

Power contactor, AC-3 38 A, 18.5 kW / 400 V 2 NO + 2 NC, 24 V DC  
3-pole, size S0 Spring-type terminals Removable auxiliary switch



|  |                 |
|--|-----------------|
| product brand name   | SIRIUS          |
| product designation  | Power contactor |
| product type designation   | 3RT2            |
| General technical data   |                 |
| size of contactor  | S0              |
| product extension  |                 |
| • function module for communication  | No              |
| • auxiliary switch   | No              |
| 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           |

|   |                          |
|---|--------------------------|
| <b>protection class IP</b>  |                          |
| • on the front  | IP20                     |
| • of the terminal   | IP20                     |
| <b>shock resistance at rectangular impulse</b>                                      |                          |
| • at DC   | 10g / 5 ms, 7,5g / 10 ms |
| <b>shock resistance with sine pulse</b>   |                          |
| • at DC   | 15g / 5 ms, 10g / 10 ms  |
| <b>mechanical service life (switching cycles)</b>                                   |                          |
| • of contactor typical  | 10 000 000               |
| • of the contactor with added electronics-compatible auxiliary switch block typical | 5 000 000                |
| • of the contactor with added auxiliary switch block typical                        | 10 000 000               |
| <b>reference code acc. to DIN EN 81346-2</b>  | Q                        |

|   |                |
|---|----------------|
| <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>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                                       | 690 V  |
| <b>operating current</b>  |        |
| • at AC-1 at 400 V<br>— at ambient temperature 40 °C rated value    | 50 A   |
| • at AC-1<br>— up to 690 V at ambient temperature 40 °C rated value | 50 A   |
| — up to 690 V at ambient temperature 60 °C rated value              | 42 A   |
| • at AC-3<br>— at 400 V rated value                                 | 38 A   |
| — at 500 V rated value  | 32 A   |
| — at 690 V rated value  | 21 A   |
| • at AC-4 at 400 V rated value                                      | 22 A   |
| • at AC-5a up to 690 V rated value                                  | 44 A   |
| • at AC-5b up to 400 V rated value                                  | 31.5 A |
| • at AC-6a  |        |

|  |                    |
|--|--------------------|
| — 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> | 20 A<br>2.5 A<br>1 A<br>0.09 A<br>0.06 A<br><br>35 A<br>15 A<br>3 A<br>0.27 A<br>0.16 A<br><br>35 A<br>35 A<br>10 A<br>0.6 A<br>0.6 A |
| <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>  | 18.5 kW<br><br>11 kW<br>18.5 kW<br>18.5 kW<br>18.5 kW   |
| <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>   | 6 kW<br>10.3 kW   |
| <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>   | 12.2 kV·A<br>21.3 kV·A<br>26.6 kV·A<br>25 kV·A  |
| <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>   | 8.1 kV·A<br>14.2 kV·A   |

|   |   |
|---|---|
| <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>  | 18.5 kV·A<br><br>25 kV·A  |
| <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> | 593 A; Use minimum cross-section acc. to AC-1 rated value<br><br>395 A; Use minimum cross-section acc. to AC-1 rated value<br><br>260 A; Use minimum cross-section acc. to AC-1 rated value<br><br>186 A; Use minimum cross-section acc. to AC-1 rated value<br><br>152 A; Use minimum cross-section acc. to AC-1 rated value |
| <b>no-load switching frequency</b> <ul style="list-style-type: none"> <li>• at DC</li> </ul>  | 1 500 1/h   |
| <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>   | 1 000 1/h<br>750 1/h<br>750 1/h<br>250 1/h  |

#### Control circuit/ Control

|   |                  |
|---|------------------|
| <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> | 0.8<br>1.1       |
| <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 |

#### Auxiliary circuit

|   |   |
|---|---|
| <b>number of NC contacts for auxiliary contacts</b> <ul style="list-style-type: none"> <li>• instantaneous contact</li> </ul> | 2 |
| <b>number of NO contacts for auxiliary contacts</b>   |   |

|  |   |
|--|---|
| • instantaneous contact                          | 2   |
| operating current at AC-12 maximum               | 10 A  |
| <b>operating 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>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                            | 6 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 / Q600 |

