



power contactor, AC-3e/AC-3, 12 A, 5.5 kW / 400 V, 3-pole, 24 V AC, 50/60 Hz, auxiliary contacts: 1 NO + 1 NC, spring-loaded terminal, upright mounting position

|                                                                                                       |                            |
|-------------------------------------------------------------------------------------------------------|----------------------------|
| product brand name                                                                                    | SIRIUS                     |
| product designation                                                                                   | Power contactor            |
| product type designation                                                                              | 3RT2                       |
| General technical data                                                                                |                            |
| size of contactor                                                                                     | S0                         |
| 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                                                                        | 0.9 W                      |
| • at AC in hot operating state per pole                                                               | 0.3 W                      |
| • without load current share typical                                                                  | 7.9 W                      |
| insulation voltage                                                                                    |                            |
| • of main circuit with degree of pollution 3 rated value                                              | 690 V                      |
| • of auxiliary circuit with degree of pollution 3 rated value                                         | 690 V                      |
| 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 according to EN 60947-1 | 400 V                      |
| shock resistance at rectangular impulse                                                               |                            |
| • at AC                                                                                               | 7,5g / 5 ms, 4,7g / 10 ms  |
| shock resistance with sine pulse                                                                      |                            |
| • at AC                                                                                               | 11,8g / 5 ms, 7,4g / 10 ms |
| mechanical service life (operating cycles)                                                            |                            |
| • of contactor typical                                                                                | 10 000 000                 |
| • of the contactor with added electronically optimized auxiliary switch block typical                 | 5 000 000                  |
| • of the contactor with added auxiliary switch block typical                                          | 10 000 000                 |
| reference code according to IEC 81346-2                                                               | Q                          |
| Substance Prohibitance (Date)                                                                         | 10/01/2009                 |
| Ambient conditions                                                                                    |                            |
| installation altitude at height above sea level maximum                                               | 2 000 m                    |
| ambient temperature                                                                                   |                            |
| • during operation                                                                                    | -25 ... +60 °C             |
| • during storage                                                                                      | -55 ... +80 °C             |
| relative humidity minimum                                                                             | 10 %                       |
| relative humidity at 55 °C according to IEC 60068-2-30 maximum                                        | 95 %                       |
| 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              |
| • at AC-3e rated value maximum                                         | 690 V              |
| <b>operational current</b>                                             |                    |
| • at AC-1 at 400 V at ambient temperature 40 °C rated value            | 40 A               |
| • at AC-1                                                              |                    |
| — up to 690 V at ambient temperature 40 °C rated value                 | 40 A               |
| — up to 690 V at ambient temperature 60 °C rated value                 | 35 A               |
| • at AC-3                                                              |                    |
| — at 400 V rated value                                                 | 12 A               |
| — at 500 V rated value                                                 | 12 A               |
| — at 690 V rated value                                                 | 9 A                |
| • at AC-3e                                                             |                    |
| — at 400 V rated value                                                 | 12 A               |
| — at 500 V rated value                                                 | 12 A               |
| — at 690 V rated value                                                 | 9 A                |
| • at AC-4 at 400 V rated value                                         | 12.5 A             |
| • at AC-5a up to 690 V rated value                                     | 35.2 A             |
| • at AC-5b up to 400 V rated value                                     | 9.9 A              |
| • at AC-6a                                                             |                    |
| — up to 230 V for current peak value n=20 rated value                  | 11.4 A             |
| — up to 400 V for current peak value n=20 rated value                  | 11.4 A             |
| — up to 500 V for current peak value n=20 rated value                  | 11.3 A             |
| — up to 690 V for current peak value n=20 rated value                  | 9 A                |
| • at AC-6a                                                             |                    |
| — up to 230 V for current peak value n=30 rated value                  | 7.6 A              |
| — up to 400 V for current peak value n=30 rated value                  | 7.6 A              |
| — up to 500 V for current peak value n=30 rated value                  | 7.6 A              |
| — up to 690 V for current peak value n=30 rated value                  | 7.6 A              |
| minimum cross-section in main circuit at maximum AC-1 rated value      | 10 mm <sup>2</sup> |
| <b>operational current for approx. 200000 operating cycles at AC-4</b> |                    |
| • at 400 V rated value                                                 | 5.5 A              |
| • at 690 V rated value                                                 | 5.5 A              |
| <b>operational current</b>                                             |                    |
| • <b>at 1 current path at DC-1</b>                                     |                    |
| — at 24 V rated value                                                  | 35 A               |
| — at 60 V rated value                                                  | 20 A               |
| — at 110 V rated value                                                 | 4.5 A              |
| — at 220 V rated value                                                 | 1 A                |
| — at 440 V rated value                                                 | 0.4 A              |
| — at 600 V rated value                                                 | 0.25 A             |
| • <b>with 2 current paths in series at DC-1</b>                        |                    |
| — at 24 V rated value                                                  | 35 A               |
| — at 60 V rated value                                                  | 35 A               |
| — at 110 V rated value                                                 | 35 A               |
| — at 220 V rated value                                                 | 5 A                |
| — at 440 V rated value                                                 | 1 A                |
| — at 600 V rated value                                                 | 0.8 A              |
| • <b>with 3 current paths in series at DC-1</b>                        |                    |
| — at 24 V rated value                                                  | 35 A               |
| — at 60 V rated value                                                  | 35 A               |

