



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 24 V DC, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S0

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S0
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	0.6 W
• at AC in hot operating state per pole	0.2 W
• without load current share typical	5.9 W
type of calculation of power loss current-dependent	quadratic
insulation voltage	
• of main circuit with degree of pollution 3 rated value	690 V
• of auxiliary circuit with degree of pollution 3 rated value	690 V
surge voltage resistance	
• of main circuit rated value	6 kV
• of auxiliary circuit rated value	6 kV
maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at DC	10g / 5 ms, 7,5g / 10 ms
shock resistance with sine pulse	
• at DC	15 g / 5 ms, 10 g / 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 (day/month/year)	10/01/2009
Net Weight	582.68 g
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	95 %

maximum	
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	690 V
• at AC-3e rated value maximum	690 V
operational current	
• at AC-1 at 400 V at ambient temperature 40 °C rated value	40 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	40 A
— up to 690 V at ambient temperature 60 °C rated value	35 A
• at AC-3	
— at 400 V rated value	9 A
— at 500 V rated value	9 A
— at 690 V rated value	9 A
• at AC-3e	
— at 400 V rated value	9 A
— at 500 V rated value	9 A
— at 690 V rated value	9 A
• at AC-4 at 400 V rated value	8.5 A
• at AC-5a up to 690 V rated value	35.2 A
• at AC-5b up to 400 V rated value	7.4 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	11.4 A
— up to 400 V for current peak value n=20 rated value	11.4 A
— up to 500 V for current peak value n=20 rated value	9.1 A
— up to 690 V for current peak value n=20 rated value	9 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	7.6 A
— up to 400 V for current peak value n=30 rated value	7.6 A
— up to 500 V for current peak value n=30 rated value	6.1 A
— up to 690 V for current peak value n=30 rated value	6.1 A
minimum cross-section in main circuit at maximum AC-1 rated value	10 mm ²
operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	4.1 A
• at 690 V rated value	3.3 A
operational current	
• at 1 current path at DC-1	
— at 24 V rated value	35 A
— at 60 V rated value	20 A
— at 110 V rated value	4.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.4 A
— at 600 V rated value	0.25 A
• with 2 current paths in series at DC-1	
— at 24 V rated value	35 A
— at 60 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	5 A
— at 440 V rated value	1 A
— at 600 V rated value	0.8 A
• with 3 current paths in series at DC-1	
— at 24 V rated value	35 A

— 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	35 A 35 A 35 A 2.9 A 1.4 A
● at 1 current path at DC-3 at DC-5 — 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	20 A 5 A 2.5 A 1 A 0.09 A 0.06 A
● with 2 current paths in series at DC-3 at DC-5 — 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	35 A 35 A 15 A 3 A 0.27 A 0.16 A
● with 3 current paths in series at DC-3 at DC-5 — 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	35 A 35 A 35 A 10 A 0.6 A 0.6 A
operating power ● at AC-3 — at 230 V rated value — at 400 V rated value — at 500 V rated value — at 690 V rated value ● at AC-3e — at 230 V rated value — at 400 V rated value — at 500 V rated value — at 690 V rated value	2.2 kW 4 kW 4 kW 7.5 kW 2.2 kW 4 kW 4 kW 7.5 kW
operating power for approx. 200000 operating cycles at AC-4 ● at 400 V rated value ● at 690 V rated value	2 kW 2.5 kW
operating apparent power at AC-6a ● 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	4.5 kVA 7.8 kVA 7.8 kVA 10.7 kVA
operating apparent power at AC-6a ● 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	3 kVA 5.2 kVA 5.2 kVA 7.2 kVA
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	170 A; Use minimum cross-section acc. to AC-1 rated value 170 A; Use minimum cross-section acc. to AC-1 rated value 140 A; Use minimum cross-section acc. to AC-1 rated value 104 A; Use minimum cross-section acc. to AC-1 rated value 88 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	

