



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 24 V DC, with plugged-in diode combination, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S0

|  |                          |
|--|--------------------------|
| product brand name   | SIRIUS                   |
| product designation  | Power contactor          |
| product type designation   | 3RT2                     |
| <b>General technical data</b>  |                          |
| 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   | 0.6 W                    |
| • at AC in hot operating state per pole  | 0.2 W                    |
| • without load current share typical   | 5.9 W                    |
| type of calculation of power loss depending on pole  | quadratic                |
| 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 protective separation between coil and main contacts according to EN 60947-1 | 400 V                    |
| shock resistance at rectangular impulse  |                          |
| • at DC  | 10g / 5 ms, 7.5g / 10 ms |
| shock resistance with sine pulse   |                          |
| • at DC  | 15g / 5 ms, 10g / 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               |
| SVHC substance name  | Lead - 7439-92-1         |
| Net Weight   | 0.6 kg                   |
| <b>Ambient conditions</b>  |                          |
| 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 %               |
| <b>Environmental footprint</b>                                    |                    |
| Environmental Product Declaration(EPD)                            | Yes                |
| global warming potential [CO2 eq] total                           | 221 kg             |
| global warming potential [CO2 eq] during manufacturing            | 2.65 kg            |
| global warming potential [CO2 eq] during operation                | 219 kg             |
| global warming potential [CO2 eq] after end of life               | -0.639 kg          |
| <b>Main circuit</b>   |                    |
| number of poles for main current circuit                          | 3                  |
| number of NO contacts for main contacts                           | 3                  |
| number of NC contacts for main contacts                           | 0                  |
| operating voltage   |                    |
| • at AC-3 rated value maximum                                     | 690 V              |
| • at AC-3e rated value maximum                                    | 690 V              |
| operational current   |                    |
| • 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  | 9 A                |
| — at 500 V rated value  | 9 A                |
| — at 690 V rated value  | 9 A                |
| • at AC-3e  |                    |
| — at 400 V rated value  | 9 A                |
| — at 500 V rated value  | 9 A                |
| — at 690 V rated value  | 9 A                |
| • at AC-4 at 400 V rated value                                    | 8.5 A              |
| • at AC-5a up to 690 V rated value                                | 35.2 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             | 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             | 9.1 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             | 6.1 A              |
| — up to 690 V for current peak value n=30 rated value             | 6.1 A              |
| minimum cross-section in main circuit at maximum AC-1 rated value | 10 mm <sup>2</sup> |
| operational current for approx. 200000 operating cycles at AC-4   |                    |
| • at 400 V rated value  | 4.1 A              |
| • at 690 V rated value  | 3.3 A              |
| operational current   |                    |
| • at 1 current path at DC-1                                       |                    |
| — 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             |
| • with 2 current paths in series at DC-1                          |                    |
| — 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 110 V rated value   | 2.5 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>   |          |
| <b>• at AC-2 at 400 V rated value</b>                              | 4 kW     |
| <b>• at AC-3</b>   |          |
| — 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   | 7.5 kW   |
| <b>• at AC-3e</b>  |          |
| — 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   | 7.5 kW   |
| <b>operating power for approx. 200000 operating cycles at AC-4</b> |          |
| <b>• at 400 V rated value</b>                                      | 2 kW     |
| <b>• at 690 V rated value</b>                                      | 2.5 kW   |
| <b>operating apparent power at AC-6a</b>                           |          |
| <b>• up to 230 V for current peak value n=20 rated value</b>       | 4.5 kVA  |
| <b>• up to 400 V for current peak value n=20 rated value</b>       | 7.8 kVA  |
| <b>• up to 500 V for current peak value n=20 rated value</b>       | 7.8 kVA  |
| <b>• up to 690 V for current peak value n=20 rated value</b>       | 10.7 kVA |
| <b>operating apparent power at AC-6a</b>                           |          |
| <b>• up to 230 V for current peak value n=30 rated value</b>       | 3 kVA    |
| <b>• up to 400 V for current peak value n=30 rated value</b>       | 5.2 kVA  |
| <b>• up to 500 V for current peak value n=30 rated value</b>       | 5.2 kVA  |
| <b>• up to 690 V for current peak value n=30 rated value</b>       | 7.2 kVA  |
| <b>short-time withstand current in cold operating state up to</b>  |          |

