

# LifeSafety

MAGAZINE

Information on life safety from the leader in fire detection

## Meeting the Nuisance Alarm Challenge



Also Inside:  
Selling CO Protection  
Inspection Expertise  
Switching Applications  
Voltage Drop Calculator  
Sounder Bases

## Weatherproof Plates

- Flush mount outdoor horns, strobes, and horn strobes with WTP and WTPW
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- NEMA 3R rated
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## Mass Notification Devices

- Devices designed to meet DOD specification
- Listed to UL 1638 with no candela derating
- 11 field-selectable candela settings
- Alert-printed strobes and speaker strobes with Amber and Clear lenses available in wall and ceiling models



- Plug-in design prevents costly ground faults by eliminating nicked wires
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- Standard or high candela strobes
- Complete indoor and outdoor product lines
- Outdoor units include lightweight, weatherproof, plastic back boxes
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An extensive selection of accessories allows these speakers and speaker strobes to be installed in almost any application.

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- Available with "FUEGO" marking



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- Transient occupants follow the sound to the nearest safe exit
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- 15 field-selectable language choices, including dual language combinations



## Mini-Horns

- Small footprint blends into hotel, motel, or residential fire system applications
- High/low volume and non-temporal tone options
- 12- or 24-volt operation
- Single-gang back box mounting



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Find out more about the benefits of the System Sensor SpectrAlert Advance notification appliances at [www.systemsensor.com/av](http://www.systemsensor.com/av)

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## Providing Solutions vs. Meeting Code



Often people say they want the best, but their spending demonstrates that “adequate” is good enough. We talk to system designers who recommend solutions for their customers that would provide better fire and life safety protection than what code requires. But they ultimately end up providing the bare minimum protection required at the customer’s request.

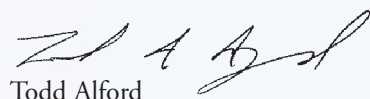
The reality is, the customer’s decision usually comes down to money, and it’s difficult to justify extra expenditures in this economy. Yet some dealers are reporting an uptick in system sales. How? By solving their customers’ problems and providing systems that may carry a higher up-front cost but will save their customers money in the long run.

It just goes to show that people are willing to pay for what clearly provides value to them. Those of us in the industry know it’s important not to skimp on critical fire and life safety systems, but do our customers always know when more advanced technology can provide higher returns on their investment and increased performance?

The Rumba Room, a Hollywood nightclub, is a prime example of how site problems revealed the inadequacies of a basic system (see story on p. 4). The club, which previously experienced frequent, costly and disruptive nuisance alarms, has now installed the System Sensor Advanced Multi-Criteria Fire Detector. This technology exceeds what the nightclub was required to install, but the payback has been enormous in both life safety protection and cost savings.

This issue also offers tips for enhancing business by expanding service options with carbon monoxide (CO) detection on p. 9. “CO Detector Saves the Day” is not the type of headline you’ll typically read in a newspaper; a story about a CO incident with tragic results is more common. But if the industry does a better job of promoting system-connected CO detection, people will eventually come to understand the benefits of CO monitoring, and we’ll read fewer stories about preventable CO-related deaths.

Together, let’s educate the market about why better protection systems and services are worthwhile for personal, as well as financial, reasons. Turn to p. 13 to read about how System Sensor is adding training options for professionals. When each of us has more knowledge about fire and life safety systems, we can then share that information with customers and improve service and protection. It’s a win-win for all of us.

  
Todd Alford

Marketing Manager — Commercial Business Unit

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# LifeSafety

MAGAZINE

*LifeSafety Magazine* is provided as a courtesy to our colleagues in the fire and life safety community. While we make every attempt to ensure the accuracy of all information contained herein, product specifications and building codes are always subject to change. Under no circumstances should product or code information published in *LifeSafety Magazine* be considered a substitute for written instructions from the manufacturer or Authority Having Jurisdiction. Always follow proper installation and maintenance practices, including carefully reading and understanding manufacturers’ instructions before attempting to install, operate or maintain any life safety equipment.

Your thoughts and comments are welcome at [info@systemsensor.com](mailto:info@systemsensor.com).

For more information on System Sensor products, call 1-800-736-7672 or visit [www.systemsensor.com](http://www.systemsensor.com).

## Meeting the Nuisance Alarm Challenge

*For a popular nightclub with a nuisance alarm problem, the new Advanced Multi-Criteria Fire Detector increases fire response and accuracy while saving the club thousands.*

Imagine it's Saturday night at a packed entertainment venue. The dance floor is full of people dancing to a popular national DJ with music synched to multi-colored laser and light effects, and several private rooms are at full capacity hosting VIPs, fundraisers or other private parties. The rope line for the public dance club stretches a block down the street, with people waiting up to an hour for a chance to spend a memorable evening out with friends.

