



power contactor, AC-3e/AC-3, 80 A, 37 kW / 400 V, 3-pole, 175-280 V AC/DC, 50/60 Hz, with integrated varistor, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S2

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
<b>General technical data</b>	
size of contactor	S2
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	17.1 W
• at AC in hot operating state per pole	5.7 W
• without load current share typical	1 W
type of calculation of power loss depending on pole	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	7.7g / 5 ms, 4.5g / 10 ms
• at DC	7.7g / 5 ms, 4.5g / 10 ms
shock resistance with sine pulse	
• at AC	12g / 5 ms, 7g / 10 ms
• at DC	12g / 5 ms, 7g / 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 Prohibitance (Date)	10/01/2014
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8
Net Weight	1.127 kg
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	

• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C
<b>relative humidity minimum</b>	10 %
<b>relative humidity at 55 °C according to IEC 60068-2-30 maximum</b>	95 %
<b>Environmental footprint</b>	
Environmental Product Declaration(EPD)	Yes
global warming potential [CO2 eq] total	107 kg
global warming potential [CO2 eq] during manufacturing	5.88 kg
global warming potential [CO2 eq] during operation	102 kg
global warming potential [CO2 eq] after end of life	-0.988 kg
<b>Main circuit</b>	
<b>number of poles for main current circuit</b>	3
<b>number of NO contacts for main contacts</b>	3
<b>number of NC contacts for main contacts</b>	0
<b>operating voltage</b>	
• at AC-3 rated value maximum	690 V
• at AC-3e rated value maximum	690 V
<b>operational current</b>	
• at AC-1 at 400 V at ambient temperature 40 °C rated value	90 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	90 A
— up to 690 V at ambient temperature 60 °C rated value	80 A
• at AC-3	
— at 400 V rated value	80 A
— at 500 V rated value	80 A
— at 690 V rated value	58 A
• at AC-3e	
— at 400 V rated value	80 A
— at 500 V rated value	80 A
— at 690 V rated value	58 A
• at AC-4 at 400 V rated value	55 A
• at AC-5a up to 690 V rated value	79.2 A
• at AC-5b up to 400 V rated value	66.4 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	70 A
— up to 400 V for current peak value n=20 rated value	70 A
— up to 500 V for current peak value n=20 rated value	70 A
— up to 690 V for current peak value n=20 rated value	58 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	46.7 A
— up to 400 V for current peak value n=30 rated value	46.7 A
— up to 500 V for current peak value n=30 rated value	46.7 A
— up to 690 V for current peak value n=30 rated value	46.7 A
minimum cross-section in main circuit at maximum AC-1 rated value	35 mm <sup>2</sup>
<b>operational current for approx. 200000 operating cycles at AC-4</b>	
• at 400 V rated value	30 A
• at 690 V rated value	24 A
<b>operational current</b>	
• at 1 current path at DC-1	
— at 24 V rated value	55 A
— at 60 V rated value	23 A
— at 110 V rated value	4.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.4 A
— at 600 V rated value	0.25 A

• with 2 current paths in series at DC-1	— at 24 V rated value	55 A
	— at 60 V rated value	45 A
	— at 110 V rated value	45 A
	— at 220 V rated value	5 A
	— at 440 V rated value	1 A
	— at 600 V rated value	0.8 A
• with 3 current paths in series at DC-1	— at 24 V rated value	55 A
	— at 60 V rated value	55 A
	— at 110 V rated value	55 A
	— at 220 V rated value	45 A
	— at 440 V rated value	2.9 A
	— at 600 V rated value	1.4 A
• at 1 current path at DC-3 at DC-5	— at 24 V rated value	35 A
	— at 60 V rated value	6 A
	— at 220 V rated value	1 A
	— at 440 V rated value	0.1 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	55 A
	— at 60 V rated value	45 A
	— at 110 V rated value	25 A
	— at 220 V rated value	5 A
	— at 440 V rated value	0.27 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	55 A
	— at 60 V rated value	55 A
	— at 110 V rated value	55 A
	— at 220 V rated value	25 A
	— at 440 V rated value	0.6 A
	— at 600 V rated value	0.35 A
<b>operating power</b>		
• at AC-2 at 400 V rated value		37 kW
• at AC-3		
— at 230 V rated value		22 kW
— at 400 V rated value		37 kW
— at 500 V rated value		37 kW
— at 690 V rated value		45 kW
• at AC-3e		
— at 230 V rated value		22 kW
— at 400 V rated value		37 kW
— at 500 V rated value		37 kW
— at 690 V rated value		45 kW
<b>operating power for approx. 200000 operating cycles at AC-4</b>		
• at 400 V rated value		15.8 kW
• at 690 V rated value		21.8 kW
<b>operating apparent power at AC-6a</b>		
• up to 230 V for current peak value n=20 rated value		27.8 kVA
• up to 400 V for current peak value n=20 rated value		48.4 kVA
• up to 500 V for current peak value n=20 rated value		60.6 kVA
• up to 690 V for current peak value n=20 rated value		69.3 kVA
<b>operating apparent power at AC-6a</b>		
• up to 230 V for current peak value n=30 rated value		18.6 kVA
• up to 400 V for current peak value n=30 rated value		32.3 kVA
• up to 500 V for current peak value n=30 rated value		40.4 kVA

