



power contactor, AC-3 95 A, 45 kW / 400 V 1 NO + 1 NC, 220 V AC, 50/60 Hz 3-pole, 3 NO, Size S3 screw terminal

|                                 |                 |
|---------------------------------|-----------------|
| <b>product brand name</b>       | SIRIUS          |
| <b>product designation</b>      | Power contactor |
| <b>product type designation</b> | 3RT2            |

### General technical data

|                                                                                                       |                            |
|-------------------------------------------------------------------------------------------------------|----------------------------|
| <b>size of contactor</b>                                                                              | S3                         |
| <b>product extension</b>                                                                              |                            |
| • function module for communication                                                                   | No                         |
| • auxiliary switch                                                                                    | Yes                        |
| <b>power loss [W] for rated value of the current</b>                                                  |                            |
| • at AC in hot operating state                                                                        | 19.8 W                     |
| • at AC in hot operating state per pole                                                               | 6.6 W                      |
| • without load current share typical                                                                  | 25 W                       |
| <b>insulation voltage</b>                                                                             |                            |
| • of main circuit with degree of pollution 3 rated value                                              | 1 000 V                    |
| • of auxiliary circuit with degree of pollution 3 rated value                                         | 690 V                      |
| <b>surge voltage resistance</b>                                                                       |                            |
| • 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 according to EN 60947-1 | 690 V                      |
| <b>shock resistance at rectangular impulse</b>                                                        |                            |
| • at AC                                                                                               | 10.3g / 5 ms, 6..g / 10 ms |
| <b>shock resistance with sine pulse</b>                                                               |                            |
| • at AC                                                                                               | 16.3g / 5 ms, 10.g / 10 ms |
| <b>mechanical service life (switching cycles)</b>                                                     |                            |
| • of contactor typical                                                                                | 10 000 000                 |
| • of the contactor with added electronically optimized auxiliary switch block typical                 | 5 000 000                  |
| • of the contactor with added auxiliary switch block typical                                          | 10 000 000                 |
| <b>reference code according to IEC 81346-2</b>                                                        | Q                          |
| <b>Substance Prohibitance (Date)</b>                                                                  | 03/01/2017                 |

### Ambient conditions

|                                                                       |                |
|-----------------------------------------------------------------------|----------------|
| installation altitude at height above sea level maximum               | 2 000 m        |
| <b>ambient temperature</b>                                            |                |
| • during operation                                                    | -25 ... +60 °C |
| • during storage                                                      | -55 ... +80 °C |
| <b>relative humidity minimum</b>                                      | 10 %           |
| <b>relative humidity at 55 °C according to IEC 60068-2-30 maximum</b> | 95 %           |

