



power contactor, AC-3 95 A, 45 kW / 400 V 2 NO + 2 NC, 110 V AC, 50 Hz  
3-pole, 3 NO, Size S3 screw terminal

<b>product brand name</b>	SIRIUS
<b>product designation</b>	Power contactor
<b>product type designation</b>	3RT2
<b>General technical data</b>	
<b>size of contactor</b>	S3
<b>product extension</b>	
• 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
<b>power loss [W] for rated value of the current without load current share typical</b>	19 W
<b>surge voltage resistance</b>	
• 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
<b>shock resistance at rectangular impulse</b>	
• at AC	6.7 g / 5 ms, 4.0 g / 10 ms
<b>shock resistance with sine pulse</b>	
• at AC	10.6 g / 5 ms, 6.3 g / 10 ms
<b>mechanical service life (switching cycles)</b>	
• 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
<b>reference code acc. to IEC 81346-2</b>	Q
Substance Prohibitance (Date)	01.03.2017 00:00:00
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	2 000 m
<b>ambient temperature</b>	
• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C
<b>Main circuit</b>	
<b>number of poles for main current circuit</b>	3
<b>number of NO contacts for main contacts</b>	3
operating voltage at AC-3 rated value maximum	1 000 V

<b>operational current</b>	
<ul style="list-style-type: none"> <li>● at AC-1 at 400 V at ambient temperature 40 °C rated value</li> </ul>	130 A
<ul style="list-style-type: none"> <li>● at AC-1 <ul style="list-style-type: none"> <li>— up to 690 V at ambient temperature 40 °C rated value</li> </ul> </li> </ul>	130 A
<ul style="list-style-type: none"> <li>— up to 690 V at ambient temperature 60 °C rated value</li> </ul>	110 A
<ul style="list-style-type: none"> <li>— up to 1000 V at ambient temperature 40 °C rated value</li> </ul>	70 A
<ul style="list-style-type: none"> <li>— up to 1000 V at ambient temperature 60 °C rated value</li> </ul>	60 A
<ul style="list-style-type: none"> <li>● at AC-3 <ul style="list-style-type: none"> <li>— at 400 V rated value</li> </ul> </li> </ul>	95 A
<ul style="list-style-type: none"> <li>— at 500 V rated value</li> </ul>	95 A
<ul style="list-style-type: none"> <li>— at 690 V rated value</li> </ul>	78 A
<ul style="list-style-type: none"> <li>— at 1000 V rated value</li> </ul>	30 A
<ul style="list-style-type: none"> <li>● at AC-4 at 400 V rated value</li> </ul>	80 A
<ul style="list-style-type: none"> <li>● at AC-5a up to 690 V rated value</li> </ul>	114 A
<ul style="list-style-type: none"> <li>● at AC-5b up to 400 V rated value</li> </ul>	95 A
<ul style="list-style-type: none"> <li>● at AC-6a <ul style="list-style-type: none"> <li>— up to 230 V for current peak value n=20 rated value</li> </ul> </li> </ul>	84.4 A
<ul style="list-style-type: none"> <li>— up to 400 V for current peak value n=20 rated value</li> </ul>	84.4 A
<ul style="list-style-type: none"> <li>— up to 500 V for current peak value n=20 rated value</li> </ul>	84.4 A
<ul style="list-style-type: none"> <li>— up to 690 V for current peak value n=20 rated value</li> </ul>	58 A
<ul style="list-style-type: none"> <li>● at AC-6a <ul style="list-style-type: none"> <li>— up to 230 V for current peak value n=30 rated value</li> </ul> </li> </ul>	56.3 A
<ul style="list-style-type: none"> <li>— up to 400 V for current peak value n=30 rated value</li> </ul>	56.3 A
<ul style="list-style-type: none"> <li>— up to 500 V for current peak value n=30 rated value</li> </ul>	56.3 A
<ul style="list-style-type: none"> <li>— up to 690 V for current peak value n=30 rated value</li> </ul>	56.3 A
minimum cross-section in main circuit at maximum AC-1 rated value	50 mm <sup>2</sup>
<b>operational current for approx. 200000 operating cycles at AC-4</b>	
<ul style="list-style-type: none"> <li>● at 400 V rated value</li> </ul>	42 A
<ul style="list-style-type: none"> <li>● at 690 V rated value</li> </ul>	30 A
<b>operational current</b>	
<ul style="list-style-type: none"> <li>● at 1 current path at DC-1 <ul style="list-style-type: none"> <li>— at 24 V rated value</li> </ul> </li> </ul>	100 A
<ul style="list-style-type: none"> <li>— at 110 V rated value</li> </ul>	9 A
<ul style="list-style-type: none"> <li>— at 220 V rated value</li> </ul>	2 A
<ul style="list-style-type: none"> <li>— at 440 V rated value</li> </ul>	0.6 A
<ul style="list-style-type: none"> <li>— at 600 V rated value</li> </ul>	0.4 A
<ul style="list-style-type: none"> <li>● with 2 current paths in series at DC-1 <ul style="list-style-type: none"> <li>— at 24 V rated value</li> </ul> </li> </ul>	100 A
<ul style="list-style-type: none"> <li>— at 110 V rated value</li> </ul>	100 A
<ul style="list-style-type: none"> <li>— at 220 V rated value</li> </ul>	10 A
<ul style="list-style-type: none"> <li>— at 440 V rated value</li> </ul>	1.8 A
<ul style="list-style-type: none"> <li>— at 600 V rated value</li> </ul>	1 A
<ul style="list-style-type: none"> <li>● with 3 current paths in series at DC-1 <ul style="list-style-type: none"> <li>— at 24 V rated value</li> </ul> </li> </ul>	100 A
<ul style="list-style-type: none"> <li>— at 110 V rated value</li> </ul>	100 A
<ul style="list-style-type: none"> <li>— at 220 V rated value</li> </ul>	80 A
<ul style="list-style-type: none"> <li>— at 440 V rated value</li> </ul>	4.5 A

