

Siemens
EcoTech



power contactor, AC-3e/AC-3 185 A, 90 kW / 400 V AC (50-60 Hz) / DC U_c: 440-480 V 3-pole, auxiliary contacts 2 NO + 2 NC drive: conventional main circuit: busbar control and auxiliary circuit: spring-loaded terminal



| | |
|--|----------------------------|
| product brand name | SIRIUS |
| product designation | Power contactor |
| product type designation | 3RT1 |
| General technical data | |
| size of contactor | S6 |
| 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 | 39 W |
| • at AC in hot operating state per pole | 13 W |
| • without load current share typical | 5.2 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 | 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 at rectangular impulse | |
| • at AC | 8,5g / 5 ms, 4,2g / 10 ms |
| • at DC | 8,5g / 5 ms, 4,2g / 10 ms |
| shock resistance with sine pulse | |
| • at AC | 13,4g / 5 ms, 6,5g / 10 ms |
| • at DC | 13,4g / 5 ms, 6,5g / 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) | 05/01/2012 |
| SVHC substance name | Lead - 7439-92-1 |
| Weight | 3.384 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

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|--|-----------------|
| Environmental Product Declaration (EPD) | Yes |
| global warming potential [CO2 eq] total | 379 kg |
| global warming potential [CO2 eq] during manufacturing | 17 kg |
| global warming potential [CO2 eq] during sales | 0.901 kg |
| global warming potential [CO2 eq] during operation | 363 kg |
| global warming potential [CO2 eq] after end of life | -2.28 kg |
| Siemens Eco Profile (SEP) | Siemens EcoTech |

Main circuit

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| 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 | 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 | 215 A |
| • at AC-1 | |
| — up to 690 V at ambient temperature 40 °C rated value | 215 A |
| — up to 690 V at ambient temperature 60 °C rated value | 185 A |
| — up to 1000 V at ambient temperature 40 °C rated value | 100 A |
| — up to 1000 V at ambient temperature 60 °C rated value | 100 A |
| • at AC-3 | |
| — at 400 V rated value | 185 A |
| — at 500 V rated value | 185 A |
| — at 690 V rated value | 170 A |
| — at 1000 V rated value | 65 A |
| • at AC-3e | |
| — at 400 V rated value | 185 A |
| — at 500 V rated value | 185 A |
| — at 690 V rated value | 170 A |
| — at 1000 V rated value | 65 A |
| • at AC-4 at 400 V rated value | 160 A |
| • at AC-5a up to 690 V rated value | 189 A |
| • at AC-5b up to 400 V rated value | 153 A |
| • at AC-6a | |
| — up to 230 V for current peak value n=20 rated value | 157 A |
| — up to 400 V for current peak value n=20 rated value | 157 A |
| — up to 500 V for current peak value n=20 rated value | 157 A |
| — up to 690 V for current peak value n=20 rated value | 157 A |
| — up to 1000 V for current peak value n=20 rated value | 65 A |
| • at AC-6a | |
| — up to 230 V for current peak value n=30 rated value | 105 A |
| — up to 400 V for current peak value n=30 rated value | 105 A |
| — up to 500 V for current peak value n=30 rated value | 105 A |
| — up to 690 V for current peak value n=30 rated value | 105 A |
| — up to 1000 V for current peak value n=30 rated value | 65 A |
| minimum cross-section in main circuit at maximum AC-1 rated value | 95 mm ² |
| operational current for approx. 200000 operating cycles at AC-4 | |

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| <ul style="list-style-type: none"> ● at 400 V rated value ● at 690 V rated value | 81 A 65 A |
| operational current | |
| <ul style="list-style-type: none"> ● at 1 current path at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 60 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value ● with 2 current paths in series at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 60 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value ● with 3 current paths in series at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 60 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value ● at 1 current path at DC-3 at DC-5 <ul style="list-style-type: none"> — at 24 V rated value — at 60 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value ● with 2 current paths in series at DC-3 at DC-5 <ul style="list-style-type: none"> — at 24 V rated value — at 60 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value ● with 3 current paths in series at DC-3 at DC-5 <ul style="list-style-type: none"> — at 24 V rated value — at 60 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value | 160 A 160 A 18 A 3.4 A 0.8 A 0.5 A 160 A 160 A 160 A 20 A 3.2 A 1.6 A 160 A 160 A 160 A 160 A 11.5 A 4 A 160 A 7.5 A 0.6 A 0.17 A 0.12 A 160 A 160 A 160 A 2.5 A 0.65 A 0.37 A 160 A 160 A 160 A 160 A 1.4 A 0.75 A |
| operating power | |
| <ul style="list-style-type: none"> ● at AC-3 <ul style="list-style-type: none"> — at 230 V rated value — at 400 V rated value — at 500 V rated value — at 690 V rated value — at 1000 V rated value ● at AC-3e <ul style="list-style-type: none"> — at 230 V rated value — at 400 V rated value — at 500 V rated value — at 690 V rated value — at 1000 V rated value | 55 kW 90 kW 132 kW 160 kW 90 kW 55 kW 90 kW 132 kW 160 kW 90 kW |
| operating power for approx. 200000 operating cycles at AC-4 | |
| <ul style="list-style-type: none"> ● at 400 V rated value ● at 690 V rated value | 45 kW 65 kW |

