



power contactor, AC-3e/AC-3 225 A, 110 kW / 400 V U<sub>c</sub>: 24 V DC x (0.7-1.25) PLC input 24-110 V DC 3-pole, auxiliary contacts 2 NO + 2 NC drive: electronic main circuit: busbar control and auxiliary circuit: screw terminal extended rated condition railroad IEC 60077

|  |   |
|--|---|
| product brand name   | SIRIUS  |
| product designation  | Power contactor   |
| design of the product  | With extended operating range   |
| product type designation   | 3RT1  |
| <b>General technical data</b>  |   |
| size of contactor  | S10   |
| 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   | 51 W  |
| • at AC in hot operating state per pole  | 17 W  |
| • without load current share typical   | 3.4 W   |
| type of calculation of power loss current-dependent  | quadratic   |
| insulation voltage   |   |
| • of main circuit with degree of pollution 3 rated value   | 1 000 V   |
| • of auxiliary circuit with degree of pollution 3 rated value  | 500 V   |
| surge voltage resistance   |   |
| • of main circuit rated value  | 8 kV  |
| • of auxiliary circuit rated value   | 6 kV  |
| maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1 | 690 V   |
| shock resistance for railway applications according to EN 61373  | Category 1, Class B   |
| shock resistance at rectangular impulse  |   |
| • at DC  | 8,5 g / 5 ms, 4,2 g / 10 ms   |
| shock resistance with sine pulse   |   |
| • at DC  | 13,4 g / 5 ms, 6,5 g / 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 (day/month/year)  | 09/06/2016  |
| SVHC substance name  | Lead CAS-No. 7439-92-1<br>Lead monoxide (lead oxide) CAS-No. 1317-36-8<br>2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5<br>Melamine CAS-No. 108-78-1<br>6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol CAS-No. 119-47-1 |
| Net Weight   | 6.442 kg  |

**Ambient conditions**

|   |                |
|---|----------------|
| installation altitude at height above sea level maximum               | 2 000 m        |
| <b>ambient temperature</b>  |                |
| • during operation  | -40 ... +70 °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 %           |

**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  | 1 000 V             |
| • at AC-3e rated value maximum   | 1 000 V             |
| <b>operational current</b>   |                     |
| • at AC-1 at 400 V at ambient temperature 40 °C rated value            | 275 A               |
| • at AC-1  |                     |
| — up to 690 V at ambient temperature 40 °C rated value                 | 275 A               |
| — up to 690 V at ambient temperature 60 °C rated value                 | 250 A               |
| — up to 1000 V at ambient temperature 60 °C rated value                | 100 A               |
| • at AC-2 at 400 V rated value   | 225 A               |
| • at AC-3  |                     |
| — at 400 V rated value   | 225 A               |
| — at 500 V rated value   | 225 A               |
| — at 690 V rated value   | 225 A               |
| — at 1000 V rated value  | 68 A                |
| • at AC-3e   |                     |
| — at 400 V rated value   | 225 A               |
| — at 500 V rated value   | 225 A               |
| — at 1000 V rated value  | 68 A                |
| • at AC-4 at 400 V rated value   | 195 A               |
| <b>minimum cross-section in main circuit</b>                           |                     |
| • at maximum AC-1 rated value  | 150 mm <sup>2</sup> |
| • at maximum I <sub>th</sub> rated value                               | 150 mm <sup>2</sup> |
| <b>operational current for approx. 200000 operating cycles at AC-4</b> |                     |
| • at 400 V rated value   | 96 A                |
| • at 690 V rated value   | 85 A                |
| <b>operational current</b>   |                     |
| • <b>at 1 current path at DC-1</b>                                     |                     |
| — at 24 V rated value  | 200 A               |
| — at 110 V rated value   | 18 A                |
| — at 220 V rated value   | 3.4 A               |
| — at 440 V rated value   | 0.8 A               |
| — at 600 V rated value   | 0.5 A               |
| • <b>with 2 current paths in series at DC-1</b>                        |                     |
| — at 24 V rated value  | 200 A               |
| — at 110 V rated value   | 200 A               |
| — at 220 V rated value   | 20 A                |
| — at 440 V rated value   | 3.2 A               |
| — at 600 V rated value   | 1.6 A               |
| • <b>with 3 current paths in series at DC-1</b>                        |                     |
| — at 24 V rated value  | 200 A               |
| — at 110 V rated value   | 200 A               |
| — at 220 V rated value   | 200 A               |
| — at 440 V rated value   | 11.5 A              |

