

Switching Devices – Contactors and Contactor Assemblies

Contactors for Special Applications

Introduction

Overview



Size
Type

S00
3RT231, 3RT251

S0
3RT232, 3RT252

4-pole 3RT23, 3RT25 contactors

Type		3RT2316	3RT2317	3RT2516	3RT2517	3RT2518	3RT2325	3RT2326	3RT2327	3RT2526
Number of main contacts		4 NO		2 NO + 2 NC			4 NO			2 NO + 2 NC
AC, DC operation		(p. 4/15, 4/17)		(p. 4/36, 4/38)			(p. 4/15, 4/17)			(p. 4/36, 4/38)
AC-1										
I_e at 690 V [40 °C/60 °C]	A	18 / 16	22 / 20	18 / 16	22 / 20	22 / 20	35 / 30	40 / 35	50 / 42	40 / 35
P	40 °C kW	12	14.5	11	13	13	22	26	33	26
	60 °C kW	11	13	6.5	7.5	7.5	20	23	28	15
AC-2 and AC-3										
I_e at 400 V	NO A	9	12	9	12	16	15.5	15.5	15.5	25
	NC A	--	--	9	9	9	--	--	--	25 (20) ¹⁾
P at 400 V (NC for DC oper.)	NO / NC kW	4	5.5	4	5.5 / 4	7.5 / 4	7.5	7.5	7.5	11 (7.5)¹⁾
	at 230 V NO / NC kW	2.2	3	3	3 / 2.2	4 / 2.2	4	4	4	5.5

Accessories for contactors

Auxiliary switch blocks	3RH2911	(Chap. 3)	3RH2911, 3RH2921	(Chap. 3)
Timing relay blocks	3RA281.	(Chap. 3)	3RA281.	(Chap. 3)
Surge suppressors	3RT2916	(Chap. 3)	3RT2926	(Chap. 3)

¹⁾ The value in brackets applies to the NC for DC operation.



Size
Type

S2
3RT233, 3RT253

S3
3RT134.

S6, S10, S12
3RT145.

4-pole 3RT23, 3RT25, 3RT13, 3RT15 contactors • 3-pole 3RT14 contactors

Type		3RT2336	3RT2337	3RT2535	3RT2536	3RT1344	3RT1346	3RT1446	3RT1456	3RT1466	3RT1476
Number of main contacts		4 NO		2 NO + 2 NC		4 NO		3 NO		3 NO	
AC, DC operation		(p. 4/16, 4/18)		(p. 4/37, 4/39)		(p. 4/21)		(p. 4/10)		(p. 4/10)	
AC-1 (≤ 690 V)											
I_e	40 °C A	60	110	60	70	110	140	140	275	400	690
	60 °C A	55	95	55	60	100	120	130	250	380	650
P at 400 V	40 °C kW	36	63	36	39	72	92	92	180	263	454
	at 230 V kW	21	36	21	23	42	53	53	105	151	261
	at 500 V kW	--	--	--	--	--	--	115	225	329	568
	at 690 V kW	--	--	--	--	--	--	159	310	454	783
	at 1 000 V kW	--	--	--	--	--	--	98	165	247	410
AC-2 and AC-3											
I_e /400 V	A	--	--	35	41	--	--	44	97	138	170
P at 400 V	kW	--	--	18.5	22	--	--	22	55	75	90
	at 230 V kW	--	--	11	11	--	--	12.7	30	37	55
	at 500 V kW	--	--	--	--	--	--	29.9	55	90	110
	at 690 V kW	--	--	--	--	--	--	38.2	90	132	160

Accessories for contactors

Auxiliary switch blocks	3RH2921	(Chap. 3)				
Terminal covers	--	(Chap. 3)	3RT1946-4EA1/2	(Chap. 3)	3RT1956-4EA1/2/3	(Chap. 3)
Box terminal blocks	--		--		3RT1955/56-4G	(Chap. 3)
Surge suppressors	3RT2926/36	(Chap. 3)	3RT1926/36	(Chap. 3)	3RT1956-1C	(Chap. 3)

Contactors for Special Applications

SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC, 4 ... 22 kW

Overview

Standards

IEC 60947-1, EN 60947-1,
IEC 60947-4-1, EN 60947-4-1,
IEC 60947-5-1, EN 60947-5-1 (auxiliary switches)

The contactors are suitable for use in any climate. They are finger-safe according to EN 50274.

The accessories for the 3-pole 3RT20 contactors can also be used for the 4-pole versions.

With sizes S0 and S2, two auxiliary contacts 1 NO + 1 NC are included in the basic version.

Mountable auxiliary contacts

Size S00 to S2

Four additional auxiliary contacts, including no more than 2 NC.

Application

The contactors are suitable:

- For changing the polarity of hoisting gear motors
- For switching two separate loads

Note:

Single device for pole reversal; not suitable for reversing duty. 3RT25 contactors are not suitable for switching a load between two current sources.

For a general description of sizes S00 to S2, see Chapter 3, "Power contactors for switching motors" → "SIRIUS 3RT20 contactors, 3-pole, up to 37 kW".

