

Siemens  
EcoTech



power contactor, AC-3e/AC-3 500 A, 250 kW / 400 V AC (50-60 Hz) / DC U<sub>c</sub>: 42-48 V 3-pole, auxiliary contacts 2 NO + 2 NC drive: conventional main circuit: busbar control and auxiliary circuit: screw terminal



|  |                            |
|--|----------------------------|
| product brand name   | SIRIUS                     |
| product designation  | Power contactor            |
| product type designation   | 3RT1                       |
| <b>General technical data</b>  |                            |
| size of contactor  | S12                        |
| product extension  |                            |
| • function module for communication  | No                         |
| • auxiliary switch   | Yes                        |
| power loss [W] for rated value of the current  |                            |
| • at AC in hot operating state   | 165 W                      |
| • at AC in hot operating state per pole  | 55 W                       |
| • without load current share typical   | 10 W                       |
| type of calculation of power loss depending on pole  | quadratic                  |
| insulation voltage   |                            |
| • of main circuit with degree of pollution 3 rated value   | 1 000 V                    |
| • of auxiliary circuit with degree of pollution 3 rated value  | 500 V                      |
| surge voltage resistance   |                            |
| • of main circuit rated value  | 8 kV                       |
| • of auxiliary circuit rated value   | 6 kV                       |
| maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1 | 690 V                      |
| shock resistance at rectangular impulse  |                            |
| • at AC  | 8,5g / 5 ms, 4,2g / 10 ms  |
| • at DC  | 8,5g / 5 ms, 4,2g / 10 ms  |
| shock resistance with sine pulse   |                            |
| • at AC  | 13,4g / 5 ms, 6,5g / 10 ms |
| • at DC  | 13,4g / 5 ms, 6,5g / 10 ms |
| mechanical service life (operating cycles)   |                            |
| • of contactor typical   | 10 000 000                 |
| • of the contactor with added electronically optimized auxiliary switch block typical                        | 5 000 000                  |
| • of the contactor with added auxiliary switch block typical   | 10 000 000                 |
| reference code according to IEC 81346-2  | Q                          |
| Substance Prohibitance (Date)  |                            |
| SVHC substance name  | Lead - 7439-92-1           |
| Weight   | 10.36 kg                   |
| <b>Ambient conditions</b>  |                            |
| installation altitude at height above sea level maximum  | 2 000 m                    |

|  |                     |
|--|---------------------|
| <b>ambient temperature</b>   |                     |
| • during operation   | -25 ... +60 °C      |
| • during storage   | -55 ... +80 °C      |
| <b>relative humidity minimum</b>                                       | 10 %                |
| <b>relative humidity at 55 °C according to IEC 60068-2-30 maximum</b>  | 95 %                |
| <b>Main circuit</b>  |                     |
| <b>number of poles for main current circuit</b>                        | 3                   |
| <b>number of NO contacts for main contacts</b>                         | 3                   |
| <b>operating voltage</b>   |                     |
| • at AC-3 rated value maximum  | 1 000 V             |
| • at AC-3e rated value maximum   | 1 000 V             |
| <b>operational current</b>   |                     |
| • at AC-1 at 400 V at ambient temperature 40 °C rated value            | 610 A               |
| • at AC-1  |                     |
| — up to 690 V at ambient temperature 40 °C rated value                 | 610 A               |
| — up to 690 V at ambient temperature 60 °C rated value                 | 550 A               |
| — up to 1000 V at ambient temperature 40 °C rated value                | 200 A               |
| — up to 1000 V at ambient temperature 60 °C rated value                | 200 A               |
| • at AC-3  |                     |
| — at 400 V rated value   | 500 A               |
| — at 500 V rated value   | 500 A               |
| — at 690 V rated value   | 450 A               |
| — at 1000 V rated value  | 180 A               |
| • at AC-3e   |                     |
| — at 400 V rated value   | 500 A               |
| — at 500 V rated value   | 500 A               |
| — at 690 V rated value   | 450 A               |
| — at 1000 V rated value  | 180 A               |
| • at AC-4 at 400 V rated value   | 430 A               |
| • at AC-5a up to 690 V rated value                                     | 536 A               |
| • at AC-5b up to 400 V rated value                                     | 415 A               |
| • at AC-6a   |                     |
| — up to 230 V for current peak value n=20 rated value                  | 414 A               |
| — up to 400 V for current peak value n=20 rated value                  | 414 A               |
| — up to 500 V for current peak value n=20 rated value                  | 414 A               |
| — up to 690 V for current peak value n=20 rated value                  | 414 A               |
| — up to 1000 V for current peak value n=20 rated value                 | 180 A               |
| • at AC-6a   |                     |
| — up to 230 V for current peak value n=30 rated value                  | 276 A               |
| — up to 400 V for current peak value n=30 rated value                  | 276 A               |
| — up to 500 V for current peak value n=30 rated value                  | 276 A               |
| — up to 690 V for current peak value n=30 rated value                  | 276 A               |
| — up to 1000 V for current peak value n=30 rated value                 | 180 A               |
| minimum cross-section in main circuit at maximum AC-1 rated value      | 370 mm <sup>2</sup> |
| <b>operational current for approx. 200000 operating cycles at AC-4</b> |                     |
| • at 400 V rated value   | 175 A               |
| • at 690 V rated value   | 150 A               |
| <b>operational current</b>   |                     |
| • at 1 current path at DC-1  |                     |
| — at 24 V rated value  | 400 A               |
| — at 60 V rated value  | 330 A               |
| — at 110 V rated value   | 33 A                |
| — at 220 V rated value   | 3.8 A               |
| — at 440 V rated value   | 0.9 A               |

