

CONTACTOR, AC3: 45KW/400V, 1NO+1NC, 110VAC 50HZ, 3-POLE, 3NO, SIZE: S3, SCREW TERMINALS

Product brand name	SIRIUS
Product designation	Power contactor
Product type designation	3RT2

General technical data

Size of contactor	S3
Product extension	
<ul style="list-style-type: none"> function module for communication 	No
<ul style="list-style-type: none"> Auxiliary switch 	Yes
Insulation voltage	
<ul style="list-style-type: none"> rated value 	1 000 V
Degree of pollution	3
Surge voltage resistance rated value	6 kV
maximum permissible voltage for safe isolation	
<ul style="list-style-type: none"> between coil and main contacts acc. to EN 60947-1 	690 V
Protection class IP	
<ul style="list-style-type: none"> on the front 	IP20
<ul style="list-style-type: none"> of the terminal 	IP00
Shock resistance at rectangular impulse	
<ul style="list-style-type: none"> at AC 	6.7 g / 5 ms, 4.0 g / 10 ms
Shock resistance with sine pulse	
<ul style="list-style-type: none"> at AC 	10.6 g / 5 ms, 6.3 g / 10 ms
Mechanical service life (switching cycles)	
<ul style="list-style-type: none"> of contactor typical 	10 000 000
<ul style="list-style-type: none"> of the contactor with added electronics-compatible auxiliary switch block typical 	5 000 000
<ul style="list-style-type: none"> of the contactor with added auxiliary switch block typical 	10 000 000

Ambient conditions

Installation altitude at height above sea level	
<ul style="list-style-type: none"> maximum 	2 000 m
Ambient temperature	
<ul style="list-style-type: none"> during operation 	-25 ... +60 °C
<ul style="list-style-type: none"> during storage 	-55 ... +80 °C

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 	1 000 V
Operating current	
<ul style="list-style-type: none"> • at AC-1 at 400 V <ul style="list-style-type: none"> — 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-2 at 400 V 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 	130 A 130 A 110 A 95 A 95 A 95 A 78 A
Connectable conductor cross-section in main circuit at AC-1	
<ul style="list-style-type: none"> • at 60 °C minimum permissible • at 40 °C minimum permissible 	35 mm ² 50 mm ²
Operating 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 	42 A 30 A
Operating 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 • 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 • 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 	100 A 9 A 2 A 0.6 A 0.4 A 100 A 100 A 10 A 1.8 A 1 A 100 A 100 A 80 A

— at 440 V rated value	4.5 A
— at 600 V rated value	2.6 A
Operating current	
• at 1 current path at DC-3 at DC-5	
— at 24 V rated value	40 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.15 A
— at 600 V rated value	0.06 A
• with 2 current paths in series at DC-3 at DC-5	
— at 24 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	7 A
— at 440 V rated value	0.42 A
— at 600 V rated value	0.16 A
• with 3 current paths in series at DC-3 at DC-5	
— at 24 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	35 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.35 A
Operating power	
• at AC-1	
— at 230 V rated value	49 kW
— at 230 V at 60 °C rated value	42 kW
— at 400 V rated value	86 kW
— at 400 V at 60 °C rated value	72 kW
— at 690 V rated value	148 kW
— at 690 V at 60 °C rated value	125 kW
• at AC-2 at 400 V rated value	45 kW
• at AC-3	
— at 230 V rated value	22 kW
— at 400 V rated value	45 kW
— at 500 V rated value	55 kW
— at 690 V rated value	75 kW
Operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	22 kW
• at 690 V rated value	27.4 kW
Thermal short-time current limited to 10 s	760 A
Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor	6.6 W

No-load switching frequency	
• at AC	5 000 1/h
Operating frequency	
• at AC-1 maximum	900 1/h
• at AC-2 maximum	350 1/h
• at AC-3 maximum	850 1/h
• at AC-4 maximum	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
Operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz	0.8 ... 1.1
Apparent pick-up power of magnet coil at AC	
• at 50 Hz	296 V·A
Inductive power factor with closing power of the coil	
• at 50 Hz	0.61
Apparent holding power of magnet coil at AC	
• at 50 Hz	19 V·A
Inductive power factor with the holding power of the coil	
• at 50 Hz	0.38
Closing delay	
• at AC	13 ... 50 ms
Opening delay	
• at AC	10 ... 21 ms
Arcing time	10 ... 20 ms

