



3TH4 Fixed Contacts Type



3TH4040-0AK6



3TH4022-0BB4

Ordering Instructions

- ▶ Determine the number of contacts, AC or DC, then select Catalog Number.
- ▶ Complete Catalog Number by adding Coil suffix from table below e.g.

3TH40	2	2	0	A	K6
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Relay Type ————
 2 NO ————
 2 NC ————
 Terminals ————
 AC ————
 Coil ————
 Voltage 120V AC

Additional References

- ▶ Technical Data see page 614.
- ▶ Dimensions see page 617.
- ▶ Wiring Diagrams see page 616.
- ▶ Accessories, Varistors, RC Elements and Suppressors see page 613.
- ▶ Replacement Parts see page 923.

Relays With Screw Terminals for DIN Rail and Screw Mounting

AC Operation									
No of Contacts	Code	Contact Type		Early Make		Late Break		Catalog No (Coil Suffix required from table below)	Price \$
		NO	NC	NO	NC	NO	NC		
Relay With 4 Fixed Contacts									
4	40E	4	—	—	—	—	—	3TH4040-0A††	72.
	31E	3	1	—	—	—	—	3TH4031-0A††	72.
	22E	2	2	—	—	—	—	3TH4022-0A††	72.
	13E	1	3	—	—	—	—	3TH4013-0A††	72.
	04E	—	4	—	—	—	—	3TH4004-0A††	72.
Relay with 4 Contacts, Early Make/Late Break									
	31E; U	2	—	1	1	1	1	3TH4095-0A††	69.
	22E; U	1	1	1	1	1	1	3TH4096-0A††	102.
	22E; 2U	—	—	2	2	—	—	3TH4092-0A††	132.
Relay With 8 Fixed Contacts									
8	80E	8	—	—	—	—	—	3TH4280-0A††	120.
	71E	7	1	—	—	—	—	3TH4271-0A††	120.
	62E	6	2	—	—	—	—	3TH4262-0A††	120.
	53E	5	3	—	—	—	—	3TH4253-0A††	120.
	44E	4	4	—	—	—	—	3TH4244-0A††	120.
Relay With 8 Contacts, Early Make/Late Break									
	44E; U	3	3	1	1	—	—	3TH4293-0A††	150.
Relay With 10 Fixed Contacts									
10	100E	10	—	—	—	—	—	3TH4310-0A††	144.
	91E	9	1	—	—	—	—	3TH4391-0A††	144.
	82E	8	2	—	—	—	—	3TH4382-0A††	144.
	73E	7	3	—	—	—	—	3TH4373-0A††	144.
	64E	6	4	—	—	—	—	3TH4364-0A††	144.
	55E	5	5	—	—	—	—	3TH4355-0A††	144.
Relay With 10 Contacts With Early Make/Late Break									
	55E; U	4	4	1	1	—	—	3TH4394-0A††	174.
Mechanically Latched Relay With 9 Contacts									
9	54	5	4	—	—	—	—	3TH4454-0A††	201.

Coil Suffix

AC Volts 50/60Hz							
24	110/120	173/208	220/277	208	220/240	380/460	500/600
C2	K6	M1	U1	M2	P6	Q0	S0

For other Coil Voltages see page 911.

