



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 24 V DC, auxiliary contacts: 1 NO, screw terminal, size: S00

|  |                            |
|--|----------------------------|
| <b>product brand name</b>  | SIRIUS                     |
| <b>product designation</b>   | Power contactor            |
| <b>product type designation</b>  | 3RT2                       |
| <b>General technical data</b>  |                            |
| <b>size of contactor</b>   | S00                        |
| <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   | 0.9 W                      |
| • at AC in hot operating state per pole  | 0.3 W                      |
| • without load current share typical   | 4 W                        |
| <b>type of calculation of power loss depending on pole</b>   | quadratic                  |
| <b>insulation voltage</b>  |                            |
| • of main circuit with degree of pollution 3 rated value   | 690 V                      |
| • of auxiliary circuit with degree of pollution 3 rated value  | 690 V                      |
| <b>surge voltage resistance</b>  |                            |
| • of main circuit rated value  | 6 kV                       |
| • of auxiliary circuit rated value   | 6 kV                       |
| maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1 | 400 V                      |
| <b>shock resistance at rectangular impulse</b>   |                            |
| • at DC  | 6,7g / 5 ms, 4,2g / 10 ms  |
| <b>shock resistance with sine pulse</b>  |                            |
| • at DC  | 10,5g / 5 ms, 6,6g / 10 ms |
| <b>mechanical service life (operating cycles)</b>  |                            |
| • of contactor typical   | 30 000 000                 |
| • 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>   | 10/01/2009                 |
| <b>Ambient conditions</b>  |                            |
| 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 %                       |
| <b>Environmental footprint</b>   |                            |

|  |                   |
|--|-------------------|
| Environmental Product Declaration(EPD)                                 | Yes               |
| Global Warming Potential [CO2 eq] total                                | 153 kg            |
| Global Warming Potential [CO2 eq] during manufacturing                 | 1.42 kg           |
| Global Warming Potential [CO2 eq] during operation                     | 152 kg            |
| Global Warming Potential [CO2 eq] after end of life                    | -0.305 kg         |
| <b>Main circuit</b>  |                   |
| <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            | 22 A              |
| ● at AC-1  |                   |
| — up to 690 V at ambient temperature 40 °C rated value                 | 22 A              |
| — up to 690 V at ambient temperature 60 °C rated value                 | 20 A              |
| ● at AC-3  |                   |
| — at 400 V rated value   | 9 A               |
| — at 500 V rated value   | 7.7 A             |
| — at 690 V rated value   | 6.7 A             |
| ● at AC-3e   |                   |
| — at 400 V rated value   | 9 A               |
| — at 500 V rated value   | 7.7 A             |
| — at 690 V rated value   | 6.7 A             |
| ● at AC-4 at 400 V rated value   | 8.5 A             |
| ● at AC-5a up to 690 V rated value                                     | 19.4 A            |
| ● at AC-5b up to 400 V rated value                                     | 7.4 A             |
| ● at AC-6a   |                   |
| — up to 230 V for current peak value n=20 rated value                  | 5.3 A             |
| — up to 400 V for current peak value n=20 rated value                  | 5.3 A             |
| — up to 500 V for current peak value n=20 rated value                  | 5.3 A             |
| — up to 690 V for current peak value n=20 rated value                  | 5 A               |
| ● at AC-6a   |                   |
| — up to 230 V for current peak value n=30 rated value                  | 3.5 A             |
| — up to 400 V for current peak value n=30 rated value                  | 3.5 A             |
| — up to 500 V for current peak value n=30 rated value                  | 3.6 A             |
| — up to 690 V for current peak value n=30 rated value                  | 3.3 A             |
| minimum cross-section in main circuit at maximum AC-1 rated value      | 4 mm <sup>2</sup> |
| <b>operational current for approx. 200000 operating cycles at AC-4</b> |                   |
| ● at 400 V rated value   | 4.1 A             |
| ● at 690 V rated value   | 3.3 A             |
| <b>operational current</b>   |                   |
| ● <b>at 1 current path at DC-1</b>                                     |                   |
| — at 24 V rated value  | 20 A              |
| — at 60 V rated value  | 20 A              |
| — at 110 V rated value   | 2.1 A             |
| — at 220 V rated value   | 0.8 A             |
| — at 440 V rated value   | 0.6 A             |
| — at 600 V rated value   | 0.6 A             |
| ● <b>with 2 current paths in series at DC-1</b>                        |                   |
| — at 24 V rated value  | 20 A              |
| — at 60 V rated value  | 20 A              |
| — at 110 V rated value   | 12 A              |
| — at 220 V rated value   | 1.6 A             |
| — at 440 V rated value   | 0.8 A             |
| — at 600 V rated value   | 0.7 A             |
| ● <b>with 3 current paths in series at DC-1</b>                        |                   |

