



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 220 V AC, 50/60 Hz, auxiliary contacts: 2 NO + 2 NC, screw terminal, size: S0, removable auxiliary switch

|  |                            |
|--|----------------------------|
| <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>   | S0                         |
| <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   | 0.6 W                      |
| • at AC in hot operating state per pole  | 0.2 W                      |
| • without load current share typical   | 2 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  | 7,5g / 5 ms, 4,7g / 10 ms  |
| <b>shock resistance with sine pulse</b>  |                            |
| • at AC  | 11,8g / 5 ms, 7,4g / 10 ms |
| <b>mechanical service life (operating cycles)</b>  |                            |
| • 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                 |
| <b>reference code according to IEC 81346-2</b>   | Q                          |
| <b>Substance Prohibitance (Date)</b>   | 10/01/2009                 |
| <b>Weight</b>  | 0.47 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                                | 74.2 kg            |
| global warming potential [CO2 eq] during manufacturing                 | 1.9 kg             |
| global warming potential [CO2 eq] during operation                     | 72.4 kg            |
| global warming potential [CO2 eq] after end of life                    | -0.117 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            | 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> |
| <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  | 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-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  | 7.5 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  | 7.5 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                   | 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                   | 7.8 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                   | 5.2 kVA   |
| ● up to 690 V for current peak value n=30 rated value                   | 7.2 kVA   |
| <b>short-time withstand current in cold operating state up to 40 °C</b> |   |
| ● limited to 1 s switching at zero current maximum                      | 170 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 5 s switching at zero current maximum                      | 170 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 10 s switching at zero current maximum                     | 140 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 30 s switching at zero current maximum                     | 104 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 60 s switching at zero current maximum                     | 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 AC</li> </ul>   | 5 000 1/h        |
| <b>operating frequency</b>  |                  |
| <ul style="list-style-type: none"> <li>• at AC-1 maximum</li> </ul>   | 1 000 1/h        |
| <ul style="list-style-type: none"> <li>• at AC-2 maximum</li> </ul>   | 1 000 1/h        |
| <ul style="list-style-type: none"> <li>• at AC-3 maximum</li> </ul>   | 1 000 1/h        |
| <ul style="list-style-type: none"> <li>• at AC-3e <ul style="list-style-type: none"> <li>— maximum</li> </ul> </li> </ul> | 1 000 1/h        |
| <ul style="list-style-type: none"> <li>• at AC-4 maximum</li> </ul>   | 300 1/h          |
| <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> </ul>  | 220 V            |
| <ul style="list-style-type: none"> <li>• at 60 Hz rated value</li> </ul>  | 220 V            |
| <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> </ul>  | 0.8 ... 1.1      |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>  | 0.85 ... 1.1     |
| <b>apparent pick-up power of magnet coil at AC</b>  |                  |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>  | 68 VA            |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>  | 67 VA            |
| <b>inductive power factor with closing power of the coil</b>  |                  |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>  | 0.72             |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>  | 0.74             |
| <b>apparent holding power of magnet coil at AC</b>  |                  |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>  | 7.9 VA           |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>  | 6.5 VA           |
| <b>inductive power factor with the holding power of the coil</b>  |                  |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>  | 0.25             |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>  | 0.28             |
| <b>closing delay</b>  |                  |
| <ul style="list-style-type: none"> <li>• at AC</li> </ul>   | 8 ... 40 ms      |
| <b>opening delay</b>  |                  |
| <ul style="list-style-type: none"> <li>• at AC</li> </ul>   | 4 ... 16 ms      |
| <b>arcing 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  | 2                |
| number of NO contacts for auxiliary contacts instantaneous contact  | 2                |
| 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> </ul>  | 6 A              |
| <ul style="list-style-type: none"> <li>• at 400 V rated value</li> </ul>  | 3 A              |
| <ul style="list-style-type: none"> <li>• at 500 V rated value</li> </ul>  | 2 A              |
| <ul style="list-style-type: none"> <li>• at 690 V rated value</li> </ul>  | 1 A              |
| <b>operational current at DC-12</b>   |                  |
| <ul style="list-style-type: none"> <li>• at 24 V rated value</li> </ul>   | 10 A             |
| <ul style="list-style-type: none"> <li>• at 48 V rated value</li> </ul>   | 6 A              |
| <ul style="list-style-type: none"> <li>• at 60 V rated value</li> </ul>   | 6 A              |
| <ul style="list-style-type: none"> <li>• at 110 V rated value</li> </ul>  | 3 A              |
| <ul style="list-style-type: none"> <li>• at 125 V rated value</li> </ul>  | 2 A              |
| <ul style="list-style-type: none"> <li>• at 220 V rated value</li> </ul>  | 1 A              |
| <ul style="list-style-type: none"> <li>• at 600 V rated value</li> </ul>  | 0.15 A           |
| <b>operational current at DC-13</b>   |                  |
| <ul style="list-style-type: none"> <li>• at 24 V rated value</li> </ul>   | 6 A              |
| <ul style="list-style-type: none"> <li>• at 48 V rated value</li> </ul>   | 2 A              |
| <ul style="list-style-type: none"> <li>• at 60 V rated value</li> </ul>   | 2 A              |
| <ul style="list-style-type: none"> <li>• at 110 V rated value</li> </ul>  | 1 A              |
| <ul style="list-style-type: none"> <li>• at 125 V rated value</li> </ul>  | 0.9 A            |
| <ul style="list-style-type: none"> <li>• at 220 V rated value</li> </ul>  | 0.3 A            |

