



power contactor, AC-3 51 A, 22 kW / 400 V 1 NO + 1 NC, AC / DC 20-33 V, with varistor, 3-pole, size S2, screw terminal upright mounting position

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S2
product extension	
<ul style="list-style-type: none"> function module for communication auxiliary switch 	<p>No</p> <p>Yes</p>
power loss [W] for rated value of the current	
<ul style="list-style-type: none"> at AC in hot operating state at AC in hot operating state per pole without load current share typical 	<p>12 W</p> <p>4 W</p> <p>2 W</p>
insulation voltage	
<ul style="list-style-type: none"> of main circuit with degree of pollution 3 rated value of auxiliary circuit with degree of pollution 3 rated value 	<p>690 V</p> <p>690 V</p>
surge voltage resistance	
<ul style="list-style-type: none"> of main circuit rated value of auxiliary circuit rated value 	<p>6 kV</p> <p>6 kV</p>
maximum permissible voltage for safe isolation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
<ul style="list-style-type: none"> at AC at DC 	<p>7.7g / 5 ms, 4.5g / 10 ms</p> <p>7.7g / 5 ms, 4.5g / 10 ms</p>
shock resistance with sine pulse	
<ul style="list-style-type: none"> at AC at DC 	<p>12g / 5 ms, 7g / 10 ms</p> <p>12g / 5 ms, 7g / 10 ms</p>
mechanical service life (switching cycles)	
<ul style="list-style-type: none"> of contactor typical of the contactor with added electronically optimized auxiliary switch block typical of the contactor with added auxiliary switch block typical 	<p>10 000 000</p> <p>5 000 000</p> <p>10 000 000</p>
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	10/01/2014
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 	<p>-25 ... +60 °C</p> <p>-55 ... +80 °C</p>

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
operating voltage	
• at AC-3 rated value maximum	690 V
• at AC-3e rated value maximum	690 V
operational current	
• at AC-1 at 400 V at ambient temperature 40 °C rated value	70 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	70 A
— up to 690 V at ambient temperature 60 °C rated value	60 A
• at AC-3	
— at 400 V rated value	51 A
— at 500 V rated value	51 A
— at 690 V rated value	24 A
• at AC-3e	
— at 400 V rated value	51 A
— at 500 V rated value	51 A
— at 690 V rated value	24 A
• at AC-4 at 400 V rated value	41 A
• at AC-5a up to 690 V rated value	61.6 A
• at AC-5b up to 400 V rated value	41.5 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	43.2 A
— up to 400 V for current peak value n=20 rated value	43.2 A
— up to 500 V for current peak value n=20 rated value	43.2 A
— up to 690 V for current peak value n=20 rated value	24 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	28.8 A
— up to 400 V for current peak value n=30 rated value	28.8 A
— up to 500 V for current peak value n=30 rated value	28.8 A
— up to 690 V for current peak value n=30 rated value	24 A
minimum cross-section in main circuit at maximum AC-1 rated value	25 mm ²
operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	24 A
• at 690 V rated value	20 A
operational current	
• at 1 current path at DC-1	
— at 24 V rated value	55 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 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 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 110 V rated value	2.5 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 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 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
operating power	
• at AC-2 at 400 V rated value	22 kW
• at AC-3	
— at 230 V rated value	15 kW
— at 400 V rated value	22 kW
— at 500 V rated value	30 kW
— at 690 V rated value	22 kW
• at AC-3e	
— at 400 V rated value	22 kW
— at 500 V rated value	30 kW
— at 690 V rated value	22 kW
operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	12.6 kW
• at 690 V rated value	18.2 kW
operating apparent power at AC-6a	
• up to 230 V for current peak value n=20 rated value	17.2 kVA
• up to 400 V for current peak value n=20 rated value	29.9 kVA
• up to 500 V for current peak value n=20 rated value	37.4 kVA
• up to 690 V for current peak value n=20 rated value	28.6 kVA
operating apparent power at AC-6a	
• up to 230 V for current peak value n=30 rated value	11.4 kVA
• up to 400 V for current peak value n=30 rated value	19.9 kVA
• up to 500 V for current peak value n=30 rated value	24.9 kVA
• up to 690 V for current peak value n=30 rated value	28.6 kVA
short-time withstand current in cold operating state up to 40 °C	
• limited to 1 s switching at zero current maximum	937 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 5 s switching at zero current maximum	697 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 10 s switching at zero current maximum	468 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 30 s switching at zero current maximum	282 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 60 s switching at zero current maximum	229 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at AC	1 500 1/h
• at DC	1 500 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 	1 000 1/h 600 1/h 800 1/h 800 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 	20 ... 33 V 20 ... 33 V
control supply voltage at DC	
<ul style="list-style-type: none"> • 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	3 A
duration of inrush current peak	50 µs
locked-rotor current mean value	1 A
locked-rotor current peak	2.6 A
duration of locked-rotor current	230 ms
holding current mean value	40 mA
apparent pick-up power of magnet coil at AC	
<ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	40 VA 40 VA
apparent holding power of magnet coil at AC	
<ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	2 VA 2 VA
closing power of magnet coil at DC	23 W
holding power of magnet coil at DC	1 W
closing delay	
<ul style="list-style-type: none"> • at AC • at DC 	35 ... 110 ms 35 ... 110 ms
opening delay	
<ul style="list-style-type: none"> • at AC • at DC 	30 ... 55 ms 30 ... 55 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	
<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 	10 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 	10 A 6 A 6 A 3 A 2 A

