



Solid-state contactor 1-phase 3RF2 AC 51 / 50 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  | single-phase   |
| product type designation   | 3RF23  |
| manufacturer's article number  |  |
| • _1 of the accessories that can be ordered  | <a href="#">3RF2900-3PA88</a>  |
| • _3 of the accessories that can be ordered  | <a href="#">3RF2900-0EA18</a>  |
| • _4 of the accessories that can be ordered  | <a href="#">3RF2950-0GA16</a>  |
| product designation  |  |
| • _1 of the accessories that can be ordered  | terminal cover   |
| • _3 of the accessories that can be ordered  | converter  |
| • _4 of the accessories that can be ordered  | load monitoring  |
| General technical data   |  |
| product function   | zero-point switching   |
| power loss [W] for rated value of the current  |  |
| • at AC in hot operating state   | 54 W   |
| • at AC in hot operating state per pole  | 54 W   |
| • without load current share typical   | 0.5 W  |
| insulation voltage rated value   | 600 V  |
| degree of pollution  | 3  |
| type of voltage  |  |
| • of the operating voltage   | AC   |
| • of the control supply voltage  | AC/DC  |
| surge voltage resistance of main circuit rated value                                       | 6 kV   |
| shock resistance according to IEC 60068-2-27   | 15g / 11 ms  |
| vibration resistance according to IEC 60068-2-6  | 2g   |
| reference code according to DIN 40719 extended according to IEC 204-2 according to IEC 750 | K  |
| reference code according to EN 61346-2   | Q  |
| reference code according to IEC 81346-2  | Q  |
| Substance Prohibitance (Date)  | 05/28/2009   |
| SVHC substance name  | Lead - 7439-92-1<br>Lead monoxide (lead oxide) - 1317-36-8<br>Dibutylbis(pentane-2,4-dionato-O,O')tin - 22673-19-4 |
| 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  |  |
| • at AC  |  |

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| — at 50 Hz rated value   | 48 ... 460 V   |
| — at 60 Hz rated value   | 48 ... 460 V   |
| <b>operating frequency rated value</b>   | 50 ... 60 Hz   |
| <b>operating range relative to the operating voltage at AC</b>                     |  |
| • at 50 Hz   | 40 ... 506 V   |
| • at 60 Hz   | 40 ... 506 V   |
| <b>operational current</b>   |  |
| • at AC-51 rated value   | 50 A   |
| • at AC-51 according to IEC 60947-4-3  | 36 A   |
| • according to UL 508 rated value  | 45 A   |
| <b>operational current minimum</b>   | 500 mA   |
| <b>rate of voltage rise at the thyristor for main contacts maximum permissible</b> | 1 000 V/μs   |
| <b>blocking voltage at the thyristor for main contacts maximum permissible</b>     | 1 200 V  |
| <b>reverse current of the thyristor</b>  | 10 mA  |
| <b>derating temperature</b>  | 40 °C  |
| <b>surge current resistance rated value</b>  | 1 150 A  |
| <b>I<sup>2</sup>t value maximum</b>  | 6 600 A <sup>2</sup> ·s  |
| <b>Control circuit/ Control</b>  |  |
| <b>type of voltage of the control supply voltage</b>                               | AC/DC  |
| <b>control supply voltage 1 at AC</b>  |  |
| • at 50 Hz   | 24 ... 24 V  |
| • at 60 Hz   | 24 ... 24 V  |
| <b>control supply voltage frequency</b>  |  |
| • 1 rated value  | 50 Hz  |
| • 2 rated value  | 60 Hz  |
| <b>control supply voltage 1 at DC</b>  |  |
| • rated value maximum permissible  | 30 V   |
| •  | 15 ... 24 V  |
| <b>control supply voltage at AC</b>  |  |
| • at 50 Hz full-scale value for signal<0> recognition                              | 5 V  |
| • at 60 Hz full-scale value for signal<0> recognition                              | 5 V  |
| <b>control supply voltage</b>  |  |
| • at AC initial value for signal <1> detection                                     | 14 V   |
| • at DC initial value for signal <1> detection                                     | 15 V   |
| • at DC full-scale value for signal<0> recognition                                 | 5 V  |
| <b>symmetrical line frequency tolerance</b>  | 5 Hz   |
| <b>control current at minimum control supply voltage</b>                           |  |
| • at AC  | 2 mA   |
| control current at AC rated value  | 15 mA  |
| control current at DC rated value  | 20 mA  |
| <b>ON-delay time</b>   | 1 ms; additionally max. one half-wave  |
| <b>OFF-delay time</b>  | 15 ms; additionally max. one half-wave   |
| <b>Auxiliary circuit</b>   |  |
| <b>number of NC contacts for auxiliary contacts</b>                                | 0  |
| <b>number of NO contacts for auxiliary contacts</b>                                | 0  |
| number of CO contacts for auxiliary contacts                                       | 0  |
| <b>Installation/ mounting/ dimensions</b>  |  |
| fastening method side-by-side mounting   | Yes  |
| <b>fastening method</b>  | screw fixing and snap-on mounting on standard mounting rail 35 mm according to IEC 60715 |
| <b>design of the thread of the screw for securing the equipment</b>                | M4   |
| <b>height</b>  | 100 mm   |
| <b>width</b>   | 67 mm  |
| <b>depth</b>   | 141 mm   |
| <b>Connections/ Terminals</b>  |  |
| <b>product component removable terminal for auxiliary and control circuit</b>      | Yes  |
| <b>type of electrical connection</b>   |  |
| • for main current circuit   | screw-type terminals   |

