SIEMENS

Data sheet 3RT2028-1BP40

Power contactor, AC-3 38 A, 18.5 kW / 400 V 1 NO + 1 NC, 230 V DC 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	
 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	5.9 W
load current share typical	
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 	400 V
60947-1	

protection class IP	
• on the front	IP20
of the terminal	IP20
shock resistance at rectangular impulse	
• at DC	10g / 5 ms, 7,5g / 10 ms
shock resistance with sine pulse	
• at DC	15g / 5 ms, 10g / 10 ms
mechanical service life (switching cycles)	
of contactor typical	10 000 000
 of the contactor with added electronics- 	5 000 000
compatible auxiliary switch block typical	
of the contactor with added auxiliary switch	10 000 000
block typical	
reference code acc. to DIN EN 81346-2	Q
Ambient conditions	
 installation altitude at height above sea level 	2 000 m
maximum	
ambient temperature	05
during operation	-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	
at AC-3 rated value maximum	690 V
operating current	
● at AC-1 at 400 V	
 at ambient temperature 40 °C rated value 	50 A
• at AC-1	
— up to 690 V at ambient temperature 40 $^{\circ}\text{C}$	
rated value	50 A
rated value — up to 690 V at ambient temperature 60 °C rated value	50 A 42 A
— up to 690 V at ambient temperature 60 $^{\circ}\text{C}$	
— up to 690 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	
up to 690 V at ambient temperature 60 °C rated valueat AC-3	42 A
 — up to 690 V at ambient temperature 60 °C rated value • at AC-3 — at 400 V rated value 	42 A 38 A
 up to 690 V at ambient temperature 60 °C rated value at AC-3 at 400 V rated value at 500 V rated value 	42 A 38 A 32 A
 — up to 690 V at ambient temperature 60 °C rated value • at AC-3 — at 400 V rated value — at 500 V rated value — at 690 V rated value 	42 A 38 A 32 A 21 A
 up to 690 V at ambient temperature 60 °C rated value at AC-3 at 400 V rated value at 500 V rated value at 690 V rated value at AC-4 at 400 V rated value 	42 A 38 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 	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 mm²
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
operating current	

 at 1 current path at DC-3 at DC-5 	
- at 1 current path at Bo o at Bo o	
— 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 DC	1 500 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	DC			
control supply voltage at DC				
• rated value	230 V			
operating range factor control supply voltage rated value of magnet coil at DC				
● initial value	0.8			
• full-scale value	1.1			
closing power of magnet coil at DC	5.9 W			
holding power of magnet coil at DC	5.9 W			
closing delay				
• at DC	50 170 ms			
opening delay				
• at DC	15 17.5 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				
• 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)			
UL/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 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)

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 rai according to DIN EN 60715
• side-by-side mounting	Yes
height	85 mm
width	45 mm
depth	107 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)		
 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		
 at AWG conductors for main contacts 	2x (16 12), 2x (14 8)		
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			
 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	2x (20 16), 2x (18 14)		
AWG conductors for auxiliary contacts			
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	20 y
IEC 61508	
protection against electrical shock	finger-safe
suitability for use safety-related switching OFF	Yes

Certificates/ approvals

General Product Approval







KC





EMC

Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates		Marine / Ship- ping
Type Examination Certificate	Miscellaneous	Type Test Certificates/Test Report	ecial Test Certi- ficate	ACAN BURNESPE

Marine / Shipping

other

ABS





EG-Konf.







Confirmation

other



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=3RT2028-1BP40

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2028-1BP40

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1BP40

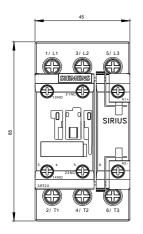
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2028-1BP40&lang=en

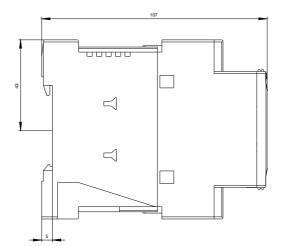
Characteristic: Tripping characteristics, I2t, Let-through current

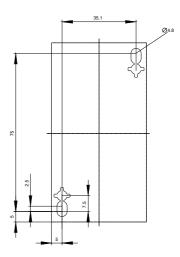
https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1BP40/char

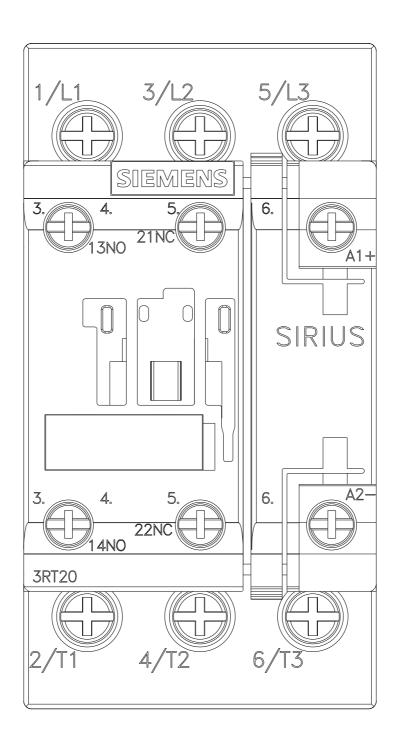
Further characteristics (e.g. electrical endurance, switching frequency)

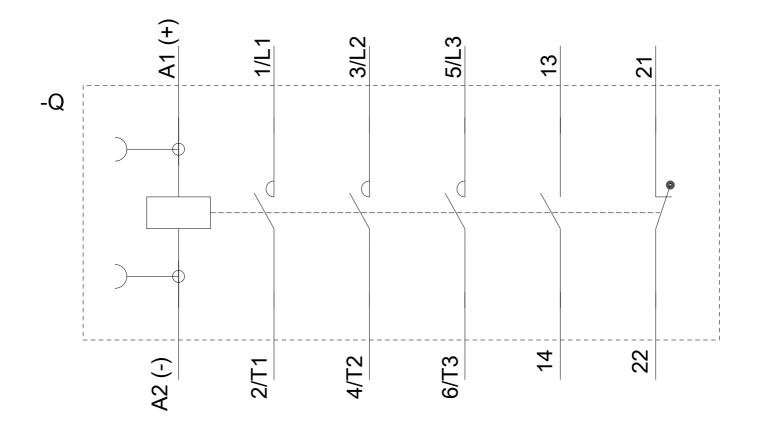
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2028-1BP40&objecttype=14&gridview=view1











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