

power contactor, AC-3 50 A, 22 kW / 400 V 1 NO + 1 NC, 24 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                                                               | Yes             |
| Power loss [W] for rated value of the current                                    |                 |
| • at AC in hot operating state                                                   | 12 W            |
| • at AC in hot operating state per pole                                          | 4 W             |
| Power loss [W] for rated value of the current without load current share typical | 17.2 W          |
| Surge voltage resistance                                                         |                 |
| • of main circuit rated value                                                    | 6 kV            |
| • of auxiliary circuit rated value                                               | 6 kV            |
| maximum permissible voltage for safe isolation                                   |                 |
| • between coil and main contacts acc. to EN 60947-1                              | 400 V           |

|                                                                                         |                             |
|-----------------------------------------------------------------------------------------|-----------------------------|
| <b>Protection class IP</b>                                                              |                             |
| • on the front                                                                          | IP20                        |
| • of the terminal                                                                       | IP00                        |
| <b>Shock resistance at rectangular impulse</b>                                          |                             |
| • at AC                                                                                 | 11.8g / 5 ms, 7.4g / 10 ms  |
| <b>Shock resistance with sine pulse</b>                                                 |                             |
| • at AC                                                                                 | 18.5g / 5 ms, 11.6g / 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                                     |        |
| — at ambient temperature 40 °C rated value             | 70 A   |
| • at AC-1                                              |        |
| — 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                                              |        |
| — 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   |
| • at AC-5a up to 690 V rated value                     | 61.6 A |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• at AC-5b up to 400 V rated value</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 41.5 A                                                                                                                  |
| <ul style="list-style-type: none"> <li>• at AC-6a <ul style="list-style-type: none"> <li>— up to 230 V for current peak value n=20 rated value</li> <li>— up to 400 V for current peak value n=20 rated value</li> <li>— up to 500 V for current peak value n=20 rated value</li> <li>— up to 690 V for current peak value n=20 rated value</li> </ul> </li> <li>• at AC-6a <ul style="list-style-type: none"> <li>— up to 230 V for current peak value n=30 rated value</li> <li>— up to 400 V for current peak value n=30 rated value</li> <li>— up to 500 V for current peak value n=30 rated value</li> <li>— up to 690 V for current peak value n=30 rated value</li> </ul> </li> </ul>                                                                                 | 43.2 A<br>43.2 A<br>43.2 A<br>24 A<br><br>28.8 A<br>28.8 A<br>28.8 A<br>24 A                                            |
| <b>Minimum cross-section in main circuit</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                         |
| <ul style="list-style-type: none"> <li>• at maximum AC-1 rated value</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 25 mm <sup>2</sup>                                                                                                      |
| <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> <li>• at 690 V rated value</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 24 A<br>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> <li>• with 2 current paths in series at DC-1 <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> <li>• with 3 current paths in series at DC-1 <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> </ul> </li> </ul> | 55 A<br>4.5 A<br>1 A<br>0.4 A<br>0.25 A<br><br>55 A<br>45 A<br>5 A<br>1 A<br>0.8 A<br><br>55 A<br>55 A<br>45 A<br>2.9 A |

|                                                                    |           |
|--------------------------------------------------------------------|-----------|
| — at 600 V rated value                                             | 1.4 A     |
| <b>Operating current</b>                                           |           |
| • at 1 current path at DC-3 at DC-5                                |           |
| — at 24 V rated value                                              | 35 A      |
| — at 110 V rated value                                             | 2.5 A     |
| — at 220 V rated value                                             | 1 A       |
| — at 440 V rated value                                             | 0.1 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                                              | 55 A      |
| — at 110 V rated value                                             | 25 A      |
| — at 220 V rated value                                             | 5 A       |
| — at 440 V rated value                                             | 0.27 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                                              | 55 A      |
| — at 110 V rated value                                             | 55 A      |
| — at 220 V rated value                                             | 25 A      |
| — at 440 V rated value                                             | 0.6 A     |
| — at 600 V rated value                                             | 0.35 A    |
| <b>Operating power</b>                                             |           |
| • at AC-1                                                          |           |
| — at 230 V rated value                                             | 26 kW     |
| — at 230 V at 60 °C rated value                                    | 23 kW     |
| — at 400 V rated value                                             | 46 kW     |
| — at 400 V at 60 °C rated value                                    | 39 kW     |
| — at 690 V rated value                                             | 79 kW     |
| — at 690 V at 60 °C rated value                                    | 68 kW     |
| • at AC-2 at 400 V rated value                                     | 22 kW     |
| • at AC-3                                                          |           |
| — at 230 V rated value                                             | 15 kW     |
| — at 400 V rated value                                             | 22 kW     |
| — at 500 V rated value                                             | 30 kW     |
| — at 690 V rated value                                             | 22 kW     |
| <b>Operating power for approx. 200000 operating cycles at AC-4</b> |           |
| • at 400 V rated value                                             | 12.6 kW   |
| • at 690 V rated value                                             | 18.2 kW   |
| <b>No-load switching frequency</b>                                 |           |
| • at AC                                                            | 5 000 1/h |
| <b>Operating frequency</b>                                         |           |

