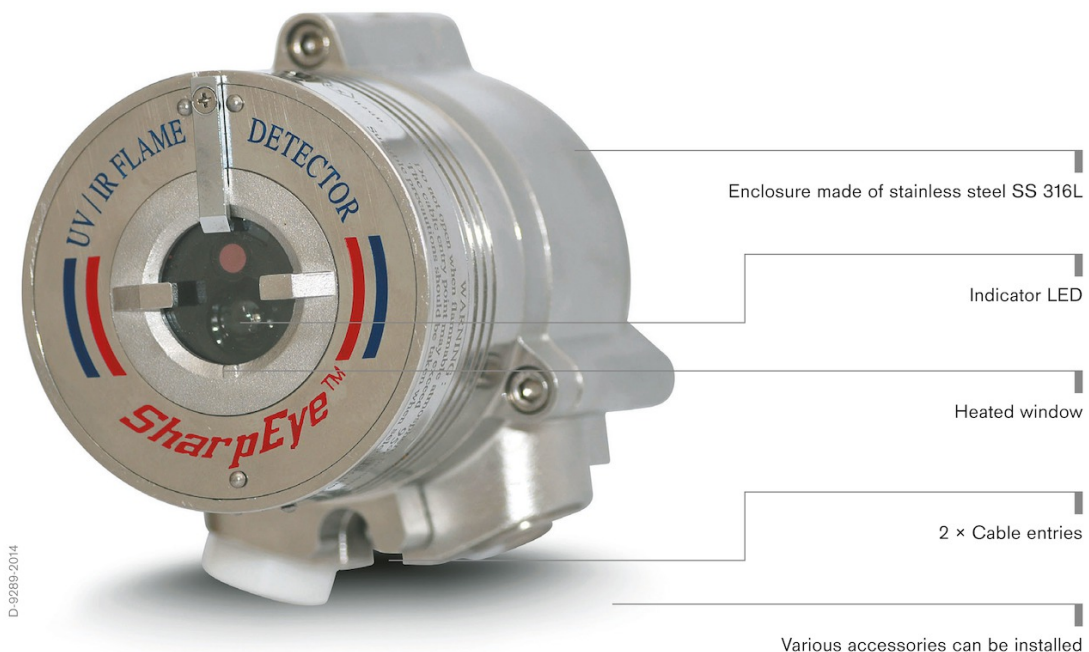# The SharpEye™ 40/40L4-L4B (UV/IR) Flame Detection

Working in areas with combustible gases, vapours or materials requires fire/flame detection as a life-saving necessity. The best solutions must combine state-of-the-art technology with rugged durability and be ready to reliably work in any situation. Dräger offers a wide variety of high-quality flame-detectors that fulfil these requirements.

Enclosure made of stainless steel SS 316L

Indicator LED

Heated window

2 × Cable entries

Various accessories can be installed

D-9289-2014

Benefits

A Multi-Talent With More Features

The SharpEye™ 40/40L4 and the L4B model (with built-in test option) are both offered by Dräger and combine UV and IR sensors that are capable of detecting hydrocarbon-based fuel and gas fires.

Performance You Can Trust

The UV/IR flame detector senses radiant energy in the short wave section of both the ultraviolet and infrared portions of the electromagnetic spectrum. The signals from both sensors are then analysed for frequency, intensity and duration. The simultaneous detection of radiant energy in both the UV and IR sensors then triggers the alarm.

Rugged Yet Refined

The 40/40L4-L4B are designed to cope with harsh weather conditions and come with such features as a heated window against snow, ice and condensation and a rugged outer housing. At the same time, both models are compact and lightweight, making them ideal for any situation or installation set-up. In addition to many other innovative features, the device comes with DNV and MED shipping approval.

Reliability

Functional safety is a concept applicable across all industry sectors. It is fundamental to enabling complex technology used for safety-related systems. It provides assurance that the safety-related systems will offer necessary risk reduction. The SharpEye™ 40/40 flame detector series is highly reliable and complies with the IEC 61508 Safety Integrity Requirements of SIL2.

Automatic and manual optics checks (BIT)

Automatic checks of the detector electronics and optics helps ensure that no fault goes undetected. Additionally the test can be triggered manually at any time.