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>— at 600 V rated value</li> </ul>                                  | 4 A   |
| <ul style="list-style-type: none"> <li>● <b>at 1 current path at DC-3 at DC-5</b></li> </ul>              |   |
| <ul style="list-style-type: none"> <li>— at 24 V rated value</li> </ul>                                   | 200 A   |
| <ul style="list-style-type: none"> <li>— at 110 V rated value</li> </ul>                                  | 2.5 A   |
| <ul style="list-style-type: none"> <li>— at 220 V rated value</li> </ul>                                  | 0.6 A   |
| <ul style="list-style-type: none"> <li>— at 440 V rated value</li> </ul>                                  | 0.17 A  |
| <ul style="list-style-type: none"> <li>— at 600 V rated value</li> </ul>                                  | 0.12 A  |
| <ul style="list-style-type: none"> <li>● <b>with 2 current paths in series at DC-3 at DC-5</b></li> </ul> |   |
| <ul style="list-style-type: none"> <li>— at 24 V rated value</li> </ul>                                   | 200 A   |
| <ul style="list-style-type: none"> <li>— at 110 V rated value</li> </ul>                                  | 200 A   |
| <ul style="list-style-type: none"> <li>— at 220 V rated value</li> </ul>                                  | 2.5 A   |
| <ul style="list-style-type: none"> <li>— at 440 V rated value</li> </ul>                                  | 0.65 A  |
| <ul style="list-style-type: none"> <li>— at 600 V rated value</li> </ul>                                  | 0.37 A  |
| <ul style="list-style-type: none"> <li>● <b>with 3 current paths in series at DC-3 at DC-5</b></li> </ul> |   |
| <ul style="list-style-type: none"> <li>— at 24 V rated value</li> </ul>                                   | 200 A   |
| <ul style="list-style-type: none"> <li>— at 110 V rated value</li> </ul>                                  | 200 A   |
| <ul style="list-style-type: none"> <li>— at 220 V rated value</li> </ul>                                  | 200 A   |
| <ul style="list-style-type: none"> <li>— at 440 V rated value</li> </ul>                                  | 1.4 A   |
| <ul style="list-style-type: none"> <li>— at 600 V rated value</li> </ul>                                  | 0.75 A  |
| <b>operating power</b>  |   |
| <ul style="list-style-type: none"> <li>● at AC-2 at 400 V rated value</li> </ul>                          | 110 kW  |
| <ul style="list-style-type: none"> <li>● at AC-3</li> </ul>   |   |
| <ul style="list-style-type: none"> <li>— at 230 V rated value</li> </ul>                                  | 73 kW   |
| <ul style="list-style-type: none"> <li>— at 400 V rated value</li> </ul>                                  | 110 kW  |
| <ul style="list-style-type: none"> <li>— at 500 V rated value</li> </ul>                                  | 160 kW  |
| <ul style="list-style-type: none"> <li>— at 690 V rated value</li> </ul>                                  | 200 kW  |
| <ul style="list-style-type: none"> <li>— at 1000 V rated value</li> </ul>                                 | 90 kW   |
| <ul style="list-style-type: none"> <li>● at AC-3e</li> </ul>  |   |
| <ul style="list-style-type: none"> <li>— at 230 V rated value</li> </ul>                                  | 73 kW   |
| <ul style="list-style-type: none"> <li>— at 400 V rated value</li> </ul>                                  | 110 kW  |
| <ul style="list-style-type: none"> <li>— at 500 V rated value</li> </ul>                                  | 160 kW  |
| <ul style="list-style-type: none"> <li>— at 1000 V rated value</li> </ul>                                 | 90 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> </ul>                                  | 54 kW   |
| <ul style="list-style-type: none"> <li>● at 690 V rated value</li> </ul>                                  | 82 kW   |
| <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> </ul>      | 4 000 A; Use minimum cross-section acc. to AC-1 rated value |
| <ul style="list-style-type: none"> <li>● limited to 5 s switching at zero current maximum</li> </ul>      | 2 807 A; Use minimum cross-section acc. to AC-1 rated value |
| <ul style="list-style-type: none"> <li>● limited to 10 s switching at zero current maximum</li> </ul>     | 2 082 A; Use minimum cross-section acc. to AC-1 rated value |
| <ul style="list-style-type: none"> <li>● limited to 30 s switching at zero current maximum</li> </ul>     | 1 397 A; Use minimum cross-section acc. to AC-1 rated value |
| <ul style="list-style-type: none"> <li>● limited to 60 s switching at zero current maximum</li> </ul>     | 1 144 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>   | 700 1/h   |
| <b>operating frequency</b>  |   |
| <ul style="list-style-type: none"> <li>● at AC-1 maximum</li> </ul>                                       | 700 1/h   |
| <ul style="list-style-type: none"> <li>● at AC-2 maximum</li> </ul>                                       | 250 1/h   |
| <ul style="list-style-type: none"> <li>● at AC-3 maximum</li> </ul>                                       | 500 1/h   |
| <ul style="list-style-type: none"> <li>● at AC-3e</li> </ul>  |   |
| <ul style="list-style-type: none"> <li>— maximum</li> </ul>   | 500 1/h   |
| <ul style="list-style-type: none"> <li>● at AC-2 at AC-3e maximum</li> </ul>                              | 250 1/h   |
| <ul style="list-style-type: none"> <li>● at AC-4 maximum</li> </ul>                                       | 130 1/h   |
| <b>operating frequency</b>  |   |
| <ul style="list-style-type: none"> <li>● at DC-1 maximum</li> </ul>                                       | 350 1/h   |
| <ul style="list-style-type: none"> <li>● at DC-3 maximum</li> </ul>                                       | 250 1/h   |
| <ul style="list-style-type: none"> <li>● at DC-5 maximum</li> </ul>                                       | 250 1/h   |
| <b>Ratings for railway applications</b>   |   |
| <b>thermal current (I<sub>th</sub>) up to 690 V</b>   |   |

