

power contactor, AC-3 40 A, 18.5 kW / 400 V 2 NO + 2 NC, 110 V  
AC 50 Hz, 3-pole, Size S2, screw terminal



product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S2
product extension	
• function module for communication	No
• auxiliary switch	No
power loss [W] for rated value of the current	
• at AC in hot operating state	6.6 W
• at AC in hot operating state per pole	2.2 W
power loss [W] for rated value of the current without load current share typical	16 W
surge voltage resistance	
• of main circuit rated value	6 kV
• of auxiliary circuit rated value	6 kV
maximum permissible voltage for safe isolation	
• between coil and main contacts acc. to EN 60947-1	400 V

<b>protection class IP</b>	
• on the front	IP20
• of the terminal	IP00
<b>shock resistance at rectangular impulse</b>	
• at AC	9.8g / 5 ms, 6.5g / 10 ms
<b>shock resistance with sine pulse</b>	
• at AC	15.3g / 5 ms, 10.1g / 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	690 V
<b>operating current</b>	
• at AC-1 at 400 V — at ambient temperature 40 °C rated value	60 A
• at AC-1 — up to 690 V at ambient temperature 40 °C rated value	60 A
— up to 690 V at ambient temperature 60 °C rated value	55 A
• at AC-3 — at 400 V rated value	41 A
— at 500 V rated value	41 A
— at 690 V rated value	24 A
• at AC-4 at 400 V rated value	35 A
• at AC-5a up to 690 V rated value	52.8 A
• at AC-5b up to 400 V rated value	33.2 A
• at AC-6a	

— up to 230 V for current peak value n=20 rated value	36.5 A
— up to 400 V for current peak value n=20 rated value	36.5 A
— up to 500 V for current peak value n=20 rated value	36.5 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	24.2 A
— up to 400 V for current peak value n=30 rated value	24.2 A
— up to 500 V for current peak value n=30 rated value	24.2 A
— up to 690 V for current peak value n=30 rated value	24 A
<b>minimum cross-section in main circuit</b>	
• at maximum AC-1 rated value	16 mm <sup>2</sup>
<b>operating current for approx. 200000 operating cycles at AC-4</b>	
• at 400 V rated value	22 A
• at 690 V rated value	18.5 A
<b>operating current</b>	
• 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
<b>operating current</b>	

<ul style="list-style-type: none"> <li>• at 1 current path at DC-3 at DC-5 <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> <li>• with 2 current paths in series at DC-3 at DC-5 <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> <li>• with 3 current paths in series at DC-3 at DC-5 <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>	35 A 2.5 A 1 A 0.1 A 0.06 A  55 A 25 A 5 A 0.27 A 0.16 A  55 A 55 A 25 A 0.6 A 0.35 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> </ul>	18.5 kW  11 kW 18.5 kW 22 kW 22 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>	11.6 kW 16.8 kW
<b>operating apparent output 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>	14.5 kV·A 25.2 kV·A 31.6 kV·A 28.6 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> </ul>	9.6 kV·A 16.8 kV·A

<ul style="list-style-type: none"> <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>	21 kV·A  28.6 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>	843 A; Use minimum cross-section acc. to AC-1 rated value  596 A; Use minimum cross-section acc. to AC-1 rated value  400 A; Use minimum cross-section acc. to AC-1 rated value  241 A; Use minimum cross-section acc. to AC-1 rated value  196 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>	1 200 1/h 750 1/h 1 000 1/h 300 1/h

Control circuit/ Control	
<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>	190 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>	0.72
<b>apparent holding power of magnet coil at AC</b> <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>	16 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>	0.37
<b>closing delay</b> <ul style="list-style-type: none"> <li>• at AC</li> </ul>	10 ... 80 ms
<b>opening delay</b> <ul style="list-style-type: none"> <li>• at AC</li> </ul>	10 ... 18 ms

arcing time	10 ... 20 ms
control version of the switch operating mechanism	Standard A1 - A2
<b>Auxiliary circuit</b>	
<b>number of NC contacts for auxiliary contacts</b>	
• instantaneous contact	2
<b>number of NO contacts for auxiliary contacts</b>	
• instantaneous contact	2
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	6 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)
<b>UL/CSA ratings</b>	
<b>full-load current (FLA) for three-phase AC motor</b>	
• at 480 V rated value	40 A
• at 600 V rated value	41 A
<b>yielded mechanical performance [hp]</b>	
• for single-phase AC motor	
— at 110/120 V rated value	3 hp
— at 230 V rated value	7.5 hp
• for three-phase AC motor	
— at 200/208 V rated value	10 hp
— at 220/230 V rated value	15 hp