• up to 690 V for current peak value n=30 rated value	55.8 kVA
<b>short-time withstand current in cold operating state up to 40 °C</b>	
• limited to 1 s switching at zero current maximum	1 298 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 5 s switching at zero current maximum	898 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 10 s switching at zero current maximum	640 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 30 s switching at zero current maximum	414 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 60 s switching at zero current maximum	333 A; Use minimum cross-section acc. to AC-1 rated value
<b>no-load switching frequency</b>	
• at AC	1 500 1/h
• at DC	1 500 1/h
<b>operating frequency</b>	
• at AC-1 maximum	700 1/h
• at AC-2 maximum	350 1/h
• at AC-3 maximum	500 1/h
• at AC-3e — maximum	500 1/h
• at AC-4 maximum	150 1/h
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	AC/DC
<b>control supply voltage at AC</b>	
• at 50 Hz rated value	175 ... 280 V
• at 60 Hz rated value	175 ... 280 V
<b>control supply voltage at DC rated value</b>	175 ... 280 V
<b>operating range factor control supply voltage rated value of magnet coil at DC</b>	
• initial value	0.8
• full-scale value	1.1
<b>operating range factor control supply voltage rated value of magnet coil at AC</b>	
• at 50 Hz	0.8 ... 1.1
• at 60 Hz	0.8 ... 1.1
<b>design of the surge suppressor</b>	with varistor
<b>inrush current peak</b>	5 A
<b>duration of inrush current peak</b>	30 µs
<b>pickup current mean value</b>	0.2 A
<b>pickup current peak</b>	0.42 A
<b>duration of pickup current</b>	230 ms
<b>holding current mean value</b>	6 mA
<b>apparent pick-up power of magnet coil at AC</b>	
• at 50 Hz	40 VA
• at 60 Hz	40 VA
<b>apparent holding power</b>	
• at minimum rated control supply voltage at DC	2 VA
• at maximum rated control supply voltage at DC	2 VA
<b>apparent holding power</b>	
• at minimum rated control supply voltage at AC	
— at 50 Hz	2 VA
— at 60 Hz	2 VA
• at maximum rated control supply voltage at AC	
— at 50 Hz	2 VA
— at 60 Hz	2 VA
<b>apparent holding power of magnet coil at AC</b>	
• at 50 Hz	2 VA
• at 60 Hz	2 VA
<b>inductive power factor with the holding power of the coil</b>	
• at 50 Hz	0.95
• at 60 Hz	0.95
<b>closing power of magnet coil at DC</b>	23 W
<b>holding power of magnet coil at DC</b>	1 W

