



contactor, NEMA version, 50 HP, 460 / 575 V, 3-pole, 480 V AC, 60 Hz, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S3

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|--|----------------------------|
| product brand name | SIRIUS |
| product designation | Power contactor |
| product type designation | 3RT2 |
| General technical data | |
| size of contactor | S3 |
| 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 | 19.8 W |
| • at AC in hot operating state per pole | 6.6 W |
| • without load current share typical | 7.4 W |
| type of calculation of power loss depending on pole | 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 | 690 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 at rectangular impulse | |
| • at AC | 10.3g / 5 ms, 6.g / 10 ms |
| shock resistance with sine pulse | |
| • at AC | 16.3g / 5 ms, 10.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 (Date) | 03/01/2017 |
| Weight | 1.7 kg |
| Ambient conditions | |
| installation altitude at height above sea level maximum | 2 000 m |
| ambient temperature | |
| • during operation | -25 ... +60 °C |
| • during storage | -55 ... +80 °C |
| Environmental footprint | |
| Environmental Product Declaration (EPD) | Yes |
| global warming potential [CO ₂ eq] total | 405 kg |

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|--|--------------------|
| global warming potential [CO2 eq] during manufacturing | 7.66 kg |
| global warming potential [CO2 eq] during operation | 399 kg |
| global warming potential [CO2 eq] after end of life | -1.19 kg |
| Main circuit | |
| number of poles for main current circuit | 3 |
| number of NO contacts for main contacts | 3 |
| operating voltage | |
| • at AC-3 rated value maximum | 1 000 V |
| • at AC-3e rated value maximum | 1 000 V |
| operational current | |
| • at AC-1 at 400 V at ambient temperature 40 °C rated value | 130 A |
| • at AC-1 | |
| — up to 690 V at ambient temperature 40 °C rated value | 130 A |
| — up to 690 V at ambient temperature 60 °C rated value | 110 A |
| • at AC-3 | |
| — at 400 V rated value | 95 A |
| — at 500 V rated value | 95 A |
| — at 690 V rated value | 78 A |
| — at 1000 V rated value | 30 A |
| • at AC-3e | |
| — at 400 V rated value | 95 A |
| — at 500 V rated value | 95 A |
| — at 690 V rated value | 78 A |
| — at 1000 V rated value | 30 A |
| • at AC-4 at 400 V rated value | 80 A |
| • at AC-5a up to 690 V rated value | 114 A |
| • at AC-5b up to 400 V rated value | 95 A |
| • at AC-6a | |
| — up to 230 V for current peak value n=20 rated value | 84.4 A |
| — up to 400 V for current peak value n=20 rated value | 84.4 A |
| — up to 500 V for current peak value n=20 rated value | 84.4 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 | 56.3 A |
| — up to 400 V for current peak value n=30 rated value | 56.3 A |
| — up to 500 V for current peak value n=30 rated value | 56.3 A |
| — up to 690 V for current peak value n=30 rated value | 56.3 A |
| minimum cross-section in main circuit at maximum AC-1 rated value | 50 mm ² |
| operational current for approx. 200000 operating cycles at AC-4 | |
| • at 400 V rated value | 42 A |
| • at 690 V rated value | 30 A |
| operational current | |
| • at 1 current path at DC-1 | |
| — at 24 V rated value | 100 A |
| — at 60 V rated value | 60 A |
| — at 110 V rated value | 9 A |
| — at 220 V rated value | 2 A |
| — at 440 V rated value | 0.6 A |
| — at 600 V rated value | 0.4 A |
| • with 2 current paths in series at DC-1 | |
| — at 24 V rated value | 100 A |
| — at 60 V rated value | 100 A |
| — at 110 V rated value | 100 A |
| — at 220 V rated value | 10 A |
| — at 440 V rated value | 1.8 A |
| — at 600 V rated value | 1 A |
| • with 3 current paths in series at DC-1 | |

