

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 40/40 Series is the most durable and weather resistant range of flame detectors 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 approved to IEC 61508 Safety Integrity requirements of SIL2.

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
 - CSA
- 3rd party Performance Tested
 - EN54-10 (LPCB)
 - FM3260 (FM)

APPLICATIONS

| | |
|---|--------------------------------------|
| Offshore Oil & Gas installations | Automotive Industry |
| 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 | |

keep a SharpEye™ on your safety

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 | Office Paper | 33 / 10 |
| | JP5 | 150 / 45 | Hydrogen* | 100 / 30 | * 20" (0.5m) high, 8" (0.2m) width | |
| | Kerosene | 150 / 45 | Methane* | 100 / 30 | 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 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

| | | | | | | |
|--------------------------------------|--|---------------------------------------|--|--|--|--|
| Operating Voltage | 24 VDC nominal (18-32 VDC) | | | | | |
| Power Consumption | Standby: | Max. 100mA (150mA with heated window) | | | | |
| | Alarm: | Max. 150mA (200mA 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 EN50130-4 | | | | | |
| Electrical Interface | The detector includes twelve (12) terminals with five (5) wiring options (factory set) | | | | | |

OUTPUTS

| | | | | | | |
|-------------------------|--|-----------|------------------|-----------|--|--|
| Relays | Alarm, Fault and Auxiliary SPST volt-free contacts rated 5A at 30 VDC or 250 VAC. | | | | | |
| 0-20mA (stepped) | Sink (source option) configuration | | | | | |
| | Fault: | 0 +1mA | Warning: | 10mA ± 5% | | |
| | BIT Fault: | 2mA ± 10% | Alarm: | 15mA ± 5% | | |
| | Normal: | 5mA ± 10% | Resistance Loop: | 100-600 Ω | | |
| HART Protocol | HART communication on the 0-20mA analog current (FSK) - used for maintenance, configuration changes and asset management | | | | | |
| RS-485 | RS-485 Modbus compatible communication link that can be used in computer controlled installations | | | | | |

MECHANICAL SPECIFICATIONS

| | | | | | | |
|--------------------------------|--|--|----------|--|--|--|
| Materials | - Stainless Steel 316L with electro polish finish - Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish | | | | | |
| Enclosure options | | | | | | |
| Mounting | Stainless Steel 316L with electro polish finish | | | | | |
| Dimensions | Detector | 3.5" x 4.5" x 6.1" (90 x 114 x 156 mm) | | | | |
| Weight | Detector (St.St.) | 5.5 lb | (2.5 kg) | | | |
| | Detector, aluminum | 2.5 lb | (1.2 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

| | | | |
|-----------------------|--------------------------------|--|--|
| Hazardous Area | ATEX and IECEx | Ex II 2 GD, Ex de IIB+H2 T5 (-55°C to + 75°C) Ex tD A21 IP66/X7 T 95°C | Ex de IIB+H2 T4 (-55°C to + 85°C) Ex tD A21 IP66/X7 T 105°C |
| | FM / CSA | Class I Div. 1, Groups B, C & D Class II/III Div. 1, Groups E, F & G | |
| Performance | EN54-10 (LPCB) FM-3260 (FM) | | |
| Reliability | IEC61508 - SIL2 (TUV) | | |

ACCESSORIES

| | | | | | |
|-----------------------|-----------|--------------------------|--------|--------------------------|--------|
| Fire Simulator | 20/20-313 | Weather Protector | 777163 | Laser Pointer | 777166 |
| Tilt Mount | 40/40-003 | Air Shield | 777161 | (Detector area coverage) | |