|                   |           |
|-------------------|-----------|
| • at AC-1 maximum | 1 000 1/h |
| • at AC-2 maximum | 600 1/h   |
| • at AC-3 maximum | 800 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                                                                | 24 V             |
| • at 60 Hz rated value                                                                | 24 V             |
| <b>Operating range factor control supply voltage rated value of magnet coil at AC</b> |                  |
| • at 50 Hz                                                                            | 0.8 ... 1.1      |
| • at 60 Hz                                                                            | 0.85 ... 1.1     |
| <b>Apparent pick-up power of magnet coil at AC</b>                                    |                  |
| • at 50 Hz                                                                            | 210 V·A          |
| • at 60 Hz                                                                            | 188 V·A          |
| <b>Inductive power factor with closing power of the coil</b>                          |                  |
| • at 50 Hz                                                                            | 0.69             |
| • at 60 Hz                                                                            | 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                             | 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                              | 10 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                                      | 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 / 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: 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                                               |
| <ul style="list-style-type: none"> <li>• Side-by-side mounting</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Yes                                                                                                                                  |
| <b>Height</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 114 mm                                                                                                                               |
| <b>Width</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 55 mm                                                                                                                                |
| <b>Depth</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 130 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> | 10 mm<br>10 mm<br>10 mm<br>0 mm<br><br>10 mm<br>10 mm<br>6 mm<br>10 mm<br><br>10 mm<br>10 mm<br>10 mm<br>6 mm                        |

## Connections/ Terminals

|                                                                                                                                                                                                                                                        |                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>Type of electrical connection</b>                                                                                                                                                                                                                   |                                                                                                              |
| <ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for auxiliary and control current circuit</li> <li>• at contactor for auxiliary contacts</li> <li>• of magnet coil</li> </ul>                                             | screw-type terminals<br>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>— single or multi-stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG conductors for main contacts</li> </ul> | 2x (1 ... 35 mm²), 1x (1 ... 50 mm²)<br>2x (1 ... 25 mm²), 1x (1 ... 35 mm²)<br>2x (18 ... 2), 1x (18 ... 1) |
| <b>Connectable conductor cross-section for main contacts</b>                                                                                                                                                                                           |                                                                                                              |
| <ul style="list-style-type: none"> <li>• finely stranded with core end processing</li> </ul>                                                                                                                                                           | 1 ... 35 mm²                                                                                                 |
| <b>Connectable conductor cross-section for auxiliary contacts</b>                                                                                                                                                                                      |                                                                                                              |

|                                                                                                                                                                                                              |                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• single or multi-stranded</li> </ul>                                                                                                                                 | 0.5 ... 2.5 mm <sup>2</sup>                                                                                                                    |
| <ul style="list-style-type: none"> <li>• finely stranded with core end processing</li> </ul>                                                                                                                 | 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> </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> ) |
| <ul style="list-style-type: none"> <li>• at AWG conductors for auxiliary contacts</li> </ul>                                                                                                                 | 2x (20 ... 16), 2x (18 ... 14)                                                                                                                 |
| <b>AWG number as coded connectable conductor cross section</b>                                                                                                                                               |                                                                                                                                                |
| <ul style="list-style-type: none"> <li>• for main contacts</li> </ul>                                                                                                                                        | 18 ... 1                                                                                                                                       |
| <ul style="list-style-type: none"> <li>• for auxiliary contacts</li> </ul>                                                                                                                                   | 20 ... 14                                                                                                                                      |

