



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 2 NO+2 NC 110 V AC, 50 Hz 120 V, 60 Hz 3-pole, frame size S00 screw terminal captive auxiliary switch

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

### General technical data

size of contactor	S00
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>	No
power loss [W] for rated value of the current	
<ul style="list-style-type: none"> <li>at AC in hot operating state</li> </ul>	0.9 W
<ul style="list-style-type: none"> <li>at AC in hot operating state per pole</li> </ul>	0.3 W
<ul style="list-style-type: none"> <li>without load current share typical</li> </ul>	4.4 W
insulation voltage	
<ul style="list-style-type: none"> <li>of main circuit with degree of pollution 3 rated value</li> </ul>	690 V
<ul style="list-style-type: none"> <li>of auxiliary circuit with degree of pollution 3 rated value</li> </ul>	690 V
surge voltage resistance	
<ul style="list-style-type: none"> <li>of main circuit rated value</li> </ul>	6 kV
<ul style="list-style-type: none"> <li>of auxiliary circuit rated value</li> </ul>	6 kV
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"> <li>at AC</li> </ul>	6,7g / 5 ms, 4,2g / 10 ms
shock resistance with sine pulse	
<ul style="list-style-type: none"> <li>at AC</li> </ul>	10,5g / 5 ms, 6,6g / 10 ms
mechanical service life (operating cycles)	
<ul style="list-style-type: none"> <li>of contactor typical</li> </ul>	10 000 000
<ul style="list-style-type: none"> <li>of the contactor with added electronically optimized auxiliary switch block typical</li> </ul>	5 000 000
<ul style="list-style-type: none"> <li>of the contactor with added auxiliary switch block typical</li> </ul>	10 000 000
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	10/01/2009

### Ambient conditions

installation altitude at height above sea level maximum	2 000 m
ambient temperature	
<ul style="list-style-type: none"> <li>during operation</li> </ul>	-25 ... +60 °C
<ul style="list-style-type: none"> <li>during storage</li> </ul>	-55 ... +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %

### Main circuit

<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	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	22 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	22 A
— up to 690 V at ambient temperature 60 °C rated value	20 A
• at AC-3	
— at 400 V rated value	9 A
— at 500 V rated value	7.7 A
— at 690 V rated value	6.7 A
• at AC-3e	
— at 400 V rated value	9 A
— at 500 V rated value	7.7 A
— at 690 V rated value	6.7 A
• at AC-4 at 400 V rated value	8.5 A
• at AC-5a up to 690 V rated value	19.4 A
• at AC-5b up to 400 V rated value	7.4 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	5.3 A
— up to 400 V for current peak value n=20 rated value	5.3 A
— up to 500 V for current peak value n=20 rated value	5.3 A
— up to 690 V for current peak value n=20 rated value	5 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	3.5 A
— up to 400 V for current peak value n=30 rated value	3.5 A
— up to 500 V for current peak value n=30 rated value	3.6 A
— up to 690 V for current peak value n=30 rated value	3.3 A
minimum cross-section in main circuit at maximum AC-1 rated value	4 mm <sup>2</sup>
<b>operational current for approx. 200000 operating cycles at AC-4</b>	
• at 400 V rated value	4.1 A
• at 690 V rated value	3.3 A
<b>operational current</b>	
• <b>at 1 current path at DC-1</b>	
— at 24 V rated value	20 A
— at 110 V rated value	2.1 A
— at 220 V rated value	0.8 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
• <b>with 2 current paths in series at DC-1</b>	
— at 24 V rated value	20 A
— at 110 V rated value	12 A
— at 220 V rated value	1.6 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.7 A
• <b>with 3 current paths in series at DC-1</b>	
— at 24 V rated value	20 A
— at 110 V rated value	20 A
— at 220 V rated value	20 A
— at 440 V rated value	1.3 A

