Contactor	Size Type		Unit of Measure	3RT103		
Mechanical life	Basic units Basic unit with mounted auxiliary contact block Basic unit with mounted solid state compatible auxiliary contact block		Operating cycles	10 million 10 million 5 million		
Rated insulation voltage U_i (pollution severity 3)			V	690		
Safe isolation between coil and contacts (according to DIN VDE 0106 Part 101 and A1 [draft 2/89])			V	400		
Positively driven contacts				Yes, in the auxiliary switch block as well as between basic unit and the mounted auxiliary switch blocks. The solid-state compatible auxiliary contact blocks have no positively driven contacts.		
Permissible ambient temperature			operation storage	−25 to +60°C −13 to +140°F −55 to +80°C −67 to +176°F		
Degree of protection according to IEC 947-1 and DIN 40 050				IP 20①, coil system IP 40		
Shock resistance	Rectangular pulse Sine pulse	AC/DC AC/DC	g/ms g/ms	10/5 and 5/10 15/5 and 8/10		
Contactor cross-sections						
Screw connection (1 or 2 conductor connections possible)	**Main conductor:** with box terminal (according to EN 50 027)			Front terminal connected	Back terminal connected	Both terminals connected
	finely stranded with end sleeve		mm^2	0.75 to 25	0.75 to 25	max. 2 × 16
	finely stranded without end sleeve		mm^2	0.75 to 25	0.75 to 25	max. 2 × 16
	stranded		mm^2	0.75 to 35	0.75 to 35	max. 2 × 25
	solid		mm^2	0.75 to 16	0.75 to 16	max. 2 × 16
	ribbon cable (number x width x depth)		mm	6 × 9 × 0.8	6 × 9 × 0.8	2 × (6 × 9 × 0.8
	AWG conductor connections, solid or stranded		AWG	18 to 2	18 to 2	max. 2 × 2
	Tightening torque		Nm (in lbs.)	3 to 4.5 (27 to 40)		
	Terminal screw			M6 (Posidrive 2)		
	Auxiliary conductor					
	solid		mm^2	2 × (0.5 to 1.5); 2 × (0.75 to 2.5) acc. to IEC 947; max. 2 × (0.75 to 4)		
	finely stranded with end sleeve		mm^2	2 × (0.5 to 1.5); 2 × (0.75 to 2.5)		
	AWG conductor connections, solid or stranded		AWG	2 × (18 to 14)		
	Terminal screws			M3 (Posidrive 2)		
	Tightening torque		Nm (in lbs.)	0.8 to 1.2 (7 to 10.3)		
Cage Clamp connection (1 or 2 conductor connections possible)	**Auxiliary conductor:** solid finely stranded with end sleeve finely stranded without end sleeve AWG conductor connections, solid or stranded		 mm^2 mm^2 mm^2 AWG	 2 × (0.5 to 2.5) 2 × (0.5 to 1.5) 2 × (0.5 to 2.5) 2 × (18 to 14)		
For conductor cross-sections ≤ 1 mm^2 an "insulation stop" has to be used, 3RT1916-4JA02.						
Permissible mounting position The contactors are designed for operation on vertical mounting surface.			 	DC coil: inclination to the front up to 22.5°: coil volt. tolerance changes to 0.85 to 1.1 • U_S		
Short-circuit protection of the 3RT1034 to 3RT1036 contactors without overload relays for export applications						
Contactor	**Type**			**3RT1033/34**	**3RT1035**	**3RT1036**
Main circuit						
Fuses, utilization category gL/gG	NH DIAZED NEOZED	Type 3NA Type 5SB Type 5SE				
With fuses – according to IEC 947-4/DIN VDE 0660 Part 102		Type of coord. "1"② Type of coord. "2"②	A A	125 63	125 63	160 80
Auxiliary circuit						
Fuses, utilization category gL/gG (weld-free protection at $I_k \geq$ 1kA) or miniature circuit breaker with C-characteristic (short circuit current $I_k <$ 400A)	DIAZED NEOZED	Type 5SB Type 5SE				
With fuses NEOZED, DIAZED With miniature circuit-breaker	gL/gG		A A	10 10	10 10	10 10

①Terminal housing IP 00.
②According to excerpt from IEC 947-4/DIN VDE 0660 Part 102:
Type of coordination "1": Destruction of contactor and overload relay is permissible. Contactor and/or overload relay must be replaced, if necessary.
Type of coordination "2": No damage can be tolerated on the overload relay, but contact welding on the contactor is permitted if the contacts can easily be separated.

