SIEMENS

Data sheet 3RT2017-1QB42

power contactor, AC-3 12 A, 5.5 kW / 400 V 1 NC, 24 V DC 0.7-1.25* US, with varistor plugged on, 3-pole size S00, screw terminal not expandable with auxiliary switch

product brand name	SIRIUS
product designation	Coupling relay
product type designation	3RT2

General technical data	
size of contactor	S00
product extension	
• function module for communication	No
• auxiliary switch	No
power loss [W] for rated value of the current	
• at AC in hot operating state	3.6 W
• at AC in hot operating state per pole	1.2 W
power loss [W] for rated value of the current without load current share typical	2.8 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

protection class IP	
• on the front	IP20
• of the terminal	IP20
shock resistance at rectangular impulse	
• at DC	7.3g / 5 ms, 4.7g / 10 ms
shock resistance with sine pulse	
• at DC	11,4g / 5 ms, 7,3g / 10 ms
mechanical service life (switching cycles)	
• of contactor typical	30 000 000
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-3	
— at 400 V rated value	12 A
— at 500 V rated value	9.2 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
• 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	7.2 A
— up to 400 V for current peak value n=20 rated value	7.2 A

— up to 500 V for current peak value n=20 rated value	7.2 A
— up to 690 V for current peak value n=20 rated value	6.7 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	4.8 A
— up to 400 V for current peak value n=30 rated value	4.8 A
— up to 500 V for current peak value n=30 rated value	4.8 A
— up to 690 V for current peak value n=30 rated value	4.8 A
minimum cross-section in main circuit	
• at maximum AC-1 rated value	4 mm²
operating current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	4.1 A
• at 690 V rated value	3.3 A
operating current	
• at 1 current path at DC-1	
— at 24 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 110 V rated value	12 A
— at 220 V rated value	1.6 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.7 A
• with 3 current paths in series at DC-1	
— at 24 V rated value	20 A
— 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
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-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	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	2.8 kV·A
• up to 400 V for current peak value n=20 rated value	4.9 kV·A
• up to 500 V for current peak value n=20 rated value	6.2 kV·A
• up to 690 V for current peak value n=20 rated value	8 kV·A
operating apparent output at AC-6a	
• up to 230 V for current peak value n=30 rated value	1.9 kV·A
• up to 400 V for current peak value n=30 rated value	3.3 kV·A
• up to 500 V for current peak value n=30 rated value	4.1 kV·A
• up to 690 V for current peak value n=30 rated value	5.7 kV·A
short-time withstand current in cold operating state up to 40 °C	
• limited to 1 s switching at zero current maximum	200 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 5 s switching at zero current maximum	123 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 10 s switching at zero current maximum	96 A; Use minimum cross-section acc. to AC-1 rated value

• limited to 30 s switching at zero current maximum	74 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 60 s switching at zero current maximum	61 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-4 maximum	250 1/h

Control circuit/ Control

type of voltage of the control supply voltage	DC
control supply voltage at DC	
• rated value	24 V
operating range factor control supply voltage rated value of magnet coil at DC	
• initial value	0.7
• full-scale value	1.25
design of the surge suppressor	with varistor
closing power of magnet coil at DC	2.8 W
holding power of magnet coil at DC	2.8 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	
• 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
• 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
operating 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 three-phase AC motor	
• at 480 V rated value	11 A
• at 600 V rated value	11 A
yielded mechanical performance [hp]	
• for single-phase AC motor	
— at 110/120 V rated value	0.5 hp
— at 230 V rated value	2 hp
• for three-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
contact rating of auxiliary contacts according to UL	A600 / Q600

Short-circuit protection

design of the fuse link	
• for short-circuit protection of the main circuit	
— with type of coordination 1 required	gG: 50A (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, 80kA)
• for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)

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	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
• side-by-side mounting	Yes

height	58 mm
width	45 mm
depth	117 mm
required spacing	
• 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

Connections/ Terminals

type of electrical connection	
• for main current circuit	screw-type terminals
• for auxiliary and control current 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 (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²), 2x 4 mm²
— single or multi-stranded	2x (0,5 ... 1,5 mm²), 2x (0,75 ... 2,5 mm²), 2x 4 mm²
— finely stranded with core end processing	2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)
• at AWG conductors for main contacts	2x (20 ... 16), 2x (18 ... 14), 2x 12
connectable conductor cross-section for main contacts	
• solid	0.5 ... 4 mm²
• stranded	0.5 ... 4 mm²
• finely stranded with core end processing	0.5 ... 2.5 mm²
connectable conductor cross-section for auxiliary contacts	
• single or multi-stranded	0.5 ... 4 mm²
• finely stranded with core end processing	0.5 ... 2.5 mm²
• type of connectable conductor cross-sections for auxiliary contacts	

— single or multi-stranded	2x (0,5 ... 1,5 mm²), 2x (0,75 ... 2,5 mm²), 2x 4 mm²
— finely stranded with core end processing	2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)
• type of connectable conductor cross-sections at AWG conductors for auxiliary contacts	2x (20 ... 16), 2x (18 ... 14), 2x 12
AWG number as coded connectable conductor cross section	
• for main contacts	20 ... 12
• for auxiliary contacts	20 ... 12

