

What a Wireless World This Could Be
by Al Colombo

During the past decade, conventional short-range wireless has become one of the fastest growing technologies in security dealers' arsenals. Radio-based systems, in fact, provide an enhanced level of security and ease of installation many hardwired systems are hard-pressed to duplicate.

Among other reasons, many security contractors are embracing wireless systems because they help make installations simpler, offer pinpoint accuracy in locating alarm and trouble conditions, and provide enhanced supervisory functions with advanced troubleshooting tools. While the skeptics still outnumber the believers, most agree wireless technology will profoundly alter the security industry.

Bugs, False Alarm Tendencies Worked Out of Earlier Models

There is no denying some of the early generations of wireless security systems, as recently as a decade ago, left much to be desired. Some of the vintage systems, especially those of the late 1970s and early 1980s, gave dealers a serious headache as they were rife with problems.

Some of the wireless systems of that era, for example, were prone to false alarms because they were easily influenced by other radio-based services in their locale. High-powered ham-radio transmitters, police two-way radios, commercial broadcasting equipment and other sources caused innumerable false trips. What made matters worse was transmitters in these early, radio-based alarm systems reported by condition only, instead of both device and condition. Thus, it was nearly impossible to locate a transmitter gone awry in a large facility full of transmitters.

Often, dealers were forced to remove a transmitter to narrow down the playing field as they searched for a single culprit. Although this made it easier for the installer to locate, it also left a hole in the client's security. In severe cases, some contractors were also forced to remove all the transmitters and start over afresh with new ones.

Instead of such hit-and-miss troubleshooting techniques, today's wireless alarm systems report by both device and condition. Thus, alarms and trouble conditions are easily found.

Wireless Fulfills Special Needs With Unique Programming Options Electronic security contractors and their clients also have come to rely on wireless because it fills a variety of special needs.

Of course, the first advantage of wireless is that metallic cable does not need to be installed. This is a great selling feature, especially in retrofit situations where a multiple-floor dwelling is entirely finished. Here, radio-based systems are a viable choice. Even in ordinary homes where wires can be installed, homeowners may not appreciate drilling and cutting drywall, as is customary when installing wires.

Many homeowners also are quite in tune with the use of wireless key fobs. Most key fob models available today come with a minimum of two function buttons on a small, handheld transmitter

that attaches to a key ring. By pressing one button, the system automatically arms itself in away mode. By pressing the other button, the system disarms.

Some systems may also include third and fourth buttons. The third button is usually for arming the system in home mode. The fourth button is often programmable, allowing the dealer to customize a key fob for a specific client. For example, that button could be used to turn a light on and off either inside or outside the house.

Wireless allows the contractor to install a quality panic system without all the muss and the fuss. In addition, from the dealer's point of view, since labor is perhaps the biggest variable when installing hard-wired systems, wireless usually means less installation time. It can save a dealer considerable money and increase the bottom line.

Fire alarm systems also make use of wireless technology. Of course, the technical criteria to which life-safety systems are manufactured is usually of a higher order simply because of the vast importance of fire detection in homes and commercial applications.

Enhanced System Supervision Includes Signal Strength Testing

Many security dealers have come to know and respect the quality of short-range wireless systems. This is largely due to the enhanced supervisory features built into most of those manufactured today.

One way manufacturers have sought to provide a better product is through the wide spread use of dual antennas at the master alarm panel. Through *spatial diversity*, the likelihood a transmitter's signal will reach the CPU's receiver is greatly increased.

Another enhanced supervisory tool now used by many wireless alarm systems is dealer-invoked signal strength testing.

For example, when a salesman approaches a homeowner to purchase a wireless alarm system, he has absolutely no idea whether the neighbors on either side are using a similar wireless system. In years past, most of the wireless systems on the market could not "listen" for signals that could interfere with their operation. Thus, trouble could suddenly arise after the installation was completed.

One way some wireless equipment manufacturers have solved this problem is to enable their wireless CPU to "listen" to the radio frequency (RF) horizon. This allows the dealer to change the frequency or the transmission encoding so both systems can operate normally without interference.