Then, a smoke effect designed to enhance the laser light show reaches a standard smoke detector set above the dance floor. Suddenly, the entire complex goes into full fire alarm...the music and effects are cut off and replaced by the blare of a fire alarm, fire strobes and floodlights. Patrons rush toward the exits and out onto the busy street.

More than an hour later, fire services have checked out the building. There's no fire and no damage. But now the rope line is empty, evacuated patrons have moved to a club down the strip and angry party hosts are demanding their money back from the club's management. In all, the club has lost thousands of dollars as the result of a single nuisance alarm.

Scenarios such as this can be quite

common. Traditional fire detection technologies, which excel at detecting fires and providing adequate escape times in most applications, often struggle to maintain appropriate fire sensitivity and accuracy for atypical and challenging applications. Because of this, venues with persistent nuisance conditions, such as theater smoke and fog effects, must make difficult and costly decisions about how to provide the high-quality entertainment experience their customers have come to expect, while maintaining the highest level of safety possible.

In fact, this is the exact issue that was faced by one popular nightclub. The following case study shows how advanced fire detection technology enabled this club to overcome its difficult and costly fire detection challenges.

### **Case Study: The Rumba Room**

The Rumba Room is an upscale Hollywood nightclub. Part of a multi-building, multi-story entertainment complex, this 25,000 square foot, 1,000-patron capacity Latin dance club boasts two levels and two dance floors featuring state-of-the-art sound and lighting, including fog and smoke effects.



Unfortunately, the club's theatrical smoke set off the facility's smoke alarms on an almost nightly basis. To make matters worse, the smoke would trigger a full-blown alarm that would require the evacuation of nearly a quarter of the entire entertainment complex, including the restaurant below the club.

Like the Rumba Room's situation, there are many fire system applications that stretch the capabilities of traditional fire detection technologies beyond their capacity — either because nuisance conditions are present or because even a small amount of downtime relating to nuisance alarms can have devastating financial effects. That's because fire detection devices must balance two competing needs: rapid response and accuracy. Typically, increasing performance in one of these factors reduces performance in the other: Improving response times increases nuisance alarms. Conversely, reducing



(All photos courtesy of Rumba Room)

nuisance alarms increases response times.

Newer construction and furnishing materials exacerbate this problem by increasing fire acceleration, which reduces escape times. Faster-burning environments require higher sensitivity from their fire detection systems to allow proper egress and better property protection.

Another issue is that different fire types produce different levels of smoke, heat, carbon monoxide (CO) and light. For example, as Figure 1

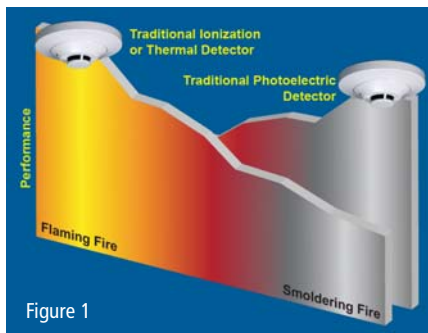


Figure 1

shows, a heat detector excels at detecting flaming alcohol, but responds slowly to smoldering fires. Similarly, ion detectors are very sensitive to flaming fires, while photoelectric detectors are better with fires that produce more smoke

particulate. Although multiple types of detector technologies are available, each will be best suited for some types of fires, while being either less accurate or less sensitive for other fire types or conditions.

Problems arise when an application demands too much of a detector in either sensitivity or accuracy. Sometimes, this imbalance can cause such poor performance that the fire detection system itself can become a liability.

This was certainly the case with the Rumba Room.

The fog and smoke effects were demanding a level of accuracy from the traditional photoelectric detectors over the dance floor that was well beyond normal.

With each alarm resulting in one to two hours of downtime, including evacuation, fire department arrival and walkthrough and clearing of smoke, lost revenues from each instance could exceed tens of thousands of dollars.

The Rumba Room, after purchasing and experimenting with several different fog and smoke machines with similar results, was forced to receive special permission to set all of its smoke detectors to supervisory mode. This required

independent verification of a fire before sounding an alarm, ultimately slowing fire response and incurring additional liability.

### Advanced Technology Improves Detection

Then, in 2009, Callide Technical of San Dimas, Calif., was contracted to upgrade the fire safety system of the entire entertainment complex. The Rumba Room posed a particular challenge for Callide.

