



power contactor, AC-3 95 A, 45 kW / 400 V 1 NO + 1 NC, 230 V AC, 50 Hz
3-pole, 3 NO, Size S3 screw terminal

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
• per pole	6.6 W
power loss [W] for rated value of the current without load current share typical	19 W
surge voltage resistance	
• of main circuit rated value	8 kV
• of auxiliary circuit rated value	6 kV
maximum permissible voltage for safe isolation between coil and main contacts acc. to EN 60947-1	690 V
shock resistance at rectangular impulse	
• at AC	6.7 g / 5 ms, 4.0 g / 10 ms
shock resistance with sine pulse	
• at AC	10.6 g / 5 ms, 6.3 g / 10 ms
mechanical service life (switching 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 acc. to IEC 81346-2	Q
Substance Prohibitance (Date)	01.03.2017
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C acc. 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	1 000 V
operational current	
• at AC-1 at 400 V at ambient temperature 40 °C rated value	130 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	130 A
— up to 690 V at ambient temperature 60 °C rated value	110 A
— up to 1000 V at ambient temperature 40 °C rated value	70 A
— up to 1000 V at ambient temperature 60 °C rated value	60 A
• at AC-3	
— at 400 V rated value	95 A
— at 500 V rated value	95 A
— at 690 V rated value	78 A
— at 1000 V rated value	30 A
• at AC-4 at 400 V rated value	80 A
• at AC-5a up to 690 V rated value	114 A
• at AC-5b up to 400 V rated value	95 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	84.4 A
— up to 400 V for current peak value n=20 rated value	84.4 A
— up to 500 V for current peak value n=20 rated value	84.4 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	56.3 A
— up to 400 V for current peak value n=30 rated value	56.3 A
— up to 500 V for current peak value n=30 rated value	56.3 A
— 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	
• at 400 V rated value	42 A
• at 690 V rated value	30 A
operational current	
• at 1 current path at DC-1	
— at 24 V rated value	100 A
— at 110 V rated value	9 A
— at 220 V rated value	2 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.4 A
• with 2 current paths in series at DC-1	
— at 24 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	10 A
— at 440 V rated value	1.8 A
— at 600 V rated value	1 A
• with 3 current paths in series at DC-1	
— at 24 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	80 A
— at 440 V rated value	4.5 A
— at 600 V rated value	2.6 A

<ul style="list-style-type: none"> ● at 1 current path at DC-3 at DC-5 <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-3 at DC-5 <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-3 at DC-5 <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 	<p>40 A</p> <p>2.5 A</p> <p>1 A</p> <p>0.15 A</p> <p>0.06 A</p> <p>100 A</p> <p>100 A</p> <p>7 A</p> <p>0.42 A</p> <p>0.16 A</p> <p>100 A</p> <p>100 A</p> <p>35 A</p> <p>0.8 A</p> <p>0.35 A</p>
<p>operating power</p> <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 	<p>45 kW</p> <p>22 kW</p> <p>45 kW</p> <p>55 kW</p> <p>75 kW</p> <p>37 kW</p>
<p>operating power for approx. 200000 operating cycles at AC-4</p> <ul style="list-style-type: none"> ● at 400 V rated value ● at 690 V rated value 	<p>22 kW</p> <p>27.4 kW</p>
<p>operating apparent power at AC-6a</p> <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 	<p>33 kV·A</p> <p>58 kV·A</p> <p>73 kV·A</p> <p>69 kV·A</p>
<p>operating apparent power at AC-6a</p> <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 ● up to 500 V for current peak value n=30 rated value ● up to 690 V for current peak value n=30 rated value 	<p>22.4 kV·A</p> <p>39 kV·A</p> <p>48.7 kV·A</p> <p>67.3 kV·A</p>
<p>short-time withstand current in cold operating state up to 40 °C</p> <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 	<p>1 725 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>1 297 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>946 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>610 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>486 A; Use minimum cross-section acc. to AC-1 rated value</p>
<p>no-load switching frequency</p> <ul style="list-style-type: none"> ● at AC 	<p>5 000 1/h</p>
<p>operating frequency</p> <ul style="list-style-type: none"> ● at AC-1 maximum ● at AC-2 maximum ● at AC-3 maximum ● at AC-4 maximum 	<p>900 1/h</p> <p>350 1/h</p> <p>850 1/h</p> <p>250 1/h</p>
Control circuit/ Control	
<p>type of voltage of the control supply voltage</p>	<p>AC</p>
<p>control supply voltage at AC</p> <ul style="list-style-type: none"> ● at 50 Hz rated value 	<p>230 V</p>
<p>operating range factor control supply voltage rated value of magnet coil at AC</p> <ul style="list-style-type: none"> ● at 50 Hz 	<p>0.8 ... 1.1</p>