|  |             |
|--|-------------|
| — at 600 V rated value   | 0.6 A       |
| ● <b>with 2 current paths in series at DC-1</b>                    |             |
| — at 24 V rated value  | 400 A       |
| — at 60 V rated value  | 400 A       |
| — at 110 V rated value   | 400 A       |
| — at 220 V rated value   | 400 A       |
| — at 440 V rated value   | 4 A         |
| — at 600 V rated value   | 2 A         |
| ● <b>with 3 current paths in series at DC-1</b>                    |             |
| — at 24 V rated value  | 400 A       |
| — at 60 V rated value  | 400 A       |
| — at 110 V rated value   | 400 A       |
| — at 220 V rated value   | 400 A       |
| — at 440 V rated value   | 11 A        |
| — at 600 V rated value   | 5.2 A       |
| ● <b>at 1 current path at DC-3 at DC-5</b>                         |             |
| — at 24 V rated value  | 400 A       |
| — at 60 V rated value  | 11 A        |
| — at 220 V rated value   | 0.6 A       |
| — at 440 V rated value   | 0.18 A      |
| — at 600 V rated value   | 0.125 A     |
| ● <b>with 2 current paths in series at DC-3 at DC-5</b>            |             |
| — at 24 V rated value  | 400 A       |
| — at 60 V rated value  | 400 A       |
| — at 110 V rated value   | 400 A       |
| — at 220 V rated value   | 2.5 A       |
| — at 440 V rated value   | 0.65 A      |
| — at 600 V rated value   | 0.37 A      |
| ● <b>with 3 current paths in series at DC-3 at DC-5</b>            |             |
| — at 24 V rated value  | 400 A       |
| — at 60 V rated value  | 400 A       |
| — at 110 V rated value   | 400 A       |
| — at 220 V rated value   | 400 A       |
| — at 440 V rated value   | 1.4 A       |
| — at 600 V rated value   | 0.75 A      |
| <b>operating power</b>   |             |
| ● <b>at AC-3</b>   |             |
| — at 230 V rated value   | 160 kW      |
| — at 400 V rated value   | 250 kW      |
| — at 500 V rated value   | 315 kW      |
| — at 690 V rated value   | 400 kW      |
| — at 1000 V rated value  | 250 kW      |
| ● <b>at AC-3e</b>  |             |
| — at 230 V rated value   | 160 kW      |
| — at 400 V rated value   | 250 kW      |
| — at 500 V rated value   | 315 kW      |
| — at 690 V rated value   | 400 kW      |
| — at 1000 V rated value  | 250 kW      |
| <b>operating power for approx. 200000 operating cycles at AC-4</b> |             |
| ● at 400 V rated value   | 98 kW       |
| ● at 690 V rated value   | 148 kW      |
| <b>operating apparent power at AC-6a</b>                           |             |
| ● up to 230 V for current peak value n=20 rated value              | 160 000 kVA |
| ● up to 400 V for current peak value n=20 rated value              | 280 000 VA  |
| ● up to 500 V for current peak value n=20 rated value              | 350 000 VA  |
| ● up to 690 V for current peak value n=20 rated value              | 490 000 VA  |
| ● up to 1000 V for current peak value n=20 rated value             | 310 000 VA  |
| <b>operating apparent power at AC-6a</b>                           |             |
| ● up to 230 V for current peak value n=30 rated value              | 110 000 VA  |
| ● up to 400 V for current peak value n=30 rated value              | 190 000 VA  |