Safety related data

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 against electrical shock	finger-safe
suitability for use safety-related switching OFF	Yes

Certificates/ approvals

General Product Approval					EMC
CCC	CSA	UL	KC	EAC	RCM

Functional Safety/Safety of Machinery	Declaration of Conformity		Test Certificates		Marine / Shipping
Type Examination Certificate	EG-Konf.	Miscellaneous	Type Test Certificates/Test Report	Special Test Certificate	ABS

Marine / Shipping					
BUREAU VERITAS	LRS	PRS	RINA	RMRS	DNVGL.COM/AF

other	
Confirmation	VDE

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=3RT2017-1QB42

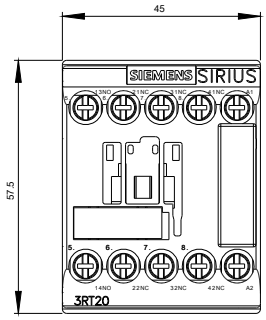
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2017-1QB42

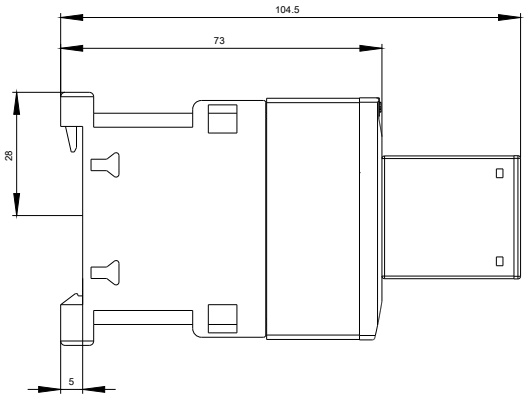
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RT2017-1QB42

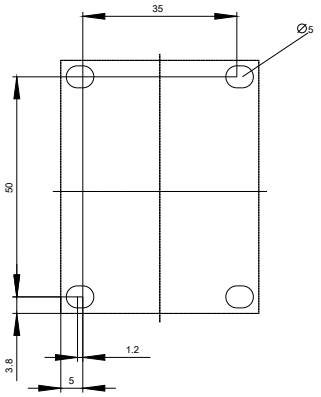
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2017-1QB42&lang=en

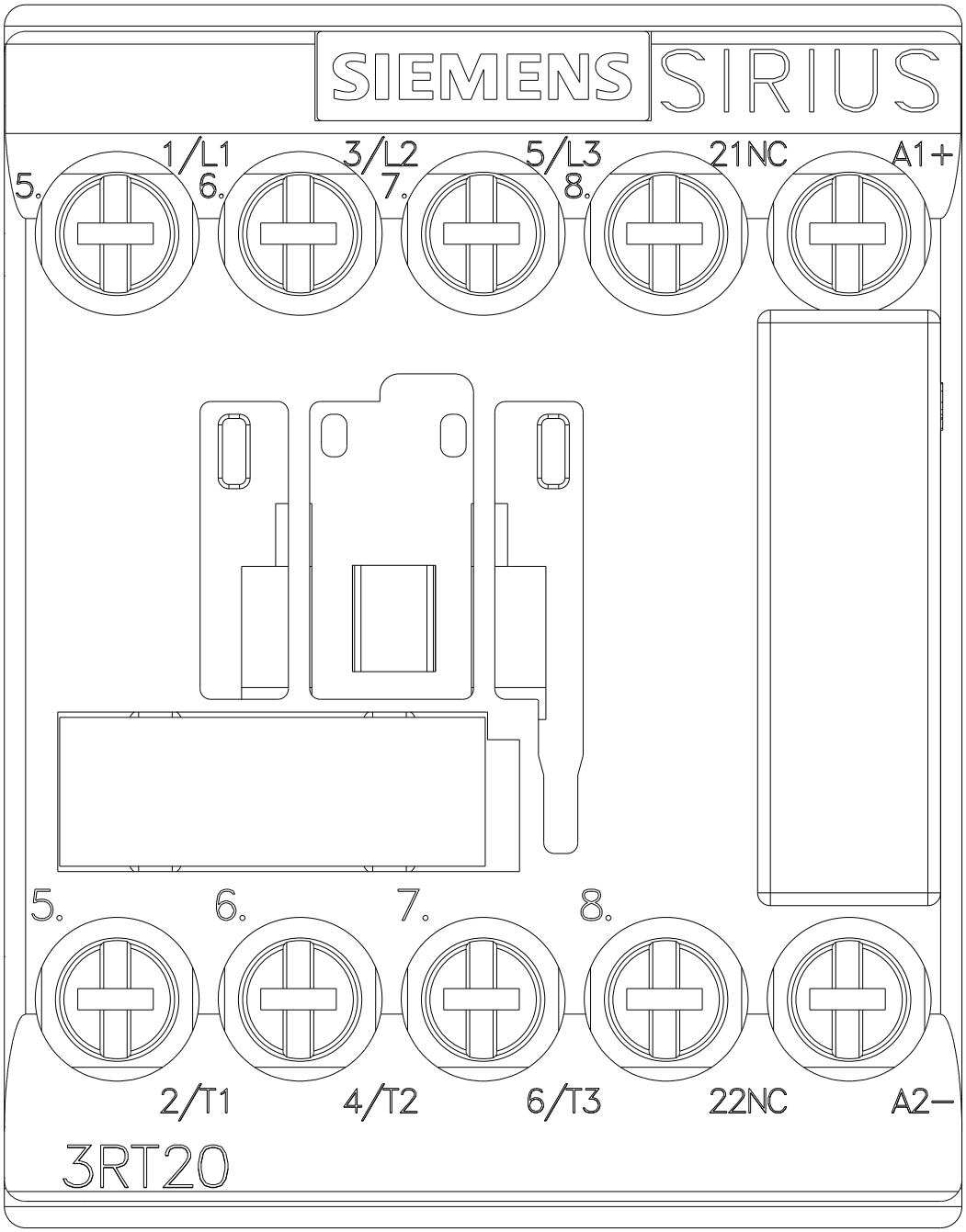
Characteristic: Tripping characteristics, I²t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3RT2017-1QB42/char