|                                                                         |                                                           |
|-------------------------------------------------------------------------|-----------------------------------------------------------|
| — at 110 V rated value                                                  | 35 A                                                      |
| — at 220 V rated value                                                  | 35 A                                                      |
| — at 440 V rated value                                                  | 2.9 A                                                     |
| — at 600 V rated value                                                  | 1.4 A                                                     |
| ● <b>at 1 current path at DC-3 at DC-5</b>                              |                                                           |
| — at 24 V rated value                                                   | 20 A                                                      |
| — at 60 V rated value                                                   | 5 A                                                       |
| — at 220 V rated value                                                  | 1 A                                                       |
| — at 440 V rated value                                                  | 0.09 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                                                   | 35 A                                                      |
| — at 60 V rated value                                                   | 35 A                                                      |
| — at 110 V rated value                                                  | 15 A                                                      |
| — at 220 V rated value                                                  | 3 A                                                       |
| — at 440 V rated value                                                  | 0.27 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                                                   | 35 A                                                      |
| — at 60 V rated value                                                   | 35 A                                                      |
| — at 110 V rated value                                                  | 35 A                                                      |
| — at 220 V rated value                                                  | 10 A                                                      |
| — at 440 V rated value                                                  | 0.6 A                                                     |
| — at 600 V rated value                                                  | 0.6 A                                                     |
| <b>operating power</b>                                                  |                                                           |
| ● at AC-2 at 400 V rated value                                          | 5.5 kW                                                    |
| ● at AC-3                                                               |                                                           |
| — at 230 V rated value                                                  | 3 kW                                                      |
| — at 400 V rated value                                                  | 5.5 kW                                                    |
| — at 500 V rated value                                                  | 5.5 kW                                                    |
| — at 690 V rated value                                                  | 7.5 kW                                                    |
| ● at AC-3e                                                              |                                                           |
| — at 230 V rated value                                                  | 3 kW                                                      |
| — at 400 V rated value                                                  | 5.5 kW                                                    |
| — at 500 V rated value                                                  | 5.5 kW                                                    |
| — at 690 V rated value                                                  | 7.5 kW                                                    |
| <b>operating power for approx. 200000 operating cycles at AC-4</b>      |                                                           |
| ● at 400 V rated value                                                  | 2.6 kW                                                    |
| ● at 690 V rated value                                                  | 4.6 kW                                                    |
| <b>operating apparent power at AC-6a</b>                                |                                                           |
| ● up to 230 V for current peak value n=20 rated value                   | 4.5 kVA                                                   |
| ● up to 400 V for current peak value n=20 rated value                   | 7.8 kVA                                                   |
| ● up to 500 V for current peak value n=20 rated value                   | 9.8 kVA                                                   |
| ● up to 690 V for current peak value n=20 rated value                   | 10.7 kVA                                                  |
| <b>operating apparent power at AC-6a</b>                                |                                                           |
| ● up to 230 V for current peak value n=30 rated value                   | 3 kVA                                                     |
| ● up to 400 V for current peak value n=30 rated value                   | 5.2 kVA                                                   |
| ● up to 500 V for current peak value n=30 rated value                   | 6.5 kVA                                                   |
| ● up to 690 V for current peak value n=30 rated value                   | 9 kVA                                                     |
| <b>short-time withstand current in cold operating state up to 40 °C</b> |                                                           |
| ● limited to 1 s switching at zero current maximum                      | 210 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 5 s switching at zero current maximum                      | 210 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 10 s switching at zero current maximum                     | 170 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 30 s switching at zero current maximum                     | 126 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 60 s switching at zero current maximum                     | 105 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                                                       | 1 000 1/h                                                 |
| ● at AC-2 maximum                                                       | 1 000 1/h                                                 |
| ● at AC-3 maximum                                                       | 1 000 1/h                                                 |
| ● at AC-3e maximum                                                      | 1 000 1/h                                                 |

