

Contactor, AC-3, 18.5 kW / 400 V, 1 NO + 1 NC, 24 V DC with varistor 3-pole, Size S0, screw terminal



|  |                 |
|--|-----------------|
| product brand name   | SIRIUS          |
| Product designation  | Power contactor |
| Product type designation   | 3RT2            |
| <b>General technical data</b>  |                 |
| Size of contactor  | S0              |
| 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   | 11.4 W          |
| • at AC in hot operating state per pole  | 3.8 W           |
| Power loss [W] for rated value of the current without load current share typical | 5.9 W           |
| Surge voltage resistance   |                 |
| • of main circuit rated value  | 6 kV            |
| • of auxiliary circuit rated value   | 6 kV            |
| maximum permissible voltage for safe isolation                                   |                 |
| • between coil and main contacts acc. to EN 60947-1                              | 400 V           |

|   |                          |
|---|--------------------------|
| <ul style="list-style-type: none"> <li>• protection class IP on the front</li> </ul>  | IP20                     |
| <ul style="list-style-type: none"> <li>• Protection class IP of the terminal</li> </ul>   | IP20                     |
| <b>Shock resistance at rectangular impulse</b>  |                          |
| <ul style="list-style-type: none"> <li>• at DC</li> </ul>   | 10g / 5 ms, 7,5g / 10 ms |
| <b>Shock resistance with sine pulse</b>   |                          |
| <ul style="list-style-type: none"> <li>• at DC</li> </ul>   | 15g / 5 ms, 10g / 10 ms  |
| <b>Mechanical service life (switching cycles)</b>   |                          |
| <ul style="list-style-type: none"> <li>• of contactor typical</li> </ul>  | 10 000 000               |
| <ul style="list-style-type: none"> <li>• of the contactor with added electronics-compatible auxiliary switch block typical</li> </ul> | 5 000 000                |
| <ul style="list-style-type: none"> <li>• of the contactor with added auxiliary switch block typical</li> </ul>                        | 10 000 000               |
| <b>Reference code acc. to DIN EN 81346-2</b>  | Q                        |

### Ambient conditions

|  |                |
|--|----------------|
| <b>Installation altitude at height above sea level</b>               |                |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>          | 2 000 m        |
| <b>Ambient temperature</b>   |                |
| <ul style="list-style-type: none"> <li>• during operation</li> </ul> | -25 ... +60 °C |
| <ul style="list-style-type: none"> <li>• during storage</li> </ul>   | -55 ... +80 °C |

### Main circuit

|   |                      |
|---|----------------------|
| <b>Number of poles for main current circuit</b>   | 3                    |
| <b>Number of NO contacts for main contacts</b>  | 3                    |
| <b>Operating voltage</b>  |                      |
| <ul style="list-style-type: none"> <li>• at AC-3 rated value maximum</li> </ul>   | 690 V                |
| <b>Operating current</b>  |                      |
| <ul style="list-style-type: none"> <li>• at AC-1 at 400 V <ul style="list-style-type: none"> <li>— at ambient temperature 40 °C rated value</li> </ul> </li> </ul>  | 50 A                 |
| <ul style="list-style-type: none"> <li>• at AC-1 <ul style="list-style-type: none"> <li>— up to 690 V at ambient temperature 40 °C rated value</li> <li>— up to 690 V at ambient temperature 60 °C rated value</li> </ul> </li> </ul> | 50 A<br>42 A         |
| <ul style="list-style-type: none"> <li>• at AC-2 at 400 V rated value</li> </ul>  | 38 A                 |
| <ul style="list-style-type: none"> <li>• at AC-3 <ul style="list-style-type: none"> <li>— at 400 V rated value</li> <li>— at 500 V rated value</li> <li>— at 690 V rated value</li> </ul> </li> </ul>                                 | 38 A<br>32 A<br>21 A |
| <ul style="list-style-type: none"> <li>• at AC-4 at 400 V rated value</li> </ul>  | 22 A                 |
| <ul style="list-style-type: none"> <li>• at AC-5a up to 690 V rated value</li> </ul>  | 44 A                 |
| <ul style="list-style-type: none"> <li>• at AC-5b up to 400 V rated value</li> </ul>  | 31.5 A               |
| <ul style="list-style-type: none"> <li>• at AC-6a</li> </ul>  |                      |

