# **SIEMENS**

Product data sheet 3RF2320-1BA24



SEMI-COND. CONTACTOR 3RF2,1-PH. AC 51 20A / AC15 12A 40 DEG. C 48-460 V / 110-230 V AC INSTANTANEOUS SWITCHING

General technical data:		
Product brand name		SIRIUS
product designation		solid-state contactor
Product function		instantaneous 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 / _2 / of the accessories that can be ordered		power regulator
Manufacturer article number / _2 / of the accessories that can be ordered		3RF2920-0HA36
Product designation / _4 / of the accessories that can be ordered		load monitoring
Manufacturer article number / _4 / of the accessories that can be ordered		3RF2920-0GA36
Ambient temperature		
during operating	°C	-25 60
during storage	°C	-55 80
Installation altitude / at a height over sea level / maximum	m	1,000

Resistance against vibration / according to IEC 60068-2-6	2g
Resistance against shock / according to IEC 60068-2-27	15g / 11 ms
Item designation	
<ul> <li>according to DIN 40719 extendable after IEC 204-2 / according to IEC 750</li> </ul>	К
according to DIN EN 61346-2	Q
Number of NC contacts / for auxiliary contacts	0
Number of NO contacts / for auxiliary contacts	0
Number of change-over switches / 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		
• at 50 Hz / at AC / rated value	V	48 460
at 60 Hz / at AC / rated value	V	48 460
Working area related to the operating voltage		
• at 50 Hz / for AC	V	40 506
• at 60 Hz / for AC	V	40 506
Operating frequency		
rated value	Hz	50 60
Relative symmetrical tolerance / of the operation frequency	%	10
Insulation voltage / rated value	V	600
Voltage slew rate / at the thyristor / for main contacts / maximum permissible	V/µs	1,000
Block 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
Resistance against the impulse current / rated value	А	600
I2t-level / maximum	A²-s	1,800

Control circuit:		
Control supply voltage frequency		
• 1 / rated value	Hz	50
• 2 / rated value	Hz	60

Type of voltage / of the controlled supply voltage		AC
Control supply voltage / 1		
• at 50 Hz / for AC		
• initial rated value	V	110
• final rated value	V	230
• at 60 Hz / for AC		
• initial rated value	V	110
• final rated value	V	230
Control supply voltage		
• at 50 Hz / for AC / final value for signal<0>-recognition	V	40
• at 60 Hz / for AC / final value for signal<0>-recognition	V	40
Tolerance of the line frequency	Hz	5
Relative symmetrical tolerance / of the supply voltage frequency	%	10
Control current		
• at minimum control supply voltage / for AC	mA	2
• for AC / rated value	mA	15
Fuse assignments		https://www.automation.siemens.com/cd-static/material/info/3RF21_eng.pdf

Installation/mounting/dimensions:		
Type of mounting		screw and snap-on mounting onto 35 mm standard mounting rail
Type of fixing/fixation / series installation		Yes
Design of the thread / of the screw for fastening of the operating resource		M4
Tightening torque / of the screw for fastening of the operating resource	N∙m	1.5
Width	mm	22.5
Height	mm	100
Depth	mm	140.5

Connections:		
Design of the electrical connection / for main current circuit		screw-type terminals
Design of the thread / of the connection screw / for main contacts		M4
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	lbf-in	18 22
Type of the connectable conductor cross-section		
• for main contacts		

