SIEMENS

Data sheet

3RT2016-1BJ81



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 72 V DC, auxiliary contacts: 1 NO, screw terminal, size: S00

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S00
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)	10/01/2009
Weight	0.287 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 maximum	95 %

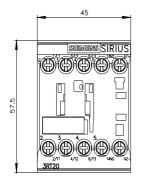
Environmental footprint	
Environmental Product Declaration(EPD)	Yes
global warming potential [CO2 eq] total	153 kg
global warming potential [CO2 eq] during manufacturing	1.42 kg
global warming potential [CO2 eq] during operation	152 kg
global warming potential [CO2 eq] after end of life	-0.305 kg
Main 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 at AC-1 	22 A
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	
— 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-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 19.4 A
 at AC-5a up to 690 V rated value at AC-5b up to 400 V rated value 	7.4 A
• at AC-6a	1.4 A
- 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
	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	4.1 A
at 690 V rated value	3.3 A
operational current • at 1 current path at DC-1	
• at 1 current path at DC-1 — at 24 V rated value	20 A
— at 60 V rated value	20 A 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 V rated value	0.7 A

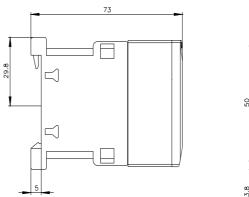
- with 2 surrant action in carias at DC 4	
with 3 current paths in series at DC-1 — at 24 V rated value	20 A
— at 60 V rated value	20 A
	20 A 20 A
— at 110 V rated value	
— at 220 V rated value	20 A
— at 440 V rated value	1.3 A
— at 600 V rated value	1 A
at 1 current path at DC-3 at DC-5	20 A
— at 24 V rated value	0.5 A
— at 60 V rated value — at 110 V rated value	0.15 A
with 2 current paths in series at DC-3 at DC-5	0.15 A
— at 24 V rated value	20 A
— at 60 V rated value	5 A
— at 110 V rated value	0.35 A
• with 3 current paths in series at DC-3 at DC-5	0.00 A
— at 24 V rated value	20 A
— at 60 V rated value	20 A
— at 110 V rated value	20 A
— at 220 V rated value	1.5 A
— at 440 V rated value	0.2 A
— at 600 V rated value	0.2 A
operating power	0.27
at AC-2 at 400 V rated value	4 kW
• at AC-3	
— at 230 V rated value	2.2 kW
— at 400 V rated value	4 kW
— at 500 V rated value	4 kW
— at 690 V rated value	5.5 kW
• at AC-3e	
— at 230 V rated value	2.2 kW
— at 400 V rated value	4 kW
— at 500 V rated value	4 kW
— at 690 V rated value	5.5 kW
operating power for approx. 200000 operating cycles at AC-	
 at 400 V rated value 	2 kW
at 690 V rated value	2.5 kW
operating apparent power at AC-6a	
 up to 230 V for current peak value n=20 rated value 	2 kVA
 up to 400 V for current peak value n=20 rated value 	3.6 kVA
 up to 500 V for current peak value n=20 rated value 	4.6 kVA
 up to 690 V for current peak value n=20 rated value 	5.9 kVA
operating apparent power at AC-6a	
 up to 230 V for current peak value n=30 rated value 	1.3 kVA
 up to 400 V for current peak value n=30 rated value 	2.4 kVA
 up to 500 V for current peak value n=30 rated value 	3.1 kVA
 up to 690 V for current peak value n=30 rated value 	4 kVA
short-time withstand current in cold operating state up to 40 °C	
 limited to 1 s switching at zero current maximum 	155 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 5 s switching at zero current maximum 	111 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 10 s switching at zero current maximum 	86 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 30 s switching at zero current maximum	66 A; Use minimum cross-section acc. to AC-1 rated value
Imited to 60 s switching at zero current maximum	55 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency • at DC	10 000 1/h
• at DC operating frequency	
• at AC-1 maximum	1 000 1/h
• at AC-2 maximum	750 1/h
• at AC-3 maximum	750 1/h

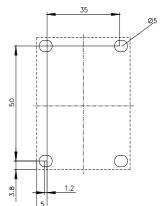
	50 1/h 50 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	
	2 V
operating range factor control supply voltage rated value of magnet coil at DC	
-	.8
	.1
	. I I W
	W
elosing delay • at DC 30	0 100 ms
	0 100 IIIS
opening delay	40
	2
	0 15 ms
	Standard A1 - A2
Auxiliary circuit	
number of NO contacts for auxiliary contacts instantaneous 1 contact	
	0 A
operational current at AC-15	
	0 A
	2A
	A
operational current at DC-12	ⁿ
	0.4
	0 A
	A A
	A A
	A
	2A
	A
	1.15 A
operational current at DC-13	
	0 A
	2 A
	2 A
	A
	9.9 A
	.3 A
	0.1 A
	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.	l.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	i hp
— at 575/600 V rated value 7.	.5 hp
contact rating of auxiliary contacts according to UL A	1600 / Q600
Short-circuit protection	
	C characteristic: 10 A; 0.4 kA
of the auxiliary circuit up to 230 V	
design of the fuse link	