DC Operation									
No of Contacts	Code	Contact Type		Early Make		Late Break		Catalog No (Coil Suffix required from table below)	Price \$
		NO	NC	NO	NC	NO	NC		
Relay With 4 Fixed Contacts									
4	40E	4	—	—	—	—	—	3TH4040-0B††	117.
	31E	3	1	—	—	—	—	3TH4031-0B††	117.
	22E	2	2	—	—	—	—	3TH4022-0B††	117.
	13E	1	3	—	—	—	—	3TH4013-0B††	117.
	04E	—	4	—	—	—	—	3TH4004-0B††	117.
Relay With 4 Contacts, Early Make/Late Break									
	31E; U	2	—	1	1	1	1	3TH4095-0B††	147.
	22E; U	1	1	1	1	1	1	3TH4096-0B††	147.
	22E; 2U	—	—	2	2	—	—	3TH4092-0B††	177.
Relay With 8 Fixed Contacts									
8	80E	8	—	—	—	—	—	3TH4280-0B††	162.
	71E	7	1	—	—	—	—	3TH4271-0B††	162.
	62E	6	2	—	—	—	—	3TH4262-0B††	162.
	53E	5	3	—	—	—	—	3TH4253-0B††	162.
	44E	4	4	—	—	—	—	3TH4244-0B††	162.
Relay With 8 Contacts, Early Make/Late Break									
	44E; U	3	3	1	1	—	—	3TH4293-0B††	192.
Relay With 10 Fixed Contacts									
10	100E	10	—	—	—	—	—	3TH4310-0B††	186.
	91E	9	1	—	—	—	—	3TH4391-0B††	186.
	82E	8	2	—	—	—	—	3TH4382-0B††	186.
	73E	7	3	—	—	—	—	3TH4373-0B††	186.
	64E	6	4	—	—	—	—	3TH4364-0B††	186.
	55E	5	5	—	—	—	—	3TH4355-0B††	186.
Relay With 10 Contacts With Early Make/Late Break									
	55E; U	4	4	1	1	—	—	3TH4394-0B††	216.
Mechanically Latched Relay With 9 Contacts									
9	54	5	4	—	—	—	—	3TH4454-0B††	231.

Coil Suffix

DC Volts				
12	24	48	125	240
A4	B4	W4	G4	Q4

3TH4 Fixed Contacts Type

Relay with 4 NO Contacts

3TH4040-OAK6



Relay with 8 NO Contacts

3TH4280-OAK6



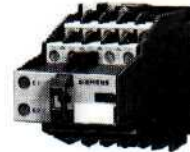
Relay with 8 NO and 2 NC Contacts

3TH4382-OAK6



Latch Relay with 5 NO and 4 NC Contacts

3TH4454-OAK6



Basic Design

3TH4 control relays have fixed contacts and are available in 4, 8, and 10 pole designs. Besides the various NO and NC combinations, the 3TH4 control relays can be supplied with the make before break (overlapping) contracts. A wide range of 60/50Hz AC and DC coils are available.

3TH44 mechanically latched relays have a 9 pole design (5 NO and 4 NC). These relays latch mechanically as they pick up and remain latched even if the power supply should fail. The relay drops out by electrically or manually tripping the latch. Note: The latch coil is rated for continuous duty but the unlatching coil is only rated for intermittent operation. Therefore, simultaneous maintained contact signals for the latching and unlatching coils are not permitted.

Contact Design

3TH4 control relays are classified as positive drive and are suitable for use on power operated presses. Double bridge movable contacts assure high contact reliability at both standard control circuit ratings (NEMA A600) and at low voltages and currents.

Listings

The 3TH4 control relays are UL listed and CSA certified, also meet the requirement of DIN VDE 0660 and IEC 947. The 3TH4 control relays are suitable for use in industrial environments and are touch safe according to DIN VDE 106, part 100. The terminal designations of the basic units comply with the standard specifications according to DIN EN 50 011.

Mounting

3TH4 control relays may either be panel mounted or snapped onto 35 mm standard mounting rail. (For permitted mounting positions, see the technical data section on page 614.)

3TH4 Fixed Contacts Type

Type	3TH40, 3TH42, 3TH43		
Mechanical Life	30 Million Operations		
Permissible Ambient Temperature Range	-25 to +55°C		
Coil Ratings	(Cold Coil and $1.0 \times U_s$)		
AC Operation	60Hz	50Hz	
	Inrush	75 VA 68 VA	
	p.f.	0.76 0.82	
	Sealed p.f.	9.4 VA 10 VA 0.29 0.29	
DC Operation	Inrush = Sealed	6.2 W	
Coil Voltage Tolerances			
AC	0.8 to $1.1 \times U_s$		
DC (except 24V)	0.8 to $1.1 \times U_s$		
DC 24V	0.8 to $1.2 \times U_s$		
Operation Times	0.80 to		
Total Break Time =	$1.1 \times U_s$ $1.0 \times U_s$		
Opening Delay + Arcing Time			
AC Operation	Closing Delay	NO	8-35 ms 10-25 ms
		NC	6-20 ms 7-20 ms
	Opening Delay	NO	4-18 ms 5-18 ms
		NC	5-30 ms 7-20 ms
Arcing Time	10 ms		

