



Solid-state contactor 1-phase 3RF2 AC 51 / 20 A / 40 °C 48-460 V / 24 V DC short circuit-proof with B miniature circuit breaker

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="#">3RF2920-0GA16</a>
• _5 of the accessories that can be ordered	<a href="#">3RF2920-0FA08</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
• _5 of the accessories that can be ordered	load monitoring, basis

General technical data	
product function	short-circuit resistant with B-automatic device
power loss [W] for rated value of the current	
• at AC in hot operating state	20 W
• at AC in hot operating state per pole	20 W
• without load current share typical	0.4 W
insulation voltage rated value	600 V
degree of pollution	3
type of voltage	
• of the operating voltage	AC
• of the control supply voltage	DC
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	0.18 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

<b>operating voltage</b>	
• at AC	
— 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	20 A
• at AC-51 according to IEC 60947-4-3	13.2 A
• according to UL 508 rated value	17.6 A
<b>operational current minimum</b>	500 mA
<b>operational current of the MCB at AC rated value</b>	20 A
<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>	DC
<b>control supply voltage 1 at DC rated value maximum permissible</b>	30 V
<b>control supply voltage 1 at DC</b>	15 ... 24 V
<b>control supply voltage</b>	
• at DC initial value for signal <1> detection	15 V
• at DC full-scale value for signal<0> recognition	5 V
<b>control current at minimum control supply voltage</b>	
• at DC	13 mA
control current at DC rated value	15 mA
<b>ON-delay time</b>	1 ms; additionally max. one half-wave
<b>OFF-delay time</b>	1 ms; additionally max. one half-wave
<b>Auxiliary circuit</b>	
<b>type of switching contact</b>	normally open contact (NO)
<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>	95 mm
<b>width</b>	22.5 mm
<b>depth</b>	120 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
• for auxiliary and control circuit	screw-type terminals
<b>type of connectable conductor cross-sections</b>	
• for main contacts	
— solid	2x (1.5 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> )
— finely stranded with core end processing	2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup>
• for AWG cables for main contacts	2x (14 ... 10)
<b>connectable conductor cross-section for main contacts</b>	
• solid or stranded	1.5 ... 6 mm <sup>2</sup>

<ul style="list-style-type: none"> <li>finely stranded with core end processing</li> </ul>	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> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> ) 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 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 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 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 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 -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 2 kV behavior criterion 2 1 kV behavior criterion 2  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>	
<b>manufacturer's article number</b> <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 10 x 38 mm 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="#">3NE1814-0</a> <a href="#">5SE1325</a> <a href="#">3NE8015-1</a> <a href="#">3NC1032</a> <a href="#">3NC1450</a> <a href="#">3NC2263</a>
<b>manufacturer's article number of the gG fuse</b> <ul style="list-style-type: none"> <li>at NH design usable</li> <li>at cylindrical design 10 x 38 mm usable</li> <li>at cylindrical design 14 x 51 mm usable</li> <li>at cylindrical design 22 x 58 mm usable</li> </ul>	<a href="#">3NA6807</a> <a href="#">3NW6005-1: These fuses have a smaller rated current than the semiconductor relays</a> <a href="#">3NW6105-1: These fuses have a smaller rated current than the semiconductor relays</a> <a href="#">3NW6205-1: These fuses have a smaller rated current than the semiconductor relays</a>


<a href="#">relays</a>	
manufacturer's article number	
• of DIAZED fuse usable	<a href="#">5SB2711</a>
• of NEOZED fuse usable	<a href="#">5SE2320</a>

