



Power contactor, AC-3 80 A, 37 kW / 400 V 2 NO + 2 NC, 230 V AC 50/60 Hz, 3-pole Size S2, screw terminals

|   |                                       |
|---|---------------------------------------|
| <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>  | S2                                    |
| <b>product extension</b>  |                                       |
| <ul style="list-style-type: none"> <li>function module for communication</li> <li>auxiliary switch</li> </ul>   | No<br>No                              |
| <b>power loss [W] for rated value of the current</b>  |                                       |
| <ul style="list-style-type: none"> <li>at AC in hot operating state</li> <li>at AC in hot operating state per pole</li> <li>without load current share typical</li> </ul>   | 17.1 W<br>5.7 W<br>17.2 W             |
| <b>insulation voltage</b>   |                                       |
| <ul style="list-style-type: none"> <li>of main circuit with degree of pollution 3 rated value</li> <li>of auxiliary circuit with degree of pollution 3 rated value</li> </ul>   | 690 V<br>690 V                        |
| <b>surge voltage resistance</b>   |                                       |
| <ul style="list-style-type: none"> <li>of main circuit rated value</li> <li>of auxiliary circuit rated value</li> </ul>   | 6 kV<br>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>  |                                       |
| <ul style="list-style-type: none"> <li>at AC</li> </ul>   | 9.8g / 5 ms, 6.5g / 10 ms             |
| <b>shock resistance with sine pulse</b>   |                                       |
| <ul style="list-style-type: none"> <li>at AC</li> </ul>   | 15.3g / 5 ms, 10.1g / 10 ms           |
| <b>mechanical service life (switching cycles)</b>   |                                       |
| <ul style="list-style-type: none"> <li>of contactor typical</li> <li>of the contactor with added electronically optimized auxiliary switch block typical</li> <li>of the contactor with added auxiliary switch block typical</li> </ul> | 10 000 000<br>5 000 000<br>10 000 000 |
| <b>reference code according to IEC 81346-2</b>  | Q                                     |
| <b>Substance Prohibitance (Date)</b>  | 10/01/2014                            |
| <b>Ambient conditions</b>   |                                       |
| installation altitude at height above sea level maximum   | 2 000 m                               |
| <b>ambient temperature</b>  |                                       |
| <ul style="list-style-type: none"> <li>during operation</li> <li>during storage</li> </ul>  | -25 ... +60 °C<br>-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>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            | 90 A               |
| • at AC-1  |                    |
| — up to 690 V at ambient temperature 40 °C rated value                 | 90 A               |
| — up to 690 V at ambient temperature 60 °C rated value                 | 80 A               |
| • at AC-3  |                    |
| — at 400 V rated value   | 80 A               |
| — at 500 V rated value   | 80 A               |
| — at 690 V rated value   | 58 A               |
| • at AC-3e   |                    |
| — at 400 V rated value   | 80 A               |
| — at 500 V rated value   | 80 A               |
| — at 690 V rated value   | 58 A               |
| • at AC-4 at 400 V rated value   | 55 A               |
| • at AC-5a up to 690 V rated value                                     | 79.2 A             |
| • at AC-5b up to 400 V rated value                                     | 66.4 A             |
| • at AC-6a   |                    |
| — up to 230 V for current peak value n=20 rated value                  | 70 A               |
| — up to 400 V for current peak value n=20 rated value                  | 70 A               |
| — up to 500 V for current peak value n=20 rated value                  | 70 A               |
| — up to 690 V for current peak value n=20 rated value                  | 58 A               |
| • at AC-6a   |                    |
| — up to 230 V for current peak value n=30 rated value                  | 46.7 A             |
| — up to 400 V for current peak value n=30 rated value                  | 46.7 A             |
| — up to 500 V for current peak value n=30 rated value                  | 46.7 A             |
| — up to 690 V for current peak value n=30 rated value                  | 46.7 A             |
| minimum cross-section in main circuit at maximum AC-1 rated value      | 35 mm <sup>2</sup> |
| <b>operational current for approx. 200000 operating cycles at AC-4</b> |                    |
| • at 400 V rated value   | 30 A               |
| • at 690 V rated value   | 24 A               |
| <b>operational current</b>   |                    |
| • <b>at 1 current path at DC-1</b>                                     |                    |
| — at 24 V rated value  | 55 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  | 55 A               |
| — at 110 V rated value   | 45 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   | 55 A  |
| — at 110 V rated value  | 55 A  |
| — at 220 V rated value  | 45 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   | 35 A  |
| — at 110 V rated value  | 2.5 A   |
| — at 220 V rated value  | 1 A   |
| — at 440 V rated value  | 0.1 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   | 55 A  |
| — at 110 V rated value  | 25 A  |
| — at 220 V rated value  | 5 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   | 55 A  |
| — at 110 V rated value  | 55 A  |
| — at 220 V rated value  | 25 A  |
| — at 440 V rated value  | 0.6 A   |
| — at 600 V rated value  | 0.35 A  |
| <b>operating power</b>  |   |
| ● at AC-2 at 400 V rated value  | 37 kW   |
| ● at AC-3   |   |
| — at 230 V rated value  | 22 kW   |
| — at 400 V rated value  | 37 kW   |
| — at 500 V rated value  | 37 kW   |
| — at 690 V rated value  | 45 kW   |
| ● at AC-3e  |   |
| — at 230 V rated value  | 22 kW   |
| — at 400 V rated value  | 37 kW   |
| — at 500 V rated value  | 37 kW   |
| — at 690 V rated value  | 45 kW   |
| <b>operating power for approx. 200000 operating cycles at AC-4</b>      |   |
| ● at 400 V rated value  | 15.8 kW   |
| ● at 690 V rated value  | 21.8 kW   |
| <b>operating apparent power at AC-6a</b>                                |   |
| ● up to 230 V for current peak value n=20 rated value                   | 27.8 kVA  |
| ● up to 400 V for current peak value n=20 rated value                   | 48.4 kVA  |
| ● up to 500 V for current peak value n=20 rated value                   | 60.6 kVA  |
| ● up to 690 V for current peak value n=20 rated value                   | 69.3 kVA  |
| <b>operating apparent power at AC-6a</b>                                |   |
| ● up to 230 V for current peak value n=30 rated value                   | 18.6 kVA  |
| ● up to 400 V for current peak value n=30 rated value                   | 32.3 kVA  |
| ● up to 500 V for current peak value n=30 rated value                   | 40.4 kVA  |
| ● up to 690 V for current peak value n=30 rated value                   | 55.8 kVA  |
| <b>short-time withstand current in cold operating state up to 40 °C</b> |   |
| ● limited to 1 s switching at zero current maximum                      | 1 298 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 5 s switching at zero current maximum                      | 898 A; Use minimum cross-section acc. to AC-1 rated value   |
| ● limited to 10 s switching at zero current maximum                     | 640 A; Use minimum cross-section acc. to AC-1 rated value   |
| ● limited to 30 s switching at zero current maximum                     | 414 A; Use minimum cross-section acc. to AC-1 rated value   |
| ● limited to 60 s switching at zero current maximum                     | 333 A; Use minimum cross-section acc. to AC-1 rated value   |
| <b>no-load switching frequency</b>                                      |   |
| ● at AC   | 5 000 1/h   |
| <b>operating frequency</b>  |   |
| ● at AC-1 maximum   | 700 1/h   |
| ● at AC-2 maximum   | 350 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 maximum</li> </ul>                  | 500 1/h   |
| <ul style="list-style-type: none"> <li>• at AC-4 maximum</li> </ul>                   | 150 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>              | 230 V   |
| <ul style="list-style-type: none"> <li>• at 60 Hz rated value</li> </ul>              | 230 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>                          | 210 VA  |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>                          | 188 VA  |
| <b>inductive power factor with closing power of the coil</b>                          |   |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>                          | 0.69  |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>                          | 0.65  |
| <b>apparent holding power of magnet coil at AC</b>                                    |   |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>                          | 17.2 VA   |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>                          | 16.5 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>                          | 0.36  |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>                          | 0.39  |
| <b>closing delay</b>  |   |
| <ul style="list-style-type: none"> <li>• at AC</li> </ul>                             | 10 ... 80 ms                                    |
| <b>opening delay</b>  |   |
| <ul style="list-style-type: none"> <li>• at AC</li> </ul>                             | 10 ... 18 ms                                    |
| <b>arcing time</b>  | 10 ... 20 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> <li>• at 600 V rated value</li> </ul>  | 65 A<br>62 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>  | 5 hp<br>15 hp<br>20 hp<br>25 hp<br>50 hp<br>60 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: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)<br>gG: 160A (690V,100kA), aM: 80A (690V,100kA), BS88: 125A (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 forward and backward by +/- 22.5° on vertical mounting surface  |
| <b>fastening method</b> <ul style="list-style-type: none"> <li>• side-by-side mounting</li> </ul>   | screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715<br>Yes   |
| <b>height</b>   | 114 mm  |
| <b>width</b>  | 55 mm   |
| <b>depth</b>  | 174 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>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 or stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG cables for main contacts</li> </ul>   | 2x (1 ... 35 mm <sup>2</sup> ), 1x (1 ... 50 mm <sup>2</sup> )<br>2x (1 ... 25 mm <sup>2</sup> ), 1x (1 ... 35 mm <sup>2</sup> )<br>2x (18 ... 2), 1x (18 ... 1)                  |
| <b>connectable conductor cross-section for main contacts</b> <ul style="list-style-type: none"> <li>• finely stranded with core end processing</li> </ul>   | 1 ... 35 mm <sup>2</sup>  |
| <b>connectable conductor cross-section for auxiliary</b>  |   |

