SIEMENS

Data sheet 3RT2016-1BA42



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 12 V DC, auxiliary contacts: 1 NC, screw terminal

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S00
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 	0.9 W
 at AC in hot operating state per pole 	0.3 W
 without load current share typical 	4 W
insulation voltage	
 of main circuit with degree of pollution 3 rated value 	690 V
 of auxiliary circuit with degree of pollution 3 rated value 	690 V
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 according to EN 60947-1	400 V
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 (operating cycles)	
 of contactor typical 	30 000 000
 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 according to IEC 81346-2	Q
Substance Prohibitance (Date)	10/01/2009
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
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %
Main circuit	

umber of poles for main current circuit	3
umber of NO contacts for main contacts	3
perating voltage	000 1/
at AC-3 rated value maximum at AC-3 rated value maximum	690 V
at AC-3e rated value maximum	690 V
 at AC-1 at 400 V at ambient temperature 40 °C 	22 A
rated value	22 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C	22 A
rated value	
— up to 690 V at ambient temperature 60 °C	20 A
rated value	
• at AC-3	0.4
— 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-3e	0.4
— at 400 V rated value	9 A 7.7 A
— at 500 V rated value	
— at 690 V rated value	6.7 A
• at AC-4 at 400 V rated value	8.5 A 19.4 A
at AC-5a up to 690 V rated value at AC-5b up to 400 V rated value	7.4 A
at AC-5b up to 400 V rated valueat AC-6a	7.4 A
	5.3 A
— up to 230 V for current peak value n=20 rated value	
 up to 400 V for current peak value n=20 rated value 	5.3 A
 up to 500 V for current peak value n=20 rated value 	5.3 A
 up to 690 V for current peak value n=20 rated value 	5 A
• at AC-6a	
 up to 230 V for current peak value n=30 rated value 	3.5 A
 up to 400 V for current peak value n=30 rated value 	3.5 A
— up to 500 V for current peak value n=30 rated value	3.6 A
— up to 690 V for current peak value n=30 rated value	3.3 A
ninimum cross-section in main circuit at maximum AC-1	4 mm²
perational current for approx. 200000 operating ycles at AC-4	
at 400 V rated value	4.1 A
at 690 V rated value	3.3 A
perational current	
at 1 current path at DC-1	
— at 24 V rated value	20 A
— at 60 V rated value	20 A
— at 110 V rated value	2.1 A
— at 220 V rated value	0.8 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
 with 2 current paths in series at DC-1 	
— at 24 V rated value	20 A
— at 60 V rated value	20 A
— at 110 V rated value	12 A
	1.6 A
— at 220 V rated value	
— at 220 V rated value— at 440 V rated value	0.8 A
	0.8 A 0.7 A
— at 440 V rated value	
— at 440 V rated value— at 600 V rated value	

-t 440 Vt dl	00.4
— at 110 V rated value	20 A
— at 220 V rated value	20 A
— at 440 V rated value	1.3 A
— at 600 V rated value	1 A
• at 1 current path at DC-3 at DC-5	00.4
— at 24 V rated value	20 A
— at 60 V rated value	0.5 A 0.15 A
— at 110 V rated value	0.15 A
 with 2 current paths in series at DC-3 at DC-5 — at 24 V rated value 	20 A
— at 60 V rated value	5 A
— at 110 V rated value	0.35 A
with 3 current paths in series at DC-3 at DC-5	0.55 A
— at 24 V rated value	20 A
— at 60 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-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
• at AC-3e	
— 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 kW
operating power for approx. 200000 operating cycles at AC-4	
at 400 V rated value	2 kW
at 400 V rated value at 690 V rated value	2.5 kW
operating apparent power at AC-6a	-10
• up to 230 V for current peak value n=20 rated value	2 kVA
up to 400 V for current peak value n=20 rated value	3.6 kVA
up to 500 V for current peak value n=20 rated value	4.6 kVA
 up to 690 V for current peak value n=20 rated value 	5.9 kVA
operating apparent power at AC-6a	
 up to 230 V for current peak value n=30 rated value 	1.3 kVA
 up to 400 V for current peak value n=30 rated value 	2.4 kVA
 up to 500 V for current peak value n=30 rated value 	3.1 kVA
• up to 690 V for current peak value n=30 rated value	4 kVA
short-time withstand current in cold operating state	
up to 40 °C	155 A: Use minimum cross section acc. to AC 4 reted value
 limited to 1 s switching at zero current maximum limited to 5 s switching at zero current maximum 	155 A; Use minimum cross-section acc. to AC-1 rated value 111 A; Use minimum cross-section acc. to AC-1 rated value
Ilmited to 5 s switching at zero current maximum Ilmited to 10 s switching at zero current maximum	86 A; Use minimum cross-section acc. to AC-1 rated value
limited to 70's switching at zero current maximum limited to 30 s switching at zero current maximum	66 A; Use minimum cross-section acc. to AC-1 rated value
Ilmitted to 50's switching at zero current maximum Ilmitted to 60's switching at zero current maximum	55 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at DC	10 000 1/h
operating frequency	
at AC-1 maximum	1 000 1/h
• at AC-2 maximum	750 1/h
• at AC-3 maximum	750 1/h
• at AC-3e maximum	750 1/h
• at AC-4 maximum	250 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	DC
control supply voltage at DC	
• rated value	12 V

