SIEMENS

Data sheet 3RF23 20-1AA45



SEMI-COND. CONTACTOR 3RF2,1-PH. AC51 20A 40 DEGREE C 48-600 V / 4-30 V DC SCREW CONNECTION BLOCKING VOLTAGE 1200 V

General technical data:				
product brand name		SIRIUS		
Product designation		solid-state contactor		
Product function		zero-point switching		
Number of poles for main current circuit		1		
Protection class IP		IP20		
Product designation _1 of the accessories that can be ordered		terminal cover		
Manufacturer article number _1 of the accessories that can be ordered		3RF2900-3PA88		
Product designation _3 of the accessories that can be ordered		converter		
Manufacturer article number _3 of the accessories that can be ordered		3RF2900-0EA18		
Product designation _4 of the accessories that can be ordered		load monitoring		
Manufacturer article number _4 of the accessories that can be ordered		3RF2920-0GA16		
Product designation _5 of the accessories that can be ordered		load monitoring, basis		
Manufacturer article number _5 of the accessories that can be ordered		3RF2920-0FA08		
Ambient temperature				
• during operation	°C	-25 +60		
during storage	°C	-55 +80		
Installation altitude at height above sea level maximum	m	1 000		

Vibration resistance acc. to IEC 60068-2-6		2g
Shock resistance acc. to IEC 60068-2-27		15g / 11 ms
Equipment marking acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750	l	К
Equipment marking acc. to DIN EN 61346-2		Q
Number of NC contacts for auxiliary contacts		0
Number of NO contacts for auxiliary contacts		0
Number of CO contacts for auxiliary contacts		0

Main circuit:				
Number of NO contacts for main contacts		1		
Number of NC contacts for main contacts		0		
Operating current				
• at AC-1 at 400 V Rated value	Α	20		
• at AC-51 Rated value	Α	20		
Operating current minimum	mA	500		
Operating voltage with AC				
• at 50 Hz Rated value	V	48 600		
• at 60 Hz Rated value	V	48 600		
Operating range relative to the operating voltage with AC				
● at 50 Hz	V	40 660		
● at 60 Hz	V	40 660		
Operating frequency Rated value	Hz	50 60		
Insulation voltage Rated value	V	600		
Rate of voltage rise at the thyristor for main contacts maximum permissible	V/µs	1 000		
Blocking voltage at the thyristor for main contacts maximum permissible	V	1 200		
Reverse current of the thyristor	mA	10		
Derating temperature	°C	40		
Active power loss total typical	W	20		
Surge current resistance Rated value	Α	600		
I2t value maximum	A ² ·s	1 800		

Control circuit/ Control:			
Type of voltage of the control supply voltage		DC	
Control supply voltage 1			
• for DC			
— Initial rated value	V	4	
— Final rated value	V	30	
Control supply voltage			
for DC Full-scale value for signal<0>	V	1	
recognition			
Control current			

mA 20

Installation/ mounting/ dimensions:				
Mounting type		screw and snap-on mounting onto 35 mm standard mounting rail		
Mounting type Side-by-side mounting		Yes		
Design of the thread of the screw for securing the equipment		M4		
Tightening torque of the screw for securing the equipment	N·m	1.5		
Width	mm	22.5		
Height	mm	100		
Depth	mm	140.5		

