



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 48 V AC, 50/60 Hz, 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   | 1.1 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 AC  | 6,7g / 5 ms, 4,2g / 10 ms  |
| <b>shock resistance with sine pulse</b>  |                            |
| • at AC  | 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 Prohibition (Date)</b>  | 10/01/2009                 |
| <b>Weight</b>  | 0.233 kg                   |
| <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 %                       |

| Environmental footprint  |                   |
|--|-------------------|
| Environmental Product Declaration(EPD)                                 | Yes               |
| global warming potential [CO2 eq] total                                | 39.6 kg           |
| global warming potential [CO2 eq] during manufacturing                 | 1.18 kg           |
| global warming potential [CO2 eq] during operation                     | 38.5 kg           |
| global warming potential [CO2 eq] after end of life                    | -0.155 kg         |
| Main circuit   |                   |
| <b>number of poles for main current circuit</b>                        | 3                 |
| <b>number of NO contacts for main contacts</b>                         | 3                 |
| <b>number of NC contacts for main contacts</b>                         | 0                 |
| <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>                         |   |
| — at 24 V rated value   | 20 A  |
| — at 60 V rated value   | 20 A  |
| — at 110 V rated value  | 20 A  |
| — at 220 V rated value  | 20 A  |
| — at 440 V rated value  | 1.3 A   |
| — at 600 V rated value  | 1 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   | 0.5 A   |
| — at 110 V rated value  | 0.15 A  |
| ● <b>with 2 current paths in series at DC-3 at DC-5</b>                 |   |
| — at 24 V rated value   | 20 A  |
| — at 60 V rated value   | 5 A   |
| — at 110 V rated value  | 0.35 A  |
| ● <b>with 3 current paths in series at DC-3 at DC-5</b>                 |   |
| — at 24 V rated value   | 20 A  |
| — at 60 V rated value   | 20 A  |
| — at 110 V rated value  | 20 A  |
| — at 220 V rated value  | 1.5 A   |
| — at 440 V rated value  | 0.2 A   |
| — at 600 V rated value  | 0.2 A   |
| <b>operating power</b>  |   |
| ● at AC-3   |   |
| — at 230 V rated value  | 2.2 kW  |
| — at 400 V rated value  | 4 kW  |
| — at 500 V rated value  | 4 kW  |
| — at 690 V rated value  | 5.5 kW  |
| ● at AC-3e  |   |
| — at 230 V rated value  | 2.2 kW  |
| — at 400 V rated value  | 4 kW  |
| — at 500 V rated value  | 4 kW  |
| — at 690 V rated value  | 5.5 kW  |
| <b>operating power for approx. 200000 operating cycles at AC-4</b>      |   |
| ● at 400 V rated value  | 2 kW  |
| ● at 690 V rated value  | 2.5 kW  |
| <b>operating apparent power at AC-6a</b>                                |   |
| ● up to 230 V for current peak value n=20 rated value                   | 2 kVA   |
| ● up to 400 V for current peak value n=20 rated value                   | 3.6 kVA   |
| ● up to 500 V for current peak value n=20 rated value                   | 4.6 kVA   |
| ● up to 690 V for current peak value n=20 rated value                   | 5.9 kVA   |
| <b>operating apparent power at AC-6a</b>                                |   |
| ● up to 230 V for current peak value n=30 rated value                   | 1.3 kVA   |
| ● up to 400 V for current peak value n=30 rated value                   | 2.4 kVA   |
| ● up to 500 V for current peak value n=30 rated value                   | 3.1 kVA   |
| ● up to 690 V for current peak value n=30 rated value                   | 4 kVA   |
| <b>short-time withstand current in cold operating state up to 40 °C</b> |   |
| ● limited to 1 s switching at zero current maximum                      | 155 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 5 s switching at zero current maximum                      | 111 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 10 s switching at zero current maximum                     | 86 A; Use minimum cross-section acc. to AC-1 rated value  |
| ● limited to 30 s switching at zero current maximum                     | 66 A; Use minimum cross-section acc. to AC-1 rated value  |
| ● limited to 60 s switching at zero current maximum                     | 55 A; Use minimum cross-section acc. to AC-1 rated value  |
| <b>no-load switching frequency</b>                                      |   |
| ● at AC   | 10 000 1/h  |
| <b>operating frequency</b>  |   |
| ● at AC-1 maximum   | 1 000 1/h   |
| ● at AC-2 maximum   | 750 1/h   |
| ● at AC-3 maximum   | 750 1/h   |