- at AC-4 maximum

300 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                                                                            | 68 VA            |
| • at 60 Hz                                                                            | 67 VA            |
| <b>inductive power factor with closing power of the coil</b>                          |                  |
| • at 50 Hz                                                                            | 0.72             |
| • at 60 Hz                                                                            | 0.74             |
| <b>apparent holding power of magnet coil at AC</b>                                    |                  |
| • at 50 Hz                                                                            | 7.9 VA           |
| • at 60 Hz                                                                            | 6.5 VA           |
| <b>inductive power factor with the holding power of the coil</b>                      |                  |
| • at 50 Hz                                                                            | 0.25             |
| • at 60 Hz                                                                            | 0.28             |
| <b>closing delay</b>                                                                  |                  |
| • at AC                                                                               | 8 ... 40 ms      |
| <b>opening delay</b>                                                                  |                  |
| • at AC                                                                               | 4 ... 16 ms      |
| <b>arcing time</b>                                                                    | 10 ... 10 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                                                | 10 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                              | 11 A |
| • at 600 V rated value                              | 11 A |
| <b>yielded mechanical performance [hp]</b>          |      |
| • for single-phase AC motor                         |      |
| — at 110/120 V rated value                          | 1 hp |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>— at 230 V rated value</li> <li>• for 3-phase AC motor <ul style="list-style-type: none"> <li>— at 200/208 V rated value</li> <li>— at 220/230 V rated value</li> <li>— at 460/480 V rated value</li> <li>— at 575/600 V rated value</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2 hp<br><br>3 hp<br>3 hp<br>7.5 hp<br>10 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: 63A (690V,100kA), aM: 32A (690V,100kA), BS88: 63A (415V,80kA)<br>gG: 25A (690V,100kA), aM: 20A (690V,100kA), BS88: 25A (415V,80kA)<br>gG: 10 A (500 V, 1 kA)                                                                                                                                                                                                                                                                                                                                           |
| <b>Installation/ mounting/ dimensions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>mounting position</b><br><b>fastening method</b> <ul style="list-style-type: none"> <li>• side-by-side mounting</li> </ul> <b>height</b><br><b>width</b><br><b>depth</b><br><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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | standing, on horizontal mounting surface<br>screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715<br>Yes<br>102 mm<br>45 mm<br>97 mm<br><br>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                                                                                                                                                                                                                               |
| <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> type of connectable conductor cross-sections for main contacts <ul style="list-style-type: none"> <li>• solid</li> <li>• solid or stranded</li> <li>• finely stranded with core end processing</li> <li>• finely stranded without core end processing</li> </ul> <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> <li>• finely stranded without core end processing</li> </ul> <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> <li>• finely stranded without core end processing</li> </ul> <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> </ul> </li> </ul> | spring-loaded terminals<br>spring-loaded terminals<br>Spring-type terminals<br>Spring-type terminals<br><br>2x (1 ... 10 mm <sup>2</sup> )<br>2x (1 ... 10 mm <sup>2</sup> )<br>2x (1 ... 6 mm <sup>2</sup> )<br>2x (1 ... 6 mm <sup>2</sup> )<br><br>1 ... 10 mm <sup>2</sup><br>1 ... 10 mm <sup>2</sup><br>1 ... 6 mm <sup>2</sup><br>1 ... 6 mm <sup>2</sup><br><br>0.5 ... 2.5 mm <sup>2</sup><br>0.5 ... 1.5 mm <sup>2</sup><br>0.5 ... 2.5 mm <sup>2</sup><br><br>2x (0.5 ... 2.5 mm <sup>2</sup> ) |