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 60 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul>   | 20 A<br>20 A<br>20 A<br>20 A<br>1.3 A<br>1 A   |
| <ul style="list-style-type: none"> <li>● <b>at 1 current path at DC-3 at DC-5</b> <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 60 V rated value</li> <li>— at 110 V rated value</li> </ul> </li> <li>● <b>with 2 current paths in series at DC-3 at DC-5</b> <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 60 V rated value</li> <li>— at 110 V rated value</li> </ul> </li> <li>● <b>with 3 current paths in series at DC-3 at DC-5</b> <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 60 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> </ul> | 20 A<br>0.5 A<br>0.15 A<br><br>20 A<br>5 A<br>0.35 A<br><br>20 A<br>20 A<br>20 A<br>1.5 A<br>0.2 A<br>0.2 A  |
| <b>operating power</b> <ul style="list-style-type: none"> <li>● at AC-3               <ul style="list-style-type: none"> <li>— at 230 V rated value</li> <li>— at 400 V rated value</li> <li>— at 500 V rated value</li> <li>— at 690 V rated value</li> </ul> </li> <li>● at AC-3e               <ul style="list-style-type: none"> <li>— at 230 V rated value</li> <li>— at 400 V rated value</li> <li>— at 500 V rated value</li> <li>— at 690 V rated value</li> </ul> </li> </ul>   | 2.2 kW<br>4 kW<br>4 kW<br>5.5 kW<br><br>2.2 kW<br>4 kW<br>4 kW<br>5.5 kW   |
| <b>operating power for approx. 200000 operating cycles at AC-4</b> <ul style="list-style-type: none"> <li>● at 400 V rated value</li> <li>● at 690 V rated value</li> </ul>  | 2 kW<br>2.5 kW   |
| <b>operating apparent power at AC-6a</b> <ul style="list-style-type: none"> <li>● up to 230 V for current peak value n=20 rated value</li> <li>● up to 400 V for current peak value n=20 rated value</li> <li>● up to 500 V for current peak value n=20 rated value</li> <li>● up to 690 V for current peak value n=20 rated value</li> </ul>  | 2 kVA<br>3.6 kVA<br>4.6 kVA<br>5.9 kVA   |
| <b>operating apparent power at AC-6a</b> <ul style="list-style-type: none"> <li>● up to 230 V for current peak value n=30 rated value</li> <li>● up to 400 V for current peak value n=30 rated value</li> <li>● up to 500 V for current peak value n=30 rated value</li> <li>● up to 690 V for current peak value n=30 rated value</li> </ul>  | 1.3 kVA<br>2.4 kVA<br>3.1 kVA<br>4 kVA   |
| <b>short-time withstand current in cold operating state up to 40 °C</b> <ul style="list-style-type: none"> <li>● limited to 1 s switching at zero current maximum</li> <li>● limited to 5 s switching at zero current maximum</li> <li>● limited to 10 s switching at zero current maximum</li> <li>● limited to 30 s switching at zero current maximum</li> <li>● limited to 60 s switching at zero current maximum</li> </ul>  | 155 A; Use minimum cross-section acc. to AC-1 rated value<br>111 A; Use minimum cross-section acc. to AC-1 rated value<br>86 A; Use minimum cross-section acc. to AC-1 rated value<br>66 A; Use minimum cross-section acc. to AC-1 rated value<br>55 A; Use minimum cross-section acc. to AC-1 rated value |
| <b>no-load switching frequency</b> <ul style="list-style-type: none"> <li>● at DC</li> </ul>   | 10 000 1/h   |
| <b>operating frequency</b> <ul style="list-style-type: none"> <li>● at AC-1 maximum</li> <li>● at AC-2 maximum</li> <li>● at AC-3 maximum</li> <li>● at AC-3e maximum</li> <li>● at AC-4 maximum</li> </ul>  | 1 000 1/h<br>750 1/h<br>750 1/h<br>750 1/h<br>250 1/h  |