“With all the fog and smoke effects, the existing photoelectric detectors were constantly going into alarm,” said Tom Johnson, a Callide Technical principal. Callide agreed, however, that maintaining the fire alarm system in supervisory mode was an unsatisfactory solution in terms of liability risks and costs, and the resulting delay in fire response.

Callide proposed installing the System Sensor Advanced Multi-Criteria Fire Detector, branded as IntelliQuad™ through Notifier®, because of its ability to quickly respond to actual fires while maintaining high immunity to nuisance conditions.

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# Meet the New Problem Solver



## The first fire detector in the industry accurate enough to KNOW when a fire is a fire.

An unnecessary evacuation at a live performance venue can carry a tremendous cost in terms of life safety and lost revenues.

The Advanced Multi-Criteria Fire Detector uses sophisticated technology to adjust to changing environmental conditions and respond accordingly. This latest innovation from System Sensor combines FOUR detection methods to monitor the FOUR major products of combustion and respond with exceptional accuracy.

The Advanced Multi-Criteria Fire Detector incorporates:

1. a traditional photoelectric chamber to monitor smoke particles;
2. a thermistor to measure both fixed (135°F) temperatures and rate-of-rise;
3. a carbon monoxide (CO) sensor that recognizes the by-products of a smoldering fire that result from incomplete combustion. CO production during a fire can vary from miniscule amounts (alcohol) to significant amounts (smoldering cotton); and
4. an infrared (IR) sensor that watches ambient light levels and flame signatures to provide coverage across 360 degrees, giving our detector the unique capability to look into the space, expanding its detection beyond the physical boundaries of the detector itself.

### How it works

If one of the sensors detects a fire condition, the onboard intelligence verifies the condition with another sensor before going into alarm. As site conditions change, an internal algorithm compensates by changing sensor thresholds, sensor combinations, and sampling rates to ensure immediate response to fires and maximum immunity to nuisance alarms.

Unnecessary evacuations carry tremendous cost in terms of life safety and lost revenues. Here are just a few examples where the nuisance alarm discrimination and accuracy provided by the Advanced Multi-Criteria Fire Detector are warranted:

- High capacity entertainment venues
- Performance theaters
- Complex manufacturing operations
- Financial institutions
- Data processing centers
- Medical facilities
- Research and development organizations
- Specific areas prone to nuisance alarms

The System Sensor Advanced Multi-Criteria Fire Detector senses fires in ALL environments and provides the best immunity to nuisance alarm threats. It's accurate. It's precise. It's ideal when it is imperative to KNOW when a fire is a fire.

To learn more and receive a specification packet, visit [www.SystemSensor.com/multi](http://www.SystemSensor.com/multi) or call 800/736-7672.



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## Meeting the Nuisance Alarm Challenge

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### How It Works

The Advanced Multi-Criteria Fire Detector combines four detection methods in a single housing to measure all four products of a fire — heat, smoke, carbon monoxide, and

light. If one of the sensors detects a fire condition, the onboard intelligence verifies the condition with another sensor before generating an alarm.

These four sensors enable the detector to respond to multiple fire

types in a wide range of applications and reject nuisance conditions. The detector includes a powerful central processing unit that enables it to process intelligent algorithms to

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### Research Aims to Increase Photoelectric Detectors' Sensitivity to Flaming Fires

Data has shown that while flaming fires are not as common as smoldering fires in residential occupancies, they still comprise a large percentage of fire events. Flaming fires also tend to produce untenable conditions more quickly than smoldering fires, and ionization detectors typically perform better than other detection technologies in flaming fire situations.

Despite ion's flaming fire prowess, there has been a distinct move in Europe and the United States during the past 15 years toward photoelectric detectors. This has been due to environmental concerns and nuisance alarm issues related to ion technologies.

#### Improving Photoelectric Detection's Flaming Fire Performance

Now that the use of photoelectric sensing technology is increasing, the question is: how to create a photoelectric smoke detector that can rival the flaming fire performance of ion detectors?

The earliest attempt was the combination photoelectric-heat detector. However, these devices typically did not provide additional egress time because the heat sensor had a set point of 135 degrees Fahrenheit. Considering the thermal lag of these devices, the alarm triggered after the fire was fully developed.

In recent years, as microprocessor technology has become more cost effective, there have been efforts to make the photo-heat combination smarter by looking for rates-of-rise and other trends. The industry has, however, probably reached the limit of what can be done with photoelectric and heat sensors alone because of the limited amount of heat generated in an incipient flaming fire.

