



Security Management

Network operations organizations manage thousands of unstaffed sites. The security of these sites (cell sites, towers, hub locations, sub-stations, microwave sites, or other unstaffed sites) is becoming extremely important to service providers and tower operators to protect site equipment and ensure personnel safety.

The risk of theft and vandalism of fuel, copper, and site equipment has been increasing which can cost thousands of dollars or more in loss or damage per incident. In addition to the cost of stolen tangible items, intangible items are also extremely costly such as site outages and loss of network availability.

The Kentrox security management solution provides the applications needed to help monitor activities at remote sites and provide information to enhance site security. The applications use the Optima management system and Remote suite of products from Kentrox to provide the following:

- Access management
- Asset tampering
- Surveillance management

Security management applications

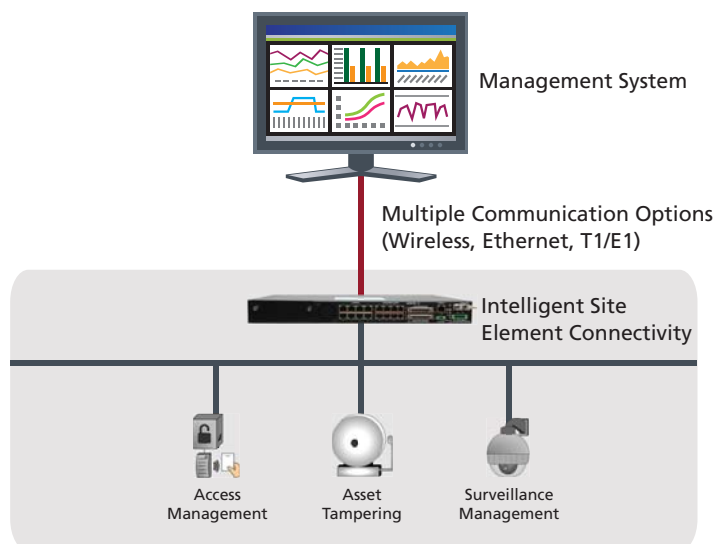
Access management

Understanding who is entering a site is critical to maintain control of sites and assets. The Kentrox access management application monitors all access to a site (authorized or unauthorized) and specific areas within the site (fence, gate, shelters, and every door). The number of times and duration of each access is logged to provide historical trending by site and site areas.

Some of the many benefits the Kentrox security management solution provides include the following:

- Allows remote management and control of authorized and unauthorized site access
- Provides safety precautions when authorized visits are required
- Helps prevent copper theft and vandalism
- Provides video surveillance of site conditions and potential issues

Kentrox Security Management Solution



Security Management

The access management application can also incorporate a visual and audible deterrent alarm system that is triggered when unauthorized person(s) are detected entering the site. A siren and a flashing or flood light will continue until someone either grants access or after authorities have been notified and are onsite.

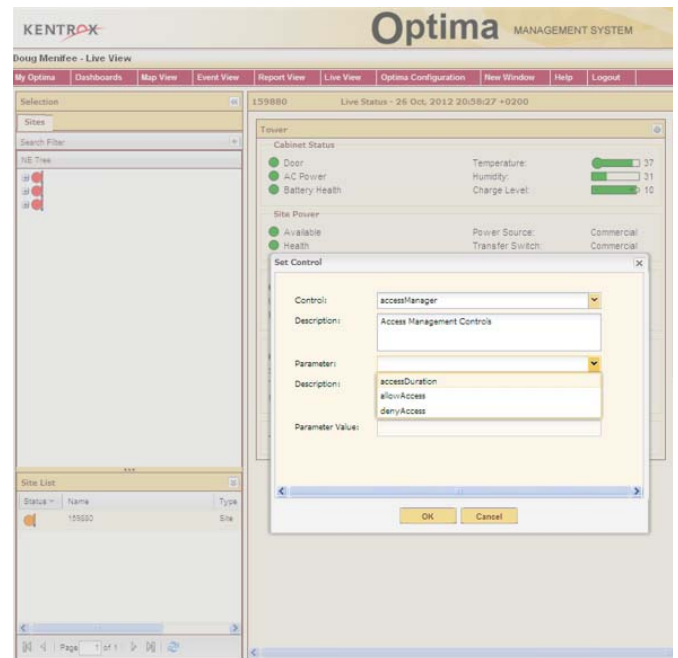
The ability to remotely approve authorized access to a site is possible and important, especially when an emergency visit or unscheduled access is required. With the remote access and control capabilities, card and keypad access can be granted to someone onsite by approved network operations personnel. This reduces the costs associated with hard keys and contractor escorts. The application can also integrate with existing enterprise access control systems, reducing the need for additional monitoring equipment. By monitoring magnetic and mechanical door-strikes and gate locks, the site is more secure.