<ul style="list-style-type: none"> <li>— at 600 V rated value</li> <li>• <b>at 1 current path at DC-3 at DC-5</b> <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> </ul> </li> <li>• <b>with 2 current paths in series at DC-3 at DC-5</b> <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> </ul> </li> <li>• <b>with 3 current paths in series at DC-3 at DC-5</b> <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> </ul>	1 A  20 A 0.15 A  20 A 0.35 A  20 A 20 A 1.5 A 0.2 A 0.2 A
<b>operating power</b>	
<ul style="list-style-type: none"> <li>• at AC-2 at 400 V rated value</li> <li>• at AC-3 <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> </li> <li>• at AC-3e <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> </li> </ul>	4 kW  2.2 kW 4 kW 4 kW 5.5 kW  2.2 kW 4 kW 4 kW 5 kW
<b>operating power for approx. 200000 operating cycles at AC-4</b>	
<ul style="list-style-type: none"> <li>• at 400 V rated value</li> <li>• at 690 V rated value</li> </ul>	2 kW 2.5 kW
<b>operating apparent power at AC-6a</b>	
<ul style="list-style-type: none"> <li>• up to 230 V for current peak value n=20 rated value</li> <li>• up to 400 V for current peak value n=20 rated value</li> <li>• up to 500 V for current peak value n=20 rated value</li> <li>• up to 690 V for current peak value n=20 rated value</li> </ul>	2 kVA 3.6 kVA 4.6 kVA 5.9 kVA
<b>operating apparent power 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>	1.3 kVA 2.4 kVA 3.1 kVA 4 kVA
<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>	155 A; Use minimum cross-section acc. to AC-1 rated value 111 A; Use minimum cross-section acc. to AC-1 rated value 86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value 55 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>	10 000 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-3e maximum</li> <li>• at AC-4 maximum</li> </ul>	1 000 1/h 750 1/h 750 1/h 750 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> <li>• at 60 Hz rated value</li> </ul>	110 V 120 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> <li>• at 60 Hz</li> </ul>	0.8 ... 1.1 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> <li>• at 60 Hz</li> </ul>	26.4 VA
<b>inductive power factor with closing power of the coil</b>	26.4 VA
<ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>	0.81
<b>apparent holding power of magnet coil at AC</b>	0.81
<ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>	4.4 VA
<b>inductive power factor with the holding power of the coil</b>	4.4 VA
<ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>	0.24
<b>closing delay</b>	0.24
<ul style="list-style-type: none"> <li>• at AC</li> </ul>	9 ... 35 ms
<b>opening delay</b>	
<ul style="list-style-type: none"> <li>• at AC</li> </ul>	4 ... 15 ms
<b>arcing time</b>	10 ... 15 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>	7.6 A
	9 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> <li>— at 575/600 V rated value</li> </ul> </li> </ul>	0.33 hp
	1 hp
	2 hp
	3 hp
	5 hp
	7.5 hp
<b>contact rating of auxiliary contacts according to UL</b>	A600 / Q600
<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> </ul> </li> </ul>	gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA)

— with type of assignment 2 required

- for short-circuit protection of the auxiliary switch required

gG: 20A (690V, 100kA), aM: 16A (690V, 100kA), BS88: 20A (415V, 80kA)

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 DIN rail according to DIN EN 60715

- side-by-side mounting

Yes

##### height

58 mm

##### width

45 mm

##### depth

117 mm

##### required spacing

- 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

##### type of electrical connection

- for main current circuit
- for auxiliary and control circuit
- at contactor for auxiliary contacts
- of magnet coil

screw-type terminals

screw-type terminals

Screw-type terminals

Screw-type terminals

##### type of connectable conductor cross-sections

- for main contacts

— solid

2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>), 2x 4 mm<sup>2</sup>

— solid or stranded

2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>), 2x 4 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>)

- at AWG cables for main contacts

2x (20 ... 16), 2x (18 ... 14), 2x 12

##### connectable conductor cross-section for main contacts

- solid
- stranded
- finely stranded with core end processing

0.5 ... 4 mm<sup>2</sup>

0.5 ... 4 mm<sup>2</sup>

0.5 ... 2.5 mm<sup>2</sup>

##### connectable conductor cross-section for auxiliary contacts

- solid or stranded
- finely stranded with core end processing

0.5 ... 4 mm<sup>2</sup>

0.5 ... 2.5 mm<sup>2</sup>

##### type of connectable conductor cross-sections

- for auxiliary contacts

— solid or stranded

2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>), 2x 4 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>)

- at AWG cables for auxiliary contacts

2x (20 ... 16), 2x (18 ... 14), 2x 12

##### AWG number as coded connectable conductor cross section

- for main contacts
- for auxiliary contacts

20 ... 12

20 ... 12

#### Safety related data

##### product function

- 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**

- with low demand rate according to SN 31920
- with high demand rate according to SN 31920

failure rate [FIT] with low demand rate according to SN 31920

T1 value for proof test interval or service life according to IEC 61508

**protection class IP on the front according to IEC 60529**

**touch protection on the front according to IEC 60529**

**suitability for use**

- safety-related switching OFF

40 %

73 %

100 FIT

20 y

IP20

finger-safe, for vertical contact from the front

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](#)



EG-Konf.

[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

**Marine / Shipping**

Marine / Shipping	other	Railway
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[Confirmation](#)



VDE

[Confirmation](#)

[Vibration and Shock](#)

**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=3RT2016-1AK64-3MA0>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1AK64-3MA0>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AK64-3MA0>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2016-1AK64-3MA0&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1AK64-3MA0&lang=en)

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AK64-3MA0/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1AK64-3MA0&objecttype=14&gridview=view1>