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>● at AC-3e <ul style="list-style-type: none"> <li>— maximum</li> </ul> </li> <li>● at AC-4 maximum</li> </ul>  | <p>750 1/h</p> <p>250 1/h</p>   |
| <b>Control circuit/ Control</b>   |   |
| <b>type of voltage of the control supply voltage</b>  | AC  |
| <b>control supply voltage at AC</b>   |   |
| <ul style="list-style-type: none"> <li>● at 50 Hz rated value</li> <li>● at 60 Hz rated value</li> </ul>  | <p>48 V</p> <p>48 V</p>   |
| <b>operating range factor control supply voltage rated value of magnet coil at AC</b>   |   |
| <ul style="list-style-type: none"> <li>● at 50 Hz</li> <li>● at 60 Hz</li> </ul>  | <p>0.8 ... 1.1</p> <p>0.85 ... 1.1</p>  |
| <b>apparent pick-up power of magnet coil at AC</b>  |   |
| <ul style="list-style-type: none"> <li>● at 50 Hz</li> <li>● at 60 Hz</li> </ul>  | <p>27 VA</p> <p>24.3 VA</p>   |
| <b>inductive power factor with closing power of the coil</b>  |   |
| <ul style="list-style-type: none"> <li>● at 50 Hz</li> <li>● at 60 Hz</li> </ul>  | <p>0.8</p> <p>0.75</p>  |
| <b>apparent holding power of magnet coil at AC</b>  |   |
| <ul style="list-style-type: none"> <li>● at 50 Hz</li> <li>● at 60 Hz</li> </ul>  | <p>4.2 VA</p> <p>3.3 VA</p>   |
| <b>inductive power factor with the holding power of the coil</b>  |   |
| <ul style="list-style-type: none"> <li>● at 50 Hz</li> <li>● at 60 Hz</li> </ul>  | <p>0.25</p> <p>0.25</p>   |
| <b>closing delay</b>  |   |
| <ul style="list-style-type: none"> <li>● at AC</li> </ul>   | 9 ... 35 ms   |
| <b>opening delay</b>  |   |
| <ul style="list-style-type: none"> <li>● at AC</li> </ul>   | 4 ... 15 ms   |
| <b>arcing time</b>  | 10 ... 15 ms  |
| <b>control version of the switch operating mechanism</b>  | Standard A1 - A2  |
| <b>Auxiliary circuit</b>  |   |
| number of NC contacts for auxiliary contacts instantaneous contact  | 0   |
| number of NO contacts for auxiliary contacts instantaneous contact  | 1   |
| operational current at AC-12 maximum  | 10 A  |
| <b>operational current at AC-15</b>   |   |
| <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>  | <p>10 A</p> <p>3 A</p> <p>2 A</p> <p>1 A</p>  |
| <b>operational current at DC-12</b>   |   |
| <ul style="list-style-type: none"> <li>● at 24 V rated value</li> <li>● at 48 V rated value</li> <li>● at 60 V rated value</li> <li>● at 110 V rated value</li> <li>● at 125 V rated value</li> <li>● at 220 V rated value</li> <li>● at 600 V rated value</li> </ul> | <p>10 A</p> <p>6 A</p> <p>6 A</p> <p>3 A</p> <p>2 A</p> <p>1 A</p> <p>0.15 A</p>    |
| <b>operational current at DC-13</b>   |   |
| <ul style="list-style-type: none"> <li>● at 24 V rated value</li> <li>● at 48 V rated value</li> <li>● at 60 V rated value</li> <li>● at 110 V rated value</li> <li>● at 125 V rated value</li> <li>● at 220 V rated value</li> <li>● at 600 V rated value</li> </ul> | <p>10 A</p> <p>2 A</p> <p>2 A</p> <p>1 A</p> <p>0.9 A</p> <p>0.3 A</p> <p>0.1 A</p> |
| <b>contact reliability of auxiliary contacts</b>  | 1 faulty switching per 100 million (17 V, 1 mA)                                     |
| <b>UL/CSA ratings</b>   |   |
| <b>full-load current (FLA) for 3-phase AC motor</b>   |   |
| <ul style="list-style-type: none"> <li>● at 480 V rated value</li> </ul>  | 7.6 A   |

