



Solid-state contactor 1-phase 3RF2 AC 51 / 20 A / 40 °C 48-460 V / 24 V AC/DC screw terminal







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| product brand name | SIRIUS |
| product designation | solid-state contactor |
| design of the product | 1-pole |
| product type designation | 3RF23 |
| manufacturer's article number | |
| <ul style="list-style-type: none"> • _1 of the accessories that can be ordered • _3 of the accessories that can be ordered • _4 of the accessories that can be ordered | 3RF2900-3PA88 3RF2900-0EA18 3RF2920-0GA16 |
| product designation | |
| <ul style="list-style-type: none"> • _1 of the accessories that can be ordered • _3 of the accessories that can be ordered • _4 of the accessories that can be ordered | terminal cover converter load monitoring |
| General technical data | |
| product function | zero-point switching |
| power loss [W] for rated value of the current | |
| <ul style="list-style-type: none"> • at AC in hot operating state • at AC in hot operating state per pole • without load current share typical | 20 W 20 W 0.5 W |
| insulation voltage rated value | 600 V |
| degree of pollution | 3 |
| surge voltage resistance of main circuit rated value | 6 kV |
| protection class IP | IP20 |
| protection class IP on the front according to IEC 60529 | IP20 |
| shock resistance according to IEC 60068-2-27 | 15g / 11 ms |
| vibration resistance according to IEC 60068-2-6 | 2g |
| reference code according to IEC 81346-2 | Q |
| Substance Prohibitance (Date) | 05/28/2009 |
| SVHC substance name | Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 Dibutylbis(pentane-2,4-dionato-O,O')tin - 22673-19-4 |
| Weight | 0.191 kg |
| Main circuit | |
| number of poles for main current circuit | 1 |
| number of NO contacts for main contacts | 1 |
| number of NC contacts for main contacts | 0 |
| type of voltage of the operating voltage | AC |
| operating voltage | |
| <ul style="list-style-type: none"> • at AC <ul style="list-style-type: none"> — at 50 Hz rated value — at 60 Hz rated value | 48 ... 460 V 48 ... 460 V |
| operating frequency rated value | 50 ... 60 Hz |

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| operating range relative to the operating voltage at AC | |
| <ul style="list-style-type: none"> at 50 Hz at 60 Hz | 40 ... 506 V 40 ... 506 V |
| operational current | |
| <ul style="list-style-type: none"> at AC-51 rated value at AC-51 according to IEC 60947-4-3 according to UL 508 rated value | 20 A 13.2 A 17.6 A |
| operational current minimum | 500 mA |
| rate of voltage rise at the thyristor for main contacts maximum permissible | 1 000 V/ μ s |
| blocking voltage at the thyristor for main contacts maximum permissible | 1 200 V |
| reverse current of the thyristor | 10 mA |
| derating temperature | 40 °C |
| surge current resistance rated value | 600 A |
| I²t value maximum | 1 800 A ² ·s |
| Control circuit/ Control | |
| type of voltage of the control supply voltage | AC/DC |
| control supply voltage 1 at AC | |
| <ul style="list-style-type: none"> at 50 Hz at 60 Hz | 24 ... 24 V 24 ... 24 V |
| control supply voltage frequency | |
| <ul style="list-style-type: none"> 1 rated value 2 rated value | 50 Hz 60 Hz |
| control supply voltage 1 at DC rated value maximum permissible | 30 V |
| control supply voltage 1 at DC | 15 ... 24 V |
| control supply voltage at AC | |
| <ul style="list-style-type: none"> at 50 Hz full-scale value for signal<0> recognition at 60 Hz full-scale value for signal<0> recognition | 5 V 5 V |
| control supply voltage | |
| <ul style="list-style-type: none"> at AC initial value for signal <1> detection at DC initial value for signal <1> detection at DC full-scale value for signal<0> recognition | 14 V 15 V 5 V |
| symmetrical line frequency tolerance | 5 Hz |
| control current at minimum control supply voltage | |
| <ul style="list-style-type: none"> at AC | 2 mA |
| control current at AC rated value | 15 mA |
| control current at DC rated value | 20 mA |
| ON-delay time | 1 ms; additionally max. one half-wave |
| OFF-delay time | 15 ms; additionally max. one half-wave |
| Auxiliary circuit | |
| type of switching contact | normally open contact (NO) |
| number of NC contacts for auxiliary contacts | 0 |
| number of NO contacts for auxiliary contacts | 0 |
| number of CO contacts for auxiliary contacts | 0 |
| Installation/ mounting/ dimensions | |
| fastening method side-by-side mounting | Yes |
| fastening method | screw fixing and snap-on mounting on standard mounting rail 35 mm according to IEC 60715 |
| design of the thread of the screw for securing the equipment | M4 |
| height | 95 mm |
| width | 22.5 mm |
| depth | 120 mm |
| Connections/ Terminals | |
| product component removable terminal for auxiliary and control circuit | Yes |
| type of electrical connection | |
| <ul style="list-style-type: none"> for main current circuit for auxiliary and control circuit | screw-type terminals screw-type terminals |
| type of connectable conductor cross-sections | |

