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
Weight	0.291 kg
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] during manufacturing	1.42 kg
global warming potential [CO2 eq] during mandiacturing	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	40.4
— at 400 V rated value	16 A
— at 500 V rated value	12.4 A
— at 690 V rated value	8.9 A
at AC-3e — at 400 V rated value	16 A
— at 400 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 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 24 V rated value — at 60 V rated value	20 A 20 A
— at 50 V rated value — at 110 V rated value	20 A 12 A
— at 110 V rated value — at 220 V rated value	1.6 A
— at 440 V rated value	0.8 A
— at 440 V rated value — at 600 V rated value	0.6 A 0.7 A
— at ooo v rated value	V.I / L

with 3 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	20 A
— at 110 V rated value — at 220 V rated value	20 A
	1.3 A
— at 440 V rated value	
— at 600 V rated value	1 A
at 1 current path at DC-3 at DC-5 at 24 V sated value.	20.4
— at 24 V rated value	20 A
— at 60 V rated value — at 110 V rated value	0.5 A
	0.15 A
with 2 current paths in series at DC-3 at DC-5 at 24 V stand value.	20.4
— 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	00.4
— 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	
— 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	0.0 KVV
• 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 500 V for current peak value n=20 rated value 	10.6 kVA
operating apparent power at AC-6a	IV.O KVA
• up to 230 V for current peak value n=30 rated value	2.5 kVA
 up to 230 V for current peak value n=30 rated value up to 400 V for current peak value n=30 rated value 	4.4 kVA
 up to 400 V for current peak value n=30 rated value 	5.5 kVA
 up to 500 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
Iimited 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-2 maximumat AC-3 maximum	750 1/h 750 1/h

— maximum	750 1/h
at AC-4 maximum	250 1/h
Control circuit/ Control	200 mi
	DC
type of voltage of the control supply voltage control supply voltage at DC rated value	24 V
operating range factor control supply voltage rated value of	27 V
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 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	1.4
at 600 V rated value	0.15 A
operational current at DC-13 • at 24 V rated value	40 A
	10 A
at 48 V rated valueat 60 V rated value	2 A 2 A
at 110 V rated value	1A
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	C abarrataristics 40 As 0 A kA
design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V	C characteristic: 10 A; 0.4 kA
design of the fuse link	

for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)
Installation/ mounting/ dimensions	90. 10 A (000 V, 1 lv)
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
fastening method side-by-side mounting	Yes
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	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm²
— 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 main contacts 	
	2x (20 16), 2x (18 14), 2x 12
connectable conductor cross-section for main contacts	2x (20 16), 2x (18 14), 2x 12
connectable conductor cross-section for main contacts • solid	2x (20 16), 2x (18 14), 2x 12 0.5 4 mm ²
• solid	0.5 4 mm²
solidstranded	0.5 4 mm ² 0.5 4 mm ²
solidstrandedfinely stranded with core end processing	0.5 4 mm ² 0.5 4 mm ²
solid stranded finely stranded with core end processing connectable conductor cross-section for auxiliary contacts	0.5 4 mm ² 0.5 4 mm ² 0.5 2.5 mm ²
 solid stranded finely stranded with core end processing connectable conductor cross-section for auxiliary contacts solid or stranded 	0.5 4 mm ² 0.5 4 mm ² 0.5 2.5 mm ² 0.5 4 mm ²
 solid stranded finely stranded with core end processing connectable conductor cross-section for auxiliary contacts solid or stranded finely stranded with core end processing 	0.5 4 mm ² 0.5 4 mm ² 0.5 2.5 mm ² 0.5 4 mm ²
solid 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	0.5 4 mm ² 0.5 4 mm ² 0.5 2.5 mm ² 0.5 4 mm ²
solid 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	0.5 4 mm ² 0.5 4 mm ² 0.5 2.5 mm ² 0.5 4 mm ² 0.5 2 mm ²
solid 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	0.5 4 mm ² 0.5 4 mm ² 0.5 2.5 mm ² 0.5 4 mm ² 0.5 2.5 mm ² 2x (0.5 1.5 mm ²), 2x (0.75 2.5 mm ²), 2x 4 mm ²
solid 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	0.5 4 mm ² 0.5 4 mm ² 0.5 2.5 mm ² 0.5 4 mm ² 0.5 2.5 mm ² 2x (0.5 1.5 mm ²), 2x (0.75 2.5 mm ²), 2x 4 mm ² 2x (0.5 1.5 mm ²), 2x (0.75 2.5 mm ²)
solid 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 for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross	0.5 4 mm² 0.5 4 mm² 0.5 2.5 mm² 0.5 2.5 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14), 2x 12
solid 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 for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section for main contacts AWG number as coded connectable conductor cross section for auxiliary contacts	0.5 4 mm² 0.5 4 mm² 0.5 2.5 mm² 0.5 2.5 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14), 2x 12 20 12
solid 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 for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section for main contacts AWG number as coded connectable conductor cross section for auxiliary contacts	0.5 4 mm² 0.5 4 mm² 0.5 2.5 mm² 0.5 2.5 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14), 2x 12 20 12
solid 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 for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section for main contacts AWG number as coded connectable conductor cross section for auxiliary contacts Safety related data	0.5 4 mm² 0.5 4 mm² 0.5 2.5 mm² 0.5 4 mm² 0.5 2.5 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14), 2x 12 20 12
solid 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 for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section for main contacts AWG number as coded connectable conductor cross section for auxiliary contacts Safety related data product function	0.5 4 mm² 0.5 4 mm² 0.5 2.5 mm² 0.5 4 mm² 0.5 2.5 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14), 2x 12 20 12
solid 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	0.5 4 mm² 0.5 4 mm² 0.5 2.5 mm² 0.5 2.5 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14), 2x 12 20 12 Yes
solid 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 for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section for main contacts AWG number as coded connectable conductor cross section for auxiliary contacts Safety related data product function mirror contact according to IEC 60947-4-1 positively driven operation according to IEC 60947-5-1	0.5 4 mm² 0.5 4 mm² 0.5 4 mm² 0.5 4 mm² 0.5 2.5 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14), 2x 12 20 12 Yes No
solid 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 • for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section for main contacts AWG number as coded connectable conductor cross section for auxiliary contacts Safety related data product function • mirror contact according to IEC 60947-4-1 • positively driven operation according to IEC 60947-5-1 • suitable for safety function	0.5 4 mm² 0.5 4 mm² 0.5 2.5 mm² 0.5 2.5 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm² 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14), 2x 12 20 12 Yes No Yes

