

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

3RT14 Contactors for Switching Resistive Loads (AC-1)

3-pole, 140 ... 690 A

Overview

AC and DC operation (size S3)

UC operation (AC/DC) (sizes S6 to S12)

IEC 60947, EN 60947 (VDE 0660)

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

3RT14 contactors are used for switching resistive loads (AC-1) or as contactors, for example for variable-speed operating mechanisms that normally only have to carry the current.

The accessories for the 3RT10 contactors can also be used here.

For more detailed descriptions about the sizes S3 to S12, see "3RT10 Contactors, 3-pole, 3 to 250 kW."

Selection and ordering data

Size	Rated data AC-1, $T_U: 40^\circ\text{C}$	Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Operational cur- rent I_e	Ratings of AC loads (p.f. = 0.95) at		Order No.	Price per PU			
	Up to 690 V	230 V 400 V 500 V 690 V						
A	kW	kW kW kW kW	V					kg

For screw and snap-on mounting onto TH 35 and TH 75 standard mounting rail



3RT14 46-1A...0

AC operation

S3	140	53	92	115	159	AC 24, 50 Hz	B	3RT14 46-1AB00	1	1 unit	101	1.850
						AC 110, 50 Hz	B	3RT14 46-1AF00	1	1 unit	101	1.850
						AC 230, 50 Hz	►	3RT14 46-1AP00	1	1 unit	101	1.850

DC operation · DC solenoid system

S3	140	53	92	115	159	DC 24	►	3RT14 46-1BB40	1	1 unit	101	2.800
						DC 220	B	3RT14 46-1BM40	1	1 unit	101	2.800

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

3RT14 Contactors for Switching Resistive Loads (AC-1)

3-pole, 140 ... 690 A

AC/DC operation (40 Hz to 60 Hz, DC)

Auxiliary and control conductors: screw terminals

Withdrawable coils

Integrated coil circuit (Varistor)

Main conductors: busbar connections

Size	Rated data AC-1, $T_U: 40^\circ\text{C}$	Ratings of AC loads (p.f. = 0.95) at				Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Operational current I_e									Order No.	Price per PU			
Up to 690 V		230 V	400 V	500 V	690 V	Version								
A		kW	kW	kW	kW	NO	NC	V						kg

Conventional operating mechanisms



S6	275	105	180	225	310	2	2	110 ... 127 220 ... 240	▶	3RT14 56-6AF36 3RT14 56-6AP36	1 1	1 unit 1 unit	101 101	3.360 3.360
S10	400	151	263	329	454	2	2	110 ... 127 220 ... 240	▶	3RT14 66-6AF36 3RT14 66-6AP36	1 1	1 unit 1 unit	101 101	6.600 6.600
S12	690	261	454	568	783	2	2	110 ... 127 220 ... 240	A	3RT14 76-6AF36 3RT14 76-6AP36	1 1	1 unit 1 unit	101 101	10.500 10.500

3RT14 6.

Solid-state operating mechanisms · for 24 V DC PLC output

S6	275	105	180	225	310	2	2	96 ... 127 200 ... 277	B A	3RT14 56-6NF36 3RT14 56-6NP36	1 1	1 unit 1 unit	101 101	3.400 3.400
S10	400	151	263	329	454	2	2	96 ... 127 200 ... 277	B A	3RT14 66-6NF36 3RT14 66-6NP36	1 1	1 unit 1 unit	101 101	6.600 6.600
S12	690	261	454	568	783	2	2	96 ... 127 200 ... 277	B A	3RT14 76-6NF36 3RT14 76-6NP36	1 1	1 unit 1 unit	101 101	10.500 10.500

Solid-state operating mechanisms · for 24 V DC PLC output/PLC relay output, with remaining lifetime indicator (RLT)

S6	275	105	180	225	310	1	1	96 ... 127 200 ... 277	B B	3RT14 56-6PF35 3RT14 56-6PP35	1 1	1 unit 1 unit	101 101	4.200 4.200
S10	400	151	263	329	454	1	1	200 ... 277	B	3RT14 66-6PP35	1	1 unit	101	5.700
S12	690	261	454	568	783	1	1	200 ... 277	B	3RT14 76-6PP35	1	1 unit	101	10.500

Solid-state operating mechanisms · with AS-Interface and remaining lifetime indicator (RLT)

S6	275	105	180	225	310	1	1	96 ... 127 200 ... 277	B B	3RT14 56-6QF35 3RT14 56-6QP35	1 1	1 unit 1 unit	101 101	3.100 3.100
S10	400	151	263	329	454	1	1	200 ... 277	B	3RT14 66-6QP35	1	1 unit	101	5.700
S12	690	261	454	568	783	1	1	200 ... 277	B	3RT14 76-6QP35	1	1 unit	101	10.500

For other voltages see page 3/26.

For accessories, see page 3/102.

For spare parts, see page 3/115.

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

3RT13 Contactors for Switching Resistive Loads (AC-1)

4-pole, 4 NO, 18 ... 140 A

Overview

AC and DC operation

EN 60947-4-1 (VDE 0660 Part 102).

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

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

The contactors are also suitable 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.

Selection and ordering data

AC operation, 4 NO contacts

PU (UNIT, SET, M)= 1
PS* = 1 unit
PG = 101



3RT13 1.-1A.00



3RT13 2.-1A.00

Rated data AC-1, T_U : 40/60 °C		DT	Screw terminals		Weight per PU approx.	DT	Cage Clamp terminals		Weight per PU approx.
Operational current I_e	Ratings of AC loads (p.f. = 0.95) at 50 Hz and 400 V		Order No.	Price per PU			Order No.	Price per PU	
A	kW	V AC			kg				kg

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

Size S00¹⁾

18 / 16	12 / 11	24, 50/60 Hz	►	3RT13 16-1AB00	0.200 B	3RT13 16-2AB00	0.200
		110, 50/60 Hz	►	3RT13 16-1AF00	0.200 B	3RT13 16-2AF00	0.200
		230, 50/60 Hz	►	3RT13 16-1AP00	0.200 B	3RT13 16-2AP00	0.200
22 / 20	14.5 / 13	24, 50/60 Hz	►	3RT13 17-1AB00	0.200 B	3RT13 17-2AB00	0.200
		110, 50/60 Hz	►	3RT13 17-1AF00	0.200 B	3RT13 17-2AF00	0.200
		230, 50/60 Hz	►	3RT13 17-1AP00	0.200 B	3RT13 17-2AP00	0.200

Size S0

35 / 30 ²⁾	22 / 20	24, 50 Hz	►	3RT13 25-1AB00	0.400	--	
		110, 50 Hz	►	3RT13 25-1AF00	0.400	--	
		230, 50 Hz	►	3RT13 25-1AP00	0.400	--	
40 / 35 ²⁾	26 / 23	24, 50 Hz	►	3RT13 26-1AB00	0.400	--	
		110, 50 Hz	►	3RT13 26-1AF00	0.400	--	
		230, 50 Hz	►	3RT13 26-1AP00	0.400	--	

Size S2

60 / 55	39 / 36	24, 50 Hz	B	3RT13 36-1AB00	0.990	--	
		110, 50 Hz	B	3RT13 36-1AF00	0.990	--	
		230, 50 Hz	►	3RT13 36-1AP00	0.990	--	

Size S3

110 / 100	72 / 66	24, 50 Hz	B	3RT13 44-1AB00	2.200	--	
		110, 50 Hz	B	3RT13 44-1AF00	2.200	--	
		230, 50 Hz	►	3RT13 44-1AP00	2.200	--	
140 / 120	92 / 79	24, 50 Hz	B	3RT13 46-1AB00	2.200	--	
		110, 50 Hz	B	3RT13 46-1AF00	2.200	--	
		230, 50 Hz	►	3RT13 46-1AP00	2.200	--	

Size S00:

Snap-on auxiliary switch blocks according to EN 50005.