Currently, the three most promising areas in detection research are:

- Enhanced photoelectric sensing chambers
- Adding gas sensing to a photoelectric sensor
- Adding radiant energy sensing to a photoelectric sensor

### Enhanced Photoelectric Sensing Chambers

One active area of research involves modifying the photoelectric sensing chamber to enhance its sensitivity to a wide range of particle sizes from different fire types. Various researchers are attempting to exploit well-known particle scattering phenomena by using multiple colors (wavelengths) of light and multiple orientations of the emitter to the sensor. Particle scattering theory demonstrates that by using shorter wavelengths of light (such as blue instead of near infrared), one obtains greater scattering from smaller particles. This, in turn, improves sensitivity to flaming fire combustion products. The reduced cost of blue LEDs is making this approach more feasible.

Similarly, one can gather more information about a particle by designing the chamber to examine how the particle scatters light, both forward and backward. Finally, combining multiple directions and wavelengths can produce better characterization of the particulate and a more accurate detection scheme.

### Photoelectric and Gas Sensing

Several leading detector manufacturers have successfully combined gas sensors with photoelectric sensing chambers to increase sensitivity while lowering the probability of nuisance alarms. While most of the work to date has been with carbon monoxide sensors, the Fire Protection Research Foundation Smoke Characterization Study has yielded a wealth of information on a broad spectrum of gases that are produced as materials burn that can serve as a marker for early fire detection. This information, coupled with improved electrochemical and solid state gas sensors, is producing promising breakthroughs in fire detection using combination photo-gas detectors.

### Photoelectric and Radiant Energy

Finally, radiant energy sensors can be added to detectors to enhance their sensing ability by viewing the protected space. These sensors can pick up the infrared or visible flame signatures and combine that information with the photoelectric sensor to produce a faster and more accurate alarm decision. This technique can be deployed in isolation or combined with one or several of the approaches discussed previously.

## Meeting the Nuisance Alarm Challenge

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provide extended drift compensation and to vary sampling rates, alarm delay and sensitivity based on environmental readings. The result of years of research and then extensive testing, this dynamic adjustment allows the detector to normally operate at a very high immune level and then become very sensitive to fires once it senses the proper characteristics.

For example, the baseline photoelectric sensitivity might be set to alarm at particulate concentrations of 4 percent per square foot. But unlike a regular photoelectric detector, the Advanced Multi-Criteria Fire Detector can ignore particulate concentrations well beyond 4 percent if no other fire conditions are present. At the same time, if other fire

conditions are present, such as CO or heat, the detector doesn't wait until 4 percent concentrations are present; it can respond more quickly.

### Correct Detection Brings Results

The Rumba Room agreed that the decrease in lost revenues and liability and increase in fire response times justified the use of the more advanced technology, especially if it would allow them to operate the club with the smoke and light effects that contribute significantly to its unique ambience and appeal.

Callide installed about 25 Advanced Multi-Criteria Fire Detectors to cover the dance floor areas on both levels. Installers wired the detectors like any

other smoke detector. A small amount of additional programming set the detectors at the correct sensitivity level for the environment.

"Labor costs were basically a wash," said Johnson. "While the installed cost for these detectors was about 15-20 percent more than a typical photoelectric detector, the Rumba Room was losing more money in an hour of downtime than 50 times the cost difference."

Once installation was completed, the Rumba Room was able to return all of its detectors to alarm from supervisory. And what happened with the frequent nuisance alarms? Johnson concluded, "These detectors have been operating for several months now without a single nuisance alarm." LS

### Other Ideal Applications

Beyond applications with persistent nuisance conditions, such as entertainment complexes, food preparation areas, and public lodging facilities, the Advanced Multi-Criteria Fire Detector is also ideal for applications that cannot tolerate nuisance alarms at any time, including:

#### Medical Facilities

In a medical setting, providing the earliest possible warning to protect patients, doctors, and equipment from smoke and fire is crucial, yet nuisance alarms can be life threatening to patients receiving critical care.

#### Financial Institutions

For these institutions, any downtime resulting from nuisance alarms can interrupt mission critical processes and result in huge financial losses.

#### Chemical and Pharmaceutical Manufacturing

For chemical and pharmaceutical manufacturers, nuisance alarms can lead to significant revenue losses from shutdowns that result in lost production time (perhaps millions of units per hour) and raw materials that must be scrapped after a stop/restart.

#### Data Centers

These centers require the earliest possible fire detection to protect equipment and crucial data. Nuisance alarms, however, can result in extensive financial losses and lost productivity across connected organizations.



