

keep a **SharpEye™** on your safety



40/40R

Single IR Flame Detectors

A low cost solution in a durable, high spec package



The new 40/40R Single IR Flame Detector detects hydrocarbon-based fuel and gas fires using advanced flame analysis tools. The detector provides early warning of flaming fires working at 4.5 μ m for maximum sensitivity, and immunity to false alarms from IR sources such as sunlight and IR projectors.

The 40/40R is the most durable and weather resistant single IR flame detector currently on the market. Its new features include a heated window, to eliminate condensation and icing; HART capabilities, for digital communications; lower power requirements; and a compact, lighter design.

Due to increased reliability, the 40/40 Series warranty period has been extended to 5 years and is SIL2 (TUV) approved to IEC 61508.

FEATURES & BENEFITS

- Sensitivity selection
- Automatic and Manual Built-In-Test (BIT) - to assure continued reliable operation
- Heated window - for operation in harsh weather conditions (snow, ice, condensation)
- Multiple output options for maximum flexibility and compatibility
 - Relays (3) for Alarm, Fault and Auxiliary
 - 0-20mA (stepped)
 - HART Protocol for maintenance and asset management
 - RS-485, Modbus Compatible
- High Reliability - MTBF - minimum 150,000 hours
- Approved to Safety Integrity Level 2 (SIL2 – TUV)
- 5-Year Warranty
- User Programmable via HART or RS-485
- Hazardous area zones:
 - Zones 1 & 2 with IIC gas group vapors present
 - Zones 21 & 22 with IIIC dust type present
- Ex approved to:
 - ATEX & IECEx
 - FM/FMC/CSA
- 3rd party Performance Tested
 - EN54-10 (VdS)
 - FM3260

APPLICATIONS

Offshore Oil & Gas installations
Onshore Oil & Gas installations
and pipelines
Chemical plants
Petrochemicals plants
Storage Tank farms

Power Generation facilities
Pharmaceutical Industry
Printing Industry
Warehouses
Automotive Industry
Waste Disposal facilities



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GENERAL SPECIFICATIONS

| | | | | | | |
|--|--|---------------|-------------------------|---------------|-----------------------|---------------|
| Spectral Response | Single band IR 4.4-4.6 μ m | | | | | |
| Detection Range (at highest Sensitivity Setting for 1ft ² (0.1m ²) pan fire) | Fuel | ft / m | Fuel | ft / m | Fuel | ft / m |
| | n-Heptane | 50 / 15 | Kerosene | 37 / 11 | Methane* | 29.5 / 9 |
| | Gasoline | 50 / 15 | Ethanol 95% | 25 / 7.5 | LPG* | 43 / 13 |
| | Diesel Fuel | 37 / 11 | Methanol | 25 / 7.5 | Polypropylene Pellets | 37 / 11 |
| | JP5 | 37 / 11 | IPA (Isopropyl Alcohol) | 25 / 7.5 | Office Paper | 20 / 6 |
| | * 30" (0.75m) high, 10" (0.25m) width plume fire | | | | | |
| Response Time | Typically 5 seconds | | | | | |
| Adjustable Time Delay | Up to 30 seconds | | | | | |
| Sensitivity Ranges | 2 ranges; 1 ft ² (0.1m ²) n-heptane pan fire from 15 ft (5m) or 50 ft (15m) | | | | | |
| Field of View | Horizontal 90°; Vertical 90° | | | | | |
| Built-in-Test (BIT) | Automatic (and Manual) | | | | | |
| Temperature Range | Operating: -67°F to +167°F (-55°C to +75°C) Option: -67°F to +185°F (-55°C to +85°C) Storage: -67°F to +185°F (-55°C to +85°C) | | | | | |
| Humidity | Up to 95% non-condensing (withstands up to 100% RH for short periods) | | | | | |
| Heated Optics | To eliminate condensation and icing on the window | | | | | |

ELECTRICAL SPECIFICATIONS

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|--------------------------------------|---|
| Operating Voltage | 24 VDC nominal (18-32 VDC) |
| Power Consumption | Standby: Max. 90mA (110mA with heated window) Alarm: Max. 130mA (160mA with heated window) |
| Cable Entries | 2 x 3/4" - 14NPT conduits or 2 x M25 x 1.5 mm ISO |
| Wiring | 12 - 22AWG (0.3mm ² - 2.5mm ²) |
| Electrical Input Protection | According to MIL-STD-1275B |
| Electromagnetic Compatibility | EMI/RFI protected to EN61326-3 and EN61000-6-3 |
| Electrical Interface | The detector includes twelve (12) terminals with five (5) wiring options (factory set) |

OUTPUTS

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|-------------------------|---|
| Relays | Alarm, Fault and Auxiliary SPST volt-free contacts rated 2A at 30V DC |
| 0-20mA (stepped) | Sink (source option) configuration Fault: 0 +1mA Warning: 16mA \pm 5% BIT Fault: 2mA \pm 10% Alarm: 20mA \pm 5% Normal: 4mA \pm 10% Resistance Loop: 100-600 Ω |
| HART Protocol | Optional HART communications on the 0-20mA analog current (FSK) - used for maintenance, configuration changes and asset management, available in mA source output wiring options |
| RS-485 | RS-485 Modbus compatible communication link that can be used in computer controlled installations |

MECHANICAL SPECIFICATIONS

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|--------------------------------|--|
| Materials | - Stainless Steel 316L with electro polish finish |
| Enclosure options | - Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish (not available in FM version) |
| Mounting | Stainless Steel 316L with electro polish finish |
| Dimensions | Detector 4" x 4.6" x 6.18" (101.6 x 117 x 157 mm) |
| Weight | Detector (St.St.) 6.1 lb (2.8 kg) Tilt mount 2.2 lb (1.0 kg) Detector, aluminum 2.8 lb (1.3 kg) |
| Environmental Standards | Meets MIL-STD-810C for Humidity, Salt & Fog, Vibration, Mechanical Shock, High Temp, Low Temp |
| Water and Dust | IP66 and IP67 per EN60529, NEMA 250 6P |

APPROVALS

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|-----------------------|-------------------------|--|--|
| Hazardous Area | ATEX and IECEx | Ex II 2 G D Ex d e IIC T5 Gb Ex tb IIIC T96°C Db (-55°C \leq Ta \leq +75°C) | Ex d e IIC T4 Gb Ex tb IIIC T106°C Db (-55°C \leq Ta \leq +85°C) |
| | FM/FMC/CSA | Class I Div. 1, Groups B, C & D Class II/III Div. 1, Groups E, F & G | |
| Performance | EN54-10 (VdS) FM3260 | | |
| Reliability | IEC61508 - SIL2 (TUV) | | |

ACCESSORIES

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|----------------------------------|------------------------------------|--------------------|-------------------------------|-------------------------------------|
| Flame Simulator 20/20-312 | U-Bolt/Pole Mount | 789260-2 (2" pole) | Mini Laptop Kit 777820 | Weather Cover 777163 (St.St) |
| Tilt Mount 40/40-001 | | 789260-1 (3" pole) | Air Shield 777650 | *777263 (Plastic) |
| Duct Mount 777670 | USB RS485 Harness Kit | 794079-5 | Cone Viewer 777166 | |
| | E.O.L Encapsulated Resistor | 777915-X | | |

*Supplied free of charge with the detector