

Integrated Site Video Management

Focused Solutions for the Cement Industry

The extension of plant and terminal operating hours made possible by unattended automated systems has increased the need for effective video management. The most common reasons for video monitoring are:

✦ **Security** The most obvious use of video surveillance is to enhance site security. Recorded video answers the question of who is on your site and for what purpose.

✦ **Process Troubleshooting** Cement plants have been using video cameras in strategic plant areas for many years to monitor remote operations such as belt conveyors and stacker/reclaimer operations. While this video is seldom recorded, operators are now finding that stored video can be a very useful tool in post event fault diagnosis. In terminal operations, spout cameras are often recorded for review following equipment damage or dusting complaints. Cameras placed low in loading alleys can serve the dual purpose of recording spills from open truck valves and capturing rig identification.

✦ **Safety** In unattended operations, recorded video may be used to ensure employee and/or vendor compliance with safety regulations and for legal review of safe practice following an incident. In cement terminal operations cameras are commonly sited to record the use of safety stands for hatch opening and the use of Personal Protective Equipment (PPE) by drivers.

✦ **Customer Identification** First generation unattended loading systems utilized the capture of a driver signature for identification purposes. With the advent

of *touchless* loading and receiving operations, it is now becoming more common to capture a photo of the truck and license plate and to place this picture on the Bill of Lading (BOL).

The case for Ethernet Video

Recent advances in computer technology have now reduced the price of Ethernet connected (IP) video cameras to the point where they are very cost competitive with traditional analog camera systems. IP camera video speeds and resolution are as good or better than their analog counterparts at the same price point. The elimination of long runs of coaxial video cabling and the availability of Power over Ethernet (POE) cameras has reduced installation costs and has enabled IP cameras to be placed almost anywhere that a network cable is available.

These benefits do not come without cost, however; as the rapid deployment of IP video systems without regard for their impact on available Ethernet bandwidth has resulted in many critically overloaded plant networks and frustrated users. The key to effective use of IP cameras is to implement a solution which supports intelligent frame rate control and event based recording for bandwidth management.

Integrated Video from Process Solutions

With the introduction of video monitoring into our Self-Service Loading kiosks in 2001, Process Solutions went looking for a software application to record and playback video from several cameras at each site. Unable to find a suitable application, and recognizing the critical need for video storage, we took the step of writing our **Video Capture** application.



Safety Stand Cameras



TPZ Camera with Gooseneck Mount



Partnerships in Cement



This program simultaneously connects to as many as 40 IP video cameras or analog cameras connected to IP video servers and records the camera video at individually specified frame rates. Video is compressed by the application into AVI files that can be played back directly with Microsoft Media Player™ or virtually any other PC based video application. Video can also be recorded to DVD format for archiving and can subsequently be reviewed with a standard home player.

Frame rate control allows critical cameras such as those used for safety stand monitoring to be recorded at higher frame rates than those used for general site monitoring. What is more, our Video Capture application supports event based frame rates which allow the recording of video at different frame rates based on Time of Day, process events such as truck presence on a scale or belt overloading or integrated application events such as the printing of a Bill of Lading. Frame rate control reduces the impact of the video system on the plant or terminal network and also results in significantly higher compression rates. At a typical large terminal operation with 10 cameras, the disk storage requirement for 60 days of 24 hour video is less than 90 Gb.

It is very frustrating to find a specific video clip from many thousand candidates or to scroll to the desired portion of a very large video file that can also be very slow to load. The Process Solutions Video Capture application aids in this process by automatically breaking large video files into smaller segments based on camera and time or event as well as providing disk management to organize the files into folders.

As the effective management of video storage is only half of the site video puzzle, Process Solutions also provides **Video Monitor**.

While the ability to directly view video on a web browser is seen as one of the large advantages of IP Video, this feature can cause major IT headaches as networks become clogged with casual users viewing video at high frame rates. Video Monitor addresses this issue by providing a matrix view of several cameras simultaneously and restricting the frame rates of those video

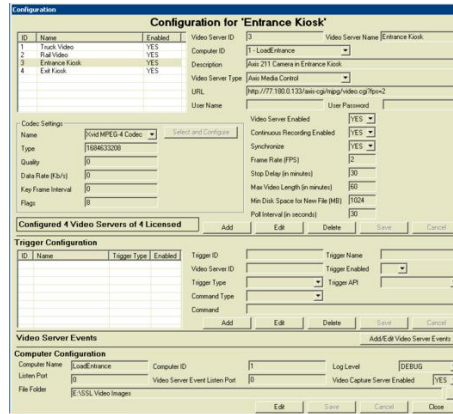
streams to manageable levels. While small video frames are sufficient for casual monitoring, it is often necessary to view a specific video in a larger format. In the Video Monitor matrix view, a small video may be selected for viewing in a larger window at the click of a button.

The low bandwidth feature of Video Monitoring makes it an ideal application for off-site monitoring. The Process Solutions Video Monitor can simultaneously connect to several cameras at one or multiple terminal sites to show an overview video at the very low frame rates that can be supported over Wide Area Networks. This feature can allow a terminal manager to

easily connect to their terminal site via a VPN in order to monitor loading, assist a driver, or respond to an alarm.

Providing a powerful, cost effective method of monitoring and recording video at an industrial site, **Integrated Video Management** is yet another reason why Process Solutions should be your choice for plant and terminal logistics management.

If you would like to discuss your requirements with us, or find out more about our solutions, please visit our web site at www.psc1.com for a complete list of contact personnel.



Video Capture Application