## **SIEMENS**

## Data sheet

## 3RT2027-1AC20

Power contactor, AC-3 32 A, 15 kW / 400 V 1 NO + 1 NC, 24 V AC 50/60 Hz, 3-pole Size S0, screw terminals



Product brand name	SIRIUS
Product designation	Power contactor
Product type designation	3RT2

General technical data		
Size of contactor	S0	
Product extension		
<ul> <li>function module for communication</li> </ul>	No	
Auxiliary switch	Yes	
Power loss [W] for rated value of the current		
<ul> <li>at AC in hot operating state</li> </ul>	8.1 W	
<ul> <li>at AC in hot operating state per pole</li> </ul>	2.7 W	
Power loss [W] for rated value of the current without load current share typical	10.5 W	
Surge voltage resistance		
<ul> <li>of main circuit rated value</li> </ul>	6 kV	
<ul> <li>of auxiliary circuit rated value</li> </ul>	6 kV	
maximum permissible voltage for safe isolation		
• between coil and main contacts acc. to EN 60947-1	400 V	

Protection class IP	
• on the front	IP20
• of the terminal	IP20
Shock resistance at rectangular impulse	
• at AC	8,3g / 5 ms, 5,3g / 10 ms
Shock resistance with sine pulse	
• at AC	13,5g / 5 ms, 8,3g / 10 ms
Mechanical service life (switching cycles)	
<ul> <li>of contactor typical</li> </ul>	10 000 000
<ul> <li>of the contactor with added electronics- compatible auxiliary switch block typical</li> </ul>	5 000 000
<ul> <li>of the contactor with added auxiliary switch block typical</li> </ul>	10 000 000
Reference code acc. to DIN EN 81346-2	Q
Ambiant conditions	
Ambient conditions Installation altitude at height above sea level	
• maximum	2 000 m
Ambient temperature	
<ul> <li>during operation</li> </ul>	-25 +60 °C
• during storage	-55 +80 °C
Main circuit	
Number of poles for main current circuit	3
Number of NO contacts for main contacts	3
Operating voltage	
<ul> <li>at AC-3 rated value maximum</li> </ul>	690 V
Operating current	
• at AC-1 at 400 V	
<ul> <li>— at ambient temperature 40 °C rated value</li> </ul>	
• at AC-1	50 A
·	50 A
● at AC-1 — up to 690 V at ambient temperature 40 °C	
<ul> <li>at AC-1</li> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C</li> </ul>	50 A
<ul> <li>at AC-1</li> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> </ul>	50 A 42 A
<ul> <li>at AC-1</li> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> <li>at AC-2 at 400 V rated value</li> </ul>	50 A 42 A
<ul> <li>at AC-1 <ul> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> </ul> </li> <li>at AC-2 at 400 V rated value</li> <li>at AC-3</li> </ul>	50 A 42 A 32 A
<ul> <li>at AC-1 <ul> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> </ul> </li> <li>at AC-2 at 400 V rated value</li> <li>at AC-3 <ul> <li>at 400 V rated value</li> </ul> </li> </ul>	50 A 42 A 32 A 32 A
<ul> <li>at AC-1 <ul> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> </ul> </li> <li>at AC-2 at 400 V rated value <ul> <li>at AC-3</li> <li>at 400 V rated value</li> <li>at 500 V rated value</li> <li>at 690 V rated value</li> </ul> </li> </ul>	50 A 42 A 32 A 32 A 32 A
<ul> <li>at AC-1 <ul> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> </ul> </li> <li>at AC-2 at 400 V rated value</li> <li>at AC-3 <ul> <li>at 400 V rated value</li> <li>at 500 V rated value</li> <li>at 690 V rated value</li> </ul> </li> <li>at AC-4 at 400 V rated value</li> </ul>	50 A 42 A 32 A 32 A 32 A 21 A
<ul> <li>at AC-1 <ul> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> </ul> </li> <li>at AC-2 at 400 V rated value <ul> <li>at AC-3</li> <li>at 400 V rated value</li> <li>at 500 V rated value</li> <li>at 690 V rated value</li> </ul> </li> </ul>	50 A 42 A 32 A 32 A 32 A 21 A 22 A

