



solid-state contactor 3-phase 3RF2 AC 51 / 22 A / 40 °C 48-600 V / 4-30 V  
DC 2-phase controlled screw terminal blocking voltage 1200 V

**product brand name**  
**product designation**  
**design of the product**  
**product type designation**  
**manufacturer's article number**  
• \_2 of the accessories that can be ordered  
**product designation**  
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SIRIUS  
solid-state contactor  
two-phase controlled  
3RF24  
[3RF2900-0EA18](#)  
converter

### General technical data

**product function** zero-point switching  
**power loss [W] for rated value of the current**  
• at AC in hot operating state 44 W  
• at AC in hot operating state per pole 14.67 W  
• without load current share typical 0.9 W  
**insulation voltage rated value** 600 V  
**degree of pollution** 3  
type of voltage of the control supply voltage 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 IEC 81346-2** Q  
**Substance Prohibitance (Date)** 07/01/2006

### Main circuit

**number of poles for main current circuit** 3  
**number of NO contacts for main contacts** 2  
**number of NC contacts for main contacts** 0  
**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-51 rated value 22 A  
• at AC-51 according to IEC 60947-4-3 15 A  
• according to UL 508 rated value 15 A  
**operational current minimum** 500 mA  
**rate of voltage rise at the thyristor for main contacts maximum permissible** 1 000 V/μs

<b>blocking voltage at the thyristor for main contacts</b>	1 200 V
<b>maximum permissible reverse current of the thyristor</b>	10 mA
<b>derating temperature</b>	40 °C
<b>surge current resistance rated value</b>	600 A
<b>I<sup>2</sup>t value maximum</b>	1 800 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</b>	
• at DC rated value	30 V
• at DC	4 ... 30 V
<b>control supply voltage</b>	
• at DC initial value for signal <1> detection	4 V
• at DC full-scale value for signal <0> recognition	1 V
<b>symmetrical line frequency tolerance</b>	5 Hz
<b>control current at minimum control supply voltage</b>	
• at DC	22 mA
control current at DC rated value	30 mA
<b>ON-delay time</b>	1 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
<b>number of CO contacts for auxiliary contacts</b>	0
<b>Installation/ mounting/ dimensions</b>	
<b>fastening method</b>	screw fixing and snap-on mounting on standard mounting rail 35 mm according to IEC 60715
• side-by-side mounting	Yes
<b>design of the thread of the screw for securing the equipment</b>	M4
<b>height</b>	100 mm
<b>width</b>	45 mm
<b>depth</b>	117 mm
<b>Connections/ Terminals</b>	
<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>
• at AWG cables for main contacts	2x (14 ... 10)
<b>connectable conductor cross-section for main contacts</b>	
• solid or stranded	0.5 ... 2.5 mm <sup>2</sup>
• finely stranded with core end processing	0.5 ... 1.5 mm <sup>2</sup>
• finely stranded without core end processing	0.5 ... 2.5 mm <sup>2</sup>
<b>type of connectable conductor cross-sections</b>	
• for auxiliary and control contacts	
— solid	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )
— finely stranded with core end processing	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )
— finely stranded without core end processing	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )
• at AWG cables for auxiliary and control contacts	1x (AWG 20 ... 12)
AWG number as coded connectable conductor cross section for main contacts	14 ... 10
<b>tightening torque</b>	
• for main contacts with screw-type terminals	2 ... 2.5 N·m
• for auxiliary and control contacts with screw-type terminals	0.5 ... 0.6 N·m
<b>tightening torque [lbf·in]</b>	
• for main contacts with screw-type terminals	18 ... 22 lbf·in
• for auxiliary and control contacts with screw-type terminals	7.5 ... 5.3 lbf·in
<b>design of the thread of the connection screw</b>	
• for main contacts	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>	7 mm
<ul style="list-style-type: none"> <li>• for auxiliary and control contacts</li> </ul>	7 mm

Safety related data	
<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

Ambient conditions	
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> </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
<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 A for industrial environment

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 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="#">5SE1320</a> ; Maximum operating voltage 400 V! <a href="#">3NE8015-1</a> <a href="#">3NC1032</a> <a href="#">3NC1450</a> <a href="#">3NC2250</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="#">3NA3805</a> ; These fuses have a smaller rated current than the semiconductor relays

#### Certificates/ approvals

General Product Approval	EMC	Declaration of Conformity
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[Confirmation](#)



Declaration of Conformity	Test Certificates	other
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[Type Test Certificates/Test Report](#)

[Confirmation](#)



#### Further information

Siemens has decided to exit the Russian market (see here).