Sizes S0 to S3:

Snap-on auxiliary switch blocks according to EN 50012 and EN 50005
(for S0 max. 2 auxiliary contacts) (for more information see Accessories on page 3/97).

For other voltages see page 3/26.

For accessories, see page 3/102.

For spare parts, see page 3/115.

¹⁾ 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 .

²⁾ Minimum conductor cross-section 10 mm².

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

3RT13 Contactors for Switching Resistive Loads (AC-1)

4-pole, 4 NO, 18 ... 140 A

DC operation · DC solenoid system, 4 NO contacts

PU (UNIT, SET, M)= 1
 PS* = 1 unit
 PG = 101



3RT13 1..2B...0



3RT13 36-1...0



3RT13 4..-1...0

Rated data AC-1, T_U : 40/60 °C		Rated control supply voltage U_s	DT	Screw terminals		Weight per PU approx.	DT	Cage Clamp terminals		Weight per PU approx.
Operational cur- rent I_e	Ratings of AC loads (p.f. = 0.95) at 50 Hz and 400 V			Order No.	Price per PU			Order No.	Price per PU	
A	kW	V DC				kg				kg

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

Size S00

18 / 16	12 / 11	24 220	▶	3RT13 16-1BB40	0.250	▶	3RT13 16-2BB40	0.250
			B	3RT13 16-1BM40	0.250	B	3RT13 16-2BM40	0.250
22 / 20	14.5 / 13	24 220	▶	3RT13 17-1BB40	0.250	A	3RT13 17-2BB40	0.250
			B	3RT13 17-1BM40	0.250	B	3RT13 17-2BM40	0.250

Size S0

35 / 30 ¹⁾	22 / 20	24 220	▶	3RT13 25-1BB40	0.630	--		
			B	3RT13 25-1BM40	0.630	--		
40 / 35 ¹⁾	26 / 23	24 220	▶	3RT13 26-1BB40	0.630	--		
			B	3RT13 26-1BM40	0.630	--		

Size S2

60 / 55	39 / 36	24 220	▶	3RT13 36-1BB40	1.600	--		
			B	3RT13 36-1BM40	1.600	--		

Size S3

110 / 100	72 / 66	24 220	B	3RT13 44-1BB40	3.200	--		
			B	3RT13 44-1BM40	3.200	--		
140 / 120	92 / 79	24 220	B	3RT13 46-1BB40	3.200	--		
			B	3RT13 46-1BM40	3.200	--		

Size S00:

Snap-on auxiliary switch blocks according to EN 50005.

Sizes S0 to S3:

Snap-on auxiliary switch blocks according to EN 50012 and EN 50005
(for S0 max. 2 auxiliary contacts) (for more information see [Accessories on page 3/97](#)).

For other voltages see page 3/26.

For accessories, see page 3/102.

For spare parts, see page 3/115.

¹⁾ Minimum conductor cross-section 10 mm².

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

3TK1 Contactors for Switching Resistive Loads (AC-1)

4-pole, 4 NO, 200 ... 1000 A

Overview

EN 60947-4-1 (VDE 0660 Part 102).

The contactors also comply with the requirements of NFC 63-110 and NFC 20-040.

The contactors are suitable for use in any climate. They are finger-safe according to EN 50274. Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

The contactors are also suitable 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.

Solenoid coils for 3TK10 to 3TK13 contactors: as withdrawable coils.

Surge suppression

Control circuit

Solenoid coils for 3TK1 contactors: can be retrofitted with RC elements.

Selection and ordering data

Screw terminals

Screw fixing



3TK13

Rated data AC-1					Auxiliary contacts		Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Operational current I_e up to 690 V (at 40 °C)	Ratings of AC loads (p.f. = 0.95) at				Version		V AC		Order No.	Price per PU			kg
	230 V	400 V	690 V	1000 V	NO	NC							
A	kW	kW	kW	kW									
AC operation													
200	75	130	225	205	2	2	220 ... 230, 50 Hz 230 ... 240, 50 Hz 110/120, 50/60 Hz 24, 50 Hz	B D D D	3TK10 42-0AP0 3TK10 42-0AU0 3TK10 42-0AF0 3TK10 42-0AB0	1 1 1 1	1 unit 1 unit 1 unit 1 unit	101 101 101 101	4.400 4.400 4.400 4.400
250	90	165	280	200	2	2	220 ... 230, 50 Hz 230 ... 240, 50 Hz 110/120, 50/60 Hz 24, 50 Hz	B D D D	3TK11 42-0AP0 3TK11 42-0AU0 3TK11 42-0AF0 3TK11 42-0AB0	1 1 1 1	1 unit 1 unit 1 unit 1 unit	101 101 101 101	4.700 4.700 4.700 4.700
300	110	195	340	325	2	2	220 ... 230, 50 Hz 230 ... 240, 50 Hz 110/120, 50/60 Hz 24, 50 Hz	B D D D	3TK12 42-0AP0 3TK12 42-0AU0 3TK12 42-0AF0 3TK12 42-0AB0	1 1 1 1	1 unit 1 unit 1 unit 1 unit	101 101 101 101	7.200 7.200 7.200 7.200
350	130	230	395	370	2	2	220 ... 230, 50 Hz 230 ... 240, 50 Hz 110/120, 50/60 Hz 24, 50 Hz	B D D D	3TK13 42-0AP0 3TK13 42-0AU0 3TK13 42-0AF0 3TK13 42-0AB0	1 1 1 1	1 unit 1 unit 1 unit 1 unit	101 101 101 101	7.200 7.200 7.200 7.200
550	205	360	620	510	2	2	220 ... 230, 50 Hz ¹⁾ 230 ... 240, 50 Hz 110/120, 50/60 Hz	B D D	3TK14 42-0AP0 3TK14 42-0AU0 3TK14 42-0AF0	1 1 1	1 unit 1 unit 1 unit	101 101 101	19.000 19.000 19.000
800	300	525	905	575	2	2	220 ... 230, 50 Hz ¹⁾ 230 ... 240, 50 Hz 110/120, 50/60 Hz	B D D	3TK15 42-0AP0 3TK15 42-0AU0 3TK15 42-0AF0	1 1 1	1 unit 1 unit 1 unit	101 101 101	19.000 19.000 19.000
1000	375	655	1135	--	2	2	220 ... 230, 50 Hz ¹⁾ 230 ... 240, 50 Hz 110/120 50/60 Hz	B D D	3TK17 42-0AP0 3TK17 42-0AU0 3TK17 42-0AF0	1 1 1	1 unit 1 unit 1 unit	101 101 101	20.100 20.100 20.100

For accessories see page 3/120 onwards.

