



power contactor, AC-3 12 A, 5.5 kW / 400 V 1 NO + 1 NC, 110 V AC 50 / 60 Hz, 3-pole Size S0, Spring-type 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>	S0
<b>product extension</b>	
function module for communication	No
auxiliary switch	Yes
<b>power loss [W] for rated value of the current</b>	
at AC in hot operating state	0.9 W
at AC in hot operating state per pole	0.3 W
without load current share typical	7.9 W
<b>insulation voltage</b>	
of main circuit with degree of pollution 3 rated value	690 V
of auxiliary circuit with degree of pollution 3 rated value	690 V
<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 according to EN 60947-1	400 V
<b>shock resistance at rectangular impulse</b>	
at AC	7,5g / 5 ms, 4,7g / 10 ms
<b>shock resistance with sine pulse</b>	
at AC	11,8g / 5 ms, 7,4g / 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 according to IEC 81346-2</b>	Q
<b>Substance Prohibitance (Date)</b>	10/01/2009
<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 according to IEC 60068-2-30 maximum</b>	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	40 A
at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	40 A
— up to 690 V at ambient temperature 60 °C rated value	35 A
at AC-3	
— at 400 V rated value	12 A
— at 500 V rated value	12 A
— at 690 V rated value	9 A
at AC-3e	
— at 400 V rated value	12 A
— at 500 V rated value	12 A
— at 690 V rated value	9 A
at AC-4 at 400 V rated value	12.5 A
at AC-5a up to 690 V rated value	35.2 A
at AC-5b up to 400 V rated value	9.9 A
at AC-6a	
— up to 230 V for current peak value n=20 rated value	11.4 A
— up to 400 V for current peak value n=20 rated value	11.4 A
— up to 500 V for current peak value n=20 rated value	11.3 A
— up to 690 V for current peak value n=20 rated value	9 A
at AC-6a	
— up to 230 V for current peak value n=30 rated value	7.6 A
— up to 400 V for current peak value n=30 rated value	7.6 A
— up to 500 V for current peak value n=30 rated value	7.6 A
— up to 690 V for current peak value n=30 rated value	7.6 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>	
at 400 V rated value	5.5 A
at 690 V rated value	5.5 A
<b>operational current</b>	
● <b>at 1 current path at DC-1</b>	
— at 24 V rated value	35 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
● <b>with 2 current paths in series at DC-1</b>	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	5 A
— at 440 V rated value	1 A
— at 600 V rated value	0.8 A
● <b>with 3 current paths in series at DC-1</b>	

— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	35 A
— at 440 V rated value	2.9 A
— at 600 V rated value	1.4 A
<b>• at 1 current path at DC-3 at DC-5</b>	
— at 24 V rated value	20 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.09 A
— at 600 V rated value	0.06 A
<b>• with 2 current paths in series at DC-3 at DC-5</b>	
— at 24 V rated value	35 A
— at 110 V rated value	15 A
— at 220 V rated value	3 A
— at 440 V rated value	0.27 A
— at 600 V rated value	0.16 A
<b>• with 3 current paths in series at DC-3 at DC-5</b>	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	10 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
<b>operating power</b>	
at AC-3	
— at 230 V rated value	3 kW
— at 400 V rated value	5.5 kW
— at 500 V rated value	5.5 kW
— at 690 V rated value	7.5 kW
at AC-3e	
— at 230 V rated value	3 kW
— at 400 V rated value	5.5 kW
— at 500 V rated value	5.5 kW
— at 690 V rated value	7.5 kW
<b>operating power for approx. 200000 operating cycles at AC-4</b>	
at 400 V rated value	2.6 kW
at 690 V rated value	4.6 kW
<b>operating apparent power at AC-6a</b>	
up to 230 V for current peak value n=20 rated value	4.5 kVA
up to 400 V for current peak value n=20 rated value	7.8 kVA
up to 500 V for current peak value n=20 rated value	9.8 kVA
up to 690 V for current peak value n=20 rated value	10.7 kVA
<b>operating apparent power at AC-6a</b>	
up to 230 V for current peak value n=30 rated value	3 kVA
up to 400 V for current peak value n=30 rated value	5.2 kVA
up to 500 V for current peak value n=30 rated value	6.5 kVA
up to 690 V for current peak value n=30 rated value	9 kVA
<b>short-time withstand current in cold operating state up to 40 °C</b>	
limited to 1 s switching at zero current maximum	210 A; Use minimum cross-section acc. to AC-1 rated value
limited to 5 s switching at zero current maximum	210 A; Use minimum cross-section acc. to AC-1 rated value
limited to 10 s switching at zero current maximum	162 A; Use minimum cross-section acc. to AC-1 rated value
limited to 30 s switching at zero current maximum	103 A; Use minimum cross-section acc. to AC-1 rated value
limited to 60 s switching at zero current maximum	88 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	1 000 1/h
at AC-2 maximum	1 000 1/h
at AC-3 maximum	1 000 1/h

