SIEMENS

Data sheet

3RT2028-1BG40

Power contactor, AC-3 38 A, 18.5 kW / 400 V 1 NO + 1 NC, 125 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 load current share typical	5.9 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 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- compatible auxiliary switch block typical 	5 000 000
 of the contactor with added auxiliary switch block typical 	10 000 000
reference code acc. to DIN EN 81346-2	Q
Ambient conditions	
installation altitude at height above sea level	2 000 m
maximum	
ambient temperature	
 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 at AC-1 	50 A
— up to 690 V at ambient temperature 40 °C rated value	50 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-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 COO) / rate d value	
— 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	0.1144
• 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 sizewit/ Control	
Control circuit/ Control type of voltage of the control supply voltage	DC
control supply voltage at DC	
rated value	125 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	
closing delay	5.9 W
Ciosilly delay	5.9 W
• at DC	5.9 W 50 170 ms
• at DC	
• at DC opening delay	50 170 ms
 at DC opening delay at DC 	50 170 ms 15 17.5 ms
at DC opening delay • at DC arcing time control version of the switch operating mechanism	50 170 ms 15 17.5 ms 10 10 ms
at DC opening delay • at DC arcing time control version of the switch operating mechanism Auxiliary circuit	50 170 ms 15 17.5 ms 10 10 ms
at DC opening delay • at DC arcing time control version of the switch operating mechanism	50 170 ms 15 17.5 ms 10 10 ms
• at DC opening delay • at DC arcing time control version of the switch operating mechanism Auxiliary circuit number of NC contacts for auxiliary contacts	50 170 ms 15 17.5 ms 10 10 ms Standard A1 - A2

 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 \/ rated value

• 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

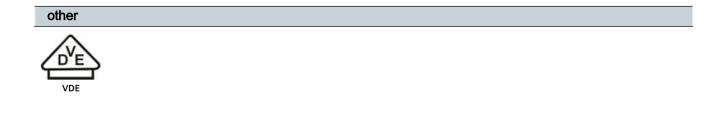
• for short-circuit protection of the main circuit

— 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)

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mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by $t/22.5^{\circ}$ on vertical mounting
	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	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
onnections/ 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 mm ²
 finely stranded with core end processing 	0.5 2.5 mm ²
 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
• for auxiliary contacts Safety related data	20 14
-	20 14
Safety related data B10 value • with high demand rate acc. to SN 31920	20 14
Safety related data B10 value	
Safety related data B10 value • with high demand rate acc. to SN 31920 proportion of dangerous failures • with low demand rate acc. to SN 31920	1 000 000 40 %
Safety related data B10 value • with high demand rate acc. to SN 31920 proportion of dangerous failures • with low demand rate acc. to SN 31920 • with high demand rate acc. to SN 31920	1 000 000
Safety related data B10 value • with high demand rate acc. to SN 31920 proportion of dangerous failures • with low demand rate acc. to SN 31920 • with high demand rate acc. to SN 31920 failure rate [FIT]	1 000 000 40 % 73 %
Safety related data B10 value • with high demand rate acc. to SN 31920 proportion of dangerous failures • with low demand rate acc. to SN 31920 • with high demand rate acc. to SN 31920 failure rate [FIT] • with low demand rate acc. to SN 31920	1 000 000 40 %
Safety related data B10 value • with high demand rate acc. to SN 31920 proportion of dangerous failures • with low demand rate acc. to SN 31920 • with high demand rate acc. to SN 31920 failure rate [FIT] • with low demand rate acc. to SN 31920 product function	1 000 000 40 % 73 % 100 FIT
Safety related data B10 value • with high demand rate acc. to SN 31920 proportion of dangerous failures • with low demand rate acc. to SN 31920 • with high demand rate acc. to SN 31920 failure rate [FIT] • with low demand rate acc. to SN 31920 product function • mirror contact acc. to IEC 60947-4-1	1 000 000 40 % 73 % 100 FIT Yes
Safety related data B10 value • with high demand rate acc. to SN 31920 proportion of dangerous failures • with low demand rate acc. to SN 31920 • with high demand rate acc. to SN 31920 failure rate [FIT] • with low demand rate acc. to SN 31920 product function	1 000 000 40 % 73 % 100 FIT
Safety related data B10 value • with high demand rate acc. to SN 31920 proportion of dangerous failures • with low demand rate acc. to SN 31920 • with high demand rate acc. to SN 31920 • with high demand rate acc. to SN 31920 • with how demand rate acc. to SN 31920 failure rate [FIT] • with low demand rate acc. to SN 31920 product function • mirror contact acc. to IEC 60947-4-1 T1 value for proof test interval or service life acc. to IEC 61508 protection against electrical shock	1 000 000 40 % 73 % 100 FIT Yes 20 y finger-safe
Safety related data B10 value • with high demand rate acc. to SN 31920 proportion of dangerous failures • with low demand rate acc. to SN 31920 • with high demand rate acc. to SN 31920 • with high demand rate acc. to SN 31920 failure rate [FIT] • with low demand rate acc. to SN 31920 product function • mirror contact acc. to IEC 60947-4-1 T1 value for proof test interval or service life acc. to IEC 61508	1 000 000 40 % 73 % 100 FIT Yes 20 y

General Product Approval					EMC
	(SA)		<u>KC</u>	EHC	RCM
Functional Safety/Safety of Machinery	Declaration of Conformity		Test Certificates		Marine / Ship- ping
Type Examination Certificate	EG-Konf.	Miscellaneous	Type Test Certific- ates/Test Report	Special Test Certi- ficate	ABS
Marine / Shipping					other
B U R E A U	Lloyd's Register			DNV-GL	Confirmation



RMRS

DNVGL.COM/AF

Further information

BUREAU

Information- and Downloadcenter (Catalogs, Brochures,...) https://www.siemens.com/ic10

LRS

Industry Mall (Online ordering system)

https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2028-1BG40

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2028-1BG40

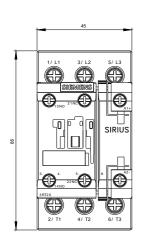
RINA

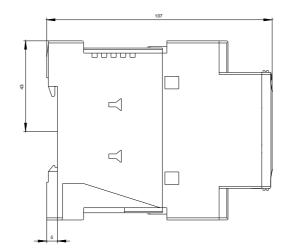
Service&Support (Manuals, Certificates, Characteristics, FAQs,...) https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1BG40

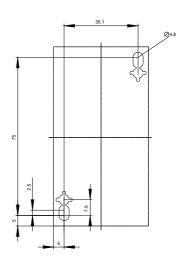
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2028-1BG40&lang=en

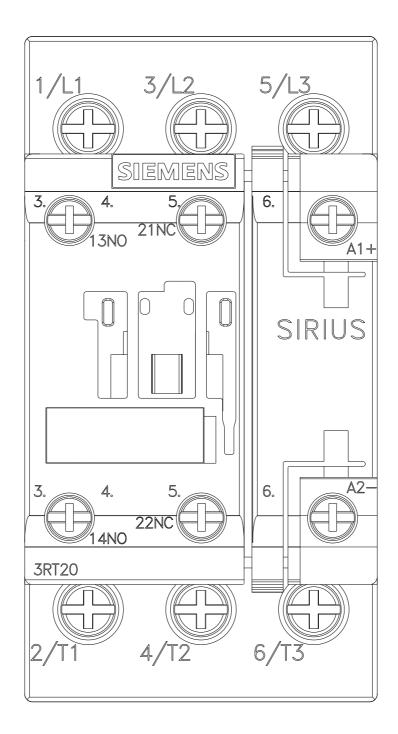
Characteristic: Tripping characteristics, I²t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1BG40/char

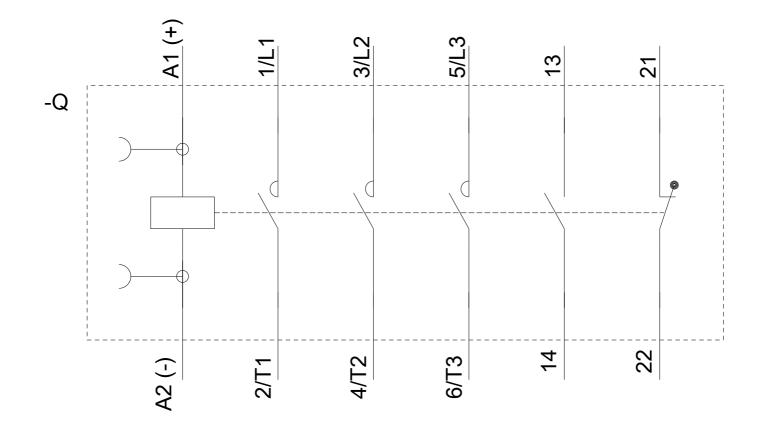
Further characteristics (e.g. electrical endurance, switching frequency) http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2028-1BG40&objecttype=14&gridview=view1











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