Type of electrical connection for main current circuit Design of the thread of the connection screw for main contacts Injection of the thread of the connection screw for main contacts Tightening torque for main contacts with screw-type terminals Tightening torque [lbf-in] for main contacts with screw-type terminals Type of connectable conductor cross-section for main contacts • solid • finely stranded — with core end processing Type of connectable conductor cross-section • for AWG conductors — for main contacts • solid • finely stranded — with core end processing Type of connectable conductor cross-section • for auxiliary and control contacts • solid • finely stranded — with core end processing • for main contacts — single or multi-stranded — finely stranded — with core end processing • for auxiliary and control contacts • for auxiliary and control contacts — single or multi-stranded — with core end processing • for auxiliary and control contacts — solid • finely stranded — with core end processing • for auxiliary and control contacts — solid • finely stranded — with core end processing • for auxiliary and control contacts — solid • finely stranded — with core end processing • for auxiliary and control contacts — solid • finely stranded — with core end processing • for auxiliary and control contacts — solid • finely stranded — with core end processing • for auxiliary and control contacts — solid • finely stranded — with core end processing • for auxiliary and control contacts — solid • finely stranded — with core end processing • for auxiliary and control contacts — solid • finely stranded — with core end processing • for auxiliary and control contacts — solid	Connections/ Terminals:		
contacts Tightening torque for main contacts with screw-type terminals N·m 2 2.5 Tightening torque [lbf-in] for main contacts with screw-type terminals Ibf-in 18 22 Type of connectable conductor cross-section for main contacts 2x (1.5 2.5 mm²), 2x (2.5 6 mm²) • solid 2x (1.5 2.5 mm²), 2x (2.5 6 mm²) • finely stranded 2x (1 2.5 mm²), 2x (2.5 6 mm²), 1x 10 mm² Type of connectable conductor cross-section 2x (14 10) • for AWG conductors 2x (14 10) — for main contacts 2x (14 10) • for auxiliary and control contacts 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²) • solid 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²) • finely stranded 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²) — with core end processing 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²) • for main contacts 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²) • for main contacts mm² 1.5 6 — finely stranded mm² 1 10 • for auxiliary and control contacts mm² 1 10 • for auxiliary and control contacts mm² 0.5 2.5	Type of electrical connection for main current circuit		screw-type terminals
terminals Tightening torque [lbf·in] for main contacts with screw-type terminals Type of connectable conductor cross-section for main contacts • solid • finely stranded — with core end processing Type of connectable conductor cross-section • for AWG conductors — for main contacts • solid • finely stranded • finely stranded (and in the processing) Type of connectable conductor cross-section • for AWG conductors — for auxiliary and control contacts • solid • finely stranded — with core end processing — without core end processing • for main contacts — single or multi-stranded — with core end processing • for main contacts — single or multi-stranded — with core end processing • for auxiliary and control contacts — solid • for auxiliary and control contacts — solid • for auxiliary and control contacts — solid mm² 1.5 6 mm² 1 10	•		M4
Type of connectable conductor cross-section for main contacts • solid • finely stranded — with core end processing Type of connectable conductor cross-section • for AWG conductors — for main contacts — for auxiliary and control contacts • solid • finely stranded — with core end processing Type of connectable conductor cross-section for auxiliary and control contacts • solid • finely stranded — with core end processing — without core end processing — without core end processing — without core end processing — for main contacts — single or multi-stranded — finely stranded — with core end processing • for main contacts — single or multi-stranded — finely stranded — with core end processing • for main contacts — single or multi-stranded — with core end processing • for auxiliary and control contacts — solid		N·m	2 2.5
main contacts • solid • finely stranded — with core end processing Type of connectable conductor cross-section • for AWG conductors — for main contacts — for auxiliary and control contacts • solid • finely stranded — with core end processing Type of connectable conductor cross-section • for auxiliary and control contacts • solid • finely stranded — with core end processing — without core end processing — without core end processing • for main contacts — single or multi-stranded — mith core end processing • for main contacts — single or multi-stranded — with core end processing — with core end processing • for main contacts — single or multi-stranded — with core end processing — with core end processing • for auxiliary and control contacts — solid • for auxiliary and control contacts — solid mm² 1.5 6 2x (14 10) 1x (AWG 20 12) 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)		lbf∙in	18 22
 • finely stranded — with core end processing	• •		
Type of connectable conductor cross-section • for AWG conductors — for main contacts — for auxiliary and control contacts • solid • finely stranded — with core end processing • for main contacts — single or multi-stranded — with core end processing — with core end processing • for main contacts — with core end processing • for main contacts — with core end processing • for main contacts — single or multi-stranded — with core end processing — with core end processing • for auxiliary and control contacts — solid • for auxiliary and control contacts — solid 2x (1 2.5 mm²), 2x (2.5 6 mm²), 1x 10 mm²) 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)	• solid		2x (1.5 2.5 mm²), 2x (2.5 6 mm²)
