SIEMENS

Data sheet 3RT2018-1BB42



power contactor, AC-3e/AC-3, 16 A, 7.5 kW / 400 V, 3-pole, 24 V DC, auxiliary contacts: 1 NC, screw terminal, size: S00 $\,$

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 	3 W
 at AC in hot operating state per pole 	1 W
without load current share typical	4 W
type of calculation of power loss depending on pole	quadratic
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 protective separation between coil and main contacts according to EN 60947-1	400 V
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 (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 %
Environmental footprint	

Environmental Product Declaration(EPD)	Yes
Global Warming Potential [CO2 eq] total	153 kg
Global Warming Potential [CO2 eq] total Global Warming Potential [CO2 eq] during manufacturing	1.42 kg
Global Warming Potential [CO2 eq] during operation	152 kg
Global Warming Potential [CO2 eq] after end of life	-0.305 kg
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
at AC-3e rated value maximum	690 V
operational 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	16 A
— at 500 V rated value	12.4 A
— at 690 V rated value • at AC-3e	8.9 A
at AC-3e — at 400 V rated value	16 A
— at 500 V rated value — at 500 V rated value	12.4 A
— at 690 V rated value	8.9 A
• at AC-4 at 400 V rated value	11.5 A
at AC-5a up to 690 V rated value	19.4 A
• at AC-5b up to 400 V rated value	13.2 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	9.6 A
— up to 400 V for current peak value n=20 rated value	9.6 A
— up to 500 V for current peak value n=20 rated value	9.6 A
— up to 690 V for current peak value n=20 rated value	8.9 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	6.6 A
— up to 400 V for current peak value n=30 rated value	6.4 A
— up to 500 V for current peak value n=30 rated value	6.4 A
— up to 690 V for current peak value n=30 rated value	6.4 A
minimum cross-section in main circuit at maximum AC-1 rated value	4 mm²
operational current for approx. 200000 operating cycles at AC-4	
at 400 V rated value	5.5 A
at 690 V rated value	4.4 A
operational current	
at 1 current path at DC-1 at 24 V rated value.	20 Δ
— at 24 V rated value — at 60 V rated value	20 A 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
— at 220 V rated value	12 A 1.6 A
— at 220 V rated value — at 440 V rated value	
	1.6 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	20 A		
— at 440 V rated value	1.3 A		
— at 600 V rated value	1A		
• at 1 current path at DC-3 at DC-5			
— at 24 V rated value	20 A		
— at 60 V rated value	20 A 0.5 A		
— at 110 V rated value			
with 2 current paths in series at DC-3 at DC-5	0.15 A		
•	00.4		
— 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 			
— 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-3			
— at 230 V rated value	4 kW		
— at 400 V rated value	7.5 kW		
— at 500 V rated value	7.5 kW		
— at 690 V rated value	7.5 kW		
• at AC-3e	1.5 RVV		
	A 1/1/		
— at 230 V rated value	4 kW		
— at 400 V rated value	7.5 kW		
— at 500 V rated value	7.5 kW		
— at 690 V rated value	7.5 kW		
operating power for approx. 200000 operating cycles at AC-			
at 400 V rated value	2.5 kW		
at 690 V rated value	3.5 kW		
operating apparent power at AC-6a	0.011/4		
up to 230 V for current peak value n=20 rated value	3.8 kVA		
 up to 400 V for current peak value n=20 rated value 	6.6 kVA		
 up to 500 V for current peak value n=20 rated value 	8.3 kVA		
up to 690 V for current peak value n=20 rated value	10.6 kVA		
operating apparent power at AC-6a			
• up to 230 V for current peak value n=30 rated value	2.5 kVA		
 up to 400 V for current peak value n=30 rated value 	4.4 kVA		
 up to 500 V for current peak value n=30 rated value 	5.5 kVA		
• up to 690 V for current peak value n=30 rated value	7.6 kVA		
short-time withstand current in cold operating state up to			
40 °C			
 limited to 1 s switching at zero current maximum 	300 A; Use minimum cross-section acc. to AC-1 rated value		
 limited to 5 s switching at zero current maximum 	169 A; Use minimum cross-section acc. to AC-1 rated value		
 limited to 10 s switching at zero current maximum 	128 A; Use minimum cross-section acc. to AC-1 rated value		
 limited to 30 s switching at zero current maximum 	92 A; Use minimum cross-section acc. to AC-1 rated value		
 limited to 60 s switching at zero current maximum 	74 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-3 maximum at AC-3e maximum	750 1/h		
 at AC-4 maximum 	250 1/h		

