SIEMENS

Data sheet 3RT2046-1AP04

power contactor, AC-3 95 A, 45 kW / 400 V 2 NO + 2 NC, 230 V AC, 50 Hz 3-pole, 3 NO, Size S3 screw terminal



product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2

General technical data	
size of contactor	S3
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 	19.8 W
 at AC in hot operating state per pole 	6.6 W
power loss [W] for rated value of the current without	19 W
load current share typical	
surge voltage resistance	
 of main circuit rated value 	8 kV
 of auxiliary circuit rated value 	6 kV
maximum permissible voltage for safe isolation	
between coil and main contacts acc. to EN	690 V
60947-1	

protection class IP	
• on the front	IP20
of the terminal	IP00
shock resistance at rectangular impulse	
• at AC	6.7 g / 5 ms, 4.0 g / 10 ms
shock resistance with sine pulse	
• at AC	10.6 g / 5 ms, 6.3 g / 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	1 000 V
operating current	
• at AC-1 at 400 V	
— at ambient temperature 40 °C rated value	130 A
• at AC-1	
— up to 690 V at ambient temperature 40 $^{\circ}\text{C}$ rated value	130 A
 up to 690 V at ambient temperature 60 °C rated value 	110 A
— up to 1000 V at ambient temperature 40 °C rated value	70 A
— up to 1000 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	60 A
• at AC-3	
— at 400 V rated value	95 A
— at 500 V rated value	95 A
— at 690 V rated value	78 A
• at AC-4 at 400 V rated value	80 A

• at AC-5a up to 690 V rated value	114 A
• at AC-5b up to 400 V rated value	95 A
● at AC-6a	
 up to 230 V for current peak value n=20 rated value 	84.4 A
 up to 400 V for current peak value n=20 rated value 	84.4 A
 up to 500 V for current peak value n=20 rated value 	84.4 A
— up to 690 V for current peak value n=20 rated value	58 A
• at AC-6a	
 up to 230 V for current peak value n=30 rated value 	56.3 A
— up to 400 V for current peak value n=30 rated value	56.3 A
 up to 500 V for current peak value n=30 rated value 	56.3 A
 up to 690 V for current peak value n=30 rated value 	56.3 A
minimum cross-section in main circuit	
 at maximum AC-1 rated value 	50 mm ²
operating current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	42 A
• at 690 V rated value	30 A
operating current	
• at 1 current path at DC-1	
— at 24 V rated value	100 A
— at 110 V rated value	9 A
— at 220 V rated value	2 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.4 A
 with 2 current paths in series at DC-1 	
— at 24 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	10 A
— at 440 V rated value	1.8 A
— at 600 V rated value	1 A
• with 3 current paths in series at DC-1	
— at 24 V rated value	100 A
— at 110 V rated value	100 A

— at 440 V rated value	4.5 A
— at 600 V rated value	2.6 A
operating current	
• at 1 current path at DC-3 at DC-5	
— at 24 V rated value	40 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.15 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	100 A
— at 110 V rated value	100 A
— at 220 V rated value	7 A
— at 440 V rated value	0.42 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	100 A
— at 110 V rated value	100 A
— at 220 V rated value	35 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.35 A
operating power	
• at AC-2 at 400 V rated value	45 kW
• at AC-3	
— at 230 V rated value	22 kW
— at 400 V rated value	45 kW
— at 500 V rated value	55 kW
— at 690 V rated value	75 kW
operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	22 kW
• at 690 V rated value	27.4 kW
operating apparent output at AC-6a	
• up to 230 V for current peak value n=20 rated value	33 kV·A
• up to 400 V for current peak value n=20 rated value	58 kV·A
• up to 500 V for current peak value n=20 rated value	73 kV·A
• up to 690 V for current peak value n=20 rated value	69 kV·A

 up to 230 V for current peak value n=30 rated value 	22.4 kV·A
 up to 400 V for current peak value n=30 rated value 	39 kV·A
 up to 500 V for current peak value n=30 rated value 	48.7 kV·A
 up to 690 V for current peak value n=30 rated value 	67.3 kV·A
short-time withstand current in cold operating state	
up to 40 °C	
 limited to 1 s switching at zero current maximum 	1 725 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 5 s switching at zero current maximum 	1 297 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 10 s switching at zero current maximum 	946 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 30 s switching at zero current maximum 	610 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 60 s switching at zero current maximum 	486 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	900 1/h
• at AC-2 maximum	350 1/h
• at AC-3 maximum	850 1/h
● at AC-4 maximum	250 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	
• at 50 Hz rated value	230 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	
● at 50 Hz	296 V·A
inductive power factor with closing power of the coil	
● at 50 Hz	0.61
apparent holding power of magnet coil at AC	
● at 50 Hz	19 V·A
inductive power factor with the holding power of the coil	
	0.00

