

power contactor, AC-3 95 A, 45 kW / 400 V 1 NO + 1 NC, 110 V AC, 50 Hz 3-pole, 3 NO, Size S3 screw terminal



|                                                     |                             |
|-----------------------------------------------------|-----------------------------|
| Product brand name                                  | SIRIUS                      |
| Product designation                                 | Power contactor             |
| Product type designation                            | 3RT2                        |
| General technical data                              |                             |
| Size of contactor                                   | S3                          |
| Product extension                                   |                             |
| • function module for communication                 | No                          |
| • Auxiliary switch                                  | Yes                         |
| Surge voltage resistance                            |                             |
| • of main circuit rated value                       | 8 kV                        |
| • of auxiliary circuit rated value                  | 6 kV                        |
| maximum permissible voltage for safe isolation      |                             |
| • between coil and main contacts acc. to EN 60947-1 | 690 V                       |
| Protection class IP                                 |                             |
| • on the front                                      | IP20                        |
| • of the terminal                                   | IP00                        |
| Shock resistance at rectangular impulse             |                             |
| • at AC                                             | 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 |

#### 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              | 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   |
| — up to 1000 V at ambient temperature 40 °C rated value | 70 A    |
| — up to 1000 V at ambient temperature 60 °C rated value | 60 A    |
| • at AC-2 at 400 V rated value                          | 95 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 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             |
| <b>Minimum cross-section in main circuit</b>                         |                    |
| • at maximum AC-1 rated value                                        | 50 mm <sup>2</sup> |
| <b>Operating current for approx. 200000 operating cycles at AC-4</b> |                    |
| • at 400 V rated value                                               | 42 A               |
| • at 690 V rated value                                               | 30 A               |
| <b>Operating current</b>                                             |                    |
| • at 1 current path at DC-1                                          |                    |
| — at 24 V rated value                                                | 100 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 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                |
| • with 3 current paths in series at DC-1                             |                    |
| — at 24 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>Operating current</b>                                             |                    |
| • at 1 current path at DC-3 at DC-5                                  |                    |
| — at 24 V rated value                                                | 40 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    |
| • with 2 current paths in series at DC-3 at DC-5                                              |           |
| — at 24 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    |
| • with 3 current paths in series at DC-3 at DC-5                                              |           |
| — at 24 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-1                                                                                     |           |
| — at 230 V rated value                                                                        | 49 kW     |
| — at 230 V at 60 °C rated value                                                               | 42 kW     |
| — at 400 V rated value                                                                        | 86 kW     |
| — at 400 V at 60 °C rated value                                                               | 72 kW     |
| — at 690 V rated value                                                                        | 148 kW    |
| — at 690 V at 60 °C rated value                                                               | 125 kW    |
| • 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     |
| <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>Thermal short-time current limited to 10 s</b>                                             | 760 A     |
| <b>Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor</b> | 6.6 W     |
| <b>No-load switching frequency</b>                                                            |           |
| • at AC                                                                                       | 5 000 1/h |
| <b>Operating frequency</b>                                                                    |           |
| • at AC-1 maximum                                                                             | 900 1/h   |
| • at AC-2 maximum                                                                             | 350 1/h   |

|                   |         |
|-------------------|---------|
| • at AC-3 maximum | 850 1/h |
| • at AC-4 maximum | 250 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                                                                | 110 V        |
| <b>Operating range factor control supply voltage rated value of magnet coil at AC</b> |              |
| • at 50 Hz                                                                            | 0.8 ... 1.1  |
| <b>Apparent pick-up power of magnet coil at AC</b>                                    |              |
| • at 50 Hz                                                                            | 296 V·A      |
| <b>Inductive power factor with closing power of the coil</b>                          |              |
| • at 50 Hz                                                                            | 0.61         |
| <b>Apparent holding power of magnet coil at AC</b>                                    |              |
| • at 50 Hz                                                                            | 19 V·A       |
| <b>Inductive power factor with the holding power of the coil</b>                      |              |
| • at 50 Hz                                                                            | 0.38         |
| <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>                   |        |
| • at 24 V rated value                               | 10 A   |
| • at 48 V rated value                               | 6 A    |
| • at 60 V rated value                               | 6 A    |
| • at 110 V rated value                              | 3 A    |
| • at 125 V rated value                              | 2 A    |
| • at 220 V rated value                              | 1 A    |
| • at 600 V rated value                              | 0.15 A |

|                                                  |                                                 |
|--------------------------------------------------|-------------------------------------------------|
| <b>Operating current at DC-13</b>                |                                                 |
| • at 24 V rated value                            | 10 A                                            |
| • at 48 V rated value                            | 2 A                                             |
| • at 60 V rated value                            | 2 A                                             |
| • at 110 V rated value                           | 1 A                                             |
| • at 125 V rated value                           | 0.9 A                                           |
| • at 220 V rated value                           | 0.3 A                                           |
| • at 600 V rated value                           | 0.1 A                                           |
| <b>Contact reliability of auxiliary contacts</b> | 1 faulty switching per 100 million (17 V, 1 mA) |

