

power contactor, AC-3 80 A, 37 kW / 400 V 1 NO + 1 NC, 230 V AC/50/60 Hz 3-pole, 3 NO, Size S3 Spring-type terminal upright mounting position



|                          |                 |
|--------------------------|-----------------|
| Product brand name       | SIRIUS          |
| Product designation      | Power contactor |
| Product type designation | 3RT2            |

| General technical data  |                             |
|---|-----------------------------|
| Size of contactor   | S3                          |
| Product extension   |                             |
| <ul style="list-style-type: none"> <li>function module for communication</li> </ul>                 | No                          |
| <ul style="list-style-type: none"> <li>Auxiliary switch</li> </ul>                                  | Yes                         |
| Surge voltage resistance  |                             |
| <ul style="list-style-type: none"> <li>of main circuit rated value</li> </ul>                       | 8 kV                        |
| <ul style="list-style-type: none"> <li>of auxiliary circuit rated value</li> </ul>                  | 6 kV                        |
| maximum permissible voltage for safe isolation  |                             |
| <ul style="list-style-type: none"> <li>between coil and main contacts acc. to EN 60947-1</li> </ul> | 690 V                       |
| Protection class IP   |                             |
| <ul style="list-style-type: none"> <li>on the front</li> </ul>                                      | IP20                        |
| <ul style="list-style-type: none"> <li>of the terminal</li> </ul>                                   | IP00                        |
| Shock resistance at rectangular impulse   |                             |
| <ul style="list-style-type: none"> <li>at AC</li> </ul>   | 6.7 g / 5 ms, 4.0 g / 10 ms |

|   |                              |
|---|------------------------------|
| <b>Shock resistance with sine pulse</b>   |                              |
| • at AC   | 10.6 g / 5 ms, 6.3 g / 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 40719 extended according to IEC 204-2 acc. to IEC 750</b> | K                            |
| <b>Reference code acc. to DIN EN 81346-2</b>  | Q                            |

#### Ambient conditions

|  |                |
|--|----------------|
| <b>Installation altitude at height above sea level</b> |                |
| • maximum  | 2 000 m        |
| <b>Ambient temperature</b>                             |                |
| • during operation                                     | -25 ... +60 °C |
| • during storage                                       | -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>                                |         |
| • at AC-3 rated value maximum                           | 1 000 V |
| <b>Operating current</b>                                |         |
| • at AC-1 at 400 V                                      |         |
| — at ambient temperature 40 °C rated value              | 125 A   |
| • at AC-1   |         |
| — up to 690 V at ambient temperature 40 °C rated value  | 125 A   |
| — up to 690 V at ambient temperature 60 °C rated value  | 105 A   |
| — up to 1000 V at ambient temperature 40 °C rated value | 60 A    |
| — up to 1000 V at ambient temperature 60 °C rated value | 50 A    |
| • at AC-2 at 400 V rated value                          | 80 A    |
| • at AC-3   |         |
| — at 400 V rated value                                  | 80 A    |
| — at 500 V rated value                                  | 80 A    |
| — at 690 V rated value                                  | 58 A    |
| • at AC-4 at 400 V rated value                          | 66 A    |
| • at AC-5a up to 690 V rated value                      | 110 A   |
| • at AC-5b up to 400 V rated value                      | 80 A    |

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• at AC-6a <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> </li> <li>• at AC-6a <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> <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> </li> </ul>   | <p>80 A</p> <p>80 A</p> <p>80 A</p> <p>58 A</p> <p>54 A</p> <p>54 A</p> <p>54 A</p> <p>54 A</p>  |
| <p><b>Minimum cross-section in main circuit</b></p> <ul style="list-style-type: none"> <li>• at maximum AC-1 rated value</li> </ul>  | <p>50 mm<sup>2</sup></p>   |
| <p><b>Operating current for approx. 200000 operating cycles at AC-4</b></p> <ul style="list-style-type: none"> <li>• at 400 V rated value</li> <li>• at 690 V rated value</li> </ul>   | <p>34 A</p> <p>24 A</p>  |
| <p><b>Operating current</b></p> <ul style="list-style-type: none"> <li>• at 1 current path at DC-1 <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-1 <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-1 <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>100 A</p> <p>9 A</p> <p>2 A</p> <p>0.6 A</p> <p>0.4 A</p> <p>100 A</p> <p>100 A</p> <p>10 A</p> <p>1.8 A</p> <p>1 A</p> <p>100 A</p> <p>100 A</p> <p>80 A</p> <p>4.5 A</p> <p>2.6 A</p> |

