3RT1054-2XB46-0LA2

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: 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
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 Perfluorobutane sulfonic acid (PFBS) and its salts Melamine - 108-78-1
Weight	3.336 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	95 %
maximum	30 //
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 $^{\circ}\text{C}$ rated value	160 A
— up to 690 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	140 A
— up to 1000 V at ambient temperature 60 $^{\circ}\text{C}$ 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• at AC-4 at 400 V rated value	53 A 97 A
minimum cross-section in main circuit	37 A
at maximum AC-1 rated value	70 mm²
at maximum Ith rated value	70 mm²
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	70 A
• 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

1440.1/	0.5.4
— 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	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 °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
	400 1/h 1 000 1/h
• at AC-2 maximum	
at AC-2 maximumat AC-3 maximum	1 000 1/h
at AC-2 maximumat AC-3 maximumat AC-3e maximum	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 	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 	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	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 	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 at DC-3 maximum at DC-5 maximum 	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 operating frequency at DC-1 maximum at DC-3 maximum at DC-5 maximum Ratings for railway applications	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 operating frequency 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 	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-4 maximum operating frequency at DC-1 maximum at DC-3 maximum at DC-5 maximum at DC-5 maximum ut DC-5 maximum Ratings for railway applications thermal current (Ith) up to 690 V up to 40 °C according to IEC 60077 rated value 	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-4 maximum operating frequency at DC-1 maximum at DC-3 maximum at DC-5 maximum at DC-5 maximum tDC-5 maximum at DC-5 coroling to IEC 60077 rated value up to 40 °C according to IEC 60077 rated value 	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-4 maximum operating frequency at DC-1 maximum at DC-3 maximum at DC-5 maximum at DC-5 maximum thermal current (Ith) up to 690 V up to 40 °C according to IEC 60077 rated value up to 70 °C according to IEC 60077 rated value Control circuit/ Control	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
 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 at DC-5 maximum tDC-5 maximum at DC-5 coroling to IEC 60077 rated value up to 40 °C according to IEC 60077 rated value 	1 000 1/h 1 000 1/h 400 1/h 130 1/h 400 1/h 500 1/h 500 1/h

control supply voltage at DC rated value	24 V
operating range factor control supply voltage rated value of	
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	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	
• 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
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	
for short-circuit protection of the main circuit	
with type of coordination 1 required	gG: 355 A (690 V, 100 kA)
	3 - · · · · · · · · · · · · · · · · · ·

