SIEMENS

Data sheet 3RT2016-1AD01



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 42 V AC, 50/60 Hz, auxiliary contacts: 1 NO, 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 	0.9 W		
 at AC in hot operating state per pole 	0.3 W		
 without load current share typical 	1.1 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 AC	6,7g / 5 ms, 4,2g / 10 ms		
shock resistance with sine pulse			
• at AC	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		
Weight	0.233 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	39.6 kg
Global Warming Potential [CO2 eq] during manufacturing	1.18 kg
Global Warming Potential [CO2 eq] during operation	38.5 kg
Global Warming Potential [CO2 eq] after end of life	-0.155 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 at AC-1 	22 A
— up to 690 V at ambient temperature 40 °C rated value	22 A
— up to 690 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	20 A
• at AC-3	
— 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
— at 500 V rated value — at 690 V rated value	7.7 A 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	
— 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
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 at 600 V rated value	4.1 A
at 690 V rated value operational current	3.3 A
• 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 a summer with in some of DO 4			
with 3 current paths in series at DC-1	00 A		
— at 24 V rated value	20 A		
— at 60 V rated value	20 A		
— at 110 V rated value	20 A 20 A		
— at 220 V rated value			
— 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 A		
— at 24 V rated value	20 A		
— at 60 V rated value	0.5 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 	20.4		
— at 60 V rated value	20 A 5 A		
— at 110 V rated value	0.35 A		
	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 — at 110 V rated value	20 A 20 A		
— at 110 V rated value — at 220 V rated value	1.5 A		
— at 440 V rated value	0.2 A		
— at 600 V rated value	0.2 A 0.2 A		
operating power	V.LT.		
• 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	5.5 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 power at AC-6a	214/4		
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 up to 500 V for current peak value n=20 rated value 	3.6 kVA 4.6 kVA		
·	5.9 kVA		
up to 690 V for current peak value n=20 rated value operating apparent power at AC-6a	V.V KVA		
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 up to 400 V for current peak value n=30 rated value	2.4 kVA		
up to 500 V for current peak value in=30 rated value 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 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		
limited to 10 s switching at zero current maximum	86 A; Use minimum cross-section acc. to AC-1 rated value		
limited to 30 s switching at zero current maximum	66 A; Use minimum cross-section acc. to AC-1 rated value		
limited to 60 s switching at zero current maximum	55 A; Use minimum cross-section acc. to AC-1 rated value		
no-load switching frequency	40,000,411-		
• at AC	10 000 1/h		
operating frequency	4.000.4/b		
• at AC-1 maximum	1 000 1/h		
• at AC-2 maximum	750 1/h		
at AC-3 maximumat AC-3e maximum	750 1/h 750 1/h		
at A0-3€ maximum at A0-3€	750 1/11		

