

Spectrex SharpEye™ 40/40D-L4B

Ultra Fast UV/IR Flame Detector



The SharpEye 40/40D-L4B UV/IR flame detector is part of the leading, next generation SharpEye 40/40 series.

Detects flames with a large variety of hazardous sources, such as hydrocarbon-based fuel and gas fires.

Featuring ultra-fast detection in 20 msec with proven immunity to false alarms, integrating UV and IR optical sensors to ensure flawless performance to keep a SharpEye on your safety!



Features and benefits

Integrating ultraviolet (UV) and infrared (IR) optical sensors for detection of hydrocarbon-based fuel and gas fires.

- 20 msec ultra fast detection
- Proven false alarm immunity
- Unparalleled reliability - 150,000 hours MTBF
- Best in class temperature range: -76 °F (-60 °C) to 185 °F (85 °C)
- Worldwide and regionally certified for hazardous areas
- Performance and reliability approved by recognizable certification bodies
- SIL3 compatible
- Enhanced durability backed up with five-year warranty
- Smart field of view integrity test, allowing flawless operation
- Innovative UV & IR built-in test - continuously validating the optical integrity and the electronic circuitry
- Multiple output options for maximum compatibility with standard infrastructures
- Plug and play - factory calibrated for immediate use in any fire detection system
- Universal wiring option for fast ordering process
- Three sensitivity levels, adapting to any application
- Two mode heated optics for impeccable performance in challenging environmental conditions
- Internal log event recorder to analyze past events

Contents

Features and benefits.....	2
Applications.....	3
Ordering information.....	4
Specifications.....	6
Approvals.....	8

Applications

- Oil & gas onshore and offshore installations and pipelines
- Chemical and petrochemical plants
- Storage tank farms
- Fuel and gas processing and storage facilities
- Power generation
- Explosives and munitions
- Fertilizer plants
- Automotive industry
- Vehicle battery charging stations
- Hydroxyl production and storage
- Aerospace industry
- Waste management facilities
- Pharmaceutical industry
- Printing
- Hazardous materials storage areas
- Food processing

Ordering information

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Model

Code	Description
-L4B	Ultraviolet/infrared (UV/IR)

Wiring

Code	Description
-6	Universal

Operating temperature range

Code	Description
3	-76 °F (-60 °C) to 185 °F (85 °C)

Electrical cable entries

Code	Description
1	M25
2	¾-in NPT

Enclosure

Code	Description
S	Stainless steel 316
A	Aluminum polyurethane painted

Hazardous area approval

Code	Description
B	Inmetro (pending)
F	FM, FMC, Canadian Standardization Association (CSA) for United States and Canada
C	ATEC, IECEx
R	EAC CU TR

Tilt mount

Code	Description
Y	Including tilt mount stainless steel 316
N	Without tilt mount

Protective cover

Code	Description
7	ABS plastic
8	Stainless steel 316

Accessories

Part number	Description
FS-1200	Flame simulator (ex proof)
877090	Tilt mount
877670	Duct mount (ex proof)
789260-2	U-bolt/pole mount 2-in
789260-1	U-bolt/pole mount 3-in
794079	USB RS-485 harness kit
877650	Air shield
877263 ⁽¹⁾	Protective cover (Plastic)
877163	Protective cover (Stainless steel)

(1) Supplied free of charge with the detector.

Specifications

Table 1: Detection ranges

At highest sensitivity setting for 1 ft² (0.1 m²) pan fire

Fuel	Range (ft/m)
Gasoline (petrol)	93/28
n-Heptane	93/28
Diesel	70/21
JP5 fuel	70/21
Kerosene	70/21
Ethanol 95%	57/17
Isopropyl alcohol (IPA)	70/21
Methanol	57/17
Methane ⁽¹⁾	60/18
Liquefied petroleum gas (LPG) ⁽¹⁾	60/18
Polypropylene pellets	60/18
Office paper	33/10
Magnesium alloy	33/10
Gun powder (1.5 in ² (10 cm ²))	93/28
Fireworks (10 pieces per test)	10/3
Cooking oil	70/21
Mineral oil (20w50)	70/21
Wood	33/10
Ethylene glycol	23/7
Butyl acrylate	70/21
Vinyl acetate	70/21
Flammable adhesive (flash point < 60 °C)	70/21
Solvents	70/21
Oil paint	70/21
Jet fuel A1	70/21
Battery ⁽²⁾	75/23