|  |                    |
|--|--------------------|
| — up to 230 V for current peak value n=20 rated value                | 30.8 A             |
| — up to 400 V for current peak value n=20 rated value                | 30.8 A             |
| — up to 500 V for current peak value n=20 rated value                | 30.8 A             |
| — up to 690 V for current peak value n=20 rated value                | 21 A               |
| • at AC-6a   |                    |
| — up to 230 V for current peak value n=30 rated value                | 20.5 A             |
| — up to 400 V for current peak value n=30 rated value                | 20.5 A             |
| — up to 500 V for current peak value n=30 rated value                | 21.4 A             |
| — up to 690 V for current peak value n=30 rated value                | 21 A               |
| <b>Minimum cross-section in main circuit</b>                         |                    |
| • at maximum AC-1 rated value  | 10 mm <sup>2</sup> |
| <b>Operating current for approx. 200000 operating cycles at AC-4</b> |                    |
| • at 400 V rated value   | 12 A               |
| • at 690 V rated value   | 12 A               |
| <b>Operating current</b>   |                    |
| • at 1 current path at DC-1  |                    |
| — at 24 V rated value  | 35 A               |
| — at 110 V rated value   | 4.5 A              |
| — at 220 V rated value   | 1 A                |
| — at 440 V rated value   | 0.4 A              |
| — at 600 V rated value   | 0.25 A             |
| • with 2 current paths in series at DC-1                             |                    |
| — at 24 V rated value  | 35 A               |
| — at 110 V rated value   | 35 A               |
| — at 220 V rated value   | 5 A                |
| — at 440 V rated value   | 1 A                |
| — at 600 V rated value   | 0.8 A              |
| • with 3 current paths in series at DC-1                             |                    |
| — at 24 V rated value  | 35 A               |
| — at 110 V rated value   | 35 A               |
| — at 220 V rated value   | 35 A               |
| — at 440 V rated value   | 2.9 A              |
| — at 600 V rated value   | 1.4 A              |
| <b>Operating current</b>   |                    |

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• at 1 current path at DC-3 at DC-5               <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> <li>• with 2 current paths in series at DC-3 at DC-5               <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> <li>• with 3 current paths in series at DC-3 at DC-5               <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> </ul> | <p>20 A</p> <p>2.5 A</p> <p>1 A</p> <p>0.09 A</p> <p>0.06 A</p> <p>35 A</p> <p>15 A</p> <p>3 A</p> <p>0.27 A</p> <p>0.16 A</p> <p>35 A</p> <p>35 A</p> <p>10 A</p> <p>0.6 A</p> <p>0.6 A</p> |
| <b>Operating power</b> <ul style="list-style-type: none"> <li>• at AC-2 at 400 V rated value</li> <li>• at AC-3               <ul style="list-style-type: none"> <li>— at 230 V rated value</li> <li>— at 400 V rated value</li> <li>— at 500 V rated value</li> <li>— at 690 V rated value</li> </ul> </li> </ul>   | <p>18.5 kW</p> <p>11 kW</p> <p>18.5 kW</p> <p>18.5 kW</p> <p>18.5 kW</p>   |
| <b>Operating power for approx. 200000 operating cycles at AC-4</b> <ul style="list-style-type: none"> <li>• at 400 V rated value</li> <li>• at 690 V rated value</li> </ul>  | <p>6 kW</p> <p>10.3 kW</p>   |
| <b>Operating apparent output at AC-6a</b> <ul style="list-style-type: none"> <li>• up to 230 V for current peak value n=20 rated value</li> <li>• up to 400 V for current peak value n=20 rated value</li> <li>• up to 500 V for current peak value n=20 rated value</li> <li>• up to 690 V for current peak value n=20 rated value</li> </ul>   | <p>12.2 kV·A</p> <p>21.3 kV·A</p> <p>26.6 kV·A</p> <p>25 kV·A</p>  |
| <b>Operating apparent output at AC-6a</b> <ul style="list-style-type: none"> <li>• up to 230 V for current peak value n=30 rated value</li> <li>• up to 400 V for current peak value n=30 rated value</li> </ul>   | <p>8.1 kV·A</p> <p>14.2 kV·A</p>   |

