SIEMENS

Data sheet

3RT1054-2XB46-0LA2



power contactor, AC-3e/AC-3 115 A, 55 kW / 400 V, Uc: 24 V DC x (0.7-1.25) PLC input 24-110 V DC 3-pole, auxiliary contacts 2 NO + 2 NC drive: electronic main circuit: busbar control and auxiliary circuit: spring-loaded terminal

product brand name	SIRIUS
product designation	Power contactor
design of the product	With extended operating range
product type designation	3RT1
General technical data	
size of contactor	S6
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 	21 W
 at AC in hot operating state per pole 	7 W
 without load current share typical 	2.8 W
insulation voltage	
 of main circuit with degree of pollution 3 rated value 	1 000 V
 of auxiliary circuit with degree of pollution 3 rated value 	500 V
surge voltage resistance	
 of main circuit rated value 	8 kV
 of auxiliary circuit rated value 	6 kV
maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1	690 V
shock resistance for railway applications according to EN 61373	Category 1, Class B
shock resistance at rectangular impulse	
• at DC	8,5g / 5 ms, 4,2g / 10 ms
shock resistance with sine pulse	
• at DC	13,4g / 5 ms, 6,5g / 10 ms
mechanical service life (operating 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 according to IEC 81346-2	Q
Substance Prohibitance (Date)	09/06/2016
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
during operation	-40 +70 °C
during storage	-55 +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %

Main circuit				
number of poles for main current circuit	3			
number of NO contacts for main contacts	3			
number of NC contacts for main contacts	0			
operating voltage				
• at AC-3 rated value maximum	1 000 V			
• at AC-3e rated value maximum	1 000 V			
operational current				
 at AC-1 at 400 V at ambient temperature 40 °C rated value at AC-1 	160 A			
 up to 690 V at ambient temperature 40 °C rated value 	160 A			
— up to 690 V at ambient temperature 60 °C rated value	140 A			
— up to 1000 V at ambient temperature 60 °C rated value	80 A			
• at AC-2 at 400 V rated value	115 A			
• at AC-3				
— at 400 V rated value	115 A			
— at 500 V rated value	115 A			
— at 690 V rated value	115 A			
— at 1000 V rated value	53 A			
• at AC-3e				
— at 400 V rated value	115 A			
— at 500 V rated value	115 A			
— at 690 V rated value	115 A			
— at 1000 V rated value	53 A			
• at AC-4 at 400 V rated value	97 A			
minimum cross-section in main circuit				
 at maximum AC-1 rated value 	70 mm ²			
at maximum Ith rated value	70 mm ²			
operational current for approx. 200000 operating cycles at AC-4				
at 400 V rated value	54 A			
at 690 V rated value	48 A			
operational current				
• at 1 current path at DC-1				
— at 24 V rated value	160 A			
— at 110 V rated value	18 A			
— at 220 V rated value	3.4 A			
— at 440 V rated value	0.8 A			
— at 600 V rated value	0.5 A			
 with 2 current paths in series at DC-1 				
— at 24 V rated value	160 A			
— at 110 V rated value	160 A			
— at 220 V rated value	20 A			
— at 440 V rated value	3.2 A			
— at 600 V rated value	1.6 A			
 with 3 current paths in series at DC-1 				
— at 24 V rated value	160 A			
— at 110 V rated value	160 A			
— at 220 V rated value	160 A			
— at 440 V rated value	11.5 A			
— at 600 V rated value	4 A			
 at 1 current path at DC-3 at DC-5 				
— at 24 V rated value	160 A			
— at 110 V rated value	2.5 A			
— at 220 V rated value	0.6 A			
— at 440 V rated value	0.17 A			
— at 600 V rated value	0.12 A			
 with 2 current paths in series at DC-3 at DC-5 				