• at DC	1 500 1/h
operating frequency	
• at AC-1 maximum	1 000 1/h
• at AC-2 maximum	1 000 1/h
• at AC-3 maximum	1 000 1/h
• at AC-3e — maximum	1 000 1/h
• at AC-4 maximum	300 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	DC
control supply voltage at DC rated value	24 V
operating range factor control supply voltage rated value of magnet coil at DC	
• initial value	0.8
• full-scale value	1.1
closing power of magnet coil at DC	5.9 W
holding power of magnet coil at DC	5.9 W
closing delay	
• at DC	50 ... 170 ms
opening delay	
• at DC	15 ... 18 ms
arcing time	10 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC contacts for auxiliary contacts instantaneous contact	1
number of NO contacts for auxiliary contacts instantaneous contact	1
operational current at AC-12 maximum	10 A
operational current at AC-15	
• at 230 V rated value	10 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	7.6 A
• at 600 V rated value	9 A
yielded mechanical performance [hp]	
• for single-phase AC motor — at 110/120 V rated value — at 230 V rated value	1 hp 1 hp
• for 3-phase AC motor	

— at 200/208 V rated value	2 hp
— at 220/230 V rated value	3 hp
— at 460/480 V rated value	5 hp
— at 575/600 V rated value	7.5 hp
contact rating of auxiliary contacts according to UL	A600 / P600
UL File Number (CCN)	E31519 (NLDX, NLDX7)
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 1 required - with type of coordination 2 required - for short-circuit protection of the auxiliary switch required	gG: 63 A (690 V, 100 kA), aM: 32 A (690 V, 100 kA), BS88: 63 A (415 V, 80 kA) gG: 25 A (690 V, 100 kA), aM: 20 A (690 V, 100 kA), BS88: 25 A (415 V, 80 kA) gG: 10 A (500 V, 1 kA)
Installation/ mounting/ dimensions	
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
fastening method side-by-side mounting	Yes
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
height	85 mm
width	45 mm
depth	107 mm
required spacing - with side-by-side mounting - forwards - upwards - downwards - at the side - for grounded parts - forwards - upwards - at the side - downwards - for live parts - forwards - upwards - downwards - at the side	10 mm 10 mm 10 mm 0 mm 10 mm 10 mm 6 mm 10 mm 10 mm 10 mm 10 mm 6 mm
Connections/ Terminals	
type of electrical connection - for main current circuit - for auxiliary and control circuit - at contactor for auxiliary contacts - of magnet coil	screw-type terminals screw-type terminals Screw-type terminals screw terminal
type of connectable conductor cross-sections - for main contacts - solid - solid or stranded - finely stranded with core end processing - for AWG cables for main contacts	2x (1 ... 2.5 mm²), 2x (2.5 ... 10 mm²) 2x (1 ... 2.5 mm²), 2x (2.5 ... 10 mm²) 2x (1 ... 2.5 mm²), 2x (2.5 ... 6 mm²), 1x 10 mm² 2x (16 ... 12), 2x (14 ... 8)
connectable conductor cross-section for main contacts - solid - stranded - finely stranded with core end processing	1 ... 10 mm² 1 ... 10 mm² 1 ... 10 mm²
connectable conductor cross-section for auxiliary contacts - solid or stranded - finely stranded with core end processing	0.5 ... 2.5 mm² 0.5 ... 2.5 mm²
type of connectable conductor cross-sections for auxiliary contacts	

— solid or stranded	2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²)
— finely stranded with core end processing	2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²)
• for AWG cables for auxiliary contacts	2x (20 ... 16), 2x (18 ... 14)
AWG number as coded connectable conductor cross section for main contacts	16 ... 8
AWG number as coded connectable conductor cross section for auxiliary contacts	20 ... 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	
Environmental Product Declaration	
• global warming potential [CO ₂ eq] / during manufacturing	2.65 kg
• global warming potential [CO ₂ eq] / during operation	219 kg
• global warming potential [CO ₂ eq] / after end of life	-0.639 kg
• global warming potential [CO ₂ eq] / total	221 kg
Environment	General Product Approval
Environmental Confirmations     	
General Product Approval	
     	
Test Certificates	
Maritime application	
Special Test Certificate Type Test Certificates/Test Report    	
Maritime application	other



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Railway

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[Special Test Certificate](#)

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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=3RT2023-1BB40>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2023-1BB40>

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

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2023-1BB40&lang=en

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2023-1BB40>

Characteristic curves

https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP='HAUPT'></mmp_prod_no>



