



\*\*\*phase-out type\*\*\* solid-state contactor 3-phase 3RF2 AC 51 / 50 A / 40 °C 48-600 V / 230 V AC 2-phase controlled screw terminal blocking voltage 1200 V

product brand name	SIRIUS
product designation	solid-state contactor
design of the product	2-pole controlled
product type designation	3RF24
<b>General technical data</b>	
product function	zero-point switching
power loss [W] for rated value of the current	
• at AC in hot operating state	107 W
• at AC in hot operating state per pole	35.67 W
• without load current share typical	3.5 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	15 g / 11 ms
vibration resistance according to IEC 60068-2-6	2 g
reference code according to IEC 81346-2	Q
Substance Prohibitance (day/month/year)	07/01/2006
SVHC substance name	Lead CAS-No. 7439-92-1 Lead monoxide (lead oxide) CAS-No. 1317-36-8 Dibutylbis(pentane-2,4-dionato-O,O')tin CAS-No. 22673-19-4
Net Weight	0.72 g
<b>Main circuit</b>	
number of poles for main current circuit	3
number of NO contacts for main contacts	2
number of NC contacts for main contacts	0
type of voltage of the operating voltage	AC
operating voltage	
• at AC	
— at 50 Hz rated value	48 ... 600 V
— at 60 Hz rated value	48 ... 600 V
operating frequency rated value	50 ... 60 Hz
relative symmetrical tolerance of the operating frequency	10 %
operating range relative to the operating voltage at AC	
• at 50 Hz	40 ... 660 V
• at 60 Hz	40 ... 660 V
operational current	
• at AC-1 at 400 V rated value	50 A
• at AC-51 rated value	50 A

<ul style="list-style-type: none"> <li>• at AC-51 according to IEC 60947-4-3</li> <li>• according to UL 508 rated value</li> </ul>	38 A 38 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/ $\mu$ s
<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
<b>control supply voltage 1 at AC</b>	
<ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>	180 ... 230 V 180 ... 230 V
<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> <li>• at 60 Hz full-scale value for signal&lt;0&gt; recognition</li> <li>• initial value for signal &lt;1&gt; detection</li> </ul>	40 V 180 V 180 V
<b>control supply voltage frequency</b>	
<ul style="list-style-type: none"> <li>• 1 rated value</li> <li>• 2 rated value</li> </ul>	45 Hz 66 Hz
<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>Installation/ mounting/ dimensions</b>	
fastening method side-by-side mounting	Yes
<b>fastening method</b>	screw fixing
<b>design of the thread of the screw for securing the equipment</b>	M4
<b>height</b>	95 mm
<b>width</b>	119.5 mm
<b>depth</b>	130 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> <li>• for auxiliary and control circuit</li> </ul>	screw-type terminals 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> ) 2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup> 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> 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 mm <sup>2</sup> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> ) 1x (20 ... 12)
<b>AWG number as coded connectable conductor cross section for main contacts</b>	14 ... 10
<b>tightening torque</b>	
<ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> </ul>	2 ... 2.5 N·m

<ul style="list-style-type: none"> <li>for auxiliary and control contacts with screw-type terminals</li> </ul>	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> </ul>	18 ... 22 lbf·in
<ul style="list-style-type: none"> <li>for auxiliary and control contacts with screw-type terminals</li> </ul>	7.5 ... 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> </ul>	M4
<ul style="list-style-type: none"> <li>of the auxiliary and control contacts</li> </ul>	M3
<b>stripped length of the cable</b>	
<ul style="list-style-type: none"> <li>for main contacts</li> </ul>	10 mm
<ul style="list-style-type: none"> <li>for auxiliary and control contacts</li> </ul>	7 mm

#### UL/CSA ratings

<b>operational current according to UL 508 rated value</b>	38 A
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#### Electrical Safety

<b>touch protection on the front according to IEC 60529</b>	finger-safe, for vertical contact from the front
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#### Ambient conditions

installation altitude at height above sea level maximum	1 000 m
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#### ambient temperature

<ul style="list-style-type: none"> <li>during operation</li> </ul>	-25 ... +60 °C
<ul style="list-style-type: none"> <li>during storage</li> </ul>	-55 ... +80 °C

#### Electromagnetic compatibility

<b>conducted interference</b>	
<ul style="list-style-type: none"> <li>due to burst according to IEC 61000-4-4</li> </ul>	2 kV / 5 kHz, behavior criterion 2
<ul style="list-style-type: none"> <li>due to conductor-earth surge according to IEC 61000-4-5</li> </ul>	2 kV, behavior criterion 2
<ul style="list-style-type: none"> <li>due to conductor-conductor surge according to IEC 61000-4-5</li> </ul>	1 kV, behavior criterion 2
<ul style="list-style-type: none"> <li>due to high-frequency radiation according to IEC 61000-4-6</li> </ul>	140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1