|                                                                                                       |                                                                  |
|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| <b>Safety related data</b>                                                                            |                                                                  |
| <b>B10 value</b>                                                                                      |                                                                  |
| <ul style="list-style-type: none"> <li>• with high demand rate acc. to SN 31920</li> </ul>            | 1 000 000                                                        |
| <b>Proportion of dangerous failures</b>                                                               |                                                                  |
| <ul style="list-style-type: none"> <li>• with low demand rate acc. to SN 31920</li> </ul>             | 40 %                                                             |
| <ul style="list-style-type: none"> <li>• with high demand rate acc. to SN 31920</li> </ul>            | 73 %                                                             |
| <b>Failure rate [FIT]</b>                                                                             |                                                                  |
| <ul style="list-style-type: none"> <li>• with low demand rate acc. to SN 31920</li> </ul>             | 100 FIT                                                          |
| <b>Product function</b>                                                                               |                                                                  |
| <ul style="list-style-type: none"> <li>• Mirror contact acc. to IEC 60947-4-1</li> </ul>              | Yes                                                              |
| <ul style="list-style-type: none"> <li>• positively driven operation acc. to IEC 60947-5-1</li> </ul> | 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 | Functional Safety/Safety of Machinery |
|--------------------------|-----|---------------------------------------|



CCC



CSA



UL



RCM

[Type Examination Certificate](#)

|                           |                   |                   |
|---------------------------|-------------------|-------------------|
| Declaration of Conformity | Test Certificates | Marine / Shipping |
|---------------------------|-------------------|-------------------|



EG-Konf.

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[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



ABS



BUREAU VERITAS

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



LRS



PRS



RINA



RMRS



DNVGL.COM/AF

[Confirmation](#)

#### Further information

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

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

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

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2036-1AC20>

##### Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2036-1AC20>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2036-1AC20>

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

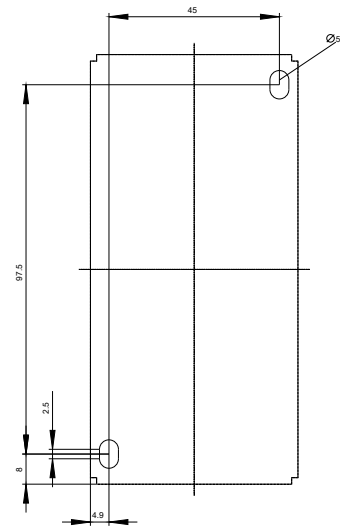
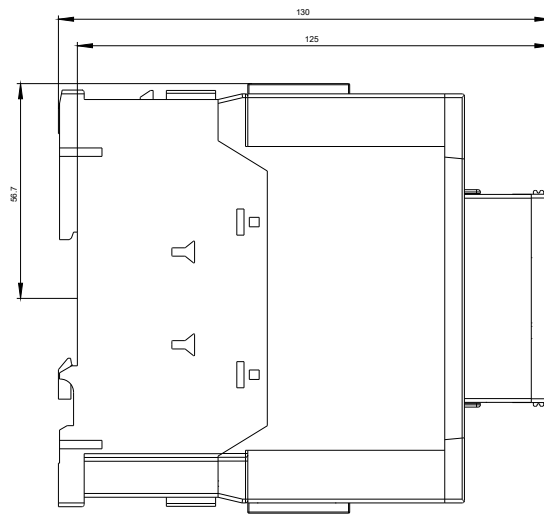
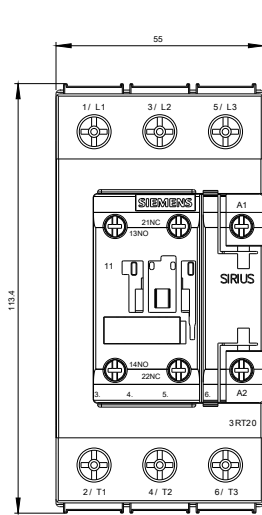
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2036-1AC20&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2036-1AC20&lang=en)

