



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 110 V AC, 50/60 Hz, with integrated full-wave rectifier, auxiliary contacts: 1 NC, spring-loaded terminal, size: S00

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
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 AC	6,7 g / 5 ms, 4,2 g / 10 ms
shock resistance with sine pulse	
• at AC	10,5 g / 5 ms, 6,6 g / 10 ms
mechanical service life (operating 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 (day/month/year)	10/01/2009
SVHC substance name	Lead CAS-No. 7439-92-1 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5 Melamine CAS-No. 108-78-1
Net Weight	0.33 g
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	

<ul style="list-style-type: none"> during operation during storage 	-25 ... +60 °C -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
number of NC contacts for main contacts	0
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 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 at AC-3 <ul style="list-style-type: none"> 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 400 V rated value at 500 V rated value at 690 V rated value at AC-4 at 400 V rated value at AC-5a up to 690 V rated value at AC-5b up to 400 V rated value 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 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 	22 A 22 A 20 A 9 A 7.7 A 6.7 A 9 A 7.7 A 6.7 A 8.5 A 19.4 A 7.4 A 5.3 A 5.3 A 5.3 A 5 A 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 60 V rated value at 110 V rated value at 220 V rated value at 440 V rated value at 600 V rated value with 2 current paths in series at DC-1 <ul style="list-style-type: none"> 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 	20 A 20 A 2.1 A 0.8 A 0.6 A 0.6 A 20 A 20 A 12 A 1.6 A 0.8 A

<ul style="list-style-type: none"> — at 600 V rated value 	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 	20 A
<ul style="list-style-type: none"> — at 60 V rated value 	20 A
<ul style="list-style-type: none"> — at 110 V rated value 	20 A
<ul style="list-style-type: none"> — at 220 V rated value 	20 A
<ul style="list-style-type: none"> — at 440 V rated value 	1.3 A
<ul style="list-style-type: none"> — at 600 V rated value 	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 	20 A
<ul style="list-style-type: none"> — at 60 V rated value 	0.5 A
<ul style="list-style-type: none"> — at 110 V rated value 	0.15 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 	20 A
<ul style="list-style-type: none"> — at 60 V rated value 	5 A
<ul style="list-style-type: none"> — at 110 V rated value 	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 	20 A
<ul style="list-style-type: none"> — at 60 V rated value 	20 A
<ul style="list-style-type: none"> — at 110 V rated value 	20 A
<ul style="list-style-type: none"> — at 220 V rated value 	1.5 A
<ul style="list-style-type: none"> — at 440 V rated value 	0.2 A
<ul style="list-style-type: none"> — at 600 V rated value 	0.2 A
operating power	
<ul style="list-style-type: none"> ● at AC-2 at 400 V rated value 	4 kW
<ul style="list-style-type: none"> ● at AC-3 	
<ul style="list-style-type: none"> — at 230 V rated value 	2.2 kW
<ul style="list-style-type: none"> — at 400 V rated value 	4 kW
<ul style="list-style-type: none"> — at 500 V rated value 	4 kW
<ul style="list-style-type: none"> — at 690 V rated value 	5.5 kW
<ul style="list-style-type: none"> ● at AC-3e 	
<ul style="list-style-type: none"> — at 230 V rated value 	2.2 kW
<ul style="list-style-type: none"> — at 400 V rated value 	4 kW
<ul style="list-style-type: none"> — at 500 V rated value 	4 kW
<ul style="list-style-type: none"> — at 690 V rated value 	5.5 kW
operating power for approx. 200000 operating cycles at AC-4	
<ul style="list-style-type: none"> ● at 400 V rated value 	2 kW
<ul style="list-style-type: none"> ● at 690 V rated value 	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 	2 kVA
<ul style="list-style-type: none"> ● up to 400 V for current peak value n=20 rated value 	3.6 kVA
<ul style="list-style-type: none"> ● up to 500 V for current peak value n=20 rated value 	4.6 kVA
<ul style="list-style-type: none"> ● up to 690 V for current peak value n=20 rated value 	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 	1.3 kVA
<ul style="list-style-type: none"> ● up to 400 V for current peak value n=30 rated value 	2.4 kVA
<ul style="list-style-type: none"> ● up to 500 V for current peak value n=30 rated value 	3.1 kVA
<ul style="list-style-type: none"> ● up to 690 V for current peak value n=30 rated value 	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 	155 A; Use minimum cross-section acc. to AC-1 rated value
<ul style="list-style-type: none"> ● limited to 5 s switching at zero current maximum 	111 A; Use minimum cross-section acc. to AC-1 rated value
<ul style="list-style-type: none"> ● limited to 10 s switching at zero current maximum 	86 A; Use minimum cross-section acc. to AC-1 rated value
<ul style="list-style-type: none"> ● limited to 30 s switching at zero current maximum 	66 A; Use minimum cross-section acc. to AC-1 rated value
<ul style="list-style-type: none"> ● limited to 60 s switching at zero current maximum 	55 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
<ul style="list-style-type: none"> ● at AC 	10 000 1/h
operating frequency	

