



power contactor, AC-3 95 A, 45 kW / 400 V 1 NO + 1 NC, 20-33 V AC/DC
3-pole, 3 NO, Size S3 screw terminal integrated varistor

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
• per pole	6.6 W
power loss [W] for rated value of the current without load current share typical	3.5 W
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 60947-1	690 V
shock resistance at rectangular impulse	
• at AC	6.7 g / 5 ms, 4.0 g / 10 ms
• at DC	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
• at DC	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 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
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

<ul style="list-style-type: none"> operating voltage at AC-3 rated value maximum 	1 000 V
operational current	
<ul style="list-style-type: none"> at AC-1 at 400 V at ambient temperature 40 °C rated value 	130 A
<ul style="list-style-type: none"> at AC-1 <ul style="list-style-type: none"> up to 690 V at ambient temperature 40 °C rated value 	130 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> up to 690 V at ambient temperature 60 °C rated value 	110 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> up to 1000 V at ambient temperature 40 °C rated value 	70 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> up to 1000 V at ambient temperature 60 °C rated value 	60 A
<ul style="list-style-type: none"> at AC-3 <ul style="list-style-type: none"> at 400 V rated value 	95 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 500 V rated value 	95 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 690 V rated value 	78 A
<ul style="list-style-type: none"> at AC-4 at 400 V rated value 	80 A
<ul style="list-style-type: none"> at AC-5a up to 690 V rated value 	114 A
<ul style="list-style-type: none"> at AC-5b up to 400 V rated value 	95 A
<ul style="list-style-type: none"> at AC-6a <ul style="list-style-type: none"> up to 230 V for current peak value n=20 rated value 	84.4 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> up to 400 V for current peak value n=20 rated value 	84.4 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> up to 500 V for current peak value n=20 rated value 	84.4 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> up to 690 V for current peak value n=20 rated value 	58 A
<ul style="list-style-type: none"> at AC-6a <ul style="list-style-type: none"> up to 230 V for current peak value n=30 rated value 	56.3 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> up to 400 V for current peak value n=30 rated value 	56.3 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> up to 500 V for current peak value n=30 rated value 	56.3 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> 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
operational current for approx. 200000 operating cycles at AC-4	
<ul style="list-style-type: none"> at 400 V rated value 	42 A
<ul style="list-style-type: none"> at 690 V rated value 	30 A
operational current	
<ul style="list-style-type: none"> at 1 current path at DC-1 <ul style="list-style-type: none"> at 24 V rated value 	100 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 110 V rated value 	9 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 220 V rated value 	2 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 440 V rated value 	0.6 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 600 V rated value 	0.4 A
<ul style="list-style-type: none"> with 2 current paths in series at DC-1 <ul style="list-style-type: none"> at 24 V rated value 	100 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 110 V rated value 	100 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 220 V rated value 	10 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 440 V rated value 	1.8 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 600 V rated value 	1 A
<ul style="list-style-type: none"> with 3 current paths in series at DC-1 <ul style="list-style-type: none"> at 24 V rated value 	100 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 110 V rated value 	100 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 220 V rated value 	80 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> at 440 V rated value 	4.5 A

— at 600 V rated value	2.6 A
operational current	
<ul style="list-style-type: none"> at 1 current path at DC-3 at DC-5 <ul style="list-style-type: none"> at 24 V rated value at 110 V rated value at 220 V rated value at 440 V rated value at 600 V rated value with 2 current paths in series at DC-3 at DC-5 <ul style="list-style-type: none"> at 24 V rated value 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-3 at DC-5 <ul style="list-style-type: none"> at 24 V rated value at 110 V rated value at 220 V rated value at 440 V rated value at 600 V rated value 	40 A 2.5 A 1 A 0.15 A 0.06 A 100 A 100 A 7 A 0.42 A 0.16 A 100 A 100 A 35 A 0.8 A 0.35 A
operating power	
<ul style="list-style-type: none"> at AC-2 at 400 V rated value at AC-3 <ul style="list-style-type: none"> at 230 V rated value at 400 V rated value at 500 V rated value at 690 V rated value 	45 kW 22 kW 45 kW 55 kW 75 kW
operating power for approx. 200000 operating cycles at AC-4	
<ul style="list-style-type: none"> at 400 V rated value at 690 V rated value 	22 kW 27.4 kW
operating apparent power at AC-6a	
<ul style="list-style-type: none"> up to 230 V for current peak value n=20 rated value up to 400 V for current peak value n=20 rated value up to 500 V for current peak value n=20 rated value up to 690 V for current peak value n=20 rated value 	33 kV·A 58 kV·A 73 kV·A 69 kV·A
operating apparent power at AC-6a	
<ul style="list-style-type: none"> up to 230 V for current peak value n=30 rated value up to 400 V for current peak value n=30 rated value up to 500 V for current peak value n=30 rated value up to 690 V for current peak value n=30 rated value 	22.4 kV·A 39 kV·A 48.7 kV·A 67.3 kV·A
short-time withstand current in cold operating state up to 40 °C	
<ul style="list-style-type: none"> limited to 1 s switching at zero current maximum limited to 5 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 60 s switching at zero current maximum 	1 725 A; Use minimum cross-section acc. to AC-1 rated value 1 297 A; Use minimum cross-section acc. to AC-1 rated value 946 A; Use minimum cross-section acc. to AC-1 rated value 610 A; Use minimum cross-section acc. to AC-1 rated value 486 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
<ul style="list-style-type: none"> at AC at DC 	1 000 1/h 1 000 1/h
operating frequency	
<ul style="list-style-type: none"> at AC-1 maximum at AC-2 maximum at AC-3 maximum at AC-4 maximum 	900 1/h 350 1/h 850 1/h 250 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC	

