

# 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		<b>3RT2316</b>	<b>3RT2317</b>	<b>3RT2516</b>	<b>3RT2517</b>	<b>3RT2518</b>	<b>3RT2325</b>	<b>3RT2326</b>	<b>3RT2327</b>	<b>3RT2526</b>
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)
<b>AC-1</b>										
$I_e$ 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
<b>P</b>	40 °C kW	<b>12</b>	<b>14.5</b>	<b>11</b>	<b>13</b>	<b>13</b>	<b>22</b>	<b>26</b>	<b>33</b>	<b>26</b>
	60 °C kW	11	13	6.5	7.5	7.5	20	23	28	15
<b>AC-2 and AC-3</b>										
$I_e$ at 400 V	NO A	9	12	9	12	16	15.5	15.5	15.5	25
	NC A	--	--	9	9	9	--	--	--	25 (20) <sup>1)</sup>
<b>P at 400 V</b> (NC for DC oper.)	NO / NC kW	<b>4</b>	<b>5.5</b>	<b>4</b>	<b>5.5 / 4</b>	<b>7.5 / 4</b>	<b>7.5</b>	<b>7.5</b>	<b>7.5</b>	<b>11 (7.5)<sup>1)</sup></b>
	at 230 V NO / NC kW	2.2	3	3	3 / 2.2	4 / 2.2	4	4	4	5.5

#### Accessories for contactors

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

<sup>1)</sup> 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		<b>3RT2336</b>	<b>3RT2337</b>	<b>3RT2535</b>	<b>3RT2536</b>	<b>3RT1344</b>	<b>3RT1346</b>	<b>3RT1446</b>	<b>3RT1456</b>	<b>3RT1466</b>	<b>3RT1476</b>
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)	
<b>AC-1 (≤ 690 V)</b>											
$I_e$	40 °C A	<b>60</b>	<b>110</b>	<b>60</b>	<b>70</b>	<b>110</b>	<b>140</b>	<b>140</b>	<b>275</b>	<b>400</b>	<b>690</b>
	60 °C A	55	95	55	60	100	120	130	250	380	650
<b>P at 400 V</b>	40 °C kW	<b>36</b>	<b>63</b>	<b>36</b>	<b>39</b>	<b>72</b>	<b>92</b>	<b>92</b>	<b>180</b>	<b>263</b>	<b>454</b>
	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	60 °C kW	--	--	--	--	--	98	165	247	410
<b>AC-2 and AC-3</b>											
$I_e$ /400 V	A	--	--	35	41	--	--	44	97	138	170
<b>P at 400 V</b>	kW	--	--	<b>18.5</b>	<b>22</b>	--	--	<b>22</b>	<b>55</b>	<b>75</b>	<b>90</b>
	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

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

## Contactors for Special Applications

### SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 110 A

#### 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.

Accessories and spare parts, see "3RT20 Contactors", Chapter 3.

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

##### Mountable auxiliary contacts

###### Size S00

4 auxiliary contacts, including no more than 3 NC.

###### Sizes S0 and S2

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

#### Application

The contactors are suitable:

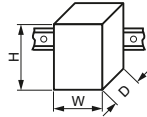
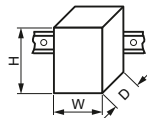
- For switching resistive loads
- For isolating systems with ungrounded or poorly grounded neutral conductors
- For system transfers when alternative AC power supplies are used
- For use as contactors which only carry current and do not have to switch in case of inductive loads – e.g. variable-speed operating mechanisms
- For switching mixed loads in distribution systems (e.g. for supplying heaters, lamps, motors, PC power supply units) with p.f. > 0.8 according to IEC 60947-4-1, test conditions for utilization category AC-1

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"