For spare parts, see page 3/128 onwards.

¹⁾ At 60 Hz: 240 V.

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

3TK20 Contactors

4-pole, 4 kW

Overview

AC and DC operation

IEC 60947 (VDE 0660).

The contactors are suitable for use in any climate.

The contactors with screw terminals are finger-safe according to EN 50274.

The contactors are available in versions with screw terminals, 6.3 mm plug-in terminals and solder pin connections for soldering in printed circuit boards.

Application

The main area of application for the 3TK2 contactors with flat connectors is in household equipment. These contactors are also suitable for simple electric controllers. No auxiliary switch blocks can be retrofitted.

Selection and ordering data

Size 00

AC-1: operational current $I_e = 16 \text{ A}$ (at 55°C)

Rated data					Main contacts		DT	Order No.	Price € per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Utilization categories AC-2 and AC-3					Version								
Operational current I_e	Ratings of induction motors at 50 Hz and												
At 400/ 380 V	230/ 220 V	400/ 380 V	500 V	690/ 660 V	NO	NC							
A	kW	kW	kW	kW									kg

Contactors with screw terminals for screw and snap-on mounting onto TH 35 standard mounting rail



3TK20...-0...

AC operation

9	2.4	4	4	4	4	--	C	3TK20 40-0AP0	1	1 unit	101	0.190
					3	1	C	3TK20 31-0AP0	1	1 unit	101	0.190
					2	2	C	3TK20 22-0AP0	1	1 unit	101	0.190

Screw terminals



DC operation · DC solenoid system

9	2.4	4	4	4	4	--	C	3TK20 40-0BB4	1	1 unit	101	0.210
					3	1	C	3TK20 31-0BB4	1	1 unit	101	0.210
					2	2	C	3TK20 22-0BB4	1	1 unit	101	0.210

Contactors with 6.3 mm x 0.8 mm flat connectors for screw and snap-on mounting onto TH 35 standard mounting rail



3TK20...-3...

AC operation

9	2.4	4	4	--	4	--	C	3TK20 40-3AP0	1	1 unit	101	0.170
					3	1	C	3TK20 31-3AP0	1	1 unit	101	0.170
					2	2	C	3TK20 22-3AP0	1	1 unit	101	0.170

Flat connectors



DC operation · DC solenoid system

9	2.4	4	4	--	4	--	C	3TK20 40-3BB4	1	1 unit	101	0.190
					3	1	C	3TK20 31-3BB4	1	1 unit	101	0.190
					2	2	C	3TK20 22-3BB4	1	1 unit	101	0.190

Contactors with 6.3 mm x 0.8 mm flat connectors for screw fixing (diagonal)



3TK20...-7...

AC operation

9	2.4	4	4	--	4	--	C	3TK20 40-7AP0	1	1 unit	101	0.170
					3	1	C	3TK20 31-7AP0	1	1 unit	101	0.170
					2	2	C	3TK20 22-7AP0	1	1 unit	101	0.170

DC operation · DC solenoid system

9	2.4	4	4	--	4	--	C	3TK20 40-7BB4	1	1 unit	101	0.190
					3	1	C	3TK20 31-7BB4	1	1 unit	101	0.190
					2	2	C	3TK20 22-7BB4	1	1 unit	101	0.190

Contactors with solder pin connections for printed circuit boards¹⁾ for screw fixing (diagonal)



3TK20...-6...

AC operation

9	2.4	4	4	--	4	--	C	3TK20 40-6AP0	1	1 unit	101	0.170
					3	1	C	3TK20 31-6AP0	1	1 unit	101	0.170
					2	2	C	3TK20 22-6AP0	1	1 unit	101	0.170

Solder pin connections



DC operation · DC solenoid system

9	2.4	4	4	--	4	--	C	3TK20 40-6BB4	1	1 unit	101	0.190
					3	1	C	3TK20 31-6BB4	1	1 unit	101	0.190
					2	2	C	3TK20 22-6BB4	1	1 unit	101	0.190

For accessories, see page 3/123.

¹⁾ Operating range at AC-1
220 V: 0.85 to 1.15 x U_N ; lower operating range limit according to IEC 60947.

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

3TK20 Contactors

4-pole, 4 kW

*Rated control supply voltages
(the 10th and 11th position of the order number must be
changed)*

Contactor type		3TK20
Rated control supply voltage U_s		
AC operation		
Solenoid coils for AC 50 and 60 Hz		
50 Hz	60 Hz	
230/220 V AC	276 V AC	P0 ¹⁾
DC operation		
24 V DC		B4

¹⁾ Operating range at 220 V:
0.85 to 1.15 x U_s ; lower operating range limit according to IEC 60947.

[Please inquire about other voltages.](#)

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

3RT15 Contactors

4-pole, 2 NO + 2 NC, 4 ... 18.5 kW

Overview

AC and DC operation

EN 60947-4-1 (VDE 0660 Part 102).

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

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

Selection and ordering data

AC and DC operation, 2 NO contacts + 2 NC contacts¹⁾

PU (UNIT, SET, M)= 1
PS* = 1 unit
PG = 101



3RT15 1.-1....



3RT15 1.-2....



3RT15 26-1....

Rated data				DT	Screw terminals		DT	Cage Clamp terminals	
AC-2/AC-3, T_U : Up to 60 °C		AC-1, T_U : 40/60 °C	Rated control supply voltage U_s						
Operational current I_e At 400 V	Ratings of induction motors at 50 Hz and 400 V	Operational current I_e			Order No.	Price per PU		Order No.	Price per PU
A	kW	A	V				kg		kg

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

AC operation

Size S00²⁾

9	4	18 / 16	24, 50/60 Hz 110, 50/60 Hz 230, 50/60 Hz	B B B	3RT15 16-1AB00 3RT15 16-1AF00 3RT15 16-1AP00	0.200 0.200 0.200	B B B	3RT15 16-2AB00 3RT15 16-2AF00 3RT15 16-2AP00	0.200 0.200 0.200
12	5.5	22 / 20	24, 50/60 Hz 110, 50/60 Hz 230, 50/60 Hz	A A A	3RT15 17-1AB00 3RT15 17-1AF00 3RT15 17-1AP00	0.200 0.200 0.200	B B B	3RT15 17-2AB00 3RT15 17-2AF00 3RT15 17-2AP00	0.200 0.200 0.200

Size S0

25	11	40 / 35 ³⁾	24, 50 Hz 110, 50 Hz 230, 50 Hz	B B B	3RT15 26-1AB00 3RT15 26-1AF00 3RT15 26-1AP00	0.400 0.400 0.400	-- -- --		
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Size S2

40	18.5	55 / 50	24, 50 Hz 110, 50 Hz 230, 50 Hz	B B B	3RT15 35-1AB00 3RT15 35-1AF00 3RT15 35-1AP00	1.000 1.000 1.000	-- -- --		
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DC operation - DC solenoid system

Size S00

9	4	18 / 16	DC 24 DC 220	B B	3RT15 16-1BB40 3RT15 16-1BM40	0.260 0.260	B B	3RT15 16-2BB40 3RT15 16-2BM40	0.260 0.260
12	5.5	22 / 20	DC 24 DC 220	B B	3RT15 17-1BB40 3RT15 17-1BM40	0.260 0.260	B B	3RT15 17-2BB40 3RT15 17-2BM40	0.260 0.260

Size S0

20	11	40 / 35 ³⁾	DC 24 DC 220	B B	3RT15 26-1BB40 3RT15 26-1BM40	0.630 0.630	-- --		
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Size S2

40	18.5	55 / 50	DC 24 DC 220	B B	3RT15 35-1BB40 3RT15 35-1BM40	1.590 1.590	-- --		
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Size S00: Snap-on auxiliary switch blocks according to EN 50005.

