## SIEMENS

## Data sheet

## 3RT1056-6XB46-0LA2



power contactor, AC-3e/AC-3 185 A, 90 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: screw terminal extended rated condition railroad IEC 60077

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>	39 W
<ul> <li>at AC in hot operating state per pole</li> </ul>	13 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
<ul> <li>of auxiliary circuit rated value</li> </ul>	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)	
<ul> <li>of contactor typical</li> </ul>	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	
during operation	-40 +70 °C
<ul> <li>during storage</li> </ul>	-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			
<ul> <li>at AC-1 at 400 V at ambient temperature 40 °C rated value</li> <li>at AC-1</li> </ul>	215 A		
<ul> <li>up to 690 V at ambient temperature 40 °C rated value</li> </ul>	215 A		
— up to 690 V at ambient temperature 60 °C rated value	185 A		
— up to 1000 V at ambient temperature 60 °C rated value	100 A		
• at AC-2 at 400 V rated value	185 A		
• at AC-3			
— at 400 V rated value	185 A		
— at 500 V rated value	185 A		
— at 690 V rated value	170 A		
— at 1000 V rated value	65 A		
• at AC-3e			
— at 400 V rated value	185 A		
— at 500 V rated value	185 A		
— at 690 V rated value	170 A		
— at 1000 V rated value	65 A		
• at AC-4 at 400 V rated value	160 A		
minimum cross-section in main circuit			
• at maximum AC-1 rated value	95 mm²		
at maximum Ith rated value	95 mm²		
operational current for approx. 200000 operating cycles at AC-4			
at 400 V rated value	81 A		
at 690 V rated value	65 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		
<ul> <li>with 2 current paths in series at DC-1</li> </ul>			
— 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		
<ul> <li>with 3 current paths in series at DC-1</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	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	2.5 A 0.6 A		
— at 220 V rated value — at 440 V rated value			
	0.6 A		

— 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				
at AC-2 at 400 V rated value	90 kW			
• at AC-3				
— at 230 V rated value	61 kW			
— at 400 V rated value	90 kW			
— at 500 V rated value	132 kW			
— at 690 V rated value	160 kW			
— at 1000 V rated value	90 kW			
• at AC-3e	SU NYY			
	61 kW			
— at 230 V rated value				
— at 400 V rated value	90 kW			
- at 500 V rated value	132 kW			
— at 690 V rated value	160 kW			
— at 1000 V rated value	90 kW			
operating power for approx. 200000 operating cycles at AC- 4				
at 400 V rated value	45 kW			
at 690 V rated value	65 kW			
short-time withstand current in cold operating state up to				
40 °C				
<ul> <li>limited to 1 s switching at zero current maximum</li> </ul>	2 900 A; Use minimum cross-section acc. to AC-1 rated value			
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	2 084 A; Use minimum cross-section acc. to AC-1 rated value			
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	1 480 A; Use minimum cross-section acc. to AC-1 rated value			
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	968 A; Use minimum cross-section acc. to AC-1 rated value			
<ul> <li>limited to 60 s switching at zero current maximum</li> </ul>	801 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	300 1/h			
• at AC-3 maximum	750 1/h			
• at AC-3e maximum	750 1/h			
• at AC-2 at AC-3e maximum	300 1/h			
• at AC-4 maximum	130 1/h			
operating frequency				
• at DC-1 maximum	400 1/h			
• at DC-3 maximum	350 1/h			
• at DC-5 maximum	350 1/h			
Ratings for railway applications				
thermal current (Ith) up to 690 V				
• up to 40 °C according to IEC 60077 rated value	215 A			
• up to 70 °C according to IEC 60077 rated value	145 A			
Control circuit/ Control				
type of voltage	DC			
ispe of voltage				
type of voltage of the control supply voltage	DC			
type of voltage of the control supply voltage	DC			
control supply voltage at DC				
control supply voltage at DC <ul> <li>rated value</li> </ul>	DC 24 V			
control supply voltage at DC				
control supply voltage at DC <ul> <li>rated value</li> </ul> <li>operating range factor control supply voltage rated value of</li>				