Approvals Certificates	
General Product Approval	EMV

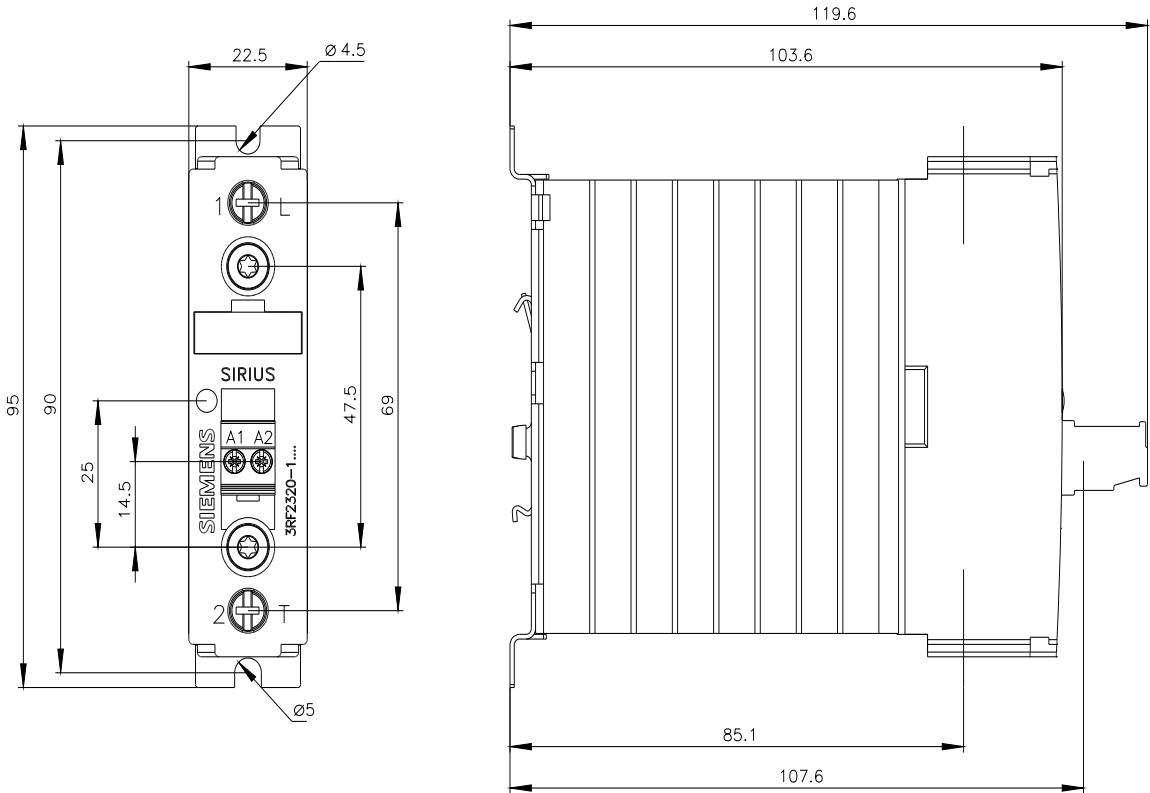


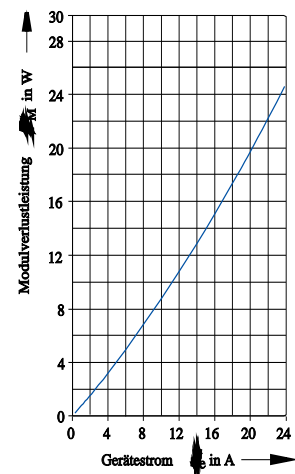
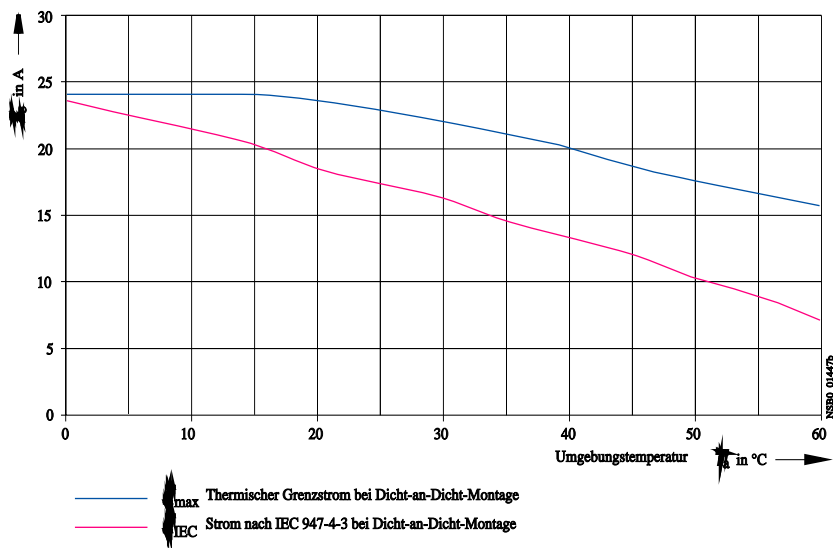
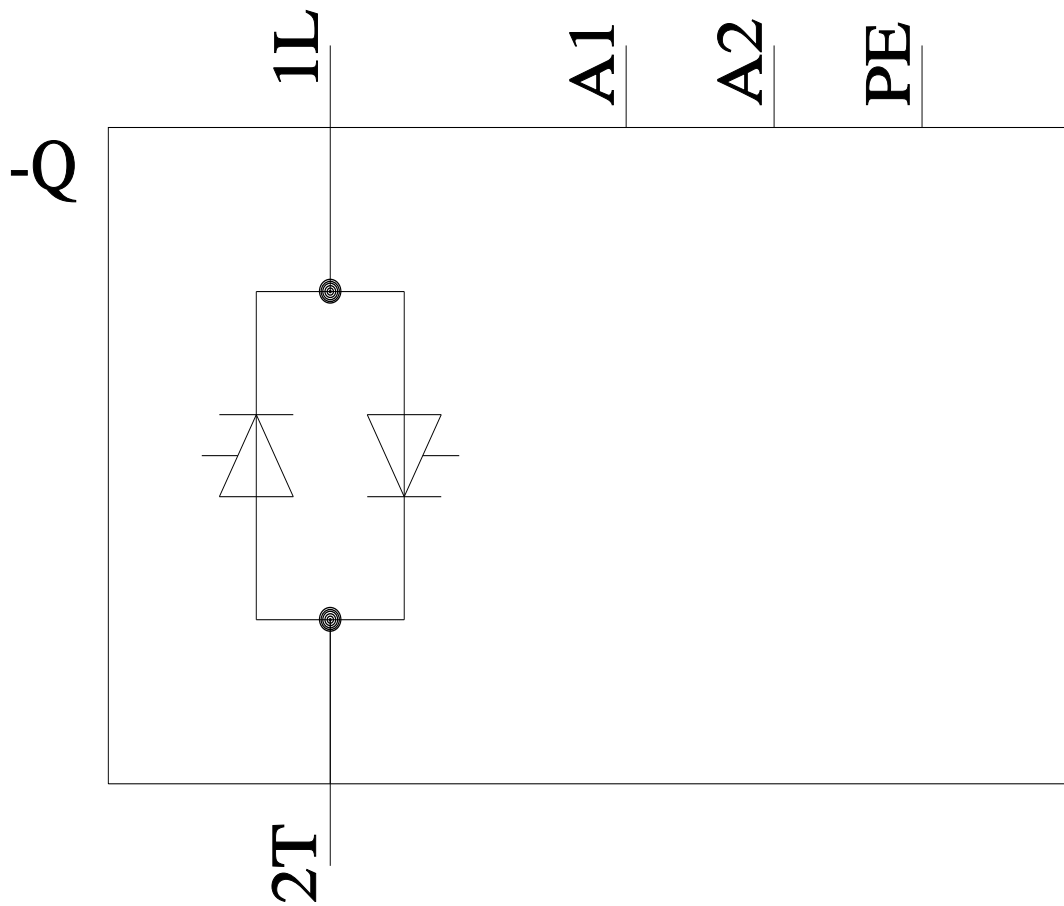
[Confirmation](#)



Test Certificates	other		Railway	Environment	
<a href="#">Type Test Certificates/Test Report</a>	<a href="#">Special Test Certificate</a>	<a href="#">Confirmation</a>		<a href="#">Special Test Certificate</a>	<a href="#">Environmental Confirmations</a>

Further information
<p>Information on the packaging  <a href="https://support.industry.siemens.com/cs/ww/en/view/109813875">https://support.industry.siemens.com/cs/ww/en/view/109813875</a></p> <p>Information- and Downloadcenter (Catalogs, Brochures,...)  <a href="https://www.siemens.com/ic10">https://www.siemens.com/ic10</a></p> <p>Industry Mall (Online ordering system)  <a href="https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RF2320-1DA04">https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RF2320-1DA04</a></p> <p>Cax online generator  <a href="http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&amp;mlfb=3RF2320-1DA04">http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&amp;mlfb=3RF2320-1DA04</a></p> <p>Service&amp;Support (Manuals, Certificates, Characteristics, FAQs,...)  <a href="https://support.industry.siemens.com/cs/ww/en/ps/3RF2320-1DA04">https://support.industry.siemens.com/cs/ww/en/ps/3RF2320-1DA04</a></p> <p>Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)  <a href="http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2320-1DA04&amp;lang=en">http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2320-1DA04&amp;lang=en</a></p>





last modified:

8/12/2024