

Power contactor, AC-3 38 A, 18.5 kW / 400 V 1 NO + 1 NC, 220 V
AC 50 Hz, 240 V, 60 Hz 3-pole, Size S0, screw terminals



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

General technical data	
Size of contactor	S0
<ul style="list-style-type: none"> Product extension function module for communication 	No
<ul style="list-style-type: none"> product extension auxiliary switch 	Yes
<ul style="list-style-type: none"> power loss [W] for rated value of the current at AC in hot operating state 	11.4 W
<ul style="list-style-type: none"> power loss [W] for rated value of the current at AC in hot operating state per pole 	3.8 W
power loss [W] for rated value of the current without load current share typical	10.5 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	
<ul style="list-style-type: none"> • on the front 	IP20
<ul style="list-style-type: none"> • of the terminal 	IP20
Shock resistance at rectangular impulse	
<ul style="list-style-type: none"> • at AC 	8,3g / 5 ms, 5,3g / 10 ms
Shock resistance with sine pulse	
<ul style="list-style-type: none"> • at AC 	13,5g / 5 ms, 8,3g / 10 ms
Mechanical service life (switching cycles)	
<ul style="list-style-type: none"> • of contactor typical 	10 000 000
<ul style="list-style-type: none"> • of the contactor with added electronics-compatible auxiliary switch block typical 	5 000 000
<ul style="list-style-type: none"> • of the contactor with added auxiliary switch block typical 	10 000 000
reference code acc. to DIN EN 81346-2	Q

Ambient conditions	
<ul style="list-style-type: none"> • installation altitude at height above sea level maximum 	2 000 m
<ul style="list-style-type: none"> • ambient temperature during operation 	-25 ... +60 °C
<ul style="list-style-type: none"> • ambient temperature during storage 	-55 ... +80 °C

Main circuit	
number of poles for main current circuit	3
Number of NO contacts for main contacts	3
<ul style="list-style-type: none"> • operating voltage at AC-3 rated value maximum 	690 V
<ul style="list-style-type: none"> • Operating current at AC-1 at 400 V <ul style="list-style-type: none"> — at ambient temperature 40 °C rated value 	50 A
<ul style="list-style-type: none"> • Operating current at AC-1 <ul style="list-style-type: none"> — up to 690 V at ambient temperature 40 °C rated value — up to 690 V at ambient temperature 60 °C rated value 	50 A 42 A
<ul style="list-style-type: none"> • Operating current at AC-2 at 400 V rated value 	38 A
<ul style="list-style-type: none"> • <ul style="list-style-type: none"> — operating current at AC-3 at 400 V rated value — Operating current at AC-3 at 500 V rated value — Operating current at AC-3 at 690 V rated value 	38 A 32 A 21 A
<ul style="list-style-type: none"> • Operating current at AC-4 at 400 V rated value 	22 A

<ul style="list-style-type: none"> • Operating current at AC-5a up to 690 V rated value 	44 A
<ul style="list-style-type: none"> • Operating current at AC-5b up to 400 V rated value 	31.5 A
<ul style="list-style-type: none"> • Operating current 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 	30.8 A 30.8 A 30.8 A 21 A
<ul style="list-style-type: none"> • Operating current 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 	20.5 A 20.5 A 21.4 A 21 A
Minimum cross-section in main circuit <ul style="list-style-type: none"> • at maximum AC-1 rated value 	10 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 	12 A 12 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 	35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 5 A 1 A 0.8 A 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
Operating current	
• at 1 current path at DC-3 at DC-5	
— 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
• with 2 current paths in series at DC-3 at DC-5	
— 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
• with 3 current paths in series at DC-3 at DC-5	
— 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
• Operating power at AC-2 at 400 V rated value	18.5 kW
•	
— operating power at AC-3 at 230 V rated value	11 kW
— operating power at AC-3 at 400 V rated value	18.5 kW
— operating power at AC-3 at 500 V rated value	18.5 kW
— operating power at AC-3 at 690 V rated value	18.5 kW
Operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	6 kW
• at 690 V rated value	10.3 kW
Operating apparent output at AC-6a	
• up to 230 V for current peak value n=20 rated value	12.2 kV·A
• up to 400 V for current peak value n=20 rated value	21.3 kV·A

