

# Choosing a voice evacuation system

It is a fact that in the event of a fire, people respond better to verbal warnings than sounders. So how best to specify the system you should be looking for?

In an emergency, warnings must be clear and concise. While bells and sirens can alert people to danger, experience proves that in stressful situations and unfamiliar places, people are slow to respond and lose valuable time reaching safety when every second counts. Often, they simply believe that the 'alarm' is false or a test.

Over the past 20 years, the debate over whether sounders on a fire alarm system are more effective than a dedicated voice alarm (VA) installation has gradually moved on. Verbal instructions are now widely considered to be the most effective way of notifying occupants of an emergency and instructing them where to go. Indeed, the facts speak for themselves: recent research showed that in an emergency, 13% of people reacted to bells, 45% to text and 75% to voice. The argument, hopefully, has been won.

But that is only one part of the story. To be truly effective, the instructions must be transmitted over a VA system capable of maintaining good speech intelligibility over large distances. And the system must remain operational in the harshest environments, especially in the event of a fire. Not surprisingly, this is where most of the effort of manufacturers such as Bosch has historically been concentrated.



## WHAT IS A VOICE ALARM (VA) SYSTEM?

VA systems are, in effect, public address (PA) systems that are highly secure and enhanced to meet the stringent standards applied to fire alarms.

The simple systems of a decade or so ago, however, have moved on considerably in recent years, and one of the most significant changes in recent times has been the amendment to BS5839 2008 that has brought the VA Standard in line with the equivalent standards in the fire alarm industry.

## WHAT INDUSTRY TESTS SHOULD THE TECHNOLOGY BE SUBJECTED TO?

The PA/VA sector has always been known as a cottage industry, because manufacturers have been able to self-certify their products. To the genuine, quality-led organisations this has always been an anathema, and has brought into question, for example, whether that 240-watt amplifier really provides 240 watts.

The introduction of EN54-16, however, should bring greater clarity since all manufacturers' technology will have to be independently tested. This in turn will allow like-for-like comparisons to be made between different manufacturers' technologies, and a level playing field for all concerned.

## TO WHAT EXTENT HAS AMPLIFIER TECHNOLOGY EVOLVED?

As well as regulation and standards, the technology itself has continued to evolve. For most customers, small is beautiful, and so a key trend has been the emergence of a new generation of amplifiers. Although the physical dimensions have not changed, the amount of power they can produce, commensurate to their size, has increased substantially, and in some cases doubled.

Another trend has been the introduction of digital amplifiers that has enabled hi-fi-quality speech to be distributed over a wider area, bringing to an end the days of a tinny-sounding announcement – in theory, at least.

## HOW ARE EVACUATION PROCEDURES CLASSIFIED?

Evacuation procedures are classified depending on the type of building and the corresponding identified risk, from V1 to V5.

V1 covers situations where a pre-programmed evacuation plan is required, for example in small/medium-sized places of assembly such as shops and nightclubs. V2 builds on V1 but allows for live emergency messages to be made, for example in office buildings, hotels and schools. V3 extends to situations where live emergency messages need to be broadcast in predetermined zones, or groups of zones, such as in shopping centres, transport terminals and sports stadia.

V4 systems cover all of the requirements of a V3 system, and in addition allow the facility to select and direct stored emergency messages into individual zones. V5 systems apply where the application falls outside of the scope of types V1 to V4, and covers tailored solutions based on the assessment of special risks. Examples might include a building hosting several thousand people such as an exhibition centre, sports complex or congress venue.

## HOW EASILY CAN PA/VA SYSTEMS INTEGRATE WITH OTHER RELATED TECHNOLOGIES?

The way in which PA technology is now being more readily integrated with other technologies such as CCTV and professional audio, and how it has evolved to provide interfaces into other systems that aid communications in other market sectors and disciplines, are also noticeable. An event now seen by operators in a video monitoring centre, for example, can be accompanied by a pre-recorded warning or public safety announcement. Intruders can be warned off site, or told that they are being watched.

Speakers themselves can be individually monitored over the electrical circuit so that if they are tampered with or vandalised, the rest of the system is not compromised nor lives put at risk. (This is especially useful in the higher-risk areas such as toilets in shopping centres).

The future will see the development of even more amplification power, and closer relationships between the professional audio and PA systems, that in turn will facilitate better-sounding audio systems. Addressable speakers will also one day form an integral part of the fire alarm system, and greater integration between the fire alarm systems and voice alarm will continue.

The evacuation procedures of voice alarm systems are tailored to the type of building they are used in, including train stations and shopping centres

Voice alarm systems meet stringent standards and can be integrated with related technologies



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