|   |  |
|---|--|
| <ul style="list-style-type: none"> <li>at 600 V rated value</li> </ul>  | 9 A  |
| <b>yielded mechanical performance [hp]</b> <ul style="list-style-type: none"> <li>for single-phase AC motor <ul style="list-style-type: none"> <li>at 110/120 V rated value</li> <li>at 230 V rated value</li> </ul> </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>  | 0.33 hp<br>1 hp<br>2 hp<br>3 hp<br>5 hp<br>7.5 hp  |
| <b>contact rating of auxiliary contacts according to UL</b>   | A600 / Q600  |
| <b>Short-circuit protection</b>   |  |
| design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V   | C characteristic: 10 A; 0.4 kA   |
| <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 coordination 2 required</li> </ul> </li> <li>for short-circuit protection of the auxiliary switch required</li> </ul>  | gG: 35 A (690 V, 100 kA), aM: 20 A (690 V, 100 kA), BS88: 35 A (415 V, 80 kA)<br>gG: 20 A (690 V, 100 kA), aM: 16 A (690 V, 100 kA), BS88: 20 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   |
| fastening method side-by-side mounting  | Yes  |
| <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</li> <li>upwards</li> <li>downwards</li> <li>at the side</li> </ul> </li> <li>for grounded parts <ul style="list-style-type: none"> <li>forwards</li> <li>upwards</li> <li>at the side</li> <li>downwards</li> </ul> </li> <li>for live parts <ul style="list-style-type: none"> <li>forwards</li> <li>upwards</li> <li>downwards</li> <li>at the side</li> </ul> </li> </ul> | 10 mm<br>10 mm<br>10 mm<br>0 mm<br>10 mm<br>10 mm<br>6 mm<br>10 mm<br>10 mm<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>   | 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>solid</li> <li>solid or stranded</li> <li>finely stranded with core end processing</li> </ul> </li> <li>for AWG cables for main contacts</li> </ul>   | 2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ), 2x 4 mm <sup>2</sup><br>2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ), 2x 4 mm <sup>2</sup><br>2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> )<br>2x (20 ... 16), 2x (18 ... 14), 2x 12 |
| <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>  | 0.5 ... 4 mm <sup>2</sup><br>0.5 ... 4 mm <sup>2</sup><br>0.5 ... 2.5 mm <sup>2</sup>  |
| <b>connectable conductor cross-section for auxiliary contacts</b> <ul style="list-style-type: none"> <li>solid or stranded</li> </ul>   | 0.5 ... 4 mm <sup>2</sup>  |

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>finely stranded with core end processing</li> </ul>   | 0.5 ... 2.5 mm <sup>2</sup>   |
| <b>type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>for auxiliary contacts <ul style="list-style-type: none"> <li>— solid or stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>for AWG cables for auxiliary contacts</li> </ul> | 2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ), 2x 4 mm <sup>2</sup><br>2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> )<br>2x (20 ... 16), 2x (18 ... 14), 2x 12 |
| <b>AWG number as coded connectable conductor cross section for main contacts</b>   | 20 ... 12   |
| <b>AWG number as coded connectable conductor cross section for auxiliary contacts</b>  | 20 ... 12   |

**Safety related data**

|   |  |
|---|--|
| <b>product function</b> <ul style="list-style-type: none"> <li>mirror contact according to IEC 60947-4-1</li> <li>positively driven operation according to IEC 60947-5-1</li> <li>suitable for safety function</li> </ul> | Yes; with 3RH29<br>No<br>Yes                     |
| suitability for use safety-related switching OFF  | Yes  |
| <b>service life maximum</b>   | 20 a   |
| <b>test wear-related service life necessary</b>   | Yes  |
| <b>proportion of dangerous failures</b> <ul style="list-style-type: none"> <li>with low demand rate according to SN 31920</li> <li>with high demand rate according to SN 31920</li> </ul>                                 | 40 %<br>73 %                                     |
| <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 31920</b>  | 100 FIT  |
| <b>ISO 13849</b>  |  |
| <b>device type according to ISO 13849-1</b>   | 3  |
| <b>overdimensioning according to ISO 13849-2 necessary</b>  | Yes  |
| <b>IEC 61508</b>  |  |
| <b>safety device type according to IEC 61508-2</b>  | Type A   |
| <b>Electrical Safety</b>  |  |
| <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**



[KC](#)

|                                 |            |                          |                             |
|---------------------------------|------------|--------------------------|-----------------------------|
| <b>General Product Approval</b> | <b>EMV</b> | <b>Test Certificates</b> | <b>Maritime application</b> |
|---------------------------------|------------|--------------------------|-----------------------------|



[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)



|                             |              |
|-----------------------------|--------------|
| <b>Maritime application</b> | <b>other</b> |
|-----------------------------|--------------|



[Miscellaneous](#)



|              |                |                    |
|--------------|----------------|--------------------|
| <b>other</b> | <b>Railway</b> | <b>Environment</b> |
|--------------|----------------|--------------------|

[Confirmation](#)

[Confirmation](#)

[Special Test Certificate](#)



[Environmental Confirmations](#)

## Further information

### Information on the packaging

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

### Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

### 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=3RT2016-1AH01>

### Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1AH01>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AH01>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2016-1AH01&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1AH01&lang=en)

### Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AH01/char>

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

<https://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1AH01&objecttype=14&gridview=view1>





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