

Siemens
EcoTech



power contactor, AC-3e/AC-3 115 A, 55 kW / 400 V, AC (50-60 Hz) / DC Uc: 110-127 V 3-pole, auxiliary contacts 2 NO + 2 NC drive: conventional main circuit: box terminal control and auxiliary circuit: spring-loaded terminal



product brand name	SIRIUS
product designation	Power contactor
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	5.2 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 at rectangular impulse	
• at AC	8,5g / 5 ms, 4,2g / 10 ms
• at DC	8,5g / 5 ms, 4,2g / 10 ms
shock resistance with sine pulse	
• at AC	13,4g / 5 ms, 6,5g / 10 ms
• 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)	05/01/2012
SVHC substance name	Lead - 7439-92-1 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7
Weight	3.66 kg
Ambient conditions	

installation altitude at height above sea level maximum	2 000 m
ambient temperature	
• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %
Environmental footprint	
Environmental Product Declaration(EPD)	Yes
global warming potential [CO2 eq] total	379 kg
global warming potential [CO2 eq] during manufacturing	17 kg
global warming potential [CO2 eq] during sales	0.901 kg
global warming potential [CO2 eq] during operation	363 kg
global warming potential [CO2 eq] after end of life	-2.28 kg
Siemens Eco Profile (SEP)	Siemens EcoTech
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 40 °C rated value	80 A
— up to 1000 V at ambient temperature 60 °C rated value	80 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
• at AC-5a up to 690 V rated value	140 A
• at AC-5b up to 400 V rated value	95 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	115 A
— up to 400 V for current peak value n=20 rated value	115 A
— up to 500 V for current peak value n=20 rated value	115 A
— up to 690 V for current peak value n=20 rated value	115 A
— up to 1000 V for current peak value n=20 rated value	53 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	98 A
— up to 400 V for current peak value n=30 rated value	98 A
— up to 500 V for current peak value n=30 rated value	98 A
— up to 690 V for current peak value n=30 rated value	98 A
— up to 1000 V for current peak value n=30 rated value	53 A
minimum cross-section in main circuit at maximum AC-1 rated value	70 mm ²

operational current for approx. 200000 operating cycles at AC-4	
<ul style="list-style-type: none"> ● at 400 V rated value ● at 690 V rated value 	<p>54 A</p> <p>48 A</p>
operational current	
<ul style="list-style-type: none"> ● at 1 current path at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 60 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value ● with 2 current paths in series at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 60 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value ● with 3 current paths in series at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 60 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value ● at 1 current path at DC-3 at DC-5 <ul style="list-style-type: none"> — at 24 V rated value — at 60 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value ● with 2 current paths in series at DC-3 at DC-5 <ul style="list-style-type: none"> — at 24 V rated value — at 60 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value ● with 3 current paths in series at DC-3 at DC-5 <ul style="list-style-type: none"> — at 24 V rated value — at 60 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value 	<p>160 A</p> <p>160 A</p> <p>18 A</p> <p>3.4 A</p> <p>0.8 A</p> <p>0.5 A</p> <p>160 A</p> <p>160 A</p> <p>160 A</p> <p>20 A</p> <p>3.2 A</p> <p>1.6 A</p> <p>160 A</p> <p>160 A</p> <p>160 A</p> <p>160 A</p> <p>11.5 A</p> <p>4 A</p> <p>160 A</p> <p>7.5 A</p> <p>0.6 A</p> <p>0.17 A</p> <p>0.12 A</p> <p>160 A</p> <p>160 A</p> <p>160 A</p> <p>2.5 A</p> <p>0.65 A</p> <p>0.37 A</p> <p>160 A</p> <p>160 A</p> <p>160 A</p> <p>160 A</p> <p>1.4 A</p> <p>0.75 A</p>
operating power	
<ul style="list-style-type: none"> ● at AC-3 <ul style="list-style-type: none"> — at 230 V rated value — at 400 V rated value — at 500 V rated value — at 690 V rated value — at 1000 V rated value ● at AC-3e <ul style="list-style-type: none"> — at 230 V rated value — at 400 V rated value — at 500 V rated value — at 690 V rated value — at 1000 V rated value 	<p>37 kW</p> <p>55 kW</p> <p>75 kW</p> <p>110 kW</p> <p>75 kW</p> <p>37 kW</p> <p>55 kW</p> <p>75 kW</p> <p>110 kW</p> <p>75 kW</p>
operating power for approx. 200000 operating cycles at AC-4	