- finely stranded with core end processing
- finely stranded without core end processing
- at AWG cables for auxiliary contacts

2x (0.5 ... 1.5 mm<sup>2</sup>)  
 2x (0.5 ... 2.5 mm<sup>2</sup>)  
 2x (20 ... 14)

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

- for main contacts
- for auxiliary contacts

18 ... 8  
 20 ... 14

#### Safety related data

##### product function

- mirror contact according to IEC 60947-4-1

Yes  
 450 000

B10 value with high demand rate according to SN 31920

##### proportion of dangerous failures

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

40 %  
 73 %  
 100 FIT

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

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

20 a

##### 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 OFF

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



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



[Confirmation](#)



[Confirmation](#)

[Vibration and Shock](#)

#### Further information

##### Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

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

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

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2024-2AC20-1AA0>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2024-2AC20-1AA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-2AC20-1AA0>

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

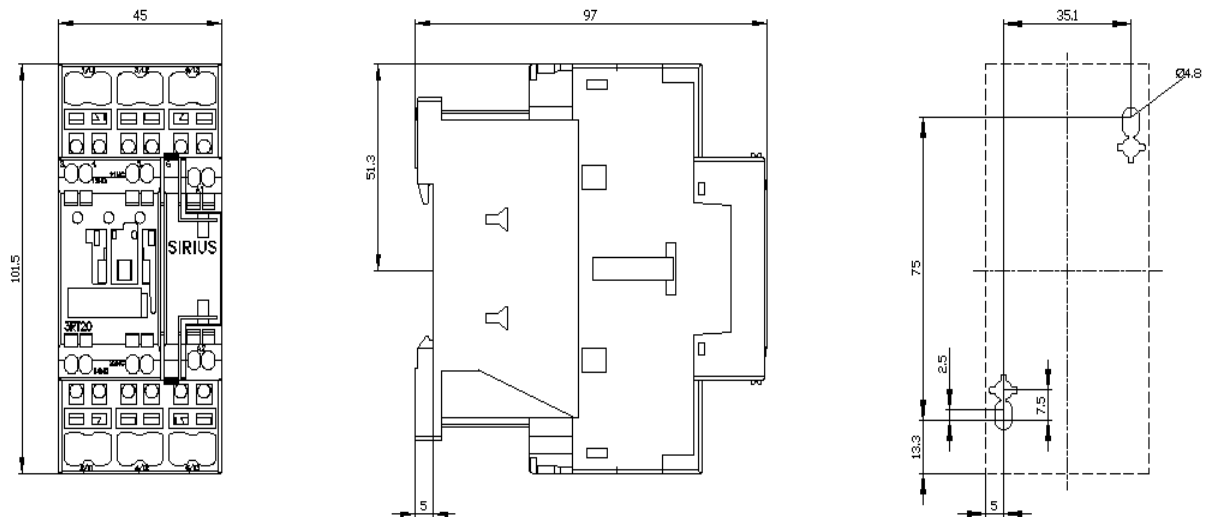
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2024-2AC20-1AA0&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2024-2AC20-1AA0&lang=en)