— at 600 V rated value	2.6 A
<b>operational current</b>	
● at 1 current path at DC-3 at DC-5	
— at 24 V rated value	40 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.15 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	100 A
— at 110 V rated value	100 A
— at 220 V rated value	7 A
— at 440 V rated value	0.42 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	100 A
— at 110 V rated value	100 A
— at 220 V rated value	35 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.35 A
<b>operating power</b>	
● at AC-2 at 400 V rated value	45 kW
● at AC-3	
— at 230 V rated value	22 kW
— at 400 V rated value	45 kW
— at 500 V rated value	55 kW
— at 690 V rated value	75 kW
— at 1000 V rated value	37 kW
<b>operating power for approx. 200000 operating cycles at AC-4</b>	
● at 400 V rated value	22 kW
● at 690 V rated value	27.4 kW
<b>operating apparent power at AC-6a</b>	
● up to 230 V for current peak value n=20 rated value	33 kV·A
● up to 400 V for current peak value n=20 rated value	58 kV·A
● up to 500 V for current peak value n=20 rated value	73 kV·A
● up to 690 V for current peak value n=20 rated value	69 kV·A
<b>operating apparent power at AC-6a</b>	
● up to 230 V for current peak value n=30 rated value	22.4 kV·A
● up to 400 V for current peak value n=30 rated value	39 kV·A
● up to 500 V for current peak value n=30 rated value	48.7 kV·A
● up to 690 V for current peak value n=30 rated value	67.3 kV·A
<b>short-time withstand current in cold operating state up to 40 °C</b>	
● limited to 1 s switching at zero current maximum	1 725 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 5 s switching at zero current maximum	1 297 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 10 s switching at zero current maximum	946 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 30 s switching at zero current maximum	610 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 60 s switching at zero current maximum	486 A; Use minimum cross-section acc. to AC-1 rated value
<b>no-load switching frequency</b>	
● at AC	5 000 1/h
<b>operating frequency</b>	
● at AC-1 maximum	900 1/h
● at AC-2 maximum	350 1/h
● at AC-3 maximum	850 1/h
● at AC-4 maximum	250 1/h
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	AC
<b>control supply voltage at AC</b>	

