Mine

Dallmeier CCTV/IP solutions for the mining industry

Diamonds, platinum, gold – not only women's hearts leap for joy on hearing these words. It is a long way, however, before the treasures from deep beneath the earth finally reach customers worldwide. It all starts in the numerous mines around the globe. State-of-the-art video security technology by Dallmeier is used to watch over the mined natural resources at all times.

Gold, platinum and diamond mines could not be operated without video security technology. Its main purpose is to prevent losses during the mining process and the sorting procedure. CCTV also proves highly useful in regard to health and safety at work or the investigation of damage events.

Highest security in the red area

The most secured area within a mine is the so-called red area. This is where the mined material is sorted. Unfortunately, workers often line their own pockets, and they are very inventive in doing so. One popular trick, for example, is to swallow the precious materials. The workers' hands move so fast that the motions can hardly be spotted with the eye. Often, the relevant video recording is the only way to prove a theft by viewing the individual images.

This illustrates how strict the requirements regarding video surveillance in this context are. The cameras must produce high-quality and detailed images. On the other hand, it is crucial that the recording devices record with a high frame-rate and highest failure safety. On top of that, large machinery and numerous floodlights mostly create difficult lighting conditions.

The DDF3000AV4 by Dallmeier is a high-resolution UWDR colour mini dome which is able to cope with the difficult conditions in mines. Through its innovative Cam_inPIX® technology, whereby each pixel chooses its own exposure time, the camera provides clear and detailed images without any blooming or smearing, even against backlighting and under constantly changing lighting conditions. Furthermore, the DDF3000AV4 is vandalism-protected and hence extremely robust and resistant.

Continuous recording must be ensured throughout the "red area". In order to guarantee the high availability of the recording, Dallmeier banks on the highly available storage directly at the encoder. In this case a DIS-2/M UTP, a modular one-channel recording and transmission system in 19" rack slide-in design. The recording is network-independent and continues even in the event of malfunctions or a complete network failure. So as to further increase failure safety a mirrored recording on site is possible. In combination with the Dallmeier storage systems (DAS-303) it is possible to increase the security of the complete system, for instance through a threefold recording.

Apart from its reliability, the DIS-2/M also convinces through its high image quality, for the recording takes place in real-time and broadcast quality (MPEG-2/MPEG-4) i.e. with 25 fps at PAL resolution (30 fps with NTSC).

Suitable solutions for all areas: Search Lanes

Dallmeier offers suitable products to monitor the entire mining operation. Most mines have strict access regulations and procedures to curb losses, of both product and materials of value. Passing to and from sensitive areas mine workers have to go through random searches, all these search lanes are monitored by high-resolution cameras, whereby high-quality audio recordings are also made. This is done in order to monitor the search processes and identify any collusion between the security personnel and the mine workers.

Process Monitoring

Furthermore CCTV is widely used in monitoring the various processes in the refinery area. This area is hazardous and requires an eye on the operation should any problems occur from an automation point of view. Typical applications include furnaces, conveyor belts and grinding machinery.

Mining Perimeters

Owing to its open and flexible system architecture Dallmeier systems can easily be integrated into third-party systems. A major area of concern in the mining industry is the effective monitoring of the perimeter fences. Dallmeier products seamlessly integrate with all major early warning intrusion systems deployed on perimeters such as kinetic systems, fibre intrusion detection and electric fences.

Anyone entering the outdoor area of the mine, the so-called "green area" is already watched by cameras. In that area the focus is on a general surveillance whereby faces must be clearly identifiable. For this purpose, however, a recording with one or two frames per second will usually be sufficient. In the pre-sorting area the precious materials are already present, although in a rough form and not obvious yet. There, the recording is normally linked to the access control system, which means that the recording only starts when someone enters the area. The access data of the person are subsequently linked with the video image so that the security personnel always have the personal data as well as the image at hand. Thereby, the integration of the access control into the video security system is no problem. Owing to its open and flexible system architecture Dallmeier systems can easily be integrated into overriding management systems. The same applies to the integration of third-party systems into a Dallmeier installation.

Safety at work and confirmability of damage events

Using state-of-the-art video security technology, it is easy to monitor whether safety regulations at work are adhered to. It can be quickly checked, for example, if all employees who work with high-temperature machinery, always wear the mandatory garments.

Moreover, very expensive, high-performance machines are used in mines. In the case of an accident such as an explosion, the recorded image data allow for a fast and straightforward investigation of the cause of the malfunction.

Apropos: Video surveillance in mines is never conducted secretly. Anybody entering a mine is made aware of the surveillance and gives his or her written consent.

Perfectly secured

It is not unusual for a mine to operate more than one thousand cameras. Trained security personnel are permanently monitoring the images. In order to prevent workers from teaming up with security operators so as to be able to bypass the security measures, the security centre is generally divided into different organisational levels. They in turn check on each other, according to the four-eye-principle.

With the Dallmeier recording devices it is possible to set up different, password-protected access levels. This possibility accounts for the complex controlling tasks in mines and ensures that every security operator has the access rights necessary to perform his or her duties.

Future-ready

An exchange of existing systems or a migration to an IP solution can also be made gradually so that the video security system can be adjusted to individual requirements and available budgets. At customer's request, a new system can be operated alongside the existing installation in order to train operators on the novel system. During the commissioning of a new system, it is ensured that the continuous recording carries on without interruptions.

Owing to their modular and flexible design Dallmeier systems can be kept up-to-date for many years and thus offer a high level of investment protection.