



Power contactor, AC-3 9 A, 4 kW / 400 V 1 NO, 24 V DC 0.85-1.85\*US with integrated suppressor diode Size S00, screw terminal

|   |                            |
|---|----------------------------|
| <b>product brand name</b>   | SIRIUS                     |
| <b>product designation</b>  | Coupling 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  | No                         |
| <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  | 1.6 W                      |
| <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 safe isolation 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 (switching cycles)</b>   |                            |
| • of contactor typical  | 30 000 000                 |
| <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>Main circuit</b>   |                            |
| <b>number of poles for main current circuit</b>   | 3                          |
| <b>number of NO contacts for main contacts</b>  | 3                          |

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| <b>operating voltage</b>   |  |
| <ul style="list-style-type: none"> <li>● at AC-3 rated value maximum</li> <li>● at AC-3e rated value maximum</li> </ul>  | 690 V<br>690 V                           |
| <b>operational current</b>   |  |
| <ul style="list-style-type: none"> <li>● at AC-1 at 400 V at ambient temperature 40 °C rated value</li> </ul>  | 22 A                                     |
| <ul style="list-style-type: none"> <li>● at AC-1 <ul style="list-style-type: none"> <li>— up to 690 V at ambient temperature 40 °C rated value</li> <li>— up to 690 V at ambient temperature 60 °C rated value</li> </ul> </li> </ul>  | 22 A<br>20 A                             |
| <ul style="list-style-type: none"> <li>● at AC-3 <ul style="list-style-type: none"> <li>— at 400 V rated value</li> <li>— at 500 V rated value</li> <li>— at 690 V rated value</li> </ul> </li> </ul>  | 9 A<br>7.7 A<br>6.7 A                    |
| <ul style="list-style-type: none"> <li>● at AC-3e <ul style="list-style-type: none"> <li>— at 400 V rated value</li> <li>— at 500 V rated value</li> <li>— at 690 V rated value</li> </ul> </li> </ul>   | 9 A<br>7.7 A<br>6.7 A                    |
| <ul style="list-style-type: none"> <li>● at AC-4 at 400 V rated value</li> </ul>   | 8.5 A                                    |
| <ul style="list-style-type: none"> <li>● at AC-5a up to 690 V rated value</li> </ul>   | 19.4 A                                   |
| <ul style="list-style-type: none"> <li>● at AC-5b up to 400 V rated value</li> </ul>   | 7.4 A                                    |
| <ul style="list-style-type: none"> <li>● at AC-6a <ul style="list-style-type: none"> <li>— up to 230 V for current peak value n=20 rated value</li> <li>— up to 400 V for current peak value n=20 rated value</li> <li>— up to 500 V for current peak value n=20 rated value</li> <li>— up to 690 V for current peak value n=20 rated value</li> </ul> </li> </ul> | 5.3 A<br>5.3 A<br>5.3 A<br>5 A           |
| <ul style="list-style-type: none"> <li>● at AC-6a <ul style="list-style-type: none"> <li>— up to 230 V for current peak value n=30 rated value</li> <li>— up to 400 V for current peak value n=30 rated value</li> <li>— up to 500 V for current peak value n=30 rated value</li> <li>— up to 690 V for current peak value n=30 rated value</li> </ul> </li> </ul> | 3.5 A<br>3.5 A<br>3.6 A<br>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>   |  |
| <ul style="list-style-type: none"> <li>● at 400 V rated value</li> <li>● at 690 V rated value</li> </ul>   | 4.1 A<br>3.3 A                           |
| <b>operational current</b>   |  |
| <ul style="list-style-type: none"> <li>● <b>at 1 current path at DC-1</b> <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> </ul>  | 20 A<br>2.1 A<br>0.8 A<br>0.6 A<br>0.6 A |
| <ul style="list-style-type: none"> <li>● <b>with 2 current paths in series at DC-1</b> <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> </ul>   | 20 A<br>12 A<br>1.6 A<br>0.8 A<br>0.7 A  |
| <ul style="list-style-type: none"> <li>● <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 110 V rated value</li> <li>— at 220 V rated value</li> </ul> </li> </ul>   | 20 A<br>20 A<br>20 A                     |

|   |  |
|---|--|
| <ul style="list-style-type: none"> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul>  | 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 110 V rated value</li> </ul> </li> </ul>   | 20 A<br>0.1 A  |
| <ul style="list-style-type: none"> <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 110 V rated value</li> </ul> </li> </ul>  | 20 A<br>0.35 A   |
| <ul style="list-style-type: none"> <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 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>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 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  |
| <b>Control circuit/ Control</b>   |  |
| <b>type of voltage of the control supply voltage</b>  | DC   |
| <b>control supply voltage at DC</b>   |  |
| <ul style="list-style-type: none"> <li>● rated value</li> </ul>   | 24 V   |
| <b>operating range factor control supply voltage rated value of magnet coil at DC</b>   |  |
| <ul style="list-style-type: none"> <li>● initial value</li> </ul>   | 0.85   |

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| <ul style="list-style-type: none"> <li>• full-scale value</li> </ul>  | 1.85   |
| <b>design of the surge suppressor</b>   | suppressor diode   |
| <b>closing power of magnet coil at DC</b>   | 1.6 W  |
| <b>holding power of magnet coil at DC</b>   | 1.6 W  |
| <b>closing delay</b>  |  |
| <ul style="list-style-type: none"> <li>• at DC</li> </ul>   | 25 ... 120 ms  |
| <b>opening delay</b>  |  |
| <ul style="list-style-type: none"> <li>• at DC</li> </ul>   | 5 ... 20 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 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>  | 10 A<br>3 A<br>2 A<br>1 A  |
| <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>   | 10 A<br>6 A<br>6 A<br>3 A<br>2 A<br>1 A<br>0.15 A  |
| <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>   | 10 A<br>2 A<br>2 A<br>1 A<br>0.9 A<br>0.3 A<br>0.1 A   |
| <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> <li>• at 600 V rated value</li> </ul>  | 7.6 A<br>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>   |  |
| <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: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA)<br>gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (415V, 80kA)<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  |

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|   | 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>   | 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><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>  | 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>at 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> <li>finely stranded with core end processing</li> </ul>   | 0.5 ... 4 mm <sup>2</sup><br>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>at 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</b>  |  |
| <ul style="list-style-type: none"> <li>for main contacts</li> <li>for auxiliary contacts</li> </ul>   | 20 ... 12<br>20 ... 12   |
| <b>Safety related data</b>  |  |
| <b>product function</b>   |  |
| <ul style="list-style-type: none"> <li>mirror contact according to IEC 60947-4-1</li> </ul>   | No   |
| B10 value with high demand rate according to SN 31920   | 1 000 000  |
| <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 %   |
| failure rate [FIT] with low demand rate according to SN   | 100 FIT  |

|  |  |
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| 31920  |  |
| 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 <ul style="list-style-type: none"> <li>• safety-related switching OFF</li> </ul> | 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 | Dangerous Good |
|-------------------|-------|----------------|



[Confirmation](#)



[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=3RT2016-1SB41>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1SB41>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1SB41>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2016-1SB41&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1SB41&lang=en)

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1SB41/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1SB41&objecttype=14&gridview=view1>

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