

# UV/IR Flame Detector

## 40/40L-LB

### SharpEye

Model 40/40L (or Lb, with Built-in-test option) provides a combination of UV and IR sensors, where the IR sensor operates at a wavelength of 2.5-3.0  $\mu\text{m}$ , and can detect hydrocarbon-based fuel and gas fires, hydroxyl and hydrogen fires, as well as metal and inorganic fires.

The UV Sensor incorporates a special logic circuit that helps prevent false alarms caused by solar radiation.

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

- UV/IR Dual-Sensor
- Fast Response-200 msec to flash fire
- Solar blind
- Automatic Built-In-Test (BIT)\* and Manual-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)
- model 40/40LB only
- 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

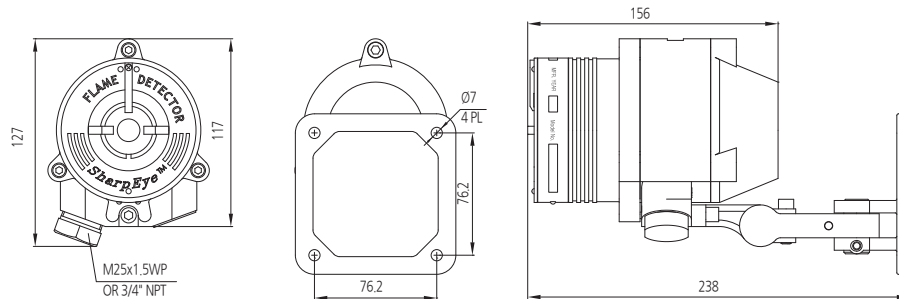


**Mini Laptop Kit**  
Re-configure settings or perform diagnostics



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

## Dimension (Unit:mm)



### GENERAL SPECIFICATIONS

<b>Spectral Response</b>	UV: 0.185 - 0.260 $\mu\text{m}$ ; IR: 2.5-3.0 $\mu\text{m}$					
<b>Detection Range</b> (at highest Sensitivity Setting for 1ft <sup>2</sup> (0.1m <sup>2</sup> ) pan fire)	Fuel	ft / m	Fuel	ft / m	Fuel	ft / m
	n-Heptane	65 / 20	Ethanol 95%	23 / 7	LPG *	16 / 5
	Gasoline	65 / 20	Methanol	26 / 8	Polypropylene Pellets	16 / 5
	Diesel Fuel	40 / 13.5	IPA (Isopropyl Alcohol)	43 / 13	Ammonia*	16 / 5
	JP5	42 / 14	Hydrogen*	23 / 7	Silane*	20 / 6
	Kerosene	42 / 14	Methane*	16 / 5	Office Paper	16 / 5
		* 20" (0.5m) high, 8" (0.2m) width plume fire				
<b>Response Time</b>	Typically 3 seconds. High speed 20 msec response to saturated signal					
<b>Adjustable Time Delay</b>	Up to 30 seconds					
<b>Sensitivity Ranges</b>	1 ft <sup>2</sup> (0.1m <sup>2</sup> ) n-heptane pan fire from 65 ft (20m)					
<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. 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 2A at 30 VDC
<b>0-20mA (stepped)</b>	Sink (source option) configuration Fault: 0 +1mA IR: 8mA $\pm$ 5% Alarm: 20mA $\pm$ 5% BIT Fault: 2mA $\pm$ 10% UV: 12mA $\pm$ 5% Resistance Loop: 100-600 $\Omega$ Normal: 4mA $\pm$ 10% Warning: 16mA $\pm$ 5%
<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 - 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)
	Detector, aluminum 2.8 lb (1.3 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 IIC (Ta -55°C to + 75°C) Ex tD A21 IP66/X7 T 95°C	Ex de IIC (Ta -55°C to + 85°C) Ex tD A21 IP66/X7 T 105°C
	FM/FMC	Class I Div. 1, Groups B, C & D Class II/III Div. 1, Groups E, F & G	
<b>Performance</b>	EN54-10 (VdS Pending) FM3260		
<b>Reliability (designed to meet)</b>	IEC61508 - SIL2 (TUV)		

### ACCESSORIES

Fire Simulator	20/20-310	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	777650		