

Power contactor, AC-3 9 A, 4 kW / 400 V 1 NO, 24 V DC 3-pole, Size S00 screw terminal



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"> function module for communication 	No
<ul style="list-style-type: none"> Auxiliary switch 	Yes
Power loss [W] for rated value of the current	
<ul style="list-style-type: none"> at AC in hot operating state 	2.1 W
<ul style="list-style-type: none"> at AC in hot operating state per pole 	0.7 W
Power loss [W] for rated value of the current without load current share typical	4 W
Surge voltage resistance	
<ul style="list-style-type: none"> of main circuit rated value 	6 kV
<ul style="list-style-type: none"> of auxiliary circuit rated value 	6 kV
maximum permissible voltage for safe isolation	
<ul style="list-style-type: none"> between coil and main contacts acc. to EN 60947-1 	400 V

Protection class IP	
• on the front	IP20
• of the terminal	IP20
Shock resistance at rectangular impulse	
• at DC	6,7g / 5 ms, 4,2g / 10 ms
Shock resistance with sine pulse	
• at DC	10,5g / 5 ms, 6,6g / 10 ms
Mechanical service life (switching cycles)	
• of contactor typical	30 000 000
• 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
Reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750	K
Reference code acc. to DIN EN 81346-2	Q

Ambient conditions

Installation altitude at height above sea level	
• maximum	2 000 m
Ambient temperature	
• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C

Main circuit

Number of poles for main current circuit	3
Number of NO contacts for main contacts	3
Operating voltage	
• at AC-3 rated value maximum	690 V
Operating current	
• 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-2 at 400 V rated value	9 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-4 at 400 V rated value	8.5 A
• at AC-5a up to 690 V rated value	19.4 A

<ul style="list-style-type: none"> • at AC-5b up to 400 V rated value 	7.4 A
<ul style="list-style-type: none"> • at AC-6a <ul style="list-style-type: none"> — up to 230 V for current peak value n=20 rated value — up to 400 V for current peak value n=20 rated value — up to 500 V for current peak value n=20 rated value — up to 690 V for current peak value n=20 rated value 	5.3 A 5.3 A 5.3 A 5 A
<ul style="list-style-type: none"> • at AC-6a <ul style="list-style-type: none"> — up to 230 V for current peak value n=30 rated value — up to 400 V for current peak value n=30 rated value — up to 500 V for current peak value n=30 rated value — up to 690 V for current peak value n=30 rated value 	3.5 A 3.5 A 3.6 A 3.3 A
Minimum cross-section in main circuit	
<ul style="list-style-type: none"> • at maximum AC-1 rated value 	4 mm ²
Operating current for approx. 200000 operating cycles at AC-4	
<ul style="list-style-type: none"> • at 400 V rated value • at 690 V rated value 	4.1 A 3.3 A
Operating current	
<ul style="list-style-type: none"> • at 1 current path at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value • with 2 current paths in series at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value • with 3 current paths in series at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value 	20 A 2.1 A 0.8 A 0.6 A 0.6 A 20 A 12 A 1.6 A 0.8 A 0.7 A 20 A 20 A 20 A 1.3 A

— at 600 V rated value	1 A
Operating current	
• at 1 current path at DC-3 at DC-5	
— at 24 V rated value	20 A
— at 110 V rated value	0.1 A
• with 2 current paths in series at DC-3 at DC-5	
— at 24 V rated value	20 A
— at 110 V rated value	0.35 A
• with 3 current paths in series at DC-3 at DC-5	
— at 24 V rated value	20 A
— at 110 V rated value	20 A
— at 220 V rated value	1.5 A
— at 440 V rated value	0.2 A
— at 600 V rated value	0.2 A
Operating power	
• at AC-1	
— at 230 V rated value	7.5 kW
— at 230 V at 60 °C rated value	7.5 kW
— at 400 V rated value	13 kW
— at 400 V at 60 °C rated value	13 kW
— at 690 V rated value	22 kW
— at 690 V at 60 °C rated value	22 kW
• at AC-2 at 400 V rated value	4 kW
• at AC-3	
— at 230 V rated value	2.2 kW
— at 400 V rated value	4 kW
— at 500 V rated value	4 kW
— at 690 V rated value	5.5 kW
Operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	2 kW
• at 690 V rated value	2.5 kW
Operating apparent output at AC-6a	
• up to 230 V for current peak value n=20 rated value	2 000 V·A
• up to 400 V for current peak value n=20 rated value	3 600 V·A
• up to 500 V for current peak value n=20 rated value	4 600 V·A
• up to 690 V for current peak value n=20 rated value	5 900 V·A
Operating apparent output at AC-6a	