<ul style="list-style-type: none"> • up to 500 V for current peak value n=20 rated value • up to 690 V for current peak value n=20 rated value 	26.6 kV·A 25 kV·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 	8.1 kV·A 14.2 kV·A 18.5 kV·A 25 kV·A
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 	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
No-load switching frequency <ul style="list-style-type: none"> • at AC • Operating frequency at AC-1 maximum • Operating frequency at AC-2 maximum • operating frequency at AC-3 maximum • Operating frequency at AC-4 maximum 	5 000 1/h 1 000 1/h 750 1/h 750 1/h 250 1/h
Control circuit/ Control	
Type of voltage of the control supply voltage <ul style="list-style-type: none"> • Control supply voltage at AC at 50 Hz rated value • Control supply voltage at AC at 60 Hz rated value 	AC 220 V 240 V
Operating range factor control supply voltage rated value of magnet coil at AC <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	0.8 ... 1.1 0.8 ... 1.1
Apparent pick-up power of magnet coil at AC <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	81 V·A 79 V·A

Inductive power factor with closing power of the coil	
• at 50 Hz	0.72
• at 60 Hz	0.74
Apparent holding power of magnet coil at AC	
• at 50 Hz	10.5 V·A
• at 60 Hz	8.5 V·A
Inductive power factor with the holding power of the coil	
• at 50 Hz	0.25
• at 60 Hz	0.28
Closing delay	
• at AC	8 ... 40 ms
Opening delay	
• at AC	4 ... 16 ms
Arcing time	10 ... 10 ms
Control version of the switch operating mechanism	Standard A1 - A2

Auxiliary circuit	
• Number of NC contacts for auxiliary contacts instantaneous contact	1
• Number of NO contacts for auxiliary contacts instantaneous contact	1
Operating current at AC-12 maximum	10 A
Operating current at AC-15	
• 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
• Operating current at DC-12 at 24 V rated value	10 A
• operating current at DC-12 at 48 V rated value	6 A
• Operating current at DC-12 at 60 V rated value	6 A
• operating current at DC-12 at 110 V rated value	3 A
• Operating current at DC-12 at 125 V rated value	2 A
• Operating current at DC-12 at 220 V rated value	1 A
• Operating current at DC-12 at 600 V rated value	0.15 A
• Operating current at DC-13 at 24 V rated value	10 A
• operating current at DC-13 at 48 V rated value	2 A
• Operating current at DC-13 at 60 V rated value	2 A
• operating current at DC-13 at 110 V rated value	1 A

<ul style="list-style-type: none"> • Operating current at DC-13 at 125 V rated value 	0.9 A
<ul style="list-style-type: none"> • Operating current at DC-13 at 220 V rated value 	0.3 A
<ul style="list-style-type: none"> • Operating current at DC-13 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 	34 A
<ul style="list-style-type: none"> • at 600 V rated value 	27 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 	3 hp 5 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 	10 hp 10 hp 25 hp 25 hp
contact rating of auxiliary contacts according to UL	A600 / P600

Short-circuit protection

<ul style="list-style-type: none"> • Design of the fuse link for short-circuit protection of the main circuit with type of coordination 1 required 	gG: 125A (690V,100kA), aM: 50A (690V,100kA), BS88: 125A (415V,80kA)
<ul style="list-style-type: none"> • Design of the fuse link for short-circuit protection of the main circuit with type of assignment 2 required 	gG: 50A (690V,100kA), aM: 25A (690V, 100kA), BS88: 50A (415V, 80kA)
<ul style="list-style-type: none"> • design of the fuse link for short-circuit protection of the auxiliary switch required 	gG: 10 A (500 V, 1 kA)

Installation/ mounting/ dimensions

<ul style="list-style-type: none"> • mounting position 	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
<ul style="list-style-type: none"> • mounting type 	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
<ul style="list-style-type: none"> • mounting type side-by-side mounting 	Yes
height	85 mm
width	45 mm
depth	97 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	
— 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	screw-type terminals
• type of electrical connection for auxiliary and control current circuit	screw-type terminals
• Type of electrical connection at contactor for auxiliary contacts	Screw-type terminals
• Type of electrical connection of magnet coil	Screw-type terminals
• type of connectable conductor cross-sections for main contacts solid	2x (1 ... 2.5 mm ²), 2x (2.5 ... 10 mm ²)
• type of connectable conductor cross-sections for main contacts single or multi-stranded	2x (1 ... 2,5 mm ²), 2x (2,5 ... 10 mm ²)
• type of connectable conductor cross-sections for main contacts finely stranded with core end processing	2x (1 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²), 1x 10 mm ²
• type of connectable conductor cross-sections at AWG conductors for main contacts	2x (16 ... 12), 2x (14 ... 8)

connectable conductor cross-section for main contacts

• solid	1 ... 10 mm ²
• stranded	1 ... 10 mm ²
• finely stranded with core end processing	1 ... 10 mm ²

connectable conductor cross-section for auxiliary contacts

• single or multi-stranded	0.5 ... 2.5 mm ²
• finely stranded with core end processing	0.5 ... 2.5 mm ²
• type of connectable conductor cross-sections for auxiliary contacts single or multi-stranded	2x (0,5 ... 1,5 mm ²), 2x (0,75 ... 2,5 mm ²)

