SIEMENS

Data sheet

3RT2023-1NF30



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 95-130 V AC/DC, 50/60 Hz, with integrated varistor, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S0

product brand name	SIRIUS			
product designation	Power contactor			
product type designation	3RT2			
General technical data				
size of contactor	SO			
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 	0.6 W			
 at AC in hot operating state per pole 	0.2 W			
 without load current share typical 	1.8 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	7,5g / 5 ms, 4,7g / 10 ms			
• at DC	10g / 5 ms, 7,5g / 10 ms			
shock resistance with sine pulse				
• at AC	11,8g / 5 ms, 7,4g / 10 ms			
• at DC	15g / 5 ms, 10g / 10 ms			
mechanical service life (operating cycles)				
 of contactor typical 	10 000 000			
 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 value 	40 A			
• at AC-1				
— up to 690 V at ambient temperature 40 °C rated value	40 A			
— up to 690 V at ambient temperature 60 °C rated value	35 A			
• at AC-3				
— at 400 V rated value	9 A			
— at 500 V rated value	9 A			
— at 690 V rated value	9 A			
• at AC-3e				
— at 400 V rated value	9 A 0 A			
— at 500 V rated value	9 A 0 A			
— at 690 V rated value	9 A 0 5 A			
at AC-4 at 400 V rated value	8.5 A			
at AC-5a up to 690 V rated value	35.2 A			
• at AC-5b up to 400 V rated value	7.4 A			
• at AC-6a	11.4 A			
— up to 230 V for current peak value n=20 rated value	11.4 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 	9.1 A			
— up to 500 V for current peak value n=20 rated value	9.TA 9.A			
at AC-6a	5A			
 up to 230 V for current peak value n=30 rated value 	7.6 A			
— up to 200 V for current peak value n=30 rated value	7.6 A			
— up to 500 V for current peak value n=30 rated value	6.1 A			
— up to 690 V for current peak value n=30 rated value	6.1 A			
minimum cross-section in main circuit at maximum AC-1 rated value	10 mm ²			
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	35 A			
— at 60 V rated value	20 A			
— at 110 V rated value	4.5 A			
— at 220 V rated value	1 A			
— at 440 V rated value	0.4 A			
— at 600 V rated value	0.25 A			
 with 2 current paths in series at DC-1 				
— at 24 V rated value	35 A			
— at 60 V rated value	35 A			
— at 110 V rated value	35 A			
— at 220 V rated value	5 A			
— at 440 V rated value	1 A			
— at 600 V rated value	0.8 A			
 with 3 current paths in series at DC-1 				
— at 24 V rated value	35 A			
— at 60 V rated value	35 A			
— at 110 V rated value	35 A			
— at 220 V rated value	35 A			
— at 440 V rated value	2.9 A			

— at 600 V rated value	1.4 A
at 1 current path at DC-3 at DC-5	20 A
— at 24 V rated value	20 A
— at 60 V rated value	5 A 2.5 A
— at 110 V rated value	2.5 A 1 A
— at 220 V rated value — at 440 V rated value	0.09 A
— at 600 V rated value	0.06 A
with 2 current paths in series at DC-3 at DC-5	0.00 A
— at 24 V rated value	35 A
— at 60 V rated value	35 A
— at 110 V rated value	15 A
— at 220 V rated value	3 A
— at 440 V rated value	0.27 A
— at 600 V rated value	0.16 A
• with 3 current paths in series at DC-3 at DC-5	
— at 24 V rated value	35 A
— at 60 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	10 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
operating power	
• at AC-2 at 400 V rated value	4 kW
• 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	7.5 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	7.5 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	4.5 kVA
• up to 400 V for current peak value n=20 rated value	7.8 kVA
• up to 500 V for current peak value n=20 rated value	7.8 kVA
• up to 690 V for current peak value n=20 rated value	10.7 kVA
operating apparent power at AC-6a	
up to 230 V for current peak value n=30 rated value	3 kVA
 up to 400 V for current peak value n=30 rated value 	5.2 kVA
 up to 500 V for current peak value n=30 rated value 	5.2 kVA
 up to 690 V for current peak value n=30 rated value 	7.2 kVA
short-time withstand current in cold operating state up to 40 $^\circ\mathrm{C}$	
 limited to 1 s switching at zero current maximum 	170 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 5 s switching at zero current maximum 	170 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 10 s switching at zero current maximum 	140 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 30 s switching at zero current maximum 	104 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 60 s switching at zero current maximum 	88 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at AC	1 500 1/h
• at DC	1 500 1/h
operating frequency	
• at AC-1 maximum	1 000 1/h
• at AC-2 maximum	1 000 1/h

