

Overview

AC and DC operation

IEC 60947, EN 60947.

The 3RH1 contactor relays are suitable for use in any climate.

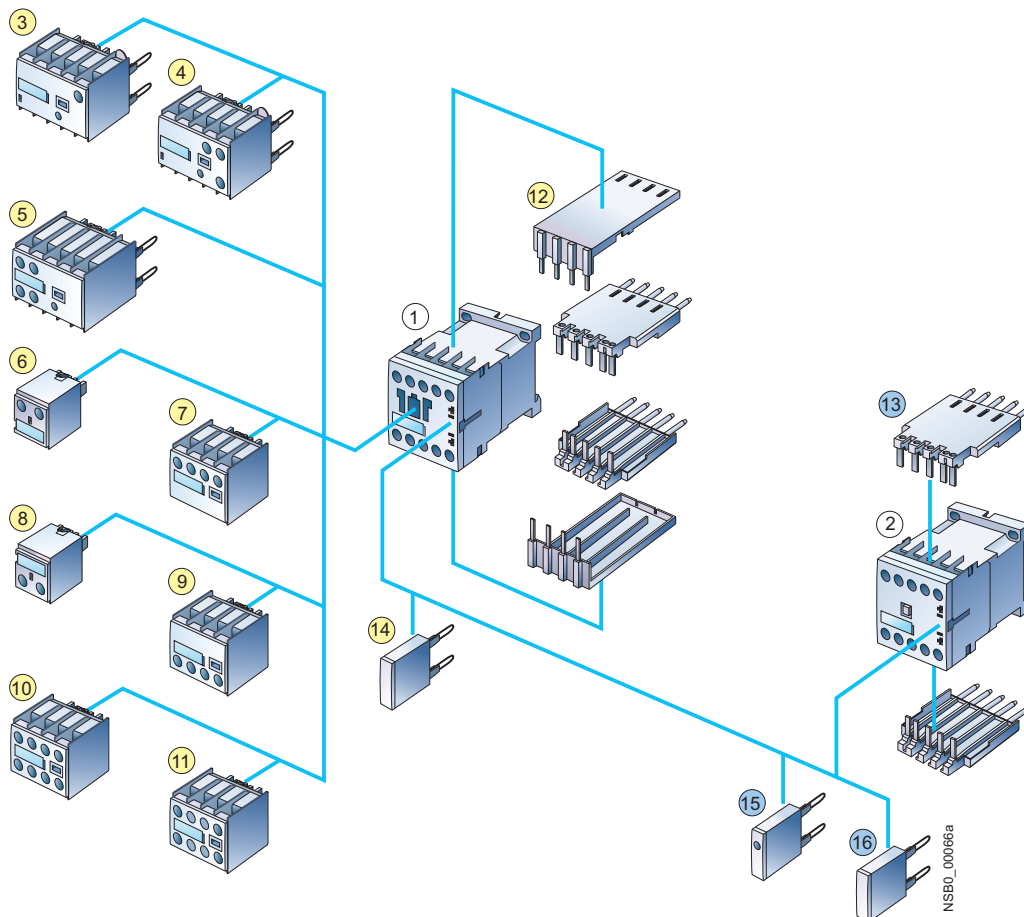
They are finger-safe according to EN 50274.

The 3RH1 contactor relays have screw or Cage Clamp terminals. Four contacts are available in the basic unit. For expansions see Accessories on page 3/97.

Contact reliability

High contact stability at low voltages and currents, suitable for solid-state circuits with currents > 1 mA at a voltage of 17 V.

Contactor relays and coupling relays size S00 with accessories



① Contactor relay, see page 3/70

② Coupling relay for auxiliary circuits, see page 3/78

③ Solid-state timing relay block, ON-delay, see page 3/107

④ Solid-state timing relay block, OFF-delay, see page 3/107

⑤ Auxiliary switch block, solid-state time delay, see page 3/106 (versions: ON or OFF-delay)

⑥ 1-pole auxiliary switch block, cable entry from above, see page 3/102

⑦ 2-pole auxiliary switch block, cable entry from above, see page 3/102

⑧ 1-pole auxiliary switch block, cable entry from below, see page 3/102

⑨ 2-pole auxiliary switch block, cable entry from below, see page 3/102

Surge suppression

RC elements, varistors, diodes or diode assemblies (combination of a diode and a Zener diode) can be plugged onto all contactor relays from the front for damping opening surges in the coil. The plug-in direction is determined by a coding device.