<ul style="list-style-type: none"> • at 50 Hz rated value • at 60 Hz rated value 	20 ... 33 V 20 ... 33 V
control supply voltage at DC	
<ul style="list-style-type: none"> • rated value 	20 ... 33 V
operating range factor control supply voltage rated value of magnet coil at DC	
<ul style="list-style-type: none"> • initial value • full-scale value 	0.8 1.1
operating range factor control supply voltage rated value of magnet coil at AC	
<ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	0.8 ... 1.1 0.8 ... 1.1
design of the surge suppressor	with varistor
inrush current peak	6.5 A
duration of inrush current peak	50 µs
locked-rotor current mean value	3.2 A
locked-rotor current peak	6.5 A
duration of locked-rotor current	150 ms
holding current mean value	75 mA
apparent pick-up power of magnet coil at AC	
<ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	151 V·A 151 V·A
apparent holding power of magnet coil at AC	
<ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	3.5 V·A 3.5 V·A
closing power of magnet coil at DC	76 W
holding power of magnet coil at DC	2.7 W
closing delay	
<ul style="list-style-type: none"> • at DC 	50 ... 70 ms
opening delay	
<ul style="list-style-type: none"> • at DC 	38 ... 57 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	1
number of NO contacts for auxiliary contacts instantaneous contact	1
operational current at AC-12 maximum	10 A
operational current at AC-15	
<ul style="list-style-type: none"> • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value 	6 A 3 A 2 A 1 A
operational current at DC-12	
<ul style="list-style-type: none"> • at 24 V rated value • at 48 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value • at 600 V rated value 	10 A 6 A 6 A 3 A 2 A 1 A 0.15 A
operational current at DC-13	
<ul style="list-style-type: none"> • at 24 V rated value • at 48 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value 	10 A 2 A 2 A 1 A 0.9 A 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	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 3-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)
Installation/ mounting/ dimensions	
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
fastening method	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
• side-by-side mounting	Yes
height	140 mm
width	70 mm
depth	152 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	
type of electrical connection	
• for main current circuit	screw-type terminals
• for auxiliary and control 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	
— finely stranded with core end processing	2x (2.5 ... 35 mm²), 1x (2.5 ... 50 mm²)

<ul style="list-style-type: none"> at AWG cables for main contacts 	2x (10 ... 1/0), 1x (10 ... 2)
connectable conductor cross-section for main contacts <ul style="list-style-type: none"> solid stranded finely stranded with core end processing 	2.5 ... 16 mm ² 6 ... 70 mm ² 2.5 ... 50 mm ²
connectable conductor cross-section for auxiliary contacts <ul style="list-style-type: none"> solid or stranded finely stranded with core end processing 	0.5 ... 2.5 mm ² 0.5 ... 2.5 mm ²
type of connectable conductor cross-sections <ul style="list-style-type: none"> for auxiliary contacts <ul style="list-style-type: none"> — solid or stranded — finely stranded with core end processing at AWG cables for auxiliary contacts 	2x (0,5 ... 1,5 mm ²), 2x (0,75 ... 2,5 mm ²) 2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²) 2x (20 ... 16), 2x (18 ... 14)
<ul style="list-style-type: none"> AWG number as coded connectable conductor cross section for main contacts AWG number as coded connectable conductor cross section for auxiliary contacts 	10 ... 2 20 ... 14

Safety related data	
B10 value with high demand rate acc. to SN 31920	1 000 000
proportion of dangerous failures <ul style="list-style-type: none"> with low demand rate acc. to SN 31920 with high demand rate acc. to SN 31920 	40 % 73 %
failure rate [FIT] with low demand rate acc. to SN 31920	100 FIT
product function <ul style="list-style-type: none"> mirror contact acc. to IEC 60947-4-1 positively driven operation acc. to IEC 60947-5-1 	Yes No
T1 value for proof test interval or service life acc. to IEC 61508	20 y
protection class IP on the front acc. to IEC 60529	IP20
touch protection on the front acc. to IEC 60529	finger-safe, for vertical contact from the front
suitability for use safety-related switching OFF	Yes

Certificates/ approvals	
General Product Approval	EMC



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Declaration of Conformity	Test Certificates	Marine / Shipping
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[Miscellaneous](#)



EG-Konf.

[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)



Marine / Shipping	other
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[Confirmation](#)

[Confirmation](#)

Railway

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=3RT2046-1NB30>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1NB30>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1NB30>

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-1NB30&lang=en

Characteristic: Tripping characteristics, I^2t , Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1NB30/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-1NB30&objecttype=14&gridview=view1>