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 31920	100 FIT
ISO 13849	
device type according to ISO 13849-1	3
overdimensioning according to ISO 13849-2 necessary	Yes
IEC 61508	
safety device type according to IEC 61508-2	Type 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











<u>KC</u>

General Product Approval

EMV

Test Certificates

Maritime application





Type Test Certificates/Test Report

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





Maritime application











Miscellaneous

other

other





Confirmation

Special Test Certificate

Railway

Transport Information

Dangerous goods



Environment

Environmental Con-firmations

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

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2018-1BB42

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

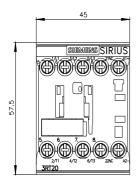
https://support.industry.siemens.com/cs/ww/en/ps/3RT2018-1BB42

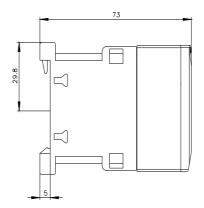
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

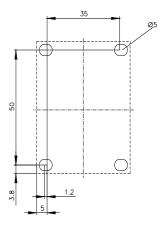
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2018-1BB42&lang=en

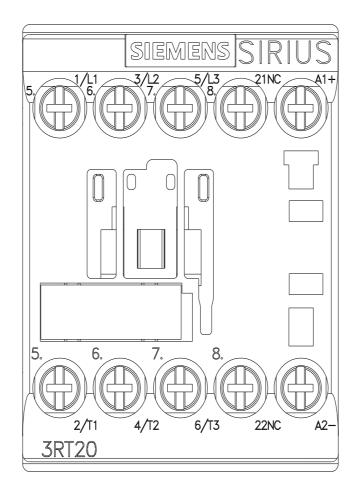
Characteristic: Tripping characteristics, I2t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RT2018-1BB42/char

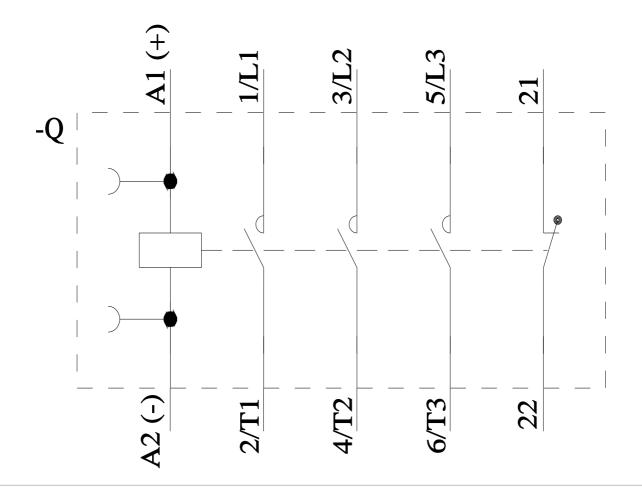
Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2018-1BB42&objecttype=14&gridview=view1











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