<ul style="list-style-type: none"> • at 400 V rated value • at 690 V rated value 	<p>29 kW 48 kW</p>
operating apparent power at AC-6a <ul style="list-style-type: none"> • up to 230 V for current peak value n=20 rated value • up to 400 V for current peak value n=20 rated value • up to 500 V for current peak value n=20 rated value • up to 690 V for current peak value n=20 rated value • up to 1000 V for current peak value n=20 rated value 	<p>40 kVA 80 kVA 100 kVA 130 kVA 90 kVA</p>
operating apparent power at AC-6a <ul style="list-style-type: none"> • up to 230 V for current peak value n=30 rated value • up to 400 V for current peak value n=30 rated value • up to 500 V for current peak value n=30 rated value • up to 690 V for current peak value n=30 rated value • up to 1000 V for current peak value n=30 rated value 	<p>30 kVA 60 kVA 80 kVA 110 kVA 90 kVA</p>
short-time withstand current in cold operating state up to 40 °C <ul style="list-style-type: none"> • limited to 1 s switching at zero current maximum • limited to 5 s switching at zero current maximum • limited to 10 s switching at zero current maximum • limited to 30 s switching at zero current maximum • limited to 60 s switching at zero current maximum 	<p>2 565 A; Use minimum cross-section acc. to AC-1 rated value 1 654 A; Use minimum cross-section acc. to AC-1 rated value 1 170 A; Use minimum cross-section acc. to AC-1 rated value 729 A; Use minimum cross-section acc. to AC-1 rated value 572 A; Use minimum cross-section acc. to AC-1 rated value</p>
no-load switching frequency <ul style="list-style-type: none"> • at AC • at DC 	<p>2 000 1/h 2 000 1/h</p>
operating frequency <ul style="list-style-type: none"> • at AC-1 maximum • at AC-2 maximum • at AC-3 maximum • at AC-3e <ul style="list-style-type: none"> — maximum • at AC-4 maximum 	<p>800 1/h 400 1/h 1 000 1/h 1 000 1/h 130 1/h</p>
Control circuit/ Control	
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC <ul style="list-style-type: none"> • at 50 Hz rated value • at 60 Hz rated value 	<p>110 ... 127 V 110 ... 127 V</p>
control supply voltage at DC rated value	110 ... 127 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 	<p>0.8 1.1</p>
operating range factor control supply voltage rated value of magnet coil at AC <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	<p>0.8 ... 1.1 0.8 ... 1.1</p>
design of the surge suppressor	with varistor
apparent pick-up power <ul style="list-style-type: none"> • at minimum rated control supply voltage at AC <ul style="list-style-type: none"> — at 50 Hz — at 60 Hz • at maximum rated control supply voltage at AC <ul style="list-style-type: none"> — at 60 Hz — at 50 Hz 	<p>250 VA 250 VA 300 VA 300 VA</p>
apparent pick-up power of magnet coil at AC <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	<p>300 VA 300 VA</p>
inductive power factor with closing power of the coil <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	<p>0.9 0.9</p>
apparent holding power <ul style="list-style-type: none"> • at minimum rated control supply voltage at DC • at maximum rated control supply voltage at DC 	<p>4.3 VA 5.2 VA</p>