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|---|--|
| <ul style="list-style-type: none"> <li>• up to 500 V for current peak value n=30 rated value</li> <li>• up to 690 V for current peak value n=30 rated value</li> <li>• up to 1000 V for current peak value n=30 rated value</li> </ul>  | <p>230 000 VA</p> <p>330 000 VA</p> <p>310 000 VA</p>  |
| <b>short-time withstand current in cold operating state up to 40 °C</b> <ul style="list-style-type: none"> <li>• limited to 1 s switching at zero current maximum</li> <li>• limited to 5 s switching at zero current maximum</li> <li>• limited to 10 s switching at zero current maximum</li> <li>• limited to 30 s switching at zero current maximum</li> <li>• limited to 60 s switching at zero current maximum</li> </ul> | <p>7 484 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>7 484 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>5 978 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>3 765 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>2 887 A; Use minimum cross-section acc. to AC-1 rated value</p> |
| <b>no-load switching frequency</b> <ul style="list-style-type: none"> <li>• at AC</li> <li>• at DC</li> </ul>   | <p>2 000 1/h</p> <p>2 000 1/h</p>  |
| <b>operating frequency</b> <ul style="list-style-type: none"> <li>• at AC-1 maximum</li> <li>• at AC-2 maximum</li> <li>• at AC-3 maximum</li> <li>• at AC-3e maximum</li> <li>• at AC-4 maximum</li> </ul>   | <p>500 1/h</p> <p>170 1/h</p> <p>420 1/h</p> <p>420 1/h</p> <p>130 1/h</p>   |
| <b>Control circuit/ Control</b>   |  |
| <b>type of voltage of the control supply voltage</b>  | AC/DC  |
| <b>control supply voltage at AC</b> <ul style="list-style-type: none"> <li>• at 50 Hz rated value</li> <li>• at 60 Hz rated value</li> </ul>  | <p>42 ... 48 V</p> <p>42 ... 48 V</p>  |
| <b>control supply voltage at DC rated value</b>   | 42 ... 48 V  |
| <b>operating range factor control supply voltage rated value of magnet coil at DC</b> <ul style="list-style-type: none"> <li>• initial value</li> <li>• full-scale value</li> </ul>   | <p>0.8</p> <p>1.1</p>  |
| <b>operating range factor control supply voltage rated value of magnet coil at AC</b> <ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>  | <p>0.8 ... 1.1</p> <p>0.8 ... 1.1</p>  |
| <b>design of the surge suppressor</b>   | with varistor  |
| <b>apparent pick-up power</b> <ul style="list-style-type: none"> <li>• at minimum rated control supply voltage at AC <ul style="list-style-type: none"> <li>— at 50 Hz</li> <li>— at 60 Hz</li> </ul> </li> <li>• at maximum rated control supply voltage at AC <ul style="list-style-type: none"> <li>— at 60 Hz</li> <li>— at 50 Hz</li> </ul> </li> </ul>  | <p>700 VA</p> <p>700 VA</p> <p>830 VA</p> <p>830 VA</p>  |
| <b>apparent pick-up power of magnet coil at AC</b> <ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>   | <p>830 VA</p> <p>830 VA</p>  |
| <b>inductive power factor with closing power of the coil</b> <ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>   | <p>0.9</p> <p>0.9</p>  |
| <b>apparent holding power</b> <ul style="list-style-type: none"> <li>• at minimum rated control supply voltage at DC</li> <li>• at maximum rated control supply voltage at DC</li> </ul>  | <p>8.5 VA</p> <p>10 VA</p>   |
| <b>apparent holding power</b> <ul style="list-style-type: none"> <li>• at minimum rated control supply voltage at AC <ul style="list-style-type: none"> <li>— at 50 Hz</li> <li>— at 60 Hz</li> </ul> </li> <li>• at maximum rated control supply voltage at AC <ul style="list-style-type: none"> <li>— at 50 Hz</li> <li>— at 60 Hz</li> </ul> </li> </ul>  | <p>7.6 VA</p> <p>7.6 VA</p> <p>9.2 VA</p> <p>9.2 VA</p>  |
| <b>inductive power factor with the holding power of the coil</b> <ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>   | <p>0.9</p> <p>0.9</p>  |
| <b>closing power of magnet coil at DC</b>   | 920 W  |
| <b>holding power of magnet coil at DC</b>   | 10 W   |

