

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



Product brand name	SIRIUS
Product designation	solid-state contactor
Product type designation	3RF24

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	
• 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	AC
Control supply voltage / 1 / at AC	
• at 50 Hz	180 ... 230 V
• at 60 Hz	180 ... 230 V
Control supply voltage frequency	
• 1 / rated value	45 Hz
• 2 / rated value	66 Hz
Control supply voltage / at AC	
• at 50 Hz / Full-scale value for signal<0> recognition	40 V
• at 60 Hz / Full-scale value for signal<0> recognition	180 V
Control supply voltage	
• at AC / initial value for signal <1> detection	180 V
Symmetrical line frequency tolerance	5 Hz
Control current / at minimum control supply voltage	
• at AC	2 mA
Control current / at AC / rated value	15 mA
Switch-on delay time	40 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
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Installation/ mounting/ dimensions

Mounting type	screw and snap-on mounting onto 35 mm standard mounting rail
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • for main contacts <ul style="list-style-type: none"> — solid — finely stranded / with core end processing • at AWG conductors / for main contacts 	<p>2x (1.5 ... 2.5 mm²), 2x (2.5 ... 6 mm²)</p> <p>2x (1 ... 2.5 mm²), 2x (2.5 ... 6 mm²), 1x 10 mm²</p> <p>2x (14 ... 10)</p>
Type of connectable conductor cross-sections	
<ul style="list-style-type: none"> • for auxiliary and control contacts <ul style="list-style-type: none"> — solid — finely stranded / with core end processing — finely stranded / without core end processing • at AWG conductors / for auxiliary and control contacts 	<p>1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.0 mm²)</p> <p>1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.0 mm²)</p> <p>1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.0 mm²)</p> <p>1x (AWG 20 ... 12)</p>
Tightening torque	
<ul style="list-style-type: none"> • for main contacts / with screw-type terminals • for auxiliary and control contacts / with screw-type terminals 	<p>2 ... 2.5 N·m</p> <p>0.5 ... 0.6 N·m</p>
Tightening torque [lbf·in]	
<ul style="list-style-type: none"> • for main contacts / with screw-type terminals • for auxiliary and control contacts / with screw-type terminals 	<p>18 ... 22 lbf·in</p> <p>7.5 ... 5.3 lbf·in</p>
Design of the thread / of the connection screw	
<ul style="list-style-type: none"> • for main contacts • of the auxiliary and control contacts 	<p>M4</p> <p>M3</p>
Wire stripping length / of the cable	
<ul style="list-style-type: none"> • for main contacts • for auxiliary and control contacts 	<p>7 mm</p> <p>7 mm</p>

Ambient conditions

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

Electromagnetic compatibility

Conducted interference <ul style="list-style-type: none">• due to burst / acc. to IEC 61000-4-4• 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	2 kV / 5 kHz behavior criterion 2 2 kV behavior criterion 2 1 kV behavior criterion 2 140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1
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

Manufacturer's article number <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	3NE1814-0 5SE1320; Maximum operating voltage 400 V! 3NE8015-1 3NC1032 3NC1450 3NC2250
Manufacturer's article number / of the gG fuse / at NH design <ul style="list-style-type: none">• up to 460 V	3NA3805; These fuses have a smaller rated current than the semiconductor relays

Certificates/ approvals

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

Test Certificates	other
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[Type Test Certificates/Test Report](#)

[Confirmation](#)



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?mlfb=3RF2420-1AC55>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2420-1AC55>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2420-1AC55>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2420-1AC55&lang=en





