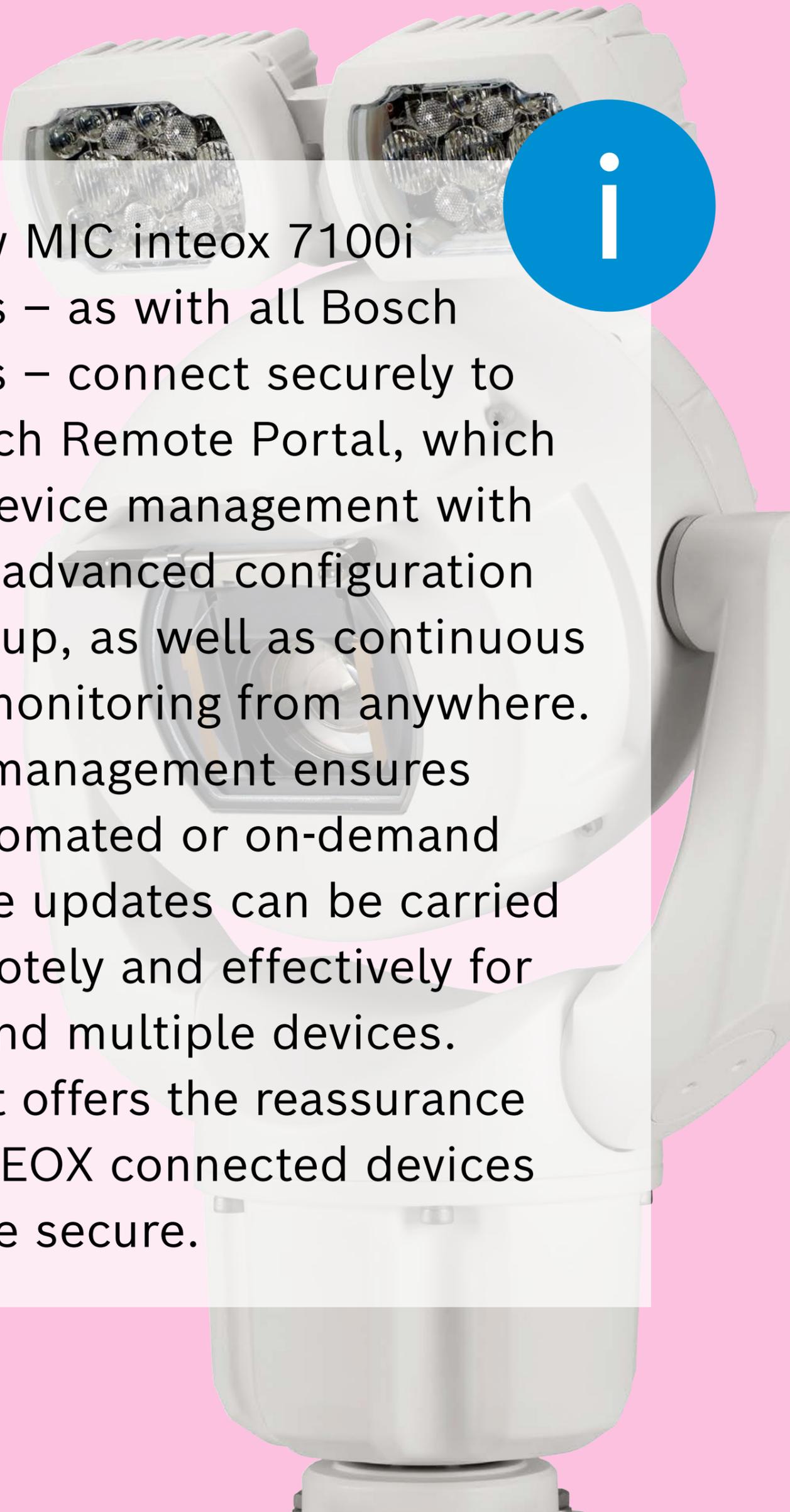
The new MIC inteox 7100i cameras – as with all Bosch cameras – connect securely to the Bosch Remote Portal, which offers device management with daily or advanced configuration and set up, as well as continuous health monitoring from anywhere. Device management ensures that automated or on-demand firmware updates can be carried out remotely and effectively for single and multiple devices. And that offers the reassurance that INTEOX connected devices are more secure.