## Selling CO Protection

*With all the stories of carbon monoxide (CO) tragedies, your customers are likely becoming more aware of the dangers of CO. Likewise, the numerous stories of tragedies averted by CO detection have proven that CO detectors save lives. As a result, many of your customers are probably already interested in obtaining CO detection.*

*Here are five reasons why you should be their provider and three reasons why your customers will want to buy CO detection from you.*

### Why You Should Provide CO Detection

#### 1) Capitalize on an expanding market.

As public awareness grows, new local, state and national legislation for CO detection is being adopted. For example, recent CO poisoning tragedies in Colorado were the impetus for passing CO legislation in that state. More than half of the U.S. states already have CO legislation. Several more have legislation pending. (System Sensor keeps an ongoing legislation tally at [www.systemsensor.com/co](http://www.systemsensor.com/co).)

One thing all this new legislation means for you is that CO detection is a growing market with a built-in customer base. Many of your customers are required now or will likely soon be required to have CO protection. Why shouldn't you be their provider? With a CO offering, you can differentiate yourself from your competition with an additional service offering while increasing your commission and providing needed life safety protection for your customers.

#### 2) Build longer-term relationships and extend your revenue stream.

Another big reason to offer CO detection is that customers who subscribe to fire protection monitoring are less likely to cancel their security monitoring service. The same is likely to be true for CO detection services. So if you sell CO detection as part of your overall security offering, this can result in less customer attrition and longer-term recurring monthly revenue for you.

#### 3) Gain referrals as a life safety expert and grow your income stream.

While your customers are becoming more educated about the dangers of CO in their homes, they may not be aware that monitoring options are available. In fact, it's likely that they believe retail detectors are their only option. By providing expertise around life safety solutions and legislation that your competition can't and offering a CO detection solution, you can gain customer trust and build your business through recommendations to their friends and family.

#### 4) Win jobs over your competition.

With a CO detection option, you can differentiate yourself from your competition with a solid product and service offering while increasing your commission.

#### 5) CO detector guidelines are more clearly defined than ever.

The revised 2009 edition of NFPA 720 is a complete rewrite of the CO detection standard. It provides you with information on detector installation, placement, testing and maintenance, and off-premise signal transmission for both commercial and residential occupancies. So you now have the guidance you need to enter confidently into this growing market and provide your customers with the highest level of CO protection available. (System Sensor also offers a free Applications Guide for system-connected CO detectors that you can access at [www.systemsensor.com/co](http://www.systemsensor.com/co).)

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System Sensor introduces RealTest™, the first functional CO test



# Yes, It Really Is That Easy

Wouldn't it be great to know for certain that every carbon monoxide detector you install is offering the protection it promises? Testing the mechanical and electronic components of a CO detector is easy. But testing the CO cell? That hasn't been possible. Until now.

## Introducing a true first – RealTest™

The CO1224T detector from System Sensor now offers RealTest, the first of its kind: a true functional carbon monoxide test. With a simple short spray, you can test the sensing cell to be assured that it is doing its job.

To learn more about the CO1224T CO detector call 800/736-7672. To see a video of RealTest in action, visit [systemsensor.com/co](http://systemsensor.com/co).

Stop wondering. Start testing.



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# GUIDELINES

## Selling CO Protection

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### Why Your Customers Will Buy CO Detection from You

#### 1) CO protection saves lives!

This is the obvious selling point for CO detection. Your customers may have heard about some of the recent CO tragedies, but what they may not have heard is how CO detectors are already saving lives. The most common factor with CO tragedies is there are no operational CO detection devices installed in the occupancy. But all across America, CO detectors are averting tragedies in schools, office buildings and homes.

For your customers, CO detection can provide peace of mind against the “silent killer” of carbon monoxide. There is no other way to protect against it.

#### 2) System-connected detectors provide more protection.

One of the biggest reasons that your customers should be getting their CO protection from you is that monitored detection connected to the security or fire system provides a much higher level of protection than stand-alone retail detectors. Specifically, you can offer 24/7 central station monitoring capabilities that protect your customers when they cannot respond to a local alarm for any reason (i.e., they are not home, they are sleeping or they are already suffering from the effects of CO poisoning). Also, system-connected devices can be monitored to provide proactive maintenance to ensure that CO detectors are providing constant protection with no system downtime due to damage, the end-of-life of the CO cell, or technical and mechanical problems.

#### 3) Many of your customers are already required to have CO protection.

More and more states are requiring CO detection. To meet these requirements, many of your customers are going to get CO protection from somewhere. Service providers who already offer fire and/or security monitoring capabilities are uniquely positioned to provide customers with comprehensive, monitored CO protection services, while ensuring that CO detection is properly installed and maintained.

