



power contactor, AC-3e/AC-3, 80 A, 37 kW / 400 V, 3-pole, 110 V AC, 50 Hz / 120 V, 60 Hz, auxiliary contacts: 2 NO + 2 NC, screw terminal, size: S2, removable auxiliary switch

| | |
|--|-----------------------------|
| product brand name | SIRIUS |
| product designation | Power contactor |
| product type designation | 3RT2 |
| General technical data | |
| size of contactor | S2 |
| product extension | |
| • function module for communication | No |
| • auxiliary switch | No |
| power loss [W] for rated value of the current | |
| • at AC in hot operating state | 17.1 W |
| • at AC in hot operating state per pole | 5.7 W |
| • without load current share typical | 6.5 W |
| type of calculation of power loss depending on pole | quadratic |
| insulation voltage | |
| • of main circuit with degree of pollution 3 rated value | 690 V |
| • of auxiliary circuit with degree of pollution 3 rated value | 690 V |
| surge voltage resistance | |
| • 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 |
| shock resistance at rectangular impulse | |
| • at AC | 9.8g / 5 ms, 6.5g / 10 ms |
| shock resistance with sine pulse | |
| • at AC | 15.3g / 5 ms, 10.1g / 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) | 10/01/2014 |
| Weight | 1.08 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 |
| relative humidity minimum | 10 % |
| relative humidity at 55 °C according to IEC 60068-2-30 maximum | 95 % |

| Environmental footprint | |
|--|--------------------|
| Environmental Product Declaration(EPD) | Yes |
| global warming potential [CO2 eq] total | 236 kg |
| global warming potential [CO2 eq] during manufacturing | 4.11 kg |
| global warming potential [CO2 eq] during operation | 233 kg |
| global warming potential [CO2 eq] after end of life | -0.635 kg |
| Main circuit | |
| number of poles for main current circuit | 3 |
| number of NO contacts for main contacts | 3 |
| number of NC contacts for main contacts | 0 |
| operating voltage | |
| • at AC-3 rated value maximum | 690 V |
| • at AC-3e rated value maximum | 690 V |
| operational current | |
| • 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 ² |
| operational current for approx. 200000 operating cycles at AC-4 | |
| • at 400 V rated value | 30 A |
| • at 690 V rated value | 24 A |
| operational current | |
| • at 1 current path at DC-1 | |
| — at 24 V rated value | 55 A |
| — at 60 V rated value | 23 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 |
| • with 2 current paths in series at DC-1 | |
| — at 24 V rated value | 55 A |
| — at 60 V rated value | 45 A |
| — at 110 V rated value | 45 A |
| — at 220 V rated value | 5 A |
| — at 440 V rated value | 1 A |

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| — at 600 V rated value | 0.8 A |
| ● with 3 current paths in series at DC-1 | |
| — at 24 V rated value | 55 A |
| — at 60 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 |
| ● at 1 current path at DC-3 at DC-5 | |
| — at 24 V rated value | 35 A |
| — at 60 V rated value | 6 A |
| — at 220 V rated value | 1 A |
| — at 440 V rated value | 0.1 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 | 55 A |
| — at 60 V rated value | 45 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 |
| ● with 3 current paths in series at DC-3 at DC-5 | |
| — at 24 V rated value | 55 A |
| — at 60 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 |
| operating power | |
| ● 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 |
| operating power for approx. 200000 operating cycles at AC-4 | |
| ● at 400 V rated value | 15.8 kW |
| ● at 690 V rated value | 21.8 kW |
| operating apparent power at AC-6a | |
| ● 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 |
| operating apparent power at AC-6a | |
| ● 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 |
| short-time withstand current in cold operating state up to 40 °C | |
| ● 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 |