|  |   |
|--|---|
| <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>40 A</p> <p>2.5 A</p> <p>1 A</p> <p>0.15 A</p> <p>0.06 A</p> <p>100 A</p> <p>100 A</p> <p>7 A</p> <p>0.42 A</p> <p>0.16 A</p> <p>100 A</p> <p>100 A</p> <p>35 A</p> <p>0.8 A</p> <p>0.35 A</p> |
| <b>Operating power</b>   |   |
| <ul style="list-style-type: none"> <li>• at AC-1 <ul style="list-style-type: none"> <li>— at 230 V rated value</li> <li>— at 230 V at 60 °C rated value</li> <li>— at 400 V rated value</li> <li>— at 400 V at 60 °C rated value</li> <li>— at 690 V rated value</li> <li>— at 690 V at 60 °C rated value</li> </ul> </li> <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>47 kW</p> <p>40 kW</p> <p>82 kW</p> <p>69 kW</p> <p>142 kW</p> <p>119 kW</p> <p>37 kW</p> <p>22 kW</p> <p>37 kW</p> <p>45 kW</p> <p>55 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>17.9 kW</p> <p>21.8 kW</p>   |
| <b>Thermal short-time current limited to 10 s</b>  |   |
|  | 760 A   |
| <b>No-load switching frequency</b>   |   |
| <ul style="list-style-type: none"> <li>• at AC</li> </ul>  | 5 000 1/h   |
| <b>Operating frequency</b>   |   |
| <ul style="list-style-type: none"> <li>• at AC-1 maximum</li> </ul>  | 900 1/h   |

|                   |           |
|-------------------|-----------|
| • at AC-2 maximum | 400 1/h   |
| • at AC-3 maximum | 1 000 1/h |
| • at AC-4 maximum | 300 1/h   |

#### Control circuit/ Control

|   |              |
|---|--------------|
| <b>Type of voltage of the control supply voltage</b>                                  | AC           |
| <b>Control supply voltage at AC</b>   |              |
| • at 50 Hz rated value  | 230 V        |
| • at 60 Hz rated value  | 230 V        |
| <b>Operating range factor control supply voltage rated value of magnet coil at AC</b> |              |
| • at 50 Hz  | 0.8 ... 1.1  |
| • at 60 Hz  | 0.85 ... 1.1 |
| <b>Apparent pick-up power of magnet coil at AC</b>                                    |              |
| • at 50 Hz  | 348 V·A      |
| • at 60 Hz  | 296 V·A      |
| <b>Inductive power factor with closing power of the coil</b>                          |              |
| • at 50 Hz  | 0.62         |
| • at 60 Hz  | 0.55         |
| <b>Apparent holding power of magnet coil at AC</b>                                    |              |
| • at 50 Hz  | 25 V·A       |
| • at 60 Hz  | 18 V·A       |
| <b>Inductive power factor with the holding power of the coil</b>                      |              |
| • at 50 Hz  | 0.35         |
| • at 60 Hz  | 0.41         |
| <b>Closing delay</b>  |              |
| • at AC   | 13 ... 50 ms |
| <b>Opening delay</b>  |              |
| • at AC   | 10 ... 21 ms |
| <b>Arcing time</b>  | 10 ... 20 ms |

#### Auxiliary circuit

|   |      |
|---|------|
| <b>Number of NC contacts for auxiliary contacts</b> |      |
| • instantaneous contact                             | 1    |
| <b>Number of NO contacts for auxiliary contacts</b> |      |
| • instantaneous contact                             | 1    |
| <b>Operating current at AC-12 maximum</b>           | 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>                   |      |