#### Technical specifications

Type	3RT2316	3RT2317	3RT2325	3RT2326	3RT2327	3RT2336	3RT2337
Size	S00		S0		S2		
<b>General technical specifications</b>							
<b>Permissible mounting position</b>							
The contactors are designed for operation on a vertical mounting surface							
Upright mounting position							
				Special version required			
<b>Mechanical endurance</b>	Operating cycles		30 million		10 million		
<b>Electrical endurance at I<sub>e</sub>/AC-1</b>	Operating cycles		Approx. 0.5 million				
<b>Rated insulation voltage U<sub>i</sub></b> (Pollution degree 3)	V		690				
<b>Permissible ambient temperature</b>							
• During operation	°C		-25 ... +60				
• During storage	°C		-55 ... +80				
<b>Degree of protection</b> acc. to IEC 60947-1, Appendix C	IP20						
<b>Touch protection</b> acc. to EN 50274	Finger-safe						
<b>Short-circuit protection</b>							
<b>Main circuit</b>							
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		on request		
• Type of coordination "2"	A	20	20		on request		
• Weld-free	A	10	16		on request		

## SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 110 A

Type		3RT2316	3RT2317	3RT2336	3RT2337	
Size		<b>S00</b>		<b>S2</b>		
Dimensions (W x H x D) <sup>1)</sup>		mm 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		mm 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		3RT2325	3RT2326	3RT2327		
Size		<b>S0</b>				
Dimensions (W x H x D) for AC operation <sup>1)2)</sup>		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 <sup>1)2)</sup>		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.

Type		3RT2316	3RT2317	3RT2325	3RT2326	3RT2327	3RT2336	3RT2337
Size		<b>S00</b>		<b>S0</b>			<b>S2</b>	
<b>Control circuit</b>								
<b>Solenoid coil operating range</b>								
• AC operation	at 50 Hz	0.8 ... 1.1 x $U_s$		0.8 ... 1.1 x $U_s$				
	at 60 Hz	0.85 ... 1.1 x $U_s$		0.8 ... 1.1 x $U_s$				
• DC operation	at 50 °C	0.8 ... 1.1 x $U_s$				--		
	at 60 °C	0.85 ... 1.1 x $U_s$				--		
• AC/DC operation		--				0.8 x $U_{smin}$ ... 1.1 x $U_{smax}$		
<b>Power consumption of the solenoid coils</b> (for cold coil and 1.0 x $U_s$ )								
• AC operation, 50 Hz, standard version								
- Closing	VA	--		77				190
- p.f.		--		0.82				0.72
- Closed	VA	--		9.8				16
- p.f.		--		0.25				0.37
• AC operation, 50/60 Hz, standard version								
- Closing	VA	27/24.3	37/33	81/79				210/188
- p.f.		0.8/0.75	0.8/0.75	0.72/0.74				0.69/0.65
- Closed	VA	4.2/3.3	5.7/4.4	10.5/8.5				17.2/16.5
- p.f.		0.25/0.25	0.25/0.25	0.25/0.28				0.36/0.39
• AC operation, 60 Hz, USA, Canada								
- Closing	VA	31.7	43	87				212
- p.f.		0.77	0.77	0.76				0.67
- Closed	VA	4.8	6.5	9.4				18.5
- p.f.		0.25	0.25	0.28				0.37
• AC/DC operation								
- Closing for AC operation	VA	--						40
- p.f.		--						0.64/0.5
- Closed for AC operation	VA	--						2
- p.f.		--						1
- Closing for DC operation	W	--						25
- Closed for DC operation	W	--						1
• DC operation (closing = closed)	W	4		5.9				--
<b>Operating times for 0.8 ... 1.1 x <math>U_s</math><sup>1)</sup></b> Total break time = Opening delay + Arcing time								
• AC operation								
- Closing delay	ms	8 ... 35	8 ... 33	9 ... 38	8 ... 40			10 ... 80
- Opening delay	ms	3.5 ... 14	4 ... 15	4 ... 16	4 ... 16			10 ... 18
• DC operation								
- Closing delay	ms	30 ... 100		50 ... 170				--
- Opening delay	ms	7 ... 13		15 ... 17.5				--
• AC/DC operation								
- Closing delay	ms	--						50 ... 110
- Opening delay	ms	--						35 ... 55
• Arcing time	ms	10 ... 15		10				10 ... 20