Status:

- Access: onsite personnel (if present) is authorized/unauthorized
- Door open/closed
- Fence: has been tampered with or access gate is open

Alarms:

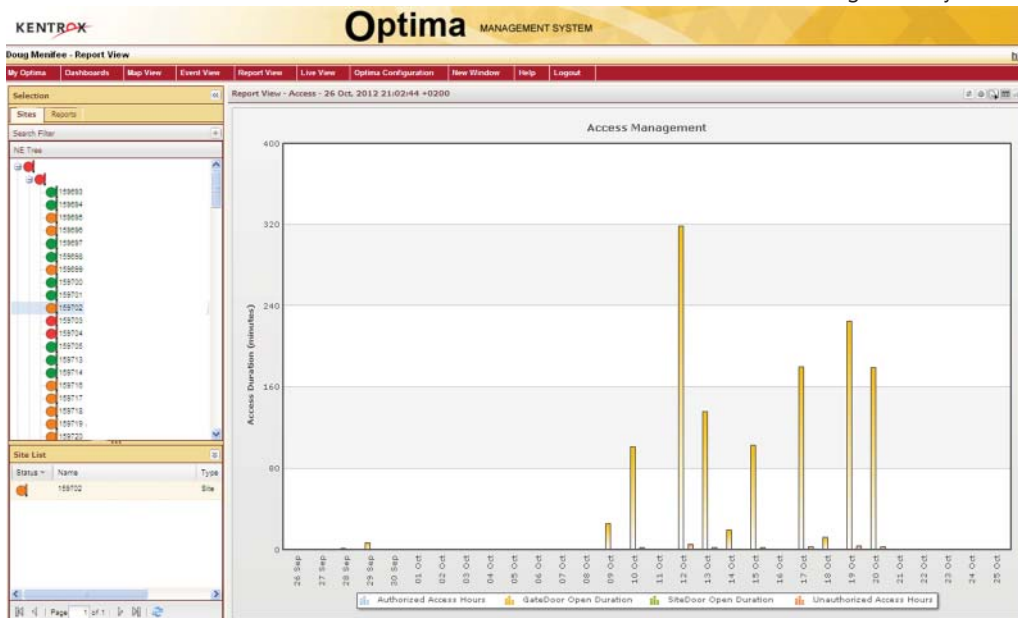
- Door open/closed
- Fence open/closed
- Authorized access
- Unauthorized access



With a single click, a user can grant or deny access to individuals permitted to enter a remote site.

Reports:

- Authorized access count
- Unauthorized access count
- Authorized access hours
- Unauthorized access hours
- Door open count (three doors standard – can be expanded)
- Door open duration (three doors standard – can be expanded)
- Fence open count
- Fence open duration
- Ranking: security violations



Access management report displaying the duration that each door (gate and site) was open.

Asset tampering

Ground bar is one of the most stolen pieces of critical infrastructure equipment at a site. The asset tampering application from Kentrox monitors the ground bar for tampering or theft. A resistor based sensor is used that cannot be removed or cut without triggering an alarm. A history of theft or tampering shows trends on all sites. This information can help a service provider or tower operator determine where additional security may be required or corrective action is necessary.

Status:

- Ground bar status

Alarms:
Ground bar disturbed
Ground bar affixed

Reports:
Tampering count
Tampering duration

Surveillance management

Safety of equipment and personnel is critical, especially when sites are remote or in dangerous areas. The Kentrox surveillance management application provides video surveillance throughout the site and can be monitored remotely for unauthorized and authorized access or motion detection.

Images can be stored locally on a camera (usually IP) and sent to a centralized server when motion is detected. Personnel can access a centralized server to view or download the captured images. Video, activated by motion detection, sends images only as needed to a centralized server. When the IP camera detects motion, it can trigger an alarm to automatically notify appropriate personnel who can then search for and view live or stored footage. The camera and video images can be accessed from any technician’s laptop (if privileges are established), enabling improved problem detection and faster issue resolution.

The ability to remotely access IP cameras allows configurations to be changed by authorized users without a site visit. Additionally, because a remote user can adjust the pan/tilt/zoom of site cameras, the safety of and access to the site can be verified prior to a dispatch. This helps minimize unnecessary truck rolls, especially important during periods of inclement weather.