### 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            |
| • at AC-3e rated value maximum                                         | 1 000 V            |
| <b>operational 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              |
| • at AC-3                                                              |                    |
| — at 400 V rated value                                                 | 95 A               |
| — at 500 V rated value                                                 | 95 A               |
| — at 690 V rated value                                                 | 78 A               |
| — at 1000 V rated value                                                | 30 A               |
| • at AC-3e                                                             |                    |
| — at 400 V rated value                                                 | 95 A               |
| — at 500 V rated value                                                 | 95 A               |
| — at 690 V rated value                                                 | 78 A               |
| — at 1000 V rated value                                                | 30 A               |
| • at AC-4 at 400 V rated value                                         | 80 A               |
| • at AC-5a up to 690 V rated value                                     | 114 A              |
| • at AC-5b up to 400 V rated value                                     | 95 A               |
| • at AC-6a                                                             |                    |
| — up to 230 V for current peak value n=20 rated value                  | 84.4 A             |
| — up to 400 V for current peak value n=20 rated value                  | 84.4 A             |
| — up to 500 V for current peak value n=20 rated value                  | 84.4 A             |
| — up to 690 V for current peak value n=20 rated value                  | 58 A               |
| • at AC-6a                                                             |                    |
| — up to 230 V for current peak value n=30 rated value                  | 56.3 A             |
| — up to 400 V for current peak value n=30 rated value                  | 56.3 A             |
| — up to 500 V for current peak value n=30 rated value                  | 56.3 A             |
| — up to 690 V for current peak value n=30 rated value                  | 56.3 A             |
| minimum cross-section in main circuit at maximum AC-1 rated value      | 50 mm <sup>2</sup> |
| <b>operational 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>operational current</b>                                             |                    |
| • <b>at 1 current path at DC-1</b>                                     |                    |
| — 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              |
| • <b>with 2 current paths in series at DC-1</b>                        |                    |
| — 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                |
| • <b>with 3 current paths in series at DC-1</b>                        |                    |
| — 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>at 1 current path at DC-3 at DC-5</b>                              |                                                             |
| — 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                                                      |
| ● <b>with 2 current paths in series at DC-3 at DC-5</b>                 |                                                             |
| — 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                                                      |
| ● <b>with 3 current paths in series at DC-3 at DC-5</b>                 |                                                             |
| — 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-2 at 400 V rated value                                          | 45 kW                                                       |
| ● at AC-3                                                               |                                                             |
| — at 230 V rated value                                                  | 22 kW                                                       |
| — at 400 V rated value                                                  | 45 kW                                                       |
| — at 500 V rated value                                                  | 55 kW                                                       |
| — at 690 V rated value                                                  | 75 kW                                                       |
| — at 1000 V rated value                                                 | 37 kW                                                       |
| ● at AC-3e                                                              |                                                             |
| — at 230 V rated value                                                  | 22 kW                                                       |
| — at 400 V rated value                                                  | 45 kW                                                       |
| — at 500 V rated value                                                  | 55 kW                                                       |
| — at 690 V rated value                                                  | 75 kW                                                       |
| — at 1000 V rated value                                                 | 37 kW                                                       |
| <b>operating power for approx. 200000 operating cycles at AC-4</b>      |                                                             |
| ● at 400 V rated value                                                  | 22 kW                                                       |
| ● at 690 V rated value                                                  | 27.4 kW                                                     |
| <b>operating apparent power at AC-6a</b>                                |                                                             |
| ● up to 230 V for current peak value n=20 rated value                   | 33 kVA                                                      |
| ● up to 400 V for current peak value n=20 rated value                   | 58 kVA                                                      |
| ● up to 500 V for current peak value n=20 rated value                   | 73 kVA                                                      |
| ● up to 690 V for current peak value n=20 rated value                   | 69 kVA                                                      |
| <b>operating apparent power at AC-6a</b>                                |                                                             |
| ● up to 230 V for current peak value n=30 rated value                   | 22.4 kVA                                                    |
| ● up to 400 V for current peak value n=30 rated value                   | 39 kVA                                                      |
| ● up to 500 V for current peak value n=30 rated value                   | 48.7 kVA                                                    |
| ● up to 690 V for current peak value n=30 rated value                   | 67.3 kVA                                                    |
| <b>short-time withstand current in cold operating state up to 40 °C</b> |                                                             |
| ● limited to 1 s switching at zero current maximum                      | 1 725 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 5 s switching at zero current maximum                      | 1 297 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 10 s switching at zero current maximum                     | 946 A; Use minimum cross-section acc. to AC-1 rated value   |
| ● limited to 30 s switching at zero current maximum                     | 610 A; Use minimum cross-section acc. to AC-1 rated value   |
| ● limited to 60 s switching at zero current maximum                     | 486 A; Use minimum cross-section acc. to AC-1 rated value   |
| <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-3e 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                                                                | 220 V                                           |
| • at 60 Hz rated value                                                                | 220 V                                           |
| <b>operating range factor control supply voltage rated value of magnet coil at AC</b> |                                                 |
| • at 50 Hz                                                                            | 0.8 ... 1.1                                     |
| • at 60 Hz                                                                            | 0.85 ... 1.1                                    |
| <b>apparent pick-up power of magnet coil at AC</b>                                    |                                                 |
| • at 50 Hz                                                                            | 348 VA                                          |
| • at 60 Hz                                                                            | 296 VA                                          |
