SIEMENS

Data sheet

3RT2016-1AP02



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 230 V AC, 50/60 Hz, auxiliary contacts: 1 NC, 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 	1.1 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 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 (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	0.23 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	39.6 kg
global warming potential [CO2 eq] during manufacturing	1.18 kg
global warming potential [CO2 eq] during operation	38.5 kg
global warming potential [CO2 eq] after end of life	-0.155 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 at AC 5a up to 690 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 	19.4 A 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
operational current	
• 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 V rated value	0.7 A

with 3 current paths in series at DC-1	20.4
— 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	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 60 V rated value	0.5 A
— at 110 V rated value	0.15 A
• with 2 current paths in series at DC-3 at DC-5	
— 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 	
— 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	
• 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-	
4	0.1444
at 400 V rated value	2 kW
• at 690 V rated value	2.5 kW
operating apparent power at AC-6a	0.11/4
• 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	4.013/4
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	
Imited to 1 s switching at zero current maximum	155 A; Use minimum cross-section acc. to AC-1 rated value
Imited to 5 s switching at zero current maximum	111 A; Use minimum cross-section acc. to AC-1 rated value
Imited to 10 s switching at zero current maximum	86 A; Use minimum cross-section acc. to AC-1 rated value
Imited 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

Control increase AC bype of voltage of the control supply voltage AC e it 60 Hz med value 200 V e it 60 Hz med value 200 V operating range factor control supply voltage meted value of magnet coil at AC 0.8 1.1 e it 60 Hz 0.75 e it 60 Hz 0.8 0.75 e it 60 Hz 0.8 0.75 e it 60 Hz 0.25 e it 60 Hz 0.1 16 ms control supplicy 0 15 ms e it 60 Hz 0.0 16 ms control supplicy 0.4 15 ms e it 60 V rade value 0	• at AC-4 maximum	250 1/h
Type of vortage of the control supply voltage AC control supply voltage at AC 230 V • if 50 It raide value 230 V • operating range factor control supply voltage rated value of magnet coll at AC 0.8 1.1 • • if 50 It 2 27 VA • • if 50 It 2 23 VA • • if 50 It 2 0.5 • if 50 It 2 0.5 • if 50 It 2 0.25 cloaing delay 0 15 ms • if 60 It 2 0.25 cloaing delay 0 16 ms • if 60 It 2 0.15 ms • if 60 It 2 0.16 ms control varial at AC-12 0.4 opening delay 1 • if 60 It 2 0.4 opening delay 1 • if 60 V rade value 1		
control supply voltage at AC 230 V • # 16 01 Fr. mide Value 230 V • 0 = 010 Fr. mide Value 230 V operating range factor control supply voltage rated value of magnet coil at AC 0.8 1.1 • 0 = 010 Fr. 0.8 1.1 opport coil at AC 0.8 1.1 • 0 = 010 Fr. 0.8 1.1 opport coil at AC 0.1 15 ms		AC
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International state200 Voperating range factor control supply voltage rated value of entition 4.C.• at 50 Hz0.81.1apparent pick-up power of magnet coil at AC• at 50 Hz27 VA• at 50 Hz0.81.1• at 50 Hz0.25• at 60 Hz0.15 Hs• at 60 Hz10.15 Hs• at 60 Hz10.4• at 72 N Hade Value10.4• at 80 Hz10.4• at 80 Hz10.4 <t< td=""><td></td><td>230 V</td></t<>		230 V
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maps col at AC 0.81.1 • at 00 Hz 0.81.1 apprent plok-up power of magnet coll at AC 27 VA • at 00 Hz 0.81.1 • at 00 Hz 0.8		
• at 80 Hz 0.85 11 apparent pick-up power factor with closing power of the coll 27 VA • at 80 Hz 24 J VA • at 80 Hz 0.4 J VA • at 80 Hz 0.8 J • at 80 Hz 0.7 J • at 80 Hz 0.7 J • at 80 Hz 0.7 J • at 80 Hz 0.2 J • at 80 Hz 0.3 J A • at 80 V table value 1.0 A	magnet coil at AC	
