

Solid-state contactor 1-phase 3RF2 AC 51 / 20 A / 40 °C 48-460 V /
4-30 V DC low noise



Product brand name	SIRIUS
Product designation	solid-state contactor
Product type designation	3RF23
Manufacturer's article number	<ul style="list-style-type: none"> • _1 / of the accessories that can be ordered 3RF2900-3PA88 • _3 / of the accessories that can be ordered 3RF2900-0EA18 • _4 / of the accessories that can be ordered 3RF2920-0GA16 • _5 / of the accessories that can be ordered 3RF2920-0FA08
Product designation	<ul style="list-style-type: none"> • _1 / of the accessories that can be ordered terminal cover • _3 / of the accessories that can be ordered converter • _4 / of the accessories that can be ordered load monitoring • _5 / of the accessories that can be ordered load monitoring, basis

General technical data	
Product function	low noise
Power loss [W] / for rated value of the current / at AC / in hot operating state	20 W
Insulation voltage	600 V
<ul style="list-style-type: none"> • rated value 	

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	1
Number of NO contacts / for main contacts	1
Number of NC contacts / for main contacts	0
Operating voltage / at AC	
• at 50 Hz / rated value	48 ... 460 V
• at 60 Hz / rated value	48 ... 460 V
Operating frequency / rated value	50 ... 60 Hz
Operating range relative to the operating voltage / at AC	
• at 50 Hz	40 ... 506 V
• at 60 Hz	40 ... 506 V
Operating current	
• at AC-51 / rated value	20 A
• acc. to UL 508 / rated value	17.6 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	25 mA
Derating temperature	40 °C
Surge current resistance / rated value	600 A
I ² t 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 ... 24 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
Control current / at minimum control supply voltage	
• at DC	18 mA
Control current / at DC / rated value	20 mA
Switch-on delay time	1 ms; additionally max. one half-wave
Off-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
<ul style="list-style-type: none"> • Side-by-side mounting 	Yes
Height	100 mm
Width	22.5 mm
Depth	123.5 mm; 140.5 mm up to product revision E05
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>4.5 ... 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 	-25 ... +60 °C

- during storage

-55 ... +80 °C

Electromagnetic compatibility

Conducted interference	
<ul style="list-style-type: none"> • 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 	2 kV behavior criterion 2
<ul style="list-style-type: none"> • due to conductor-conductor surge / acc. to IEC 61000-4-5 	1 kV behavior criterion 2
<ul style="list-style-type: none"> • due to high-frequency radiation / acc. to IEC 61000-4-6 	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 sector, class B for the domestic, business and commercial environments up to 16 A, AC51 low noise
Field-bound HF-interference emission / acc. to CISPR11	Class A for industrial sector, class B for the domestic, business and commercial environments up to 16 A, AC51 low noise

Short-circuit protection, design of the fuse link

Manufacturer's article number	
<ul style="list-style-type: none"> • of gS fuse for semiconductor protection / at NH design 	3NE1814-0
<ul style="list-style-type: none"> • of full range R fuse link for semiconductor protection / at cylindrical design 	5SE1325
<ul style="list-style-type: none"> • of back-up R fuse link for semiconductor protection / at NH design 	3NE8015-1
<ul style="list-style-type: none"> • of back-up R fuse link for semiconductor protection / at cylindrical design 10 x 38 mm 	3NC1032
<ul style="list-style-type: none"> • of back-up R fuse link for semiconductor protection / at cylindrical design 14 x 51 mm 	3NC1450
<ul style="list-style-type: none"> • of back-up R fuse link for semiconductor protection / at cylindrical design 22 x 58 mm 	3NC2263
Manufacturer's article number / of the gG fuse	
<ul style="list-style-type: none"> • at NH design 	3NA6807
<ul style="list-style-type: none"> • at cylindrical design 10 x 38 mm 	3NW6005-1; These fuses have a smaller rated current than the semiconductor relays
<ul style="list-style-type: none"> • at cylindrical design 14 x 51 mm 	3NW6105-1; These fuses have a smaller rated current than the semiconductor relays
<ul style="list-style-type: none"> • at cylindrical design 22 x 58 mm 	3NW6205-1; These fuses have a smaller rated current than the semiconductor relays
Manufacturer's article number	
<ul style="list-style-type: none"> • of DIAZED fuse 	5SB171
<ul style="list-style-type: none"> • of NEOZED fuse 	5SE2320

Certificates/ approvals

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

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

[Special Test Certificate](#)

[Confirmation](#)



[Vibration and Shock](#)

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=3RF2320-1CA44>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2320-1CA44>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2320-1CA44>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2320-1CA44&lang=en



