

Commercial Wireless Fire Alarm & Communication Systems

By Scott Barrett

Since 1981, the commercial wireless fire alarm and communications industry has made great strides in industry recognition as technological advancements over the years have allowed wireless systems to now compete directly with conventional addressable systems.

Early wireless products lacked both performance features and industry approvals, which restricted their use for mandated fire alarm installations until the mid 1980's. In 1987, UL wrote the first standards for wireless under the 864 categories for control unit's listings and shortly thereafter followed with listings for UL 268 Listed smoke detectors as well as listings for other wireless components and accessories for UL 864 compliance.

In 1987 Commercial Wireless Systems were formally adopted into the then NFPA 72A Standards. Today, the requirements of commercial wireless system are found in the National Fire Alarm Code Chapter Six.

There are two basic forms of commercial wireless systems available. Some manufacturers products are "true wireless" meaning all communication from initiating devices and repeaters are relayed via air until received at the central control unit. Other manufacturers wireless products are only wireless from the initiation point to a "Receiver" from which point data is then transferred via wiring or other means other than air to the central control unit.

Some products are listed and offer control function capabilities such as activation of appliance circuits, elevator recall, HVAC control and more. In these cases the control units send commands to repeaters, which have supervised addressable outputs, which interconnect with the equipment to be activated or controlled. This part of the installation requires wiring, however thru strategic placement of repeaters the amount of wiring is reduced.

There are several requirements of wireless systems from a supervisory

standpoint. All initiating devices and repeaters when used are required to be supervised for low battery, removal, eol violation, ac power loss, unwanted interference and polling.

The standards require that in a commercial wireless system, the design parameters are such that the establishment of Class A signaling between all wireless initiating devices and repeaters is engineered thus creating a dual communication path both to and from the control panel. The design is such that if a repeater fails for whatever reason, an alternate path is available for communication, thus no compromise of the signaling would occur.

No licensing is required either by the installing contractor or user when installing a low power wireless system that conforms to FCC allotments for low power radio.

Low power wireless has been installed in every conceivable occupancy and application inclusive of high-rise office buildings, hotels, industrial complexes, historic structures, colleges and universities, hospitals and nursing homes, and even naval ships.

Hybrid systems utilizing both wireless and conventional methods are becoming more prevalent in installations as the combination of both technologies offer in many cases both design and cost effective alternatives.

An example of this and one of the more precelanet markets over the past five years has been the multi-family apartment complexes and campus type settings such as colleges and universities.

In multi family apartment complexes, many jurisdictions require the individual monitoring of each alarm type and building to be point addressed off premise. Conventional theory is to utilize phone lines per building which results in several monitored accounts per property (good for recurring revenue for the installing company, not for the user) or interconnect each building via underground SLC Loops which have their own inherent prob-

lems such as lightning and ground faults.

The hybrid combination allows for the use of the conventional systems in the buildings, which are responsible for the detection and notification appliances. Connected to the outputs of the conventional panels are supervised transmitters that will relay the alarm type information to a central location which is interconnected to a communicator for off premise monitoring. This application eliminate all cost associated with individual monitored accounts, underground SLC loops, while providing the same notification at a reduced and ongoing savings to the client.

Wireless technology today offers safeguards and protocols that assure effective and reliable transmission of data and can provide the same capabilities as conventional systems.

The advantages of wireless systems remain their versatility, ease of installation and expansion, maintenance, and preserved aesthetics, while affording in most case cost advantages to the client not only in the initial installation price but with the hidden factors such as refurbishing cost, downtime, and disruption to operations.

The elimination of wiring affords clients an alternative to obtain protection, which might not be otherwise available due to economic, aesthetic, or environmental constraints.

Examples would be buildings with asbestos, historical sites, multiple building facilities with damaged or antiquated underground wiring, college dormitories, industrial plants, hospitals and nursing homes, hotels, marine vessels, and a variety of other commercial properties and applications where a fast, efficient and economical installation is desired.

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