|   |  |
|---|--|
| <b>contacts</b>   |  |
| <ul style="list-style-type: none"> <li>• solid or stranded</li> <li>• finely stranded with core end processing</li> </ul>   | 0.5 ... 2.5 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> )<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) |
| <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>   | 18 ... 1<br>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> </ul> | Yes<br>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 31920   | 100 FIT  |
| T1 value for proof test interval or service life according to IEC 61508   | 20 y   |
| <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 |
| <b>suitability for use</b>  |  |
| <ul style="list-style-type: none"> <li>• safety-related switching OFF</li> </ul>  | Yes  |

**Certificates/ approvals**

**General Product Approval**



[Confirmation](#)



[KC](#)



|            |  |                                  |                          |
|------------|--|----------------------------------|--------------------------|
| <b>EMC</b> | <b>Functional Safety/Safety of Machinery</b> | <b>Declaration of Conformity</b> | <b>Test Certificates</b> |
|------------|--|----------------------------------|--------------------------|



[Type Examination Certificate](#)



EG-Konf.



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**Marine / Shipping**



ABS



BUREAU VERITAS



DNV



LRS



PRS



RINA

|                          |              |                |                       |
|--------------------------|--------------|----------------|-----------------------|
| <b>Marine / Shipping</b> | <b>other</b> | <b>Railway</b> | <b>Dangerous Good</b> |
|--------------------------|--------------|----------------|-----------------------|



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#### 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=3RT2038-1AL24>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2038-1AL24>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-1AL24>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2038-1AL24&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2038-1AL24&lang=en)

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-1AL24/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2038-1AL24&objecttype=14&gridview=view1>

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