In addition, if the CO legislation is new in your area, many of your customers may be unaware that they must have CO detection. You can educate them on the laws for your area, while offering them an excellent solution for meeting their CO requirements. LS



## Fire Protection Specialists Lend Consulting, Inspection Expertise



*Keith S. Frangiamore is vice president of operations at Fire Safety Consultants, Inc. (FSCI), Elgin, Ill., and a certified fire protection specialist. FSCI, one of the largest private fire protection plan review service companies in the United States, provides review services for many U.S. municipalities and fire departments, as well as for private companies throughout the world. FSCI's project list includes soccer stadiums, hospitals, casinos and data storage warehouses.*

### What does a fire safety consultant do?

We provide plan review services for municipalities, building owners, architects and engineers. We review the building and/or the fire protection plans, specifications and hydraulic calculations for strict compliance with state and local codes. Additionally, we provide complete building code consulting, site review and inspection services, seminars, fire service planning and management, and fire investigations.

Fire consultants inspect and witness both new and existing fire protection/building code system testing. We will typically perform a cursory site visit, prepare a proposal for the work to be performed and contact the local code official for more information. For municipalities, for example, we inspect the systems for compliance with required codes and approved plans. Then we provide the municipality with a report on the inspections, tests performed and recommendations.

### What does a report usually contain?

A report outlines actions needed to meet requirements about any code issues related to fire protection or fire protection systems and good fire protection practices. Fire consultants' reports normally will outline options available and explain each of them fully, including their financial impact.

### What types of inspections and tests are required in fire inspections?

The required tests and inspections depend on the type of system(s) that are present in the project or occupancy. The plan review letter details the required tests that must be scheduled for each type of system that has been submitted for approval.

### What is the sequence for the required tests and inspections in buildings with multiple systems?

During site work, the underground fire service water main is completed and tested first. Once the underground has been flushed for

both the clean water sample and the required NFPA 24 flush test, the sprinkler system can be connected to the lateral feed main. Then the fire sprinkler system hydrostatic test and rough inspection takes place. The fire alarm system acceptance test is performed when the system is installed and connected to the monitoring agency. Commercial kitchen wet chemical systems, FM200 systems and dry chemical systems can be inspected and tested whenever they are completed. Final inspections on all systems then verify full operation at the time of occupancy.

### What suggestions do you have for contractors and installers to make the process go more smoothly?

First, get a copy of the latest NFPA 72. There are useful, reproducible forms in the annex, such as submittals, testing forms and the latest information on the decibel requirements. In many renovations or additions, voltage calculations should be addressed. Make sure the voltage to the new area meets requirements. Caution should be used not to overload the system. The audibility at

# System Sensor Online

## System Sensor Expands Training Opportunities

the end of the line could vary as much as 20 dB or more.

Recently, we determined that the smoke/fire detection system for a five-story high-rise with multiple wings and hundreds of units did not meet audibility requirements. Almost the entire building had to be rewired.

### How do you prevent such a problem from happening?

Companies such as ours can provide the up-front review of drawings before the actual work begins. We strongly suggest this before submitting to the Authority Having Jurisdiction. Also, allow for new technologies in your plans, and submit complete and accurate plans with as much information as possible. Check for obsolescence of upgrades of existing detectors or alarms. Rapid changes occur regularly in the industry.

### How much do inspections typically cost? Who is responsible to pay inspection costs?

Costs depend on the jurisdiction and the fees paid for the plan review. In some cases, the plan review fee includes one or two site inspections. If more than two site visits are required for system(s) approval, additional fees may be required based on an hourly rate.

Typically, the contractor is responsible for all costs associated with site work. If additional fees are required for field work, the responsible party must pay those fees in advance unless other arrangements are made. LS

As 2009 closes out and we enter 2010, System Sensor is ramping up its training options through multiple channels to meet the growing demand for useful and easily accessible fire and life safety training. Specifically, System Sensor is focused on expanding and improving training options through three key access points: Webinars, Online Training and Seminars.

#### Webinars

This new Webinar series will focus on providing relevant and timely information on products, market trends, and legislation and enable you to have your questions answered from the comfort of your home or office. There will be multiple chances for you to sign up and attend a live version of each Webinar. Just go to [systemsensor.com/training](http://systemsensor.com/training) to check the schedule and register. If you can't attend the live presentation, System Sensor will be archiving each presentation for you to view at your convenience.

Archives will include the October Webinar, *Meet the New Problem Solver: Advanced Multi-Criteria Fire Detector*, which introduces you to the world's most accurate fire detector for your most challenging applications. In this 35-minute Webinar, you'll learn about the advanced technology that enables this detector to provide the highest levels of sensitivity, while maintaining unmatched nuisance immunity. You'll see a case study that shows the detector solving highly challenging, real-world problems. And you'll get an overview of ideal applications for this amazing new technology.

