

power contactor, AC-3 50 A, 22 kW / 400 V 2 NO + 2 NC, 230 V AC, 50 / 60 Hz, 3-pole, Size S2, screw terminal



|                                                     |                           |
|-----------------------------------------------------|---------------------------|
| Product brand name                                  | SIRIUS                    |
| Product designation                                 | Power contactor           |
| Product type designation                            | 3RT2                      |
| General technical data                              |                           |
| Size of contactor                                   | S2                        |
| Product extension                                   |                           |
| • function module for communication                 | No                        |
| • Auxiliary switch                                  | No                        |
| 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                     |
| Protection class IP                                 |                           |
| • on the front                                      | IP20                      |
| • of the terminal                                   | IP00                      |
| Shock resistance at rectangular impulse             |                           |
| • at AC                                             | 9.8g / 5 ms, 6.5g / 10 ms |

|                                                                                         |                             |
|-----------------------------------------------------------------------------------------|-----------------------------|
| <b>Shock resistance with sine pulse</b>                                                 |                             |
| • at AC                                                                                 | 15.3g / 5 ms, 10.1g / 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                                        | 690 V  |
| <b>Operating current</b>                                             |        |
| • at AC-1 at 400 V<br>— at ambient temperature 40 °C rated value     | 70 A   |
| • at AC-1<br>— up to 690 V at ambient temperature 40 °C rated value  | 70 A   |
| — up to 690 V at ambient temperature 60 °C rated value               | 60 A   |
| • at AC-2 at 400 V rated value                                       | 50 A   |
| • at AC-3<br>— at 400 V rated value                                  | 51 A   |
| — at 500 V rated value                                               | 51 A   |
| — at 690 V rated value                                               | 24 A   |
| • at AC-4 at 400 V rated value                                       | 41 A   |
| <b>Connectable conductor cross-section in main circuit at AC-1</b>   |        |
| • at 60 °C minimum permissible                                       | 16 mm² |
| • at 40 °C minimum permissible                                       | 25 mm² |
| <b>Operating current for approx. 200000 operating cycles at AC-4</b> |        |

|                                                                                                                                                                                                                                                                                                             |                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| <ul style="list-style-type: none"> <li>• at 400 V rated value</li> </ul>                                                                                                                                                                                                                                    | 24 A                                    |
| <ul style="list-style-type: none"> <li>• at 690 V rated value</li> </ul>                                                                                                                                                                                                                                    | 20 A                                    |
| <b>Operating current</b>                                                                                                                                                                                                                                                                                    |                                         |
| <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> </ul>                      | 55 A<br>4.5 A<br>1 A<br>0.4 A<br>0.25 A |
| <ul style="list-style-type: none"> <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> </ul>         | 55 A<br>45 A<br>5 A<br>1 A<br>0.8 A     |
| <ul style="list-style-type: none"> <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>         | 55 A<br>55 A<br>45 A<br>2.9 A<br>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> </ul>              | 35 A<br>2.5 A<br>1 A<br>0.1 A<br>0.06 A |
| <ul style="list-style-type: none"> <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> </ul> | 55 A<br>25 A<br>5 A<br>0.27 A<br>0.16 A |
| <ul style="list-style-type: none"> <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> | 55 A<br>55 A<br>25 A<br>0.6 A<br>0.35 A |
| <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> | 26 kW<br>23 kW<br>46 kW<br>39 kW<br>79 kW<br>68 kW<br>22 kW<br>15 kW<br>22 kW<br>30 kW<br>22 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>                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 12.6 kW<br>18.2 kW                                                                              |
| <b>Thermal short-time current limited to 10 s</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 420 A                                                                                           |
| <b>Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4 W                                                                                             |
| <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> <li>• at AC-2 maximum</li> <li>• at AC-3 maximum</li> <li>• at AC-4 maximum</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                  | 1 000 1/h<br>600 1/h<br>800 1/h<br>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> <li>• at 60 Hz rated value</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 230 V<br>230 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> <li>• at 60 Hz</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.8 ... 1.1<br>0.85 ... 1.1                                                                     |
| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 210 V·A<br>188 V·A                                                                              |
| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.69<br>0.65                                                                                    |

|                                                                  |                  |
|------------------------------------------------------------------|------------------|
| <b>Apparent holding power of magnet coil at AC</b>               |                  |
| • at 50 Hz                                                       | 17.2 V·A         |
| • at 60 Hz                                                       | 16.5 V·A         |
| <b>Inductive power factor with the holding power of the coil</b> |                  |
| • at 50 Hz                                                       | 0.36             |
| • at 60 Hz                                                       | 0.39             |
| <b>Closing delay</b>                                             |                  |
| • at AC                                                          | 10 ... 80 ms     |
| <b>Opening delay</b>                                             |                  |
| • at AC                                                          | 10 ... 18 ms     |
| <b>Arcing time</b>                                               | 10 ... 20 ms     |
| <b>Control version of the switch operating mechanism</b>         | Standard A1 - A2 |

