

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 Spring-type terminal



product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2

### General technical data

size of contactor	S3
product extension	
<ul style="list-style-type: none"> <li>function module for communication</li> </ul>	No
<ul style="list-style-type: none"> <li>auxiliary switch</li> </ul>	Yes
power loss [W] for rated value of the current	
<ul style="list-style-type: none"> <li>at AC in hot operating state</li> </ul>	19.8 W
<ul style="list-style-type: none"> <li>at AC in hot operating state per pole</li> </ul>	6.6 W
power loss [W] for rated value of the current without load current share typical	19 W
surge voltage resistance	
<ul style="list-style-type: none"> <li>of main circuit rated value</li> </ul>	8 kV
<ul style="list-style-type: none"> <li>of auxiliary circuit rated value</li> </ul>	6 kV
maximum permissible voltage for safe isolation	
<ul style="list-style-type: none"> <li>between coil and main contacts acc. to EN 60947-1</li> </ul>	690 V

<b>protection class IP</b>	
• on the front	IP20
• of the terminal	IP00
<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 electronics-compatible auxiliary switch block typical	5 000 000
• of the contactor with added auxiliary switch block typical	10 000 000
<b>reference code acc. to DIN EN 81346-2</b>	Q

<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
<b>operating voltage</b>	
• at AC-3 rated value maximum	1 000 V
<b>operating current</b>	
• 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 AC-4 at 400 V rated value	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> <ul style="list-style-type: none"> <li>— up to 400 V for current peak value n=20 rated value</li> </ul> </li> </ul>	84.4 A
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— up to 500 V for current peak value n=20 rated value</li> </ul> </li> </ul>	84.4 A
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— up to 690 V for current peak value n=20 rated value</li> </ul> </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> <ul style="list-style-type: none"> <li>— up to 400 V for current peak value n=30 rated value</li> </ul> </li> </ul>	56.3 A
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— up to 500 V for current peak value n=30 rated value</li> </ul> </li> </ul>	56.3 A
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— up to 690 V for current peak value n=30 rated value</li> </ul> </li> </ul>	56.3 A
<b>minimum cross-section in main circuit</b>	
<ul style="list-style-type: none"> <li>• at maximum AC-1 rated value</li> </ul>	50 mm²
<b>operating 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>operating 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> <ul style="list-style-type: none"> <li>— at 110 V rated value</li> </ul> </li> </ul>	9 A
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at 220 V rated value</li> </ul> </li> </ul>	2 A
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at 440 V rated value</li> </ul> </li> </ul>	0.6 A
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at 600 V rated value</li> </ul> </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> <ul style="list-style-type: none"> <li>— at 110 V rated value</li> </ul> </li> </ul>	100 A
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at 220 V rated value</li> </ul> </li> </ul>	10 A
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at 440 V rated value</li> </ul> </li> </ul>	1.8 A
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at 600 V rated value</li> </ul> </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> <ul style="list-style-type: none"> <li>— at 110 V rated value</li> </ul> </li> </ul>	100 A
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at 220 V rated value</li> </ul> </li> </ul>	80 A

— at 440 V rated value	4.5 A
— at 600 V rated value	2.6 A
<b>operating 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
<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 output 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 output at AC-6a</b>	

<ul style="list-style-type: none"> <li>• up to 230 V for current peak value n=30 rated value</li> <li>• up to 400 V for current peak value n=30 rated value</li> <li>• up to 500 V for current peak value n=30 rated value</li> <li>• up to 690 V for current peak value n=30 rated value</li> </ul>	22.4 kV·A  39 kV·A  48.7 kV·A  67.3 kV·A
<b>short-time withstand current in cold operating state up to 40 °C</b> <ul style="list-style-type: none"> <li>• limited to 1 s switching at zero current maximum</li> <li>• limited to 5 s switching at zero current maximum</li> <li>• limited to 10 s switching at zero current maximum</li> <li>• limited to 30 s switching at zero current maximum</li> <li>• limited to 60 s switching at zero current maximum</li> </ul>	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
<b>no-load switching frequency</b> <ul style="list-style-type: none"> <li>• at AC</li> </ul>	5 000 1/h
<b>operating frequency</b> <ul style="list-style-type: none"> <li>• at AC-1 maximum</li> <li>• at AC-2 maximum</li> <li>• at AC-3 maximum</li> <li>• at AC-4 maximum</li> </ul>	900 1/h 350 1/h 850 1/h 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>	230 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>	

• at AC	13 ... 50 ms
<b>opening delay</b>	
• at AC	10 ... 21 ms
<b>arcing time</b>	10 ... 20 ms
<b>control version of the switch operating mechanism</b>	Standard A1 - A2

#### Auxiliary circuit

<b>number of NC contacts for auxiliary contacts</b>	
• instantaneous contact	1
<b>number of NO contacts for auxiliary contacts</b>	
• instantaneous contact	1
operating current at AC-12 maximum	10 A
<b>operating current at AC-15</b>	
• at 230 V rated value	6 A
• at 400 V rated value	3 A
• at 500 V rated value	2 A
• at 690 V rated value	1 A
<b>operating 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>operating 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)

#### UL/CSA ratings

<b>full-load current (FLA) for three-phase AC motor</b>	
• at 480 V rated value	96 A
• at 600 V rated value	77 A
<b>yielded mechanical performance [hp]</b>	
• for single-phase AC motor	
— at 110/120 V rated value	10 hp
— at 230 V rated value	20 hp

<ul style="list-style-type: none"> <li>• for three-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> <li>— at 575/600 V rated value</li> </ul> </li> </ul>	30 hp 30 hp 75 hp 75 hp
<b>contact rating of auxiliary contacts according to UL</b>	A600 / P600