apparent pick-up power of magnet coil at AC 27 VA • at 60 Hz 24.3 VA Inductive power factor with closing power of the coil 0.8 • at 60 Hz 0.75 apparent holding power of magnet coil at AC 0.8 • at 50 Hz 4.2 VA • at 60 Hz 0.8 i at 50 Hz 4.2 VA • at 50 Hz 4.2 VA • at 50 Hz 0.25 • at 60 Hz 0.4 • at 60 Hz 0.4 • at 60 Hz		
• at 50 Hz 27 VA • at 60 Hz 24 30 VA Inductive power factor with closing power of the coll 0.8 • at 80 Hz 0.8 • at 80 Hz 0.75 apparent holding power of magnet coil at AC 42 VA • at 80 Hz 3.3 VA Inductive power factor with the holding power of the coll 0.25 • at 80 Hz 0.25 • at 80 V Hz 0.25 • at 80 V Hz 0.3 • at 80 V Hz 0.1 • at 80 V Hz 0.1 • at 80 V rade value 1 • at 80 V rade value 1 • at 80 V rade value 1 • at 80 V rade value 1 <t< td=""><td></td><td>0.85 1.1</td></t<>		0.85 1.1
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• at 50 Hz 0.25 • at 60 Hz 0.25 closing delay 935 ms • at AC 935 ms • at AC 415 ms • at AC 1016 ms control version of the switch operating mechanism Standard A1 - A2 Auxiliary circuit 10		
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• at AC 4 15 ms arcing time 10 15 ms control version of the switch operating mechanism Standard A1 - A2 Auxiliary circuit Immer of NC contacts for auxiliary contacts instantaneous 1 contract operational current at AC-12 maximum 10 A operational current at AC-15 Immer of NC contacts for auxiliary contacts 1 • at 230 V rated value 10 A 3A • at 600 V rated value 2A 2A • at 600 V rated value 1A operational current at DC-12 Immer of AC • at 40 V rated value 6A • at 40 V rated value 6A • at 40 V rated value 6A • at 40 V rated value 1A operational current at DC-12 Immer of AC • at 410 V rated value 6A • at 42 V rated value 6A • at 42 V rated value 1A • at 60 V rated value 2A<		
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• 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	· · · · · · · · · · · · · · · · · · ·	10 A
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• 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 1 full-load current (FLA) for 3-phase AC motor 1		
• 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 Image: Contact reliability of 3-phase AC motor	• at 125 V rated value	0.9 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 220 V rated value	0.3 A
UL/CSA ratings full-load current (FLA) for 3-phase AC motor	• at 600 V rated value	0.1 A
full-load current (FLA) for 3-phase AC motor	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 480 V rated value	7.6 A
• at 600 V rated value 9 A	• at 600 V rated value	9 A
yielded mechanical performance [hp]	yielded mechanical performance [hp]	
for single-phase AC motor	 for single-phase AC motor 	
— at 110/120 V rated value 0.33 hp	— at 110/120 V rated value	0.33 hp

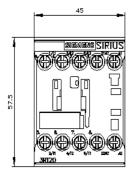
— at 230 V rated value	1 hp
• for 3-phase AC motor	
— at 200/208 V rated value	2 hp
— at 220/230 V rated value	3 hp
— at 460/480 V rated value	5 hp
— at 575/600 V rated value	7.5 hp
contact rating of auxiliary contacts according to UL	A600 / Q600
Short-circuit protection	
design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V	C characteristic: 10 A; 0.4 kA
design of the fuse link	
 for short-circuit protection of the auxiliary switch required 	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
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	
with side-by-side mounting — forwards	10 mm
	10 mm
— upwards	
— 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 mm ²), 2x (0,75 2,5 mm ²), 2x 4 mm ²
— finely stranded with core end processing	2x (0.5 1.5 mm ²), 2x (0.75 2.5 mm ²)
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 mm ²
	0.5 4 mm ²
finely stranded with core end processing	0.0 2.0 [[[[]]
connectable conductor cross-section for auxiliary contacts	$0.5 4 \text{ mm}^2$
solid or stranded	0.5 4 mm ²
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 AWG number as coded connectable conductor cross	

