# SIEMENS

### **Product data sheet**

#### 3RH2131-2BF40



CONTACTOR RELAY, 3NO+1NC, DC 110V, SZ S00, SPRING-LOADED TERMINAL

General technical data:		
Product brand name		SIRIUS
Size of the contactor		S00
Identification number and letter for switching elements		31 E
Product extension / auxiliary switch		Yes
Protection class IP / on the front		IP20
Protection against electrical shock		finger-safe
Degree of pollution		3
Insulation voltage / with degree of pollution 3 / rated value	V	690
Installation altitude / at a height over sea level / maximum	m	2,000
Ambient temperature / during storage	°C	-55 80
Ambient temperature / during operating	°C	-25 60
Shock resistance		
• at rectangular impulse		
• at DC		10g / 5 ms, 5g / 10 ms
• at sine pulse		
• at DC		15g / 5 ms, 8g / 10 ms
Impulse voltage resistance / rated value	kV	6
Mechanical operating cycles as operating time		
of the contactor / typical		30,000,000

• of the contactor with added determinis-compatible subiliary switch block / typical       10.000.000         Control circuit:	<ul> <li>of the contactor with added auxiliary switch block / typical</li> </ul>		10,000,000
switch block / typical         Image: switch block / typical           Control circuit:         DC           Type of voitage / of the controlled supply voitage         DC           Control supply voitage / 1         DV         ID           • for DC / rated value         V         ID           Deparating range factor control supply voitage rated value / of the solenoid / for DC         W         4           Holding power / of the solenoid / for DC         W         4           Pull-in power / of the solenoid / for DC         W         4           Closing delay			
Type of voltage / of the controlled supply voltageDCControl supply voltage / 1V• for DC / rated valueV100perating range factor control supply voltage rated value / of the solenoid / for DC0.8 1.1Holding power / of the solenoid / for DCW4Pull-In power / of the solenoid / for DCW4Closing delayW4• at DCM30 100Operating delayW4• at DCM25 90Arcing timeS10 15Auxiliary circuit:1 sull switching per 100 million (17 V, 1 mA)Number of NC contacts / for auxiliary contacts / instantaneous switching1Operating current / of the auxiliary contacts / instantaneous switching10A3• at 20 VAA6• at 20 VAA6 <t< td=""><td></td><td></td><td></td></t<>			
Control supply voltage / 1v110Operating range factor control supply voltage rated value / of the solenoidV110of DC0.8 1.10.8 1.1Holding power / of the solenoid / for DCVV4Pull-in power / of the solenoid / for DCVV4Closing delayW4- at DCms30 100Opening delays100- at DCms25 90Arcing times1 faulty switching per 100 million (17 V, 1 mA)Number of NC contacts / for auxiliary contacts / instantaneous switching1 faulty switching per 100 million (17 V, 1 mA)Number of NC contacts / for auxiliary contacts / instantaneous switching1Operating current / of the auxiliary contacts / instantaneous switchingA0 for at 230 VAA5- at 230 VAA6- at 230 VAA6- at 240 VAA1- at 230 VAA6- at 24VAA6- at 24VAA6- at 24V VAA6- at 24V VAA6- at 24V VAA6- at 24V / stard valueAA10- at 24V / stard valueAA10- at 24V / rated valueAA <td>Control circuit:</td> <td></td> <td></td>	Control circuit:		
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Holding power / of the solenoid / for DCW4Pull-in power / of the solenoid / for DCW4Pull-in power / of the solenoid / for DCW4Closing delayms30 100• at DCms30 100Opening delays1• at DCms25 90Arcing times10 15Auxiliary circult:11Contact reliability / of the auxiliary contacts / instantaneous switching1Number of NC contacts / for auxiliary contacts / instantaneous switching1Operating current / of the auxiliary contacts / instantaneous switching3Operating current / of the auxiliary contacts / at AC-12 / maximumA0 contacts / for auxiliary contacts / at AC-12 / maximumA0 contacts / of the auxiliary contacts / at AC-12 / maximumA0 contacts / of the auxiliary contacts / at AC-12 / maximumA0 contacts / of the auxiliary contacts / at AC-12 / maximumA0 contacts / of the auxiliary contacts / at AC-12 / maximumA0 contact / with 1 current path / at DC-12 • at 200 VA0 at 600 VA30 at 100 VA10 at 100 VA10 at 100 VA10 at 220 VA10 at 220 VA10 at 220 VA10 at 220 VA10 at 20 V / rated valueA100 at 60 V / rated valueA100 at 60		_	
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Closing delay • at DCms30 100Opening delay • at DCms30 100Arcing timems25 90Arcing times10 15Auxiliary circuit: Contact reliability / of the auxiliary contacts / instantaneous switching1 faulty switching per 100 million (17 V. 1 mA)Number of NC contacts / for auxiliary contacts / instantaneous switching1Operating current / of the auxiliary contacts / instantaneous switching3Operating current / of the auxiliary contacts / at AC-12 / maximumA6• at 230 VA6• at 800 VA3• at 800 VA1• of the auxiliary contacts / with 1 current path / at DC-12 • at 24 V • at 220 VA6• at 100 VA3• at 220 VA1• at 220 VA1• at 220 VA1• at 24 V • at 220 VA1• at 24 V / rated valueA10• at 24 V / rated valueA10• at 24 V / rated valueA10• at 60 V / rated valueA10• at 100 V / rated valueA10• at 100 V / rated valueA10 <td>Holding power / of the solenoid / for DC</td> <td>W</td> <td>4</td>	Holding power / of the solenoid / for DC	W	4
• at DCms30100Opening delay • at DCms2590Arcing times1015Auxiliary circuit:1 faulty switching per 100 million (17 V, 1 mA)Number of NC contacts / for auxiliary contacts / instantaneous switching1Number of NC contacts / for auxiliary contacts / instantaneous switching1Operating current / of the auxiliary contacts / instantaneous switching3Operating current / of the auxiliary contacts / at AC-12 / maximumA10Operating current / of the auxiliary contacts / at AC-15 • at 230 VA6• at 300 VAA31• at 300 VAA31• at 240 VAA61• of the auxiliary contacts / at AC-12 / • at 240 VAA6• at 240 VAA1• of the auxiliary contacts / at AC-13• at 240 VAA6• at 240 VAA6• at 240 VAA6• at 240 VAA6• at 240 VAA1• at 240 VAA6• at 240 VAA1• at 240 VAA1• at 240 VAA1• at 240 VAA6• at 240 VAA1• at 240 V/ rated valueAA10• at 240 V/ rated valueAA <td>Pull-in power / of the solenoid / for DC</td> <td>W</td> <td>4</td>	Pull-in power / of the solenoid / for DC	W	4
Opening delay • at DCrms25 90Arcing times10 15Auxiliary circuit:1 faulty switching per 100 million (17 V, 1 mA)Number of NC contacts / for auxiliary contacts / instantaneous switching1Number of NC contacts / for auxiliary contacts / instantaneous switching3Operating current / of the auxiliary contacts / instantaneous switching1Operating current / of the auxiliary contacts / instantaneous switching1Operating current / of the auxiliary contacts / at AC-12 / maximumA10Operating current / of the auxiliary contacts / at AC-15 • at 230 VA6• at 200 VAA32• at 690 VAA1Operating currentA1• at 24 VA6• at 24 VA6• at 220 VA1• at 220 VA1• at 220 VA1• at 24 VA6• at 220 VA1• at 220 VA1• at 24 V / rated valueA3• at 220 VA1• at 220 VA1• at 220 VA1• at 220 VA1	Closing delay		
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Arcing times10 15Auxiliary circuit:Contact reliability / of the auxiliary contacts1faulty switching per 100 million (17 V, 1 mA)Number of NC contacts / for auxiliary contacts / instantaneous switching11Number of NO contacts / for auxiliary contacts / instantaneous switching33Operating current / of the auxiliary contacts / at AC-12 / maximumA10Operating current / of the auxiliary contacts / at AC-15II• at 230 VA63• at 400 VA31• at 600 VA1IOperating currentA61• at 400 VA31• at 400 VA31• at 400 VA1I• at 400 VA3I• at 200 VA1• at 110 VA3• at 212 VA1• at 220 VA1• at 220 VA1• at 24 V/ rated valueA10• at 24 V/ rated valueA10• at 60 V/ rated valueA10• at 60 V/ rated valueA10• at 100 V/ rated valueA10	Opening delay		
Auxiliary circuit:       1 faulty switching per 100 million (17 V, 1 mA)         Number of NC contacts / for auxiliary contacts / instantaneous switching       1         Number of NO contacts / for auxiliary contacts / instantaneous switching       3         Operating current / of the auxiliary contacts / at AC-12 / maximum       A       10         Operating current / of the auxiliary contacts / at AC-15       -       -         • at 230 V       A       6       -         • at 400 V       A       3       -         • at 600 V       A       1       -         Operating current       A       1       -         • at 230 V       A       6       -         • at 600 V       A       3       -         • at 2400 V       A       1       -         • at 220 V       A       1       -         • at 24 V       A       6       -         • at 220 V       A       1       -         • at 220 V       A       1       -         • at 24 V       A       6       -       -         • at 220 V       A       1       -       -       -       -       -       -       -       -       -       -<	• at DC	ms	25 90
Contact reliability / of the auxiliary contacts / instantaneous switching       1 faulty switching per 100 million (17 V, 1 mA)         Number of NC contacts / for auxiliary contacts / instantaneous switching       3         Number of NO contacts / for auxiliary contacts / instantaneous switching       3         Operating current / of the auxiliary contacts / at AC-12 / maximum       A       10         Operating current / of the auxiliary contacts / at AC-15       -       -         • at 230 V       AA       6         • at 00 V       AA       3         • at 690 V       AA       1         Operating current       -       -         • of the auxiliary contacts / with 1 current path / at DC-12       -       A         • at 220 V       AA       6       -         • at 24 V       AA       1       -         • at 100 V       AA       3       -         • at 220 V       AA       6       -         • at 24 V       AA       6       -         • at 220 V       AA       1       -         • at 24 V       AA       6       -         • at 24 V       AA       1       -         • at 220 V       AA       1       -         • with 2 cur	Arcing time	s	10 15
