



Solid-state contactor 1-phase 3RF2 AC 51 / 20 A / 40 °C 24-230 V / 110-230 V AC short circuit-proof with B miniature circuit breaker

<b>product brand name</b>	SIRIUS
<b>product designation</b>	solid-state contactor
<b>design of the product</b>	1-pole
<b>product type designation</b>	3RF23
<b>manufacturer's article number</b>	
<ul style="list-style-type: none"> <li>• _1 of the accessories that can be ordered</li> <li>• _4 of the accessories that can be ordered</li> </ul>	<a href="#">3RF2900-3PA88</a> <a href="#">3RF2920-0GA33</a>
<b>product designation</b>	
<ul style="list-style-type: none"> <li>• _1 of the accessories that can be ordered</li> <li>• _4 of the accessories that can be ordered</li> </ul>	terminal cover load monitoring
<b>General technical data</b>	
<b>product function</b>	short-circuit resistant with B-automatic device
<b>power loss [W] for rated value of the current</b>	
<ul style="list-style-type: none"> <li>• at AC in hot operating state</li> <li>• at AC in hot operating state per pole</li> <li>• without load current share typical</li> </ul>	20 W 20 W 3.5 W
<b>insulation voltage rated value</b>	600 V
<b>degree of pollution</b>	3
surge voltage resistance of main circuit rated value	6 kV
<b>protection class IP</b>	IP20
protection class IP on the front according to IEC 60529	IP20
<b>shock resistance according to IEC 60068-2-27</b>	15g / 11 ms
<b>vibration resistance according to IEC 60068-2-6</b>	2g
<b>reference code according to IEC 81346-2</b>	Q
<b>Substance Prohibitance (Date)</b>	05/28/2009
<b>SVHC substance name</b>	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 Dibutylbis(pentane-2,4-dionato-O,O')tin - 22673-19-4
<b>Weight</b>	0.19 kg
<b>Main circuit</b>	
<b>number of poles for main current circuit</b>	1
<b>number of NO contacts for main contacts</b>	1
<b>number of NC contacts for main contacts</b>	0
<b>type of voltage of the operating voltage</b>	AC
<b>operating voltage</b>	
<ul style="list-style-type: none"> <li>• at AC <ul style="list-style-type: none"> <li>— at 50 Hz rated value</li> <li>— at 60 Hz rated value</li> </ul> </li> </ul>	24 ... 230 V 24 ... 230 V
<b>operating frequency rated value</b>	50 ... 60 Hz
<b>operating range relative to the operating voltage at AC</b>	
<ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>	20 ... 253 V

<ul style="list-style-type: none"> <li>at 60 Hz</li> </ul>	20 ... 253 V
<b>operational current</b>	
<ul style="list-style-type: none"> <li>at AC-51 rated value</li> </ul>	20 A
<ul style="list-style-type: none"> <li>at AC-51 according to IEC 60947-4-3</li> </ul>	13.2 A
<ul style="list-style-type: none"> <li>according to UL 508 rated value</li> </ul>	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/ $\mu$ s
<b>blocking voltage at the thyristor for main contacts maximum permissible</b>	800 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
<b>control supply voltage 1 at AC</b>	
<ul style="list-style-type: none"> <li>at 50 Hz</li> </ul>	110 ... 230 V
<ul style="list-style-type: none"> <li>at 60 Hz</li> </ul>	110 ... 230 V
<b>control supply voltage frequency</b>	
<ul style="list-style-type: none"> <li>1 rated value</li> </ul>	50 Hz
<ul style="list-style-type: none"> <li>2 rated value</li> </ul>	60 Hz
<b>control supply voltage at AC</b>	
<ul style="list-style-type: none"> <li>at 50 Hz full-scale value for signal&lt;0&gt; recognition</li> </ul>	40 V
<ul style="list-style-type: none"> <li>at 60 Hz full-scale value for signal&lt;0&gt; recognition</li> </ul>	40 V
<b>control supply voltage</b>	
<ul style="list-style-type: none"> <li>at AC initial value for signal &lt;1&gt; detection</li> </ul>	90 V
<b>symmetrical line frequency tolerance</b>	5 Hz
<b>control current at minimum control supply voltage</b>	
<ul style="list-style-type: none"> <li>at AC</li> </ul>	2 mA
control current at AC rated value	15 mA
<b>ON-delay time</b>	40 ms; additionally max. one half-wave
<b>OFF-delay time</b>	40 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>	
<ul style="list-style-type: none"> <li>for main current circuit</li> </ul>	screw-type terminals
<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</li> </ul>	
<ul style="list-style-type: none"> <li>— solid</li> </ul>	2x (1.5 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>— finely stranded with core end processing</li> </ul>	2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>for AWG cables for main contacts</li> </ul>	2x (14 ... 10)
<b>connectable conductor cross-section for main contacts</b>	
<ul style="list-style-type: none"> <li>solid or stranded</li> </ul>	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>	<p>1x (0.5 ... 2.5 mm<sup>2</sup>), 2x (0.5 ... 1 mm<sup>2</sup>)</p> <p>1x (0.5 ... 2.5 mm<sup>2</sup>), 2x (0.5 ... 1 mm<sup>2</sup>)</p> <p>1x (0.5 ... 2.5 mm<sup>2</sup>), 2x (0.5 ... 1 mm<sup>2</sup>)</p> <p>1x (20 ... 12)</p>
<b>AWG number as coded connectable conductor cross section for main contacts</b>	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>	<p>2 ... 2.5 N·m</p> <p>0.5 ... 0.6 N·m</p>
<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>	<p>18 ... 22 lbf·in</p> <p>4.5 ... 5.3 lbf·in</p>
<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>	<p>M4</p> <p>M3</p>
<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>	<p>10 mm</p> <p>7 mm</p>
<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>	<p>-25 ... +60 °C</p> <p>-55 ... +80 °C</p>
<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>	<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>
<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 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>	<p><a href="#">3NE1814-0</a></p> <p><a href="#">5SE1325</a></p> <p><a href="#">3NE8015-1</a></p> <p><a href="#">3NC1032</a></p> <p><a href="#">3NC1450</a></p> <p><a href="#">3NC2263</a></p>
manufacturer's article number of the gG fuse	
<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>	<p><a href="#">3NA6807</a></p> <p><a href="#">3NW6007-1</a></p> <p><a href="#">3NW6107-1</a></p> <p><a href="#">3NW6207-1; These fuses have a smaller rated current than the semiconductor relays</a></p>
manufacturer's article number	

