



power contactor, AC-3e/AC-3, 95 A, 45 kW / 400 V, 3-pole, 220 V AC, 50 Hz / 240 V, 60 Hz, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S3

|  |                             |
|--|-----------------------------|
| product brand name   | SIRIUS                      |
| product designation  | Power contactor             |
| product type designation   | 3RT2                        |
| <b>General technical data</b>  |                             |
| size of contactor  | S3                          |
| 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   | 19.8 W                      |
| • at AC in hot operating state per pole  | 6.6 W                       |
| • without load current share typical   | 8.8 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  | 690 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  | 10.3g / 5 ms, 6.3g / 10 ms  |
| shock resistance with sine pulse   |                             |
| • at AC  | 16.3g / 5 ms, 10.3g / 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)  | 03/01/2017                  |
| Weight   | 1.72 kg                     |
| <b>Ambient conditions</b>  |                             |
| installation altitude at height above sea level maximum  | 2 000 m                     |
| ambient temperature  |                             |
| • during operation   | -25 ... +60 °C              |
| • during storage   | -55 ... +80 °C              |
| relative humidity minimum  | 10 %                        |
| relative humidity at 55 °C according to IEC 60068-2-30 maximum   | 95 %                        |

| Environmental footprint   |                    |
|---|--------------------|
| Environmental Product Declaration(EPD)                            | Yes                |
| global warming potential [CO2 eq] total                           | 405 kg             |
| global warming potential [CO2 eq] during manufacturing            | 7.66 kg            |
| global warming potential [CO2 eq] during operation                | 399 kg             |
| global warming potential [CO2 eq] after end of life               | -1.19 kg           |
| Main circuit  |                    |
| number of poles for main current circuit                          | 3                  |
| number of NO contacts for main contacts                           | 3                  |
| operating voltage   |                    |
| • at AC-3 rated value maximum                                     | 1 000 V            |
| • at AC-3e rated value maximum                                    | 1 000 V            |
| operational current   |                    |
| • at AC-1 at 400 V at ambient temperature 40 °C rated value       | 130 A              |
| • at AC-1   |                    |
| — up to 690 V at ambient temperature 40 °C rated value            | 130 A              |
| — up to 690 V at ambient temperature 60 °C rated value            | 110 A              |
| • at AC-3   |                    |
| — at 400 V rated value  | 95 A               |
| — at 500 V rated value  | 95 A               |
| — at 690 V rated value  | 78 A               |
| — at 1000 V rated value   | 30 A               |
| • at AC-3e  |                    |
| — at 400 V rated value  | 95 A               |
| — at 500 V rated value  | 95 A               |
| — at 690 V rated value  | 78 A               |
| — at 1000 V rated value   | 30 A               |
| • at AC-4 at 400 V rated value                                    | 80 A               |
| • at AC-5a up to 690 V rated value                                | 114 A              |
| • at AC-5b up to 400 V rated value                                | 95 A               |
| • at AC-6a  |                    |
| — up to 230 V for current peak value n=20 rated value             | 84.4 A             |
| — up to 400 V for current peak value n=20 rated value             | 84.4 A             |
| — up to 500 V for current peak value n=20 rated value             | 84.4 A             |
| — up to 690 V for current peak value n=20 rated value             | 58 A               |
| • at AC-6a  |                    |
| — up to 230 V for current peak value n=30 rated value             | 56.3 A             |
| — up to 400 V for current peak value n=30 rated value             | 56.3 A             |
| — up to 500 V for current peak value n=30 rated value             | 56.3 A             |
| — up to 690 V for current peak value n=30 rated value             | 56.3 A             |
| minimum cross-section in main circuit at maximum AC-1 rated value | 50 mm <sup>2</sup> |
| operational current for approx. 200000 operating cycles at AC-4   |                    |
| • at 400 V rated value  | 42 A               |
| • at 690 V rated value  | 30 A               |
| operational current   |                    |
| • at 1 current path at DC-1                                       |                    |
| — at 24 V rated value   | 100 A              |
| — at 60 V rated value   | 60 A               |
| — at 110 V rated value  | 9 A                |
| — at 220 V rated value  | 2 A                |
| — at 440 V rated value  | 0.6 A              |
| — at 600 V rated value  | 0.4 A              |
| • with 2 current paths in series at DC-1                          |                    |
| — at 24 V rated value   | 100 A              |
| — at 60 V rated value   | 100 A              |
| — at 110 V rated value  | 100 A              |
| — at 220 V rated value  | 10 A               |