#### 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

|                              |  |
|------------------------------|--|
| <b>mounting position</b>     | +/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface |
| <b>mounting type</b>         | screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715   |
| • side-by-side mounting      | Yes  |
| <b>height</b>                | 102 mm   |
| <b>width</b>                 | 45 mm  |
| <b>depth</b>                 | 154 mm   |
| <b>required spacing</b>      |  |
| • with side-by-side mounting |  |
| — forwards                   | 10 mm  |
| — upwards                    | 10 mm  |
| — downwards                  | 10 mm  |
| — at the side                | 0 mm   |
| • for grounded parts         |  |
| — forwards                   | 10 mm  |
| — upwards                    | 10 mm  |
| — at the side                | 6 mm   |
| — downwards                  | 10 mm  |
| • for live parts             |  |
| — forwards                   | 10 mm  |
| — upwards                    | 10 mm  |
| — downwards                  | 10 mm  |
| — at the side                | 6 mm   |

## Connections/ Terminals

|   |                         |
|---|-------------------------|
| <b>type of electrical connection</b>                |                         |
| • for main current circuit                          | spring-loaded terminals |
| • for auxiliary and control current circuit         | spring-loaded terminals |
| • at contactor for auxiliary contacts               | Spring-type terminals   |
| • of magnet coil                                    | Spring-type terminals   |
| <b>type of connectable conductor cross-sections</b> |                         |
| • for main contacts                                 |                         |
| — solid   | 2x (1 ... 10 mm²)       |
| — single or multi-stranded                          | 2x (1 ... 10 mm²)       |

|   |                                   |
|---|-----------------------------------|
| — finely stranded with core end processing  | 2x (1 ... 6 mm <sup>2</sup> )     |
| — finely stranded without core end processing   | 2x (1 ... 6 mm <sup>2</sup> )     |
| • at AWG conductors for main contacts   | 2x (18 ... 8)                     |
| <b>connectable conductor cross-section for main contacts</b>                            |                                   |
| • solid   | 1 ... 10 mm <sup>2</sup>          |
| • stranded  | 1 ... 10 mm <sup>2</sup>          |
| • finely stranded with core end processing  | 1 ... 6 mm <sup>2</sup>           |
| • finely stranded without core end processing   | 1 ... 6 mm <sup>2</sup>           |
| <b>connectable conductor cross-section for auxiliary contacts</b>                       |                                   |
| • single or multi-stranded  | 0.5 ... 2.5 mm <sup>2</sup>       |
| • finely stranded with core end processing  | 0.5 ... 1.5 mm <sup>2</sup>       |
| • finely stranded without core end processing   | 0.5 ... 2.5 mm <sup>2</sup>       |
| • type of connectable conductor cross-sections for auxiliary contacts                   |                                   |
| — single or multi-stranded  | 2x (0.5 ... 2.5 mm <sup>2</sup> ) |
| — finely stranded with core end processing  | 2x (0.5 ... 1.5 mm <sup>2</sup> ) |
| — finely stranded without core end processing   | 2x (0.5 ... 2.5 mm <sup>2</sup> ) |
| • type of connectable conductor cross-sections at AWG conductors for auxiliary contacts | 2x (20 ... 14)                    |
| <b>AWG number as coded connectable conductor cross section</b>                          |                                   |
| • for main contacts   | 18 ... 8                          |
| • for auxiliary contacts  | 20 ... 14                         |

#### Safety related data

|   |             |
|---|-------------|
| <b>B10 value</b>  |             |
| • with high demand rate acc. to SN 31920                                  | 1 000 000   |
| <b>proportion of dangerous failures</b>                                   |             |
| • with low demand rate acc. to SN 31920                                   | 40 %        |
| • with high demand rate acc. to SN 31920                                  | 73 %        |
| <b>failure rate [FIT]</b>   |             |
| • with low demand rate acc. to SN 31920                                   | 100 FIT     |
| <b>product function</b>   |             |
| • mirror contact acc. to IEC 60947-4-1                                    | Yes         |
| • positively driven operation acc. to IEC 60947-5-1                       | No          |
| <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 |
| suitability for use safety-related switching OFF                          | Yes         |



## Certificates/ approvals

### General Product Approval

### EMC



CCC



CSA



UL

[KC](#)



RCM

### Functional Safety/Safety of Machinery

### Declaration of Conformity

### Test Certificates

### Marine / Shipping

[Type Examination Certificate](#)



EG-Konf.