apparent holding power	
<ul style="list-style-type: none"> ● at minimum rated control supply voltage at AC <ul style="list-style-type: none"> — at 50 Hz — at 60 Hz ● at maximum rated control supply voltage at AC <ul style="list-style-type: none"> — at 50 Hz — at 60 Hz 	<p>4.8 VA</p> <p>4.8 VA</p> <p>5.8 VA</p> <p>5.8 VA</p>
inductive power factor with the holding power of the coil	
<ul style="list-style-type: none"> ● at 50 Hz ● at 60 Hz 	<p>0.8</p> <p>0.8</p>
closing power of magnet coil at DC	360 W
holding power of magnet coil at DC	5.2 W
closing delay	
<ul style="list-style-type: none"> ● at AC ● at DC 	<p>20 ... 95 ms</p> <p>20 ... 95 ms</p>
opening delay	
<ul style="list-style-type: none"> ● at AC ● at DC 	<p>40 ... 60 ms</p> <p>40 ... 60 ms</p>
arcing time	10 ... 15 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC contacts for auxiliary contacts instantaneous contact	2
number of NO contacts for auxiliary contacts 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 ● at 690 V rated value 	<p>6 A</p> <p>3 A</p> <p>2 A</p> <p>1 A</p>
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 	<p>10 A</p> <p>6 A</p> <p>6 A</p> <p>3 A</p> <p>2 A</p> <p>1 A</p> <p>0.15 A</p>
operational current at DC-13	
<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 	<p>10 A</p> <p>2 A</p> <p>2 A</p> <p>1 A</p> <p>0.9 A</p> <p>0.3 A</p> <p>0.1 A</p>
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
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 	<p>124 A</p> <p>125 A</p>
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 	<p>25 hp</p> <p>40 hp</p> <p>50 hp</p> <p>100 hp</p> <p>125 hp</p>
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 <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 coordination 2 required ● for short-circuit protection of the auxiliary switch required 	gG: 355 A (690 V, 100 kA) gG: 250 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 side-by-side mounting	Yes
fastening method	screw fixing
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 0 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 ● at contactor for auxiliary contacts ● of magnet coil 	box terminal spring-loaded terminals Spring-type terminals Spring-type terminals
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 ● for AWG cables for main contacts 	max. 1x 50, 1x 70 mm ² max. 1x 50, 1x 70 mm ² max. 1x 50, 1x 70 mm ² max. 1x 50, 1x 70 mm ² 2x 1/0
connectable conductor cross-section for main contacts <ul style="list-style-type: none"> ● stranded ● finely stranded with core end processing ● finely stranded without core end processing 	16 ... 70 mm ² 16 ... 70 mm ² 16 ... 70 mm ²
connectable conductor cross-section for auxiliary contacts <ul style="list-style-type: none"> ● solid or stranded ● finely stranded with core end processing ● finely stranded without core end processing 	0.25 ... 2.5 mm ² 0.25 ... 1.5 mm ² 0.25 ... 2.5 mm ²
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 ● for 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 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
• suitable for safety function	Yes
suitability for use safety-related switching OFF	Yes
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
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	IP20
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front
Approvals Certificates	
General Product Approval	



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EMV	Functional Safety	Test Certificates	Maritime application
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[Type Examination Certificate](#)

[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)



Maritime application	other
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[Miscellaneous](#)



[Confirmation](#)

other	Railway	Environment
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[Confirmation](#)

[Miscellaneous](#)

[Special Test Certificate](#)



[Environmental Confirmations](#)

Further information

Information on the packaging
<https://support.industry.siemens.com/cs/ww/en/view/109813875>
 Information for data generation and storage
<https://support.industry.siemens.com/cs/ww/en/view/109995012>
 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=3RT1054-3AF36>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1054-3AF36>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT1054-3AF36>

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

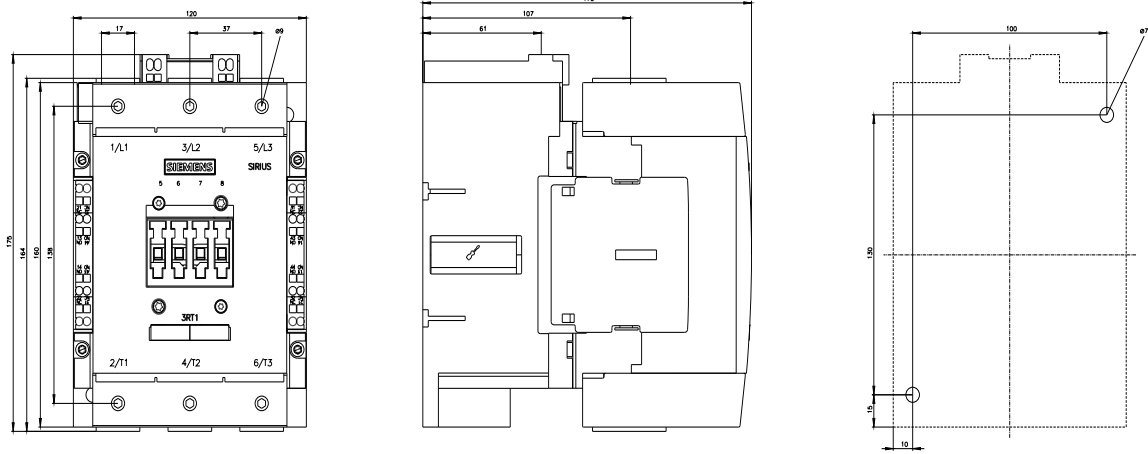
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT1054-3AF36&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT1054-3AF36/char>

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

<https://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT1054-3AF36&objecttype=14&gridview=view1>





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