

# Multi IR Flame Detector

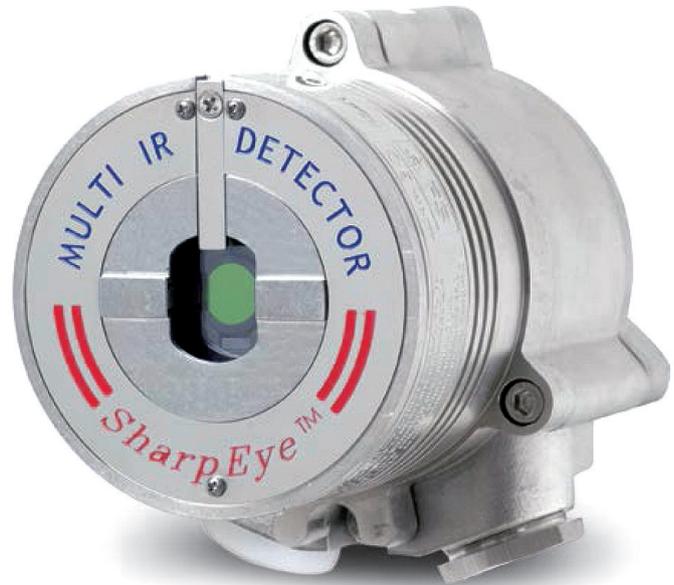
## 40/40M

### SharpEye

The new 40/40M multi IR Flame Detector is specifically designed for detection of hydrocarbon and hydrogen flames.