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|---|---|
| — at 24 V rated value | 100 A |
| — at 60 V rated value | 100 A |
| — at 110 V rated value | 100 A |
| — at 220 V rated value | 80 A |
| — at 440 V rated value | 4.5 A |
| — at 600 V rated value | 2.6 A |
| ● at 1 current path at DC-3 at DC-5 | |
| — at 24 V rated value | 40 A |
| — at 60 V rated value | 6 A |
| — at 110 V rated value | 2.5 A |
| — at 220 V rated value | 1 A |
| — at 440 V rated value | 0.15 A |
| — at 600 V rated value | 0.06 A |
| ● with 2 current paths in series at DC-3 at DC-5 | |
| — at 24 V rated value | 100 A |
| — at 60 V rated value | 100 A |
| — at 110 V rated value | 100 A |
| — at 220 V rated value | 7 A |
| — at 440 V rated value | 0.42 A |
| — at 600 V rated value | 0.16 A |
| ● with 3 current paths in series at DC-3 at DC-5 | |
| — at 24 V rated value | 100 A |
| — at 60 V rated value | 100 A |
| — at 110 V rated value | 100 A |
| — at 220 V rated value | 35 A |
| — at 440 V rated value | 0.8 A |
| — at 600 V rated value | 0.35 A |
| operating power | |
| ● at AC-2 at 400 V rated value | 45 kW |
| ● at AC-3 | |
| — at 230 V rated value | 22 kW |
| — at 400 V rated value | 45 kW |
| — at 500 V rated value | 55 kW |
| — at 690 V rated value | 75 kW |
| — at 1000 V rated value | 37 kW |
| ● at AC-3e | |
| — at 230 V rated value | 22 kW |
| — at 400 V rated value | 45 kW |
| — at 500 V rated value | 55 kW |
| — at 690 V rated value | 75 kW |
| — at 1000 V rated value | 37 kW |
| operating power for approx. 200000 operating cycles at AC-4 | |
| ● at 400 V rated value | 22 kW |
| ● at 690 V rated value | 27.4 kW |
| operating apparent power at AC-6a | |
| ● up to 230 V for current peak value n=20 rated value | 33 kVA |
| ● up to 400 V for current peak value n=20 rated value | 58 VA |
| ● up to 500 V for current peak value n=20 rated value | 73 VA |
| ● up to 690 V for current peak value n=20 rated value | 69 VA |
| operating apparent power at AC-6a | |
| ● up to 230 V for current peak value n=30 rated value | 22.4 VA |
| ● up to 400 V for current peak value n=30 rated value | 39 VA |
| ● up to 500 V for current peak value n=30 rated value | 48.7 VA |
| ● up to 690 V for current peak value n=30 rated value | 67.3 VA |
| short-time withstand current in cold operating state up to 40 °C | |
| ● limited to 1 s switching at zero current maximum | 1 725 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 5 s switching at zero current maximum | 1 297 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 10 s switching at zero current maximum | 946 A; Use minimum cross-section acc. to AC-1 rated value |
| ● limited to 30 s switching at zero current maximum | 610 A; Use minimum cross-section acc. to AC-1 rated value |

