3RT1066-6XB46-0LA2

Data sheet



power contactor, AC-3e/AC-3 300 A, 160 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	S10	
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 	66 W	
 at AC in hot operating state per pole 	22 W	
type of calculation of power loss depending on pole	quadratic	
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	
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1	
Weight	6.611 kg	
Ambient conditions		
installation altitude at height above sea level maximum	2 000 m	
ambient temperature		

during operation	-40 +70 °C	
during operation 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 	330 A	
— up to 690 V at ambient temperature 40 °C rated value	330 A	
— up to 690 V at ambient temperature 60 °C rated value	300 A	
— up to 1000 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	150 A	
at AC-2 at 400 V rated valueat AC-3	300 A	
— at 400 V rated value	300 A	
— at 500 V rated value	300 A	
— at 690 V rated value	280 A	
— at 1000 V rated value	95 A	
• at AC-3e		
— at 400 V rated value	300 A	
— at 500 V rated value	300 A	
— at 1000 V rated value	95 A	
at AC-4 at 400 V rated value	280 A	
minimum cross-section in main circuit		
at maximum AC-1 rated value	185 mm²	
at maximum lth rated value operational current for approx. 200000 operating cycles at	185 mm ²	
AC-4		
• at 400 V rated value	125 A	
• at 690 V rated value	115 A	
operational current		
• at 1 current path at DC-1		
— at 24 V rated value	300 A	
— at 110 V rated value	33 A	
— at 220 V rated value	3.8 A	
— at 440 V rated value	0.9 A	
— at 600 V rated value	0.6 A	
with 2 current paths in series at DC-1 at 24 V roted value.	200 A	
— at 24 V rated value	300 A	
— at 110 V rated value — at 220 V rated value	300 A 300 A	
— at 440 V rated value	4 A	
— at 600 V rated value	2 A	
with 3 current paths in series at DC-1		
— at 24 V rated value	300 A	
— at 110 V rated value	300 A	
— at 220 V rated value	300 A	
— at 440 V rated value	11 A	
— at 600 V rated value	5.2 A	
• at 1 current path at DC-3 at DC-5		
— at 24 V rated value	300 A	
— at 110 V rated value	3 A	

1000 1/4 1/4 1/4	0.0.4
— at 220 V rated value	0.6 A
— at 440 V rated value	0.18 A
— at 600 V rated value	0.125 A
 with 2 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	300 A
— at 110 V rated value	300 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	300 A
— at 110 V rated value	300 A
— at 220 V rated value	300 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 	160 kW
• at AC-3	
— at 230 V rated value	97 kW
— at 400 V rated value	160 kW
— at 500 V rated value	200 kW
— at 690 V rated value	250 kW
— at 1000 V rated value	132 kW
• at AC-3e	
— at 230 V rated value	97 kW
— at 400 V rated value	160 kW
— at 500 V rated value	200 kW
— at 1000 V rated value	132 kW
operating power for approx. 200000 operating cycles at AC-	
at 400 V rated value	71 kW
at 400 V rated value at 690 V rated value	
short-time withstand current in cold operating state up to	112 kW
40 °C	
 limited to 1 s switching at zero current maximum 	5 524 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 5 s switching at zero current maximum 	4 579 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 10 s switching at zero current maximum 	3 153 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 30 s switching at zero current maximum 	1 883 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 60 s switching at zero current maximum 	1 445 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at DC	700 1/h
operating frequency	
• at AC-1 maximum	700 1/h
• at AC-2 maximum	250 1/h
• at AC-3 maximum	500 1/h
• at AC-3e maximum	500 1/h
• at AC-2 at AC-3e maximum	250 1/h
• at AC-4 maximum	130 1/h
operating frequency	
• at DC-1 maximum	350 1/h
• at DC-3 maximum	250 1/h
• at DC-5 maximum	250 1/h
Ratings for railway applications	
thermal current (Ith) up to 690 V	
• up to 40 °C according to IEC 60077 rated value	330 A
up to 70 °C according to IEC 60077 rated value	265 A
Control circuit/ Control	
type of voltage	DC
type of voltage of the control supply voltage	DC
control supply voltage at DC rated value	24 V
operating range factor control supply voltage rated value of	
117 1 10 1	

