SIEMENS

Data sheet

3RT2016-2AD02



Power contactor, AC-3 9 A, 4 kW / 400 V 1 NC, 42 V AC, 50 / 60 Hz 3-pole, Size S00 Spring-type terminal

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 	4.2 W
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 safe isolation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at AC	6,7g / 5 ms, 4,2g / 10 ms
shock resistance with sine pulse	
• at AC	10,5g / 5 ms, 6,6g / 10 ms
mechanical service life (switching 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
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 %

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	
— 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
 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 operational current for approx. 200000 operating	4 mm ²
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 24 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
	20 A 12 A
— at 110 V rated value	
— 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 3 current paths in series at DC-1 	

— at 24 V rated value	20 A
— at 110 V rated value	20 A
— 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 	
— at 24 V rated value	20 A
— at 110 V rated value	0.1 A
 with 2 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	20 A
— at 110 V rated value	0.35 A
 with 3 current paths in series at DC-3 at DC-5 	
— at 24 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	-
• 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 kW
operating power for approx. 200000 operating cycles	-
at AC-4	
 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
 limited 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 AC	10 000 1/h
operating frequency	
 at AC-1 maximum 	1 000 1/h
 at AC-2 maximum 	750 1/h
• at AC-3 maximum	750 1/h
at AC-3e maximum	750 1/h
• at AC-4 maximum	250 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	

• at 50 Hz rated value	42 V
at 60 Hz rated value	42 V
operating range factor control supply voltage rated	
value of magnet coil at AC	0.0 4.4
• at 50 Hz	0.8 1.1 0.85 1.1
• at 60 Hz	0.85 1.1
apparent pick-up power of magnet coil at AC	07.1/4
• at 50 Hz	27 VA
• at 60 Hz	24.3 VA
inductive power factor with closing power of the coil	
• at 50 Hz	0.8
• at 60 Hz	0.75
apparent holding power of magnet coil at AC	
• at 50 Hz	4.2 VA
• at 60 Hz	3.3 VA
inductive power factor with the holding power of the coil	
• at 50 Hz	0.25
• at 50 Hz	0.25
	0.20
closing delay	9 35 ms
• at AC	9
opening delay	7 12 mg
• at AC	7 13 ms 10 15 ms
arcing time	
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC contacts for auxiliary contacts instantaneous contact	1
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 220 V rated value at 600 V rated value 	0.3 A 0.1 A
• at 600 V rated value	0.1 A
at 600 V rated value contact reliability of auxiliary contacts	
at 600 V rated value contact reliability of auxiliary contacts UL/CSA ratings	0.1 A
at 600 V rated value contact reliability of auxiliary contacts UL/CSA ratings full-load current (FLA) for 3-phase AC motor	0.1 A 1 faulty switching per 100 million (17 V, 1 mA)
at 600 V rated value contact reliability of auxiliary contacts UL/CSA ratings full-load current (FLA) for 3-phase AC motor at 480 V rated value	0.1 A 1 faulty switching per 100 million (17 V, 1 mA) 7.6 A
t 600 V rated value contact reliability of auxiliary contacts UL/CSA ratings full-load current (FLA) for 3-phase AC motor at 480 V rated value at 600 V rated value	0.1 A 1 faulty switching per 100 million (17 V, 1 mA)
• at 600 V rated value contact reliability of auxiliary contacts UL/CSA ratings full-load current (FLA) for 3-phase AC motor • at 480 V rated value • at 600 V rated value yielded mechanical performance [hp]	0.1 A 1 faulty switching per 100 million (17 V, 1 mA) 7.6 A
at 600 V rated value contact reliability of auxiliary contacts UL/CSA ratings full-load current (FLA) for 3-phase AC motor at 480 V rated value at 600 V rated value yielded mechanical performance [hp] for single-phase AC motor	0.1 A 1 faulty switching per 100 million (17 V, 1 mA) 7.6 A 9 A
at 600 V rated value contact reliability of auxiliary contacts UL/CSA ratings full-load current (FLA) for 3-phase AC motor at 480 V rated value at 600 V rated value yielded mechanical performance [hp] for single-phase AC motor — at 110/120 V rated value	0.1 A 1 faulty switching per 100 million (17 V, 1 mA) 7.6 A 9 A 0.33 hp
at 600 V rated value contact reliability of auxiliary contacts UL/CSA ratings full-load current (FLA) for 3-phase AC motor at 480 V rated value at 600 V rated value yielded mechanical performance [hp] e for single-phase AC motor — at 110/120 V rated value — at 230 V rated value	0.1 A 1 faulty switching per 100 million (17 V, 1 mA) 7.6 A 9 A
at 600 V rated value contact reliability of auxiliary contacts UL/CSA ratings full-load current (FLA) for 3-phase AC motor at 480 V rated value at 600 V rated value yielded mechanical performance [hp] for single-phase AC motor — at 110/120 V rated value	0.1 A 1 faulty switching per 100 million (17 V, 1 mA) 7.6 A 9 A 0.33 hp