— up to 230 V for current peak value n=20 rated value	30.8 A
— up to 400 V for current peak value n=20 rated value	30.8 A
— up to 500 V for current peak value n=20 rated value	27 A
— up to 690 V for current peak value n=20 rated value	21 A
● at AC-6a	
— up to 230 V for current peak value n=30 rated value	20.5 A
— up to 400 V for current peak value n=30 rated value	20.5 A
— up to 500 V for current peak value n=30 rated value	18 A
— up to 690 V for current peak value n=30 rated value	18 A
Minimum cross-section in main circuit	
<ul> <li>at maximum AC-1 rated value</li> </ul>	10 mm <sup>2</sup>
Operating current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	12 A
• at 690 V rated value	12 A
Operating current	
• at 1 current path at DC-1	
— at 24 V rated value	35 A
— at 110 V rated value	4.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.4 A
— at 600 V rated value	0.25 A
<ul> <li>with 2 current paths in series at DC-1</li> </ul>	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	5 A
— at 440 V rated value	1 A
— at 600 V rated value	0.8 A
<ul> <li>with 3 current paths in series at DC-1</li> </ul>	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	35 A
— at 440 V rated value	2.9 A
— at 600 V rated value	1.4 A
Operating current	

<ul> <li>at 1 current path at DC-3 at DC-5</li> </ul>	
— at 24 V rated value	20 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.09 A
— at 600 V rated value	0.06 A
<ul> <li>with 2 current paths in series at DC-3 at DC-5</li> </ul>	
— at 24 V rated value	35 A
— at 110 V rated value	15 A
— at 220 V rated value	3 A
— at 440 V rated value	0.27 A
— at 600 V rated value	0.16 A
<ul> <li>with 3 current paths in series at DC-3 at DC-5</li> </ul>	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	10 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
Operating power	
• at AC-2 at 400 V rated value	15 kW
• at AC-3	
— at 230 V rated value	7.5 kW
— at 400 V rated value	15 kW
— at 500 V rated value	15 kW
— at 690 V rated value	18.5 kW
Operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	6 kW
• at 690 V rated value	10.3 kW
Operating apparent output at AC-6a	
<ul> <li>up to 230 V for current peak value n=20 rated value</li> </ul>	12.2 kV·A
<ul> <li>up to 400 V for current peak value n=20 rated value</li> </ul>	21.3 kV·A
<ul> <li>up to 500 V for current peak value n=20 rated value</li> </ul>	23.3 kV·A
<ul> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	25 kV·A
Operating apparent output at AC-6a	
<ul> <li>up to 230 V for current peak value n=30 rated value</li> </ul>	8.1 kV·A
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	14.2 kV·A

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<ul> <li>up to 500 V for current peak value n=30 rated value</li> </ul>	15.5 kV·A			
<ul> <li>up to 690 V for current peak value n=30 rated value</li> </ul>	21.5 kV·A			
Short-time withstand current in cold operating state				
up to 40 °C				
<ul> <li>limited to 1 s switching at zero current maximum</li> </ul>	499 A; Use minimum cross-section acc. to AC-1 rated value			
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	395 A; Use minimum cross-section acc. to AC-1 rated value			
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	260 A; Use minimum cross-section acc. to AC-1 rated value			
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	186 A; Use minimum cross-section acc. to AC-1 rated value			
<ul> <li>limited to 60 s switching at zero current maximum</li> </ul>	152 A; Use minimum cross-section acc. to AC-1 rated value			
No-load switching frequency				
• at AC	5 000 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-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	24 V			
• at 60 Hz rated value	24 V			
Operating range factor control supply voltage rated value of magnet coil at AC				
● at 50 Hz	0.8 1.1			
• at 60 Hz	0.85 1.1			
Apparent pick-up power of magnet coil at AC				
• at 50 Hz	81 V·A			
• at 60 Hz	79 V·A			
Inductive power factor with closing power of the coil				
• at 50 Hz	0.72			
• at 60 Hz	0.74			
Apparent holding power of magnet coil at AC				
• at 50 Hz	10.5 V·A			
• at 60 Hz	8.5 V·A			
Inductive power factor with the holding power of the				
coil				

