



power contactor, AC-3e/AC-3, 110 A, 55 kW / 400 V, 3-pole, 20-33 V AC/DC, 50/60 Hz, with integrated varistor, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S3

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S3
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	23.7 W
• at AC in hot operating state per pole	7.9 W
• without load current share typical	1.8 W
type of calculation of power loss depending on pole	quadratic
insulation voltage	
• of main circuit with degree of pollution 3 rated value	1 000 V
• of auxiliary circuit with degree of pollution 3 rated value	690 V
surge voltage resistance	
• of main circuit rated value	8 kV
• of auxiliary circuit rated value	6 kV
maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1	690 V
shock resistance at rectangular impulse	
• at AC	10.3g / 5 ms, 6.7g / 10 ms
• at DC	6.7 g / 5 ms, 4g / 10 ms
shock resistance with sine pulse	
• at AC	16.3g / 5 ms, 10.g / 10 ms
• at DC	10.6 g / 5 ms, 6.3 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 Prohibitation (Date)	03/01/2017
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 Melamine - 108-78-1
Weight	1.837 kg
Ambient conditions	
installation altitude at height above sea level 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
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %
Environmental footprint	
Environmental Product Declaration (EPD)	Yes
global warming potential [CO2 eq] total	267 kg
global warming potential [CO2 eq] during manufacturing	9.35 kg
global warming potential [CO2 eq] during operation	259 kg
global warming potential [CO2 eq] after end of life	-1.55 kg
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
<ul style="list-style-type: none"> • at AC-3e rated value maximum 	1 000 V
operational current	
<ul style="list-style-type: none"> • at AC-1 at 400 V at ambient temperature 40 °C rated value 	130 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 	130 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — up to 690 V at ambient temperature 60 °C rated value 	110 A
<ul style="list-style-type: none"> • at AC-3 <ul style="list-style-type: none"> — at 400 V rated value 	110 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 500 V rated value 	110 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 690 V rated value 	98 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 1000 V rated value 	30 A
<ul style="list-style-type: none"> • at AC-3e <ul style="list-style-type: none"> — at 400 V rated value 	110 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 500 V rated value 	110 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 690 V rated value 	98 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 1000 V rated value 	30 A
<ul style="list-style-type: none"> • at AC-4 at 400 V rated value 	97 A
<ul style="list-style-type: none"> • at AC-5a up to 690 V rated value 	120 A
<ul style="list-style-type: none"> • at AC-5b up to 400 V rated value 	110 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 	98 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — up to 400 V for current peak value n=20 rated value 	98 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — up to 500 V for current peak value n=20 rated value 	98 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — up to 690 V for current peak value n=20 rated value 	98 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 	65.3 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — up to 400 V for current peak value n=30 rated value 	65.3 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — up to 500 V for current peak value n=30 rated value 	65.3 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — up to 690 V for current peak value n=30 rated value 	65.3 A
minimum cross-section in main circuit at maximum AC-1 rated value	50 mm ²
operational current for approx. 200000 operating cycles at AC-4	
<ul style="list-style-type: none"> • at 400 V rated value 	46 A
<ul style="list-style-type: none"> • at 690 V rated value 	36 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 	100 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 60 V rated value 	60 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 110 V rated value 	9 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 220 V rated value 	2 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 440 V rated value 	0.6 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 600 V rated value 	0.4 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 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 3 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 — at 600 V rated value • at 1 current path at DC-3 at DC-5 <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-3 at DC-5 <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 3 current paths in series at DC-3 at DC-5 <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 	100 A
	100 A
	100 A
	10 A
	1.8 A
	1 A
	100 A
	100 A
	100 A
	80 A
	4.5 A
	2.6 A
	40 A
	6 A
	2.5 A
	1 A
	0.15 A
	0.06 A
	100 A
	100 A
	100 A
	7 A
	0.42 A
	0.16 A
	100 A
	100 A
	100 A
	35 A
	0.8 A
	0.35 A
operating power	
• at AC-2 at 400 V rated value	55 kW
• at AC-3	
— at 230 V rated value	30 kW
— at 400 V rated value	55 kW
— at 500 V rated value	75 kW
— at 690 V rated value	90 kW
— at 1000 V rated value	37 kW
• at AC-3e	
— at 230 V rated value	30 kW
— at 400 V rated value	55 kW
— at 500 V rated value	75 kW
— at 690 V rated value	90 kW
— at 1000 V rated value	37 kW
operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	24.3 kW
• at 690 V rated value	32.9 kW
operating apparent power at AC-6a	
• up to 230 V for current peak value n=20 rated value	39 kVA
• up to 400 V for current peak value n=20 rated value	67 kVA
• up to 500 V for current peak value n=20 rated value	84 kVA
• up to 690 V for current peak value n=20 rated value	117 kVA
operating apparent power at AC-6a	
• up to 230 V for current peak value n=30 rated value	26 kVA
• up to 400 V for current peak value n=30 rated value	45.2 kVA

