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**GIT**  
EMEA Edition

# SECURITY

MAGAZINE FOR SAFETY AND SECURITY

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- Fire Protection

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- Thermal Imaging

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**COVER: Sanyo - Full HD Cameras**

**FULL HD**  
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COMMUNICATIONS

# Act not React

Cargo and Passenger Screening processes are in the focus of various organisations after a bomb, hidden in a printer cartridge, travelled on its regular passenger services from Yemen to Dubai and a second bomb was found in a UPS plane at the East Midland Airport in the UK. The bombs that contained PETN, a highly explosive substance, have sparked a worldwide security alert on air cargo.

The reactions all over the globe were fast: US-Department of Homeland Security Secretary Janet Napolitano immediately spoke with leaders from global shipping companies, including UPS, DHL, FedEx and TNT, to discuss enhanced air cargo screening and security efforts. IATA called on security regulators around the world to work together to make the skies more secure by addressing the challenges related to cargo security and data collection. In most countries additional controls and enhanced screening processes for air cargo were established.

German Interior Minister Thomas de Maiziere outlined a five-point air freight security plan when he met his counterparts from across the EU. At the opening of AVSEC World in Frankfurt, IATA's Director General and CEO Giovanni Bisignani unveiled plans to lead a global effort to build an airport checkpoint of the future, which will tighten security and ease passenger hassle. He identified cargo security, the supply chain, airport screening and standardized data collection as areas where more progress is needed not only to further improve aviation security but also to address passenger frustrations and to ensure that about 30 millions of tons of air cargo in 2010 are delivered in time.

As mentioned, the reactions were fast, but once again like after the failed terrorist attempt



on the Amsterdam – Detroit flight on 25 December last year, there was not enough action before the incidents. Already in 2002 after 9/11, Germany's pilots' association Cockpit pointed out that there is a need for a complete screening of all air cargo. Also a senior member of Germany's aviation authority was reported by the news magazine "Focus" as saying that colleagues had warned of security lapses in air freight as early as 2006. He added that little had been done to address the matter. "To this day the personnel and material resources are not enough to be able to recognize the risk of an attack in time," the official said.

"We are much more secure than in 2001, but there is room for improvement," said Giovanni Bisignani at AVSEC in Frankfurt. Let us work on all possible kinds of improvements.

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**The Success of HD?**  
... Education, Education and Yet More Education!

The remarkable quality of the images which can be captured by the latest generation of Full HD cameras do truly need to be seen to be believed. Sanyo can claim to be the first major CCTV brand to introduce a complete range of Full HD cameras. There are nine models in the range including fixed cameras, a zoom camera, vandal resistant domes and PTZ cameras.



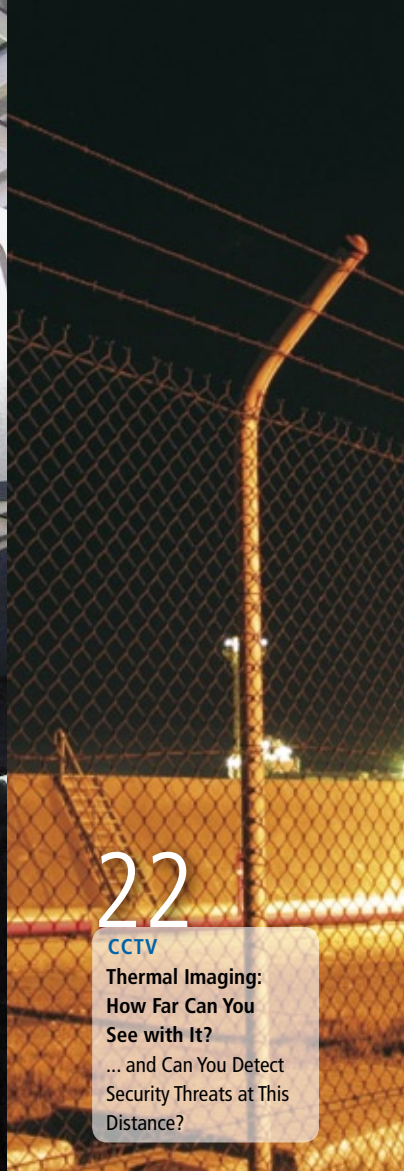
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**ISTSS 2010**  
The 4<sup>th</sup> International Symposium on Tunnel Safety and Security



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Selection of  
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**FIRE PROTECTION**

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any ImmerVision Enables® Software Solution a closer look without any distortion. Live as well as in recorded mode. The new YF360A-2/SA2 can be used with nearly every 1/3" CS-mount camera with a resolution from VGA to 2 Megapixel. Fujinon. To see more is to know more.

### Legic and NXP Sign License Agreement

Legic IdentSystems will support NXP Semiconductors' Mifare technology in its reader platforms. By becoming a licensee, Legic will be able to ensure that its reader components and systems are compatible with the portfolio of Mifare-based smart cards, including Mifare Classic, Plus, and Desfire EV1. By integrating the technology in its reader components, Legic wants to address the need to serve global markets with a single reader device and true multi-standard systems. This will provide a wide variety of benefits for customers. From a technological point of view, the migration from first to more advanced generations of contactless identification solutions will become easier as Mifare Classic or Legic prime installations can be smoothly migrated to latest technology, including Legic Advant and card-in-card solutions, a virtual transponder, which can be implemented on the NXP Smart MX secure microcontroller platform. System operators benefit from the easy handling of multiple technologies. End users will gain more flexibility due to an increased range of selectable applications and possibilities to merge their systems. [Info@legic.com](mailto:Info@legic.com)

### Basler IP Cameras Receive Lenel Factory Certification

Basler Vision Technologies has received Lenel factory certification for its IP Camera interface to Lenel's Onguard video management software. All Basler IP Cameras with day/night functionality and all camera models with a fixed dome housing have been integrated into Onguard software. Among the supported camera functionalities are an area of interest feature and the ability to use multi-streaming and dual encoding with an H.264 and a simultaneous MJPEG stream. Basler's IP camera is the first network camera featuring H.264 compression that has been certified through the Lenel OpenAccess Alliance Program. [nina.maass@baslerweb.com](mailto:nina.maass@baslerweb.com)



### BSIA Supports Guidelines for Reducing False Alarms

The British Security Industry Association (BSIA) has welcomed the recent publication of a series of best practice guidelines by the Chief Fire Officers' Association (CFOA). The CFOA Protocol for the Reduction of False Alarms and Unwanted Fire Signals was launched last week, and represents a significant step forward in the reduction of false alarms, affecting both fire and security industries. Alex Carmichael, Technical Director at the BSIA, comments: "Reducing false fire alarms and unwanted fire alarm signals represents a constant challenge in our industry, and the BSIA is committed to an ongoing effort to ensure that all fire alarm systems remain as effective as possible in order to increase public safety and save fire and rescue service time." [info@bsia.co.uk](mailto:info@bsia.co.uk)

### EDA: Portal on REACH Obligation Exemptions

On the occasion of the Steering Board in National Armaments Directors formation EDA launched a web-portal which provides information on national policies and procedures concerning exemptions from REACH obligations in the interest of Defence. The abbreviation stands for Registration, Evaluation, Authorization and restriction of Chemicals. This EU Regulation imposes obligations on producers or importers but also users of chemicals, which includes the defence sector. Taking into account the specificities of this sector, the regulation leaves it to the Member States to grant national security-related defence exemptions. The REACH Portal allows Member States, European citizens and industry to have access to information on national policies and procedures for granting defence exemptions to the Regulation. [www.eda.europa.eu/REACH](http://www.eda.europa.eu/REACH)

### CEM Systems Secures Saudi Arabian Hospital



CEM Systems announced that the CEM AC2000 SE (Standard Edition) security management system has been chosen to secure access to King Khalid University Hospital, Saudi Arabia. The contract was awarded to CEM Approved Reseller, Best Infotech Solutions. The dedicated university hospital opened in 1982 provides 800 patient beds, over 20 operating rooms and fully equipped and staffed laboratories. "The CEM AC2000 SE system was our first choice on this project," said Marwan A. Khater, Director of Sales & Marketing, Best InfoTech Solutions. "With it being installed in numerous facilities around the world, we knew it was a reliable and flexible system that would suit our customers need." King Khalid University Hospital has integrated the system with a fire alarm system to control all hospital emergency exits. The integration will increase efficiency, as it will release the doors automatically for evacuation. AC2000 VIPPS will allow security personnel at the hospital to produce permanent and temporary ID Badges for medical staff, intern students, residents and other individuals who may access the building regularly. [www.cemsys.com](http://www.cemsys.com)

### IMS: Bosch Is EMEA Market Leader in Video Surveillance Equipment

A recent market survey conducted by IMS Research confirms Bosch Security Systems' leadership in CCTV and video surveillance equipment in the EMEA region. The 2010 IMS report puts the company at number one in video encoders and in DVRs. These results follow in the wake of a host of innovations recently introduced by the company. With the new VIP X1-XF H264 video encoder the manufacturer significantly increased the market share for video encoders; with the introduction of the 700 Series Network and Hybrid recorders the company strengthened its position in Digital Video Recorders. The VIP X1-XF H264 was introduced to smarten up existing analog cameras by transforming them into powerful automated detectors delivering best-quality H.264 compressed video over IP. The encoder is also equipped with a dedicated hardware-accelerator for Bosch Intelligent Video Analysis (IVA) functions, introducing a new level of automation to CCTV monitoring. The 700 Series Network recorder is based on a completely new all-IP platform that supports up to 32 IP cameras. The 700 Series Hybrid recorder is an updated version of Bosch's successful hybrid platform (embodied in the company's Divar XF Hybrid recorder). According to Johan Jubbega, Senior Vice President Sales EMEA for Bosch Security Systems, the company plans to further expand its market share by continuously adding innovative products to its CCTV portfolio. [www.boschsecurity.com](http://www.boschsecurity.com)

### Dedicated Micros: Mike Newton President of American Operations

Mike Newton, the founder of Dedicated Micros, and AD Group's CEO (Chief Executive Officer) and CTO (Chief Technical Officer), is to take-up the role of President of Dedicated Micros, Inc. with immediate effect. Moving forward it is intended that Newton will divide his time between Chantilly – overseeing the strategic direction of business operations in the Americas – and AD Group's Worldwide headquarters in Warrington, England. Newton has a career which spans over three decades. He is the creative and entrepreneurial force behind Dedicated Micros and, amongst other accolades, has been rated as the UK's No. 1 entrepreneur (Management Today magazine). [tim@ad-holdings.co.uk](mailto:tim@ad-holdings.co.uk)



### Indigoision Grows Sales and Product Development

Indigoision has announced an increase in worldwide revenues at the same time increasing engineering spend by a third over the same period. The company, in its results for the year ending July 2010, reported an increase in total product revenues of 6% to a record 28.0 million £ (44.5 million US-\$) and operating profits down by 6% to 3.1 million £ (4.9 million US-\$). The increasing spend on R&D has resulted in a number of significant product launches in the last year. Two new High Definition (HD) models have been added to the company's range of IP cameras. enquiries@indigoision.com

### Fluidmesh Teaming up with Mobotix

Fluidmesh Networks and Mobotix have entered into a technology partnership. Together, the two companies offer an enhanced solution to integrators. As Cosimo Malesci, vice president of channel sales & marketing for Fluidmesh explains, "We're partnering with Mobotix because of the great quality of their IP cameras as well as their decentralized recording capabilities. The ability to record at the camera level results in a much lower data load on the network. This approach is particularly advantageous if combined with our Fluid Throttle 'bandwidth on-demand' technology because it leads to substantial savings in the deployment of the system." The two companies have been partnering in Europe for the past several years, so the progression to the U.S. partnership was a natural one. "As the global leader in high-resolution IP video security cameras, Mobotix seeks out best-in-class technology partners that support the delivery of our high-quality imagery in both a highly reliable and cost effective manner," says Steve Gorski, general manager of the Americas for Mobotix. www.mobotix.com

### Iloq Opens Branch in Sweden

Iloq has founded a subsidiary in Stockholm, Sweden. Its target is to serve the increasing demand for the manufacturer's locking technology in Sweden and other Scandinavian markets. Sales and Marketing Director Michael Szücs emphasizes that the Scandinavian market is an important fast growing market area for the company. The newly founded subsidiary "strengthens significantly our competitiveness in the area. It enables us to offer our Scandinavian customers more efficient local expertise and service", he states. Mr Pasi Hokkanen was appointed Sales Manager and Mr Stefan Gyökeres is the Marketing Manager. Both have in-depth knowledge of mechanical and electronic locking solutions as well as access management systems. Previously they worked for Assa, as International Sales Manager, and as Customer Support Manager. www.iloq.com



### 10 Million Security Cameras for China

In 2010, approximately 10% of Chinese security camera market revenues will come from the sale of network cameras. IMS Research has issued this forecast in the newly published report "The China market for CCTV and Video Surveillance Equipment – 2010 edition". It is forecast that over 10 million security cameras will be shipped for domestic consumption in China in 2010. Network security cameras are forecast to account for only 3% of the market in terms of unit shipments. However, due to the higher average selling price than analogue security cameras, they are forecast to account for 10% of total security camera market revenues in 2010. The compound annual growth rate (CAGR) of network security cameras is forecast to be in excess of 40% between 2010 and 2014. Utilities and transportation are forecast to be the fastest growing markets for network security cameras over the next five years. alastair.hayfield@imsresearch.com

### Legic: Technology Integration Agreement with Lenel



From left to right: Tore Brænna, Vice President Europe of Lenel, Matthew Quilter, Chief Financial Officer of Lenel, Luis J. Orbegoso, President of Lenel, Klaus U. Klosa, Chief Executive Officer of Legic, Dr. Otto Eggimann, Vice President Sales & Business Development of Legic, Urs A. Lampe, Vice President Product Marketing & New Business of Legic

Lenel Systems International and Legic Identisystems have entered into a license agreement. The relationship allows for integration of Lenel's integrated security solutions with Legic Advant technology for contactless identification for a wide variety of applications such as access control installations for business and campus sites. Lenel focuses on developing products that enable organizations to effectively protect and manage their people, property and assets. With over 18,000 system installations in more than 93 countries worldwide, Lenel has a customer base with a strong presence in a broad range of vertical segments including healthcare, government, critical infrastructure, education, petrochemical, manufacturing and telecom. The agreement allows the company to widen its solution portfolio with a state-of-the-art technology that meets true multi-standard compatibility. "Partnering with Legic enables us to keep pace with latest identification technologies and offers additional solutions for our global customers," says Luis Orbegoso, President of Lenel Systems International. info@legic.com

### Wireless Video Surveillance Training

According to a report from IMS Research, one of the main factors limiting growth in the wireless video surveillance market is the knowledge and skill-base of security systems integrators. Most integrators and installers of video surveillance equipment use wireless technology as a last resort and are much more comfortable with wired networking. Despite this, the market is forecast to grow at 20% in the Americas, but has the potential to grow even faster. Furthermore, the cost of training remains a bone of contention between systems integrators and the manufacturers of wireless infrastructure equipment. The majority of systems integrators interviewed for the research stated that vendors should not charge for a basic level of product training, sales support or technical support. That being said, they felt that on-site system design could legitimately be billed for separately. On the other hand, the wireless equipment manufacturers remain reluctant to provide free training when there is no guarantee this will translate into sales. alastair.hayfield@IMSResearch.com

### Clovis-Associates Founded

A team of former executives from Pelco have started a Product Marketing, Engineering and Process Management consulting company called Clovis-Associates LLC, based in the Clovis/Fresno, California area. It draws on decades of experience and sales, marketing, manufacturing, engineering and operations success within the video and security industry. Dave Smith, former Vice President Marketing; Bill Ar buckle, former Vice President Engineering, and Joe Olmstead Jr, former Director of Marketing Communications, and a network of other professionals, have banded together to help global companies succeed in the multi-billion dollar security and surveillance markets. jolmstead@clvac.com



### EADS Defence & Security Now Named Cassidian

EADS Defence & Security announced its official name change to Cassidian. The announcement was made by EADS and by Cassidian CEO Dr. Stefan Zoller. The company remains a division of EADS and wants to market its large portfolio of security systems more effectively by establishing a clear-cut profile in the global market place. "Our business is changing. So are our customers. Especially on the civil markets which we address with our security products, it is essential to be perceived as a strong brand," Dr. Stefan Zoller says. The new name derives from the Latin terms "cassida" (helmet) and "meridian" (imaginary line running north and south). It symbolizes worldwide protection and security, thus reflecting the claim – "Defending World Security", says Annette Füllenbach, Head of Communications. [annette.fuellenbach@cassidian.com](mailto:annette.fuellenbach@cassidian.com)

### Pelco IP Camera Licenses

The new DS NVs Version 7.1 introduces a new licensing structure, new features and new pricing, providing a seamless migration from DVRs to IP and megapixel camera systems. According to the company management, the DS NVs wizard-driven utility and auto-discovery of Pelco and third-party IP devices, allows for complete system installation and set-up in less than 15 minutes. Its Controlpoint graphical user interface enables users to easily monitor and manage multiple Digital Sentry sites. It also allows users to benefit from today's HD and megapixel camera offerings while protecting investments in existing equipment such as Pelco DX DVRs and HVRs. [www.pelco.com](http://www.pelco.com)

### Pixim's Chip for Inmotion's Security Cameras

Pixim announced that Inmotion would introduce a complete line of security cameras based on Pixim's new Seawolf chip. The eight-camera series consists of five vandal and indoor domes in a range of sizes, two box cameras, and an ATM camera. Seawolf cameras by Inmotion are specified at a resolution of 690 HTVL effective and offer the industry's proven best wide dynamic range. In addition, the Inmotion cameras require just 0.1 lux of illumination to produce usable, color images at a full 30 frames per second. "We serve an international customer base, so it's important our customers get consistent quality and performance from our cameras wherever the cameras are installed", explains Kai Leuze, Inmotion's chief executive officer. [tracey@pixim.com](mailto:tracey@pixim.com)

### Suprema Global Partner Program

In October Suprema held a Global Training Program in Seoul Korea. With over 50 participants from 30 countries, the three-day program was designed to deliver intensive technical training, new product introduction, marketing orientation, and R&D insight. "Suprema Global Partner Program is the first global scale customer oriented training program within the biometric industry," said Young S. Moon, the company's Vice President of Sales & Marketing. "We had overwhelming interests on this program from our overseas customers from the planning stage and we had to shortlist our partners from 30 countries only for this first year's program. Through this program, we aim to improve our partners' technical support competency and co-develop marketing strategies by regions," Young added. Shaji Abdul Kadar – Sales Manager at Screencheck ME FZ LLC from UAE said: "The program was very helpful to overseas partners like us and it was very well designed and organized. I believe Suprema is doing extremely well not only in developing innovative products and solutions but also providing solid loyalty and value as a long-term business partner. The program also offered me with excellent opportunities to meet and share ideas with many other professionals from different parts of the world." The company has a plan to extend its Global Partnership Program as a tool for distributor training and developing co-marketing strategies. Founded in 2000, Suprema now has more than 850 customers from 100 countries worldwide. [andyahn@supremainc.com](mailto:andyahn@supremainc.com)

### TSS Mobile CCTV for Romanian Police

Traffic Safety Systems (TSS) has delivered a multi-million pound in-vehicle CCTV order to the Romanian Police for 449 of its state-of-the-art Radar Autovision systems. The deal is the largest single order ever fulfilled by the company for its advanced roads policing equipment. This Romanian contract reflects a strong overall export performance by the Oxfordshire-based business, which has seen sales outside the UK grow by 671 % year-on-year, a performance that has also led to it being shortlisted in the International Achievement category of the Security Excellence Awards 2010. The company acted as the lead equipment supplier in a consortium that was created specifically to tender for the Romanian work. UTI, a Romanian based company and leader of the local security market, was the main partner in this project and the party responsible for the installation and maintenance of the TSS supplied systems, as well as for training the Romanian Police in their use. [tim@ad-group.co.uk](mailto:tim@ad-group.co.uk)



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## INTERVIEW

# Back on Track

## Siemens Reshaping the Security Products Business Segment

**Within the Siemens Building Technologies Division, the business segment Security Products offers a broad range of products for access control, intrusion detection and video surveillance. Clients of the Security Products business segment are distributors, external system integrators and installers but also the Security Solutions unit. In March this year the Security Products business segment announced a new structure and strategy. At Security Essen, Dr. Heiko Baumgartner had the opportunity to interview Peter Hawksworth, Head of the Security Products business segment, about the development within the company and the security market.**

**In March you did announce a new structure within Security Products. What is the focus of the reorganization and how far did you get during the last months?**

**P. Hawksworth:** Right from the start the key focus of the new structure and market strategy was to further accelerate the development in the access control and intrusion detection markets while keeping a core CCTV portfolio. Another aim was to install a leaner structure and short decision making processes within the company allowing us to achieve faster development and delivery of the innovative world-class products for which Siemens is renowned and respected. Looking back at what we have achieved, I think we are a much more agile organization than before. The new headquarters of Security Products are now well established in Solna, Sweden, and we are better positioned to react quickly and effectively to changing market requirements. The product development for the access control and intrusion detection products is now much faster and by giving up some layers of hierarchy within the company we are in closer contact to the clients than before.

**What were the first results of what you describe as "being closer to the customers"?**

**P. Hawksworth:** We responded, for example, to the growing customer interest in open connectivity. Our products are increasingly configured to allow easy interfacing with third party equipment. Our customers want the very best the market can offer and they now can complete

the Siemens equipment more easily with products of their choice to produce a complete system that matches their requirements and budgets. In a market where closed protocols and proprietary equipment have long been the norm, I believe that this is proving to be a major step forward, and one that will continue to bring big benefits for end users, installers and for us.

**You mentioned the Siemens CCTV products. Earlier this year the Security Solutions business unit of Siemens Building Technologies announced their cooperation in the field of video surveillance with Bosch. How does this affect the CCTV product development within your Security Products business segment?**

**P. Hawksworth:** Within Security Products we do now have a focus on the development of access control and intrusion detection products but we see CCTV as an enabler for these products and will therefore maintain a core CCTV portfolio. Our Security Solutions needed a partner for a broader range of CCTV product for their solution business. That is why they buy cameras from us and other strategic CCTV vendors like Bosch.

