SIEMENS

Data sheet 3RT2028-1AB00



Power contactor, AC-3 38 A, 18.5 kW / 400 V 1 NO + 1 NC, 24 V AC 50 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
product extension	
 function module for communication 	No
auxiliary switch	Yes
power loss [W] for rated value of the current at AC in hot operating state	11.4 W
• per pole	3.8 W
power loss [W] for rated value of the current without load current share typical	9.8 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
shock resistance at rectangular impulse	
at AC	8,3g / 5 ms, 5,3g / 10 ms
shock resistance with sine pulse	
• at AC	13,5g / 5 ms, 8,3g / 10 ms
mechanical service life (switching cycles)	
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
reference code acc. to IEC 81346-2	Q
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature during operation	-25 +60 °C
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
operating voltage at AC-3 rated value maximum	690 V
operational current	

 at AC-1 at 400 V at ambient temperature 40 °C rated value at AC-1 	50 A
— up to 690 V at ambient temperature 40 °C rated value	50 A
 up to 690 V at ambient temperature 60 °C rated value 	42 A
• at AC-3	
— at 400 V rated value	38 A
— at 500 V rated value	32 A
— at 690 V rated value	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	
— up to 230 V for current peak value n=20 rated value	30.8 A
 up to 400 V for current peak value n=20 rated value 	30.8 A
 up to 500 V for current peak value n=20 rated value 	30.8 A
 — up to 690 V for current peak value n=20 rated value • at AC-6a 	21 A
— up to 230 V for current peak value n=30 rated value	20.5 A
 up to 400 V for current peak value n=30 rated value 	20.5 A
 up to 500 V for current peak value n=30 rated value 	21.4 A
— up to 690 V for current peak value n=30 rated value	21 A
minimum cross-section in main circuit at maximum AC-1 rated value	10 mm²
	10 mm²
rated value operational current for approx. 200000 operating	12 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value	
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current	12 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1	12 A 12 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — at 24 V rated value	12 A 12 A 35 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — at 24 V rated value — at 110 V rated value	12 A 12 A 35 A 4.5 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — at 24 V rated value — at 110 V rated value — at 220 V rated value	12 A 12 A 35 A 4.5 A 1 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value	12 A 12 A 35 A 4.5 A 1 A 0.4 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — 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 — at 600 V rated value	12 A 12 A 35 A 4.5 A 1 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — 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	12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — 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 — at 24 V rated value	12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — 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 — at 24 V rated value • at 24 V rated value • with 2 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value	12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — 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 — at 24 V rated value — at 110 V rated value — at 110 V rated value — at 220 V rated value — at 220 V rated value — at 220 V rated value	12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 5 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 600 V rated value • with 2 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value • with 2 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value — at 120 V rated value — at 440 V rated value	12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 35 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 600 V rated value • with 2 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value • with 2 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value — at 440 V rated value — at 440 V rated value — at 440 V rated value — at 600 V rated value — at 600 V rated value — at 600 V rated value	12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 5 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — 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 — at 24 V rated value — at 110 V rated value — at 24 V rated value — at 440 V rated value — at 440 V rated value — at 600 V rated value	12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 5 A 1 A 0.8 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 600 V rated value • with 2 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value • with 2 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value — at 440 V rated value — at 440 V rated value — at 440 V rated value — at 600 V rated value — at 600 V rated value — at 600 V rated value	12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 5 A 1 A 0.8 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — 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 — at 24 V rated value — at 110 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value — at 440 V rated value — at 600 V rated value — at 600 V rated value — at 600 V rated value • with 3 current paths in series at DC-1 — at 24 V rated value	12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 5 A 1 A 0.8 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — 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 — at 24 V rated value — at 110 V rated value — at 110 V rated value — at 220 V rated value — at 24 V rated value — at 24 V rated value — at 24 V rated value — at 440 V rated value — at 440 V rated value — at 440 V rated value — at 24 V rated value — at 24 V rated value • with 3 current paths in series at DC-1 — at 24 V rated value • with 3 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value	12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 5 A 1 A 0.8 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — at 24 V rated value — at 110 V rated value — at 440 V rated value — at 600 V rated value • with 2 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 440 V rated value — at 440 V rated value — at 24 V rated value — at 24 V rated value • with 3 current paths in series at DC-1 — at 24 V rated value • with 3 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 220 V rated value	12 A 12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 5 A 1 A 0.8 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — at 24 V rated value — at 110 V rated value — at 440 V rated value — at 600 V rated value • with 2 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value — at 110 V rated value — at 220 V rated value — at 220 V rated value — at 440 V rated value — at 440 V rated value — at 440 V rated value — at 600 V rated value — at 24 V rated value — at 24 V rated value — at 24 V rated value • with 3 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value	12 A 12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 5 A 1 A 0.8 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — at 24 V rated value — at 110 V rated value — at 440 V rated value — at 600 V rated value • with 2 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 440 V rated value — at 440 V rated value — at 600 V rated value — at 24 V rated value — at 24 V rated value — at 440 V rated value — at 24 V rated value — at 24 V rated value — at 24 V rated value — at 440 V rated value	12 A 12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 5 A 1 A 0.8 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 600 V rated value — at 600 V rated value • with 2 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value — at 110 V rated value — at 220 V rated value — at 24 V rated value — at 24 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value — at 24 V rated value — at 24 V rated value — at 24 V rated value — at 440 V rated value — at 600 V rated value — at 600 V rated value — at 600 V rated value	12 A 12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 5 A 1 A 0.8 A
rated value operational current for approx. 200000 operating cycles at AC-4 • at 400 V rated value • at 690 V rated value operational current • at 1 current path at DC-1 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 600 V rated value • with 2 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value — at 110 V rated value — at 220 V rated value — at 24 V rated value — at 24 V rated value — at 24 V rated value — at 440 V rated value — at 440 V rated value — at 600 V rated value • with 3 current paths in series at DC-1 — at 24 V rated value — at 440 V rated value — at 600 V rated value	12 A 12 A 12 A 35 A 4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 35 A 1 A 0.8 A 35 A 35 A 35 A 35 A 35 A