<ul style="list-style-type: none"> • up to 230 V for current peak value n=30 rated value • up to 400 V for current peak value n=30 rated value • up to 500 V for current peak value n=30 rated value • up to 690 V for current peak value n=30 rated value 	<p>1 300 V·A</p> <p>2 400 V·A</p> <p>3 100 V·A</p> <p>4 000 V·A</p>
Short-time withstand current in cold operating state up to 40 °C <ul style="list-style-type: none"> • limited to 1 s switching at zero current maximum • limited to 5 s switching at zero current maximum • limited to 10 s switching at zero current maximum • limited to 30 s switching at zero current maximum • limited to 60 s switching at zero current maximum 	<p>155 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>111 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>86 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>66 A; Use minimum cross-section acc. to AC-1 rated value</p> <p>55 A; Use minimum cross-section acc. to AC-1 rated value</p>
No-load switching frequency <ul style="list-style-type: none"> • at DC 	<p>10 000 1/h</p>
Operating frequency <ul style="list-style-type: none"> • at AC-1 maximum • at AC-2 maximum • at AC-3 maximum • at AC-4 maximum 	<p>1 000 1/h</p> <p>750 1/h</p> <p>750 1/h</p> <p>250 1/h</p>
Control circuit/ Control	
Type of voltage of the control supply voltage	DC
Control supply voltage at DC <ul style="list-style-type: none"> • rated value 	24 V
Operating range factor control supply voltage rated value of magnet coil at DC <ul style="list-style-type: none"> • initial value • Full-scale value 	<p>0.8</p> <p>1.1</p>
Closing power of magnet coil at DC	4 W
Holding power of magnet coil at DC	4 W
Closing delay <ul style="list-style-type: none"> • at DC 	30 ... 100 ms
Opening delay <ul style="list-style-type: none"> • at DC 	7 ... 13 ms
Arcing time	10 ... 15 ms
Control version of the switch operating mechanism	Standard A1 - A2

Auxiliary circuit

Number of NO contacts for auxiliary contacts	
<ul style="list-style-type: none"> instantaneous contact 	1
Operating current at AC-12 maximum	10 A
Operating current at AC-15	
<ul style="list-style-type: none"> at 230 V rated value 	10 A
<ul style="list-style-type: none"> at 400 V rated value 	3 A
<ul style="list-style-type: none"> at 500 V rated value 	2 A
<ul style="list-style-type: none"> at 690 V rated value 	1 A
Operating current at DC-12	
<ul style="list-style-type: none"> at 24 V rated value 	10 A
<ul style="list-style-type: none"> at 48 V rated value 	6 A
<ul style="list-style-type: none"> at 60 V rated value 	6 A
<ul style="list-style-type: none"> at 110 V rated value 	3 A
<ul style="list-style-type: none"> at 125 V rated value 	2 A
<ul style="list-style-type: none"> at 220 V rated value 	1 A
<ul style="list-style-type: none"> at 600 V rated value 	0.15 A
Operating current at DC-13	
<ul style="list-style-type: none"> at 24 V rated value 	10 A
<ul style="list-style-type: none"> at 48 V rated value 	2 A
<ul style="list-style-type: none"> at 60 V rated value 	2 A
<ul style="list-style-type: none"> at 110 V rated value 	1 A
<ul style="list-style-type: none"> at 125 V rated value 	0.9 A
<ul style="list-style-type: none"> at 220 V rated value 	0.3 A
<ul style="list-style-type: none"> at 600 V rated value 	0.1 A
Contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)

UL/CSA ratings

Full-load current (FLA) for three-phase AC motor	
<ul style="list-style-type: none"> at 480 V rated value 	7.6 A
<ul style="list-style-type: none"> at 600 V rated value 	9 A
Yielded mechanical performance [hp]	
<ul style="list-style-type: none"> for single-phase AC motor <ul style="list-style-type: none"> at 110/120 V rated value at 230 V rated value 	0.33 hp 1 hp
<ul style="list-style-type: none"> for three-phase AC motor <ul style="list-style-type: none"> at 200/208 V rated value at 220/230 V rated value at 460/480 V rated value at 575/600 V rated value 	2 hp 3 hp 5 hp 7.5 hp
Contact rating of auxiliary contacts according to UL	A600 / Q600