**You have strengthened the international sales teams in Europe. How are you organized now geographically?**

**P. Hawksworth:** We are more focused on Europe now. Every country that we are now in has its own P&L and the local managers are empowered to make local decisions. This is necessary since each of the regional markets has its own security levels and standards. We were talking a lot with the end users in every single country to find out what their requirements are. We do have regional sales offices in six key markets: Nordic (Sweden, Finland, Norway and Denmark), DACHIT (Germany, Austria, Switzerland and Italy), France, UK (UK and Ireland), Iberia (Spain and Portugal), and Eastern Europe. Customers outside these markets are now served by the organization's international sales team based in Karlsruhe, Germany.

**How do you react on the requirements of the end users?**

**P. Hawksworth:** Our ambition as a product developer is to provide end users with products that help them operate their business more effectively and by doing so also enable our distributors, value-added partners and security installers improve



**Peter Hawksworth**  
Head of the Security Products business segment, Siemens Building Technologies Division

theirs. As a result of our talks to the end users we have launched two programs at the moment. One is a program where we develop a vision of what Security Products will look like in three years. It is very much around iterative easy-to-use products that you can simply put on a wall and they configure themselves. The other program takes care of what we call "hidden treasures", products that have great success in one region and have a lot of potential for a sales roll-out in other regions. We try to recover those treasures gained through the many acquisitions we made in the past. This is only possible through our new lean organization. Additionally this lean organization enables us to close gaps in our product portfolio through a very fast development when our customers demand a new product or we see such a gap in our product portfolio. The result will be an even stronger portfolio of products.

**What are your product highlights you present here at Security Essen?**

**P. Hawksworth:** For the intrusion market we present the SPC 2.0 intrusion detection control that targets the need for communication between various different PC-based systems. The new communication options open up the way for remote configuration, control, maintenance and alarm transmission. "Native Ethernet" and "Web Browser" are integral parts of SPC 2.0. In addition, the modular design of the SPC 2.0 enables continuous adaptation to customer requirements, and the front-to-end system philosophy keeps a lid on expenses for planning, maintenance and training. For video surveillance our new Sistore MX 3G hybrid-digital video recorder combines analogue and digital technology for up to 64 cameras in one device, thus facilitating the smooth migration of existing systems. The Sistore MX can be controlled via an integral software interface, for instance the Siemens SiPass integrated and SiPass Entro access control systems, interactive IVM video software or the MM8000 danger management system. In addition to image recording Sistore MX 3G supports the recording of up to 16 audio channels.

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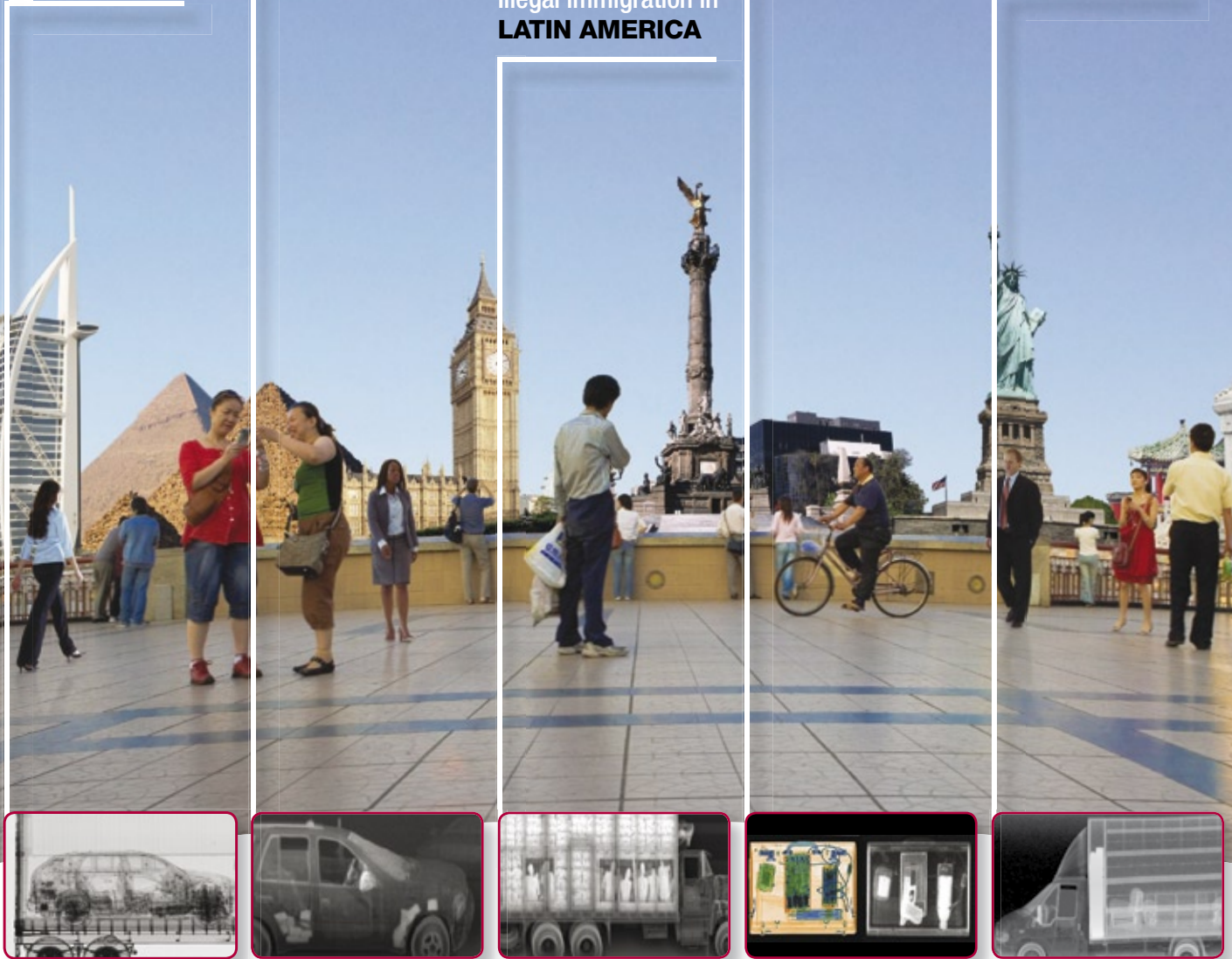
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## INTERVIEW

# Defending Our Security

## From Cyber Security to Unmanned Observation Aircraft



**EADS Defence & Security has renamed itself "Cassidian". The company remains a division of EADS. The provider of global security solutions and systems for civil and military markets wants to market its portfolio of security systems more effectively in future with a new clear business profile, as Cassidian CEO Dr. Stefan Zoller reported. GIT SECURITY spoke with Annette Scheck, Head of Communication about the details.**

Mrs. Scheck, the EADS division Defence & Security renamed itself shortly before the Security exhibition in Essen: Cassidian is the new name, and there is a new logo too. What developments in the market moved you to take this step?

**A. Scheck:** In these times when gaining market share is largely dependent upon the exploitation of new markets, a strong brand name is absolutely essential. We have now attained this with Cassidian and we are moving away from the purely descriptive trading name that we had before. This gives us the opportunity to 'charge up' the new brand with the contents that are important for us and our customers. If you buy Cassidian in the future, you'll get 100% Cassidian. This message is essential above all in international business.

What will change for the national subsidiaries because of this, and what will change in the relationship to EADS?

**A. Scheck:** Our relationship to the parent company will not change at all. We remain one of the four strong pillars of EADS.

**With this realignment do you want to be more effective in your target markets or is it also intended to gain new markets?**

**A. Scheck:** Both. Naturally it is our main priority as before to be a reliable partner in our home markets. The current situation in Europe's state budgets is widely known, and to keep turnover stable or to increase it during such a phase it is essential to exploit new markets. We have already focused our strategy on India, Brazil and

the Middle East. A global policy for our business is very important for us.

You are positioning yourselves as a company that follows the aim – I quote your press release – „of supporting those whose task it is to protect the world". Could you explain the business model of Cassidian a little more closely to us – also with respect to your competitors – and outline for our readers which customers you are addressing and which projects you are seeking primarily?

**A. Scheck:** To best support our partners and customers, we had to reformulate what our core business consists of. We have now expressed this in our Mission Statement. Whether fireman, paramedic, police officer, soldier or border official – with our products, systems and services we help these people to carry out their job safely and efficiently every day. And that is what we must be judged by. But our Mission Statement also makes clear that Cassidian stands above all for security. From digital secure radio at the Olympic Games to high performance drones for surveillance flights in Afghanistan – everywhere that security for people and the world is needed, Cassidian can and will play its part. This explains exactly what we mean in our claim „Defending World Security".

**You are active in military as well as in civil sectors. What is the relationship here?**

**A. Scheck:** Because of the many overlaps these days the two sectors can no longer be clearly separated. Our aim is to provide the best possible solution for every problem and for every operation.

**Could you please give us some reference examples from the civil sector – one each from Cassidian Electronics, Air Systems and Systems?**

**A. Scheck:** Happily. Most of the police helicopters and the latest generation of rescue helicopters in Germany are equipped with the so-called Hellas System from Cassidian. This system enables the pilot to recognize power lines, cable lift wires or other hindrances even in bad visibility conditions and to carry out their job safely. In the Cassidian Air Systems sector it was an unmanned aircraft Type Harfang belonging to the French Army that monitored the visit of Pope Benedict to Lourdes in 2007 from the air and helped the French security services to maintain an overview. The Talarion UAV System currently under development will make it possible to fly more than 20 different missions with an unmanned aircraft. From observing large freight

ships that illegally pump oil waste into the ocean to establishing the level of damage in catastrophe regions and sending rescue services in where they are most needed will all be possible. Cassidian Systems has been strong in civil applications for many years. As market leader in digital radio, our radio systems were also in use at the Football World Cup in South Africa and also at the 2008 Olympics in Peking. The police were working with our newly-developed 3D orientation system at this year's Ryder Cup in Wales. At the moment we are working on our largest project in this sector in Saudi Arabia. There we are responsible for creating the national security network. This also includes the communications infrastructure for the security authorities as well as protecting the over 9,000 kilometer long country border.

**Where do you see the greatest opportunities for your company and, from your company's point of view, what are the most important technology trends?**

**A. Scheck:** We are one of the largest technology forges in Europe and therefore carry a corresponding responsibility for our home countries. We must try to maintain and extend our competitive edge in high-tech. The most important fields in future will be in the areas of unmanned

aircraft, cyber security and every type of security electronics.

**And finally: your department was in charge of the re-branding process. What is behind the name 'Cassidian' and the design of the new logo?**

**A. Scheck:** Our name Cassidian and also our logo – a globe protected by two hands – underline our motivation to support those that try every day to make the world more safe and worth living in. The name Cassidian comes from the Latin word for helmet (cassida) and the meridian, the line that stretches from the North to the South Pole. The first demonstrates our aim to protect. The second element points out the scale of what we want to do in the future. We are about to start on the path to make Cassidian an unlimited global company.

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## INTERVIEW

# Solid Bricks to Build Wireless IP Surveillance Solutions

## Brickcom Expands Its Activities in the EMEA Market

**While the Asian market is growing very fast, a lot of companies from that region do not concentrate only on their home market but expand their distribution into the EMEA region. One company that has ambitious plans to expand in Europe is Brickcom from Taiwan and the company has a very interesting background making it different from many other Asian vendors. At Security Essen we had the opportunity to talk to Ebony Huang, Brickcom's President and CEO about his approach to the market.**

**Mr. Huang, Brickcom is quite new on the EMEA market but offers a broad range of products for IP video surveillance. Can you give our readers an impression what background enables Brickcom to offer IP video solutions?**

**E. Huang:** Unlike other companies with a background in producing analog cameras and equipment, Brickcom has a strong foundation for engineering quality network video equipment due to our twenty years of experience in producing broadband networking equipment. We are a subsidiary of Gemtek Technology, one of the world's largest independent suppliers of WLAN products and a well known OEM manufacturer and partner of companies such as Cisco, Motorola, Dell, Netgear, AT&T and Dutch Telekom. Gemtek has a prior experience in the video surveillance industry when their engineering team developed a high definition IP camera for Cisco. Since 2008, we have used this background and profound technical knowledge of video streaming, optical image processing and networking technology in the development of our own products for the IP video surveillance. Our research and development department comes with twenty years of experience in producing wireless broadband networking equipment and we have incorporated this experience into our software engineering and manufacturing processes.

**How about Brickcom's product offering? Like many other companies you aim to provide not only single products but security solutions. How do you want to achieve this?**

**E. Huang:** We are focused on becoming the world's leading provider of network surveillance solutions. We aim to do this by providing a "One Stop Shop" for all network video security needs and all the equipment needed to build a complete IP surveillance solution for any application. The base of our product portfolio is a complete suite of products which includes a full range of megapixel IP network cameras equipped with H.264 compression and PoE, camera accessories, embedded and PC-based Network Video Recorders, and central management system software. We take our product offerings a step further and offer the networking equipment necessary for installing an IP surveillance system, such as wireless AP/Routers, 3G, WiFi, and WiMAX devices. Megapixel technology is currently at the pinnacle of camera resolution systems so Brickcom ensures that our IP cameras are equipped with megapixel sensors to deliver high quality surveillance.

A good range of products is only the base of our product portfolio. The ease of use for the customer, installer and integrator is the key design for all our product developments. Power-over-Ethernet according to the IEEE 802.3af standard allows for easy camera deployment. Our cameras and NVRS are embedded with H.264 video compression to reduce bandwidth and storage requirements. Our user-friendly web interface configuration allows the complete web-based user and administrator control over video streaming and analysis. We do everything to make installation of our camera equipment as easy as possible as we know that our customers do not want to waste time with difficult IT installations, software problems, the search for IP addresses or installation of interfaces.

**How important is the EMEA market for you and how is your distribution organized in these countries?**

**E. Huang:** The EMEA market is very important for us and, as I said, we can rely on the Gemtek infrastructure in logistics and distribution in the EMEA countries. Our distribution hub enables us to deliver products quickly into all EMEA countries and the key markets where we have already formed distribution partnerships.

**What is the challenge for Brickcom in 2010 and how do you see the development of the market for video surveillance?**



**E. Huang:** For 2010, our main challenge will be to increase awareness of our new approach to the security market. I believe the market is migrating more and more away from analog and towards IP based solutions. We aim to continue educating customers that traditional views and misconceptions towards IP solutions are no longer true. IP technology does not need to be complicated. High performance IP video surveillance solutions are possible without complicated installations and using reliable wireless technologies is not rocket science anymore.

**What are your product highlights here at Security Essen?**

**E. Huang:** Here at Security Essen, Brickcom's highlights are our wireless transmission solutions and the 3 megapixel camera. We have incorporated the latest wireless technology into our IP cameras to offer multiple wireless transmission options. These wireless solutions include dual band WiFi IEEE 802.11 a/b/g/n and 3G SIM module which allows data transmission over 3G networks. WiMAX is another option we offer for surveillance systems which needs to span large areas.

We have also unveiled several new products, including our new CB-102A Cube camera and the 3 megapixel Fixed Box camera. The CB-102A adopts a PIR sensor, and a DI/DO terminal for external alarm and sensor devices, PoE for simplified installation and an interchangeable CS mount to provide an economic indoor surveillance solution for the home security market and small business operations. With a 3 megapixel sensor, our new Fixed Box camera offers detailed and clear video surveillance for all applications. We are able to offer this camera at the same price of many 1.3 megapixel cameras.

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## INTERVIEW

# HDTV and the Impact on Video Surveillance

An Interview with Axis Manager Eric Frännlid about Trends and Technology



Axis HDTV network cameras are essential in locations such as casinos – where every flicker of the eye counts. Analog camera resolution compared to HDTV/megapixel network camera resolution.



**High-definition television, or HDTV, refers to video with substantially higher resolution than that of standard-definition television, or SDTV. As image quality is arguably the most important feature of any camera, particularly so for those where objects are moving or accurate identification is vital, its development is impacting the video surveillance market by providing outstanding image quality compared with traditional analog CCTV systems. As the first vendor providing network cameras with HDTV performance in compliance with the SMPTE standards, we asked Erik Frännlid from Axis Communications about its development and why businesses looking for increased surveillance capabilities should be paying attention.**



**What is the current state of the HDTV market?**

**E. Frännlid:** Uptake in the consumer market for HDTV has been impressive, with strong sales attributed to the falling costs of HD television sets as well as an increase in the number of programmes produced in HD. According to Informa

Telecoms & Media's 'Global HDTV Forecasts', only 5.8 % of global TV homes were watching HD programming by the end of 2009, however this is expected hit to 21 % by 2014. The same report also ranked North America the highest for HDTV viewing uptake, accounting for two-thirds of the 2010 total. This proportion is expected to fall to 37% by 2014 as other regions catch up. Asia-Pacific is the third-largest region, largely due to early adoption in Japan. APAC is predicted to take second place and account for 31% of the total by 2014. In Europe the UK is leading the way, followed closely by France.

Since we announced the first network camera compatible with HDTV performance in compliance with the SMPTE standards in 2008, we have seen a tremendous interest from customers. The majority of our network cameras launched since then have HDTV performance.

**Can you take us through the development of HDTV?**

**E. Frännlid:** High-resolution television dates back to around 1958, with the soviet military's development of Transformer, a system to transmit extremely clear and crisp images of its conferences. A decade later the Japanese state broadcaster, NHK, developed the first system for commercial use. The prospect of vastly improved image quality stirred consumer interest globally. However, due to the huge amounts of data being transmitted, a far more effective compression technique was required. By this point it was understood that the only system which would be able to deliver the desired results would be a digital one. Unfortunately such a system had not yet been developed. The creation of MPEG compression standards in the early 1990's, which eventually resulted in H.264 compression standard, not only made HDTV broadcast possible, but also economically viable.

**How has it changed the video surveillance market?**

**E. Frännlid:** The move towards HDTV in the consumer market has also had an impact on the video surveillance market, as customers demand higher image quality. Although high resolution images result in far larger amounts of data, a network camera with HDTV that complies with SMPTE standards is guaranteed resolution and frame rate. Therefore a high standard of video quality is ensured at all times. Working with progressive scanning, network cameras with HDTV performance deliver true color representation and clear images even with fast moving objects. This makes HDTV a highly attractive solution for surveillance operations where greater image detail is necessary, such as at retail stores, airports, casinos and highways.

**How does it benefit video surveillance?**

**E. Frännlid:** As HDTVs are based on square pixels, similar to computer screens, HDTV video from network video products can be shown on either HDTV screens or standard computer monitors. With progressive scan HDTV video, no conversion technique needs to be applied when the video is being processed by a computer or displayed on a computer screen. In a surveillance application, this can be critical for viewing details within a moving image, such as a person running or a moving vehicle. The image quality improvements brought by high-definition TV have been well received and a similar trend can be seen in the traditional video surveillance market. HDTV-compliant network cameras deliver a resolution, color representation and frame rate that are in accordance with SMPTE standards, making them an ideal solution in surveillance situations that require higher quality images.

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## ACCESS CONTROL

# All on One Card

## Contactless Card Technology: Current Status and Latest Innovations

**The name Legic is synonymous worldwide with quality contactless ID technology and smartcard systems for person-related identification in both business and leisure applications. Multi-applications, the convergence of offline and online applications, low-power solutions, security and multi-technology solutions are all topical subjects in smartcard technology. Matthias Erler of GIT SECURITY spoke with Urs A. Lampe, Vice President Product Marketing & New Business, Legic Identsystems.**

Mr. Lampe, Legic can meanwhile look back over 20 years since its foundation – that still makes it a young company but it is an eternity in the development of security technology. Looking at the subject of access control, what are the latest developments here compared to earlier?

**Urs A. Lampe:** Broadly speaking, it is certainly the 13.56 MHz contactless technology that has established itself as the preferred technology during this time. The market has recognized the advantages of this technology: it makes things easy because you no longer have to take something out of your wallet, and also provides higher security and flexibility compared to the traditional technologies like magnetic strips or



inductive passes. A further significant development is the subject of multi-applications – that means that you can independently serve many different applications with just one credential. Of particular note are the new capabilities in the field of battery-operated lock applications. A small revolution has been going on for a few years because of the networking ability via the cards and new power-saving processes. In addition to the ISO standardization we are also seeing a trend to products with improved security.

**Let's take a closer look at the multi-applications: which applications are used here in general?**

**Urs A. Lampe:** This trend could be seen earlier in Europe and Asia, and now increasingly in the USA. In principle, it's about automating whole work processes and also leisure activities and raising them to a new level of convenience. An access control credential can for example be used to operate a printer or a photocopier – equally to rent a bicycle or to open a company car. It is remarkable to see the convergence, the blending of applications from the contactless world with those from the contacted world, such as in IT: „Contactless meets contact“.

**Can you give us an example?**

**Urs A. Lampe:** Physical entry, that is, in conjunction with a door, is being enabled with the same

credential that is used for access to a PC. You can organize access and Windows logon using the same card. That is indicative of the trend to extend the use of microprocessor-based ID media to higher value applications, but also to use them in other forms: for example USB sticks or mobile phones with the NFC standard are being used that have a contactless interface. These microprocessors can also be the platform for others – for example, as the SIM card of a telephone or smart phone. In summary, convergence is a priority for three market segments: physical and logical access in companies, that is, logon to Windows together with access control; in leisure and banking such as access to leisure facilities using contactless credit cards; the use of a telephone for contactless applications in the leisure or business segments. These open up totally new opportunities and business models.

**How is the use of platforms by others made possible technically?**

**Urs A. Lampe:** We have adapted our products to these developments by developing virtual transponders that can be loaded onto smartcard platforms or others but that allow the use of applications like a conventional Legic card. This is then like an integrated Legic card, but on a foreign platform. We call these ‚card-in-card‘ solutions. For smart phones there are corresponding apps that are used in the SIM card. The platforms used are mostly powerful and certified microprocessor smartcards and count among the most secure solutions.

**Are the security requirements altering in the area of access control?**

**Urs A. Lampe:** As on the one hand the technical capabilities have changed and on the other hand the environment in which we move has changed, more importance is being placed on security and how this is made available. We see a move towards the methods and procedures of IT security. The technologies also adapt with regard to the attacking situation. There is a visible trend toward open and certified security in our industry that is getting increasingly closer to the IT security standards. We have noticed, in particular with large companies, that we now talk to more people from the IT section of the company. In practice this means that the ability to update and the encryption technology are playing a more important role. For that reason, our

**Megatrend: offline door locks No cables but still networked Contactless cards.**



new Legic advant 4000 reader chip series can be updated in the field to be adaptable in the future. This has been standard practice in IT for some time.