| Control circuit/ Control   |   |
|--|---|
| type of voltage of the control supply voltage                                  | DC  |
| control supply voltage at DC rated value                                       |   |
| •  | 24 V  |
| operating range factor control supply voltage rated value of magnet coil at DC |   |
| • initial value  | 0.8   |
| • full-scale value   | 1.1   |
| closing power of magnet coil at DC   | 4 W   |
| holding power of magnet coil at DC   | 4 W   |
| closing delay  |   |
| • at DC  | 30 ... 100 ms   |
| opening delay  |   |
| • at DC  | 7 ... 13 ms   |
| arcing time  | 10 ... 15 ms  |
| control version of the switch operating mechanism                              | Standard A1 - A2  |
| Auxiliary circuit  |   |
| number of NO contacts for auxiliary contacts instantaneous contact             | 1   |
| operational current at AC-12 maximum   | 10 A  |
| operational current at AC-15   |   |
| • 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   |
| operational current at DC-12   |   |
| • 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  |
| operational current at DC-13   |   |
| • 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   |
| contact reliability of auxiliary contacts                                      | 1 faulty switching per 100 million (17 V, 1 mA)                     |
| UL/CSA ratings   |   |
| full-load current (FLA) for 3-phase AC motor                                   |   |
| • at 480 V rated value   | 7.6 A   |
| • at 600 V rated value   | 9 A   |
| yielded mechanical performance [hp]  |   |
| • for single-phase AC motor  |   |
| — at 110/120 V rated value   | 0.33 hp   |
| — at 230 V rated value   | 1 hp  |
| • for 3-phase AC motor   |   |
| — at 200/208 V rated value   | 2 hp  |
| — at 220/230 V rated value   | 3 hp  |
| — at 460/480 V rated value   | 5 hp  |
| — at 575/600 V rated value   | 7.5 hp  |
| contact rating of auxiliary contacts according to UL                           | A600 / Q600   |
| Short-circuit protection   |   |
| design of the fuse link  |   |
| • for short-circuit protection of the main circuit                             |   |
| — with type of coordination 1 required   | gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA)   |
| — with type of assignment 2 required   | gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (415V, 80kA) |

- for short-circuit protection of the auxiliary switch required

gG: 10 A (500 V, 1 kA)

### Installation/ mounting/ dimensions

|  |  |
|--|--|
| <b>mounting position</b>   | +/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface |
| <b>fastening method</b>  | screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715   |
| <b>height</b>  | 58 mm  |
| <b>width</b>   | 45 mm  |
| <b>depth</b>   | 73 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 10 mm</li> <li>— upwards 10 mm</li> <li>— downwards 10 mm</li> <li>— at the side 0 mm</li> </ul> </li> <li>• for grounded parts           <ul style="list-style-type: none"> <li>— forwards 10 mm</li> <li>— upwards 10 mm</li> <li>— at the side 6 mm</li> <li>— downwards 10 mm</li> </ul> </li> <li>• for live parts           <ul style="list-style-type: none"> <li>— forwards 10 mm</li> <li>— upwards 10 mm</li> <li>— downwards 10 mm</li> <li>— at the side 6 mm</li> </ul> </li> </ul> |  |

