Description

Very cost effective design to meet international requirements. No exposed metal parts which are, or could become, current-carrying except for terminals. R-type TO CBE to EN 60934.
- Manual reset, cycling trip free mechanism
- Extremely small and lightweight
- UL, CSA, VDE and EN 60934 (IEC 60934) approved

Typical applications

Battery chargers, consumer products, power supplies, motors.

Ordering information

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1658</td>
<td>single pole thermal circuit breaker</td>
</tr>
</tbody>
</table>

**Threadneck design**
- G21: manual reset type, 3/8"-27 threadneck
- G41: manual reset type, 7/16"-28 threadneck
- A21: auto reset type, 3/8"-27 threadneck
- A41: auto reset type, 7/16"-28 threadneck
- A00: auto reset type, without threadneck
- P01: snap in

**Hardware**
- 00: no hardware
- 01: one PAL nut, bulk
- 02: one PAL nut, one knurled nut, bulk
- 03: one PAL nut mounted
- 04: one PAL nut, one knurled nut, mounted
- 05: one PAL nut mounted, one knurled nut, bulk
- 06: one knurled nut, bulk
- 07: one hex nut, bulk
- 08: two hex nuts, bulk

**Terminals**
- P10: blade terminals A6.3-0.8 (QC .250)
- P13: blade terminals A6.3-0.8 (QC .250), 90°
- S80: straight screw terminals
- S83: 90° bent screw terminals

**Technical data**

For further details please see chapter: Technical Information

<table>
<thead>
<tr>
<th>Voltage rating</th>
<th>Current ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 240 V; DC 28 V</td>
<td>5...30 A</td>
</tr>
</tbody>
</table>

**Typical life**
- AC + DC 5...16 A: 1,000 operations at 2 x I_N, inductive
- 17...25 A: 1,000 operations at 2 x I_N, resistive

**Ambient temperature**
- 20...+60 °C (-4...+140 °F), ≤ 7 A max. +40 °C (+104 °F)

**Insulation co-ordination**
- Rated impulse withstand voltage: 2.5 kV
- Pollution degree: 2
- Reinforced insulation in operating area

**Dielectric strength**
- Operating area: AC 3,000 V

**Insulation resistance**
- > 100 MΩ (DC 500 V)

**Interrupting capacity**
- I_N: 5...7 A
- U_N: 180 A
- 8...30 A: 200 A

**Degree of protection**
- Operating area: IP40
- Terminal area: IP00

**Vibration**
- 8 g (57-500 Hz) ± 0.61 mm (10-57 Hz), to IEC 60068-2-6, test Fc, 10 frequency cycles/axis

**Shock**
- 30 g (11 ms), to IEC 60068-2-27, test Ea

**Corrosion**
- 96 hours at 5 % salt mist, to IEC 60068-2-11, test Ka

**Humidity**
- 240 hours at 95 % RH, to IEC 60068-2-78, test Cab

**Mass**
- approx. 16 g

**Approvals**

<table>
<thead>
<tr>
<th>Authority</th>
<th>Voltage rating</th>
<th>Current ratings</th>
</tr>
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<tbody>
<tr>
<td>VDE (EN 60934)</td>
<td>AC 240 V; DC 28 V</td>
<td>5...25 A</td>
</tr>
<tr>
<td>UL</td>
<td>AC 240 V</td>
<td>5...16 A</td>
</tr>
<tr>
<td></td>
<td>AC 120 V</td>
<td>18...30 A</td>
</tr>
<tr>
<td></td>
<td>DC 32 V</td>
<td>5...30 A</td>
</tr>
<tr>
<td></td>
<td>DC 28 V</td>
<td>5...30 A</td>
</tr>
<tr>
<td></td>
<td>AC 120 V</td>
<td>5...30 A</td>
</tr>
<tr>
<td></td>
<td>DC 32 V</td>
<td>5...30 A</td>
</tr>
<tr>
<td></td>
<td>AC 120 V</td>
<td>5...30 A</td>
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</table>

**Current ratings and typical voltage drop values**

<table>
<thead>
<tr>
<th>Current rating (A)</th>
<th>Voltage drop (mV)</th>
<th>Current rating (A)</th>
<th>Voltage drop (mV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>≤ 250</td>
<td>12</td>
<td>≤ 250</td>
</tr>
<tr>
<td>6</td>
<td>≤ 250</td>
<td>15</td>
<td>≤ 250</td>
</tr>
<tr>
<td>7</td>
<td>≤ 250</td>
<td>16</td>
<td>≤ 250</td>
</tr>
<tr>
<td>8</td>
<td>≤ 250</td>
<td>20</td>
<td>≤ 250</td>
</tr>
<tr>
<td>9</td>
<td>≤ 250</td>
<td>25</td>
<td>≤ 250</td>
</tr>
<tr>
<td>10</td>
<td>≤ 250</td>
<td>30</td>
<td>≤ 250</td>
</tr>
</tbody>
</table>
Dimensions

**A00**

**A21** tightening torque max. 0.8 Nm

**G21** tightening torque max. 0.8 Nm

**A41**

**G41**

**F01**

mounting hole

Caution: Please keep a tight grip on the unit while removing the female connectors.

See ordering information for mounting hardware.

Terminal design

**P10**

blade terminals DIN 46244-A6.3-0.8 (QC .250)

**P13**

blade terminals DIN 46244-A6.3-0.8 (QC .250) angled 90°

**P10-S83**

blade terminals DIN 46244-A6.3-0.8 (QC .250)

**S80**

terminal screw 6-32 UNC lock washer

**S83**

terminal screw 6-32 UNC lock washer

Installation drawing

This is a metric design and millimeter dimensions take precedence (inch).
Internal connection diagram

Typical time/current characteristics

The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section Technical information.

<table>
<thead>
<tr>
<th>Ambient temperature °F</th>
<th>5°C</th>
<th>-4</th>
<th>-10</th>
<th>+14</th>
<th>+32</th>
<th>+73.4</th>
<th>+104</th>
<th>+122</th>
<th>+140</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derating factor</td>
<td>I N</td>
<td>I N</td>
<td>I N</td>
<td>I N</td>
<td>I N</td>
<td>I N</td>
<td>I N</td>
<td>I N</td>
<td>I N</td>
</tr>
<tr>
<td>I N &gt; 7A</td>
<td>0.83</td>
<td>0.85</td>
<td>0.9</td>
<td>1</td>
<td>1.1</td>
<td>1.18</td>
<td>1.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I N ≤ 7A</td>
<td>0.74</td>
<td>0.76</td>
<td>0.82</td>
<td>1</td>
<td>1.23</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This is a metric design and millimeter dimensions take precedence (mm).
Accessories

Reset button seal for 3/8\(^\text{"\text{"}'}\), 27-thread, short
X 201 285 01

3/8-27 UNS-2B

Reset button seal for 3/8\(^\text{"\text{"}'}\), 27-thread, long
X 200 799 01

3/8-27 UNS-2B

Reset button seal for 7/16\(^\text{"\text{"}'}\), 28-thread, short
X 222 119 01

7/16-28 UNS-2B

Reset button seal for 7/16\(^\text{"\text{"}'}\), 28-thread, long
X 222 119 02

7/16-28 UNS-2B

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.