## **SIEMENS**

Data sheet 3RT1054-1AF36



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: screw terminal

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT1
General technical data	
size of contactor	S6
product extension	
<ul> <li>function module for communication</li> </ul>	No
auxiliary switch	Yes
power loss [W] for rated value of the current	
<ul> <li>at AC in hot operating state</li> </ul>	21 W
<ul> <li>at AC in hot operating state per pole</li> </ul>	7 W
<ul> <li>without load current share typical</li> </ul>	5.2 W
type of calculation of power loss depending on pole	quadratic
insulation voltage	
<ul> <li>of main circuit with degree of pollution 3 rated value</li> </ul>	1 000 V
<ul> <li>of auxiliary circuit with degree of pollution 3 rated value</li> </ul>	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)	
<ul> <li>of contactor typical</li> </ul>	10 000 000
<ul> <li>of the contactor with added electronically optimized auxiliary switch block typical</li> </ul>	5 000 000
<ul> <li>of the contactor with added auxiliary switch block typical</li> </ul>	10 000 000
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	05/01/2012
SVHC substance name	Lead - 7439-92-1
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
<ul> <li>during operation</li> </ul>	-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 %
fain circuit	
number of poles for main current circuit	3
number of NO contacts for main contacts	3
operating voltage	
at AC-3 rated value maximum	1 000 V
at AC-3e rated value maximum	1 000 V
operational current	1 000 V
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 $^{\circ}\text{C}$ 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 40 $^{\circ}\text{C}$ rated value	80 A
<ul> <li>up to 1000 V at ambient temperature 60 °C rated value</li> <li>at AC-3</li> </ul>	80 A
— 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	33 A
	445.0
— 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
<ul> <li>at AC-5b up to 400 V rated value</li> </ul>	95 A
• at AC-6a	
<ul> <li>up to 230 V for current peak value n=20 rated value</li> </ul>	115 A
<ul> <li>up to 400 V for current peak value n=20 rated value</li> </ul>	115 A
<ul> <li>up to 500 V for current peak value n=20 rated value</li> </ul>	115 A
<ul> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	115 A
— up to 1000 V for current peak value n=20 rated value	53 A
• at AC-6a	22.4
— 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  operational current for approx. 200000 operating cycles at	70 mm²
AC-4	
at 400 V rated value	54 A
at 690 V rated value	48 A
operational current	
at 1 current path at DC-1	
— at 24 V rated value	160 A
— at 60 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
<ul><li>with 2 current paths in series at DC-1</li></ul>	
— at 24 V rated value	160 A
— at 60 V rated value	160 A

	100.1
— 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 60 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
— at 60 V rated value	7.5 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
<ul> <li>with 2 current paths in series at DC-3 at DC-5</li> </ul>	
— at 24 V rated value	160 A
— at 60 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
<ul> <li>with 3 current paths in series at DC-3 at DC-5</li> </ul>	
— at 24 V rated value	160 A
— at 60 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-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-	
at 400 V rated value	29 kW
at 690 V rated value  operating apparent power at AC-6a	48 kW
• up to 230 V for current peak value n=20 rated value	40 000 kVA
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up to 400 V for current peak value n=20 rated value     up to 500 V for current peak value n=20 rated value	80 000 VA
up to 500 V for current peak value n=20 rated value     up to 600 V for current peak value n=20 rated value	100 000 VA
up to 690 V for current peak value n=20 rated value     up to 1000 V for current peak value n=20 rated value	130 000 VA
• up to 1000 V for current peak value n=20 rated value	90 000 VA
operating apparent power at AC-6a	30 000 \/\
up to 230 V for current peak value n=30 rated value	30 000 VA
• up to 400 V for current peak value n=30 rated value	60 000 VA
up to 500 V for current peak value n=30 rated value	80 000 VA
• up to 690 V for current peak value n=30 rated value	110 000 VA
up to 1000 V for current peak value n=30 rated value      about time withstand current in sold energing state up to	90 000 VA
short-time withstand current in cold operating state up to	

40 °C	
<ul> <li>limited to 1 s switching at zero current maximum</li> </ul>	2 565 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	1 654 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	1 170 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	729 A; Use minimum cross-section acc. to AC-1 rated value
Iimited 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 AC	2 000 1/h
• at DC	2 000 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
<ul> <li>at AC-3e maximum</li> </ul>	1 000 1/h
• at AC-4 maximum	130 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC	
at 50 Hz rated value	110 127 V
at 60 Hz rated value	110 127 V
control supply voltage at DC rated value	
•	110 127 V
operating range factor control supply voltage rated value of	
magnet coil at DC	0.0
• initial value	0.8
full-scale value	1.1
operating range factor control supply voltage rated value of magnet coil at AC	
● at 50 Hz	0.8 1.1
● at 60 Hz	0.8 1.1
design of the surge suppressor	with varistor
apparent pick-up power	
at minimum rated control supply voltage at AC	
— at 50 Hz	250 VA
— at 60 Hz	250 VA
at maximum rated control supply voltage at AC	
— at 60 Hz	300 VA
— at 50 Hz	300 VA
apparent pick-up power of magnet coil at AC	
● at 50 Hz	300 VA
● at 60 Hz	300 VA
inductive power factor with closing power of the coil	
• at 50 Hz	0.9
● at 60 Hz	0.9
apparent holding power	
<ul> <li>at minimum rated control supply voltage at DC</li> </ul>	4.3 VA
<ul> <li>at maximum rated control supply voltage at DC</li> </ul>	5.2 VA
apparent holding power	
<ul> <li>at minimum rated control supply voltage at AC</li> </ul>	
— at 50 Hz	4.8 VA
— at 60 Hz	4.8 VA
<ul> <li>at maximum rated control supply voltage at AC</li> </ul>	
— at 50 Hz	5.8 VA
— at 60 Hz	5.8 VA
inductive power factor with the holding power of the coil	
• at 50 Hz	0.8
• at 60 Hz	0.8
closing power of magnet coil at DC	360 W
holding power of magnet coil at DC	5.2 W
closing delay	
• at AC	20 95 ms