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• up to 40 °C according to IEC 60077 rated value</li> </ul>   | 275 A                                   |
| <ul style="list-style-type: none"> <li>• up to 70 °C according to IEC 60077 rated value</li> </ul>   | 215 A                                   |
| <b>Control circuit/ Control</b>  |   |
| <b>type of voltage</b>   | DC                                      |
| <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> </ul>  | 0.7                                     |
| <ul style="list-style-type: none"> <li>• full-scale value</li> </ul>   | 1.25                                    |
| <b>consumed current at PLC-control input according to IEC 60947-1 maximum</b>  | 2 mA                                    |
| <b>voltage at PLC-control input</b>  | 24 ... 110 V                            |
| <b>design of the surge suppressor</b>  | with varistor                           |
| <b>closing power of magnet coil at DC</b>  | 580 W                                   |
| <b>holding power of magnet coil at DC</b>  | 3.4 W                                   |
| <b>closing delay</b>   |   |
| <ul style="list-style-type: none"> <li>• at DC</li> </ul>  | 45 ... 80 ms                            |
| <b>opening delay</b>   |   |
| <ul style="list-style-type: none"> <li>• at DC</li> </ul>  | 80 ... 100 ms                           |
| <b>arcing time</b>   | 10 ... 15 ms                            |
| <b>control version of the switch operating mechanism</b>   | PLC-IN or Standard A1 - A2 (adjustable) |
| <b>Auxiliary circuit</b>   |   |
| <b>number of NC contacts for auxiliary contacts</b>  | 2                                       |
| <ul style="list-style-type: none"> <li>• instantaneous contact</li> </ul>  | 2                                       |
| <b>number of NO contacts for auxiliary contacts</b>  | 2                                       |
| <ul style="list-style-type: none"> <li>• instantaneous contact</li> </ul>  | 2                                       |
| <b>operational current at AC-12 maximum</b>  | 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                                     |
| <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>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>   | 180 A                                   |
| <ul style="list-style-type: none"> <li>• at 600 V rated value</li> </ul>   | 182 A                                   |
| <b>yielded mechanical performance [hp]</b>   |   |
| <ul style="list-style-type: none"> <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> | 60 hp<br>75 hp<br>150 hp<br>200 hp      |
| <b>contact rating of auxiliary contacts according to UL</b>  | A600 / Q600                             |

**Short-circuit protection**

|  |  |
|--|--|
| 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: 500 A (690 V, 100 kA)<br>gG: 400 A (690 V, 100 kA), aM: 315 A (690 V, 50 kA), BS88: 400 A (415 V, 50 kA)<br>gG: 10 A (500 V, 1 kA) |