* solid  * finely stranded  * with conductor end processing  * for AWC conductors  * for main contacts  * for auxiliary and control contacts  * solid  * finely stranded  * with conductor end processing  * for auxiliary and control contacts  * solid  * finely stranded  * with conductor end processing  * without conductor final cut ting  * solid  * stranded wire  * with conductor end processing  * solid  * stranded wire  * with conductor end processing  * with conductor end processing / minimum  * with conductor final cutting  * with conductor final cutting  * with conductor final cutting  * AWG number / as coded connectable conductor cross-section / for main contacts  * Design of the electrical connection / for auxiliary and control contacts  * Solid  * Stranded wire  * with conductor final cutting  * AWG number / as coded connectable conductor cross-section / for auxiliary and control contacts  * Solid  * Stranded wire  * with conductor final cutting  * AWG number / as coded connectable conductor cross-section / for auxiliary and control contacts  * Solid  * Stranded wire  * with secrew-type terminals  * Skinning length / of the cable / for auxiliary and control contacts  * with screw-type terminals  * Nem			
with conductor end processing     for AWG conductors     for main contacts     for auxiliary and control contacts     solid     finely stranded     with conductor end processin     ng     without conductor final cut     ing     for auxiliary and control contacts     solid     for main contacts     solid     for main contacts     solid     for main contacts     solid     for main contacts     solid     for auxiliary and control contacts     solid     for main contacts     solid     stranded wire     with conductor end processing     for auxiliary and control contacts     solid     stranded wire     with conductor end processing     mm²     for auxiliary and control contacts     solid     stranded wire     with conductor end processing / minimum     without conductor final cutting     mm²     o.5 2.5  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control current circuit  Design of the thread / of the connection screw / of the auxiliary and control pins  AWG number / as coded connectable conductor cross-section / for auxiliary and control contacts  Design of the thread / of the connection screw / of the auxiliary and control contacts  Skinning length / of the cable / for main contacts  Skinning length / of the cable / for auxiliary and control contacts  • with screw-type terminals  N-m    0.5 0.6	• solid		2x (1.5 2.5 mm2), 2x (2.5 6 mm2)
• for AWG conductors     • for main contacts     • for auxiliary and control contacts     • for auxiliary and control contacts     • for auxiliary and control contacts     • solid     • finely stranded     • with conductor end processi ng     • without conductor final cut ting  Conductor cross section that can be connected     • for main contacts     • solid     • stranded wire     • with conductor end processing     • for auxiliary and control contacts     • solid     • stranded wire     • with conductor end processing     • for auxiliary and control contacts     • solid     • stranded wire     • with conductor end processing / minimum     • with conductor end processing / minimum     • with conductor final cutting  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control contacts  Design of the conductor contacts  Skinning length / of the cable / for main contacts  Skinning length / of the cable / for mail contacts  with screw-type terminals  Tightening torque / for auxiliary and control contacts  with screw-type terminals  N-m  0.5 0.6  Tightening torque / for auxiliary and control contacts  with screw-type terminals  Tightening torque / for auxiliary and control contacts  with screw-type terminals	• finely stranded		
for main contacts   2x (14 10)   1x (AWG 20 12)   1x (0.5 2.5 mm2), 2x (0.5 1.0 mm2)   1x (0.5 2.	<ul> <li>with conductor end processing</li> </ul>		2x (1 2.5 mm2), 2x (2.5 6 mm2), 1x 10 mm2
• for auxiliary and control contacts     • for auxiliary and control contacts     • solid     • finely stranded     • with conductor end processing     • without conductor final cut ting     • for auxiliary and control contacts     • solid     • with conductor final cut ting     • with conductor final cut ting     • with conductor end processing     • solid     • stranded wire     • with conductor end processing     • solid     • stranded wire     • with conductor end processing     • solid     • stranded wire     • with conductor end processing     • solid     • stranded wire     • with conductor end processing / minimum     • without conductor end processing / minimum     • without conductor end processing / minimum     • without conductor final cutting  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control current circuit  Design of the thread / of the connectable conductor cross-section     • for auxiliary and control contacts     Skinning length / of the cable / for auxiliary and control contacts  * with screw-type terminals  Tightening torque / for auxiliary and control contacts  * with screw-type terminals  N-m  0.5 0.6	• for AWG conductors		
• for auxiliary and control contacts     • solid     • finely stranded     • with conductor end processi     ng     • without conductor final cut     ting  Conductor cross section that can be connected     • for main contacts     • solid     • stranded wire     • with conductor end processing     • with conductor end processing     • solid     • stranded wire     • with conductor end processing     • solid     • stranded wire     • with conductor end processing     • solid     • stranded wire     • with conductor end processing     • solid     • stranded wire     • with conductor final cutting     • solid     • stranded wire     • with conductor final cutting     • with a coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control current circuit  Design of the thread / of the connection screw / of the auxiliary and control current circuit  Posign of the thread / of the connectable conductor cross-section     • for auxiliary and control contacts  Xinning length / of the cable / for main contacts  with screw-type terminals  N-m  7  Tightening torque / for auxiliary and control contacts  with screw-type terminals  N-m  0.5 0.6	• for main contacts		2x (14 10)