<b>electrostatic discharge according to IEC 61000-4-2</b>	4 kV contact discharging / 8 kV air discharging, behavior criterion 2
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<b>conducted HF interference emissions according to CISPR11</b>	Class A for industrial environment
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<b>field-bound HF interference emission according to CISPR11</b>	Class A for industrial environment
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#### Short-circuit protection, design of the fuse link

manufacturer's article number <ul style="list-style-type: none"> <li>of full range R fuse link 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> <a href="#">5SE1350: Maximum operating voltage 400 V!</a> <a href="#">3NE8018-1</a> <a href="#">3NC1450</a> <a href="#">3NC2280</a>
manufacturer's article number of the gG fuse at NH design usable <ul style="list-style-type: none"> <li>up to 460 V</li> </ul>	<a href="#">3NA3812: These fuses have a smaller rated current than the semiconductor relays</a>

#### Approvals Certificates

<b>Environment</b>	<b>General Product Approval</b>
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[Environmental Conformations](#)



<b>EMV</b>	<b>Test Certificates</b>	<b>other</b>
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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=3RF2450-1AB55>

Cax online generator

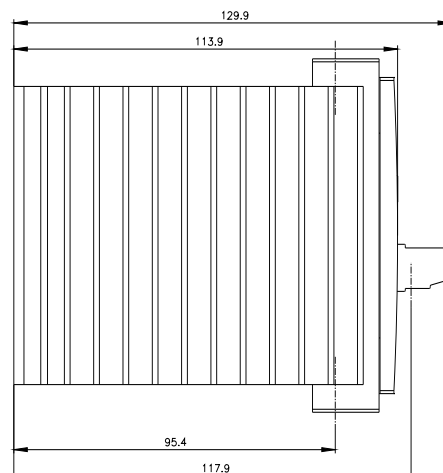
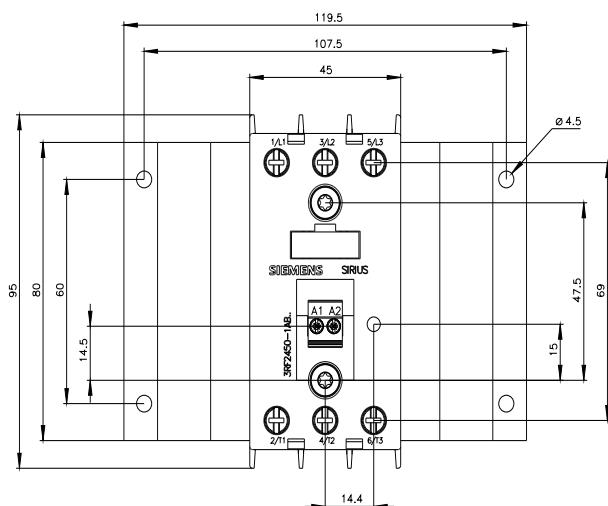
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2450-1AB55>

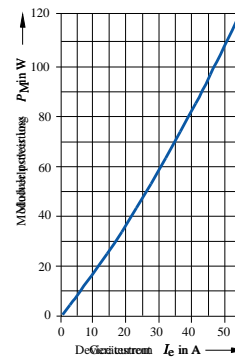
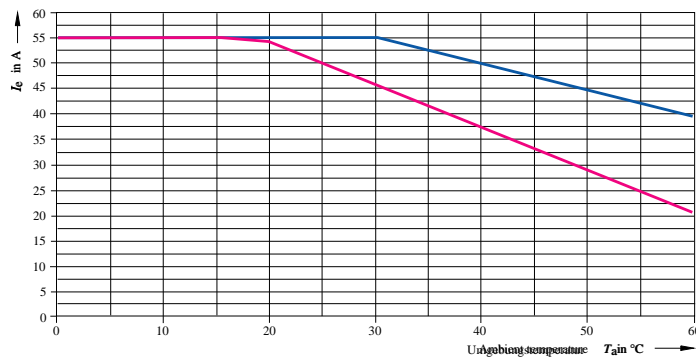
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2450-1AB55>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2450-1AB55&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2450-1AB55&lang=en)





—  $I_{\max}$  Thermischer Grenzstrom bei Einzelaufstellung und Dicht-an-Dicht-Montage  
—  $I_{IEC}$  Strom nach IEC 947-4-3 bei Einzelaufstellung und Dicht-an-Dicht-Montage

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