<ul style="list-style-type: none"> • up to 500 V for current peak value n=30 rated value • up to 690 V for current peak value n=30 rated value 	56.5 kVA 78 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 	1 960 A; Use minimum cross-section acc. to AC-1 rated value 1 502 A; Use minimum cross-section acc. to AC-1 rated value 1 095 A; Use minimum cross-section acc. to AC-1 rated value 707 A; Use minimum cross-section acc. to AC-1 rated value 562 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency <ul style="list-style-type: none"> • at AC • at DC 	1 000 1/h 1 000 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 	900 1/h 350 1/h 850 1/h 850 1/h 200 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC <ul style="list-style-type: none"> • at 50 Hz rated value • at 60 Hz rated value 	20 ... 33 V 20 ... 33 V
control supply voltage at DC rated value	20 ... 33 V
operating range factor control supply voltage rated value of magnet coil at DC <ul style="list-style-type: none"> • initial value • full-scale value 	0.8 1.1
operating range factor control supply voltage rated value of magnet coil at AC <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	0.8 ... 1.1 0.8 ... 1.1
design of the surge suppressor	with varistor
inrush current peak	6.5 A
duration of inrush current peak	50 µs
locked-rotor current mean value	3.2 A
locked-rotor current peak	6.5 A
duration of locked-rotor current	150 ms
holding current mean value	75 mA
apparent pick-up power of magnet coil at AC <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	151 VA 151 VA
apparent holding power <ul style="list-style-type: none"> • at minimum rated control supply voltage at DC • at maximum rated control supply voltage at DC 	1.8 VA 1.8 VA
apparent holding power <ul style="list-style-type: none"> • at minimum rated control supply voltage at AC <ul style="list-style-type: none"> — at 50 Hz — at 60 Hz • at maximum rated control supply voltage at AC <ul style="list-style-type: none"> — at 50 Hz — at 60 Hz 	3.1 VA 3.1 VA 3.1 VA 3.1 VA
apparent holding power of magnet coil at AC <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	3.1 VA 3.1 VA
inductive power factor with the holding power of the coil <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	0.95 0.95
closing power of magnet coil at DC	76 W
holding power of magnet coil at DC	1.8 W
closing delay <ul style="list-style-type: none"> • at AC 	50 ... 70 ms

• at DC	50 ... 70 ms
opening delay	
• at AC	38 ... 57 ms
• at DC	38 ... 57 ms
arcing time	10 ... 20 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	6 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	96 A
• at 600 V rated value	99 A
yielded mechanical performance [hp]	
• for single-phase AC motor	
— at 110/120 V rated value	10 hp
— at 230 V rated value	20 hp
• for 3-phase AC motor	
— at 200/208 V rated value	30 hp
— at 220/230 V rated value	40 hp
— at 460/480 V rated value	75 hp
— at 575/600 V rated value	100 hp
contact rating of auxiliary contacts according to UL	A600 / P600
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	gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)
• for short-circuit protection of the auxiliary switch required	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	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 20 mm — upwards 10 mm — downwards 10 mm — at the side 0 mm • for grounded parts <ul style="list-style-type: none"> — forwards 20 mm — upwards 10 mm — at the side 10 mm — downwards 10 mm • for live parts <ul style="list-style-type: none"> — forwards 20 mm — upwards 10 mm — downwards 10 mm — at the side 10 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"> — finely stranded with core end processing • for AWG cables for main contacts 	2x (2.5 ... 35 mm²), 1x (2.5 ... 50 mm²) 2x (10 ... 1/0), 1x (10 ... 2)
connectable conductor cross-section for main contacts	
<ul style="list-style-type: none"> • solid • stranded • finely stranded with core end processing 	2.5 ... 16 mm² 6 ... 70 mm² 2.5 ... 50 mm²
connectable conductor cross-section for auxiliary contacts	
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • for auxiliary contacts <ul style="list-style-type: none"> — solid or stranded — finely stranded with core end processing • for AWG cables for auxiliary contacts 	2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²) 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²) 2x (20 ... 16), 2x (18 ... 14)
AWG number as coded connectable conductor cross section	
<ul style="list-style-type: none"> • for main contacts • for auxiliary contacts 	10 ... 2 20 ... 14
Safety related data	
product function	
<ul style="list-style-type: none"> • mirror contact according to IEC 60947-4-1 • positively driven operation according to IEC 60947-5-1 • suitable for safety function 	Yes No 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	
<ul style="list-style-type: none"> • with low demand rate according to SN 31920 • with high demand rate according to SN 31920 	40 % 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
MTBF	75 a
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	
General Product Approval	