• at 50 Hz	0.25
• at 60 Hz	0.28
Closing delay	
• at AC	8 40 ms
Opening delay	
● at AC	4 16 ms
Arcing time	10 10 ms
Control version of the switch operating mechanism	Standard A1 - A2

Auxiliary circuit	
Number of NC contacts for auxiliary contacts	
<ul> <li>instantaneous contact</li> </ul>	1
Number of NO contacts for auxiliary contacts	
<ul> <li>instantaneous contact</li> </ul>	1
Operating current at AC-12 maximum	10 A
Operating 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
Operating 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
Operating 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 three-phase AC motor	
• at 480 V rated value	27 A
<ul> <li>at 600 V rated value</li> </ul>	27 A

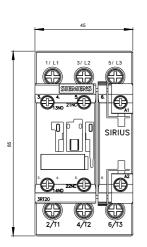
Yielded mechanical performance [hp]

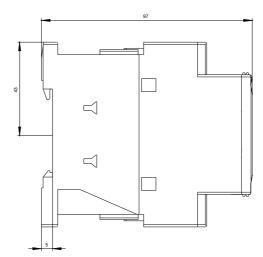
<ul> <li>for single-phase AC motor</li> </ul>			
— at 110/120 V rated value	2 hp		
— at 230 V rated value	5 hp		
<ul> <li>for three-phase AC motor</li> </ul>			
— at 200/208 V rated value	10 hp		
— at 220/230 V rated value	10 hp		
— at 460/480 V rated value	20 hp		
— at 575/600 V rated value	25 hp		
Contact rating of auxiliary contacts according to UL	A600 / P600		
Chart airquit protoction			
Short-circuit protection Design of the fuse link			
• for short-circuit protection of the main circuit			
— with type of coordination 1 required	gG: 125A (690V,100kA), aM: 50A (690V,100kA), BS88: 125A		
	(415V,80kA)		
<ul> <li>— with type of assignment 2 required</li> </ul>	gG: 50A (690V,100kA), aM: 25A (690V, 100kA), BS88: 50A (415V, 80kA)		
<ul> <li>for short-circuit protection of the auxiliary switch required</li> </ul>	gG: 10 A (500 V, 1 kA)		
Installation/ mounting/ dimensions			
Mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface		
Mounting type	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715		
Side-by-side mounting	Yes		
Height	85 mm		
Width	45 mm		
Depth	97 mm		
Required spacing			
<ul> <li>with side-by-side mounting</li> </ul>			
— forwards	10 mm		
— upwards	10 mm		
— downwards	10 mm		
— at the side	0 mm		
<ul> <li>for grounded parts</li> </ul>			
— forwards	10 mm		
— upwards	10 mm		
— at the side	6 mm		
— downwards	10 mm		
● for live parts			
— forwards	10 mm		
— upwards	10 mm		