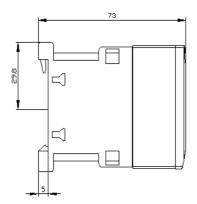
section					
for main contact	· •	2	0 12		
 for auxiliary cont 			0 12		
•	lacis	2	0 12		
Safety related data		_			_
product function			,		
	ccording to IEC 60947-4-1		és		
	operation according to IE		lo		
suitable for safe	<i>y</i>		es		
	y-related switching OFF		'es		
service life maximum			0 a		
test wear-related serv	-	Y	'es		
proportion of danger					
	d rate according to SN 31		0 %		
	nd rate according to SN 31		3 %		
	lemand rate according t		000 000		
failure rate [FIT] with 31920	low demand rate accord	ding to SN 1	00 FIT		
ISO 13849					
device type according	a to ISO 13849-1	3			
	cording to ISO 13849-2		/es		
IEC 61508					
	cording to IEC 61508-2	т	ype A		
Electrical Safety			JP077		
	n the front according to	IEC 60529	>20		
-	he front according to IE		nger-safe, for vertical contac	t from the front	
Approvals Certificates	-	0 00323			
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EMV RCM	Test Certificates Special Test Certific-	Type Test Certific			C onfirmation
EMV EMV RCM Marine / Shipping	Test Certificates Special Test Certific-	Type Test Certific		other	C onfirmation
EMV EMV RCM Marine / Shipping Lis	Test Certificates Special Test Certific- ate	Type Test Certific ates/Test Report		other	Confirmation
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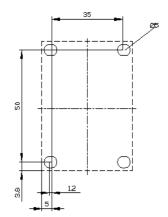
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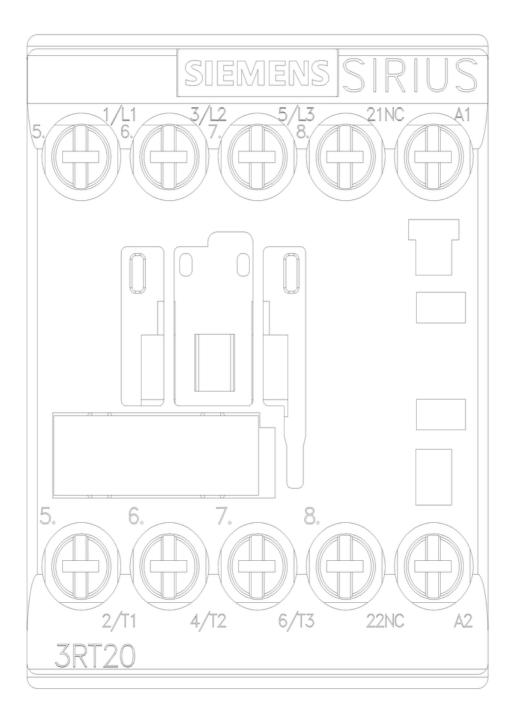
Further characteristics (e.g. electrical endurance, switching frequency)

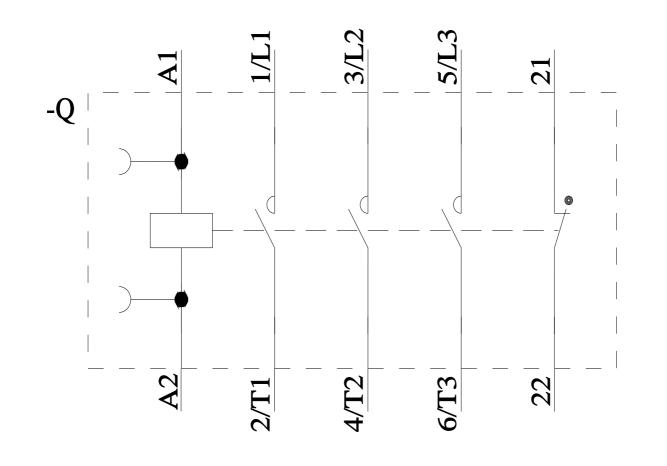
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