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**SPECTREX SHARPEYE™  
40/40C-I**

# SPECTREX SHARPEYE™ 40/40C-I

## MULTISPECTRUM QUAD-SENSE FLAME DETECTOR

The SharpEye 40/40C-I Multispectrum Quad-Sense 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 40/40C-I is based on proven Triple-IR (IR3) technology, ensuring high sensitivity with superior immunity to false alarms and surely keeping a SharpEye on your safety!

Multi-Spectrum Quad-Sense flame detector - integrating four IR sensors to further improve differentiation of flame sources from non-flame background radiation.



### Features and benefits:

- Advanced long distance detection of hydrocarbon-based fuel and gas fires at up to 215 ft. (65 m)
- Fast detection, under five seconds
- Proven false alarm immunity
- Unparalleled reliability - 150,000 hours MTBF
- Best in class temperature range: -40 to +185 °F (-40 to +75 °C)
- Enhanced durability backed up by with five-year warranty
- Five sensitivity levels, adapting to any application
- Smart field of view integrity test, allowing flawless operation
- 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
- Two mode heated optics for impeccable performance in challenging environmental conditions
- Worldwide and regionally certified for hazardous areas
- Performance and reliability approved by recognizable certification bodies
- SIL3 compatible

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### Applications examples

- Offshore oil and gas installations
- Onshore oil and gas installations and pipelines
- Chemical plants
- Petrochemical plants
- Storage tank farms
- Fuel and gas processing and storage facilities
- Power generation facilities
- Explosives and munitions
- Fertilizer plants
- Automotive industry
- Vehicle battery charging stations
- Hydroxyl production and storage
- Aerospace industry
- Waste disposal facilities
- Pharmaceutical industry
- Printing industry
- Hazardous materials storage areas
- Food processing
- Light industrial

**Table 1**

General Specifications	
<b>Spectral response</b>	Four infrared bands: 4 µm, 4.4 µm, 4.5 µm, 5 µm
<b>Detection ranges</b> (at highest sensitivity setting for 1 ft <sup>2</sup> [0.1 m <sup>2</sup> ] pan fire)	See Table 3.
<b>Sensitivity ranges</b>	5 sensitive ranges for 1 ft <sup>2</sup> (0.1 m <sup>2</sup> ) n-heptan pan fire from 50 ft. (15 m) to 215 ft. (65 m)
<b>Field of view</b>	Horizontal: 100°, vertical: 95°
<b>Temperature range(1)</b>	Operating: -40 to +185 °F (-40 to +75 °C) Storage: -40 to +185 °F (-40 to +75 °C)
<b>Humidity</b>	Non-condensing relative humidity up to 100%

(1) Self declaration

**Table 2**

Detection Response Time	
<b>Standard response time</b>	Typically < 5 seconds

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**Table 3**

Fuel	ft/m
Gasoline (Petrol)(1)	215/65
N-Heptane(1)	215/65
Diesel fuel(1)	150/45
Methane(2)	150/45
Liquefied petroleum gas (LPG)(2)	150/45
Kerosene(1)	150/45
Jet fuel JP5(1)	150/45
Jet fuel A1(1)	150/45
Ethanol 95%(1)	57/17
Isopropyl alcohol (IPA)(1)	135/40
Methanol(1)	115/35
Ethylene glycol(1)	23/7
Solvents(1)	177/54
Flammable adhesive (flash point 140 °F < 60 °C)(1)	150/45
Butyl acrylate(1)	177/54
Vinyl acetate(1)	177/54
Oil paint(1)	150/45
Gun powder(3)	141/43
Fireworks(4)	23/7
Magnesium alloy(5)	33/10
Polypropylene pellets(1)	115/35
Office paper	83/25
Wood	83/25
Mineral oil (20w50)	150/45
Cooking oil	150/45
Lithium ion battery	200/61

(1) 1 ft x 1 ft (0.3 m x 0.3 m) pan

(2) 2.46 ft. (0.75 m) high, 0.82 ft. (0.25 m) width plume fire

(3) 1.5-in. sq.

(4) 10 pcs per test

(5) Only for UV detector

(6) One cell of battery per test

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**Table 4**

Electrical Specifications	
<b>Operating voltage</b>	24 Vdc nominal (18-32 Vdc)
<b>Power consumption</b>	Standby: Max. 3 W (8 W with heated window) Alarm: Max. 4.2 W (9.6 W with heated window)
<b>Cable entries</b>	2 x ¾-in.-14 NPT conduits or 2 x M25 x 1.5 mm ISO
<b>Electrical input protection</b>	According to EN50130
<b>Electromagnetic compatibility</b>	EMI/RFI protected to EN61000-6-3 and EN50130
<b>Electrical interface</b>	The detector includes 17 terminals with one wiring option

**Table 5**

Outputs	
<b>Relays</b>	Alarm, fault, and auxiliary SPST volt-free contacts rated 2 A at 30 Vdc
<b>Analog voltage output (1)</b>	Analog port malfunction: 0 V (< 0.5 V) Normal: 2 V ± 0.3 V Alarm/Explosion: 5 V ± 0.3 V
<b>0-20 mA (stepped)</b>	±0.3 mA for 2 mA and 4 mA, and ±0.5 mA for 16 mA and 20 mA
<b>HART® protocol</b>	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
<b>RS-485</b>	RS-485 Modbus® compatible communication link that can be used in computer controlled installations

**Table 6**

Mechanical Specifications	
<b>Enclosure options</b>	Electropolished Stainless Steel 316 Heavy duty copper free aluminum (less than 1%), polyurethane paint
<b>Mounting</b>	Tilt mount material-stainless steel 316 with electro polish finish
<b>Dimensions</b>	Detector 4 x 4.6 x 6.18-in. (100.6 x 117 x 155 mm)
<b>Weight</b>	Detector stainless steel: 6.3 lb. (2.9 kg) Detector: 2.8 lb. (1.3 kg) Tilt mount: 2.5 lb. (1.1 kg)
<b>Environmental standards</b>	DNV 2-4
<b>Water and dust</b>	IP66 and IP68 per EN60529, NEMA 250 6P

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**Table 7**

Approvals	
<b>Hazardous area</b>	ATEX and IECEx Ex II 2 G D Ex db eb IIC T4 Gb Ex tb IIIC T110 °C Db (-40 °C ≤ T <sub>a</sub> ≤ +75 °C)
	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 T <sub>a</sub> = -40 °C to +75 °C NEMA Type Rating 6P
	TR CU (EAC) Ex db eb IIC T4 Gb X Ex tb IIIC T110 °C Db X (-40 °C ≤ T <sub>a</sub> ≤ +75 °C)
<b>Marine</b>	MED "Wheelmark" (DNV)
<b>Performance</b>	EN54-10 (VdS)   FM3260
<b>Reliability</b>	IEC61508 - SIL3 compatible

**Table 8**

Accessory	Part number
<b>Flame simulator (Ex proof)</b>	FS-1100
<b>Tilt mount</b>	877090
<b>Duct mount (Ex proof)</b>	877670
<b>U-bolt/pole mount</b>	2-in. (50.8 mm) pole: 789260-2
	3-in. (76.2 mm) pole: 789260-1
<b>USB RS-485 harness kit</b>	794079
<b>Air shield</b>	877650
<b>Protective cover</b>	877263 (conductive ABS plastic)(1)
	877163 (PU painted stainless steel 316)

(1) Supplied free of charge with the detector





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