Miniature Circuit Breakers Overview
SENTRON Protection, Switching, Measuring and Monitoring Devices
## Miniature Circuit Breakers

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### Approvals

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<th>IEC/EN 60898-1</th>
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<td>✔️</td>
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<td>IMO</td>
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<td>CCC</td>
<td>-</td>
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<td>✔️</td>
</tr>
</tbody>
</table>

### Marine classifications

| GL               | ✔️             | ✔️             | ✔️             | ✔️             |
| GL               | ✔️             | ✔️             | ✔️             | ✔️             |
| BV               | -              | -              | -              | -              |
| LRS              | -              | -              | -              | -              |
| RINA             | -              | -              | -              | ✔️             |
| DNV              | -              | -              | -              | -              |

### Switching capacity

| \( I_{\text{nc}} \) acc. to IEC/EN 60898-1 (kA AC) | 6 | 10 | 6 | 6 |
| \( I_{\text{nc}} \) acc. to IEC/EN 60898-2 (kA DC) | - | - | - | - |
| \( I_{\text{cu}} \) acc. to IEC/EN 60947-2 (kA AC) | 6 | 10 | - | - |
| acc. to UL 1077 and CSA C22.2 No.235 (kA AC) | - | - | - | - |
| acc. to UL 489 and CSA C22.2 No. 5-02 (kA AC) | - | - | - | - |
| acc. to DIN VDE 0641-21 | - | - | - | - |

### Operational voltage

| max. V DC/pole, acc. to EN 60898-1/-2 and EN 60947-2 | 60 | 60\(^{11}\) | 60 | 72 |
| max. V AC, acc. to EN 60898-1/-2 and EN 60947-2 | 250/440 | 250/440 | 250/440 | 250 |
| max. V AC acc. to UL 1077 and CSA C22.2 No.235 - supplementary protection | - | - | - | - |
| Rated voltage V AC acc. to UL 489 - branch circuit protection | - | - | - | - |

### Harsh ambient conditions

| Shock acc. to IEC 60068-2-27 150m/s\(^2\) at 11ms half-sine | - | - | - | - |
| Vibration resistance acc. to IEC 60068-2-6 50 m/s\(^2\) at 25 ... 150 Hz and 60 m/s\(^2\) at 35 Hz (4 sec) | - | - | - | - |
| Fire protection values acc. to EN 45545-2 (fire protection in rail vehicles) | - | - | - | - |
| Resistant to vibrations and shocks acc. EN 61373 and EN 50155 “1B” (railway technology) | - | - | - | - |
| Ambient temperature -40 °C to +70 °C | - | - | - | - |
| Pollution degree for overvoltage category | 2/III | 2/III | 2/III | 2/III |

### Application areas

| Char.A - Semiconductor protection | - | - | - | - |
| Char.B - Mainly in residential building installations | ✔️ | ✔️ | ✔️ | ✔️ |
| Char.C - Higher starting currents (e.g. lamps, motors) | ✔️ | ✔️ | ✔️ | ✔️ |
| Char.D - Pulse-generating equipment (e.g. transformers, solenoid valves) | - | ✔️ | - | - |
| Char.E - Selective main miniature circuit breakers | - | - | - | - |

### Other applications

| 1+N in 1MW | - | - | - | ✔️ |
| Plug-in terminals | - | - | - | ✔️ |
| Selective main miniature circuit breakers | - | - | - | - |

### Additional components

| Auxiliary contacts, fault signal contacts | ✔️ | ✔️ | - | ✔️ |
| Shunt releases, undervoltage releases | - | ✔️ | - | - |
| AFDD | - | ✔️ | - | - |
| Additional components UL (...HG) | - | - | - | - |

\(^{1}\) without D char. \(^{2}\) In <= 63A \(^{3}\) For switching capacity: Detailed information is available in the Configuration Manual "Miniature Circuit Breakers" at: www.siemens.com/lowvoltage/manual
### Miniature Circuit Breakers

#### Residential buildings and infrastructure applications

#### Approvals

- **Product standard**
  - IEC/EN 60898-1
  - IEC/EN 60898-2
  - IEC/EN 60947-2
  - UL 489