at AC-3e maximum	1 000 1/h
at AC-4 maximum	300 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>	
at 50 Hz rated value	110 V
at 60 Hz rated value	110 V
<b>operating range factor control supply voltage rated value of magnet coil at AC</b>	
at 50 Hz	0.8 ... 1.1
at 60 Hz	0.85 ... 1.1
<b>apparent pick-up power of magnet coil at AC</b>	
at 50 Hz	68 VA
at 60 Hz	67 VA
<b>inductive power factor with closing power of the coil</b>	
at 50 Hz	0.72
at 60 Hz	0.74
<b>apparent holding power of magnet coil at AC</b>	
at 50 Hz	7.9 VA
at 60 Hz	6.5 VA
<b>inductive power factor with the holding power of the coil</b>	
at 50 Hz	0.25
at 60 Hz	0.28
<b>closing delay</b>	
at AC	8 ... 40 ms
<b>opening delay</b>	
at AC	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>	
at 230 V rated value	10 A
at 400 V rated value	3 A
at 500 V rated value	2 A
at 690 V rated value	1 A
<b>operational 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>operational 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)
<b>UL/CSA ratings</b>	
<b>full-load current (FLA) for 3-phase AC motor</b>	
at 480 V rated value	11 A

at 600 V rated value	11 A
<b>yielded mechanical performance [hp]</b>	
for single-phase AC motor	
— at 110/120 V rated value	1 hp
— at 230 V rated value	2 hp
for 3-phase AC motor	
— at 200/208 V rated value	3 hp
— at 220/230 V rated value	3 hp
— at 460/480 V rated value	7.5 hp
— at 575/600 V rated value	10 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>	
for short-circuit protection of the main circuit	
— with type of coordination 1 required	gG: 63A (690V,100kA), aM: 32A (690V,100kA), BS88: 63A (415V,80kA)
— with type of assignment 2 required	gG: 25A (690V,100kA), aM: 20A (690V,100kA), BS88: 25A (415V,80kA)
for short-circuit protection of the auxiliary switch required	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
side-by-side mounting	Yes
<b>height</b>	102 mm
<b>width</b>	45 mm
<b>depth</b>	97 mm
<b>required spacing</b>	
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
<b>Connections/ Terminals</b>	
<b>type of electrical connection</b>	
for main current circuit	spring-loaded terminals
for auxiliary and control circuit	spring-loaded terminals
at contactor for auxiliary contacts	Spring-type terminals
of magnet coil	Spring-type terminals
<b>type of connectable conductor cross-sections</b>	
for main contacts	
— solid	2x (1 ... 10 mm <sup>2</sup> )
— solid or stranded	2x (1 ... 10 mm <sup>2</sup> )
— finely stranded with core end processing	2x (1 ... 6 mm <sup>2</sup> )
— finely stranded without core end processing	2x (1 ... 6 mm <sup>2</sup> )
at AWG cables for main contacts	2x (18 ... 8)
<b>connectable conductor cross-section for main contacts</b>	
solid	1 ... 10 mm <sup>2</sup>
stranded	1 ... 10 mm <sup>2</sup>
finely stranded with core end processing	1 ... 6 mm <sup>2</sup>

finely stranded without core end processing	1 ... 6 mm <sup>2</sup>
<b>connectable conductor cross-section for auxiliary contacts</b>	
solid or stranded	0.5 ... 2.5 mm <sup>2</sup>
finely stranded with core end processing	0.5 ... 1.5 mm <sup>2</sup>
finely stranded without core end processing	0.5 ... 2.5 mm <sup>2</sup>
<b>type of connectable conductor cross-sections</b>	
for auxiliary contacts	
— solid or stranded	2x (0.5 ... 2.5 mm <sup>2</sup> )
— finely stranded with core end processing	2x (0.5 ... 1.5 mm <sup>2</sup> )
— finely stranded without core end processing	2x (0.5 ... 2.5 mm <sup>2</sup> )
at AWG cables for auxiliary contacts	2x (20 ... 14)
<b>AWG number as coded connectable conductor cross section</b>	
for main contacts	18 ... 8
for auxiliary contacts	20 ... 14