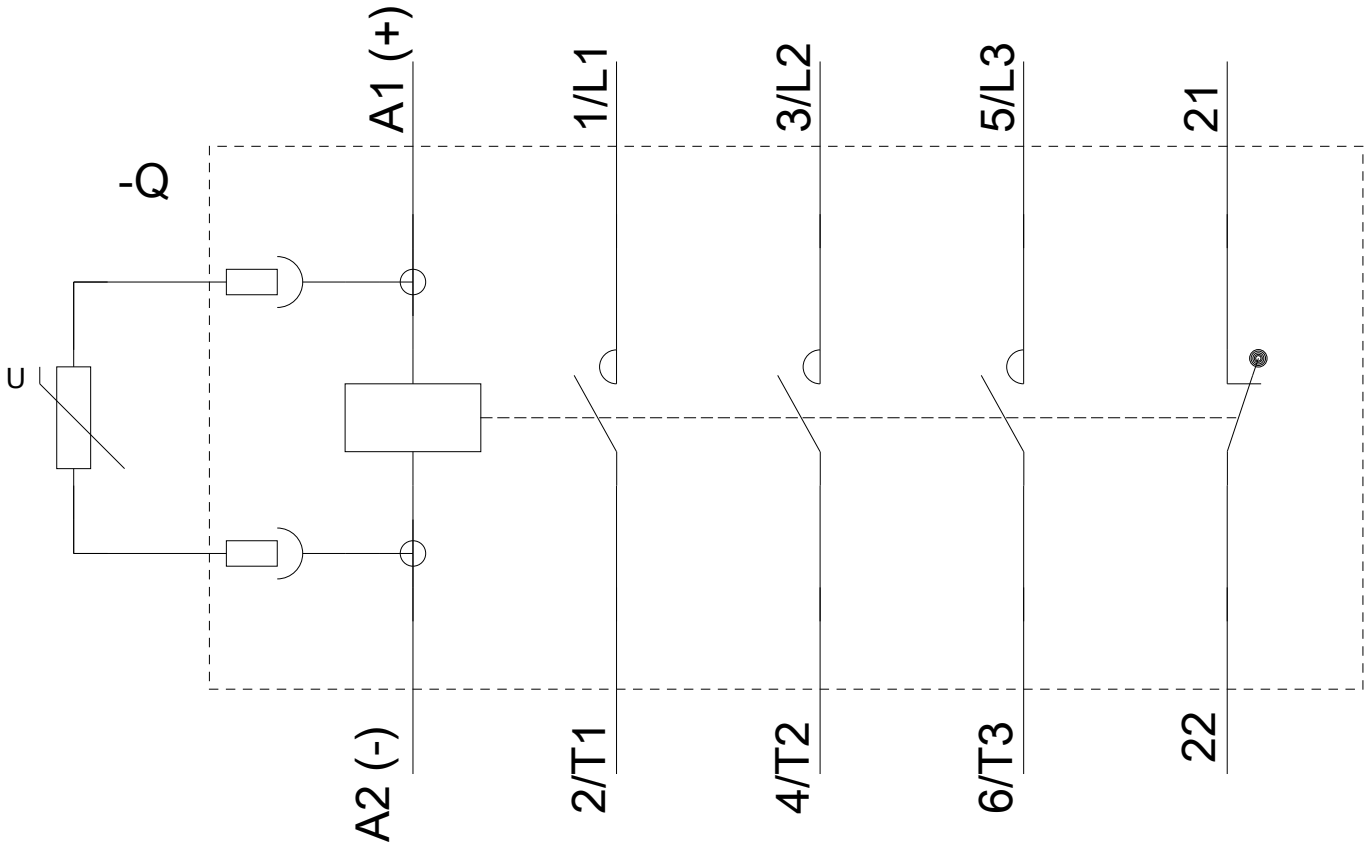
Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2017-1QB42&objecttype=14&gridview=view1











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