• at AC-4 maximum	250 1/h		
Control circuit/ Control	200 1/11		
type of voltage of the control supply voltage	AC		
control supply voltage at AC			
at 50 Hz rated value	42 V		
at 60 Hz rated value	42 V		
operating range factor control supply voltage rated value of			
magnet coil at AC			
• at 50 Hz	0.8 1.1		
• at 60 Hz	0.85 1.1		
apparent pick-up power of magnet coil at AC			
● at 50 Hz	27 VA		
• at 60 Hz	24.3 VA		
inductive power factor with closing power of the coil			
• at 50 Hz	0.8		
• at 60 Hz	0.75		
apparent holding power of magnet coil at AC	40.44		
• at 50 Hz	4.2 VA		
• at 60 Hz	3.3 VA		
inductive power factor with the holding power of the coil	0.25		
• at 50 Hz	0.25		
• at 60 Hz	0.25		
closing delay • at AC	9 35 ms		
	0 00 III0		
opening delay • at AC	4 15 ms		
arcing time	10 15 ms		
control version of the switch operating mechanism	Standard A1 - A2		
Auxiliary circuit			
number of NO contacts for auxiliary contacts instantaneous	1		
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	1.4		
at 600 V rated value	0.15 A		
operational current at DC-13	40.4		
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	1.4		
at 125 V rated value at 220 V rated value	0.9 A		
at 220 V rated value at 600 V rated value	0.3 A		
at 600 V rated value contact reliability of auxiliary contacts	0.1 A		
contact reliability of auxiliary contacts UL/CSA ratings	1 faulty switching per 100 million (17 V, 1 mA)		
full-load current (FLA) for 3-phase AC motor	7.6.0		
at 480 V rated value at 600 V rated value	7.6 A		
at 600 V rated value violed mechanical performance [hp]	9 A		
yielded mechanical performance [hp]			
for single-phase AC motor at 110/120 V rated value.	0.33 hp		
— 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 	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		
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 — 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	ΔΛ (ΔΟ 10), ΔΛ (10 17), ΔΛ 1Δ		
solid	0.5 4 mm²		
stranded	0.5 4 mm ²		
	0.5 4 mm²		
finely stranded with core end processing connectable conductor cross section for auxiliary contacts.	0.0 2.0 IIIII		
connectable conductor cross-section for auxiliary contacts	0.5 4 mm²		
solid or stranded finally stranded with core and precessing	0.5 4 mm ²		
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)		
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; with 3RH29		
 positively driven operation according to IEC 60947-5-1 	No		
suitable for safety function	Yes		
suitability for use safety-related switching OFF	Yes		
service life maximum	20 a		
test wear-related service life necessary	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









Confirmation



General Product Approval	EMV	Test Certificates	Marine / Shipping
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<u>KC</u>





Special Test Certificate

Type Test Certificates/Test Report



Marine / Shipping other











Miscellaneous

<u>Confirmation</u> <u>Special Test Certificate</u>



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=3RT2016-1AD01

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1AD01

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

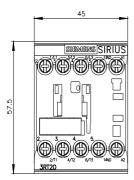
https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AD01

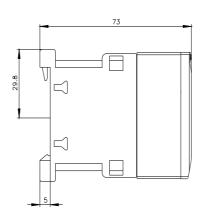
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1AD01&lang=en

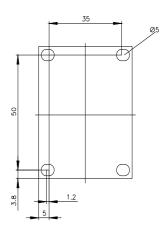
Characteristic: Tripping characteristics, I2t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AD01/char

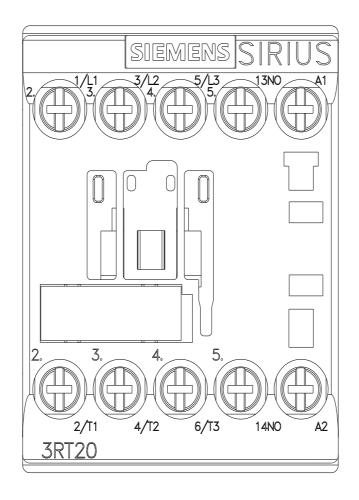
Further characteristics (e.g. electrical endurance, switching frequency)

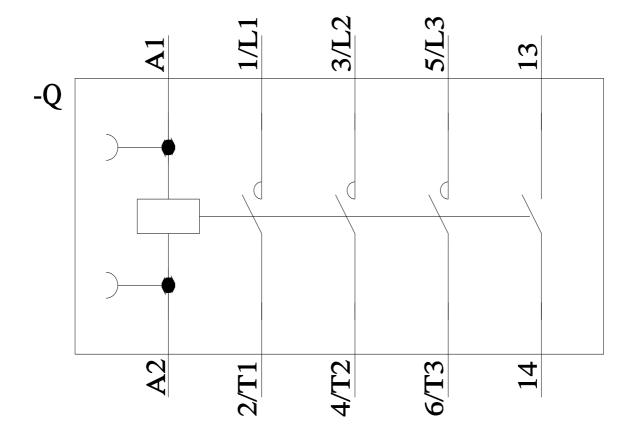
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