SIEMENS

Data sheet 3RT1054-2XB46-0LA2

Traction contactor, AC-3 115 A, 55 kW / 400 V Coil 24 V DC x (0.7-1.25) PLC input 24-110 V DC Auxiliary contacts 2 NO + 2 NC 3-pole size S6 Busbar connections Coil connection: Spring-type terminal

product brand name	SIRIUS
product designation	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 safe isolation 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 (switching 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	160 A
● at AC-1	
— 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 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
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
● 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	
● up to 40 °C according to IEC 60077 rated value	160 A
● up to 70 °C according to IEC 60077 rated value	120 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
consumed current at PLC-control input according to IEC 60947-1 maximum	2 mA
voltage at PLC-control input 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
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)
— 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)
● at AWG cables for main contacts	4 ... 250 kcmil
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)
● at 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
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	

Confirmation | KC

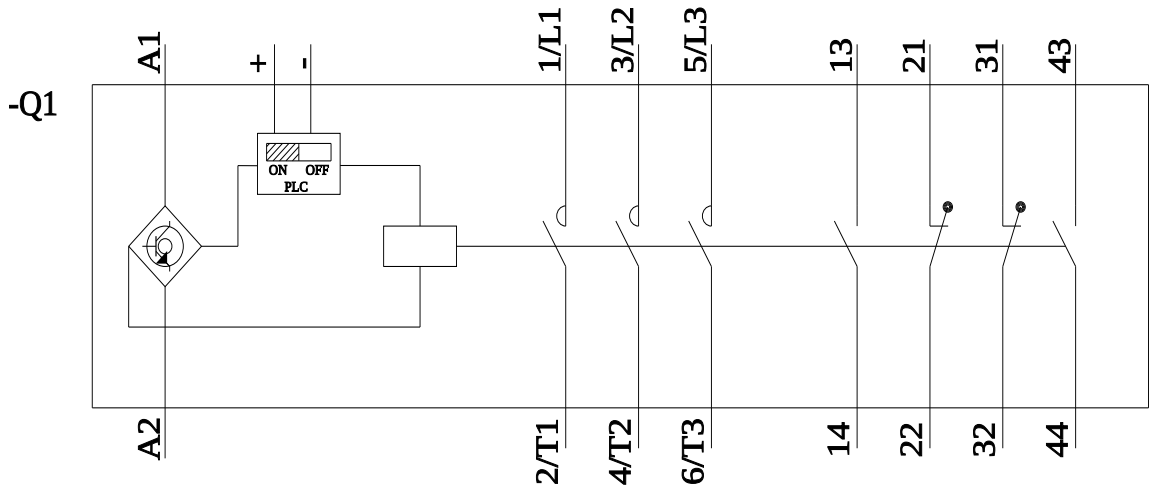
EMC	Functional Safety/Safety of Machinery	Declaration of Conformity		Test Certificates	
	Type Examination Certificate			Special Test Certific-ate	Type Test Certific-ates/Test Report

other			Railway	
Confirmation	Miscellaneous	Miscellaneous	Type Test Certific-ates/Test Report	Special Test Certific-ate

Further information

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



last modified: 3/26/2022