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| <b>closing delay</b>   |  |
| • at AC  | 45 ... 100 ms  |
| • at DC  | 45 ... 100 ms  |
| <b>opening delay</b>   |  |
| • at AC  | 60 ... 100 ms  |
| • at DC  | 60 ... 100 ms  |
| <b>arcing time</b>   | 10 ... 15 ms   |
| <b>control version of the switch operating mechanism</b>           | Standard A1 - A2   |
| <b>Auxiliary circuit</b>   |  |
| number of NC contacts for auxiliary contacts instantaneous contact | 2  |
| number of NO contacts for auxiliary contacts instantaneous contact | 2  |
| operational current at AC-12 maximum                               | 10 A   |
| <b>operational current at AC-15</b>                                |  |
| • at 230 V rated value   | 6 A  |
| • at 400 V rated value   | 3 A  |
| • at 500 V rated value   | 2 A  |
| • at 690 V rated value   | 1 A  |
| <b>operational current at DC-12</b>                                |  |
| • at 24 V rated value  | 10 A   |
| • at 48 V rated value  | 6 A  |
| • at 60 V rated value  | 6 A  |
| • at 110 V rated value   | 3 A  |
| • at 125 V rated value   | 2 A  |
| • at 220 V rated value   | 1 A  |
| • at 600 V rated value   | 0.15 A   |
| <b>operational current at DC-13</b>                                |  |
| • at 24 V rated value  | 10 A   |
| • at 48 V rated value  | 2 A  |
| • at 60 V rated value  | 2 A  |
| • at 110 V rated value   | 1 A  |
| • at 125 V rated value   | 0.9 A  |
| • at 220 V rated value   | 0.3 A  |
| • at 600 V rated value   | 0.1 A  |
| <b>contact reliability of auxiliary contacts</b>                   | 1 faulty switching per 100 million (17 V, 1 mA)  |
| <b>UL/CSA ratings</b>  |  |
| <b>full-load current (FLA) for 3-phase AC motor</b>                |  |
| • at 480 V rated value   | 477 A  |
| • at 600 V rated value   | 472 A  |
| <b>yielded mechanical performance [hp]</b>                         |  |
| • for 3-phase AC motor   |  |
| — at 200/208 V rated value   | 150 hp   |
| — at 220/230 V rated value   | 200 hp   |
| — at 460/480 V rated value   | 400 hp   |
| — at 575/600 V rated value   | 500 hp   |
| <b>contact rating of auxiliary contacts according to UL</b>        | A600 / Q600  |
| <b>Short-circuit protection</b>                                    |  |
| <b>design of the fuse link</b>                                     |  |
| • for short-circuit protection of the main circuit                 |  |
| — with type of coordination 1 required                             | gG: 630 A (690 V, 100 kA)  |
| — with type of assignment 2 required                               | gG: 500 A (690 V, 100 kA), aM: 500 A (690 V, 50 kA), BS88: 500 A (415 V, 50 kA)  |
| • for short-circuit protection of the auxiliary switch required    | gG: 10 A (500 V, 1 kA)   |
| <b>Installation/ mounting/ dimensions</b>                          |  |
| <b>mounting position</b>   | with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back |
| <b>fastening method</b>  | screw fixing   |
| <b>height</b>  | 214 mm   |
| <b>width</b>   | 160 mm   |
| <b>depth</b>   | 225 mm   |
| <b>required spacing</b>  |  |