#### Auxiliary circuit

|                                                     |                                                 |
|-----------------------------------------------------|-------------------------------------------------|
| <b>Number of NC contacts for auxiliary contacts</b> |                                                 |
| • instantaneous contact                             | 2                                               |
| <b>Number of NO contacts for auxiliary contacts</b> |                                                 |
| • instantaneous contact                             | 2                                               |
| <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>                   |                                                 |
| • 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                                      | 52 A        |
| • at 600 V rated value                                      | 52 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                                      | 10 hp       |
| • for three-phase AC motor                                  |             |
| — at 200/208 V rated value                                  | 15 hp       |
| — at 220/230 V rated value                                  | 15 hp       |
| — at 460/480 V rated value                                  | 40 hp       |
| — at 575/600 V rated value                                  | 50 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                          | gG: 160 A (690 V, 100 kA), aM: 80 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA) |
| — with type of assignment 2 required                            | gG: 80A (690V,100kA), aM: 50A (690V,100kA), BS88: 63A (415V,80kA)               |
| • for short-circuit protection of the auxiliary switch required | 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>                | 114 mm                                                                                                                               |
| <b>Width</b>                 | 55 mm                                                                                                                                |
| <b>Depth</b>                 | 174 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                                        | screw-type terminals                                                  |
| • for auxiliary and control current circuit                       | screw-type terminals                                                  |
| <b>Type of connectable conductor cross-sections</b>               |                                                                       |
| • for main contacts                                               |                                                                       |
| — single or multi-stranded                                        | 2x (1 ... 35 mm <sup>2</sup> ), 1x (1 ... 50 mm <sup>2</sup> )        |
| — finely stranded with core end processing                        | 2x (1 ... 25 mm <sup>2</sup> ), 1x (1 ... 35 mm <sup>2</sup> )        |
| • at AWG conductors for main contacts                             | 2x (18 ... 2), 1x (18 ... 1)                                          |
| <b>Connectable conductor cross-section for main contacts</b>      |                                                                       |
| • finely stranded with core end processing                        | 1 ... 35 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 ... 2.5 mm <sup>2</sup>                                           |
| <b>Type of connectable conductor cross-sections</b>               |                                                                       |
| • for auxiliary contacts                                          |                                                                       |
| — single or multi-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> ) |
| • at AWG conductors for auxiliary contacts                        | 2x (20 ... 16), 2x (18 ... 14)                                        |
| <b>AWG number as coded connectable conductor cross section</b>    |                                                                       |
| • for main contacts                                               | 18 ... 1                                                              |
| • 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>                  |           |

|                                                                                                                                                       |                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| <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                                                        |
| T1 value for proof test interval or service life acc. to IEC 61508                                                                                    | 20 y                                                             |
| Protection against electrical shock                                                                                                                   | finger-safe when touched vertically from front acc. to IEC 60529 |

#### Certificates/approvals

| General Product Approval                                                                 | Functional Safety/Safety of Machinery                                                    | Declaration of Conformity                                                                       |
|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <br>CCC | <br>UL  | <br>EG-Konf. |
| <br>CSA | <br>EAC | <a href="#">Type Examination Certificate</a>                                                    |

| 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>BUREAU VERITAS |
|                               |                                                    | <br>LRS            |

| Marine / Shipping                                                                                             | other                        |
|---------------------------------------------------------------------------------------------------------------|------------------------------|
| <br>PRS                    | <a href="#">Confirmation</a> |
| <br>RINA                   |                              |
| <br>RMRS                   |                              |
| <br>DNV-GL<br>DNVGL.COM/AF |                              |

#### Further information

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

<http://www.siemens.com/industrial-controls/catalogs>

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2036-1AL24>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2036-1AL24>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2036-1AL24>

