SIEMENS

Data sheet

3RT2028-1AV00-0JA0

Power contactor, AC-3 38 A, 18.5 kW / 400 V 1 NO + 1 NC, 400 V AC 50 Hz, 3-pole, Size S0, India 40 A, screw terminals



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

General technical data	
size of contactor	SO
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 	11.4 W
 at AC in hot operating state per pole 	3.8 W
power loss [W] for rated value of the current without load current share typical	9.8 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

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)	
 of contactor typical 	10 000 000
 of the contactor with added electronics- compatible auxiliary switch block typical 	5 000 000
 of the contactor with added auxiliary switch 	10 000 000
block typical	
reference code acc. to DIN EN 81346-2	Q
Ambient conditions	
Ambient conditions installation altitude at height above sea level 	2 000 m
maximum	2 000 m
ambient temperature	
during operation	-25 +50 °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	600.1/
at AC-3 rated value maximum	690 V
operating current	
• at AC-1 at 400 V	50 A
 — at ambient temperature 40 °C rated value at AC-1 	50 A
— up to 690 V at ambient temperature 40 $^\circ C$	50 A
rated value	
— up to 690 V at ambient temperature 60 °C rated value	42 A
• at AC-3	
— at 400 V rated value	38 A
— at 500 V rated value	32 A
— at 690 V rated value	21 A
• at AC-4 at 400 V rated value	22 A
• at AC-5a up to 690 V rated value	44 A
• at AC-5b up to 400 V rated value	31.5 A
● at AC-6a	

— 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	30.8 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	21.4 A
— up to 690 V for current peak value n=30 rated value	21 A
minimum cross-section in main circuit	
 at maximum AC-1 rated value 	10 mm ²
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
 with 2 current paths in series at DC-1 	
— 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
 with 3 current paths in series at DC-1 	
— 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

 at 1 current path at DC-3 at DC-5 	
— 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
 with 2 current paths in series at DC-3 at DC-5 	
— 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
 with 3 current paths in series at DC-3 at DC-5 	
— 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 	18.5 kW
• at AC-3	
— at 230 V rated value	11 kW
— at 400 V rated value	18.5 kW
— at 500 V rated value	18.5 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	
 up to 230 V for current peak value n=20 rated value 	12.2 kV·A
 up to 400 V for current peak value n=20 rated value 	21.3 kV·A
 up to 500 V for current peak value n=20 rated value 	26.6 kV·A
 up to 690 V for current peak value n=20 rated value 	25 kV·A
operating apparent output at AC-6a	
 up to 230 V for current peak value n=30 rated value 	8.1 kV·A
 up to 400 V for current peak value n=30 rated value 	14.2 kV·A