#### UL/CSA ratings

|                                                             |             |
|-------------------------------------------------------------|-------------|
| <b>Full-load current (FLA) for three-phase AC motor</b>     |             |
| • at 480 V rated value                                      | 96 A        |
| • at 600 V rated value                                      | 77 A        |
| <b>Yielded mechanical performance [hp]</b>                  |             |
| • for single-phase AC motor                                 |             |
| — at 110/120 V rated value                                  | 10 hp       |
| — at 230 V rated value                                      | 20 hp       |
| • for three-phase AC motor                                  |             |
| — at 200/208 V rated value                                  | 30 hp       |
| — at 220/230 V rated value                                  | 30 hp       |
| — at 460/480 V rated value                                  | 75 hp       |
| — at 575/600 V rated value                                  | 75 hp       |
| <b>Contact rating of auxiliary contacts according to UL</b> | A600 / P600 |

#### Short-circuit protection

|                                                                 |                                                                                  |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------|
| <b>Design of the fuse link</b>                                  |                                                                                  |
| • for short-circuit protection of the main circuit              |                                                                                  |
| — with type of coordination 1 required                          | gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA) |
| — with type of assignment 2 required                            | gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA) |
| • 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>            | 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 20 mm</li> <li>— upwards 10 mm</li> <li>— downwards 10 mm</li> <li>— at the side 0 mm</li> </ul> </li> <li>• for grounded parts <ul style="list-style-type: none"> <li>— forwards 20 mm</li> <li>— upwards 10 mm</li> <li>— at the side 10 mm</li> <li>— downwards 10 mm</li> </ul> </li> <li>• for live parts <ul style="list-style-type: none"> <li>— forwards 20 mm</li> <li>— upwards 10 mm</li> <li>— downwards 10 mm</li> <li>— at the side 10 mm</li> </ul> </li> </ul> |  |

| 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>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 <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> </ul>                                                                                                                                 | 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> </ul> </li> <li>• at AWG conductors for auxiliary contacts</li> </ul> | 2x (0,5 ... 1,5 mm <sup>2</sup> ), 2x (0,75 ... 2,5 mm <sup>2</sup> )<br>2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> )<br>2x (20 ... 16), 2x (18 ... 14) |
| <b>AWG number as coded connectable conductor cross section</b>                                                                                                                                                                                                   |                                                                                                                                                                                  |

- for main contacts
- for auxiliary contacts

10 ... 2  
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 when touched vertically from front acc. to IEC 60529 |

#### Certificates/approvals

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

| 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> |
| <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=3RT2046-1AF00>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1AF00>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AF00>

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

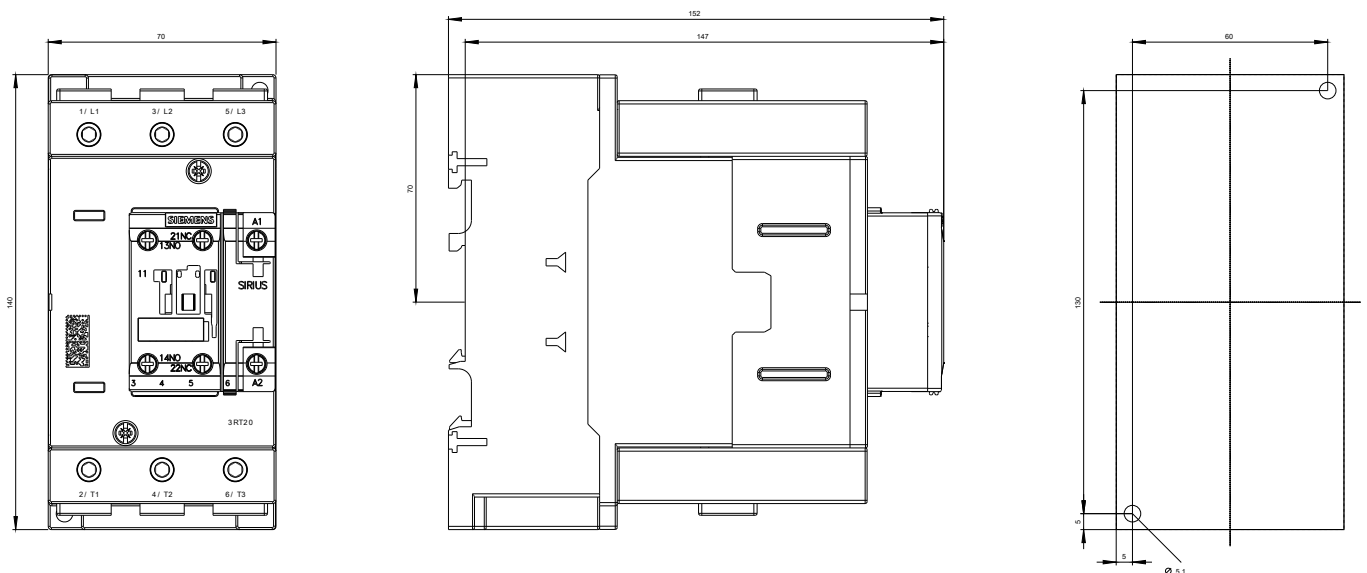
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2046-1AF00&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-1AF00&lang=en)

