Product Data Sheet
00913-0200-4978, Rev AC
September 2021

Spectrex SharpEye™ 40/40C-LB

Integrated Ultraviolet/Infrared Flame Detector

The SharpEye 40/40C-LB 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 flames with a large variety of hazardous sources, such as hydrocarbon-based fuel and gas, hydroxyl, hydrogen, metal, inorganic, etc., ensuring flawless performance to keep a SharpEye on your safety!

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Features and benefits

- Fast detection in under five sec
- Proven false alarm immunity
- Unparalleled reliability - 150,000 hours MTBF
- Wide temperature range:
  -40 °F (-40 °C) to 167 °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 ultraviolet (UV) and infrared (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

Contents

Applications

- Oil and gas onshore and offshore installations and pipelines
- Explosives and munitions
- Petrochemical and chemical plants
- Storage tank farms
- Aircraft hangars
- Power generation facilities
- Pharmaceutical industry
- Printing industry
- Refinery hydrogenation
- Warehouses
- Automotive industry
- Waste disposal facilities
- Aerospace industry
- Hydrogen fuel cell industry
- Hydrogen vehicle parking and refueling
- Battery charging areas
- Space industry hydroxyl propellant
- Static fuel cell systems
- Light industrial

Ordering information

VIEW PRODUCT >

Model

Code	Description
-LB	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 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
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-ft^2 (0.1 m^2) pan fire.

Fuel	Range (ft/m)
Gasoline	50/15
n-Heptane	50/15
Diesel	37/11
JP5	37/11
Kerosene	37/11

Table 1: Detection Ranges *(continued)*

Fuel	Range (ft/m)
Ethanol 95%	29.5/9
Isopropyl alcohol (IPA)	36/11
Methanol	29.5/9
Methane(1)	33/10
Liquefied petroleum gas (LPG)(1)	33/10
Polypropylene pellets	33/10
Office paper	16/5
Hydrogen(1)	37/11
Magnesium alloy	16/5
Gun powder (1.5 in² (10 cm²))	33/10
Fireworks (10 pieces per test)	5/1.6
Cooking oil	37/11
Mineral oil (20w50)	37/11
Wood	16/5
Ethylene glycol	12/3.7
Butyl acrylate	37/11
Vinyl acetate	37/11
Flammable adhesive (flash point < 140 °F (60 °C))	37/11
Solvents	37/11
Oil paint	37/11
Jet A1	37/11
Battery(2)	39/12

(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: 2.5 to 3.0 µm
Detection response time	Standard response: typically < 5 sec
Sensitivity ranges	2 sensitivity ranges for 1-ft^2 (0.1 m^2) n-heptane pan fire
Field of view	Horizontal: 100° Vertical: 95 °
Temperature range	Operating: -40 °F (-40 °C) to 167 °F (75 °C) Storage: -40 °F (-40 °C) to 167 °F (75 °C)
Humidity	Non-condensing relative humidity up to 100%

Table 3: Electrical Specifications

Operating voltage	24 Vdc nominal (18-32 Vdc)

Table 3: Electrical Specifications *(continued)*

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 2 A at 30 Vdc
Analog output	Analog port malfunction: 0 V (< 0.5 V) Normal: 2 V ± 0.3 V Alarm: 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	Heavy duty copper free aluminum (less than 1%), polyurethane painted
Mounting	Electropolished stainless steel 316
Dimensions	Detector: 4 x 4.6 x 6.18 in (100.6 x 117 x 155 mm)
Weight	Detector aluminum: 2.8 lb (1.3 kg) Tilt mount: 2.5 lb (1.1 kg)
Water and dust	IP66 and IP68 per EN60529, NEMA® 250 6P

Approvals

Hazardous area

ATEX and IECEx	Ex II 2GD Ex db eb IIC T4 Gb Ex tb IIIC T100 °C Db Ta = -40 °C to +75 °C IP66/IP68
FM/FMC/CSA	Class I, Division 1, Groups B, C, and D, T4A Class II, III, Division 1, Groups E, F, and G, T4A Class I, Division 2, Groups A, B, C, and D, T4 Ta = -40 °C to +75 °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 T100 °C Db Ta = -40 °C to +75 °C IP66/IP68
In Metro	Pending

Performance

EN54-10 | FM3260

Reliability

IEC61508 - SIL3 (TUV)

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For more information: **www.emerson.com**

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