



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 with
 box terminals 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 mm ²
• at maximum Ith rated value	70 mm ²
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

<ul style="list-style-type: none"> limited to 30 s switching at zero current maximum limited to 60 s switching at zero current maximum 	729 A; Use minimum cross-section acc. to AC-1 rated value 572 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
<ul style="list-style-type: none"> at DC 	1 000 1/h
operating frequency	
<ul style="list-style-type: none"> at AC-1 maximum at AC-2 maximum at AC-3 maximum at AC-3e maximum at AC-2 at AC-3e maximum at AC-4 maximum 	800 1/h 400 1/h 1 000 1/h 1 000 1/h 400 1/h 130 1/h
operating frequency	
<ul style="list-style-type: none"> at DC-1 maximum at DC-3 maximum at DC-5 maximum 	400 1/h 500 1/h 500 1/h
Ratings for railway applications	
thermal current (I_{th}) up to 690 V	
<ul style="list-style-type: none"> up to 40 °C according to IEC 60077 rated value up to 70 °C according to IEC 60077 rated value 	160 A 120 A
Control circuit/ Control	
type of voltage	DC
type of voltage of the control supply voltage	DC
control supply voltage at DC	
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> initial value full-scale value 	0.7 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	
<ul style="list-style-type: none"> at DC 	35 ... 75 ms
opening delay	
<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> instantaneous contact 	2
number of NO contacts for auxiliary contacts	2
<ul style="list-style-type: none"> instantaneous contact 	2
operational current at AC-12 maximum	10 A
operational current at AC-15	
<ul style="list-style-type: none"> at 230 V rated value at 400 V rated value at 500 V rated value 	6 A 3 A 2 A
operational current at DC-12	
<ul style="list-style-type: none"> at 24 V rated value at 48 V rated value at 60 V rated value at 110 V rated value at 125 V rated value at 220 V rated value at 600 V rated value 	10 A 6 A 6 A 3 A 2 A 1 A 0.15 A
operational current at DC-13	
<ul style="list-style-type: none"> at 24 V rated value 	6 A

<ul style="list-style-type: none"> • at 48 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value • at 600 V rated value 	2 A 2 A 1 A 0.9 A 0.3 A 0.1 A
UL/CSA ratings	
full-load current (FLA) for 3-phase AC motor	
<ul style="list-style-type: none"> • at 480 V rated value • at 600 V rated value 	124 A 125 A
yielded mechanical performance [hp]	
<ul style="list-style-type: none"> • for single-phase AC motor <ul style="list-style-type: none"> — at 230 V rated value • for 3-phase AC motor <ul style="list-style-type: none"> — at 200/208 V rated value — at 220/230 V rated value — at 460/480 V rated value — at 575/600 V rated value 	25 hp 40 hp 50 hp 100 hp 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 style="list-style-type: none"> • for short-circuit protection of the main circuit <ul style="list-style-type: none"> — with type of coordination 1 required — with type of assignment 2 required • for short-circuit protection of the auxiliary switch required 	gG: 355 A (690 V, 100 kA) gG: 315 A (690 V, 100 kA), aM: 200 A (690 V, 50 kA), BS88: 250 A (415 V, 50 kA) 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
<ul style="list-style-type: none"> • side-by-side mounting 	Yes
height	172 mm
width	120 mm
depth	170 mm
required spacing	
<ul style="list-style-type: none"> • with side-by-side mounting <ul style="list-style-type: none"> — forwards — upwards — downwards — at the side • for grounded parts <ul style="list-style-type: none"> — forwards — upwards — at the side — downwards • for live parts <ul style="list-style-type: none"> — forwards — upwards — downwards — at the side 	20 mm 10 mm 10 mm 10 mm 20 mm 10 mm 10 mm 10 mm 20 mm 10 mm 10 mm 10 mm
Connections/ Terminals	
type of electrical connection	
<ul style="list-style-type: none"> • for main current circuit • for auxiliary and control circuit 	screw-type terminals 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 <ul style="list-style-type: none"> for main contacts <ul style="list-style-type: none"> stranded solid or stranded finely stranded with core end processing finely stranded without core end processing at AWG cables for main contacts 	max. 2x 70 mm ² max. 1x 50, 1x 70 mm ² max. 1x 50, 1x 70 mm ² max. 1x 50, 1x 70 mm ² 4 ... 250 kcmil
type of connectable conductor cross-sections <ul style="list-style-type: none"> for auxiliary contacts <ul style="list-style-type: none"> solid solid or stranded finely stranded with core end processing finely stranded without core end processing at AWG cables for auxiliary contacts 	2x (0.25 ... 2.5 mm ²) 2x (0,25 ... 2,5 mm ²) 2x (0.25 ... 1.5 mm ²) 2x (0.25 ... 2.5 mm ²) 2x (24 ... 14)
AWG number as coded connectable conductor cross section <ul style="list-style-type: none"> for main contacts for auxiliary contacts 	6 24 ... 14

Safety related data

product function <ul style="list-style-type: none"> mirror contact according to IEC 60947-4-1 positively driven operation according to IEC 60947-5-1 	Yes No
B10 value with high demand rate according to SN 31920	1 000 000
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
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Certificates/ approvals

General Product Approval



[Confirmation](#)



[KC](#)



EMC	Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates
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[Type Examination Certificate](#)



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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?mfb=3RT1054-3XB46-0LA2>

Cax online generator

<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, I^t, 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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