



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 220 V AC, 50/60 Hz, auxiliary contacts: 1 NO + 1 NC, spring-loaded terminal, size: S0

|  |                            |
|--|----------------------------|
| <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   | Yes                        |
| <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>   |                            |
| <b>Weight</b>  | 0.44 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>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              |

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>● <b>with 3 current paths in series at DC-1</b> <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 60 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> <li>● <b>at 1 current path at DC-3 at DC-5</b> <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 60 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> <li>● <b>with 2 current paths in series at DC-3 at DC-5</b> <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 60 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> <li>● <b>with 3 current paths in series at DC-3 at DC-5</b> <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 60 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> </ul> | <p>35 A<br/>35 A<br/>35 A<br/>35 A<br/>2.9 A<br/>1.4 A</p> <p>20 A<br/>5 A<br/>1 A<br/>0.09 A<br/>0.06 A</p> <p>35 A<br/>35 A<br/>15 A<br/>3 A<br/>0.27 A<br/>0.16 A</p> <p>35 A<br/>35 A<br/>35 A<br/>10 A<br/>0.6 A<br/>0.6 A</p>   |
| <p><b>operating power</b></p> <ul style="list-style-type: none"> <li>● at AC-3 <ul style="list-style-type: none"> <li>— at 230 V rated value</li> <li>— at 400 V rated value</li> <li>— at 500 V rated value</li> <li>— at 690 V rated value</li> </ul> </li> <li>● at AC-3e <ul style="list-style-type: none"> <li>— at 230 V rated value</li> <li>— at 400 V rated value</li> <li>— at 500 V rated value</li> <li>— at 690 V rated value</li> </ul> </li> </ul>   | <p>2.2 kW<br/>4 kW<br/>4 kW<br/>7.5 kW</p> <p>2.2 kW<br/>4 kW<br/>4 kW<br/>7.5 kW</p>   |
| <p><b>operating power for approx. 200000 operating cycles at AC-4</b></p> <ul style="list-style-type: none"> <li>● at 400 V rated value</li> <li>● at 690 V rated value</li> </ul>  | <p>2 kW<br/>2.5 kW</p>  |
| <p><b>operating apparent power at AC-6a</b></p> <ul style="list-style-type: none"> <li>● up to 230 V for current peak value n=20 rated value</li> <li>● up to 400 V for current peak value n=20 rated value</li> <li>● up to 500 V for current peak value n=20 rated value</li> <li>● up to 690 V for current peak value n=20 rated value</li> </ul>  | <p>4.5 kVA<br/>7.8 kVA<br/>7.8 kVA<br/>10.7 kVA</p>   |
| <p><b>operating apparent power at AC-6a</b></p> <ul style="list-style-type: none"> <li>● up to 230 V for current peak value n=30 rated value</li> <li>● up to 400 V for current peak value n=30 rated value</li> <li>● up to 500 V for current peak value n=30 rated value</li> <li>● up to 690 V for current peak value n=30 rated value</li> </ul>  | <p>3 kVA<br/>5.2 kVA<br/>5.2 kVA<br/>7.2 kVA</p>  |
| <p><b>short-time withstand current in cold operating state up to 40 °C</b></p> <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>  | <p>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</p> |
| <p><b>no-load switching frequency</b></p> <ul style="list-style-type: none"> <li>● at AC</li> </ul>   | <p>5 000 1/h</p>  |

|   |   |
|---|---|
| <b>operating frequency</b>  |   |
| • at AC-1 maximum   | 1 000 1/h                                       |
| • at AC-2 maximum   | 1 000 1/h                                       |
| • at AC-3 maximum   | 1 000 1/h                                       |
| • at AC-3e maximum  | 1 000 1/h                                       |
| • at AC-4 maximum   | 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>   |   |
| • at 50 Hz rated value  | 220 V   |
| • at 60 Hz rated value  | 220 V   |
| <b>operating range factor control supply voltage rated value of magnet coil at AC</b> |   |
| • at 50 Hz  | 0.8 ... 1.1                                     |
| • at 60 Hz  | 0.85 ... 1.1                                    |
| <b>apparent pick-up power of magnet coil at AC</b>                                    |   |
| • at 50 Hz  | 68 VA   |
| • at 60 Hz  | 67 VA   |
| <b>inductive power factor with closing power of the coil</b>                          |   |
| • at 50 Hz  | 0.72  |
| • at 60 Hz  | 0.74  |
| <b>apparent holding power of magnet coil at AC</b>                                    |   |
| • at 50 Hz  | 7.9 VA  |
| • at 60 Hz  | 6.5 VA  |
| <b>inductive power factor with the holding power of the coil</b>                      |   |
| • at 50 Hz  | 0.25  |
| • at 60 Hz  | 0.28  |
| <b>closing delay</b>  |   |
| • at AC   | 8 ... 40 ms                                     |
| <b>opening delay</b>  |   |
| • at AC   | 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                    | 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>   |   |
| • at 230 V rated value  | 10 A  |
| • at 400 V rated value  | 3 A   |
| • at 500 V rated value  | 2 A   |
| • at 690 V rated value  | 1 A   |
| <b>operational current at DC-12</b>   |   |
| • at 24 V rated value   | 10 A  |
| • at 48 V rated value   | 6 A   |
| • at 60 V rated value   | 6 A   |
| • at 110 V rated value  | 3 A   |
| • at 125 V rated value  | 2 A   |
| • at 220 V rated value  | 1 A   |
| • at 600 V rated value  | 0.15 A  |
| <b>operational current at DC-13</b>   |   |
| • at 24 V rated value   | 10 A  |
| • at 48 V rated value   | 2 A   |
| • at 60 V rated value   | 2 A   |
| • at 110 V rated value  | 1 A   |
| • at 125 V rated value  | 0.9 A   |
| • at 220 V rated value  | 0.3 A   |
| • at 600 V rated value  | 0.1 A   |
| <b>contact reliability of auxiliary contacts</b>                                      | 1 faulty switching per 100 million (17 V, 1 mA) |