solid  finely stranded  with conductor end processi ng  without conductor final cut ting  Conductor cross section that can be connected  for main contacts  solid  stranded wire  with conductor end processing  for auxiliary and control contacts  with conductor end processing  for auxiliary and control contacts  solid  stranded wire  with conductor end processing  mm²  1 10  1 10  1 10  mm²  0.5 2.5  mm²  0.5 2.5   MMG number / as coded connectable conductor cross-section  for main contacts  Design of the electrical connection / for auxiliary and control contacts  AWG number / as coded connectable conductor cross-section  for main contacts  Design of the thread / of the connection screw / of the auxiliary and control current circuit  Design of the thread / of the connectable conductor cross-section  for auxiliary and control contacts  XWG number / as coded connectable conductor cross-section  for auxiliary and control contacts  XWG number / as coded connectable conductor cross-section  for auxiliary and control contacts  XWG number / as coded connectable conductor cross-section  for auxiliary and control contacts  XWG number / as coded connectable conductor cross-section  for auxiliary and control contacts  XWG number / as coded connectable conductor cross-section  for auxiliary and control contacts  XWG number / as coded connectable conductor cross-section  for auxiliary and control contacts  Num  7  Tightening torque / for auxiliary and control contacts  with screw-type terminals  Num  0.5 0.6	<ul> <li>for auxiliary and control contacts</li> </ul>		1x (AWG 20 12)
* finely stranded     * with conductor end processi     ng     * without conductor final cut     ting  Conductor cross section that can be connected      * for main contacts     * solid     * stranded wire     * with conductor end processing     * for auxiliary and control contacts      * solid     * stranded wire     * with conductor end processing / minimum     * without conductor final cutting  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control pins  AWG number / as coded connectable conductor cross-section     * for auxiliary and control contacts  ### AWG number / as coded connectable conductor cross-section / for main contacts  ### AWG number / as coded connectable conductor cross-section  ### For auxiliary and control contacts  ### AWG number / as coded connectable conductor cross-section  ### For auxiliary and control contacts  ### AWG number / as coded connectable conductor cross-section  ### For auxiliary and control contacts  #### AWG number / as coded connectable conductor cross-section  #### For auxiliary and control contacts  ###################################	for auxiliary and control contacts		
*with conductor end processi     ng     *with conductor final cut     ting  Conductor cross section that can be connected  * for main contacts  * solid     *stranded wire     *with conductor end processing     *for auxiliary and control contacts  * solid     *stranded wire  * with conductor end processing / mm²    1 10  * stranded wire  * with conductor end processing / mm²    0.5 2.5  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control pins  AWG number / as coded connectable conductor cross-section  * for auxiliary and control contacts  * solid  * stranded wire  * with conductor end processing / mm²    0.5 2.5  * without conductor final cutting  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control current circuit  AWG number / as coded connectable conductor cross-section  * for auxiliary and control contacts  Xkinning length / of the cable / for auxiliary and control contacts  * with screw-type terminals  N-m    0.5 0.6  Tightening torque / for auxiliary and control contacts  Tightening torque / (lbf-in) / for auxiliary and control contacts  Tightening torque (lbf-in) / for auxiliary and control contacts  Tightening torque (lbf-in) / for auxiliary and control contacts	• solid		1x (0.5 2.5 mm2), 2x (0.5 1.0 mm2)
without conductor final cut ting  Conductor cross section that can be connected  • for main contacts  • solid  • stranded wire  • with conductor end processing  • for auxiliary and control contacts  • with conductor end processing / minimum  • with conductor final cutting  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control contacts  • for auxiliary and control contacts  • without conductor final cutting  * without conductor final cutting  * mm²  0.5 2.5  * Sign of the electrical connection / for auxiliary and control contacts  * screw-type terminals  * with conductor contacts  * Sign of the thread / of the connection screw / of the auxiliary and control pins  * with grey and control contacts  * With screw-type terminals  N-m  0.5 0.6  Tightening torque / for auxiliary and control contacts  • with screw-type terminals  N-m  0.5 0.6	• finely stranded		
Conductor cross section that can be connected  • for main contacts  • solid  • stranded wire  • with conductor end processing  • for auxiliary and control contacts  • solid  • stranded wire  • with conductor end processing  • solid  • stranded wire  • with conductor end processing / mm² 0.5 2.5  • stranded wire  • with conductor end processing / mm² 0.5 2.5  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control current circuit  Design of the thread / of the connection screw / of the auxiliary and control pins  AWG number / as coded connectable conductor cross-section • for auxiliary and control contacts  Estinning length / of the cable / for main contacts  • with screw-type terminals  N·m 0.5 0.6  Tightening torque (lbf-in) / for auxiliary and control contacts  Tightening torque (lbf-in) / for auxiliary and control contacts  Tightening torque (lbf-in) / for auxiliary and control contacts  Tightening torque (lbf-in) / for auxiliary and control contacts	·		1x (0.5 2.5 mm2), 2x (0.5 1.0 mm2)
* for main contacts     * solid     * stranded wire     * with conductor end processing     * for auxiliary and control contacts     * solid     * stranded wire     * with conductor end processing / mm²			1x (0.5 2.5 mm2), 2x (0.5 1.0 mm2)
* solid     * stranded wire     * with conductor end processing     * for auxiliary and control contacts     * solid     * stranded wire     * with conductor end processing / mm²	Conductor cross section that can be connected		
* stranded wire     * with conductor end processing     * for auxiliary and control contacts     * solid     * stranded wire     * with conductor end processing / minimum     * without conductor final cutting     * without conductor final cutting     * without conductor final cutting     * without conductor final cutting  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control current circuit  Design of the thread / of the connection screw / of the auxiliary and control pins  AWG number / as coded connectable conductor cross-section     * for auxiliary and control contacts  Skinning length / of the cable / for main contacts  Tightening torque / for auxiliary and control contacts  * with screw-type terminals  Tightening torque (lbf-in) / for auxiliary and control contacts  Tightening torque (lbf-in) / for auxiliary and control contacts  Tightening torque (lbf-in) / for auxiliary and control contacts	• for main contacts		