<ul style="list-style-type: none"> <li>at 50 Hz rated value</li> </ul>	110 V
<b>operating range factor control supply voltage rated value of magnet coil at AC</b>	
<ul style="list-style-type: none"> <li>at 50 Hz</li> </ul>	0.8 ... 1.1
<b>apparent pick-up power of magnet coil at AC</b>	
<ul style="list-style-type: none"> <li>at 50 Hz</li> </ul>	296 V·A
<b>inductive power factor with closing power of the coil</b>	
<ul style="list-style-type: none"> <li>at 50 Hz</li> </ul>	0.61
<b>apparent holding power of magnet coil at AC</b>	
<ul style="list-style-type: none"> <li>at 50 Hz</li> </ul>	19 V·A
<b>inductive power factor with the holding power of the coil</b>	
<ul style="list-style-type: none"> <li>at 50 Hz</li> </ul>	0.38
<b>closing delay</b>	
<ul style="list-style-type: none"> <li>at AC</li> </ul>	13 ... 50 ms
<b>opening delay</b>	
<ul style="list-style-type: none"> <li>at AC</li> </ul>	10 ... 21 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	2
number of NO contacts for auxiliary contacts instantaneous contact	2
operational current at AC-12 maximum	10 A
<b>operational current at AC-15</b>	
<ul style="list-style-type: none"> <li>at 230 V rated value</li> <li>at 400 V rated value</li> <li>at 500 V rated value</li> <li>at 690 V rated value</li> </ul>	6 A 3 A 2 A 1 A
<b>operational current at DC-12</b>	
<ul style="list-style-type: none"> <li>at 24 V rated value</li> <li>at 48 V rated value</li> <li>at 60 V rated value</li> <li>at 110 V rated value</li> <li>at 125 V rated value</li> <li>at 220 V rated value</li> <li>at 600 V rated value</li> </ul>	10 A 6 A 6 A 3 A 2 A 1 A 0.15 A
<b>operational current at DC-13</b>	
<ul style="list-style-type: none"> <li>at 24 V rated value</li> <li>at 48 V rated value</li> <li>at 60 V rated value</li> <li>at 110 V rated value</li> <li>at 125 V rated value</li> <li>at 220 V rated value</li> <li>at 600 V rated value</li> </ul>	6 A 2 A 2 A 1 A 0.9 A 0.3 A 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>	
<ul style="list-style-type: none"> <li>at 480 V rated value</li> <li>at 600 V rated value</li> </ul>	96 A 77 A
<b>yielded mechanical performance [hp]</b>	
<ul style="list-style-type: none"> <li>for single-phase AC motor <ul style="list-style-type: none"> <li>at 110/120 V rated value</li> <li>at 230 V rated value</li> </ul> </li> <li>for 3-phase AC motor <ul style="list-style-type: none"> <li>at 200/208 V rated value</li> <li>at 220/230 V rated value</li> <li>at 460/480 V rated value</li> </ul> </li> </ul>	10 hp 20 hp 30 hp 30 hp 75 hp