| <b>inductive power factor with closing power of the coil</b>                          |                                                 |
| • at 50 Hz                                                                            | 0.62                                            |
| • at 60 Hz                                                                            | 0.55                                            |
| <b>apparent holding power of magnet coil at AC</b>                                    |                                                 |
| • at 50 Hz                                                                            | 25 VA                                           |
| • at 60 Hz                                                                            | 18 VA                                           |
| <b>inductive power factor with the holding power of the coil</b>                      |                                                 |
| • at 50 Hz                                                                            | 0.35                                            |
| • at 60 Hz                                                                            | 0.41                                            |
| <b>closing delay</b>                                                                  |                                                 |
| • at AC                                                                               | 13 ... 50 ms                                    |
| <b>opening delay</b>                                                                  |                                                 |
| • at AC                                                                               | 10 ... 21 ms                                    |
| <b>arcing time</b>                                                                    | 10 ... 20 ms                                    |
| <b>control version of the switch operating mechanism</b>                              | Standard A1 - A2                                |
| Auxiliary circuit                                                                     |                                                 |
| number of NC contacts for auxiliary contacts<br>instantaneous contact                 | 1                                               |
| number of NO contacts for auxiliary contacts<br>instantaneous contact                 | 1                                               |
| operational current at AC-12 maximum                                                  | 10 A                                            |
| <b>operational 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>operational 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>operational 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 3-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                                           |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• for 3-phase AC motor <ul style="list-style-type: none"> <li>— at 200/208 V rated value</li> <li>— at 220/230 V rated value</li> <li>— at 460/480 V rated value</li> <li>— at 575/600 V rated value</li> </ul> </li> </ul>                                                                                                                                                                                                                                                            | 30 hp<br>30 hp<br>75 hp<br>75 hp<br>A600 / P600                                                                                                                                                |
| <b>contact rating of auxiliary contacts according to UL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                |
| <b>Short-circuit protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                |
| <b>design of the fuse link</b> <ul style="list-style-type: none"> <li>• for short-circuit protection of the main circuit <ul style="list-style-type: none"> <li>— with type of coordination 1 required</li> <li>— with type of assignment 2 required</li> </ul> </li> <li>• for short-circuit protection of the auxiliary switch required</li> </ul>                                                                                                                                                                          | gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)<br>gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)<br>gG: 10 A (500 V, 1 kA) |
| <b>Installation/ mounting/ dimensions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                |
| <b>mounting position</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | +/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface                                                           |
| <b>fastening method</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715                                                                                                         |
| <ul style="list-style-type: none"> <li>• side-by-side mounting</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Yes                                                                                                                                                                                            |
| <b>height</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 140 mm                                                                                                                                                                                         |
| <b>width</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 70 mm                                                                                                                                                                                          |
| <b>depth</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 152 mm                                                                                                                                                                                         |
| <b>required spacing</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>• with side-by-side mounting <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> <li>• for grounded parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— at the side</li> <li>— downwards</li> </ul> </li> <li>• for live parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> </ul> | 20 mm<br>10 mm<br>10 mm<br>0 mm<br><br>20 mm<br>10 mm<br>10 mm<br>10 mm<br><br>20 mm<br>10 mm<br>10 mm<br>10 mm                                                                                |
| <b>Connections/ Terminals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                |
| <b>type of electrical connection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for auxiliary and control circuit</li> <li>• at contactor for auxiliary contacts</li> <li>• of magnet coil</li> </ul>                                                                                                                                                                                                                                                                                                                            | screw-type terminals<br>screw-type terminals<br>Screw-type terminals<br>Screw-type terminals                                                                                                   |
| <b>type of connectable conductor cross-sections</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>• for main contacts <ul style="list-style-type: none"> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG cables for main contacts</li> </ul>                                                                                                                                                                                                                                                                                                                | 2x (2.5 ... 35 mm²), 1x (2.5 ... 50 mm²)<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 mm²<br>6 ... 70 mm²<br>2.5 ... 50 mm²                                                                                                                                               |
| <b>connectable conductor cross-section for auxiliary contacts</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>• solid or stranded</li> <li>• finely stranded with core end processing</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                     | 0.5 ... 2.5 mm²<br>0.5 ... 2.5 mm²                                                                                                                                                             |
| <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>— solid or stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG cables for auxiliary contacts</li> </ul>                                                                                                                                                                                                                                                                         | 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)<br>2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)<br>2x (20 ... 16), 2x (18 ... 14)                                                                   |

