

Spectrex SharpEye™ 40/40C-L4B

Integrated Ultraviolet/Infrared Flame Detector



The SharpEye 40/40C-L4B Ultraviolet/Infrared (UV/IR) Flame Detector is part of the leading, next generation SharpEye 40/40 series.

Featuring fast detection in under five seconds with proven immunity to false alarms, the integrated UV and IR optical sensors detect hydrocarbon-based fuel and gas fires, ensuring 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.

- Advanced long distance detection of hydrogen and hydrocarbon-based fuel and gas fires at up to 50 ft (15 m)
- Extended detection range more than doubles detection coverage
- Proven false alarm immunity
- Unparalleled reliability - 150,000 hours MTBF
- Wide temperature range: -40 °F (-40 °C) to +175 °F (+75 °C)
- Worldwide and regionally certified for hazardous areas
- Performance and reliability approved by recognizable certification bodies
- SIL3 compatible
- Enhanced durability backed up by with three-year warranty
- Innovative UV and 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
- Two sensitivity levels, adapting to any application
- Heated optic for impeccable performance in challenging environmental conditions
- Internal log event recorder to analyze past events

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Applications

- Oil and gas onshore and offshore installations and pipelines
- Petrochemical and chemical plants
- Storage tank farms
- Aircraft hangars
- Power generation facilities
- Pharmaceutical industry
- Printing industry
- Warehouses
- Automotive industry
- Waste disposal facilities
- Aerospace industry
- Light industrial

Ordering information

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Model

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

Wiring

Code	Description
-6	Universal

Operating temperature range

Code	Description
4	-40 °F (-40 °C) to 167 °F (75 °C)

Electrical cable entries

Code	Description
1	M25
2	¾-in NPT

Enclosure

Code	Description
A	Aluminum polyurethane painted

Hazardous area approvals

Code	Description
B	INMETRO
F	FM, FMC, CSA for United States and Canada
C	ATEX/IECX/UKCA
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	Flame detector duct mount assembly
789260-2	Flame detector pole mount assembly, 2 in.
789260-1	Flame detector pole mount assembly, 3 in.
789260-3	Flame detector pole mount assembly, 4 in.
794079	USB RS-485 harness kit
877650	Flame detector air shield assembly
877263	Protective cover (Plastic)
877163	Protective cover (Stainless steel)
877563	Field of view limiter

Specifications

Table 1: Detection ranges

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

Fuel	Range (ft/m)
Gasoline	93/28
n-Heptane	93/28
Diesel	70/21
JP5	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
Hydrogen ⁽¹⁾	N/A
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 < 140 °F [60 °C])	70/21
Solvents	70/21
Oil paint	70/21
Jet fuel A1	70/21
Battery ⁽²⁾	77/23

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

(2) One lithium ion battery cell. Height: 2.6 in. (65 mm). Diameter: 0.72 in. (18.4 mm)

Table 2: General specifications

Spectral response	Ultraviolet: 0.185 to 0.260 μm Infrared: 4.3 to 4.8 μm
Detection response time	Standard response: Typically 5 sec
Sensitivity ranges	3 sensitivity ranges

Table 2: General specifications (continued)

Field of view	Horizontal: 100 ° Vertical: 95 °
Coverage area	12,999 ft ³ (3962 m ³)
Temperature range	Operating: -40 to +167 °F (-40 to +80 °C) Storage: -40 to +167 °F (-40 to +80 °C)
Humidity	Non-condensing relative humidity up to 100%

Table 3: Electrical specifications

Operating voltage	24 Vdc nominal (18-32 Vdc)
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: Typical power consumption (24 Vdc)

Mode	mA	Watts
Normal power consumption without heater	90	2.2
Normal power consumption without heater, with alarm	120	2.9
Standard power mode heater with alarm	320	7.7

Table 5: Outputs

Relays	Alarm, fault, and auxiliary SPST volt-free contacts rated 2A at 30 VDC
Analog output default (1)	Analog port malfunction: 0 V (< 0.5 V) Normal: 2 V ± 0.3 V Alarm: 5 V ± 0.3 V
0-20 mA (stepped) default ⁽¹⁾	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

(1) This output is configurable.

Table 6: Mechanical specifications

Enclosure options	Heavy duty copper free aluminum (less than 1%), polyurethane painted
Tilt mount	Electropolished stainless steel 316
Dimensions	Detector: 4 x 4.6 x 6.18 in (100.6 x 117 x 155 mm)

Table 6: Mechanical specifications (*continued*)

Weight	Detector aluminum: 2.8 lb (1.3 kg) Tilt mount: 2.5 lb (1.1 kg)
Water and dust	IP66 and IP68 per EN 60529 NEMA® 250 6P

Approvals

For approvals information, see *Spectrex 40/40 Series Certification Information*.