

Clear vision

Cargo Security International was recently invited to attend the Samsung Vision Day in Lisbon where the company presented its latest CCTV technology, as well as setting out its aims for the future

Samsung Techwin, a division of the much larger **Samsung Corporation**, was founded in 1979 and has its roots in military, as well as photographic, technology. This background inevitably gives the company an edge when it comes to producing surveillance solutions that are suitable for high security applications – which will come in useful if the company is to achieve its goal to become Europe's market leader in closed circuit television (CCTV) technology by 2010.

One of the main aspects of the latest CCTV technology that was shown in Lisbon is its ability to capture quality images in ultra-low light. This feature, which is likely to benefit a wide range of cargo security applications, is facilitated by what is known as 'Samsung Super Noise Reduction (SSNR)'. Images captured in very low light often carry a high level of 'noise' (graininess) which can render an image unusable.

As David Hammond, Samsung Techwin's European Sales Manager, emphasises: 'Noise in CCTV images is one of the most common causes of video material being considered as unreliable evidence, particularly in low light environments. If this noise can be removed, the images will still be usable even at very low light levels. The SSNR technology makes images cleaner and sharper, eliminating the high levels of noise without creating ghosting or motion blur.'

SSNR has been made possible by the introduction of new processing chips known as SV4 and W4 Digital Signal Processing (DSP) Chips. These chips have allowed a whole range of image-enhancing features to be incorporated into Samsung Techwin's new CCTV cameras. These features include: Wide Dynamic Range (WDR), which in basic terms helps prevent objects being silhouetted against a lighter background; Highlight Compensation (HLC), which counters the dazzle of bright sources of light (such as car headlights); and a very high resolution of 560 TV Lines (TVL). The company claims that the resolution is 20 TVL higher than **Panasonic** or **Sony's**

best CCTV specifications, and Samsung Techwin is looking at 570 TVL for 2009, as well as further techniques for perfecting resolution.

Samsung Techwin also has plans to incorporate intelligent detection/recognition technology into its product range. As demonstrated in Lisbon, this technology can detect movement or changes in the CCTV images, locking-on to the subject and alerting the operator. Intelligent detection can be used to alert the system to intruders and objects that have appeared or disappeared from view. This reduces the need to have other costly detection equipment incorporated into the CCTV system. Intelligent detection will also be able to recognise number plates, or vehicles/individuals who are moving in an irregular direction. Parameters can be set for the requirements of individual applications, and the intelligent detection function opens up a whole range of potential applications for securing transportation infrastructure.

Interestingly, Samsung Techwin has developed the 'Intelligent Surveillance & Security Guard Robot' – or SGR-A1 – for the South Korean government's use along its border. The system can recognise an intruder from up to two kilometres away, and attack the target with either its built-in machine gun or non-lethal weapons (rubber bullets or teargas). Although the robot is part of Samsung Techwin's Defense Program, rather than the CCTV division, it demonstrates the sophistication of the company's background.

Of course, having a sophisticated detection function and a perfect CCTV image has limited value unless you have a system that can effectively relay the information back to the operator. Samsung Techwin has developed a Central Management System (CMS) which allows powerful monitoring of the CCTV network. Also demonstrated in Lisbon, the CMS is user friendly, can be accessed remotely via the internet, and will be able to effectively manage the functions such as event detection.

Developing technology for the purposes of securing the global supply chain from terrorist attacks continues to be a multi-

billion dollar industry. While a large proportion of government grants go towards funding systems that scan cargo at key points along the supply chain, the use of surveillance technology is also important in order to ensure that cargo has not been tampered with at other stages of transit.

Last September, the Secretary of the **Department of Homeland Security (DHS)** Michael Chertoff told the Senate Committee on Homeland Security that 'CCTV systems are a critical component of our layered approach to securing critical infrastructure, and we will continue to allow states and cities to fund these systems using DHS grants.'

CCTV technology is already widely used to help secure loading bays at seaports and airports. It is vital to prevent unauthorised access in these areas, and it occasionally may be necessary to carry out surveillance on suspect transportation workers. Loading bays are usually floodlit 24/7, and CCTV systems would benefit from features such as highlight compensation, as well as intelligent detection technology for securing perimeters from intrusion.

Chertoff also told the same Senate

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committee that the DHS remains concerned that 'a small vessel could be used to launch a *U.S.S. Cole*-style attack against our maritime infrastructure or to smuggle dangerous weapons, materials, or people into our country.'

Samsung Techwin's low-light technology combined with the event detection function would make its CCTV cameras very suitable for monitoring activity in ports. Not only could event detection be used to identify vessels moving in an irregular pattern, but the ability of the cameras to zoom out (up to 37x) in very low light would allow vessels to be monitored when entering port at night.

Aside from counter-terrorism measures,

securing cargo from theft is another key application for CCTV systems. Road freight crime is an ongoing problem in the UK and it is estimated to cost the British economy up to £250 million (\$500 million) per year. Both truck stops and truck depots are targets for freight crime, and many of these facilities have started to use CCTV technology as a deterrent.

When it comes to criminal identification and conviction, as well as the quality of the CCTV evidence, the ability to prove that the images have not been manipulated is of great importance. As well as the new image enhancing technology, Samsung Techwin's latest recording systems feature an encryption function that ensures the CCTV footage has not been tampered with.

There are clearly many applications for advanced CCTV technology in securing the global supply chain. Low-light recording and event detection are two features that may be particularly useful in this field. Consequently, cargo security is no doubt one of the many markets that Samsung Techwin will be targeting in order to achieve its aims for the near future.

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Techwin Technology



The difference is **clear**

Eliminate Noise with SSNR

When light levels are low, noise can make video images unusable. It is usually the "snow" type effect that renders an image unusable before the actual darkness does.

Samsung Techwin's Super Noise Reduction technology delivers clean and sharp images in very low light conditions

PLUS:

No Ghosting or smear. Low Recorded File Size. WDR Technology
126 times more powerful than in standard cameras.

Click online to see the difference

www.ssnr.co.uk

No Noise

No Ghost

No Smear

No Contest



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