



power contactor, AC-3e/AC-3 500 A, 250 kW / 400 V AC (50-60 Hz) / DC U<sub>c</sub>: 200-220 V 3-pole, auxiliary contacts 2 NO + 2 NC drive: conventional main circuit: busbar control and auxiliary circuit: screw terminal

<b>product brand name</b>	SIRIUS
<b>product designation</b>	Power contactor
<b>product type designation</b>	3RT1
<b>General technical data</b>	
<b>size of contactor</b>	S12
<b>product extension</b>	
• function module for communication	No
• auxiliary switch	Yes
<b>power loss [W] for rated value of the current</b>	
• at AC in hot operating state	165 W
• at AC in hot operating state per pole	55 W
• without load current share typical	10 W
<b>type of calculation of power loss current-dependent</b>	quadratic
<b>insulation voltage</b>	
• 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
<b>surge voltage resistance</b>	
• 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
<b>shock resistance at rectangular impulse</b>	
• at AC	8,5 g / 5 ms, 4,2 g / 10 ms
• at DC	8,5 g / 5 ms, 4,2 g / 10 ms
<b>shock resistance with sine pulse</b>	
• at AC	13,4 g / 5 ms, 6,5 g / 10 ms
• at DC	13,4 g / 5 ms, 6,5 g / 10 ms
<b>mechanical service life (operating cycles)</b>	
• 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
<b>reference code according to IEC 81346-2</b>	Q
<b>Substance Prohibitance (day/month/year)</b>	05/01/2012
<b>SVHC substance name</b>	Lead CAS-No. 7439-92-1
<b>Net Weight</b>	10.275 kg

Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
<b>ambient temperature</b>	
• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C
<b>relative humidity minimum</b>	10 %
<b>relative humidity at 55 °C according to IEC 60068-2-30 maximum</b>	95 %
Main circuit	
<b>number of poles for main current circuit</b>	3
<b>number of NO contacts for main contacts</b>	3
<b>number of NC contacts for main contacts</b>	0
<b>operating voltage</b>	
• at AC-3 rated value maximum	1 000 V
• at AC-3e rated value maximum	1 000 V
<b>operational current</b>	
• at AC-1 at 400 V at ambient temperature 40 °C rated value	610 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	610 A
— up to 690 V at ambient temperature 60 °C rated value	550 A
— up to 1000 V at ambient temperature 40 °C rated value	200 A
— up to 1000 V at ambient temperature 60 °C rated value	200 A
• at AC-3	
— at 400 V rated value	500 A
— at 500 V rated value	500 A
— at 690 V rated value	450 A
— at 1000 V rated value	180 A
• at AC-3e	
— at 400 V rated value	500 A
— at 500 V rated value	500 A
— at 690 V rated value	450 A
— at 1000 V rated value	180 A
• at AC-4 at 400 V rated value	430 A
• at AC-5a up to 690 V rated value	536 A
• at AC-5b up to 400 V rated value	415 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	414 A
— up to 400 V for current peak value n=20 rated value	414 A
— up to 500 V for current peak value n=20 rated value	414 A
— up to 690 V for current peak value n=20 rated value	414 A
— up to 1000 V for current peak value n=20 rated value	180 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	276 A
— up to 400 V for current peak value n=30 rated value	276 A
— up to 500 V for current peak value n=30 rated value	276 A
— up to 690 V for current peak value n=30 rated value	276 A
— up to 1000 V for current peak value n=30 rated value	180 A
minimum cross-section in main circuit at maximum AC-1 rated value	370 mm <sup>2</sup>
<b>operational current for approx. 200000 operating cycles at AC-4</b>	
• at 400 V rated value	175 A
• at 690 V rated value	150 A
<b>operational current</b>	
• at 1 current path at DC-1	

