



Architectural & Engineering Specifications
For A
Wired/Wireless Alarm Monitoring and Alerting System

Overall System

The system shall be a universal notification tool that is designed to monitor alarm events occurring within a variety of discrete environments and provide a common method for managing the delivery of alerts. Each triggering event shall be logged in the system's database and retained for reporting purposes. A software rules-based engine shall provide a flexible mechanism to consolidate multiple devices into a common database for reporting and management. The system shall not require frequent user activation once the event types and responders have been uniquely designated in the software tables. The persistent connection shall be leveraged to provide an integrated alarm monitoring and alerting system which links many devices into a common system. When an event occurs, the notification shall be transmitted by a wired connection or a wireless device, and the event logged.

Monitored devices shall include mobile duress transmitters, door/window monitors, compressors, moisture/temperature sensors, alarm relays, motion detectors, fire and smoke alarms, as well as a wide variety of other devices. The system shall deliver text outward to a variety of devices. The alert messages regarding the alarm event shall also be delivered in a text format via the use of selected devices. The system software shall provide both real-time and historical reporting on the status of every designated device. Historical reporting can be used to identify problem areas.

Alerts shall be reported to a wide array of communications technologies, text messages to cellular telephones, pagers, and PC workstations.

The system will include all necessary hardware and software to offer all referenced capabilities.

System Functionality

For Communicator or Series 4000 wired Nurse Call Systems for data and recordkeeping, the system will monitor and record all alarms associated with devices programmed into the Nurse Call System. This data can be easily access by users with proper password accessibility by any computer on the network. As a secondary function, alert notification to other staff devices can be supported by this system. In addition, all Cornell wired products including Light Status Systems, Door Monitoring and Area of Rescue Assistance hard wired systems can be integrated into the system for data logging and broadcast notification.

For the wireless transmitters/sensors once an alert event occurs, a monitored transmitter sends a signal that is received by either the central application receiver or range extenders and then ultimately sent to the system infrastructure. The system software then notifies the alerted personnel and logs the alert event for reporting purposes. The system shall support a variety of software interfaces in order to integrate a diverse set of and render a common database of monitored devices. Additionally the system shall have the ability to transmit alert messages (text) to a wide range of devices of communication devices.

System Components

The AURA 2.0 system consists of an application server tower operating with Windows XP. The server shall include the capability to support POP 3 e-mail, as well as text capability for alert delivery. The server shall include a 10/100 megabit network interface card. The server shall also include a wireless receiver for collecting alerts from a family of wireless transmitters/sensors. The system shall have the ability to have up to 10 separate viewing workstations

The wireless monitoring devices (ie., receivers, transmitters, range extenders) shall operate in the 902 to 928MHz frequency band. To provide extended range for larger installations, wireless range extenders shall be available. In order to provide maximum reliability and interference immunity, all wireless sensors (transmitters and range extenders) shall use a spread spectrum, frequency-hopping technique, which, upon alarm activation, send redundant messages across a bandwidth that is at least 10MHz wide.

The wireless sensors and repeaters shall be capable of periodically transmitting check-in signals to monitor the integrity of their wireless links to compatible receivers and panels. These transmitters and range extenders shall be able to be programmed for check-in transmissions that occur as frequently as every 60 seconds. The information provided in these check-in messages shall at least include alarm and battery condition status.

Wireless receivers shall resolve signals from the transmitters and repeaters specifically registered into the system, even in the presence of RF interference. The receivers shall interface to any security or control panel with either a direct serial data interface, or with relay or open-collector outputs that connect to the individual panel zone inputs.

Operating Frequency: 902 - 928MHz
Modulation: Spread Spectrum via Frequency Hopping
FCC License: None, per FCC Part 15 Certification

Range Extender

To accommodate premises protection in large commercial and industrial facilities, or to support future site expansion or remodeling, a range extender product shall be available to increase alarm transmission range. This range extender must provide at least 200 milliwatts of effective radiated RF power. The range extenders shall have the ability to communicate with other range extenders, thus allowing for multiple range extenders to be installed as a micro-cellular network. Alarm and supervisory check-in signals from transmitters must be maintained reliably with multiple range extenders in the system. The range extender shall NOT require a home-run wire back to the receiver or panel.

Power Requirements: 14 VAC (Transformer included to convert from 120 VAC) with battery backup capability
Open Field Transmit Range: 4 Miles
Enclosure: Weatherproof for Outdoor Installations
Ambient Operating Temp: 32° F to 140° F

Wireless Sensors (Transmitters)

The wireless protection equipment shall include at least the following wireless sensors:

- Universal Transmitter that supports the following: a normally open or normally closed input; an onboard reed-switch input with wide gap magnet; an End-Of-Line (EOL) Resistor used for supervising wires between sensor switch and transmitter
 - High power universal transmitter
 - Single and Double-Button Panic Pendants with at least two Water Resistant models
 - Passive Infrared Motion Detector with Integrated Transmitter
 - Smoke Detector with Integrated Transmitter
 - Glass Break Detector with Integrated Transmitter
- Open Field Range: 1 mile (medium power products)
2 miles (high power products)

Ambient Operating Temp: 32^o F to 140^o F

Receivers

The wireless protection equipment shall include receivers that interface with hardwired inputs of all security system panels. In some cases, a serial data interface will translate messages from the wireless receiver to the internal communications of the control panel. When a serial data interface is not available, the receivers shall be available in at least four models that accommodate 1, 4, and 16 wireless sensors, respectively. Each of these models also shall provide mechanical Form C relay outputs that connect to the control panel zone inputs and provide electrical isolation between the panel and receiver and to accommodate specialized applications.

In addition to wireless sensor alarms, each model shall have the capability of reporting the following transmitter fault conditions: low battery, tamper, and missing (no check-in transmissions for preprogrammed supervision interval). All receivers shall be capable of reporting a missing transmitter condition (inactive transmitter) for programmable supervision windows of 1 to 24 hours, depending upon the requirements of the application.

Power requirements: 11 - 14 VDC (Typically available from interfacing panel.)

Relay Outputs: Form C Relays UL rated at 2 A @ 28 VDC or 110 VAC

Ambient Operating Temp: 32^o F to 140^o F

System Software

System software shall have a user graphical interface which shall have components/screens that show alerts that have been received by the system, instant messaging to pre-programmed user or user groups, alert data logging and administrative functions. It shall be password protected so staff or others cannot close out the alert screen. Administrator function shall be password protected.

Wireless Survey Tool

A portable, hand-held, easy-to-use survey kit shall be available that will measure transmitter signal strength as well as signal margin (dBm above background noise of received signals). The survey kit shall have the ability to determine the performance of the transmitters to be installed, and if necessary, the amount and locations of wireless repeaters.

Quality Assurance

To insure consistent product quality, the wireless equipment manufacturer is ISO9001 registered with an active certification.



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