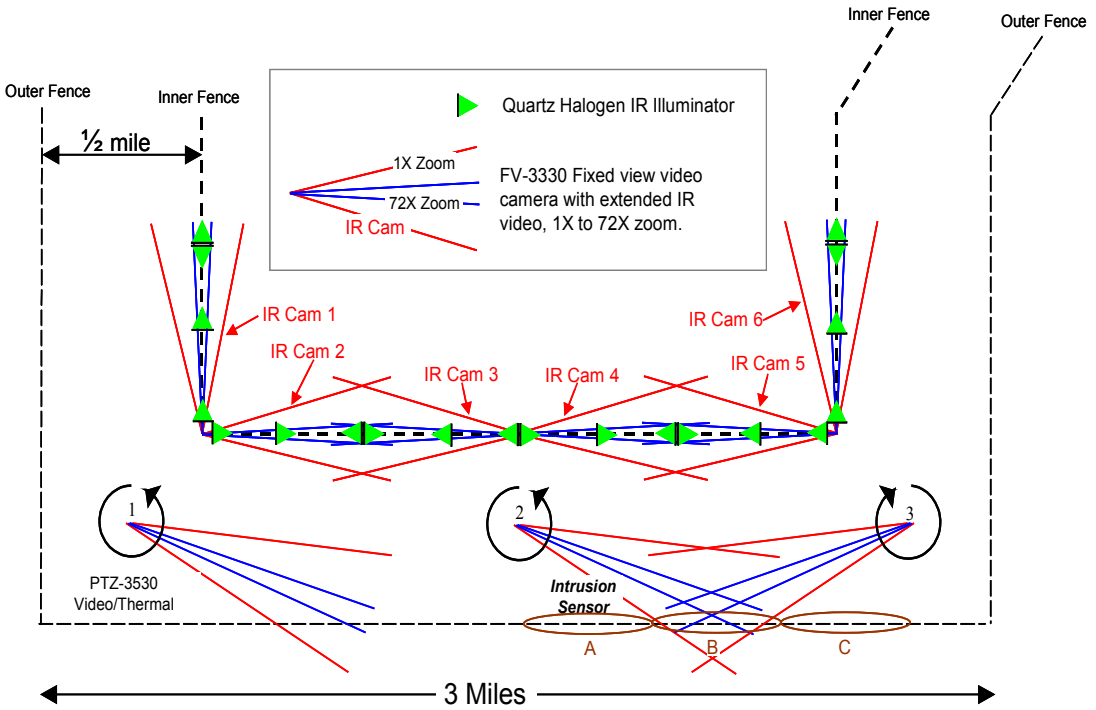
Critical Area Security

The comprehensive military facility security system shown below employs two imaging techniques: video cameras with extended IR sensitivity that can be used with invisible, low cost IR lighting, and thermal imaging cameras that can operate in total darkness. The extended IR cameras provide superb video and include a 72X zoom for extreme close-ups. Their operation in very low light is excellent without illumination, but performance is vastly improved by companion IR illuminators that can provide around 600 feet of illumination in a 300 degree pattern. The thermal imagers can resolve a person at about a kilometer distant in total darkness without illumination of any kind.

IVC manufactures multiple IR sensitive and thermal imaging devices for advanced surveillance situations.



IVC INDUSTRIAL VIDEO & CONTROL

Critical Area Security

Intrusion sensors placed on perimeter fences trigger alarms and are used to perform automatic actions such as PTZ camera movement, e-mail notification, light and audio activation and video archival.

Outer Fence and Between-Fence Monitoring

The outer fence can be protected by a variety of intrusion sensors including motion detectors, pressure sensors, vibration detectors, and the like. An alarm from any intrusion sensor, such as "B" on the outer fence in the figure above will automatically cause the appropriate PTZ Thermal/Video cameras to point at the alarmed area. The video cameras will automatically zoom to an appropriate level for pre-composed daylight views and the thermal cameras will provide excellent views in total darkness and during rain, all without illumination of any kind. Viewers will automatically see composite views of the several cameras that are within viewing range.

Inner Fence Monitoring

The inner fence area is fully monitored by a number of extended IR video cameras each with a 72X zoom but no pan tilt. They are fixed-positioned to view along the fence and their views are illuminated by a series of IR illuminators that can all be switched on at dusk. Alternatively, appropriate groups of illuminators can be automatically switched on upon a signal from an intrusion detector similar to the outer fence, and/or manually as desired. The lighting patterns can be programmed to avoid back lighting. This approach significantly reduces operating costs compared to incandescent lighting and unwanted light pollution.