Short-circuit protection

Design of the fuse link <ul style="list-style-type: none"> • for short-circuit protection of the main circuit <ul style="list-style-type: none"> — with type of coordination 1 required — with type of assignment 2 required • for short-circuit protection of the auxiliary switch required 	gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA) gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (415V, 80kA) gG: 10 A (500 V, 1 kA)
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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
Mounting type <ul style="list-style-type: none"> • Side-by-side mounting 	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715 Yes
Height	58 mm
Width	45 mm
Depth	73 mm
Required spacing <ul style="list-style-type: none"> • with side-by-side mounting <ul style="list-style-type: none"> — forwards 10 mm — upwards 10 mm — downwards 10 mm — at the side 0 mm • for grounded parts <ul style="list-style-type: none"> — forwards 10 mm — upwards 10 mm — at the side 6 mm — downwards 10 mm • for live parts <ul style="list-style-type: none"> — forwards 10 mm — upwards 10 mm — downwards 10 mm — at the side 6 mm 	

Connections/ Terminals

Type of electrical connection <ul style="list-style-type: none"> • for main current circuit • for auxiliary and control current 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 <ul style="list-style-type: none"> • for main contacts 	

<ul style="list-style-type: none"> — solid — single or multi-stranded — finely stranded with core end processing • at AWG conductors for main contacts 	<p>2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²), 2x 4 mm²</p> <p>2x (0,5 ... 1,5 mm²), 2x (0,75 ... 2,5 mm²), 2x 4 mm²</p> <p>2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)</p> <p>2x (20 ... 16), 2x (18 ... 14), 2x 12</p>
Connectable conductor cross-section for main contacts <ul style="list-style-type: none"> • solid • stranded • finely stranded with core end processing 	<p>0.5 ... 4 mm²</p> <p>0.5 ... 4 mm²</p> <p>0.5 ... 2.5 mm²</p>
Connectable conductor cross-section for auxiliary contacts <ul style="list-style-type: none"> • single or multi-stranded • finely stranded with core end processing 	<p>0.5 ... 4 mm²</p> <p>0.5 ... 2.5 mm²</p>
Type of connectable conductor cross-sections <ul style="list-style-type: none"> • for auxiliary contacts <ul style="list-style-type: none"> — single or multi-stranded — finely stranded with core end processing • at AWG conductors for auxiliary contacts 	<p>2x (0,5 ... 1,5 mm²), 2x (0,75 ... 2,5 mm²), 2x 4 mm²</p> <p>2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)</p> <p>2x (20 ... 16), 2x (18 ... 14), 2x 12</p>
AWG number as coded connectable conductor cross section <ul style="list-style-type: none"> • for main contacts • for auxiliary contacts 	<p>20 ... 12</p> <p>20 ... 12</p>

Safety related data	
B10 value <ul style="list-style-type: none"> • with high demand rate acc. to SN 31920 	1 000 000
Proportion of dangerous failures <ul style="list-style-type: none"> • with low demand rate acc. to SN 31920 • with high demand rate acc. to SN 31920 	<p>40 %</p> <p>73 %</p>
Failure rate [FIT] <ul style="list-style-type: none"> • with low demand rate acc. to SN 31920 	100 FIT
Product function <ul style="list-style-type: none"> • Mirror contact acc. to IEC 60947-4-1 	Yes; with 3RH29
T1 value for proof test interval or service life acc. to IEC 61508	20 y
Protection against electrical shock	finger-safe

Certificates/ approvals

General Product Approval	EMC
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[KC](#)



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



[Miscellaneous](#)

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)

[Miscellaneous](#)

Marine / Shipping



Marine / Shipping	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=3RT2016-1BB41>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1BB41>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1BB41>