- of DIAZED fuse usable
- of NEOZED fuse usable

[5SB2711](#)

[5SE2320](#)

Approvals Certificates

General Product Approval	EMV	Test Certificates
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[Type Test Certificates/Test Report](#)

Test Certificates	other	Railway	Environment
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[Special Test Certificate](#)



[Confirmation](#)



[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=3RF2320-1DA22>

Cax online generator

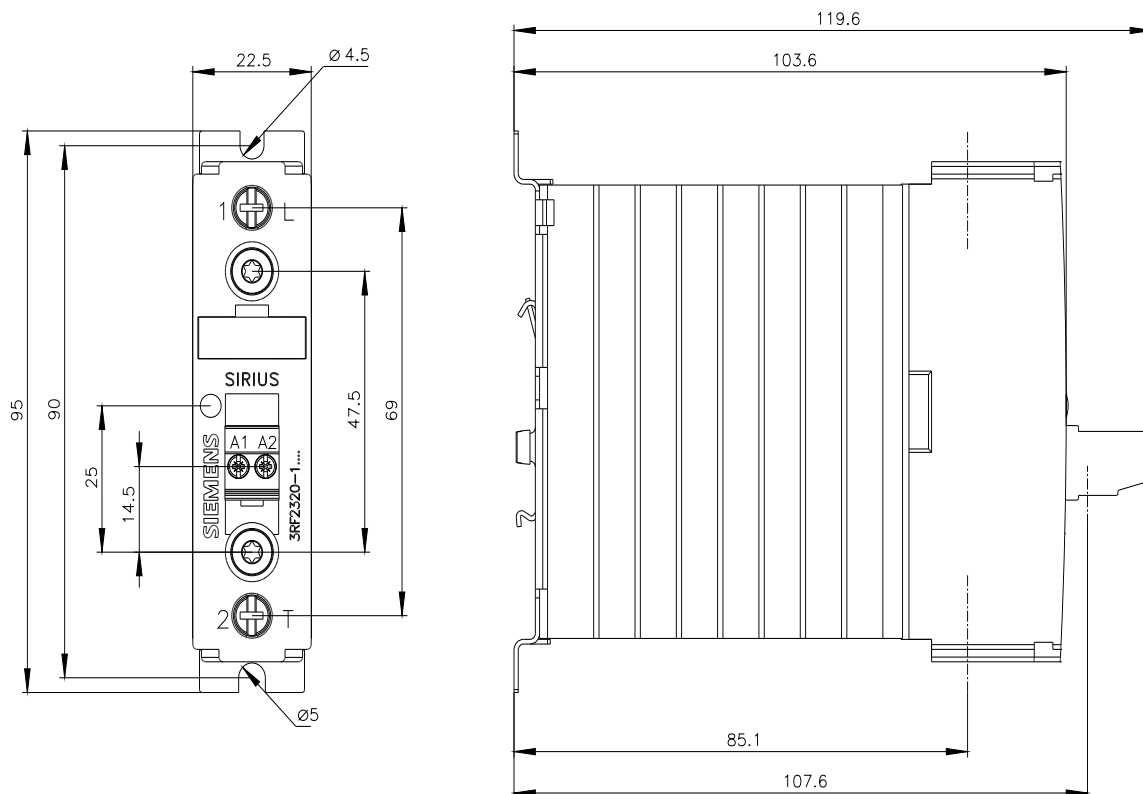
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2320-1DA22>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2320-1DA22>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2320-1DA22&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2320-1DA22&lang=en)







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