• at 50 Hz closing delay

0.38

• at AC	13 50 ms
opening delay	
• at AC	10 21 ms
arcing time	10 20 ms
control version of the switch operating mechanism	Standard A1 - A2

Auxiliary circuit	
number of NC contacts for auxiliary contacts	
• instantaneous contact	2
number of NO contacts for auxiliary contacts	
• instantaneous contact	2
operating current at AC-12 maximum	10 A
operating 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
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	6 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	96 A
• at 600 V rated value	77 A
yielded mechanical performance [hp]	
for single-phase AC motor	
— at 110/120 V rated value	10 hp
— at 230 V rated value	20 hp

 for three-phase AC motor 	
— at 200/208 V rated value	30 hp
— at 220/230 V rated value	30 hp
— at 460/480 V rated value	75 hp
— at 575/600 V rated value	75 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: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)
— with type of assignment 2 required	gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)
 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
mounting position	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	140 mm
width	70 mm
depth	195 mm
required spacing	
with side-by-side mounting	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
• for grounded parts	
— forwards	20 mm
— upwards	10 mm
— at the side	10 mm
— downwards	10 mm
• for live parts	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	10 mm

Connections/ Terminals

screw-type terminals Screw-type terminals Screw-type terminals Screw-type terminals 2x (2.5 35 mm²), 1x (2.5 50 mm²) 2x (10 1/0), 1x (10 2)
Screw-type terminals Screw-type terminals 2x (2.5 35 mm²), 1x (2.5 50 mm²)
Screw-type terminals 2x (2.5 35 mm²), 1x (2.5 50 mm²)
2x (2.5 35 mm²), 1x (2.5 50 mm²)
2x (10 1/0), 1x (10 2)
2.5 16 mm²
6 70 mm²
2.5 50 mm ²
0.5 2.5 mm²
0.5 2.5 mm ²
2x (0,5 1,5 mm²), 2x (0,75 2,5 mm²)
2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
2x (20 16), 2x (18 14)
40 0
10 2
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	
positively driven operation acc. to IEC 60947-5-	No	
T1 value for proof test interval or service life acc. to IEC 61508	20 y	
protection against electrical shock	finger-safe when touched vertically from front acc. to IEC 60529	

Certificates/ approvals

General Product Approval













Declaration o	f Conformity
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Test Certificates

Marine / Shipping





Special Test Certificate







Marine / Shipping









Confirmation

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=3RT2046-1AP04

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1AP04

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AP04

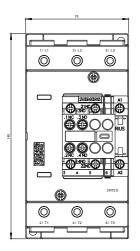
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-1AP04&lang=en

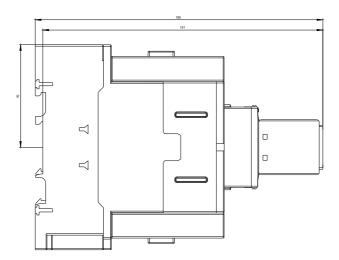
Characteristic: Tripping characteristics, I2t, Let-through current

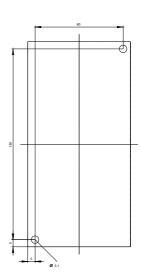
https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AP04/char

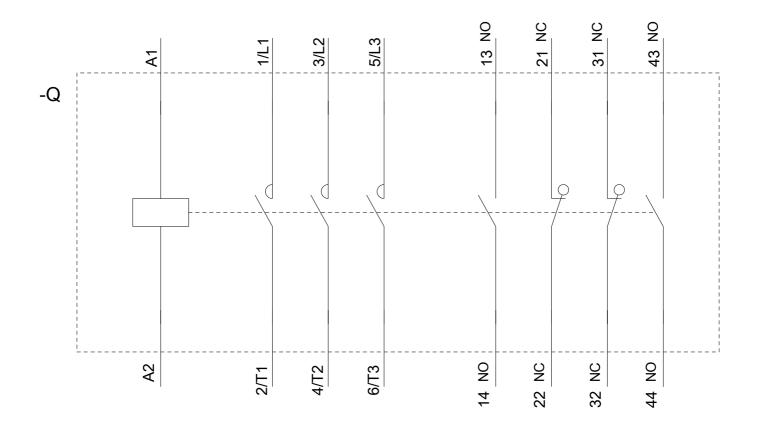
Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-1AP04&objecttype=14&gridview=view1









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