Many of the systems employed today also have a feature that allows the end user or dealer to check the amount of transmitter signal needed to reach the radio receiver. In some systems, a simple beep is enough to tell the end user when a transmitter is working properly and the signal is able to successfully reach the alarm panel.

Battery Advancements Have Hastened Wireless' Ascent

Another reason security dealers like today's wireless alarm systems is the longer-lasting transmitter batteries that go with nearly all of them. After all, a common battery is quite possibly the most vulnerable component in any wireless security system. If a transmitter battery should prematurely fail and the end user not become aware of it in a timely manner, the system may very well not detect a security breach when one occurs.

One of the key factors in stretching battery life is electronic packaging. Older components were generally larger and less efficient, which meant they created more heat, and drew more power in the process, than today's modern transmitters.

Today's electronic components are packaged many times smaller and use a variety of packaging techniques, such as surface-mount devices, or SMD for short. SMD components are much more efficient, which means they draw far less power from the batteries within them than transmitters of yesteryear.

Vintage systems with older electronic packaging, for example, typically used 9V primary batteries. As veteran dealers will recall, a battery in one of these vintage transmitters had an effective life of about eight months to a year — if you were lucky. Thus, they had to be replaced twice a year to assure ongoing operability.

For clients, this meant they either had to change out their own transmitter batteries or had to pay their favorite alarm company to do it for them. Either way, it placed a burden on the client, as any homeowner who still uses this type of system can attest.

In today's wireless transmitters, however, even age-old 9V batteries will last longer than in older models. Now, usually where space allows, a 9V battery can last 1 1/2 to 2 years. Common detectors that use 9V batteries include smoke detectors and a few PIRs.

Some wireless systems also use AA and AAA batteries for transmitter power. Many of the manufacturers that make these transmitter/sensor devices commonly advertise a battery life of two to five years. In addition, longer-lasting lithium batteries are also available that have an advertised life span of five to eight years, sometimes more.

Battery Supervision Includes Local and Remote Notification Signals

No matter what type of battery today's wireless transmitters come with, when battery power begins to wane, these systems are designed to notify the client locally. In some systems, this notification is accomplished at the alarm panel/keypad. In others, notification is given by a flashing LED at the device itself — in addition to the alarm panel/keypad.

In all cases involving a quality wireless system, the dealer will receive notification of a low transmitter battery through the central station connection. Best of all, the alarm system will provide the exact transmitter identification (ID) number, enabling the installer to go right to the source of the problem — in this case, to change the battery.

In systems using a LCD keypad, this task is made even easier because the readout will display the transmitter, usually by name.

Another concern in any alarm system, wireless or hard-wired, is back-up power for the main CPU when the public electric bus fails. In most new wireless systems, provisions have been made for a rechargeable battery of some kind.

In some systems, this might take the form of a rechargeable 9V secondary battery, while in others it involves the use of a traditional gel cell. In either case, when a rechargeable battery fails to accept a charge and the effective voltage has dropped below a pre-established level, the alarm system will notify both the end user locally and the dealer by the central station connection.

Value-Added Services That Go Far Beyond Standard Alarm Services

In today's highly competitive and spendthrift market, alarm system sales personnel must continually be looking for new ways to sell their company's wares and services. Wireless equipment manufacturers have spent considerable time and money doing just that.

One way security dealers can provide value-added service is to show the customer one or two benefits that extend beyond the mere promise of catching a burglar.

When a prospect buys an alarm system, he or she usually does so with the understanding that the benefits will not be realized until years later. If you can show there are benefits that will be realized immediately on a daily basis, then it is likely the sale will go easier.

One way security contractors can do this is to offer the client a number of features he or she may not have bargained for. Lighting control is a good place for the average security dealer to start.

Ask the customer, "Wouldn't it be nice to walk into a room and have the lights automatically turn on, or leave the room and have them turn off? Better yet, wouldn't it be nice to come home after dark and have your home's exterior already lit for your arrival?"

Frequently the alternative is homeowner going to a dark house, stumbling his or her way to the main entrance of the and then trying to blindly navigate toward the keypad or light switch.