The SharpEye™ 40/40UFL (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.
Benefits

**Combined Explosion and High Sensitivity Flame Detector**

The SharpEye™ 40/40UFL is a highspeed UV/IR optical flame detector, which was created to quickly and effectively meet two main requirements: High speed response (20 msec to a flash fire) and high reliability with limited susceptibility to false alarms.

**Count On An Expert**

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.

**All-Weather Capable**

The 40/40UFL comes with features designed to withstand all kinds of weather and temperature fluctuations. This includes a heated window against snow, ice and condensation, a rugged, compact outer housing and a MTBF minimum of 150,000 hours.

**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.

**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 safetyrelated 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.

**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 whichenables the detector to be rotated up to 60° in all directions to position the detector in relation to the potential fire source.
Benefits

**SharpEye™ 40/40UFL offers:**

- Solar blind UV/IR Dual Sensor
- High Speed Response – 20 msec response to saturated signal
- Automatic and Manual Built-In-Test (BIT) – to ensure continued reliable operation
- 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)
- Ex approvals for worldwide application: ATEX, IECEx, FM/FMC, CSA
- 3rd party performance tested: EN54-10 (VdS), FM3260

Accessories

**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

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

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

The SharpEye™ 40/40L-LB (UV/IR)
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Related Products

The SharpEye™ 40/40R (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.

The SharpEye™ 40/40L4-L4B (UV/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.

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

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, hydroxyl and hydrogen fires, as well as metal and inorganic fires.

**Spectral Response**

UV = 0,185 – 0,260 μm
IR = 2,5 – 3,0 μm

**Measuring Performance**

Field of view
- Horizontal 100°; Vertical 95°

Response Time
- Typically 5 seconds.
- High speed 20 msec response to saturated signal

**Detection Range**

(at highest Sensitivity Setting for 1 ft\(^2\) (0.1 m\(^2\)) pan fire)

<table>
<thead>
<tr>
<th>Fuel</th>
<th>ft / m</th>
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<tbody>
<tr>
<td>n-Heptane / Gasoline</td>
<td>66 / 20</td>
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<tr>
<td>Diesel Fuel / JPS / Kerosene</td>
<td>50 / 15</td>
</tr>
<tr>
<td>Ethanol 95 %</td>
<td>25 / 7.5</td>
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<tr>
<td>Methanol</td>
<td>25 / 7.5</td>
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<tr>
<td>IPA (Isopropyl Alcohol)</td>
<td>43 / 13</td>
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<tr>
<td>Hydrogen*</td>
<td>37 / 11</td>
</tr>
<tr>
<td>Methane*</td>
<td>26 / 8</td>
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<tr>
<td>LPG*</td>
<td>43 / 13</td>
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<tr>
<td>Ammonia*</td>
<td>20 / 6</td>
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<tr>
<td>Silane*</td>
<td>6 / 1.8</td>
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<td>Polypropylene Pellets</td>
<td>43 /13</td>
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<tr>
<td>Office Paper</td>
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</table>

* 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 °C / -67 to +167 °F (operating)

-55 to +85 °C / -67 to +185 °F (option and storage)

**Humidity**

Up to 95 % non-condensing

(withstands up to 100 % RH for short periods)

**Enclosure**

**Material**

Stainless steel SS 316

**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
## Technical Data

### Approvals

<table>
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<tr>
<th>ATEX and IECEx</th>
<th>Ex II 2 G D</th>
<th>Ex d e IIC T5 Gb</th>
<th>Ex d e IIC T4 Gb</th>
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<tr>
<td></td>
<td>Ex tb IIIc T96 °C Db</td>
<td>Ex tb IIIc T106 °C Db</td>
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<td></td>
<td>(-55 °C ≤ Ta ≤ +75 °C)</td>
<td>(-55 °C ≤ Ta ≤ +85 °C)</td>
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<th>FM/FMC/CSA</th>
<th>Class I Div. 1, Groups B, C &amp; D</th>
<th>Class II/III Div. 1, Groups E, F &amp; G</th>
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<tr>
<th>Safety Integrity Level</th>
<th>SIL2 certified by TÜV (EN61508)</th>
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<th>Performance</th>
<th>EN54-10 (VdS)</th>
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<th>CE mark</th>
<th>EMI/RFI protected to EN61326-3 and EN61000-6-3</th>
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## Ordering Information

### Order Information SharpEye™ 40/40UFL (UV/IR)

| Flame Detector 40/40UFL-112SF – UV/IR | 68 51 380 |
| Flame Detector 40/40UFL-212SF – UV/IR | 68 51 381 |
| Flame Detector 40/40UFL-111SC – UV/IR | 68 51 382 |
| Flame Detector 40/40UFL-211SC – UV/IR | 68 51 383 |
| Flame Detector 40/40UFL-212SC – UV/IR | 68 51 384 |
| Flame Detector 40/40UFL-311SC – UV/IR | 68 51 385 |
| Flame Detector 40/40UFL-312SC – UV/IR | 68 51 386 |
| Flame Detector 40/40UFL-111AC – UV/IR | 68 51 387 |
| Flame Detector 40/40UFL-211AC – UV/IR | 68 51 388 |
| Flame Detector 40/40UFL-212AC – UV/IR | 68 51 389 |

Other versions are available on request

### Accessories for SharpEye™ 40/40UFL (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 51 391 |
| 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™ 0/40 Duct Mount | 68 13 459 |
| Pole Mount (U-Bolt) 2" – (SS) | 68 13 322 |
| Pole Mount (U-Bolt) 3" – (SS) | 68 13 323 |

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Notes
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