## Short-circuit protection

<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>	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

<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>mounting type</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>	152 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>	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

<b>type of electrical connection</b> <ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for auxiliary and control current circuit</li> <li>• at contactor for auxiliary contacts</li> <li>• of magnet coil</li> </ul>	screw-type terminals spring-loaded terminals Spring-type terminals Spring-type terminals
<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 conductors for main contacts</li> </ul>	2x (2.5 ... 35 mm <sup>2</sup> ), 1x (2.5 ... 50 mm <sup>2</sup> ) 2x (10 ... 1/0), 1x (10 ... 2)
<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>	2.5 ... 16 mm <sup>2</sup> 6 ... 70 mm <sup>2</sup> 2.5 ... 50 mm <sup>2</sup>
<b>connectable conductor cross-section for auxiliary contacts</b> <ul style="list-style-type: none"> <li>• single or multi-stranded</li> <li>• finely stranded with core end processing</li> <li>• finely stranded without core end processing</li> </ul>	0.5 ... 2.5 mm <sup>2</sup> 0.5 ... 2.5 mm <sup>2</sup> 0.5 ... 2.5 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>• type of connectable conductor cross-sections for auxiliary contacts <ul style="list-style-type: none"> <li>— single or multi-stranded</li> <li>— finely stranded with core end processing</li> <li>— finely stranded without core end processing</li> </ul> </li> <li>• type of connectable conductor cross-sections at AWG conductors for auxiliary contacts</li> </ul>	2x (0.5 ... 2.5 mm <sup>2</sup> ) 2x (0.5 ... 1.5 mm <sup>2</sup> ) 2x (0.5 ... 2.5 mm <sup>2</sup> ) 2x (20 ... 16)
<b>AWG number as coded connectable conductor cross section</b> <ul style="list-style-type: none"> <li>• for main contacts</li> <li>• for auxiliary contacts</li> </ul>	10 ... 2 20 ... 14

#### Safety related data






<b>B10 value</b> <ul style="list-style-type: none"> <li>• with high demand rate acc. to SN 31920</li> </ul>	1 000 000
<b>proportion of dangerous failures</b> <ul style="list-style-type: none"> <li>• with low demand rate acc. to SN 31920</li> <li>• with high demand rate acc. to SN 31920</li> </ul>	40 % 73 %
<b>failure rate [FIT]</b> <ul style="list-style-type: none"> <li>• with low demand rate acc. to SN 31920</li> </ul>	100 FIT
<b>product function</b> <ul style="list-style-type: none"> <li>• mirror contact acc. to IEC 60947-4-1</li> </ul>	Yes






- positively driven operation acc. to IEC 60947-5-1

	No
T1 value for proof test interval or service life acc. to IEC 61508	20 y
protection against electrical shock	finger-safe when touched vertically from front acc. to IEC 60529
suitability for use safety-related switching OFF	Yes

#### Certificates/ approvals

General Product Approval					EMC
			<a href="#">KC</a>		
CCC	CSA	UL			RCM

Declaration of Conformity	Test Certificates		Marine / Shipping	
	<a href="#">Miscellaneous</a>	<a href="#">Type Test Certificates/Test Report</a>	<a href="#">Special Test Certificate</a>	
EG-Konf.				
				ABS
				LRS

Marine / Shipping				other	Railway
				<a href="#">Confirmation</a>	<a href="#">Vibration and Shock</a>
PRS	RINA	RMRS	DNV GL DNVGL.COM/AF		

#### 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=3RT2046-3AP00>

Cax online generator

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

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

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

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

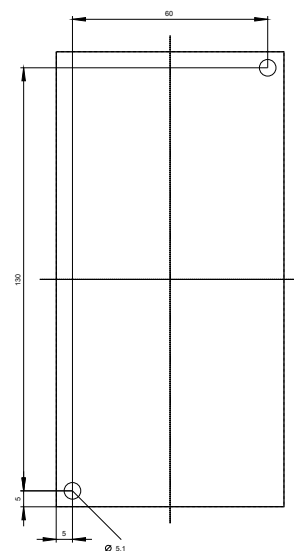
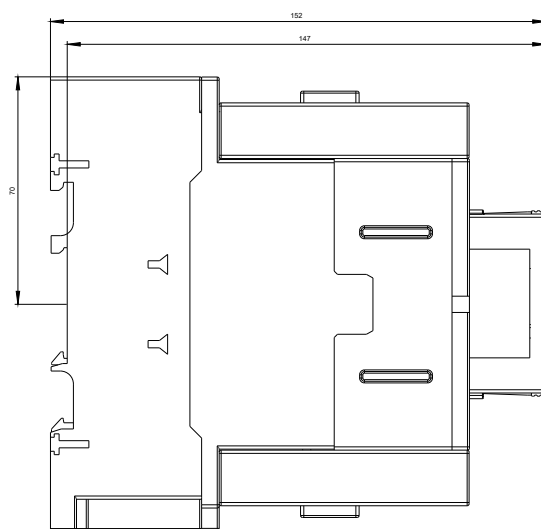
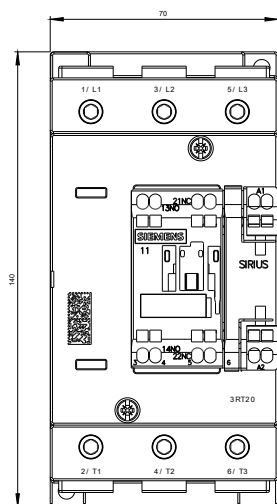
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2046-3AP00&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-3AP00&lang=en)

Characteristic: Tripping characteristics, I<sub>th</sub>, Let-through current

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

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

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





last modified:

09/08/2020