— at 24 V rated value	400 A
— at 60 V rated value	330 A
— at 110 V rated value	33 A
— at 220 V rated value	3.8 A
— at 440 V rated value	0.9 A
— at 600 V rated value	0.6 A
<b>• with 2 current paths in series at DC-1</b>	
— at 24 V rated value	400 A
— at 60 V rated value	400 A
— at 110 V rated value	400 A
— at 220 V rated value	400 A
— at 440 V rated value	4 A
— at 600 V rated value	2 A
<b>• with 3 current paths in series at DC-1</b>	
— at 24 V rated value	400 A
— at 60 V rated value	400 A
— at 110 V rated value	400 A
— at 220 V rated value	400 A
— at 440 V rated value	11 A
— at 600 V rated value	5.2 A
<b>• at 1 current path at DC-3 at DC-5</b>	
— at 24 V rated value	400 A
— at 60 V rated value	11 A
— at 220 V rated value	0.6 A
— at 440 V rated value	0.18 A
— at 600 V rated value	0.125 A
<b>• with 2 current paths in series at DC-3 at DC-5</b>	
— at 24 V rated value	400 A
— at 60 V rated value	400 A
— at 110 V rated value	400 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
<b>• with 3 current paths in series at DC-3 at DC-5</b>	
— at 24 V rated value	400 A
— at 60 V rated value	400 A
— at 110 V rated value	400 A
— at 220 V rated value	400 A
— at 440 V rated value	1.4 A
— at 600 V rated value	0.75 A
<b>operating power</b>	
<b>• at AC-3</b>	
— at 230 V rated value	160 kW
— at 400 V rated value	250 kW
— at 500 V rated value	315 kW
— at 690 V rated value	400 kW
— at 1000 V rated value	250 kW
<b>• at AC-3e</b>	
— at 230 V rated value	160 kW
— at 400 V rated value	250 kW
— at 500 V rated value	315 kW
— at 690 V rated value	400 kW
— at 1000 V rated value	250 kW
<b>operating power for approx. 200000 operating cycles at AC-4</b>	
<b>• at 400 V rated value</b>	98 kW
<b>• at 690 V rated value</b>	148 kW
<b>operating apparent power at AC-6a</b>	
<b>• up to 230 V for current peak value n=20 rated value</b>	160 kVA

<ul style="list-style-type: none"> <li>● up to 400 V for current peak value n=20 rated value</li> <li>● up to 500 V for current peak value n=20 rated value</li> <li>● up to 690 V for current peak value n=20 rated value</li> <li>● up to 1000 V for current peak value n=20 rated value</li> </ul>	280 kVA 350 kVA 490 kVA 310 kVA
<b>operating apparent power at AC-6a</b> <ul style="list-style-type: none"> <li>● up to 230 V for current peak value n=30 rated value</li> <li>● up to 400 V for current peak value n=30 rated value</li> <li>● up to 500 V for current peak value n=30 rated value</li> <li>● up to 690 V for current peak value n=30 rated value</li> <li>● up to 1000 V for current peak value n=30 rated value</li> </ul>	110 kVA 190 kVA 230 kVA 330 kVA 310 kVA
<b>short-time withstand current in cold operating state up to 40 °C</b> <ul style="list-style-type: none"> <li>● limited to 1 s switching at zero current maximum</li> <li>● limited to 5 s switching at zero current maximum</li> <li>● limited to 10 s switching at zero current maximum</li> <li>● limited to 30 s switching at zero current maximum</li> <li>● limited to 60 s switching at zero current maximum</li> </ul>	7 484 A; Use minimum cross-section acc. to AC-1 rated value 7 484 A; Use minimum cross-section acc. to AC-1 rated value 5 978 A; Use minimum cross-section acc. to AC-1 rated value 3 765 A; Use minimum cross-section acc. to AC-1 rated value 2 887 A; Use minimum cross-section acc. to AC-1 rated value
<b>no-load switching frequency</b> <ul style="list-style-type: none"> <li>● at AC</li> <li>● at DC</li> </ul>	2 000 1/h 2 000 1/h
<b>operating frequency</b> <ul style="list-style-type: none"> <li>● at AC-1 maximum</li> <li>● at AC-2 maximum</li> <li>● at AC-3 maximum</li> <li>● at AC-3e <ul style="list-style-type: none"> <li>— maximum</li> </ul> </li> <li>● at AC-4 maximum</li> </ul>	500 1/h 170 1/h 420 1/h 420 1/h 130 1/h
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	AC/DC
<b>control supply voltage at AC</b> <ul style="list-style-type: none"> <li>● at 50 Hz rated value</li> <li>● at 60 Hz rated value</li> </ul>	200 ... 220 V 200 ... 220 V
<b>control supply voltage at DC rated value</b>	200 ... 220 V
<b>operating range factor control supply voltage rated value of magnet coil at DC</b> <ul style="list-style-type: none"> <li>● initial value</li> <li>● full-scale value</li> </ul>	0.8 1.1
<b>operating range factor control supply voltage rated value of magnet coil at AC</b> <ul style="list-style-type: none"> <li>● at 50 Hz</li> <li>● at 60 Hz</li> </ul>	0.8 ... 1.1 0.8 ... 1.1
<b>design of the surge suppressor</b>	with varistor
<b>apparent pick-up power</b> <ul style="list-style-type: none"> <li>● at minimum rated control supply voltage at AC <ul style="list-style-type: none"> <li>— at 50 Hz</li> <li>— at 60 Hz</li> </ul> </li> <li>● at maximum rated control supply voltage at AC <ul style="list-style-type: none"> <li>— at 60 Hz</li> <li>— at 50 Hz</li> </ul> </li> </ul>	700 VA 700 VA 830 VA 830 VA
<b>apparent pick-up power of magnet coil at AC</b> <ul style="list-style-type: none"> <li>● at 50 Hz</li> <li>● at 60 Hz</li> </ul>	830 VA 830 VA
<b>inductive power factor with closing power of the coil</b> <ul style="list-style-type: none"> <li>● at 50 Hz</li> <li>● at 60 Hz</li> </ul>	0.9 0.9
<b>apparent holding power</b> <ul style="list-style-type: none"> <li>● at minimum rated control supply voltage at DC</li> <li>● at maximum rated control supply voltage at DC</li> </ul>	8.5 VA 10 VA
<b>apparent holding power</b> <ul style="list-style-type: none"> <li>● at minimum rated control supply voltage at AC</li> </ul>	

