## Product overview
### Mechanical products

<table>
<thead>
<tr>
<th>Type</th>
<th>4230-T</th>
<th>4230-T 2216-S</th>
<th>2216-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting method</td>
<td>symmetrical rail</td>
<td>symmetrical rail</td>
<td>plug-in on terminal block</td>
</tr>
<tr>
<td>Standards, approvals</td>
<td>IEC/EN 60947-2, TÜV, UL489</td>
<td>IEC/EN 60947-2, TÜV, UL1077</td>
<td>IEC/EN 60947-2, VDE, UL1077, CSA, GL</td>
</tr>
<tr>
<td>Number of poles</td>
<td>1, 2, 3, 4 poles</td>
<td>1, 2 poles</td>
<td>1, 2, 3, 4 poles</td>
</tr>
<tr>
<td>Characteristic curves</td>
<td>B, C, D</td>
<td>B, C, D</td>
<td>F1, F2, M1</td>
</tr>
<tr>
<td>Current ratings (A)</td>
<td>1 to 63 A</td>
<td>1 to 63 A</td>
<td>0.5 to 16 A</td>
</tr>
<tr>
<td>Voltage ratings (V)</td>
<td>AC 240V/415 V; DC 80 V</td>
<td>AC 240V/415 V; DC 80 V</td>
<td>AC 240V/415 V; DC 80 V</td>
</tr>
<tr>
<td>Auxiliary contact</td>
<td>add-on module 9 mm on the left side</td>
<td>add-on module 9 mm on the left side</td>
<td>integral</td>
</tr>
<tr>
<td>Dimensions (wxhxd)</td>
<td>17.6 x 65.7 x 116 mm</td>
<td>17.6 x 65.7 x 82 mm</td>
<td>12.3 x 51.2 x 90 mm</td>
</tr>
</tbody>
</table>

### Electronic products

<table>
<thead>
<tr>
<th>Type</th>
<th>ESS31-T</th>
<th>REX12-T</th>
<th>ESS30-S, ESS31-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting method</td>
<td>symmetrical rail</td>
<td>symmetrical rail</td>
<td>symmetrical rad</td>
</tr>
<tr>
<td>Standards, approvals</td>
<td>UL 1077, UL 2067, UL 1310 NEC Class 3, UL 60947-4</td>
<td>UL 508, UL 2367, UL 1310 NEC Class 2</td>
<td>UL 508, UL 2367, CSA, IECEx, UL121201-2018 Class I Div 2, ATEX, DNV GL</td>
</tr>
<tr>
<td>Current rating range</td>
<td>0.5 - 10 A</td>
<td>1 - 10 A (also adjustable)</td>
<td>0.5 - 16 A (also adjustable)</td>
</tr>
<tr>
<td>Operating voltage range</td>
<td>DC 24 V (18 ... 30 V)</td>
<td>DC 24 V (18 ... 30 V)</td>
<td>DC 24 V (18 ... 30 V)</td>
</tr>
<tr>
<td>Physical isolation</td>
<td>yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Connection technology</td>
<td>screw</td>
<td>push-in</td>
<td>screw</td>
</tr>
<tr>
<td>Width per channel</td>
<td>12.5 mm</td>
<td>12.5 mm (1-channel)</td>
<td>12.5 mm</td>
</tr>
</tbody>
</table>

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IEC and UL markets are different with regard to the definitions and selection of devices. In the US, the requirements of overcurrent protection devices for use in industrial control panels are stipulated in the application standard UL 508A.

Other major standards that need to be observed include the NFPA 79 (Electrical Standard for Industrial Machinery) for process control and machine construction and the NEC (National Electric Code) for control circuits.

E-T-A offers a wide range of overcurrent protection devices with approvals for the North American market. It includes powerful »Branch Circuit Protection« as well as selective protection of DC control circuits.

**Exemplary design of a control cabinet to UL 508A**

- **Supply**
- **Heating**
- **Contactor & contactor relay**
- **Control transformer**
- **Control circuits**

**Distinction according to:**

- **UL Listed**
- **UL Recognized**

**UL Listed**
These products are listed with UL and comply with the corresponding safety standards for the USA (UL) and Canada (CSA). They can be used without further restrictions.

**UL Recognized**
These devices can be used by observing their specific installation and application conditions, the so-called »conditions of acceptability«. The possible use needs to be evaluated against the background of the entire application.

**Note:** The illustrations shown do not replace the relevant standards (e.g. UL 508A) which need to be applied for the selection of products in the application in question.

**2216-S**
Circuit breaker for equipment protection for the use as »Supplementary Protector« up to 16 A
- Increased machine uptime thanks to fine gradings of current ratings and a range of characteristic curves
- Approvals to UL 1077, UL 2367, UL 1310, NEC Class 2, UL 60947-4

**ESS31-T**
Electronic circuit breaker for DC 24 V applications up to 12 A
- Enhanced stability of DC supply voltage through physical isolation and active current limitation
- Approvals to UL 1077, UL 2367, UL 1310, NEC Class 2, UL 60947-4

**REX12-T**
Electronic circuit protector for the use in DC 24 V applications up to 10 A
- Enhanced machine uptime through selectivity, quick trouble-shooting and remote diagnosis option
- Approvals to UL 508, UL 2367, UL 1310, NEC Class 2

**E-T-A products with UL approvals**

**IEC and UL markets are different with regard to the definitions and selection of devices. In the US, the requirements of overcurrent protection devices for use in industrial control panels are stipulated in the application standard UL 508A.**

**Exemplary design of a control cabinet to UL 508A**

- **2216-S**
  - Circuit breaker for equipment protection for the use as »Supplementary Protector« up to 16 A
  - Approvals to UL 1077, UL 2367, UL 1310, NEC Class 2, UL 60947-4

- **ESS31-T**
  - Electronic circuit breaker for DC 24 V applications up to 12 A
  - Approvals to UL 1077, UL 2367, UL 1310, NEC Class 2, UL 60947-4

- **REX12-T**
  - Electronic circuit protector for the use in DC 24 V applications up to 10 A
  - Approvals to UL 508, UL 2367, UL 1310, NEC Class 2

**Note:** The illustrations shown do not replace the relevant standards (e.g. UL 508A) which need to be applied for the selection of products in the application in question.