Contactor Control						
Contactor	**Type**		**Unit of Measure**	**3RT1033/34**	**3RT1035**	**3RT1036**
Coil voltage tolerance		AC/DC operation		0.8 to 1.1 • U_S		
Power consumption of the coils (with cold coil and 1.0 × U_S)						
AC coil			Hz	50 60	50 60	50 60
	inrush		VA	90 118	127 160	127 160
	p.f.			0.76 0.8	0.82 0.85	0.82 0.85
	sealed		VA	11 12	13.5 14.2	13.5 14.2
	p.f.			0.38 0.41	0.34 0.37	0.34 0.37
DC coil	inrush = sealed		W	13.3	13.3	13.3
Permissible residual current of the electronics (at 0 signal)		AC coil		$<12mA \times \left(\frac{230V}{U_S}\right)$	$<18mA \times \left(\frac{230V}{U_S}\right)$	$<18mA \times \left(\frac{230V}{U_S}\right)$
		DC coil		$<38mA \times \left(\frac{24V}{U_S}\right)$		
Operating times① **over coil voltage tolerance**						
Break-time = opening time + arcing time						
AC coil	Closing time		ms	11 to 30	10 to 24	10 to 24
at 0.8 to 1.1 × U_S	Opening time		ms	7 to 10	7 to 10	7 to 10
DC coil	Closing time		ms	50 to 95	60 to 100	60 to 100
at 0.8 to 1.1 × U_S	Opening time		ms	20 to 30	20 to 25	20 to 25
Arcing time			ms	10	10	10
Operating times at nominal coil voltage, 1.0 × U_S①						
AC coil	Closing time		ms	13 to 22	12 to 20	12 to 20
	Opening time		ms	7 to 10	7 to 10	7 to 10
DC coil	Closing time		ms	60 to 75	70 to 85	70 to 85
	Opening time		ms	20 to 30	20 to 25	20 to 25
Main Circuit—AC Load Ratings for export applications						
AC-1 duty, switching resistive load						
Rated operational currents I_e		at 40°C up to 690V	A	50	60	55
		at 60°C up to 690V	A	45	55	50
Rated output		at 230V	kW	18	22	20
of three-phase loads②		400V	kW	31	38	35
p.f. = 0.95 (at 60°C)		500V	kW	39	46	43
		690V	kW	54	66	60
Minimum conductor cross-section at I_e load		at 40°C	mm^2	16	16	16
		60°C	mm^2	10	16	10
AC-2 and AC-3 duty						
Rated operational currents I_e		up to 400V	A	32	40	50
		500V	A	32	40	50
		690V	A	23	28	32
Rated outputs of motors		up to 127V	kW	4	5.5	7.5
with slipring or squirrel-cage rotor at 50 and 60Hz		200V	kW	7.5	7.5	11
		220V	kW	7.5	11	11
		230V	kW	7.5	11	15
		240V	kW	7.5	11	15
		380V	kW	15	18.5	22
		400V	kW	15	18.5	22
		415V	kW	15	18.5	22
		440V	kW	18.5	18.5	22
		460V	kW	18.5	22	30
		500V	kW	18.5	22	30
		575V	kW	18.5	22	22
		660V	kW	18.5	22	22
		690V	kW	18.5	22	30
Thermal load		10s current③	A	320	400	400
Power loss per current path		at I_e/AC-3	W	1.8	2.6	5
AC-4 duty, plugging and jogging						
(contact endurance approx. 200,000 operating cycles at $I_a = 6 \times I_e$)						
Rated operational currents I_e		up to 400V	A	15.6	18	24
		690V	A	11	12.6	24
Rated outputs of motors with		up to 127V	kW	2.6	3	3
squirrel-cage rotor at 50 and 60Hz		200V	kW	4.1	4.7	4.7
		220V	kW	4.5	5.2	5.2
		230V	kW	4.7	5.4	7.3
		240V	kW	4.9	5.7	5.7
		380V	kW	7.8	9	9
		400V	kW	8.2	9.5	12.6
		415V	kW	8.2	9.5	12.6
		440V	kW	8.2	9.5	12.6
		460V	kW	8.2	9.5	12.6
		500V	kW	8.2	11.8	15.8
		575V	kW	8.3	11.8	15.8
		660V	kW	9.6	13.5	18
		690V	kW	13	15.5	21.8

①The opening time of the NO contacts and the closing time of the NC contacts are increased when the contactor coil is protected against voltage peaks (varistor +2 to 5 ms).

②Industrial furnaces and electric heaters with resistance heating for example (higher current input during heating-up allowed for).

③According to DIN VDE 0660 Part 102.

