## **40/40L-LB** UV-IR Flame Detector Series



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 **Explosives & Munitions** Waste Disposal facilities **Aerospace Industry** Paint, Polymer and Glue processes

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  $\mu$ m, and can detect hydrocarbon-based fuel and gas fires, hydroxyl and hydrogen fires, as well as metal and inorganic fires.

The UV/IR flame detector senses radiant energy in the short wave section of both the ultraviolet and infrared portions of the electromagnetic spectrum. The signals from both sensors are analyzed for frequency, intensity and duration. Simultaneous detection of radiant energy in both the UV and IR sensors triggers an alarm signal.

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
- Ex approved for Zone 1 hazardous area location
  - ATEX
  - IECEx
  - FM/FMC
  - CSA
- 3rd party performance approved
  - EN54-10 (VdS)
  - FM3260
- Marine Approval
  - MED 'Wheelmark' approval (DNV)



## 40/40L/LB

## **UV-IR Flame Detector Series**

Detection Range	Fuel	ft/m	Fuel	ft/m	Fuel	ft/m
(at highest Sensitivity Setting for 1ft2 (0.1m2) pan fire)	n-Heptane	50 / 15	Kerosene	37 / 11	Methane*	16 / 5
	Gasoline	50 / 15	Ethanol 95%	25 / 7.5	LPG*	16 / 5
	Diesel Fuel	37 / 11	Methanol	25 / 7.5	Polypropylene Pellets	13 / 4
	JP5	37 / 11	IPA (Isopropyl Alcoh	ol)16 / 5	Office Paper	16 / 5
Spectral Response	UV: 0.185 - 0.260 µm; IR: 2.5-3.0 µm Typically 5 accords 200 mass to flash fire					
Response Time Adjustable Time Delay	Typically 5 seconds. 200 msec to flash fire Up to 30 seconds					
Sensitivity Ranges	1 ft2 (0.1m2) n-heptane pan fire from 50 ft (15m)					
Field of View	Horizontal 100°; Vertical 95°					
Built-In-Test (BIT)	Automatic (and Manual)					
Temperature Range	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)					
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)					
Oable Estrica						
Cable Entries Wiring	2 x 3/4" - 14NPT conduits or 2 x M25 x 1.5 mm ISO 12 - 22AWG (2.5mm2 - 0.3mm2)					
OUTPUTS	12 - 22AVVG (2	2.511112 - 0	.311112)			
Relays	Alarm, Fault and Auxiliary SPST volt-free contacts rated 2A at 30 VDC					
0-20mA (stepped)	Sink (source option) configuration					
	Fault: 0 +1mA		IR: 8mA ± 5	%	Warning: 16m	A ± 5%
	BIT Fault: 2mA	x ± 10%	UV: 12m A±	: 5%	Alarm: 20m	A ± 5%
	Normal: 4mA ±	Resistance Loop: 100-600 $\Omega$				
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 Electrical Input Protection	RS-485 Modbus compatible communication link that can be used in computer controlled installations					
Electromagnetic Compatibility	According to MIL-STD-1275B 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)					
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MECHANICAL SPECIFICATIONS						
MECHANICAL SPECIFICATIONS Materials	- Stainless Ste	el 316L wit	h electro polish finis	sh		
			•		epoxy enamel finish	
	<ul> <li>Heavy duty c</li> <li>(not available i</li> </ul>	opper free n FM versi	aluminum (less tha on)		epoxy enamel finish	
Materials	- Heavy duty c (not available i SPST volt-free	opper free n FM versi contacts r	aluminum (less tha on) ated 2A at 30 VDC	n 1%), red	epoxy enamel finish	
Materials	- Heavy duty c (not available i SPST volt-free Stainless Steel	opper free n FM versi contacts r 316L with	aluminum (less tha on) ated 2A at 30 VDC electro polish finish	n 1%), red	epoxy enamel finish	
Materials Mounting Dimensions	- Heavy duty c (not available i SPST volt-free Stainless Steel Detector 4" x 4	opper free n FM versi contacts r 316L with 6.6" x 6.18"	aluminum (less tha on) ated 2A at 30 VDC electro polish finish (101.6 x 117 x 157	n 1%), red 1 ′ mm)		
Materials	- Heavy duty c (not available i SPST volt-free Stainless Steel Detector 4" x 4 Detector (St.St	opper free n FM versi contacts r 316L with I.6" x 6.18" .) 6.1	aluminum (less tha on) ated 2A at 30 VDC electro polish finish (101.6 x 117 x 157 lb (2.8 kg)	n 1%), red	epoxy enamel finish 2.2 lb (1.0 kg)	
Materials Mounting Dimensions	- Heavy duty c (not available i SPST volt-free Stainless Steel Detector 4" x 4 Detector (St.St Detector, alum	opper free n FM versi contacts r 316L with 4.6" x 6.18" .) 6.1 inum 2.8	aluminum (less tha on) ated 2A at 30 VDC electro polish finish (101.6 x 117 x 157 lb (2.8 kg) T 3 lb (1.3 kg)	n 1%), red 1 7 mm) It mount		, Low Temp
Materials Mounting Dimensions Weight	- Heavy duty c (not available i SPST volt-free Stainless Steel Detector 4" x 4 Detector (St.St Detector, alum Meets MIL-STD-	opper free n FM versi contacts r 316L with 6.6" x 6.18" .) 6.1 inum 2.8 810C for Hu	aluminum (less tha on) ated 2A at 30 VDC electro polish finish (101.6 x 117 x 157 b (2.8 kg) b (1.3 kg) midity, Salt & Fog, Vib	n 1%), red 1 7 mm) It mount	2.2 lb (1.0 kg)	, Low Temp
Materials Mounting Dimensions Weight Environmental Standards Water and Dust	- Heavy duty c (not available i SPST volt-free Stainless Steel Detector 4" x 4 Detector (St.St Detector, alum Meets MIL-STD- IP66 and IP67	opper free n FM versi contacts r 316L with 4.6" x 6.18" .) 6.1 inum 2.8 810C for Hu per EN605	aluminum (less tha on) ated 2A at 30 VDC electro polish finish (101.6 x 117 x 157 lb (2.8 kg) T 3 lb (1.3 kg)	n 1%), red 1 7 mm) It mount	2.2 lb (1.0 kg)	, Low Temp
Materials Mounting Dimensions Weight Environmental Standards	- Heavy duty c (not available i SPST volt-free Stainless Steel Detector 4" x 4 Detector (St.St Detector, alum Meets MIL-STD-	opper free n FM versi contacts r 316L with 4.6" x 6.18" .) 6.1 inum 2.8 810C for Hu per EN605	aluminum (less tha on) ated 2A at 30 VDC electro polish finish (101.6 x 117 x 157 b (2.8 kg) b (1.3 kg) midity, Salt & Fog, Vib	n 1%), red 1 7 mm) It mount	2.2 lb (1.0 kg)	, Low Temp

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