② Security & Safety Things Application Store
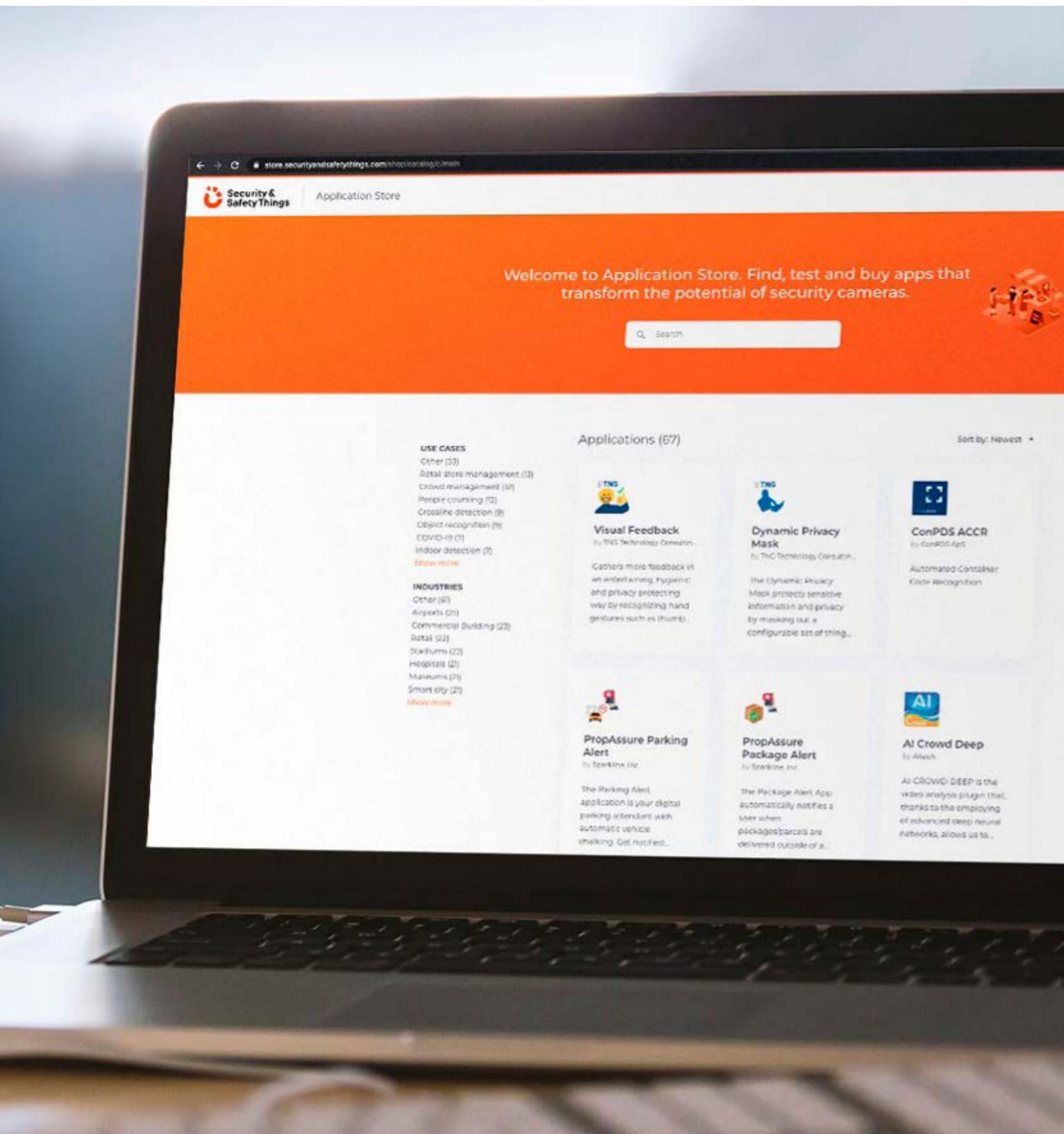
Helping system integrators customize security solutions

With 70-plus apps available in its Application Store, Security & Safety Things (S&ST) is well-positioned to help transform the video security industry. AI apps, created by more than 20 software developers and partners, turn video

data into valuable business insights that help users address many challenges. System integrators and end users can equip any video security camera running S&ST's standard operating system (OS) – based on OSSA's open camera platform approach – with any app they need across multiple industries.

In the past, adding certain software functionalities to a camera for a specific need would have meant a high level of involvement between the software developer and camera vendor. Now, applications are simple to install and update – much like smartphone apps found in app stores. System integrators can browse, evaluate, purchase, and download the solutions they need for their customers. Another advantage is that end users and integrators are not stuck with the initial solutions they choose. They can easily repurpose devices by equipping them with new apps to address different use cases, provided the hardware and installation situation supports the new usage.

One app, for example, uses AI to recognize whether or not a person walking towards the camera is wearing a protective face covering. If no covering is detected, a notification can be instantly sent to a connected video management system, alerting the operator to take action.