<https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business>

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

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=3RF2420-1AB45>

Cax online generator

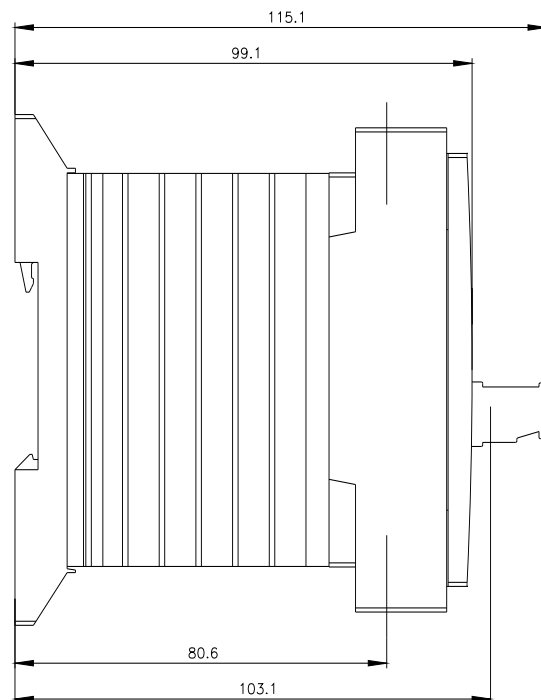
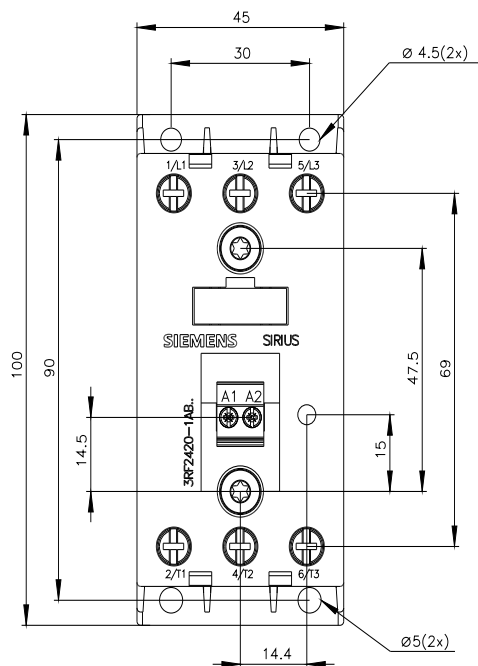
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2420-1AB45>