Note:

The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (noise suppression diode 6 to 10 times; diode assemblies 2 to 6 times, varistor +2 to 5 ms).

3RH, 3TH Contactor Relays

3RH1 contactor relays, 4- and 8-pole

Selection and ordering data

AC and DC operation

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

Size S00



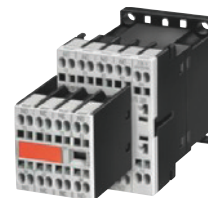
3RH11 ..-1...



3RH11 ..-2...



3RH12 ..-1...



3RH12 ..-2...

Rated operational current I_e /AC-15/AC-14 at 230 V	Contacts		Rated control supply voltage U_s	DT	Screw terminals		Weight per PU approx.	DT	Cage Clamp terminals		Weight per PU approx.
	Ident. No.	Version			⊕	⊙			⊙	⊙	
					Order No.	Price per PU			Order No.	Price per PU	
A		NO NC	V AC				kg				kg

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

Terminal designations according to EN 50011

AC operation

				50/60 Hz ¹⁾					
6	40 E	4	--	24	▶ 3RH11 40-1AB00	0.200	▶ 3RH11 40-2AB00	0.200	
				110	▶ 3RH11 40-1AF00	0.200	▶ 3RH11 40-2AF00	0.200	
				230	▶ 3RH11 40-1AP00	0.200	▶ 3RH11 40-2AP00	0.200	
31 E	3	1	24	▶ 3RH11 31-1AB00	0.200	▶ 3RH11 31-2AB00	0.200		
			110	▶ 3RH11 31-1AF00	0.200	▶ 3RH11 31-2AF00	0.200		
			230	▶ 3RH11 31-1AP00	0.200	▶ 3RH11 31-2AP00	0.200		
22 E	2	2	24	▶ 3RH11 22-1AB00	0.200	▶ 3RH11 22-2AB00	0.200		
			110	▶ 3RH11 22-1AF00	0.200	▶ 3RH11 22-2AF00	0.200		
			230	▶ 3RH11 22-1AP00	0.200	▶ 3RH11 22-2AP00	0.200		

• With permanently mounted auxiliary switch block for safety applications according to SUVA

6	44 E	4	4	230	▶ 3RH12 44-1AP00	0.250	B	▶ 3RH12 44-2AP00	0.250
	62 E	6	2	230	▶ 3RH12 62-1AP00	0.250	B	▶ 3RH12 62-2AP00	0.250

DC operation · DC solenoid system

				DC					
6	40 E	4	--	24	▶ 3RH11 40-1BB40	0.260	▶ 3RH11 40-2BB40	0.260	
				220	▶ 3RH11 40-1BM40	0.260	B	▶ 3RH11 40-2BM40	0.260
31 E	3	1	24	▶ 3RH11 31-1BB40	0.260	▶ 3RH11 31-2BB40	0.260		
			220	▶ 3RH11 31-1BM40	0.260	B	▶ 3RH11 31-2BM40	0.260	
22 E	2	2	24	▶ 3RH11 22-1BB40	0.260	▶ 3RH11 22-2BB40	0.260		
			220	▶ 3RH11 22-1BM40	0.260	B	▶ 3RH11 22-2BM40	0.260	

• With permanently mounted auxiliary switch block for safety applications according to SUVA

6	44 E	4	4	24	▶ 3RH12 44-1BB40	0.310	A	▶ 3RH12 44-2BB40	0.310
	62 E	6	2	24	▶ 3RH12 62-1BB40	0.310	A	▶ 3RH12 62-2BB40	0.310

For other voltages see page 3/71, for contactors with permanently mounted auxiliary switch block please inquire.
 For accessories, see page 3/102 and 3/104.

For multi-unit packing and reusable packaging, see "Appendix" → "Ordering notes".

¹⁾ Coil operating range
 at 50 Hz: 0.8 to 1.1 × U_s
 at 60 Hz: 0.85 to 1.1 × U_s .