[Miscellaneous](#)

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



ABS

## Marine / Shipping



LRS



PRS



RINA



RMRS



DNV-GL

## other

[Confirmation](#)



VDE

## Further information

**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=3RT2028-2BB44>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2028-2BB44>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-2BB44>

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

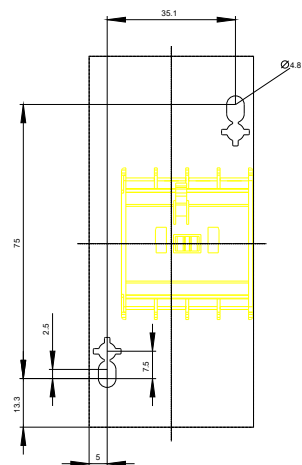
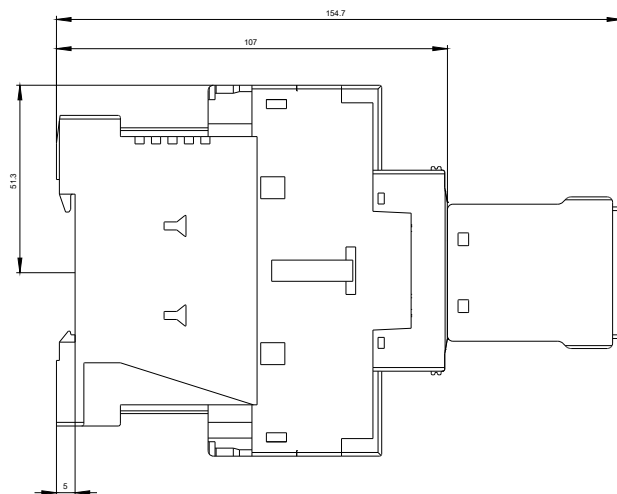
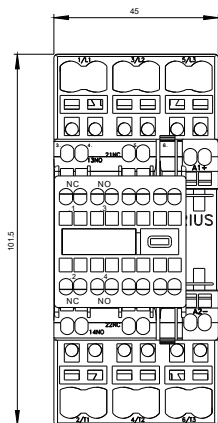
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2028-2BB44&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2028-2BB44&lang=en)

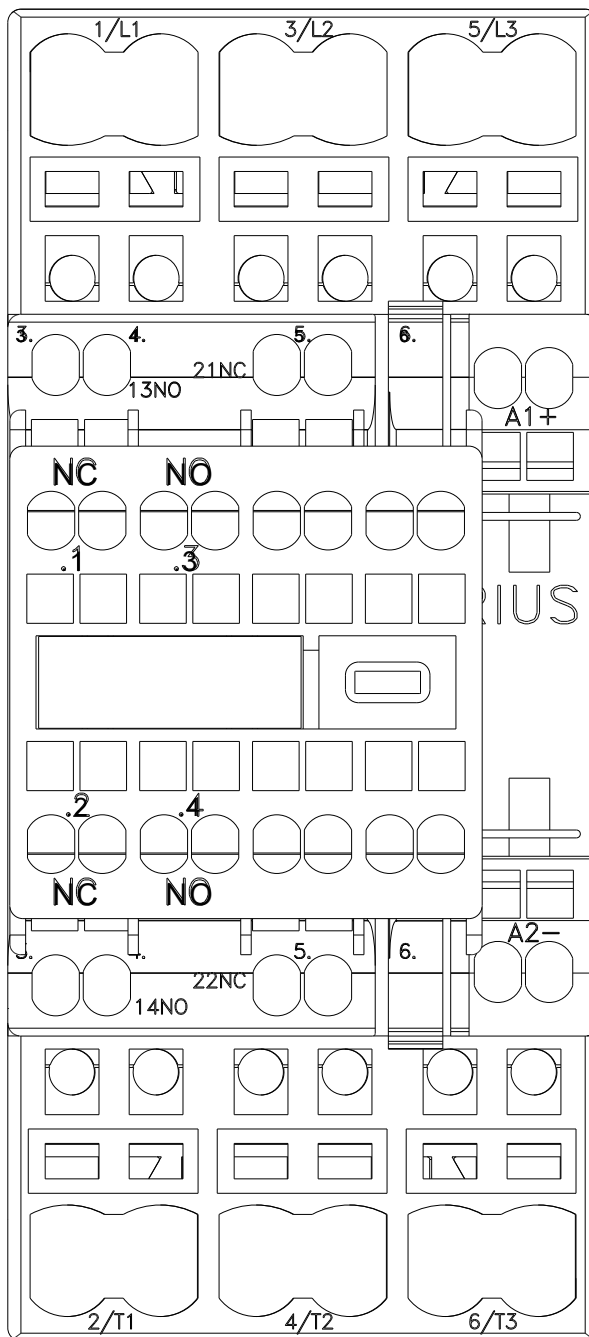
**Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current**

