The OOH740-A9-Ex is a Dual-Optical Detector for fire detection in potentially explosive areas in zones 0, 1 and 2. It can be programmed either as a dual-optical or as a thermal detector by inserting defined resistors.

**System overview**

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Non-Ex area</td>
</tr>
<tr>
<td>2</td>
<td>Ex area: zone 0, 1 or 2 for OOH740-A9-Ex zone 1 or 2 for DM 1103 B-Ex</td>
</tr>
</tbody>
</table>

**Functions**

The following parameter sets can be selected in the point detector:
- Sensitive (dual optical/DO)
- A1R (thermal)
- BR (thermal)

A parameter set is selected by omitting (DO) or installing a resistor with a specified value (A1R or BR). The resistor is installed at the connection terminals for the external alarm indicator in the detector base.

**Dual optical sensor (smoke sensor)**

The two optical sensors in the smoke detector use the scattered-light method. In the event of a fire, smoke enters the measuring chamber and the smoke particles scatter the light. One sensor is used for forward scattering, the other for backscattering. The smoke particles will be illuminated from different angles. A
The photo diode acts as receiver. The amount of light hitting the photo diode is converted into a proportional electrical signal.

**Thermal sensor (temperature sensor)**

The following table shows the properties of the parameter sets for the thermal detector:

<table>
<thead>
<tr>
<th>Operating temperature typ. / max. (°C)</th>
<th>Static activation Temperature* (°C)</th>
<th>Differential activation Temperature** ΔT (K)</th>
<th>Differential activation possible from (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1R 60 °C rate of rise</td>
<td>25 / 50</td>
<td>25</td>
<td>3</td>
</tr>
<tr>
<td>BR 80 °C rate of rise</td>
<td>40 / 65</td>
<td>29</td>
<td>30</td>
</tr>
</tbody>
</table>

*Applicable with slow temperature increases <1 K/min
** Applicable with fast temperature increases of >10 K/min. When there is a slow temperature increase of <10 K/min, this value rises by a few degrees.

**Visual indication of parameter set**

When the detector line is being commissioned, the LED for the internal alarm indicator in the point detector flashes for a period of 3 minutes to show the set parameter set. The following table provides an overview of the flashing patterns:

<table>
<thead>
<tr>
<th>Resistance value R</th>
<th>Flashing pattern of internal alarm indicator after commissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO</td>
<td>no resistor installed</td>
</tr>
<tr>
<td></td>
<td>once / 6 s</td>
</tr>
<tr>
<td>A1R</td>
<td>18 kΩ, min. 200 mW</td>
</tr>
<tr>
<td></td>
<td>twice / 6 s</td>
</tr>
<tr>
<td>BR</td>
<td>10 kΩ, min. 200 mW</td>
</tr>
<tr>
<td></td>
<td>3 / 8 s</td>
</tr>
</tbody>
</table>

**Detector base**

The entire electronic system is protected inside the detector. The base is used for the detector contact. The detector base is secured with a snap fastener.

**Application in Ex area**

The SB3 Safety Barrier limits the electrical energy between non-inherently safe and inherently safe circuits and thus prevents the ignition of gas mixtures by electrical sparks. The Safety Barrier must be installed outside the explosive area.

The DCA1192 Input/Output Module is the galvanical isolation between the fire panel and SB3 Safety Barrier.

The OOH740-A9-Ex detectors must be connected to the detector line established by the SB3 Safety Barrier.

**Certifications and approvals**

<table>
<thead>
<tr>
<th>Region</th>
<th>Regulatory compliance/quality marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>Ex</td>
</tr>
<tr>
<td></td>
<td>IECex 1411 OOH740-A9-Ex</td>
</tr>
<tr>
<td>Ex</td>
<td></td>
</tr>
<tr>
<td></td>
<td>106_FDOOT241-A9-Ex_FDOOT241-A9-ExCN_OOH740-A9-Ex_ATEX_EX_AM1309_106_FDOOT241-A9-Ex_FDOOT241-A9-ExCN_OOH740-A9-Ex_ATEX_EXAM1309</td>
</tr>
</tbody>
</table>

**Installation/configuration notes**

- The detector base must be ordered separately.
- For installation in potentially explosive areas in zones 0, 1 or 2 use SB3 Safety Barrier and DCA1192. The SB3 Safety Barrier can be connected to the conventional line via the interface module FLM-420/4-CON.
- The directive 1999/92/EC standard contains important information on planning and installation in areas with a potential risk from explosive atmospheres.
- During planning works, it is essential to adhere to national standards and guidelines.
- The detector can be configured as either a dual optical detector (no additional steps necessary) or as a thermal detector (installing a resistor necessary, see installation guide).
- For planning an intrinsically safe detector line for Ex areas, you have to consider:
  - the number \(n\) of devices connected to the SB3 Safety Barrier’s detector line
  - the cable length \(l\) of the SB3 Safety Barrier’s detector line

