

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
- **3<sup>rd</sup> 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	

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**SPECTREX INC.**

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### GENERAL SPECIFICATIONS

<b>Spectral Response</b>	Multi IR Bands					
<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	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 plume fire	
	Kerosene	150 / 45	Methane*	100 / 30		
<b>Response Time</b>	Typically 5 seconds					
<b>Adjustable Time Delay</b>	Up to 30 seconds					
<b>Sensitivity Ranges</b>	4 Sensitive ranges for 1 ft <sup>2</sup> (0.1m <sup>2</sup> ) n-heptane pan fire from 50 ft (15m) to 215 ft (65m)					
<b>Field of View</b>	Horizontal 67°, Vertical 70° for Gasoline Horizontal 80°, Vertical 80° for Hydrogen					
<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 (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 SPST volt-free contacts rated 5A at 30 VDC or 250 VAC.					
<b>0-20mA (stepped)</b>	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					
<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, Ex de IIC T5 (-55°C to +75°C) Ex tD A21 IP66/X7 T 95°C	Ex de IIC T4 (-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	
<b>Performance</b>	EN54-10 (LPCB) FM-3260 (FM)		
<b>Reliability</b>	IEC61508 - SIL2 (TUV)		

### ACCESSORIES

<b>Fire Simulator</b>	20/20-313	<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		