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| 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 | 700 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 | 500 1/h |
| <ul style="list-style-type: none"> ● at AC-3e <ul style="list-style-type: none"> — maximum | 500 1/h |
| <ul style="list-style-type: none"> ● at AC-4 maximum | 150 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 50 Hz rated value | 110 V |
| <ul style="list-style-type: none"> ● at 60 Hz rated value | 120 V |
| operating range factor control supply voltage rated value of magnet coil at AC | |
| <ul style="list-style-type: none"> ● at 50 Hz | 0.8 ... 1.1 |
| <ul style="list-style-type: none"> ● at 60 Hz | 0.8 ... 1.1 |
| apparent pick-up power of magnet coil at AC | |
| <ul style="list-style-type: none"> ● at 50 Hz | 212 VA |
| <ul style="list-style-type: none"> ● at 60 Hz | 188 VA |
| inductive power factor with closing power of the coil | |
| <ul style="list-style-type: none"> ● at 50 Hz | 0.69 |
| <ul style="list-style-type: none"> ● at 60 Hz | 0.65 |
| apparent holding power of magnet coil at AC | |
| <ul style="list-style-type: none"> ● at 50 Hz | 18.5 VA |
| <ul style="list-style-type: none"> ● at 60 Hz | 16.5 VA |
| inductive power factor with the holding power of the coil | |
| <ul style="list-style-type: none"> ● at 50 Hz | 0.36 |
| <ul style="list-style-type: none"> ● at 60 Hz | 0.39 |
| closing delay | |
| <ul style="list-style-type: none"> ● at AC | 10 ... 80 ms |
| opening delay | |
| <ul style="list-style-type: none"> ● at AC | 10 ... 18 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 | 2 |
| number of NO contacts for auxiliary contacts instantaneous contact | 2 |
| 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 | 6 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 |

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| <ul style="list-style-type: none"> • at 220 V rated value • at 600 V rated value | <p>0.3 A</p> <p>0.1 A</p> |
| 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 • at 600 V rated value | <p>65 A</p> <p>62 A</p> |
| 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 | <p>5 hp</p> <p>15 hp</p> <p>20 hp</p> <p>25 hp</p> <p>50 hp</p> <p>60 hp</p> |
| contact rating of auxiliary contacts according to UL | 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 |
| 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 coordination 2 required • for short-circuit protection of the auxiliary switch required | <p>gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)</p> <p>gG: 160 A (690 V, 100 kA), aM: 80 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)</p> <p>gG: 10 A (500 V, 1 kA)</p> |
| 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 | 114 mm |
| width | 55 mm |
| depth | 174 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 | <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 | |
| 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 | <p>screw-type terminals</p> <p>screw-type terminals</p> <p>Screw-type terminals</p> <p>Screw-type terminals</p> |
| type of connectable conductor cross-sections | |
| <ul style="list-style-type: none"> • for main contacts <ul style="list-style-type: none"> — solid or stranded — finely stranded with core end processing • for AWG cables for main contacts | <p>2x (1 ... 35 mm²), 1x (1 ... 50 mm²)</p> <p>2x (1 ... 25 mm²), 1x (1 ... 35 mm²)</p> <p>2x (18 ... 2), 1x (18 ... 1)</p> |

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| connectable conductor cross-section for main contacts • finely stranded with core end processing | 1 ... 35 mm ² |
| connectable conductor cross-section for auxiliary contacts • solid or stranded • finely stranded with core end processing | 0.5 ... 2.5 mm ² 0.5 ... 2.5 mm ² |
| type of connectable conductor cross-sections • for auxiliary contacts — 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 for main contacts | 18 ... 1 |
| AWG number as coded connectable conductor cross section for auxiliary contacts | 20 ... 14 |

Safety related data

| | |
|--|------------------|
| product function • 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 • 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

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|--|--|
| 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



[KC](#)



EMV Test Certificates Maritime application



[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



Maritime application other



[Confirmation](#)

[Confirmation](#)

Railway Dangerous goods 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=3RT2038-1AK64>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2038-1AK64>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-1AK64>

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

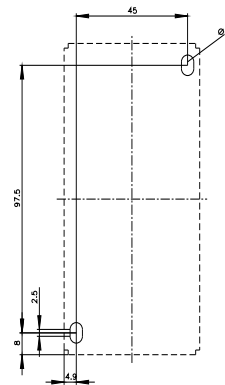
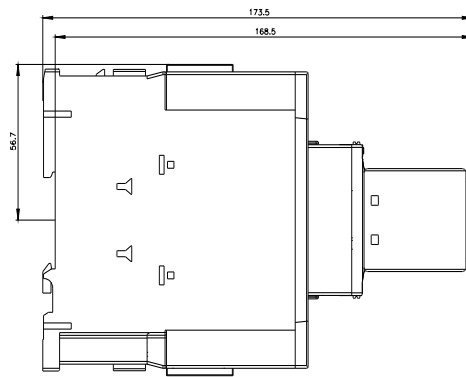
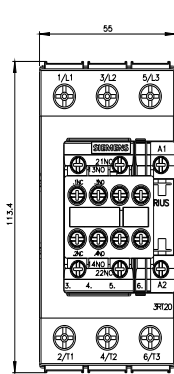
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2038-1AK64&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-1AK64/char>

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

<https://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2038-1AK64&objecttype=14&gridview=view1>





last modified:

10/21/2025 