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

## Accessories



**Simulators**  
Up to 9m



**Tilt Mount**  
Wall Mount bracket



**Duct Mount**  
In high temperatures



**U-Bolt/Pole Mount**  
2" ~ 3" Pipe mounting



**Laser Pointer**  
Optimizing detector location



**Air shield**  
Using under tough environmental conditions



**Weather Protector**  
Protecting the detector from rain and snow

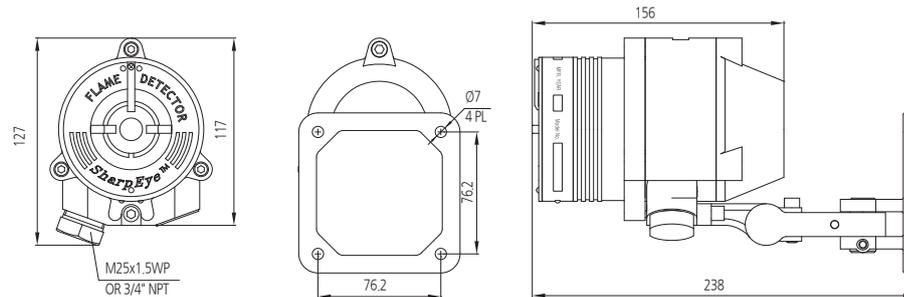


**Mini Laptop Kit**  
Re-configure settings or perform diagnostics



**USB RS485 Harness**  
Re-configure settings or perform diagnostics

## Dimension (Unit:mm)



### GENERAL SPECIFICATIONS

Spectral Response	Multi IR Bands																																				
Detection Range (at highest Sensitivity Setting for 1ft <sup>2</sup> (0.1m <sup>2</sup> ) pan fire)	<table border="1"> <thead> <tr> <th>Fuel</th> <th>ft / m</th> <th>Fuel</th> <th>ft / m</th> <th>Fuel</th> <th>ft / m</th> </tr> </thead> <tbody> <tr> <td>n-Heptane</td> <td>215 / 65</td> <td>Ethanol 95%</td> <td>135 / 40</td> <td>LPG *</td> <td>100 / 30</td> </tr> <tr> <td>Gasoline</td> <td>215 / 65</td> <td>Methanol</td> <td>115 / 35</td> <td>Polypropylene Pellets</td> <td>16 / 5</td> </tr> <tr> <td>Diesel Fuel</td> <td>150 / 45</td> <td>IPA (Isopropyl Alcohol)</td> <td>135 / 40</td> <td>Ammonia*</td> <td>40 / 12</td> </tr> <tr> <td>JP5</td> <td>150 / 45</td> <td>Hydrogen*</td> <td>100 / 30</td> <td>Silane*</td> <td>16 / 5</td> </tr> <tr> <td>Kerosene</td> <td>150 / 45</td> <td>Methane*</td> <td>100 / 30</td> <td>Office Paper</td> <td>33 / 10</td> </tr> </tbody> </table> <p>* 20" (0.5m) high, 8" (0.2m) width plume fire</p>	Fuel	ft / m	Fuel	ft / m	Fuel	ft / m	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	Ammonia*	40 / 12	JP5	150 / 45	Hydrogen*	100 / 30	Silane*	16 / 5	Kerosene	150 / 45	Methane*	100 / 30	Office Paper	33 / 10
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Response Time	Typically 5 seconds																																				
Adjustable Time Delay	Up to 30 seconds																																				
Sensitivity Ranges	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)																																				
Field of View	Horizontal 67°, Vertical 70° for Gasoline Horizontal 80°, Vertical 80° for Hydrogen																																				
Built-in-Test (BIT)	Automatic (and Manual)																																				
Temperature Range	<table border="1"> <tbody> <tr> <td>Operating:</td> <td>-67°F to +167°F</td> <td>(-55°C to +75°C)</td> </tr> <tr> <td>Option:</td> <td>-67°F to +185°F</td> <td>(-55°C to +85°C)</td> </tr> <tr> <td>Storage:</td> <td>-67°F to +185°F</td> <td>(-55°C to +85°C)</td> </tr> </tbody> </table>	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)																											
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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	12 - 22AWG (2.5mm <sup>2</sup> - 0.3mm <sup>2</sup> )
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)

### OUTPUTS

Relays	Alarm, Fault and Auxiliary SPST volt-free contacts rated 2A at 30 VDC												
0-20mA (stepped)	Sink (source option) configuration <table border="1"> <tbody> <tr> <td>Fault:</td> <td>0 +1mA</td> <td>Normal:</td> <td>4mA ±10%</td> <td>Alarm:</td> <td>20mA ± 5%</td> </tr> <tr> <td>BIT Fault:</td> <td>2mA ± 10%</td> <td>Warning:</td> <td>16mA ± 5%</td> <td>Resistance Loop:</td> <td>100-600Ω</td> </tr> </tbody> </table>	Fault:	0 +1mA	Normal:	4mA ±10%	Alarm:	20mA ± 5%	BIT Fault:	2mA ± 10%	Warning:	16mA ± 5%	Resistance Loop:	100-600Ω
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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
Mounting	Stainless Steel 316L with electro polish finish
Dimensions	Detector 4" x 4.6" x 6.18" (101.6 x 117 x 157 mm)
Weight	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)
Environmental Standards	Meets MIL-STD-810C for Humidity, Salt & Fog, Vibration, Mechanical Shock, High Temp, Low Temp
Water and Dust	IP66 and IP67 per EN60529, NEMA 250 6P

### APPROVALS

Hazardous Area	<table border="1"> <tbody> <tr> <td>ATEX and IECEx</td> <td>Ex II 2 GD, Ex de IIC T5 (-55°C to +75°C) Ex tD A21 IP66/X7 T 95°C</td> <td>Ex de IIC T4 (-55°C to +85°C) Ex tD A21 IP66/X7 T 105°C</td> </tr> <tr> <td>FM/FMC/CSA</td> <td colspan="2">Class I Div. 1, Groups B, C &amp; D Class II/III Div. 1, Groups E, F &amp; G</td> </tr> </tbody> </table>	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	
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FM/FMC/CSA	Class I Div. 1, Groups B, C & D Class II/III Div. 1, Groups E, F & G						
Performance	EN54-10 (VdS) FM3260						
Reliability	IEC61508 - SIL2 (TUV)						

### ACCESSORIES

Fire Simulator	20/20-313	U-Bolt/Pole Mount	789260-2 (2" pole)	Mini Laptop Kit	777820	Laser Pointer	777166
Tilt Mount	40/40-001		789260-1 (3" pole)	Weather Protector	777163	(Detector area coverage)	
Duct Mount	777670	USB RS485 Harness Kit	794079-5	Air Shield	777161		