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APPLICATION NOTE - LINEAR HEAT DETECTION CABLE

Cable Tunnels and Flats

It is now accepted that with fires involving PVC insulated cables, large volumes of toxic fumes are produced within a few minutes and severe damage to cables will occur before conventional sprinklers operate. However, using Linear Heat Detection Cable Systems the outbreak of fire may be detected before there is any damage to cables.

Typically, cable tunnels and flats use multi-level cable tray for cable support / installation. Linear Heat Detection Cable may be economically applied to monitor above each level and below the bottom level, for debris fires.

In tests in a mock cable tunnel using a standard crib fire, detection times of less than one minute were repeatedly achieved.

Linear Heat Detection Cable Systems are available with zone monitors providing operating signals for sprinklers fitted with single shot actuators. With this combination of early detection and operation of sprinklers the fires in the tests mentioned above were extinguished in less than 3 minutes with no damage to cables. The conventional sprinklers in the same tests took over 20 minutes to extinguish the fire and many cables were damaged.

The arrangement of the "zones" of detection may be decided by the following:-

- Physical barriers or Fire Breaks
- Access ways etc., for fire fighting personnel
- Zoning of sprinklers or other extinguishants

Each zone will require a length of Linear Heat Detection Cable and a zone monitor. The length of Detection Cable in any zone may be determined by reference to "Characteristics of Linear Heat Detection Cable Systems" and typically this length is up to 500 metres when applying the CEGB standard no. 187.

The zone monitor may be located in or adjacent to the zone and as well as the sprinkler actuation signal provides repeat signals to a control area via a suitable interposing cable. Where this cable traverses other zones it would normally be of the short time fireproof type.

At an area control panel the status of a number of zones may be displayed using either an annunciator matrix or a graphic display.

By utilising the open and short circuit cable fault monitoring and actuation circuit options, systems can be provided with the following features:-

Adjustment of pre-alarm level

Adjustment of alarm level

Fire alarm and actuation only in true Fire condition - not on open or short circuit fault of the Detection Cable.

Operation of all healthy single shot Actuators (even with others in the zone being either open or short circuit).

Manual Inhibit Switch.

A variety of fixing methods are available for Linear Heat Detection Cable to cover applications on all forms of cable supports (trays, ladder racks, trefoil etc.,) and full details are covered in the data sheets on fixings.

Applicable Data Sheets

Linear Heat Detection Cable

Patol Zone Control Module LDM-519 / SEN

Patol Zone Control Module LDM-519 / ACT

Patol Zone Control Module LDM-519 / LP (line powered)

Patol LDM- 519 Eurocard Module

Fixings (various)