



Power contactor, AC-3 9 A, 4 kW / 400 V 1 NO, 110 V AC, 50/60 Hz 3-pole, Size S00 screw terminal

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S00
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	0.9 W
• at AC in hot operating state per pole	0.3 W
• without load current share typical	4.2 W
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 safe isolation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at AC	6,7g / 5 ms, 4,2g / 10 ms
shock resistance with sine pulse	
• at AC	10,5g / 5 ms, 6,6g / 10 ms
mechanical service life (switching cycles)	
• of contactor typical	30 000 000
• 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 (Date)	10/01/2009
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	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	22 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	22 A
— up to 690 V at ambient temperature 60 °C rated value	20 A
• at AC-3	
— at 400 V rated value	9 A
— at 500 V rated value	7.7 A
— at 690 V rated value	6.7 A
• at AC-3e	
— at 500 V rated value	7.7 A
— at 690 V rated value	6.7 A
• at AC-4 at 400 V rated value	8.5 A
• at AC-5a up to 690 V rated value	19.4 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	5.3 A
— up to 400 V for current peak value n=20 rated value	5.3 A
— up to 500 V for current peak value n=20 rated value	5.3 A
— up to 690 V for current peak value n=20 rated value	5 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	3.5 A
— up to 400 V for current peak value n=30 rated value	3.5 A
— up to 500 V for current peak value n=30 rated value	3.6 A
— up to 690 V for current peak value n=30 rated value	3.3 A
minimum cross-section in main circuit at maximum AC-1 rated value	4 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	20 A
— at 110 V rated value	2.1 A
— at 220 V rated value	0.8 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
• with 2 current paths in series at DC-1	
— at 24 V rated value	20 A
— at 110 V rated value	12 A
— at 220 V rated value	1.6 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.7 A
• with 3 current paths in series at DC-1	
— at 24 V rated value	20 A

— at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value ● at 1 current path at DC-3 at DC-5 — at 24 V rated value — at 110 V rated value ● with 2 current paths in series at DC-3 at DC-5 — at 24 V rated value — at 110 V rated value ● with 3 current paths in series at DC-3 at DC-5 — at 24 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 20 A 1.3 A 1 A 20 A 0.1 A 20 A 0.35 A 20 A 20 A 1.5 A 0.2 A 0.2 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 5.5 kW 2.2 kW 4 kW 4 kW 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	2 kVA 3.6 kVA 4.6 kVA 5.9 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	1.3 kVA 2.4 kVA 3.1 kVA 4 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	155 A; Use minimum cross-section acc. to AC-1 rated value 111 A; Use minimum cross-section acc. to AC-1 rated value 86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value 55 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency ● at AC	10 000 1/h
operating frequency ● at AC-1 maximum ● at AC-2 maximum ● at AC-3 maximum ● at AC-3e maximum ● at AC-4 maximum	1 000 1/h 750 1/h 750 1/h 750 1/h 250 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC ● at 50 Hz rated value	110 V

• at 60 Hz rated value	110 V
operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz • at 60 Hz	0.8 ... 1.1 0.85 ... 1.1
apparent pick-up power of magnet coil at AC	
• at 50 Hz • at 60 Hz	27 VA 24.3 VA
inductive power factor with closing power of the coil	
• at 50 Hz • at 60 Hz	0.8 0.75
apparent holding power of magnet coil at AC	
• at 50 Hz • at 60 Hz	4.2 VA 3.3 VA
inductive power factor with the holding power of the coil	
• at 50 Hz • at 60 Hz	0.25 0.25
closing delay	
• at AC	9 ... 35 ms
opening delay	
• at AC	7 ... 13 ms
arcing time	10 ... 15 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
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 • at 400 V rated value • at 500 V rated value • at 690 V rated value	10 A 3 A 2 A 1 A
operational current at DC-12	
• at 24 V rated value • at 48 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value • at 600 V rated value	10 A 6 A 6 A 3 A 2 A 1 A 0.15 A
operational current at DC-13	
• at 24 V rated value • at 48 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value • at 600 V rated value	10 A 2 A 2 A 1 A 0.9 A 0.3 A 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 • at 600 V rated value	7.6 A 9 A
yielded mechanical performance [hp]	
• for single-phase AC motor — at 110/120 V rated value — at 230 V rated value • for 3-phase AC motor — at 200/208 V rated value — at 220/230 V rated value	0.33 hp 1 hp 2 hp 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 / Q600
Short-circuit protection	
design of the fuse link - for short-circuit protection of the main circuit - with type of coordination 1 required - with type of assignment 2 required - for short-circuit protection of the auxiliary switch required	gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA) gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (415V, 80kA) 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	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715 Yes
height	58 mm
width	45 mm
depth	73 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-type terminals
type of connectable conductor cross-sections - for main contacts - solid - solid or stranded - finely stranded with core end processing - at AWG cables for main contacts	2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²), 2x 4 mm² 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²), 2x 4 mm² 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²) 2x (20 ... 16), 2x (18 ... 14), 2x 12
connectable conductor cross-section for main contacts - solid - stranded - finely stranded with core end processing	0.5 ... 4 mm² 0.5 ... 4 mm² 0.5 ... 2.5 mm²
connectable conductor cross-section for auxiliary contacts - solid or stranded - finely stranded with core end processing	0.5 ... 4 mm² 0.5 ... 2.5 mm²
type of connectable conductor cross-sections - for auxiliary contacts - solid or stranded - finely stranded with core end processing	2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²), 2x 4 mm² 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)

at AWG cables for auxiliary contacts	2x (20 ... 16), 2x (18 ... 14), 2x 12
AWG number as coded connectable conductor cross section	
for main contacts	20 ... 12
for auxiliary contacts	20 ... 12
Safety related data	
product function	
mirror contact according to IEC 60947-4-1	Yes; with 3RH29
B10 value with high demand rate according to SN 31920	1 000 000
proportion of dangerous failures	
with low demand rate according to SN 31920	40 %
with high demand rate according to SN 31920	73 %
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
T1 value for proof test interval or service life according to IEC 61508	20 y
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
suitability for use	
safety-related switching OFF	Yes
Certificates/ approvals	
General Product Approval	



[Confirmation](#)



[KC](#)



EMC	Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates	
	Type Examination Certificate			Type Test Certificates/Test Report Special Test Certificate

Marine / Shipping



Marine / Shipping	other
	Confirmation Confirmation

Further information

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=3RT2016-1AF01>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1AF01>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AF01>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1AF01&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AF01/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1AF01&objecttype=14&gridview=view1>

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