— at 575/600 V rated value	75 hp
<b>contact rating of auxiliary contacts according to UL</b>	A600 / P600
<b>Short-circuit protection</b>	
<b>design of the fuse link</b>	
<ul style="list-style-type: none"> <li>● for short-circuit protection of the main circuit <ul style="list-style-type: none"> <li>— with type of coordination 1 required</li> <li>— with type of assignment 2 required</li> </ul> </li> <li>● for short-circuit protection of the auxiliary switch required</li> </ul>	<p>gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)</p> <p>gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)</p> <p>gG: 10 A (500 V, 1 kA)</p>
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
<b>fastening method</b>	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
<ul style="list-style-type: none"> <li>● side-by-side mounting</li> </ul>	Yes
<b>height</b>	140 mm
<b>width</b>	70 mm
<b>depth</b>	195 mm
<b>required spacing</b>	
<ul style="list-style-type: none"> <li>● with side-by-side mounting <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> <li>● for grounded parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— at the side</li> <li>— downwards</li> </ul> </li> <li>● for live parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> </ul>	<p>20 mm</p> <p>10 mm</p> <p>10 mm</p> <p>0 mm</p> <p>20 mm</p> <p>10 mm</p> <p>10 mm</p> <p>10 mm</p> <p>20 mm</p> <p>10 mm</p> <p>10 mm</p> <p>10 mm</p>
<b>Connections/ Terminals</b>	
<b>type of electrical connection</b>	
<ul style="list-style-type: none"> <li>● for main current circuit</li> <li>● for auxiliary and control circuit</li> <li>● at contactor for auxiliary contacts</li> <li>● of magnet coil</li> </ul>	<p>screw-type terminals</p> <p>screw-type terminals</p> <p>Screw-type terminals</p> <p>Screw-type terminals</p>
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>● for main contacts <ul style="list-style-type: none"> <li>— finely stranded with core end processing</li> </ul> </li> <li>● at AWG cables for main contacts</li> </ul>	<p>2x (2.5 ... 35 mm<sup>2</sup>), 1x (2.5 ... 50 mm<sup>2</sup>)</p> <p>2x (10 ... 1/0), 1x (10 ... 2)</p>
<b>connectable conductor cross-section for main contacts</b>	
<ul style="list-style-type: none"> <li>● solid</li> <li>● stranded</li> <li>● finely stranded with core end processing</li> </ul>	<p>2.5 ... 16 mm<sup>2</sup></p> <p>6 ... 70 mm<sup>2</sup></p> <p>2.5 ... 50 mm<sup>2</sup></p>
<b>connectable conductor cross-section for auxiliary contacts</b>	
<ul style="list-style-type: none"> <li>● solid or stranded</li> <li>● finely stranded with core end processing</li> </ul>	<p>0.5 ... 2.5 mm<sup>2</sup></p> <p>0.5 ... 2.5 mm<sup>2</sup></p>
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>● for auxiliary contacts <ul style="list-style-type: none"> <li>— solid or stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>● at AWG cables for auxiliary contacts</li> </ul>	<p>2x (0,5 ... 1,5 mm<sup>2</sup>), 2x (0,75 ... 2,5 mm<sup>2</sup>)</p> <p>2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)</p> <p>2x (20 ... 16), 2x (18 ... 14)</p>

<b>AWG number as coded connectable conductor cross section</b>	
• for main contacts	10 ... 2
• for auxiliary contacts	20 ... 14

**Safety related data**

<b>product function mirror contact acc. to IEC 60947-4-1</b>	Yes
B10 value with high demand rate acc. to SN 31920	1 000 000
<b>proportion of dangerous failures</b>	
• with low demand rate acc. to SN 31920	40 %
• with high demand rate acc. to SN 31920	73 %
failure rate [FIT] with low demand rate acc. to SN 31920	100 FIT
product function positively driven operation acc. to IEC 60947-5-1	No
<b>T1 value for proof test interval or service life acc. to IEC 61508</b>	20 y
<b>protection class IP on the front acc. to IEC 60529</b>	IP20
<b>touch protection on the front acc. to IEC 60529</b>	finger-safe, for vertical contact from the front
<b>suitability for use</b>	
• safety-related switching on	Yes
• safety-related switching OFF	Yes

**Certificates/ approvals**

<b>General Product Approval</b>	<b>EMC</b>
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[KC](#)



<b>Functional Safety/Safety of Machinery</b>	<b>Declaration of Conformity</b>	<b>Test Certificates</b>	<b>Marine / Shipping</b>
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[Type Examination Certificate](#)

[UK Declaration of Conformity](#)



EG-Konf.