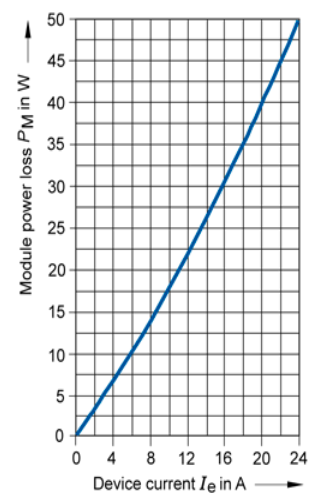
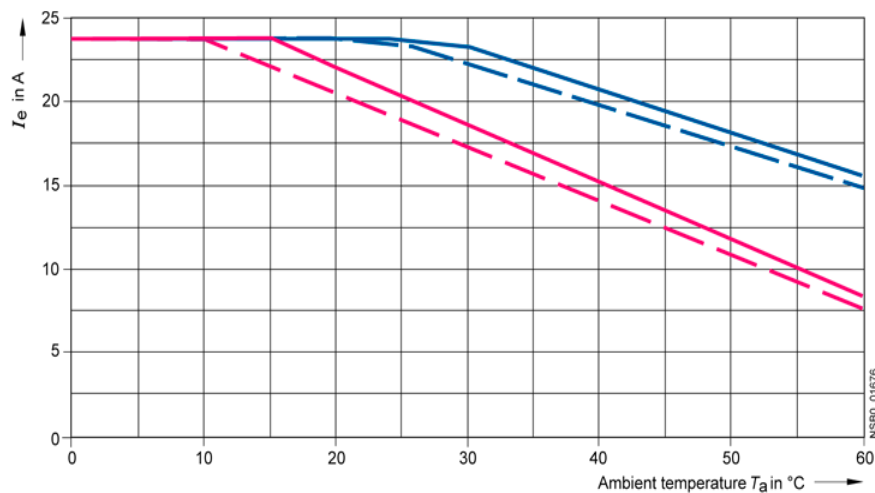
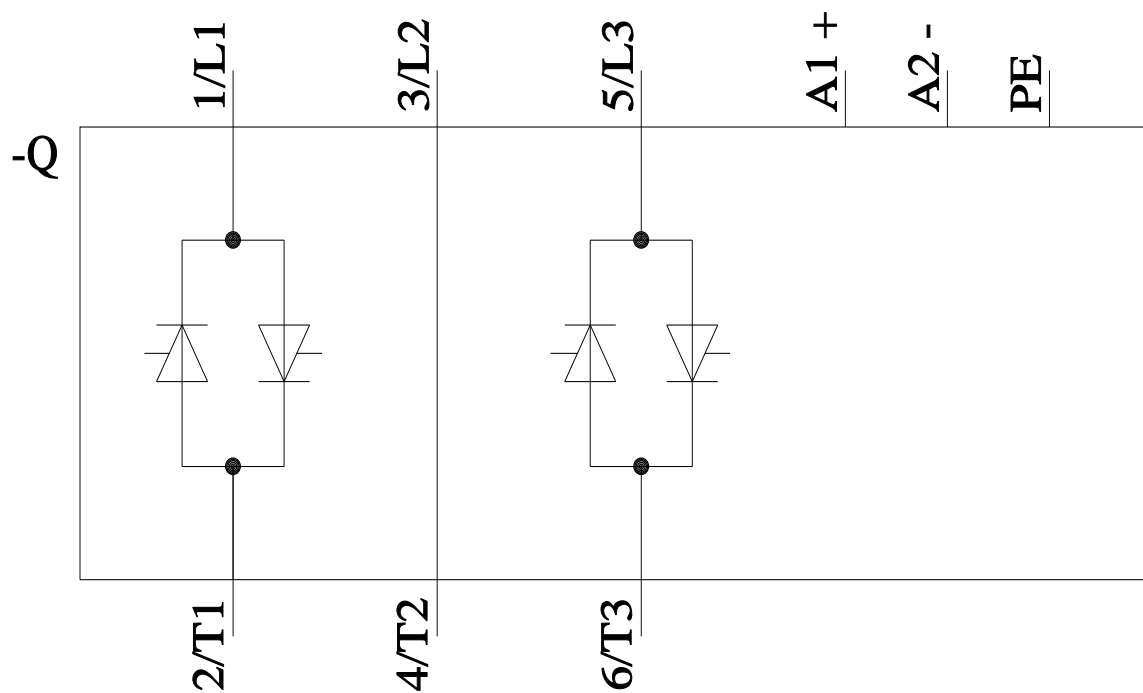
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2420-1AB45>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2420-1AB45&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2420-1AB45&lang=en)





- $I_{\max}$  Thermal limit current for individual mounting
- - -  $I_{\max}$  Thermal limit current for side-by-side mounting
- $I_{\text{IEC}}$  Current according to IEC 947-4-3 for individual mounting
- - -  $I_{\text{IEC}}$  Current according to IEC 947-4-3 for side-by-side mounting

last modified:

1/26/2022