magnet coil at DC		
initial value	0.7	
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	580 W	
holding power of magnet coil at DC	3.4 W	
closing delay		
• at DC	45 80 ms	
opening delay		
• at DC	80 100 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		
• at 480 V rated value	302 A	
at 600 V rated value	289 A	
yielded mechanical performance [hp]		
• for 3-phase AC motor		
— at 200/208 V rated value	100 hp	
— at 220/230 V rated value	125 hp	
— at 460/480 V rated value	250 hp	
— at 575/600 V rated value	300 hp	
contact rating of auxiliary contacts according to UL	A600 / Q600	
Short-circuit protection		
design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V	C characteristic: 10 A; 0.4 kA	
design of the fuse link		
for short-circuit protection of the main circuit		
with type of coordination 1 required	gG: 500 A (690 V, 100 kA)	
with type of coordination in required — with type of assignment 2 required	gG: 400 A (690 V, 100 kA), aM: 315 A (690 V, 50 kA), BS88: 400 A (415 V, 50	
	kA)	
 for short-circuit protection of the auxiliary switch required 	gG: 10 A (500 V, 1 kA)	

nstallation/ mounting/ dimensions		
mounting position	with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back	
fastening method side-by-side mounting	Yes	
fastening method	screw fixing	
height	210 mm	
width	145 mm	
depth	202 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	10 11111	
— forwards	20 mm	
— upwards	10 mm	
· ·		
— at the side	10 mm	
— downwards	10 mm	
• for live parts	00	
— 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	
width of connection bar	25 mm	
thickness of connection bar	6 mm	
diameter of holes	11 mm	
number of holes	1	
type of connectable conductor cross-sections for main contacts		
solid or stranded	2x (70 240 mm²)	
type of connectable conductor cross-sections		
for auxiliary contacts		
— 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)	
finely stranded with core end processing	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		
for auxiliary contacts	18 14	
afety related data		
product function		
mirror contact according to IEC 60947-4-1	Yes	
• positively driven operation according to IEC 60947-5-1	No	
suitable for safety function	Yes	
suitability for use safety-related switching OFF	Yes; safety-related disconnection via A1 A2	
service life maximum	20 a	
test wear-related service life necessary	Yes	
proportion of dangerous failures	40.0/	
with low demand rate according to SN 31920	40 %	
with high demand rate according to SN 31920	73 %	
B10 value with high demand rate according to SN 31920	1 000 000	
failure rate [FIT] with low demand rate according to SN 31920	100 FIT	
ISO 13849		
device type according to ISO 13849-1	3	
overdimensioning according to ISO 13849-2 necessary	Yes	
IEC 61508		

safety device type according to IEC 61508-2	Type A
Electrical Safety	
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
Approvals Certificates	
General Product Approval	









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Type Examination Cer**tificate**

ate

Type Test Certificates/Test Report

ates/Test Report

Special Test Certific-

firmations

Miscellaneous

Confirmation

other	Railway		Environment	
Miscellaneous	Special Test Certific-	Type Test Certific-	Environmental Con-	

Further information

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=3RT1066-6XB46-0LA2

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1066-6XB46-0LA2

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT1066-6XB46-0L

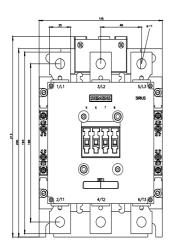
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

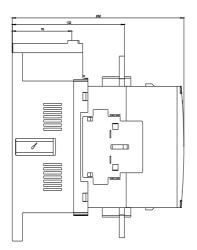
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT1066-6XB46-0LA2&lang=en

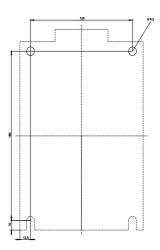
Characteristic: Tripping characteristics, I2t, Let-through current

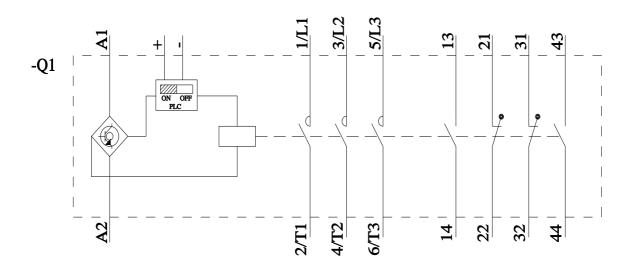
https://support.industry.siemens.com/cs/ww/en/ps/3RT1066-6XB46-0LA2/char

Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT1066-6XB46-0LA2&objecttype=14&gridview=view1









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