## **SIEMENS**

Data sheet 3RF23 20-1CA44



SEMI-COND. CONTACTOR 3RF2,1-PH. AC51 20A 40 DEGREE C 48-460 V / 4-30 V DC LOW NOISE

General technical data:		
product brand name		SIRIUS
Product designation		solid-state contactor
Product function		low noise
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 <b>+</b> 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	К
according to IEC 204-2 acc. to IEC 750	
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
MARKS TO SEC. 19	

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	48 460
• at 60 Hz Rated value	V	48 460
Operating range relative to the operating voltage with AC		
● at 50 Hz	V	40 506
● at 60 Hz	V	40 506
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	25
Derating temperature	°C	40
Active power loss total typical	W	20
Surge current resistance Rated value	Α	600
I2t value maximum	A²-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	24
Control supply voltage		
<ul><li>for DC Full-scale value for signal&lt;0&gt;</li></ul>	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	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  mm²  1 10		lbf∙in	18 22
<ul> <li>• finely stranded    — with core end processing</li></ul>	• •		
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		
<ul> <li>for AWG conductors         — for main contacts         — for auxiliary and control contacts</li></ul>	— 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)
<ul> <li>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         — solid         — soli</li></ul>	• •		
<ul> <li>— with core end processing</li> <li>— without core end processing</li> <li>1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)</li> <li>1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)</li> <li>Connectable conductor cross-section</li> <li>• for main contacts</li> <li>— single or multi-stranded</li> <li>— finely stranded</li> <li>— with core end processing</li> <li>• for auxiliary and control contacts</li> <li>— solid</li> <li>1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)</li> <li>1x (0.5 2.5 mm²), 2x (0.5 2.5 mm²)</li> <li>1x (0.5 2.5 mm²), 2x (0.5 2.5 mm²)</li> <li>1x (0.5 2.5 mm²), 2x (0.5 2.5 mm²)</li> <li>1x (0</li></ul>	• solid		1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)
<ul> <li>— without core end processing</li> <li>1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)</li> <li>Connectable conductor cross-section</li> <li>● for main contacts</li> <li>— single or multi-stranded</li> <li>— finely stranded</li> <li>— with core end processing</li> <li>● for auxiliary and control contacts</li> <li>— solid</li> <li>1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)</li> <li>1x (0.5 2.5 mm²), 2x (0.5 2.5 mm²), 2x (0.5 2.5 mm²)</li> </ul>	• 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)
<ul> <li>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 </li> </ul>	<ul> <li>without core end processing</li> </ul>		1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²)
<ul> <li>— single or multi-stranded</li> <li>— finely stranded</li> <li>— with core end processing</li> <li>• for auxiliary and control contacts</li> <li>— solid</li> <li>mm²</li> <li>1.5 6</li> <li>mm²</li> <li>1 10</li> <li>mm²</li> <li>0.5 2.5</li> </ul>	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		
<ul> <li>— with core end processing</li> <li>● for auxiliary and control contacts</li> <li>— solid</li> <li>mm²</li> <li>0.5 2.5</li> </ul>	<ul><li>— single or multi-stranded</li></ul>	mm²	1.5 6
• for auxiliary and control contacts  — solid  mm²  0.5 2.5	— finely stranded		
— solid mm² 0.5 2.5	<ul> <li>with core end processing</li> </ul>	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
<ul> <li>for auxiliary and control contacts</li> </ul>	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	duct Approval	EMC	Declaration of Conformity	Test Certificates	
(UL)	EHE	C-TICK	EG-Konf.	Type Test Certificates/Test Report	Special Test  Certificate

## 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=3RF23201CA44

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