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
<ul> <li>operational current at DC-12</li> <li>at 24 V rated value</li> </ul>	10.4
	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	1A
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	190 A
at 480 V rated value     at 600 V rated value	180 A 192 A
• at 600 V rated value	
yielded mechanical performance [hp]	
for single-phase AC motor     at 230 V rated value	230 hp
— at 230 V rated value	230 hp
<ul> <li>for 3-phase AC motor</li> <li>at 200/208 V rated value</li> </ul>	60 hn
— at 200/208 V rated value	60 hp
- at 220/230 V rated value	75 hp
— at 460/480 V rated value	150 hp
at 575/600 V rated value contact rating of auxiliary contacts according to UL	_ 200 hp A600 / Q600
Short-circuit protection	
	No
product function short circuit protection	NU
design of the fuse link	
<ul> <li>for short-circuit protection of the main circuit</li> <li>with type of coordination 1 required</li> </ul>	aC: 355 A (600 V 100 KA)
<ul> <li>— with type of coordination 1 required</li> <li>with type of assignment 2 required</li> </ul>	gG: 355 A (690 V, 100 kA)
<ul> <li>— with type of assignment 2 required</li> </ul>	gG: 315 A (690 V, 100 kA), aM: 200 A (690 V, 100 kA), BS88: 315 A (415 V, 50 kA)
<ul> <li>for short-circuit protection of the auxiliary switch required</li> </ul>	gG: 10 A (500 V, 1 kA)
Installation/ mounting/ dimensions	

mounting position	with vertical mounting surface +/-90° rotatable, with vertical mounting surface				
footoning mothed	+/- 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				
<ul> <li>for grounded parts</li> </ul>					
— 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					
<ul> <li>for main current circuit</li> </ul>	screw-type terminals				
for auxiliary and control circuit	screw-type 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	max. 1x 50, 1x 70 mm²				
type of connectable conductor cross-sections					
<ul> <li>for auxiliary contacts</li> </ul>					
— solid	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), max. 2x (0.75 4 mm²)				
— solid or stranded	2x (0,5 1,5 mm²), 2x (0,75 2,5 mm²), max. 2x (0,75 4 mm²)				
<ul> <li>finely stranded with core end processing</li> </ul>	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)				
for AWG cables for auxiliary contacts	2x (20 16), 2x (18 14), 1x 12				
AWG number as coded connectable conductor cross section					
<ul> <li>for auxiliary contacts</li> </ul>	18 14				
afety related data					
product function					
<ul> <li>mirror contact according to IEC 60947-4-1</li> </ul>	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	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					
	No				
product function bus communication					

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

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=3RT1056-6XB46-0LA2

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1056-6XB46-0LA2

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

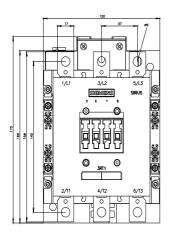
https://support.industry.siemens.com/cs/ww/en/ps/3RT1056-6XB46-0L

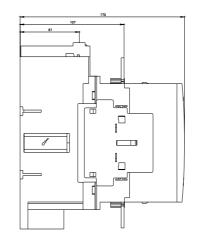
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT1056-6XB46-0LA2&lang=en

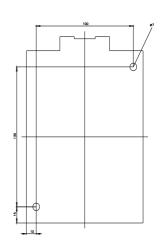
Characteristic: Tripping characteristics, I2t, Let-through current

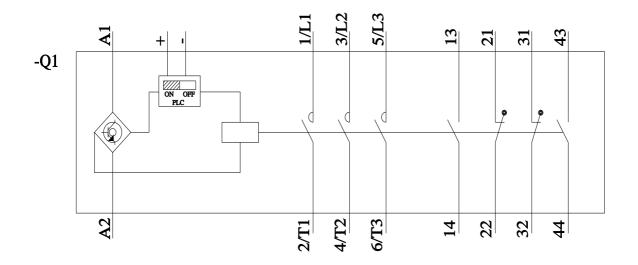
https://support.industry.siemens.com/cs/ww/en/ps/3RT1056-6XB46-0LA2/char

Further characteristics (e.g. electrical endurance, switching frequency) http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT1056-6XB46-0LA2&objecttype=14&gridview=view1









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