Video monitoring keeps track of goods.
Axis cameras are used to optimize the logistics processes.

Organization:
Migros Verteilzentrum
Suhr AG

Location:
Suhr, Switzerland

Industry segment:
Industrial

Application:
Video monitoring
of logistics process

Axis partner:
SeeTec

Mission

Migros Verteilzentrum Suhr AG in Switzerland was looking for a video monitoring system to supervise its automated conveyor system. The company intended to use the system to remedy – and if possible prevent – frequently recurring faults. The best solution for Migros was 32 Axis network cameras with a corresponding SeeTec software system. Since installing the digital video monitoring system, material flow faults have been detected more quickly and analyzed more effectively. Loss of goods has also been reduced.

Migros is the leading retailer in Switzerland and has outlets in every canton. The Migros distribution center in Suhr (MVS) has one of the largest and most highly specified installations in Europe and is responsible for supplying some 590 sales outlets in the colonial (dry) goods sector with merchandise on demand. Every day, up to 250 lorries and 60 rail trucks leave the MVS and up to 100 lorries and 80 rail trucks bring goods in. An automated conveyor system runs over the 80,600 square meters of the logistics area, bringing goods on

Euro pallets to their destinations on time. The conveyor system is subject to frequent faults in daily operation and these interrupt the flow of goods. The area is large and the processes complex, so that it can take quite some time to find the cause of a fault and get the system running properly again. This all costs time and money, which is why MVS decided to use video monitoring as an aid. Cameras were to keep an eye on the movement of goods at the most sensitive points so that faults could be tracked down and rectified more quickly. In addition, the images would be used for process analysis and optimization.

Solution: Digital video monitoring provides greater flexibility

The key requirement for Migros when choosing the video monitoring system was an ability to support subsequent modification and expansion. The company was searching for a forward-looking design that could be incorporated into the existing network and would offer potential savings. "We finally opted for a digital solution with

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"We first thought of having a conventional analog video surveillance system. But after taking a closer look at the video monitoring systems that were available on the market we realized that a conventional system could not fully satisfy all of our requirements and that a digital solution had a number of additional advantages."

Daniel Urech, Continuous Improvement Process (CIP) Manager at MVS.

Axis network cameras and SeeTec software. The flexibility of this technology means we can adapt the system to our customers' requirements without a large outlay on installation. In addition, the cameras' PoE (Power over Ethernet) option offers additional potential savings" says Urech.

The SeeTec system was installed in less than two weeks and has been in operation since July 2006. It uses 32 AXIS 210A Network Cameras. These can be powered via the network. They are built into a weatherproof housing to protect them from dust. The software includes useful functions such as a map of all cameras for graphical operation, representation on multiple screens, personal screen display settings, search functions by date, event or camera and a "tour of inspection" which displays a pre-determined sequence of camera images on the monitor.

"It was also important to ensure that sensitive areas such as workstations or refreshment areas were not monitored," explains Urech. This was achieved by programming the camera to black out the relevant portion of its image. Images cannot be manipulated, even retrospectively. As Magnus Ekerot, Managing Director of Axis Communications in Germany, Austria and Switzerland (DACH), points out: "Data protection is vital in our sector. Every effort is therefore made to comply with the provisions of the law on data protection as it applies to video monitoring. During product development, for example, we attach great importance to the ability to set certain parameters for our Axis network cameras so that the various data protection requirements can be met."

Result: Separate network needed

To avoid overloading the operating network, video data must be transmitted over a network of its own that is both physically and logically separate. A second network was set up using existing electronic cabinets. There are five points in the logistics center where a number of network lines from the cameras run together. From there, the data is sent on to a RAID-5 server with 900 gigabytes of storage capacity. This is where the SeeTec

5 server software, the heart of the system, works. The network's bandwidth, which has been very generously dimensioned to accommodate future expansion, is one gigabit/s between the collection points and 100 megabits/s to each individual camera. The video data is called up by the client software that is installed at the workstations.

The monitoring center was set up in the logistics system's control station. This is a room where a number of staff keep an eye on events shown on four screens. The screens are set up in such a way that three of the monitors display images from four cameras and one monitor shows a defined "tour of inspection." The images are stored for a week and then automatically deleted. "The schedule for deleting alarm images or images from particular cameras, for example, can be defined individually, depending on the user's requirements," explains Philipp Hegglin, Channel Manager at SeeTec, describing the possibilities offered by our software.

The lighting conditions in the Migros distribution center was an important consideration when selecting the cameras. Camera type is selected on the basis of light conditions, which, in this instance were good (24-hour artificial light). The ideal choice of camera was therefore the AXIS 210A. "Under internal lighting conditions the AXIS 210A produces high quality images. It also has a progressive scan CCD sensor and a powerful processor for real-time image processing. This gives us a maximum rate of 30 images per second even at VGA resolution," explains Ekerot.

Failure rate consistently minimized

Faults in the conveyor system can be located and dealt with much more quickly. The logistics center is seen more as a whole and this means that staff can detect critical situations earlier and take prompter action. "Since we have been working with a video monitoring system we not only have a more reliable process cycle but process optimization has improved," reports Daniel Urech. "Our failure rate has fallen and we hope to introduce even more improvements in future."

"The images can be used for various purposes. The software's playback function permits backwards or forwards image replay. Defined sets of images can also be converted to video clips and frames can be exported in JPEG format. In addition to the standard zoom setting, images can also be printed out and multiple images, from four cameras for example, can be created." Philipp Hegglin, Channel Manager at SeeTec.

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