● at AC-3 maximum	1 000 1/h
• at AC-3 maximum • at AC-3e maximum	1 000 1/h
• at AC-3e maximum	300 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC	
at 50 Hz rated value	95 130 V
at 60 Hz rated value	95 130 V
control supply voltage at DC	
rated value	95 130 V
operating range factor control supply voltage rated value of	
magnet coil at DC	
initial value	0.7
full-scale value	1.3
operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz	0.7 1.3
• at 60 Hz	0.7 1.3
design of the surge suppressor	with varistor
inrush current peak	15 A
duration of inrush current peak	30 µs
locked-rotor current mean value	0.13 A
locked-rotor current peak	0.19 A
duration of locked-rotor current	180 ms
holding current mean value	19 mA
apparent pick-up power of magnet coil at AC	
• at 50 Hz	11.9 VA
• at 60 Hz	12 VA
inductive power factor with closing power of the coil	
• at 50 Hz	0.98
• at 60 Hz	0.98
apparent holding power of magnet coil at AC	
• at 50 Hz	1.6 VA
• at 60 Hz	1.8 VA
inductive power factor with the holding power of the coil	
• at 50 Hz	0.79
• at 60 Hz	0.74
closing power of magnet coil at DC	10.2 W
holding power of magnet coil at DC	1.3 W
closing delay	50 00 mg
• at AC	50 80 ms
• at DC opening delay	50 80 ms
• at AC	30 50 ms
• at DC	30 50 ms
arcing time	30 50 ms 10 10 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC contacts for auxiliary contacts instantaneous	1
contact	
number of NO 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 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	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	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	1 hp					
— at 230 V rated value	1 hp					
• for 3-phase AC motor						
- at 200/208 V rated value	2 hn					
	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 / P600					
Short-circuit protection						
design of the fuse link						
 for short-circuit protection of the main circuit 						
 — with type of coordination 1 required 	gG: 63A (690V,100kA), aM: 32A (690V,100kA), BS88: 63A (415V,80kA)					
 — with type of assignment 2 required 	gG: 25A (690V,100kA), aM: 20A (690V,100kA), BS88: 25A (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	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715					
 side-by-side mounting 	Yes					
height	85 mm					
width	45 mm					
depth	107 mm					
required spacing						
with side-by-side mounting						
- forwards	10 mm					
— upwards	10 mm					
— upwarus						
— downwards	10 mm					
— downwards — at the side						
 downwards at the side for grounded parts 	10 mm 0 mm					
 downwards at the side for grounded parts forwards 	10 mm 0 mm 10 mm					
 downwards at the side for grounded parts 	10 mm 0 mm					
 downwards at the side for grounded parts forwards 	10 mm 0 mm 10 mm					
 downwards at the side for grounded parts forwards upwards 	10 mm 0 mm 10 mm 10 mm					
 downwards at the side for grounded parts forwards upwards at the side 	10 mm 0 mm 10 mm 10 mm 6 mm					
 downwards at the side for grounded parts forwards upwards at the side downwards 	10 mm 0 mm 10 mm 10 mm 6 mm					
 downwards at the side for grounded parts forwards upwards at the side downwards for live parts 	10 mm 0 mm 10 mm 10 mm 6 mm 10 mm					
 downwards at the side for grounded parts forwards upwards at the side downwards for live parts forwards 	10 mm 0 mm 10 mm 10 mm 6 mm 10 mm					
 downwards at the side for grounded parts forwards upwards at the side downwards for live parts forwards upwards 	10 mm 0 mm 10 mm 10 mm 6 mm 10 mm 10 mm 10 mm 10 mm 10 mm					
 downwards at the side for grounded parts forwards upwards at the side downwards for live parts forwards upwards at the side 	10 mm 0 mm 10 mm 10 mm 6 mm 10 mm 10 mm 10 mm					
 downwards at the side for grounded parts forwards upwards at the side downwards for live parts for vards upwards at the side at the side 	10 mm 0 mm 10 mm 10 mm 6 mm 10 mm 10 mm 10 mm 10 mm					
 downwards at the side for grounded parts forwards upwards at the side downwards for live parts forwards downwards at the side downwards at the side downwards at the side 	10 mm 0 mm 10 mm 10 mm 6 mm 10 mm 10 mm 10 mm 6 mm					
 downwards at the side for grounded parts forwards upwards at the side downwards for live parts for live parts forwards upwards at the side downwards at the side 	10 mm 0 mm 10 mm 10 mm 6 mm 10 mm 10 mm 10 mm 10 mm					