Type	3TH40, 3TH42, 3TH43		
Resistance to Shock	AC	7.7/5 and 4.4/10 g/ms	
(Rectangular Plus)	DC	9.3/5 and 5.4/10 g/ms	
Rated currents			
$I_e/AC-12$ (AC-1)	16A		
$I_e/AC-15/AC-14$ (AC-11) at U_e	120/230/220V	10A	
	400/380V	6A	
	500V	4A	
	690/660V	2A	
	Current Paths in Series		
$I_e/DC-12$ (DC-1) at U_e		1	3
	24V	10A	10A
	48V	10A	10A
	110V	2.1A	10A
	220V	0.8A	10A
$I_e/DC-13$ (DC-11) U_e	440V	0.6A	1.3A
	600V	0.6A	1A
	24V	10A	10A
	48V	5A	10A
	110V	0.9A	10A
220V	0.45A	2A	
440V	0.25A	0.9A	
600V	0.2A	0.8A	

Type	3TH40, 3TH42, 3TH43	
Switching Frequency z		
In make/break operations per hour at rated operation for duty	AC-12	1,000/h
	AC-2	500/h
	AC-3	1,000/h
	AC-15/AC-14 resp.	
	DC-13	3,600/h
No-load switching frequency	10,000/h	
Conductor Sizes		
Terminal Wire Size	AWG(2) #16-12	
UL, VDE, GOST ratings		
Rated Control Supply Voltage:	AC	Max. 600V
	DC	Max. 230V
Rated Voltage	AC 600V, DC 600V	
Making and Breaking Capacity	A600, P600	
Continuous Current Rating	10A	

Permitted Mounting Positions

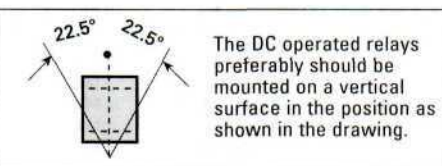
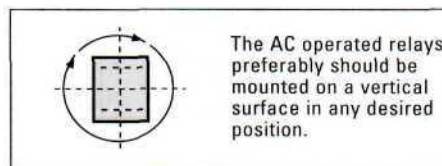
The relation between the permitted inclination to the mounting surface to the vertical and the coil voltage tolerance is as follows:

Permitted inclination (-) a) of the mounting surface to the vertical	Coil voltage tolerance	
	min. $\times U_s$	max. $\times U_s$
-22.5 to +202.5°	0.8 to	1.1
-50 to +230°	0.85 to	1.1
any	0.9 to	1.1

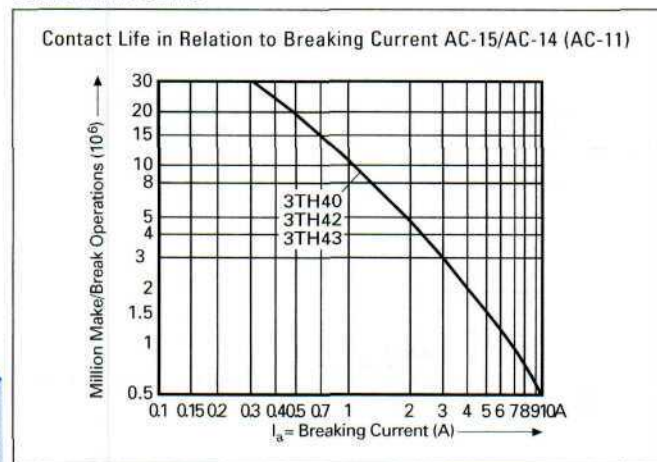
Mounting

For snap-on and screw mounting, snapping onto 35 mm standard mounting rail in accordance with DIN EN 50 022.