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
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 • 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 • 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 • 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 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 • at 480 V rated value • at 600 V rated value	96 A 77 A
yielded mechanical performance [hp] • for single-phase AC motor — at 110/120 V rated value — at 230 V rated value • for 3-phase AC motor — 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 fuse link • for short-circuit protection of the main circuit	

- with type of coordination 1 required
- with type of assignment 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	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
● side-by-side mounting	Yes
height	140 mm
width	70 mm
depth	152 mm
required spacing	
● with side-by-side mounting	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
● for grounded parts	
— forwards	20 mm
— upwards	10 mm
— at the side	10 mm
— downwards	10 mm
● for live parts	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	10 mm

Connections/ Terminals

type of electrical connection	
● 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
type of connectable conductor cross-sections	
● for main contacts	
— finely stranded with core end processing	2x (2.5 ... 35 mm ²), 1x (2.5 ... 50 mm ²)
● at AWG cables for main contacts	2x (10 ... 1/0), 1x (10 ... 2)
connectable conductor cross-section for main contacts	
● solid	2.5 ... 16 mm ²
● stranded	6 ... 70 mm ²
● finely stranded with core end processing	2.5 ... 50 mm ²
connectable conductor cross-section for auxiliary contacts	
● solid or stranded	0.5 ... 2.5 mm ²
● finely stranded with core end processing	0.5 ... 2.5 mm ²
type of connectable conductor cross-sections	
● for auxiliary contacts	
— solid or stranded	2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²)
— finely stranded with core end processing	2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²)
● at AWG cables for auxiliary contacts	2x (20 ... 16), 2x (18 ... 14)
AWG number as coded connectable conductor cross section	
● for main contacts	10 ... 2
● for auxiliary contacts	20 ... 14

Safety related data

B10 value 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 	40 % 73 %
failure rate [FIT] with low demand rate acc. to SN 31920	100 FIT
T1 value for proof test interval or service life acc. to IEC 61508	20 y
protection class IP on the front acc. to IEC 60529	IP20
touch protection on the front acc. to IEC 60529	finger-safe, for vertical contact from the front
suitability for use	
<ul style="list-style-type: none"> safety-related switching on safety-related switching OFF 	Yes Yes

Certificates/ approvals

General Product Approval



[Confirmation](#)



[KC](#)



EMC	Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates
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[Type Examination Certificate](#)

[UK Declaration of Conformity](#)



EG-Konf.

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)

Marine / Shipping



other	Railway	Dangerous Good
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[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=3RT2046-1AP00>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1AP00>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AP00>