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• at 24 V rated value</li> <li>• at 48 V rated value</li> <li>• at 60 V rated value</li> <li>• at 110 V rated value</li> <li>• at 125 V rated value</li> <li>• at 220 V rated value</li> <li>• at 600 V rated value</li> </ul> | <p>10 A</p> <p>6 A</p> <p>6 A</p> <p>3 A</p> <p>2 A</p> <p>1 A</p> <p>0.15 A</p>    |
| <b>Operating current at DC-13</b>   |   |
| <ul style="list-style-type: none"> <li>• at 24 V rated value</li> <li>• at 48 V rated value</li> <li>• at 60 V rated value</li> <li>• at 110 V rated value</li> <li>• at 125 V rated value</li> <li>• at 220 V rated value</li> <li>• at 600 V rated value</li> </ul> | <p>10 A</p> <p>2 A</p> <p>2 A</p> <p>1 A</p> <p>0.9 A</p> <p>0.3 A</p> <p>0.1 A</p> |
| <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>   |  |
| <ul style="list-style-type: none"> <li>• at 480 V rated value</li> <li>• at 600 V rated value</li> </ul>  | <p>77 A</p> <p>62 A</p>  |
| <b>Yielded mechanical performance [hp]</b>  |  |
| <ul style="list-style-type: none"> <li>• for single-phase AC motor <ul style="list-style-type: none"> <li>— at 110/120 V rated value</li> <li>— at 230 V rated value</li> </ul> </li> <li>• for three-phase AC motor <ul style="list-style-type: none"> <li>— at 200/208 V rated value</li> <li>— at 220/230 V rated value</li> <li>— at 460/480 V rated value</li> <li>— at 575/600 V rated value</li> </ul> </li> </ul> | <p>7.5 hp</p> <p>15 hp</p> <p>25 hp</p> <p>30 hp</p> <p>60 hp</p> <p>60 hp</p> |
| <b>Contact rating of auxiliary contacts according to UL</b>   | A600 / P600  |

### Short-circuit protection

|   |  |
|---|--|
| <b>Design of the fuse link</b>  |  |
| <ul style="list-style-type: none"> <li>• for short-circuit protection of the main circuit <ul style="list-style-type: none"> <li>— with type of coordination 1 required</li> <li>— with type of assignment 2 required</li> </ul> </li> <li>• for short-circuit protection of the auxiliary switch required</li> </ul> | <p>gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)</p> <p>gG: 160A (690V,100kA), aM: 80A (690V,100kA), BS88: 125A (415V,80kA)</p> <p>gG: 10 A (500 V, 1 kA)</p> |

### Installation/ mounting/ dimensions

|                          |  |
|--------------------------|--|
| <b>Mounting position</b> | standing, on horizontal mounting surface |
|--------------------------|--|

|   |   |
|---|---|
| <b>Mounting type</b>  | screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715                          |
| <ul style="list-style-type: none"> <li>• Side-by-side mounting</li> </ul>   | Yes   |
| <b>Height</b>   | 140 mm  |
| <b>Width</b>  | 70 mm   |
| <b>Depth</b>  | 152 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> | 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 current circuit</li> <li>• at contactor for auxiliary contacts</li> <li>• of magnet coil</li> </ul>         | screw-type terminals<br>spring-loaded terminals<br>Spring-type terminals<br>Spring-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>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG conductors for main contacts</li> </ul> | 2x (2.5 ... 35 mm <sup>2</sup> ), 1x (2.5 ... 50 mm <sup>2</sup> )<br>2x (10 ... 1/0), 1x (10 ... 2) |
| <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>  | 2.5 ... 16 mm <sup>2</sup><br>6 ... 70 mm <sup>2</sup><br>2.5 ... 50 mm <sup>2</sup>                 |
| <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> <li>• finely stranded without core end processing</li> </ul>                            | 0.5 ... 2.5 mm <sup>2</sup><br>0.5 ... 2.5 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>— single or multi-stranded</li> <li>— finely stranded with core end processing</li> <li>— finely stranded without core end processing</li> </ul> </li> <li>• at AWG conductors for auxiliary contacts</li> </ul> | 2x (0,5 ... 2,5 mm <sup>2</sup> )<br>2x (0.5 ... 1.5 mm <sup>2</sup> )<br>2x (0.5 ... 2.5 mm <sup>2</sup> )<br><br>2x (20 ... 16) |
| <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>  | 10 ... 2<br>20 ... 14   |




