

Conventional System Architecture

The philosophy of a conventional system revolves around dividing the building into a number of areas called zones. The detectors and callpoints within each zone are then wired on dedicated circuits. In the event of a detector or callpoint being triggered, the panel is able to identify which circuit contains the triggered device and thereby indicate which zone the fire alarm has come from.

It is then necessary to manually search the indicated zone to pinpoint the exact cause of the fire alarm.

Unwanted Alarms

Because most conventional detectors are simple two state devices they can only be in either a normal or fire condition. Although modern components and good system design can go some way to reducing potential problems, it is not uncommon for conventional systems to generate unwanted alarms due to certain operating conditions or transient environmental conditions such as the presence of steam near to a smoke detector.

A key development aimed at reducing such unwanted alarms has been the multi-criteria detector.

Traditionally, detectors were designed to respond to particular fire phenomena such as heat or the presence of smoke. However, Cooper now offer multi-criteria devices, which contain both a smoke sensing element and a thermal sensing element.

The fire alarm decision is taken by analysis of the responses from both elements, resulting in improved detection performance as well as greatly enhanced false alarm suppression.

Sounder Circuits

In addition to the detection circuits, there is also a need for separate circuits of alarm annunciation devices such as sounders and beacons to signal the existence of a fire alarm condition to the building users. For sounder circuit continuity monitoring to function effectively, sounder circuits have to be wired in a single radial circuit, spurs and tees are not permitted.

Almost every conventional fire panel will have facilities for more than one sounder circuit and generally the higher the specification of the panel or the higher the number of detection zones provided, the more sounder circuits will be provided.

Normally however there will be less sounder circuits than detection zone circuits so it will be necessary for a sounder circuit to provide cover for more than one zone.

This increases installation complexity by forcing the sounder wiring to follow different routes to that of the detector wiring.

When designing a conventional system it is important to ensure that the panel has adequate zone capacity for the size and complexity of the building and that the panel can support the intended sounder circuit wiring and loading.

