



UV-IR 20/20LB “SharpEye” Flame Detector

Features

- UV/IR Dual spectrum design
- Multiple detection levels – Pre-Alarm, Alarm and Saturated Signal
- High speed response
- Automatic and manual built-in test
- User-programmable configuration
- Explosion-proof
- Standard 4-wire connection
- Mean Time Between Failures (M.T.B.F.) minimum 100,000 hours
- 3 Year warranty
- Optional air shield for tough environmental conditions
- Optional swivel mount

Applications

The 20/20LB UV/IR Flame Detector has been designed as a general-purpose flame detector. It has applications in a wide range of industrial and commercial facilities, where the threat of accidental fire involves hydrocarbon fuels, such as gasoline, hydraulic fluid, paint, various solvents, aviation fuel, natural gas, propane, etc. Typical field applications include: aircraft facilities, automotive manufacturing, petrochemical facilities, printing, painting facilities, munitions handling, power generation, and warehousing of flammable liquids and gases.

Description

The standard detector housing is a heavy-duty copper-free aluminum housing casting. The housing finish is epoxy enamel. The detector housing is also available in stainless steel upon request. The viewing window is protected by two guard bars that also serve as part of the self-check diagnostic path. The viewing window and back cover are each sealed with a special “O” ring to prevent intrusion of dust, salt spray, and foam/water fire fighting agents. The circuit boards are conformally coated and shock-mounted to minimize damage from mechanical vibration and impact. The detector is explosion-proof and meets NEMA 250 for type 6P and tested per MIL-STD-810-C.

The “SharpEye” 20/20LB is a self-contained dual spectrum flame detector. The sensor band pass has been carefully selected to ensure the greatest degree of spectral matching to the radiant energy emissions of fire, and the lowest degree of matching to non-fire stimuli.

The microprocessor design allows for unique field programmability. Its multiple detection levels allow for Pre-Alarm, Alarm and Saturated Signal response. In addition, the 20/20LB offers a customer programmable time delay.

The UV channel incorporates a special logic circuit that reduces false alarms caused by solar radiation and other non-fire UV sources. The UV channel sensitivity is stabilized over the working temperature range. The IR sensor reacts to radiation between 2.5 to 3.0 microns. Only radiation in this range lasting for a preset time and threshold, having an intermittent pattern characteristic to fire will register an alarm signal.

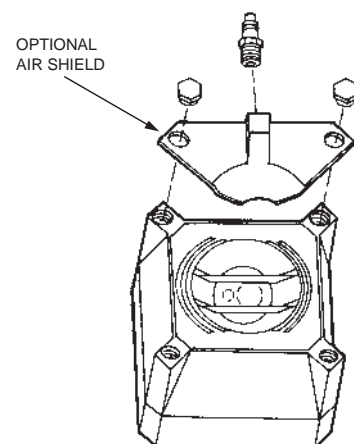
The signals from both sensors are analyzed for frequency, intensity and duration. Simultaneous matching of radiant energy in both sensors triggers an alarm signal. A saturated signal will also result in an alarm signal.

An optional Air Shield provides constant pressurized air on the lens of the detector. Use of the shield protects the viewing window from the accumulation of dirt and dust. This reduces the frequency of maintenance and cleaning cycles in tough environmental conditions. The air shield is installed on the front of the detector with two screws and an air quick connect fitting connected to the air pressure source.

In addition to the basic alarm evaluation circuit, the 20/20LB incorporates an automatic self-test function that verifies the cleanliness of the lens and proper operation of the sensors and all electronic circuitry.

The 20/20LB utilizes Mil-spec. electronic components and materials. The MTBF is calculated to be 100,000 hours (11+ years). This outstanding performance permits a 3-year warranty on the entire detector, not just the sensors.

The optional Swivel Mount allows the 20/20LB Flame Detector to be aligned in the direction of the protected area. The detector is placed on the ball joint of the swivel mount and secured to the holding plate. When the correct position is located the detector is held in place by tightening the locking screw at the back cover of the detector.