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| <ul style="list-style-type: none"> • for main contacts <ul style="list-style-type: none"> — solid — finely stranded with core end processing • for AWG cables for main contacts | <p>2x (1.5 ... 2.5 mm²), 2x (2.5 ... 6 mm²)</p> <p>2x (1 ... 2.5 mm²), 2x (2.5 ... 6 mm²), 1x 10 mm²</p> <p>2x (14 ... 10)</p> |
| connectable conductor cross-section for main contacts <ul style="list-style-type: none"> • solid or stranded • finely stranded with core end processing | <p>1.5 ... 6 mm²</p> <p>1 ... 10 mm²</p> |
| type of connectable conductor cross-sections <ul style="list-style-type: none"> • for auxiliary and control contacts <ul style="list-style-type: none"> — solid — finely stranded with core end processing — finely stranded without core end processing • for AWG cables for auxiliary and control contacts | <p>1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1 mm²)</p> <p>1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1 mm²)</p> <p>1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1 mm²)</p> <p>1x (20 ... 12)</p> |
| AWG number as coded connectable conductor cross section for main contacts | <p>10 ... 14</p> |
| tightening torque <ul style="list-style-type: none"> • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals | <p>2 ... 2.5 N·m</p> <p>0.5 ... 0.6 N·m</p> |
| tightening torque [lbf·in] <ul style="list-style-type: none"> • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals | <p>18 ... 22 lbf·in</p> <p>4.5 ... 5.3 lbf·in</p> |
| design of the thread of the connection screw <ul style="list-style-type: none"> • for main contacts • of the auxiliary and control contacts | <p>M4</p> <p>M3</p> |
| stripped length of the cable <ul style="list-style-type: none"> • for main contacts • for auxiliary and control contacts | <p>10 mm</p> <p>7 mm</p> |
| Electrical Safety | |
| protection class IP on the front according to IEC 60529 | <p>IP20</p> |
| touch protection on the front according to IEC 60529 | <p>finger-safe, for vertical contact from the front</p> |
| Ambient conditions | |
| installation altitude at height above sea level maximum | <p>1 000 m</p> |
| ambient temperature <ul style="list-style-type: none"> • during operation • during storage | <p>-25 ... +60 °C</p> <p>-55 ... +80 °C</p> |
| Electromagnetic compatibility | |
| conducted interference <ul style="list-style-type: none"> • due to burst according to IEC 61000-4-4 • due to conductor-earth surge according to IEC 61000-4-5 • due to conductor-conductor surge according to IEC 61000-4-5 • due to high-frequency radiation according to IEC 61000-4-6 | <p>2 kV / 5 kHz behavior criterion 2</p> <p>2 kV behavior criterion 2</p> <p>1 kV behavior criterion 2</p> <p>140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1</p> |
| field-based interference according to IEC 61000-4-3 | <p>80 MHz ... 1 GHz 10 V/m, behavior criterion 1</p> |
| electrostatic discharge according to IEC 61000-4-2 | <p>4 kV contact discharging / 8 kV air discharging, behavior criterion 2</p> |
| conducted HF interference emissions according to CISPR11 | <p>Class A for industrial environment</p> |
| field-bound HF interference emission according to CISPR11 | <p>Class B for the domestic, business and commercial environments</p> |
| Short-circuit protection, design of the fuse link | |
| manufacturer's article number <ul style="list-style-type: none"> • of gS fuse for semiconductor protection at NH design usable • of full range R fuse link for semiconductor protection at cylindrical design usable • of back-up R fuse link for semiconductor protection at NH design usable • of back-up R fuse link for semiconductor protection at cylindrical design 10 x 38 mm usable • of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable • of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable | <p>3NE1814-0</p> <p>5SE1325</p> <p>3NE8015-1</p> <p>3NC1032</p> <p>3NC1450</p> <p>3NC2263</p> |

