SIEMENS

Data sheet 3RT2046-3AP60

power contactor, AC-3 95 A, 45 kW / 400 V 1 NO + 1 NC, 220 V AC, 50 Hz 240 V/60 Hz 3-pole, 3 NO, Size S3 Spring-type 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	22 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 °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 $^{\circ}\text{C}$ rated value	70 A
— up to 1000 V at ambient temperature 60 °C rated value	60 A
• at AC-3	
1.400.1/. 1 . 1 . 1	
— at 400 V rated value	95 A
— at 400 V rated value— at 500 V rated value	95 A 95 A
— at 500 V rated value	95 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	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	326 V·A
● at 60 Hz	326 V·A
inductive power factor with closing power of the coil	
● at 50 Hz	0.62
● at 50 Hz ● at 60 Hz	0.62 0.55

● at 50 Hz	22 V·A
● at 60 Hz	22 V·A
inductive power factor with the holding power of the coil	
● at 50 Hz	0.36
● at 60 Hz	0.4
closing delay	
• 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
A 11 1 - 16	

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	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	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	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

• G: 10 A (500 V, 1 kA)

• for short-circuit protection of the auxiliary switch required

Installation/ mounting/ dimensions mounting position +/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting screw and snap-on mounting onto 35 mm standard mounting rail mounting type according to DIN EN 60715 • side-by-side mounting height 140 mm width 70 mm depth 152 mm required spacing • with side-by-side mounting 20 mm - forwards 10 mm - upwards 10 mm - downwards - at the side 0 mm • for grounded parts 20 mm - forwards — upwards 10 mm

10 mm

- at the side

— downwards	10 mm
• for live parts	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	10 mm

— at the side	10 mm
Connections/ Terminals	
type of electrical connection	
• for main current circuit	screw-type terminals
 for auxiliary and control current circuit 	spring-loaded terminals
 at contactor for auxiliary contacts 	Spring-type terminals
• of magnet coil	Spring-type terminals
type of connectable conductor cross-sections	
• for main contacts	
 finely stranded with core end processing 	2x (2.5 35 mm²), 1x (2.5 50 mm²)
 at AWG conductors for main contacts 	2x (10 1/0), 1x (10 2)
connectable conductor cross-section for main	
contacts	
• solid	2.5 16 mm²
• stranded	6 70 mm²
 finely stranded with core end processing 	2.5 50 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
 finely stranded without core end processing 	0.5 2.5 mm²
 type of connectable conductor cross-sections for auxiliary contacts 	
 single or multi-stranded 	2x (0.5 2.5 mm²)
 finely stranded with core end processing 	2x (0.5 1.5 mm²)
 finely stranded without core end processing 	2x (0.5 2.5 mm²)
 type of connectable conductor cross-sections at AWG conductors for auxiliary contacts 	2x (20 16)
AWG number as coded connectable conductor cross section	
• for main contacts	10 2
• 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
 positively driven operation acc. to IEC 60947-5- 	No
1	
T1 value for proof test interval or service life acc. to	20 y
IEC 61508	
protection against electrical shock	finger-safe when touched vertically from front acc. to IEC 60529
suitability for use safety-related switching OFF	Yes

Certificates/ approvals

General Product Approval

KC







EMC

Declaration of Conformity Test Certificates

Marine / Shipping



Miscellaneous

Type Test Certificates/Test Report

Special Test Certificate





Marine / Shipping

other Railway









Confirmation

Vibration and Shock

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=3RT2046-3AP60

Cax online generator

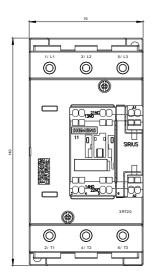
 $\underline{\text{http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en\&mlfb=3RT2046-3AP60}$

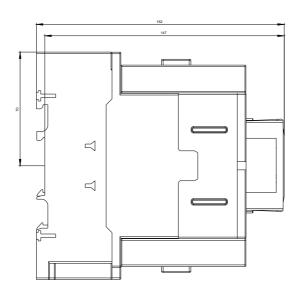
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

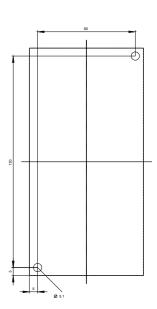
https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-3AP60

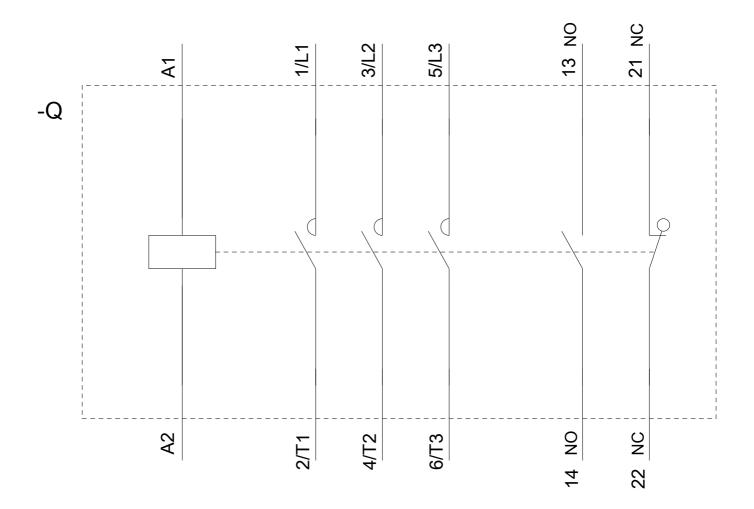
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-3AP60&lang=en

Characteristic: Tripping characteristics, I2t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-3AP60/char









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