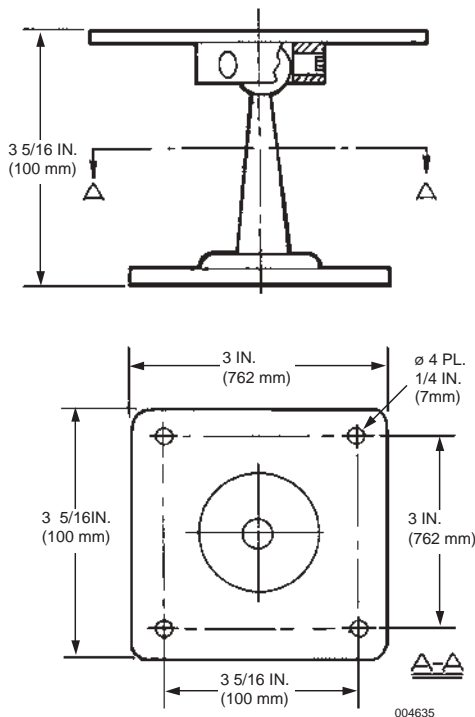
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Technical Information

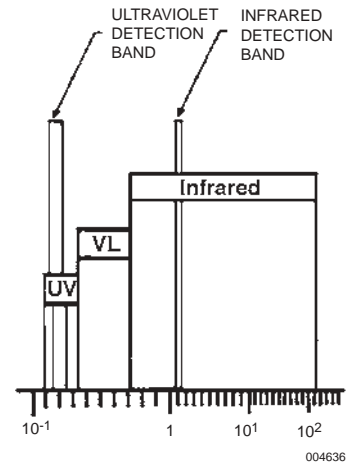
- Operating Voltage: 18 – 32 VDC
- ▶ Power Consumption: 100 mA in standby,
125 mA in alarm
- ▶ Dry Contact Relays:
 - Alarm: 2 Amps at 30 VDC,
2 Amps at 250 VAC
 - Fault and Accessory: 2 Amps at 30 VDC,
2 Amps at 250 VAC
 - Option: 4 to 20 mA output
- Electrical Interface: Standard 4-wire connection with cascading capability. Complete electrical interface protection
- Dimensions: 5 3/16 x 5 3/16 x 4 3/4 in. Deep
(132 x 132 x 120 mm Deep)
- Electrical Connection: Standard 3/4 in. 14 NPT conduit
- Temperature Range:
 - Operating: -40 °F to 160 °F (-40 °C to 70 °C)
 - Storage: -65 °F to 185 °F (-55 °C to 85 °C)
- Detection Range for 1 Square Foot (.093 m²) Fire:
 - Gasoline: 50 ft. (15.2 m)
 - Diesel Oil: 25 ft. (7.6 m)
 - N-Heptane: 50 ft. (15.2 m)
 - Alcohol: 12 ft. (3.7 m)
- Response Time:
 - ▶ Maximum: 0.02 second for Saturated Signal
 - Typical: 3 seconds for 1 ft.² (.093 m²) gasoline fire
 - Adjustable: Time delay up to 30 seconds
- ▶ Field of View: 90° horizontal, 90° vertical
- Explosion-proof enclosure:
 - NFPA Class I Division: 1, 2 groups B*, C and D
 - ▶ NFPA Class II Division: 1, groups E, F and G
 - Provides for installation of a swivel mount.

* Requires seal at detector

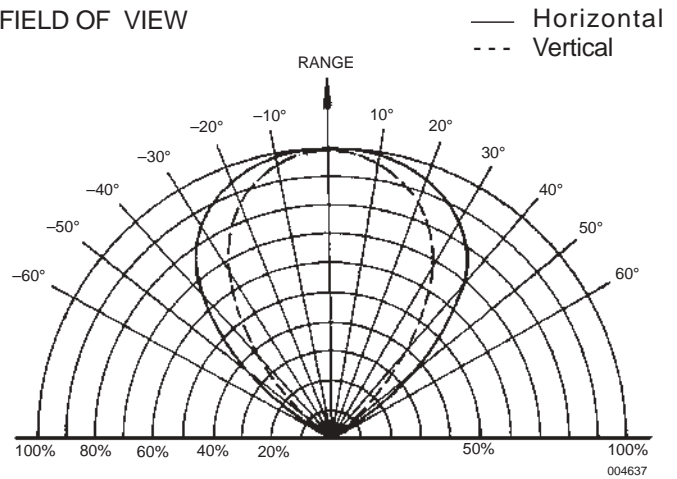
SWIVEL MOUNT



SPECTRAL RESPONSE



FIELD OF VIEW



Listings and Approvals*

- FM Approved
- CSA Approved
- CENELEC Approved

* Listings and Approvals are under SPECTREX, INC.

Ordering Information

Part No.	Description	Shipping Weight	
		lb.	(kg)
417934	UV/IR Detector, Model 20/20LB	9	(4.1)
417936	Swivel Mount	2	(0.9)
417937	Air Shield	2	(0.9)

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