

keep a **SharpEye™** on your safety



40/40M

Multi IR Flame Detector

Superior performance, reliability and immunity to false alarms



SharpEye™

The new 40/40M Multi IR Flame Detector is specifically designed for detection of hydrocarbon and hydrogen flames. It detects hydrocarbon-based fuel and gas fires at long distances with the highest immunity to false alarms. The 40/40M can detect a gasoline pan fire at 215 ft (65m) or a hydrogen flame at 100 ft (30m) in less than 5 seconds.

The 40/40M is the most durable and weather resistant 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

- Multi spectrum design - for long distance detection of hydrocarbons and hydrogen flames
- High false alarm immunity
- Sensitivity selection - to ensure no zone crossover detection
- 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
- Ex approved for Zone 1 hazardous area location
 - ATEX
 - IECEx
 - FM/FMC
 - CSA
- 3rd party performance tested
 - EN54-10 (VdS)
 - FM3260

APPLICATIONS

| | |
|---|--------------------------------------|
| Offshore Oil & Gas installations | Automotive |
| Onshore Oil & Gas installations and pipelines | Explosives & Munitions |
| Chemical plants | Waste Disposal facilities |
| Petrochemicals plants | Hydrogen Fuel Cell Industry |
| Storage Tank farms | Hydrogen Vehicle Parking & Refueling |
| Aircraft hangars | Battery Charging areas |
| Power Generation facilities | Refinery Hydrogenation |
| Pharmaceutical Industry | Space Industry hydroxyl propellant |
| Printing Industry | Static fuel Cell systems |
| Warehouses | |

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GENERAL SPECIFICATIONS

| | | | | | | |
|---|---|---------------|--|---------------|---|---------------|
| Spectral Response | Multi IR Bands | | | | | |
| 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 | 215 / 65 | Ethanol 95% | 135 / 40 | LPG* | 100 / 30 |
| | Gasoline | 215 / 65 | Methanol | 115 / 35 | Polypropylene Pellets | 16 / 5 |
| | Diesel Fuel | 150 / 45 | IPA (Isopropyl Alcohol) | 135 / 40 | Ammonia* | 40 / 12 |
| | JP5 | 150 / 45 | Hydrogen* | 100 / 30 | Silane* | 16 / 5 |
| | Kerosene | 150 / 45 | Methane* | 100 / 30 | Office Paper | 33 / 10 |
| | *20" (0.5m) high, 8" (0.2m) width plume fire | | | | | |
| Response Time | Typically 5 seconds | | | | | |
| Adjustable Time Delay | Up to 30 seconds | | | | | |
| Sensitivity Ranges | 4 Sensitive ranges for 1 ft ² (0.1m ²) n-heptane pan fire from 50 ft (15m) to 215 ft (65m) | | | | | |
| Field of View | Horizontal 67°, Vertical 70° for Gasoline Horizontal 80°, Vertical 80° for Hydrogen | | | | | |
| 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 (2.5mm ² - 0.3mm 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 30 VDC |
| 0-20mA (stepped) | Sink (source option) configuration Fault: 0 +1mA Normal: 4mA ± 10% Alarm: 20mA ± 5% BIT Fault: 2mA ± 10% Warning: 16mA ± 5% 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 |
| 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) |
| 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 GD, Ex de IIC T5 (Ta -55°C to +75°C) Ex tD A21 IP66/X7 T 95°C | Ex de IIC T4 (Ta -55°C to +85°C) Ex tD A21 IP66/X7 T 105°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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|-----------------------|-----------|------------------------------|--------------------|--------------------------|--------|--------------------------|--------|
| Fire Simulator | 20/20-313 | U-Bolt/Pole Mount | 789260-2 (2" pole) | Mini Laptop Kit | 777820 | Laser Pointer | 777166 |
| Tilt Mount | 40/40-001 | | 789260-1 (3" pole) | Weather Protector | 777163 | (Detector area coverage) | |
| Duct Mount | 777670 | USB RS485 Harness Kit | 794079-5 | | | | |