Easily visible status LED

A tri-colored LED which is visible at the front of the detector provides a simple status indication to personnel in close proximity to the detector. Green indicates normal operation; yellow indicates a fault and red indicates the presence of radiation from a fire.

Simple installation and commissioning

Installation is simple! The detector is easily installed with a stainless steel tilt mount; enables the detector to be rotated up to 60° in all directions to position the detector in relation to the potential fire source.

Benefits

SharpEye™ 40/40L4-L4B offers:

– Solar blind UV/IR Dual Sensor
– Fast Response – 200 msec response to saturated signal
– Automatic and Manual Built-In-Test (BIT) – to ensure continued reliable operation SharpEye™ 40/40L4B only
– Heated window – for operation in harsh weather conditions (snow, ice, condensation)
– Multiple output options for maximum flexibility and compatibility
– 3 Relays for Alarm, Fault and Auxiliary
– 0 – 20 mA (stepped)
– HART Protocol for maintenance and asset management
– RS-485, Modbus compatible
– Approved to Safety Integrity Level 2 (SIL2 – TÜV) – SharpEye™ 40/40L4B only
– Ex approvals for worldwide application: ATEX, IECEx, FM/FMC, CSA
– 3rd party performance tested: EN54-10 (VdS), FM3260

Marine approval:

– DNV and ABS type approval
– MED-B and MED-D approval (wheelmark), issued by DNV

Accessories

D-2320-2014

Flame Simulator 40/40 – UV/IR

The SharpEye™ Flame Simulator 40/40 – UV/IR is designed specifically for use with SharpEye™ flame detectors. The Fire Simulator emits IR radiation in a unique sequential pattern corresponding to and recognizable by the detector as fire. This allows the detectors to be tested under simulated fire conditions without the associated risks of an open flame.

Accessories

D-2317-2014

Weather cover Flame Detector

The weather cover protects the detector from different weather conditions, such as snow and rain.

D-5526-2014

SharpEye™ 40/40 Air Shield

The special Air Shield, developed for SharpEye™ optical flame detectors, allows their installation under tough environmental conditions where they may be exposed to oil vapors, sand, dust and other particulate matter.

Related Products

D-9289-2014

The SharpEye™ 40/40L-LB (UV/IR)

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Related Products

The SharpEye™ 40/40R (IR)

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The SharpEye™ 40/40UFL (UV/IR)

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The SharpEye™ 40/40U-UB (UV)

Working in areas with combustible gases, vapours or materials requires fire/flame detection as a life-saving necessity. The best solutions must combine state-of-the-art technology with rugged durability and be ready to reliably work in any situation. Dräger offers a wide variety of high-quality flame-detectors that fulfil these requirements.

The SharpEye™ 40/40M (Multi IR)

Working in areas with combustible gases, vapours or materials requires fire/flame detection as a life-saving necessity. The best solutions must combine state-of-the-art technology with rugged durability and be ready to reliably work in any situation. Dräger offers a wide variety of high-quality flame-detectors that fulfil these requirements.

Related Products

D-9272-2014

The SharpEye™ 40/40I (IR3)

Working in areas with combustible gases, vapours or materials requires fire/flame detection as a life-saving necessity. The best solutions must combine state-of-the-art technology with rugged durability and be ready to reliably work in any situation. Dräger offers a wide variety of high-quality flame-detectors that fulfil these requirements and more.

Technical Data

Type	Explosion proof UV/IR flame detector for hydrocarbon-based fuel and gas fires	
Spectral Response	UV = 0.185 – 0.260 µm	
	IR = 4.4 – 4.6 µm	
Measuring Performance	Field of view	Horizontal 100°; Vertical 95°
	Response Time	Typically 3 seconds. 200 msec to flash fire
Detection Range	Fuel	ft / m
(at highest Sensitivity Setting for	n-Heptane / Gasoline	66 / 20
1 ft^2 (0.1 m^2) pan fire)	Diesel Fuel / JP5 / Kerosene	49 / 15
	Methanol	39 / 12
	IPA (Isopropyl Alcohol)	52 / 16
	Methane*	43 / 13
	Ethanol 95 %	39 / 12
	Polypropylene Pellets	50 / 15
	Office Paper	23 / 7
	LPG*	50 / 15

