SIEMENS

Data sheet

3RT2016-1AN61



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 200 V AC, 50 Hz / 200-220 V, 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 	4.8 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 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
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 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	22 A
value	
• 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	20 A
value	
● 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	
— 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	5.2.4
— 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 — up to 500 V for current peak value n=20 rated value 	5.3 A 5.3 A
— up to 500 V for current peak value n=20 rated value	5.5 A
• at AC-6a	54
 up to 230 V for current peak value n=30 rated value 	3.5 A
— up to 200 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	4 mm ²
value	
operational 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
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
— 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 	

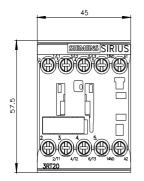
— at 24 V rated value	20 A
— at 60 V rated value	0.5 A
— at 110 V rated value	0.15 A
 with 2 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	20 A
— at 60 V rated value	5 A
— at 110 V rated value	0.35 A
 with 3 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	20 A
— at 60 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	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 690 V rated value	2.5 kW
operating apparent power at AC-6a	
 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
Imited to 5 s switching at zero current maximum	111 A; Use minimum cross-section acc. to AC-1 rated value
Imited to 10 s switching at zero current maximum	86 A; Use minimum cross-section acc. to AC-1 rated value
Imited to 30 s switching at zero current maximum	66 A; Use minimum cross-section acc. to AC-1 rated value
Imited 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 4//
• at AC	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-3e maximum	750 1/h
• at AC-4 maximum	250 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	
• at 50 Hz rated value	200 V
• at 60 Hz rated value	220 V
operating range factor control supply voltage rated value of	
magnet coil at AC	0.8 1.1
● at 50 Hz	0.8 1.1

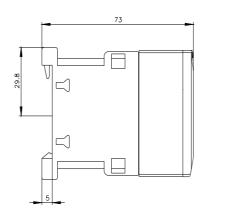
• at 60 Hz	0.85 1.1
apparent pick-up power of magnet coil at AC	
• at 50 Hz	26.4 VA
• at 60 Hz	31.7 VA
inductive power factor with closing power of the coil	
• at 50 Hz	0.81
• at 60 Hz	0.81
apparent holding power of magnet coil at AC	
• at 50 Hz	4.4 VA
• at 60 Hz	4.8 VA
inductive power factor with the holding power of the coil	
• at 50 Hz	0.24
• at 60 Hz	0.25
closing delay	
• at AC	9 35 ms
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	10 A
operational current at AC-12 maximum operational current at AC-15	
at 230 V rated value	10 A
	3 A
at 400 V rated value	2 A
at 500 V rated value	1A
at 690 V rated value	IA
operational current at DC-12	10.4
at 24 V rated value	10 A 6 A
at 48 V rated value	6 A
at 60 V rated value	3 A
at 110 V rated value	2 A
at 125 V rated value	1A
at 220 V rated value	0.15 A
at 600 V rated value	0.15 A
operational current at DC-13 • at 24 V rated value	10.4
	10 A
at 48 V rated value	2 A
at 60 V rated value	2 A 1 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 1 foulty switching por 100 million (17.1/, 1 mA)
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 A
 at 480 V rated value at 600 V rated value 	9 A
• at 600 v rated value yielded mechanical performance [hp]	
for single-phase AC motor	
tor 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 220/200 V rated value	2 hp 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	
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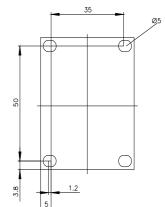
• for short-circuit protection of the main circuit			
- with type of coordination 1 required	gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA)		
- with type of assignment 2 required	gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (415V, 80kA)		
 for short-circuit protection of 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 methodside-by-side mounting	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715 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			
• 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 contacts			
• solid	0.5 4 mm ²		
stranded	0.5 4 mm ²		
finely stranded with core end processing	0.5 2.5 mm²		
connectable conductor cross-section for auxiliary contacts	0.5 4 mm ²		
 solid or stranded finally stranded with core and processing 	0.5 4 mm² 0.5 2.5 mm²		
finely stranded with core end processing	0.0 2.0 mm		
type of connectable conductor cross-sections • for auxiliary contacts			
Ior auxiliary contacts — solid or stranded	$2 \times (0.5 - 1.5 \text{ mm}^2)$ $2 \times (0.75 - 2.5 \text{ mm}^2)$ $2 \times 4 \text{ mm}^2$		
 — solid of stranded — finely stranded with core end processing 	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)		
 for AWG cables for auxiliary contacts 	2x (0.5 1.5 mm ⁻), 2x (0.75 2.5 mm ⁻) 2x (20 16), 2x (18 14), 2x 12		
AWG number as coded connectable conductor cross	LA (LO 10), LA (10 17), LA 12		
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		
B10 value with high demand rate according to SN 31920	1 000 000		
proportion of dangerous failures			
 with low demand rate according to SN 31920 	40 %		
 with high demand rate according to SN 31920 	73 %		