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|---|---|
| <ul style="list-style-type: none"> <li>● with side-by-side mounting <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> <li>● for grounded parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— at the side</li> <li>— downwards</li> </ul> </li> <li>● for live parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> </ul> | 20 mm<br>10 mm<br>10 mm<br>0 mm<br><br>20 mm<br>10 mm<br>10 mm<br>10 mm<br><br>20 mm<br>10 mm<br>10 mm<br>10 mm |
|---|---|

**Connections/ Terminals**

|   |  |
|---|--|
| <b>type of electrical connection</b> <ul style="list-style-type: none"> <li>● for main current circuit</li> <li>● for auxiliary and control circuit</li> <li>● at contactor for auxiliary contacts</li> <li>● of magnet coil</li> </ul>   | Connection bar<br>screw-type terminals<br>Screw-type terminals<br>Screw-type terminals   |
| <b>width of connection bar</b>  | 25 mm  |
| <b>thickness of connection bar</b>  | 6 mm   |
| <b>diameter of holes</b>  | 11 mm  |
| <b>number of holes</b>  | 1  |
| <b>type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>● for AWG cables for main contacts</li> </ul>  | 2/0 ... 500 kcmil  |
| <b>connectable conductor cross-section for main contacts</b> <ul style="list-style-type: none"> <li>● stranded</li> </ul>   | 70 ... 240 mm <sup>2</sup>   |
| <b>connectable conductor cross-section for auxiliary contacts</b> <ul style="list-style-type: none"> <li>● solid or stranded</li> <li>● finely stranded with core end processing</li> </ul>   | 0.5 ... 4 mm <sup>2</sup><br>0.5 ... 2.5 mm <sup>2</sup>   |
| <b>type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>● for auxiliary contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— solid or stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>● for AWG cables for auxiliary contacts</li> </ul> | 2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ), max. 2x (0.75 ... 4 mm <sup>2</sup> )<br>2x (0,5 ... 1,5 mm <sup>2</sup> ), 2x (0,75 ... 2,5 mm <sup>2</sup> ), max. 2x (0,75 ... 4 mm <sup>2</sup> )<br>2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> )<br>2x (20 ... 16), 2x (18 ... 14), 1x 12 |
| <b>AWG number as coded connectable conductor cross section</b> <ul style="list-style-type: none"> <li>● for auxiliary contacts</li> </ul>   | 18 ... 14  |

**Safety related data**

|   |                  |
|---|------------------|
| <b>product function</b> <ul style="list-style-type: none"> <li>● mirror contact according to IEC 60947-4-1</li> <li>● positively driven operation according to IEC 60947-5-1</li> <li>● suitable for safety function</li> </ul> | Yes<br>No<br>Yes |
| suitability for use safety-related switching OFF  | Yes              |
| <b>service life maximum</b>   | 20 a             |
| <b>test wear-related service life necessary</b>   | Yes              |
| <b>proportion of dangerous failures</b> <ul style="list-style-type: none"> <li>● with low demand rate according to SN 31920</li> <li>● with high demand rate according to SN 31920</li> </ul>                                   | 40 %<br>73 %     |
| <b>B10 value with high demand rate according to SN 31920</b>  | 1 000 000        |
| <b>failure rate [FIT] with low demand rate according to SN 31920</b>  | 100 FIT          |
| <b>ISO 13849</b>  |                  |
| <b>device type according to ISO 13849-1</b>   | 3                |
| <b>overdimensioning according to ISO 13849-2 necessary</b>  | Yes              |
| <b>IEC 61508</b>  |                  |
| <b>safety device type according to IEC 61508-2</b>  | Type A           |
| Electrical Safety   |                  |

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| protection class IP on the front according to IEC 60529 | IP00; IP20 with box terminal/cover                                       |
| touch protection on the front according to IEC 60529    | finger-safe, for vertical contact from the front with box terminal/cover |

### Approvals Certificates

#### General Product Approval



[Confirmation](#)



| EMV | Functional Safety | Test Certificates | Marine / Shipping |
|-----|-------------------|-------------------|-------------------|
|-----|-------------------|-------------------|-------------------|



[Type Examination Certificate](#)

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



| Marine / Shipping | other |
|-------------------|-------|
|-------------------|-------|



[Confirmation](#)

[Confirmation](#)

