SIEMENS

Data sheet

3RT2024-1BG40



power contactor, AC-3 12 A, 5.5 kW / 400 V 1 NO + 1 NC, 125 V DC 3-pole, Size S0 screw terminal

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	1.5 W
• per pole	0.5 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
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 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 00:00:00
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
 ambient temperature during operation 	-25 +60 °C
 ambient temperature 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

operational current	-
at AC-1 at 400 V at ambient temperature 40 °C	40 A
• at AC-1	
	40.4
— up to 690 V at ambient temperature 40 °C rated value	40 A
— up to 690 V at ambient temperature 60 °C rated value	35 A
• at AC-3	
— at 400 V rated value	12 A
— at 500 V rated value	12 A
— at 690 V rated value	9 A
 at AC-4 at 400 V rated value 	12.5 A
 at AC-5a up to 690 V rated value 	35.2 A
 at AC-5b up to 400 V rated value at AC-6a 	9.9 A
 up to 230 V for current peak value n=20 rated value 	11.4 A
— up to 400 V for current peak value n=20 rated value	11.4 A
— up to 500 V for current peak value n=20 rated value	11.3 A
 up to 690 V for current peak value n=20 rated value at AC-6a 	9 A
 up to 230 V for current peak value n=30 rated value 	7.6 A
— up to 400 V for current peak value n=30 rated value	7.6 A
 — up to 500 V for current peak value n=30 rated value 	7.6 A
 — up to 690 V for current peak value n=30 rated value 	7.6 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	5.5 A
• at 690 V rated value	5.5 A
operational 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
	2.9 A
— at 440 V rated value	
— at 440 V rated value — at 600 V rated value	1.4 A
	1.4 A
— at 600 V rated value	1.4 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	5.5 kW				
• at AC-3					
— at 230 V rated value	3 kW				
— at 400 V rated value	5.5 kW				
— at 500 V rated value	5.5 kW				
— at 690 V rated value	7.5 kW				
operating power for approx. 200000 operating cycles					
at AC-4					
 at 400 V rated value 	2.6 kW				
• at 690 V rated value	4.6 kW				
operating apparent power at AC-6a					
 up to 230 V for current peak value n=20 rated value 	4.5 kV·A				
 up to 400 V for current peak value n=20 rated value 	7.8 kV·A				
 up to 500 V for current peak value n=20 rated value 	9.8 kV·A				
 up to 690 V for current peak value n=20 rated value 	10.7 kV·A				
operating apparent power at AC-6a					
 up to 230 V for current peak value n=30 rated value 	3 kV·A				
 up to 400 V for current peak value n=30 rated value 	5.2 kV·A				
 up to 500 V for current peak value n=30 rated value 	6.5 kV·A				
 up to 690 V for current peak value n=30 rated value 	9 kV·A				
short-time withstand current in cold operating state					
up to 40 °C					
 limited to 1 s switching at zero current maximum 	210 A; Use minimum cross-section acc. to AC-1 rated value				
 limited to 5 s switching at zero current maximum 	210 A; Use minimum cross-section acc. to AC-1 rated value				
Imited to 10 s switching at zero current maximum	162 A; Use minimum cross-section acc. to AC-1 rated value				
 limited to 30 s switching at zero current maximum 	103 A; Use minimum cross-section acc. to AC-1 rated value				
Imited to 60 s switching at zero current maximum	88 A; Use minimum cross-section acc. to AC-1 rated value				
no-load switching frequency	4 500 4 1				
• at DC	1 500 1/h				
operating frequency	4.000.4%				
• at AC-1 maximum	1 000 1/h				
• at AC-2 maximum	1 000 1/h				
• at AC-3 maximum	1 000 1/h				
• at AC-4 maximum	300 1/h				
Control circuit/ Control	20				
type of voltage of the control supply voltage	DC				
control supply voltage at DC	10E \/				
rated value operating range factor control supply voltage rated	125 V				
operating range factor control supply voltage rated value of magnet coil at DC					
• initial value	0.8				
full-scale value	1.1				

