



KIDDE DUAL SPECTRUM® INFRARED SENSOR

LIFE-SAVING FIRE/ EXPLOSION DETECTION

Features built-in test, overheat sensing and discrimination

Collins Aerospace's Kidde Dual Spectrum® fire/explosion sensors respond to explosive fires in milliseconds with excellent false alarm immunity. The sensors use a patented Dual Spectrum infrared detection concept and can detect energy levels present in a fire or explosion. Since non-fire situations seldom emit these energy signatures, our fire/explosion sensors are highly immune to false alarms.

Our Dual Spectrum infrared sensor Model PM-34CSBEH is designed to detect fuel explosions and fires in enclosed spaces of armored personnel carriers such as the crew, engine and other compartments.

The PM-34CSBEH contains a third infrared detector that provides fire signature information to the logic system, located in the control electronics. This provides discrimination capability that prevents false alarms from a kinetic energy or high-explosive anti-tank round penetration that does not result in an explosion or fire. The suppression system is triggered only when an explosion or fire event occurs.

Collins Aerospace has been involved in the development, testing and manufacturing of high-speed, optical explosion/fire-sensing and suppression systems since 1968.

KEY FEATURES

- Reliable sensor can see through oil, smoke, dirt and other obscurants
- Discriminates between explosive and non-explosive threats
- Tests for continuous connection status of the sensor to the control electronics
- Greatly increases crew and vehicle survivability
- Continuously monitors unobserved areas such as engine compartments or wheel and track areas to ensure fire prevention
- Immune to false alarm
- Built-in test

BUILT-IN TEST FEATURE

During normal operation between the control electronics and the PM-34CSBEH, the operator can initiate built-in test circuitry that monitors detectors, electronics and sensor window contamination. When the control electronics triggers a built-in test, the PM-34CSBEH responds by testing the photo detector to ensure proper operation.

RADIOMETRIC HEAT SENSING

The sensor integrates radiometric heat detection circuitry, which monitors its entire field of view for overheat conditions above the heat detection threshold. Radiometric heat sensing remains operational even with the presence of thick layers of contamination, such as oil and dirt.

SPECIFICATIONS

Detection threshold	18 in. diameter DF-2 pan-fire at a distance of 60 in. explosive fireball that grows from 1 to 4 in. diameter instantaneously
Explosive fire response time	2 ms max.
Heat detection threshold	Factory set, usually 165° F above background
Optical field of view	90°
Weight	0.6 lb.
Temperature, operational	-67° F (-55° C) to 257° F (125° C)
Environmental	Qualified to the environmental requirements of MIL-PRF-62546C and ATPD-2404B

FALSE ALARM IMMUNITY

Stimulus	Distance (in.)
Sunlight	NR
Flashlight	NR
Indirect or reflected light	NR
Electronic flash	12
Lit cigarette	1
Bookmatch flare-up	4
Red dome light	1
Vehicle headlights	6
Radiation heater (1000 watts)	12
Oxy-acetylene flame (5/8 x 6 in. flame)	12
Bright clothing	NR
Fluorescent light (40 watt)	NR
Chopped light (Vent fans, hatch covers, etc.)	NR
Electric arc (1/2 in. 4000 V)	1
Incandescent lamp (75 watts – rough surface)	2
Large wooden match flare-up	4
Rifle flash (M16)	2
Vehicle IR lights	12
Movie lights (625 watts)	24
Arc welding (steel rod, 0.5 in. arc)	30

The Dual Spectrum® automatic fire-sensing and suppression system will not deliver a false alarm at the distances indicated above or greater.

Specifications subject to change without notice.

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