 at AC-3 maximum at AC-4 maximum 	750 1/h
at AC-2 maximum	750 1/h
• at AC-1 maximum	1 000 1/h
operating frequency	
• at AC	5 000 1/h
no-load switching frequency	
limited to 60 s switching at zero current maximum	152 A; Use minimum cross-section acc. to AC-1 rated value
limited to 30 s switching at zero current maximum	186 A; Use minimum cross-section acc. to AC-1 rated value
limited to 10 s switching at zero current maximum	260 A; Use minimum cross-section acc. to AC-1 rated value
limited to 5 s switching at zero current maximum	395 A; Use minimum cross-section acc. to AC-1 rated value
limited to 1 s switching at zero current maximum	593 A; Use minimum cross-section acc. to AC-1 rated value
short-time withstand current in cold operating state up to 40 °C	
• up to 690 V for current peak value n=30 rated value	25 kV·A
• up to 500 V for current peak value n=30 rated value	18.5 kV·A
• up to 400 V for current peak value n=30 rated value	14.2 kV·A
• up to 230 V for current peak value n=30 rated value	8.1 kV·A
operating apparent power at AC-6a	0.411/4
• up to 690 V for current peak value n=20 rated value	25 kV·A
up to 500 V for current peak value n=20 rated value	26.6 kV·A
up to 400 V for current peak value n=20 rated value up to 500 V for current peak value n=20 rated value	21.3 kV·A
up to 230 V for current peak value n=20 rated value	12.2 kV·A
operating apparent power at AC-6a	12.2 1/4 /4
• at 690 V rated value	10.3 kW
at 400 V rated value at 600 V rated value	6 kW
at AC-4	6 NM
operating power for approx. 200000 operating cycles	
— at 690 V rated value	18.5 kW
— at 500 V rated value	18.5 kW
— at 400 V rated value	18.5 kW
— at 230 V rated value	11 kW
• at AC-3	
operating power	
— at 600 V rated value	0.6 A
— at 440 V rated value	0.6 A
— at 220 V rated value	10 A
— at 110 V rated value	35 A
— at 24 V rated value	35 A
 with 3 current paths in series at DC-3 at DC-5 	
— at 600 V rated value	0.16 A
— at 440 V rated value	0.27 A
— at 220 V rated value	3 A
— at 110 V rated value	15 A
— at 24 V rated value	35 A
 with 2 current paths in series at DC-3 at DC-5 	
— at 600 V rated value	0.06 A
— at 440 V rated value	0.09 A
	1 A



at 50 Hz	0.82
apparent holding power of magnet coil at AC	
● at 50 Hz	9.8 V·A
inductive power factor with the holding power of the coil	
● at 50 Hz	0.25
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
operational current at AC-12 maximum	10 A
operational 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
operational current at DC-12	
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
operational current at DC-13	
 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
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings	
full-load current (FLA) for 3-phase AC motor	
• at 480 V rated value	34 A
at 600 V rated value	27 A
yielded mechanical performance [hp]	
• for single-phase AC motor	
— at 110/120 V rated value	3 hp
— at 230 V rated value	5 hp
• for 3-phase AC motor	40.1
— at 200/208 V rated value	10 hp
— at 220/230 V rated value	10 hp
— at 460/480 V rated value	25 hp
— at 575/600 V rated value	25 hp
contact rating of auxiliary contacts according to UL	A600 / P600
Short-circuit protection	
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)