— at 460/480 V rated value	30 hp
— at 575/600 V rated value	40 hp
<b>contact rating of auxiliary contacts according to UL</b>	A600 / Q600

## 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>	<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: 80 A (690V,100kA), aM: 50A (690V,100kA), BS88: 63A (415V,80kA)</p> <p>gG: 10 A (500 V, 1 kA)</p>

## 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>	114 mm
<b>width</b>	55 mm
<b>depth</b>	174 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>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>6 mm</p>

## 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> </ul>	<p>screw-type terminals</p> <p>screw-type terminals</p>

<ul style="list-style-type: none"> <li>• at contactor for auxiliary contacts</li> <li>• of magnet coil</li> </ul>	Screw-type terminals Screw-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>— single or multi-stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG conductors for main contacts</li> </ul>	2x (1 ... 35 mm <sup>2</sup> ), 1x (1 ... 50 mm <sup>2</sup> ) 2x (1 ... 25 mm <sup>2</sup> ), 1x (1 ... 35 mm <sup>2</sup> ) 2x (18 ... 2), 1x (18 ... 1)
<b>connectable conductor cross-section for main contacts</b> <ul style="list-style-type: none"> <li>• finely stranded with core end processing</li> </ul>	1 ... 35 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> </ul>	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> </ul> </li> <li>• type of connectable conductor cross-sections at AWG conductors for auxiliary contacts</li> </ul>	2x (0,5 ... 1,5 mm <sup>2</sup> ), 2x (0,75 ... 2,5 mm <sup>2</sup> ) 2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ) 2x (20 ... 16), 2x (18 ... 14)
<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>	18 ... 1 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> <li>• positively driven operation acc. to IEC 60947-5-1</li> </ul>	Yes No
<b>T1 value for proof test interval or service life acc. to IEC 61508</b>	20 y
<b>protection against electrical shock</b>	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
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[KC](#)



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



[Miscellaneous](#)

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



Marine / Shipping
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other
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[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=3RT2035-1AF04>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2035-1AF04>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2035-1AF04>

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

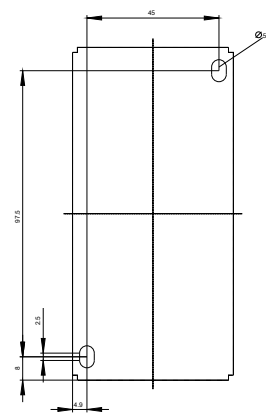
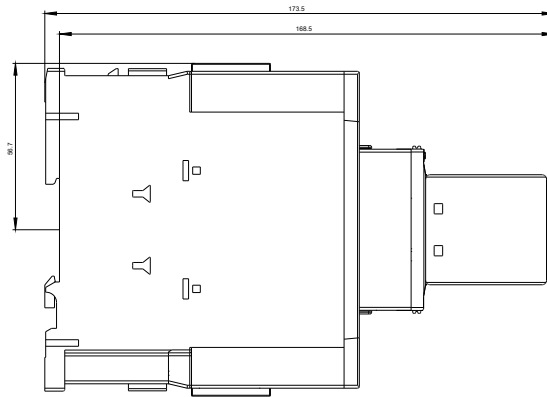
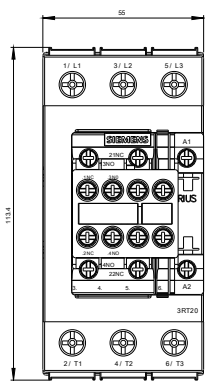
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2035-1AF04&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2035-1AF04&lang=en)

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2035-1AF04/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2035-1AF04&objecttype=14&gridview=view1>





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