Camera Management

The live video and thermal images are fed to an IVC Relay Server that provides continuous storage of all video for later retrieval. Alarm triggered, manual, or scheduled snapshots be taken. Continuous touring of designated areas by the pan-tilt cameras with snapshots at each stop and continuous video storage. Access to the video system via remote PCs, wireless PDAs, SCADA systems and other interconnects is part of the base system.

Video Analysis

Sophisticated and continuous analysis of all video streams can automatically detect "left-behind-objects", "removed objects", unauthorized movement of vehicles and personnel, movements across "virtual barriers" and other rules based determinations. This software allows an operator to mouse-draw a boundary around a harbored ship or tied down aircraft and the system will detect violations of the boundary.

Critical Area Security

Lon-Lat camera control

Third-party systems such as radar and GPS-based systems can be connected to the IVC system to cause the cameras to operate in coordination with other systems.

Connectivity and Deployment Options

The system is entirely IP-based and can be deployed using any combination of copper, fiber, encrypted radio, and encrypted satellite connectivity. Choices will depend upon distances, topography, security, and current infrastructure. The system architecture provides very high system security and immunity to single point failures and sabotage.

Scalability and Upgradeability

The system is completely scaleable. Any number of cameras of any type can be added or moved as needed. The open TCP-IP architecture makes it possible to add new functions as they are developed.

Operation

Again, the system can be configured to monitor and respond in a variety of ways. The following is a description of the large area security system pictured above.

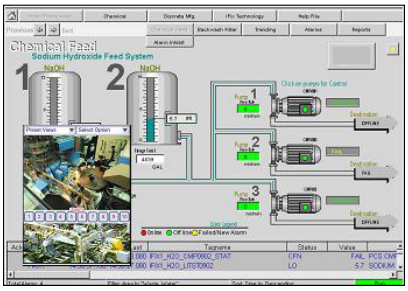
Alarm Condition – Outer fence and between-fence areas

If intrusion is detected, the closest cameras will automatically interrupt their tours and capture views of the intruded area. The video cameras will automatically zoom in. Alarms will be initiated and video will be distributed to designated PCs and saved. IR or conventional lighting can be switched on automatically.

Video Views

The video and control displays can be configured to any combination of single or multiple video displays. The displays can be dynamically controlled by the intrusion system to present the most significant views and to overlay response instructions. Video and control panels can be presented on PC monitors, large flat panels, very large plasma displays, and wireless PDA displays if enabled. Again, the IP architecture makes it possible to interface with the system from field sites or other unanticipated control stations.

Critical Area Security



IVC's video management software is fully compatible with ActiveX, allowing seamless video integration into SCADA systems and other HMIs.

Non Alarm Condition – Outer fence and between-fence areas

The IVC Thermal/Video cameras are programmed to constantly or occasionally "tour their area". The video camera will operate normally during the day and switch to low light mode at night whereby they provide excellent color video even in very low light. During rain or in total darkness the thermal cameras will provide excellent, long views. The pan-tilt cameras can be equipped with directional, "spot" IR or conventional lights that point with the camera. Video will be constantly saved and snapshots can be programmed.

Alarm Condition – Inner fence

If an intrusion is detected, the appropriate inner-fence camera will be automatically selected for display. It will have automatically zoomed to the intruded area and appropriate lighting will be switched on. Video will be stored. Also upon alarm from the inner-fence, the appropriate, outer fence pan-tilt-thermal-IR video cameras will seek and present views of the alarmed inner-fence area, and their thermal images and video will be stored.

Non Alarm Condition – Inner fence

The fixed video IR cameras will provide excellent views above and to both sides of the inner fence. The cameras can be automatically zoomed from a 1X image with a 480 view, (240 to each side of the fence), to a 72X close-up view of the alarmed area.

At night the camera is operated in the low light mode or in the illuminated IR mode as necessary. IR lighting along the entire fence can be switched on, or lighting for a selected camera can be automatically switched on as desired. This can reduce costs, avoid back lighting conditions, and avoid light pollution. Video is stored continuously for later playback in fast, slow and stop action modes.

Annunciation and Responses

All of the traditional modes for alarm annunciation are available plus a broad selection of enhancements such as alarm logging, remote viewing and camera control from off site and/or from wireless pocket annunciator/video viewers for on site staff, automatic response instructions, automatic e-mails to designated staff against staffing calendars, and virtually any additional response that is required.

Auxiliary Interfaces

The IVC system includes an ActiveX control that enables integration of live video and camera controls with SCADA HMI screens. Customers have integrated IVC video systems with GE Simplicity, Wonderware, Iconics, Citect, Intellution, ABB-Bailey, Allen Bradley, Emerson, Rockwell, etc. SCADA systems as well as other security, communications, and facility management systems.