When 3TH AC-operated control relays are mounted in rows, the minimum gap between them must be 0.19 (5) when the voltage is likely to reach $1.1 \times U_s$, the ambient temperature $\geq 45^\circ\text{C}$ and the duty factor of all relays is 100%.



Contact Life Curve



Coil Table—IEC Contactors and Control Relays

Coil Selection

The following is a listing of all standard coil voltages available for Siemens World Series IEC Contactors and Control Relays. Many coils are stocked by local facilities and readily available. Others must be manufactured to your order.

Suffixes for AC Operated Coils

Rated Control Voltage		Device	Color Code acc. to IEC 309-1 for 3TF40 to 3TF56 contactors
50Hz V	60Hz V	3TF3 3TF4 3TF50 to 3TF56 3TH3 3TH4	
110	120	K6	yellow
220	240	P6	blue

Rated Control Voltage		Device	Device	Color Code acc. to IEC 309-1 for 3TF40 to 3TF56 contactors
50Hz V	60Hz V	3TF40 to 3TF49	3TF50 to 3TF55	
100	110	—	F6	green
100	100-110	G6	—	green
200	220	—	M6	green
200	200-220	N6	—	green
400	440	—	S6	green
400	400-440	R6	—	green

Rated Control Voltage		Device	Device	Color Code acc. to IEC 309-1 for 3TF40 to 3TF68 Contactors
50Hz/60Hz V		3TF3 3TF4 3TF50 to 3TF51 3TH3 3TH4	3TF57...-0C1+ and 3TF68...-0C1+	
24		C2	—	green
42		D2	—	green
110		G2	—	green
115		J2	—	green
120		K2	—	green
208		M2	—	green
220		N2	—	grey
230		L2	—	green
240		P2	—	green
440		R2	—	green
575		S2	—	green
110-132		—	F7	green
200-240		—	M7	green
380-460		—	O7	green
500-600		—	S7	green

Rated Control Voltage		Control Voltage at	Device	Device	Color Code acc. to IEC 309-1 for 3TF40 to 3TF56 Contactors
60Hz V	50Hz V		3TF3 3TF4 3TF50 to 3TF51 3TH3 3TH4	3TF52 to 3TF56	
24	20		C1	—	green
42	36		G0	—	green
110	92		G1	G1	green
115	96		J1	J1	green
120	100		K1	K1	green
208	173		M1	M1	green
220	183		N1	N1	green
230	192		L1	L1	green
240	200		P1	P1	green
440	367		R1	R1	green
480	380/400		V0	V0	red
575	480		S1	S1	green
600	500		S0	S0	green
277	220		U1	U1	green

Rated Control Voltage		Control Voltage at	Device	Device	Color Code acc. to IEC 309-1 for 3TF40 to 3TF56 Contactors
50Hz V	60Hz V		3TF3 3TF4 3TF50 to 3TF51 3TH3 3TH4	3TF52 to 3TF56	
24	29		B0	—	violet
32	38		C0	—	green
36	42		G0	—	green
42	50		D0	—	white
48	58		H0	—	green
60	72		E0	—	green
110	132		F0	F0	yellow
125/127	150/152		L0	L0	green
220	264		M0	M0	blue
230/220	276		P0	P0	green
240	288		U0	U0	green
380/400	480		V0	V0	green
415	500		R0	R0	green
500	600		S0	S0	green

Suffixes for DC Operated Coils

Rated Control Voltage DC	Device	Device
V	3TF3 3TF40 to 3TF45 3TH3 3TH4	3TF46 to 3TF49 3TF50 to 3TF56
12	A4	—
21.5	U4	—
24	B4	B4
30	C4	C4
36	V4	V4
42	D4	D4
48	W4	W4
60	E4	E4

Rated Control Voltage DC	Device
V	3TF3 3TF4 3TF50 to 3TF56 3TH3 3TH4
110	F4
125	G4
180	K4
220	M4
230	P4
240	D4
250	N4