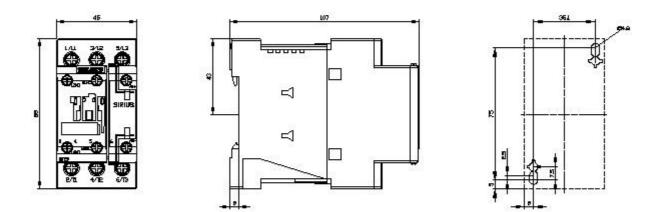
closing power of magnet coil at DC	5.9 W			
holding power of magnet coil at DC	5.9 W			
closing delay	5.3 W			
• at DC	50 170 ms			
opening delay				
• at DC	15 17.5 ms			
arcing time	_ 15 17.5 ms _ 10 10 ms			
control version of the switch operating mechanism	Standard A1 - A2			
Auxiliary circuit				
number of NC contacts for auxiliary contacts	1			
instantaneous contact				
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			
 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 3-phase AC motor				
• at 480 V rated value	11 A			
• at 600 V rated value	11 A			
yielded mechanical performance [hp]				
for single-phase AC motor				
— at 110/120 V rated value	1 hp			
— at 230 V rated value	2 hp			
• for 3-phase AC motor				
— at 200/208 V rated value	3 hp			
— at 220/230 V rated value	3 hp			
— at 460/480 V rated value	7.5 hp			
— at 575/600 V rated value	10 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: 63A (690V,100kA), aM: 32A (690V,100kA), BS88: 63A (415V,80kA)			
— with type of assignment 2 required	gG: 25A (690V,100kA), aM: 22A (690V,100kA), BS88: 25A (415V,80kA)			
 for short-circuit protection of the auxiliary switch 	gG: 10 A (500 V, 1 kA)			
required				
Installation/ mounting/ dimensions				

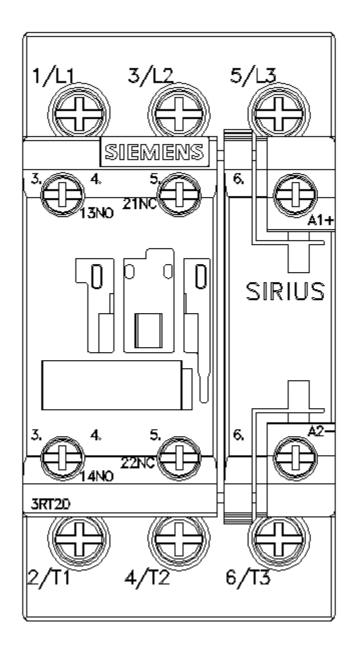
mounting position +180° robion possible or verical mounting surface; can be tilled forward and backward vty -22 ° or verical mounting surface; science ward snap-on mounting onto 35 mm standard mounting rail according to DNE Ne 00715 • side-by-side mounting Yes • height 86 mm width 45 mm • date-by-side mounting Yes • mounting onto 35 mm standard mounting rail according to DNE Ne 00715 Yes • height 86 mm width duby-side mounting 10 • width duby-side mounting 10 • width duby-side mounting 10 - forwards 10 mm - upwards 10 mm - dowards 10 mm					
fastening method screw and snap-on mounting onto 35 mm standard mounting rail action to 100 key side mounting height Yes height 86 mm depth 107 mm required spacing 100 mm - upwards 10 mm - upwards 10 mm - upwards 10 mm - downwards 10 mm - upwards 10 mm - forwards 10 mm - upwards 10 mm - upwards 10 mm - for auxiliary and control circuit screw-type terminals - otor auxiliary and control circuit screw-type terminals - otor auxiliary and control circuit screw-type terminals - otor auxiliary and control circuit screw-type terminals - at the side for main contacts - add 2x (1 25 mm?), 2x (2.5 10 mm²) - add	mounting position				
• side-hy-side mounting Yes height 85 mm • depth 95 mm • depth 107 mm required spacing 107 mm • with side-by-side mounting 107 mm • downards 10 mm - upwards 10 mm - upwards 10 mm - downards 10 mm - downards 10 mm - at the side 0 mm - for vards 10 mm - downards 10 mm - downards 10 mm - downards 10 mm - downards 10 mm - for vards 10 mm - downards 10 mm - downards 10 mm - for vards 10 mm - for vards 10 mm - downards 10 mm - for vards 10 mm - for varis current circuit screw-type terminals screw-type terminals screw-type terminals screw-type terminals screw-type terminals - for varis contacts screw-type terminals - olid Screw-type terminals - for varis contacts screw-type terminals - olid or stranded tr. 1.2 5 mm?), 2x (2.5 10 mm?) - solid	fastening method	screw and snap-on mounting onto 35 mm standard mounting rail			
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required spacing • with side-by-side mounting - Gowards 10 mm - upwards 10 mm - downwards 10 mm - onwards 10 mm - ontorstile 6 mm for auxiliary and contol circuit screw-type terminals of mains contacts 2 (1 2.5 mm ²), 2x (2.5 10 mm ²) - ofid auxiliary contacts					
required spacing • with side-by-side mounting - upwards - upwards - downwards 10 mm - downwards - for grounded parts - forwards - downwards - downwards - forwards - downwards - for live parts - downwards - downwards 10 mm - downwards - at the side - for axiliary and contro	depth	107 mm			
• with side-by-side mounting 10 mm forwards 10 mm downwards 10 mm downwards 10 mm downwards 10 mm forwards 10 mm downwards 10 mm downwards 10 mm forwards 10 mm forwards 10 mm downwards 50 mm for auxiliary contacts Screw-type terminals - for auxiliary contacts Screw-type terminals - or auxiliary contacts Screw-type terminals - or auxiliary contacts Screw-type terminals - or auxiliary contacts Screw-type terminals - for	•	-			
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- downwards 10 mm - at the side 0 mm - for grounded parts 10 mm - forwards 10 mm - upwards 10 mm - downwards 5 mm - downwards 5 mm - of main current circuit screw-type terminals • of main current circuit screw-type terminals • of main contacts - scild - of magnet coll 2x (1 2.5 mm ²), 2x (2.5 10 mm ²) - nold or stranded 2x (1 2.5 mm ²), 2x (2.5 10 mm ²) - nold or stranded 2x (1 2.5 mm ²), 2x (2.5 6 mm ²), 1x 10 mm ² - of adowareade with core end processing </td <td>— forwards</td> <td>10 mm</td>	— forwards	10 mm			
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- forwards 10 mm - upwards 10 mm - upwards 10 mm - downwards 10 mm - for live parts 10 mm - forwards 10 mm - upwards 10 mm - forwards 10 mm - upwards 10 mm - upwards 10 mm - downwards 10 mm - downwards 10 mm - downwards 0 mm - downwards 6 main current circuit screw-type terminals 5 corew-type terminals - for auxiliary contacts 5 crew-type terminals - solid 2x (1 2.5 mm ³), 2x (2.5 10 mm ³) - solid or stranded 2x (1 2.5 mm ³), 2x (2.5 10 mm ³) - solid or stranded 1 10 mm ² - solid or stranded 1 10 mm ² - solid or stranded 1 10 mm ³ - finely stranded	— at the side	0 mm			
- forwards 10 mm - upwards 10 mm - upwards 10 mm - downwards 10 mm - for live parts 10 mm - forwards 10 mm - upwards 10 mm - forwards 10 mm - upwards 10 mm - upwards 10 mm - downwards 10 mm - downwards 10 mm - downwards 0 mm - downwards 6 main current circuit screw-type terminals 5 corew-type terminals - for auxiliary contacts 5 crew-type terminals - solid 2x (1 2.5 mm ³), 2x (2.5 10 mm ³) - solid or stranded 2x (1 2.5 mm ³), 2x (2.5 10 mm ³) - solid or stranded 1 10 mm ² - solid or stranded 1 10 mm ² - solid or stranded 1 10 mm ³ - finely stranded	• for grounded parts				
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• for live parts - forwards 10 mm - upwards 10 mm - upwards 10 mm - downwards 10 mm - at the side 6 mm Connections/ Terminals • for main current circuit screw-type terminals • for auxiliary and control circuit screw-type terminals • of magnet coil Screw-type terminals • for main contacts Screw-type terminals • of magnet coil Screw-type terminals • for main contacts Screw-type terminals • for main contacts Screw-type terminals • a solid 2x (1 2.5 mm²), 2x (2.5 10 mm²) - solid cor stranded 2x (1 2.5 mm²), 2x (2.5 10 mm²) - solid cor stranded 2x (1 2.5 mm²), 2x (2.5 10 mm²) • solid cor stranded 1 10 mm² • solid cor stranded 1 10 mm² • solid cor stranded 0.5 2.5 mm² • solid cor stranded 0.5 2.5 mm² • solid cor stranded 0.5 2.5 mm² • for auxiliary contacts Screw-type terminals • solid cor stranded<	•	6 mm			
forwards10 mm upwards10 mm downwards0 mm downwards0 mm downwards6 mmConnections/ Terminalsscrew-type terminals for main current circuit- for main current circuitscrew-type terminals- at contactor for auxiliary contactsScrew-type terminals- of magnet collScrew-type terminals- of main contacts	— downwards	10 mm			
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- downwards10 mm- at the side6 mmConnections/ Terminalstype of electrical connection• for main current circuitscrew-type terminals• for auxiliary and control circuitscrew-type terminals• at contactor for auxiliary contactsScrew-type terminals• of magnet coilScrew-type terminals• for main contactsScrew-type terminals• of magnet coil2x (1 2.5 mm²), 2x (2.5 10 mm²)- solid2x (1 2.5 mm²), 2x (2.5 10 mm²)- solid or stranded2x (1 2.5 mm²), 2x (2.5 10 mm²)- solid or stranded2x (1 2.5 mm²), 2x (2.5 10 mm²)- solid or stranded2x (1 2.5 mm²), 2x (2.5 10 mm²)- solid or stranded2x (1 2.5 mm²), 2x (2.5 6 mm²), 1x 10 mm²- solid1 10 mm²- solid or stranded1 10 mm²- solid1 10 mm²- solid1 10 mm²- solid or stranded0.5 2.5 mm²- solid or stranded2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)- solid or stranded2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)- solid or stranded2x (20 1.5 mm²), 2x (0.75 2.5 mm²)- solid or stranded2x (20 1.5 mm²), 2x (0.75 2.5 mm²)- solid or stranded2x (20 1.5 mm²), 2x (0.75 2.5 mm²)- solid or stranded2x (20 1.5 mm²), 2x (0.75 2.5 mm²)-					
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Connections / Terminals type of electrical connection • for main current circuit • for auxiliary and control circuit • at contactor for auxiliary contacts • of magnet coil • of main current circuit • at contactor for auxiliary contacts • of magnet coil Screw-type terminals • for main contacts - solid - solid or stranded - solid or stranded - finely stranded with core end processing • stranded • stranded • stranded • stranded • finely stranded with core end processing • at AWG cables					
type of electrical connection for main current circuit for auxiliary and control circuit at contactor for auxiliary contacts of magnet coil type of connectable conductor cross-sections for main contacts solid or stranded at AWG cables for main contacts finely stranded with core end processing at add with core end processing at AWG cables for main contacts at add with core end processing be olid or stranded at add with core end processing at add with core end processing be olid or stranded at add with core end processing be add add add add add add add add add ad					
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proportion of dangerous failures	Safety related data				
proportion of dangerous failures	B10 value with high demand rate acc. to SN 31920	1 000 000			
	with low demand rate acc. to SN 31920	40 %			
• with high demand rate acc. to SN 31920 73 %	 with high demand rate acc. to SN 31920 	73 %			

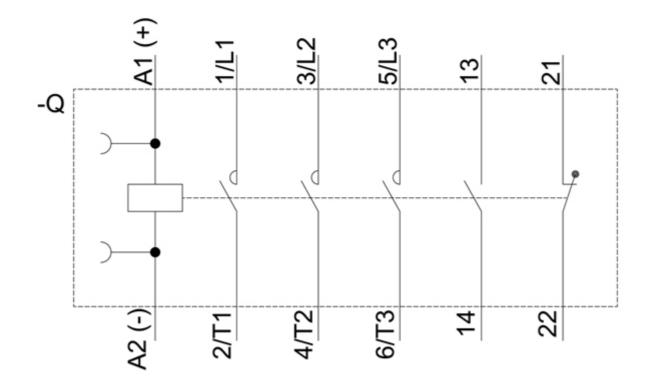
failure rate [FIT] with low	v demand rate acc.	to SN 31920	100 FIT			
product function						
 mirror contact acc 	• mirror contact acc. to IEC 60947-4-1					
T1 value for proof test IEC 61508	T1 value for proof test interval or service life acc. to IEC 61508		20 у			
protection class IP on	the front acc. to IE	EC 60529	IP20			
touch protection on th	e front acc. to IEC	60529	finger-safe, for ve	ertical contac	t from the front	
suitability for use safety-related switching OFF Yes						
Certificates/ approvals						
General Product App	roval					EMC
SP Car			KC	2	EHC	RCM
Declaration of Confor	mity	Test Certificat	es		Marine / Shipping	
<u>Miscellaneous</u>	CE EG-Konf.	<u>Special Tes</u> <u>Certificate</u>	<u>t Type</u> <u>Certificat</u> <u>Rep</u>	tes/Test	ABS	B U R E A U VERITAS
Marine / Shipping					other	
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Characteristic: Tripping characteristics, I²t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-1BG40/char

Further characteristics (e.g. electrical endurance, switching frequency) http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2024-1BG40&objecttype=14&gridview=view1







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