|   |  |
|---|--|
| <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> </ul>  | <p>18.5 kV·A</p> <p>25 kV·A</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>593 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>395 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>260 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>186 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>152 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 DC</li> </ul>  | <p>1 500 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-4 maximum</li> </ul>   | <p>1 000 1/h</p> <p>750 1/h</p> <p>750 1/h</p> <p>250 1/h</p>  |
| <b>Control circuit/ Control</b>   |  |
| <b>Type of voltage of the control supply voltage</b>  | DC   |
| <b>Control supply voltage at DC</b> <ul style="list-style-type: none"> <li>• rated value</li> </ul>   | 24 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>Design of the surge suppressor</b>   | with varistor  |
| <b>Closing power of magnet coil at DC</b>   | 5.9 W  |
| <b>Holding power of magnet coil at DC</b>   | 5.9 W  |
| <b>Closing delay</b> <ul style="list-style-type: none"> <li>• at DC</li> </ul>  | 50 ... 170 ms  |
| <b>Opening delay</b> <ul style="list-style-type: none"> <li>• at DC</li> </ul>  | 15 ... 17.5 ms   |
| <b>Arcing time</b>  | 10 ... 10 ms   |
| <b>Control version of the switch operating mechanism</b>  | Standard A1 - A2   |
| <b>Auxiliary circuit</b>  |  |
| <b>Number of NC contacts for auxiliary contacts</b> <ul style="list-style-type: none"> <li>• instantaneous contact</li> </ul>   | 1  |

|   |   |
|---|---|
| <b>Number of NO contacts for auxiliary contacts</b> |   |
| • instantaneous contact                             | 1   |
| Operating current at AC-12 maximum                  | 10 A  |
| <b>Operating current at AC-15</b>                   |   |
| • at 230 V rated value                              | 10 A  |
| • at 400 V rated value                              | 3 A   |
| • at 500 V rated value                              | 2 A   |
| • at 690 V rated value                              | 1 A   |
| <b>Operating 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>Operating 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) |

### UL/CSA ratings

|   |             |
|---|-------------|
| <b>Full-load current (FLA) for three-phase AC motor</b>     |             |
| • at 480 V rated value                                      | 34 A        |
| • at 600 V rated value                                      | 27 A        |
| <b>Yielded mechanical performance [hp]</b>                  |             |
| • for single-phase AC motor                                 |             |
| — at 110/120 V rated value                                  | 3 hp        |
| — at 230 V rated value                                      | 5 hp        |
| • for three-phase AC motor                                  |             |
| — at 200/208 V rated value                                  | 10 hp       |
| — at 220/230 V rated value                                  | 10 hp       |
| — at 460/480 V rated value                                  | 25 hp       |
| — at 575/600 V rated value                                  | 25 hp       |
| <b>Contact rating of auxiliary contacts according to UL</b> | A600 / P600 |

### Short-circuit protection

|                                |  |
|--------------------------------|--|
| <b>Design of the fuse link</b> |  |
|--------------------------------|--|

- for short-circuit protection of the main circuit
  - with type of coordination 1 required
  - with type of assignment 2 required
- for short-circuit protection of the auxiliary switch required

gG: 125A (690V,100kA), aM: 50A (690V,100kA), BS88: 125A (415V,80kA)

gG: 50A (690V,100kA), aM: 25A (690V, 100kA), BS88: 50A (415V, 80kA)

gG: 10 A (500 V, 1 kA)

### Installation/ mounting/ dimensions

|   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• <b>mounting position</b></li> </ul>  | +/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface |
| <b>Mounting type</b> <ul style="list-style-type: none"> <li>• Side-by-side mounting</li> </ul>  | screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715<br>Yes  |
| <b>Height</b>   | 102 mm   |
| <b>Width</b>  | 45 mm  |
| <b>Depth</b>  | 107 mm   |
| <b>Required spacing</b> <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> | 10 mm<br>10 mm<br>10 mm<br>0 mm<br><br>10 mm<br>10 mm<br>6 mm<br>10 mm<br><br>10 mm<br>10 mm<br>10 mm<br>6 mm                        |

### Connections/ Terminals

|   |                      |
|---|----------------------|
| <ul style="list-style-type: none"> <li>• Type of electrical connection for main current circuit</li> </ul>                  | screw-type terminals |
| <ul style="list-style-type: none"> <li>• Type of electrical connection for auxiliary and control current circuit</li> </ul> | screw-type terminals |
| <ul style="list-style-type: none"> <li>• Type of electrical connection at contactor for auxiliary contacts</li> </ul>       | Screw-type terminals |
| <ul style="list-style-type: none"> <li>• Type of electrical connection of magnet coil</li> </ul>                            | Screw-type terminals |
| <b>Type of connectable conductor cross-sections</b>   |                      |

