SIEMENS

Data sheet

3RT2016-1AP01



Power contactor, AC-3 9 A, 4 kW / 400 V 1 NO, 230 V AC, 50 / 60 Hz 3-pole, Size S00 screw 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	2.1 W
• per pole	0.7 W
power loss [W] for rated value of the current without load current share typical	4.2 W
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 acc. 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 acc. to IEC 81346-2	Q
Substance Prohibitance (Date)	01.10.2009
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 acc. 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

operational current 22 A att AC-1 22 A - up to 640 V at ambient temperature 40 °C 22 A - up to 640 V att ambient temperature 40 °C 22 A - up to 640 V att ambient temperature 60 °C 22 A - att AC-3 9 - att AC-3 9 - att AC-4 9 - att AC-3 9 - att AC-4 9 - att AC-4 9 - att AC-5 9 - att AC-4 9 - att AC-4 9 - up to 500 V trade value 9 - up to 500 V to rated value 9 - up to 500 V tor current peak value n=20 rated 5.3 A value - up to 500 V tor current peak value n=20 rated 5.3 A value - up to 500 V tor current peak value n=20 rated 3.5 A value - att AC-4 3.5 A - up to 500 V tor current peak value n=30 rated 3.5 A value - att AC-4 - att AC-4 - up to 400 V tor current peak value n=30 rated 3.5 A value 3.5 A	operating voltage at AC-3 rated value maximum	690 V
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• up to 690 V for current peak value n=30 rated value 4 kV·A 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		
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		
 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 		4 KV·A
• limited to 1 s switching at zero current maximum 155 A; Use minimum cross-section acc. to AC-1 rated value		
	-	155 A; Use minimum cross-section acc. to AC-1 rated value
- initia to o o ovitaling at zero autont maximum	 limited to 5 s switching at zero current maximum 	111 A; Use minimum cross-section acc. to AC-1 rated value

- limited to 10 c switching at zone surrent requireum	OC As lies minimum errors contian and to AC 4 retail 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	4 000 4 //		
• 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 	230 V		
at 60 Hz rated value	230 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	27 V·A		
• at 60 Hz	24.3 V·A		
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 V·A		
• at 60 Hz	3.3 V·A		
inductive power factor with the holding power of the			
coil			
• at 50 Hz	0.25		
• at 60 Hz	0.25		
closing delay			
• at AC	9 35 ms		
opening delay			
• at AC	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 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		
	0.9 A		
at 125 V rated value	U.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	704
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	i np
- 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	10007 2000
design of the fuse link	
5	
 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), aN: 16A (690V, 100kA), BS88: 20A (415V, 60kA)
	80kA)
 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	screw and snap-on mounting onto 35 mm standard mounting rail
	according to DIN EN 60715
side-by-side mounting	Yes
height width	_ 58 mm
depth	73 mm
required spacing	73 mm
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

fin also atra			$2x (0 = 1 = 2x^2) 2x (0 = 7)$	5 0 5 mm ²)		
	nded with core end proc of for main contacts	essing	2x (0.5 1.5 mm ²), 2x (0.75 2.5 mm ²)			
	ctor cross-section for	main	2x (20 16), 2x (18 14), 2x 12			
contacts		IIIdIII				
 solid 			0.5 4 mm²			
 stranded 			0.5 4 mm²			
 finely stranded 	with core end processin	ng	0.5 2.5 mm²			
connectable conductor	ctor cross-section for	auxiliary				
 solid or strande 	ed		0.5 4 mm²			
 finely stranded 	with core end processin	ng	0.5 2.5 mm²			
	conductor cross-sect					
 for auxiliary con 	ntacts					
— solid or st	— solid or stranded		2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm²			
— finely stra	nded with core end proc	essing	2x (0.5 1.5 mm²), 2x (0.7	5 2.5 mm²)		
 at AWG cables 	for auxiliary contacts		2x (20 16), 2x (18 14),	2x 12		
AWG number as co section	ded connectable cond	uctor cross				
 for main contact 	cts		20 12			
 for auxiliary con 	ntacts		20 12			
Safety related data						
B10 value with high o	demand rate acc. to SN	31920	1 000 000			
proportion of dange						
 with low deman 	v demand rate acc. to SN 31920		40 %			
 with high dema 	 with high demand rate acc. to SN 31920 		73 %			
failure rate [FIT] with	failure rate [FIT] with low demand rate acc. to SN 31920		100 FIT			
T1 value for proof to IEC 61508	est interval or service	life acc. to	20 y			
protection class IP	on the front acc. to IEC	C 60529	IP20			
touch protection on	the front acc. to IEC 6	60529	finger-safe, for vertical contact from the front			
suitability for use						
 safety-related s 	switching OFF		Yes			
Certificates/ approva	ls					
General Product A	oproval					
(SP)	<u>Confirmation</u>			<u>KC</u>	EHC	
EMC	Functional Safety/Safety of Machinery	Declaration o	of Conformity	Test Certificates		
	<u>Type Examination</u> <u>Certificate</u>	CE EG-Konf.	<u>UK Declaration of</u> <u>Conformity</u>	<u>Type Test Certific-</u> ates/Test Report	<u>Special Test Certific-</u> <u>ate</u>	
Marine / Shipping						
Marine / Shipping	B U REAU VERITAS		Lloyd's Register Lits	PRS	RINA	





Confirmation

Further information

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

https://www.siemens.com/ic10

Industry Mall (Online ordering system)

https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2016-1AP01

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1AP01

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AP01

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

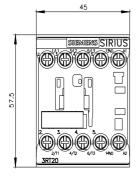
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1AP01&lang=en

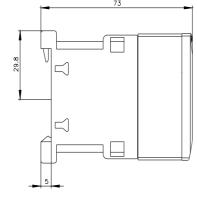
Characteristic: Tripping characteristics, I²t, Let-through current

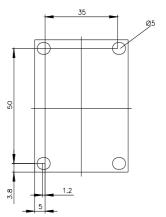
https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AP01/char

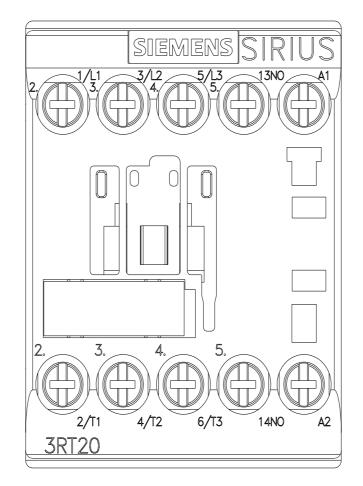
Further characteristics (e.g. electrical endurance, switching frequency)

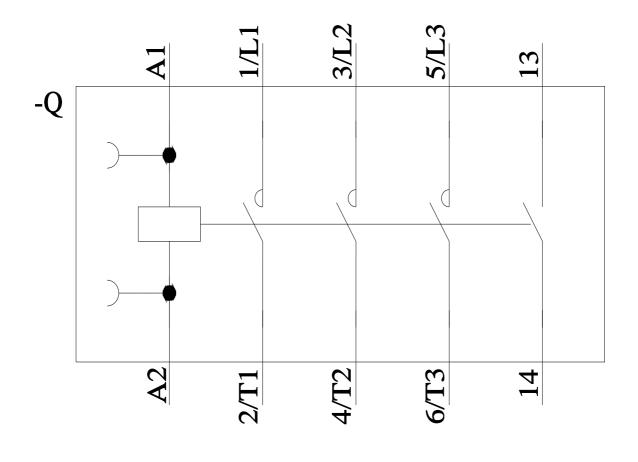
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