Sizes S0 to S3: Snap-on auxiliary switch blocks according to EN 50012 and EN 50005
(for S0 max. 2 auxiliary contacts) (for more information see Accessories on page 3/97).

For other voltages see page 3/26.

For accessories, see page 3/102.

For spare parts, see page 3/115.

¹⁾ Single device for pole reversal; not suitable for reversing duty.

²⁾ 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 .

³⁾ Required conductor cross-section: 10 mm².

* You can order this quantity or a multiple thereof.

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

3RT16 Capacitor Contactors

12.5 ... 50 kvar

Overview

AC operation

IEC 60947, EN 60947 (VDE 0660).

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

The 3RT16 capacitor contactors are special version of the size S00 to S3 SIRIUS contactors. The capacitors are precharged by means of the mounted leading NO contacts and resistors; only then do the main contacts close.

This prevents disturbances in the network and welding of the contactors.

Only discharged capacitors are permitted to be switched on with capacitor contactors.

The auxiliary switch block which is snapped onto the capacitor contactor contains the three leading NO contacts and in the case of S00 one standard NC contact and in the case of S0 and S3 one standard NO contact, which is unassigned. Size S00 also contains another unassigned NO contact in the basic unit.

In addition, a 2-pole auxiliary switch block can be mounted laterally on the 3RT16 47 capacitor contactors (2 NO, 2 NC or 1 NO + 1 NC versions); type 3RH19 21-1EA... The fitting of auxiliary switches for 3RT16 17 and 3RT16 27 is not expandable.

Capacitor switching capacity of the basic 3RT10 contactor version ([see note on Technical Information on page 3/1](#)).

Selection and ordering data

AC operation

Screw terminals



3RT16 17-1A.03



3RT16 27-1A.01



3RT16 47-1A.01

Utilization category AC-6b
Switching of AC capacitors for an ambient temperature of 60 °C¹⁾
Capacitor rating at operational voltage 50/60 Hz

At 230 V	At 400 V	At 525 V	At 690 V
kvar	kvar	kvar	kvar

Auxiliary contacts, unassigned
Version

NO	NC
1	1

Rated control supply voltage U_s ²⁾

V AC	Hz
24	50 / 60
110	
230	

DT

Screw terminals



PU
(UNIT,
SET, M)

PS*

PG

Weight
per PU
approx.

Order No.

Price
per PU

kg

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

Size S00

3 ... 7.5	5 ... 12.5	7.5 ... 15	10 ... 21	1	1	24	50 / 60	B	3RT16 17-1AB03	1	1 unit	101	0.280
						110		B	3RT16 17-1AF03	1	1 unit	101	0.280
						230		►	3RT16 17-1AP03	1	1 unit	101	0.280

Size S0³⁾

3.5 ... 15	6 ... 25	7.8 ... 30	10 ... 42	1	--	24	50	B	3RT16 27-1AB01	1	1 unit	101	0.440
						110		B	3RT16 27-1AF01	1	1 unit	101	0.440
						230		►	3RT16 27-1AP01	1	1 unit	101	0.440

Size S3

3.5 ... 30	5 ... 50	7.5 ... 60	10 ... 84	1	--	24	50	B	3RT16 47-1AB01	1	1 unit	101	2.040
						110		B	3RT16 47-1AF01	1	1 unit	101	2.040
						230		►	3RT16 47-1AP01	1	1 unit	101	2.040

For other voltages see page 3/26.

For accessories, see page 3/104.

¹⁾ For size S3: 55 °C.

²⁾ Operating range: 0.85 ... 1.1 x U_s .

³⁾ For conductor cross-sections > 6 mm²
use 3RV19 25-5AB terminals (2 units).

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$, for Railway Applications

3RH11 contactor relays

Overview

DC operation

IEC 60947-4-1, EN 60947-4-1 (VDE 0660, Part 102), for requirements according to IEC 60077-1 and IEC 60077-2.

The contactor relays are finger-safe according to EN 50274. The size S00 contactor relays have Cage Clamp connections for all terminals.

Ambient temperature

The permissible ambient temperature for operation of the contactor relays (across the full coil operating range) is -40°C to $+70^\circ\text{C}$.

Uninterrupted duty at temperatures $> +60^\circ\text{C}$ reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

Application

For operation in installations which are subject both to considerable variations in the control voltage and to high ambient temperatures, e. g. railway applications under extreme climatic conditions, rolling mills, etc.

Control and auxiliary circuits

The solenoid coils of the contactor relays have an extended coil operating range from 0.7 to $1.25 \times U_s$ and are fitted as standard with varistors to provide protection against overvoltage. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

3RH11 22-2K.40-0LA0

The DC solenoid systems of the contactor relays are modified (to holding excitation) by means of a series resistor.

The size S00 contactor relays are supplied prewired with a plug-on module containing the series resistor. The varistor is integrated. A 4-pole auxiliary switch block (according to EN 50005) can be fitted additionally.

Mounting

At ambient temperatures up to 70°C , the size S00 contactor relays are allowed to be mounted side by side.

3RH11 22-2K.40:

These contactor relays have an extended operating range from 0.7 to $1.25 \times U_s$; the coils are fitted with varistors as standard. An additional series resistor is not required. Please note:

No auxiliary switch block can be mounted on size S00.

Mounting

A clearance of 10 mm is required for side-by-side mounting at ambient temperatures $> 60^\circ\text{C} \leq 70^\circ\text{C}$.

Selection and ordering data

DC operation - DC solenoid system

Cage Clamp terminals

For screw and snap-on mounting onto standard mounting rail

Solenoid coil fitted with varistor



3RH11 22-2K.40



3RH11 22-2K.40-0LA0

Rated operational current I_N /AC-15/AC-14 T_U : 70 °C at				Contacts		Rated control supply voltage U_s	DT	Cage Clamp terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
				Version								
230 V	400 V	500 V	690 V			V DC		Order No.	Price per PU			
A	A	A	A	NO	NC	V DC						kg

3RH11 contactor relays

Size S00

Cage Clamp terminals for all connections

6	3	2	1	2	2 ¹⁾	24 ²⁾ 110 ²⁾	►	3RH11 22-2KB40 3RH11 22-2KF40	1 1	1 unit 1 unit	101 101	0.260 0.260
6	3	2	1	2	1 ³⁾	24 110	A A	3RH11 22-2KB40-0LA0 3RH11 22-2KF40-0LA0	1 1	1 unit 1 unit	101 101	0.290 0.290

¹⁾ It is not possible to mount an auxiliary switch block. A clearance of 10 mm is required for side-by-side mounting at ambient temperatures $> 60^\circ\text{C}$.