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

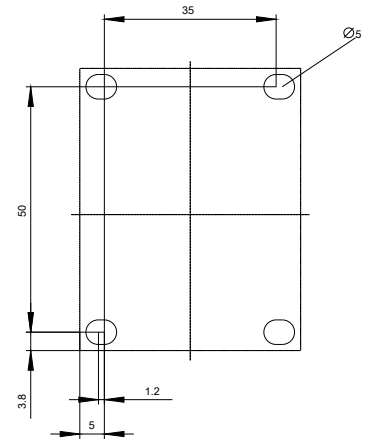
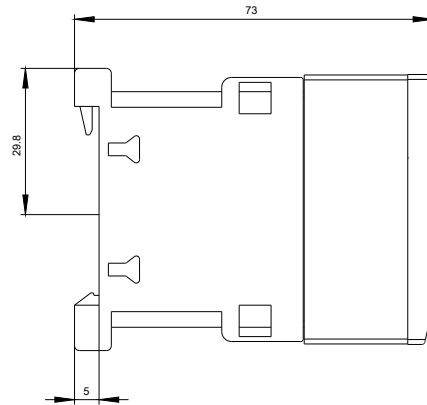
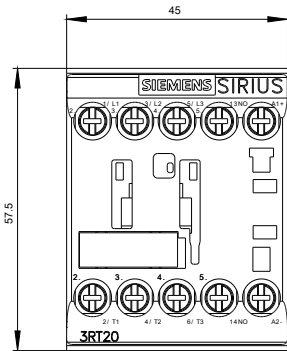
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1BB41&lang=en

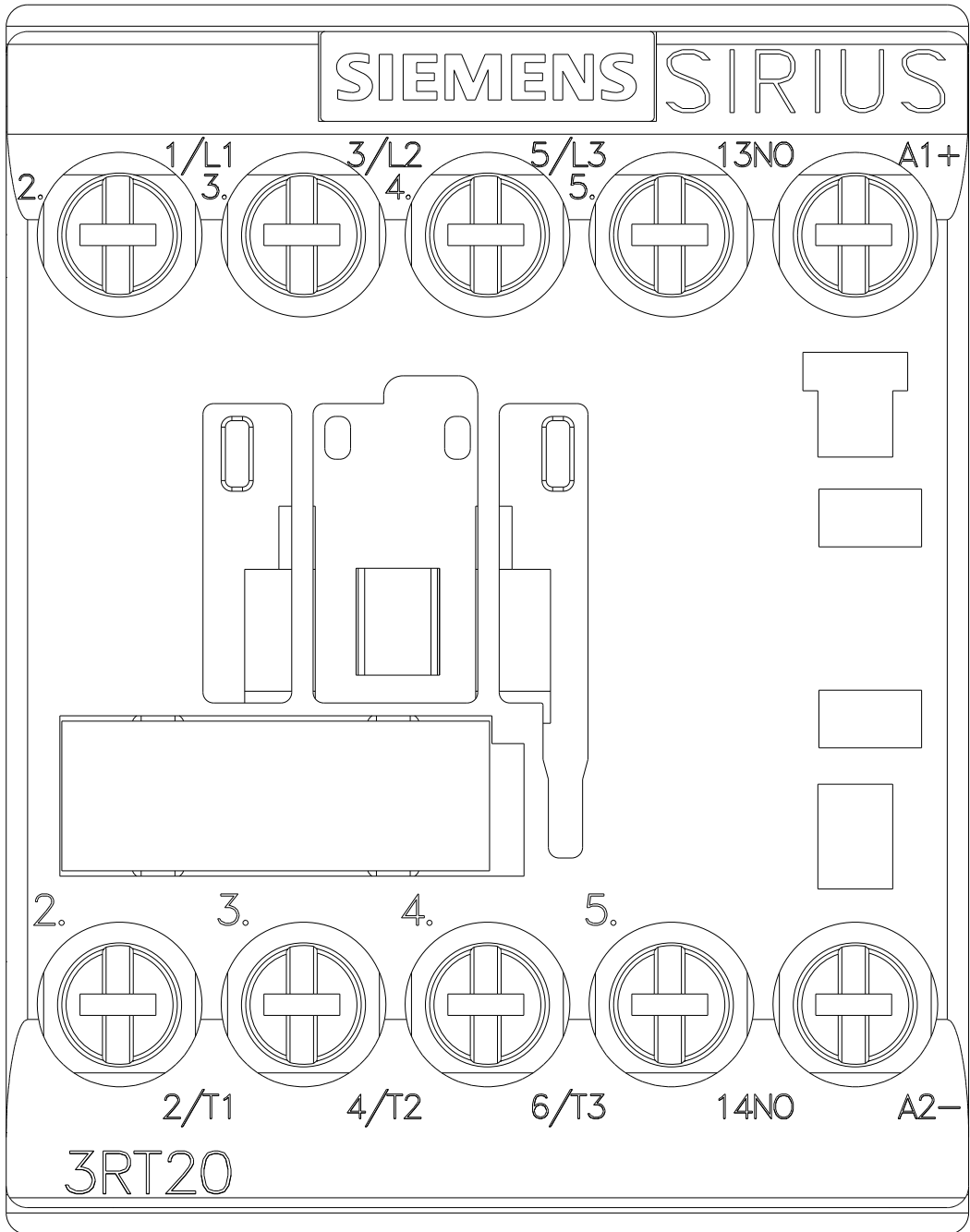
Characteristic: Tripping characteristics, I^t, Let-through current