#### 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> | 40 %<br>73 %   |
| <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>       | Yes<br>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 when touched vertically from front acc. to IEC 60529 |

#### Certificates/ approvals



|  |  |   |   |  |   |
|--|--|---|---|--|---|
| General Product Approval   |  |   | EMC   | Declaration of Conformity  |   |
| <br>CCC | <br>CSA | <br>UL |  | <br>RCM | <br>EG-Konf. |

|                               |  |  |  |  |   |
|-------------------------------|--|--|--|--|---|
| Declaration of Conformity     | Test Certificates                                  | Marine / Shipping                        |  |  |   |
| <a href="#">Miscellaneous</a> | <a href="#">Type Test Certificates/Test Report</a> | <a href="#">Special Test Certificate</a> | <br>ABS | <br>LRS | <br>RINA |

|   |                              |                                     |
|---|------------------------------|-------------------------------------|
| Marine / Shipping   | other                        | Railway                             |
|  | <a href="#">Confirmation</a> | <a href="#">Vibration and Shock</a> |

#### Further information

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

[www.siemens.com/sirius/catalogs](http://www.siemens.com/sirius/catalogs)

##### Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2045-3AL20-1AA0>

##### Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2045-3AL20-1AA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2045-3AL20-1AA0>

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

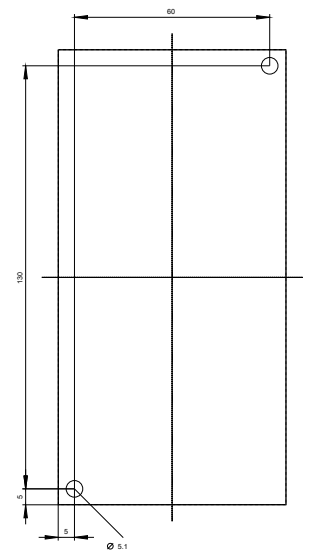
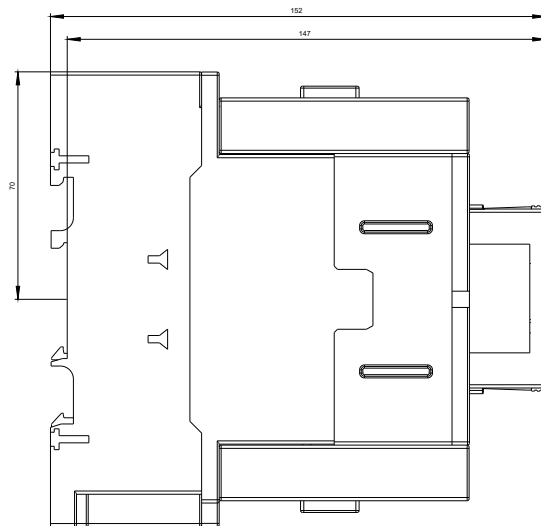
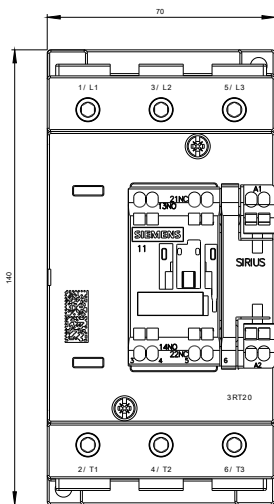
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2045-3AL20-1AA0&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2045-3AL20-1AA0&lang=en)

