

keep a **SharpEye™** on your safety



# 40/40I

## Triple IR (IR3) Flame Detector

*Superior performance, reliability and immunity to false alarms*



**SharpEye™**

*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 1ft<sup>2</sup> (0.1m<sup>2</sup>) 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 approved to IEC 61508 Safety Integrity requirements of SIL2.*

### 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
  - 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

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## GENERAL SPECIFICATIONS

<b>Spectral Response</b>	Three 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>
	n-Heptane	215 / 65	Kerosene	150 / 45
	Gasoline	215 / 65	Ethanol 95%	135 / 40
	Diesel Fuel	150 / 45	Methanol	115 / 35
	JP5	150 / 45	IPA (Isopropyl Alcohol)	135 / 40
			Methane*	100 / 30
			LPG *	100 / 30
			Polypropylene Pellets	16 / 5
			Office Paper	33 / 10
	* 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>	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 100°; Vertical 95°			
<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. 100mA (150mA with heated window)	
	Alarm:	Max. 150mA (200mA 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 EN50130-4		
<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	Warning: 10mA ± 5%
	BIT Fault:	2mA ± 10%	Alarm: 15mA ± 5%
	Normal:	5mA ± 10%	Resistance Loop: 100-600 Ω
<b>HART Protocol</b>	HART communication on the 0-20mA analog current (FSK) - used for maintenance, configuration changes and asset management		
<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 - Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish		
<b>Enclosure options</b>			
<b>Mounting</b>	Stainless Steel 316L with electro polish finish		
<b>Dimensions</b>	Detector	3.5" x 4.5" x 6.1" (90 x 114 x 156 mm)	
<b>Weight</b>	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)
<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 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	
<b>Performance</b>	EN54-10 (LPCB) FM-3260 (FM) DNV Marine Approval		
<b>Reliability</b>	IEC61508 - SIL2 (TUV)		

## ACCESSORIES

<b>Fire Simulator</b>	20/20-310	<b>Weather Protector</b>	777163	<b>Laser Pointer</b>	777166
<b>Tilt Mount</b>	40/40-003	<b>Air Shield</b>	777161	(Detector area coverage)	