²⁾ Version without series resistor.

³⁾ One 4-pole auxiliary switch block according to EN 50005 can be mounted; no distance required up to 70°C .

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$, for Railway Applications

3TH4 contactor relays

Overview

DC operation

EN 60947-4-1.

For requirements according to IEC 60077-1 and IEC 60077-2.

The contactors are finger-safe according to EN 50274. Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full operating range of the solenoid coil) is -50 to $+70$ °C. Uninterrupted duty at temperatures < -25 °C and $> +55$ °C reduces the mechanical endurance, the current-carrying capacity of the conducting paths and the switching frequency.

At ambient temperatures > 55 °C, a distance of 10 mm must be observed if contactor relays and size 1 and 2 contactors are mounted side by side. There is no need to reduce the technical specifications.

Application

For operation in plants which are subject both to considerable variations in the control voltage and to high ambient temperatures, e. g. in railway applications.

Control and auxiliary circuits

The solenoid coils of the contactors have an extended coil operating range from 0.7 to $1.25 \times U_s$ and are fitted as standard with varistors to provide protection against overvoltage. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

Selection and ordering data

For screw and snap-on mounting onto 35 mm standard mounting rail
Solenoid coil fitted with varistor



3TH4

Contacts	Rated operational current I_e /AC-15/AC-14				Contacts ¹⁾		Rated control supply voltage U_s	DT		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
	230 V	400 V	500 V	690 V	Ident. No. acc. to EN 50011	Version								
						 NO	 NC	V DC						
Number	A	A	A	A									kg	
3TH42 contactor relays · DC operation · DC solenoid system														
8	10	6	4	2	44E	4	4	24	▶	3TH42 44-0LB4	1	1 unit	101	0.670
								110		3TH42 44-0LF4	1	1 unit	101	0.670
					53E	5	3	24	D	3TH42 53-0LB4	1	1 unit	101	0.670
										110	3TH42 53-0LF4	1	1 unit	101
62E	6	2	24	▶	3TH42 62-0LB4	1	1 unit	101	0.670					
					110	3TH42 62-0LF4	1	1 unit	101	0.670				

For accessories, see page 3/125.

¹⁾ Contacts not extendable.

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$, for Railway Applications

3RT10 motor contactors, 5.5 ... 45 kW

Overview

DC operation

IEC 60947-4-1, EN 60947-4-1, for requirements according to IEC 60077-1 and IEC 60077-2.

The contactors are finger-safe according to EN 50274 (exception: series resistors S0 to S3). The contactors are available with both Cage Clamp and screw connection. The size S00 contactors have Cage Clamp terminals for all connections. The auxiliary conductor and coil terminals of sizes S0 to S3 are all Cage Clamp terminals.

Control and auxiliary circuits

Contactors are available with:

- Conventional coils (sizes S00 and S0 only)
- Coils with series resistor
- Coils with solid-state control unit

Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full coil operating range) is -40 °C to $+70\text{ °C}$.

Uninterrupted duty at temperatures $> +60\text{ °C}$ reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

Application

For operation in installations which are subject both to considerable variations in the control voltage and to high ambient temperatures, e. g. railway applications under extreme climatic conditions, rolling mills, etc.

More information

Control and auxiliary circuits

The solenoid coils of the contactors have an extended coil operating range from 0.7 to $1.25 \times U_s$ and are fitted as standard with varistors to provide protection against overvoltage. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

[3RT10 ...-2K.42-OLA0](#),
[3RT10 ...-3K.44-OLA0](#)

The DC solenoid systems of the contactors are modified (to holding excitation) by means of a series resistor.

Auxiliary switches

The size S00 contactors are supplied prewired with a plug-on module containing the series resistor. The varistor is integrated. A 4-pole auxiliary switch block (according to EN 50005) can be fitted additionally.

The size S0 to S3 contactors are equipped on the front with an auxiliary switch block with 2 NO + 2 NC contacts. The separate series resistor, which is attached laterally next to the contactor on the 35 mm standard mounting rail, is fitted with connecting cables for mounting onto contactors. A circuit diagram showing the terminals is stuck onto each contactor. One NC of the auxiliary contacts is required for the series resistor function. The selection and ordering data shows the number of additional, unsigned auxiliary contacts. It is only possible to extend the number of auxiliary contacts with size S00.

Mounting

At ambient temperatures up to 70 °C , the size S00 contactors and contactor relays are allowed to be mounted side by side. The resistor module of the size S0 to S3 contactors must be mounted to the left of the contactor owing to the prefabricated connecting cables.

Dimensions

Attaching resistors increases the width of contactor sizes S0 to S3 (see note on [Dimensional Drawings](#), page 3/1).

[3RT10 17-2K.4.](#),
[3RT10 2.-3K.40](#)

These contactor relays have an extended operating range from 0.7 to $1.25 \times U_s$; the coils are fitted with varistors as standard. An additional series resistor is not required.

Please note:

- Size S00: It is not possible to mount an auxiliary switch block.
- Size S0: Up to two single-pole auxiliary switch blocks can be mounted.

Mounting

A clearance of 10 mm is required for side-by-side mounting at ambient temperatures $> 60\text{ °C} \leq 70\text{ °C}$.

3RT10 contactors with contactor control unit, extended operating range

[3RT10 ...-X.40-OLA2](#)

They are supplied as complete units with a built-on contactor control unit.

Control and auxiliary circuits

The contactors are energized via upstream control electronics which ensure the coil operating range of 0.7 to $1.25 \times U_s$ at an ambient temperature of 70 °C .

A varistor is integrated for damping opening surges in the coil. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

The possibility of mounting auxiliary switches is the same as that for equivalent standard contactors.

Mounting

At ambient temperatures up to 70 °C , sizes S0 to S3 of these contactor versions are allowed to be mounted side by side.

Dimensions

Because of the built-on contactor control unit, the height of the size S0 to S3 contactors increases by up to 34 mm (see note on [Dimensional Drawings](#), page 3/1).

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$, for Railway Applications

3RT10 motor contactors, 5.5 ... 45 kW

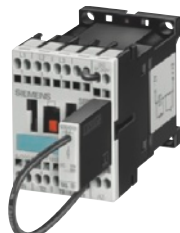
Selection and ordering data

DC operation · DC solenoid system

Cage Clamp terminals

For screw and snap-on mounting onto standard mounting rail

Solenoid coil fitted with varistor



3RT10 17-2K.4.-0LA0



3RT10 2.-3K.40



3RT10 3.-3K.44-0LA0

Rated data AC-2 and AC-3 T_U : 70 °C		Auxiliary con- tacts		Rated control sup- ply voltage U_s		DT	Cage Clamp terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Operational cur- rent I_e at	Ratings of induction motors at	Version					Order No.	Price per PU			kg
400 V	230 V	400 V	500 V	690 V							
A	kW	kW	kW	kW	NO	NC	V DC				