Our November Webinar will be: *Selling CO Protection: Don't Leave Money on the Table*. With increased legislation and higher public awareness, carbon monoxide detection is a quickly growing market. See how you can provide your customers with the most comprehensive CO protection available while building your business.

#### Online Training

System Sensor is updating its Online Training courses with new voiceover options, appealing and informative visuals, and increased interactivity to provide you the information you need at a time and place that is most convenient for you.

These online courses provide a self-training option that can enhance your product and application knowledge for use in the field. Courses cover a wide range of subjects, including product overviews, installation and maintenance, and legislation. Once you have completed the course, you have the option to take an online quiz and print a certificate to verify you have completed the course.

The newest addition to the System Sensor Online Training course lineup updates our Carbon Monoxide Detection Online Training Course. Early next year, new courses will focus on the Advanced Multi-Criteria Fire Detector and nuisance alarm reduction, as well as mass notification.

You can access Online Training at [systemsensor.com/training](http://systemsensor.com/training). System Sensor will be adding more training modules all the time, so check back frequently.

#### Seminars

System Sensor Seminars provide live training on a variety of topics from the industry's most knowledgeable fire system and life safety experts. Seminars are free to attend, often provide CEU credits and enable you to interact directly with the instructor.

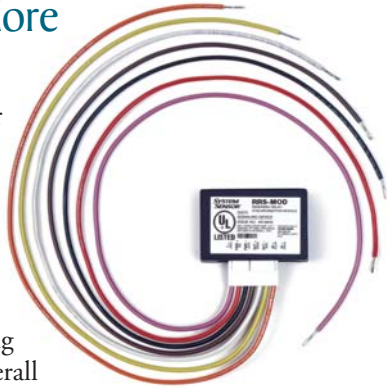
In 2010, System Sensor will launch Fire Protection Technology and Design Seminars in many cities throughout the U.S. Subjects will include:

- Notification appliance applications
- Voice evacuation systems
- Mass notification systems
- Carbon monoxide detection, codes and legislation
- Multi-criteria and specialty detection
- Duct detector applications
- Update on NFPA changes

In January, check to see which Seminars are coming to your area at [systemsensor.com/training](http://systemsensor.com/training). These events fill up quickly, so be sure to sign up early.

## Relays Provide Switching Application Control to HVAC, Doors and More

Gain an even higher level of protection for facility-wide fire and life safety systems with System Sensor multi-voltage conventional relays. These relays control high-current switching applications in an overall fire protection system, such as fan and damper assemblies, doors, elevators, air handling systems and other types of system interfacing.



These relays also act as accessories that interface with other System Sensor protection systems, such as duct and conventional smoke detectors, and bring an additional level of security and safety to these systems. Relays can be configured on either a fixed basis or can be programmed to activate under specific input conditions.

Examples of relay functions include:

- Relays can hook to HVAC system detection to prevent dissemination of smoke through fans, dampers and air-handling systems.
- For doors, the relays can be programmed to close doors to certain building zones to keep smoke from spreading or to unlock doors to improve egress.
- Elevators can be controlled by relays to ensure appropriate elevator recall operation.

Relays can also interface with voice evacuation, security and mass notification systems to ensure, for instance, that building management and occupants have accurate, up-to-the-minute information regarding emergency situations that impact other components connected to the fire system. Monitoring of kitchen systems and suppression systems may also be enhanced with relays.

System Sensor offers three types of relays, each of which feature activation LEDs and is available in multiple voltages to accommodate different applications. The three available series of relays are: the epoxy-encapsulated potted with pigtail series relays; steel enclosure series relays, which are mounted into a steel enclosure with a removable front cover for easy access; and track-mount series relays, which have terminal strip field wiring connections.

System Sensor technical support can advise which relay series is best suited for any particular facility or application.



## Design Notification Circuits with Revised Voltage Drop Calculator Tool

Quickly plan and model notification appliance circuits (NACs) using the entire line of SpectrAlert® Advance appliances with the Voltage Drop Calculator. System Sensor has completely redesigned this user-friendly tool as a stand-alone application that users can download to their computers.

The Voltage Drop Calculator allows users to create NACs from a variety of appliances, including legacy devices, to meet nearly any application requirement. Users can easily and accurately calculate the voltage drops along a NAC by analyzing each device on the circuit and determining if enough operating voltage is available at each device location.

This new Adobe Air-based application is loaded with powerful and useful features, including the ability to save and share each project as needed. Users decide how to handle files: They can start fresh with a New Project, or go to an Open Project (saved project). Job details and user preferences can be saved for each project, and all design work is accessible on one page.

