Contents

XT Family of Contactors

Contactors and Starters

Product Description

Eaton's new line of ***XT*** Contactors and Starters includes non-reversing and reversing contactors, overload relays and a variety of related accessories. Because ***XT*** meets IEC, UL, CSA, CCC and CE standards, it is the perfect product solution for IEC applications all over the world. The compact, space saving, and easy to install ***XT*** line of IEC contactors and starters is the efficient and effective solution for customer applications from 7A to 2000A.

Features and Benefits

- AC control from 12V to 600V 50/60 Hz
- DC control from 12V to 220V
- Available with screw or spring cage terminals
- Reversing or non-reversing contactors and starters
- AC-3 contactor ratings to 1000A and AC-1 contactor ratings to 2000A
- Non-reversing starters to 650A
- Panel or DIN rail mounting to 65A
- IP20 finger and back-of-hand proof
- Large ambient temperature range, -25 to 50°C [-13 to 122°F]
- AC and DC controlled contactors in the same compact frame
- Low power consumption DC coils
- Built-in NO or NC auxiliary contacts to 32A
- Plug-in accessories for reduced installation time
- Coil replacement on Frames C – N (18 – 820A)
- Contact replacement on Frames D – N (40 – 820A)
- Integrated suppressor 7 – 150A DC operated contactors and 185 – 2000A AC and DC operated contactors

Standards and Certifications

- IEC EN 60947
- CE Approved
- UL
- CSA
- CCC
- ATEX
- RoHS

Note: For Type 2 Coordination, see **Page 199**.

