3RT1054-3XB46-0LA2

## **Data sheet**



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: box terminal 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		
<ul> <li>function module for communication</li> </ul>	No	
auxiliary switch	Yes	
power loss [W] for rated value of the current		
<ul> <li>at AC in hot operating state</li> </ul>	21 W	
<ul> <li>at AC in hot operating state per pole</li> </ul>	7 W	
<ul> <li>without load current share typical</li> </ul>	2.8 W	
insulation voltage		
<ul> <li>of main circuit with degree of pollution 3 rated value</li> </ul>	1 000 V	
<ul> <li>of auxiliary circuit with degree of pollution 3 rated value</li> </ul>	500 V	
surge voltage resistance		
<ul> <li>of main circuit rated value</li> </ul>	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	
<ul> <li>of the contactor with added electronically optimized auxiliary switch block typical</li> </ul>	5 000 000	
<ul> <li>of the contactor with added auxiliary switch block typical</li> </ul>	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		
<ul> <li>during operation</li> </ul>	-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 %	

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	160 A
<ul> <li>at AC-1         — up to 690 V at ambient temperature 40 °C rated value     </li> </ul>	160 A
— up to 690 V at ambient temperature 60 °C rated value	140 A
— up to 1000 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	80 A
<ul><li>at AC-2 at 400 V rated value</li><li>at AC-3</li></ul>	115 A
— at 400 V rated value	115 A
— at 500 V rated value	115 A
— at 690 V rated value	115 A
<ul><li>— at 1000 V rated value</li><li>• at AC-3e</li></ul>	53 A
— 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 mm²
at maximum Ac-Trated value     at maximum lth rated value	70 mm <sup>2</sup>
operational current for approx. 200000 operating cycles at	70 111111
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 110 V rated value  — at 220 V rated value	20 A
— at 220 V rated value  — at 440 V rated value	3.2 A
— at 440 V rated value  — at 600 V rated value	3.2 A 1.6 A
	1.7 /
with 3 current paths in series at DC-1     at 24 V rated value.	160 A
— at 24 V rated value — at 110 V rated value	160 A
	160 A
— at 220 V rated value	
— 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	400.4
— 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
<ul> <li>with 2 current paths in series at DC-3 at DC-5</li> </ul>	

— 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
<ul> <li>with 3 current paths in series at DC-3 at DC-5</li> </ul>	
— 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	
<ul> <li>at AC-2 at 400 V rated value</li> </ul>	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	110 kW
— at 1000 V rated value	75 kW
• at AC-3e	
— 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 $^{\circ}\text{C}$	
<ul> <li>limited to 1 s switching at zero current maximum</li> </ul>	2 565 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	1 654 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	1 170 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	729 A; Use minimum cross-section acc. to AC-1 rated value
Iimited 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-3 maximum	1 000 1/h
• at AC-3e maximum	1 000 1/h
• at AC-2 at AC-3e maximum	400 1/h
at AC-4 maximum	130 1/h
operating frequency	
• at DC-1 maximum	400 1/h
• at DC-3 maximum	500 1/h
• at DC-5 maximum	500 1/h
Ratings for railway applications	
thermal current (Ith) up to 690 V	
<ul> <li>up to 40 °C according to IEC 60077 rated value</li> </ul>	160 A
<ul> <li>up to 70 °C according to IEC 60077 rated value</li> </ul>	120 A
Control circuit/ Control	
type of voltage	DC
type of voltage of the control supply voltage	50
	DC
control supply voltage at DC	DC
control supply voltage at DC  • rated value	24 V
rated value  operating range factor control supply voltage rated value of	
• rated value	

a full coole value	1.05	
• full-scale value	1.25	
consumed current at PLC-control input according to IEC 60947-1 maximum	2 mA	
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	
<ul> <li>at 110 V rated value</li> </ul>	1 A	
• at 125 V rated value	0.9 A	
<ul> <li>at 220 V rated value</li> </ul>	0.3 A	
<ul> <li>at 600 V rated value</li> </ul>	0.1 A	
UL/CSA ratings		
full-load current (FLA) for 3-phase AC motor		
• at 480 V rated value	124 A	
at 600 V rated value	125 A	
yielded mechanical performance [hp]		
<ul> <li>for single-phase AC motor</li> </ul>		
— at 230 V rated value	25 hp	
• for 3-phase AC motor		
— at 200/208 V rated value	40 hp	
— at 220/230 V rated value	50 hp	
— at 460/480 V rated value	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		
<ul> <li>for short-circuit protection of the main circuit</li> </ul>		
<ul> <li>— with type of coordination 1 required</li> </ul>	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				
• stranded	max. 2x 70 mm²			
solid or stranded	max. 1x 50, 1x 70 mm <sup>2</sup>			
finely stranded with core end processing	max. 1x 50, 1x 70 mm <sup>2</sup>			
finely stranded without core end processing	max. 1x 50, 1x 70 mm²			
type of connectable conductor cross-sections				
for auxiliary contacts				
— solid	2x (0.25 2.5 mm²)			
— solid or stranded	2x (0,25 2,5 mm²)			
— finely stranded with core end processing	2x (0.25 1.5 mm²)			
— finely stranded without core end processing	2x (0.25 2.5 mm²)			
for AWG cables for auxiliary contacts  AWG number as coded connectable conductor cross	2x (24 14)			
section				
• for main contacts	6			
for auxiliary contacts	24 14			
Safety related data				
product function				
mirror contact according to IEC 60947-4-1	Yes			
<ul> <li>positively driven operation according to IEC 60947-5-1</li> </ul>	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	IP20			
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front			
Communication/ Protocol				
product function bus communication	No			
Certificates/ approvals				
General Product Approval				



Confirmation





<u>KC</u>



EMC	Functional Safety/Safety of Ma- chinery	Declaration of Conformity
	Cililery	

**Test Certificates** 



Type Examination Certificate





Type Test Certificates/Test Report

Special Test Certificate

other Railway

 Confirmation
 Miscellaneous
 Miscellaneous
 Special Test Certificate
 Vibration and Shock ates/Test Report
 Type Test Certificates ates/Test Report

## Further information

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=3RT1054-3XB46-0LA2

Cax online generator

 $\underline{\text{http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en\&mlfb=3RT1054-3XB46-0LA2}$ 

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

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

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

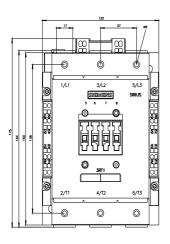
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT1054-3XB46-0LA2&lang=en

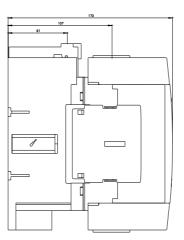
Characteristic: Tripping characteristics, I2t, Let-through current

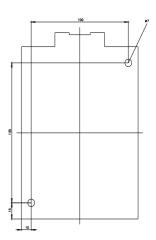
https://support.industry.siemens.com/cs/ww/en/ps/3RT1054-3XB46-0LA2/char

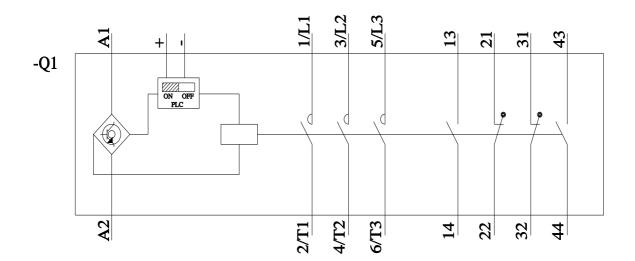
Further characteristics (e.g. electrical endurance, switching frequency)

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









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