

Solid-state contactor 3-phase 3RF3 AC 53 / 16 A / 40 °C 48-480 V / 110-230 V AC 2-phase controlled Instantaneous switching screw terminal



Product brand name	SIRIUS
Product designation	solid-state contactor
Product type designation	3RF34
Manufacturer's article number	
<ul style="list-style-type: none"> • _1 / of the accessories that can be ordered • _2 / of the accessories that can be ordered 	3RA2921-1BA00 3RF3900-0QA88
Product designation	
<ul style="list-style-type: none"> • _1 / of the accessories that can be ordered • _2 / of the accessories that can be ordered 	Link module Connection adapter

General technical data	
Product function	instantaneous switching
Power loss [W] / for rated value of the current / at AC / in hot operating state	28 W
Insulation voltage	
<ul style="list-style-type: none"> • rated value 	600 V
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 40719 extended according to IEC 204-2 / acc. to IEC 750	K
Reference code / acc. to DIN EN 81346-2	Q
Reference code / acc. to DIN EN 61346-2	Q

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 ... 480 V
• at 60 Hz / rated value	48 ... 480 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 ... 506 V
• at 60 Hz	40 ... 506 V
Operating current / minimum	500 mA
Operating current	
• at AC-3 / at 400 V / rated value	16 A
• at AC-53a / at 400 V / at ambient temperature 40 °C / rated value	16 A
Operating power	
• at AC-3 / at 400 V / rated value	7.5 kW
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	1 150 A
I ² t value / maximum	6 600 A ² ·s

Control circuit/ Control

Type of voltage / of the control supply voltage	AC
Control supply voltage / 1 / at AC	
• at 50 Hz	110 ... 230 V
• at 60 Hz	110 ... 230 V
Control supply voltage frequency	
• 1 / rated value	50 Hz
• 2 / rated value	60 Hz
Control supply voltage / at AC	

<ul style="list-style-type: none"> • at 50 Hz / Full-scale value for signal<0> recognition 	40 V
<ul style="list-style-type: none"> • at 60 Hz / Full-scale value for signal<0> recognition 	40 V
Control supply voltage	
<ul style="list-style-type: none"> • at AC / initial value for signal <1> detection 	90 V
Symmetrical line frequency tolerance	5 Hz
Operating range factor control supply voltage rated value / at AC / at 50 Hz	
<ul style="list-style-type: none"> • initial value 	0.82
<ul style="list-style-type: none"> • Full-scale value 	1.1
Operating range factor control supply voltage rated value / at AC / at 60 Hz	
<ul style="list-style-type: none"> • initial value 	0.82
<ul style="list-style-type: none"> • Full-scale value 	1.1
Control current / at minimum control supply voltage	
<ul style="list-style-type: none"> • at AC 	2 mA
Control current / at AC / rated value	15 mA
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 position	vertical
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	95 mm
Width	90 mm
Depth	100.8 mm
Required spacing / with side-by-side mounting	
<ul style="list-style-type: none"> • upwards 	70 mm
<ul style="list-style-type: none"> • downwards 	50 mm
Installation altitude / at height above sea level / maximum	1 000 m

Connections/ Terminals

Product function / removable terminal for auxiliary and control circuit	Yes
Type of connectable conductor cross-sections	
<ul style="list-style-type: none"> • for main contacts <ul style="list-style-type: none"> — solid 	2x (0.5 ... 2.5 mm ²)
<ul style="list-style-type: none"> — finely stranded / with core end processing 	2x (0.5 ... 1.5 mm ²)
<ul style="list-style-type: none"> • at AWG conductors / for main contacts 	2x (18 ... 14)
Type of connectable conductor cross-sections	
<ul style="list-style-type: none"> • 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
Tightening torque / 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

UL/CSA ratings

Full-load current (FLA) / for three-phase AC motor	
• at 480 V / rated value	7.6 A
Yielded mechanical performance [hp] / for three-phase AC motor	
• at 200/208 V / rated value	2 hp
• at 220/230 V / rated value	2 hp
• at 460/480 V / rated value	5 hp

Safety related data

Proportion of dangerous failures / with high demand rate / acc. to SN 31920	50 %
MTTF / with high demand rate	76 y
T1 value / for proof test interval or service life / acc. to IEC 61508	20 y

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

Further information

Information- and Downloadcenter (Catalogs, Brochures,...)

www.siemens.com/sirius/catalogs

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RF3416-1BB24>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF3416-1BB24>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RF3416-1BB24>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF3416-1BB24&lang=en

Short-circuit protection, design of the fuse link

https://www.automation.siemens.com/cd-static/material/info/3RF20_eng.pdf

Short-circuit protection, design of the fuse link

https://www.automation.siemens.com/cd-static/material/info/3RF21_eng.pdf

Short-circuit protection, design of the fuse link

https://www.automation.siemens.com/cd-static/material/info/3RF22_eng.pdf

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