

keep a **SharpEye™** on your safety



# 40/40R

## Single IR Flame Detectors

*A low cost solution in a durable, high spec package*



**SharpEye™**

*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  $\mu\text{m}$  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
- Ex approved for Zone 1 hazardous area location
  - ATEX
  - IECEx
  - FM/FMC
  - CSA
- 3<sup>rd</sup> party Performance Tested
  - EN54-10 (LPCB)
  - FM3260 (FM)

### 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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**SPECTREX INC.**

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### GENERAL SPECIFICATIONS

|   |  |               |                         |               |                       |               |
|---|--|---------------|-------------------------|---------------|-----------------------|---------------|
| <b>Spectral Response</b>  | Single band IR 4.4-4.6 $\mu\text{m}$   |               |                         |               |                       |               |
| <b>Detection Range</b><br>(at highest Sensitivity Setting for 1ft <sup>2</sup> (0.1m <sup>2</sup> ) pan fire) | <b>Fuel</b>  | <b>ft / m</b> | <b>Fuel</b>             | <b>ft / m</b> | <b>Fuel</b>           | <b>ft / m</b> |
|   | n-Heptane  | 50 / 15       | Kerosene                | 37 / 11       | Methane*              | 16 / 5        |
|   | Gasoline   | 50 / 15       | Ethanol 95%             | 25 / 7.5      | LPG *                 | 16 / 5        |
|   | Diesel Fuel  | 37 / 11       | Methanol                | 25 / 7.5      | Polypropylene Pellets | 10 / 3        |
|   | JP5  | 37 / 11       | IPA (Isopropyl Alcohol) | 25 / 7.5      | Office Paper          | 20 / 6        |
|   | * 20" (0.5m) high, 8" (0.2m) width plume fire  |               |                         |               |                       |               |
| <b>Response Time</b>  | Typically 5 seconds  |               |                         |               |                       |               |
| <b>Adjustable Time Delay</b>  | Up to 30 seconds   |               |                         |               |                       |               |
| <b>Sensitivity Ranges</b>   | 2 ranges; 1 ft <sup>2</sup> (0.1m <sup>2</sup> ) n-heptane pan fire from 15 ft (5m) or 50 ft (15m) |               |                         |               |                       |               |
| <b>Field of View</b>  | Horizontal 90°; Vertical 90°   |               |                         |               |                       |               |
| <b>Built-in-Test (BIT)</b>  | Automatic (and Manual)   |               |                         |               |                       |               |
| <b>Temperature Range</b>  | 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)        |               |                       |               |
| <b>Humidity</b>   | Up to 95% non-condensing (withstands up to 100% RH for short periods)                              |               |                         |               |                       |               |
| <b>Heated Optics</b>  | To eliminate condensation and icing on the window  |               |                         |               |                       |               |

### ELECTRICAL SPECIFICATIONS

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

### OUTPUTS

|                         |  |               |                  |                  |  |  |
|-------------------------|--|---------------|------------------|------------------|--|--|
| <b>Relays</b>           | Alarm, Fault and Auxiliary<br>SPST volt-free contacts rated 5A at 30 VDC or 250 VAC.   |               |                  |                  |  |  |
| <b>0-20mA (stepped)</b> | 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 $\Omega$ |  |  |
| <b>HART Protocol</b>    | 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 |               |                  |                  |  |  |
| <b>RS-485</b>           | RS-485 Modbus compatible communication link that can be used in computer controlled installations  |               |                  |                  |  |  |

### MECHANICAL SPECIFICATIONS

|                                |   |  |            |                 |  |  |
|--------------------------------|---|--|------------|-----------------|--|--|
| <b>Materials</b>               | - Stainless Steel 316L with electro polish finish   |  |            |                 |  |  |
| Enclosure options              | - Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish                     |  |            |                 |  |  |
| <b>Mounting</b>                | Stainless Steel 316L with electro polish finish   |  |            |                 |  |  |
| <b>Dimensions</b>              | Detector  | 4" x 4.6" x 6.18" (101.6 x 117 x 157 mm) |            |                 |  |  |
| <b>Weight</b>                  | 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)                          |            |                 |  |  |
| <b>Environmental Standards</b> | Meets MIL-STD-810C for Humidity, Salt & Fog, Vibration, Mechanical Shock, High Temp, Low Temp |  |            |                 |  |  |
| <b>Water and Dust</b>          | IP66 and IP67 per EN60529, NEMA 250 6P  |  |            |                 |  |  |

### APPROVALS

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

### ACCESSORIES

|                       |           |                              |                    |                          |        |                          |        |
|-----------------------|-----------|------------------------------|--------------------|--------------------------|--------|--------------------------|--------|
| <b>Fire Simulator</b> | 20/20-312 | <b>U-Bolt/Pole Mount</b>     | 789260-2 (2" pole) | <b>Mini Laptop Kit</b>   | 777820 | <b>Laser Pointer</b>     | 777166 |
| <b>Tilt Mount</b>     | 40/40-001 |                              | 789260-1 (3" pole) | <b>Weather Protector</b> | 777163 | (Detector area coverage) |        |
| <b>Duct Mount</b>     | 777670    | <b>USB RS485 Harness Kit</b> | 794079-5           | <b>Air Shield</b>        | 777161 |                          |        |