SIEMENS

Data sheet 3RT2016-1BB42



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 24 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	

number of value for main account singuit	2
number of poles for main current circuit number of NO contacts for main contacts	3
	3
operating voltage • at AC-3 rated value maximum	690 V
at AC-3 rated value maximum at AC-3e rated value maximum	690 V
operational current	090 V
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	0.4
— at 400 V rated value — at 500 V rated value	9 A 7.7 A
— at 690 V rated value	6.7 A
• at AC-3e	0.7 A
— 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-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	7.4 A
• at AC-6a	
up to 230 V for current peak value n=20 rated value	5.3 A
 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	0.5 A
 up to 230 V for current peak value n=30 rated value up to 400 V for current peak value n=30 rated 	3.5 A 3.5 A
value up to 400 V for current peak value n=30 rated up to 500 V for current peak value n=30 rated	3.6 A
value — up to 690 V for current peak value n=30 rated	3.3 A
value minimum cross-section in main circuit at maximum AC-1	4 mm²
rated value operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	4.1 A
at 400 V rated value at 690 V rated value	3.3 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 60 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 60 V rated value	20 A

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— 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	0.00 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-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	Z.J RVV
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	
limited to 1 s switching at zero current maximum	155 A; Use minimum cross-section acc. to AC-1 rated value
limited to 5 s switching at zero current maximum	111 A; Use minimum cross-section acc. to AC-1 rated value
Ilimited to 10 s switching at zero current maximum Ilimited to 20 s switching at zero current maximum	86 A; Use minimum cross-section acc. to AC-1 rated value
Ilimited to 30 s switching at zero current maximum Ilimited to 60 s switching at zero current maximum	66 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 60 s switching at zero current maximum no load switching frequency.	55 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency • at DC	10 000 1/h
operating frequency	10 000 1/11
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	24 V
operating range factor control supply voltage rated	
, 0 . 0	

value of magnet coil at DC	
• initial value	0.8
full-scale value	1.1
closing power of magnet coil at DC	4 W
	4 W
holding power of magnet coil at DC closing delay	4 VV
• at DC	30 100 ms
opening delay	30 100 1115
• at DC	7 13 ms
	7 15 ms
arcing time control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	Otdinuaru AT - AZ
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	40.4
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	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
Short-circuit protection	
design of the fuse link	
for short-circuit protection of the main circuit with type of coordination 1 required.	aC: 35A (600)/ 100kA) aM: 20A (600)/ 100kA) BC00: 25A (415)/ 20kA)
— 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, 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	

side-by-side mounting	Yes
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	Colon type terminals
• 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)
connectable conductor cross-section for main	2x (0.0 1.0 mm); 2x (0.70 2.0 mm)
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	
 solid or stranded 	0.5 4 mm²
 finely stranded with core end processing 	0.5 2.5 mm ²
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)
at 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
B10 value with high demand rate according to SN 31920	1 000 000
proportion of dangerous failures	1 000 000
with low demand rate according to SN 31920	40 %
with ligh demand rate according to SN 31920 with high demand rate according to SN 31920	73 %
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
T1 value for proof test interval or service life according to	20 a
protection class IP on the front according to IEC	IP20
60529 touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front
suitability for use	Voo
safety-related switching OFF	Yes

General Product Approval





Confirmation



<u>KC</u>



EMC

Functional Safety/Safety of Machinery

Declaration of Conformity

Test Certificates



Type Examination
Certificate





Type Test Certificates/Test Report

Special Test Certificate

Marine / Shipping













Marine / Shipping

other

Railway

Dangerous Good



Confirmation



Vibration and Shock

<u>Transport Information</u>

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=3RT2016-1BB42

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1BB42

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1BB42

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

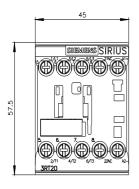
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1BB42&lang=en

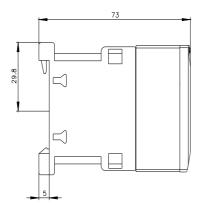
Characteristic: Tripping characteristics, I2t, Let-through current

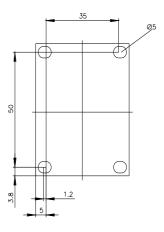
https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1BB42/char

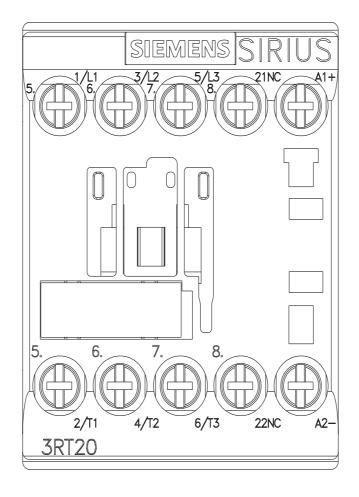
Further characteristics (e.g. electrical endurance, switching frequency)

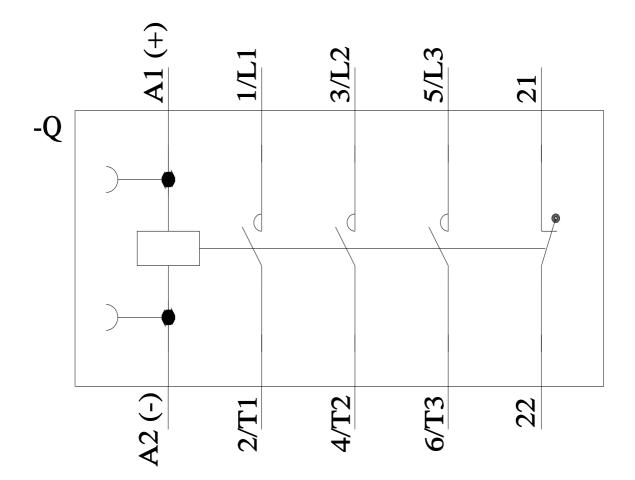
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1BB42&objecttype=14&gridview=view1











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