• at contactor for	auxiliary contacts		Screw-typ	e terminals			
 of magnet coil 			Screw-typ	e terminals			
type of connectable co	onductor cross-sections for	main contacts					
 solid 		2x (1 .			x (1 2.5 mm²), 2x (2.5 10 mm²)		
 solid or strande 	solid or stranded			.5 mm²), 2x (2.5 [•]	10 mm²)		
 finely stranded v 	finely stranded with core end processing			2x (1 2.5 mm²), 2x (2.5 6 mm²), 1x 10 mm²			
connectable conduct	tor cross-section for main	n contacts					
 solid 			1 10 m	m²			
 stranded 			1 10 m	m²			
 finely stranded v 	with core end processing		1 10 m	m²			
connectable conductor cross-section for auxiliary contacts							
 solid or strande 	solid or stranded			0.5 2.5 mm ²			
 finely stranded v 	with core end processing		0.5 2.5 mm ²				
	conductor cross-sections	5					
 for auxiliary con 	tacts						
— solid or str	anded		2x (0.5	1.5 mm²), 2x (0.75	2.5 mm²)		
 finely strar 	nded with core end process	ing	2x (0.5	1.5 mm²), 2x (0.75	2.5 mm²)		
 for AWG cables 	for auxiliary contacts		2x (20	16), 2x (18 14)			
AWG number as cod section	ed connectable conducto	or cross					
 for main contact 	ts		16 8				
 for auxiliary con 	tacts		20 14				
afety related data							
product function							
 mirror contact a 	ccording to IEC 60947-4-1		Yes				
B10 value with high de	emand rate according to SN	N 31920	450 000	000			
proportion of danger	ous failures						
 with low deman 	d rate according to SN 319	20	40 %				
 with high demar 	nd rate according to SN 31	920	73 %				
failure rate [FIT] with lo	re rate [FIT] with low demand rate according to SN 31920		100 FIT				
T1 value for proof test interval or service life according to IEC 61508		20 a					
protection class IP o	n the front according to I	EC 60529	IP20				
touch protection on t	the front according to IEC	60529	finger-safe, for vertical contact from the front				
suitability for use							
 safety-related system 	r-related switching OFF			Yes			
Certificates/ approvals	;						
General Product App	proval						
	<u>Confirmation</u>			(UL)	<u>KC</u>	EHC	
EMC	Functional Safety/Safety of Ma- chinery	Declaration of	Conformity	1	Test Certificates		
RCM	<u>Type Examination Cer-</u> <u>tificate</u>	UK CA		CE EG-Konf.	Type Test Certific- ates/Test Report	Special Test Certific- ate	
Marine / Shipping							
ABS	BUREAU VERITAS			Lloyds Register urs	RINA	RMRS	
other		Railway	D	angerous Good	Environment		
						shanga without notic	

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Vibration and Shock

Environmental Confirmations

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=3RT2023-1NF30

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2023-1NF30

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2023-1NF30

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

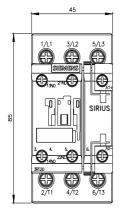
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2023-1NF30&lang=en

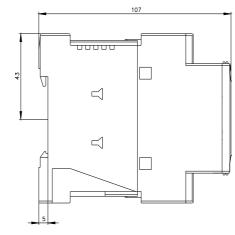
Characteristic: Tripping characteristics, I²t, Let-through current

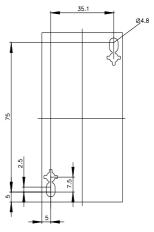
https://support.industry.siemens.com/cs/ww/en/ps/3RT2023-1NF30/char

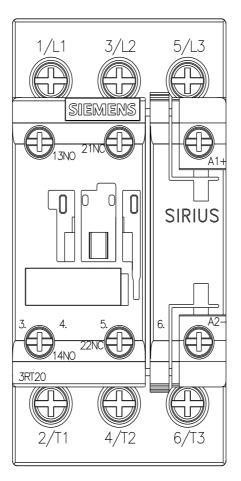
Further characteristics (e.g. electrical endurance, switching frequency)

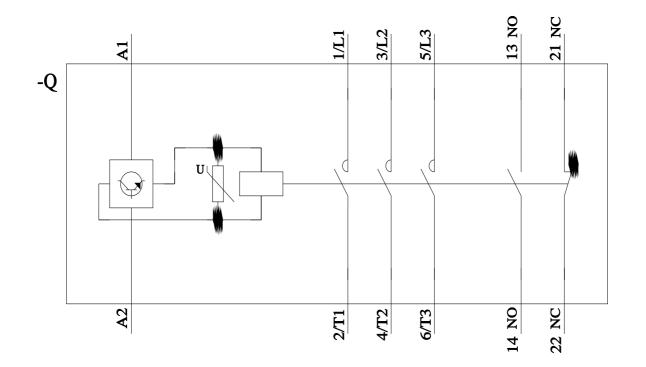
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2023-1NF30&objecttype=14&gridview=view1











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