



## SIRIUS 3RT14 Contactors with 3 Main Contacts for Switching Resistive Loads

Contactor	Type	Unit of Measure	3RT1446	
<b>Mechanical endurance</b>		Oper. cycles	10 million	
<b>Electrical endurance</b> AC-1 utilization category at $I_e$		Oper. cycles	0.5 million	
<b>Rated insulation voltage <math>U_i</math></b> (pollution degree 3)		V	1000	
<b>Permissible ambient temperature</b>		in operation when stored	°C	-25 to +60
			°C	-50 to +80
<b>Degree of protection</b> acc. to IEC 60 947-1 and DIN 40 050			IP 20 (terminal compartment IP 00), coil system IP 40	
<b>Coil voltage tolerance</b>	AC/DC		0.8 to 1.1 x $U_s$	
<b>Power consumption of the coils</b> (with coil in cold state and 1.0 x $U_s$ )			<b>Standard design</b>	<b>For USA and Canada</b>
AC operation		Hz	50	50/60
	closing	VA	270	298 / 274
	p.f.		0.68	0.7 / 0.62
	closed	VA	22	27 / 20
	p.f.		0.27	0.29 / 0.31
DC operation	closing = closed	W	15	
<b>Operating times at 0.8 to 1.1 x <math>U_s</math></b> <sup>①</sup> Break time = opening time + arcing time				
AC operation	closing time	ms	17 to 90	
	opening time	ms	10 to 25	
DC operation	closing time	ms	90 to 230	
	opening time	ms	14 to 20	
Arcing time		ms	10 to 15	
<b>Operating times at 1.0 x <math>U_s</math></b> <sup>①</sup>				
AC operation	closing time	ms	18 to 30	
	opening time	ms	11 to 23	
DC operation	closing time	ms	100 to 120	
	opening time	ms	16 to 20	
<b>Shock resistance</b>				
Rectangular pulse	AC and DC operation	g/ms	6.8/5 and 4/10	
Sine pulse	AC and DC operation	g/ms	10.6/5 and 6.2/10	
<b>Short-circuit protection of contactors without overload relays</b>				
<b>Main circuit</b>				
Fuse links, utilization category gL/gG	NH	Type 3NA	A	250
	Type of coord. "1" <sup>②</sup>			
Fuse links, utilization category gL/gG	SITOR	Type 3NE	A	250
	Type of coord. "2" <sup>②</sup>			
<b>Control circuit</b> (short-circuit current $I_k \geq 1$ kA)				
Fuse links, utilization category gL/gG	DIAZED	Type 5SB	A	10
	NEOZED	Type 5SE	A	10
Miniature circuit-breaker with C-characteristic			A	10
<b>Operating frequency</b>				
<b>Operating frequency z</b> in operating cycles per hour				
Contactors without overload relays	No load operating frequency	1/h	AC operation 5000	DC operation 1000
Rated operation	for AC-1	1/h	650	650
	for AC-3	1/h	1000	1000
Dependence of the operating frequency z' on the rated operational current and the rated operational voltage:				
$z' = z \cdot \frac{I_e}{I_r} \cdot \left( \frac{400V}{U_r} \right)^{1.5} \quad 1/h$				

①The opening times of the NO contacts and the closing times of the NC contacts increase if the contactor coils are protected against voltage peaks (varistor +2 ms to 5 ms, diode assemblies 2 to 6 times).

②According to excerpt from IEC 60 947-4-1 (VDE 0660 Part 102):  
Type of coordination "1":  
Destruction of the contactor and the overload relay is permissible. The contactor and/or overload relay must be replaced if necessary.  
Type of coordination "2":  
No damage can be tolerated to the overload relay, but the contact welding on the contactor is permitted if the contacts can be easily separated.



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<b>Conductor cross-sections</b>					
<b>Screw connections</b> (1 or 2 conductor connections possible)	<b>Main conductor</b> with box terminal (acc. to EN 50 027) Finely stranded with end sleeve Finely stranded without end sleeve Solid Stranded Ribbon cable (no. x width x thickness) AWG conductor connections Max. conductor cross-sections	mm <sup>2</sup> mm <sup>2</sup> mm <sup>2</sup> mm <sup>2</sup> mm AWG mm	Front terminal connected	Back terminal connected	Both terminals connected
			2.5 to 50 4 to 50 2.5 to 16 4 to 70 6 x 9 x 0.8 10 to 2/0	2.5 to 50 10 to 50 2.5 to 16 10 to 70 6 x 9 x 0.8 10 to 2/0	max. 2 x 35 max. 2 x 16 max. 2 x 50 2 x (6 x 9 x 0.8) max. 2 x 1/0
Connector for drilled copper bars		mm	18 x 10	If bars larger than 12 x 10 mm are connected, a 3RT19 46-4EA1 terminal cover is necessary to comply with the phase clearance	
Without box terminal With cable lugs (1 or 2 conductor connections possible)	Finely stranded with cable lug Stranded with cable lug  AWG conductor connections, solid or stranded - Terminal screws - Tightening torque <b>Auxiliary conductor:</b> Solid  Finely stranded with end sleeve AWG conductor connections, solid or stranded - Terminal screws - Tightening torque	mm <sup>2</sup> mm <sup>2</sup>  AWG  Nm  mm <sup>2</sup>  mm <sup>2</sup> AWG  Nm	10 to 50 10 to 70  7 to 1/0 M6 (hexagon socket) 4 to 6 (36 to 53 lb.in)	If conductors larger than 25 mm <sup>2</sup> are connected, a 3RT19 46-4EA1 terminal cover is necessary to comply with the phase clearance	
<b>Load ratings with AC</b>					
<b>AC-1 utilization category, switching resistive load</b>					
Rated operational currents $I_e$	at 40°C up to 690V at 60°C up to 690V at 1000V	A A A	140 130 50		
Ratings of three-phase loads p.f. = 1 (at 60°C)	at 230V 400V 500V 690V 1000V	kW kW kW kW kW	50 86 113 149 86		
Minimum conductor cross-section with $I_e$ load	at 40°C at 60°C	mm <sup>2</sup> mm <sup>2</sup>	50 50		
<b>AC-2 and AC-3 utilization categories</b>					
With an electrical endurance of 1.3 million operating cycles					
Rated operational current $I_e$	up to 690V	A	44		
Ratings of motors with slipping or squirrel-cage rotor at 50 Hz and 60 Hz (at 60°C)	at 230V 400V 500V 690V	kW kW kW kW	12.7 22 29.9 38.2		
<b>Load ratings with DC</b>					
<b>DC-1 utilization category, switching resistive load <math>L/R \leq 1</math> ms</b>					
Number of conducting paths connected in series					
Rated operational currents $I_e$ (at 60°C)	up to 24V 60V 110V 220V 440V 600V	A A A A A A	1 130 80 12 2.5 0.8 0.48	2 130 130 130 13 2.4 1.3	3 130 130 130 6 3.4
<b>DC-3 and DC-5 utilization categories, shunt and series motors</b>					
Number of conducting paths connected in series					
Rated operational currents $I_e$ (at 60°C)	up to 24V 60V 110V 220V 440V 600V	A A A A A A	1 6 3 1.25 0.35 0.15 0.1	2 130 130 130 1.75 0.42 0.27	3 130 130 130 4 0.8 0.45
<b>Thermal load</b>	10s current <sup>①</sup>	A	630		
<b>Power loss per conducting path</b>	at $I_e$ / AC - 1	W	12.5		

①Acc. to VDE 0660 Part 102.