3RT10 contactors for switching motors

Size S00

Cage Clamp terminals for all connections

12	3	5.5	5.5	5.5	1 ¹⁾	--	24 ³⁾ 110 ³⁾	►	3RT10 17-2KB41	1	1 unit	101	0.260
								B	3RT10 17-2KF41	1	1 unit	101	0.260
12	3	5.5	5.5	5.5	--	1 ¹⁾	24 ³⁾ 110 ³⁾	►	3RT10 17-2KB42	1	1 unit	101	0.260
								B	3RT10 17-2KF42	1	1 unit	101	0.260
12	3	5.5	5.5	5.5	--	1 ²⁾	24 110	A	3RT10 17-2KB42-0LA0	1	1 unit	101	0.280
								B	3RT10 17-2KF42-0LA0	1	1 unit	101	0.280

Size S0

Cage Clamp terminals for coil terminals and auxiliary contacts

17	4	7.5	10	11	--	-- ⁴⁾	24 ³⁾ 110 ³⁾	►	3RT10 25-3KB40	1	1 unit	101	0.600
								B	3RT10 25-3KF40	1	1 unit	101	0.600
25	5.5	11	11	11	--	-- ⁴⁾	24 ³⁾ 110 ³⁾	►	3RT10 26-3KB40	1	1 unit	101	0.600
								B	3RT10 26-3KF40	1	1 unit	101	0.600
17	4	7.5	10	11	2	1 ⁵⁾	24 110	B	3RT10 25-3KB44-0LA0	1	1 unit	101	0.760
								B	3RT10 25-3KF44-0LA0	1	1 unit	101	0.760
25	5.5	11	11	11	2	1 ⁵⁾	24 110	B	3RT10 26-3KB44-0LA0	1	1 unit	101	0.760
								B	3RT10 26-3KF44-0LA0	1	1 unit	101	0.760

Size S2

Cage Clamp terminals for coil terminals and auxiliary contacts

32	7.5	15	18.5	18.5	2	1 ⁵⁾	24 110	B	3RT10 34-3KB44-0LA0	1	1 unit	101	1.670
								B	3RT10 34-3KF44-0LA0	1	1 unit	101	1.670
40	11	18.5	22	22	2	1 ⁵⁾	24 110	B	3RT10 35-3KB44-0LA0	1	1 unit	101	1.670
								B	3RT10 35-3KF44-0LA0	1	1 unit	101	1.670
50	15	22	30	22	2	1 ⁵⁾	24 110	B	3RT10 36-3KB44-0LA0	1	1 unit	101	1.670
								B	3RT10 36-3KF44-0LA0	1	1 unit	101	1.670

Size S3

Cage Clamp terminals for coil terminals and auxiliary contacts

65	18.5	30	37	43	2	1 ⁵⁾	24 110	B	3RT10 44-3KB44-0LA0	1	1 unit	101	3.100
								B	3RT10 44-3KF44-0LA0	1	1 unit	101	3.100
80	22	37	45	55	2	1 ⁵⁾	24 110	B	3RT10 45-3KB44-0LA0	1	1 unit	101	3.100
								B	3RT10 45-3KF44-0LA0	1	1 unit	101	3.100
95	22	45	55	55	2	1 ⁵⁾	24 110	B	3RT10 46-3KB44-0LA0	1	1 unit	101	3.100
								B	3RT10 46-3KF44-0LA0	1	1 unit	101	3.100

For spare parts, see page 3/103.

- ¹⁾ It is not possible to mount an auxiliary switch block. A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C.
- ²⁾ One 4-pole auxiliary switch block according to EN 50005 can be mounted; no distance required up to 70 °C.
- ³⁾ Version without series resistor.
- ⁴⁾ Up to two single-pole auxiliary switch blocks can be mounted. A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C.
- ⁵⁾ The number of auxiliary contacts cannot be increased; no clearance required up to 70 °C.

* You can order this quantity or a multiple thereof.

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

Contactors with Extended Operating Range 0.7 ... 1.25 x U_s , for Railway Applications

3RT10 motor contactors, 5.5 ... 45 kW

DC operation - DC solenoid system

For screw and snap-on mounting onto standard mounting rail

Contactor control unit

Solenoid coil fitted with varistor

PU (UNIT, SET, M)= 1
 PS* = 1 unit
 PG = 101



3RT10 ...-3X.40-0LA2

Rated data AC-2 and AC-3 T_U : Up to 70 °C		Auxiliary contacts ¹⁾		Rated control supply volt- age U_s	DT	Screw terminals		Weight per PU approx.	DT	Cage Clamp terminals		Weight per PU approx.
Rated oper- ational current I_e up to 400 V	Power of induction motors at 50 Hz 400 V	Ident. No.	Version			Order No.	Price per PU			Order No.	Price per PU	
A	kW											
		NO	NC	V DC				kg				kg

For screw and snap-on mounting onto TH 35 standard mounting rail**Size S0**

17	7.5	--	--	--	24	C	3RT10 25-1XB40-0LA2	0.640 B	3RT10 25-3XB40-0LA2	0.640
		--	--	--	110	B	3RT10 25-1XF40-0LA2	0.640 B	3RT10 25-3XF40-0LA2	0.640
25	11	--	--	--	24	B	3RT10 26-1XB40-0LA2	0.640 B	3RT10 26-3XB40-0LA2	0.640
		--	--	--	110	B	3RT10 26-1XF40-0LA2	0.640 B	3RT10 26-3XF40-0LA2	0.640

Size S2

32	15	--	--	--	24	B	3RT10 34-1XB40-0LA2	1.500 C	3RT10 34-3XB40-0LA2	1.500
		--	--	--	110	B	3RT10 34-1XF40-0LA2	1.500 B	3RT10 34-3XF40-0LA2	1.500
40	18.5	--	--	--	24	B	3RT10 35-1XB40-0LA2	1.500 C	3RT10 35-3XB40-0LA2	1.500
		--	--	--	110	B	3RT10 35-1XF40-0LA2	1.500 B	3RT10 35-3XF40-0LA2	1.500
50	22	--	--	--	24	B	3RT10 36-1XB40-0LA2	1.500 B	3RT10 36-3XB40-0LA2	1.500
		--	--	--	110	B	3RT10 36-1XF40-0LA2	1.500 B	3RT10 36-3XF40-0LA2	1.500

For screw and snap-on mounting onto TH 35 and TH 75 standard mounting rail**Size S3**

65	30	--	--	--	24	B	3RT10 44-1XB40-0LA2	2.900 B	3RT10 44-3XB40-0LA2	2.900
		--	--	--	110	B	3RT10 44-1XF40-0LA2	2.900 B	3RT10 44-3XF40-0LA2	2.900
80	37	--	--	--	24	B	3RT10 45-1XB40-0LA2	2.900 B	3RT10 45-3XB40-0LA2	2.900
		--	--	--	110	B	3RT10 45-1XF40-0LA2	2.900 B	3RT10 45-3XF40-0LA2	2.900
95	45	--	--	--	24	B	3RT10 46-1XB40-0LA2	2.900 B	3RT10 46-3XB40-0LA2	2.900
		--	--	--	110	B	3RT10 46-1XF40-0LA2	2.900 B	3RT10 46-3XF40-0LA2	2.900

¹⁾ Auxiliary switch blocks mountable as standard contactors.

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$, for Railway Applications

3TB5 motor contactors, 55 ... 200 kW

Overview

EN 60947-4-1.

For requirements according to IEC 60077-1 and IEC 60077-2.

The contactors are finger-safe according to EN 50274. Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

All specifications and technical specifications not mentioned here are identical to those of the standard 3TB contactors.

Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full operating range of the solenoid coil) is -50 to $+70$ °C. Uninterrupted duty at temperatures < -25 °C and $> +55$ °C reduces the mechanical endurance, the current-carrying capacity of the conducting paths and the switching frequency.

At ambient temperatures > 55 °C, a distance of 10 mm must be observed if contactor relays and size 1 and 2 contactors are mounted side by side. There is no need to reduce the technical specifications.

Series resistor

The DC solenoid systems of the 3TB contactors must be modified (to hold-in coil) by means of a series resistor. This series resistor is supplied separately packed with the contactors.

With types 3TB50, the series resistor must be attached onto the right-hand side of the auxiliary switch block by means of the enclosed mounting parts and sets of links provided. With types

3TB52 to 3TB56, the series resistor must be attached separately next to the contactors.

One NC of the auxiliary contacts is required for the series resistor function. The selection and ordering data show the number of additional, unassigned auxiliary contacts. It is not possible to extend the number of auxiliary contacts.

Reversing contactors

With the 3TB52 to 3TB56 contactors, the series resistor must be connected using an additional K2 reversing contactor (3RT13 17-1F.40). This contactor is automatically included in the scope of supply in the same packaging as the contactor.

Dimensions

Attaching resistors and varistors increases the width of the contactors (see note on Dimensional Drawings, page 3/1).

Application

For operation in plants which are subject both to considerable variations in the control voltage and to high ambient temperatures, e. g. in railway applications.

Control and auxiliary circuits

The solenoid coils of the contactors have an extended coil operating range from 0.7 to $1.25 \times U_s$ and are fitted as standard with varistors to provide protection against overvoltage. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

Selection and ordering data

3TB50 to 3TB56 contactors

For screw fixing

Solenoid coil fitted with varistor

Size	Rated data AC-2 and AC-3					Auxiliary contacts ¹⁾		Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Operational current I_e at	Ratings of induction motors at				Version				Order No.	Price per PU			
	400 V	230 V	400 V	500 V	690 V	NO	NC	V DC						
	A	kW	kW	kW	kW									kg
Contactors for switching AC voltage DC operation · DC solenoid system														
6	110	37	55	75	90	2	1	24 110	D	3TB50 17-0LB4 3TB50 17-0LF4	1 1	1 unit 1 unit	101 101	6.600 6.600
8	170	55	90	110	132	2	1	24 110	D	3TB52 17-0LB4 3TB52 17-0LF4	1 1	1 unit 1 unit	101 101	9.300 9.300
10	250	75	132	160	200	2	1	24 110	D	3TB54 17-0LB4 3TB54 17-0LF4	1 1	1 unit 1 unit	101 101	16.800 16.800
12	400	115	200	255	355	2	1	110	D	3TB56 17-0LF4	1	1 unit	101	19.800

¹⁾ The number of auxiliary contacts cannot be increased.

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

Contactors with Extended Operating Range 0.7 ... 1.25 x U_s , for Railway Applications

3TC contactors for switching DC voltage, 2-pole

Overview

EN 60947-4-1.

For requirements according to IEC 60077-1 and IEC 60077-2.

The contactors are finger-safe according to EN 50274 (exception: series resistor). Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

All specifications and technical specifications not mentioned here are identical to those of the standard 3TC contactors.

Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full operating range of the solenoid coil) is -50 to +70 °C. Uninterrupted duty at temperatures < -25 °C and > +55 °C reduces the mechanical endurance, the current-carrying capacity of the conducting paths and the switching frequency.

At ambient temperatures > 55 °C, a distance of 10 mm must be observed if contactor relays and size 1 and 2 contactors are mounted side by side. There is no need to reduce the technical specifications.

Series resistor

The DC solenoid systems of the 3TC contactors must be modified (to hold-in coil) by means of a series resistor. This series resistor is supplied separately packed with the contactors.

With types 3TC48, the series resistor must be attached onto the right-hand side of the auxiliary switch block by means of the en-

closed mounting parts and sets of links provided, while in the case of the 3TC44 it must be mounted and wired between the contactor poles. With types 3TC52 and 3TC56, the series resistor must be attached separately next to the contactors.

One NC of the auxiliary contacts is required for the series resistor function. The selection and ordering data show the number of additional, unassigned auxiliary contacts. It is not possible to extend the number of auxiliary contacts.

Reversing contactors

With the 3TC52 and 3TC56 contactors, the series resistor must be connected using an additional K2 reversing contactor (3RT13 17-1F.40). This contactor is automatically included in the scope of supply in the same packaging as the contactor.

Dimensions

Attaching resistors and varistors increases the width of the contactors (see note on Dimensional Drawings, page 3/1).

Application

For operation in plants which are subject both to considerable variations in the control voltage and to high ambient temperatures, e. g. in railway applications.

Control and auxiliary circuits

The solenoid coils of the contactors have an extended coil operating range from 0.7 to 1.25 x U_s and are fitted as standard with varistors to provide protection against overvoltage. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

Selection and ordering data

3TC44: for screw and snap-on mounting onto 35 mm standard mounting rail

3TC48 to 3TC56: For screw fixing

Solenoid coil fitted with varistor



3TC48

Size	Utilization categories	Rated operational current I_e at	Rated power of loads at					Auxiliary contacts ¹⁾	Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			750 V	220 V	440 V	600 V	750 V								
			A	kW	kW	kW	kW	NO NC	V DC		Order No.	Price per PU			kg
Contactors for switching DC voltage															
DC operation · DC solenoid system															
2	DC-1	32	7	14	19.2	24	2	1	24	B	3TC44 17-0LB4	1	1 unit	101	1.380
	DC-3/DC-5	7.5	5	9	9	4			110	B	3TC44 17-0LF4	1	1 unit	101	1.380
4	DC-1	75	16.5	33	45	56	2	1	24	C	3TC48 17-0LB4	1	1 unit	101	4.900
	DC-3/DC-5	75	13	27	38	45			110	C	3TC48 17-0LF4	1	1 unit	101	4.900
8	DC-1	170	48	97	132	165	2	1	24	C	3TC52 17-0LB4	1	1 unit	101	10.800
	DC-3/DC-5	170	41	82	110	110			110	C	3TC52 17-0LF4	1	1 unit	101	10.800
12	DC-1	400	88	176	240	300	2	1	24	C	3TC56 17-0LB4	1	1 unit	101	19.500
	DC-3/DC-5	400	70	140	200	250			110	D	3TC56 17-0LF4	1	1 unit	101	19.500

¹⁾ The number of auxiliary contacts cannot be increased.

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

3TC Contactors for Switching DC Voltage

1- and 2-pole, 32 ... 400 A

Overview

3TC4 and 3TC5

EN 60947-4-1 (VDE 0660 Part 102).

The contactors are finger-safe according to EN 50274.

Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

The DC motor ratings given in the tables are applicable to the DC-3 and DC-5 utilization categories with two-pole switching of the load or with the two conducting paths of the contactor connected in series.

One contactor conducting path can switch full power up to 220 V. The ratings for higher voltages are available on request.

3TC7

EN 60947-4-1 (VDE 0660 Part 102).