[Special Test Certificate](#)



ABS



LRS

<b>Marine / Shipping</b>	<b>other</b>
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PRS



RINA



RMRS



DNV-GL

[Confirmation](#)

**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=3RT2046-1AF04>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1AF04>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AF04>

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

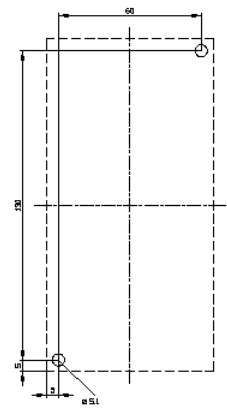
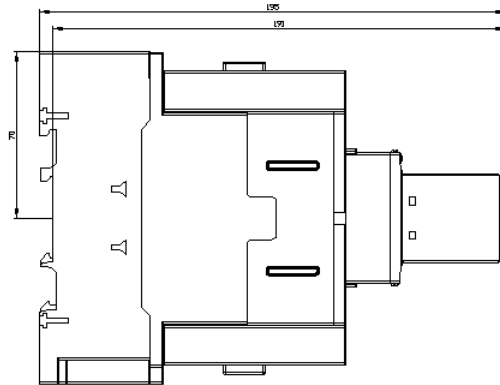
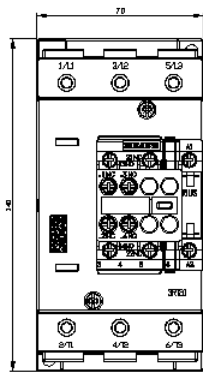
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2046-1AF04&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-1AF04&lang=en)

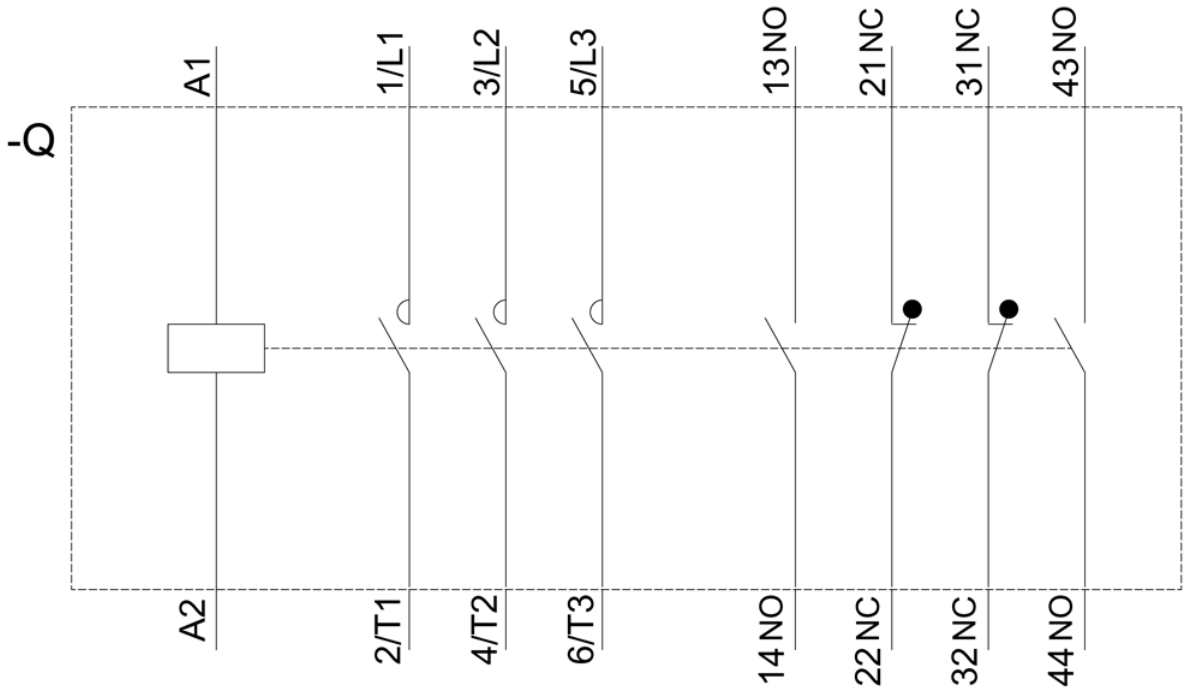
**Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current**

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AF04/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-1AF04&objecttype=14&gridview=view1>





last modified:

3/26/2021 