* 30" (0.75 m) high, 10" (0.25 m) width plume fire

Electrical Data

Output Signals	0 – 20 mA (stepped), HART
Fault Signal	0 + 1 mA
BIT Fault Signal	2 mA ±10 %
Normal Signal	4 mA ±10 %
Warning Signal	16 mA ±5 %
Alarm Signal	20 mA ±5 %
Relays	Alarm, Fault and Auxiliary
	SPST volt-free contacts rated 2 A at 30 VDC
RS485	Modbus compatible communication link
Power supply	24 VDC nominal (18 – 32 VDC)
Power Consumption	Standby: Max. 90 mA (110 mA with heated window)
	Alarm: Max. 130 mA (160 mA with heated window)

Ambient Conditions

Temperature	-55 to +75 ℃ / -67 to +167 ℉ (operating)
	-55 to +85 ℃ / -67 to +185 ℉ (option and storage)
Humidity	Up to 95 % non-condensing
	(withstands up to 100 % RH for short periods)

Enclosure

Material	Stainless steel SS 316L
Material option	Heavy duty copper free aluminum, red epoxy enamel finish
Connecting thread	2 × 3/4" – 14 NPT or 2 × M25 × 1.5 mm
Weight	Detector SS 316L 2.8 kg / aluminum 1.3 kg
	Tilt mount 1.0 kg
Dimensions Detector	101.6 × 117 × 157 mm
Ingress Protection	IP66 and IP67, NEMA 250 6P

Approvals

ATEX and IECEx	Ex II 2 G D	
	Ex d e IIC T5 Gb	Ex d e IIC T4 Gb
	Ex tb IIIC T96 ℃ Db	Ex tb IIIC T106 ℃ Db
	(-55 ℃ ≤ Ta ≤ +75 ℃)	(-55 ℃ ≤ Ta ≤ +85 ℃)
FM/FMC/CSA	Class I Div. 1, Groups B, C & D	

Technical Data

	Class II/III Div. 1, Groups E, F & G
Safety Integrity Level (SharpEye™ 40/40L4B only)	SIL2 certified by TÜV (EN61508)
Performance	EN54-10 (VdS)
	FM3260
Marine	MED 'Wheelmark' approval (DNV)
CE mark	EMI/RFI protected to EN61326-3 and EN61000-6-3

Ordering Information

Order Information SharpEye™ 40/40L4-L4B (UV/IR)

Flame Detector 40/40L4B-112SF – UV/IR	68 13 310
Flame Detector 40/40L4B-212SF – UV/IR	68 13 311
Flame Detector 40/40L4B-111SC – UV/IR	68 13 187
Flame Detector 40/40L4B-112SC – UV/IR	68 13 188
Flame Detector 40/40L4B-211SC – UV/IR	68 13 312
Flame Detector 40/40L4B-311SC – UV/IR	68 13 313
Flame Detector 40/40L4B-312SC – UV/IR	68 13 196
Flame Detector 40/40L4B-111AC – UV/IR	68 13 314
Flame Detector 40/40L4B-211AC – UV/IR	68 13 315
Other versions are available on request	

Accessories for SharpEye™ 40/40L4-L4B (UV/IR)

Weather cover Flame Detector (SS)	68 13 189
Weather cover Flame Detector (ABS)	68 13 190
Tilt mount Flame Detector (SS)	68 13 191
Flame Simulator 40/40 – UV/IR	68 13 194
Beam collimator UV – UV/IR	68 13 391
Mini-Laptop Diagnostic Kit	68 13 319
USB / RS485 converter kit, incl. SW	68 13 320
SharpEye™ Laser Pointer	68 13 321
SharpEye™ 40/40 Air Shield	68 51 603
SharpEye™ 40/40 Duct Mount	68 13 459
Pole Mount (U-Bolt) 2" – (SS)	68 13 322
Pole Mount (U-Bolt) 3" – (SS)	68 13 323
SharpEye™ is a registered trademark of Spectrex Inc.	

Notes

Notes

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