type of voltage of the control supply voltage control supply voltage at DC rated value operating range factor control supply voltage rated value of magnet coil at DC initial value of tull-scale value closing power of magnet coil at DC holding power of magnet coil at DC holding power of magnet coil at DC closing delay at DC opening delay at DC at DC at DC Tull 30 100 ms copening tull 50 15 ms control version of the switch operating mechanism Standard A1 - A2	
control supply voltage at DC rated value • 24 V operating range factor control supply voltage rated value of magnet coil at DC • initial value • full-scale value closing power of magnet coil at DC holding power of magnet coil at DC 4 W closing delay • at DC opening delay • at DC at DC 7 13 ms arcing time control version of the switch operating mechanism Standard A1 - A2 Auxiliary circuit	
operating range factor control supply voltage rated value of magnet coil at DC initial value initial value	
operating range factor control supply voltage rated value of magnet coil at DC • initial value • full-scale value 1.1 closing power of magnet coil at DC holding power of magnet coil at DC 4 W closing delay • at DC opening delay • at DC at DC 7 13 ms arcing time 10 15 ms control version of the switch operating mechanism Standard A1 - A2 Auxiliary circuit	
• full-scale value	
closing power of magnet coil at DC 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	
holding power of magnet coil at DC closing delay at DC opening delay at DC opening delay at DC 7 13 ms arcing time 10 15 ms control version of the switch operating mechanism Standard A1 - A2 Auxiliary circuit	
closing delay • at DC opening delay • at DC 7 13 ms arcing time 10 15 ms control version of the switch operating mechanism Standard A1 - A2 Auxiliary circuit	
● at DC opening delay ● at DC 7 13 ms arcing time 10 15 ms control version of the switch operating mechanism Standard A1 - A2 Auxiliary circuit	
opening delay	
● at DC arcing time 10 13 ms control version of the switch operating mechanism Standard A1 - A2 Auxiliary circuit	
arcing time 10 15 ms control version of the switch operating mechanism Standard A1 - A2 Auxiliary circuit	
control version of the switch operating mechanism Standard A1 - A2 Auxiliary circuit	
Auxiliary circuit	
number of NC contacts for auxiliary contacts 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 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 14 A	
at 600 V rated value 11 A	
yielded mechanical performance [hp]	
• for single-phase AC motor	
— at 110/120 V rated value 1 hp	
— at 230 V rated value 2 hp	
• for 3-phase AC motor	
— at 200/208 V rated value 3 hp	
— at 220/230 V rated value 5 hp	
— at 460/480 V rated value 10 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: 25A (690V,100kA), BS88: 50A (41	5V,80kA)
— with type of assignment 2 required gG: 25A (690V,100kA), aM: 20A (690V,100kA), BS88: 25A (41	5V,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	
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715	
height	58 mm	
width	45 mm	
depth	73 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 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	2v (0.5	
— solid — solid or stranded	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm² 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)	
for AWG cables for main contacts	2x (20 16), 2x (18 14), 2x 12	
connectable conductor cross-section for main contacts	ZX (20 10), ZX (10 11), ZX 12	
• 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		
solid or 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		
— solid or 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)	
 for AWG cables 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		
product function		
mirror contact according to IEC 60947-4-1	Yes	
suitability for use safety-related switching OFF	Yes; applies only to contactor operating mechanism	
proportion of dangerous failures		
 with low demand rate according to SN 31920 	40 %	
with high demand rate according to SN 31920	73 %	
B10 value with high demand rate according to SN 31920	1 000 000	
failure rate [FIT] with low demand rate according to SN	100 FIT	

31920		
IEC 61508		
T1 value		
 for proof test interval or service life according to IEC 61508 	20 a	
Electrical Safety		
protection class IP on the front according to IEC 60529	IP20	
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front	
Approvals Certificates		

General Product Approval







Confirmation





General	Product A	Approval
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EMV

Functional Saftey

Test Certificates

<u>KC</u>





Type Examination Certificate

Type Test Certificates/Test Report

Special Test Certific-<u>ate</u>

Marine / Shipping













Marine / Shipping

other

Railway

Dangerous Good

Environment



Miscellaneous

Confirmation

Special Test Certific-<u>ate</u>

Transport Information



Environment

Environmental Confirmations

Further information

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=3RT2018-1BB42

Cax online generator

 $\underline{\text{http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en\&mlfb=3RT2018-1BB42}$

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2018-1BB42

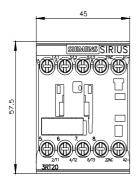
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

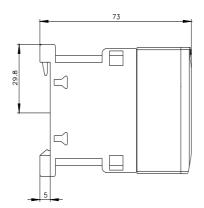
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2018-1BB42&lang=en

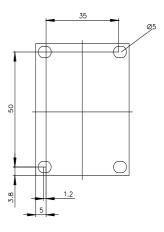
Characteristic: Tripping characteristics, I²t, Let-through current

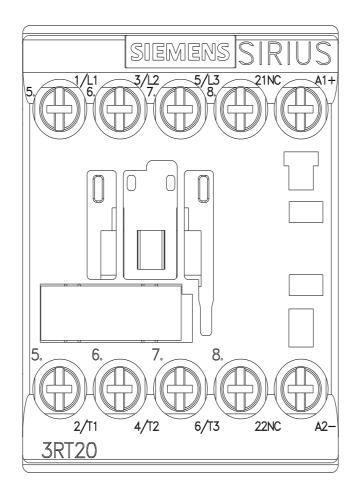
https://support.industry.siemens.com/cs/ww/en/ps/3RT2018-1BB42/char

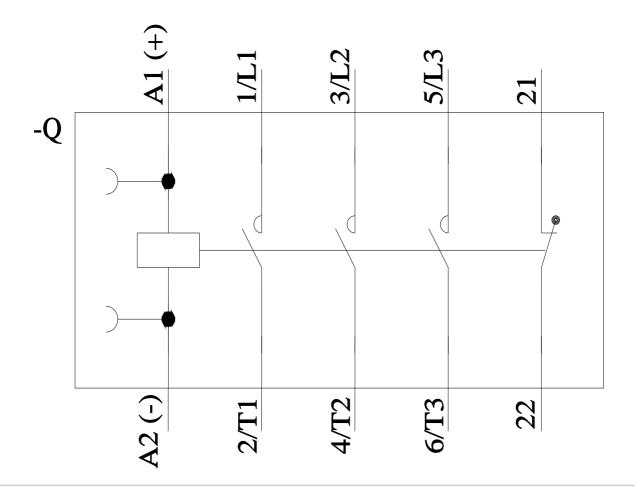
Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2018-1BB42&objecttype=14&gridview=view1











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