Triple IR3 Flame Detector
HIGHLY ADVANCED SENSOR & OPTICS

Product Overview

The new 40/40I Triple IR (IR3) Flame Detector detects fuel and gas fires at long distances with the highest immunity to false alarms. The 40/40I IR3 can detect a 1ft² (0.1m²) gasoline pan fire at 215 ft (65m) in less than 5 seconds.

The 40/40I 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

- Triple Spectrum Design - for long distance detection and 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 (LPCB)
  - FM3260 (FM)
  - DNV Marine Approval

APPLICATIONS

Offshore Oil & Gas Installations
Onshore Oil & Gas Installations and pipelines
Chemical plants
Petrochemicals plants
Storage Tank farms
Aircraft hangars

Power Generation facilities
Pharmaceutical Industry
Printing Industry
Warehouses
Automotive Industry
Explosives & Munitions
Waste Disposal facilities

APPROVALS

<table>
<thead>
<tr>
<th>Performance</th>
<th>Certification</th>
<th>Hazardous Area</th>
<th>Reliability</th>
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<tbody>
<tr>
<td>EN54-10 (LPCB)</td>
<td>FM-3260 (FM)</td>
<td>ATEX and IECEx</td>
<td>IEC61508 - SIL2 (TUV)</td>
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<tr>
<td>DNV Marine Approval</td>
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<td>FM/FMC/CSA</td>
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SPECIFICATIONS

General

Spectral Response | Triple IR Bands

Detection Range

<table>
<thead>
<tr>
<th>Fuel</th>
<th>m / ft</th>
<th>m / ft</th>
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</thead>
<tbody>
<tr>
<td>n-Heptane</td>
<td>65</td>
<td>/ 215</td>
</tr>
<tr>
<td>Gasoline</td>
<td>65</td>
<td>/ 215</td>
</tr>
<tr>
<td>Diesel Fuel</td>
<td>45</td>
<td>/ 150</td>
</tr>
<tr>
<td>Aviation Fuel</td>
<td>45</td>
<td>/ 150</td>
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</table>

<table>
<thead>
<tr>
<th>Fuel</th>
<th>m / ft</th>
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</thead>
<tbody>
<tr>
<td>Kerosene</td>
<td>45</td>
</tr>
<tr>
<td>Ethanol 95%</td>
<td>/ 135</td>
</tr>
<tr>
<td>Methanol</td>
<td>35</td>
</tr>
<tr>
<td>IPA (Isopropyl Alcohol)</td>
<td>40 / 135</td>
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</table>

<table>
<thead>
<tr>
<th>Fuel</th>
<th>m / ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methane*</td>
<td>30</td>
</tr>
<tr>
<td>Polypropylene Pallets</td>
<td>5 / 16</td>
</tr>
<tr>
<td>Office paper</td>
<td>10</td>
</tr>
</tbody>
</table>

Detection Range: At highest Sensitivity Setting for 0.1m² (1ft²) pan fire

Response Time: Typically 5 seconds

Adjustable Time Delay: Up to 30 seconds

Sensitivity Ranges: 4 Sensitive ranges for 0.1m² (1 ft²) n-heptane pan fire from 15m (50 ft) to 65m (215 ft)

Response Time: Typically 5 seconds

Fuel of View: Horizontal 100°; Vertical 95°

Built-in-Test (BIT): Automatic (and Manual)

Temperature Range:
- Operating: -55°C to +75°C (-67°F to +167°F)
- Option: -55°C to +85°C (-67°F to +185°F)
- Storage: -55°C to +85°C (-67°F to +185°F)

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. 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: 14AWG to 24AWG (0.205mm²) shielded cable recommended.

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)

Output

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
- BIT Fault: 2mA ± 10%
- Normal: 4mA ± 10%
- Warning: 16mA ± 5%
- Alarm: 20mA ± 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

Materials
- Stainless Steel 316L with electro polish finish
- Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish

Enclosure options
- Stainless Steel 316L with electro polish finish
- Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish

Mounting: Stainless Steel 316L with electro polish finish

Dimensions: Detector 101.6 x 117 x 157 mm (4” x 4.6” x 6.18”)

Weight:
- Detector (St.St.) 2.8 kg (6.1 lb)
- Detector, aluminum 1.3 kg (2.8 lb)
- Tilt mount 1.0 kg (2.2 lb)


Water and Dust: IP66 and IP67 per EN60529, NEMA 250 6P

Accessories

Fire Simulator: 20/20-310
U-Bolt/Pole Mount: 789260-2 (2” pole)
Mini Laptop Kit: 777820
Laser Pointer: 777166

Tilt Mount: 40/40-001
Weather Protector: 777163 (Detector area coverage)

Duct Mount: 777670
USB RS485 Harness Kit: 794079-5
Air Shield: 777161