- **Approvals**
  - DIN VDE 0641-21
  - IEC/EN 60898-2
  - IEC/EN 60898-1
  - IEC/EN 60898-1
  - IEC/EN 60898-1
  - IEC/EN 60898-1
  - IEC/EN 60947-2
  - VDE Germany, Europe
  - CEBEC Belgium
  - LCIE (NF) France
  - IMQ Italy
  - GOST Russia
  - TR Russia
  - USA
  - USA, Canada
  - USA
  - CCC China
  - Marine classifications
  - GL Germany
  - BV France
  - LRS United Kingdom
  - RINA Italy
  - DNV Norway

#### Switching capacity

- **Icn acc. to IEC/EN 60898-1 (kA AC)**
  - 6
  - 10
  - 6
  - 6

- **Icn acc. to IEC/EN 60898-2 (kA DC)**
  - -
  - -
  - -
  - -

- **Icu acc. to IEC/EN 60947-2 (kA AC)**
  - 6
  - 10
  - -
  - -

- **acc. to UL1077 and CSA C22.2 No.235 (kA AC)**
  - -
  - -
  - -
  - -

- **acc. to UL 489 and CSA C22.2 No. 5-02 (kA AC)**
  - -
  - -
  - -
  - -

- **acc. to DIN VDE 0641-21**
  - 25
  - -
  - -
  - -

#### Operational voltage

- **max. V DC/pole, acc. to EN 60898-1/-2 and EN 60947-2**
  - 60
  - 60
  - 60
  - 72

- **max. V AC, acc. to EN 60898-1/-2 and EN 60947-2**
  - 250
  - 250
  - 250
  - 250

- **max. V AC acc. to UL 1077 and CSA C22.2 No.235**
  - -
  - -
  - -
  - -

- **Rated voltage V AC acc. to UL 489**
  - -
  - -
  - -
  - -

#### Harsh ambient conditions

- **Shock acc. to IEC 60068-2-27**
  - 150m/s² at 11ms half-sine
  - -
  - -

- **Vibration resistance acc. to IEC 60068-2-6**
  - 50 m/s² at 25 ... 150 Hz and 60 m/s² at 35 Hz (4 sec)
  - -
  - -

- **Fire protection values acc. to EN 45545-2**
  - -
  - -
  - -

- **Resistant to vibrations and shocks acc. EN 61373 and EN 50155**
  - -
  - -
  - -

- **Ambient temperature**
  - -40 °C to +70 °C
  - -
  - -

- **Pollution degree for overvoltage category**
  - 2/III
  - 2/III
  - 2/III
  - 2/III
  - 3/IV
  - 3/III
  - 3/III
  - 3/III

#### Application areas

- **Char.A - Semiconductor protection**
  - -
  - -
  - -
  - -

- **Char.B - Mainly in residential building installations**
  - -
  - -
  - -
  - -

- **Char.C - Higher starting currents (e.g. lamps, motors)**
  - -
  - -
  - -
  - -

- **Char.D - Pulse-generating equipment (e.g. transformers, solenoid valves)**
  - -
  - -
  - -
  - -

- **Char.E - Selective main miniature circuit breakers**
  - -
  - -
  - -
  - -

#### Other applications

- **1+N in 1MW**
  - -
  - -
  - -

- **Plug-in terminals**
  - -
  - -
  - -

- **Selective main miniature circuit breakers**
  - -
  - -
  - -

#### Additional components

- **Auxiliary contacts, fault signal contacts**
  - -
  - -
  - -

- **Shunt releases, undervoltage releases**
  - -
  - -
  - -

- **AFDD**
  - -
  - -
  - -

- **Additional components UL (…HG)**
  - -
  - -
  - -

---

1) without D char.
2) In <= 63A
3) For switching capacity: Detailed information is available in the Configuration Manual "Miniature Circuit Breakers" at: www.siemens.com/lowvoltage/manual
4) Except C 0.3 ... 1A, D 0.3 ... 2A
5) Except C 0.3 A and D 0.3 ...0.5A
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