



power contactor, AC-3e/AC-3 500 A, 250 kW / 400 V AC (50-60 Hz) / DC Uc: 96-127 V PLC input 24 V DC 3-pole, auxiliary contacts 2 NO + 2 NC drive: electronic main circuit: busbar 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	S12
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	165 W
• at AC in hot operating state per pole	55 W
• without load current share typical	3.6 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 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 Prohibitation (Date)	05/01/2012
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 %

Main 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	
• 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 ²
operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	175 A
• at 690 V rated value	150 A
operational current	
• 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
• with 2 current paths in series at DC-1	
— 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
● with 3 current paths in series at DC-1	
— 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
● at 1 current path at DC-3 at DC-5	
— 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
● with 2 current paths in series at DC-3 at DC-5	
— 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
● with 3 current paths in series at DC-3 at DC-5	
— 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
operating power	
● at AC-3	
— 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
● at AC-3e	
— 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
operating power for approx. 200000 operating cycles at AC-4	
● at 400 V rated value	98 kW
● at 690 V rated value	148 kW
operating apparent power at AC-6a	
● up to 230 V for current peak value n=20 rated value	160 000 kVA
● up to 400 V for current peak value n=20 rated value	280 000 VA
● up to 500 V for current peak value n=20 rated value	350 000 VA
● up to 690 V for current peak value n=20 rated value	490 000 VA
● up to 1000 V for current peak value n=20 rated value	310 000 VA
operating apparent power at AC-6a	
● up to 230 V for current peak value n=30 rated value	110 000 VA
● up to 400 V for current peak value n=30 rated value	190 000 VA
● up to 500 V for current peak value n=30 rated value	230 000 VA
● up to 690 V for current peak value n=30 rated value	330 000 VA
● up to 1000 V for current peak value n=30 rated value	310 000 VA
short-time withstand current in cold operating state up to 40 °C	

• 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	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
no-load switching frequency	
• at AC • at DC	1 000 1/h 1 000 1/h
operating frequency	
• at AC-1 maximum • at AC-2 maximum • at AC-3 maximum • at AC-3e maximum • at AC-4 maximum	500 1/h 170 1/h 420 1/h 420 1/h 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 • at 60 Hz rated value	96 ... 127 V 96 ... 127 V
control supply voltage at DC	
• rated value	96 ... 127 V
operating range factor control supply voltage rated value of magnet coil at DC	
• initial value • full-scale value	0.8 1.1
operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz • at 60 Hz	0.8 ... 1.1 0.8 ... 1.1
type of PLC-control input according to IEC 60947-1	Type 2
consumed current at PLC-control input according to IEC 60947-1 maximum	20 mA
voltage at PLC-control input rated value	24 V
operating range factor of the voltage at PLC-control input	0.8 ... 1.1
design of the surge suppressor	with varistor
apparent pick-up power of magnet coil at AC	
• at 50 Hz • at 60 Hz	750 VA 750 VA
inductive power factor with closing power of the coil	
• at 50 Hz • at 60 Hz	0.8 0.8
apparent holding power of magnet coil at AC	
• at 50 Hz • at 60 Hz	9 VA 9 VA
inductive power factor with the holding power of the coil	
• at 50 Hz • at 60 Hz	0.4 0.4
closing power of magnet coil at DC	800 W
holding power of magnet coil at DC	3.6 W
closing delay	
• at AC • at DC	60 ... 90 ms 60 ... 90 ms
opening delay	
• at AC • at DC	80 ... 100 ms 80 ... 100 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 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
• 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	477 A
• at 600 V rated value	472 A
yielded mechanical performance [hp]	
• 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
contact rating of auxiliary contacts according to UL	A600 / Q600
Short-circuit protection	
design of the fuse link	
• for short-circuit protection of the main circuit	
— with type of coordination 1 required	gG: 630 A (690 V, 100 kA)
— with type of assignment 2 required	gG: 500 A (690 V, 100 kA), aM: 500 A (690 V, 50 kA), BS88: 500 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
• side-by-side mounting	Yes
height	214 mm
width	160 mm
depth	225 mm
required spacing	
• with side-by-side mounting	
— 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

type of electrical connection	
• for main current circuit • for auxiliary and control circuit • at contactor for auxiliary contacts • of magnet coil	Connection bar spring-loaded terminals Spring-type terminals Spring-type terminals
width of connection bar	25 mm
thickness of connection bar	6 mm
diameter of holes	11 mm
number of holes	1
connectable conductor cross-section for main contacts	
• stranded	70 ... 240 mm ²
connectable conductor cross-section for auxiliary contacts	
• 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	
• for auxiliary contacts — 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 • positively driven operation according to IEC 60947-5-1	Yes No
B10 value with high demand rate according to SN 31920	1 000 000
T1 value for proof test interval or service life according to IEC 61508	20 a
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
suitability for use	
• safety-related switching OFF	Yes