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| operating apparent power at AC-6a | |
| <ul style="list-style-type: none"> • up to 230 V for current peak value n=20 rated value • up to 400 V for current peak value n=20 rated value • up to 500 V for current peak value n=20 rated value • up to 690 V for current peak value n=20 rated value • up to 1000 V for current peak value n=20 rated value | 60 kVA 100 kVA 130 kVA 180 kVA 110 kVA |
| operating apparent power at AC-6a | |
| <ul style="list-style-type: none"> • up to 230 V for current peak value n=30 rated value • up to 400 V for current peak value n=30 rated value • up to 500 V for current peak value n=30 rated value • up to 690 V for current peak value n=30 rated value • up to 1000 V for current peak value n=30 rated value | 40 kVA 70 kVA 90 kVA 120 kVA 110 kVA |
| short-time withstand current in cold operating state up to 40 °C | |
| <ul style="list-style-type: none"> • limited to 1 s switching at zero current maximum • limited to 5 s switching at zero current maximum • limited to 10 s switching at zero current maximum • limited to 30 s switching at zero current maximum • limited to 60 s switching at zero current maximum | 2 900 A; Use minimum cross-section acc. to AC-1 rated value 2 084 A; Use minimum cross-section acc. to AC-1 rated value 1 480 A; Use minimum cross-section acc. to AC-1 rated value 968 A; Use minimum cross-section acc. to AC-1 rated value 801 A; Use minimum cross-section acc. to AC-1 rated value |
| no-load switching frequency | |
| <ul style="list-style-type: none"> • at AC • at DC | 2 000 1/h 2 000 1/h |
| operating frequency | |
| <ul style="list-style-type: none"> • at AC-1 maximum • at AC-2 maximum • at AC-3 maximum • at AC-3e <ul style="list-style-type: none"> — maximum • at AC-4 maximum | 800 1/h 300 1/h 750 1/h 750 1/h 130 1/h |
| Control circuit/ Control | |
| type of voltage of the control supply voltage | AC/DC |
| control supply voltage at AC | |
| <ul style="list-style-type: none"> • at 50 Hz rated value • at 60 Hz rated value | 440 ... 480 V 440 ... 480 V |
| control supply voltage at DC rated value | 440 ... 480 V |
| operating range factor control supply voltage rated value of magnet coil at DC | |
| <ul style="list-style-type: none"> • initial value • full-scale value | 0.8 1.1 |
| operating range factor control supply voltage rated value of magnet coil at AC | |
| <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz | 0.8 ... 1.1 0.8 ... 1.1 |
| design of the surge suppressor | with varistor |
| apparent pick-up power | |
| <ul style="list-style-type: none"> • at minimum rated control supply voltage at AC <ul style="list-style-type: none"> — at 50 Hz — at 60 Hz • at maximum rated control supply voltage at AC <ul style="list-style-type: none"> — at 60 Hz — at 50 Hz | 250 VA 250 VA 300 VA 300 VA |
| apparent pick-up power of magnet coil at AC | |
| <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz | 300 VA 300 VA |
| inductive power factor with closing power of the coil | |
| <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz | 0.9 0.9 |
| apparent holding power | |
| <ul style="list-style-type: none"> • at minimum rated control supply voltage at DC • at maximum rated control supply voltage at DC | 4.3 VA 5.2 VA |
| apparent holding power | |
| <ul style="list-style-type: none"> • at minimum rated control supply voltage at AC | |

