## **SIEMENS**

Data sheet 3RT1054-1AP36





power contactor, AC-3e/AC-3 115 A, 55 kW / 400 V, AC (50-60 Hz) / DC Uc: 220-240 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
without load current share typical	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
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
Weight	3.594 kg
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	

during operation	-25 +60 °C
during operation     during storage	-25 +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
operating voltage	
<ul> <li>at AC-3 rated value maximum</li> </ul>	1 000 V
at AC-3e rated value maximum	1 000 V
operational current	
<ul> <li>at AC-1 at 400 V at ambient temperature 40 °C rated value</li> </ul>	160 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated	160 A
value	
— 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
— up to 1000 V at ambient temperature 60 $^{\circ}\text{C}$ 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-5 up to 600 V rated value	97 A
at AC-5a up to 690 V rated value      AC-5b up to 400 V rated value	140 A
<ul><li>at AC-5b up to 400 V rated value</li><li>at AC-6a</li></ul>	95 A
<ul> <li>at AC-oa</li> <li>up to 230 V for current peak value n=20 rated value</li> </ul>	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  — 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	53 A
value	
• 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 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	
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
— 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
<ul> <li>with 3 current paths in series at DC-1</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	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  at 400 V rated value	29 kW
at 400 V rated value     at 690 V rated value	48 kW
operating apparent power at AC-6a	I NII
• up to 230 V for current peak value n=20 rated value	40 kVA
• up to 200 vitor current peak value II-20 lated value	7V IIV/1

• up to 400 V for current peak value n=20 rated value	80 kVA
<ul> <li>up to 500 V for current peak value n=20 rated value</li> </ul>	100 kVA
<ul> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	130 kVA
<ul> <li>up to 1000 V for current peak value n=20 rated value</li> </ul>	90 kVA
operating apparent power at AC-6a	
<ul> <li>up to 230 V for current peak value n=30 rated value</li> </ul>	30 kVA
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	60 kVA
• up to 500 V for current peak value n=30 rated value	80 kVA
<ul> <li>up to 690 V for current peak value n=30 rated value</li> </ul>	110 kVA
• up to 1000 V for current peak value n=30 rated value	90 kVA
short-time withstand current in cold operating state up to	
40 °C	0.505 A. Headrichean and a setting and to AO A metadocal as
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
Iimited to 60 s switching at zero current maximum  Polload switching frequency	572 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	2 000 1/h
• at AC	
• at DC	2 000 1/h
operating frequency	800 1/h
• at AC 2 maximum	
• at AC 3 maximum	400 1/h
at AC-3 maximum      at AC-3e maximum	1 000 1/h 1 000 1/h
at AC-4 maximum  Control circuit/ Control	130 1/h
	ACIDO
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC	220 240 V
at 50 Hz rated value     at 60 Hz rated value	220 240 V
at 60 Hz rated value  Approximately control country to the country to the control country to the control coun	220 240 V
control supply voltage at DC rated value	220 240 V
operating range factor control supply voltage rated value of magnet coil at DC	
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	
<ul> <li>at minimum rated control supply voltage at AC</li> </ul>	
— at 50 Hz	250 VA
— at 60 Hz	250 VA
<ul> <li>at maximum rated control supply voltage at AC</li> </ul>	
— 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
at minimum rated control supply voltage at Do	
at maximum rated control supply voltage at DC     at maximum rated control supply voltage at DC	5.2 VA
	5.2 VA
at maximum rated control supply voltage at DC	5.2 VA
at maximum rated control supply voltage at DC     apparent holding power	5.2 VA 4.8 VA
at maximum rated control supply voltage at DC  apparent holding power     at minimum rated control supply voltage at AC	

— at 50 Hz	5.8 VA
— at 50 пz — at 60 Hz	5.8 VA
inductive power factor with the holding power of the coil	0.0 VA
• 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	00 05
• at AC	20 95 ms
• at DC	20 95 ms
opening delay	40 00
• at AC	40 60 ms
• at DC	40 60 ms
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	
• 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
<ul> <li>at 48 V rated value</li> </ul>	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 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	
• for short-circuit protection of the main circuit	

with type of coordination 4 required	aC: 355 A (600 V 100 kA)
— with type of coordination 1 required	gG: 355 A (690 V, 100 kA)
<ul> <li>— with type of coordination 2 required</li> </ul>	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
- <b>V</b> F	+/- 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> <li>with side-by-side mounting</li> </ul>	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 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	10 mm
type of electrical connection  • for main current circuit	box terminal
for auxiliary and control circuit	
•	screw-type terminals
at contactor for auxiliary contacts	Screw-type terminals
of magnet coil  The second secon	Screw-type terminals
type of connectable conductor cross-sections	
• for main contacts	4 50. 4 70
— stranded	max. 1x 50, 1x 70 mm²
— solid or stranded	max. 1x 50, 1x 70 mm <sup>2</sup>
— finely stranded with core end processing	max. 1x 50, 1x 70 mm <sup>2</sup>
— finely stranded without core end processing	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	
solid or stranded	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)
<ul> <li>for AWG cables for auxiliary contacts</li> </ul>	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	
<ul> <li>mirror contact according to IEC 60947-4-1</li> </ul>	Yes
<ul> <li>positively driven operation according to IEC 60947-5-1</li> </ul>	No

<ul> <li>suitable for safety function</li> </ul>	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	
<ul> <li>with low demand rate according to SN 31920</li> </ul>	40 %
<ul> <li>with high demand rate according to SN 31920</li> </ul>	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	









<u>KC</u>



EMV Functional Saftey Test Certificates Maritime application



Type Examination Certificate

Special Test Certificate

Type Test Certificates/Test Report





Maritime application other







**Miscellaneous** 

Confirmation

**Miscellaneous** 

other Railway Environment

Confirmation

Special Test Certificate



Siemens EcoTech



Environmental Confirmations

## Further information

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=3RT1054-1AP36

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1054-1AP36

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT1054-1AP36

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

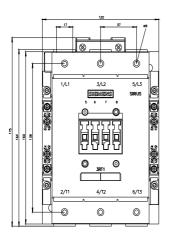
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT1054-1AP36&lang=en

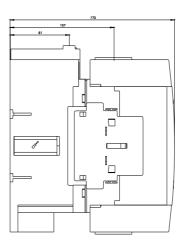
Characteristic: Tripping characteristics, I²t, Let-through current

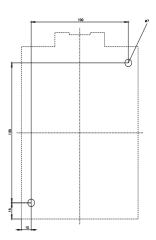
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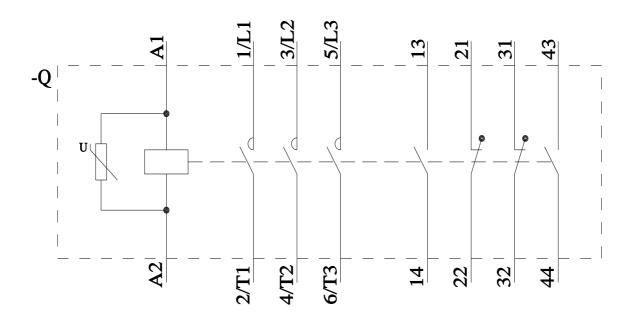
Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT1054-1AP36&objecttype=14&gridview=view1









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