|   |   |
|---|---|
| — at 440 V rated value  | 1.8 A   |
| — at 600 V rated value  | 1 A   |
| ● <b>with 3 current paths in series at DC-1</b>                         |   |
| — at 24 V rated value   | 100 A   |
| — at 60 V rated value   | 100 A   |
| — at 110 V rated value  | 100 A   |
| — at 220 V rated value  | 80 A  |
| — at 440 V rated value  | 4.5 A   |
| — at 600 V rated value  | 2.6 A   |
| ● <b>at 1 current path at DC-3 at DC-5</b>                              |   |
| — at 24 V rated value   | 40 A  |
| — at 60 V rated value   | 6 A   |
| — at 110 V rated value  | 2.5 A   |
| — at 220 V rated value  | 1 A   |
| — at 440 V rated value  | 0.15 A  |
| — at 600 V rated value  | 0.06 A  |
| ● <b>with 2 current paths in series at DC-3 at DC-5</b>                 |   |
| — at 24 V rated value   | 100 A   |
| — at 60 V rated value   | 100 A   |
| — at 110 V rated value  | 100 A   |
| — at 220 V rated value  | 7 A   |
| — at 440 V rated value  | 0.42 A  |
| — at 600 V rated value  | 0.16 A  |
| ● <b>with 3 current paths in series at DC-3 at DC-5</b>                 |   |
| — at 24 V rated value   | 100 A   |
| — at 60 V rated value   | 100 A   |
| — at 110 V rated value  | 100 A   |
| — at 220 V rated value  | 35 A  |
| — at 440 V rated value  | 0.8 A   |
| — at 600 V rated value  | 0.35 A  |
| <b>operating power</b>  |   |
| ● at AC-2 at 400 V rated value  | 45 kW   |
| ● at AC-3   |   |
| — at 230 V rated value  | 22 kW   |
| — at 400 V rated value  | 45 kW   |
| — at 500 V rated value  | 55 kW   |
| — at 690 V rated value  | 75 kW   |
| — at 1000 V rated value   | 37 kW   |
| ● at AC-3e  |   |
| — at 230 V rated value  | 22 kW   |
| — at 400 V rated value  | 45 kW   |
| — at 500 V rated value  | 55 kW   |
| — at 690 V rated value  | 75 kW   |
| — at 1000 V rated value   | 37 kW   |
| <b>operating power for approx. 200000 operating cycles at AC-4</b>      |   |
| ● at 400 V rated value  | 22 kW   |
| ● at 690 V rated value  | 27.4 kW   |
| <b>operating apparent power at AC-6a</b>                                |   |
| ● up to 230 V for current peak value n=20 rated value                   | 33 kVA  |
| ● up to 400 V for current peak value n=20 rated value                   | 58 kVA  |
| ● up to 500 V for current peak value n=20 rated value                   | 73 kVA  |
| ● up to 690 V for current peak value n=20 rated value                   | 69 kVA  |
| <b>operating apparent power at AC-6a</b>                                |   |
| ● up to 230 V for current peak value n=30 rated value                   | 22.4 kVA  |
| ● up to 400 V for current peak value n=30 rated value                   | 39 kVA  |
| ● up to 500 V for current peak value n=30 rated value                   | 48.7 kVA  |
| ● up to 690 V for current peak value n=30 rated value                   | 67.3 kVA  |
| <b>short-time withstand current in cold operating state up to 40 °C</b> |   |
| ● limited to 1 s switching at zero current maximum                      | 1 725 A; Use minimum cross-section acc. to AC-1 rated value |