#### What is happening exactly under the headline of ‚Revolution‘ in offline access control?

**Urs A. Lampe:** Here we are talking about the possibility to connect offline access control applications using contactless technology. Above all this concerns battery-driven, non-cabled door locks or barriers. They are operated ever more frequently without contacts because they can nevertheless be networked with the background system. There is a trend towards offline together with online access control. Metal keys are mostly used at conventional widespread access points – it would require too much effort to subsequently install electronic locks, in particular because of the cabling. It was therefore only done at selected points. Now it is possible to do this without cables in the form of a virtual network. At the main entrance the authority, for example, to open a particular cabinet is written onto the card. If it is opened, this is recorded and the cabinet writes its user log or even the battery condition onto the card in the same process. The next time this card is used at the main entrance, this information is read out and centrally managed. The cabinet is without any cables, but networked nevertheless. In this way, new access control concepts can be more quickly and accurately implemented. That improves convenience and security and simultaneously reduces the operative costs, not least because the cabling is not required, but also because there are no lost keys, no troublesome exchange of locks, the authorizations can be easily altered and there is the option to block certain doors.

#### Energy consumption: the market demands ever lower-power solutions. What is driving this and what do you have to offer?

**Urs A. Lampe:** One of our most important products in our traditional core market is contactless door locks. They form a natural part of an access control system. For this reason we have taken another step. We introduced our new Legic advant 4000 reader chip series for the first time at the Security trade fair in Essen. It has been specially developed for battery-driven devices. It is a low-power solution which gives the devices a very long life.

#### How does that work technically?

**Urs A. Lampe:** A large portion of the energy is used, for example in a lock, to check if a card is nearby. This checking procedure uses an electric field that needs power to be established. The



“Low power, small size, multi-standard, upgradable”. Legic presents as a world first the very small Legic advant 4000 readers chips. These are upgradable in the field and ready for future requirements.

technical trick involves carrying out this check as efficiently as possible, but nevertheless ensuring detection as soon as a card gets close to the lock. We have patented a ‚wake-up‘ function that enables our reader chips to use 60 % less energy. This ensures a long battery life, and thereby also a reduction of maintenance costs because the batteries are smaller and do not need to be replaced so often. In addition, the new Legic advant 4000 reader chips are so small that they fit in almost every existing door – for example, furniture doors and medical cabinets – which simplifies a subsequent change to contactless technology. The new technology is also significantly more economic which means that more such locks are being installed, leading to lower production and purchase costs and extending the areas of application still further.

#### One last subject: multi-technologies.

##### How important is this for you?

**Urs A. Lampe:** Various standards have been established around the globe. It is of course the wish of manufacturers to have just one design for all the various technologies. The customer should however also have the choice between the specific benefits of all the various standards. The reader should be able to read everything, and be able to process different formats, technologies and card populations. We can do that with our new Legic advant 4000 series and distinguish ourselves once more in the market. This technology allows itself to be updated and can later learn new standards.

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## ACCESS CONTROL

# Closing the Security Gaps – Part 1

## Concepts for Reducing Vulnerabilities in Complex Security Systems

**As with all information systems, the security, availability and reliability of an access control system is dependent upon the quality of the individual hardware and software components as well as its level of protection against interference. There are many components to consider between the access point and the application and control level that influence the security and unrestricted availability of the entire system. This article demonstrates how some possible weak spots in such systems can be recognized and avoided. In addition, recommendations are made for appropriate preventative measures. Part 1 of the article is concerned with the human weak spot and the also those in ID card and reader systems.**

### Danger Lurks Everywhere

Access control systems are used in various different industries and locations. The periphery in particular, such as the identification system, the access terminal or the access reader, is exposed to various influences where it is installed. Such electronic devices must be designed for the conditions prevailing at the access point. It is also important to consider human error, which is often the cause of system failure or faulty operation.

- Here are the most important factors:
- Human errors (e.g. operating error, sabotage, theft)
- Planning mistakes (e.g. no emergency organization)
- Technical/organizational deficiencies (e.g. hardware/software failures)
- Insufficient installation guidelines or operating instructions
- Network or cabling problems
- No security against theft (e.g. accessible cables and connections)
- Catastrophes such as fire, flood, storms, lightning strike, explosion or the effects of chemical substances
- Environmental factors (e.g. climate, electrical/mechanical factors).

The advance planning must take these factors into account and check the following:

- Where will the access periphery be installed (e.g. inside/outside; office or factory environment)?
- What climatic factors must be considered (e.g. temperature, humidity, dirt, magnetic fields, incident sunlight etc.)?
- How will the access device be mounted (e.g. wall-mounting/column-mounting; integrated into an intercom system)?
- What type of identification medium will be used (e.g. ID card/transponder; biometric identification)?
- What happens if an ID medium is lost? Are alternatives such as keyboard entry acceptable (ID card number plus password/PIN)?
- Is an emergency power supply necessary?
- What functions must the software provide (e.g. repeated entry check, room logging, security door control, etc.)?

- How independent must the front end devices be (online/offline access control)?
- What organization is in place in case of component failure?
- ...

Only those who protect their company and the access control system sufficiently against potential dangers and damage can restore the necessary security level quickly after an event and without otherwise avoidable delays.

### Weak Point: Humans

The weakest link in the chain is the employee and the problem cannot really be avoided in the future; even regulations don't stop criminally-minded people. Particularly malicious are cases of sabotage, manipulation and theft caused by ones own employees. Frustration and trouble at home or at work are often the motive for the theft of important data or the introduction of viruses.



Fig. 1: Video surveillance at the access point

During an inattentive moment, an authorized person can take a criminal into a secure area using his ID card (either intentionally or under duress) if corresponding measures against multiple entry and/or video surveillance are not present (Fig. 1).

Example 1: an employee takes an unknown person into the company with him through the gate „with the best intentions“. The person says that they have an appointment with Mr/Mrs X in Room Y. This maneuver lets the unwanted guest move freely within the breached security area and carry out espionage. But a camera or a turnstile is not always wanted at every access point. The solution: no employee is allowed to bring an unknown person into the company without personally „handing him over“ to his host.

But space-saving and helpful technology is of course also available: right from the decisive first door, access can be monitored from the moment the door is unlocked and the data is archived. However a visitor management system is much better, and is an important subcomponent of access control. Here the visitor receives a registered ID card at Reception that allows him to make his way to his contact person. If there are secured access points along the way, he can go through these after presenting his pass. The visitor pass becomes automatically invalid when the visit ends, even if the visitor forgets to hand it in to the receptionist.

Example 2: It frequently happens that doors are jammed open with a wedge when an area is frequently accessed or goods are transported through the door. It is then easy for unwanted visitors to pass through at this point. The access control system must really provide door monitoring here. The state of the door can be monitored by on/off contacts, i.e. closed or open and the open time checked against a maximum limit. The alarm is raised if there is a change in the nominal state or the time is exceeded. This prevents the door being held open for convenience.

Example 3: An employee wants to bring a friend into the company. After he has passed the turnstile using his ID card, he hands this back to his friend. If the access control system has no repeat check, the friend can pass the access point with the same ID card – now used twice – and move freely within the breached security area and carry out espionage unhindered. This can be prevented by a simple access repeat check that refuses multiple entries in the same direction with one ID card at the same reader within a preset time. ID cards and transponders are often lost or are stolen. Here the additional measure of a PIN entry on the access reader or a biometric element can help to prevent unauthorized persons using the ID medium.

### Weak Point: ID Card and Reader Systems

The most frequently used procedure for identification is transponder or card-controlled access control. These data media and associated reader



Fig. 2: Example of PIN entry at an RFID-based access reader Photo PCS Systemtechnik

systems must fulfill a variety of security requirements. ID cards for high security applications, apart from giving higher reliability and availability, must provide protection against data loss and manipulation. Excessive security however, too much card information and complex encoding, increases the price of a pass significantly. As the identification of people often takes place under special environmental conditions, the following possible negative factors should be considered:

- Should the ID cards also be used for other card-operated applications such as in the canteen, for time and attendance recording?
- Which procedure is recommended, such as (125 kHz), Legic or Mifare (13,56 MHz) and should ISO 14443 be observed?
- If multiple card-controlled applications are already in use, should these multiple codings be included on the card?
- Should the card only be read or also written to (e.g. for access profiles of offline access control or validity)?
- Can data be lost or cards be damaged due to magnetic, inductive, chemical or thermal factors?
- How safe is the place where the data carrier will be kept: is there any protection against loss or damage? The influence of magnetic fields, light or heat should be observed.

An ID check can consist of checking the visible security elements and/or the automatic reading and evaluation of the machine-readable elements. For a visual check, the card is usually personalized with special color printing, e.g. with

a passport photo, company logo and signature strip. Different manufacturing processes enable adaptation of the card to the application-specific and customer-specific security requirements. Photographically inserted or embossed information secure the card against copying the information. A further important element in the conception of card systems is the knowledge about the assignment of the memory on RFID card. Right at the start of the project, the supplier specifically defines the segments of the card to be prepared for future applications, and in such a way that an enhancement can be implemented later without additional effort. Also the encryption of the data, universal or customer-specific, must be considered right from the start. The Legic, Mifare and Hitag chips can be combined with the traditional codings just like traditional chip cards with contacts, magnetic strips and barcodes (hybrid cards). Incorporation in existing systems is unproblematic. In this way it is possible to migrate from different readers to a uniform platform. Combined on one ID card.

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## COVER STORY

# The Success of HD?

... Education, Education and Yet More Education



**FULL HD**  
1920 X 1080

Whilst high definition cameras have been available for some time, the remarkable quality of the images which can be captured by the latest generation of Full HD cameras do truly need 'to be seen to be believed. At long last the CCTV industry can offer cameras, which if installed correctly, can consistently deliver evidence grade video. Sanyo can claim to be the first major CCTV brand to introduce a complete range of Full HD cameras. There are nine models in the range including fixed cameras, a zoom camera, vandal resistant domes and PTZ cameras.



cess will come from embedding qualified business partners across Europe who share Sanyo's enthusiasm for the remarkable new technology built into the nine Sanyo Full HD cameras. Equally important, however, is a belief that these business partners need to be ready, willing and able to take on board the required level of sales and technical training to ensure Sanyo's Full HD cameras meet, if not exceed, the end users' expectations.

### Training Is Key

"Our training programme will play a major role in underscoring Sanyo's position as the authority and market leading manufacturer of Full HD cameras," said David Hammond, European Sales Manager for the CCTV division of Sanyo. "The CCTV industry has been known to introduce new technologies with a great deal of fanfare only to find that consultants, installers and end-users are not too quick to consider changing from what they have become used to. Part of the reason for this is that there is a reluctance to recommend or install products incorporating new technology when the implications of doing so are not fully understood."

David Hammond cites Video over IP as a typical example of new technology which was much hyped over ten years ago as 'the next big thing' but is only now being widely accepted as

a method of transmission which, depending on the application, can offer great benefits compared to using traditional coaxial cabling. "Part of the reason why it has taken so long for IP/network based security solutions to be considered as a matter of course is the fear factor," adds David Hammond. "By this, I mean the lack of knowledge among installers as to how to design the system and how to speak the language of network managers."

David Hammond and his colleagues at Sanyo are determined that the pace at which Full HD camera technology is utilised by end-users is not affected by the lack of training by all who are involved in the sales channel, i.e. installers, distributors and third party influences such as consultants.

Sanyo have made a substantial investment in developing a Full HD technology education programme which is made up of four separate training modules. Each module is tailored to cater for the specific requirements of different types of stakeholders, i.e. end-users, consultants, installers/system integrators and distributors and comprehensively covers how to design, install and commission a CCTV system based around Full HD camera technology.

### Ongoing Training

The training modules have been designed to be interactive in that after an initial classroom training session, the trainer will have the facility to stay in contact with the 'student' to ensure that he/she has retained the required level of knowledge and is aware of any new product or technological developments.

"We want to ensure that the value of participating goes way beyond having a framed certificate to put up on an office wall. The success of this exciting new technology rests to a great extent on those involved in the system design, selling and installation process fully understand-



David Hammond, Sanyo's European Sales Manager

You might expect Sanyo to want to immediately take advantage of its head start by embarking on a major promotional campaign to persuade the market to 'buy now'. It has chosen, however, to take a longer term view and has embarked on a strategy which recognises that sustained suc-

ing all the issues. This includes being kept up to date with any changes to the products and installation techniques, as well as recording and networking options. It is intended therefore that certificates issued at the completion of a training module will have an expiry date which can be extended as the respective student continues to participate in the ongoing interactive training programme.

### True Partnership

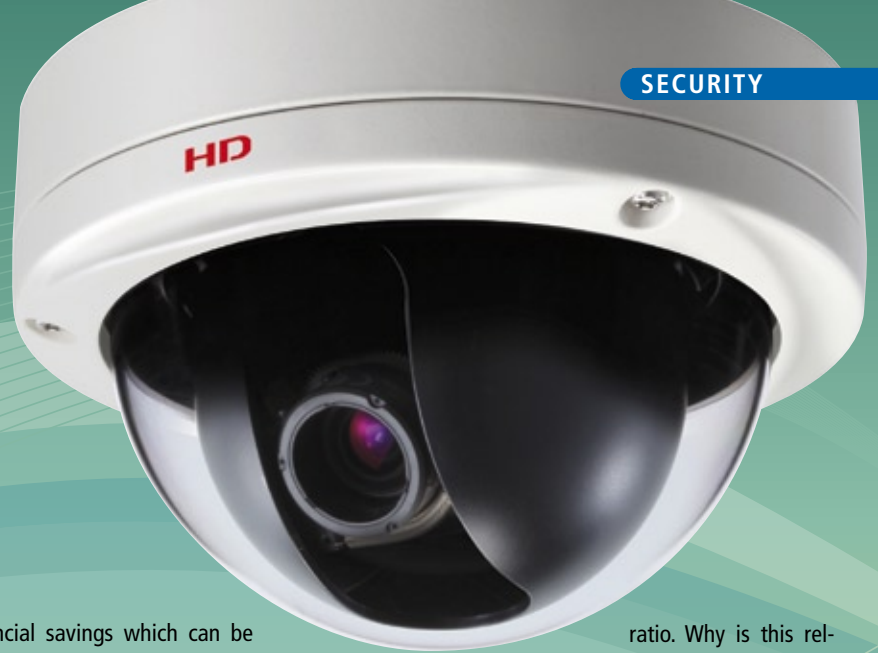
"Manufacturers who appoint installers as part of their 'authorised network' quite often expect those installers to sign up to a binding commercial agreement which might even include a commitment to purchase certain levels of products each month. Sanyo do not intend to place any such conditions on suitably qualified installers or system integrators becoming a Sanyo business partner. We believe that the responsibility is on us to provide the best possible pre and post sales support services to complement the superb performance of our Full HD cameras and that by doing so, we will earn the loyalty of our business partners.

The only commitment we are looking for is ongoing participation in our training programme. We strongly believe that this will give sales personnel for installers and system integrators, as well as distributors, the confidence to recommend Full HD cameras to their customers on every possible occasion. Most importantly of course is that the training programme will equip technicians with all the information they need to correctly install and commission the cameras to deliver the maximum benefits to customers."

### Picture Quality and Storage Capacities

One of the key areas which the training module addresses is how to record and store the large file sizes generated by a Full HD camera. The quality of the images that can be captured by Full HD cameras is impressive compared to even the very latest analogue or standard resolution IP cameras but there is a price to pay in terms of file sizes of the images. Typically, a standard camera will create images which have a file size of 0.3MB based on a resolution of 640x480, whilst images (1920 x1080) from a Full HD camera are 2MB in size. There is clearly therefore going to be a need for a large number of DVRs and backup storage capability if there is a requirement to record and store video from a large number of cameras. The cost of this could be prohibitive and prevent customers from the opportunity to capture the superb evidence grade images which can be generated by Full HD cameras.

The solution is simpler and requires a lower investment than you may think. It involves the use of H.264 compression and the installation of servers or NVRs instead of DVRs. For inexperienced installers in IP/network methodology, the thought of installing a server may seem daunting, but it is not as complex as it may first seem.



The financial savings which can be achieved compared to the cost of recording onto a DVR is substantial and as a result the simultaneous recording of video from a large number of Full HD cameras becomes affordable.

A full HD camera image is made up of approximately seven times more pixels than that from a standard CCTV camera and as a result we can expect to see picture quality similar to what we have come to expect from our HD TVs. Do CCTV operators need to observe and record Full HD images in real time, all of the time? Even in VGA mode, Full HD cameras deliver very high quality images.

A further way to reduce storage requirements may therefore be to only record Full HD images upon Alarm, including motion detection, with images recorded in VGA mode at all other times. This would ensure that evidential quality video is available when required and would enable operators to simultaneously monitor live images in Full HD mode. This functionality is provided by the latest Dual and Quad Streaming technology which adds to the flexibility of viewing and recording IP Streams.

Another key aspect of the training programme will be to ensure that there is no confusion over the terminology in order to ensure that Sanyo cameras are neither under nor over specified in terms of what they can deliver. The training courses cover this particular subject in considerable depth but here is some basic information which will be imparted to people who participate in one of the training modules.

### HD and Megapixel

All HD cameras are megapixel but only some megapixel cameras can be referred to as HD. A camera which generates images comprising one million pixels or more, can be described as a megapixel camera. However, for a camera to be described as an HD camera, it has to comply with the universally accepted HD standard and a key component of the standard is that a camera must have a display ratio of 16:9.

It therefore follows that even if a megapixel camera can generate images comprising two million pixels or more, it still cannot be referred to as an HD camera unless it has a 16:9 aspect

ratio. Why is this relevant or important to the electronic security industry? Very simply, the 16:9 aspect ratio allows users to see a much wider field of view compared to the traditional 4:3 aspect ratio and because all HD cameras are megapixel, users can then zoom into a small part of an image to see close up details of an object, person or incident.

### Facts and Figures

Here are some useful facts and figures which you might find useful when looking to specify cameras for applications where evidence quality images may be required.

- A typical VGA image has a resolution of 640 x 480 = 0.3 million pixels
- A 4CIF image has a resolution of 704 x 576 = 0.4 million pixels
- A D1 image has a resolution of 720 x 576 = 0.41 million pixels
- An HD image comprises 1280 x 720 pixels = 1 million pixels
- A Full HD image comprises 1920 x 1080 pixels = 2 million pixels

Until recently, high definition cameras were considered to be highly priced niche products. The price/performance ratio has, however, improved substantially over the last twelve months and it is now a viable proposition for Full HD cameras to be considered for most CCTV projects. Sanyo believe that the investment it has made into developing its training programme will be more than justified by giving all parties involved the confidence to fully embrace this exciting and innovative technology.

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CCTV

# Thermal Imaging: How Far Can You See With It?

**Often, the first question that people interested in buying a thermal imaging camera ask is "How far can I see?" This is a very reasonable question to ask, but it defies any simple answer. All FLIR Systems thermal imaging cameras are able to see the sun which is more than 146 million kilometers away from Earth. But it would be totally wrong to say that all FLIR Systems thermal imaging cameras can detect security threats at this distance.**

Thermal imaging is a technology that enables detection of people and objects in total darkness and in very diverse weather conditions. A typical application for thermal imaging is border security, where most threats occur at night. Watchtowers spaced at 4 km intervals or more have to be able to detect threats at ranges up to 2 km or more to guarantee full coverage of the border. Knowing how far you can see with a thermal imaging camera and at which distance you can detect a possible threat is of the utmost importance.

The distance you can see a given target with a thermal imaging camera is called the "range" in the thermal imaging industry. To correctly determine the range of a thermal imaging camera requires some sophisticated modeling. There are many variables to consider including the type of thermal imaging camera you are using, the type of lens you are using, the nature and size of the object you want to detect, the atmospheric conditions and the very definition of what it means to "see" a target.

### "Seeing" an object

To define what is meant by "seeing a target", the so-called Johnson's criteria can be used.

John Johnson, a Night Vision & Electronic Sensors Directorate scientist, developed criteria that relate to the effective range of infrared cameras. Although developed for the military (hence the use of the term "target" to refer to the object of interest), the Johnson criteria are widely used in the commercial marketplace to characterize thermal imaging systems. According to these criteria a distinction needs to be made between degrees of "seeing" a target:

- **Detection:** In order to detect if an object is present or not, its critical dimension needs to be covered by 1.5 or more pixels. 1.5 pixels in a staring array is equivalent to 0.75 "cycles", which is the unit of system resolution originally used in Johnson's definition.

cles", which is the unit of system resolution originally used in Johnson's definition.

- **Recognition:** Recognizing an object is defined as seeing what type of object it is. It means being able to make the distinction between a person, a car, a truck or any other object. In order to recognize an object it needs to be subtended by at least 6 pixels across its critical dimension.
- **Identification:** This term is often used in the military sense of the word, which means seeing if someone is "friend or foe". In order to do this, the critical dimension of the object in question needs to be subtended by at least 12 pixels.

### Example :

The Johnson Criteria assume that the critical dimension for a human being is 0.75 meters. To get DRI, you need 1.5 pixels, 6 pixels and 12 pixels across 0.75 meters in the object plane. That means:

- 1.5 pixels/0.75m = 2 pixels per meter
- 6 pixels/0.75m = 8 pixels/meter
- 12 pixels/0.75m = 16 pixels/meter

Let us assume a man is 1.8m by 0.5m. So the man should be covered by:



**Detection = 3.6 pixels by 1 pixel**  
You can see something is there.

**Recognition = 14.4 pixels by 4 pixels**  
You can see that a person is there.

**Identification = 28.8 pixels by 8 pixels**  
You can see that the person is holding a rifle.

*Images only intended to represent the concept.*

These Johnson's criteria give a 50 % probability of an observer discriminating an object to the specified level. For example, an adult human being is roughly 1.8 m by 0.5 m in size. The "critical dimension" of this man is 0.75 m, according to empirical fits to the statistical analysis of observers and thermal image data. Consider an infrared camera system which has sufficient resolution such that 6 pixels in the image correspond to a target critical dimension of 0.75 meters at 1000 meters range. Furthermore, let us suppose that the camera sensor receives sufficient thermal contrast between the target and the background, i.e. a person against a cool nighttime landscape. Then the system has a reasonable probability of recognition at 1000 m range.

FLIR Systems specifies how far you can see with a thermal imaging camera by specifying at which distance our thermal imaging systems can detect a man-sized target in conditions that yield sufficient thermal contrast. Depending on the lens size, our infrared camera systems can detect human activity up to several kilometers away. As the object that needs to be detected increases in size, the maximum detection range also increases.