Graphical elements in the tool visibly display changes as they are made. A “used amps” bar, for example, shows how much power each circuit is using. The Device Listing and Device Ruler visually produce the NAC as it evolves. Users can move devices simply by dragging and dropping them.

The tool calculates voltage drop based on wire resistance, circuit distance, filtered vs. unfiltered panels, device settings and distances between devices. Users can build a NAC to print or e-mail to team members or the Authority Having Jurisdiction. The printing feature accommodates multiple types of submission forms and five print options.

The Voltage Drop Calculator can be downloaded at [systemsensor.com/volt](http://systemsensor.com/volt).



## Redesigned Sounder Bases Increase Versatility, Consistency

The newly redesigned System Sensor sounder base presents a cleaner, more attractive look backed by simplified installation, easier configuration and better performance. Versatile enough to be used in almost any application, its surface-mount pre-wire plate is flexible and adaptable to fit various junction box styles.

“This improves on the limitations of the old model, which could only be mounted to a 4-inch-square junction box,” said Todd Alford, System Sensor Commercial Business Unit Marketing Manager. The new model also simplifies installation over the previous model: First, the installer securely fastens the mounting plate. Then, the installer can bring the wires through, leaving both hands free to place the wires and secure them with a screwdriver.

Making the sounder bases even easier to install, the electronics module is now part of the housing, leaving the entire junction box free for wiring.

“Getting the electronics out of the junction box greatly eliminates the potential for nicked wires and ground faults, and leads to 30 percent faster installation time,” said Alford. The actual sounder units can be installed at a later time by simply snapping them onto the plate. An added bonus is that the new housing completely covers the wiring and mounting screws, eliminating the need for screw covers — often lost on the jobsite with the old model.

Creating a consistent appearance throughout a facility was also a factor in the redesign of the bases, which now resemble the System Sensor SpectrAlert® Advance line. Furthermore, the sounder bases use the same horn and driver circuit as SpectrAlert Advance A/V products, enabling consistent, facility-wide sound. The generated tone is not a fixed 3 kHz;




rather, it sweeps through a range of frequencies, allowing the sound to better penetrate walls and doors.

“While the UL rating is 85 decibels, the reality is, when driven with clean 24-volt power, the output exceeds 90 decibels,” explained Alford. “This gives you more flexibility in placing the sounder to meet the 85 decibel ‘at the pillow’ requirement.”

System Sensor has designed this product to seamlessly enable reverse compatibility with existing sounder base installations. The new sounder bases work with all existing panels and can be mixed on the same loop with older units. This is ideal for situations where an old sounder must be replaced or when new units are added as a facility expands or changes usage.

If that isn’t enough, this new product helps keep stocking issues under control. Unlike the outgoing sounder base, only one model needs to be stocked. This was accomplished by shipping all units configured to Temporal 3 tone, with a simple jumper to remove in order to enable the continuous tone.

These improvements in installation ease, aesthetics and performance are focused on meeting requirements for the growing commercial sleeping space market. As more hotel operators, universities and other public sleeping space facility operators move away from single-station smoke detection in favor of system-connected, addressable systems, the need for an attractive, easy-to-install sounder base has never been more pressing for dealers, distributors and installers who want to take advantage of this expanding opportunity. This new product will meet that need. 

# Major Trade Shows in 2010

## Association of Heating & Refrigeration Expo (AHR)

Orlando, FL  
January 25-27  
<http://www.ahrexpo.com>

## NFMT

Baltimore, MD  
March 16-18  
<http://www.nfmt.com>

## ISC West

Las Vegas, NV  
March 23-26  
<http://www.iscwest.com>

## National Fire Sprinkler Association (NFSA)

Chicago, IL  
April 14-18  
<http://www.nfsa.org>

## NFPA Conference & Expo

Las Vegas, NV  
June 7-10  
<http://www.nfpa.org>

## ISC East Expo

New York, NY  
October 15  
<http://www.isceast.com>



# Innovative. Powerful. Versatile.

**Audible visible notification** is an expanding marketplace. To grow your business in this market, you need an AV line simple enough to install quickly in large installations, yet versatile enough to meet any fire and life safety, mass notification, and general signaling requirement.

SpectrAlert® Advance was designed to do just that.

The only AV products with plug-in designs, aesthetic and functional consistency, and field-adjustable settings across the entire line, SpectrAlert Advance enables you to meet the widest range of notification requirements and specifications in the industry, while saving time, reducing costs, and simplifying inventory.

Learn more about how SpectrAlert Advance can help you grow your business at [systemsensor.com/av](http://systemsensor.com/av).



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