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

Rated control supply voltage U_s	Contactor type	3RH1
	Control supply voltage at	
AC operation		
Solenoid coils for AC 50/60 and 60 Hz		
50/60 Hz¹⁾	60 Hz	
24 V AC	--	B0
42 V AC	--	D0
48 V AC	--	H0
110 V AC	--	F0
220 V AC	--	N2
230 V AC	--	P0
400 V AC	--	V0
Solenoid coils for AC 50/60 and 60 Hz (for Japan²⁾)		
100 V AC	110 V AC	G6
200 V AC	220 V AC	N6
400 V AC	440 V AC	R6
Solenoid coils for AC 50 and 60 Hz (for USA and Canada³⁾)		
50 Hz	60 Hz	
110 V AC	120 V AC	K6
220 V AC	240 V AC	P6
DC operation		
12 V DC		A4
24 V DC		B4
42 V DC		D4
48 V DC		W4
60 V DC		E4
110 V DC		F4
125 V DC		G4
220 V DC		M4
230 V DC		P4

¹⁾ Coil operating range
at 50 Hz: 0.8 to 1.1 x U_s
at 60 Hz: 0.85 to 1.1 x U_s .

²⁾ Coil operating range
at 50/60 Hz: 0.85 to 1.1 x U_s
at 60 Hz: 0.8 to 1.1 x U_s .

³⁾ Coil operating range
at 50 Hz: 0.85 to 1.1 x U_s
at 60 Hz: 0.8 to 1.1 x U_s .

3RH, 3TH Contactor Relays

3RH14 latched contactor relays, 4-pole

Overview

AC and DC operation

IEC 60947, EN 60947.

The terminal designations comply with EN 50011.

The contactor coil and the coil of the release solenoid are both designed for uninterrupted duty.

The number of auxiliary contacts can be extended by means of auxiliary switch blocks (up to 4 poles) (see [Accessories on page 3/97](#)).

RC elements, varistors diodes or diode assemblies can be fitted to both coils from the front for damping opening surges in the coil.

The contactor relay can also be switched on and released manually (see [note on Technical Information on page 3/1](#)).

Selection and ordering data



3RH14.-1...

Rated operational current I_e /AC-15/AC-14 at 230 V	Contacts		Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Ident. No. acc. to EN 50011	Version							
					Order No.	Price per PU			kg
A		NO NC V							

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

AC operation

6	40 E	4	--	AC 50/60 Hz ¹⁾		DT	Order No.	PU	PS	PG	Weight per PU
				V	DT						
				24	B	3RH14 40-1AB00	1	1 unit	101	0.380	
				42	B	3RH14 40-1AD00	1	1 unit	101	0.380	
				110	B	3RH14 40-1AF00	1	1 unit	101	0.380	
				230	A	3RH14 40-1AP00	1	1 unit	101	0.380	
	31 E	3	1	24	B	3RH14 31-1AB00	1	1 unit	101	0.380	
				42	B	3RH14 31-1AD00	1	1 unit	101	0.380	
				110	B	3RH14 31-1AF00	1	1 unit	101	0.380	
				230	B	3RH14 31-1AP00	1	1 unit	101	0.380	
	22 E	2	2	24	B	3RH14 22-1AB00	1	1 unit	101	0.380	
				42	B	3RH14 22-1AD00	1	1 unit	101	0.380	
				110	B	3RH14 22-1AF00	1	1 unit	101	0.380	
				230	▶	3RH14 22-1AP00	1	1 unit	101	0.380	

DC operation · DC solenoid system

6	40 E	4	--	DC		DT	Order No.	PU	PS	PG	Weight per PU
				V	DT						
				24	▶	3RH14 40-1BB40	1	1 unit	101	0.500	
				110	B	3RH14 40-1BF40	1	1 unit	101	0.500	
				220	B	3RH14 40-1BM40	1	1 unit	101	0.500	
	31 E	3	1	24	B	3RH14 31-1BB40	1	1 unit	101	0.500	
				110	B	3RH14 31-1BF40	1	1 unit	101	0.500	
				220	B	3RH14 31-1BM40	1	1 unit	101	0.500	
	22 E	2	2	24	▶	3RH14 22-1BB40	1	1 unit	101	0.500	
				110	B	3RH14 22-1BF40	1	1 unit	101	0.500	
				220	B	3RH14 22-1BM40	1	1 unit	101	0.500	

For accessories, see page 3/102 and 3/104.

¹⁾ Coil operating range
at 50 Hz: 0.8 to 1.1 × U_s
at 60 Hz: 0.85 to 1.1 × U_s .

3TH4 contactor relays, 8- and 10-pole

Overview

AC and DC operation

IEC 60947, EN 60947.

The 3TH42 and 3TH43 contactor relays are suitable for use in any climate. They are finger-safe according to EN 50274.