|   |  |
|---|--|
| <ul style="list-style-type: none"> <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> | 1 297 A; Use minimum cross-section acc. to AC-1 rated value<br>946 A; Use minimum cross-section acc. to AC-1 rated value<br>610 A; Use minimum cross-section acc. to AC-1 rated value<br>486 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 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  |
| <ul style="list-style-type: none"> <li>• at AC-2 maximum</li> </ul>   | 350 1/h  |
| <ul style="list-style-type: none"> <li>• at AC-3 maximum</li> </ul>   | 850 1/h  |
| <ul style="list-style-type: none"> <li>• at AC-3e maximum</li> </ul>  | 850 1/h  |
| <ul style="list-style-type: none"> <li>• at AC-4 maximum</li> </ul>   | 250 1/h  |
| <b>Control circuit/ Control</b>   |  |
| <b>type of voltage of the control supply voltage</b>  | AC   |
| <b>control supply voltage at AC</b>   |  |
| <ul style="list-style-type: none"> <li>• at 50 Hz rated value</li> </ul>  | 220 V  |
| <ul style="list-style-type: none"> <li>• at 60 Hz rated value</li> </ul>  | 240 V  |
| <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> </ul>  | 0.8 ... 1.1  |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>  | 0.8 ... 1.1  |
| <b>apparent pick-up power of magnet coil at AC</b>  |  |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>  | 326 VA   |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>  | 326 VA   |
| <b>inductive power factor with closing power of the coil</b>  |  |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>  | 0.62   |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>  | 0.55   |
| <b>apparent holding power of magnet coil at AC</b>  |  |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>  | 22 VA  |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>  | 22 VA  |
| <b>inductive power factor with the holding power of the coil</b>  |  |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>  | 0.36   |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>  | 0.4  |
| <b>closing delay</b>  |  |
| <ul style="list-style-type: none"> <li>• at AC</li> </ul>   | 13 ... 50 ms   |
| <b>opening delay</b>  |  |
| <ul style="list-style-type: none"> <li>• at AC</li> </ul>   | 10 ... 21 ms   |
| <b>arcing time</b>  | 10 ... 20 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  | 1  |
| number of NO contacts for auxiliary contacts instantaneous contact  | 1  |
| operational current at AC-12 maximum  | 10 A   |
| <b>operational current at AC-15</b>   |  |
| <ul style="list-style-type: none"> <li>• at 230 V rated value</li> </ul>  | 6 A  |
| <ul style="list-style-type: none"> <li>• at 400 V rated value</li> </ul>  | 3 A  |
| <ul style="list-style-type: none"> <li>• at 500 V rated value</li> </ul>  | 2 A  |
| <ul style="list-style-type: none"> <li>• at 690 V rated value</li> </ul>  | 1 A  |
| <b>operational current at DC-12</b>   |  |
| <ul style="list-style-type: none"> <li>• at 24 V rated value</li> </ul>   | 10 A   |
| <ul style="list-style-type: none"> <li>• at 48 V rated value</li> </ul>   | 6 A  |
| <ul style="list-style-type: none"> <li>• at 60 V rated value</li> </ul>   | 6 A  |
| <ul style="list-style-type: none"> <li>• at 110 V rated value</li> </ul>  | 3 A  |
| <ul style="list-style-type: none"> <li>• at 125 V rated value</li> </ul>  | 2 A  |
| <ul style="list-style-type: none"> <li>• at 220 V rated value</li> </ul>  | 1 A  |
| <ul style="list-style-type: none"> <li>• at 600 V rated value</li> </ul>  | 0.15 A   |
| <b>operational current at DC-13</b>   |  |
| <ul style="list-style-type: none"> <li>• at 24 V rated value</li> </ul>   | 10 A   |
| <ul style="list-style-type: none"> <li>• at 48 V rated value</li> </ul>   | 2 A  |