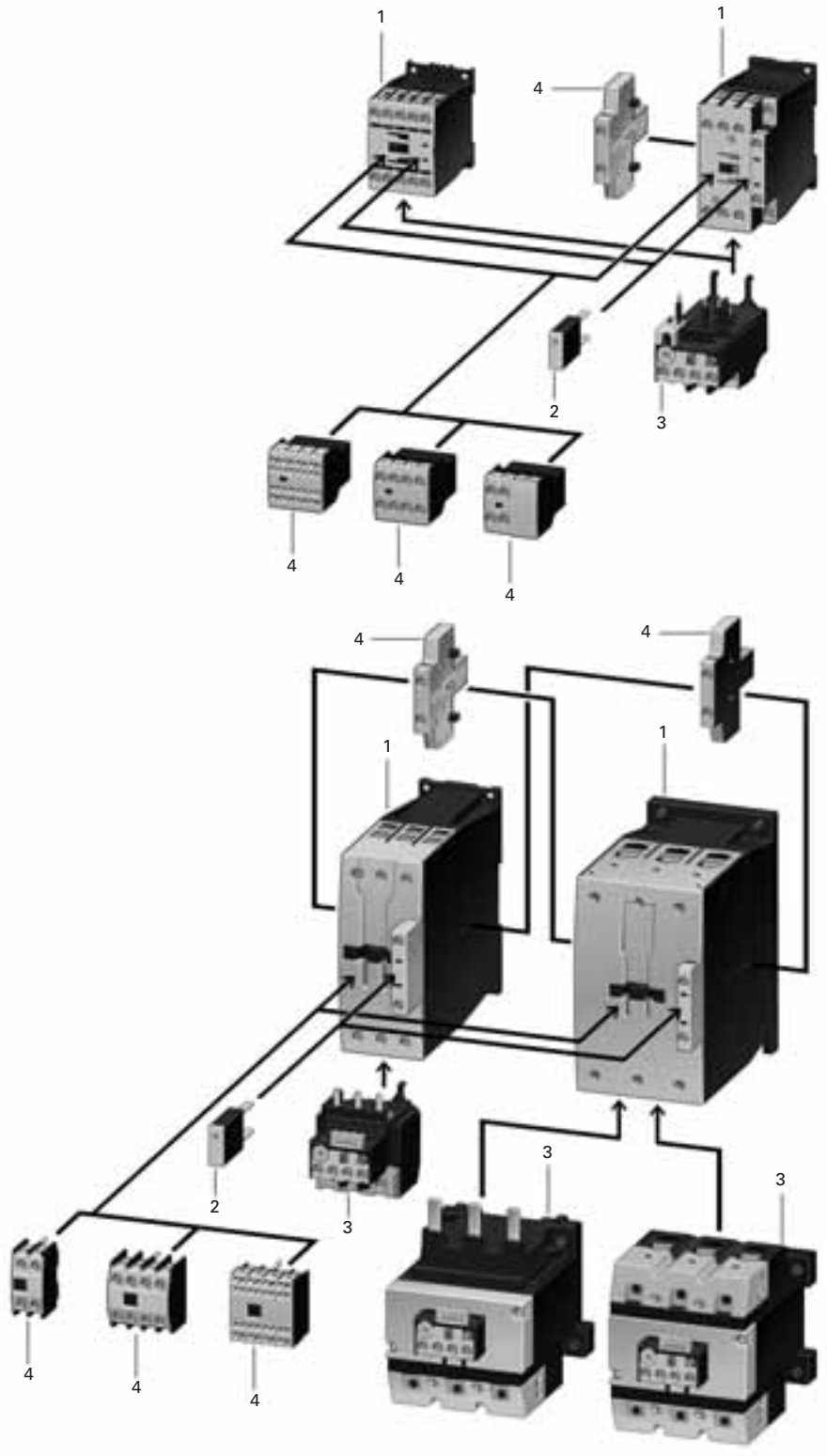

Table 46. Product Identification

No.	Description	Page
Contactor Up to 150A AC-3		
1	AC: ■ 12 – 600V, 50, 60, 50/60 Hz ■ 0.8 – 1.1 x U_c	**33**
	DC: ■ 12 – 250V ■ XTCE…B_ (7 – 15A): 0.8 – 1.1 x U_c ■ XTCE…C_ – XTCE…G_ (18 – 150A): 0.7 – 1.2 x U_c ■ 24V: 0.7 – 1.3 x U_c at 40°C without additional auxiliary contacts	
	Coils for Special Voltages	
	"Safe Isolation" to IEC 536 between coil and contacts	
Suppressors		
2	■ RC suppressor ■ Varistor suppressor ■ Free-wheel diode suppressor	**53**
Overload Relays		
3	■ Can be mounted directly ■ Separate mounting, possible ■ Protection of EEx e motors	**94**
Auxiliary Contact Modules		
4	■ 2-pole, plug-in type ■ 4-pole, plug-in type ■ Overlapping contacts ■ 2-pole, side mounting	**48**