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| <ul style="list-style-type: none"> limited to 60 s switching at zero current maximum | 486 A; Use minimum cross-section acc. to AC-1 rated value |
| no-load switching frequency | |
| <ul style="list-style-type: none"> at AC | 5 000 1/h |
| operating frequency | |
| <ul style="list-style-type: none"> at AC-1 maximum | 900 1/h |
| <ul style="list-style-type: none"> at AC-2 maximum | 350 1/h |
| <ul style="list-style-type: none"> at AC-3 maximum | 850 1/h |
| <ul style="list-style-type: none"> at AC-3e maximum | 850 1/h |
| <ul style="list-style-type: none"> at AC-4 maximum | 250 1/h |
| Control circuit/ Control | |
| type of voltage of the control supply voltage | AC |
| control supply voltage at AC | |
| <ul style="list-style-type: none"> at 60 Hz rated value | 480 V |
| operating range factor control supply voltage rated value of magnet coil at AC | |
| <ul style="list-style-type: none"> at 60 Hz | 0.85 ... 1.1 |
| apparent pick-up power of magnet coil at AC | |
| <ul style="list-style-type: none"> at 60 Hz | 322 VA |
| inductive power factor with closing power of the coil | |
| <ul style="list-style-type: none"> at 60 Hz | 0.55 |
| apparent holding power of magnet coil at AC | |
| <ul style="list-style-type: none"> at 60 Hz | 21 VA |
| inductive power factor with the holding power of the coil | |
| <ul style="list-style-type: none"> at 60 Hz | 0.4 |
| closing delay | |
| <ul style="list-style-type: none"> at AC | 13 ... 50 ms |
| opening delay | |
| <ul style="list-style-type: none"> at AC | 10 ... 21 ms |
| arcing time | 10 ... 20 ms |
| control version of the switch operating mechanism | Standard A1 - A2 |
| Auxiliary circuit | |
| 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 |
| operational current at AC-15 | |
| <ul style="list-style-type: none"> at 230 V rated value | 6 A |
| <ul style="list-style-type: none"> at 400 V rated value | 3 A |
| <ul style="list-style-type: none"> at 500 V rated value | 2 A |
| <ul style="list-style-type: none"> at 690 V rated value | 1 A |
| operational current at DC-12 | |
| <ul style="list-style-type: none"> at 24 V rated value | 10 A |
| <ul style="list-style-type: none"> at 48 V rated value | 6 A |
| <ul style="list-style-type: none"> at 60 V rated value | 6 A |
| <ul style="list-style-type: none"> at 110 V rated value | 3 A |
| <ul style="list-style-type: none"> at 125 V rated value | 2 A |
| <ul style="list-style-type: none"> at 220 V rated value | 1 A |
| <ul style="list-style-type: none"> at 600 V rated value | 0.15 A |
| operational current at DC-13 | |
| <ul style="list-style-type: none"> at 24 V rated value | 10 A |
| <ul style="list-style-type: none"> at 48 V rated value | 2 A |
| <ul style="list-style-type: none"> at 60 V rated value | 2 A |
| <ul style="list-style-type: none"> at 110 V rated value | 1 A |
| <ul style="list-style-type: none"> at 125 V rated value | 0.9 A |
| <ul style="list-style-type: none"> at 220 V rated value | 0.3 A |
| <ul style="list-style-type: none"> at 600 V rated value | 0.1 A |
| contact reliability of auxiliary contacts | 1 faulty switching per 100 million (17 V, 1 mA) |
| UL/CSA ratings | |
| full-load current (FLA) for 3-phase AC motor | |
| <ul style="list-style-type: none"> at 480 V rated value | 96 A |

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| <ul style="list-style-type: none"> • at 600 V rated value | 77 A |
| yielded mechanical performance [hp] <ul style="list-style-type: none"> • for single-phase AC motor <ul style="list-style-type: none"> — at 110/120 V rated value — at 230 V rated value • for 3-phase AC motor <ul style="list-style-type: none"> — at 200/208 V rated value — at 220/230 V rated value — at 460/480 V rated value — at 575/600 V rated value | 10 hp 20 hp 30 hp 30 hp 75 hp 75 hp |
| contact rating of auxiliary contacts according to UL | A600 / P600 |
| 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 |
| design of the fuse link <ul style="list-style-type: none"> • for short-circuit protection of the main circuit <ul style="list-style-type: none"> — with type of coordination 1 required — with type of assignment 2 required • for short-circuit protection of the auxiliary switch required | gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA) gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA) gG: 10 A (500 V, 1 kA) |
| Installation/ mounting/ dimensions | |
| mounting position | +/-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 |
| fastening method | screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715 |
| height | 140 mm |
| width | 70 mm |
| depth | 152 mm |
| required spacing <ul style="list-style-type: none"> • with side-by-side mounting <ul style="list-style-type: none"> — forwards — upwards — downwards — at the side • for grounded parts <ul style="list-style-type: none"> — forwards — upwards — at the side — downwards • for live parts <ul style="list-style-type: none"> — forwards — upwards — downwards — at the side | 20 mm 10 mm 10 mm 0 mm 20 mm 10 mm 10 mm 10 mm 20 mm 10 mm 10 mm 10 mm |
| Connections/ Terminals | |
| type of electrical connection <ul style="list-style-type: none"> • for main current circuit • for auxiliary and control circuit • at contactor for auxiliary contacts • of magnet coil | screw-type terminals screw-type terminals Screw-type terminals Screw-type terminals |
| type of connectable conductor cross-sections <ul style="list-style-type: none"> • for main contacts <ul style="list-style-type: none"> — finely stranded with core end processing • for AWG cables for main contacts | 2x (2.5 ... 35 mm ²), 1x (2.5 ... 50 mm ²) 2x (10 ... 1/0), 1x (10 ... 2) |
| connectable conductor cross-section for main contacts <ul style="list-style-type: none"> • solid • stranded • finely stranded with core end processing | 2.5 ... 16 mm ² 6 ... 70 mm ² 2.5 ... 50 mm ² |
| connectable conductor cross-section for auxiliary contacts <ul style="list-style-type: none"> • solid or stranded • finely stranded with core end processing | 0.5 ... 2.5 mm ² 0.5 ... 2.5 mm ² |

