

# Improving early warning fire systems

Rowland Davies, Marketing Services Manager at Apollo Fire Detectors, explores how sounders and beacons have developed and their application as early warning devices in modern fire detection systems.



*Apollo's Discovery Open Area Sounder Beacon can be used for fire alerts and non-fire purposes such as signalling the end of a shift.*

**A**udible and visual alarm products have historically been the "poor relations" of fire detection. While fire detection technology was evolving conventional and intelligent systems, including devices specific not only to smoke and heat, but also to carbon monoxide and combinations of these key indicators, audible and visual warning devices did not keep pace.

Within the last three years or so, this situation has changed radically. This is largely due to changes in legislation – notably the UK's Regulatory Reform (Fire Safety) Order – and a shift in industry perspective regarding roles and responsibilities. For example, the "responsible person" for the fire detection system must now consider everyone who might be on the premises, paying particular attention to people who may have a disability or need special help. The UK's Disability Discrimination Act (DDA) emphasises the need to consider alerting occupants with a disability in the case of a fire.

In practical terms, this could lead to a significant increase in the number of alarm devices in a fire detection system. The knock-on implications include increased cost, additional wiring and therefore longer installation time – to say nothing of the extra difficulty in appropriately siting all the necessary devices.

Increased complexity is not desirable in a life-critical system. Clear and unequivocal warning must be the overriding aim – particularly



in industrial environments where egress could be restricted or high noise levels may prevent audible alarms being heard.

Fire detection manufacturers have therefore responded by developing a new generation of audible and visual warning devices. Loop-powered beacons are one result. Because it is loop-powered, the beacon does not require a separate circuit, which offers savings on wiring, interface equipment and installation time. This type of device is ideal for use as a visual warning in areas with high background noise such as machine rooms and engine test bays.

Combining the maximum number of functions in a single device also keeps costs down and installation simple. A sounder beacon base, for example, combines a loop-powered sounder and beacon with an integral base, so a detector can be fitted to it. The device may also feature an inbuilt isolator, so even a basic model can provide four functions at a single point – audible alarm, visual alarm, detection and short circuit isolation.

For example, at Dinorwig hydro electric power station in Wales more than 450 addressable loop powered sounders and sounder beacons are fitted to alert staff to an emergency. The sounder beacons are used in the machine hall, where noise levels may prevent audible alarms being heard.

Manufacturers are also continuing to refine the features available in these multi-purpose devices. The most recent sounder beacon bases are capable of being assigned to more than one group of products at a time if required. Sound and light pulses are easily synchronised, avoiding confusion in large complexes.

One example is Apollo's Discovery open area sounder beacon. Suitable for use in open areas indoors, this device has sounder and beacon settings that can be controlled independently. Volume and tone settings for the sounder can also be selected via the control panel. In addition to fire alerts, the Discovery open area sounder beacon can be used for non-fire purposes such as signalling the end of a shift. (It is available with either a red or a white beacon lens.)

Additionally, to accommodate extreme conditions, versions of audio visual warning devices are available to meet the demands of marine environments or explosive atmospheres.

## Summary

Increasing legislative demands regarding warning procedures in life-critical situations could potentially have made fire detection systems more costly and complicated. However, the reassessment and redesign of audible and visual alarm equipment that happened as a result has led to the development of more reliable and more sophisticated products. This new hybrid race of sounder/beacons has once again simplified compliance and controlled costs and installation times. Producing versions that can meet the most demanding industrial applications means that giving people clear and unequivocal warning of fire is achievable in any circumstance.



*Top right: The loop-powered beacon does not require a separate circuit, which offers savings on wiring, interface and installation.*

*Right: Sounder beacons are used at Dinorwig power station, where noise levels may prevent audible alarms being heard.*

# Intrinsic safety



Hazardous areas where an explosive mixture of air and gas or vapour may be present requires electrical equipment that cannot cause an ignition – not only in normal operation but also in fault conditions. The most common method of achieving this is intrinsic safety.

orbis™ IS (Intrinsically Safe) is a range of conventional detectors which has been developed from the standard range of Orbis smoke and heat detectors, specifically for safe operation in potentially volatile environments. The range has all the benefits of the standard range and remains electrically compatible with Apollo Series 60 IS conventional detectors, but now has Marine Approval and BS EN 60079 accreditation for hazardous areas.

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