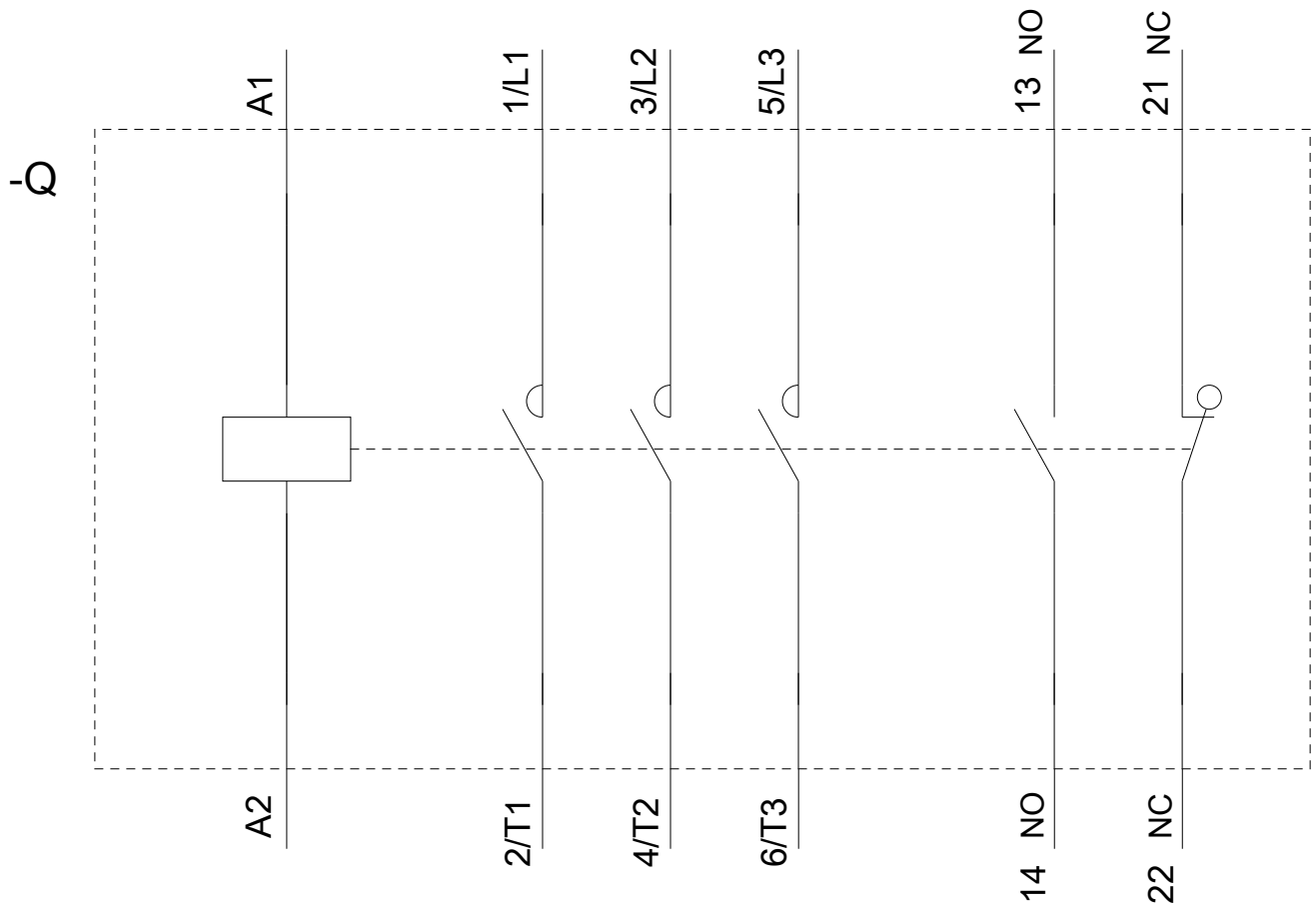
##### Characteristic: Tripping characteristics, I<sub>t</sub>, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2036-1AC20/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2036-1AC20&objecttype=14&gridview=view1>





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