



Power contactor, AC-3 38 A, 18.5 kW / 400 V 1 NO + 1 NC, 230 V AC 50 Hz, 3-pole, size S0 screw terminals

<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>	S0
<b>product extension</b>	
• function module for communication	No
• auxiliary switch	Yes
<b>power loss [W] for rated value of the current at AC in hot operating state</b>	11.4 W
• per pole	3.8 W
<b>power loss [W] for rated value of the current without load current share typical</b>	9.8 W
<b>surge voltage resistance</b>	
• 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>shock resistance at rectangular impulse</b>	
• at AC	8,3g / 5 ms, 5,3g / 10 ms
<b>shock resistance with sine pulse</b>	
• at AC	13,5g / 5 ms, 8,3g / 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
<b>Substance Prohibitance (Date)</b>	01.10.2009
<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>relative humidity minimum</b>	10 %
<b>relative humidity at 55 °C acc. to IEC 60068-2-30 maximum</b>	95 %
<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	690 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>	50 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> <li>— up to 690 V at ambient temperature 60 °C rated value</li> </ul> </li> </ul>	50 A 42 A
<ul style="list-style-type: none"> <li>● at AC-3 <ul style="list-style-type: none"> <li>— at 400 V rated value</li> <li>— at 500 V rated value</li> <li>— at 690 V rated value</li> </ul> </li> </ul>	38 A 32 A 21 A
● at AC-4 at 400 V rated value	22 A
● at AC-5a up to 690 V rated value	44 A
● at AC-5b up to 400 V rated value	31.5 A
● at AC-6a <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>	30.8 A 30.8 A 30.8 A 21 A
● at AC-6a <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>	20.5 A 20.5 A 21.4 A 21 A
minimum cross-section in main circuit at maximum AC-1 rated value	10 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> <li>● at 690 V rated value</li> </ul>	12 A 12 A
<b>operational current</b>	
<ul style="list-style-type: none"> <li>● <b>at 1 current path at DC-1</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>	35 A 4.5 A 1 A 0.4 A 0.25 A
<ul style="list-style-type: none"> <li>● <b>with 2 current paths in series at DC-1</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>	35 A 35 A 5 A 1 A 0.8 A
<ul style="list-style-type: none"> <li>● <b>with 3 current paths in series at DC-1</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>	35 A 35 A 35 A 2.9 A 1.4 A
<ul style="list-style-type: none"> <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> <li>— at 220 V rated value</li> </ul> </li> </ul>	20 A 2.5 A 1 A

<ul style="list-style-type: none"> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul>	0.09 A 0.06 A
<ul style="list-style-type: none"> <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> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 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>	35 A 15 A 3 A 0.27 A 0.16 A  35 A 35 A 10 A 0.6 A 0.6 A
<b>operating power</b>	
<ul style="list-style-type: none"> <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>	11 kW 18.5 kW 18.5 kW 18.5 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>	6 kW 10.3 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>	12.2 kV·A 21.3 kV·A 26.6 kV·A 25 kV·A
<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>	8.1 kV·A 14.2 kV·A 18.5 kV·A 25 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>	593 A; Use minimum cross-section acc. to AC-1 rated value 395 A; Use minimum cross-section acc. to AC-1 rated value 260 A; Use minimum cross-section acc. to AC-1 rated value 186 A; Use minimum cross-section acc. to AC-1 rated value 152 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>	1 000 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> </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>	77 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>	0.82
<b>apparent holding power of magnet coil at AC</b>	
<ul style="list-style-type: none"> <li>● at 50 Hz</li> </ul>	9.8 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>	0.25
<b>closing delay</b>	
<ul style="list-style-type: none"> <li>at AC</li> </ul>	8 ... 40 ms
<b>opening delay</b>	
<ul style="list-style-type: none"> <li>at AC</li> </ul>	4 ... 16 ms
<b>arcing time</b>	10 ... 10 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	1
number of NO contacts for auxiliary contacts instantaneous contact	1
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>	10 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>	10 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>	34 A 27 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>	3 hp 5 hp 10 hp 10 hp 25 hp 25 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>	gG: 125A (690V,100kA), aM: 50A (690V,100kA), BS88: 125A (415V,80kA) gG: 50A (690V,100kA), aM: 25A (690V, 100kA), BS88: 50A (415V, 80kA) gG: 10 A (500 V, 1 kA)
<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>	85 mm
<b>width</b>	45 mm
<b>depth</b>	97 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>	10 mm 10 mm 10 mm 0 mm  10 mm 10 mm 6 mm 10 mm  10 mm 10 mm 10 mm 6 mm
<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>	screw-type terminals screw-type terminals 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>— solid</li> <li>— solid or stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>● at AWG cables for main contacts</li> </ul>	2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 10 mm <sup>2</sup> ) 2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 10 mm <sup>2</sup> ) 2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup> 2x (16 ... 12), 2x (14 ... 8)
<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>	1 ... 10 mm <sup>2</sup> 1 ... 10 mm <sup>2</sup> 1 ... 10 mm <sup>2</sup>
<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>	0.5 ... 2.5 mm <sup>2</sup> 0.5 ... 2.5 mm <sup>2</sup>
<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>	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>	16 ... 8 20 ... 14
<b>Safety related data</b>	
B10 value with high demand rate acc. to SN 31920	450 000
<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 %
failure rate [FIT] with low demand rate acc. to SN 31920	100 FIT
<b>T1 value for proof test interval or service life acc. to</b>	20 y