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• for main contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— single or multi-stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG conductors for main contacts</li> </ul>  | <p>2x (1 ... 2.5 mm<sup>2</sup>), 2x (2.5 ... 10 mm<sup>2</sup>)</p> <p>2x (1 ... 2,5 mm<sup>2</sup>), 2x (2,5 ... 10 mm<sup>2</sup>)</p> <p>2x (1 ... 2.5 mm<sup>2</sup>), 2x (2.5 ... 6 mm<sup>2</sup>), 1x 10 mm<sup>2</sup></p> <p>2x (16 ... 12), 2x (14 ... 8)</p> |
| <b>Connectable conductor cross-section for main contacts</b> <ul style="list-style-type: none"> <li>• solid</li> <li>• stranded</li> <li>• finely stranded with core end processing</li> </ul>   | <p>1 ... 10 mm<sup>2</sup></p> <p>1 ... 10 mm<sup>2</sup></p> <p>1 ... 10 mm<sup>2</sup></p>   |
| <b>Connectable conductor cross-section for auxiliary contacts</b> <ul style="list-style-type: none"> <li>• single or multi-stranded</li> <li>• finely stranded with core end processing</li> </ul>   | <p>0.5 ... 2.5 mm<sup>2</sup></p> <p>0.5 ... 2.5 mm<sup>2</sup></p>  |
| <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>— single or multi-stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG conductors for auxiliary contacts</li> </ul> | <p>2x (0,5 ... 1,5 mm<sup>2</sup>), 2x (0,75 ... 2,5 mm<sup>2</sup>)</p> <p>2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)</p> <p>2x (20 ... 16), 2x (18 ... 14)</p>  |
| <b>AWG number as coded connectable conductor cross section</b> <ul style="list-style-type: none"> <li>• for main contacts</li> <li>• for auxiliary contacts</li> </ul>   | <p>16 ... 8</p> <p>20 ... 14</p>   |

| Safety related data   |                         |
|---|-------------------------|
| <b>B10 value</b> <ul style="list-style-type: none"> <li>• with high demand rate acc. to SN 31920</li> </ul>   | 1 000 000               |
| <b>Proportion of dangerous failures</b> <ul style="list-style-type: none"> <li>• with low demand rate acc. to SN 31920</li> <li>• with high demand rate acc. to SN 31920</li> </ul> | <p>40 %</p> <p>73 %</p> |
| <b>Failure rate [FIT]</b> <ul style="list-style-type: none"> <li>• with low demand rate acc. to SN 31920</li> </ul>   | 100 FIT                 |
| <b>Product function</b> <ul style="list-style-type: none"> <li>• Mirror contact acc. to IEC 60947-4-1</li> <li>• positively driven operation acc. to IEC 60947-5-1</li> </ul>       | <p>Yes</p> <p>No</p>    |
| <b>T1 value for proof test interval or service life acc. to IEC 61508</b>   | 20 y                    |
| <b>Protection against electrical shock</b>  | finger-safe             |
| <b>Suitability for use safety-related switching OFF</b>   | Yes                     |

|                         |
|-------------------------|
| Certificates/ approvals |
|-------------------------|



|                          |     |
|--------------------------|-----|
| General Product Approval | EMC |
|--------------------------|-----|



[KC](#)



|                                       |                           |                   |                   |
|---------------------------------------|---------------------------|-------------------|-------------------|
| Functional Safety/Safety of Machinery | Declaration of Conformity | Test Certificates | Marine / Shipping |
|---------------------------------------|---------------------------|-------------------|-------------------|

[Type Examination Certificate](#)



[Miscellaneous](#)

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



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



[Confirmation](#)

|       |
|-------|
| other |
|-------|



|                     |
|---------------------|
| Further information |
|---------------------|