The following inequation must be fulfilled to achieve an intrinsically safe detector line:

\[
C_0 (SB3) > C_i
\]

resulting

\[
C_0 > (n \times C_i) + (l \times C_c)
\]

\[
L_0 (SB3) > L_i
\]

resulting

\[
L_0 > (n \times L_i) + (l \times L_c)
\]

Legend:
### Abbreviation (unit) | Description
--- | ---
$C_0$ (nF) | maximum external capacity
$C_i$ (nF) | maximum internal capacity
$C_c$ (nF) | cable capacitance
$l$ (km) | length of entire detector line
$L_0$ (mH) | maximum external inductivity
$L_i$ (mH) | maximum internal inductivity
$L_c$ (mH) | cable inductance
$n$ | total number of detectors

### Technical specifications

#### Electrical

| Standby current consumption (μA) | 200 - 280 |

#### Characteristics for intrinsically safety

| Input voltage $U_i$ (V) | $\leq 28$ |
| Input current $I_i$ (mA) | $\leq 100$ |
| Input power $P_i$ (mW) | $\leq 700$ |
| Internal inductivity $L_i$ | Negligible |
| Internal capacity $C_i$ (nF) | $\leq 0.2$ |

#### Mechanics

| Dimensions ($\varnothing \times H$, mm) | 100 x 45.7 |
| Color | Similar to RAL 9010, pure white |
| Weight (g) | 116 |

#### Environmental conditions

| Operating temperature (°C) | -25 to +70 |
| Storage temperature (°C) | -30 to +75 |

### Ordering information

**OOH740-A9-EX Dual-optical detector, explosive area**
Dual-optical detector for potentially explosive areas. Order number **OOH740-A9-EX**

**Accessories**

- **FDB201 Base for Dual-Optical Detector for Ex Ar**
  Base for OOH740-A9-Ex Dual-Optical detector for Ex Area, secured with a snap fastener. Base suitable for recess supply wiring, for surface supply wiring, cable diameter up to 6 mm. Delivery unit is 1.
  Order number **FDB201**

- **FDB291 Base attachment**
  Base attachment for OOH740-A9-Ex. For routing surface mounted cables, cable diameter larger than 6 mm. Also for recess supply wiring.
  Delivery unit is 1.
  Order number **FDB291**

- **FDB295 Base attachment wet**
  Base Attachment Wet for OOH740-A9-Ex with integrated additional rubber seal for surface-mounted cabling for applications in cold or wet environments. Mounted between detector base and ceiling. The detector base FDB201 simply clicks into place in FDB295. 6 breakout plugs for cable glands. To achieve IP44 for surface mounted cables additional 2 FDB295M cable glands are required. The Base Attachment Wet is compatible with designation plate DOW1171-IDENT.
  Delivery unit is 1.
  Order number **FDB295**

- **FDBZ293 Detector locking device**
  Threaded pin M3 x 6 prevents the point detector being unscrewed from the detector base. The point detector can only be removed with the appropriate Allen key.
  Delivery is 100. Additionally 2 Allen keys are included.
  Order number **FDBZ293**
FDBZ295 Sealing element
Sealing element for OOH740-A9-Ex to achieve IP44 for flush mounted cables. The use of a designation plate is not possible.
Delivery unit is 1.
Order number FDBZ295

FDZ291 Detector dust cap
Detector Dust Cap for covering detectors as protection against dust during the construction phase.
Delivery unit is 10.
Order number FDZ291

FDUD291 Detector exchanger
for insertion and removal of detector OOH740-A9-Ex. A universal joint enables detector removal and replacement even if the detector cannot be accessed from directly underneath. The exchanger can only be used for detectors without sealing element FDBZ295.
Delivery unit is 1.
Order number FDUD291

FDB295M Metal cable gland
for M20 cable feed-through and complementary to Base Attachment Wet FDB295. 2 pieces of FDB295M are necessary per FDB295 Base Attachment Wet to achieve IP44 with surface mounted cables.
Delivery unit is 10.
Order number FDB295M

SB3 Safety barrier
limits the electrical energy between non-inherently safe and inherently safe circuits
Order number SB3