



traction contactor, AC-3 51 A, 22 kW / 400 V 1 NO + 1 NC 110 V DC, 0.7-1.25* US, with varistor, 3-pole, size S2, spring-loaded terminal

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| product brand name | SIRIUS |
| product designation | Contactor |
| design of the product | With extended operating range |
| product type designation | 3RT2 |
| General technical data | |
| size of contactor | S2 |
| 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 | 12 W |
| • at AC in hot operating state per pole | 4 W |
| • without load current share typical | 1 W |
| 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 safe isolation between coil and main contacts according to EN 60947-1 | 400 V |
| shock resistance at rectangular impulse | |
| • at DC | 7.7g / 5 ms, 4.5g / 10 ms |
| shock resistance with sine pulse | |
| • at DC | 12g / 5 ms, 7g / 10 ms |
| mechanical service life (switching 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 |
| Ambient conditions | |
| installation altitude at height above sea level maximum | 2 000 m |
| ambient temperature | |
| • during operation | -40 ... +70 °C |
| • during storage | -55 ... +80 °C |
| relative humidity minimum | 10 % |

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| relative humidity at 55 °C according to IEC 60068-2-30 maximum | 95 % |
| 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 | 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 | 70 A |
| • at AC-1 | |
| — up to 690 V at ambient temperature 40 °C rated value | 70 A |
| — up to 690 V at ambient temperature 60 °C rated value | 60 A |
| • at AC-2 at 400 V rated value | 50 A |
| • at AC-3 | |
| — at 400 V rated value | 51 A |
| — at 500 V rated value | 51 A |
| — at 690 V rated value | 24 A |
| • at AC-3e | |
| — at 400 V rated value | 51 A |
| — at 500 V rated value | 51 A |
| — at 690 V rated value | 24 A |
| • at AC-4 at 400 V rated value | 41 A |
| minimum cross-section in main circuit | |
| • at maximum AC-1 rated value | 25 mm ² |
| • at maximum Ith rated value | 25 mm ² |
| operational current for approx. 200000 operating cycles at AC-4 | |
| • at 400 V rated value | 24 A |
| • at 690 V rated value | 20 A |
| operating power | |
| • at AC-2 at 400 V rated value | 22 kW |
| • at AC-3 | |
| — at 230 V rated value | 15 kW |
| — at 400 V rated value | 22 kW |
| — at 500 V rated value | 30 kW |
| — at 690 V rated value | 22 kW |
| • at AC-3e | |
| — at 230 V rated value | 15 kW |
| — at 400 V rated value | 22 kW |
| — at 500 V rated value | 30 kW |
| — at 690 V rated value | 22 kW |
| operating power for approx. 200000 operating cycles at AC-4 | |
| • at 400 V rated value | 12.6 kW |
| • at 690 V rated value | 18.2 kW |
| short-time withstand current in cold operating state up to 40 °C | |
| • limited to 1 s switching at zero current maximum | 937 A; Use minimum cross-section acc. to AC-1 rated value |
| • limited to 5 s switching at zero current maximum | 697 A; Use minimum cross-section acc. to AC-1 rated value |
| • limited to 10 s switching at zero current maximum | 468 A; Use minimum cross-section acc. to AC-1 rated value |
| • limited to 30 s switching at zero current maximum | 282 A; Use minimum cross-section acc. to AC-1 rated value |
| • limited to 60 s switching at zero current maximum | 229 A; Use minimum cross-section acc. to AC-1 rated value |
| no-load switching frequency | |
| • at DC | 1 500 1/h |
| operating frequency | |
| • at AC-2 at AC-3e maximum | 600 1/h |
| • at AC-4 maximum | 250 1/h |

Ratings for railway applications**thermal current (I_{th}) up to 690 V**

- up to 40 °C according to IEC 60077 rated value 70 A
- up to 70 °C according to IEC 60077 rated value 55 A