Status:
Motion (four standard detection points – can be expanded):
motion/no motion
Camera: motion/no motion

Alarms:
Motion detected
Motion no longer detected

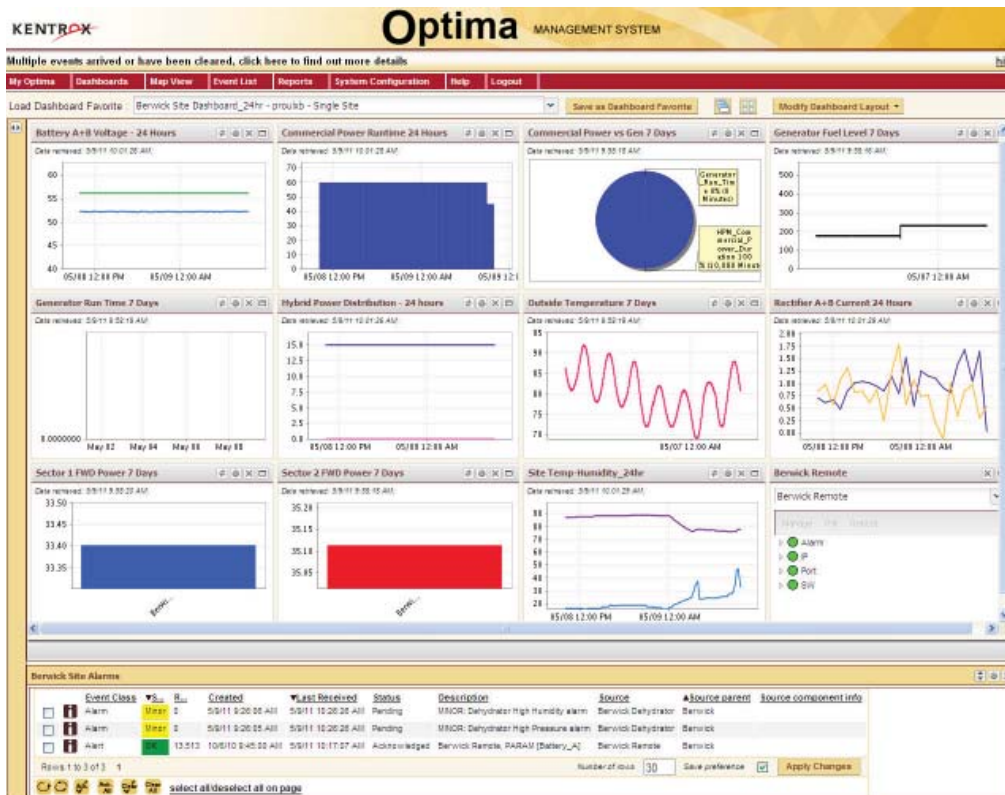
Reports:
Motion detection count
Motion detection duration

Interactive applications

The applications in the security management solution work together to help ensure the safety of site equipment and personnel. For example, a technician receives alarms from the access and surveillance management applications indicating a site being entered and motion detected, but no one was scheduled to visit that site today. After these alarms are received, an asset

tampering alarm is received notifying of a ground bar being disturbed. The technician, who can be at home, on the road, at another cell site, or in an office, can remotely login to view the video and decide how best to proceed.

It is common to have site work completed by outside contractors, but it is also possible that the contractor will submit a claim for services that have not been completed. Using the access and surveillance management applications, a service provider or tower operator can review site access logs to determine who visited the site and for how long. Video and/or camera images can also be reviewed to help determine what work was completed during the visit to validate the contractor service claims.



Optima dashboard displaying conditions of a site for a 24 hour period and site alarms.

Security Management



Live View report for security management (right) showing the status of site access and surveillance (tower management applications are also shown in the right and left sides of the screenshot).

The products

The Optima management system provides complete visibility and control of network infrastructure sites, such as cell sites and remote communication shelters. It allows immediate operational cost reduction to organizations that need to access, monitor, and manage large numbers of sites. Optima delivers these site benefits by remote monitoring, control, and automation over the maintenance and management of infrastructure and physical elements.

The Remote suite of products includes monitoring and control site devices that provide IP management to remote locations and equipment. The products provide site alarm monitoring, protocol conversion, and equipment connectivity and acts as an intelligent extension of your Operations Support Systems (OSS). It is designed to enhance your network management strategy, reduce operational costs, and improve operational efficiency with reduced truck rolls.



Remote RMX-3200



Remote RMM-1400

Kentrox for security management

The security management solution from Kentrox enables service providers and tower operators to protect the large capital investment made at sites while helping ensure personnel safety. Site access can be monitored, managed, and controlled from a centralized location, and personnel safety precautions are available when authorized site visits are required. The safety of equipment is improved using video and camera surveillance.

The security management solution includes the information, reports, measurements, network elements, alarms, and sensors/controllers that are needed for each application. This functionality provides a simplified configuration and setup to minimize the time required for implementation, and the remote access capabilities reduce the number of site visits required.

The Kentrox security management solution improves network reliability and availability by preventing asset theft and vandalism. Capital expenses are reduced due to less equipment replacement, and operational expenses are decreased by remotely managing and controlling site access.

For more information, visit www.kentrox.com, email info@kentrox.com, or call 800-733-5511 (US), +1 614-798-2000 (outside US).