with conductor end processing     for auxiliary and control contacts     solid     stranded wire     with conductor end processing / minimum     without conductor final cutting     without conductor final cutting     mm²    0.5 2.5  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control current circuit  Design of the thread / of the connection screw / of the auxiliary and control pins  AWG number / as coded connectable conductor cross-section     for auxiliary and control contacts  Skinning length / of the cable / for main contacts  Tightening torque / for auxiliary and control contacts  N·m    0.5 0.6  Tightening torque (lbf-in) / for auxiliary and control contacts  Tightening torque (lbf-in) / for auxiliary and control contacts	• solid	mm²	1.5 6
• for auxiliary and control contacts     • solid     • stranded wire     • with conductor end processing / minimum     • without conductor final cutting     • without conductor final cutting     • without conductor final cutting  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control current circuit  Design of the thread / of the connection screw / of the auxiliary and control pins  AWG number / as coded connectable conductor cross-section     • for auxiliary and control contacts  Skinning length / of the cable / for main contacts  Skinning length / of the cable / for auxiliary and control contacts  Tightening torque / for auxiliary and control contacts  • with screw-type terminals  Tightening torque (lbf-in) / for auxiliary and control contacts  Tightening torque (lbf-in) / for auxiliary and control contacts	• stranded wire		
* solid     * stranded wire     * with conductor end processing / minimum     * without conductor final cutting     * without conductor final cutting     * mm²	with conductor end processing	mm²	1 10
* stranded wire     * with conductor end processing / minimum     * without conductor final cutting  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control current circuit  Design of the thread / of the connection screw / of the auxiliary and control pins  AWG number / as coded connectable conductor cross-section     * for auxiliary and control contacts  Skinning length / of the cable / for main contacts  Tightening torque / for auxiliary and control contacts  * with screw-type terminals  Tightening torque (lbf-in) / for auxiliary and control contacts  Tightening torque (lbf-in) / for auxiliary and control contacts  Tightening torque (lbf-in) / for auxiliary and control contacts	for auxiliary and control contacts		
with conductor end processing / minimum     without conductor final cutting  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control current circuit  Design of the thread / of the connection screw / of the auxiliary and control pins  AWG number / as coded connectable conductor cross-section     • for auxiliary and control contacts  Skinning length / of the cable / for main contacts  Tightening torque / for auxiliary and control contacts  • with screw-type terminals  N-m  0.5 0.6	• solid	mm²	0.5 2.5
minimum  • without conductor final cutting  AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control current circuit  Design of the thread / of the connection screw / of the auxiliary and control pins  AWG number / as coded connectable conductor cross-section  • for auxiliary and control contacts  Skinning length / of the cable / for main contacts  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	• stranded wire		
AWG number / as coded connectable conductor cross-section / for main contacts  Design of the electrical connection / for auxiliary and control current circuit  Design of the thread / of the connection screw / of the auxiliary and control pins  AWG number / as coded connectable conductor cross-section • for auxiliary and control contacts  Skinning length / of the cable / for main contacts  Tightening torque / for auxiliary and control contacts  N·m  0.5 0.6	, -	mm²	0.5 2.5
Design of the electrical connection / for auxiliary and control current circuit  Design of the thread / of the connection screw / of the auxiliary and control pins  AWG number / as coded connectable conductor cross-section  • for auxiliary and control contacts  Skinning length / of the cable / for main contacts  Tightening torque / for auxiliary and control contacts  N·m  0.5 0.6  Tightening torque (lbf-in) / for auxiliary and control contacts	without conductor final cutting	mm²	0.5 2.5
Current circuit  Design of the thread / of the connection screw / of the auxiliary and control pins  AWG number / as coded connectable conductor cross-section  • for auxiliary and control contacts  Skinning length / of the cable / for main contacts  Tightening torque / for auxiliary and control contacts  • with screw-type terminals  N·m  0.5 0.6			10 14
and control pins  AWG number / as coded connectable conductor cross-section  • for auxiliary and control contacts  Skinning length / of the cable / for main contacts  mm  7  Skinning length / of the cable / for auxiliary and control contacts  • with screw-type terminals  N·m  0.5 0.6			screw-type terminals
• for auxiliary and control contacts  Skinning length / of the cable / for main contacts  Skinning length / of the cable / for auxiliary and control contacts  Tightening torque / for auxiliary and control contacts  • with screw-type terminals  N·m  0.5 0.6	-		M3
Skinning length / of the cable / for main contacts  Skinning length / of the cable / for auxiliary and control contacts  Tightening torque / for auxiliary and control contacts  • with screw-type terminals  N·m  0.5 0.6	AWG number / as coded connectable conductor cross-section		
Skinning length / of the cable / for auxiliary and control contacts  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	for auxiliary and control contacts		20 12
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	Skinning length / of the cable / for main contacts	mm	7
• with screw-type terminals  N·m  0.5 0.6  Tightening torque (lbf-in) / for auxiliary and control contacts	Skinning length / of the cable / for auxiliary and control contacts	mm	7
Tightening torque (lbf-in) / for auxiliary and control contacts	Tightening torque / for auxiliary and control contacts		
	with screw-type terminals	N⋅m	0.5 0.6
• with screw-type terminals lbf-in 4.5 5.3	Tightening torque (lbf-in) / for auxiliary and control contacts		
	with screw-type terminals	lbf-in	4.5 5.3