**AWG number as coded connectable conductor cross section**

- for main contacts
- for auxiliary contacts

10 ... 2  
20 ... 14

**Safety related data****product function**

- mirror contact according to IEC 60947-4-1
- positively driven operation according to IEC 60947-5-1

Yes  
No

B10 value with high demand rate according to SN 31920

1 000 000

**proportion of dangerous failures**

- with low demand rate according to SN 31920
- with high demand rate according to SN 31920

40 %  
73 %

failure rate [FIT] with low demand rate according to SN 31920

100 FIT

T1 value for proof test interval or service life according to IEC 61508

20 y

**protection class IP on the front according to IEC 60529**

IP20

**touch protection on the front according to IEC 60529**

finger-safe, for vertical contact from the front

**suitability for use**

- safety-related switching on
- safety-related switching OFF

Yes  
Yes

**Certificates/ approvals****General Product Approval**

[Confirmation](#)



[KC](#)



| EMC | Functional Safety/Safety of Machinery | Declaration of Conformity | Test Certificates |
|-----|---------------------------------------|---------------------------|-------------------|
|-----|---------------------------------------|---------------------------|-------------------|



[Type Examination Certificate](#)



EG-Konf.



[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

**Marine / Shipping**

LRS



PRS



RINA



RMRS

| other | Railway | Dangerous Good |
|-------|---------|----------------|
|-------|---------|----------------|

[Confirmation](#)

[Vibration and Shock](#)

[Transport Information](#)

**Further information**

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

<https://www.siemens.com/ic10>

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2046-1AN20>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1AN20>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AN20>

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

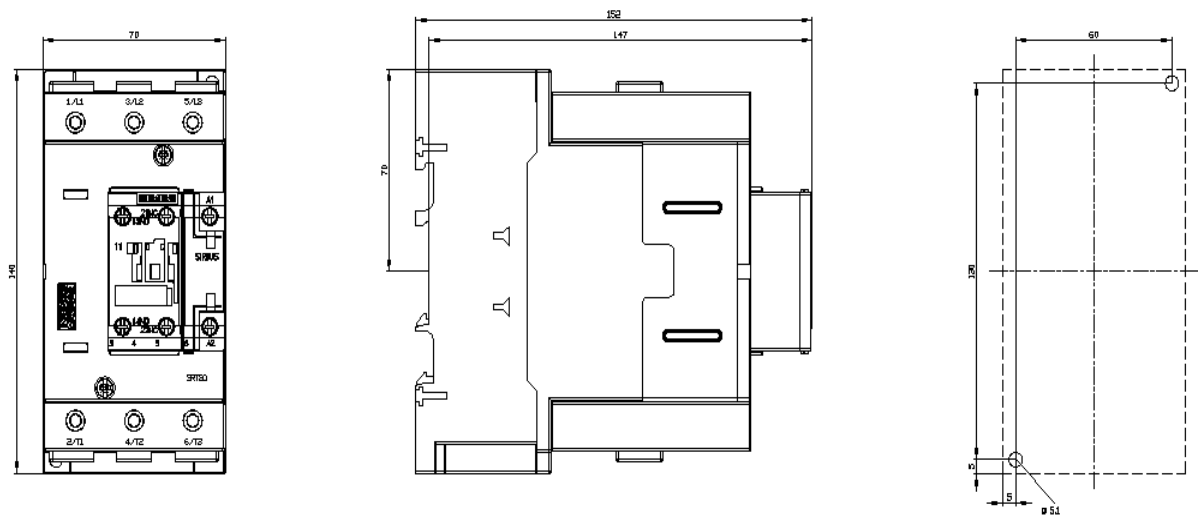
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2046-1AN20&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-1AN20&lang=en)

