SIEMENS

Data sheet 3RT2028-1AF04



power contactor, AC-3e/AC-3, 38 A, 18.5 kW / 400 V, 3-pole, 110 V AC, 50 Hz, auxiliary contacts: 2 NO + 2 NC, screw terminal, size: S0, removable auxiliary switch

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S0
product extension	
 function module for communication 	No
auxiliary switch	No
power loss [W] for rated value of the current	
 at AC in hot operating state 	9.6 W
 at AC in hot operating state per pole 	3.2 W
without load current share typical	9.8 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 protective separation between coil and main contacts according to EN 60947-1	400 V
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 (operating cycles)	
of contactor typical	10 000 000
 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 	50 A		
value			
• at AC-1			
— up to 690 V at ambient temperature 40 °C rated	50 A		
value	40. A		
 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-3e	2170		
— at 400 V rated value	38 A		
— at 500 V rated value	32 A		
	21 A		
— at 690 V rated value• at AC-4 at 400 V rated value	22 A		
	44 A		
at AC-5a up to 690 V rated value			
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		
operational current for approx. 200000 operating cycles at			
AC-4			
• at 400 V rated value	12 A		
• at 690 V rated value	12 A		
operational current			
at 1 current path at DC-1			
— at 24 V rated value	35 A		
— at 60 V rated value	20 A		
— at 110 V rated value	4.5 A		
— at 220 V rated value	1A		
— 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 60 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	05 A		
— at 24 V rated value	35 A		
— at 60 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 60 V rated value	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 60 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 60 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-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		
• at AC-3e	10.5 KVV		
— 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		
	10.5 KVV		
operating power for approx. 200000 operating cycles at AC-			
at 400 V rated value	6 kW		
• at 690 V rated value	10.3 kW		
operating apparent power at AC-6a			
up to 230 V for current peak value n=20 rated value	12.2 kVA		
 up to 400 V for current peak value n=20 rated value 	21.3 kVA		
 up to 500 V for current peak value n=20 rated value 	26.6 kVA		
 up to 690 V for current peak value n=20 rated value 	25 kVA		
operating apparent power at AC-6a			
up to 230 V for current peak value n=30 rated value	8.1 kVA		
• up to 400 V for current peak value n=30 rated value	14.2 kVA		
up to 500 V for current peak value n=30 rated value	18.5 kVA		
up to 690 V for current peak value n=30 rated value	25 kVA		
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 	341 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 	199 A; Use minimum cross-section acc. to AC-1 rated value		
 limited to 60 s switching at zero current maximum 	162 A; Use minimum cross-section acc. to AC-1 rated value		
no-load switching frequency			
• at AC	5 000 1/h		
at AC operating frequency	5 000 1/h		
	5 000 1/h 1 000 1/h		
operating frequency			
operating frequency ● at AC-1 maximum	1 000 1/h		
operating frequency	1 000 1/h 750 1/h		
operating frequency	1 000 1/h 750 1/h 750 1/h 750 1/h		
operating frequency • at AC-1 maximum • at AC-2 maximum • at AC-3 maximum • at AC-3e maximum • at AC-4 maximum	1 000 1/h 750 1/h 750 1/h		
operating frequency	1 000 1/h 750 1/h 750 1/h 750 1/h		

control supply voltage at AC	· · ·
at 50 Hz rated value	110 V
operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz	0.8 1.1
apparent pick-up power of magnet coil at AC	0.0 1.1
• at 50 Hz	77 VA
	TT VA
inductive power factor with closing power of the coil	0.02
at 50 Hz apparent holding power of magnet coil at AC	0.82
• at 50 Hz	9.8 VA
inductive power factor with the holding power of the coil	9.0 VA
• at 50 Hz	0.25
closing delay	0.20
• at AC	8 40 ms
opening delay	0 40 1113
• at AC	4 16 ms
arcing time	10 10 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	Constant of the
number of NC contacts for auxiliary contacts instantaneous	2
contact	-
number of NO contacts for auxiliary contacts instantaneous	2
contact	
operational current at AC-12 maximum	10 A
operational current at AC-15	
at 230 V rated value	6 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	6 A
at 48 V rated value at 60 V rated value	2 A
at 60 V rated value at 110 V rated value	2 A
• at 135 V rated value	1.4
at 125 V rated value at 220 V rated value	0.9 A
at 220 V rated value at 600 V rated value	0.3 A 0.1 A
at 600 V rated value contact reliability of auxiliary contacts	
contact reliability of auxiliary contacts UL/CSA ratings	1 faulty switching per 100 million (17 V, 1 mA)
full-load current (FLA) for 3-phase AC motor	
• at 480 V rated value	34 A
at 600 V rated value at 600 V rated value	27 A
yielded mechanical performance [hp]	2.77
• for single-phase AC motor	
— at 110/120 V rated value	3 hp
— at 230 V rated value	5 hp
• for 3-phase AC motor	V 11p
— 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 / Q600
Contact rating of auxiliary contacts according to the	1000 / Q000

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	96. 10 A (300 V, 1 KA)	
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and	
mounting position	backward by +/- 22.5° on vertical mounting surface	
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715	
side-by-side mounting	Yes	
height	85 mm	
width	45 mm	
depth	141 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 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)	
 solid or 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	
connectable conductor cross-section for main contacts		
• solid	1 10 mm²	
• stranded	1 10 mm²	
finely stranded with core end processing	1 10 mm²	
connectable conductor cross-section for auxiliary contacts		
solid or 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		
— solid or 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)	
for AWG cables 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		
		
product function	Yes	
product function • mirror contact according to IEC 60947-4-1 • positively driven operation according to IEC 60947-5-1	Yes No	

proportion of dangerous failures		
 with low demand rate according to SN 31920 	40 %	
 with high demand rate according to SN 31920 	73 %	
failure rate [FIT] with low demand rate according to SN 31920	100 FIT	
T1 value for proof test interval or service life according to IEC 61508	20 a	
protection class IP on the front according to IEC 60529	IP20	
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front	
suitability for use		
 safety-related switching OFF 	Yes	
3 -	**	

Certificates/ approvals

General Product Approval





Confirmation



<u>KC</u>



EMC	Functional Safety/Safety of Ma- chinery	Declaration of Conformity	Test Certificates
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Type Examination Certificate





Type Test Certificates/Test Report

Special Test Certificate

Marine / Shipping













other Railway Environment

Confirmation



Confirmation

Vibration and Shock

Environmental Confirmations

Further information

Siemens has decided to exit the Russian market (see here).

https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

Information on the packaging

https://support.industry.siemens.com/cs/ww/en/view/109813875

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=3RT2028-1AF04

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2028-1AF04

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1AF04

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

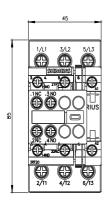
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2028-1AF04&lang=en

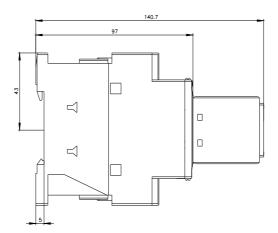
Characteristic: Tripping characteristics, I²t, Let-through current

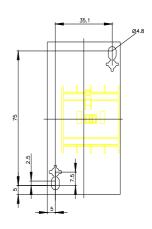
https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1AF04/char

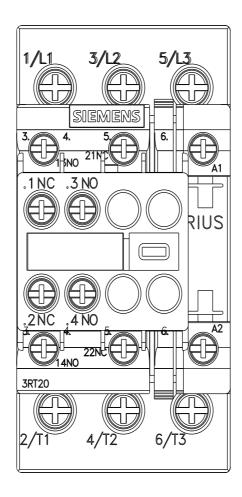
Further characteristics (e.g. electrical endurance, switching frequency)

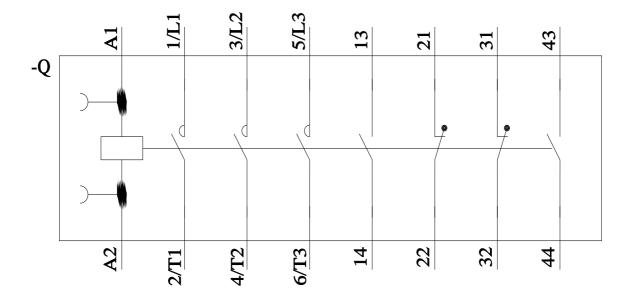
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2028-1AF04&objecttype=14&gridview=view1











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