



power contactor, AC-3 9 A, 4 kW / 400 V 1 NC, 24 V DC 0.85-1.85* US, with diode integrated, 3-pole, size S00, screw terminal not expandable with auxiliary switch

product brand name	SIRIUS
product designation	Coupling contactor
product type designation	3RT2
General technical data	
size of contactor	S00
product extension	
• function module for communication	No
• auxiliary switch	No
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	1.6 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 DC	6,7g / 5 ms, 4,2g / 10 ms
shock resistance with sine pulse	
• at DC	10,5g / 5 ms, 6,6g / 10 ms
mechanical service life (switching cycles)	
• of contactor typical	30 000 000
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	
<ul style="list-style-type: none"> ● at AC-3 rated value maximum ● at AC-3e rated value maximum 	690 V 690 V
operational current	
<ul style="list-style-type: none"> ● at AC-1 at 400 V at ambient temperature 40 °C rated value 	22 A
<ul style="list-style-type: none"> ● at AC-1 <ul style="list-style-type: none"> — up to 690 V at ambient temperature 40 °C rated value — up to 690 V at ambient temperature 60 °C rated value 	22 A 20 A
<ul style="list-style-type: none"> ● at AC-3 <ul style="list-style-type: none"> — at 400 V rated value — at 500 V rated value — at 690 V rated value 	9 A 7.7 A 6.7 A
<ul style="list-style-type: none"> ● at AC-3e <ul style="list-style-type: none"> — at 400 V rated value — at 500 V rated value — at 690 V rated value 	9 A 7.7 A 6.7 A
<ul style="list-style-type: none"> ● at AC-4 at 400 V rated value 	8.5 A
<ul style="list-style-type: none"> ● at AC-5a up to 690 V rated value 	19.4 A
<ul style="list-style-type: none"> ● at AC-5b up to 400 V rated value 	7.4 A
<ul style="list-style-type: none"> ● at AC-6a <ul style="list-style-type: none"> — 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 	5.3 A 5.3 A 5.3 A 5 A
<ul style="list-style-type: none"> ● at AC-6a <ul style="list-style-type: none"> — 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 	3.5 A 3.5 A 3.6 A 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	
<ul style="list-style-type: none"> ● at 400 V rated value ● at 690 V rated value 	4.1 A 3.3 A
operational current	
<ul style="list-style-type: none"> ● at 1 current path at DC-1 <ul style="list-style-type: none"> — 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 2.1 A 0.8 A 0.6 A 0.6 A
<ul style="list-style-type: none"> ● with 2 current paths in series at DC-1 <ul style="list-style-type: none"> — 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 12 A 1.6 A 0.8 A 0.7 A
<ul style="list-style-type: none"> ● with 3 current paths in series at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 110 V rated value — at 220 V rated value 	20 A 20 A 20 A

<ul style="list-style-type: none"> — at 440 V rated value — at 600 V rated value 	1.3 A 1 A
<ul style="list-style-type: none"> ● at 1 current path at DC-3 at DC-5 <ul style="list-style-type: none"> — at 24 V rated value — at 110 V rated value 	20 A 0.1 A
<ul style="list-style-type: none"> ● with 2 current paths in series at DC-3 at DC-5 <ul style="list-style-type: none"> — at 24 V rated value — at 110 V rated value 	20 A 0.35 A
<ul style="list-style-type: none"> ● with 3 current paths in series at DC-3 at DC-5 <ul style="list-style-type: none"> — 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 1.5 A 0.2 A 0.2 A
operating power	
<ul style="list-style-type: none"> ● at AC-3 <ul style="list-style-type: none"> — at 230 V rated value — at 400 V rated value — at 500 V rated value — at 690 V rated value ● at AC-3e <ul style="list-style-type: none"> — 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	
<ul style="list-style-type: none"> ● at 400 V rated value ● at 690 V rated value 	2 kW 2.5 kW
operating apparent power at AC-6a	
<ul style="list-style-type: none"> ● 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	
<ul style="list-style-type: none"> ● 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	
<ul style="list-style-type: none"> ● 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	
<ul style="list-style-type: none"> ● at DC 	10 000 1/h
operating frequency	
<ul style="list-style-type: none"> ● 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	DC
control supply voltage at DC	
<ul style="list-style-type: none"> ● rated value 	24 V
operating range factor control supply voltage rated value of magnet coil at DC	
<ul style="list-style-type: none"> ● initial value 	0.85

