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.

Product Data Sheet
00913-0200-4977, Rev AC
September 2021

For pricing or any further information, please contact Omni Instruments Ltd.

Measurement and data acquisition solutions

Contact Details:
Tel: +44 1382 443000
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Mailing Address: Unit 1, 14 Nobel Road,
Wester Gourdie Industrial Estate,
Dundee, DD2 4UH.

Features and benefits

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

- Fast detection 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 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
- Three sensitivity levels, adapting to any application
- Heated optic for impeccable performance in challenging environmental conditions
- Internal log event recorder to analyze past events

Contents

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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

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Ordering information

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 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

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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 (petrol)	93/28
n-Heptane	93/28
Diesel	70/21
JP5 fuel	70/21
Kerosene	70/21

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Table 1: Detection ranges *(continued)*

Fuel	Range (ft/m)
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
Detection response time	Standard response: Typically 5 sec
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: -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)

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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 2A 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
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 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

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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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