<ul style="list-style-type: none"> • type of connectable conductor cross-sections for auxiliary contacts finely stranded with core end processing 	2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²)
<ul style="list-style-type: none"> • type of connectable conductor cross-sections at AWG conductors for auxiliary contacts 	2x (20 ... 16), 2x (18 ... 14)
AWG number as coded connectable conductor cross section	
<ul style="list-style-type: none"> • for main contacts 	16 ... 8
<ul style="list-style-type: none"> • for auxiliary contacts 	20 ... 14

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 	40 %
<ul style="list-style-type: none"> • with high demand rate acc. to SN 31920 	73 %
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
T1 value for proof test interval or service life acc. to IEC 61508	20 y
protection against electrical shock	finger-safe
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	other
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[Confirmation](#)

other



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=3RT2028-1AP60>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2028-1AP60>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1AP60>

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

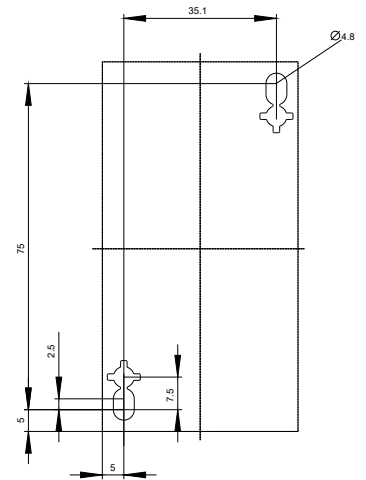
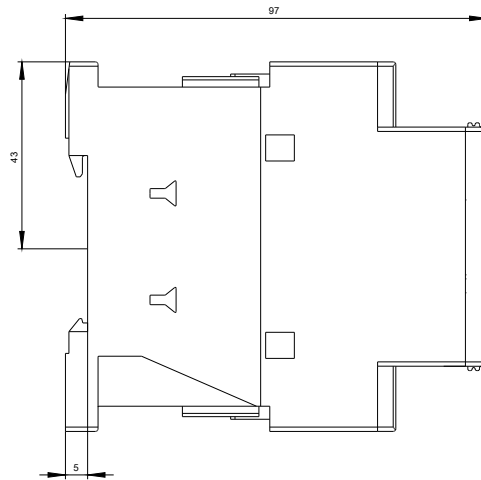
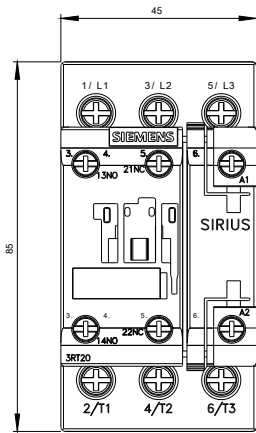
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2028-1AP60&lang=en

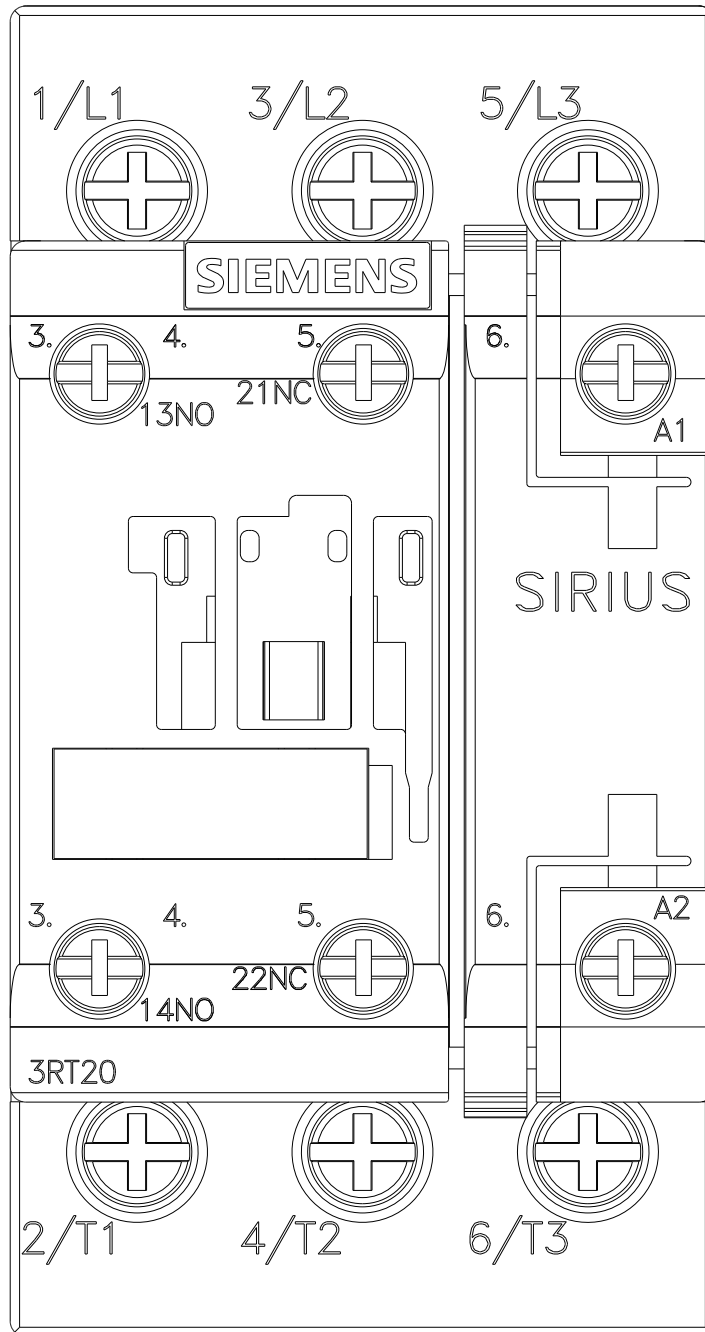
Characteristic: Tripping characteristics, I²t, Let-through current