Terminal designations acc. to EN 50011

In terms of their terminal designations, identification numbers and identification letters, the 3TH42/3TH43 contactor relays conform to the standard EN 50011 for "Specific contactor relays".

Selection and ordering data



3TH42 ...-0...

Contacts	Rated operational current I_e /AC-15/AC-14 at				Contacts	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	230/220 V	400/380 V	500 V	690/660 V							
Number	A	A	A	A							kg
					NO	NC	NO	NC			

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

AC operation, rated control supply voltage $U_s = AC 50 \text{ Hz } 230/220 \text{ V}^1)$

8	10	6	4	2	80 E	8	--	--	--	▶	3TH42 80-0AP0	1	1 unit	101	0.420
					71 E	7	1	--	--	▶	3TH42 71-0AP0	1	1 unit	101	0.420
					62 E	6	2	--	--	D	3TH42 62-0AP0	1	1 unit	101	0.420
					53 E	5	3	--	--	▶	3TH42 53-0AP0	1	1 unit	101	0.420
					44 E	4	4	--	--	▶	3TH42 44-0AP0	1	1 unit	101	0.420
					44 E, U	3	3	1	1	▶	3TH42 93-0AP0	1	1 unit	101	0.420

DC operation · DC solenoid system, rated control supply voltage $U_s = 24 \text{ V DC}$

8	10	6	4	2	80 E	8	--	--	--	▶	3TH42 80-0BB4	1	1 unit	101	0.670
					71 E	7	1	--	--	▶	3TH42 71-0BB4	1	1 unit	101	0.670
					62 E	6	2	--	--	▶	3TH42 62-0BB4	1	1 unit	101	0.670
					53 E	5	3	--	--	▶	3TH42 53-0BB4	1	1 unit	101	0.670
					44 E	4	4	--	--	▶	3TH42 44-0BB4	1	1 unit	101	0.670
					44 E, U	3	3	1	1	▶	3TH42 93-0BB4	1	1 unit	101	0.670

For accessories, see page 3/125.

Spare parts

Solenoid coils:

AC operation: 3TY7 403-0A.

DC operation: 3TY4 803-0B.

(voltages on request)

Contacts:

The contacts cannot be replaced on 3TH42 contactor relays.

¹⁾ Operating range at 220 V: 0.85 to 1.1 × U_s ;
lower operating range limit according to IEC 60947.

3RH, 3TH Contactor Relays

3TH4 contactor relays, 8- and 10-pole



3TH43...-0A..



3TH43...-0B..

Contacts	Rated operational current I_e /AC-15/AC-14 at				Contacts		DT	Screw terminals	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						
	A	A	A	A				Order No.	Price per PU			
Number	A	A	A	A		NO NC NO NC						kg

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

AC operation, rated control supply voltage $U_s = AC 50 Hz 230/220 V^{1)}$

10	10	6	4	2											
					100 E	10	--	--	--	▶	3TH43 10-0AP0	1	1 unit	101	0.480
					91 E	9	1	--	--	▶	3TH43 91-0AP0	1	1 unit	101	0.480
					82 E	8	2	--	--	▶	3TH43 82-0AP0	1	1 unit	101	0.480
					73 E	7	3	--	--	▶	3TH43 73-0AP0	1	1 unit	101	0.480
					73 E,U	6	2	1	1	▶	3TH43 46-0AP0	1	1 unit	101	0.480
					64 E	6	4	--	--	▶	3TH43 64-0AP0	1	1 unit	101	0.480
					55 E	5	5	--	--	▶	3TH43 55-0AP0	1	1 unit	101	0.480
					55 E,U	4	4	1	1	▶	3TH43 94-0AP0	1	1 unit	101	0.480

DC operation - DC solenoid system, rated control supply voltage $U_s = 24 V DC$

10	10	6	4	2											
					100 E	10	--	--	--	▶	3TH43 10-0BB4	1	1 unit	101	0.710
					91 E	9	1	--	--	▶	3TH43 91-0BB4	1	1 unit	101	0.710
					82 E	8	2	--	--	▶	3TH43 82-0BB4	1	1 unit	101	0.710
					73 E	7	3	--	--	▶	3TH43 73-0BB4	1	1 unit	101	0.710
					73 E, U	6	2	1	1	▶	3TH43 46-0BB4	1	1 unit	101	0.710
					64 E	6	4	--	--	▶	3TH43 64-0BB4	1	1 unit	101	0.710
					55 E	5	5	--	--	▶	3TH43 55-0BB4	1	1 unit	101	0.710
					55 E, U	4	4	1	1	▶	3TH43 94-0BB4	1	1 unit	101	0.710

For accessories, see page 3/125.

