keep a SharpEye™ on your safety

40/40L4-L4B

UV-IR Flame Detector Series

Maximum choice of features in a high performance package

SharpEye™

Model 40/40L4 (& L4B, with Built-In-Test option) provides a combination of UV and IR sensors, where the IR sensor operates at a wavelength of 4.5 µm, and can detect hydrocarbon-based fuel and gas 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
- Solar blind
- Automatic Built-In-Test (BIT) and Manual - to assure continued reliable operation (in 40/40L4B only)
- 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 40/40L4B only
- 5-Year Warranty
- User Programmable via HART or RS-485
- Hazardous area zones:
  - Zones 1 & 2 with IIC gas group vapors present
  - Zones 21 & 22 with IIIC dust type present
- Ex approved to:
  - ATEX & IECEx
  - FM/FMC/CSA
  - TR CU (EAC)
- 3rd party Performance Approved
  - EN54-10 (VdS)
  - FM3260
- Marine Approval
  - MED 'Wheelmark' approval (DNV)

APPLICATIONS (model dependent)

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
Waste Disposal facilities
Aerospace Industry
Paint, Polymer and Glue processes

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SPECTREX

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GENERAL SPECIFICATIONS

Spectral Response	UV: 0.185 - 0.260 µm; IR: 4.4-4.6 µm

Detection Range (at highest Sensitivity Setting for 1ft² (0.1m²) pan fire)

Fuel	ft / m	Fuel	ft / m	Fuel	ft / m
n-Heptane	93 / 28	Kerosene	70 / 21	Alcohol 95%	57 / 17
Gasoline	93 / 28	Methanol	57 / 17	Polypropylene Pellets	60 / 18
Diesel Fuel	70 / 21	IPA	70 / 21	Office Paper	33 / 10
JP5	70 / 21	Methane*	60 / 18	LPG *	60 / 18

* 30" (0.75m) high, 10" (0.25m) width plume fire

Response Time	Typically 5 seconds
Adjustable Time Delay	Up to 30 seconds
Sensitivity Ranges	1 ft² (0.1m²) n-heptane pan fire from 93 ft (28m)
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)

Cable Entries	2 x 3/4" - 14NPT conduits or 2 x M25 x 1.5 mm ISO
Wiring	12 - 22AWG (0.3mm² - 2.5mm²)
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 30V DC

0-20mA (stepped)

Sink (source option) configuration

Fault:	0 +1mA	IR:	8mA ± 5%	Alarm:	20mA ± 5%
BIT Fault:	2mA ± 10%	UV:	12mA ± 5%	Resistance Loop:	100-600 Ω
Normal:	4mA ± 10%	Warning:	16mA ± 5%		

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
Enclosure options	- Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish (not available in FM version)
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

ATEX and IECEx	Ex II 2 G D Ex db eb op is IIC T5 Gb Ex tb op is IIIC T96°C Db (-55°C ≤ Ta ≤ +75°C)	 Ex db eb op is IIC T4 Gb Ex tb op is IIIC T106°C Db (-55°C ≤ Ta ≤ +85°C)
FM/FMC/CSA	Class I Div. 1, Groups B, C & D Class II/III Div. 1, Groups E, F & G	
TR CU (EAC)	1Ex d e IIC T5 Gb X Ex tb IIIC T96°C Db X (-55°C ≤ Ta ≤ +75°C)	1Ex d e IIC T4 Gb X Ex tb IIIC T106°C Db X (-55°C ≤ Ta ≤ +85°C)

Performance	EN54-10 (VdS) FM3260
Reliability	IEC61508 - SIL2 (TUV) - model 40/40L4B only
Marine	MED 'Wheelmark' approval (DNV)

ACCESSORIES

Flame Simulator	FS-1200	**U-Bolt/Pole Mount**	789260-2 (2" pole)	**Mini Laptop Kit**	777820	**Weather Cover**	777163 (St.St)
Tilt Mount	40/40-001		789260-1 (3" pole)	**Air Shield**	777650		*777263 (Plastic)
Duct Mount	777670	**USB RS485 Harness Kit**	794079	**Cone Viewer**	777166		
		E.O.L Encapsulated Resistor	777915-X				

*Supplied free of charge with the detector

Specifications subject to change

For more information view manual or website www.spectrex.net

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