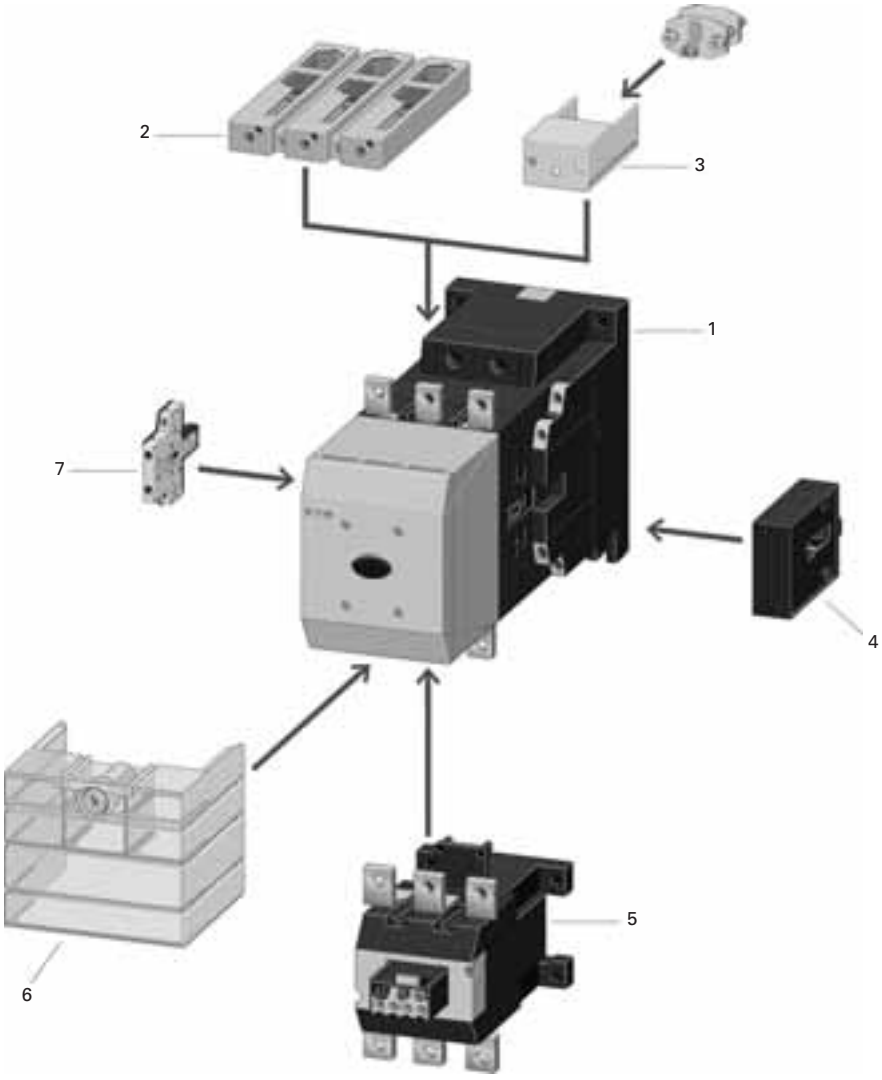

Table 47. XTCE185 – XTCEC20 Contactors

No.	Description	Page
XTCE Contactors for 185 – 2000A (AC-3)		
1	Multi-Voltage Coils: ■ 24 – 48V DC ■ 48 – 110V AC/DC ■ 110 – 250V AC/DC ■ 250 – 500V AC ■ 0.7 – 1.15 x U_c	**33**
	Actuation Options: ■ Directly ■ From the PLC ■ With low-consumption contact Minimized pick-up and sealing power.	
XTCS Contactors for 185 – 500A (AC-3)		
1	Control Voltages: ■ 110 – 120V 50/60 Hz ■ 220 – 240V 50/60 Hz Conventional operation.	**34**
Cable Terminal Block		
2	■ 1 or 2 conductors per phase ■ Round and flat conductor connectable ■ Finger-proof	**57**
Flat Strip Conductor Terminals		
3	■ 1 or 2 strips per phase ■ Control circuit terminal ■ Cover for fingerproofing	**57**
Mechanical Interlock		
4	■ Fits between contactors	**55**
Overload Relays		
5	■ Can be mounted directly ■ Separate mounting, possible ■ Protection of EEx e motors ■ PTB certificate	**94**
Terminal Shroud		
6	■ Finger-proof	**57**
Auxiliary Contact Modules		
7	■ 2-pole, side mounting	**48**

Catalog Number Selection

Table 48. *XT* IEC Contactors & Starters — Catalog Numbering System

XT CE C 007 B 01 AD P16

Designation
XT = ***XT*** Line of IEC Control

Type
CE = 3-Pole FVNR IEC Contactor
CS = 3-Pole FVNR S Series IEC Contactor
CF = 4-Pole FVNR IEC Contactor
CR = 3-Pole FVR IEC Contactor
CC = IEC Capacitor Contactor
AE = FVNR IEC Starter
AS = FVNR S-Series IEC Starter
AR = FVR IEC Starter

Terminations
Blank = Screw Terminals (6 – 65A); 5 mm (80 – 150A); No Lugs (185 – 2000A)
C = Spring Cage Terminals (6 – 32A); Spring Cage Coil Terminals Only (185 – 500A)

Current Ratings, AC-3	Frame Size Designation	Built-In Auxiliary Contact
007 = 7A **009** = 9A **012** = 12A **015** = 15A	**B** = 45 mm	**01** = 1NC **10** = 1NO
018 = 18A **025** = 25A **032** = 32A	**C** = 45 mm	
040 = 40A **050** = 50A **065** = 65A	**D** = 55 mm	**00** = 0NO-0NC
080 = 80A **095** = 95A	**F** = 90 mm	
115 = 115A **150** = 150A	**G** = 90 mm	
185 = 185A **225** = 225A **250** = 250A	**L** = 140 mm	**22** = 2NO-2NC
300 = 300A **400** = 400A **500** = 500A	**M** = 160 mm	
580 = 580A **650 =** 650A **750** = 750A **820** = 820A **C10** = 1000A	**N** = 250 mm	
C14 = 1400A, AC-1	**P** = 260 mm	
C16 = 1600A, AC-3 **C20** = 2000A, AC-1	**R** = 515 mm	

Coil Codes
See **Table 57**.