<ul style="list-style-type: none"> • full-scale value 	1.85
design of the surge suppressor	diode
closing power of magnet coil at DC	1.6 W
holding power of magnet coil at DC	1.6 W
closing delay	
<ul style="list-style-type: none"> • at DC 	25 ... 120 ms
opening delay	
<ul style="list-style-type: none"> • at DC 	20 ... 80 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	1
operational current at AC-12 maximum	10 A
operational current at AC-15	
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • at 480 V rated value • at 600 V rated value 	7.6 A 9 A
yielded mechanical performance [hp]	
<ul style="list-style-type: none"> • for single-phase AC motor <ul style="list-style-type: none"> — at 110/120 V rated value — at 230 V rated value • for 3-phase AC motor <ul style="list-style-type: none"> — at 200/208 V rated value — at 220/230 V rated value — at 460/480 V rated value — at 575/600 V rated value 	0.33 hp 1 hp 2 hp 3 hp 5 hp 7.5 hp
contact rating of auxiliary contacts according to UL	A600 / Q600
Short-circuit protection	
design of the fuse link	
<ul style="list-style-type: none"> • for short-circuit protection of the main circuit <ul style="list-style-type: none"> — 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	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
<ul style="list-style-type: none"> side-by-side mounting 	Yes
height	58 mm
width	45 mm
depth	73 mm
required spacing	
<ul style="list-style-type: none"> with side-by-side mounting <ul style="list-style-type: none"> forwards upwards downwards at the side for grounded parts <ul style="list-style-type: none"> forwards upwards at the side downwards for live parts <ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> for main contacts <ul style="list-style-type: none"> solid solid or stranded finely stranded with core end processing at AWG cables for main contacts 	2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²), 2x 4 mm ² 2x (0,5 ... 1,5 mm ²), 2x (0,75 ... 2,5 mm ²), 2x 4 mm ² 2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²) 2x (20 ... 16), 2x (18 ... 14), 2x 12
connectable conductor cross-section for main contacts	
<ul style="list-style-type: none"> solid stranded finely stranded with core end processing 	0.5 ... 4 mm ² 0.5 ... 4 mm ² 0.5 ... 2.5 mm ²
connectable conductor cross-section for auxiliary contacts	
<ul style="list-style-type: none"> solid or stranded finely stranded with core end processing 	0.5 ... 4 mm ² 0.5 ... 2.5 mm ²
type of connectable conductor cross-sections	
<ul style="list-style-type: none"> for auxiliary contacts <ul style="list-style-type: none"> solid or stranded finely stranded with core end processing at AWG cables for auxiliary contacts 	2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²), 2x 4 mm ² 2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²) 2x (20 ... 16), 2x (18 ... 14), 2x 12
AWG number as coded connectable conductor cross section	
<ul style="list-style-type: none"> for main contacts for auxiliary contacts 	20 ... 12 20 ... 12
Safety related data	
product function	
<ul style="list-style-type: none"> mirror contact according to IEC 60947-4-1 	Yes
B10 value with high demand rate according to SN 31920	1 000 000
proportion of dangerous failures	
<ul style="list-style-type: none"> with low demand rate according to SN 31920 with high demand rate according to SN 31920 	40 % 73 %
failure rate [FIT] with low demand rate according to SN	100 FIT

31920	
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 <ul style="list-style-type: none"> • safety-related switching OFF 	Yes

Certificates/ approvals
General Product Approval



[Confirmation](#)



[KC](#)



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



EG-Konf.

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)

Marine / Shipping



Marine / Shipping	other	Dangerous Good
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[Confirmation](#)



[Transport Information](#)

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=3RT2016-1VB42>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1VB42>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1VB42>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1VB42&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1VB42/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1VB42&objecttype=14&gridview=view1>

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