<b>Safety related data</b>	
<b>product function</b>	
mirror contact according to IEC 60947-4-1	Yes
B10 value with high demand rate according to SN 31920	450 000
<b>proportion of dangerous failures</b>	
with low demand rate according to SN 31920	40 %
with high demand rate according to SN 31920	73 %
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
T1 value for proof test interval or service life according to IEC 61508	20 y
<b>protection class IP on the front according to IEC 60529</b>	IP20
<b>touch protection on the front according to IEC 60529</b>	finger-safe, for vertical contact from the front
<b>suitability for use</b>	
safety-related switching OFF	Yes

**Certificates/ approvals**

**General Product Approval**



[Confirmation](#)



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



[Special Test Certificate](#)

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**Marine / Shipping**



<b>Marine / Shipping</b>	<b>other</b>
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[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=3RT2024-2AG20>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2024-2AG20>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-2AG20>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2024-2AG20&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2024-2AG20&lang=en)

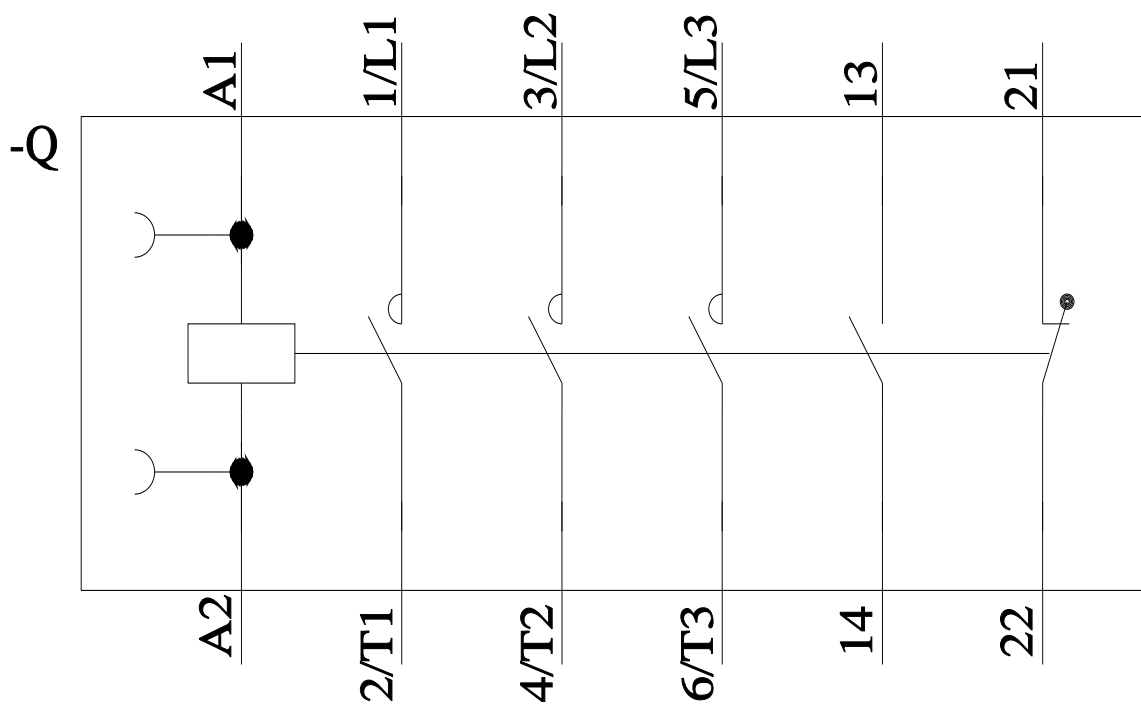
Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-2AG20/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2024-2AG20&objecttype=14&gridview=view1>





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