**Focal length: an important parameter:**

A critical parameter that affects how far one can see with a thermal imaging camera is the focal length of the lens. The focal length determines the instantaneous field of view (IFOV) of a camera system. This is the angular field of view of a single pixel – the smallest angle that can be resolved by the system, provided that there is sufficient thermal contrast.

The IFOV then determines the distance at which a target's critical dimension subtends the required number of pixels to achieve detection, recognition or identification. The longer the focal length of the lens, the smaller the IFOV becomes, which translates into more pixels across a target at a fixed range. Long-range security applications such as border security require quite small IFOVs, because the imaging systems have to detect objects the size of a man at a distance of several kilometers away. It should also be noted that the total field of view scales inversely with focal length – long lenses give small fields of view. This is the compromise: long lenses on cameras trade longer range detection for reduced total field of view. In other words, you can identify targets, but you need to know where to look for them in the scene, since the system is essentially looking through a soda straw! As a result, infrared camera systems often have multiple focal length lenses to enable rapid target detection with subsequent identification when the system zooms in.

Consider a man at a range of 1 km. The effective angle that he subtends is the critical dimension divided by the range, which is 0.75 m/1000 m or 750 microradians in angle. In order to properly identify the man at this range with a thermal imaging camera, we need a system that gives us 12 pixels across 0.75 meters

at 1000 m. Note that in this context identification does not mean identifying a particular individual, but rather making the distinction between a man holding a rifle from a man holding a shovel, for example. A 500 mm focal length lens combined with a camera sensor with 15 micron pixels gives an IFOV of 30 microradians. The number of pixels on target is equal to the target angle divided by the IFOV angle. Therefore, we will have 750 microradians divided by 30 microradians per pixel, or approximately 25 pixels on target – exceeding the 12 pixel requirement for identification.

**Cooled versus uncooled thermal imaging cameras**

There is also a difference between how far you can see with a cooled and with an uncooled thermal imaging camera. Cooled camera systems are more expensive, but generally have a longer range than uncooled systems under many conditions.

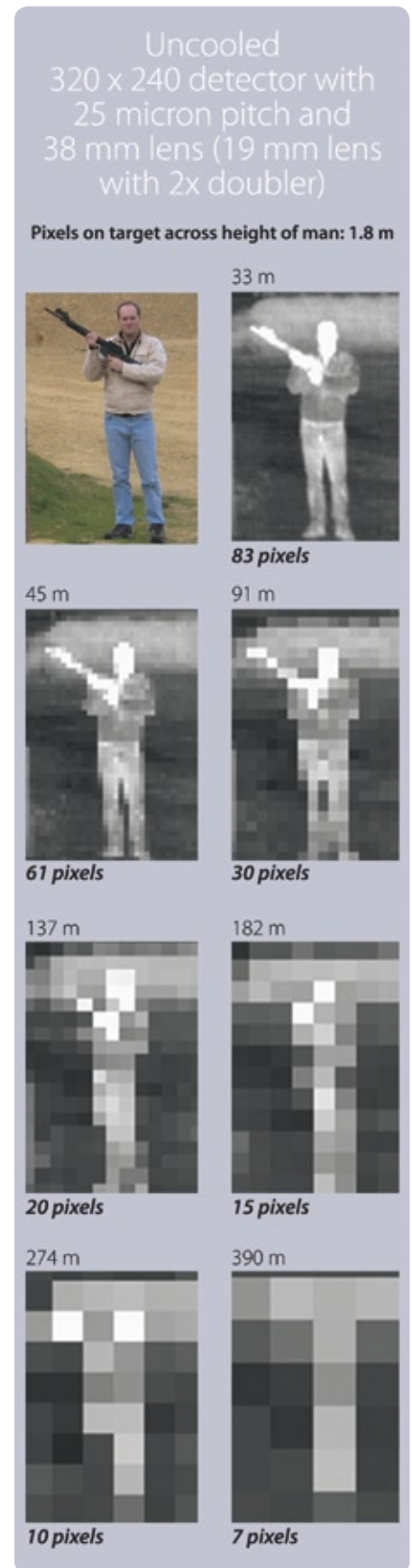
A typical cooled camera has a 15 micron pixel pitch (spacing between pixel centers). A 500 mm lens on this camera gives an IFOV of 30 microradians. Using the 0.75 m critical dimension, a man will subtend 12 pixels at a range of 2.1 km. The conclusion to be drawn from this example calculation is that identification of a man at multi-km ranges requires a lens in the 500 mm focal length range.

Now take the case of an uncooled sensor, which has inherently less sensitivity than a cooled sensor with comparable optics and bigger pixels. A typical uncooled sensor has 25 micron pitch. This increased pixel size shortens the 500 mm lens identification range to 1.25 km. But more importantly, uncooled lenses in the 500 mm focal length range are simply impractical because the lenses have to have very low f/numbers in order to have thermal sensitivities comparable to cooled camera systems. A 500 mm uncooled lens with f/1.6 has an objective diameter of 313 mm, which is enormous and very expensive. The lenses can be so expensive that they negate much of the cost saving gained from using uncooled sensors over cooled ones. In fact, at this time the longest existing commercial uncooled lens is 367 mm long. A 367 mm lens combined with a 25 micron pitch uncooled camera gives a maximum identification range of only 920 meters.

The conclusion from this example is that extremely long range thermal imaging applications are best served by cooled camera systems. This is particularly true in the midwave band in humid atmospheric conditions.

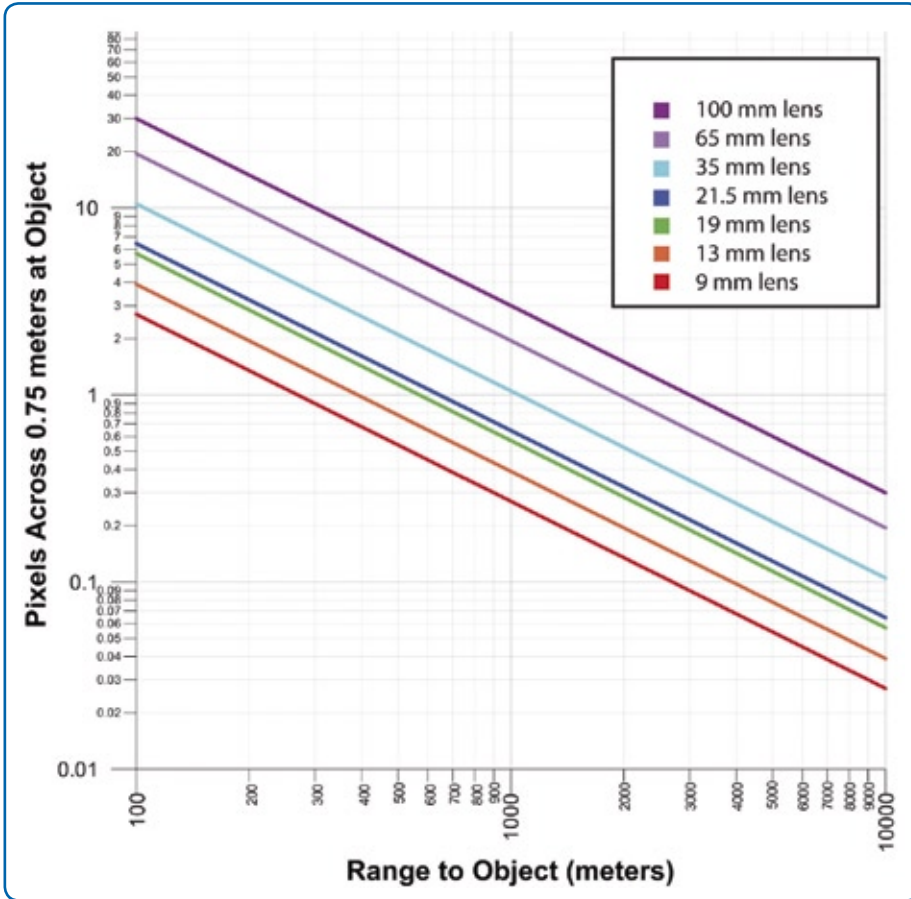
**Atmospheric conditions**

Although thermal imaging cameras can see through total darkness, light fog, light rain and snow, the distance they can see is affected by these atmospheric conditions. Even in clear skies, inherent atmospheric absorption places

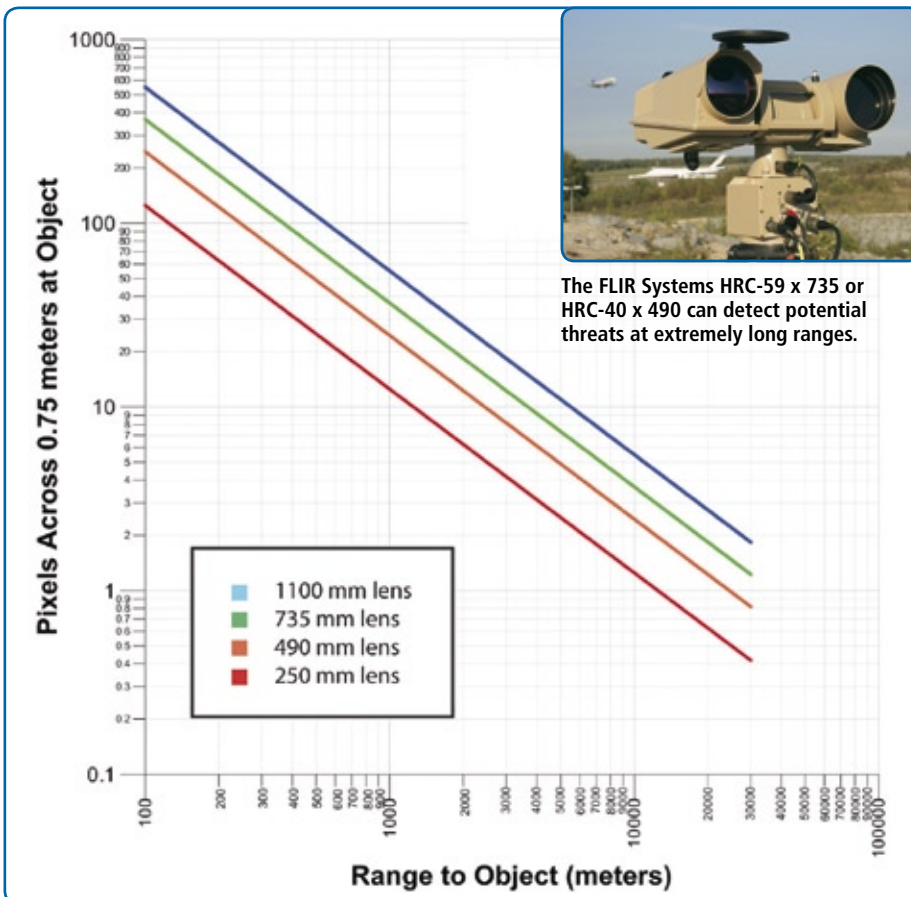


limits on how far a particular infrared camera system can see.

In essence, the farther an infrared signal must travel from the target to the camera, the more of that signal is lost along the way.



Nomograph: uncooled 320 x 240 detector with 38 micron pitch  
 Pixels across 0.75 m critical dimension of man-sized target versus range



The FLIR Systems HRC-59 x 735 or HRC-40 x 490 can detect potential threats at extremely long ranges.

Nomograph: cooled 640 x 480 detector with 15 micron pitch  
 Pixels across 0.75 m critical dimension of man-sized target versus range

Rain and fog can severely limit the range of thermal imaging systems due to scattering of light off of droplets of water. Fog is a visible aggregate of minute water droplets suspended in the atmosphere at or near the surface of the earth, reducing horizontal visibility to less than 1km in many cases. It is created when the air temperature and the dew point of the air are nearly equal and sufficient condensation nuclei are present. There are different types of fog, and some fogbanks are denser than others because the water droplets have grown bigger through accretion. A thermal imaging camera will have more difficulty seeing through these dense types of fog, and its range will be reduced. The same goes for heavy rainfall and snow. Additionally, rain can reduce contrast because it will cool the surfaces of targets. Despite degraded performance in fog, rain and snow, thermal imaging cameras will still allow operators to see targets further than is possible with visible-light imaging systems.

**Range is affected by many variables**

In summary, there is no easy answer to the question "how far can I see with a thermal imaging camera?" It depends on a large number of environmental and system variables, including the nature of the target (parked vehicle versus running vehicle), the background (hot desert versus cold snow), and atmospheric conditions (clear skies versus fog). It also depends on the specific camera and lens combination you choose. The applications engineers at FLIR Systems can help you to determine the ranges at which you can detect various targets in various conditions with thermal imaging camera systems.

**Nomographs**

An excellent way to estimate how far you can see a target with a thermal imaging camera is to use a nomograph. A nomograph is a graphical calculator which represents numerical relationships between variables such as focal length, range and the number of pixels on target. The following two nomographs (for uncooled and cooled camera systems) are simplified models for estimating the range at which a man can be detected, recognized or identified. These models do not include atmospheric effects or thermal contrast – they assume very high contrast images acquired in clear conditions and can be considered to be upper limits on range based solely on geometry.

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## INTERVIEW

# Toward an All-megapixel Future for Europe

## Making High-Definition Images Possible for Mainstream Applications

**International markets, including the EMEA region, have played a huge role in the success of U.S.-based Arecont Vision, a supplier of a full range of megapixel video cameras. The company has emphasized a large and increasing sales presence in international markets, and has worked to increase brand awareness globally. The Company's growth trajectory is higher than of the 50% growth rate of the megapixel market. GIT SECURITY spoke with Scott Schafer, Vice President, Sales & Marketing, Arecont Vision, about the company's vision for a future when all video systems will use megapixel images, and what that means for the U.K. and European markets.**



**What is your outlook for market adoption of megapixel cameras?**

**S. Schafer:** Megapixel cameras represent a new level in resolution for video surveillance systems. Simply stated, the new megapixel standard in the future will be precisely the resolution that each application requires. Gone are the days when there was one available resolution – 400,000 pixels take it or leave it – and the whole security system was built around that resolution. More resolution usually means fewer cameras in an application and it might mean added functionality in another, such as the ability to use video for digital pan/tilt/zoom (PTZ) in a way that was previously beyond reach. In any case, the resulting system will be better with the use of megapixel video.

**What situation do you see in the EMEA market?**

**S. Schafer:** The advantages of megapixel video are resonating throughout the U.K. and Europe, which are embracing the benefits of better video images, with more detail, that are available anywhere on the network without overtaxing the network infrastructure. This is possible because of Arecont Vision's use of H.264 compression, which provides lower bandwidth relative to MJPEG systems and lower data load both on the video management server and client.

**Aren't megapixel cameras more expensive?**

**S. Schafer:** Arecont Vision offers cameras with megapixel resolution that are comparable in price to standard-resolution network cameras. The cost analysis for megapixel video gets even more attractive when you consider the system advantages of using fewer cameras to cover the same area. It is really only basic math – 400,000 pixels vs. 1 million to 10 million pixels. A single 5 megapixel camera has more resolution than 10 standard definition cameras. A single 5 MP camera could easily replace 5 or more standard definition cameras. Also, the ability to pan, tilt and zoom digitally within a live or recorded megapixel image is a big advantage with multi-megapixel cameras. If you factor in the costs you save on infrastructure or on mechanical PTZ devices, the cost advantages of megapixel video are even more compelling.

**What type of megapixel cameras do you feel the European market needs?**

**S. Schafer:** There must be camera models for a range of megapixel resolutions, from 1.3 to 10 megapixels and even more. There also should be day/night cameras, compact cameras, panoramic cameras, 1080p HD cameras, low-cost cameras for price-sensitive applications, all-in-one dome cameras and cameras resistant to environmental hazards. Only with a broad camera line can a supplier expect to serve the varied needs of mainstream video surveillance applications in Europe or anywhere around the globe. Arecont Vision's camera line includes all these choices!

**What is the next step to increase usage of megapixel cameras?**

**S. Schafer:** Making it easier for integrators and end-users to learn the benefits of IP systems is

critical. It is also important to educate the market about the advantages of megapixel video and technology developments that make it applicable to mainstream applications. We, as suppliers, need to resolve misconceptions related to cost and network issues. For example, using H.264 compression, Arecont Vision cameras provide greater compression efficiency to solve system issues related to bandwidth and storage. Lower camera costs are eliminating price objections, and greater functionality makes systems better overall. It's a compelling story, and one that we at Arecont Vision continue to spread throughout the EMEA market and around the world.

**How do you simplify integration of megapixel cameras into overall systems?**

**S. Schafer:** We have forged important technology and software partnerships with industry leaders throughout the world. These firms are network video recorder (NVR), storage, analytics and network transmission companies. Working closely with these manufacturers, Arecont Vision clears the path to megapixel system implementation for integrators and end-users alike. We cater to the needs of a variety of vertical and application markets, including banking, retail, education, government, manufacturing and transportation.

**What drives Arecont Vision's success in the megapixel market?**

**S. Schafer:** Innovation is a passion for Arecont Vision. Our company is built on an unwavering commitment to develop and deliver products with more innovative capabilities than competing products. We also strive to make the benefits of megapixel video available at a price point that is attractive for the full range of mainstream video applications. In addition, we have made a significant investment in operations, and now delivers 98 percent of shipments in less than two weeks, which benefits customers worldwide.

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## In Focus: Sony SNC-DH180

The SNC-DH180 is an addition to Sony's range of network security systems. The HD camera comes equipped with an IR-beam, so that even in the dark without visible light images can still be recorded. The fixed dome HD surveillance camera has an especially wide dynamic range in difficult light levels and a high-performance noise suppression system (XDNR). Sony's DEPA advanced technology allows intelligent video and audio analysis, which can automatically trigger an alarm according to the user's settings. Moreover, the SNC-DH180 is protected against vandalism and weather conditions.



## CAMERA TEST

### Performance

#### Performance at 1000 Lux

When tested, the camera provided a predominantly clear and high-contrast image. Colours tend to appear with a slight tendency towards a red tint. Slight unsharpness can be detected in general, although moving objects are recorded correctly and without a smear effect. When using the default settings, in combination with fluorescent tubes, a noticeable flickering was observed in the 50 Hz frequency range. However, this can be eliminated by adjusting the camera's settings.

#### Performance at less than 1000 Lux

When lighting conditions are above approx. 10 Lux the camera delivers a crisp image without any noticeable degradation. Below 10 Lux, image noise is noticeable and this increases as lighting levels decrease. Moving objects are recorded without smearing, even as light levels drop. At 0.5 Lux, the camera switches to night-time mode (b/w); the default switchover time of 30 seconds can be reduced manually to 2 seconds. Even in night-time mode, the camera provides a good image. The camera was tested without its integrated IR-beam, although using this feature can bring about further improvements when lighting conditions are very poor, especially in the close-up range.

#### Performance in backlight situations

When backlight situations suddenly occur, the camera quickly compensates (approx. 2 seconds), but even when ambient light levels are low it switches over to the daytime mode, which takes approximately 1 additional second and provides a poor image with respect to contrast and colour rendition. The backlight source is clearly delineated in the image, with hardly any light scattering and does not cause smearing, although when ambient light levels are low blend effects can be observed, which in turn mean that particularly the background is recorded as low-contrast.

#### Evaluation of bandwidth usage

The camera, when compared to other cameras, has a linear bandwidth usage of on average 3.35 MB/s. Maximum usage is at 5.4, minimum usage at 1.7 MB/s.

### Technical data for the camera test

Manufacturer	Sony
Model	SNC-DH180
Firmware version	1.07.00
*Distance from test chart	0.65 m
Objective used	Autofocus; f = 3.1–8.9 mm
*Set focal length	Approx. 6 mm
*Compression method	H.264
*Resolution	1280 x 720
Compression	–
I-Frame spacing	1 second
*Set stream bandwidth	Unlimited
Measured frame rate	28 fps
Average measured bandwidth	3.35 Mbit/s

The camera was integrated into the test system with the "default" settings and correspondingly modified with the test criteria listed above

### Assessment with differing illumination conditions

Criteria   Lux values	1000 Lux	100 Lux	10 Lux	0,5 Lux	0 Lux + *BL1
Colours	2.5	2.5	2.5	3.5 <sup>1</sup>	5 <sup>2</sup>
Contrast	2.5	2.5	2.5	3.5 <sup>1</sup>	5 <sup>2</sup>
Sharpness	2.5	2.5	2.5	3.0	2.5
Motion sharpness	2	2	2.5	3.5	2.5
Image noise	2	2	2.5	3.5	2
Compensation time for backlight	–	–	–	–	2
Backlight characteristics	–	–	–	–	3

Assessment according to the following grades: 1 (excellent), 2 (good), 3 (average), 4 (satisfactory), 5 (limited), 6 (poor)

<sup>1</sup> By default of camera, it still stays in colour mode under 0.5Lux. By adjusting the D/N threshold, it can switch to B/W mode

<sup>2</sup> Camera switches to Day mode quickly after backlight appears. By adjusting the D/N threshold, it can stay in B/W mode.

\*Average value.

### Conclusion

The vandal-proof dome camera complies with the IP66 standard and is therefore suitable for both interior and exterior applications. Thanks to its integrated IR beam with a range of up to 15 metres and good contrast rendition under poor light conditions, the camera is suitable for both day and night. The camera supports Power over Ethernet (PoE), as well as being ONVIF-compliant.

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Der GIT SECURITY Camera Test  
in cooperation with SeeTec



In collaboration with Seetec, GIT SECURITY tests the latest video cameras using the test laboratory facilities located at SeeTec's Hardware Competence Center, under standardised conditions. The Hardware Competence Center came into being because the performance specifications published by manufacturers for network cameras are often calculated under non-standardised conditions and in practice, are not always reliable. The results provided by the Hardware Competence Center can be used as a valid basis for planning IP video projects and help to avoid unpleasant surprises. The test process consists of creating video sequences under strictly defined lighting scenarios, with a subsequent evaluation of these sequences. The evaluation takes into account image movements as well as nighttime and backlight situations.

## Performance

### Performance at 1000 Lux

When tested, the camera produces a clear image although the colours are rendered somewhat pale and sometimes are slightly foggy. Image quality is good, although a slight fuzziness can be detected on moving images. The presence of image noise and compression artefacts is negligible.

### Performance at less than 1000 Lux

With decreasing light conditions, the camera provides an easily recognisable image without significant noise down to approximately 10 Lux. Colour reproduction remains constant, with only a slight deterioration of contrast. Below 10 Lux, image noise increases. Although the camera has a night-time mode, this mode did not activate during the seven-second test sequence at 0.5 Lux. However, the overall result is still an easily recognisable colour image, although considerable image noise is present.