IEC 61508	
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"> <li>• safety-related switching OFF</li> </ul>	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.

[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

**Marine / Shipping**



**other**

[Confirmation](#)



[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=3RT2028-1AP00>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2028-1AP00>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1AP00>

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

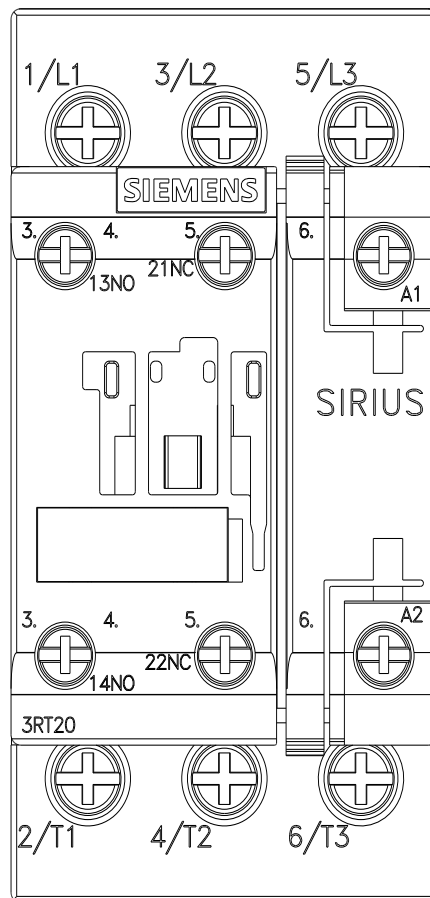
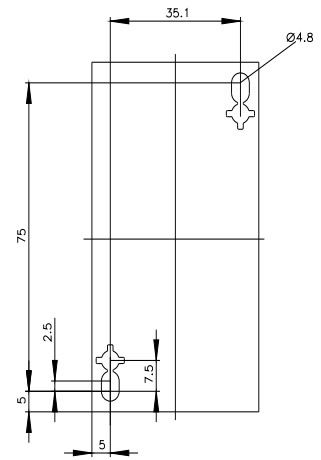
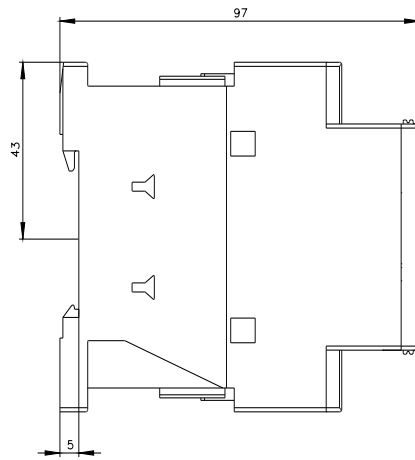
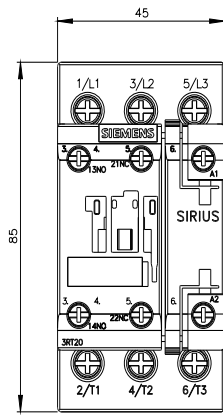
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2028-1AP00&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2028-1AP00&lang=en)

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1AP00/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2028-1AP00&objecttype=14&gridview=view1>





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