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

**Industry Mall (Online ordering system)**  
<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2028-1DB40>

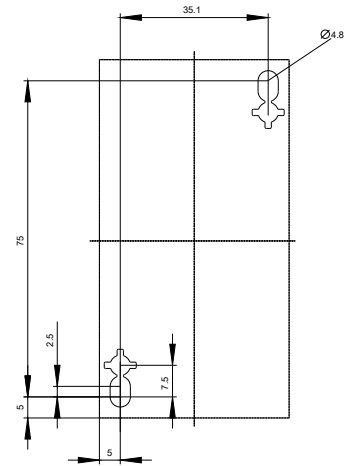
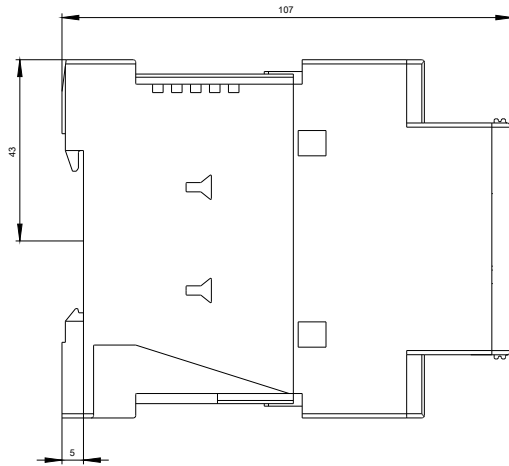
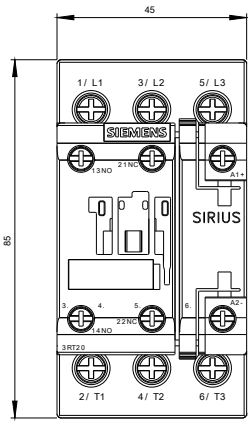
**Cax online generator**  
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2028-1DB40>

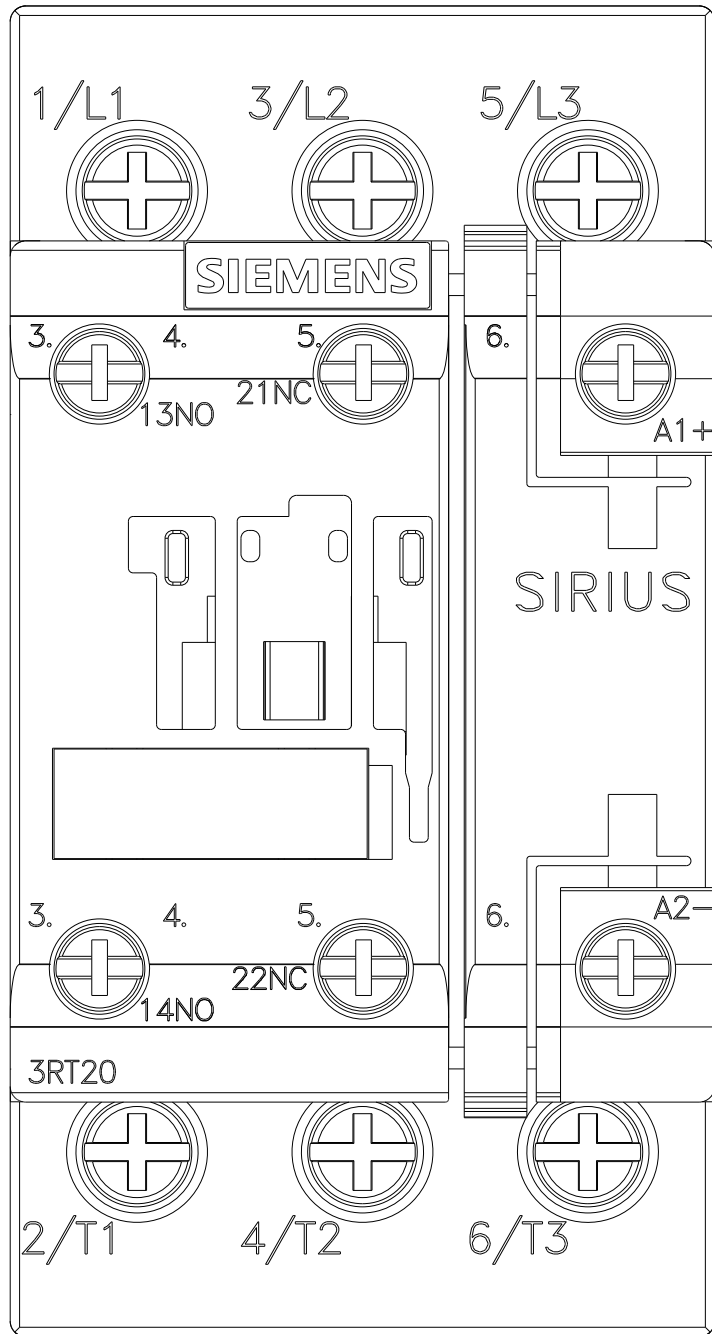
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**  
<https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1DB40>