### Performance in backlight situations

When backlight situations suddenly occur after a period of complete darkness, the camera requires more than 3.5 seconds - a comparatively long time - before delivering a b/w image. Moreover, the camera switches over to daytime mode so that a continuously stable image is only recorded after approximately 6 seconds. However, the picture quality is acceptable, with the background showing colour differences and detail. The backlight source is clearly scattered, although smearing or reflection/blend effects are not significant.

### Performance in use: bandwidth measurement

As light levels decrease, the camera's bandwidth usage increases sharply and at approximately 0.5 Lux reaches its maximum value of 27.4 MB/s. Average usage hovers around 6.83 MB/s.

## In Focus: Samsung SND 5080

The SND 5080 is part of the new HD network camera series from Samsung and provides images in various CIF formats up to 16:9 HD with 1.3 megapixels. Like the Samsung SNB-5000 model (box camera), the SND-5080 also conforms to ONVIF standards, which guarantee interoperability between IP systems regardless of manufacturer. The model uses the newly-developed WiseNet transceiver, which enables the parallel output of multiple image streams (H.264, MPEG-4 and MJPEG). The SND 5080 surface-mount dome camera is a day/night camera that also supports the recording of images on an SD memory card. The camera is available in various designs.



## CAMERA TEST

### Technical data for the camera test

Manufacturer	Samsung
Model	SND 5080
Firmware version	1.10_100720
*Distance from test chart	0.7 m
Objective used	F1.2 2.8 – 10 mm
*Set focal length	Approx. 6 mm
*Compression method	H.264
*Resolution	1280 x 720
Compression	–
I-Frame spacing	1 second
*Set stream bandwidth	Unlimited
Measured frame rate	24 fps
Average measured bandwidth	6.83 Mbit/s

The camera was integrated into the test system with the "default" settings and correspondingly modified with the test criteria listed above

### Assessment with differing illumination conditions

Criteria   Lux values	1000 Lux	100 Lux	10 Lux	0,5 Lux	0 Lux + *BL1
Colours	3	3	3	3	4
Contrast	2.5	2.5	3	3	4
Sharpness	2	2.5	2.5	2.5	2.5
Motion sharpness	2.5	2.5	2.5	4	3
Image noise	2	2	2	4	2
Compensation time for backlight	–	–	–	–	5
Backlight characteristics	–	–	–	–	4.5

Assessment according to the following grades: 1 (excellent), 2 (good), 3 (average), 4 (satisfactory), 5 (limited), 6 (poor)

\* Average value.

### Conclusion

The SND 5080 fixed dome camera is suitable for indoor use and provides resolutions up to 1.3 megapixels and can receive power over a network cable (PoE). The recording of image data on an SD card and the parallel output of multiple image streams are standard. Different designs are available on request, thus in addition to the basic version there is also a version for in-ceiling installation as well as a vandal-proof version.

CCTV

# Video Surveillance Meets Art

## Apulian Museum Protected through a Video Surveillance System from Dallmeier



**The Museum Nicolaiano is located close to the centuries-old basilica of Saint Nicolas. It bears its name in honour of the patron saint of the South Italian city. In order to ensure that the valuable exhibits are secure the museum was equipped with a state-of-the-art high performance video surveillance system. Professional high-value CCTV systems by the German manufacturer Dallmeier were installed to implement the appropriate security standards.**

The Museum Nicolaiano in the Apulian city of Bari is one of the main attractions of the "Citadella Nicolaiano" borough, which is known for being an area of religious, touristic and cultural interest. Apart from the basilica the citadel also includes the church of San Gregorio, the „San Nicola“ school, the columned hall „Portico deil Pellegrini“, which is today used for exhibitions, as well as the priory palace „Palazzo Priorale“, the affiliated monastery and other surrounding buildings. Some of those buildings are privately owned. Entering the Citadella Nicolaiano from the seafront, the museum is situated on the right. Art historically important works, dating from the era of Byzantine rule of up to the present day, that come from the basilica, are exhibited there. Among the most important exhibits are liturgical vestments and insignia, paintings, icons and architectural fragments. The importance of the items is due either to their religious or art historical significance. The museum also has a multimedia area with a touch-screen and a projection room for tourists, pilgrims and students. There, an interactive approach is taken to communicate



## SECURITY

Through Dallmeier's official Italian representation and with the help of the local partner company Delta System Technology the museum received comprehensive support in choosing a solution that would best meet the specific requirements of museum security.

"I was involved in the entire project, from the project planning to the realisation of this video surveillance at the museum. It is a system based on the DDF3000APV Picodome® and the DF3000AS-DN cameras and the fourth-generation recorder DMS240 „In Memory of Leonardo". I feel closely connected to the city of Bari and its patron Saint Nicolas. And so the fact that the museum is protected by Dallmeier technology has deeply moved me and I am very happy about it," says Pierpaolo Piracci from Dallmeier Italia.

### Particularly Detailed Images Owing to Cam\_inPIX Technology

We consciously decided to use the DDF3000APV Picodome and DF3000AS-DN cameras from Dallmeier with Cam\_inPIX technology. With the innovative sensor concept of Cam\_inPIX technology the picture information of each individual pixel is converted digitally at the point of capture and processed in the most optimal way. Therefore, even situations with a great range in contrast can be recorded and documented in previously unseen picture quality.

### Reliable Recording

The camera images are recorded on a Dallmeier DMS 240 recorder. Those systems of the „In Memory of Leonardo" series are equipped with up to 24 channels, support the MPEG-4, MJPEG and H.264 compression methods and are characterised by the 'PentaplexPlus' functionality, an advancement of the previous 'Pentaplex' functionality. The DMS 240 enables simultaneous recording, streaming, archiving, live display and playback of all images – either locally or via network. If necessary, the DMS can also be remotely configured and decoded via LAN or WAN. Every channel can be recorded with up to 25fps in D1 with IP cameras or with 12fps in 4CIF with analogue cameras. The operating system Linux, which is stored on a Flash memory guarantees highest reliability. Three high-performance fans with automatic rotation speed control ensure an optimal ventilation. In the case of a hard disk failure the Easy-Change functionality is used. Through an easy and user-friendly hard disk exchange at the front of the DMS it allows for quick and straightforward maintenance.

## CONTACT



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religious, historical, artistic and ecumenical contents. Those include the biography of Saint Nicolas, the translation of his relics, the history of the basilica, and their connections with the city of Bari and Europe as well as, predominantly, the ecumenical role between the catholic occident and the orthodox orient. The museum, designed for an international audience, is equipped with modern audio guides with texts in Italian, English, German and Russian.

Dr. Francesco Rana, responsible for the museum's security, explains: "With the UWDR technology (Ultra Wide Dynamic Range) the Dallmeier cameras have an advantage compared to all previously known methods. They can capture significantly more details in the shadow areas and the extremely bright areas of an image. They produce high-contrast and true-colour images without any blooming or smearing even under the most difficult lighting conditions. My approach is aimed at creating and fostering an awareness for security related issues. Not only with the security personnel but also the entire staff and, in particular, the administration of the museum. The idea was to make clear that the technologies are meant to protect the works of art and the buildings. The technologies are not meant to be used to merely reconstruct events."

The director of the museum Alessio Romano is highly satisfied with the image quality and professionalism of the company Dallmeier.

## PERIMETER PROTECTION

# Warm, Dry and Clear Visibility

## Building the Ideal Video Surveillance System for an Electric Utility



© focus finder – Fotolia

**APS is Arizona state's largest electric utility and has been providing the region with electricity for over 100 years. It serves over 1.1 million customers in 11 out of the 15 counties in Arizona, all of whom expect a reliable supply 24/7. The effort that is made to ensure the security of that supply does not occur to the average customer but is nevertheless a vital part of the whole operation.**

APS needs to constantly monitor their critical infrastructure and their substations which are located all over the state, often in areas that are difficult to reach. They already had a video surveillance system in place equipped with a series of thermal-imaging PTZ cameras. Due to the high-failure rate and the high cost of maintenance of these units, APS moved to a solution provided by Videotec for effective day/night surveillance. The company produces professional and certified accessories for video-surveillance, such as housings and outdoor positioning sys-

tems for cameras, video management systems and devices for digital analysis of the video signals.

Their Ulisse positioning system integrates a high performance P&T head with housing, a telemetry receiver as well as two infrared LED illuminators, and all without external rotating cables. The rotation on the horizontal axis is continuous with a variable speed of up to 40°/s while the amplitude on the vertical axis varies from +90° to -40° with a maximum speed of 30°/s. This positioning system moves with a tracking accuracy of 0.02° on preset position recall and sequences can be set with different speed settings in order to create an ideal patrol pattern. These particular heads have been fitted with twin 20 degree IRBD illuminators, a 1/2" CCD camera and a mechanical zoom lens which gives about 900' (275 m) FOV in black and 1350' (400 m) FOV in daylight. Where the camera position is used to drive other surveillance resources, the system can optionally be specified with incremental encoders in order to provide real-time positioning feedback.

### Versatile Integration

The elegantly-designed system family has a number of useful options to cope with all the climatic conditions that such surveillance modules are likely to encounter. The optional wiper attachment will be able to effectively clear rain and dust without impeding the camera's view, while the so-called 'cold pack' with a thermostatically controlled heater will equip the housing for reliable operation at temperatures down to -30 °C (-22 °F). Integration with various different cameras and motorized zoom lens combinations is straightforward, thanks to the side opening housing and connection boards with pre-installed BNC sockets. The availability of various control protocols enables the Ulisse system to be integrated into different installations, also into IP-based systems, and it can be seamlessly incorporated into most VMS.

APS deployed 40 of these units during 2010 to monitor their substations, with a typical install consisting of between two and nine units. Night vision is ensured by the illuminators that produce high levels of infrared light, and the resulting images are typically of higher resolution than other night vision technologies. Gianni Viero, VP at Videotec Security said: "Working closely with APS, we were able to provide a valuable solution for effective day and night surveillance." Gary Couch, Physical Security Engineer at APS, confirmed: "Videotec's system has allowed us to make a unit to suit our surveillance requirements." The system also finds application in other environments such as in stadiums and harbors, at coast and border patrols and industrial sites, for highway and traffic monitoring as well as securing prison and military compounds

### ► CONTACT

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## CHILE RESCUE

# Dramatic Pictures

## Vivotek Camera Serves as 'Eye' for Chilean Miner Rescue Capsule

**The news travelled quickly around the world, not initially as the miners became trapped but later as it was discovered that, against all fading hope, they were all still alive. The rescue effort was carefully considered and one of the many preparation measures taken during the time-consuming drilling was to build a small camera into the rescue cage that would monitor the condition of the miners as they rose to the surface.**

People around the world breathed a collective sigh of relief with the news that the rescue of the 33 trapped Chilean mine workers had been a complete success. The greatest share of the accolades must, of course, go to the courageous miners and their anxious families, as well as the engineers whose ingenuity allowed them to quickly design and build the transport capsule used to extract the workers from deep underground. However, it is also worth noting that Vivotek played an important role in this dramatic operation.

By affixing an FD8134 fixed dome network camera to the rescue capsule, this integral piece of equipment was able to provide operators working at a ground level with a clear, real-time view of the conditions in and around the capsule as it made its descent to retrieve each miner and subsequently return to the surface. The FD8134, with its HD video quality and compact size, was ideally suited for the job as the whole world could see during the actual rescue phase when the video feed from the camera was presented by media around the world, including the BBC and CNN.

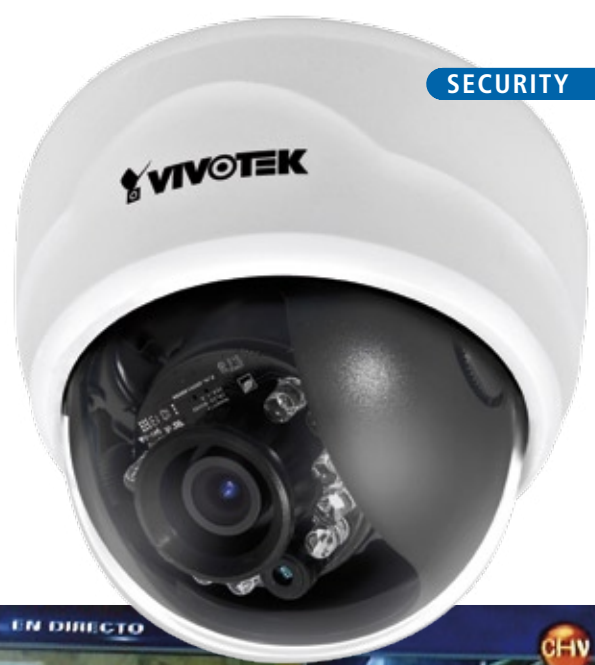
### Already Well Known

While the prominent role that these cameras played in an event attracting international attention was unprecedented, the Vivotek name is not an unfamiliar one in Chile and elsewhere in the region. The company's cameras are well-known for their high technology and advanced features, which have made them a favorite choice of both end-users of surveillance systems and system integrators. In addition, the company's products have been used in many highly publicized projects throughout Latin America, one of them being the UNE Events online video service in Colombia which provides real-time views of Medellin's famous Christmas lights for anyone with an Internet connection.

Vivotek was established in 2000 and has quickly taken its place in the IP surveillance industry. The company's R&D teams are dedicated to developing highly reliable IP surveillance products, including network cameras, video servers, video receivers, and recording software to deliver practical, state-of-the-art solutions to the security market through complete integration of video codecs, optoelectronics, and networking technologies. As it continues to provide surveillance cameras to meet the needs of both conventional surveillance installations and special projects, the company is proud to have done its part to bring this amazing rescue effort to a happy conclusion and now wishes the miners all the best.

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CCTV

# Video Security Shrugs Off It's Big Brother Image

## Infrastructure for Modern High-bandwidth Camera Networks

**Forget the 'Big Brother' image evoked by George Orwell's classic novel 1984. Video surveillance is fast becoming a vital component of modern security installations, providing an effective deterrent and an essential safety technology. The heightened security surrounding this year's Oktoberfest has reignited the debate in Germany about video surveillance. Munich Oktoberfest is the world's largest fair, annually hosting millions of visitors, and modeled in other cities across the world. 2010 marked the 200 year jubilee of Oktoberfest, with the event lengthened to run an extra few days into October to mark the event.**

Threats of terrorist activity didn't dampen the spirits, but they were an unwelcome reminder of the heightened tension that underlies any large modern event. The threats had to be taken seriously because of the similarities in the lead up

to the Madrid bombing attack in 2004, when bombs on commuter trains killed 191 people, all in the run-up to a general election. At Oktoberfest, two suspected terrorists were arrested and held for questioning, with a knock-on effect that visitors to Oktoberfest had to pass through police roadblocks and were subject to spot checks following the detention of the suspects, and car traffic during the event was restricted to local residents. The police presence was significantly increased throughout the event, as was video surveillance.

All of this has brought the wider question of CCTV surveillance back to the fore. One of the crucial areas of disagreement between Angela Merkel's Christian Democrats and the Free Democrats is how far the state should be allowed to spy on its citizens in order to prevent acts of terrorism. The Free Democrats are arguing for more privacy, with fewer CCTV cameras. But talking of spying is highly emotive language. Across the world, industries and applications as diverse as power utilities, water plant, rail, traffic control, shipping, commercial buildings and facilities, and industrial plant are all turning to video surveillance technologies as a means of assuring the safety of employees and customers in dan-

gerous areas, as well as securing assets against intentional or accidental damage. In addition, in our increasingly litigious society, effective surveillance and recording can provide a means of defence against frivolous claims.

### New Paradigm for Live Monitoring and Live Analysis

Meeting these diverse requirements places stringent requirements on surveillance technology, and this has evolved rapidly in recent years to deliver a new paradigm for live monitoring (either on-site or remotely) and live analysis. Indeed, software analytics are one of the fastest growing applications for increasingly capable CCTV-based surveillance systems. Today's computer based systems can use software models to make a judgement on what is normal behaviour and what is anti-social behaviour, or to provide early warnings as potential hazards become evident, or even to monitor patterns of travel/movement and derive improved systems/schedules for handling peak traffic.

The enabling technologies behind all this are high definition digital cameras and IP/Ethernet network topologies. The push for greater image quality has driven a fast transition to high-definition cameras, generating levels of data traffic that really only Ethernet is equipped to handle cost-effectively. Not only is Ethernet the most widely understood and supported networking technology, it also opens up the potential to rationalise a whole raft of security systems and IT systems onto a single IP-based network, dramatically simplifying installation, integration and support.

Having video surveillance as part of the IP-network also eliminates the requirement for on-site monitoring. A network may extend over an extremely wide area, but monitors can be connected into the network at any convenient location, or the video feed could be monitored in real-time over the internet, potentially from anywhere in the world.

While the attraction of IP-networks as the standard for video surveillance is a function of its massive, established installed base, and the fact that the technology is standardised, low cost and low risk, there is no doubt that high speed, high bandwidth video traffic makes





stringent requirements of the IP infrastructure devices that must handle it. The IP switches, for example, that provide connectivity to the cameras and route the data onto the Ethernet network must combine simple connectivity with the ability to handle demanding video traffic.

### The Role of Infrastructure Components

GarrettCom Europe has responded to the evolving needs of video surveillance for IP-based technologies with new ranges of Ethernet switches which form the critical infrastructure for a modern, high-bandwidth camera network. The latest Ethernet switches provide connectivity for clusters of surveillance cameras and indeed associated security devices – VoIP telephones, Ethernet-enabled sensors, access control devices, etc – and combine this with fibre-optic connectivity to the control network for high-bandwidth transmission of video data.

These best of breed infrastructure components also offer the benefits of IGMP (Internet Group Management Protocol) software as standard. This is key, with modern high definition cameras transmitting data at rates as high as 5Mbps. This multicast traffic has to be effectively managed, to prevent unnecessary traffic flooding the various communications interfaces and bogging down the entire network. The IGMP protocol provides a means to manage this traffic.

Compact, reliable, rugged, and hardened for use in demanding plant environments and outdoor use, GarrettCom Europe managed switches for video security and surveillance applications meet the all the requirements of the modern surveillance installations. They offer flexible combinations of copper and fibre Ethernet ports, with appropriate port counts for typical clusters of IP-enabled security products, allowing networks to be developed highly cost-effectively. And for ease of installation of surveillance systems, many GarrettCom Europe Ethernet switches now provide PoE as standard, supplying power to connected devices over the standard data cables, and so eliminating the need for costly cabling back to a central power source.

### PoE is Almost Standard

PoE is fast becoming the preferred means of powering edge of network devices, representing the only truly universal power standard. The RJ45 connection and the 48V voltage of PoE are standard the world over. The technology delivers numerous benefits in the deployment of video surveillance equipment around a site. Access to hard-to-reach locations or places with a lack of space for power becomes much simpler, and associated maintenance is eased. Further, costs can quickly escalate when the installation of separate power outlets is factored into a project: PoE switches can save both time and money

by avoiding the need for separate installation of power outlets. Multi-location also becomes much simpler, because wherever there is an Ethernet connection a powered device can be used.

Delivering ease-of-use, network security and redundancy, modern Ethernet switches are supplied with software offering a complete range of management services. Self-healing LAN support – including STP, RSTP and other standards-based technologies – can provide high-speed, fault detection and correction, particularly important the high availability that a surveillance system must provide.

GarrettCom Europe's Ethernet switches are proven in security and surveillance networks across the world, with these IP-based technologies enabling surveillance systems of unprecedented performance, functionality and flexibility. Offering a step-change in operational benefits over traditional analogue installations, IP-technology looks set to completely redefine the benchmarks in video surveillance installations.

### CONTACT

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### Monitoring Stations

Heitel Digital Video has presented its latest products at the Security show in Essen: the Heitel Video-gateways Camtel SVR, Camserver, Camdisc SVR, Camdisc HNVR and Cam4mobile, together with the Camcontrol software family, and the Event Management System (EMS).