at 220/220 M rated water	2 hn
- 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	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 	gG: 10 A (500 V, 1 kA)
required	
Installation/ mounting/ dimensions	
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted
fastening method	forward and backward by +/- 22.5° on vertical mounting surface screw and snap-on mounting onto 35 mm standard mounting rail
 side-by-side mounting 	according to DIN EN 60715 Yes
height	70 mm
width	45 mm
depth	73 mm
required spacing	
with side-by-side mounting	
 with side-by-side mounting forwards 	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
for grounded parts	0 mm
 for grounded parts forwards 	10 mm
	10 mm
— upwards	6 mm
— at the side	
— downwards	10 mm
for live parts	10
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	6 mm
Connections/ 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 mm ²)
 finely stranded with core end processing 	2x (0.5 2.5 mm ²)
 finely stranded without core end processing 	2x (0.5 2.5 mm ²)
at AWG cables for main contacts	2x (20 12)
connectable conductor cross-section for main contacts	
solid	0.5 4 mm²
stranded	0.5 4 mm ²
 finely stranded with core end processing 	0.5 2.5 mm ²
 finely stranded with one end processing finely stranded without core end processing 	0.5 2.5 mm ²
connectable conductor cross-section for auxiliary contacts	
 solid or stranded 	0.5 4 mm²
 finely stranded with core end processing 	0.5 2.5 mm ²
 finely stranded without core end processing 	0.5 2.5 mm²
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type of connectable					
	conductor cross-sec	tions			
 for auxiliary col 	ntacts				
— solid or st	randed		2x (0,5 4 mm²)		
— finely stra	nded with core end proc	essing	2x (0.5 2.5 mm ²)		
-	nded without core end p	-	2x (0.5 2.5 mm²)		
	for auxiliary contacts		2x (20 12)		
AWG number as co	ded connectable cond	luctor cross	2x(2012)		
section					
 for main contact 			20 12		
 for auxiliary col 	ntacts		20 12		
Safety related data					
product function					
 mirror contact a 	according to IEC 60947	-4-1	Yes		
	demand rate according t		1 000 000		
proportion of dange					
	nd rate according to SN	31920	40 %		
	and rate according to SN		73 %		
-	-				
31920	low demand rate accord	ung to SIN	100 FIT		
	st interval or service life	according to	20 y		
IEC 61508					
protection class IP 60529	on the front according	to IEC	IP20		
touch protection on	the front according to	DIEC 60529	finger-safe, for vertical cor	tact from the front	
suitability for use					
 safety-related s 	switching OFF		Yes		
Certificates/ approva	-				
General Product A	anroval				
CSA	ccc		UL		
EMC	Functional Safety/Safety of Machinery	Declaration of	of Conformity	Test Certificates	
RCM	Type Examination Certificate		66	Special Test Certific-	
			EG-Konf.	ate	<u>Type Test Certific-</u> ates/Test Report
Marine / Shipping			EG-Konf.		
Marine / Shipping			EG-Konf.		
Marine / Shipping	B U R E A U V E R I T A S	J & DNV	EG-Konf.		
Marine / Shipping	BURGAU VERITAS	J & DNV DNV	Lloyd's Register		
ABS		DINV DINV DINV	Lloyd's Register		

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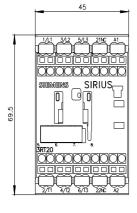
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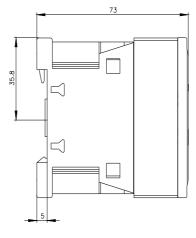
Characteristic: Tripping characteristics, I²t, Let-through current

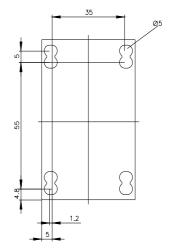
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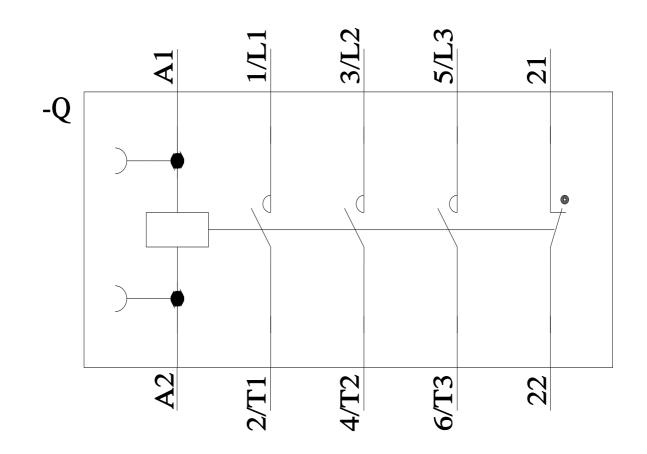
Further characteristics (e.g. electrical endurance, switching frequency)

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