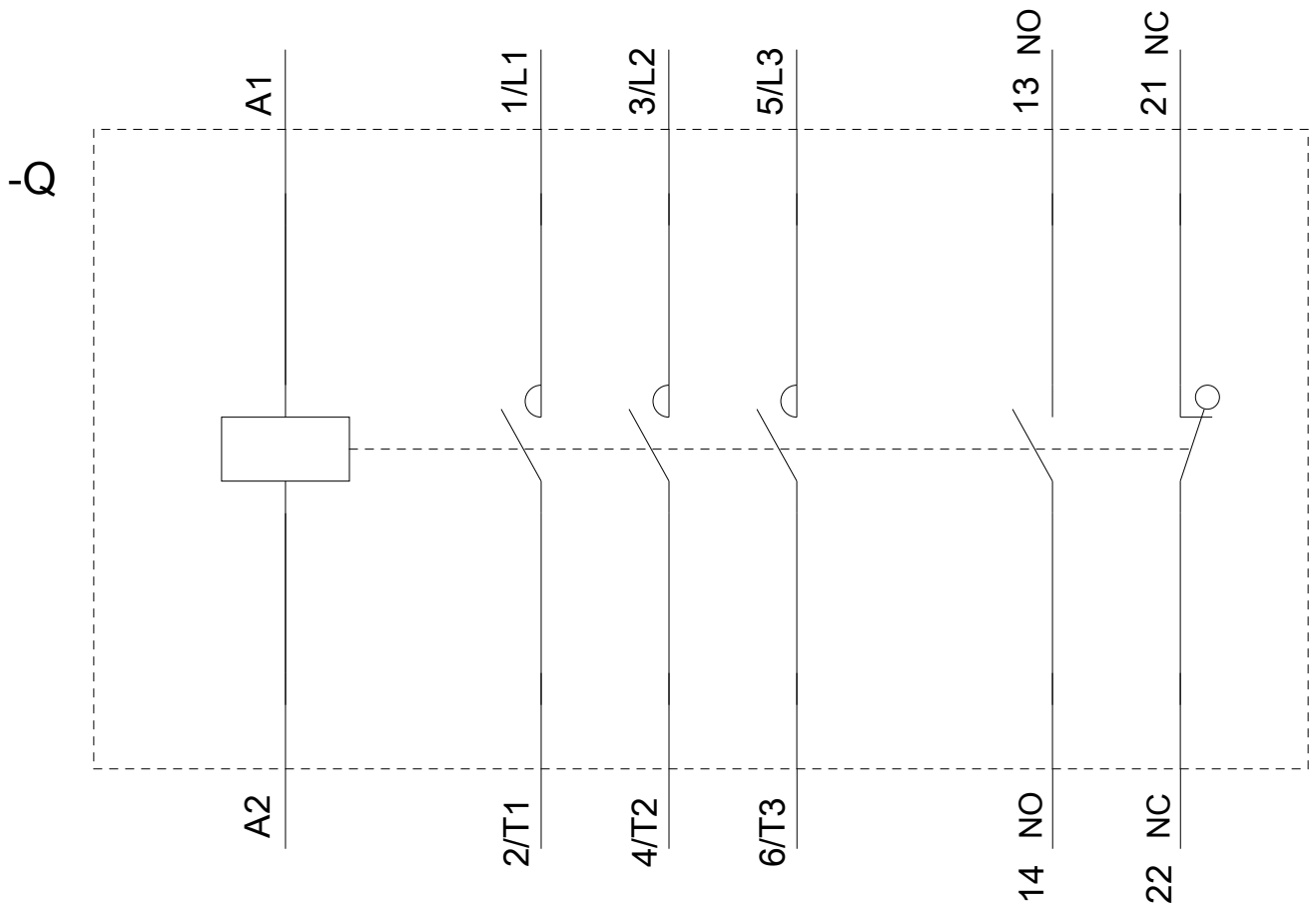
##### Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2045-3AL20-1AA0/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2045-3AL20-1AA0&objectype=14&gridview=view1>





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