Type of connectable conductor cross-section • for AWG conductors — for main contacts — for auxiliary and control contacts 1x (AWG 20 12) Type of connectable conductor cross-section for auxiliary and control contacts • solid • finely stranded — with core end processing — without core end processing • for main contacts • single or multi-stranded — with core end processing • for auxiliary and control contacts — with core end processing • for auxiliary and control contacts — solid • for auxiliary and control contacts — solid • for auxiliary and control contacts — solid	• finely stranded		
 for AWG conductors — for main contacts — for auxiliary and control contacts	— with core end processing		2x (1 2.5 mm²), 2x (2.5 6 mm²), 1x 10 mm²
- for main contacts - for auxiliary and control contacts 1x (AWG 20 12) Type of connectable conductor cross-section for auxiliary and control contacts • solid • finely stranded - with core end processing - without core end processing • for main contacts • for main contacts • solid 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)	Type of connectable conductor cross-section		
— for auxiliary and control contacts Type of connectable conductor cross-section for auxiliary and control contacts • solid • finely stranded — with core end processing — without core end processing Connectable conductor cross-section • for main contacts — single or multi-stranded — with core end processing mm² 1.5 6 • for auxiliary and control contacts — solid 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)	• for AWG conductors		
Type of connectable conductor cross-section for auxiliary and control contacts • solid • finely stranded — with core end processing — without core end processing for main contacts — single or multi-stranded — with core end processing • for auxiliary and control contacts — solid 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)	— for main contacts		2x (14 10)
auxiliary and control contacts ● solid • finely stranded — with core end processing — without core end processing For main contacts — single or multi-stranded — with core end processing • for auxiliary and control contacts — solid • for auxiliary and control contacts — solid 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)	— for auxiliary and control contacts		1x (AWG 20 12)
 finely stranded — with core end processing — without core end processing — single conductor cross-section — single or multi-stranded — single or multi-stranded — with core end processing — with core end processing — solid — solid — solid — solid — with core end processing — with control contacts — solid — soli	• •		
 — with core end processing — without core end processing 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²) 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²) Connectable conductor cross-section • for main contacts — single or multi-stranded — finely stranded — with core end processing • for auxiliary and control contacts — solid 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²) 1x (0.5 2.5 mm²), 2x (0.5 2.5 mm²) 1x (0.5 2.5 mm²), 2x (0.5 2.5 mm²) 1x (0.5 2.5 mm²), 2x (0.5 2.5 mm²) 1x (0	• solid		1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)
 — without core end processing 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²) Connectable conductor cross-section ● for main contacts — single or multi-stranded — finely stranded — with core end processing ● for auxiliary and control contacts — solid 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²) 1x (0.5 2.5 mm²), 2x (0.5 2.5 mm²), 2x (0.5 2.5 mm²) 	• finely stranded		
Connectable conductor cross-section ● for main contacts — single or multi-stranded — finely stranded — with core end processing ● for auxiliary and control contacts — solid Connectable conductor cross-section mm² 1.5 6 1.5 6 1.5 6 mm² 0.5 2.5	— with core end processing		1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)
 for main contacts — single or multi-stranded — finely stranded — with core end processing for auxiliary and control contacts — solid mm² 1 10 • for auxiliary and control contacts — solid mm² 0.5 2.5 	 without core end processing 		1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)
 — single or multi-stranded — finely stranded — with core end processing • for auxiliary and control contacts — solid mm² 1.5 6 mm² 1 10 mm² 0.5 2.5 	Connectable conductor cross-section		
— finely stranded — with core end processing mm² 1 10 • for auxiliary and control contacts — solid mm² 0.5 2.5	• for main contacts		
 — with core end processing ● for auxiliary and control contacts — solid mm² 0.5 2.5 	— single or multi-stranded	mm²	1.5 6
• for auxiliary and control contacts — solid mm² 0.5 2.5	— finely stranded		
— solid mm² 0.5 2.5	 with core end processing 	mm²	1 10
35.10	• for auxiliary and control contacts		
finally stranded	— solid	mm²	0.5 2.5
— illely stratitued	— finely stranded		

— with core end processing	mm²	0.5 2.5
without core end processing	mm²	0.5 2.5
AWG number as coded connectable conductor cross section for main contacts		10 14
Type of electrical connection for auxiliary and control current circuit		screw-type terminals
Design of the thread of the connection screw of the auxiliary and control contacts		M3
AWG number as coded connectable conductor cross section for auxiliary and control contacts		20 12
Wire stripping length of the cable		
• for main contacts	mm	7
 for auxiliary and control contacts 	mm	7
Tightening torque for auxiliary and control contacts with screw-type terminals	N·m	0.5 0.6
Tightening torque [lbf·in] for auxiliary and control contacts with screw-type terminals	lbf∙in	4.5 5.3

Certificates/ approvals:

General Prod	luct Approval	EMC	Declaration of Conformity	Test Certificates	
	EHE	C-TICK	EG-Konf.	Special Test Certificate	Type Test Certificates/Test Report

other

Environmental Confirmations

Further information

Short-circuit protection, design of the fuse link

https://www.automation.siemens.com/cd-static/material/info/3RF23_eng.pdf

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

http://www.siemens.com/industrial-controls/catalogs

Industry Mall (Online ordering system)

http://www.siemens.com/industrymall

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF23201AA45

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