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

[Type Test Certificates/Test Report](#)



Marine / Shipping	other	Railway	Environment
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[Confirmation](#)

[Special Test Certificate](#)



Environment

[Environmental Confirmations](#)

Further information

Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

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=3RT2047-1NB30>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2047-1NB30>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2047-1NB30>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2047-1NB30&lang=en

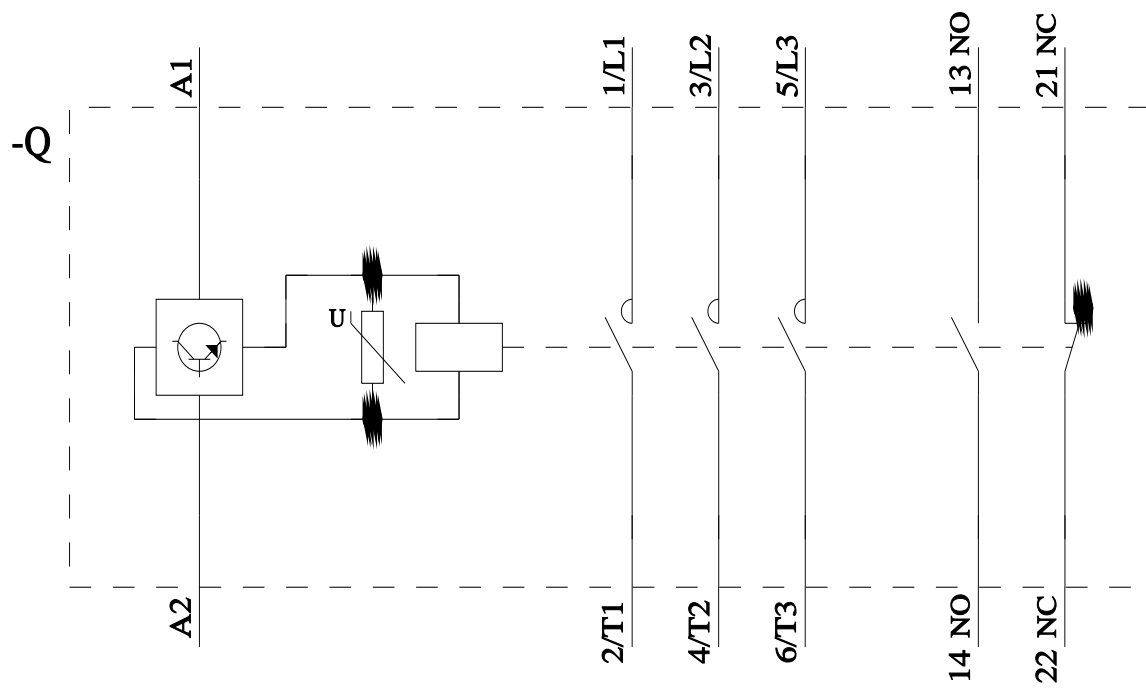
Characteristic: Tripping characteristics, I_t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2047-1NB30/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2047-1NB30&objecttype=14&gridview=view1>





last modified:

4/17/2025 