¹⁾ Operating range at 220 V: 0.85 to 1.1 x U_s .
lower operating range limit according to IEC 60947.

Spare parts
Solenoid coils:
AC operation: 3TY7 403-0A..
DC operation: 3TY4 803-0B..
Contacts:

The contacts cannot be replaced on 3TH43 contactor relays.

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

Rated control supply voltage U_s	Contactor type	3TH42/3TH43
Control supply voltage at		

AC operation

Solenoid coils for AC 50 Hz

50 Hz	60 Hz	
24 V AC	29 V AC	B0
36 V AC	42 V AC	G0
42 V AC	50 V AC	D0
48 V AC	58 V AC	H0
60 V AC	72 V AC	E0
110 V AC	132 V AC	F0
125/127 V AC	150/152 V AC	L0
230/220 V AC	276 V AC	P0 ¹⁾
240 V AC	288 V AC	U0
400/380 V AC	480/460 V AC	V0 ¹⁾
415 V AC	500 V AC	R0
500 V AC	600 V AC	S0

For Japan

100 V AC	100-110 V AC	G6 ²⁾
200 V AC	200-220 V AC	N6 ²⁾

For USA and Canada

110 V AC	120 V AC	K6 ²⁾
220 V AC	240 V AC	P6 ²⁾

¹⁾ Operating range at 220 V or 380 V: 0.85 to 1.1 x U_s .

²⁾ Operating range at 60 Hz: 0.85 to 1.1 x U_s .

Rated control supply voltage U_s	Contactor type	3TH42/3TH43

Solenoid coils for AC 50 and 60 Hz

50/60 Hz	
24 V AC	C2
42 V AC	D2
110 V AC	G2
115 V AC	J2
120 V AC	K2
220 V AC	N2
230 V AC	L2
240 V AC	P2
440 V AC	R2

DC operation

12 V DC	A4
24 V DC	B4
30 V DC	C4
36 V DC	V4
42 V DC	D4
48 V DC	W4
60 V DC	E4
110 V DC	F4
125 V DC	G4
220 V DC	M4
230 V DC	P4
240 V DC	Q4

* You can order this quantity or a multiple thereof.

Overview**AC and DC operation**

IEC 60947, EN 60947.

The terminal designations comply with EN 50011.

3TH2 contactor relays

The 3TH2 contactor relays are suitable for use in any climate.

The contactor relays with screw terminal are finger-safe according to EN 50274.

Terminals

The 3TH20 contactors with 4 auxiliary contacts are available with SIGUT screw terminals, 6.3 mm x 0.8 mm flat connectors and solder pin connections.

The contactors with 6.3 mm x 0.8 mm flat connectors can be used in the plug-in base with solder pin connections for printed circuit boards. The contactor relays are coded and the plug-in base is codable in order to ensure non-interchangeability.

The 3TH22 contactor relays with 8 integrated contacts are available with screw terminals. The terminal designations are according to EN 50011.

Contact reliability

High contact stability at low voltages and currents, suitable for solid-state circuits with currents > 1 mA at a voltage of 17 V and higher.

3TH27 latched contactor relays

The contactor coil and the coil of the release solenoid are both designed for uninterrupted duty.

RC elements, varistors diodes or diode assemblies can be fitted to both coils from the front for damping opening surges in the coil.

The contactor relay can also be switched on and released manually.

Accessories**Auxiliary switch blocks**

The contactor relays with 4 contacts with screw terminals relays can be expanded by up to four contacts by the addition of snap-on auxiliary switch blocks.

A cover (with unit labeling plate) must be removed from the front of the contactor for this purpose. The auxiliary switch block is then easy to mount. The auxiliary switch blocks can be removed again by unlocking them with a laterally arranged slide.

The contactor relays with screw terminals with 4 contacts according to EN 50011, with the identification number 40E, can be extended with 80E, 71E, 62E, 53E or 44E auxiliary switch blocks to obtain contactor relays with 8 contacts according to EN 50011. The identification numbers 80E, 71E, 62E, 53E or 44E on the coded auxiliary switch blocks apply to the complete contactors. These auxiliary switch blocks cannot be combined with contactor relays with identification number 31E and 33E.