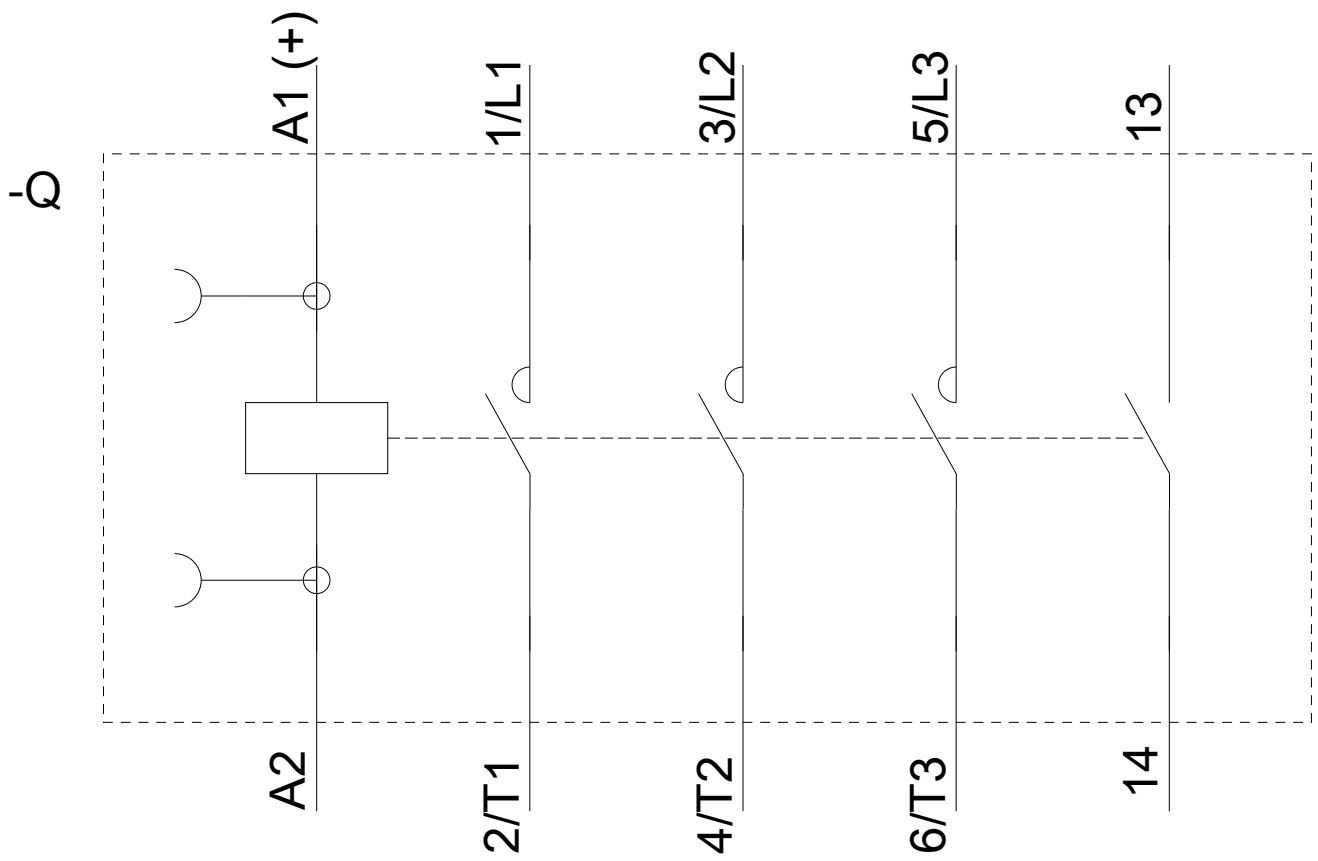
<https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1BB41/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1BB41&objecttype=14&gridview=view1>







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