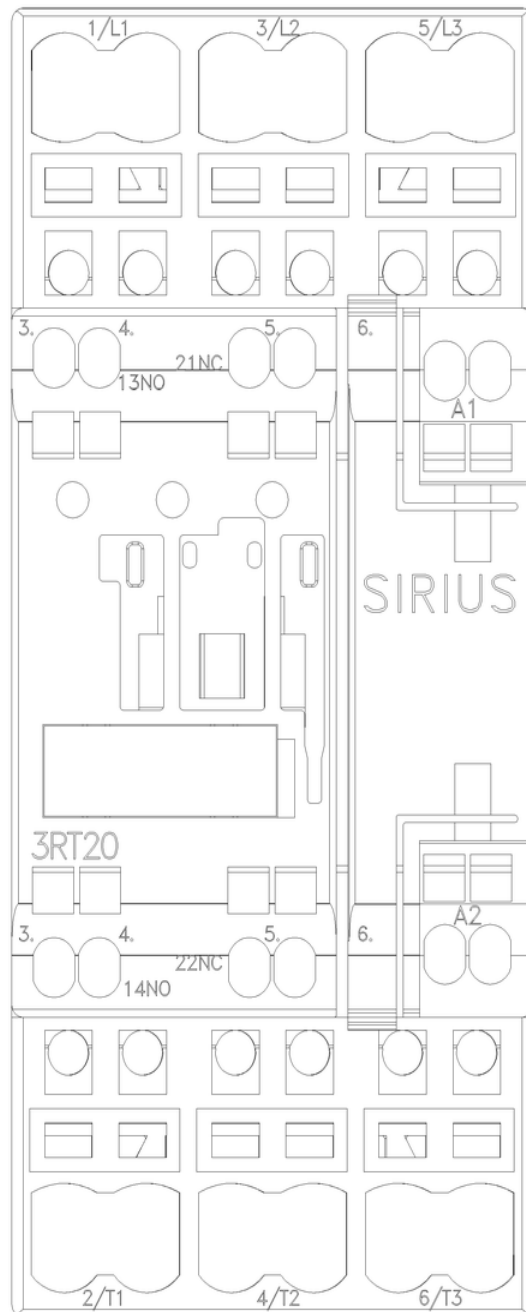
**Characteristic: Tripping characteristics,  $I^2t$ , Let-through current**

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-2AC20-1AA0/char>

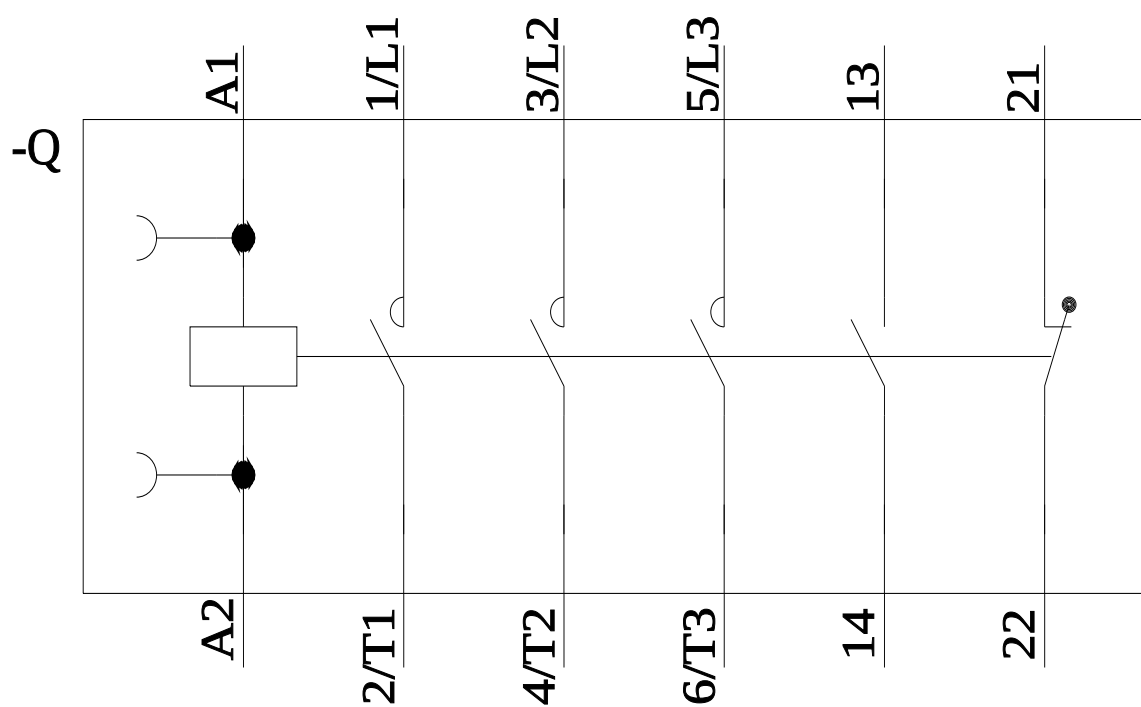
**Further characteristics (e.g. electrical endurance, switching frequency)**

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2024-2AC20-1AA0&objecttype=14&gridview=view1>









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