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|--|---|
| — at 50 Hz | 4.8 VA |
| — at 60 Hz | 4.8 VA |
| • at maximum rated control supply voltage at AC | |
| — at 50 Hz | 5.8 VA |
| — at 60 Hz | 5.8 VA |
| inductive power factor with the holding power of the coil | |
| • at 50 Hz | 0.8 |
| • at 60 Hz | 0.8 |
| closing power of magnet coil at DC | 360 W |
| holding power of magnet coil at DC | 5.2 W |
| closing delay | |
| • at AC | 20 ... 95 ms |
| • at DC | 20 ... 95 ms |
| opening delay | |
| • at AC | 40 ... 60 ms |
| • at DC | 40 ... 60 ms |
| arcing time | 10 ... 15 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 | |
| • at 230 V rated value | 6 A |
| • at 400 V rated value | 3 A |
| • at 500 V rated value | 2 A |
| • at 690 V rated value | 1 A |
| operational current at DC-12 | |
| • 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 |
| operational current at DC-13 | |
| • 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 |
| 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 | |
| • at 480 V rated value | 180 A |
| • at 600 V rated value | 192 A |
| yielded mechanical performance [hp] | |
| • for single-phase AC motor | |
| — at 230 V rated value | 30 hp |
| • for 3-phase AC motor | |
| — at 200/208 V rated value | 60 hp |
| — at 220/230 V rated value | 75 hp |
| — at 460/480 V rated value | 150 hp |
| — at 575/600 V rated value | 200 hp |
| contact rating of auxiliary contacts according to UL | A600 / Q600 |
| Short-circuit protection | |
| design of the miniature circuit breaker for short-circuit protection | C characteristic: 10 A; 0.4 kA |

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|---|--|
| of the auxiliary circuit up to 230 V | |
| 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 | gG: 355 A (690 V, 100 kA) gG: 315 A (690 V, 100 kA), aM: 200 A (690 V, 50 kA), BS88: 315 A (415 V, 50 kA) gG: 10 A (500 V, 1 kA) |
| Installation/ mounting/ dimensions | |
| mounting position | 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 |
| fastening method | screw fixing |
| height | 172 mm |
| width | 120 mm |
| depth | 170 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 | Connection bar spring-loaded terminals Spring-type terminals Spring-type terminals |
| width of connection bar | 17 mm |
| thickness of connection bar | 3 mm |
| diameter of holes | 9 mm |
| number of holes | 1 |
| type of connectable conductor cross-sections | |
| <ul style="list-style-type: none"> ● for AWG cables for main contacts | 4 ... 250 kcmil |
| connectable conductor cross-section for main contacts | |
| <ul style="list-style-type: none"> ● stranded | 25 ... 120 mm ² |
| connectable conductor cross-section for auxiliary contacts | |
| <ul style="list-style-type: none"> ● solid or stranded ● finely stranded with core end processing ● finely stranded without core end processing | 0.25 ... 2.5 mm ² 0.25 ... 1.5 mm ² 0.25 ... 2.5 mm ² |
| type of connectable conductor cross-sections | |
| <ul style="list-style-type: none"> ● for auxiliary contacts <ul style="list-style-type: none"> — solid — solid or stranded — finely stranded with core end processing — finely stranded without core end processing ● for AWG cables for auxiliary contacts | 2x (0.25 ... 2.5 mm ²) 2x (0,25 ... 2,5 mm ²) 2x (0.25 ... 1.5 mm ²) 2x (0.25 ... 2.5 mm ²) 2x (24 ... 14) |
| AWG number as coded connectable conductor cross section for auxiliary contacts | 24 ... 14 |
| Safety related data | |
| product function | |
| <ul style="list-style-type: none"> ● mirror contact according to IEC 60947-4-1 | Yes |

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|--|--|
| • positively driven operation according to IEC 60947-5-1 | No |
| • suitable for safety function | 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 | 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 |

Approvals Certificates

General Product Approval



KC



EMV Functional Safety Test Certificates Maritime application



[Type Examination Certificate](#)

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



Maritime application other



[Miscellaneous](#)



[Confirmation](#)

other Railway Environment

[Confirmation](#)

[Miscellaneous](#)

[Special Test Certificate](#)



[Environmental Confirmations](#)

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=3RT1056-2AR36>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1056-2AR36>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT1056-2AR36>

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

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT1056-2AR36&lang=en

Characteristic: Tripping characteristics, I_t, Let-through current