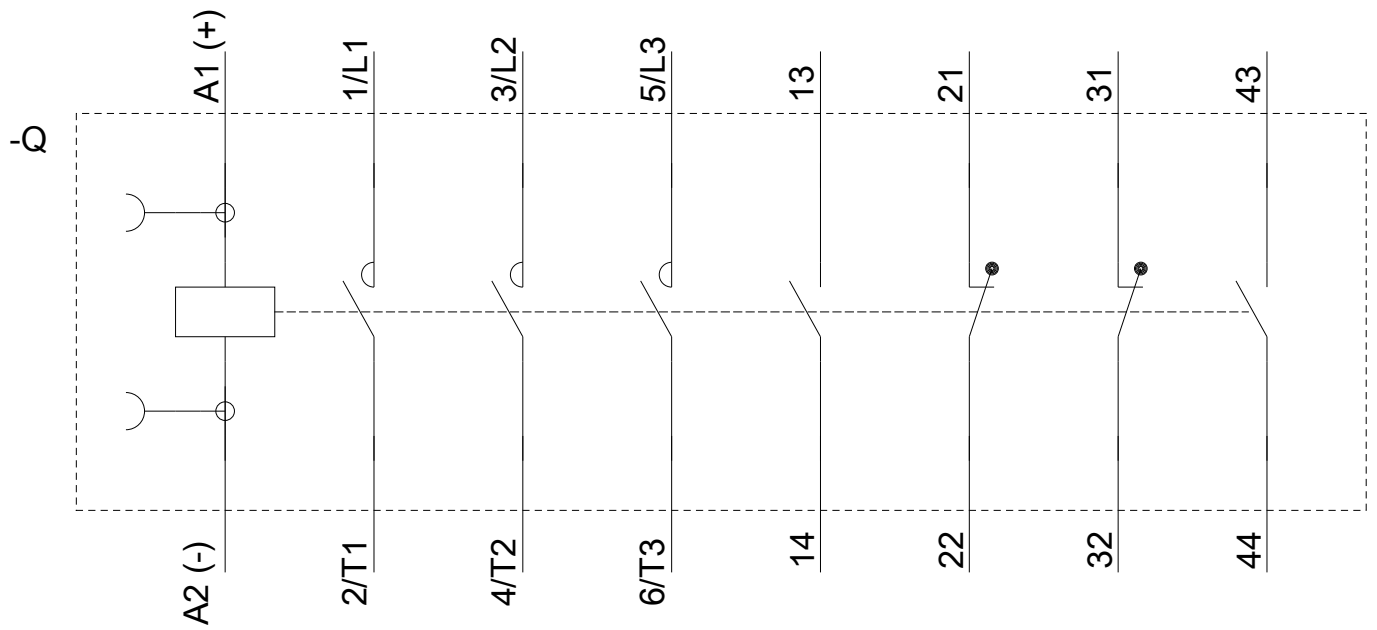
<https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-2BB44/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2028-2BB44&objecttype=14&gridview=view1>







last modified:

09/08/2020