The contactors are suitable for use in any climate. They are suitable for switching and controlling DC motors as well as all other DC loads. The electromagnetic excitation is designed for a particularly wide coil operating range.

It is between 0.7 or 0.8 to $1.2 \times U_s$.

3TC74 contactors can be used at up to 750 V/400 A and 50 Hz in AC-1 operation.

Application

The contactors are suitable for switching and controlling DC motors as well as all other DC circuits.

A version with an especially large coil operating range is available for operation in electrically driven vehicles and in switchgear with significant fluctuations in the actuating voltage ([see page 3/65](#)).

3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

3TC Contactors for Switching DC Voltage

1- and 2-pole, 32 ... 400 A

Selection and ordering data



3TC44

3TC48

Size	Rated data DC-3 and DC-5 ¹⁾	Auxiliary contacts ²⁾	Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Operational current I_e ³⁾	Ratings of DC motors at							
		110 V 220 V 440 V 600 V 750 V	Version		Order No.	Price per PU			
			NO NC V						kg

3TC44 to 3TC56 two-pole contactors

DC operation

Screw and snap-on mounting onto TH 35 standard mounting rail

2	32	2.5	5	9	9	4	2	2	24 DC	▶	3TC44 17-0AB4	1	1 unit	101	1.100
									110 DC	▶	3TC44 17-0AF4	1	1 unit	101	1.100
									220 DC	▶	3TC44 17-0AM4	1	1 unit	101	1.100

Screw fixing

4	75	6.5	13	27	38	45	2	2	24 DC	A	3TC48 17-0AB4	1	1 unit	101	4.700
									110 DC	A	3TC48 17-0AF4	1	1 unit	101	4.700
									220 DC	A	3TC48 17-0AM4	1	1 unit	101	4.700
8	220 ⁴⁾	20	41	82	110	110	2	2	24 DC	C	3TC52 17-0AB4	1	1 unit	101	10.800
									110 DC	C	3TC52 17-0AF4	1	1 unit	101	10.800
									220 DC	C	3TC52 17-0AM4	1	1 unit	101	10.800
12	400	35	70	140	200	250	2	2	24 DC	C	3TC56 17-0AB4	1	1 unit	101	19.500
									110 DC	C	3TC56 17-0AF4	1	1 unit	101	19.500
									220 DC	C	3TC56 17-0AM4	1	1 unit	101	19.500

AC operation, 50 Hz

Screw and snap-on mounting onto TH 35 standard mounting rail

2	32	2.5	5	9	9	4	2	2	220/230 AC ⁵⁾	▶	3TC44 17-0BP0	1	1 unit	101	0.700
									110/110 AC	▶	3TC44 17-0BF0	1	1 unit	101	0.700

Screw fixing

4	75	6.5	13	27	38	45	2	2	220/230 AC ⁵⁾	A	3TC48 17-0BP0	1	1 unit	101	3.500
									110 AC	C	3TC48 17-0BF0	1	1 unit	101	3.500
8	220 ⁴⁾	20	41	82	110	110	2	2	220/230 AC ⁵⁾	A	3TC52 17-0BP0	1	1 unit	101	7.200
									110 AC	C	3TC52 17-0BF0	1	1 unit	101	7.200
12	400	35	70	140	200	250	2	2	220/230 AC ⁵⁾	C	3TC56 17-0BP0	1	1 unit	101	14.500
									110 AC	C	3TC56 17-0BF0	1	1 unit	101	14.500

For more rated control supply voltages U_s , see page 3/68.¹⁾ For the permissible load for utilization category DC-1, see note on Technical Information on page 3/1.²⁾ The fitting of auxiliary switches cannot be altered on DC-operated contactors.³⁾ The following rated operational currents are permitted for reversing duty with 3TC44 to 3TC56 contactors:

Type	110 V, 220 V	440 V
3TC44	32 A	7 A
3TC48	75 A	75 A
3TC52	170 A	170 A
3TC56	400 A	400 A

⁴⁾ At > 600 V: $I_e = 170$ A.⁵⁾ Operating range at 220 V: 0.85 to 1.15 x U_s .

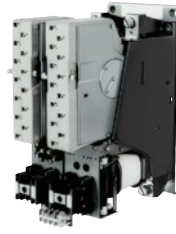
3RT, 3RH, 3TB, 3TC, 3TH, 3TK Contactors for Special Applications

3TC Contactors for Switching DC Voltage

1- and 2-pole, 32 ... 400 A



3TC74



3TC78

Size	Rated data DC-3 and DC-5 ¹⁾							Auxiliary contacts ²⁾	Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Operational current I_e	Ratings of DC motors at						Version							
		110 V	220 V	440 V	600 V	750 V	1200 V	1500 V							
	A	kW	kW	kW	kW	kW	kW	kW	NO	NC	V	Order No.	Price per PU		kg

3TC74 1-pole contactors · Operational voltage up to 750 V

DC operation

12	400	35	70	140	200	250	--	--	4	4	24 DC 110 DC	C	3TC74 14-0EB 3TC74 14-0EF	1 1	1 unit 1 unit	101 101	10.800 10.800
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AC operation, 50 Hz

12	400	35	70	140	200	250	--	--	4	4	230/220 AC ³⁾	C	3TC74 14-1CM	1	1 unit	101	10.800
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3TC78 2-pole contactors · Operational voltage up to 1500 V

DC operation

12	400	35	70	140	200	250	400	500	4	4	24 DC 110 DC	C	3TC78 14-0EB 3TC78 14-0EF	1 1	1 unit 1 unit	101 101	22.500 22.500
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AC operation, 50 Hz

12	400	35	70	140	200	250	400	500	4	4	230/220 AC ³⁾	C	3TC78 14-1CM	1	1 unit	101	23.800
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For more rated control supply voltages U_s see below.
For spare parts, see page 3/130.

¹⁾ For the permissible load for utilization category DC-1, see note on Technical Information on page 3/1.

²⁾ The fitting of auxiliary switches cannot be altered on DC-operated contactors.

³⁾ Upper operating range limit at 230 V: $1.14 \times U_s$.

Rated control supply voltages (the 10th and 11th position of the order number must be changed)

Contactor type	3TC44	3TC48	3TC52/56	3TC74/78
Rated control supply voltage U_s				
AC operation				
Solenoid coils for 50 Hz				
24 V AC	B0	B0	--	--
110 V AC	F0	F0	F0	--
230/220 V AC	P0 ¹⁾	P0 ¹⁾	P0 ¹⁾	M ²⁾
240 V AC	U0	U0	--	--
AC operation				
Solenoid coils for 50/60 Hz				
24 V AC	C2	--	--	--
110 V AC	G2	--	--	--
120 V AC	K2	--	--	--
220 V AC	N2	--	--	--
230 V AC	L2	--	--	--
DC operation				
24 V DC	B4	B4	B4	B
48 V DC	W4	W4	--	--
60 V DC	E4	E4	--	--
110 V DC	F4	F4	F4	F
125 V DC	G4	G4	--	--
220 V DC	M4	M4	M4	M
230 V DC	P4	P4	--	--

¹⁾ Operating range at 220 V or 380 V: 0.85 to $1.15 \times U_s$; lower operating range limit according to IEC 60947.

²⁾ Upper operating range limit at 230 V: $1.14 \times U_s$.