<b>closing delay</b>	
• at AC	35 ... 110 ms
• at DC	35 ... 110 ms
<b>opening delay</b>	
• at AC	30 ... 55 ms
• at DC	30 ... 55 ms
<b>arcing time</b>	10 ... 20 ms
<b>control version of the switch operating mechanism</b>	Standard A1 - A2
<b>Auxiliary circuit</b>	
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
<b>operational current at AC-15</b>	
• at 230 V rated value	10 A
• at 400 V rated value	3 A
• at 500 V rated value	2 A
• at 690 V rated value	1 A
<b>operational current at DC-12</b>	
• 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
<b>operational current at DC-13</b>	
• 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
<b>contact reliability of auxiliary contacts</b>	1 faulty switching per 100 million (17 V, 1 mA)
<b>UL/CSA ratings</b>	
<b>full-load current (FLA) for 3-phase AC motor</b>	
• at 480 V rated value	65 A
• at 600 V rated value	62 A
<b>yielded mechanical performance [hp]</b>	
• for single-phase AC motor	
— at 110/120 V rated value	5 hp
— at 230 V rated value	15 hp
• for 3-phase AC motor	
— at 200/208 V rated value	20 hp
— at 220/230 V rated value	25 hp
— at 460/480 V rated value	50 hp
— at 575/600 V rated value	60 hp
<b>contact rating of auxiliary contacts according to UL</b>	A600 / P600
<b>Short-circuit protection</b>	
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
<b>design of the fuse link</b>	
• 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)
— with type of coordination 2 required	gG: 160 A (690 V, 100 kA), aM: 80 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)
• for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)

Installation/ mounting/ dimensions	
<b>mounting position</b>	+/-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
<b>fastening method</b>	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
<b>height</b>	114 mm
<b>width</b>	55 mm
<b>depth</b>	130 mm
<b>required spacing</b>	
• with side-by-side mounting	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
• for grounded parts	
— forwards	10 mm
— upwards	10 mm
— at the side	6 mm
— downwards	10 mm
• for live parts	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	6 mm
Connections/ Terminals	
<b>type of electrical connection</b>	
• for main current circuit	screw-type terminals
• for auxiliary and control circuit	screw-type terminals
• at contactor for auxiliary contacts	Screw-type terminals
• of magnet coil	Screw-type terminals
<b>type of connectable conductor cross-sections</b>	
• for main contacts	
— solid or stranded	2x (1 ... 35 mm <sup>2</sup> ), 1x (1 ... 50 mm <sup>2</sup> )
— finely stranded with core end processing	2x (1 ... 25 mm <sup>2</sup> ), 1x (1 ... 35 mm <sup>2</sup> )
• for AWG cables for main contacts	2x (18 ... 2), 1x (18 ... 1)
<b>connectable conductor cross-section for main contacts</b>	1 ... 35 mm <sup>2</sup>
• finely stranded with core end processing	
<b>connectable conductor cross-section for auxiliary contacts</b>	0.5 ... 2.5 mm <sup>2</sup>
• solid or stranded	0.5 ... 2.5 mm <sup>2</sup>
• finely stranded with core end processing	
<b>type of connectable conductor cross-sections</b>	
• for auxiliary contacts	
— solid or stranded	2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> )
— finely stranded with core end processing	2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> )
• for AWG cables for auxiliary contacts	2x (20 ... 16), 2x (18 ... 14)
<b>AWG number as coded connectable conductor cross section for main contacts</b>	18 ... 1
<b>AWG number as coded connectable conductor cross section for auxiliary contacts</b>	20 ... 14
Safety related data	
<b>product function</b>	
• mirror contact according to IEC 60947-4-1	Yes
• positively driven operation according to IEC 60947-5-1	No
• suitable for safety function	Yes
<b>suitability for use safety-related switching OFF</b>	Yes
<b>service life maximum</b>	20 a
<b>test wear-related service life necessary</b>	Yes
<b>proportion of dangerous failures</b>	
• 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

##### General Product Approval



[Miscellaneous](#)



General Product Approval	EMV	Test Certificates	Maritime application
		<a href="#">Type Test Certificates/Test Report</a> <a href="#">Special Test Certificate</a>	 

Maritime application	other

other	Railway	Environment
<a href="#">Confirmation</a>	<a href="#">Confirmation</a>	<a href="#">Special Test Certificate</a>  <a href="#">Environmental Confirmations</a>

#### 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=3RT2038-1NP30>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-1NP30>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2038-1NP30&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2038-1NP30&lang=en)

##### Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2038-1NP30>

##### Characteristic curves

[https://curves.simaris.siemens.com/curves/<mmp\\_prod\\_noCOMP="Haupt"></mmp\\_prod\\_no>](https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP=)