All contactor relays with screw terminals with 4 contacts according to EN 50011, identification number 40E, 31E or 22E, can be extended with auxiliary switch blocks with identification number 40, 31, 22, 20, 11 or 02 to obtain contactor relays with 6 or 8 contacts according to EN 50005. The identification numbers on the auxiliary switch blocks apply only to the attached auxiliary switch blocks.

[For a schematic representation of the expansion possibilities see figure for 3RH1 contactor relays on page 3/98.](#)

Surge suppression

RC elements, varistors, diodes or diode assemblies (combination of a diode and a Zener diode for short break times) can be plugged onto all contactors and auxiliary switch blocks with screw terminals from the front in order to damp opening surges in the coil. The unit labeling plate must be removed for this purpose.

It can be snapped onto the attached surge suppressor.

Additional load module

The 3TX4 490-1J additional load module (see Accessories) can be used by programmable logic controllers to increase the permissible residual current and to limit the residual voltage of semiconductor outputs.

This module ensures the safe opening of 3TH2 and 3TF2 contactors with direct control through 230 V AC semiconductor outputs. It is accommodated in the same enclosure as the 3TX4 490-3. surge suppressors and can be plugged into the contactor.


3RH, 3TH Contactor Relays

3TH2 contactor relays, 4- and 8-pole


Selection and ordering data

Contacts	Rated operational current I_{th} /AC-15/AC-14 at				Contacts		DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	230/ 220 V	400/ 380 V	500 V	690/ 660 V	Ident. No. acc. to EN 50011	Version							
Number	A	A	A	A									kg


Contactor relays with screw terminals · For screw and snap-on mounting onto TH 35 standard mounting rail

Image	AC operation					Screw terminals															
	4	4	3	2	1		40E	31E	22E	4	3	2	1	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
																					
	DC operation · DC solenoid system																				

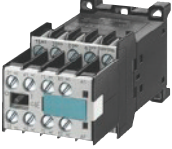
Contactor relays with 6.3 mm x 0.8 mm flat connectors

Image	AC operation					Flat connectors																	
	4	4	3	2	--		40E	31E	22E	4	3	2	--	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.			
																							
	DC operation · DC solenoid system																						

Contactor relays with solder pin connections for printed circuit boards

Image	AC operation					Solder pin connections																		
	4	4	3	2	--		40E	31E	22E	4	3	2	--	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.				
																								
	DC operation · DC solenoid system																							


Contactor relays with permanently mounted auxiliary switch blocks with screw terminals, width 45 mm · For screw and snap-on mounting onto TH 35 standard mounting rail

Image	AC operation					Screw terminals																		
	8	4	3	2	--		80E	71E	62E	53E	44E	8	7	6	5	4	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.	
																								
	DC operation · DC solenoid system																							

For accessories, see page 3/126.

3RH, 3TH Contactor Relays

3TH2 contactor relays, 4- and 8-pole

Con- tacts	Rated operational current I_e /AC-15/AC-14 at				Contacts		DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	230/ 220 V	400/ 380 V	500 V	690/ 660 V	Ident. No. acc. to EN 50011	Version						
Number	A	A	A	A				Order No.	Price per PU			kg

**Latched contactor relays with screw terminals ·
For screw and snap-on mounting onto TH 35 standard mounting rail**
**AC operation**

4	4	3	2	1	40E	4	--	C	3TH27 40-0AP0	1	1 unit	101	0.350
					31E	3	1	C	3TH27 31-0AP0	1	1 unit	101	0.350
					22E	2	2	C	3TH27 22-0AP0	1	1 unit	101	0.350

DC operation · DC solenoid system

3TH27 ..	4	4	3	2	1	40E	4	--	C	3TH27 40-0BB4	1	1 unit	101	0.400
						31E	3	1	C	3TH27 31-0BB4	1	1 unit	101	0.400
						22E	2	2	C	3TH27 22-0BB4	1	1 unit	101	0.400

For accessories, see page 3/126.

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

Contactor type	3TH20 ..-0...	3TH20 ...-3..., 3TH20 ...-6..., 3TH20 ...-7..., 3TH22, 3TH27
Rated control supply voltage U_s		

AC operation**Solenoid coils for AC 50 and 60 Hz**

50 Hz		60 Hz	
24 V AC		29 V AC	B0
110 V AC		132 V AC	F0
230/220 V AC		276 V AC	P0 ¹⁾

DC operation

24 V DC	B4	B4
110 V DC	F4	--
220 V DC	M4	--

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

Please inquire about further voltages.