XTAE, XTAS and XTAR Starters Only — Maximum Overload Relay

XTOB Maximum Overload Rating

Frame B	*Frame D*
P16 = 0.1 – 0.16A **P24** = 0.16 – 0.24A **P40** = 0.24 – 0.4A **P60** = 0.4 – 0.6A **001** = 0.6 – 1A **1P6** = 1.0 – 1.6A **2P4** = 1.6 – 2.4A **004** = 2.4 – 4A **006** = 4 – 6A **010** = 6 – 10A **012** = 9 – 12A **016** = 12 – 16A	**010** = 6 – 10A **016** = 10 – 16A **024** = 16 – 24A **040** = 24 – 40A **057** = 40 – 57A **065** = 50 – 65A
Frame C	*Frame F*
P16 = 0.1 – 0.16A **P24** = 0.16 – 0.24A **P40** = 0.24 – 0.4A **P60** = 0.4 – 0.6A **001** = 0.6 – 1A **1P6** = 1.0 – 1.6A **2P4** = 1.6 – 2.4A **004** = 2.4 – 4A **006** = 4 – 6A **010** = 6 – 10A **016** = 10 – 16A **024** = 16 – 24A **032** = 24 – 32A	**035** = 25 – 35A **050** = 35 – 50A **070** = 50 – 70A **100** = 70 – 100A
	Frame G
	035 = 25 – 35A **050** = 35 – 50A **070** = 50 – 70A **100** = 70 – 100A **125** = 95 – 125A **150** = 120 – 150A
	Frame L
	070 = 50 – 70A **100** = 70 – 100A **125** = 95 – 125A **160** = 120 – 160A **220** = 160 – 220A **250** = 200 – 250A

C396 Maximum Overload Rating

	Suffix
	Std. Class 5/10/20/30
Frame B	
0.1 – 0.5A =	**3EP05**
0.4 – 2.0A =	**3E002**
1 – 5A =	**3E005**
1.6 – 8A =	**3E008**
6.4 – 32 =	**3E032**
Frame C	
0.1 – 0.5A =	**3EP05**
0.4 – 2.0A =	**3E002**
1 – 5A =	**3E005**
1.6 – 8A =	**3E008**
6.4 – 32A =	**3E032**
Frame D	
6.4 – 32A =	**3E032**
9 – 45A =	**3E045**
15 – 75A =	**3E075**
Frame F	
22 – 110A =	**3E110**
Frame G	
30 – 150A =	**3E150**

Product Selection

Non-reversing Contactors

Frame B

Frame C

Frame D

Frame F – G

Table 49. Full Voltage Non-reversing 3-Pole Contactors, Frame B – Frame G

I_e (A)	$I_e = I_{th}$ (A)	Maximum kW Ratings AC-3				Maximum 3-Phase Motor Rating, UL/CSA							Aux. Contacts	Catalog Number — Screw Terminals ①②	Price U.S. $	
AC-3	AC-1 (60°C)	3-Phase Motors 50 – 60 Hz				1-Phase hp Ratings			3-Phase hp Ratings						AC Coil	DC Coil
		220/ 230V	380/ 400V	415V	660/ 690V	115V	200V	230V	200V	230V	460V	575V				
Frame B																
7	20	2.2	3	4	3.5	1/4	3/4	1	1-1/2	2	3	5	1NO	**XTCE007B10_**	97.	126.
7	20	2.2	3	4	3.5	1/4	3/4	1	1-1/2	2	3	5	1NC	**XTCE007B01_**	97.	126.
9	20	2.5	4	5.5	4.5	1/2	1	1-1/2	3	3	5	7-1/2	1NO	**XTCE009B10_**	105.	135.
9	20	2.5	4	5.5	4.5	1/2	1	1-1/2	3	3	5	7-1/2	1NC	**XTCE009B01_**	105.	135.
12	20	3.5	5.5	7	6.5	1	2	2	3	3	10 ③	10	1NO	**XTCE012B10_**	129.	165.
12	20	3.5	5.5	7	6.5	1	2	2	3	3	10 ③	10	1NC	**XTCE012B01_**	129.	165.
15.5	20	4	7.5	8	7	1	2	3	5	5	10 ③	10	1NO	**XTCE015B10_**	143.	172.
15.5	20	4	7.5	8	7	1	2	3	5	5	10 ③	10	1NC	**XTCE015B01_**	143.	172.
Frame C																
18	35	5	7.5	10	11	2	2	3	5	5	10 ③	15	1NO	**XTCE018C10_**	149.	180.
18	35	5	7.5	10	11	2	2	3	5	5	10 ③	15	1NC	**XTCE018C01_**	149.	180.
25	40	7.5	11	14.5	14	2	3	5	7-1/2	7-1/2	15	20	1NO	**XTCE025C10_**	179.	208.
25	40	7.5	11	14.5	14	2	3	5	7-1/2	7-1/2	15	20	1NC	**XTCE025C01_**	179.	208.
32	40	10	15	18	17	3	5	5	10	10	20	25	1NO	**XTCE032C10_**	223.	259.
32	40	10	15	18	17	3	5	5	10	10	20	25	1NC	**XTCE032C01_**	223.	259.
Frame D																
40	50	12.5	18.5	24	23	3	5	7-1/2	10	15	30	40	—	**XTCE040D00_**	259.	301.
50	65	15.5	22	30	30	3	7-1/2	10	15	20	40	50	—	**XTCE050D00_**	285.	357.
65	80	20	30	39	35	5	10	15	20	25	50	60	—	**XTCE065D00_**	302.	373.
Frame F																
80	90	25	37	48	63	7-1/2	15	15	25	30	60	75	—	**XTCE080F00_**	388.	485.
95	110	30	45	57	75	7-1/2	15	15	25	40	75	100	—	**XTCE095F00_**	468.	590.
Frame G																
115	130	37	55	70	90	10	25	25	40	50	100	125	—	**XTCE115G00_**	585.	720.
150	160	48	75	91	96	15	25	30	40	60	125	125	—	**XTCE150G00_**	940.	1,125.