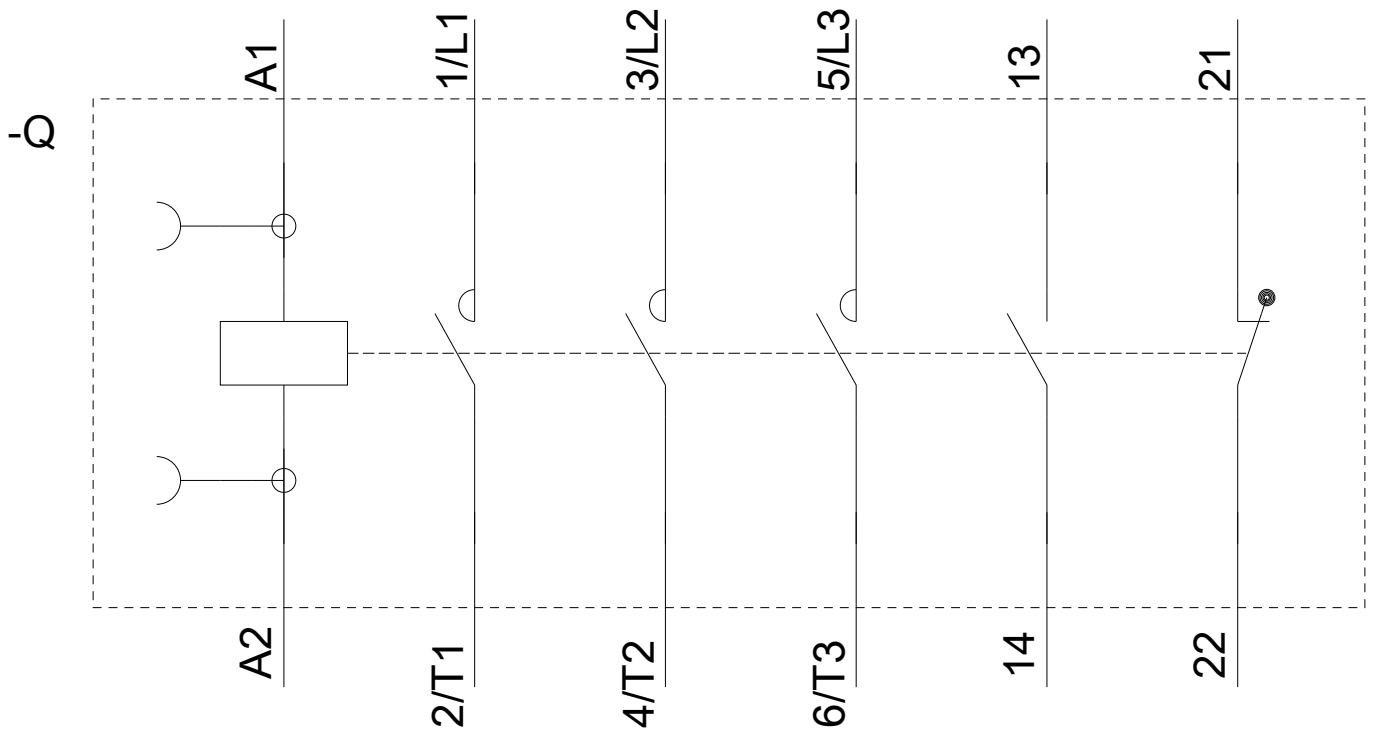
<https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1AP60/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2028-1AP60&objecttype=14&gridview=view1>







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