**Installation/ mounting/ dimensions**

|  |  |
|--|--|
| <b>mounting position</b>   | with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back |
| fastening method side-by-side mounting   | Yes  |
| <b>fastening method</b>  | screw fixing   |
| <b>height</b>  | 210 mm   |
| <b>width</b>   | 145 mm   |
| <b>depth</b>   | 202 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> | 20 mm<br>10 mm<br>10 mm<br>10 mm<br>20 mm<br>10 mm<br>10 mm<br>10 mm<br>20 mm<br>10 mm<br>10 mm<br>10 mm                 |

**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></ul>  | screw-type terminals<br>screw-type terminals   |
| <b>width of connection bar</b>   | 25 mm  |
| <b>thickness of connection bar</b>   | 6 mm   |
| <b>diameter of holes</b>   | 11 mm  |
| <b>number of holes</b>   | 1  |
| <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 or stranded</li></ul></li><li>• for AWG cables for main contacts</li></ul>  | 2x (70 ... 240 mm <sup>2</sup> )<br>2/0 ... 500 kcmil  |
| <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</li><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> ), max. 2x (0.75 ... 4 mm <sup>2</sup> )<br>2x (0,5 ... 1,5 mm <sup>2</sup> ), 2x (0,75 ... 2,5 mm <sup>2</sup> ), max. 2x (0,75 ... 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), 1x 12 |
| <b>AWG number as coded connectable conductor cross section for auxiliary contacts</b>  | 18 ... 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> | Yes<br>No<br>Yes                            |
| suitability for use safety-related switching OFF  | Yes; safety-related disconnection via A1 A2 |
| <b>service life maximum</b>   | 20 a  |

|   |  |
|---|--|
| test wear-related service life necessary                      | Yes  |
| proportion of dangerous failures                              |  |
| • with low demand rate according to SN 31920                  | 40 %   |
| • with high demand rate according to SN 31920                 | 73 %   |
| B10 value with high demand rate according to SN 31920         | 1 000 000  |
| failure rate [FIT] with low demand rate according to SN 31920 | 100 FIT  |
| ISO 13849   |  |
| device type according to ISO 13849-1                          | 3  |
| overdimensioning according to ISO 13849-2 necessary           | Yes  |
| IEC 61508   |  |
| safety device type according to IEC 61508-2                   | Type A   |
| Electrical Safety   |  |
| protection class IP on the front according to IEC 60529       | IP00; IP20 with box terminal/cover                                       |
| touch protection on the front according to IEC 60529          | finger-safe, for vertical contact from the front with box terminal/cover |
| Communication/ Protocol                                       |  |
| product function bus communication                            | No   |
| Approvals Certificates  |  |
| Environment   | General Product Approval   |

[Environmental Confirmations](#)



|   |   |  |  |  |  |
|---|---|--|--|--|--|
| General Product Approval  | EMV   | Functional Safety  | Test Certificates                            |  |  |
| <br>EG-Konf. |  | <br>RCM | <a href="#">Type Examination Certificate</a> | <a href="#">Special Test Certificate</a> | <a href="#">Type Test Certificates/Test Report</a> |

|                               |                               |                              |   |                               |  |
|-------------------------------|-------------------------------|------------------------------|---|-------------------------------|--|
| other                         |                               |                              |   |                               | Railway                                  |
| <a href="#">Miscellaneous</a> | <a href="#">Miscellaneous</a> | <a href="#">Confirmation</a> |  | <a href="#">Miscellaneous</a> | <a href="#">Special Test Certificate</a> |

|  |
|--|
| Railway  |
| <a href="#">Type Test Certificates/Test Report</a> |

**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=3RT1064-6XB46-0LA2>
- Service&Support (Manuals, Certificates, Characteristics, FAQs,...)  
<https://support.industry.siemens.com/cs/ww/en/ps/3RT1064-6XB46-0LA2>
- Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)  
[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT1064-6XB46-0LA2&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT1064-6XB46-0LA2&lang=en)
- Cax online generator  
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1064-6XB46-0LA2>
- Characteristic curves  
[https://curves.simaris.siemens.com/curves/<mmp\\_prod\\_noCOMP="HAUPT"></mmp\\_prod\\_no>](https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP=)