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

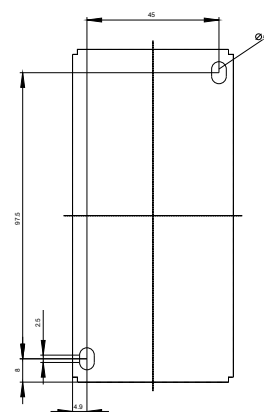
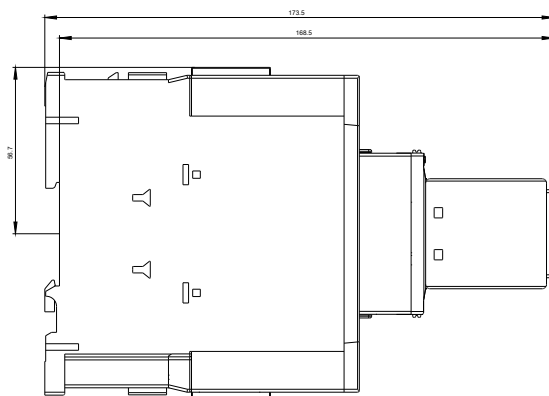
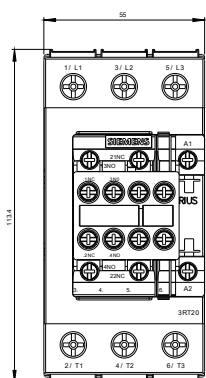
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2036-1AL24&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2036-1AL24&lang=en)

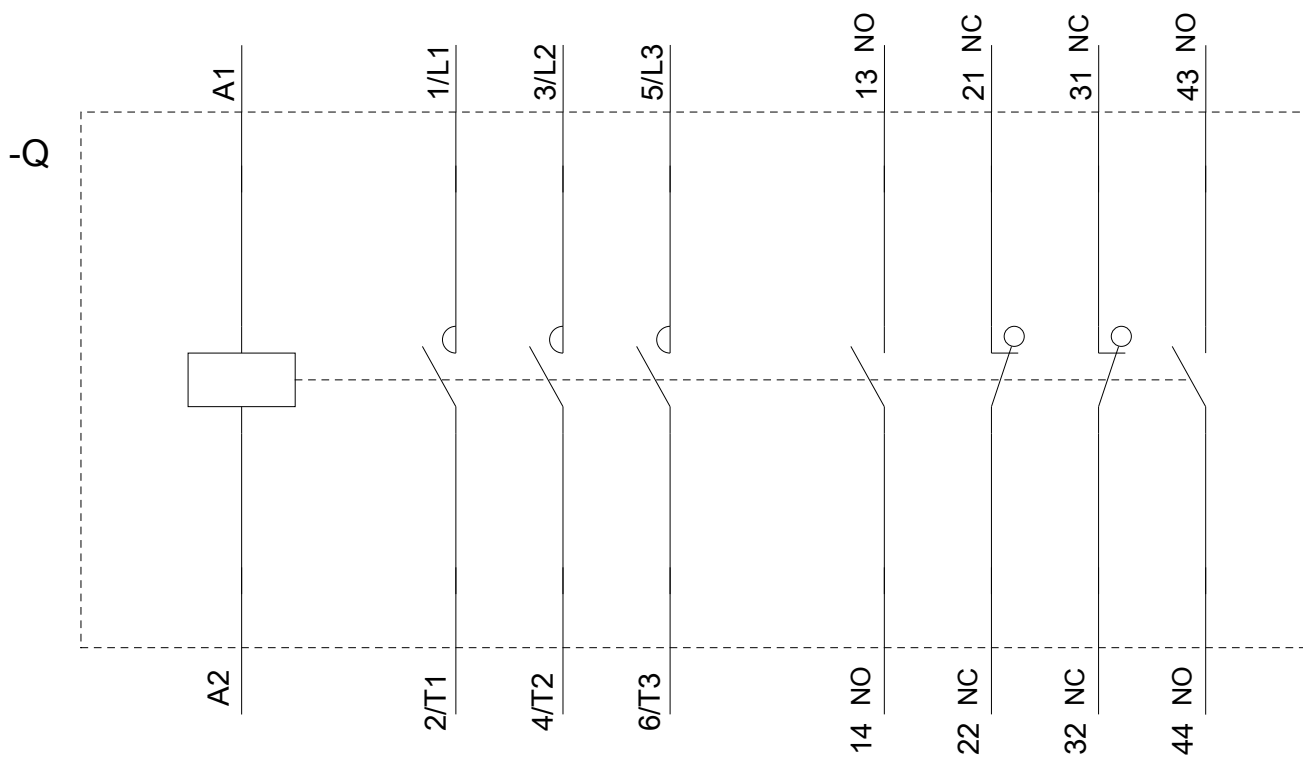
Characteristic: Tripping characteristics, I<sub>t</sub>, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2036-1AL24/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2036-1AL24&objecttype=14&gridview=view1>





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