### Connections/ Terminals

|   |   |
|---|---|
| <b>type of electrical connection</b>  |   |
| <ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for auxiliary and control circuit</li> <li>• at contactor for auxiliary contacts</li> <li>• of magnet coil</li> </ul>  | <p>screw-type terminals</p> <p>screw-type terminals</p> <p>Screw-type terminals</p> <p>Screw-type terminals</p> |
| <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>— solid 2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>), 2x 4 mm<sup>2</sup></li> <li>— solid or stranded 2x (0,5 ... 1,5 mm<sup>2</sup>), 2x (0,75 ... 2,5 mm<sup>2</sup>), 2x 4 mm<sup>2</sup></li> <li>— finely stranded with core end processing 2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)</li> </ul> </li> <li>• for AWG cables for main contacts 2x (20 ... 16), 2x (18 ... 14), 2x 12</li> </ul> |   |
| <b>connectable conductor cross-section for main contacts</b>  |   |
| <ul style="list-style-type: none"> <li>• solid 0.5 ... 4 mm<sup>2</sup></li> <li>• stranded 0.5 ... 4 mm<sup>2</sup></li> <li>• finely stranded with core end processing 0.5 ... 2.5 mm<sup>2</sup></li> </ul>  |   |
| <b>connectable conductor cross-section for auxiliary contacts</b>   |   |
| <ul style="list-style-type: none"> <li>• solid or stranded 0.5 ... 4 mm<sup>2</sup></li> <li>• finely stranded with core end processing 0.5 ... 2.5 mm<sup>2</sup></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 2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>), 2x 4 mm<sup>2</sup></li> <li>— finely stranded with core end processing 2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)</li> </ul> </li> <li>• for AWG cables for auxiliary contacts 2x (20 ... 16), 2x (18 ... 14), 2x 12</li> </ul>   |   |
| <b>AWG number as coded connectable conductor cross section</b>  |   |
| <ul style="list-style-type: none"> <li>• for main contacts 20 ... 12</li> <li>• for auxiliary contacts 20 ... 12</li> </ul>   |   |

### Safety related data

|   |  |
|---|--|
| <b>product function</b>   |  |
| <ul style="list-style-type: none"> <li>• mirror contact according to IEC 60947-4-1</li> </ul>   | Yes; with 3RH29                                    |
| suitability for use safety-related switching OFF  | Yes; applies only to contactor operating mechanism |
| <b>proportion of dangerous failures</b>   |  |
| <ul style="list-style-type: none"> <li>• with low demand rate according to SN 31920 40 %</li> <li>• with high demand rate according to SN 31920 73 %</li> </ul> |  |
| <b>B10 value with high demand rate according to SN 31920</b>  | 1 000 000  |
| <b>failure rate [FIT] with low demand rate according to SN</b>  | 100 FIT  |

|  |  |
|--|--|
| <b>31920</b>   |  |
| IEC 61508  |  |
| <b>T1 value</b>  |  |
| <ul style="list-style-type: none"> <li>for proof test interval or service life according to IEC 61508</li> </ul> | 20 a   |
| Electrical Safety  |  |
| <b>protection class IP on the front according to IEC 60529</b>   | IP20   |
| <b>touch protection on the front according to IEC 60529</b>  | finger-safe, for vertical contact from the front |

**Approvals Certificates**

**General Product Approval**



[Confirmation](#)



|                                 |            |                          |                          |
|---------------------------------|------------|--------------------------|--------------------------|
| <b>General Product Approval</b> | <b>EMV</b> | <b>Functional Safety</b> | <b>Test Certificates</b> |
|---------------------------------|------------|--------------------------|--------------------------|

[KC](#)



[Type Examination Certificate](#)