 up to 500 V for current peak value n=30 rated value 	18.5 kV·A
 up to 690 V for current peak value n=30 rated value 	25 kV·A
short-time withstand current in cold operating state	
up to 40 °C	
 limited to 1 s switching at zero current maximum 	593 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 5 s switching at zero current maximum 	395 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 10 s switching at zero current maximum 	260 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 30 s switching at zero current maximum 	186 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 60 s switching at zero current maximum 	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	
Control circuit/ Control type of voltage of the control supply voltage	AC
Control circuit/ Control type of voltage of the control supply voltage control supply voltage at AC	AC
type of voltage of the control supply voltage	AC 400 V
type of voltage of the control supply voltage control supply voltage at AC	
type of voltage of the control supply voltage control supply voltage at AC • at 50 Hz rated value operating range factor control supply voltage rated	
type of voltage of the control supply voltage control supply voltage at AC • at 50 Hz rated value operating range factor control supply voltage rated value of magnet coil at AC	400 V
type of voltage of the control supply voltage control supply voltage at AC • at 50 Hz rated value operating range factor control supply voltage rated value of magnet coil at AC • at 50 Hz	400 V
type of voltage of the control supply voltage control supply voltage at AC • at 50 Hz rated value operating range factor control supply voltage rated value of magnet coil at AC • at 50 Hz apparent pick-up power of magnet coil at AC	400 ∨ 0.8 1.1
type of voltage of the control supply voltage control supply voltage at AC • at 50 Hz rated value operating range factor control supply voltage rated value of magnet coil at AC • at 50 Hz apparent pick-up power of magnet coil at AC • at 50 Hz	400 ∨ 0.8 1.1
type of voltage of the control supply voltage control supply voltage at AC • at 50 Hz rated value operating range factor control supply voltage rated value of magnet coil at AC • at 50 Hz apparent pick-up power of magnet coil at AC • at 50 Hz inductive power factor with closing power of the coil	400 V 0.8 1.1 77 V·A
type of voltage of the control supply voltage control supply voltage at AC • at 50 Hz rated value operating range factor control supply voltage rated value of magnet coil at AC • at 50 Hz apparent pick-up power of magnet coil at AC • at 50 Hz inductive power factor with closing power of the coil • at 50 Hz	400 V 0.8 1.1 77 V·A
type of voltage of the control supply voltage control supply voltage at AC • at 50 Hz rated value operating range factor control supply voltage rated value of magnet coil at AC • at 50 Hz apparent pick-up power of magnet coil at AC • at 50 Hz inductive power factor with closing power of the coil • at 50 Hz apparent holding power of magnet coil at AC	400 ∨ 0.8 1.1 77 ∨·A 0.82
type of voltage of the control supply voltagecontrol supply voltage at AC• at 50 Hz rated valueoperating range factor control supply voltage ratedvalue of magnet coil at AC• at 50 Hzapparent pick-up power of magnet coil at AC• at 50 Hzinductive power factor with closing power of the coil• at 50 Hzapparent holding power of magnet coil at AC• at 50 Hzinductive power factor with closing power of the coil• at 50 Hzinductive power factor with the holding power of the	400 ∨ 0.8 1.1 77 ∨·A 0.82
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type of voltage of the control supply voltage control supply voltage at AC • at 50 Hz rated value operating range factor control supply voltage rated value of magnet coil at AC • at 50 Hz apparent pick-up power of magnet coil at AC • at 50 Hz inductive power factor with closing power of the coil • at 50 Hz apparent holding power of magnet coil at AC • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz	400 V 0.8 1.1 77 V·A 0.82 9.8 V·A
type of voltage of the control supply voltage control supply voltage at AC • at 50 Hz rated value operating range factor control supply voltage rated value of magnet coil at AC • at 50 Hz apparent pick-up power of magnet coil at AC • at 50 Hz inductive power factor with closing power of the coil • at 50 Hz apparent holding power of magnet coil at AC • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz	400 V 0.8 1.1 77 V·A 0.82 9.8 V·A 0.25
type of voltage of the control supply voltage control supply voltage at AC • at 50 Hz rated value operating range factor control supply voltage rated value of magnet coil at AC • at 50 Hz apparent pick-up power of magnet coil at AC • at 50 Hz inductive power factor with closing power of the coil • at 50 Hz apparent holding power of magnet coil at AC • at 50 Hz inductive power factor with closing power of the coil • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz inductive power factor with the holding power of the coil • at 50 Hz	400 V 0.8 1.1 77 V·A 0.82 9.8 V·A 0.25

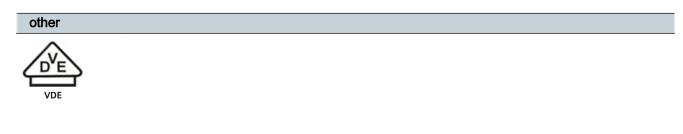
arcing time	10 10 ms		
control version of the switch operating mechanism	Standard A1 - A2		
Auxiliary circuit			
number of NC contacts for auxiliary contacts			
 instantaneous contact 	1		
number of NO contacts for auxiliary contacts	_		
• instantaneous contact	1		
operating current at AC-12 maximum	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)		
JL/CSA ratings			
full-load current (FLA) for three-phase AC motor			
• at 480 V rated value	34 A		
• at 600 V rated value	27 A		
yielded mechanical performance [hp]			
• for single-phase AC motor			
— at 110/120 V rated value	3 hp		

— at 110/120 V rated value	3 hp
— at 230 V rated value	5 hp
 for three-phase AC motor 	
— at 200/208 V rated value	10 hp
— at 220/230 V rated value	10 hp

— at 460/480 V rated value	25 hp		
— at 575/600 V rated value	25 hp		
contact rating of auxiliary contacts according to UL	A600 / P600		
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)		
 — with type of assignment 2 required 	gG: 50A (690V,100kA), aM: 25A (690V, 100kA), BS88: 50A (415V, 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		
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			
 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 current 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 (1 2.5 mm²), 2x (2.5 10 mm²)		
	2x (1 2,5 mm²), 2x (2,5 10 mm²) 2x (1 2,5 mm²), 2x (2,5 10 mm²)		
— single or multi-stranded	$2x (1 2.5 mm^2), 2x (2.5 6 mm^2), 1x 10 mm^2$		
— finely stranded with core end processing			
at AWG conductors for main contacts connectable conductor cross-section for main	2x (16 12), 2x (14 8)		
connectable conductor cross-section for main			
• solid	1 10 mm²		
stranded	1 10 mm²		
 finely stranded with core end processing 	1 10 mm ²		
connectable conductor cross-section for auxiliary			
contacts			
 single or multi-stranded 	0.5 2.5 mm²		
 finely stranded with core end processing 	0.5 2.5 mm²		
• type of connectable conductor cross-sections			
for auxiliary contacts			
— single or multi-stranded	2x (0,5 1,5 mm²), 2x (0,75 2,5 mm²)		
 finely stranded with core end processing 	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)		
 type of connectable conductor cross-sections at AWG conductors for auxiliary contacts 	2x (20 16), 2x (18 14)		
AWG number as coded connectable conductor cross			
section			
• for main contacts	16 8		
 for auxiliary contacts 	20 14		
Safety related data			
B10 value			
• with high demand rate acc. to SN 31920	1 000 000		
proportion of dangerous failures			
• with low demand rate acc. to SN 31920	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			
• mirror contact acc. to IEC 60947-4-1	Yes		
T1 value for proof test interval or service life acc. to IEC 61508	20 у		
protection against electrical shock	finger-safe		
suitability for use safety-related switching OFF	Yes		
Certificates/ approvals			

General Product	Approval				EMC
CCC	(SA)		<u>KC</u>	EHC	RCM
Functional Safety/Safety of Machinery	Declaration o	f Conformity	Test Certificates		Marine / Ship- ping
<u>Type Examination</u> <u>Certificate</u>	EG-Konf.	<u>Miscellaneous</u>	<u>Special Test Certi-</u> <u>ficate</u>	Type Test Certific- ates/Test Report	ABS
Marine / Shipping	g				other
B U R E A U V E R I T A S	Lloyd's Register Irs	RINA	RMRS	DNV-GL DNVGLCOM/AF	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=3RT2028-1AV00-0JA0

Cax online generator

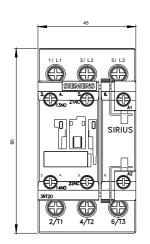
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2028-1AV00-0JA0

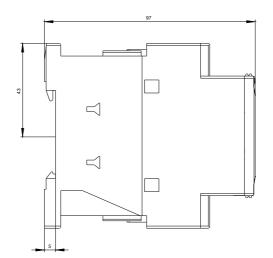
Service&Support (Manuals, Certificates, Characteristics, FAQs,...) https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1AV00-0JA0

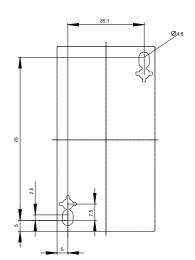
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2028-1AV00-0JA0&lang=en

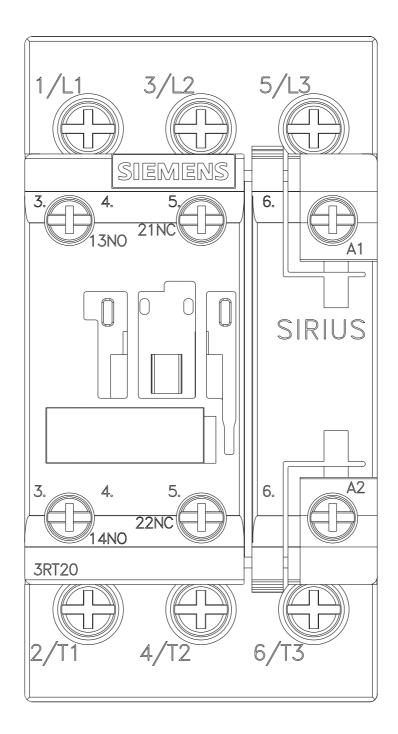
Characteristic: Tripping characteristics, I²t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1AV00-0JA0/char

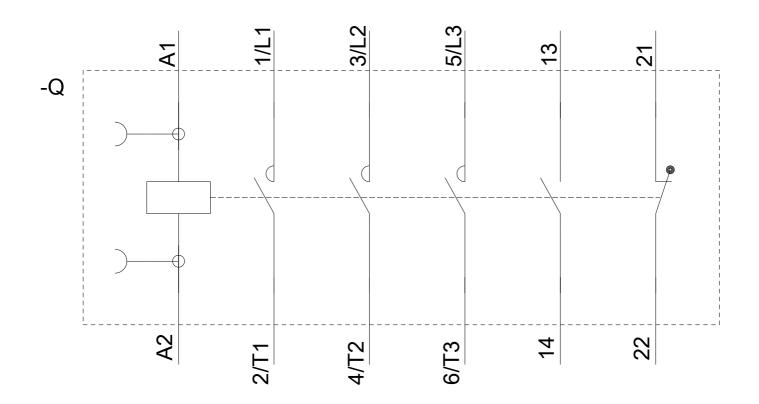
Further characteristics (e.g. electrical endurance, switching frequency) http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2028-1AV00-0JA0&objecttype=14&gridview=view1











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