<ul style="list-style-type: none"> • at 220 V rated value • at 600 V rated value 	<p>1 A</p> <p>0.15 A</p>
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 	<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	<p>1 faulty switching per 100 million (17 V, 1 mA)</p>
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 	<p>52 A</p> <p>52 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 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 	<p>3 hp</p> <p>10 hp</p> <p>15 hp</p> <p>15 hp</p> <p>40 hp</p> <p>50 hp</p>
contact rating of auxiliary contacts according to UL	<p>A600 / P600</p>
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>gG: 160 A (690 V, 100 kA), aM: 80 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)</p> <p>gG: 80A (690V,100kA), aM: 50A (690V,100kA), BS88: 63A (415V,80kA)</p> <p>gG: 10 A (500 V, 1 kA)</p>
Installation/ mounting/ dimensions	
mounting position	<p>standing, on horizontal mounting surface</p>
fastening method <ul style="list-style-type: none"> • side-by-side mounting 	<p>screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715</p> <p>Yes</p>
height	<p>114 mm</p>
width	<p>55 mm</p>
depth	<p>130 mm</p>
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 	<p>10 mm</p> <p>10 mm</p> <p>10 mm</p> <p>0 mm</p> <p>10 mm</p> <p>10 mm</p> <p>6 mm</p> <p>10 mm</p> <p>10 mm</p> <p>10 mm</p> <p>10 mm</p> <p>6 mm</p>
Connections/ Terminals	
type of electrical connection <ul style="list-style-type: none"> • for main current circuit 	<p>screw-type terminals</p>

<ul style="list-style-type: none"> • for auxiliary and control circuit • at contactor for auxiliary contacts • of magnet coil 	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"> — solid or stranded — finely stranded with core end processing • at AWG cables for main contacts 	2x (1 ... 35 mm ²), 1x (1 ... 50 mm ²) 2x (1 ... 25 mm ²), 1x (1 ... 35 mm ²) 2x (18 ... 2), 1x (18 ... 1)
connectable conductor cross-section for main contacts <ul style="list-style-type: none"> • finely stranded with core end processing 	1 ... 35 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 • at 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 as coded connectable conductor cross section <ul style="list-style-type: none"> • for main contacts • for auxiliary contacts 	18 ... 1 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 	Yes No
B10 value with high demand rate according to SN 31920	1 000 000
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 %
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
T1 value for proof test interval or service life according to IEC 61508	20 y
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
suitability for use <ul style="list-style-type: none"> • safety-related switching OFF 	Yes

Certificates/ approvals

General Product Approval



[Confirmation](#)



[KC](#)



EMC	Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates
-----	---------------------------------------	---------------------------	-------------------



[Type Examination Certificate](#)




EG-Konf.

[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

Marine / Shipping



Marine / Shipping	other	Railway	Dangerous Good
	Confirmation	Confirmation	Vibration and Shock
			Transport Information

Further information

- 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=3RT2036-1NB30-1AA0>
- Cax online generator
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2036-1NB30-1AA0>
- Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
<https://support.industry.siemens.com/cs/ww/en/ps/3RT2036-1NB30-1AA0>
- Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2036-1NB30-1AA0&lang=en
- Characteristic: Tripping characteristics, I²t, Let-through current
<https://support.industry.siemens.com/cs/ww/en/ps/3RT2036-1NB30-1AA0/char>
- Further characteristics (e.g. electrical endurance, switching frequency)
<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2036-1NB30-1AA0&objecttype=14&gridview=view1>

last modified: 2/15/2022 