operating range factor control supply voltage rated	
value of magnet coil at DC	
• initial value	0.8
full-scale value	1.1
closing power of magnet coil at DC	4 W
holding power of magnet coil at DC	4 W
closing delay	
• at DC	30 100 ms
opening delay	
• at DC	7 13 ms
arcing time	10 15 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC contacts for auxiliary contacts	1
instantaneous contact	'
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 24 V rated value 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	7.6 A
at 600 V rated value	9 A
yielded mechanical performance [hp]	
• for single-phase AC motor	
— at 110/120 V rated value	0.33 hp
— at 230 V rated value	1 hp
• for 3-phase AC motor	
— at 200/208 V rated value	2 hp
— at 220/230 V rated value	3 hp
— at 460/480 V rated value	5 hp
— at 575/600 V rated value	7.5 hp
contact rating of auxiliary contacts according to UL	A600 / Q600
	7000 / Q000
Short-circuit protection	
design of the fuse link	
for short-circuit protection of the main circuit	0.054 (000) (400) 4) 44 55 (000)
 — with type of coordination 1 required 	gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA)
 — with type of assignment 2 required 	gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (415V,
a for abort circuit mediantian of the acceptance with	80kA)
 for short-circuit protection of the auxiliary switch required 	gG: 10 A (500 V, 1 kA)
Installation/ mounting/ dimensions	./.4000
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
factoning method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN
fastening method	Solew and shap-on mounting onto 33 min Dily fall according to Dily EN