"The focus of our appearance at this year's show" was "the central monitoring station as the key organization for preventing and intervening in crime", said Managing Director Michael Meissner. His company "wants to win over its customers with cost-efficient video alarm verification and active video intervention. Heitel Systems do not just record property and capital offences, but can actually prevent them by being linked to professional monitoring stations." info@heitel.com




### Video Analytics Integration

Keeneo has integrated its patented 4D video analytics software with Milestone X-Protect video management platform. This integration enables operators to use the power of Keeneo's video analytics software with Milestone X-Protect Corporate, an open platform IP video management software, designed for large-scale, multi-site installations with support for unlimited numbers of cameras and users. At the Asis trade show the company demonstrated its Safezone suite for real-time intrusion, incident and pre-defined activity detection, perimeter protection and response assessment. Safezone 4D video analytics software analyzes events in terms of both space (height, width and depth) and time to detect trespassing, loitering, wrong direction and other people or object security surveillance scenarios. The software analyzes one or several surveillance scenarios simultaneously using single or multiple analog, IP or thermal camera streams. It features GUI driven five minutes per camera configuration, environment interference compensation, as well as a unique video analytics portability option. dick.salzman@keeneo.com



# High-Definition Low-Light


## 1080p/720p 50/60fps Camera






**HD-IP CAM**

- HD 720p Multiple-streaming
- Codecs: H.264 /MPEG-4 /M-JPEG
- CVBS



**3G-SDI CAM**

- Uncompression video: 720p/1080p
- Video transmission based on coaxial cable
- Bit rate: 2.97Gb/s SMPTE 292M/424M
- One cable (Video/Audio/RS-232C/Power embedded)
- CVBS





**Megapixel Camera Module**

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- Built-in AP9326-EJ-S/Memory
- Digital video output: YUV 4:2:2 16 Bit (SMPTE 274M/296M)
- CVBS output: 560TV or 700 TVL (NTSC / PAL)
- Image adjustable: Peak/BLC/XDR/3D DNR/A.E.S./ DC-IRIS/removable IR-Cut
- Communication: RS-232C/OSD
- Low power consumption

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### Laser Phosphor Displays

Eyevis announced the launch of a display series based on Laser Phosphor Technology (LPD). LPD is a new category of large format displays with the lowest power consumption and environmental impact along with long-lasting performance and brilliant picture quality. Product Manager Hans-Günter Nusseck: "LPD defines a whole new category in display technology and will open up new markets." LPDs use solid-state lasers to excite phosphors on a surface emissive panel. This technology consumes up to 75 % less power than other display technologies translating into the lowest cost of ownership of any large format display. At a brightness of 800 nits, an optical seam of 0.25 mm and a refresh rate of 240 Hz the displays show high-resolution images, no motion blur and very high picture quality. [henique@eyevis.de](mailto:henique@eyevis.de)



### Plug + Play Camera Systems

Eneo plug & play cameras are designed for outdoor use. They have a new bullet housing, are protected compliant with IP68, and they can be operated at temperatures from  $-20^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$ . Installation is quick and smooth: camera modules with retractable infrared cut filter for day and night use, integrated varifocal lenses, wall bracket with concealed cabling for wall or ceiling mounting, sunshield. Cameras can be unpacked, bolt on and connected at the installation site. Focus and zoom can then be set externally without having to unscrew the housing. Three models are currently available – the VKC-1378/IR-650, VKC-1378/IR-316 and VKC-1379/IR-316. The differences between the VKC-1378/IR-650 and the VKC-1378/IR-316 are limited to the focal length: 6 mm to 50 mm, the VKC-1378/IR-316 has a focal length of 3.5 mm to 16 mm. Both cameras have a horizontal resolution of 560 TV lines, light sensitivity of 0.25 lux at F1.2, and their 70 LEDs (850 nm) can illuminate as far as 60 meters. The VKC-1379/IR-316 (unlike the other models) is a Pixim camera that ensures a wide dynamic range (WDR) of 120 dB with its patented DPS technology. Its horizontal resolution lies at 540 TV lines, light sensitivity at 1.4 lux, and its 70 LEDs (850 nm) have an illumination range up to 80 meters. On all models the illumination is switched on and off automatically in response to the ambient lighting. [www.eneo-security.com](http://www.eneo-security.com)



### ONVIF-Compliant HD IP Cameras

Optelecom-NKF has announced the release of its first ONVIF-compliant high-definition (HD) IP cameras, the Siqura 6x series, with HD (720p) and Full HD (1,080p) versions. The manufacturer is a contributing member and strong supporter of the ONVIF initiative, an effort in creating industry-wide standards for IP-based physical security devices. The development of these HD cameras is just another step towards ensuring that Siqura surveillance solutions offer the best system for even the most demanding surveillance situations. The traditional box-style BC6x cameras and the vandal-proof fixed-dome FD6x cameras provide HD resolution images in H.264, MPEG-4, and MJPEG. With the option to configure multiple combinations of resolution and frame rate, it is possible to satisfy a variety of different live-viewing and recording scenarios, making these cameras ideal for large professional installations where high resolutions and quality images are needed. [www.optelecom-nkf.com](http://www.optelecom-nkf.com)



### Multi-standard Video Processing

At 'Security' Geutebruck was showcasing its Reporter-IP/SE, an entry-level IP server; the Geviscope-AS/R, a high performance Geviscope-based video analysis platform; as well as a new independent SD card Nano DVR facility for their IP video sources Vipcarn-DN101/PX and Cam2IP. The most significant development on their stand was the new generation of software for Gevistore and Geviscope platforms. Its new 'omnidrid' multi-standard video processing is a groundbreaking innovation which enables M-JPEG and H.264-based standard as well as specialist video surveillance ones (MPEG4CCTV, H264CCTV) to be used in the same system – even with event-controlled switching between them during recording. It allows the use of analogue, digital, megapixel and even 16/9 HD-format cameras as well as those using the ONVIF standard. If necessary it supports real-time signal re-coding and enables IP cameras without any additional integral functions to be used for Geutebruck video analysis processes. [info@geutebrueck.com](mailto:info@geutebrueck.com)

### Integrated PTZ System for Big Zoom Lenses

Videotec has added "Ulisse Plus" to its series of outdoor camera positioning systems. It has a bigger camera housing, and it integrates a high performance P&T head with telemetry receiver and camera housing with integrated wiper. The rotation on the horizontal axis is continuous with a variable speed up to  $100^{\circ}$  per second while the amplitude on the vertical axis varies from  $+90^{\circ}$  to  $-40^{\circ}$  with a max speed of  $50^{\circ}/\text{s}$ . The system controls the functions of autopan and patrol with a tracking accuracy of  $0.02^{\circ}$  on preset positions upon recall. Patrol sequences can also be varied with different speed settings in order to customize a perfect patrol pattern.

This PTZ system is equipped with incremental encoders for position feedback which guarantee an exact position control in any operating condition. The system is equipped with a thermostatically controlled heater and sunshield, assuring an optimal operating temperature. The positioning unit can be used in several kinds of installations, such as: coast and border patrol, harbor control, urban settings, highway and traffic monitoring, stadiums, industries, prisons or military applications, and perimeter surveillance. [info@videotec.com](mailto:info@videotec.com)



### Virtual Access Management Network



The new generation of access management from Winkhaus, called Bluesmart, is a centrally controlled passive key-operated system that transfers data rapidly via a virtual network and viral command distribution. It integrates into existing building control technology, time recording or alarm and energy management systems and almost entirely eliminates the need to program door components manually offline. The system works with a wireless and offline virtual network via which the electronic components communicate, process and transfer information over the battery-free key. This contains a new intelligent chip inside an IP 68-compatible plastic housing. It saves both programmed information and data read out from door components, and permits authorization/restriction or system commands to be reliably updated. Users and administrators have the offline benefits without missing online convenience; there is no wiring, but there is still a network for rapid data exchange with up to 195,000 cylinders or keys. The cylinders have the same dimensions as mechanical cylinders and a long battery life ensures long-term operation, recording up to 2,000 key events with date and time. [Sabine.Wulf@winkhaus.de](mailto:Sabine.Wulf@winkhaus.de)

### Tamron: Scenes In 180°

Tamron has announced a concept model of a new security/surveillance camera unit which renders normal flat-field images, while enabling to capture an entire 180° field of view with no blind spot in any orientation all the way across. The camera unit is comprised of a fish-eye lens with 180° field of view angle, a 1.3 MP CMOS image sensor, and a custom DSP that generates normalized flat-field images at any given region of the captured spherical image footprint, thus totally eliminating mechanics for pan and tilt operations. "Conventional speed-dome cameras unavoidably require the use of a pan and tilt drive mechanism to direct optics towards objects of interest", says Mr Morio Ono, president and CEO. "Sometimes, such lag time could result in missing the capture of a critical image at a critical moment. Because of the totally electronic pan and tilt operation, response time under such circumstances is nothing but a click of a button, or a key," Mr Ono continued. The advantages of a mechanics-free construction of such pan and tilt systems also bring longevity in life and stability in performance over the course of years with enhanced reliability. [m.betger@tamron.de](mailto:m.betger@tamron.de)

### Handheld Thermal Imaging Cameras

Flir's H-Series are handheld shock-resistant thermal imaging cameras. They produce a crisp image even in dark nights. Thanks to the H-Series, security professionals and law enforcement officers can see suspects in total darkness, through light fog and smoke, and light foliage. The series are suited as tools for walking patrols that need to secure industrial sites or borders, customs and law enforcement officers and all others that need to see what is happening in total darkness, in all weather conditions, without being seen themselves. The cameras produce thermal images of 320 x 240 pixels on which the smallest of details can be seen. Advanced internal camera software delivers a crisp image without the need for user adjustments. [www.flir.com](http://www.flir.com)



### New Reader Chip Generation

Legic Identsystems presented a new reader chip generation for contactless readers for personal identification at Security 2010 in Essen, Germany. The smallest chip ever developed by the company offers high interoperability and a ready-to-use upgradable encryption package. Moreover, the company introduced a further development of the authorization system Legic Master-Token System Control (MTSC), which is based on security certified hardware. End users can furthermore also define their own key for their specific applications. With the SM-4200 reader chips of the Legic Advant Smart Card technology, the manufacturer increases the possibilities for single and multi-applications in the area of contactless personal identification such as access control, time & attendance, offline locks and e-payment. Thanks to its ultra small size, which is only 8 x 8 mm, the new reader chip fits in almost every application. [Info@legic.com](mailto:Info@legic.com)

### Full Control

Samsung has added four models to its SRD series of H.264 DVRs, which are equipped with both Pelco Coaxitron and Samsung SSVC coaxial control protocols to provide users with full control of camera functions, as well as access to set-up menus via a digital video recorder, from the convenience of a control room. Coaxial control offers convenience as well as cost savings, allowing both video and telemetry control to be transmitted via conventional analogue coaxial cabling. As well as a reduction in cabling costs, there is also the opportunity for existing equipment to be upgraded quickly and easily. The SRD-850DC and SRD-1650DC are eight and sixteen channel DVRs which can simultaneously record real time CIF images across all channels and selectable channels up to 4CIF, whilst the SRD-870DC and the SRD-1670DC can simultaneously record real time images across all channels at 4CIF. [steseecurity@samsung.com](mailto:steseecurity@samsung.com)



### EN 54 Compliant Voice Alarm Systems

Toa presented their EN 54 certified VM-3000 series compact public address and voice alarm systems at Security Essen. Also on display was their EN 54-24 certified speakers including the PC-1867FC flush-mounted ceiling and the BS-680FC wall-mounted public address speakers. The company's fully EN 54-4 certified power supply with the VX-2000DS at its centre where also presented in Essen. Wolfgang Pein, Director, German Sales at Toa Europe: "EN 54 stipulates the product and testing requirements for voice alarm components in fire detection and alarm systems and we were first to bring the compliant products to market." EN-54 aims to improve the communication of installed systems with the outside world – users, installers, fire fighters, and the public. Also, EN 54 states the availability of system functionality in the most adverse or challenging of operating environments. [brett.downing@toa.co.uk](mailto:brett.downing@toa.co.uk)

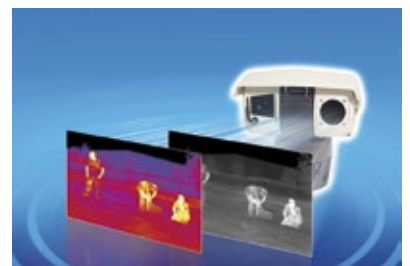
### Fixed Dome Network Cameras

Axis Communications has introduced its Axis P3346 Fixed Dome Network Cameras to complement the P33 Series. They are easily installed thanks to remote zoom and focus and offers P-Iris control, HDTV 1,080p and three megapixel resolution. The Network Cameras, designed for efficient installation in both indoor and harsh outdoor environments, are suited for a wide range of demanding video applications. "Axis P3346 is the first fixed dome on the market with P-Iris, which ensures superb image quality", says Erik Frännlid, Director of Product Management. "These three megapixel cameras are an attractive addition to Axis P33 Series that offers customers new benefits in terms of easy installation and high-quality video surveillance." The fixed domes can deliver three megapixel resolutions at 20 fps, as well as wide screen HDTV 1,080p video at 30 fps, with great clarity and sharpness. The P-Iris control allows the camera to optimize the iris position for depth of field, lens resolution and incoming light to produce superb image quality with optimum sharpness in all lighting conditions. [www.axis.com](http://www.axis.com)



### Thermal PTZ Camera

Dedicated Micros has announced the launch of the Infiniti Thermal, an extremely capable integrated PTZ camera and Thermal Imaging Unit. The camera comprises a standard CCTV camera, Thermal Imaging Unit, screen wiper/washer control and an integrated pan and tilt mechanism – all in one robust package. A major operational advantage is the side-by-side positioning of the CCTV camera and thermal imager, in the same housing. Crucially, this layout means that operators, in practice, will be able to readily access and view standard CCTV and thermal images of the same scene, a capability which is supported by the Infiniti Thermal's ability to transmit multiple, simultaneous video streams in MPEG-4 and JPEG images. Looking specifically at the Thermal Imaging Unit, this has been designed to deliver outstanding performance for night vision, heat sensing and surveillance applications, including the ability to allow users to see what is going on even in testing conditions such as haze, dust, fog and smoke. Featuring an uncooled high-resolution sensor, an athermally stabilized lens and a choice of focal lengths, the thermal imaging unit can potentially detect human-sized heat sources at a range of up to 900 meters. This makes it ideal for long-range surveillance and early warning systems. The CCTV camera module comes with 36x optical zoom and offers 530 TVL and 0.01 lux (Mono) sensitivity and has an excellent field of view for day-to-day surveillance operations. Additionally, with privacy masks, presets and patrols the Infiniti Thermal solution has all the functionality of a precision dome but with the added benefit of its integrated capabilities, in particular the thermal imaging unit. [tim@ad-holdings.co.uk](mailto:tim@ad-holdings.co.uk)



### 16 Channel Network Disk Recorder

Panasonic System Networks has launched a 16 channel NDR – the WJ-NV200. The effortless, 4-stage set up and intuitive operation makes the WJ-NV200 versatile for a range of public locations and ensures ease of use. The built-in decoder and intelligent GUI eliminate the need for a PC, reducing the total cost of ownership and removing time and complication from operation. The NDR also has a strong capability to support security professionals with suspect identification as it supports HDMI for up to Full-HD image resolution with around four times the picture clarity of standard definition images. It is also possible to record to SD card for easy and fast transfer of larger Full-HD footage as well as being a failsafe in case of network issues. Compatible with the company's latest I-Pro Smart HD cameras it also makes it possible to apply real time face matching technology which optimizes the detection of suspects. Face matching essentially becomes like another set of eyes monitoring cameras, freeing up more security personnel time to perform other tasks and helping create a more efficient security operation. [Tom.Gibson@eu.panasonic.com](mailto:Tom.Gibson@eu.panasonic.com)

### Full IP Video

Nedap's Security Controller now has complete IP Video Management on board. With the Access Control and Intrusion Detection with PLC functionality already available, the security controller now features full IP Video Management functionality. Live and stored video images can be viewed by means of Aeos faces, part of the Aeos front-end suite, while offering freedom of camera choice and storage media based upon industry standards. Moreover, images can be stored on an AEpu (controller) attached hard drive, which significantly reduces bandwidth and network load issues. The Security Controller combines multiple security disciplines, such as access control, intrusion detection and video surveillance, on one single controller and within one server environment. Thanks to the company's single security management platform it is no longer necessary to have separate dedicated systems to perform these security functions, making it an innovative and cost effective solution with maximum benefit to the end-user. [ilse.peters@nedap.com](mailto:ilse.peters@nedap.com)

### Modification Implemented

Nedap's Aeos architecture has made it possible to adopt NXP's recent modification to the unique embedded identification number on its Mifare Classic cards without problems. NXP, the supplier of the Mifare cards, recently announced a modification to the UID (Unique Identifier), the unique identification number that is integrated in each Mifare card. The length of this identifier, which was previously 4 bytes, has now been increased to 7 bytes for the new card. NXP expects that the transition to the new card will be completed by the beginning of 2011. Supply of the old cards is expected to continue until the end of 2012 on the basis of limited availability. [ilse.peters@nedap.com](mailto:ilse.peters@nedap.com)

### Detailed HD – Day and Night

Bosch introduced the Dinion HD 720p Day/Night IP cameras, among the first products to be released as part of the new Bosch HD (High Definition) surveillance solution. Equipped with the manufacturer's latest 1/3-inch HD CCD with progressive scan, the cameras deliver sharp, highly detailed HD images combined with Dinion performance. Pixel-by-pixel image processing generates the most detailed images, making it easier for operators to distinguish small features – important when trying to recognize facial characteristics, identify small objects or make out items such as number plates. Also, being true HD, images are reproduced in widescreen format which captures more usable content from any scene. The HD 720p Day/Night IP cameras' advanced digital video processing helps ensure image and color performance are very high, even under challenging lighting conditions. [www.bosch-security.com](http://www.bosch-security.com)



### Access Control Solution Awarded

IEE has won the Security Innovation Award for its Tailgate Detector, an access control solution based on 3D technology at the Security Essen. The award was commemorated at the presentation ceremony held on the evening prior to the fair on Monday Oct. 4<sup>th</sup>, 2010. Applications were assessed by an independent jury of experts from the security industry. Over 90 exhibitors applied for this year's award, which was segmented into three categories: Technologies and Products, Services and Marketing, and Fire Prevention. Applicants in each category competed for the highest recognition in a three-tier ranking of bronze, silver and gold. The company's solution won first place in gold in the Technologies and Products category, fulfilling the award criteria of innovation, user benefit, cost-effectiveness and reliability. [sara.nobels-freeman@iee.lu](mailto:sara.nobels-freeman@iee.lu)



### Electronic Cylinder Lock

The Saltogeo (geo = Global Electronic Opening) electronic cylinder lock is the latest addition to the Salto stand-alone range of RFID locks. It has been specially designed and developed for use with doors where normal escutcheons cannot be fitted or are not allowed i.e. antique doors, certain types of fire doors, some multipoint locking systems etc. Fully integrated with the manufacturer's XS4 platform, the cylinder lock is a versatile, cost effective solution and its compact size and easy installation make it the ideal electronic locking system for almost any type of door. The system offers virtual network capability thanks to the company's Virtual Network technology as well as a choice of ID carriers including Ibutton, Mifare, Desfire, and Mifare Ultralight C. All communications between the carrier and the cylinder are encrypted and secure and built-in NFC compatibility is included on contactless versions. It provides both acoustic and optical signaling through its stylish light ring, with dual colored green/red indication to visually signify access authorization. Available in five different finishes, users can choose from satin chrome, polished chrome, PVD polished brass, PVD satin brass and PVD black. [uksales@saltosystems.com](mailto:uksales@saltosystems.com)



### X-ray Scanners with EU Liquid Detection Approval

Smiths Detection's Atix scanners have been given official EU approval for liquid threat detection at airport security checkpoints. Compliance with the EU's Liquid Explosive Detection Systems (LEDS) Standard 2 Type C means the X-ray systems can be used to scan multiple liquid, aerosol or gel containers simultaneously in trays at carry-on baggage checks with no need for the containers to be opened. The current ban on taking standard bottles of liquid through airport checkpoints is due to be eased in the EU for transit passengers from April 2011. Stephen Phipson, CBE, President of Smiths Detection, said: "This important EU approval is another milestone for Smiths Detection. Our Atix systems offer the advantage of having one solution for multi-purpose and multi-threat security, greatly improving the efficiency of checkpoint operations." The Hi-Scan 6040aTiX and 7555aTiX X-ray were approved following stringent testing by security specialists working on behalf of the German Federal Police Technology Centre in cooperation with the European Civil Aviation Conference. The systems capture multiple views of carry-on or checked luggage in a single sweep. [charlotte.breitwieser@smiths-heimann.com](mailto:charlotte.breitwieser@smiths-heimann.com)





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## PERIMETER PROTECTION

# Government Regulation Changes the Market

## Market Trends and New Technologies for Intrusion Detection

The following information has been taken from the newly released 2011 edition of "The Boundaries of Security", a guide to the intrusion detection industry. Published by Future Fibre Technologies, the report provides security consultants, managers and specialists with clear explanations and up-to-date general background on commonly available perimeter intrusion sensing technologies, as well as valuable research information and data on the global perimeter security market, and market drivers. In addition, it details the emerging intrusion detection technologies, market trends and developments in the intrusion detection industry. The "Boundaries of Security" is available free to qualified individuals from [www.fftsecurity.com](http://www.fftsecurity.com)

### A New Political Environment

Changing political environments and the nature of perceived security threats, new government legislation and rising costs of insurance are all playing a part in shaping the size and defining the segmentation within the perimeter intrusion detection market.

Global, social and political instability along with the ongoing threat of terrorism are increasing the need to both fund and enforce regulation and legislation regarding perimeter security at critical national infrastructure sites. Chemical, petrochemical and liquefied natural gas (LNG) facilities are now being identified as critical national infrastructure and subject to legislation and regulation in many countries and perimeter security is a key component of ensuring the security of these sites.

Critical National Infrastructure sites will also include nuclear power stations, water reservoirs, data centres, transportation hubs etc. An increase in organised protest movements (environmental, climate, economic and the like) is also heightening the need for advanced perimeter security at installations such as coal fired power stations, airports, military and nuclear facilities.

### Growth Predicted for the Market

All of these factors are leading to an increase in the size of the intrusion detection market. This increase is supported by recently released research from IMS Research, which reveals the world market for perimeter security sensors is

expected to grow at a steady rate until at least 2014 with a compound-average annual growth rate (CAGR) in the range of 6 %.

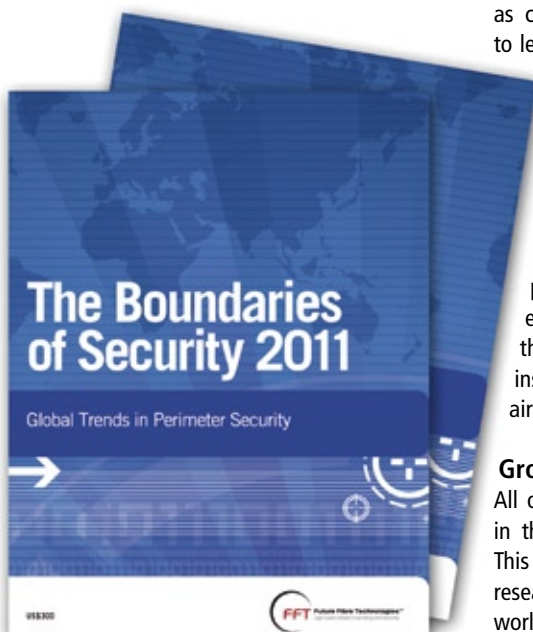
Fuelled by this growth, the technology incorporated into global perimeter intrusion detection equipment continues to evolve and security professionals are faced with the ongoing challenge of keeping up with these latest developments. Historically, the most commonly used intrusion detection technologies include fence mounted sensors, buried sensors, open area sensors and video sensors. New systems use innovative, advanced equipment, and new technologies are being developed and introduced into the marketplace regularly. Some examples of these include Ground Based Radar, and the new generations of fibre optic sensors.

### New Technologies

Today, there is a diverse range of sensing technologies available for perimeter security, varying greatly in their effectiveness, affordability and accuracy. Each has unique capabilities and limitations and it's important for security professionals to understand the subtle differences so they can make informed choices about what system will best suit their individual requirements.

As has long been the case, techniques employed to control nuisance alarms are a major focus of the current crop of intrusion detection systems. In the past, this typically required reducing the sensitivity of the entire detection system during times of high environmental noise. For example, anemometers or wind speed measuring devices were used to 'automatically' increase the alarm threshold in times of high winds. Unfortunately, these measures also reduced the sensitivity of the systems to real intrusions.

Currently, advanced techniques such as artificial intelligence (AI), neural networks and



advanced multi-parameter signal processing, are being incorporated into intrusion detection systems to dramatically improve the recognition of real intrusion events against background activity.

Regardless of the intrusion detection system selected, the need for adequate warning and a response mechanism to an unwanted intrusion remains essential. The basic premise of effective perimeter security remains deterrence, detection, assessment and delaying of an intruder for a response to be initiated. Every perimeter security application is unique and dependent on variables such as the type of facility to be protected, operating environment, perimeter fence construction, intrusion and security history, and perception of threats.

