

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
- 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
- 3<sup>rd</sup> party Performance Tested
  - EN54-10 (VdS)
  - FM3260

### APPLICATIONS

Offshore Oil & Gas installations	Power Generation facilities
Onshore Oil & Gas installations and pipelines	Pharmaceutical Industry
Chemical plants	Printing Industry
Petrochemicals plants	Warehouses
Storage Tank farms	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 μm					
<b>Detection Range</b> (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*	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					
<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) 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 (0.3mm <sup>2</sup> - 2.5mm <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 SPST volt-free contacts rated 2A at 30V DC					
<b>0-20mA (stepped)</b>	Sink (source option) configuration Fault: 0 +1mA      Warning: 16mA ± 5% BIT Fault: 2mA ± 10%      Alarm: 20mA ± 5% Normal: 4mA ± 10%      Resistance Loop: 100-600 Ω					
<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					
<b>Enclosure options</b>	- Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish (not available in FM version)					
<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 G D Ex d e IIC T5 Gb Ex tb IIIC T96°C Db (-55°C ≤ Ta ≤ +75°C)	Ex d e IIC T4 Gb Ex tb IIIC T106°C Db (-55°C ≤ Ta ≤ +85°C)
	FM/FMC/CSA	Class I Div. 1, Groups B, C & D Class II/III Div. 1, Groups E, F & G	
<b>Performance</b>	EN54-10 (VdS) FM3260		
<b>Reliability</b>	IEC61508 - SIL2 (TUV)		

## ACCESSORIES

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

\*Supplied free of charge with the detector