Certificates/ approvals

General Product Approval	EMC
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[Confirmation](#)



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



[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



Marine / Shipping	other
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[Miscellaneous](#)[Confirmation](#)[Miscellaneous](#)

other

Railway

[Confirmation](#)[Special Test Certificate](#)[Vibration and Shock](#)

Further information

Siemens has decided to exit the Russian market (see here).

<https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business>

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

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=3RT1076-2NF36>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1076-2NF36>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT1076-2NF36>

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

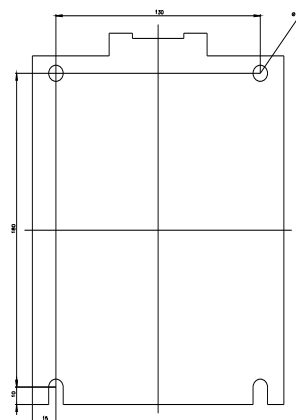
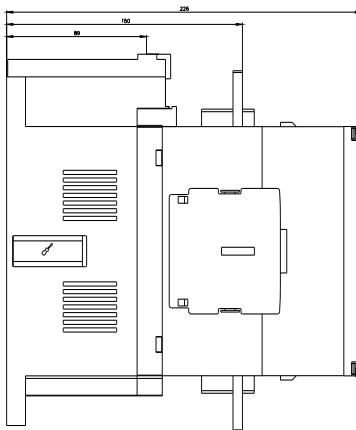
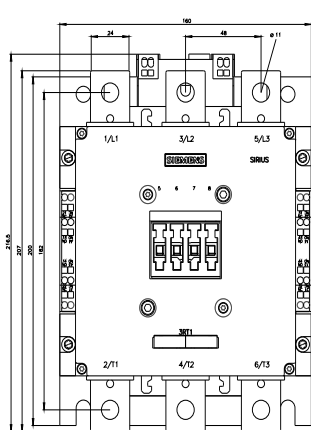
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT1076-2NF36&lang=en

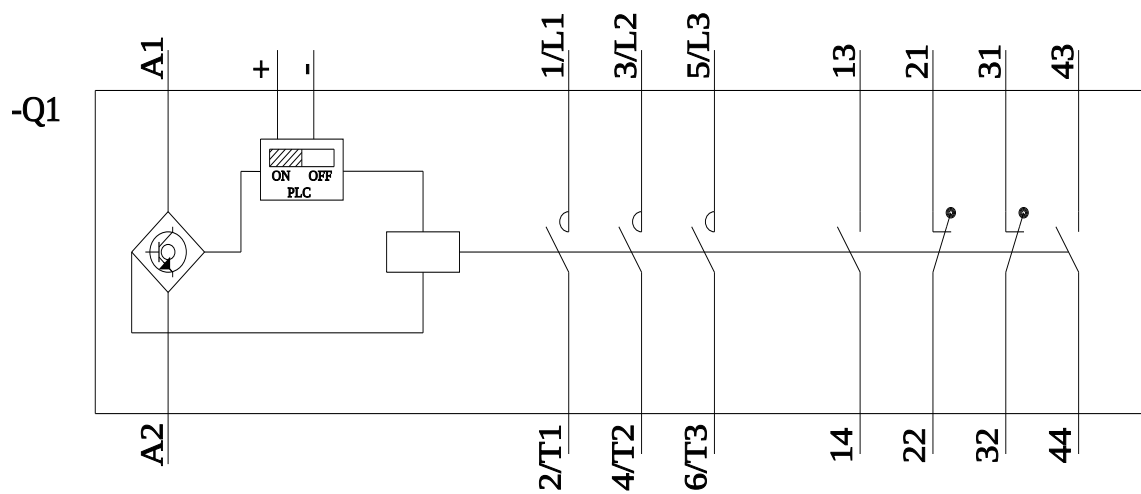
Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT1076-2NF36/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT1076-2NF36&objecttype=14&gridview=view1>





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