**A Key Factor: The Environment**

One often-overlooked aspect in the design or security systems is the environment. The unique environmental factors for a site that may need to be considered include climate (such as wind, rain, and salt air), animal activity, man-made environmental factors such as human activity patterns, electrical fields, radio or radar transmissions, and nearby vehicle, truck, rail or air movement. Failure to consider all these factors can result in excessive nuisance alarms.

If your installation is in a coastal or other corrosive environment, as many seaports, refineries

and airports are, then the type of perimeter intrusion sensor you select needs to take this into account. For example, copper sensors or communications cables will rot out quickly in salt air and so should be avoided, and any electronics or controllers installed in the field should be completely sealed to prevent corrosion and subsequent reliability issues. Anything metallic, such as camera housings, electronic enclosures and junction boxes, should be avoided altogether or be constructed of UV stabilised plastic or marine grade stainless steel instead.

The protection of these individual facilities needs to be tailored to suit the unique requirements of the site. Site layouts, sensitive areas, facility buildings, the surrounding environment, activity in and surrounding the site, local weather conditions and topography are all factors to be considered when planning a perimeter intrusion detection system. These influence the detection technologies selected and subsequent overall system performance. Often the final intrusion detection solution will consist of several different but complementary technologies to form 'layers of protection'.

What makes up these layers is going to be highly dependent on the customer expectation, the perceived threats and the potential intruders. Operators must adopt a holistic approach to site security, so that each of the elements of a layered security solution are complementary

and work together in unison to provide a strong security regime which protects against both known and perceived threats.

These layers may include a fence, a fence-mounted intruder detection system, some open area or volumetric sensors, some CCTVs, and of course, security staff and appropriate procedures or (Rapid Incident Management System or RIMS) to respond to a situation in a timely manner.

**No System Is Perfect but You Can Get Close to 100 %**

Today, barrier, surveillance or alarm systems can never guarantee 100 % security. Outdoor perimeter intrusion detection systems are expected cope with animals, changing environmental conditions such as being coastal or subject to winds, or alongside a motorway or railway line, and often difficult weather conditions such as lightning, temperature extremes, snow and ice yet not generate any spurious or nuisance alarms. While no PIDS system is perfect, the newer generation systems and technologies are gradually getting closer.

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## TRANSPORTATION SECURITY

# No Place to Hide

## Effectively Scanning Trucks and Trailers



**Our article 'Please Remain Seated' in the March 2010 edition of GIT Security (and also in the May edition of the German-language sister publication GIT Sicherheit) reported on Secura's system for scanning passenger vehicles and lightweight goods vans for contraband and/or dangerous goods. One key aspect was keeping the traffic moving and avoiding delays. Here we look at the larger dimension of scanning complete trucks with their trailers and containers, and the throughput factor is just as significant in the design of larger systems.**

Smugglers are without doubt very creative people. They continue to surprise customs officers around the world with new methods of concealing their wares, be it cigarettes, drugs, weapons or, more seriously, explosives that they are trying to transport. They build false floors and walls into vehicles, create concealed compartments, use multi-layer packaging around normal goods as well as shielding materials in an attempt to make their illegal load invisible.

X-ray scanners have already been in use for many years around the world to illuminate deep within luggage and freight loads and are highly



successful in discovering contraband. Their sophistication has increased dramatically over the years and now provides security and government personnel with detailed images, differentiated

according to the type of material that is found. The sheer dimensions of a truck and the size of its load mean that manual inspection is not an option in all but the most unusual cases. So static portal systems, travelling gantry systems or 'pack-up-and-go' mobile systems are used to sound the alarm if something unusual is discovered.

Scanning gantries such as the HCVG from Smiths Detection that move along the vehicle or stationary portals like the Sentry from AS&E through which the trucks drive, are constructed to cope with the maximum permissible vehicle height – the same as road bridges in the respective country – and can usually be operated by just one or two personnel. It is important to detect dangerous substances or contraband quickly without disrupting the flow of vehicles. The x-ray scanner in stationary portal systems is safe for the drivers as they drive through at just a few mph/kmph, and only turns on once the tractor unit cab has passed the emitter. This ensures that they are not exposed to the strong beam of x-rays that is easily capable of penetrating through the truck's metallic structure.

### The Secrets Inside

Modern truck scanners are capable of detecting all sorts of interesting items that are not intended to be found. Narcotics are relatively easy to find as are any illegal immigrants stowed away in secret compartments (although they will be subjected to significant x-ray radiation). All sorts of weapons, whether they are made of plastic materials or metal, together with the ammuni-

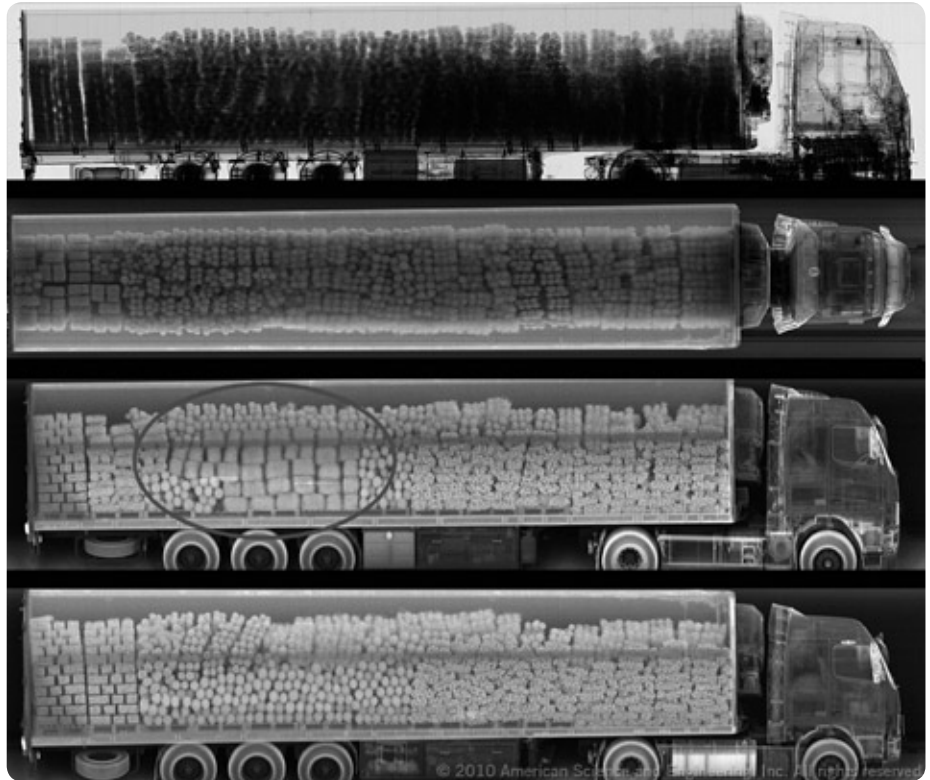


tion or other explosive material that makes them a threat show up distinctly in the operator's display. Radioactive materials emitting neutrons or gamma rays that could be found in nuclear devices or 'dirty' bombs are highlighted.

As organic materials show up differently on the operator's screen, foodstuffs, natural narcotics and, of course, humans and animals will be immediately visible. Stowaways can inadvertently contribute to pandemics, the introduction of non-native species as well as crime and they must be discovered at border crossings. The illegal import of tobacco products, endangered plants, live species or prohibited animal parts continues to rise worldwide and being able to detect these before they enter a country acts as a deterrent to those who are responsible for shipping them.

### The Technology

Apart from x-rays, other identification techniques are also used, depending upon the system manufacturer and the user's specific detection requirements. Gamma-ray radiography is often employed, for example in the Gaeds system from Rapiscan, and this penetrates through aluminum, concrete, soil and to only a slightly less extent even through lead. Gamma radiation detectors are frequently used passively in systems that scan cargo containers, although the sensors are less able to detect nuclear sources if these are shielded. Some quite innocent loads can sometimes show up as potentially hazardous. For example, bananas contain a high amount of potassium which naturally emits the radioactive isotope potassium 40. Even cat litter made out of ground rock contains naturally occurring radium and can appear suspect. For this reason, many systems now employ dual technology to filter out the 'natural' hazards while still being able to detect the real ones. If high



An operator noticed anomalies in the right-side Z Backscatter view, and flagged this vehicle for further inspection. Illegal contraband were seized.

neutron emissions are detected, there is a high probability that weapons-grade material is on board.

### Design Considerations

The continued growth in world trade puts ground space at ports and border crossings at a premium. It would be a luxury nowadays to afford a complete, separate customs building in which to house a scanning system, therefore any newly introduced system must have as small a footprint as possible. If it is going to be placed

directly in the traffic flow, entry and exit must be seamless with the time taken to completely scan a truck and any attached trailers kept to an absolute minimum. Depending upon the expected traffic, systems are available that process between 40 and almost 200 trucks per hour.

Apart from a reliable power supply and a solid foundation, no other infrastructure is normally required for the installation of gantry truck scanners. A cost consideration will be the number of staff required to operate the system. One person will always be required to view the monitor and carry out any analysis of the scan. A second person could be required simply to ensure compliance with vehicle speed and perform general traffic control, in particular where drivers from many different countries with limited language knowledge are passing through.



OmniView Gantry provides four views of the cargo. High-energy X-rays penetrate dense cargo. Z Backscatter highlights organic materials, with photo-like images from three-sides: left, top, and right.

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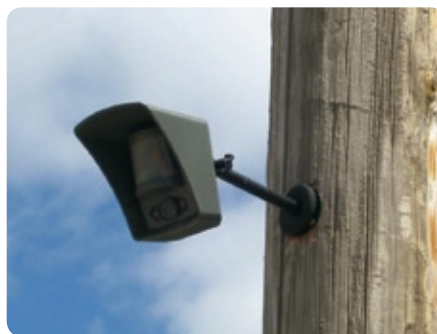


## CCTV

# Cackling Geese and the 'Blind PIR'

## Modern Video Alarm Systems Advancing Worldwide

Some claim the first burglar alarm dates back to 1852. Others argue that the first intrusion alarm dates back to 390 BC when Rome was saved by an "organic alarm system" of cackling geese as invaders attempted to climb the wall. In any event, the security industry exists because consumers are convinced that an alarm system that detects intruders and brings a timely response is a worthwhile investment.



MotionViewer

The time of cackling geese is past and hopefully the alarm industry has evolved with advances of technology but the industry still struggles with three main challenges:

1. False Alarms: over 98 % of alarms in most monitoring stations are false alarms.
2. Installation Costs: installation is often close to 50 % of the total cost of the system in western countries.



MotionViewer

3. Declining RMR (recurring monthly revenue) for monitoring and maintenance services.

New cordless/wireless video alarm systems like Videofied overcome these obstacles and bring new value to the security industry and its customers. However some in the industry are still reluctant to embrace new video technologies and many monitoring stations are still address-

ing the consequences of false alarms rather than the cause of them.

### Caught in the Act

The big push towards wireless video verification is now coming from outside the alarm industry and the success of video alarms is due to two factors; more arrests and fewer false alarms. Law enforcement and consumers value arrests and capturing the intruder in the act. Video alarms make this happen because there is immediate confirmation of a crime-in-progress instead of a standard alarm signal. All law enforcement forces give higher priority to alarms where they believe they will make an arrest. Some governments are going even further and are adopting laws forcing monitoring stations to visually verify their alarm before they can expect any sort of police response at all. What is certain is that law enforcement supports video alarms, and consumers using them will have a greater degree of protection.

In France, the Police is likely to respond to a call from a monitoring station but if it is a false alarm, they fine the monitoring station 450 €. This fine is sent directly to the monitoring station that can pass it to the end-user. Such a heavy fine can kill any business that can't verify an alarm properly. Response and fines are now key selling points in France and the industry has been very aggressive in proposing video alarms to their prospective customers, both residential and commercial.

### Blind or with Video

Since April 2010, the New South Wales Police in Australia have enforced a law that was passed in December 2008. Some companies had been using the local Police and saving their own security personnel, to the detriment of Sydney's tax payers. Now a fine of \$200 AUD has been introduced but the goal is the same; the police want to catch bad guys but not work as a runner for false alarms. In 2009, statistics from the NSW police showed that only 6 % of all alarm activations they attended were genuine alarms. It will be very interesting to see what the percentage will be in 2010 now that the law is being enforced.

In the USA, law enforcement understands the difference between 'blind' alarm systems and video alarms – video alarms mean more efficiency and more arrests. In fact, law enforcement organizations like the National Sheriff's Association recently endorsed the wireless Videofied intrusion alarm, the first time that they have ever endorsed a specific brand of alarm system. Until now there has been a lot of frustration between law enforcement and monitoring stations. Proven results and increasing public awareness are making video alarm systems a new paradigm for both residential and commercial security.

### Efficient Resources

Now it's not just all about the police responding to false alarms; in many areas of the world, police response does not exist and false alarms

are not a government issue. In fact, in most countries the response is done by guarding companies, not by a government agency and the guard response service is something that is sold to the consumers by the alarm company as part of a package. Let's have a look at South Africa where the police seldom respond to alarms and where most of the response is done by a few large guarding companies. The main concern is not with the number of guards (they are patrolling everywhere) but making guard response as efficient as possible. With every home being equipped with at least one alarm system you can expect a lot of false activation.

Video verification is the best way to prioritize guard response, especially in high crime areas. Prompt response by armed response teams saves lives or critical infrastructure instead of wasting time with nuisance alarms. Once your alarm has been visually verified it becomes a 'crime in progress' and not just another activation.

### A Global Trend

More governments are following this global trend towards video intrusion alarms and the reasons are quite simple – more arrests, more efficiency and cost savings. In time of recession, with increasing crime and budget reductions, police forces are being stretched beyond their limits. Charging a monitoring station for a false alarm is a quick solution but doesn't maximize public safety. Video alarm systems that confirm a crime-in-progress are the obvious answer for both the government and the consumer to maximize public safety.

Having travelled to five continents successfully introducing Videofied to 35 countries over the past four years, I can say that wireless video alarm technology is the solution law enforcement and the security industry need. Affordable wireless video alarm technology means the 'blind PIR' will follow cackling geese. After more than a century of history, new technologies are revolutionizing the way the alarm industry works and security companies that don't embrace video alarms may face a bigger challenge, and become extinct themselves.

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## FIRE PROTECTION

# Ignore the Smoke and Detect the People

## VdS Certified Photo-electric Barriers for Fire Security

**Fire barriers such as fire doors and flaps are designed to prevent fires from spreading along corridors, passages or chutes. This kind of barrier usually remains permanently closed, but can stay open in exceptional cases if the protected route is used very frequently. However, an automatic closing mechanism with a safety monitor is then required.**

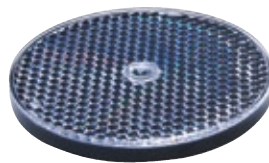
A new generation of fire protection sensors manufactured by Pepperl and Fuchs offer greater reliability and a wider range of functions for applications of this nature. Two new products from the sensor specialists are ideal for safety devices on fire doors and similar fire barriers. The type LA28/LK28 thru-beam sensors have a maximum sensing range of 10 meters and RLK28 retro-reflective sensors a maximum range of 3 meters. The Property Insurers Association has certified and approved both versions in accordance with VdS test report FSA. Some defining characteristics of the photo-electric sensors include outstanding performance and functional reserves, the sensors offer more functions and are smaller than previous models.

### Time to Switch

The product's features include a universal power supply for 12-240 V AC/DC, greater immunity to extraneous light, even from fluorescent lamps, and a high degree of protection to IP67 (dust-proof and watertight). Other important features include new timer functions which facilitate the adaptation of devices to the different technical requirements faced in practical applications via programmable ON and OFF delays with adjustment ranges between 0.1 and 10 s.

The fire protection sensors were designed to reliably detect the presence of people in atmospheres where smoke is also present, because open fire doors should only be closed automatically if there are no people in the passageway. In order to maintain insurance claims in the event of damage, only photoelectric sensors certified by the Property Insurers Association (VdS) are permitted for use in such fire barriers. The property insurers have compiled separate test specifications that relate to a "standard fire": the test objects must prove that they provide sufficient functional reserves to generate light that penetrates through the smoke in a defined smoky environment.

Approval and accessories including: The Property Insurers Association has certified and approved 28 series fire protection sensors from in accordance with VdS test report FSA.



### Ready State

The fire protection sensor can be switched between light-on/dark-on because they operate with red modulated light and provide a floating changeover relay at the output end. Different green, yellow and red LEDs provide the user with information on operational readiness, switching states and correct alignment. A flashing LED indicates that the excess gain threshold has been exceeded. The areas of application for

the new fire protection sensors include installations where safety circuits conforming to VdS regulations are required on devices for fire doors and flaps.

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www.pepperl-fuchs.com



# Intrinsic safety



Hazardous areas where an explosive mixture of air and gas or vapour may be present requires electrical equipment that cannot cause an ignition – not only in normal operation but also in fault conditions. The most common method of achieving this is intrinsic safety.

orbis™ IS (Intrinsically Safe) is a range of conventional detectors which has been developed from the standard range of Orbis smoke and heat detectors, specifically for safe operation in potentially volatile environments. The range has all the benefits of the standard range and remains electrically compatible with Apollo Series 60 IS conventional detectors, but now has Marine Approval and BS EN 60079 accreditation for hazardous areas.

Orbis IS is a demonstration of Apollo's commitment to the market for high quality conventional detectors for use in small to medium size installations. For ease of installation and reliability in daily operation specify Orbis IS.



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WORLD CLASS FIRE SOLUTIONS

EVENT

# ISTSS 2010

## The 4th International Symposium on Tunnel Safety and Security

ISTSS 2010 was held 17<sup>th</sup> – 19<sup>th</sup> March 2010 in Frankfurt am Main, Germany. The conference was hosted by the Fire and Rescue Service in Frankfurt am Main and held at their headquarters. An exhibit, with 22 exhibitors, was organized in conjunction with the conference and housed in one of the vehicle halls at the Fire Station. The conference was well attended once again and attracted 270 delegates from some 35 countries. More than 40 presentations were made during the three day event which was rounded off by a visit to the Fire and Rescue Service's training facility in the Frankfurt Metro. A short summary of the three days is given below.

### Day 1: Risk and Egress

The first day of the Symposium was dominated by discussions of different risk and security issues. The day was opened by Keynote presentations dealing with security issues concerning illicit entry to tunnel systems and the potential impact of an explosion in a tunnel construction on both the structure and tunnel occupants. The first session concerned risks in tunnels, with a focus on risk assessment methods and the transport of dangerous goods in road and rail tunnels. Several case studies were presented including: the Drisko Tunnel in Greece, the Grand St Bernard Tunnel between Italy and Switzerland, and the Hsueh Shan Tunnel in Taiwan. The risk of an explosion was central in several presentations, and the risk of a BLEVE and ability to model the consequences of an explosion in a tunnel, were discussed. Complex environments, where road and rail tunnels meet other transport modes, are treated in a new EU-project iNTeg-Risk which was presented.



Professor Reinhard Ries, Chief Fire Officer in Frankfurt.

Evacuation in complex environments, where occupants are unfamiliar with the geometry of the structure is extremely challenging. Further, if the evacuation takes place under stress, the risk of injury is significantly increased. The final session of the first day dealt with this issue and others associated with egress from tunnels.

### Day 2: Passive and Active Fire Protection

The second day was opened by Keynote presentations dealing with new risks in underground facilities due to new fuels in vehicles and an overview of active fire protection in tunnels. New types of vehicles are already present in tunnels and underground facilities (such as parking garages), e.g. LPG, ethanol powered vehicle and electric vehicles. These new vehicles represent a variety of different, sometimes new, risks in tunnels ranging from the risk of explosion to electric shock. Despite the introduction of these new vehicles into the traffic mix, traffic



Dr Alan Beard receives the ISTSS Lifetime Achievement Award from Prof. Haukur Ingason, Chairman of the ISTSS Scientific Committee.

is still dominated by vehicles powered by conventional fuels like gasoline and diesel. A pool fire of such conventional fuels in a tunnel can also have dire consequences as the fire can easily spread from one vehicle to another. An effective system to avoid pool fires in tunnels by the efficient drainage of fuel spills below the road surface has been tested in model scale and was presented at the conference. The results are very promising showing a dramatic reduction in the risk for a pool fire.

Active fire protection systems have attained a higher level of acceptance recently as an important component in long or busy tunnels in Europe and North America. In Japan and Australia, such systems have been accepted for many years. The use of sprinklers has been the subject of heated debate previously, but the main point of discussion presently seems to be the details of system design rather than whether they are effective or not in tunnel applications. Experi-

ence from Australia, the advantages of sprinkler systems and which technical trade-offs might be possible, were all discussed at the conference.

Passive fire protection has long been the backbone of fire protection in tunnels. Several presentations discussed the challenges of using concrete in tunnels and its performance in a fire. New for this year was the prevalence of papers presenting the use of advance computer modeling for prediction of the performance of both passive and active protection systems. The use of CFD models in designing water flow in sprinkler systems was described. The combination of tests and computer simulation was promulgated in the discussion as necessary to increase our understanding and confidence in computer models to allow the extension of existing models to the prediction of system performance in applications where test data is not presently available

### Day 3: Ventilation and Fire Dynamics

The last day focused on ventilation and fire dynamics and was opened by a description of the use of ventilation in conjunction with fire fighting in tunnels as developed by the Frankfurt am Main Fire and Rescue Services. This was followed by a presentation of fire safety in tunnels in Aus-

tralia with a focus on the Burnley Tunnel fire in Melbourne in 2007, where the sprinkler system had a decisive impact on the outcome of the fire with relatively minor damage. Several presentations concentrated on the calculation of the critical flow in a tunnel for the control of the ventilation in conjunction with a fire. The risk of fire spread and the influence of ventilation on the movement of toxic gases was another field that was discussed.

The day was rounded off with a visit to the Fire and Rescue Service's training facility in the Frankfurt Metro. This visit was the perfect finish of a very fruitful conference.

### ISTSS Lifetime Achievement Award

The ISTSS Lifetime Achievement Award was presented at the conference banquet for the first time. The prize was given to Dr Alan Beard, Heriot-Watt Universitet UK, for his ability to apply fundamental information from fire research to tunnel research and thereby create the foundation for much of our present knowledge of fires in tunnels. His contribution to our understanding of the influence of ventilation on heat release and flame spread in tunnels has been groundbreaking. This is manifested by the fact that Dr

Beard, together with Dr Ricky Carvel, is editor of the prestigious tome "The Tunnel Fire Safety Handbook".