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Technical specifications

Type		3RT2516	3RT2517	3RT2518	3RT2526	3RT2535	3RT2536
Size		S00			S0	S2	
General technical specifications							
Permissible mounting position							
The contactors are designed for operation on a vertical mounting surface.							
Upright mounting position		<p>Special version required</p>					
Mechanical endurance	Operating cycles	30 million			10 million		
Electrical endurance at $I_e/AC-1$		Operating cycles		Approx. 0.5 million			
Rated insulation voltage U_i (Pollution degree 3)		V		690			
Permissible ambient temperature							
• During operation		°C		-25 ... +60		-25 ... +60	
• During storage		°C		-55 ... +80		-55 ... +80	
Degree of protection acc. to IEC 60947-1, Appendix C		IP20					
Touch protection acc. to EN 50274		Finger-safe					
Short-circuit protection							
Main circuit							
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1							
• Type of coordination "1"		A	35		63	125	160
• Type of coordination "2"		A	20		35	63	80
• Weld-free		A	10		16	--	--

Type		3RT2516	3RT2517	3RT2518	3RT2526	3RT2537	
Size		S00			S2		
Dimensions (W x H x D) ¹⁾		45 x 57.5 x 73 / 45 x 70 x 73			74.5 x 113.5 x 130 / 74.5 x 113.5 x 130		
• with mounted auxiliary switch block		45 x 57.5 x 116 / 45 x 70 x 121			74.5 x 113.5 x 173.5 / 74.5 x 113.5 x 177.5		
Type		3RT2526					
Size		S0					
Dimensions (W x H x D) for AC operation ¹⁾²⁾	mm	60 x 85 x 97 / 60 x 101.5 x 97					
• with mounted auxiliary switch block	mm	60 x 85 x 141 / 60 x 101.5 x 144					
Dimensions (W x H x D) for DC operation ¹⁾²⁾	mm	60 x 85 x 107 / 60 x 101.5 x 107					
• with mounted auxiliary switch block	mm	60 x 85 x 151 / 60 x 101.5 x 154					

¹⁾ Dimensions for devices with screw terminals/spring-type terminals.

²⁾ For size S0, devices for AC and DC operation differ in depth. The following applies: Depth (DC) = Depth (AC) + 10 mm.

SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC, 4 ... 22 kW

Type		3RT2516	3RT2517	3RT2518	3RT2526	3RT2535	3RT2536
Size		S00			S0	S2	
Control circuit							
Solenoid coil operating range							
• AC operation	at 50 Hz at 60 Hz	0.8 ... 1.1 x U_s 0.85 ... 1.1 x U_s			0.8 ... 1.1 x U_s 0.8 ... 1.1 x U_s		
• DC operation	up to 50 °C up to 60 °C	0.8 ... 1.1 x U_s 0.85 ... 1.1 x U_s			-- --		
• AC/DC operation		--			0.8 x U_{smin} ... 1.1 x U_{smax}		
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)		see 3RT2316	see 3RT2317		see 3RT2326	see 3RT233	
Operating times for 0.8 to 1.1 x U_s (Total break time = Opening delay + Arcing time)		see 3RT2316	see 3RT2317		see 3RT2326	see 3RT233	
Main circuit							
Load rating with AC							
Utilization category AC-1							
Switching resistive loads							
• Rated operational currents I_e	at 40 °C up to 690 V A at 60 °C up to 690 V A	18 16	22 20		40 35	60 55	70 60
• Rated power for AC loads p.f. = 0.95 (at 60 °C)	at 230 V kW 400 V kW	6 10.5	7.5 13		13.3 23	21 36	23 39
• Minimum conductor cross-section for loads with I_e	at 40 °C mm ²	2.5	2.5		10	16	25
Utilization categories AC-2 and AC-3							
• Rated operational currents I_e (at 60 °C)	NO up to 400 V A NC up to 400 V A	9 9	12 9	16	AC ¹⁾ 25 25	DC ¹⁾ 25 20	35 35 41 41
• Rated power for slipping or squirrel-cage motors at 50 and 60 Hz	NO at 230 V kW NC at 230 V kW NO at 400 V kW NC at 400 V kW	2.2 2.2 4 4	3 2.2 5.5 4	4 2.2 7.5 4	5.5 5.5 11 11	5.5 5.5 18.5 7.5	11 11 22 18.5 22
Load rating with DC							
Utilization category DC-1							
Switching resistive loads ($L/R \leq 1$ ms)							
• Rated operational currents I_e (at 60 °C)							
- 1 conducting path	up to 24 V A 60 V A 110 V A 220 V A 440 V A	16 16 2.1 0.8 0.6	20 20 2.1 0.8 0.6		35 20 4.5 1 0.4	55 23 4.5 1 0.4	60
- 2 conducting paths in series	up to 24 V A 60 V A 110 V A 220 V A 440 V A	16 16 12 1.6 0.8	20 20 12 1.6 0.8		35 35 35 5 1	55 45 45 5 1	
Utilization category DC-3/DC-5²⁾							
Shunt-wound and series-wound motors ($L/R \leq 15$ ms)							
• Rated operational currents I_e (at 60 °C)							
- 1 conducting path	up to 24 V A 60 V A 110 V A 220 V A 440 V A	16 0.5 0.15 0.75 --	20 0.5 0.15 0.75 --		20 5 2.5 1 0.09	35 6 2.5 1 0.1	
- 2 conducting paths in series	up to 24 V A 60 V A 110 V A 220 V A 440 V A	16 5 0.35 -- --	20 5 0.35 -- --		35 35 15 3 0.27	55 45 25 5 0.27	

1) Values for devices with AC and DC operation: for 3RT25 26 with DC operation, different values apply to AC-2 and AC-3 for the NC

2) For $U_s > 24$ V, the rated operational currents I_e for the NC contact conducting paths are 50 % of the values for the NO contact conducting paths.