at DC	20 95 ms
opening delay	20 30 1113
• at AC	40 60 ms
at AC     at DC	40 60 ms
	10 15 ms
arcing time  control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	Standard AT - Az
number of NC contacts for auxiliary contacts instantaneous	2
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	
• at 230 V rated value	6 A
• at 400 V rated value	3 A
• at 500 V rated value	2 A
• at 690 V rated value	1 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	10 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
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	
• at 480 V rated value	124 A
at 600 V rated value	125 A
yielded mechanical performance [hp]	
<ul> <li>for single-phase AC motor</li> </ul>	
— 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	
design of the fuse link	
<ul> <li>for short-circuit protection of the main circuit</li> </ul>	
<ul> <li>— with type of coordination 1 required</li> </ul>	gG: 355 A (690 V, 100 kA)
— with type of assignment 2 required	gG: 250 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
height	172 mm
width	120 mm
depth	170 mm
required spacing	
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<ul><li>with side-by-side mounting</li></ul>	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
<ul> <li>for grounded parts</li> </ul>	
— 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	box terminal
<ul> <li>for auxiliary and control circuit</li> </ul>	screw-type terminals
<ul> <li>at contactor for auxiliary contacts</li> </ul>	Screw-type terminals
of magnet coil	Screw-type terminals
type of connectable conductor cross-sections	
• for main contacts	
— stranded	max. 1x 50, 1x 70 mm <sup>2</sup>
<ul><li>— solid or stranded</li></ul>	max. 1x 50, 1x 70 mm <sup>2</sup>
<ul> <li>finely stranded with core end processing</li> </ul>	max. 1x 50, 1x 70 mm <sup>2</sup>
<ul> <li>finely stranded without core end processing</li> </ul>	max. 1x 50, 1x 70 mm <sup>2</sup>
for AWG cables for main contacts	2x 1/0
connectable conductor cross-section for main contacts	
• stranded	16 70 mm²
<ul> <li>finely stranded with core end processing</li> </ul>	16 70 mm²
finely stranded without core end processing	16 70 mm²
connectable conductor cross-section for auxiliary contacts	
<ul> <li>solid or stranded</li> </ul>	0.5 4 mm²
finely stranded with core end processing	0.5 2.5 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)
<ul> <li>finely stranded with core end processing</li> </ul>	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
Safety related data	
product function	
mirror contact according to IEC 60947-4-1	Yes
• positively driven operation according to IEC 60947-5-1	No
suitability for use safety-related switching OFF	Yes; applies only to contactor operating mechanism
B10 value with high demand rate according to SN 31920	1 000 000
IEC 61508	
T1 value	
<ul> <li>for proof test interval or service life according to IEC 61508</li> </ul>	20 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	









Confirmation



**General Product Approval** 

EMV

**Functional Saftey** 

**Test Certificates** 

<u>KC</u>





Type Examination Certificate

Special Test Certific-<u>ate</u>

Type Test Certificates/Test Report

Marine / Shipping











Confirmation

other

other

**Miscellaneous** 

Confirmation

**Special Test Certific**ate

Railway



**Environment** 

Environmental Con-firmations

**Miscellaneous** 

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=3RT1054-1AF36

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1054-1AF36

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT1054-1AF36

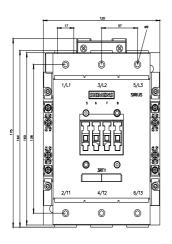
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

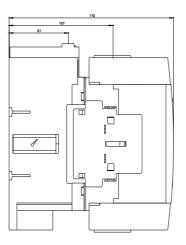
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT1054-1AF36&lang=en

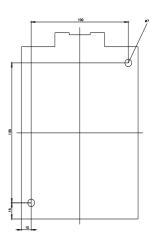
Characteristic: Tripping characteristics, I2t, Let-through current

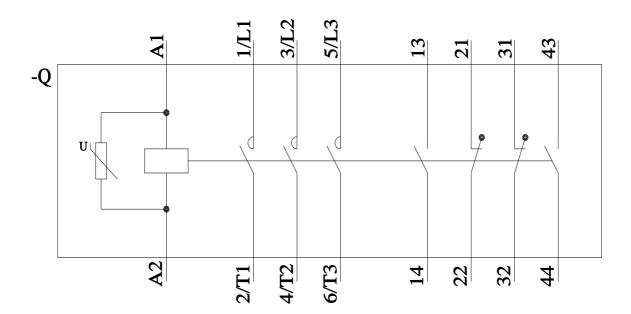
https://support.industry.siemens.com/cs/ww/en/ps/3RT1054-1AF36/char

Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT1054-1AF36&objecttype=14&gridview=view1









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