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)

|                          |                          |
|--------------------------|--------------------------|
| <b>Test Certificates</b> | <b>Marine / Shipping</b> |
|--------------------------|--------------------------|

[Miscellaneous](#)



|                          |              |                |                       |
|--------------------------|--------------|----------------|-----------------------|
| <b>Marine / Shipping</b> | <b>other</b> | <b>Railway</b> | <b>Dangerous Good</b> |
|--------------------------|--------------|----------------|-----------------------|



[Miscellaneous](#)

[Confirmation](#)

[Special Test Certificate](#)

[Transport Information](#)

**Environment**



[Environmental Confirmations](#)

**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=3RT2016-1BB41>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1BB41>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1BB41>

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

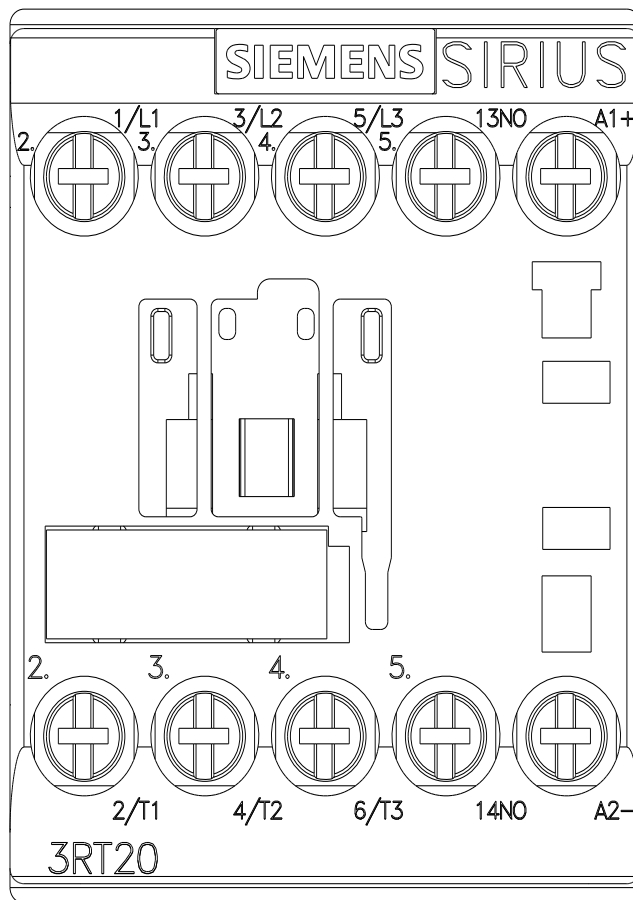
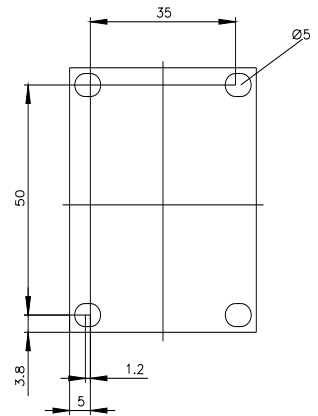
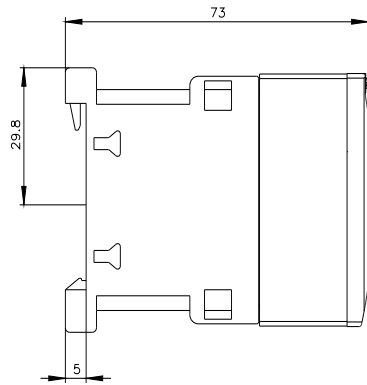
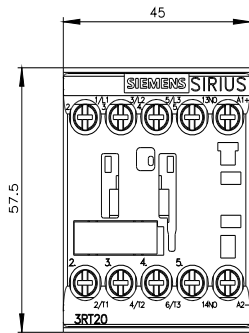
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2016-1BB41&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1BB41&lang=en)

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1BB41/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1BB41&objecttype=14&gridview=view1>





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