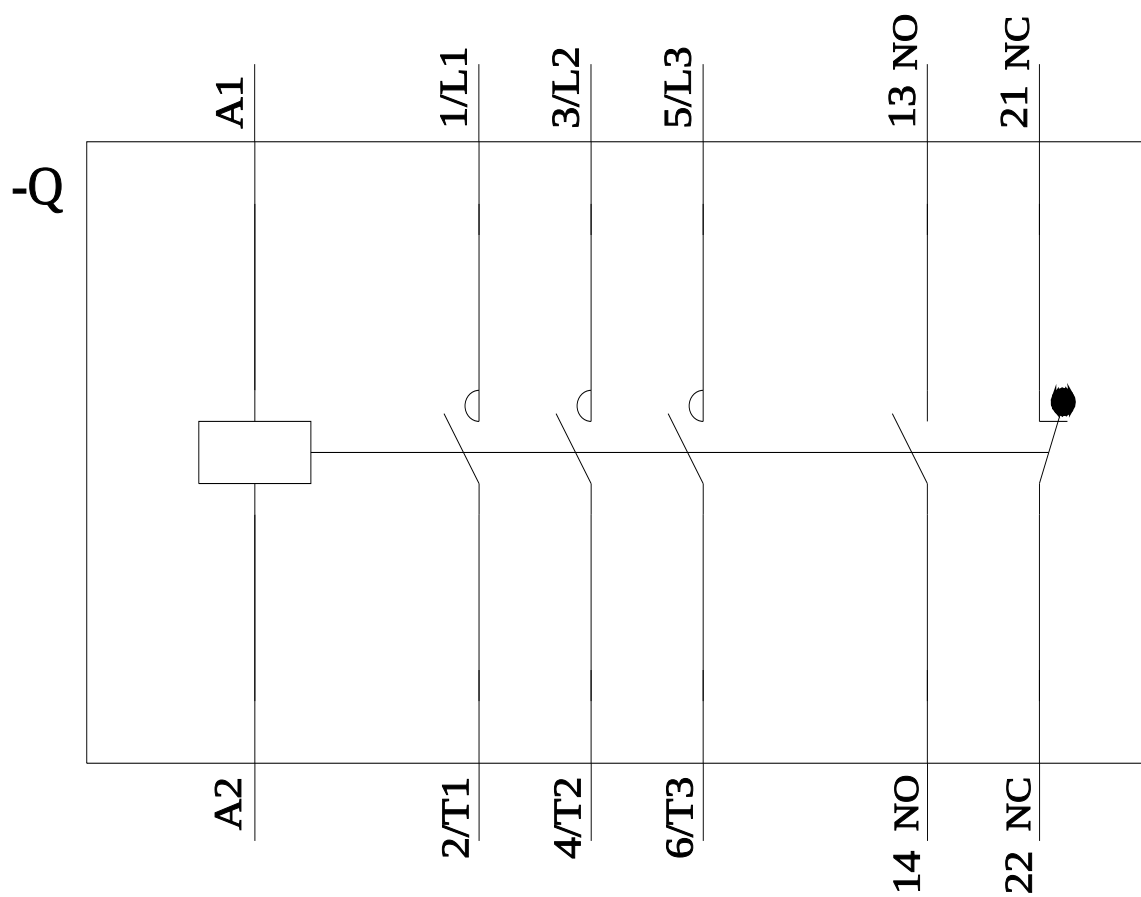
Characteristic: Tripping characteristics,  $I^2t$ , Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AN20/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-1AN20&objecttype=14&gridview=view1>





last modified:

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