Auxiliary circuit

Number of NC contacts	
• for auxiliary contacts	
— instantaneous contact	1
Number of NO contacts	
• for auxiliary contacts	
— instantaneous contact	1
Operating current at AC-12 maximum	10 A
Operating 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
Operating 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 	<p>10 A</p> <p>6 A</p> <p>6 A</p> <p>3 A</p> <p>2 A</p> <p>1 A</p> <p>0.15 A</p>
Operating 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 	<p>10 A</p> <p>2 A</p> <p>2 A</p> <p>1 A</p> <p>0.9 A</p> <p>0.3 A</p> <p>0.1 A</p>
Contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)

UL/CSA ratings

Full-load current (FLA) for three-phase AC motor <ul style="list-style-type: none"> • at 480 V rated value • at 600 V rated value 	<p>96 A</p> <p>77 A</p>
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 three-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 	<p>10 hp</p> <p>20 hp</p> <p>30 hp</p> <p>30 hp</p> <p>75 hp</p> <p>75 hp</p>
Contact rating of auxiliary contacts according to UL	A600 / P600

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 	<p>gL/gG NH 3NA, DIAZED 5SB, NEOZED 5SE: 250 A</p> <p>gL/gG NH 3NA, DIAZED 5SB, NEOZED 5SE: 160 A</p> <p>fuse gG: 10 A</p>
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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
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Mounting type	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	140 mm
Width	70 mm
Depth	152 mm
Required spacing	
<ul style="list-style-type: none"> • with side-by-side mounting <ul style="list-style-type: none"> — forwards — Backwards — upwards — downwards — at the side • for grounded parts <ul style="list-style-type: none"> — forwards — Backwards — upwards — at the side — downwards • for live parts <ul style="list-style-type: none"> — forwards — Backwards — upwards — downwards — at the side 	0 mm 0 mm 0 mm 0 mm 0 mm 0 mm 0 mm 10 mm 10 mm 10 mm 0 mm 0 mm 10 mm 10 mm 10 mm

Connections/Terminals

Type of electrical connection	
<ul style="list-style-type: none"> • for main current circuit • for auxiliary and control current circuit 	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"> — finely stranded with core end processing • at AWG conductors for main contacts 	2x (2.5 ... 35 mm ²), 1x (2.5 ... 50 mm ²) 2x (10 ... 1/0), 1x (10 ... 2)
Type of connectable conductor cross-sections	
<ul style="list-style-type: none"> • for auxiliary contacts <ul style="list-style-type: none"> — single or multi-stranded — finely stranded with core end processing • at AWG conductors for auxiliary contacts 	2x (0,5 ... 1,5 mm ²), 2x (0,75 ... 2,5 mm ²) 2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²) 2x (20 ... 16), 2x (18 ... 14)

Safety related data

B10 value	
<ul style="list-style-type: none"> • with high demand rate acc. to SN 31920 	1 000 000

Proportion of dangerous failures	
<ul style="list-style-type: none"> with low demand rate acc. to SN 31920 with high demand rate acc. to SN 31920 	<p>40 %</p> <p>73 %</p>
Product function	
<ul style="list-style-type: none"> Mirror contact acc. to IEC 60947-4-1 positively driven operation acc. to IEC 60947-5-1 	<p>Yes</p> <p>No</p>
T1 value for proof test interval or service life acc. to IEC 61508	20 y
Protection against electrical shock	finger-safe when touched vertically from front acc. to IEC 60529

Certificates/approvals

General Product Approval	Declaration of Conformity	Test Certificates
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[Type Test Certificates/Test Report](#)

Test Certificates	Marine / Shipping
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[Special Test Certificate](#)



Marine / Shipping	other	Railway
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[Confirmation](#)

[Vibration and Shock](#)

Further information

Information- and Downloadcenter (Catalogs, Brochures,...)

<http://www.siemens.com/industrial-controls/catalogs>

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2046-1AF00>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1AF00>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AF00>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-1AF00&lang=en

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