

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
Product type designation	3RF24
Manufacturer's article number	
<ul style="list-style-type: none"> • <u>_2</u> / of the accessories that can be ordered 	3RF2900-0EA18
Product designation	
<ul style="list-style-type: none"> • <u>_2</u> / of the accessories that can be ordered 	converter

General technical data	
Product function	zero-point switching
Power loss [W] / for rated value of the current / at AC / in hot operating state	66 W
Insulation voltage	
<ul style="list-style-type: none"> • rated value 	600 V
Degree of pollution	3
Protection class IP	IP20
Shock resistance / acc. to IEC 60068-2-27	15g / 11 ms
Vibration resistance / acc. to IEC 60068-2-6	2g
Reference code / acc. to DIN EN 81346-2	Q

Main circuit

Number of poles / for main current circuit	3
Number of NO contacts / for main contacts	3
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
Operating current	
• at AC-51 / rated value	22 A
• acc. to UL 508 / rated value	15 A
Operating current / minimum	500 mA
Rate of voltage rise / at the thyristor / for main contacts / maximum permissible	1 000 V/ μ s
Blocking voltage / at the thyristor / for main contacts / maximum permissible	1 200 V
Reverse current / of the thyristor	10 mA
Derating temperature	40 °C
Surge current resistance / rated value	600 A
I²t value / maximum	1 800 A ² ·s

Control circuit/ Control

Type of voltage / of the control supply voltage	DC
Control supply voltage / 1	
• at DC / rated value	30 V
• at DC	4 ... 30 V
Control supply voltage	
• at DC / initial value for signal <1> detection	4 V
• at DC / Full-scale value for signal <0> recognition	1 V
Symmetrical line frequency tolerance	5 Hz
Control current / at minimum control supply voltage	
• at DC	22 mA
Control current / at DC / rated value	30 mA
Switch-on delay time	1 ms; additionally max. one half-wave
Number of NC contacts / for auxiliary contacts	0
Number of NO contacts / for auxiliary contacts	0
Number of CO contacts / for auxiliary contacts	0

Installation/ mounting/ dimensions

Mounting type	screw and snap-on mounting onto 35 mm standard mounting rail
• Side-by-side mounting	Yes
Height	100 mm
Width	74.5 mm; 90.5 mm product version E01
Depth	115.6 mm; 112.5 mm product version E01
Installation altitude / at height above sea level / maximum	1 000 m

Connections/ Terminals

Type of connectable conductor cross-sections	
• for main contacts	
— solid	2x (1.5 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²)
— finely stranded / with core end processing	2x (1 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²), 1x 10 mm ²
• at AWG conductors / for main contacts	2x (14 ... 10)
Type of connectable conductor cross-sections	
• for auxiliary and control contacts	
— solid	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²)
— finely stranded / with core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²)
— finely stranded / without core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²)
• at AWG conductors / for auxiliary and control contacts	1x (AWG 20 ... 12)
Tightening torque	
• 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
Tightening torque [lbf·in]	
• 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
Design of the thread / of the connection screw	
• for main contacts	M4
• of the auxiliary and control contacts	M3
Wire stripping length / of the cable	
• for main contacts	7 mm
• for auxiliary and control contacts	7 mm

Ambient conditions

Ambient temperature	
• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C

Electromagnetic compatibility






Conducted interference	
• due to burst / acc. to IEC 61000-4-4	2 kV / 5 kHz behavior criterion 2


<ul style="list-style-type: none"> • due to conductor-earth surge / acc. to IEC 61000-4-5 • due to conductor-conductor surge / acc. to IEC 61000-4-5 • due to high-frequency radiation / acc. to IEC 61000-4-6 	<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>
Electrostatic discharge / acc. to IEC 61000-4-2	4 kV contact discharging / 8 kV air discharging, behavior criterion 2
Conducted HF-interference emissions / acc. to CISPR11	Class A for industrial environment
Field-bound HF-interference emission / acc. to CISPR11	Class A for industrial environment

Short-circuit protection, design of the fuse link

<p>Manufacturer's article number</p> <ul style="list-style-type: none"> • of full range R fuse link for semiconductor protection / at NH design • of full range R fuse link for semiconductor protection / at cylindrical design • of back-up R fuse link for semiconductor protection / at NH design • of back-up R fuse link for semiconductor protection / at cylindrical design 10 x 38 mm • of back-up R fuse link for semiconductor protection / at cylindrical design 14 x 51 mm • of back-up R fuse link for semiconductor protection / at cylindrical design 22 x 58 mm 	<p>3NE1814-0</p> <p>5SE1320; Maximum operating voltage 400 V!</p> <p>3NE8015-1</p> <p>3NC1032</p> <p>3NC1450</p> <p>3NC2250</p>
<p>Manufacturer's article number / of the gG fuse / at NH design</p> <ul style="list-style-type: none"> • up to 460 V 	<p>3NA3805; These fuses have a smaller rated current than the semiconductor relays</p>

Certificates/ approvals

General Product Approval		EMC	Declaration of Conformity	
 CSA	 UL		 RCM	 EG-Konf.
Miscellaneous				

Test Certificates	other
Type Test Certificates/Test Report	Confirmation
 VDE	

Further information

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?mfb=3RF2420-1AC45>

Cax online generator

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