# Certificates/approvals:

## **General Product Approval**

**Test Certificates** 

other



**ROSTEST** 



Manufacturer Manufacturer

## **Further information:**

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

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

#### Industry Mall (Online ordering system)

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

#### **CAx-Online-Generator**

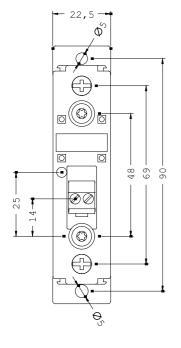
http://www.siemens.com/cax

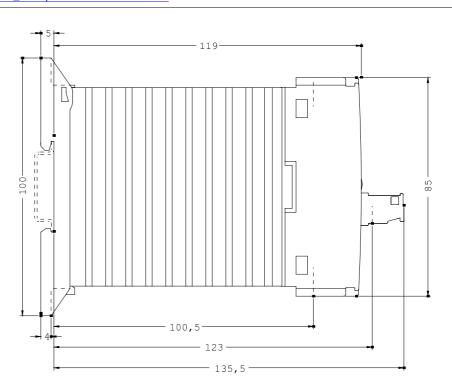
#### Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

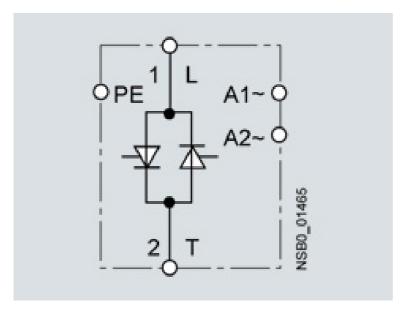
http://support.automation.siemens.com/WW/view/en/3RF2320-1BA24/all

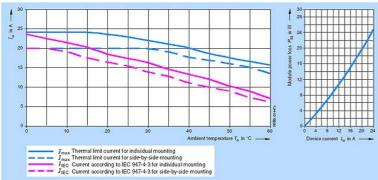
# Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)

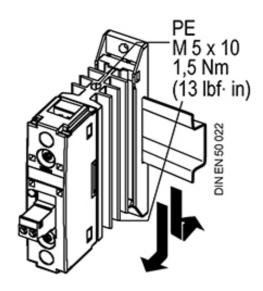
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