



Solid-state contactor 3-phase 3RF2 AC 51 / 20 A / 40 °C 48-600 V / 4-30 V DC 3-phase controlled screw terminal Blocking voltage 1200 V

product brand name	SIRIUS
product designation	solid-state contactor
design of the product	3-pole controlled
product type designation	3RF24
manufacturer's article number	
• 2 of the accessories that can be ordered	<a href="#">3RF2900-0EA18</a>
product designation	
• 2 of the accessories that can be ordered	converter
<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	66 W
• at AC in hot operating state per pole	22 W
• without load current share typical	0.9 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	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
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	0.481 kg
<b>Main circuit</b>	
number of poles for main current circuit	3
number of NO contacts for main contacts	3
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

<b>operational current</b>	
• 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
<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>	600 A
<b>I<sub>2t</sub> 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 at DC rated value maximum permissible</b>	30 V
<b>control supply voltage 1 at DC</b>	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
<b>control current at DC rated value</b>	30 mA
<b>ON-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>	
<b>fastening method side-by-side mounting</b>	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>	74.5 mm
<b>depth</b>	119.5 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	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 mm <sup>2</sup> )
— finely stranded with core end processing	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> )
— finely stranded without core end processing	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> )
• for AWG cables for auxiliary and control contacts	1x (20 ... 12)
<b>AWG number as coded connectable conductor cross section for main contacts</b>	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				
• of the auxiliary and control contacts	M3				
<b>stripped length of the cable</b>					
• for main contacts	10 mm				
• for auxiliary and control contacts	7 mm				
Electrical Safety					
<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>					
• during operation	-25 ... +60 °C				
• during storage	-55 ... +80 °C				
<b>Electromagnetic compatibility</b>					
<b>conducted interference</b>					
• due to burst according to IEC 61000-4-4	2 kV / 5 kHz behavior criterion 2				
• due to conductor-earth surge according to IEC 61000-4-5	2 kV behavior criterion 2				
• due to conductor-conductor surge according to IEC 61000-4-5	1 kV behavior criterion 2				
• due to high-frequency radiation according to IEC 61000-4-6	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				
<b>Short-circuit protection, design of the fuse link</b>					
manufacturer's article number					
• of full range R fuse link for semiconductor protection at NH design usable	<a href="#">3NE1814-0</a>				
• of full range R fuse link for semiconductor protection at cylindrical design usable	<a href="#">5SE1320: Maximum operating voltage 400 V!</a>				
• of back-up R fuse link for semiconductor protection at NH design usable	<a href="#">3NE8015-1</a>				
• of back-up R fuse link for semiconductor protection at cylindrical design 10 x 38 mm usable	<a href="#">3NC1032</a>				
• of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable	<a href="#">3NC1450</a>				
• of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable	<a href="#">3NC2250</a>				
manufacturer's article number of the gG fuse at NH design usable					
• up to 460 V	<a href="#">3NA3805: These fuses have a smaller rated current than the semiconductor relays</a>				
<b>Approvals Certificates</b>					
<b>General Product Approval</b>	<b>EMV</b>	<b>Test Certificates</b>			
 EG-Konf.					<a href="#">Type Test Certificates/Test Report</a>

other

Environment

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=3RF2420-1AC45>

Cax online generator

<http://support.automation.siemens.com/WW/CAOrder/default.aspx?lang=en&mlfb=3RF2420-1AC45>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2420-1AC45>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2420-1AC45&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2420-1AC45&lang=en)