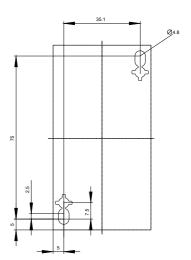
— downwards	10 mm		
	6 mm		
— at the side	0 mm		
Connections/ Terminals			
Type of electrical connection			
<ul> <li>for main current circuit</li> </ul>	screw-type terminals		
<ul> <li>for auxiliary and control current circuit</li> </ul>	screw-type terminals		
<ul> <li>at contactor for auxiliary contacts</li> </ul>	Screw-type terminals		
of magnet coil	Screw-type terminals		
Type of connectable conductor cross-sections			
<ul> <li>for main contacts</li> </ul>			
— solid	2x (1 2.5 mm²), 2x (2.5 10 mm²)		
— single or multi-stranded	2x (1 2,5 mm²), 2x (2,5 10 mm²)		
— finely stranded with core end processing	2x (1 2.5 mm²), 2x (2.5 6 mm²), 1x 10 mm²		
<ul> <li>at AWG conductors for main contacts</li> </ul>	2x (16 12), 2x (14 8)		
Connectable conductor cross-section for main			
contacts			
• solid	1 10 mm²		
• stranded	1 10 mm <sup>2</sup>		
<ul> <li>finely stranded with core end processing</li> </ul>	1 10 mm²		
Connectable conductor cross-section for auxiliary			
contacts			
<ul> <li>single or multi-stranded</li> </ul>	0.5 2.5 mm²		
<ul> <li>finely stranded with core end processing</li> </ul>	0.5 2.5 mm²		
Type of connectable conductor cross-sections			
<ul> <li>for auxiliary contacts</li> </ul>			
<ul> <li>— single or multi-stranded</li> </ul>	2x (0,5 1,5 mm²), 2x (0,75 2,5 mm²)		
<ul> <li>finely stranded with core end processing</li> </ul>	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)		
<ul> <li>at AWG conductors for auxiliary contacts</li> </ul>	2x (20 16), 2x (18 14)		
AWG number as coded connectable conductor cross			
section	400		
• for main contacts	16 8		
<ul> <li>for auxiliary contacts</li> </ul>	20 14		
Safety related data			
B10 value			
• with high demand rate acc. to SN 31920	1 000 000		
Proportion of dangerous failures			
<ul> <li>with low demand rate acc. to SN 31920</li> </ul>	40 %		
• with high demand rate acc. to SN 31920	73 %		
Failure rate [FIT]			
• with low demand rate acc. to SN 31920	100 FIT		
Product function			

<ul> <li>Mirror contact a</li> </ul>	acc. to IEC 6094	7-4-1 Ye	S		
T1 value for proof tes IEC 61508	st interval or serv	ice life acc. to 20	у		
Protection against electrical shock		fing	ger-safe		
Suitability for use safety-related switching OFF		hing OFF Ye	s		
Certificates/ approva	als				
General Product	General Product Approval				
CCC	SP EA		KC	EHC	RCM
Functional Safety/Safety of Machinery	Declaration of	of Conformity	Test Certificates	3	Marine / Ship- ping
Type Examination Certificate	EG-Konf.	Miscellaneous	Type Test Certific-ates/Test Report	Special Test Certi-ficate	ABS
Marine / Shippin	g				other
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other					
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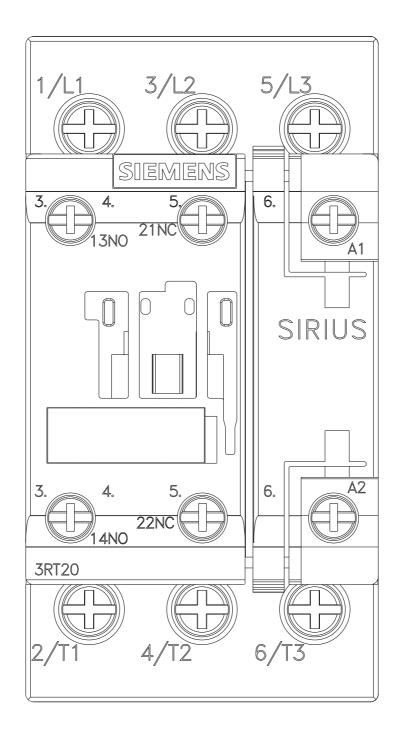




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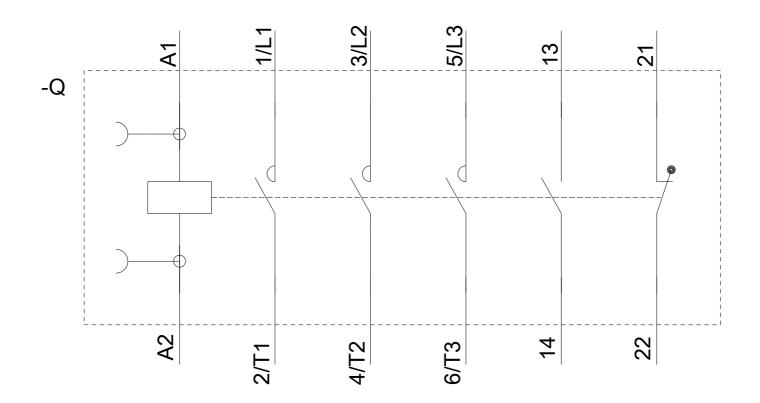
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