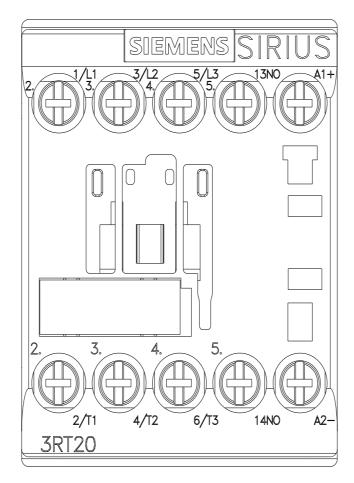
 for short-circuit protection of the main circuit 	
- with type of coordination 1 required	gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA)
— with type of assignment 2 required	gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (415V, 80kA)
 for short-circuit protection of the auxiliary switch required 	gG: 10 A (500 V, 1 kA)
Installation/ mounting/ dimensions	90. 10 A (000 V, 1 M)
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and
nounting position	backward by +/- 22.5° on vertical mounting surface
fastening method side-by-side mounting	Yes
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
height	58 mm
width	45 mm
depth	73 mm
required spacing	
 with side-by-side mounting 	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
 for grounded parts 	
— forwards	10 mm
— upwards	10 mm
— at the side	6 mm
— downwards	10 mm
• for live parts	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	6 mm
Connections/ Terminals	
type of electrical connection	
 for main current circuit 	screw-type terminals
 for auxiliary and control circuit 	screw-type terminals
 at contactor for auxiliary contacts 	Screw-type terminals
 of magnet coil 	Screw-type terminals
type of connectable conductor cross-sections	
for main contacts	
— solid	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm²
— solid or stranded	2x (0,5 1,5 mm²), 2x (0,75 2,5 mm²), 2x 4 mm²
 finely stranded with core end processing 	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
 for AWG cables for main contacts 	2x (20 16), 2x (18 14), 2x 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
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
type of connectable conductor cross-sections	
 for auxiliary contacts 	
— solid or stranded	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm²
- finely stranded with core end processing	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
for AWG cables for auxiliary contacts	2x (20 16), 2x (18 14), 2x 12
AWG number as coded connectable conductor cross section	
 for main contacts 	20 12
 for auxiliary contacts 	20 12
Safety related data	
Safety related data product function	
Safety related data product function • mirror contact according to IEC 60947-4-1	Yes; with 3RH29
product function	Yes; with 3RH29 No

suitability for use safety	y-related switching OFF	Ye	S		
service life maximum		20	а		
test wear-related serv	vice life necessary	Ye	S		
proportion of danger	ous failures				
 with low demand 	d rate according to SN 319	20 40	%		
 with high deman 	d rate according to SN 31	920 73	%		
B10 value with high d	lemand rate according to	SN 31920 1 0	000 000		
	low demand rate accord		0 FIT		
ISO 13849					
device type according	g to ISO 13849-1	3			
	cording to ISO 13849-2 n	ecessarv Ye	s		
IEC 61508	3	,			
safety device type ac	cording to IEC 61508-2	Tv	pe A		
Electrical Safety		.,			
	n the front according to I	EC 60529	20		
-	he front according to IEC		-• ger-safe, for vertical contact	from the front	
Approvals Certificates					
	roval				
General Product App	rovai				
CCC	CE EG-Konf.	UK CA	<u>Confirmation</u>		KC
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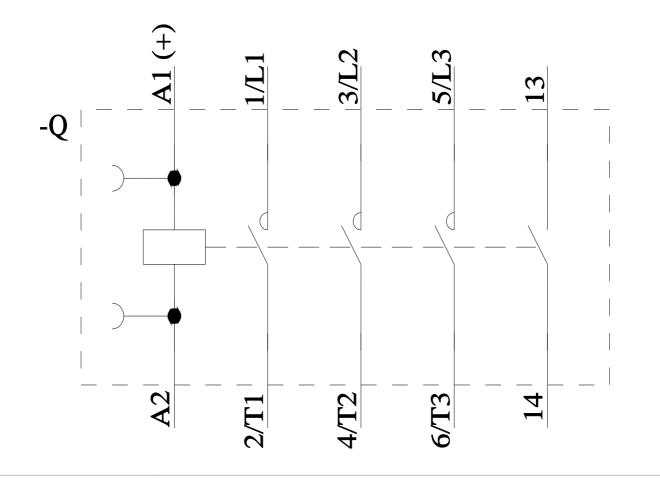








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