(1) 30-in (0.75 m) high, 10-in (0.25 m) wide plume fire

(2) One battery cell

Table 2: General specifications

Spectral response	Ultraviolet: 0.185 to 0.260 μm Infrared: 4.3 to 4.8 μm
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Table 2: General specifications (continued)

Detection response time	Standard response: Typically 5 sec at 93 ft (28 m) Ultra fast response: 20 msec for flash fire pan fire from 10 ft (3 m) distance High speed response (explosion): 50 msec for 1 ft (0.30 m) diameter sphere LPG-air mixture explosion at 32.8 ft (10 m) distance via analog voltage output
Sensitivity ranges	3 sensitivity ranges for 1 ft ² (0.1 m ²) n-heptane pan fire
Field of view	Horizontal: 100 ° Vertical: 95 °
Temperature range	Operating: -76 °F (-60 °C) to 185 °F (85 °C) ⁽¹⁾ Storage: -76 °F (-60 °C) to 185 °F (85 °C) ⁽¹⁾
Humidity	Non-condensing relative humidity up to 100%

(1) Self declaration

Table 3: Electrical specifications

Operating voltage	24 Vdc nominal (18-32 Vdc)
Power consumption	Standby: Maximum 3 W (8 W with heated window) Alarm: Maximum 4.2 W (9.6 W with heated window)
Cable entries	2 x ¾-in - 14 NPT conduits or 2 x M25 x 1.5 mm ISO
Electrical input protection	According to EN 50130
Electromagnetic compatibility	EMI/RFI protected to EN61000-6-3 and EN 50130
Electrical interface	The detector includes 17 terminals and one wiring option

Table 4: Outputs

Relays	Alarm, fault, and auxiliary SPST volt-free contacts rated 2A at 30 Vdc
Analog output	Analog port malfunction: 0 V (< 0.5 V) Normal: 2 V ± 0.3 V Alarm/explosion: 5 V ± 0.3 V
0-20 mA (stepped)	Fault: 0 ± 1 mA Built-in test (BIT) fault: 2 mA ± 0.3 mA Normal: 4 mA ± 0.3 mA Warning: 16 mA ± 0.3 mA Alarm: 20 mA ± 0.3 mA
HART® protocol	HART communication on the 0-20 mA 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

Table 5: Mechanical specifications

Enclosure options	Electropolished stainless steel 316 Heavy duty copper free aluminum (less than 1%), polyurethane painted
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Table 5: Mechanical specifications (*continued*)

Tilt mount	Electropolished stainless steel 316
Dimensions	Detector: 4 x 4.6 x 6.18 in (100.6 x 117 x 155 mm)
Weight	Detector stainless steel: 6.3 lb (2.9 kg) Detector aluminum: 2.8 lb (1.3 kg) Tilt mount: 2.5 lb (1.1 kg)
Environmental standards	DNV 2-4
Water and dust	IP66 and IP68 per EN 60529, NEMA® 250 6P

Approvals

Hazardous area

ATEX and IECEx

Ex II 2GD
Ex db eb IIC T4 Gb
Ex tb IIIC T110 °C Db
Ta = -50 °C to +85 °C
IP66/IP68

FM/FMC/CSA

Class I Division 1, Groups B, C, and D, T4
Class II/III Division 1, Groups E, F, and G, T4
Class I, Division 2, Groups B, C, and D, T4
Ta = -50 °C to +85 °C
Type 6P; IP 66/68 6.6 ft (2 m) for 45 minutes

TR CU (EAC)

1Ex d e IIC T4 Gb
Ex tb IIIC T110 °C Db
Ta = -60 °C to +85 °C
IP66/IP68

In Metro

Pending

Marine

MED "Wheelmark" (DNV)

Performance

EN54-10 | FM3260

Reliability

IEC61508 - SIL3 compatible

For more information: www.emerson.com

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