— at 24 V rated value	160 A				
— at 110 V rated value	160 A				
— at 220 V rated value	2.5 A				
— at 440 V rated value	0.65 A				
— at 600 V rated value	0.37 A				
 with 3 current paths in series at DC-3 at DC-5 					
— at 24 V rated value	160 A				
— at 110 V rated value	160 A				
— at 220 V rated value	160 A				
— at 440 V rated value	1.4 A				
— at 600 V rated value	0.75 A				
operating power					
at AC-2 at 400 V rated value	55 kW				
• at AC-3					
— at 230 V rated value	37 kW				
— at 400 V rated value	55 kW				
— at 500 V rated value	75 kW				
— at 690 V rated value — at 1000 V rated value	110 kW 75 kW				
• at AC-3e	27 140/				
— at 230 V rated value	37 kW				
— at 400 V rated value	55 kW				
— at 500 V rated value	75 kW				
— at 690 V rated value	110 kW				
— at 1000 V rated value	75 kW				
operating power for approx. 200000 operating cycles at AC- 4					
at 400 V rated value	29 kW				
at 690 V rated value	48 kW				
short-time withstand current in cold operating state up to					
40 °C					
 limited to 1 s switching at zero current maximum 	2 565 A; Use minimum cross-section acc. to AC-1 rated value				
 limited to 5 s switching at zero current maximum 	1 654 A; Use minimum cross-section acc. to AC-1 rated value				
 limited to 10 s switching at zero current maximum 	1 170 A; Use minimum cross-section acc. to AC-1 rated value				
 limited to 30 s switching at zero current maximum 	729 A; Use minimum cross-section acc. to AC-1 rated value				
 limited to 60 s switching at zero current maximum 	572 A; Use minimum cross-section acc. to AC-1 rated value				
no-load switching frequency					
• at DC	1 000 1/h				
operating frequency					
• at AC-1 maximum	800 1/h				
• at AC-2 maximum	400 1/h				
• at AC-2 maximum	400 1/h				
at AC-2 maximumat AC-3 maximum	400 1/h 1 000 1/h				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum 	400 1/h 1 000 1/h 1 000 1/h				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum 	400 1/h 1 000 1/h 1 000 1/h 400 1/h				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum 	400 1/h 1 000 1/h 1 000 1/h 400 1/h				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum operating frequency 	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum operating frequency at DC-1 maximum 	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum operating frequency at DC-1 maximum at DC-3 maximum at DC-5 maximum 	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum at AC-4 maximum at DC-1 maximum at DC-3 maximum at DC-5 maximum Ratings for railway applications 	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum at AC-4 maximum at DC-4 maximum at DC-1 maximum at DC-3 maximum at DC-5 maximum at DC-5 maximum Ratings for railway applications thermal current (Ith) up to 690 V 	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum at AC-4 maximum at DC-1 maximum at DC-1 maximum at DC-3 maximum at DC-5 maximum<td>400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h 500 1/h</td>	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h 500 1/h				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum at DC-1 maximum at DC-1 maximum at DC-3 maximum at DC-5 maximum<td>400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h</td>	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum at AC-4 maximum at DC-1 maximum at DC-1 maximum at DC-3 maximum at DC-5 maximum up to 70 °C according to IEC 60077 rated value up to 70 °C according to IEC 60077 rated value Control circuit/ Control 	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h 500 1/h 160 A 120 A				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum at AC-4 maximum at DC-1 maximum at DC-3 maximum at DC-3 maximum at DC-5 maximum<td>400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h 160 A 120 A DC</td>	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h 160 A 120 A DC				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum at DC-1 maximum at DC-1 maximum at DC-3 maximum at DC-5 maximum<td>400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h 500 1/h 160 A 120 A</td>	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h 500 1/h 160 A 120 A				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum at AC-4 maximum at DC-1 maximum at DC-1 maximum at DC-5 maximum at DC-6 maximum at DC-7 maximum at	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h 500 1/h 500 1/h 500 1/h 500 1/h 500 1/h 160 A 120 A				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum at DC-1 maximum at DC-1 maximum at DC-5 maximum at DC-6 maximum at DC-7 maximum a	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h 160 A 120 A DC				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum at DC-1 maximum at DC-1 maximum at DC-5 maximum<td>400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h 500 1/h 500 1/h 500 1/h 500 1/h 500 1/h 160 A 120 A</td>	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h 500 1/h 500 1/h 500 1/h 500 1/h 500 1/h 160 A 120 A				
 at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum at DC-1 maximum at DC-1 maximum at DC-5 maximum at DC-6 maximum at DC-7 maximum a	400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h 500 1/h 500 1/h 500 1/h 500 1/h 500 1/h 160 A 120 A				