[Miscellaneous](#)

| Railway | Environment |
|---------|-------------|
|---------|-------------|

[Special Test Certificate](#)



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[Environmental Confirmations](#)

### Further information

#### Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

#### Information- and Downloadcenter (Catalogs, Brochures,...)

<https://www.siemens.com/ic10>

#### Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT1076-6AD36>

#### Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1076-6AD36>

#### Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RT1076-6AD36>

#### Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

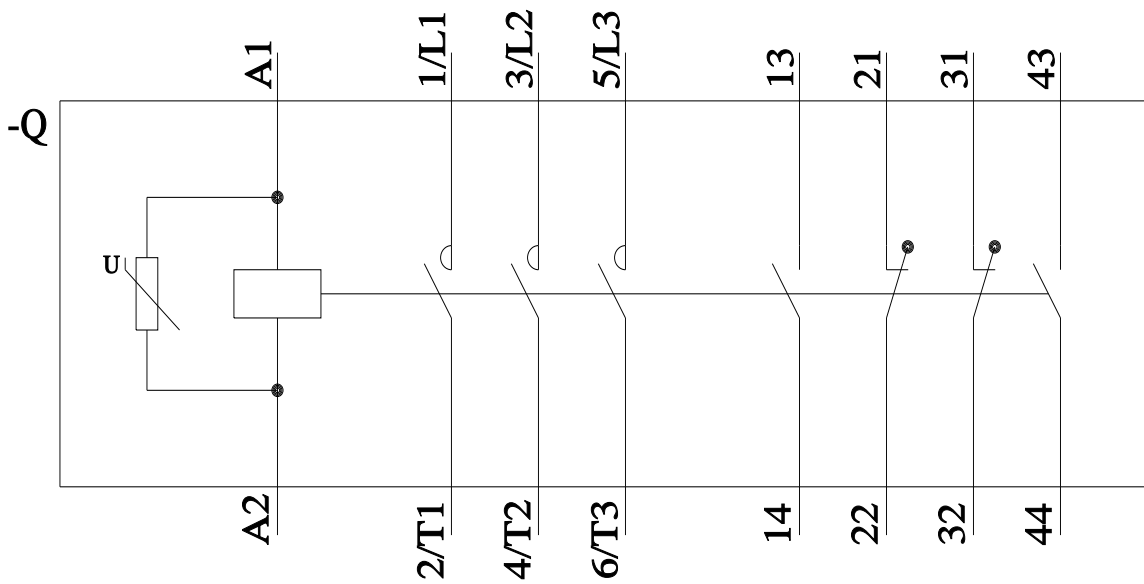
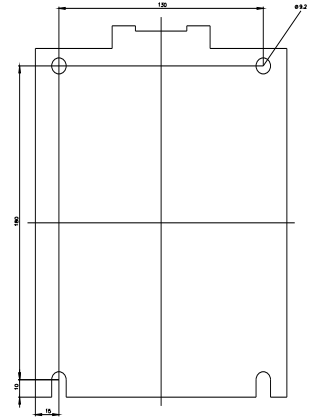
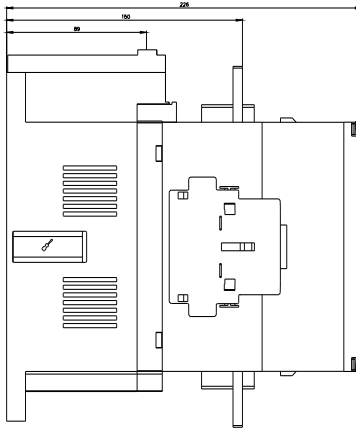
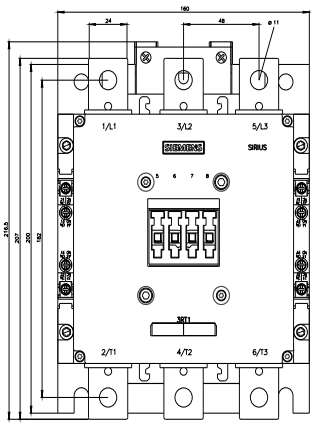
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT1076-6AD36&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT1076-6AD36&lang=en)

#### Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT1076-6AD36/char>

#### Further characteristics (e.g. electrical endurance, switching frequency)

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT1076-6AD36&objecttype=14&gridview=view1>



last modified:





