SIEMENS

Data sheet

3RT2016-2DB41-1AA0



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 24 V DC, with varistor plugged on, auxiliary contacts: 1 NO, spring-loaded terminal, size: S00, upright mounting position

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	0112
size of contactor	\$00
product extension	
function module for communication	No
auxiliary switch	Yes
power loss [W] for rated value of the current	
at AC in hot operating state	0.9 W
at AC in hot operating state per pole	0.3 W
without load current share typical	4 W
type of calculation of power loss depending on pole	quadratic
insulation voltage	
 of main circuit with degree of pollution 3 rated value 	690 V
 of auxiliary circuit with degree of pollution 3 rated value 	690 V
surge voltage resistance	
of main circuit rated value	6 kV
 of auxiliary circuit rated value 	6 kV
maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at DC	6,7g / 5 ms, 4,2g / 10 ms
shock resistance with sine pulse	
• at DC	10,5g / 5 ms, 6,6g / 10 ms
mechanical service life (operating cycles)	
 of contactor typical 	30 000 000
 of the contactor with added electronically optimized auxiliary switch block typical 	5 000 000
of the contactor with added auxiliary switch block typical	10 000 000
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	
SVHC substance name	Lead - 7439-92-1
Weight	0.323 kg
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
 during operation 	-25 +60 °C
during storage	-55 +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30	95 %

maximum	
Environmental footprint	
Environmental Product Declaration(EPD)	Yes
Global Warming Potential [CO2 eq] total	153 kg
Global Warming Potential [CO2 eq] during manufacturing	1.42 kg
Global Warming Potential [CO2 eq] during operation	152 kg
Global Warming Potential [CO2 eq] after end of life	-0.305 kg
Main circuit	
number of poles for main current circuit	3
number of NO contacts for main contacts	3
operating voltage	
• at AC-3 rated value maximum	690 V
 at AC-3e rated value maximum 	690 V
operational current	
 at AC-1 at 400 V at ambient temperature 40 °C rated value 	22 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	22 A
— up to 690 V at ambient temperature 60 °C rated value	20 A
• at AC-3	0.4
— at 400 V rated value — at 500 V rated value	9 A 7.7 A
— at 500 V rated value	6.7 A
• at AC-3e	
- at 400 V rated value	9 A
— at 500 V rated value	7.7 A
— at 690 V rated value	6.7 A
• at AC-4 at 400 V rated value	8.5 A
• at AC-5a up to 690 V rated value	19.4 A
• at AC-5b up to 400 V rated value	7.4 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	5.3 A
— up to 400 V for current peak value n=20 rated value	5.3 A
— up to 500 V for current peak value n=20 rated value	5.3 A
— up to 690 V for current peak value n=20 rated value	5 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	3.5 A
— up to 400 V for current peak value n=30 rated value	3.5 A
— up to 500 V for current peak value n=30 rated value	3.6 A
— up to 690 V for current peak value n=30 rated value	3.3 A
minimum cross-section in main circuit at maximum AC-1 rated value	4 mm ²
operational current for approx. 200000 operating cycles at AC-4	
 at 400 V rated value at 690 V rated value 	4.1 A 3.3 A
• at 690 v rated value operational current	0.0 A
• at 1 current path at DC-1	
- at 24 V rated value	20 A
— at 60 V rated value	20 A
— at 110 V rated value	2.1 A
— at 220 V rated value	0.8 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
• with 2 current paths in series at DC-1	
— at 24 V rated value	20 A
— at 60 V rated value	20 A
— at 110 V rated value	12 A
— at 220 V rated value	1.6 A
— at 440 V rated value	0.8 A

- at 600 Vrafet value 07 A - at 64 Vrafet value 20 A - at 64 Vrafet value 20 A - at 60 Vrafet value 13 A - at 60 Vrafet value 0 F - at 60 Vrafet value 2 F - at 60 Vrafet value 2 F <t< th=""><th></th><th></th></t<>		
- af 24 Vinder value 20 Å - af 110 Vinder value 20 Å - af 240 Vinder value 20 Å - af 240 Vinder value 13 Å - af 240 Vinder value 13 Å - af 240 Vinder value 13 Å - af 240 Vinder value 0.5 Å - af 24 Vinder value 20 Å - af 24 Vinder value 22 Å - af 24 Vinder value 22 Å - af 24 Vinder value 22 Å - af 24 Vinder value		0.7 A
	-	
- at 100 v rade value20 A- at 200 v rade value1.3 A- at 600 v rade value1.3 A- at 600 v rade value1.4- at 600 v rade value0.5 A- at 610 v rade value0.7 A- at 610 v rade value0.7 A- at 610 v rade value0.7 A- at 620 v rade value0.7 A- at 620 v rade value0.7 A- at 620 v rade value5.5 kW- at 620 v rade value6.5 kW- at 620 v rade value6.5 kW- at 620 v rade value6.5 kW- at 620		
	— at 60 V rated value	
 	— at 110 V rated value	
	— at 220 V rated value	
• at 1 current path at DC-3 at DC-3 20 A - at 24 V rade value 0.5 A - at 10 V rade value 0.5 A - at 10 V rade value 20 A - at 24 V rade value 20 A - at 20 V rade value 20 A - at 20 V rade value 20 A - at 20 V rade value 20 A - at 40 V rade value 20 A - at 20 V rade value 20 A - at 20 V rade value 40W - at 20 V rade value 40W - at 20 V rade value 40W - at 20 V rade value 50 W - at 60 V rade value 22 W - at 60 V rade value	— at 440 V rated value	
	— at 600 V rated value	1 A
	-	
 with 2 current paths in series at DC-3 at DC-5 at 24 V rated value A at 10 V rated value A at 110 V rated value A at 110 V rated value A at 110 V rated value A at 24 V rated value A at 24 V rated value A at 20 V rated value A at 20 V rated value A at 20 V rated value A A at 10 V rated value A A at 20 V rated value A A bit A V rated value CA at AC 20 V rated value A at 230 V rated value A at 230 V rated value A bit AC 26 at 230 V rated value bit AC 26 at 230 V rated value bit AC 36 at 230 V rated value bit AC 36 at 230 V rated value bit AC 36 at 230 V rated value bit 22 k W at 230 V rated value bit 22 k W bit 230 V rated value bit 22 k W bit 230 V rated value bit 230 V rated value bit 240 V rated value bit 25 k W bit 240 V rated value bit 25 k W contrast pask value n20 rated value bit 260 V rated value bit		
		0.15 A
- af BV rated value 5A - af 110 V rated value 20A - 412 V V rated value 2	-	
with 3 current paths in series at DC-3 at DC-5 — at 24 V rated value 20 A — at 100 V rated value 20 A — at 110 V rated value 20 A — at 220 V rated value 20 A — at 220 V rated value 20 A — at 240 V rated value 20 A — at 250 V rated value 40 V — at 250 V rated value 55 kW — at 400 V rated value 55 kW — at 500 V rated value 50 V rated value 55 kW — at 500 V rated value 50 V	— at 60 V rated value	
	— at 110 V rated value	0.35 A
	 with 3 current paths in series at DC-3 at DC-5 	
operating power at AC-2 at 400 V rated value at AC-3 at 230 V rated value at 600 V rated value at 400 V rated value at 600 V rated value bt 600 V rated value bt 75 kW at 400 V rated value at 600 V rated value bt 600 V rated value bt 600 V rated value at 400 V rated value bt 600 V for current peak value n=20 rated value at 600 V for current peak value n=20 rated value bt 600 V for current peak value n=20 rated value bt 600 V for current peak value n=20 rated value bt 600 V for current peak value n=20 rated value bt 600 V for current peak value n=30 rated value bt 600 V for current peak value n=30 rated value bt 600 V for current peak value n=30 rated value bt 600 V for current peak value n=30 rated value bt 600 V for current peak value n=30 rated value bt 600 V for current peak value n=30 rated value bt 600 V for current peak value n=30 rated value bt 70 VKA <libt 1="" 60="" at="" current="" l<="" maximum<="" s="" switching="" td="" zero=""><td></td><td></td></libt>		
	— at 600 V rated value	0.2 A
e at AC-3 - at 230 V rated value - at 230 V rated value - at 230 V rated value - at 500 V rated value - at 650 V rated value - at 650 V rated value - at 650 V rated value - at 230 V rated value - at 400 V rated value - at 300 V rated value - at 300 V rated value - at 500 V rated value - at 650 V rated value - at 400 V rated value - at 400 V rated value - at 650 V rated value - at 400 V rated value - at 650 V rated value - at 400 V rated value - at 600 V for current peak value n=20 rated value - at 600 V for current peak value n=20 rated value - at 600 V for current peak value n=20 rated value - at 600 V for current peak value n=30 rated value - at 600 V for current peak value n=30 rated value - at 600 V for current peak value n=30 rated value - at 600 V for current peak value n=30 rated value - at 600 V for current peak value n=30 rated value - at 600 V for cur	operating power	
		4 kW
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• limited to 30 s switching at zero current maximum 66 A; Use minimum cross-section acc. to AC-1 rated value • limited to 60 s switching at zero current maximum 55 A; Use minimum cross-section acc. to AC-1 rated value no-load switching frequency 10 000 1/h • at DC 10 000 1/h operating frequency 1 000 1/h • at AC-1 maximum 1 000 1/h	 limited to 5 s switching at zero current maximum 	111 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 60 s switching at zero current maximum 55 A; Use minimum cross-section acc. to AC-1 rated value no-load switching frequency 10 000 1/h • at DC 10 000 1/h operating frequency 1 000 1/h • at AC-1 maximum 1 000 1/h	 limited to 10 s switching at zero current maximum 	86 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency 10 000 1/h • at DC 10 000 1/h operating frequency 1 000 1/h • at AC-1 maximum 1 000 1/h	 limited to 30 s switching at zero current maximum 	66 A; Use minimum cross-section acc. to AC-1 rated value
• at DC 10 000 1/h operating frequency 1 000 1/h • at AC-1 maximum 1 000 1/h	 limited to 60 s switching at zero current maximum 	55 A; Use minimum cross-section acc. to AC-1 rated value
operating frequency 1 000 1/h	no-load switching frequency	
• at AC-1 maximum 1 000 1/h	• at DC	10 000 1/h
	operating frequency	
• at AC-2 maximum 750 1/h	• at AC-1 maximum	1 000 1/h
	● at AC-2 maximum	750 1/h

a at AC 2 maximum	750 1/h
• at AC-3 maximum	
at AC-3e maximum	750 1/h
at AC-4 maximum Control circuit/ Control	250 1/h
	20
type of voltage of the control supply voltage	DC
control supply voltage at DC rated value	24 V
operating range factor control supply voltage rated value of magnet coil at DC	
initial value	0.8
full-scale value	1.1
design of the surge suppressor	with varistor
closing power of magnet coil at DC	4 W
holding power of magnet coil at DC	4 W
closing delay	
• at DC	30 100 ms
opening delay	
• at DC	7 13 ms
arcing time	10 15 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NO contacts for auxiliary contacts instantaneous	1
contact	
operational current at AC-12 maximum	10 A
operational current at AC-15	
• at 230 V rated value	10 A
 at 400 V rated value 	3 A
• at 500 V rated value	2 A
• at 690 V rated value	1 A
operational current at DC-12	
• at 24 V rated value	10 A
 at 48 V rated value 	6 A
 at 60 V rated value 	6 A
 at 110 V rated value 	3 A
 at 125 V rated value 	2 A
 at 220 V rated value 	1 A
• at 600 V rated value	0.15 A
operational current at DC-13	
• at 24 V rated value	10 A
• at 48 V rated value	2 A
• at 60 V rated value	2 A
 at 110 V rated value 	1 A
• at 125 V rated value	0.9 A
• at 220 V rated value	0.3 A
• at 600 V rated value	0.1 A
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings	
full-load current (FLA) for 3-phase AC motor	
• at 480 V rated value	7.6 A
• at 600 V rated value	9 A
yielded mechanical performance [hp]	
 for single-phase AC motor 	
— at 110/120 V rated value	0.33 hp
— at 230 V rated value	1 hp
• for 3-phase AC motor	
— at 200/208 V rated value	2 hp
— at 220/230 V rated value	3 hp
— at 460/480 V rated value	5 hp
— at 575/600 V rated value	7.5 hp
contact rating of auxiliary contacts according to UL	A600 / Q600
Short-circuit protection	
design of the fuse link	

• for short-circuit protection of the main circuit

- with type of coordination 1 required
- with type of assignment 2 required

• for short-circuit protection of the auxiliary switch required

gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA) gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (415V, 80kA) gG: 10 A (500 V, 1 kA)

• for short-circuit protection of the auxiliary switch required installation/ mounting/ dimensions	gg. 10 A (500 V, 1 KA)
	standing on harizontal mounting surface
mounting position	standing, on horizontal mounting surface
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
height	70 mm
width	45 mm
depth	121 mm
required spacing	
with side-by-side mounting	10
— forwards	10 mm
— upwards — downwards	10 mm
	10 mm 0 mm
— at the side	0 mm
for grounded parts	10
— forwards	10 mm
— upwards	10 mm
— at the side	6 mm
— downwards	10 mm
for live parts	40
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	6 mm
onnections/ Terminals	
type of electrical connection	
for main current circuit	spring-loaded terminals
 for auxiliary and control circuit 	spring-loaded terminals
 at contactor for auxiliary contacts 	Spring-type terminals
of magnet coil	Spring-type terminals
type of connectable conductor cross-sections	
 for main contacts 	
— solid	2x (0.5 4 mm ²)
— solid or stranded	2x (0,5 4 mm²)
 finely stranded with core end processing 	2x (0.5 2.5 mm²)
 finely stranded without core end processing 	2x (0.5 2.5 mm²)
 for AWG cables for main contacts 	2x (20 12)
connectable conductor cross-section for main contacts	
• solid	0.5 4 mm²
stranded	0.5 4 mm²
 finely stranded with core end processing 	0.5 2.5 mm²
 finely stranded without core end processing 	0.5 2.5 mm²
connectable conductor cross-section for auxiliary contacts	
 solid or stranded 	0.5 4 mm²
 finely stranded with core end processing 	0.5 2.5 mm²
 finely stranded without core end processing 	0.5 2.5 mm²
type of connectable conductor cross-sections	
 for auxiliary contacts 	
— solid or stranded	2x (0,5 4 mm²)
— finely stranded with core end processing	2x (0.5 2.5 mm²)
— finely stranded without core end processing	2x (0.5 2.5 mm ²)
 for AWG cables for auxiliary contacts 	2x (20 12)
AWG number as coded connectable conductor cross section	
for main contacts	20 12
 for auxiliary contacts 	20 12
afety related data	
product function	
e mirror contact according to IEC 60947-4-1	Yes: with 3RH29

Yes; with 3RH29

• mirror contact according to IEC 60947-4-1

 suitable for safety function suitability for use safety-related sw service life maximum test wear-related service life ne proportion of dangerous failure with low demand rate accord with high demand rate accord suitability for use safety service type according to ISO 13 overdimensioning according to Electrical Safety protection class IP on the front touch protection on the front according to Approvals Certificates General Product Approval 	Accessary Pages rding to SN 31920 prding to SN 31920 te according to SN nd rate according to 3849-1 a ISO 13849-2 necess according to IEC 6	o SN 100 3 ssary Ye Typ 10529 IP2	s a s % % 00 000 0 FIT s s	from the front	
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• with high demand rate accord B10 value with high demand rate failure rate [FIT] with low demand 31920 ISO 13849 device type according to ISO 13 overdimensioning according to IEC 61508 safety device type according to Electrical Safety protection class IP on the front touch protection on the front ac Approvals Certificates	brding to SN 31920 te according to SN and rate according to 3849-1 b ISO 13849-2 neces b IEC 61508-2 according to IEC 605 ccording to IEC 605	73 31920 1 0 o SN 100 3 ssary Ye Typ	% 00 000 0 FIT s be A	from the front	
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Approvals Certificates		529 fing	ger-safe, for vertical contact	from the front	
		_			
General Product Approval					
General Product Ap-	Fu	unctional Saftey	Test Certificates		Marine / Shipping
ERE C		e Examination Cer tificate	- <u>Type Test Certific-</u> ates/Test Report	<u>Special Test Certific-</u> <u>ate</u>	ABS
Marine / Shipping					other
B U REAU VERITAS		PRS	RINA	KARS	<u>Miscellaneous</u>
other Railway	y Da	angerous goods	Environment		
Confirmation Special	<u>Test Certific-</u> <u>Tra</u> ate	ansport Informatior	EPD	Environmental Con- firmations	

 Information

 Information on the packaging

 https://support.industry.siemens.com/cs/ww/en/view/109813875

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

 https://www.siemens.com/ic10

 Industry Mall (Online ordering system)

 https://mall.industry.siemens.com/mall/en/Catalog/product?mlfb=3RT2016-2DB41-1AA0

 Cax online generator

 http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-2DB41-1AA0

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

 http://support.industry.siemens.com/cs/ww/en/ps/3RT2016-2DB41-1AA0

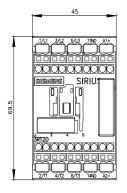
 Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

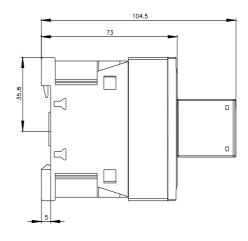
 http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-2DB41-1AA0&lang=en

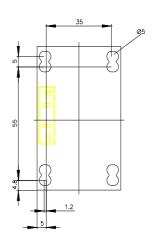
 Characteristic: Tripping characteristics, P*t, Let-through current

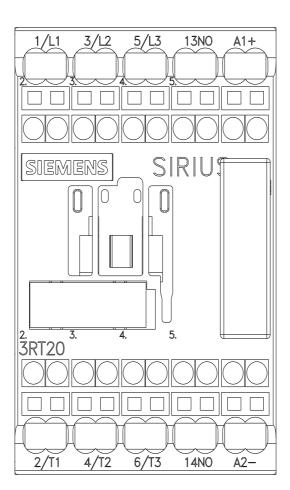
 https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-2DB41-1AA0/char

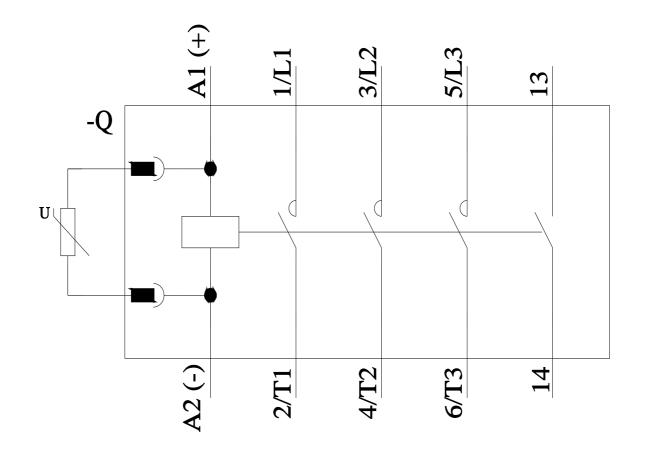
Further characteristics (e.g. electrical endurance, switching frequency) http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-2DB41-1AA0&objecttype=14&gridview=view1











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