**UL/CSA ratings**

|   |   |
|---|---|
| <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>  | <p>7.6 A</p> <p>9 A</p>   |
| <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> | <p>1 hp</p> <p>1 hp</p> <p>2 hp</p> <p>3 hp</p> <p>5 hp</p> <p>7.5 hp</p> |
| <b>contact rating of auxiliary contacts according to UL</b>   | A600 / P600   |

**Short-circuit protection**

|   |   |
|---|---|
| <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> | <p>gG: 63A (690V,100kA), aM: 32A (690V,100kA), BS88: 63A (415V,80kA)</p> <p>gG: 25A (690V,100kA), aM: 20A (690V,100kA), BS88: 25A (415V,80kA)</p> <p>gG: 10 A (500 V, 1 kA)</p> |

**Installation/ mounting/ dimensions**

|   |  |
|---|--|
| <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>   | screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715   |
| <b>height</b>   | 102 mm   |
| <b>width</b>  | 45 mm  |
| <b>depth</b>  | 97 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> | <p>10 mm</p> <p>10 mm</p> <p>10 mm</p> <p>0 mm</p> <p>10 mm</p> <p>10 mm</p> <p>6 mm</p> <p>10 mm</p> <p>10 mm</p> <p>10 mm</p> <p>10 mm</p> <p>6 mm</p> |

**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> <li>● at contactor for auxiliary contacts</li> <li>● of magnet coil</li> </ul>   | <p>spring-loaded terminals</p> <p>spring-loaded terminals</p> <p>Spring-type terminals</p> <p>Spring-type terminals</p>  |
| <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> <li>— finely stranded without core end processing</li> </ul> </li> <li>● for AWG cables for main contacts</li> </ul> | <p>2x (1 ... 10 mm<sup>2</sup>)</p> <p>2x (1 ... 10 mm<sup>2</sup>)</p> <p>2x (1 ... 6 mm<sup>2</sup>)</p> <p>2x (1 ... 6 mm<sup>2</sup>)</p> <p>2x (18 ... 8)</p> |
| <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> <li>● finely stranded without core end processing</li> </ul>   | <p>1 ... 10 mm<sup>2</sup></p> <p>1 ... 10 mm<sup>2</sup></p> <p>1 ... 6 mm<sup>2</sup></p> <p>1 ... 6 mm<sup>2</sup></p>  |

|   |                                   |
|---|-----------------------------------|
| <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 ... 1.5 mm <sup>2</sup>       |
| • finely stranded without 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 ... 2.5 mm <sup>2</sup> ) |
| — finely stranded with core end processing                        | 2x (0.5 ... 1.5 mm <sup>2</sup> ) |
| — finely stranded without core end processing                     | 2x (0.5 ... 2.5 mm <sup>2</sup> ) |
| • for AWG cables for auxiliary contacts                           | 2x (20 ... 14)                    |
| <b>AWG number as coded connectable conductor cross section</b>    |                                   |
| • for main contacts   | 18 ... 8                          |
| • for auxiliary contacts  | 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  |
| 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>                              |  |
| • 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

#### General Product Approval



[Confirmation](#)



[KC](#)

|                          |     |                   |                   |                   |
|--------------------------|-----|-------------------|-------------------|-------------------|
| General Product Approval | EMV | Functional Safety | Test Certificates | Marine / Shipping |
|--------------------------|-----|-------------------|-------------------|-------------------|



[Type Examination Certificate](#)

[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)



|                   |       |
|-------------------|-------|
| Marine / Shipping | other |
|-------------------|-------|



[Miscellaneous](#)

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



#### Further information

**Information on the packaging**

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

**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=3RT2023-2AN20>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2023-2AN20>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2023-2AN20>

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

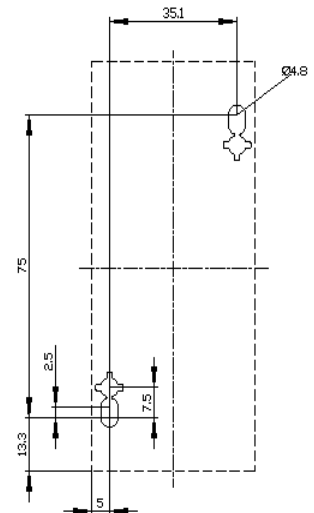
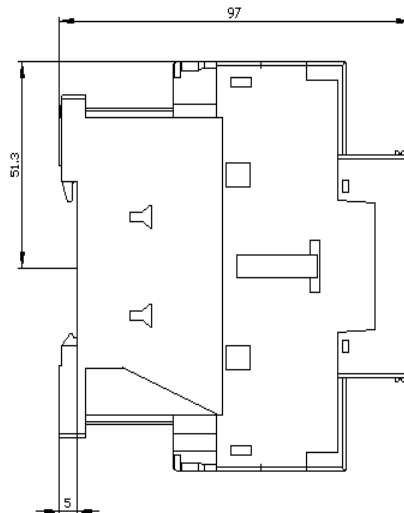
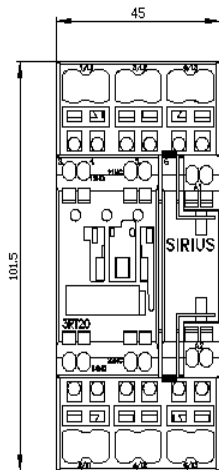
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2023-2AN20&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2023-2AN20&lang=en)

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2023-2AN20/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2023-2AN20&objecttype=14&gridview=view1>









last modified:

