SIEMENS

Data sheet 3RT2024-1AP60

> power contactor, AC-3 12 A, 5.5 kW / 400 V 1 NO + 1 NC, 220 V AC, 50 Hz 240 V, 60 Hz, 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
• at AC in hot operating state per pole	0.5 W
Power loss [W] for rated value of the current without	7.9 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	

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Protection class IP	
	IP20
of the terminal	IP20
Shock resistance at rectangular impulse	
	7,5g / 5 ms, 4,7g / 10 ms
Shock resistance with sine pulse	
• at AC	11,8g / 5 ms, 7,4g / 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	
• maximum	2 000 m
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	
at AC-3 rated value maximum	690 V
Operating current	690 V
	690 V
Operating current ● at AC-1 at 400 V	690 V 40 A
Operating current ● at AC-1 at 400 V	
Operating current ■ at AC-1 at 400 V — at ambient temperature 40 °C rated value ■ at AC-1	
Operating current • at AC-1 at 400 V — at ambient temperature 40 °C rated value • at AC-1 — up to 690 V at ambient temperature 40 °C rated value	40 A
Operating current • at AC-1 at 400 V — at ambient temperature 40 °C rated value • at AC-1 — up to 690 V at ambient temperature 40 °C rated value — up to 690 V at ambient temperature 60 °C rated value	40 A 40 A
Operating current at AC-1 at 400 V at ambient temperature 40 °C rated value at AC-1 up to 690 V at ambient temperature 40 °C rated value up to 690 V at ambient temperature 60 °C rated value rated value	40 A 40 A 35 A
Operating current at AC-1 at 400 V at ambient temperature 40 °C rated value at AC-1 up to 690 V at ambient temperature 40 °C rated value up to 690 V at ambient temperature 60 °C rated value at AC-2 at 400 V rated value at AC-3	40 A 40 A 35 A
Operating current at AC-1 at 400 V at ambient temperature 40 °C rated value at AC-1 up to 690 V at ambient temperature 40 °C rated value up to 690 V at ambient temperature 60 °C rated value at AC-2 at 400 V rated value at AC-3 at 400 V rated value	40 A 40 A 35 A 12 A
Operating current • at AC-1 at 400 V — at ambient temperature 40 °C rated value • at AC-1 — up to 690 V at ambient temperature 40 °C rated value — up to 690 V at ambient temperature 60 °C rated value • at AC-2 at 400 V rated value • at AC-3 — at 400 V rated value — at 500 V rated value	40 A 40 A 35 A 12 A
Operating current at AC-1 at 400 V at ambient temperature 40 °C rated value at AC-1 up to 690 V at ambient temperature 40 °C rated value up to 690 V at ambient temperature 60 °C rated value at AC-2 at 400 V rated value at AC-3 at 400 V rated value at 500 V rated value at 690 V rated value at 690 V rated value	40 A 40 A 35 A 12 A 12 A
Operating current • at AC-1 at 400 V — at ambient temperature 40 °C rated value • at AC-1 — up to 690 V at ambient temperature 40 °C rated value — up to 690 V at ambient temperature 60 °C rated value • at AC-2 at 400 V 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	40 A 40 A 35 A 12 A 12 A 12 A 9 A
Operating current at AC-1 at 400 V at ambient temperature 40 °C rated value at AC-1 up to 690 V at ambient temperature 40 °C rated value up to 690 V at ambient temperature 60 °C rated value at AC-2 at 400 V 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 at AC-5a up to 690 V rated value	40 A 40 A 35 A 12 A 12 A 12 A 9 A 12.5 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	9 A
• at AC-6a	
 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
Operating 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
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 35 A
— at 110 V rated value	35 A
— at 110 V rated value— at 220 V rated value	35 A 5 A
— at 110 V rated value— at 220 V rated value— at 440 V rated value	35 A 5 A 1 A
 at 110 V rated value at 220 V rated value at 440 V rated value at 600 V rated value 	35 A 5 A 1 A
 at 110 V rated value at 220 V rated value at 440 V rated value at 600 V rated value with 3 current paths in series at DC-1 	35 A 5 A 1 A 0.8 A
 at 110 V rated value at 220 V rated value at 440 V rated value at 600 V rated value with 3 current paths in series at DC-1 at 24 V rated value 	35 A 5 A 1 A 0.8 A
 at 110 V rated value at 220 V rated value at 440 V rated value at 600 V rated value with 3 current paths in series at DC-1 at 24 V rated value at 110 V rated value 	35 A 5 A 1 A 0.8 A 35 A 35 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	0.007.
— 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	0.10 A
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	10 A
	0.6 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.0 A
Operating power ● at AC-2 at 400 V rated value	5.5 kW
• at AC-3	S.S RVV
	3 kW
— at 230 V rated value	5.5 kW
— at 400 V rated value	5.5 kW
— at 500 V rated value	7.5 kW
— at 690 V rated value	7.5 KVV
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 output 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 output 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
 limited 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
 limited to 60 s switching at zero current maximum 	88 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	1 000 1/h
• at AC-3 maximum	1 000 1/h
● at AC-4 maximum	300 1/h
Control circuit/ Control	
Type of voltage of the control supply voltage	AC
Control supply voltage at AC	
● at 50 Hz rated value	220 V
● at 60 Hz rated value	240 V
Operating range factor control supply voltage rated value of magnet coil at AC	
● at 50 Hz	0.8 1.1
● at 60 Hz	0.8 1.1
Apparent pick-up power of magnet coil at AC	
● at 50 Hz	68 V·A
● at 60 Hz	07.1/ 4
4 at 00 112	67 V·A
Inductive power factor with closing power of the coil	67 V·A
	0.72
Inductive power factor with closing power of the coil	
Inductive power factor with closing power of the coil • at 50 Hz	0.72
Inductive power factor with closing power of the coil at 50 Hz at 60 Hz	0.72
Inductive power factor with closing power of the coil • at 50 Hz • at 60 Hz Apparent holding power of magnet coil at AC	0.72 0.74

coil

● at 50 Hz	0.25
● at 60 Hz	0.28
Closing delay	
• at AC	9 38 ms
Opening delay	
• at AC	4 16 ms
Arcing time	10 10 ms
Control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	

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	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 three-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: 20A (690V,100kA), BS88: 25A (415V,80kA)
 for short-circuit protection of the auxiliary switch required 	gG: 10 A (500 V, 1 kA)

nstallation/ 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)		
 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	0.5 2.5 mm²		
single or multi-stranded	0.5 2.5 mm ²		
• finely stranded with core end processing	0.5 2.5 mm²		
Type of connectable conductor cross-sections			
• for auxiliary contacts	2v (0.5 1.5 mm²) 2v (0.75 2.5 mm²)		
— 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)		
at AWG conductors for auxiliary contacts AWG number as coded connectable conductor cross	2x (20 16), 2x (18 14)		
section			
• for main contacts	16 8		
• for auxiliary contacts	20 14		
·			
Safety related data			
B10 value	1 000 000		
• with high demand rate acc. to SN 31920 Proportion of dangerous failures	1 000 000		
with low demand rate acc. to SN 31920	40 %		
	73 %		
 with high demand rate acc. to SN 31920 	10 /0		

Failure rate [FIT]

Product function

• with low demand rate acc. to SN 31920

100 FIT

Mirror contact acc. to IEC 60947-4-1	Yes
T1 value for proof test interval or service life acc. to IEC 61508	20 y
Protection against electrical shock	finger-safe
Suitability for use safety-related switching OFF	Yes

Certificates/ approvals

General Product Approval

EMC











Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates		Marine / Ship- ping
Type Examination Certificate	Miscella EG-Konf.	aneous Type Test Certific-ates/Test Report	Special Test Certi-ficate	ABS

Marine / Shipping

other









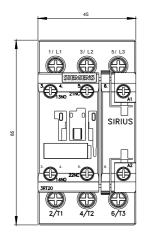


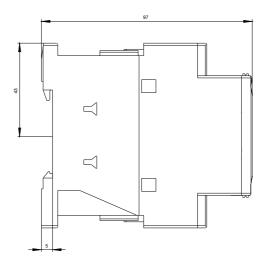
Confirmation

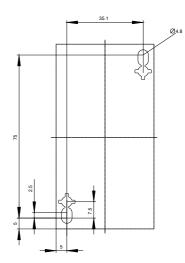
other

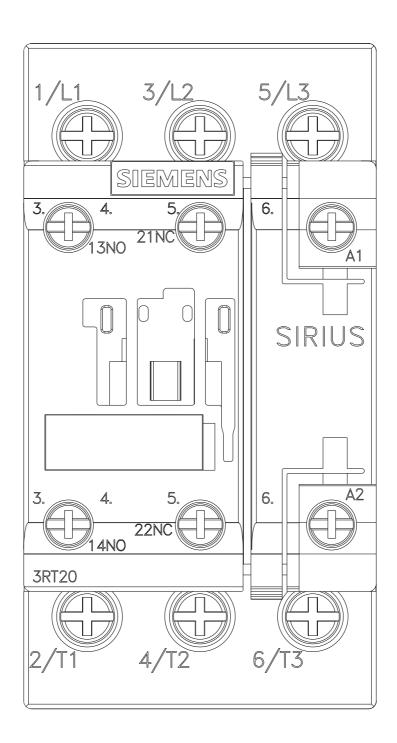


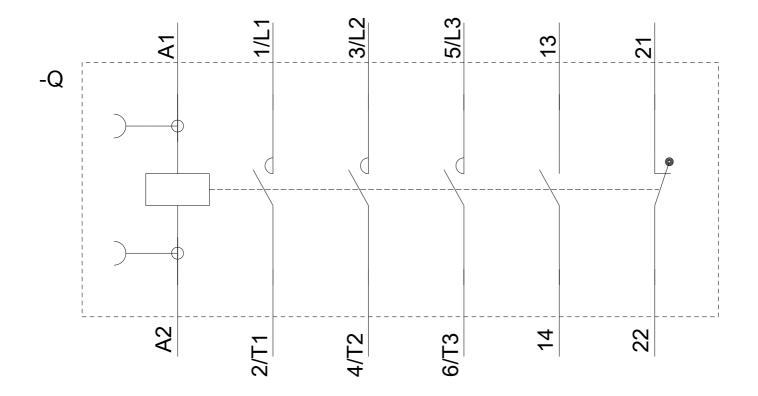
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