— at 50 Hz	7.6 VA
— at 60 Hz	7.6 VA
<b>● at maximum rated control supply voltage at AC</b>	
— at 50 Hz	9.2 VA
— at 60 Hz	9.2 VA
<b>inductive power factor with the holding power of the coil</b>	
● at 50 Hz	0.9
● at 60 Hz	0.9
<b>closing power of magnet coil at DC</b>	920 W
<b>holding power of magnet coil at DC</b>	10 W
<b>closing delay</b>	
● at AC	45 ... 100 ms
● at DC	45 ... 100 ms
<b>opening delay</b>	
● at AC	60 ... 100 ms
● at DC	60 ... 100 ms
<b>arcing time</b>	10 ... 15 ms
<b>control version of the switch operating mechanism</b>	Standard A1 - A2
<b>Auxiliary circuit</b>	
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
<b>operational current at AC-15</b>	
● 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
<b>operational current at DC-12</b>	
● 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
<b>operational current at DC-13</b>	
● 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
<b>contact reliability of auxiliary contacts</b>	1 faulty switching per 100 million (17 V, 1 mA)
<b>UL/CSA ratings</b>	
<b>full-load current (FLA) for 3-phase AC motor</b>	
● at 480 V rated value	477 A
● at 600 V rated value	472 A
<b>yielded mechanical performance [hp]</b>	
● for 3-phase AC motor	
— at 200/208 V rated value	150 hp
— at 220/230 V rated value	200 hp
— at 460/480 V rated value	400 hp
— at 575/600 V rated value	500 hp
<b>contact rating of auxiliary contacts according to UL</b>	A600 / Q600
<b>Short-circuit protection</b>	
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

<b>design of the fuse link</b>	
<ul style="list-style-type: none"> <li>● for short-circuit protection of the main circuit <ul style="list-style-type: none"> <li>— with type of coordination 1 required</li> <li>— with type of coordination 2 required</li> </ul> </li> <li>● for short-circuit protection of the auxiliary switch required</li> </ul>	gG: 630 A (690 V, 100 kA) gG: 500 A (690 V, 100 kA), aM: 500 A (690 V, 50 kA), BS88: 500 A (415 V, 50 kA) gG: 10 A (500 V, 1 kA)

### Installation/ mounting/ dimensions

<b>mounting position</b>	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
<b>fastening method</b>	screw fixing
<b>height</b>	214 mm
<b>width</b>	160 mm
<b>depth</b>	225 mm
<b>required spacing</b>	
<ul style="list-style-type: none"> <li>● with side-by-side mounting <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> <li>● for grounded parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— at the side</li> <li>— downwards</li> </ul> </li> <li>● for live parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> </ul>	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