Number of NC contacts / for auxiliary contacts / instantaneous switching1Number of NO contacts / for auxiliary contacts / instantaneous switching3Operating current / of the auxiliary contacts / at AC-12 / maximumA10Operating current / of the auxiliary contacts / at AC-15A10• at 230 VA6• at 400 VA3• at 500 VA2• at 690 VA1Operating currentA1• of the auxiliary contacts / with 1 current path / at DC-12A6• at 220 VA6• at 110 VA3• at 220 VA1• at 220 VA1• at 24 V / rated valueA1• at 220 VA1• at 110 VA3• at 220 VA1• at 110 VA3• at 110 VA1• at 220 VA1	Auxiliary circuit:		
switchingImage: contracts / for auxiliary contacts / instantaneous switching3Operating current / of the auxiliary contacts / at AC-12 / maximumA10Operating current / of the auxiliary contacts / at AC-15Image: contracts / at AC-15• at 230 VAA6• at 230 VAA3• at 400 VAA3• at 500 VAA2• at 690 VAA1Operating currentImage: contracts / with 1 current path / at DC-12Image: contracts / with 1 current path / at DC-12• at 220 VAA3• at 220 VAA6• at 220 VAA3• at 220 VAA1• at 220 VAA1• at 220 VAA1• at 24 V / rated valueAA1• at 10 V / rated valueAA1• at 10 V / rated valueAA10• at 60 V / rated valueAA10• at 60 V / rated valueAA10• at 60 V / rated valueAA10• at 10 V / rated valueAA10• at 60 V / rated valueAA10• at 10 V / rated valueAA4			1 faulty switching per 100 million (17 V, 1 mA)
switchingImage: contracts / at AC-12 / AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			1
maximumImage: constant of the auxiliary contacts / at AC-15Image: constant of the auxiliary contacts / at AC-15• at 230 VA6• at 400 VA3• at 400 VA2• at 500 VA1• at 690 VA1Operating current		_	3
• at 230 VA6• at 400 VAA3• at 500 VAA2• at 690 VAA1Operating currentK7• of the auxiliary contacts / with 1 current path / at DC-12AA6• at 24 VAA6• at 110 VAA3• at 220 VAA1• at 24 V / rated valueAA1• at 24 V / rated valueAA1• at 10 V / rated valueAA1• at 10 V / rated valueAA10• at 10 V / rated valueAA4		A	10
• at 400 VA3• at 500 VA2• at 690 VA1Operating currentKC• of the auxiliary contacts / with 1 current path / at DC-12A6• at 24 VAA6• at 110 VAA3• at 220 VAA1• with 2 current paths in series / at DC-12A1• at 24 V / rated valueAA10• at 10 V / rated valueAA4	Operating current / of the auxiliary contacts / at AC-15	_	
• at 500 VA2• at 690 VA1Operating currentKC• of the auxiliary contacts / with 1 current path / at DC-12A6• at 24 VAA6• at 110 VAA3• at 220 VAA1• with 2 current paths in series / at DC-12A1• at 24 V / rated valueAA10• at 60 V / rated valueAA10• at 110 V / rated valueAA4	• at 230 V	А	6
• at 690 VA1Operating currentII• of the auxiliary contacts / with 1 current path / at DC-12A6• at 24 VAA6• at 10 VAA3• at 220 VAA1• with 2 current paths in series / at DC-12A1• at 24 V / rated valueAA10• at 60 V / rated valueAA10• at 110 V / rated valueAA4	• at 400 V	А	3
Operating currentHere• of the auxiliary contacts / with 1 current path / at DC-12A• at 24 VA• at 24 VA• at 110 VA• at 220 VA• at 24 V / rated valueA• at 24 V / rated valueA• at 60 V / rated valueA• at 110 V / rated valueA	• at 500 V	А	2
• of the auxiliary contacts / with 1 current path / at DC-12A6• at 24 VA3• at 110 VA3• at 220 VA1• with 2 current paths in series / at DC-12• at 24 V / rated valueA10• at 60 V / rated valueA10• at 110 V / rated valueA4	• at 690 V	А	1
• at 24 V       A       6         • at 110 V       A       3         • at 220 V       A       1         • with 2 current paths in series / at DC-12       -       -         • at 24 V / rated value       A       10         • at 60 V / rated value       A       10         • at 110 V / rated value       A       4	Operating current	_	
• at 110 V       A       3         • at 220 V       A       1         • with 2 current paths in series / at DC-12       -       -         • at 24 V / rated value       A       10         • at 60 V / rated value       A       10         • at 110 V / rated value       A       4	• of the auxiliary contacts / with 1 current path / at DC-12		
• at 220 VA1• with 2 current paths in series / at DC-12A10• at 24 V / rated valueA10• at 60 V / rated valueA10• at 110 V / rated valueA4	• at 24 V	А	6
• with 2 current paths in series / at DC-12A10• at 24 V / rated valueA10• at 60 V / rated valueA10• at 110 V / rated valueA4	• at 110 V	А	3
• at 24 V / rated valueA10• at 60 V / rated valueA10• at 110 V / rated valueA4	• at 220 V	А	1
• at 60 V / rated valueA10• at 110 V / rated valueA4	• with 2 current paths in series / at DC-12		
• at 110 V / rated value A 4	• at 24 V / rated value	А	10
	• at 60 V / rated value	А	10
• at 220 V / rated value A 2	• at 110 V / rated value		
		A	4