1) With size S00, DC operation: Operating times for 0.85 ... 1.1 x  $U_s$

## Contactors for Special Applications

### SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 110 A

Type			3RT2316	3RT2317	3RT2325	3RT2326	3RT2327	3RT2336	3RT2337
Size			S00		S0			S2	
<b>Main circuit</b>									
<b>Load rating with AC</b>									
<b>Utilization category AC-1</b>									
<b>Switching resistive loads</b>									
• Rated operational currents $I_e$	at 40 °C, up to 690 V	A	18	22	35	40	50	60	110
	at 60 °C, up to 690 V	A	16	20	30	35	42	55	95
• Rated power for AC loads	at 230 V	kW	6	7.5	11	13	16	21	36
p.f. = 0.95 (at 60 °C)	400 V	kW	10.5	13	20	23	28	36	63
• Minimum conductor cross-section	at 40 °C	mm <sup>2</sup>	2.5		10			16	35
for loads with $I_e$	at 60 °C	mm <sup>2</sup>	2.5		10			25	50
<b>Utilization categories AC-2 and AC-3</b>									
• Rated operational currents $I_e$	at 60 °C, up to 400 V	A	9	12	15.5			--	
• Rated power for	at 230 V	kW	2.2	3	4			--	
slipping or squirrel-cage motors	400 V	kW	4	5.5	7.5			--	
<b>Load rating with DC</b>									
<b>Utilization category DC-1</b>									
<b>Switching resistive loads (<math>L/R \leq 1</math> ms)</b>									
• Rated operational currents $I_e$ (at 60 °C)									
- 1 conducting path	up to 24 V	A	16	20	30	35	42	55	95
	60 V	A	16	20	20			23	23
	110 V	A	2.1		4.5			4.5	4.5
	220 V	A	0.8		1			1	
	440 V	A	0.6		0.4			0.4	
- 2 conducting paths in series	up to 24 V	A	16	20	30	35	42	55	
	60 V	A	16	20	30	35	42	55	
	110 V	A	12		30	35	42	45	
	220 V	A	1.6		1			5	
	440 V	A	0.8		1			1	
- 3 conducting paths in series	up to 24 V	A	16	20	30	35	42	55	
	60 V	A	16	20	30	35	42	55	
	110 V	A	16	20	30	35	42	45	
	220 V	A	16	20	30	35	42	45	
	440 V	A	1.3		2.9			2.9	
- 4 conducting paths in series	up to 24 V	A	16	20	30	35	42	55	65
	60 V	A	16	20	30	35	42	55	65
	110 V	A	16	20	30	35	42	45	55
	220 V	A	16	20	30	35	42	45	55
	440 V	A	1.3		2.9			2.9	3.5
<b>Utilization category DC-3/DC-5</b>									
<b>Shunt-wound and series-wound motors (<math>L/R \leq 15</math> ms)</b>									
• Rated operational currents $I_e$ (at 60 °C)									
- 1 conducting path	up to 24 V	A	16	20	20			20	
	60 V	A	0.5		5				
	110 V	A	0.15		2.5			2.5	
	220 V	A	--		1			1	
	440 V	A	--		0.09			0.1	
- 2 conducting paths in series	up to 24 V	A	16	20	30	35	42	55	
	60 V	A	5		30	35	42	45	
	110 V	A	0.35		15			25	
	220 V	A	--		3			5	
	440 V	A	--		0.27			0.27	
- 3 conducting paths in series	up to 24 V	A	16	20	30	35	42	55	
	60 V	A	16	20	30	35	42	55	
	110 V	A	16	20	30	35	42	45	
	220 V	A	1.5		10			25	
	440 V	A	0.2		0.6			0.6	
- 4 conducting paths in series	up to 24 V	A	16	20	30	35	42	55	65
	60 V	A	16	20	30	35	42	55	65
	110 V	A	16	20	30	35	42	45	55
	220 V	A	1.5		30	35	42	25	55
	440 V	A	0.2		0.6			0.6	0.8