As well as the ISTSS Lifetime Achievement Award, prizes for Best Paper (Jack Mahinney and Javier Trelles) and Best Poster (Henrik Hoff and Gerd Koffmane) were also given for the first time at the conference banquet.

### New York, New York

In the space of a few short years, the ISTSS has become the foremost international conference on safety and security in tunnels. ISTSS 2012 will take place 14th – 16th March 2012 in New York. Book this date in your calendar now and keep an eye on the ISTSS website for more information: [www.istss.se](http://www.istss.se).

Fredrik Rosen

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### Encrypted Key Management

Kaba has developed the Kaba Arios security concept, preventing cryptographic data keys from being manipulated without of the operator's knowledge. Cryptographic codes ("keys"), conventionally defined by people, are necessary for operating RFID systems. They are needed for reading and writing of data on RFID media. In addition, card manufacturers, often third parties, need these keys to be able to produce the required credentials. Knowledge of the key by third parties – and by former employees – is an inherent risk. This is how credentials can be copied without being noticed; hence the key is the Achilles Heel of RFID systems. The manufacturer's security concept fills this gap. A so-called "site key" is generated at random and immediately encrypted in a security card. It is known to nobody, not even to the manufacturer or the system operator, so no one can misuse it. This site key is used for operating the system. It is kept in a safe place, not passed on to third parties. For producing credentials, a temporary fabrication is generated and transferred to the card manufacturer automatically. This temporary key is then recognized automatically by the system and replaced with the original site key at the first booking. Any future duplicates are recognized and blocked. [pet@ksd.kaba.com](mailto:pet@ksd.kaba.com)

### 2.0 Megapixel Network Zoom Camera

Infinova introduces the V6221-G Series 2.0 megapixel network zoom camera. It features a 1/2.5" progressive scan CMOS sensor and a 10x optical zoom lens. Designed for any surveillance application, the cameras capture the smallest detail and provide the horizontal view of several standard definition cameras. For instance, the camera can see and track license plates in changing lighting conditions or view an entire parking lot perimeter with one camera. "This is the camera that our users in retail malls/shopping centers (especially interiors), transportation hubs (especially on concourses), warehouse, all types of lobbies and other high-incident locales have requested of us," explains Mark S. Wilson, the company's vice president, marketing. "Now, Infinova integrators can present a camera with a 2.0 megapixel format to capture greater detail or offer a wider field of view." [www.infinova.com](http://www.infinova.com)



### Self-boarding Gates

Kaba presented its self-boarding gate at Security 2010 in Essen. Today's boarding pass control is done manually by airport or airline staff and presents one of the most time-consuming processes in air traffic. Aiming at an increase in efficiency and a reducing the tiring waiting times to a minimum, the manufacturer has developed a gate solution for automated boarding pass control – the sensor barrier HSB-M03. This gate features a state-of-the-art sensor system. It controls the access of individuals to the security area – only passengers with a valid boarding pass may pass through. Thanks to simple and comfortable handling, passengers may board much quicker now. User-friendliness was a crucial requirement at the development stages. The integrated barcode reader collects data quickly and exactly from usual or print-at-home tickets as well as digital barcodes from mobile phones and PDAs. The display incorporated in the gate shows the single steps in the boarding process with plain pictograms. [pet@ksd.kaba.com](mailto:pet@ksd.kaba.com)



### New Class: Edge Cameras With Workstation

**BUSINESS PARTNER** eyewatch, a German manufacturer of high-resolution intelligent IP video server cameras, presented two newly developed high-tech products for the first time at the Security Essen Show. The two high-resolution camera systems are fully based on IT standard technologies. For the first time this allows to migrate applications to the eyewatch camera platform which were previously reserved for centrally based servers. – The company develops camera systems which allow to move image analysis, intelligence and computational performance from the DVR / NVR to the camera. The user is flexible to install own and external software modules into the camera platform. The Linux system software will allow to transfer adapted applications directly to the eyewatch camera platform. This repeals limitations of centrally-based image evaluation. Evaluation and analysis will be performed locally and directly within the camera. First examples were to be seen at the fair. In the future well-known video-analysis software provider will develop and offer appropriate solutions for the eyewatch platform. You will read a big feature about eyewatch's camera in the next GIT SECURITY. [www.eyewatch-gmbh.com](http://www.eyewatch-gmbh.com)

## FIRE PROTECTION

# Water Mist Protection of Parking Garages

Water Mist Systems Can Be Used for Protecting Parking Garages



Test with traditional sprinklers just before the first sprinkler activated.



Test of water mist, immediately after activation of the first nozzle.



Test with traditional sprinklers about five minutes after activation of the first sprinkler. The direct wetting of the cars on each side prevents the spread of fire.



The fire damage after the test. All the tyres, the engine area and parts of the front of the car have been destroyed, but the system has prevented the fire from spreading to the adjacent cars.

**Fires in parking garages are becoming increasingly common, often resulting in serious damage in the form of direct fire damage and smoke damage. In addition, arson is very common. On behalf of Danfoss Semco A/S Fire Protection, SP has tested a water mist system for protecting parking garages.**

## Standardised Test Method

The tests were carried out in accordance with a standardised test method developed by VdS Schadenverhütung in Germany. VdS is an independent international institute that tests and certifies fire protection and safety equipment. All requirements and standards are developed in conjunction with the insurance industry and international organisations.

The test method for parking garages simulates real conditions in that ordinary passenger cars are used. In this case, scrapped vehicles were used, with all cars being of medium-size type, manufactured in the middle of the 1990s. Both saloons and hatchbacks were used in the tests.

Three cars were parked side by side, about 60 cm apart, under a suspended ceiling. The fire

was started by two pans of heptane, which were placed underneath the centre car and ignited. This gave the fire a relatively fierce start, quickly involving the underneath of the car, all the tyres and the engine compartment. In most cases, the fire also spread to the inside of the car via the luggage compartment. It was, however, uncommon for the windscreen, side windows or rear screen to rupture.

## Comparison Tests with Ordinary Sprinklers

The requirements in the test method are based on the system being tested having much the same efficacy as that of traditional sprinklers. The first tests were therefore performed using sprinklers, and measuring the temperature at ceiling level above the fire using thermocouples.



The temperature was also measured using Plate Thermometers in front of and behind the vehicles, which gave an idea of the risk of the fire spreading. In addition, the body surface temperatures of the cars on each side were also measured. Together with visual assessment of any fire damage, this provides an idea of the risk of the spread of fire between the cars. The centre car was positioned so that it was either directly under one sprinkler or between four sprinklers.

### Fast Response Nozzles Were Used

The water mist system developed by Danfoss Semco A/S Fire Protection has the same design as that of a traditional sprinkler system. The nozzles are closed by a glass bulb, and automatically activated, one by one, by the heat from the fire. However, they are activated at a much earlier stage of the fire than is the case with traditional sprinklers, as the bulbs have a lower nominal activation temperature (of 57 °C as compared with 68 °C) and a lower RTI value (34 m<sup>1/2</sup>s<sup>1/2</sup> as compared with about 90 m<sup>1/2</sup>s<sup>1/2</sup>). The water pressure in the system was 60 bar.

### Convincing Results

The trials with the traditional sprinklers show that they perform well against vehicle fires. As, in principle, the fire is completely shielded from

the sprinkler water by the car body, the main effect of the sprinklers is to prevent the spread of fire and to reduce the temperature at ceiling level. The fire did not spread to any of the cars beside the burning car in any of the tests. The average temperature at ceiling level did not exceed about 100 °C. Figures 1 and 2 show one of the tests with traditional sprinklers, just before the first sprinkler activated and about five minutes later.

The results from the water mist system were comparable with those of the traditional sprinkler system, despite the fact that the distance between the nozzles was greater. In addition, the water discharge density was considerably less. As with the traditional system, the water mist system did not reach the primary seat of the fire underneath the car. However, the system reduces the ceiling level temperature better than does the sprinkler system, due to the higher cooling capacity of the smaller water droplets. The spread of fire between the vehicles was prevented thanks to the direct cooling (wetting) of the cars, and to the good performance of the small water droplets in absorbing thermal radiation. Figure 3 shows the fire in one of the vehicles seconds after activation of the first nozzle, while Figure 4 shows the fire damage after the test.

The conclusions from the tests are that a correctly sized and installed water mist system provides a level of protection that is fully comparable with that of a traditional sprinkler system when dealing with this type of fire risk. In addition, the distance between nozzles can be increased and the total water flow can be reduced.

### ► CONTACT

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## MACHINE AND SYSTEM SAFETY

# Hands Off!

## Safety Camera for Production Equipment



**Jörg Spiegelhalter**  
Product Manager in the  
Industrial Safety Systems  
Division of SICK AG,  
Waldkirch, Germany

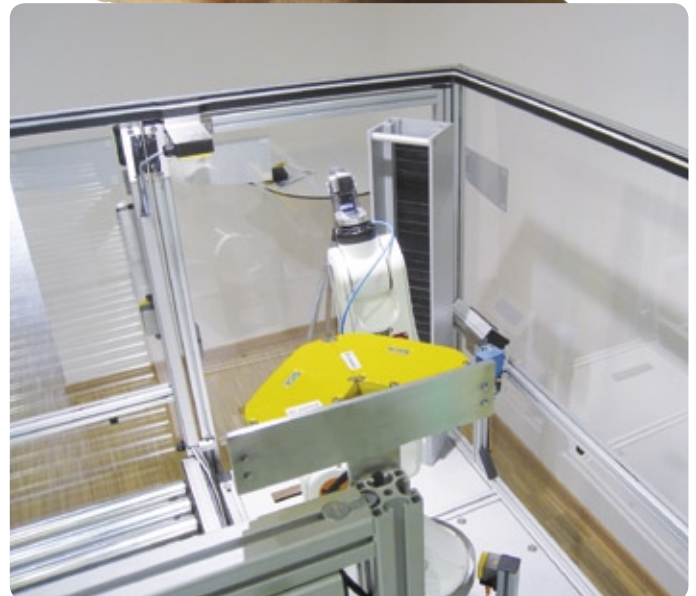
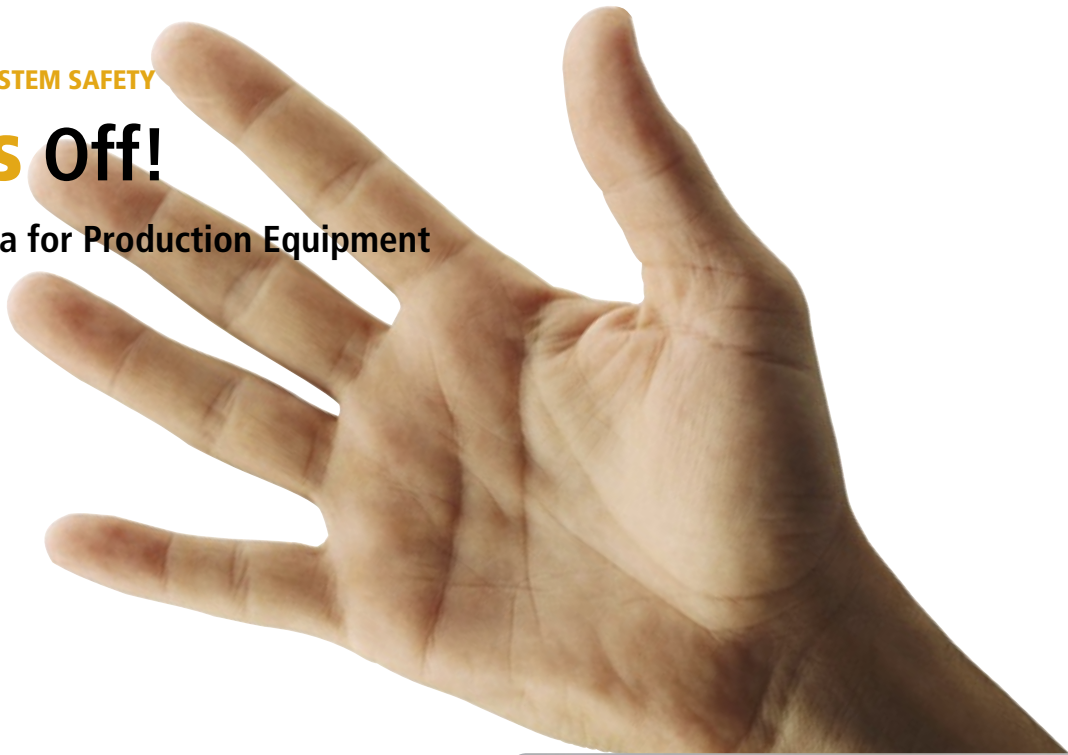
**Manually fed assembly machines, partially automated manual workplaces, handling modules, bonders, or testing and inspection systems have achieved a high level of automation in electronics production. Nevertheless, it remains necessary for operators or maintenance staff to intervene from time to time, e.g. to replenish supplies, for retooling or to correct faults. The V300WS safe camera system not only monitors such hazardous points, it offers the electronics plant constructor new levels of freedom in machine design and provides operators with maximum ergonomomy.**

This improved ergonomic efficiency often pays off rapidly, especially compared to mechanical guards, because cycle times can be reduced by up to 30 % or more, depending on the machine. In addition, as a result of the innovative single housing design of the V300WS – with its integrated image-processing sensor and new mounting, connection and commissioning concepts – it is possible to achieve enormous cost savings per workstation compared to other safety solutions.

### Operator Safety During Regular or Sporadic Interventions

The V300WS is intended for applications on semi-automatic machines in which persons have to intervene regularly during the process or spo-

radically as part of an emergency strategy, therefore requiring Safety Category 3 or Performance Level (PL) "d" according to ISO 13849-1 or SIL 2 in line with IEC 61508. This camera sensor is electro-sensitive protective equipment based on image-processing technology with resolutions of 20 mm, 24 mm and 30 mm. The sensor's transmitter and receiver are integrated in a single housing, as are the supplementary Reset and Electronic Device Monitoring (EDM) functions. The compact, triangular housing allows mounting in or on the corner of a workstation's slotted profile frame, or behind the cladding of a machine, i.e. in places where the sensor is largely protected against impacts or de-alignment. A reflector strip is attached opposite the



180°-protection with two V300WS in a handling system



Turn key safety solution made by SICK including safety scanner S300 at conveyor and two safe vision sensors V300WS.

# MACHINE VISION FOR PROFESSIONALS



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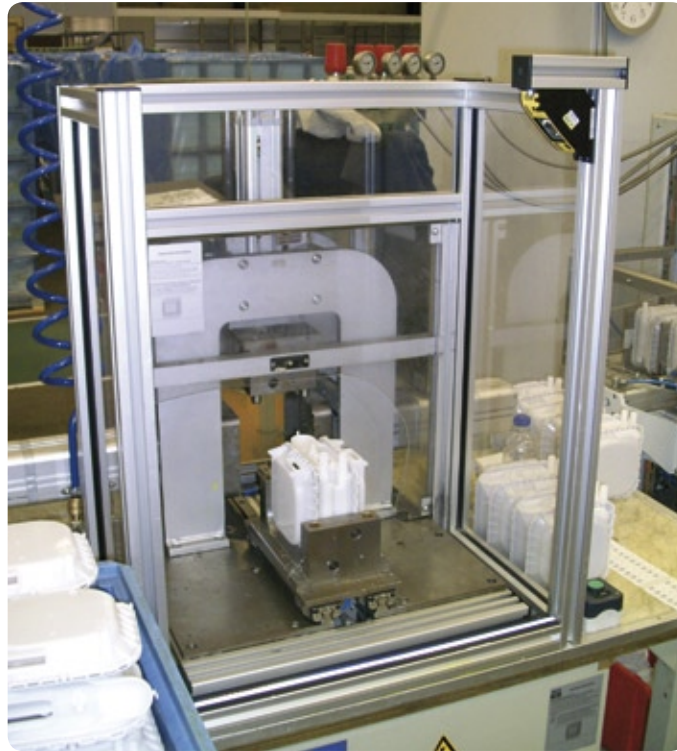
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installation location. The camera system automatically detects the entire length and width of the reflector area and adjusts the monitored field accordingly, even with a maximum off-axis mounting of  $\pm 24$  cm to the machine opening. The V300WS responds within 20 ms when a person reaches into the machine during a processing operation and immediately stops the process.

### Safe "Tailor-made Suit" for Protective Fields of Differing Sizes and Geometries

The V300WS can be used for protecting hazardous points and areas in vertical and horizontal applications within the PL "d" range. Variable protective field heights or lengths of up to 1.5 m; diagonals of up to 2.12 m; two devices in synchronized operation; straight and rounded contours – in all cases, the safe camera sensor's flexibility in terms of the size and geometry of the protective field opens up new levels of freedom during the construction and operation of machines. Whether on coil winding machines, placement machines, bonders, processing systems, panel separators, inspection equipment, in-circuit testers or pad printing systems – the classic, purely rectangular, monitoring scenarios of many machines are now joined by individual "special geometries". These include, among others, cable channels within the protective field; curved geometries, e.g. for preventing stepping behind protective doors; long and very narrow apertures for reaching-in and removing or transferring goods; protection within hoisting ducts; off-axis mounting behind machine cladding; and the monitoring of L- and V-applications by means of two synchronized devices – without a central brace in the corner transition which would impair the work of operators. All these situations can now be dealt with during design – and always with the same sensor! This is also, of course, ideal for reducing organizational effort as well as purchasing, stock-keeping and logistics costs: just one type of device is ordered and just one part number administrated. There are no differing device versions. Type changes are thus unnecessary during both initial and retroactive mounting. Moreover,



The V300WS is intended for applications on semi-automatic machines in which persons have to intervene regularly during the process or sporadically as part of an emergency strategy.

only a single uniform connection cable need be procured, stocked and installed because the transmitter and the receiver are integrated in the same housing. Flexibility is also trumps during on-site commissioning: if the intended protective field dimensions have to be altered due to hitherto unrecognized conditions at the installation location the V300WS can be appropriately adjusted at the press of a button.

### Reduced Commissioning Costs through Simple Mounting and Trouble-free Alignment

Almost no other safety sensor is as easy to mount and align as the V300WS. Only two screws are required to firmly fix the device; a single connection cable must be laid and installed. Alignment of the sensor on the reflector strip is just as easy. Because the reflector strip is detected within a range of up to  $\pm 24$  cm to the optical axis, visual judgment is sufficient for its installation – the time-consuming alignment of transmitter and receiver during initial installation or readjustment is entirely unnecessary. Taken together, this all leads to an average V300WS installation time of less than ten minutes – keeping commissioning costs correspond-

ingly low. In addition, as a result of this detection tolerance, the V300WS can fundamentally always be located where it is exposed to the least mechanical stresses and causes the least trouble for operators.

### Intelligent Indicator Concept Simplifies Commissioning and Diagnosis

In order to achieve maximum throughput performance, electronics production requires efficient and comprehensively automated assembly, handling and inspection processes with maximum availability. This means that solutions like the V300WS must offer possibilities for rapid configuration during commissioning as well as for targeted diagnosis during operation. The safe camera sensor from SICK is thus equipped with a 4-LED display for this purpose. During device installation it supports the teach-in process and shows whether the safe OSSD switching outputs, EDM and Reset functions have been activated. In the case of a warning or a fault it provides clear allocation – and thus allows targeted rapid measures for fault correction. In protective mode, each LED acts as an "in order" indicator for a defined sector of the protective field – ensuring

rapid fault location and correction, e.g. if reflectivity is too low due to strong contamination. The down-times of the workstation are always minimized because fault correction can be carried out very quickly and without expert knowledge.

### SICK Sensors Offer Numerous Solutions for the Electronics Sector

In addition to the V300WS safe camera sensor, SICK's complete portfolio offers numerous other sensor solutions from a single source in order to ensure that automated production and inspection processes in the electronics and solar industries can achieve maximum reliability and availability. Examples include optoelectronic, electromagnetic and ultrasonic sensors and encoders, e.g. for use in handling and process systems. Powerful 1D and 2D code readers provide reliable solutions for the stationary or mobile identification of circuit boards, multiple panels, wafer boxes or solar modules. Then there are the camera sensors like the Inspector (e.g. for monitoring the presence of parts) and Machine Vision – solutions for the three-dimensional high-speed inspection of, for instance, soldering paste on printed circuit boards. In safety terms, a wide range of products are available to ensure an optimum combination of safety, availability and ergonomics on partially automated processing stations as well as on fully automated robot cells. These include electromechanical safety systems, laser scanners or the miniTwin2 and miniTwin4 safety light curtains. Finally, intelligent safety-oriented control solutions (e.g. the Flexi Soft modular safety controller) which open up the most varied of networking and control possibilities for differing safety sensors on a machine, are gaining in importance.

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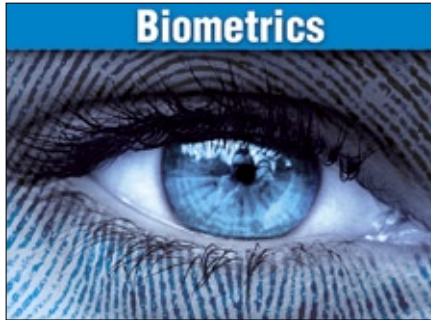


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Fire Protection



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Fire Protection



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Fire Protection



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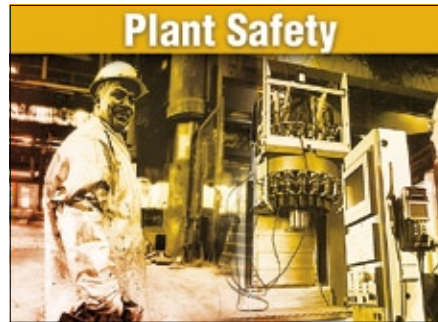


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Fire Protection



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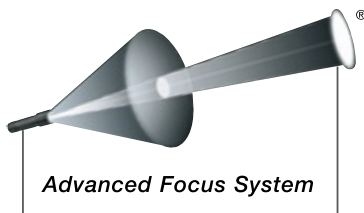
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LED	7 x High End Power LED
Length	395 mm
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Luminous flux	1000 lm*
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Technical Data



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\* Luminous flux (lumens) resp. max. beam distance (meters) in the brightest function when switching on with new set of fresh alkaline batteries. Average values, may vary ± 15% depending on type of chip and batteries. \*\* Average hours of burning life as measured in the least energy-consuming mode and until residual luminous flux amounts to 1 lumen.

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