* side-by-side mounting		00745
Michigan Simple	alda har alda marriada a	60715
width depth required specing • with side-by-side mounting • with side-by-side mounting • with side-by-side mounting - forwards - upwards - in the side • for grounded parts - forwards - upwards - upwards - upwards - upwards - upwards - to thowards - to man - to man - to thowards - to man - to thowards - to man - to man - to thowards - to man - to thowards - to man - to man - to thowards - to man - to man - to thowards - to man - to man - to man - to thowards - to man - to man - to man - to thowards - to man - to		
depth required spacing - with side-by-side mounting - forwards 10 mm 10	_	
required spacing • with side by-side mounting — upwards — unwards — at the side • for grounded parts — inwards — upwards — the side — upwards — upwards — the side — downwards — the side — th		
• with side-by-side mounting - Increaseds - Increaseds - Increased - Increase		73 mm
forwards		
upwards downwards at the side for prounded parts forwards upwards at the side downwards the side downwards forwards upwards forwards forwards forwards forwards upwards forwards upwards forwards upwards forwards upwards forwards upwards forwards upwards upwards forwards upwards upwards forwards forwards upwards forwards forwards forwards upwards forwards forwards forwards forwards upwards forwards		10 mm
downwards all the side forwards forwards forwards forwards upwards at the side downwards downwards forwards forwards downwards forwards forwa		
- at the side • for grounded parts - forwards - upwards - at the side - downwards - forwards - forwards - forwards - forwards - upwards - forwards - forwards - forwards - upwards - formande - formands - downwards - at the side - formanded conductor cross-section for mail contacts - of majent coil type of connectable conductor cross-section for main contacts - solid - solid or stranded - finely stranded with core end processing - connectable conductor cross-section for mail contacts - solid - stranded - finely stranded with core end processing - in al AWG cables for auxiliary contacts - solid or stranded - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - for auxiliary contacts - solid - stranded - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - finely stranded with core end processing - at the side - finely stranded - fin		
• for grounded parts — Lorwards — upwards — at the side — downwards 10 mm • for live parts — Lorwards — upwards — upwards — upwards — upwards — downwards — 10 mm — downwards — downwards — the side — at the side — downwards — the side —		
- forwards		C Hilli
- upwards - downwards - forfive parts - forwards - upwards - downwards - for auxiliary and control circuit - at contactor for auxiliary contacts - of main current circuit - at contactor for auxiliary contacts - of main current circuit - at contactor for auxiliary contacts - of main contac		10 mm
- at the side - downwards • forlive parts - forwards - upwards - upwards - downwards - at the side - the side - the side - for main current circuit • for auxillary conductor cross-sections for main contacts • of magnet coll bype of connectable conductor cross-sections for main contacts • solid • solid or stranded • finely stranded with core end processing connectable conductor cross-section for main contacts • solid • stranded • finely stranded with core end processing connectable conductor cross-section for auxillary contacts • solid or stranded • finely stranded with core end processing connectable conductor cross-section for auxillary contacts • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxillary contacts • solid or stranded - finely stranded with core end processing type of connectable conductor cross-sections • for auxillary contacts • solid or stranded - finely stranded with core end processing type of connectable conductor cross-sections • for auxillary contacts - solid or stranded - finely stranded with core end processing type of connectable conductor cross-sections • for auxillary contacts - solid or stranded - finely stranded with core end processing type of connectable conductor cross-sections • for auxillary contacts - solid or stranded - finely stranded with core end processing type of connectable conductor cross-sections • for auxillary contacts - solid or stranded - finely stranded with core end processing type of connectable conductor cross-sections • for auxillary contacts - solid or stranded - finely stranded with core end processing type of connectable conductor cross-sections • for auxillary contacts - solid or stranded - finely stranded with core end processing type of connectable conductor cross-sections • for auxillary contacts - solid or stranded - finely stranded with core end processing - solid or stranded - finel		
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• for live parts — forwards — upwards — downwards — at the side		
- upwards - downwards - dithe side - downwards - downwards - downwards - downwards - downwards - downwards - for main current circuit - for auxiliary contacts - of magnet coil - solid - solid or stranded - solid or stranded - solid or stranded - solid or stranded - solid - stranded - solid - stranded - solid or stranded - solid or stranded - solid - stranded - solid or stranded - solid - stranded - solid or stranded -	• for live parts	
- downwards - at the side 6 mm Connections/ Tominals type of electrical connection • for main current circuit screw-type terminals • at contactor for auxiliary contacts • solid or stranded ending the stranded of finely stranded with core and processing connectable conductor cross-section for main contacts • solid • solid or stranded with core end processing connectable conductor cross-section for main contacts • solid • siranded • finely stranded with core end processing connectable conductor cross-section for main contacts • solid • siranded • finely stranded with core end processing connectable conductor cross-section for auxiliary contacts • solid or stranded • finely stranded with core end processing connectable conductor cross-sections • for auxiliary contacts • solid or stranded • finely stranded with core end processing • for auxiliary contacts • solid or stranded • finely stranded with core end processing • at AWG cables for auxiliary contacts AWG number as coded connectable conductor cross-section • for main contacts • for auxiliary contacts AWG number as coded connectable conductor cross-section • for main contacts • for auxiliary contacts AWG number as coded connectable conductor cross-section • for for auxiliary contacts AWG number as coded connectable conductor cross-section • for for auxiliary contacts AWG number as coded connectable conductor cross-section • for for auxiliary contacts AWG number as coded connectable conductor cross-section • for for auxiliary contacts AWG number as coded connectable conductor cross-section • for for auxiliary contacts AWG number as coded connectable conductor cross-section • for for auxiliary contacts AWG number as coded connectable conductor cross-section • for for auxiliary contacts • for auxiliary contacts • for auxiliary contacts • for auxiliary contacts • for for auxiliary c	— forwards	10 mm