## SIRIUS 3RT23 contactors for resistive loads (AC-1), 4-pole, 4 NO, 18 ... 110 A

## Selection and ordering data

## AC operation

PU (UNIT, SET, M) = 1  
 PS\* = 1 unit  
 PG = 41B



3RT231.-1A.00



3RT231.-2A.00



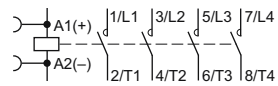
3RT232.-1A.00



3RT232.-2A.00

Rated data AC-1, $T_U$ : 40/60 °C		Auxiliary contacts		Rated control supply voltage $U_s$	DT	Screw terminals		DT	Spring-type terminals	
Operational current $I_e$ up to	Ratings of AC loads (p.f. = 0.95) at 50 Hz and up to	Ident. No.	Version			Article No.	Price per PU		Article No.	Price per PU
690 V A	<b>400 V</b> kW			V AC						

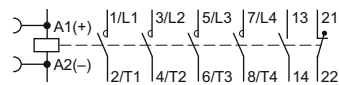
For screw fixing and snap-on mounting onto TH 35 standard mounting rail

Size S00<sup>1)</sup>

18 / 16	<b>12 / 11</b>	--	--	--	24, 50/60 Hz	B	<b>3RT2316-1AB00</b>	B	<b>3RT2316-2AB00</b>
					110, 50/60 Hz	B	<b>3RT2316-1AF00</b>	B	<b>3RT2316-2AF00</b>
					230, 50/60 Hz	B	<b>3RT2316-1AP00</b>	A	<b>3RT2316-2AP00</b>
22 / 20	<b>14.5 / 13</b>	--	--	--	24, 50/60 Hz	B	<b>3RT2317-1AB00</b>	B	<b>3RT2317-2AB00</b>
					110, 50/60 Hz	B	<b>3RT2317-1AF00</b>	B	<b>3RT2317-2AF00</b>
					230, 50/60 Hz	▶	<b>3RT2317-1AP00</b>	A	<b>3RT2317-2AP00</b>

## Size S0

Auxiliary contacts 1 NO + 1 NC, Ident. No. 11



35 / 30 <sup>2)</sup>	<b>22 / 20</b>	<b>11</b>	1	1	24, 50 Hz	B	<b>3RT2325-1AB00</b>	B	<b>3RT2325-2AB00</b>
					110, 50 Hz	B	<b>3RT2325-1AF00</b>	B	<b>3RT2325-2AF00</b>
					230, 50 Hz	A	<b>3RT2325-1AP00</b>	A	<b>3RT2325-2AP00</b>
40 / 35 <sup>2)</sup>	<b>26 / 23</b>	<b>11</b>	1	1	24, 50 Hz	B	<b>3RT2326-1AB00</b>	B	<b>3RT2326-2AB00</b>
					110, 50 Hz	B	<b>3RT2326-1AF00</b>	B	<b>3RT2326-2AF00</b>
					230, 50 Hz	A	<b>3RT2326-1AP00</b>	A	<b>3RT2326-2AP00</b>
50 <sup>2)</sup>	<b>33 / 28</b>	<b>11</b>	1	1	24, 50 Hz	B	<b>3RT2327-1AB00</b>	B	<b>3RT2327-2AB00</b>
					110, 50 Hz	B	<b>3RT2327-1AF00</b>	B	<b>3RT2327-2AF00</b>
					230, 50 Hz	A	<b>3RT2327-1AP00</b>	A	<b>3RT2327-2AP00</b>

<sup>1)</sup> For size S00: Coil operating range  
 at 50 Hz: 0.8 ... 1.1 x  $U_s$   
 at 60 Hz: 0.85 ... 1.1 x  $U_s$

<sup>2)</sup> Minimum conductor cross-section 10 mm<sup>2</sup>.

Other voltages according to page 4/48 on request.

Accessories and spare parts, see "SIRIUS 3RT20 contactors", Chapter 3.