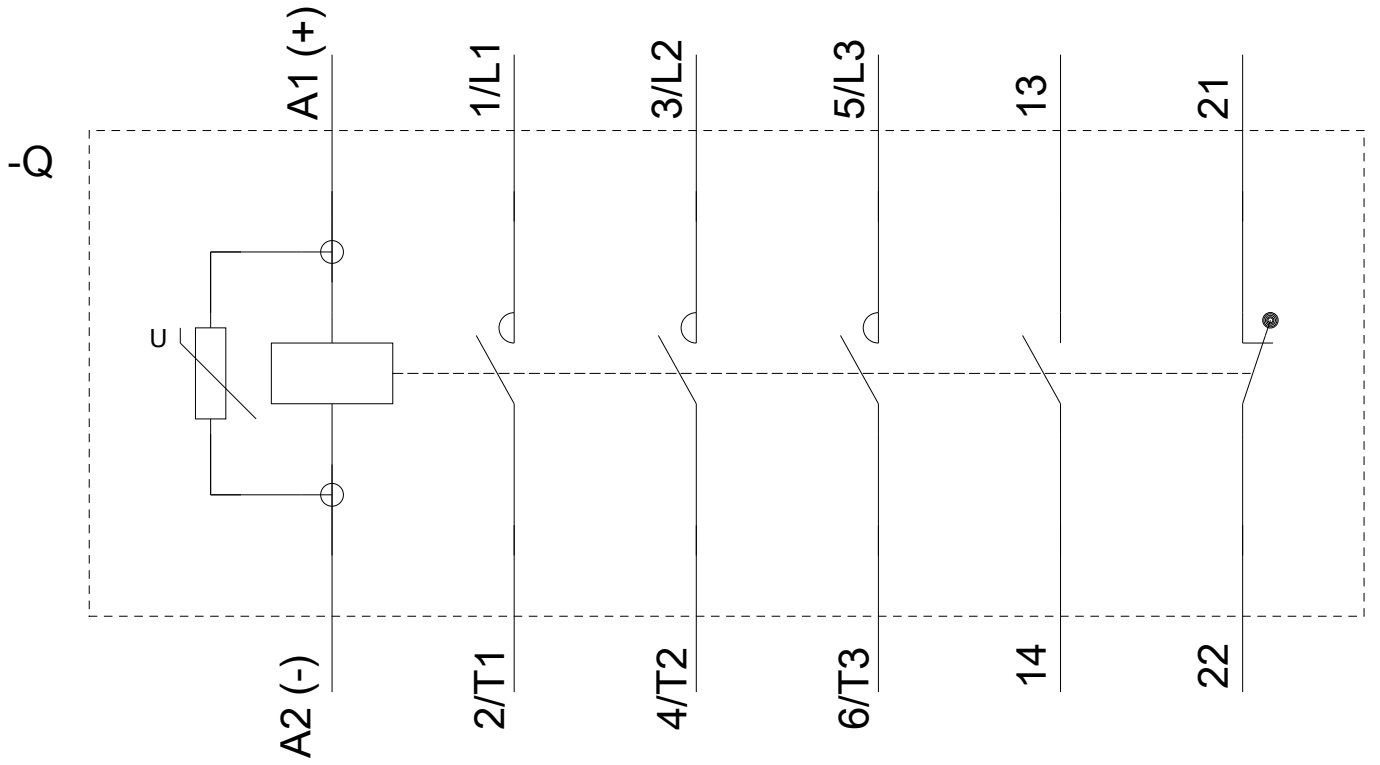
**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**  
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2028-1DB40&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2028-1DB40&lang=en)

**Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current**  
<https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1DB40/char>

**Further characteristics (e.g. electrical endurance, switching frequency)**  
<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2028-1DB40&objecttype=14&gridview=view1>







last modified:

08/13/2020