- downwards — at the side 6 mm Connections/ Torminals type of electrical connection • for main current circuit sorrwithy per terminals • at contactor for auxiliary contacts • solid or stranded sinely stranded with core end processing connectable conductor cross-section for main contacts • solid • sinely stranded with core end processing connectable conductor cross-section for main contacts • solid • sinely stranded with core end processing connectable conductor cross-section for main contacts • solid • sinely stranded with core end processing connectable conductor cross-section for auxiliary contacts • solid or stranded • finely stranded with core end processing connectable conductor cross-section for auxiliary contacts • solid or stranded • finely stranded with core end processing connectable conductor cross-sections • for auxiliary contacts • solid or stranded • finely stranded with core end processing connectable conductor cross-sections • for auxiliary contacts • solid or stranded • finely stranded with core end processing connectable conductor cross-sections • for main contacts • for main contacts • for nain contacts • for nain contacts • for nain contacts • for nain contacts • for for auxiliary contacts AWG number as coded connectable conductor cross-section • for main contacts • for nain contacts • for for auxiliary contacts AWG number as coded connectable conductor cross-section • for for auxiliary contacts • for with low demand rate according to SN 31920 proportion of dangerous failures • with line demand rate according to SN 31920 row with high demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN 31920 failure rate [
type of electrical connection	·	10 mm
type of electrical connection • for main current circuit • at contactor for auxiliary and control circuit • at contactor for auxiliary contacts • solid • solid or stranded • innely stranded with core end processing connectable conductor cross-section for main contacts • solid • solid or stranded • finely stranded with core end processing connectable conductor cross-section for main contacts • solid • stranded • finely stranded with core end processing connectable conductor cross-section for auxiliary contacts • solid or stranded • finely stranded with core end processing connectable conductor cross-section for auxiliary contacts • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary contacts • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary contacts • solid or stranded • finely stranded with core end processing • at AVNC cables for auxiliary contacts AWG number as coded connectable conductor cross-section • for main contacts • for auxiliary contacts AWG number as coded connectable conductor cross-section • for main contacts • for auxiliary contacts 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm² 2x (0.5 1.5 mm²) 2x (0.5 1.5 mm²) 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm² 2x (0.5 1.5 mm²) 2x (0.5 1.5 mm²) 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm² 2x (0.5 1.5 mm²)	— at the side	6 mm
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connectable conductor cross-section for main contacts		
e solid		2X (0.5 1.5 mm²), 2X (0.75 2.5 mm²)
• stranded • finely stranded with core end processing connectable conductor cross-section for auxiliary contacts • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary contacts — solid or stranded — finely stranded with core end processing • at AWG cables for auxiliary contacts AWG number as coded connectable conductor cross-section • for main contacts • for main contacts • for main contacts • for main expectable conductor cross-section • for main form contacts • for main contacts • for main expectation • for main contacts • for auxiliary contacts Safety related data product function • mirror contact according to IEC 60947-4-1 B10 value with high demand rate according to SN 31920 proportion of dangerous failures • with low demand rate according to SN 31920 • with high demand rate according to SN 31920 • with high demand rate according to SN 31920 • with high demand rate according to SN 31920 • with low demand rate according to SN 31920		
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 • finely stranded with core end processing connectable conductor cross-section for auxiliary contacts • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary contacts — solid or stranded — finely stranded with core end processing • at AWG cables for auxiliary contacts — solid or stranded with core end processing • at AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 20 12 • for auxiliary contacts 20 12 20 12 Safety related data product function • mirror contact according to IEC 60947-4-1 B10 value with high demand rate according to SN 31920 • with low demand rate according to SN 31920 • with high demand rate according to SN 31920 a with high demand rate according to SN 31920 a with low demand rate according to SN 31920 a with low demand rate according to SN 31920 b with high demand rate according to SN 31920 c with low for proof test interval or service life according to IEC 61508 protection class IP on the front according to IEC 60529 finger-safe, for vertical contact from the front 	stranded	0.5 4 mm²
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• for auxiliary contacts Safety related data product function • mirror contact according to IEC 60947-4-1 B10 value with high demand rate according to SN 31920 proportion of dangerous failures • with low demand rate according to SN 31920 • with high demand rate according to SN 31920 • with high demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN 31920 T1 value for proof test interval or service life according to IEC 61508 protection class IP on the front according to IEC 60529 touch protection on the front according to IEC 60529 finger-safe, for vertical contact from the front		20 12
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31920 T1 value for proof test interval or service life according to IEC 61508 protection class IP on the front according to IEC 60529 touch protection on the front according to IEC 60529 finger-safe, for vertical contact from the front		
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60529 touch protection on the front according to IEC 60529 finger-safe, for vertical contact from the front	IEC 61508	
		IP20
		finger-safe, for vertical contact from the front

