DETECT-A-FIRE®

FENWAL®

Detection and Release Devices

FEATURES

- Repeatable - self-restoring, nothing to replace, testable
- Rugged - withstands shock and vibration
- Versatile - various temperature settings available
- Durable - long lasting stainless steel shell
- Economical - wide spacings reduce installation costs
- Factory set
- Internal contact area hermetically sealed in stainless steel shell
- ROHS Compliant

APPLICATIONS

- Protection of schools, factories, offices, libraries, etc.
- Power generation
- Gas station islands
- Paint spray booths
- Range hoods
- Engine compartments

DESCRIPTION

DETECT-A-FIRE® detectors are the "heart" of many fire protection systems. These highly reliable devices have been a standard for over 65 years. Thousands of these detectors are in use controlling the release of extinguishants such as clean agents, CO_2, water, or dry chemicals. In some systems the device is used as an ALARM device, to sense overheat or fire and alert personnel.

DETECT-A-FIRE detectors have met with wide acceptance because they are designed with RATE COMPENSATION. This provides a unique advantage over both fixed temperature and rate-of-rise types of detectors because only the DETECT-A-FIRE detector accurately senses the surrounding air temperature regardless of the fire growth rate. At precisely the pre-determined danger point, the system is activated.

Fixed temperature detectors must be completely heated to alarm temperature and therefore a disastrous lag in time may occur with a fast rate fire. Rate-of-rise devices, on the other hand, are triggered by the rate of increase in ambient temperature and are subject to false alarms caused by harmless, transient thermal gradients such as the rush of warm air from process ovens.

The secret of the unit's sensitivity is in the design (Figure 1). The outer shell is made of a rapidly expanding alloy which closely follows changes in surrounding air temperature. The inner struts are made of a slower expanding alloy. Designed to resist thermal energy absorption and sealed inside the shell, the struts follow temperature changes more slowly.

A slow rate fire (Figure 2) will heat the shell and struts together. At the "set point", the unit will trigger, actuating the alarm or releasing the extinguishant.

A transient rush of warm air up to 40°F/min. may expand the shell, but not enough to trigger the unit. By ignoring transient warm air excursions, the DETECT-A-FIRE detector virtually eliminates false alarms prevalent with rate-of-rise devices.

If a fast rate fire (Figure 3) starts, the shell will expand rapidly. The struts will close, actuating the alarm and/or releasing the agent. The faster the fire rate of growth, the sooner the DETECT-A-FIRE detector will react.
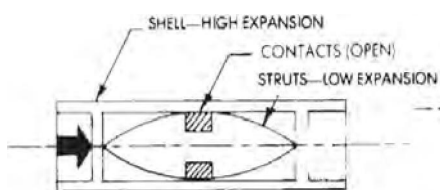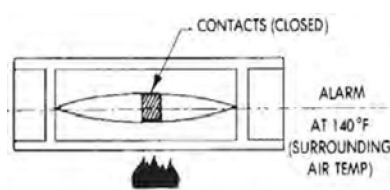
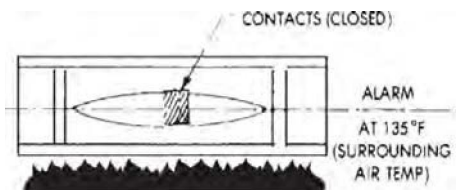Figure 1. READY   Figure 2. SLOW FIRE   Figure 3. FAST FIRE

HORIZONTAL DETECT-A-FIRE DETECTOR SPECIFICATIONS

Horizontal DETECT-A-FIRE detectors are designed for locations where appearance is a factor. The attractive, functional design lends physical protection of the unit while making it suitable for commercial, industrial, mercantile public buildings, institutions and marine applications in non-hazardous locations (those classified as "ordinary" under the National Electric Code). Flush mounted units are designed to fit standard 4-inch octagonal electric boxes and surface mounting units are designed to mount directly on ceilings or on 4-inch electrical junction boxes. Canadian Electrical Codes requires mounting only to an electrical junction box.

HORIZONTAL MODELS ONLY

TABLE 1

Model No. (See Table 2 for "X")	Contact Operation on Temperature Rise	Approx. Weight per Unit	Electrical Rating (Resistive Only)
12-X27020-000 12-X27020-001	Opens 325°F (Max)	10 oz	5.0 Amps 125 VAC 0.5 Amps 125 VDC
12-X27021-000 12-X27021-001	Closes 325°F (Max)	10 oz	5.0 Amps 125 VAC 0.5 amps 125 VDC 2.0 Amps 24 VDC 1.0 Amps 48 VDC
Model 12-X27020-00X is a normally closed device and does not meet the requirements of NFPA-72 for use as an initiating device.			

TABLE 2

X	°F Setting	°F Tolerance	Spacings (in feet)			RTI	Color Coding
			UL	ULc	FM		
A	140	+7/-8	50	50	20	Quick	Black
A	160	+7/-8	25	25	20	Quick	Black
A	190	+7/-8	50	50	25	Fast	White
A	210	+7/-8	25	50	25	Fast	White
A	225	+7/-8	25	50	25	Fast	White
B	275	10	25	50	25	Fast	Blue
B	325	10	50	50	25	Fast	Red

HORIZONTAL DESIGNS

Flush Mounting Unit for Concealed Wiring

12-X27020-000
12-X27021-000

Surface Mounting Unit for Exposed Wiring

12-X27020-001
12-X27021-001