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|---|--|
| <ul style="list-style-type: none"> <li>• for auxiliary and control circuit</li> </ul>   | screw-type terminals   |
| <b>type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>• for main contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• for AWG cables for main contacts</li> </ul>  | 2x (1.5 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> )<br>2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup><br>2x (14 ... 10)  |
| <b>connectable conductor cross-section for main contacts</b> <ul style="list-style-type: none"> <li>• solid or stranded</li> <li>• finely stranded with core end processing</li> </ul>  | 1.5 ... 6 mm <sup>2</sup><br>1 ... 10 mm <sup>2</sup>  |
| <b>type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>• for auxiliary and control contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— finely stranded with core end processing</li> <li>— finely stranded without core end processing</li> </ul> </li> <li>• for AWG cables for auxiliary and control contacts</li> </ul>   | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )<br>1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )<br>1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )<br>1x (AWG 20 ... 12) |
| AWG number as coded connectable conductor cross section for main contacts   | 10 ... 14  |
| <b>tightening torque</b> <ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> <li>• for auxiliary and control contacts with screw-type terminals</li> </ul>  | 2 ... 2.5 N·m<br>0.5 ... 0.6 N·m   |
| <b>tightening torque [lbf·in]</b> <ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> <li>• for auxiliary and control contacts with screw-type terminals</li> </ul>   | 18 ... 22 lbf·in<br>4.5 ... 5.3 lbf·in   |
| <b>design of the thread of the connection screw</b> <ul style="list-style-type: none"> <li>• for main contacts</li> <li>• of the auxiliary and control contacts</li> </ul>  | M4<br>M3   |
| <b>stripped length of the cable</b> <ul style="list-style-type: none"> <li>• for main contacts</li> <li>• for auxiliary and control contacts</li> </ul>   | 7 mm<br>7 mm   |
| <b>Electrical Safety</b>  |  |
| <b>protection class IP on the front according to IEC 60529</b>  | IP20   |
| <b>touch protection on the front according to IEC 60529</b>   | finger-safe, for vertical contact from the front   |
| <b>Ambient conditions</b>   |  |
| installation altitude at height above sea level maximum   | 1 000 m  |
| <b>ambient temperature</b> <ul style="list-style-type: none"> <li>• during operation</li> <li>• during storage</li> </ul>   | -25 ... +60 °C<br>-55 ... +80 °C   |
| <b>Electromagnetic compatibility</b>  |  |
| <b>conducted interference</b> <ul style="list-style-type: none"> <li>• due to burst according to IEC 61000-4-4</li> <li>• due to conductor-earth surge according to IEC 61000-4-5</li> <li>• due to conductor-conductor surge according to IEC 61000-4-5</li> <li>• due to high-frequency radiation according to IEC 61000-4-6</li> </ul>   | 2 kV / 5 kHz behavior criterion 2<br>2 kV behavior criterion 2<br>1 kV behavior criterion 2<br><br>140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1   |
| <b>field-based interference according to IEC 61000-4-3</b>  | 80 MHz ... 1 GHz 10 V/m, behavior criterion 1  |
| <b>electrostatic discharge according to IEC 61000-4-2</b>   | 4 kV contact discharging / 8 kV air discharging, behavior criterion 2  |
| <b>conducted HF interference emissions according to CISPR11</b>   | Class A for industrial environment   |
| <b>field-bound HF interference emission according to CISPR11</b>  | Class B for the domestic, business and commercial environments   |
| <b>Short-circuit protection, design of the fuse link</b>  |  |
| manufacturer's article number <ul style="list-style-type: none"> <li>• of gS fuse for semiconductor protection at NH design usable</li> <li>• of full range R fuse link for semiconductor protection at cylindrical design usable</li> <li>• of back-up R fuse link for semiconductor protection at NH design usable</li> <li>• of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable</li> <li>• of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable</li> </ul> | <a href="#">3NE1817-0</a><br><a href="#">5SE1363</a><br><a href="#">3NE1817-0</a><br><a href="#">3NC1450</a><br><a href="#">3NC2280</a>  |