|   |  |
|---|--|
| <ul style="list-style-type: none"> <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>   | 2 A<br>1 A<br>0.9 A<br>0.3 A<br>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>   |  |
| <ul style="list-style-type: none"> <li>• at 480 V rated value</li> <li>• at 600 V rated value</li> </ul>  | 96 A<br>77 A   |
| <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 3-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>   | 10 hp<br>20 hp<br><br>30 hp<br>30 hp<br>75 hp<br>75 hp   |
| <b>contact rating of auxiliary contacts according to UL</b>   | A600 / P600  |
| <b>Short-circuit protection</b>   |  |
| design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V   | C characteristic: 10 A; 0.4 kA   |
| <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>   | gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)<br>gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)<br>gG: 10 A (500 V, 1 kA) |
| <b>Installation/ mounting/ dimensions</b>   |  |
| <b>mounting position</b>  | +/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface   |
| fastening method side-by-side mounting  | Yes  |
| <b>fastening method</b>   | screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715   |
| <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  |
| <b>Connections/ Terminals</b>   |  |
| <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>  | screw-type terminals<br>screw-type terminals<br>Screw-type terminals<br>Screw-type terminals   |
| <b>type of connectable conductor cross-sections</b>   |  |
| <ul style="list-style-type: none"> <li>• for main contacts</li> </ul>   |  |

|   |   |
|---|---|
| — finely stranded with core end processing                        | 2x (2.5 ... 35 mm <sup>2</sup> ), 1x (2.5 ... 50 mm <sup>2</sup> )    |
| • for AWG cables for main contacts                                | 2x (10 ... 1/0), 1x (10 ... 2)  |
| <b>connectable conductor cross-section for main contacts</b>      |   |
| • solid   | 2.5 ... 16 mm <sup>2</sup>  |
| • stranded  | 6 ... 70 mm <sup>2</sup>  |
| • finely stranded with core end processing                        | 2.5 ... 50 mm <sup>2</sup>  |
| <b>connectable conductor cross-section for auxiliary contacts</b> |   |
| • solid or stranded   | 0.5 ... 2.5 mm <sup>2</sup>   |
| • finely stranded with core end processing                        | 0.5 ... 2.5 mm <sup>2</sup>   |
| <b>type of connectable conductor cross-sections</b>               |   |
| • for auxiliary contacts  |   |
| — solid or stranded   | 2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ) |
| — finely stranded with core end processing                        | 2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ) |
| • for AWG cables for auxiliary contacts                           | 2x (20 ... 16), 2x (18 ... 14)  |
| <b>AWG number as coded connectable conductor cross section</b>    |   |
| • for main contacts   | 10 ... 2  |
| • for auxiliary contacts  | 20 ... 14   |

#### Safety related data

|  |  |
|--|--|
| <b>product function</b>  |  |
| • mirror contact according to IEC 60947-4-1                          | Yes  |
| • positively driven operation according to IEC 60947-5-1             | No   |
| • suitable for safety function                                       | 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>                              |  |
| • with low demand rate according to SN 31920                         | 40 %   |
| • with high demand rate according to SN 31920                        | 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  |
| ISO 13849  |  |
| <b>device type according to ISO 13849-1</b>                          | 3  |
| <b>overdimensioning according to ISO 13849-2 necessary</b>           | Yes  |
| IEC 61508  |  |
| <b>safety device type according to IEC 61508-2</b>                   | Type A   |
| Electrical Safety  |  |
| <b>protection class IP on the front according to IEC 60529</b>       | IP20   |
| <b>touch protection on the front according to IEC 60529</b>          | finger-safe, for vertical contact from the front |

#### Approvals Certificates

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



[Confirmation](#)



EG-Konf.



UL

[KC](#)

|                          |     |                   |                   |
|--------------------------|-----|-------------------|-------------------|
| General Product Approval | EMV | Test Certificates | Marine / Shipping |
|--------------------------|-----|-------------------|-------------------|



[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



ABS



DNV

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



[Confirmation](#)

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Environment

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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=3RT2046-1AP60>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1AP60>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AP60>