● full-scale value	1.25
consumed current at PLC-control input according to IEC	2 mA
60947-1 maximum	
voltage at PLC-control input	24 110 V
design of the surge suppressor	with varistor
closing power of magnet coil at DC	320 W
holding power of magnet coil at DC	2.8 W
closing delay	
• at DC	35 75 ms
opening delay	
• at DC	80 90 ms
arcing time	10 15 ms
control version of the switch operating mechanism	PLC-IN or Standard A1 - A2 (adjustable)
Auxiliary circuit	
number of NC contacts for auxiliary contacts	2
 instantaneous contact 	2
number of NO contacts for auxiliary contacts	2
instantaneous contact	2
operational current at AC-12 maximum	10 A
operational 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
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 	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
UL/CSA ratings	
full-load current (FLA) for 3-phase AC motor	404.4
at 480 V rated value	124 A
• at 600 V rated value	125 A
yielded mechanical performance [hp]	
 for single-phase AC motor at 230 V rated value 	25 hp
— at 230 V rated value	25 hp
 for 3-phase AC motor — at 200/208 V rated value 	40 hp
	40 hp 50 hp
— at 220/230 V rated value — at 460/480 V rated value	50 hp 100 hp
— at 575/600 V rated value	125 hp
contact rating of auxiliary contacts according to UL	A600 / Q600
Short-circuit protection	
product function short circuit protection	No
design of the fuse link	
for short-circuit protection of the main circuit	
with type of coordination 1 required	gG: 355 A (690 V, 100 kA)
- with type of assignment 2 required	gG: 315 A (690 V, 100 kA), aM: 200 A (690 V, 50 kA), BS88: 250 A (415 V, 50
	kA)
• for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)
Installation/ mounting/ dimensions	

mounting position	with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back
fastening method	screw fixing
side-by-side mounting	Yes
height	172 mm
width	120 mm
depth	170 mm
required spacing	
 with side-by-side mounting 	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	10 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 	spring-loaded terminals
width of connection bar	17 mm
thickness of connection bar	3 mm
diameter of holes	9 mm
number of holes	1
type of connectable conductor cross-sections for main contacts	
solid or stranded	2x (25 120 mm²)
type of connectable conductor cross-sections	
for auxiliary contacts	
— solid	2x (0.25 2.5 mm ²)
— solid or stranded	2x (0,25 2,5 mm ²)
— finely stranded with core end processing	2x (0.25 1.5 mm ²)
— finely stranded without core end processing	2x (0.25 2.5 mm ²)
for AWG cables for auxiliary contacts	2x (24 14)
AWG number as coded connectable conductor cross section	
for auxiliary contacts	24 14
Safety related data	
product function	
mirror contact according to IEC 60947-4-1	Yes
 positively driven operation according to IEC 60947-5-1 	No
B10 value with high demand rate according to SN 31920	1 000 000
T1 value for proof test interval or service life according to IEC 61508	20 a
protection class IP on the front according to IEC 60529	IP00; IP20 with box terminal/cover
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front with box terminal/cover
Communication/ Protocol	
product function bus communication	No
•	
Certificates/ approvals General Product Approval	

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EMC	Functional Safety/Safety of Ma- chinery	Declaration of Conformity		Test Certificates	
RCM	Type Examination Cer- tificate	UK CA	CE EG-Konf.	Special Test Certific- ate	Type Test Certific- ates/Test Report
other			Railway		
Confirmation	<u>Miscellaneous</u>	Miscellaneous	Type Test Certific- ates/Test Report	<u>Special Test Certific-</u> <u>ate</u>	Vibration and Shock

Siemens has decided to exit the Russian market (see here).

https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

Information on the packaging

https://support.industry.siemens.com/cs/ww/en/view/109813875

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=3RT1054-2XB46-0LA2

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1054-2XB46-0LA2

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT1054-2XB46-0LA2

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

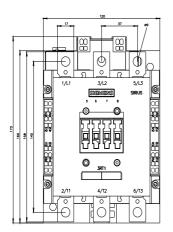
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT1054-2XB46-0LA2&lang=en

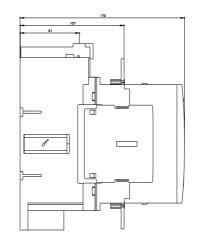
Characteristic: Tripping characteristics, I²t, Let-through current

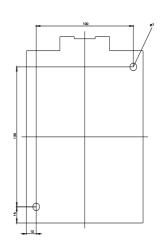
https://support.industry.siemens.com/cs/ww/en/ps/3RT1054-2XB46-0LA2/char

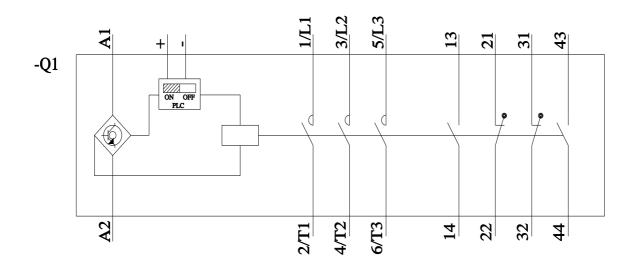
Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT1054-2XB46-0LA2&objecttype=14&gridview=view1









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