<ul style="list-style-type: none"> • at AC-1 maximum 	1 000 1/h
<ul style="list-style-type: none"> • at AC-2 maximum 	750 1/h
<ul style="list-style-type: none"> • at AC-3 maximum 	750 1/h
<ul style="list-style-type: none"> • at AC-3e <ul style="list-style-type: none"> — maximum 	750 1/h
<ul style="list-style-type: none"> • at AC-4 maximum 	250 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	
<ul style="list-style-type: none"> • at 50 Hz rated value 	110 V
<ul style="list-style-type: none"> • at 60 Hz rated value 	110 V
operating range factor control supply voltage rated value of magnet coil at AC	
<ul style="list-style-type: none"> • at 50 Hz 	0.8 ... 1.1
<ul style="list-style-type: none"> • at 60 Hz 	0.85 ... 1.1
design of the surge suppressor	full-wave rectifier
apparent pick-up power of magnet coil at AC	
<ul style="list-style-type: none"> • at 50 Hz 	5.71 VA
<ul style="list-style-type: none"> • at 60 Hz 	5.71 VA
inductive power factor with closing power of the coil	
<ul style="list-style-type: none"> • at 50 Hz 	0.9
<ul style="list-style-type: none"> • at 60 Hz 	0.9
apparent holding power of magnet coil at AC	
<ul style="list-style-type: none"> • at 50 Hz 	5.71 VA
<ul style="list-style-type: none"> • at 60 Hz 	5.71 VA
inductive power factor with the holding power of the coil	
<ul style="list-style-type: none"> • at 50 Hz 	0.9
<ul style="list-style-type: none"> • at 60 Hz 	0.9
closing delay	
<ul style="list-style-type: none"> • at AC 	30 ... 100 ms
opening delay	
<ul style="list-style-type: none"> • at AC 	38 ... 65 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
number of NO contacts for auxiliary contacts instantaneous contact	0
operational current at AC-12 maximum	10 A
operational current at AC-15	
<ul style="list-style-type: none"> • at 230 V rated value 	10 A
<ul style="list-style-type: none"> • at 400 V rated value 	3 A
<ul style="list-style-type: none"> • at 500 V rated value 	2 A
<ul style="list-style-type: none"> • at 690 V rated value 	1 A
operational current at DC-12	
<ul style="list-style-type: none"> • at 24 V rated value 	10 A
<ul style="list-style-type: none"> • at 48 V rated value 	6 A
<ul style="list-style-type: none"> • at 60 V rated value 	6 A
<ul style="list-style-type: none"> • at 110 V rated value 	3 A
<ul style="list-style-type: none"> • at 125 V rated value 	2 A
<ul style="list-style-type: none"> • at 220 V rated value 	1 A
<ul style="list-style-type: none"> • at 600 V rated value 	0.15 A
operational current at DC-13	
<ul style="list-style-type: none"> • at 24 V rated value 	10 A
<ul style="list-style-type: none"> • at 48 V rated value 	2 A
<ul style="list-style-type: none"> • at 60 V rated value 	2 A
<ul style="list-style-type: none"> • at 110 V rated value 	1 A
<ul style="list-style-type: none"> • at 125 V rated value 	0.9 A
<ul style="list-style-type: none"> • at 220 V rated value 	0.3 A

<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> at 480 V rated value 	7.6 A
<ul style="list-style-type: none"> at 600 V rated value 	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 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	
<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 coordination 2 required for short-circuit protection of the auxiliary switch required 	gG: 35 A (690 V, 100 kA), aM: 20 A (690 V, 100 kA), BS88: 35 A (415 V, 80 kA) gG: 20 A (690 V, 100 kA), aM: 16 A (690 V, 100 kA), BS88: 20 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	70 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 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 	spring-loaded terminals spring-loaded terminals Spring-type terminals Spring-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 	2x (0.5 ... 4 mm ²) 2x (0,5 ... 4 mm ²) 2x (0.5 ... 2.5 mm ²)

— finely stranded without core end processing	2x (0.5 ... 2.5 mm ²)
• for AWG cables for main contacts	2x (20 ... 12)
connectable conductor cross-section for main contacts	
• solid	0.5 ... 4 mm ²
• stranded	0.5 ... 4 mm ²
• finely stranded with core end processing	0.5 ... 2.5 mm ²
• finely stranded without core end processing	0.5 ... 2.5 mm ²
connectable conductor cross-section for auxiliary contacts	
• solid or stranded	0.5 ... 4 mm ²
• finely stranded with core end processing	0.5 ... 2.5 mm ²
• finely stranded without core end processing	0.5 ... 2.5 mm ²
type of connectable conductor cross-sections	
• for auxiliary contacts	
— solid or stranded	2x (0,5 ... 4 mm ²)
— finely stranded with core end processing	2x (0.5 ... 2.5 mm ²)
— finely stranded without core end processing	2x (0.5 ... 2.5 mm ²)
• for AWG cables for auxiliary contacts	2x (20 ... 12)
AWG number as coded connectable conductor cross section for main contacts	20 ... 12
AWG number as coded connectable conductor cross section for auxiliary contacts	20 ... 12

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	1.18 kg
• global warming potential [CO ₂ eq] / during operation	38.5 kg
• global warming potential [CO ₂ eq] / after end of life	-0.155 kg
• global warming potential [CO ₂ eq] / total	39.6 kg

Environment General Product Approval

[Environmental Conformations](#)



General Product Approval	EMV	Test Certificates
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EG-Konf.



RCM

[Special Test Certificate](#)

Test Certificates

Maritime application

[Type Test Certificates/Test Report](#)



ABS



BUREAU VERITAS



DNV



LRS



PRS

Maritime application

other



RINA



RMRS

[Miscellaneous](#)

[Confirmation](#)



[Miscellaneous](#)

Railway

[Special Test Certificate](#)

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=3RT2016-2GG22>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-2GG22>

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

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-2GG22&lang=en

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-2GG22>

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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