



power contactor, AC-3e/AC-3, 95 A, 45 kW / 400 V, 3-pole, 83-155 V AC/DC, 50/60 Hz, with integrated varistor, auxiliary contacts: 2 NO + 2 NC, screw terminal, size: S3, removable auxiliary switch

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	19.8 W
• at AC in hot operating state per pole	6.6 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-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5
Weight	1.865 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 	95 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 500 V rated value 	95 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 690 V rated value 	78 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 	95 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 500 V rated value 	95 A
<ul style="list-style-type: none"> <ul style="list-style-type: none"> — at 690 V rated value 	78 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 	80 A
<ul style="list-style-type: none"> • at AC-5a up to 690 V rated value 	114 A
<ul style="list-style-type: none"> • at AC-5b up to 400 V rated value 	95 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 	84.4 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 	84.4 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 	84.4 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 	58 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 	56.3 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 	56.3 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 	56.3 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 	56.3 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 	42 A
<ul style="list-style-type: none"> • at 690 V rated value 	30 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 <ul style="list-style-type: none"> • at AC-2 at 400 V rated value • 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 1000 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 — at 1000 V rated value 	45 kW 22 kW 45 kW 55 kW 75 kW 37 kW 22 kW 45 kW 55 kW 75 kW 37 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 	22 kW 27.4 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 	33 kVA 58 kVA 73 kVA 69 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 	22.4 kVA 39 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 	48.7 kVA 67.3 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 	1 725 A; Use minimum cross-section acc. to AC-1 rated value 1 297 A; Use minimum cross-section acc. to AC-1 rated value 946 A; Use minimum cross-section acc. to AC-1 rated value 610 A; Use minimum cross-section acc. to AC-1 rated value 486 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 <ul style="list-style-type: none"> — maximum • at AC-4 maximum 	900 1/h 350 1/h 850 1/h 850 1/h 250 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 	83 ... 155 V 83 ... 155 V
control supply voltage at DC rated value	83 ... 155 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	1.5 A
duration of inrush current peak	50 µs
locked-rotor current mean value	1.1 A
locked-rotor current peak	2.7 A
duration of locked-rotor current	150 ms
holding current mean value	15 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 • at DC 	50 ... 70 ms
opening delay	50 ... 70 ms
<ul style="list-style-type: none"> • at AC • at DC 	38 ... 57 ms
arcing time	38 ... 57 ms
control version of the switch operating mechanism	10 ... 20 ms
Auxiliary circuit	Standard A1 - A2
number of NC contacts for auxiliary contacts instantaneous contact	2
number of NO contacts for auxiliary contacts instantaneous contact	2
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 	6 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 	6 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 	96 A 77 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 	10 hp 20 hp 30 hp 30 hp 75 hp 75 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	
<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: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA) gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 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	140 mm
width	70 mm
depth	195 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 	20 mm 10 mm 10 mm 0 mm 20 mm 10 mm 10 mm 10 mm 20 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 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 mm ²), 1x (2.5 ... 50 mm ²) 2x (10 ... 1/0), 1x (10 ... 2/0)
connectable conductor cross-section for main contacts	
<ul style="list-style-type: none"> • solid • stranded • finely stranded with core end processing 	2.5 ... 16 mm ² 6 ... 70 mm ² 2.5 ... 50 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 ... 2.5 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 • for AWG cables 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)
AWG number extended as coded connectable conductor cross section for main contacts	10 ... 2/0
AWG number as coded connectable conductor cross section for auxiliary contacts	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

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



KC



EMV	Test Certificates	Maritime application
-----	-------------------	----------------------



[Special Test Certificate](#)



Maritime application	other	Railway	Environment
----------------------	-------	---------	-------------



[Confirmation](#)

[Special Test Certificate](#)



Environment

[Environmental Confirmations](#)

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=3RT2046-1NF34>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1NF34>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1NF34>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-1NF34&lang=en

Characteristic: Tripping characteristics, I_t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1NF34/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-1NF34&objecttype=14&gridview=view1>