|   |   |  |
|---|---|--|
| <b>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> | 170 A; Use minimum cross-section acc. to AC-1 rated value<br>170 A; Use minimum cross-section acc. to AC-1 rated value<br>140 A; Use minimum cross-section acc. to AC-1 rated value<br>104 A; Use minimum cross-section acc. to AC-1 rated value<br>88 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>   | 1 500 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 <ul style="list-style-type: none"> <li>— maximum</li> </ul> </li> <li>• at AC-4 maximum</li> </ul>   | 1 000 1/h<br>1 000 1/h<br>1 000 1/h<br>1 000 1/h<br>300 1/h  |
| <b>Control circuit/ Control</b>   |   |  |
| <b>type of voltage of the control supply voltage</b>  | DC  |  |
| <b>control supply voltage at DC rated value</b>   | 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> <li>• full-scale value</li> </ul>   | 0.8<br>1.1  |  |
| <b>design of the surge suppressor</b>   | with diode assemblies   |  |
| <b>closing power of magnet coil at DC</b>   | 5.9 W   |  |
| <b>holding power of magnet coil at DC</b>   | 5.9 W   |  |
| <b>closing delay</b>  |   |  |
| <ul style="list-style-type: none"> <li>• at DC</li> </ul>   | 50 ... 170 ms   |  |
| <b>opening delay</b>  |   |  |
| <ul style="list-style-type: none"> <li>• at DC</li> </ul>   | 15 ... 18 ms  |  |
| <b>arcning time</b>   | 10 ... 10 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  | 1   |  |
| 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>   |  |
| • at 480 V rated value  | 7.6 A  |
| • at 600 V rated value  | 9 A  |
| <b>yielded mechanical performance [hp]</b>  |  |
| • for single-phase AC motor   |  |
| — at 110/120 V rated value  | 1 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   |
| <b>contact rating of auxiliary contacts according to UL</b>   | A600 / P600  |
| <b>Category Control Number (CCN)</b>  | E31519 (NLDX, NLDX7)   |
| <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>  |  |
| • for short-circuit protection of the main circuit  |  |
| — with type of coordination 1 required  | gG: 63 A (690 V, 100 kA), aM: 32 A (690 V, 100 kA), BS88: 63 A (415 V, 80 kA)  |
| — with type of coordination 2 required  | gG: 25 A (690 V, 100 kA), aM: 20 A (690 V, 100 kA), BS88: 25 A (415 V, 80 kA)  |
| • for short-circuit protection of the auxiliary switch required   | 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>   | 85 mm  |
| <b>width</b>  | 45 mm  |
| <b>depth</b>  | 107 mm   |
| <b>required spacing</b>   |  |
| • with side-by-side mounting  |  |
| — forwards  | 10 mm  |
| — upwards   | 10 mm  |
| — downwards   | 10 mm  |
| — at the side   | 0 mm   |
| • for grounded parts  |  |
| — forwards  | 10 mm  |
| — upwards   | 10 mm  |
| — at the side   | 6 mm   |
| — downwards   | 10 mm  |
| • for live parts  |  |
| — forwards  | 10 mm  |
| — upwards   | 10 mm  |
| — downwards   | 10 mm  |
| — at the side   | 6 mm   |
| <b>Connections/ Terminals</b>   |  |
| <b>type of electrical connection</b>  |  |
| • for main current circuit  | screw-type terminals   |
| • for auxiliary and control circuit   | screw-type terminals   |
| • at contactor for auxiliary contacts   | Screw-type terminals   |
| • of magnet coil  | Screw-type terminals   |
| <b>type of connectable conductor cross-sections</b>   |  |
| • for main contacts   |  |
| — solid   | 2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 10 mm <sup>2</sup> )  |
| — solid or stranded   | 2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 10 mm <sup>2</sup> )  |
| — finely stranded with core end processing  | 2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup>  |
| • for AWG cables for main contacts  | 2x (16 ... 12), 2x (14 ... 8)  |
| <b>connectable conductor cross-section for main contacts</b>  |  |

|   |   |
|---|---|
| • solid   | 1 ... 10 mm <sup>2</sup>  |
| • stranded  | 1 ... 10 mm <sup>2</sup>  |
| • finely stranded with core end processing  | 1 ... 10 mm <sup>2</sup>  |
| <b>connectable conductor cross-section for auxiliary contacts</b>                     |   |
| • solid or stranded   | 0.5 ... 2.5 mm <sup>2</sup>   |
| • finely stranded with core end processing  | 0.5 ... 2.5 mm <sup>2</sup>   |
| <b>type of connectable conductor cross-sections</b>                                   |   |
| • for auxiliary contacts  |   |
| — solid or stranded   | 2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ) |
| — finely stranded with core end processing  | 2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ) |
| • for AWG cables for auxiliary contacts   | 2x (20 ... 16), 2x (18 ... 14)  |
| <b>AWG number as coded connectable conductor cross-section for main contacts</b>      | 16 ... 8  |
| <b>AWG number as coded connectable conductor cross-section for auxiliary contacts</b> | 20 ... 14   |

### Safety related data

|  |  |
|--|--|
| <b>product function</b>  |  |
| • mirror contact according to IEC 60947-4-1                          | Yes  |
| • positively driven operation according to IEC 60947-5-1             | No   |
| • suitable for safety function                                       | Yes  |
| <b>suitability for use safety-related switching OFF</b>              | Yes  |
| <b>service life maximum</b>  | 20 a   |
| <b>test wear-related service life necessary</b>                      | Yes  |
| <b>proportion of dangerous failures</b>                              |  |
| • with low demand rate according to SN 31920                         | 40 %   |
| • with high demand rate according to SN 31920                        | 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

|                                 |  |
|---------------------------------|--|
| <b>General Product Approval</b> |  |
|---------------------------------|--|



[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>Dangerous goods</b> | <b>Environment</b> |
|--------------|----------------|------------------------|--------------------|

#### 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=3RT2023-1FB40>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2023-1FB40>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2023-1FB40&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2023-1FB40&lang=en)

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2023-1FB40>

Characteristic curves

[https://curves.simaris.siemens.com/curves/<mmp\\_prod\\_noCOMP="HAUPT"></mmp\\_prod\\_no>](https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP=)