This is one of many retail solutions that enable efficient and effective monitoring of people to ensure that they comply with prescribed protective measures, especially important now amid the pandemic. Once health restrictions lift, retailers can use the same camera and repurpose it for shopper behavior analytics to increase store sales or spill detection to ensure customer safety.

Other apps highlighted in the Application Store offer solutions to support use cases like traffic incident detection, perimeter protection, behavioral analysis, and license plate recognition.

The S&ST Application Store is a single place for developers to publish and market their apps and reach a global audience across different camera brands. S&ST's standard OS is based on the Android Open Source Project (AOSP), which gives developers libraries, an API framework, and codecs to work with. A supportive development environment provides developers with information and tools they need to quickly develop, test, and publish apps. Analytics for app performance and business KPIs are available to help improve their product. Plus, administrative tasks and logistics are taken care of so developers can focus on what they do best – innovate.

Ultimately, system integrators and end users making use of the first INTEOX cameras can seamlessly connect to the S&ST Application Store and benefit from improved camera functionality, the ability to run multiple apps on a single camera, and build a truly flexible camera system, which adds business value beyond security and safety.
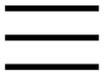
Tips and FAQs

Quick guide to S&ST's Application Store for system integrators and end users

Learn how to find the latest apps in the S&ST Application Store.

1. **Register:** Visit the Application Store and click "Sign up" in the upper right corner of the web page. Click on the tile: "Purchase apps and manage cameras." Enter your business information and follow the prompts to gain access to the S&ST platform.

2. **Browse:** Search for camera applications by name, developer, or function using the search function. Get inspired by browsing through the growing selection of apps. Click on the app you are interested in to get a brief description, screen shots, and pricing.

3. Download: Buying and installing apps on your cameras is simple. With a few clicks, you can see how an app works on your camera. Most apps offer a free 30-day trial before purchase to ensure your satisfaction.

4. Install: To test apps on your cameras, you don't have to leave the Application Store. You'll find everything you need within and see the results, immediately. The only requirement is that your cameras are running S&ST's standard operating system.

Learn more >

Will the INTEOX camera have the same web interface as other Bosch cameras?

Yes, INTEOX cameras will have the same look and feel as every other Bosch camera. The only difference is that INTEOX cameras can be enabled to connect to the IoT infrastructure of S&ST for purchase, download, creation, and management of third-party apps.

Can a regular Bosch IP camera be upgraded to INTEOX based on firmware?

INTEOX cameras have a specific hardware platform and cameras based on earlier hardware platforms cannot upgrade to INTEOX.

What are the streaming capabilities of INTEOX cameras?

INTEOX is a powerful camera hardware platform that supports triple streaming. Each video stream can be configured with a different resolution, frame rate, bitrate, and codec type, which gives users much more flexibility. An example:

- **Stream 1:** High-quality recording stream on 1080p with 30fps. Encoding on H.265. Highest possible quality for forensic search with a retention time of 5 days.

- **Stream 2:** Livestream on 720p with 30fps. Encoding on H.264 to maximize the number of streams on the client. Easily show multiple streams with one client PC.

- **Stream 3:** High quality recording stream with optimized bitrate on 1080p with 5fps. Encoding on H.265 with a retention time of 180 days.

INTEOX also features Camera Trainer, what can you do with it?

The next step in video security: Cameras that incorporate built-in machine learning capabilities, Camera Trainer enables you to tailor built-in Intelligent Video Analytics to detect the things that matter most to you. The camera retains information on new user-defined objects and situations, or any subsequent changes. It then refers to these new learnings when processing scenes and can be combined with pre-determined alarm rules and object filters for even more accuracy and flexibility.

Learn more ›

What is Bosch's approach to product security?

An essential part of the Bosch Quality Promise is that we provide product security and protect our customers' privacy throughout the entire product life cycle. To achieve this, Bosch established a global Product Security Team and made security an integral part of Bosch's processes. The Bosch Product Security Incident Response Team (PSIRT) is the central point of contact for external security researchers, partners, and customers to report security concerns related to products of Bosch and its brands.

Learn more >
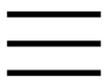
Noteworthy

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Webinar: Get connected
with Remote Portal ⟩

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S&ST Application Store ⟩

📰 **READ**

Article: Increase remote
work to reduce costs ⟩

Review: Bosch Remote
Portal by *Security
Electronics and
Networks* Magazine ⟩
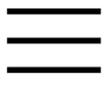
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OUTLOOK FOR 2021

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03. TAP INTO UNLIMITED POTENTIAL WITH THE AUTODOME INTEOX CAMERAS

BOSCH
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