

MODEL 20/20 MI-3 TRIPLE IR (IR³) FLAME DETECTOR

Data/Specifications



FEATURES

- Triple-Spectrum Design
- Large Field of View (100° horizontal/vertical)
- ▶ ■ Highly Immune to False Alarms
- ▶ ■ Manual/Automatic Built-In-Test (BIT)
- ▶ ■ FM Approved

APPLICATION

The Triple IR (IR³) Flame Detector is used with the CHECKFIRE® SC-N Detection and Actuation System. The Triple IR detector is used as an optional add-on to standard linear detection or thermal detection. The Triple IR detector has been designed as a rugged, heavy duty type detector with special emphasis on immunity to false alarms. It has applications in a wide range of mining, industrial and commercial facilities, where fuels, such as, hydraulic fluid, gasoline, kerosene, diesel fuel, aviation fuel, polymers, natural gas, hydrocarbon gases, present a possible fire hazard.

DESCRIPTION

The Triple IR (IR³) Flame Detector is a high performance and high reliability self-contained triple spectrum flame detector.

This detector, packaged in a small, convenient size housing for easy installation in tight areas, is specially designed as a general-purpose flame detector for off-road (mining) and industrial applications with the highest immunity to false alarms. The patented Triple IR design offers two to three times the detection distance of any conventional IR or UV/IR detector, scanning for oscillating IR radiation (1 to 10 Hz) in three special bands. Each sensor band pass has been 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.



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SPECIFICATIONS

General

- Spectral Response – Three IR bands
- Detection Range – Gasoline fire at 33 ft (10 m)
 - N-Heptane fire at 33 ft (10 m)
 - Alcohol fire at 25 ft (7.6 m)
 - Diesel Fuel fire at 23 ft (7.0 m)
 - ▶ – Hydraulic Fluid at 23 ft (7.0 m)
 - JP4 fire at 25 ft (7.6 m)
 - Kerosene fire at 25 ft (7.6 m)
 - Methane* fire at 9.9 ft (3 m) *1.6 ft (0.5 m) plume fire
 - Propane* fire at 9.9 ft (3 m) *1.6 ft (0.5 m) plume fire
- Response Time – Typical 1-3 seconds
- ▶ • Time Delay – 0 seconds
- ▶ • Sensitive Range – 33 ft (10 m)
- Field of View – 100° horizontal, 100° vertical
- ▶ • Built-in-Test – Manual/Automatic BIT
- Temperature Range – Operating: -40 °F (-40 °C) to 160 °F (71 °C)
Storage: -65 °F (-54 °C) to 185 °F (85 °C)
- Humidity – Up to 95%
- Electromagnetic Compatibility – EMI/RFI protected CE marked

Mechanical

- ▶ • Dimensions – 4 in x 4 in x 2.5 in (100 x 100 x 62 mm)
- ▶ • Weight – 2.4 lb (1.1 kg)
- ▶ • Enclosure – Stainless Steel 316L
- ▶

ENVIRONMENTAL SPECIFICATIONS

- **Water and Dust:** IP66 and IP67 per En60529, NEMA 250 6P – Meets MIL-STD-810C, method 510.1, procedure I
- **High Temperature:** Design to meet MIL-STD-810C, method 501.1, procedure II
Operating temperature: +160 °F (+70 °C)
Storage temperature: +185 °F (+85 °C)
- **Low Temperature:** Design to meet MIL-STD-810C, method 502.1, procedure I
Operating temperature: –40 °F (–40 °C)
Storage temperature: –65 °F (–55 °C)
- **Humidity:** Design to meet MIL-STD-810C, method 507.1, procedure IV. Relative humidity of up to 95% for the operational temperature range.
- **Salt Fog:** Design to meet MIL-STD-810C, method 509.1, procedure I
Exposure to a 5% Salt Solution Fog for 48 hours.
- **Dust:** Design to meet MIL-STD-810C, method 510.1, procedure I
Exposure to a dust concentration of 0.3 frames/cubic ft at a velocity of 1750 fpm, for 12 hours.
- **Vibration:** Design to meet MIL-STD-819C, method 514.2, procedure VIII
Vibration at an acceleration of 1.1g within the frequency range of 5-30 Hz, and an acceleration of 3g within the frequency range of 30-500 Hz.
- **Mechanical Shock:** Design to meet MIL-STD-810C, method 516.2, procedure I
Mechanical Shock of 30g half-sin wave, for 11 msec.
- **Electromagnetic Compatibility (EMC):** This product is in conformance with EMC directive 89/336/EC.

Radiated Emission	EN61000-6-3
Conducted Emission	EN61000-6-3
Radiated Immunity	EN61000-4-3
Conducted Immunity	EN61000-4-6
ESD	EN61000-4-2
Burst	EN61000-4-4
Surge	EN61000-4-5

APPROVALS

Factory Mutual (FM)

ORDERING INFORMATION

Part No.	Description
▶ 432480	Triple IR (IR ³) Flame Detector Shipping Assembly includes Spectrex Model 20/20MI-32-S-F; Triple IR (IR ³) Flame Detector, Part No. 434941; Detector Mounting Bracket, Part No. 434116
434103	10 ft (3.1 m) Receptacle-Plug Cable Assembly (Triple IR)
434104	20 ft (6.1 m) Receptacle-Plug Cable Assembly (Triple IR)
434105	30 ft (9.1 m) Receptacle-Plug Cable Assembly (Triple IR)
434107	End-of-Line (EOL) Cable Assembly (Triple IR)
434106	“Y” Connector Cable (Triple IR)
434102	Triple IR CHECKFIRE Detection Interface Kit includes Interface Module, Part No. 434108; Module Mounting Bracket, Part No. 423528; End-of-Line (EOL) Cable Assembly, Part No. 434107
434108	Triple IR CHECKFIRE Detection Interface Module
434109	Cover, Triple IR CHECKFIRE Detection Interface Module
▶ 432485	Triple IR Flame Detector User and Maintenance Manual

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