• at 440 V / rated value	А	1.3
• at 600 V / rated value	А	0.65
• with 3 current paths in series / at DC-12		
• at 24 V / rated value	А	10
• at 60 V / rated value	А	10
• at 110 V / rated value	А	10
• at 220 V / rated value	А	3.6
• at 440 V / rated value	А	2.5
• at 600 V / rated value	А	1.8
Operating current		
• of the auxiliary contacts / with 1 current path / at DC-13		
• at 24 V	А	6
• at 110 V	А	1
• at 220 V	А	0.3
• with 2 current paths in series / at DC-13		
• at 24 V / rated value	А	10
• at 60 V / rated value	А	3.5
• at 110 V / rated value	А	1.3
• at 220 V / rated value	А	0.9
• at 440 V / rated value	А	0.2
• at 600 V / rated value	А	0.1
• with 3 current paths in series / at DC-13		
• at 24 V / rated value	А	10
• at 60 V / rated value	А	4.7
• at 110 V / rated value	А	3
• at 220 V / rated value	А	1.2
• at 440 V / rated value	А	0.5
• at 600 V / rated value	А	0.26
Off-load operating frequency	_	
• at AC	1/h	10,000
• at DC	1/h	10,000
Frequency of operation		
• at AC-12 / maximum	1/h	1,000
• at AC-14 / maximum	1/h	1,000
• at AC-15 / maximum	1/h	1,000
• at DC-12 / maximum	1/h	1,000
		1,000

