Spectrex SharpEye™ 40/40C-I

Multi-Spectrum QuadSense Flame Detector

The SharpEye 40/40C-I Multi-Spectrum QuadSense flame detector is part of the leading, next generation SharpEye 40/40 series.

Featuring enhanced performance, advanced long distance detection of hydrocarbon fires at up to 215 ft (65 m), fast detection in under five seconds, and strengthened reliability, the SharpEye 40/40C-I is based on proven triple infrared (IR3) technology, ensuring high sensitivity with superior immunity to false alarms and surely keeping a SharpEye on your safety.

Features and benefits

Multi-Spectrum QuadSense flame detector - integrating four infrared (IR) sensors to further improve differentiation of flame sources from non-flame background radiation.

- Advanced long distance detection of hydrogen and hydrocarbon-based fuel and gas fires at up to 215 ft (65 m)

- Extended detection range more than doubles detection coverage

- Ultra fast detection, high speed response under 50 msec

- Proven false alarm immunity

- Unparalleled reliability - 150,000 hours MTBF

- Wide temperature range:
  -40 °F (-40 °C) to +167 °F (+75 °C)

- Enhanced durability backed up by with three-year warranty

- Five sensitivity levels, adapting to any application

- Innovative 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

- Heated optic for impeccable performance in challenging environmental conditions

- Worldwide and regionally certified for hazardous areas

- Performance and reliability approved by recognizable certification bodies

- SIL3 compatible

- Internal log event recorder to analyze past events

Contents

Applications

- Oil and gas onshore and offshore installations and pipelines
- Chemical and petrochemical plants
- Storage tank farms
- Aircraft hangars
- Power generation facilities
- Pharmaceutical industry
- Printing industry
- Warehouses
- Automotive industry
- Explosives and munitions
- Waste disposal facilities
- Light industrial

Ordering information

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Model

Code	Description
-I	QuadSense triple infrared (IR3)

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	USA and Canada Explosion-Proof[1]
C	ATEX/IECX/UKCA
R	EAC CU TR

[1]   *Aluminum enclosure: FM, FMC*

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-1100	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 ft.^{2} (0.1 m^2) pan fire.

Fuel	Range (ft./m)
Gasoline	215/65
n-Heptane	215/65
Diesel fuel	150/45
JP5	150/45
Kerosene	150/45
Ethanol 95%	135/40
Isopropyl alcohol (IPA)	135/40
Methanol	135/40
Methane[1]	150/45
Liquefied petroleum gas (LPG)[1]	150/45
Polypropylene pellets	115/35
Office paper	83/25
Hydrogen[1]	N/A
Magnesium alloy	N/A
Gun powder (1.5 in.^{2} (10 cm^2)	141/43
Fireworks (10 pieces per test)	23/7
Cooking oil	150/45
Mineral oil (20w50)	150/45
Wood	83/25
Ethylene glycol	118/35
Butyl acrylate	177/54
Vinyl acetate	177/54
Flammable adhesive (flash point < 140 °F [60 °C])	150/45
Solvents	177/54
Oil paint	150/45
Jet fuel A1	150/45
Battery[2]	200/61

[1] *30 in. (0.75 m) high, 10 in. (0.25 m) wide plume fire*
[2] *Lithium ion battery. Height: 2.56 in. (65 mm). Diameter: 0.72 in. (18.4 mm).*

Table 2: General specifications

Spectral response	Four infrared bands between 2 and 5 μm
Detection response time	Standard response: Typically < 5 sec
Sensitivity ranges	5 sensitivity ranges
Field of view	Horizontal: 100 ° Vertical: 95 °

Table 2: General specifications *(continued)*

Coverage area	12,999 ft^2 (3962 m^2)
Temperature range	Operating: -40 to +167 °F (-40 to +75 °C) Storage: -40 to +167 °F (-40 to +75 °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. 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 without heater	60	1.4
Normal without heater with alarm	90	2.2
Standard power mode heater with alarm	310	7.5

Table 5: 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 communications 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 6: 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 EN 60529, NEMA® 250 6P

Approvals

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

For more information: **Spectrex.net**

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