Control circuit/ Control

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| type of voltage | DC |
| type of voltage of the control supply voltage | DC |
| control supply voltage at DC <ul style="list-style-type: none">• rated value | 110 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 | 0.7 1.25 |
| design of the surge suppressor | with varistor |
| inrush current peak | 1.5 A |
| duration of inrush current peak | 50 µs |
| locked-rotor current mean value | 0.45 A |
| locked-rotor current peak | 0.8 A |
| duration of locked-rotor current | 230 ms |
| holding current mean value | 12 mA |
| closing power of magnet coil at DC | 23 W |
| holding power of magnet coil at DC | 1 W |
| closing delay <ul style="list-style-type: none">• at DC | 35 ... 110 ms |
| opening delay <ul style="list-style-type: none">• at DC | 30 ... 55 ms |
| arcing time | 10 ... 20 ms |
| control version of the switch operating mechanism | Standard A1 - A2 |

Auxiliary circuit

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| number of NC contacts for auxiliary contacts <ul style="list-style-type: none">• instantaneous contact | 1 1 |
| number of NO contacts for auxiliary contacts <ul style="list-style-type: none">• instantaneous contact | 1 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• at 400 V rated value• at 500 V rated value• at 690 V rated value | 10 A 3 A 2 A 1 A |
| operational current at DC-12 <ul style="list-style-type: none">• at 24 V rated value• at 48 V rated value• at 60 V rated value• at 110 V rated value• at 125 V rated value• at 220 V rated value• at 600 V rated value | 10 A 6 A 6 A 3 A 2 A 1 A 0.15 A |
| operational current at DC-13 <ul style="list-style-type: none">• at 24 V rated value• at 48 V rated value• at 60 V rated value• at 110 V rated value• at 125 V rated value• at 220 V rated value• at 600 V rated value | 10 A 2 A 2 A 1 A 0.9 A 0.3 A 0.1 A |

UL/CSA ratings

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| 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 | 52 A 52 A |
| yielded mechanical performance [hp] | |

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| <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 | 3 hp 10 hp 15 hp 15 hp 40 hp 50 hp |
| contact rating of auxiliary contacts according to UL | A600 / P600 |
| Short-circuit protection | |
| product function short circuit protection | No |
| 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: 160 A (690 V, 100 kA), aM: 80 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA) gG: 80A (690V,100kA), aM: 50A (690V,100kA), BS88: 63A (415V,80kA) 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 | screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715 |
| <ul style="list-style-type: none"> side-by-side mounting | Yes |
| height | 114 mm |
| width | 55 mm |
| depth | 130 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 | 10 mm 10 mm 10 mm 0 mm 10 mm 10 mm 6 mm 10 mm 10 mm 10 mm 10 mm 6 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 spring-loaded terminals Spring-type terminals Spring-type terminals |
| 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 at AWG cables for main contacts | 2x (1 ... 35 mm ²), 1x (1 ... 50 mm ²) 2x (1 ... 25 mm ²), 1x (1 ... 35 mm ²) 2x (18 ... 2), 1x (18 ... 1) |
| 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 finely stranded without core end processing at AWG cables for auxiliary contacts | 2x (0.5 ... 2.5 mm ²) 2x (0.5 ... 1.5 mm ²) 2x (0.5 ... 2.5 mm ²) 2x (20 ... 14) |
| AWG number as coded connectable conductor cross | |

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| section | |
| • for main contacts | 18 ... 1 |
| • for auxiliary contacts | 20 ... 14 |
| Safety related data | |
| product function | |
| • mirror contact according to IEC 60947-4-1 | Yes |
| • positively driven operation according to IEC 60947-5-1 | No |
| B10 value with high demand rate according to SN 31920 | 1 000 000 |
| proportion of dangerous failures | |
| • with low demand rate according to SN 31920 | 40 % |
| • with high demand rate according to SN 31920 | 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 |
| 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 |
| Communication/ Protocol | |
| product function bus communication | No |
| Certificates/ approvals | |
| General Product Approval | |



[Confirmation](#)



[KC](#)



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|------------|--|----------------------------------|--------------------------|
| EMC | Functional Safety/Safety of Machinery | Declaration of Conformity | Test Certificates |
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[Type Examination Certificate](#)



EG-Konf.

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)

Marine / Shipping



ABS



BUREAU VERITAS



LRS



PRS



RINA



RMRS

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| other | Railway |
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[Special Test Certificate](#)

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?mfb=3RT2036-3XF40-0LA2>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mfb=3RT2036-3XF40-0LA2>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2036-3XF40-0LA2>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2036-3XF40-0LA2&lang=en

Characteristic: Tripping characteristics, I^t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2036-3XF40-0LA2/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2036-3XF40-0LA2&objecttype=14&gridview=view1>

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