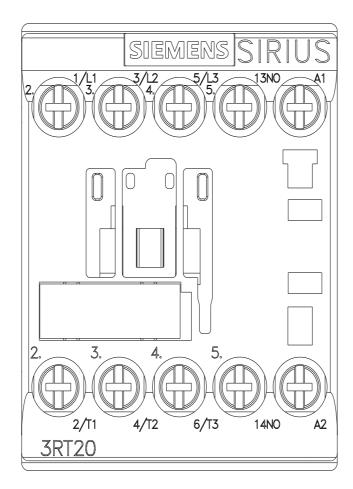
failure rate [FIT] with l	ow demand rate according	to SN 31920	100 FIT			
T1 value for proof test 61508	est interval or service life according to IEC 20 a		20 a	0 a		
protection class IP o	rotection class IP on the front according to IEC 60529		IP20			
touch protection on	ch protection on the front according to IEC 60529		finger-safe, for vertical contact from the front			
suitability for use						
 safety-related s 	-		Yes			
ertificates/ approvals	.					
General Product Ap	proval					
		<u>Confirmatio</u>		KC	EHC	
EMC	Functional Safety/Safety of Ma- chinery	Declaration of	Conformity	Test Certificates		
RCM	Type Examination Cer- tificate	CE EG-Konf.	UK CA	Special Test Certific- ate	Type Test Certific- ates/Test Report	
Marine / Shipping						
ABS	BUREAU VERITAS		Lloyd's Register us	PRS	RINA	
Marine / Shipping	other			Railway	Environment	
KMRS	<u>Confirmation</u>	UDE VDE	Confirmation	Vibration and Shock	Environmental Con firmations	
urther information						

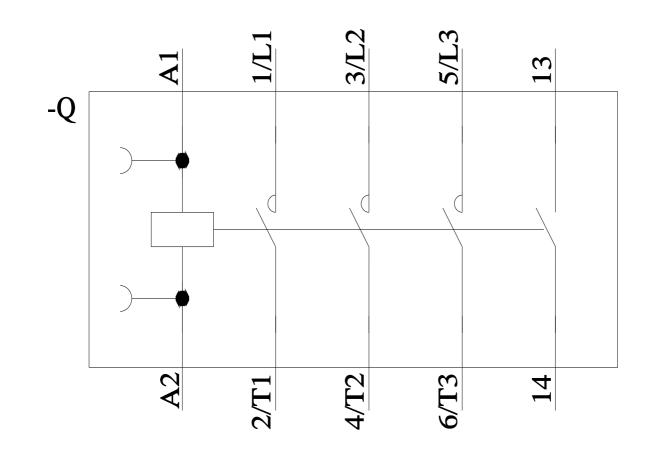
Siemens has decided to exit the Russian market (see here). https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business
Siemens is working on the renewal of the current EAC certificates.
Please contact your local Siemens office on the status of validity of the EAC certification 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=3RT2016-1AN61
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1AN61
Service&Support (Manuals, Certificates, Characteristics, FAQs,)
https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AN61
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1AN61⟨=en
Characteristic: Tripping characteristics, I ² t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AN61/char
Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1AN61&objecttype=14&gridview=view1











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