|   |  |
|---|--|
| <ul style="list-style-type: none"> <li>at 600 V rated value</li> </ul>  | 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> </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>   | 1 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: 63 A (690 V, 100 kA), aM: 32 A (690 V, 100 kA), BS88: 63 A (415 V, 80 kA)<br>gG: 25 A (690 V, 100 kA), aM: 20 A (690 V, 100 kA), BS88: 25 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>   | 85 mm  |
| <b>width</b>  | 45 mm  |
| <b>depth</b>  | 141 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 (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 10 mm <sup>2</sup> )<br>2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 10 mm <sup>2</sup> )<br>2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup><br>2x (16 ... 12), 2x (14 ... 8) |
| <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>  | <p>1 ... 10 mm<sup>2</sup></p> <p>1 ... 10 mm<sup>2</sup></p> <p>1 ... 10 mm<sup>2</sup></p>  |
| <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>  | <p>0.5 ... 2.5 mm<sup>2</sup></p> <p>0.5 ... 2.5 mm<sup>2</sup></p>   |
| <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> | <p>2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)</p> <p>2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)</p> <p>2x (20 ... 16), 2x (18 ... 14)</p> |
| <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> <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> | <p>Yes</p> <p>No</p> <p>Yes</p>                  |
| 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>                                   | <p>40 %</p> <p>73 %</p>                          |
| <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  |
| ISO 13849   |  |
| <b>device type according to ISO 13849-1</b>   | 3  |
| <b>overdimensioning according to ISO 13849-2 necessary</b>  | Yes  |
| IEC 61508   |  |
| <b>safety device type according to IEC 61508-2</b>  | Type 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**



[KC](#)

|                          |     |                   |                      |
|--------------------------|-----|-------------------|----------------------|
| General Product Approval | EMV | Test Certificates | Maritime application |
|--------------------------|-----|-------------------|----------------------|



[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



|                      |       |
|----------------------|-------|
| Maritime application | other |
|----------------------|-------|



[Miscellaneous](#)



[Confirmation](#)

|       |         |             |
|-------|---------|-------------|
| other | Railway | Environment |
|-------|---------|-------------|



## 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=3RT2023-1AN24>

## Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2023-1AN24>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2023-1AN24>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2023-1AN24&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2023-1AN24&lang=en)

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2023-1AN24/char>

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

<https://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2023-1AN24&objecttype=14&gridview=view1>



