



SPECTREX SHARPEYE™ 40/40D-M ULTRA FAST MULTI IR QUAD-SENSE™ FLAME DETECTOR

The SharpEye 40/40D-M Multispectrum Quad-Sense flame detector is part of the leading, next generation SharpEye 40/40 series.

Featuring superior, longest distance detection of hydrogen and hydrocarbon fires, exceptional ultra-fast detection in under 50 msec and unparalleled reliability, the 40/40D-M is based on proven Triple-IR (IR3) technology, ensuring highest sensitivity with proven immunity to false alarms and absolutely 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:

- Superior longest distance detection of hydrogen and hydrocarbon-based fuel and gas fires at up to 300 ft. (90 m)
- Ultra fast detection, high speed response under 50 msec
- Proven false alarm immunity
- Unparalleled reliability - 150,000 hours MTBF
- Best in class temperature range:
 - -76 °F to +185 °F (-60 °C to +85 °C)
- Enhanced durability backed up by with five-year warranty
- Six 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

SPECTREX SHARPEYE™ 40/40D-L4B

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Applications examples

- Offshore oil and gas installations
- Onshore oil and gas installations and pipelines
- Hydrogenation (Petroleum Refining, Food Processing, Chemical)
- 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 management facilities
- Hydrogen fuel cell industry
- Pharmaceutical industry
- Printing industry
- Hazardous materials storage areas
- Food processing
- Silane storage

Table 1

General Specifications	
Spectral response	Four infrared bands between 2 and 5 μm
Detection ranges (at highest sensitivity setting for 1 ft ² [0.1 m ²] pan fire)	See Table 3.
Sensitivity ranges	6 sensitivity ranges for 1 ft ² (0.1 m ²) n-heptane pan fire
Field of view	Hydrogen: horizontal 90°, vertical 90°
Temperature range(1)	Operating: -76 to +185 °F (-60 to +85 °C) Storage: -76 to +185 °F (-60 to +85 °C)
Humidity	Non-condensing relative humidity up to 100%

(1) Self declaration

Table 2

Detection Response Time	
Standard response time	Typically < 2 sec. at 131 ft. (40m) 10 sec. at 300 ft. (90 m)
High speed response time (explosion)	50 msec for 1 ft. (0.30 m) diameter sphere LPG-air mixture explosion at 66 ft. (20 m)

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Table 3

Fuel	ft/m
Hydrogen(1)	164/50
Gasoline (Petrol)(2)	300/90
N-Heptane(2)	300/90
Diesel fuel(2)	210/63
Methane(1)	210/63
Liquefied petroleum gas (LPG)(1)	210/63
Kerosene(2)	210/63
Jet fuel JP5(2)	210/63
Jet fuel A1(2)	210/63
Ethanol 95%(2)	57/17
Isopropyl alcohol (IPA)(2)	185/55
Methanol(2)	185/55
Ethylene glycol(2)	164/50
Solvents(2)	246/75
Flammable adhesive (flash point 140 °F < 60 °C)(2)	210/63
Butyl acrylate(2)	246/75
Vinyl acetate(2)	246/75
Oil paint(2)	210/63
Gun powder	197/60
Fireworks	33/10
Magnesium alloy	33/10
Polypropylene pellets	163/49
Office paper	115/34
Wood	111/34
Mineral oil (20w50)	210/63
Cooking oil	210/63
Lithium ion battery	279/85

(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	
Operating voltage	24 Vdc nominal (18-32 Vdc)
Power consumption	Standby: Max. 3 W (8 W with heated window) Alarm: Max. 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 EN50130
Electromagnetic compatibility	EMI/RFI protected to EN61000-6-3 and EN50130
Electrical interface	The detector includes 17 terminals with one wiring option

Table 5

Outputs	
Relays	Alarm, fault, and auxiliary SPST volt-free contacts rated 2 A at 30 Vdc
Analog voltage output (1)	Analog port malfunction: 0 V (< 0.5 V) Normal: 2 V ± 0.3 V Alarm/Explosion: 5 V ± 0.3 V
0-20 mA (stepped)	±0.3 mA for 2 mA and 4 mA, and ±0.5 mA for 16 mA and 20 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

(1) Ultra fast detection only

Table 6

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

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Table 7

Approvals		
Hazardous area	ATEX and IECEx	Ex II 2 G D Ex db eb IIC T4 Gb Ex tb IIIC T110 °C Db (-50 °C ≤ T _a ≤ +85 °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 _a = -50 °C to +85 °C NEMA Type Rating 6P
	TR CU (EAC)	Ex db eb IIC T4 Gb X Ex tb IIIC T110 °C Db X (-60 °C ≤ T _a ≤ +85 °C) (-55 °C ≤ T _a ≤ +85 °C)
Marine	MED "Wheelmark" (DNV)	
Performance	EN54-10 (VdS) FM3260	
Reliability	IEC61508 - SIL3 compatible	

Table 8

Accessory	Part number
Flame simulator (Ex proof)	FS-1400
Tilt mount	877090
Duct mount (Ex proof)	877670
U-bolt/pole mount	2-in. (50.8 mm) pole: 789260-2
	3-in. (76.2 mm) pole: 789260-1
USB RS-485 harness kit	794079
Air shield	877650
Protective cover	877263 (conductive ABS plastic)(1)
	877163 (PU painted stainless steel 316)

(1) Supplied free of charge with the detector



VALWO s. r. o.
Hrabinská 498/19,
737 01 Český Těšín, Česká republika

+420 603 933 363
email: office@valwo.eu

website:
www.valwo.eu/en

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