gG: 50A (690V,100kA), aM: 25A (690V, 100kA), BS88: 50A (415V, - with type of assignment 2 required 80kA) • for short-circuit protection of the auxiliary switch gG: 10 A (500 V, 1 kA) required 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 screw and snap-on mounting onto 35 mm standard mounting rail fastening method according to DIN EN 60715 • side-by-side mounting Yes height 85 mm width 45 mm depth 97 mm required spacing • with side-by-side mounting - forwards 10 mm - upwards 10 mm 10 mm downwards - at the side 0 mm · for grounded parts 10 mm - forwards 10 mm - upwards 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 type of electrical connection · for main current circuit screw-type terminals · for auxiliary and control circuit screw-type terminals • at contactor for auxiliary contacts Screw-type terminals • of magnet coil Screw-type terminals type of connectable conductor cross-sections • for main contacts — solid 2x (1 ... 2.5 mm²), 2x (2.5 ... 10 mm²) - solid or stranded 2x (1 ... 2,5 mm²), 2x (2,5 ... 10 mm²) finely stranded with core end processing 2x (1 ... 2.5 mm²), 2x (2.5 ... 6 mm²), 1x 10 mm² • at AWG cables for main contacts 2x (16 ... 12), 2x (14 ... 8) connectable conductor cross-section for main contacts 1 ... 10 mm² solid 1 ... 10 mm² stranded · finely stranded with core end processing 1 ... 10 mm² connectable conductor cross-section for auxiliary contacts solid or stranded 0.5 ... 2.5 mm² • finely stranded with core end processing 0.5 ... 2.5 mm² type of connectable conductor cross-sections · for auxiliary contacts solid or stranded 2x (0,5 ... 1,5 mm²), 2x (0,75 ... 2,5 mm²) finely stranded with core end processing 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²) • at AWG cables for auxiliary contacts 2x (20 ... 16), 2x (18 ... 14) 16 ... 8 AWG number as coded connectable conductor



20 ... 14

Safety related data

cross section for main contacts

cross section for auxiliary contacts

· AWG number as coded connectable conductor

B10 value with high demand rate acc. to SN 31920	1 000 000
proportion of dangerous failures	
 with low demand rate acc. to SN 31920 	40 %
 with high demand rate acc. to SN 31920 	73 %
failure rate [FIT] with low demand rate acc. to SN 31920	100 FIT
product function	
 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 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 safety-related switching OFF	Yes
04:f:4/	

Certificates/ approvals

General Product Approval















Declaration of Conformity

Test Certificates

Marine / Shipping

Miscellaneous



Type Test Certificates/Test Report Special Test Certificate





Marine / Shipping











Confirmation



other

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=3RT2028-1AB00

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2028-1AB00

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1AB00

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2028-1AB00&lang=en

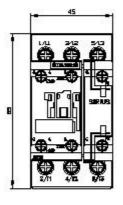
Characteristic: Tripping characteristics, I2t, Let-through current

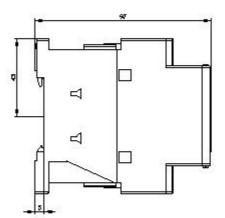
https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1AB00/char

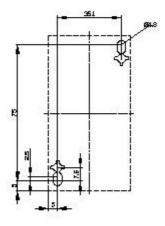
Further characteristics (e.g. electrical endurance, switching frequency)

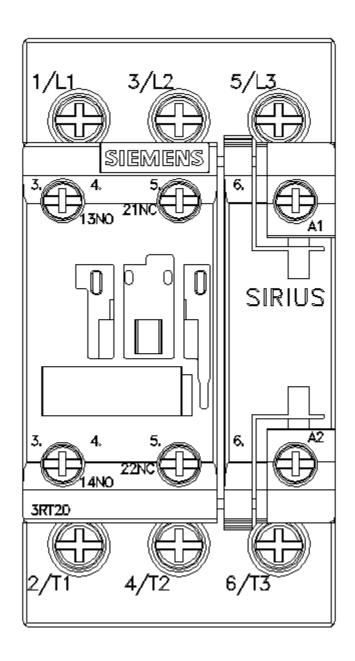
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2028-1AB00&objecttype=14&gridview=view1

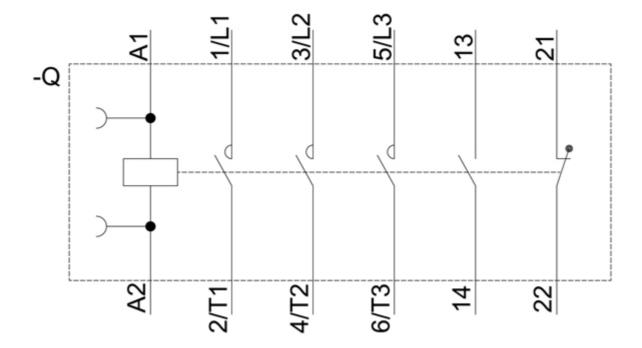












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