Main Circuit—AC Load Ratings for Export Applications												
Contactor	**Type**		**Unit of Measure**	**3RT1033/34**			**3RT1035**			**3RT1036**		
AC-5a duty, switching gas discharge lamps per main conducting path at 230V												
	Rating per lamp Uncorrected	Rated operational current per lamp (A)										
	L 18W	0.37	Number	122			149			135		
	L 36W	0.43	Number	105			128			116		
	L 58W	0.67	Number	67			82			75		
	Lead-lag											
	L 18W	0.11	Number	409			500			454		
	L 36W	0.21	Number	214			262			238		
	L 58W	0.32	Number	141			172			156		
Switching gas discharge lamps with p.f. correction, electronic ballast per main current path at 230V												
Rating per lamp	Capacitor (µF)	Rated operational current per lamp (A)										
Parallel correction												
L 18W	4.5	0.11	Number	78			98			123		
L 36W	4.5	0.21	Number	78			98			123		
L 58W	7	0.32	Number	50			63			79		
With electronic ballast, single lamp												
L 18W	6.8	0.10	Number	224			280			350		
L 36W	6.8	0.18	Number	124			155			194		
L 58W	10	0.27	Number	83			104			129		
With electronic ballast, twin lamp												
L 18W	10	0.18	Number	124			155			194		
L 36W	10	0.35	Number	64			80			100		
L 58W	22	0.52	Number	43			54			67		
AC-5b duty, switching incandescent lamps per main conducting path at 230/220V			kW	5.8			7.3			9.1		
AC-6a duty, switching three-phase transformers for inrush factor			n	30	20		30	20		30	20	
Rated operational current I_e		at 400V	A	20.7	31		24.3	36.5		28.8	43.2	
Ratings of three-phase transformers		230V	kVA	8.2	12.3		9.7	14.5		11.5	17.2	
at an inrush of n = 30 or 20		400V	kVA	14.3	21.5		16.8	25.3		20	29.9	
For deviating switching inrush factors x,		500V	kVA	17.9	26.8		21	31.6		24.9	37.4	
the power must be calculated as follows:		690V	kVA	23.9	23.9		28.7	28.7		28.7	28.7	
$P_x = P_{n\,30} \bullet \frac{30}{x}$												
Main Current—DC Load Ratings												
DC-1 duty, switching resistive load (L/R ≤ 1 ms)												
	Number of conducting paths in series			1	2	3	1	2	3	1	2	3
Rated operational current I_e (at 60°C/140°F)		up to 24V	A	45	45	45	55	55	55	50	50	50
		60V	A	20	45	45	23	45	45	23	45	45
		110V	A	4.5	45	45	4.5	45	45	4.5	45	45
		220V	A	1	5	45	1	5	45	1	5	45
		440V	A	0.4	1	2.9	0.4	1	2.9	0.4	1	2.9
		600V	A	0.25	0.8	1.4	0.25	0.8	1.4	0.25	0.8	1.4
DC-3 and DC-5 duty, shunt and series motors (L/R ≤ 15 ms)												
	Number of conducting paths in series			1	2	3	1	2	3	1	2	3
Rated operational current I_e (at 60°C/140°F)		up to 24V	A	35	80	80	35	80	80	35	80	80
		60V	A	6	45	80	6	45	80	6	45	80
		110V	A	2.5	25	80	2.5	25	80	2.5	25	80
		220V	A	1	5	25	1	5	25	1	5	25
		440V	A	0.09	0.27	0.6	0.09	0.27	0.6	0.09	0.27	0.6
		600V	A	0.06	0.16	0.35	0.06	0.16	0.35	0.06	0.16	0.35
Switching frequency												
Switching frequency z in operating cycles per hour (1/h)		coil		AC	DC		AC	DC		AC	DC	
Contactors without overload relay	No-load operating frequency		1/h	5000	1500		5000	1500		5000	1500	
		coil		AC/DC			AC/DC			AC/DC		
Interdependence of operating frequency z'	at AC-1		1/h	1200			1200			1000		
on rated operational current and	at AC-2		1/h	750			600			400		
rated operational voltage:	at AC-3		1/h	1000			1000			800		
	at AC-4		1/h	250			300			300		
$z' = z \bullet \frac{I_e}{I'} \bullet \left(\frac{400V}{U'}\right)^{1.5}$ 1/h												
Contactors with overload relay (average value)			1/h	15			15			15		
Weight		AC coil	Lbs (Kg)	1.7 (0.78)			1.7 (0.78)			1.7 (0.78)		
		DC coil	Lbs (Kg)	2.9 (1.3)			2.9 (1.3)			2.9 (1.3)		