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

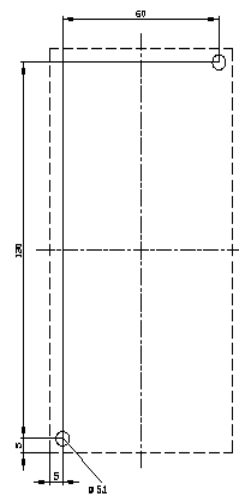
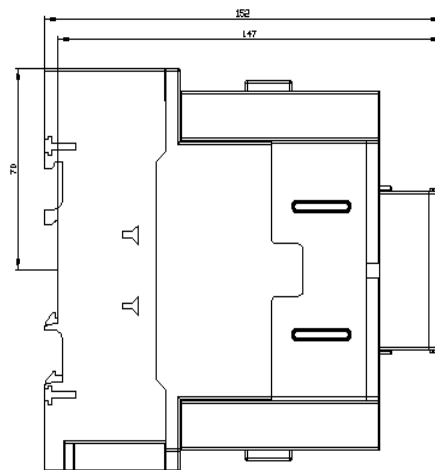
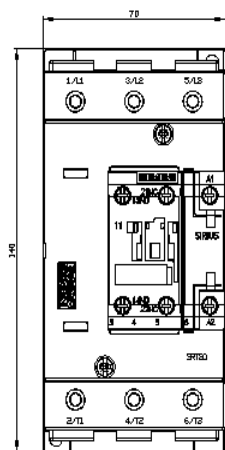
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2046-1AP60&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-1AP60&lang=en)

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

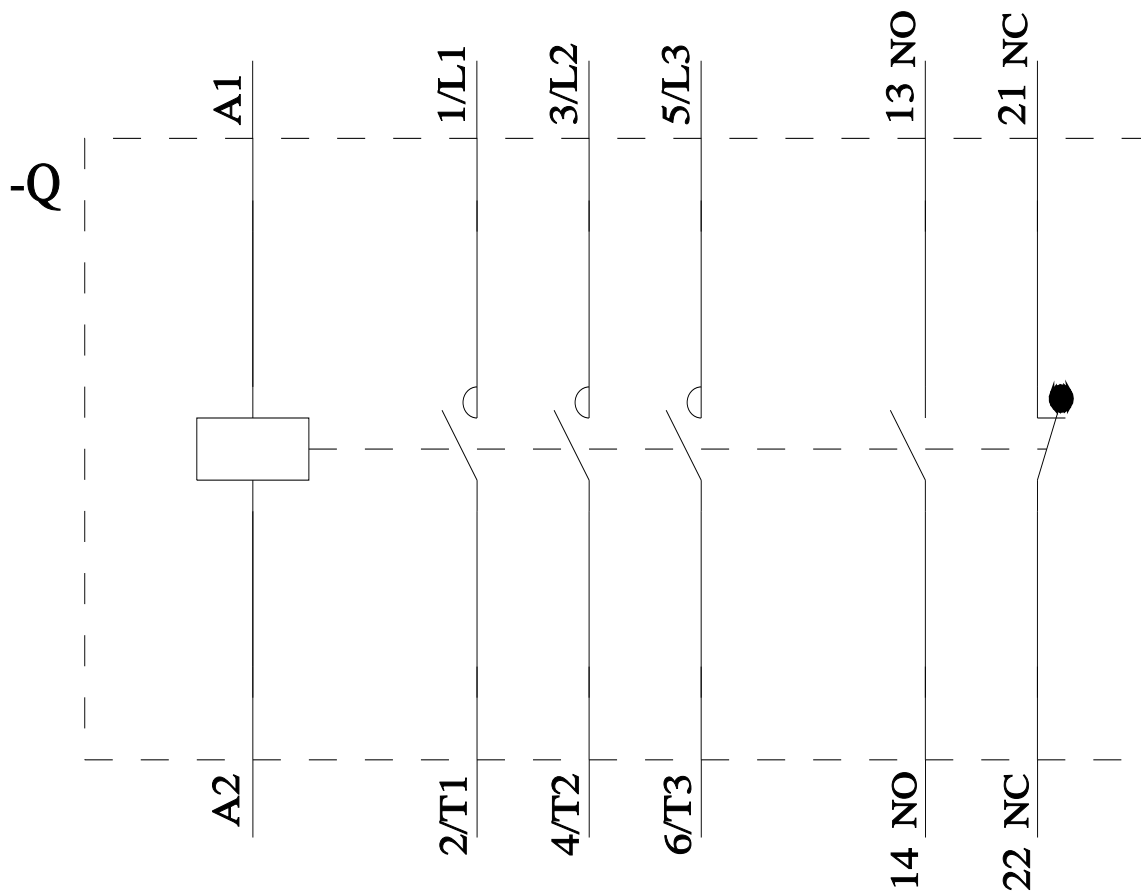
<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AP60/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-1AP60&objecttype=14&gridview=view1>







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1/24/2025