SB3 Safety barrier

System overview

Functions

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 always be installed outside the explosive area. The DCA1192 Input/Output Module is the galvanical isolation between the fire panel and SB3 Safety Barrier.

Regulatory information

<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>01 ATEX 2088 SB 3</td>
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<tr>
<td>Germany</td>
<td>VdS</td>
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<td></td>
<td>G 298021 DC 1192</td>
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<tr>
<td>Europe</td>
<td>CE</td>
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<td>DC 1192</td>
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<td>CE</td>
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<td>SB 3</td>
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Installation/configuration notes

- 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.
- 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:

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

\[
L_0 (SB3) > L_i
\]

resulting

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

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
Fire Alarm Systems - SB3 Safety barrier

### Abbreviation (unit) | Description
--- | ---
$L_0$ (mH) | maximum external inductivity
$L_i$ (mH) | maximum internal inductivity
$L_c$ (mH) | cable inductance
$n$ | total number of detectors

DANGER! Risk of explosion: Testing equipment must only be operated in the area not at risk of explosion.

### Parts included

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SB3 Safety Barrier</td>
</tr>
<tr>
<td>1</td>
<td>Installation set for SB3</td>
</tr>
<tr>
<td>1</td>
<td>DCA1192 Input/Output Module</td>
</tr>
<tr>
<td>1</td>
<td>Terminal carrier for DCA1192</td>
</tr>
<tr>
<td>1</td>
<td>EOL22(Ex) line termination, included with the DCA1192</td>
</tr>
<tr>
<td>2</td>
<td>Housing with cover</td>
</tr>
</tbody>
</table>

### Technical specifications

#### SB3 Safety Barrier, with Housing

- **Max. voltage**: 28 V DC
- **Max. permissible current**: 100 mA
- **Max. output**: 0.7 W
- **Wire gauge**: 0.2 mm² … 2.5 mm²
- **Cable bushings**: PG16 (6x)
- **Dimensions (W x H x D)**: 135 x 135 x 65 mm
- **Housing material**: Plastic, PC
- **Housing color**: White, RAL 9010
- **Weight**: Approx. 425 g
- **Protection class as per EN 60529**: IP 56
- **Permissible operating temperature**: -25 °C … +70 °C
- **Permissible storage temperature**: -30 °C … +75 °C
- **Permissible relative humidity**: ≤100% at T≤34 °C

#### DCA1192 Input/Output Module, with Housing

**External supply**

- **Operating voltage**: 18 V DC … 22 V DC
- **Current consumption**: Max. 5 mA
- **Line resistance**: 50 Ω … 250 Ω
- **Line termination**: EOL22(Ex)
- **Wire gauge**: 0.2 mm² … 2.5 mm²
- **Cable bushings**: PG16 (6x)
- **Housing material**: Plastic, PC
- **Housing color**: White, RAL 9010
- **Dimensions (W x H x D)**: 135 x 135 x 65 mm
- **Weight**: Approx. 450 g
- **Protection class as per EN 60529**: IP 56
- **Permissible operating temperature**: -25 °C … +70 °C
- **Permissible storage temperature**: -30 °C … +75 °C
- **Permissible relative humidity**: ≤100% at T≤34 °C

#### Characteristics for intrinsical safety

- **Output voltage (V)**: ≤ 28
- **Output current (mA)**: ≤ 100
- **Output power (mW)**: ≤ 700
- **External inductivity (mH)**: ≤ 1.6
- **External capacity (nF)**: ≤ 83
Ordering information

**SB3 Safety barrier**
limits the electrical energy between non-inherently safe and inherently safe circuits
Order number **SB3 | 4.998.112.085**