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

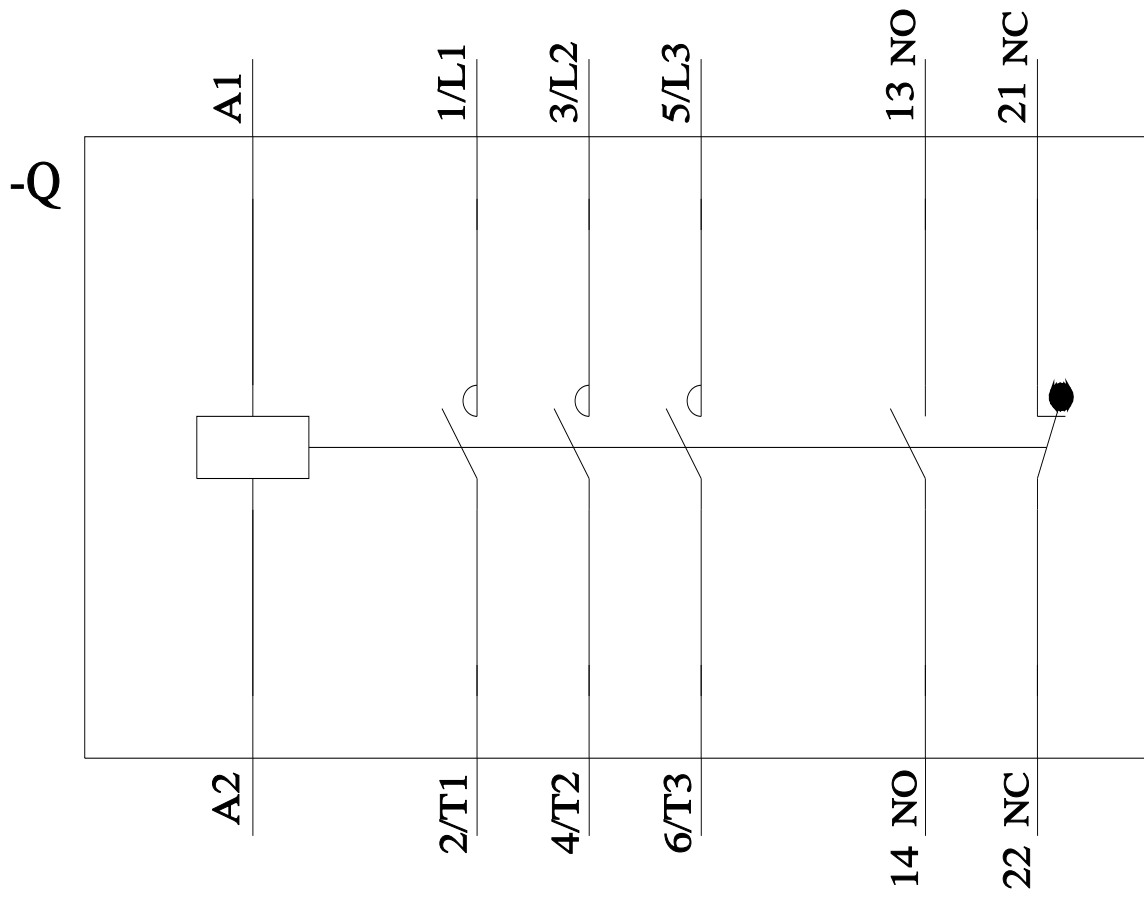
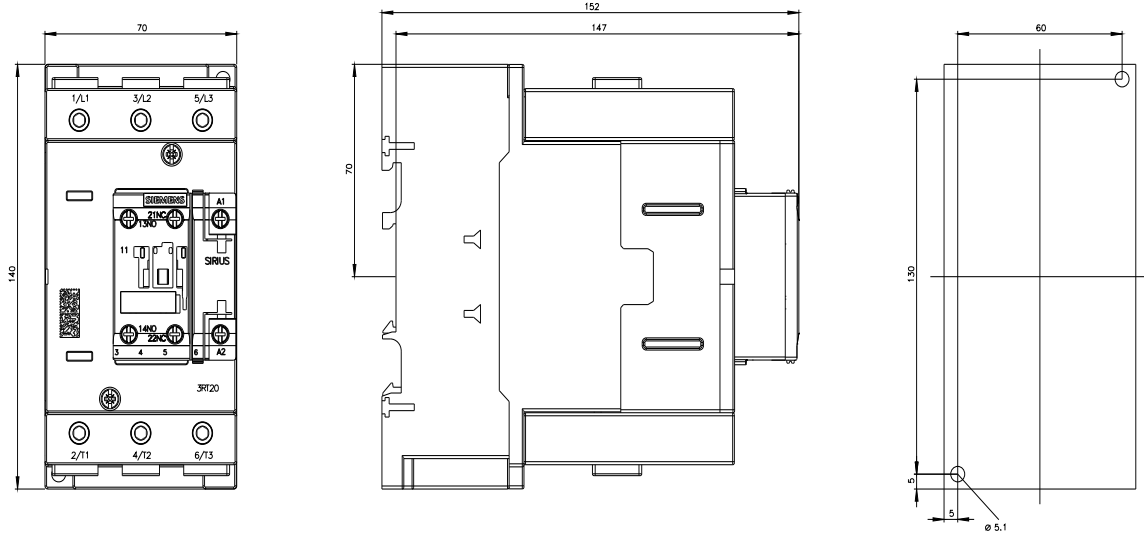
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-1AP00&lang=en

Characteristic: Tripping characteristics, I_t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AP00/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-1AP00&objecttype=14&gridview=view1>



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