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| type of connectable conductor cross-sections | |
| <ul style="list-style-type: none"> for auxiliary contacts <ul style="list-style-type: none"> — solid or stranded — finely stranded with core end processing for AWG cables for auxiliary contacts | 2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²) 2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²) 2x (20 ... 16), 2x (18 ... 14) |
| AWG number as coded connectable conductor cross section | |
| <ul style="list-style-type: none"> for main contacts for auxiliary contacts | 10 ... 2 20 ... 14 |

Safety related data

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| product function | |
| <ul style="list-style-type: none"> mirror contact according to IEC 60947-4-1 positively driven operation according to IEC 60947-5-1 suitable for safety function | Yes No Yes |
| suitability for use safety-related switching OFF | Yes |
| service life maximum | 20 a |
| test wear-related service life necessary | Yes |
| proportion of dangerous failures | |
| <ul style="list-style-type: none"> with low demand rate according to SN 31920 with high demand rate according to SN 31920 | 40 % 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 | IP20 |
| touch protection on the front according to IEC 60529 | finger-safe, for vertical contact from the front |

Approvals Certificates

General Product Approval



[Confirmation](#)



[KC](#)



EMV Test Certificates Marine / Shipping



[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



Marine / Shipping other Railway Dangerous goods



[Confirmation](#)

[Special Test Certificate](#)

[Transport Information](#)

Environment



[Environmental Confirmations](#)

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=3RT2046-1AV60-0UA0>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1AV60-0UA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AV60-0UA0>

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

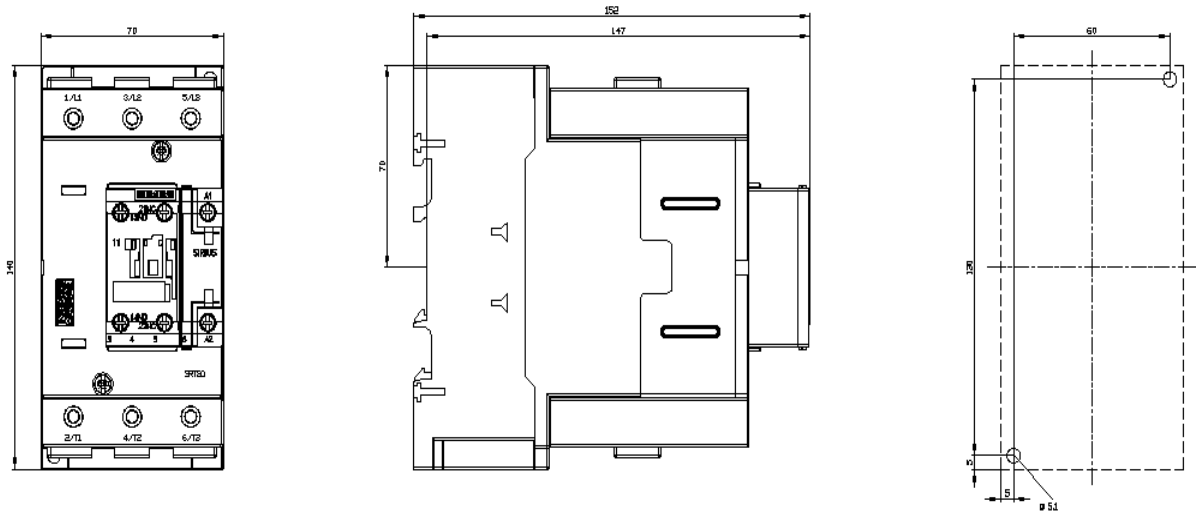
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-1AV60-0UA0&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AV60-0UA0/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-1AV60-0UA0&objecttype=14&gridview=view1>





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