for short-circuit protection of the auxiliary switch required stallation/ mounting/ dimensions mounting position fastening method side-by-side mounting fastening method height width depth required spacing with side-by-side mounting — forwards — upwards — downwards — at the side • for grounded parts — upwards — upwards — upwards — at the side • forwards — upwards — downwards — at the side — downwards — at the side — downwards	gG: 10 A (500 V, 1 kA) with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back Yes screw fixing 172 mm 120 mm 170 mm 20 mm 10 mm
fastening method side-by-side mounting fastening method height width depth required spacing • with side-by-side mounting — forwards — upwards — downwards — at the side • for grounded parts — forwards — upwards — at the side • for grounded parts — forwards — upwards — at the side • for grounded parts — forwards — upwards — at the side	+/- 22.5° tiltable to the front and back Yes screw fixing 172 mm 120 mm 170 mm 20 mm 10 mm
fastening method side-by-side mounting fastening method height width depth required spacing • with side-by-side mounting — forwards — upwards — downwards — at the side • for grounded parts — forwards — upwards — at the side • for grounded parts — forwards — upwards — at the side	+/- 22.5° tiltable to the front and back Yes screw fixing 172 mm 120 mm 170 mm 20 mm 10 mm
fastening method height width depth required spacing • with side-by-side mounting — forwards — upwards — downwards — at the side • for grounded parts — forwards — upwards — at the side • for grounded parts — forwards — at the side — at the side	screw fixing 172 mm 120 mm 170 mm 20 mm 10 mm
height width depth required spacing • with side-by-side mounting — forwards — upwards — downwards — at the side • for grounded parts — forwards — upwards — at the side • for grounded parts — forwards — upwards — upwards — upwards — at the side	172 mm 120 mm 170 mm 20 mm 10 mm
width depth required spacing • with side-by-side mounting — forwards — upwards — downwards — at the side • for grounded parts — forwards — upwards — at the side • at the side • for grounded parts — forwards — upwards — upwards — at the side	120 mm 170 mm 20 mm 10 mm
depth required spacing • with side-by-side mounting — forwards — upwards — downwards — at the side • for grounded parts — forwards — upwards — at the side • at the side • for grounded parts — forwards — upwards — at the side	20 mm 10 mm
with side-by-side mounting — forwards — upwards — downwards — at the side • for grounded parts — forwards — at the side — forwards — at the side — forwards — upwards — at the side	20 mm 10 mm
 with side-by-side mounting forwards upwards downwards at the side for grounded parts forwards upwards at the side 	10 mm 10 mm 10 mm 20 mm 10 mm 10 mm 10 mm 10 mm
 forwards upwards downwards at the side for grounded parts forwards upwards at the side 	10 mm 10 mm 10 mm 20 mm 10 mm 10 mm 10 mm 10 mm
 upwards downwards at the side for grounded parts forwards upwards at the side 	10 mm 10 mm 10 mm 20 mm 10 mm 10 mm 10 mm 10 mm
 downwards at the side for grounded parts forwards upwards at the side 	10 mm 10 mm 20 mm 10 mm 10 mm 10 mm 20 mm
 — at the side • for grounded parts — forwards — upwards — at the side 	10 mm 20 mm 10 mm 10 mm 10 mm 20 mm
for grounded partsforwardsupwardsat the side	20 mm 10 mm 10 mm 10 mm
forwardsupwardsat the side	10 mm 10 mm 10 mm
— upwards — at the side	10 mm 10 mm 10 mm
— at the side	10 mm 10 mm 20 mm
	10 mm 20 mm
— downwards	20 mm
for live parts	
— forwards	
— upwards	10 mm
— downwards	10 mm
— at the side	10 mm
onnections/ 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 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	2x (24 14)
AWG number as coded connectable conductor cross	
section	
for auxiliary contacts	24 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	
 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

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





Confirmation





<u>KC</u>

General Product Approval

EMV

Functional Saftey

Test Certificates

other





Type Examination Certificate

Special Test Certificate

Type Test Certificates/Test Report

Confirmation

other Railway **Environment**

Type Test Certificates/Test Report **Miscellaneous Environmental Con-Miscellaneous Special Test Certificfirmations** ate

Further information

Information on the packaging

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

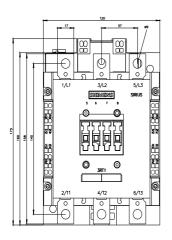
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

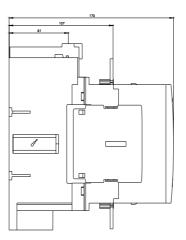
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT1054-2XB46-0LA2&lang=en

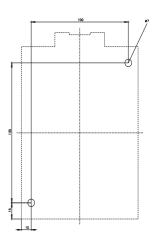
Characteristic: Tripping characteristics, I2t, Let-through current

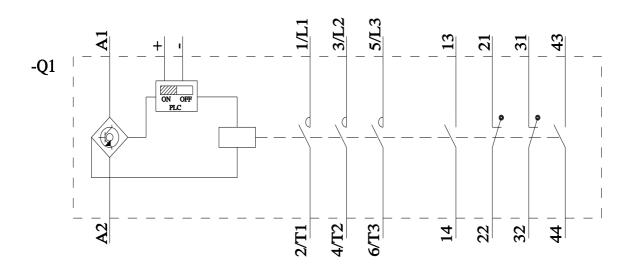
Further characteristics (e.g. electrical endurance, switching frequency)

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









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