Yes

Certificates/ approvals

General Product Approval





Confirmation



KC



EMC

Functional Safety/Safety of Machinery

Declaration of Conformity

Test Certificates



Type Examination Certificate





Type Test Certificates/Test Report

Special Test Certificate

Marine / Shipping





Confirmation









Marine / Shipping

othe



Vibration and Shock

Railway

<u>Transport Information</u>

Dangerous Good

Further information

Siemens has decided to exit the Russian market (see here).

https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

Information on the packaging

https://support.industry.siemens.com/cs/ww/en/view/109813875

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=3RT2016-1BA42

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1BA42

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1BA42

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

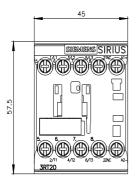
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1BA42&lang=en

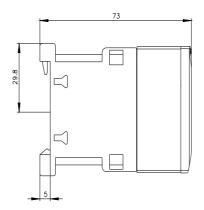
Characteristic: Tripping characteristics, I2t, Let-through current

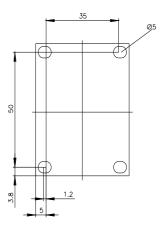
https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1BA42/char

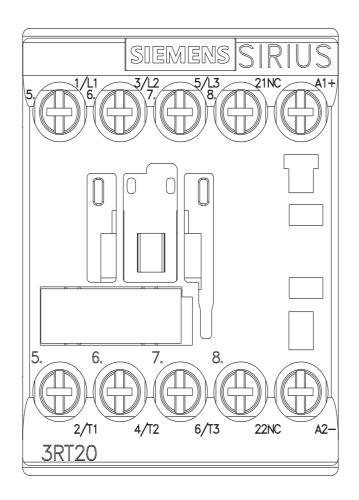
Further characteristics (e.g. electrical endurance, switching frequency)

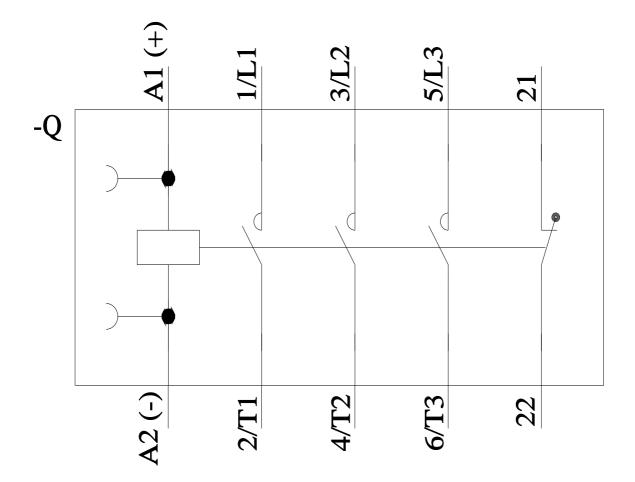
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1BA42&objecttype=14&gridview=view1











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