① Underscore (_) indicates magnet coil suffix required. See **Table 57, Page 37**.

② For Spring Cage Terminals, insert **C** after the fourth digit of the Catalog Number. Example: XTCE**C**007B10A. For 7 – 12A XTCEC Contactors, the power, auxiliary and coil terminals are spring cage. For 18 – 32A XTCEC Contactors, the auxiliary and coil terminals are spring cage. For 40 – 150A XTCEC Contactors, the coil terminals only are spring cage.

③ For electrical life contactor application data, see **Table 51**, **Page 34**.

Notes:

The 7 – 32A XTCE Contactors have positively driven contacts between the integrated auxiliary contact and the auxiliary contact module as well as within the auxiliary contact modules.

The 40 – 65A XTCE Contactors have positively driven contacts within the auxiliary contact module. 6 auxiliary contacts are possible with a combination of side mounted and front mount auxiliary contacts.

DC operated contactors (Frames B – G, 7 – 150A) have a built-in suppressor circuit.

Frame B – C contactors with 1NC built-in auxiliary are mirror contacts (XTCE...B01_ – XTCE...C01_).

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Discount Symbol **1CD7**

Non-reversing Contactors


Frame L


Frame M


Frame N


Frame P


Frame R

Table 50. Full Voltage Non-reversing 3-Pole Contactors, Frame L – Frame R

I_e (A)	$I_e = I_{th}$ (A)	Maximum kW Ratings AC-3					Maximum 3-Phase Motor Rating, UL/CSA							Aux. Contacts	Catalog Number — Screw Terminals ①	Price U.S. $	
AC-3	AC-1 (60°C)	3-Phase Motors 50 – 60 Hz					1-Phase hp Ratings			3-Phase hp Ratings						AC Coil	DC Coil
		220/ 230V	380/ 400V	415V	660/ 690V ②	1000V ②	115V	200V	230V	200V	230V	460V	575V				
Frame L — Standard Coil (110/120V, 230/240V AC Coil Only)																	
185	275	55	90	110	175	108	—	—	—	50	60	125	150	2NO-2NC	**XTCS185L22_**	1,310.	—
225	315	70	110	132	215	108	—	—	—	60	75	150	200	2NO-2NC	**XTCS225L22_**	1,585.	—
250	330	75	132	148	240	108	—	—	—	75	100	200	250	2NO-2NC	**XTCS250L22_**	2,020.	—
Frame L — Electronic Coil																	
185	275	55	90	110	175	108	—	—	—	50	60	125	150	2NO-2NC	**XTCE185L22_**	1,455.	1,455.
225	315	70	110	132	215	108	—	—	—	60	75	150	200	2NO-2NC	**XTCE225L22_**	1,690.	1,690.
250	350	75	132	148	240	108	—	—	—	75	100	200	250	2NO-2NC	**XTCE250L22_**	2,250.	2,250.
Frame M — Standard Coil (110/120V, 230/240V AC Coil Only)																	
300	400	90	160	180	286	132	—	—	—	100	125	250	300	2NO-2NC	**XTCS300M22_**	2,140.	—
400	500	125	200	240	344	132	—	—	—	125	150	300	400	2NO-2NC	**XTCS400M22_**	2,685.	—
500	700	155	250	300	344	132	—	—	—	150	200	400	500	2NO-2NC	**XTCS500M22_**	4,690.	—
Frame M — Electronic Coil																	
