



# SPECTREX SHARPEYE™ 40/40D-LB

## ULTRA FAST UV/IR FLAME DETECTOR

The SharpEye 40/40D-LB UV/IR flame detector is part of the leading, next generation SharpEye 40/40 series.

Featuring ultra-fast detection in 20 msec with proven immunity to false alarms, integrating UV and IR optical sensors to ensure flawless performance to keep a SharpEye on your safety!

Detects flames with a large variety of hazardous sources, such as hydrocarbon-based fuel and gas, hydroxyl, hydrogen, metal, inorganic, etc.



Integrating UV and IR optical sensors for detection of detection of fires from a large variety of hazardous sources, such as hydrocarbon-based fuel and gas, hydroxyl, hydrogen, metal, inorganic, etc.

### Features and benefits:

- 20 msec Ultra Fast detection
- Proven false alarm immunity
- Unparalleled reliability - 150,000 hours MTBF
- Best in class temperature range: -76 to +185 °F (-60 to +85 °C)
- Worldwide and regionally certified for hazardous areas
- Performance and reliability approved by recognizable certification bodies
- SIL3 compatible
- Enhanced durability backed up by with five-year warranty
- Smart field of view integrity test, allowing flawless operation
- Innovative UV & 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
- Two mode heated optics for impeccable performance in challenging environmental conditions

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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	
<b>Spectral response</b>	UV: 0.185–0.260 µm; IR: 2.5–3.0 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>	3 sensitivity ranges for 1 ft <sup>2</sup> (0.1 m <sup>2</sup> ) n-Heptane pan fire
<b>Field of view</b>	Horizontal: 100°, vertical: 95°
<b>Temperature range(1)</b>	Operating: -76 to +185 °F (-60 to +85 °C) Storage: -76 to +185 °F (-60 to +85 °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 sec. at 93 ft. (28 m)
<b>Ultra fast response time</b>	20 msec for flash fire pan fire from 9.84 ft. (3 m) distance via analog voltage output
<b>High speed response time (explosion)</b>	50 msec for 1 ft. (0.30 m) diameter sphere LPG-air mixture explosion at 32.8 ft. (10 m) via analog voltage output

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**Table 3**

Fuel	ft/m
Gasoline (Petrol)(1)	93/28
N-Heptane(1)	93/28
Diesel fuel(1)	70/21
Methane(2)	60/18
Liquefied petroleum gas (LPG)(2)	60/18
Kerosene(1)	70/21
Jet fuel JP5(1)	70/21
Jet fuel A1(1)	69/21
Ethanol 95%(1)	57/17
Isopropyl alcohol (IPA)(1)	70/21
Methanol(1)	57/17
Ethylene glycol(1)	23/7
Solvents(1)	70/21
Flammable adhesive (flash point 140 °F < 60 °C)(1)	70/21
Butyl acrylate(1)	70/21
Vinyl acetate(1)	70/21
Oil paint(1)	70/21
Gun powder	66/20
Fireworks	10/3
Magnesium alloy	33/10
Polypropylene pellets	60/18
Office paper	33/10
Wood	33/10
Mineral oil (20w50)	70/21
Cooking oil	70/21
Lithium ion battery	75/23

(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>	Fault: 0 ±1 mA 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
<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

(1) Ultra fast detection only

**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>	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 aluminum: 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>	IIP66 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 (-50 °C ≤ T <sub>a</sub> ≤ +85 °C) IP66/68
	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> = -50 °C to +85 °C Type 6P; IP 66/68 2 m for 45 minutes
	TR CU (EAC) II 2 GD Ex db eb IIC T4 Gb X Ex tb IIIC T110 °C Db X (-60 °C ≤ T <sub>a</sub> ≤ +85 °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-1200
<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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