<b>type of electrical connection</b>	
<ul style="list-style-type: none"> <li>● for main current circuit</li> <li>● for auxiliary and control circuit</li> <li>● at contactor for auxiliary contacts</li> <li>● of magnet coil</li> </ul>	Connection bar screw-type terminals Screw-type terminals Screw-type terminals
<b>width of connection bar</b>	25 mm
<b>thickness of connection bar</b>	6 mm
<b>diameter of holes</b>	11 mm
<b>number of holes</b>	1
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>● for AWG cables for main contacts</li> </ul>	2/0 ... 500 kcmil
<b>connectable conductor cross-section for main contacts</b>	
<ul style="list-style-type: none"> <li>● stranded</li> </ul>	70 ... 240 mm²
<b>connectable conductor cross-section for auxiliary contacts</b>	
<ul style="list-style-type: none"> <li>● solid or stranded</li> <li>● finely stranded with core end processing</li> </ul>	0.5 ... 4 mm² 0.5 ... 2.5 mm²
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>● for auxiliary contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— solid or stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>● for AWG cables for auxiliary contacts</li> </ul>	2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²), max. 2x (0.75 ... 4 mm²) 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²), max. 2x (0.75 ... 4 mm²) 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²) 2x (20 ... 16), 2x (18 ... 14), 1x 12
<b>AWG number as coded connectable conductor cross section for auxiliary contacts</b>	18 ... 14

### Safety related data

<b>product function</b>	
<ul style="list-style-type: none"> <li>● mirror contact according to IEC 60947-4-1</li> <li>● positively driven operation according to IEC 60947-5-1</li> <li>● suitable for safety function</li> </ul>	Yes No 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 %
<b>B10 value with high demand rate according to SN 31920</b>	1 000 000
<b>failure rate [FIT] with low demand rate according to SN 31920</b>	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	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

### Approvals Certificates

Environmental Product Declaration	
• global warming potential [CO2 eq] / during manufacturing	55.8 kg
• global warming potential [CO2 eq] / during sales	2.54 kg
• global warming potential [CO2 eq] / during operation	718 kg
• global warming potential [CO2 eq] / after end of life	-7.03 kg
• global warming potential [CO2 eq] / total	769 kg

Environment	General Product Approval
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[Environmental Conformations](#)



General Product Approval	EMV	Functional Safety	Test Certificates
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Test Certificates	Maritime application	other
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other	Railway
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### 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=3RT1076-6AM36>  
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RT1076-6AM36>

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

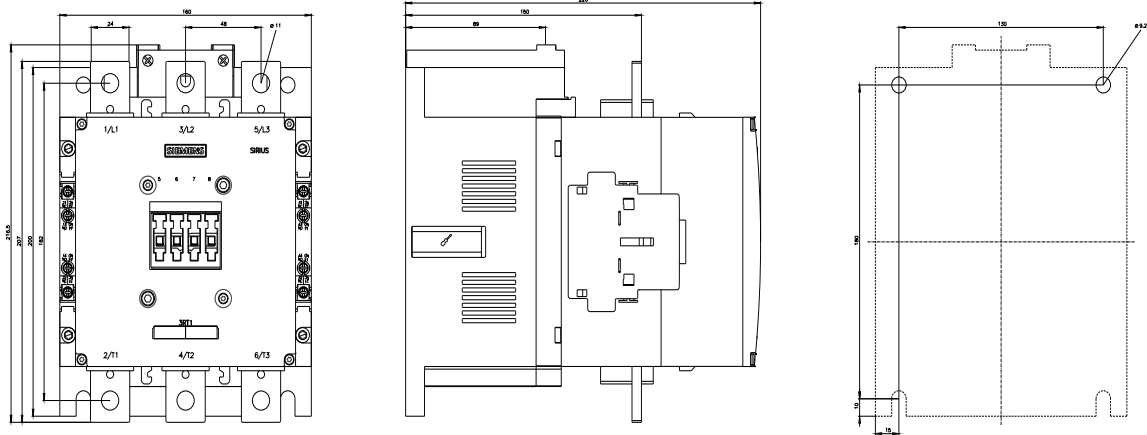
[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT1076-6AM36&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT1076-6AM36&lang=en)

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1076-6AM36>

Characteristic curves

[https://curves.simaris.siemens.com/curves/<mmp\\_prod\\_noCOMP="HAUPT"></mmp\\_prod\\_no>](https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP=)





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