manufacturer's article number

- of NEOZED fuse usable

[5SE2335: These fuses have a smaller rated current than the semiconductor relays](#)

Approvals Certificates

|                          |     |
|--------------------------|-----|
| General Product Approval | EMV |
|--------------------------|-----|

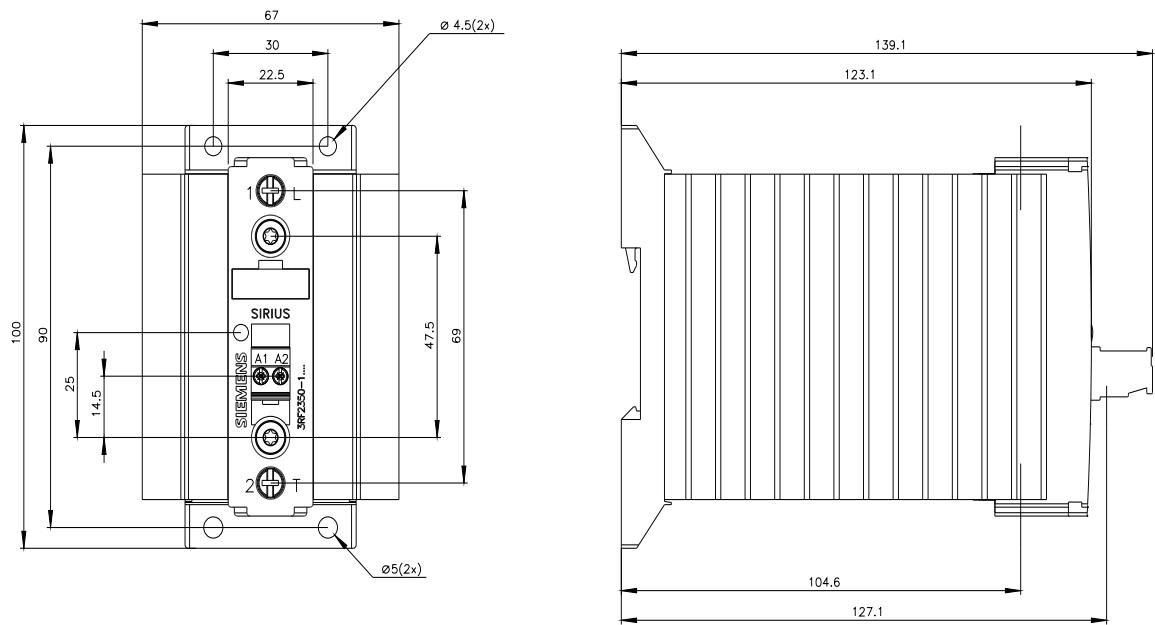


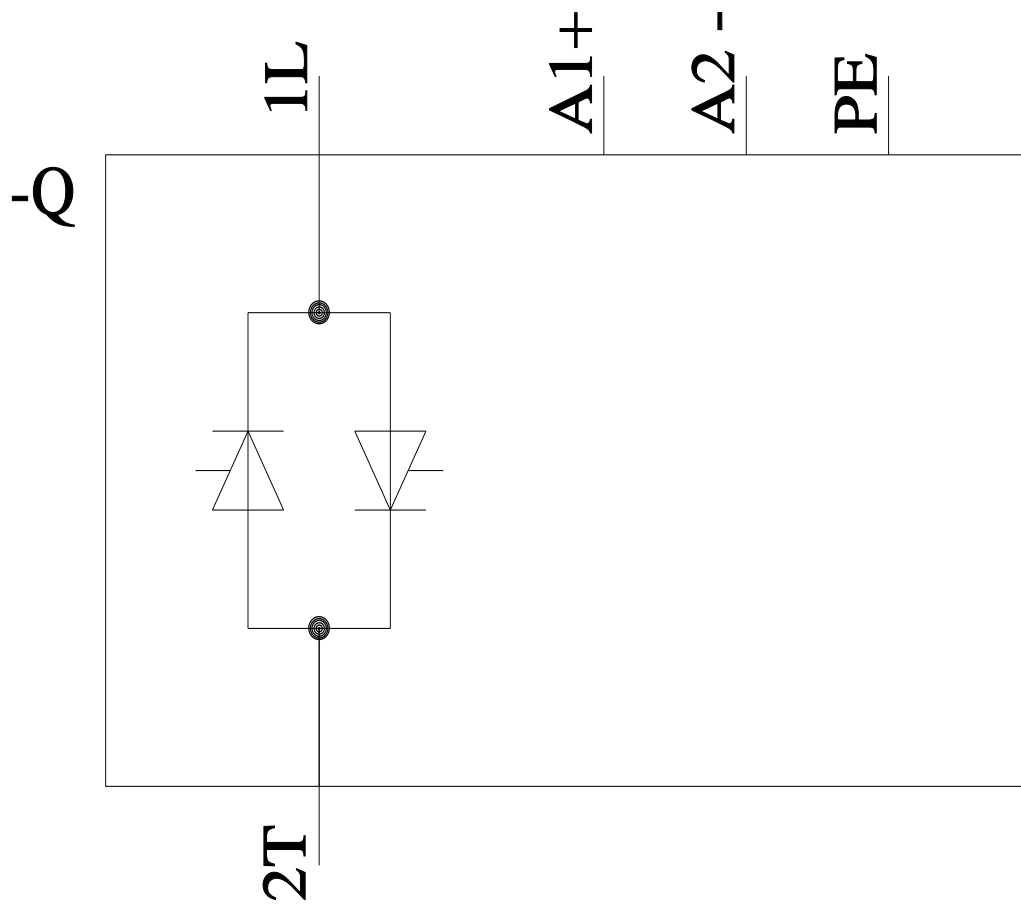
|                   |       |         |             |
|-------------------|-------|---------|-------------|
| Test Certificates | other | Railway | Environment |
|-------------------|-------|---------|-------------|



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=3RF2350-1AA14>  
Cax online generator  
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2350-1AA14>  
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)  
<https://support.industry.siemens.com/cs/ww/en/ps/3RF2350-1AA14>  
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)  
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2350-1AA14&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2350-1AA14&lang=en)





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