## Short-circuit:

# Design of the fuse link / for short-circuit protection of the auxiliary switch

#### required

Fuse gL/gG: 10 A, miniature circuit breaker C 6 A (short-circuit current Ik < 400 A)

Installation/mounting/dimensions:			
Built in orientation		vertical	
Type of mounting		screw and snap-on mounting onto 35 mm standard mounting rail	
Width	mm	45	
Height	mm	70	
Depth	mm	73	
Distance, to be maintained, to the ranks assembly / sidewards	mm	0	

Connections:			
Design of the electrical connection			
for auxiliary and control current circuit	spring-loaded terminals		
Type of the connectable conductor cross-section			
for auxiliary contacts			
• solid	2x (0.5 4 mm²)		
finely stranded			
with conductor end processing	2x (0.5 2.5 mm²)		
without conductor final cutting	2x (0.5 2.5 mm²)		
<ul> <li>for AWG conductors / for auxiliary contacts</li> </ul>	2x (20 12)		

## Certificates/approvals:

proval			Test Certificates	5
<b>SP</b> CSA	ROSTEST		Manufacturer	
LA DNV DNV	GL	Llovd's Kegister	PRS	RINA
other				
	CSA CSA CSA CSA CSA CSA CSA CSA CSA CSA	ROSTEST         Image: Construction of the state of	ROSTEST         Image: Constant of the state of the	ROSTEST       Manufacturer         Image: Constraint of the state of

### UL/CSA ratings:

Contact rating designation / for auxiliary contacts / according to UL

A600 / Q600

Safety:related Parameter:		
B10 value / with high demand rate		
according to SN 31920		1,000,000
T1 value / for proof test interval or service life		
according to IEC 61508	а	10
Proportion of dangerous failures		
with low demand rate / according to SN 31920	%	40
with high demand rate / according to SN 31920	%	73
Failure rate (FIT value) / with low demand rate		
according to SN 31920	FIT	100
Product function / positively driven operation to IEC 60947-5-1		Yes

### 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:

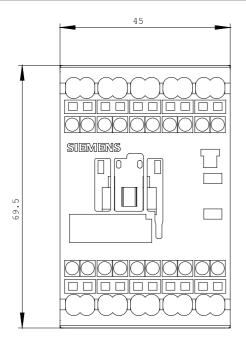
http://www.siemens.com/cax

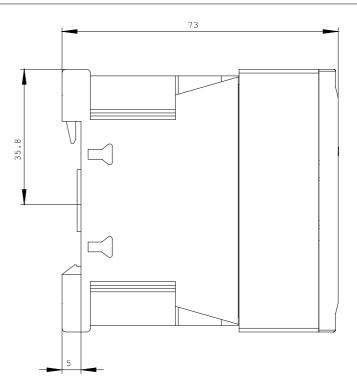
#### Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

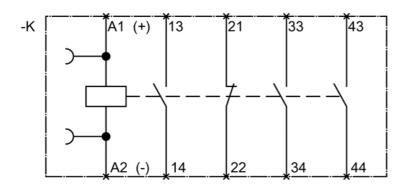
http://support.automation.siemens.com/WW/view/en/3RH2131-2BF40/all

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

http://www.automation.siemens.com/bilddb/cax\_en.aspx?mlfb=3RH2131-2BF40







last change:

Oct 24, 2011