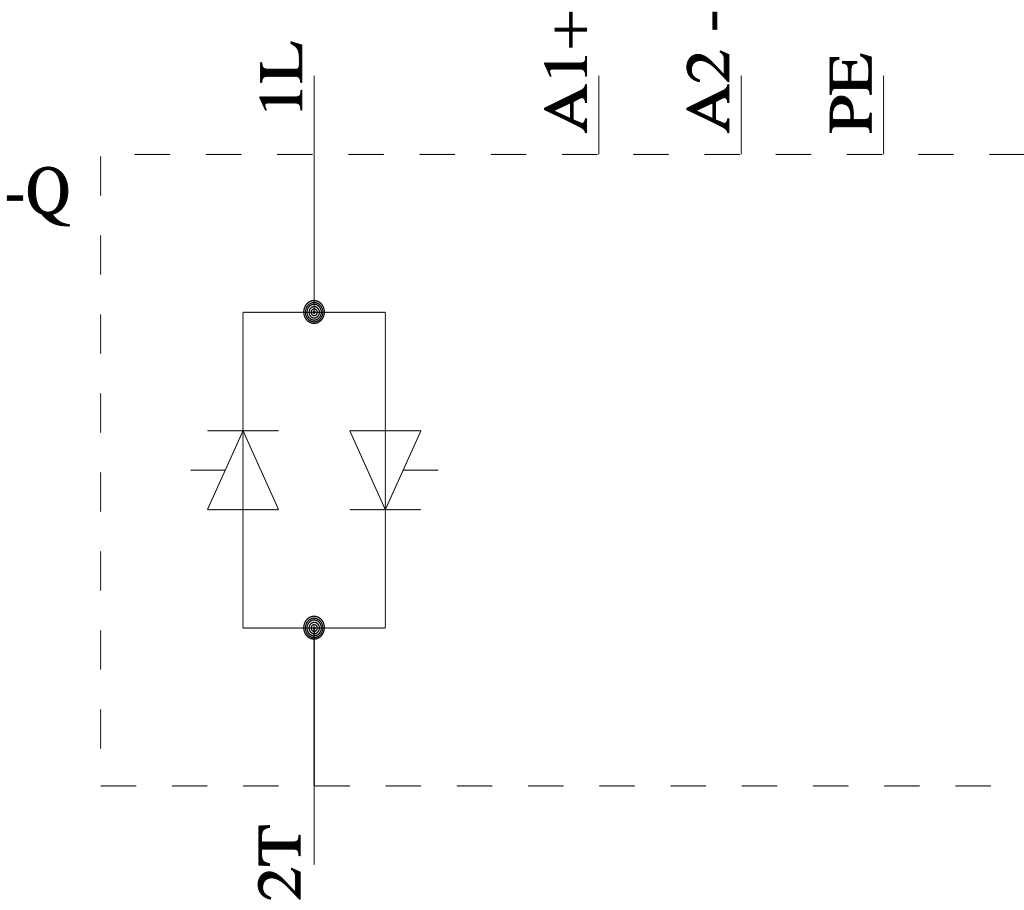
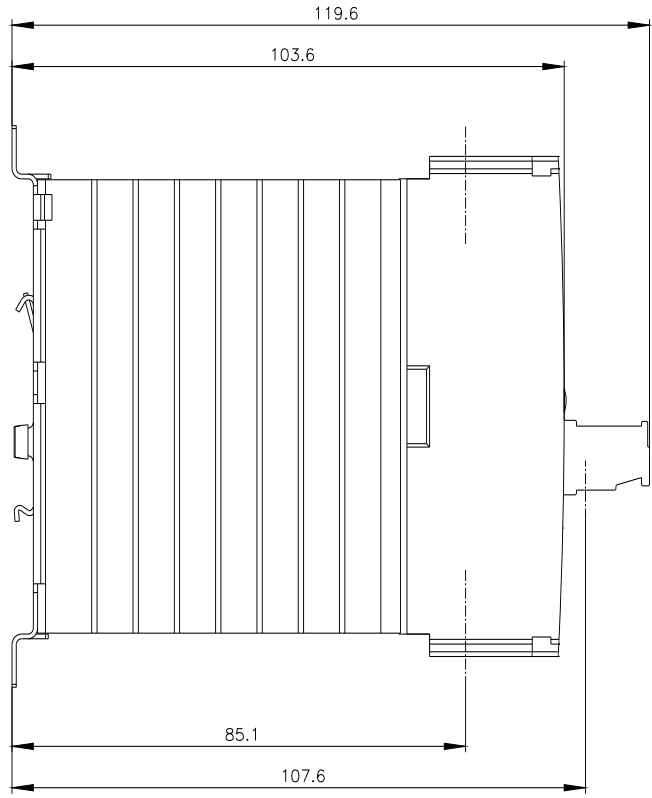
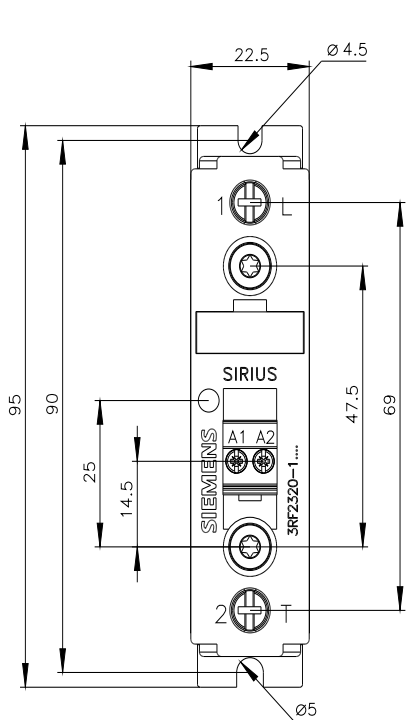
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| manufacturer's article number of the gG fuse <ul style="list-style-type: none"> • at NH design usable • at cylindrical design 10 x 38 mm usable • at cylindrical design 14 x 51 mm usable • at cylindrical design 22 x 58 mm usable | 3NA6807 3NW6005-1: These fuses have a smaller rated current than the semiconductor relays 3NW6105-1: These fuses have a smaller rated current than the semiconductor relays 3NW6205-1: These fuses have a smaller rated current than the semiconductor relays |
| manufacturer's article number <ul style="list-style-type: none"> • of DIAZED fuse usable • of NEOZED fuse usable | 5SB2711 5SE2320 |

Approvals Certificates

| General Product Approval | | EMV | Test Certificates | | |
|---|---|---|--|--|--|
|  |  EG-Konf. |  UL |  |  RCM | Type Test Certificates/Test Report |
| Test Certificates | other | Railway | Environment | | |
| Special Test Certificate |  |  |  VDE | 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=3RF2320-1AA14>
- Cax online generator
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2320-1AA14>
- Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
<https://support.industry.siemens.com/cs/ww/en/ps/3RF2320-1AA14>
- Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2320-1AA14&lang=en





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