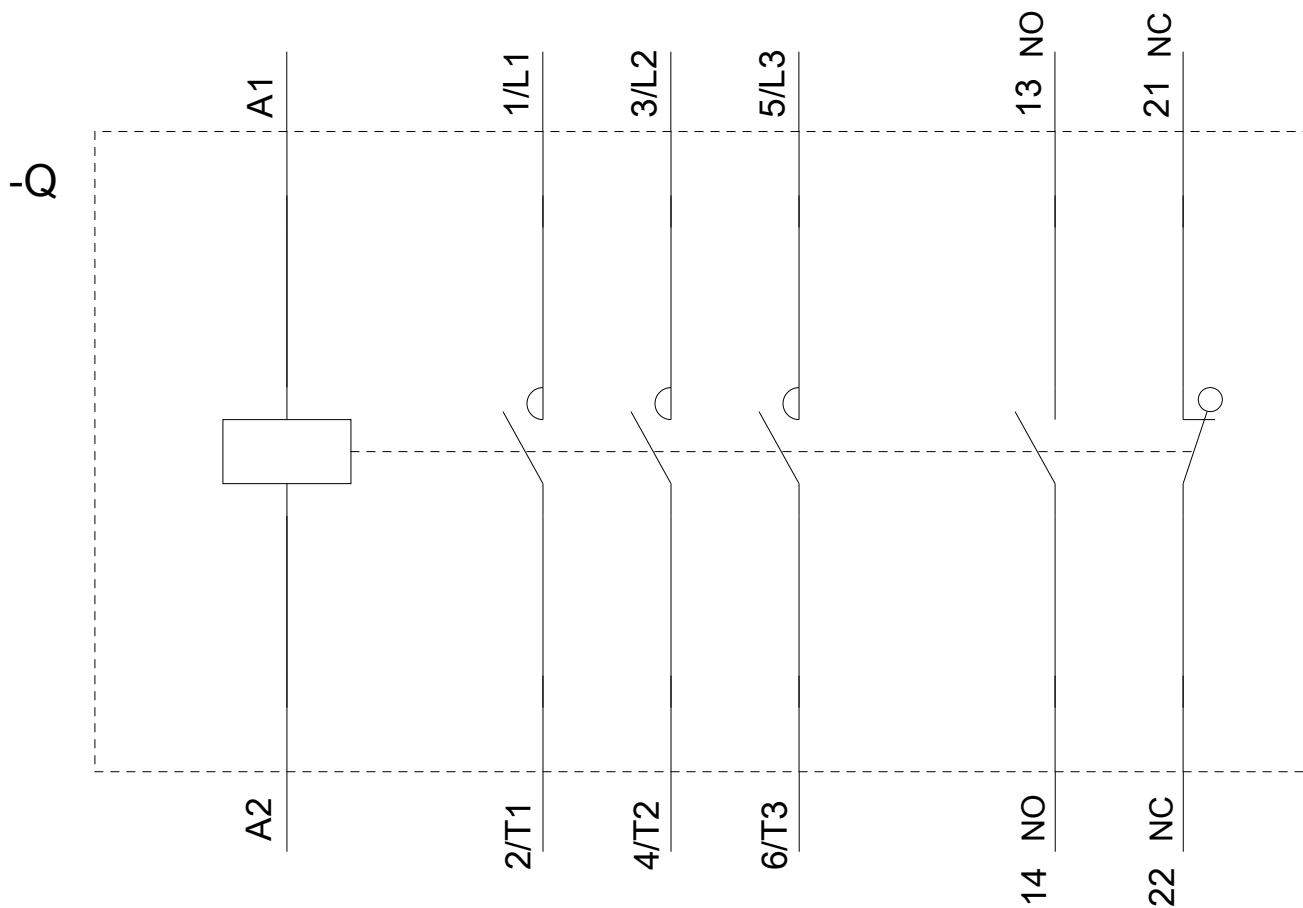
**Characteristic: Tripping characteristics,  $I^2t$ , Let-through current**

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AF00/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-1AF00&objecttype=14&gridview=view1>





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