300	400	90	160	180	286	132	—	—	—	100	125	250	300	2NO-2NC	**XTCE300M22_**	2,305.	2,305.
400	500	125	200	240	344	132	—	—	—	125	150	300	400	2NO-2NC	**XTCE400M22_**	2,925.	2,925.
500	700	155	250	300	344	132	—	—	—	150	200	400	500	2NO-2NC	**XTCE500M22_**	5,210.	5,210.
Frame N — Electronic Coil																	
580	800	185	315	348	560	600	—	—	—	200	200	400	600	2NO-2NC	**XTCE580N22_** ③	7,290.	—
650	850	205	355	390	630	600	—	—	—	200	250	500	600	2NO-2NC	**XTCE650N22_** ③	7,620.	—
750	900	240	400	455	720	800	—	—	—	250	300	600	700	2NO-2NC	**XTCE750N22_** ③	8,460.	—
820	1000	260	450	500	750	800	—	—	—	290	350	700	860	2NO-2NC	**XTCE820N22_** ③	10,150.	—
1000	1000	315	560	610	1000	1000	—	—	—	350	420	850	980	2NO-2NC	**XTCEC10N22_** ③	12,130.	—
Frame P — Electronic Coil																	
—	1400	—	—	—	—	—	—	—	—	—	—	—	—	2NO-2NC	**XTCEC14P22_** ③	15,020.	—
Frame R — Electronic Coil																	
1600	1800	500	900	900	1600	1700	—	—	—	560	640	1200	1300	2NO-2NC	**XTCEC16R22_** ③	26,415.	—
—	2000	—	—	—	—	—	—	—	—	—	—	—	—	2NO-2NC	**XTCEC20R22_** ③	22,530.	—

① Underscore (_) indicates magnet coil suffix required. See **Table 57, Page 37**.
② For 185 – 500A Contactors at 660/690V or 1000V: Do not reverse directly.
③ When operating the 580 – 2000A XTCE contactors with frequency inverters, the suppressor on the load side must be removed. The load side suppressor must also be removed when performing a high-voltage test — see Pub51204, Pub51209.

Table 51. Contactor Application Data ④

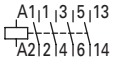
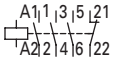
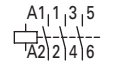
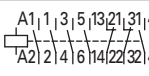
Catalog Prefix	AC-3	Electrical Life (Operations)
XTCE012B	12A	1 million
XTCE015B	15A	1.2 million
XTCE018C	18A	2 million

④ See **Page 81** for Electrical Life Curves.

Note:

AC and DC operated contactors have a built-in suppressor circuit (Frames L – R, 185 – 2000A).

Table 52. Full Voltage Non-reversing 3-Pole Contactors — Contact Sequence (Circuit Symbols) — Standard Offering

Contactor Frame	Auxiliary Contacts	Contact Sequence
B – C	1NO	
B – C	1NC	
D – G	—	
L – R	2NO-2NC	

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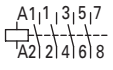
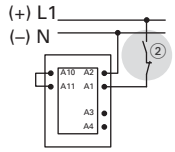
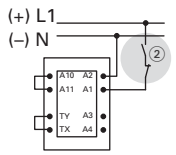
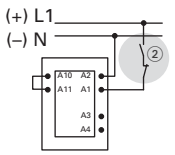
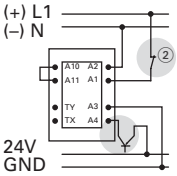
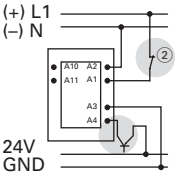
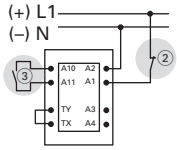
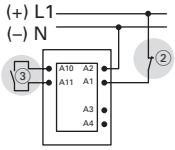
Discount Symbol **1CD7**

Table 53. Full Voltage 4-Pole Non-reversing Contactors with Screw Terminals

I_e (A)		Maximum kW Ratings AC-3					Maximum 3-Phase Motor Rating						Contact Sequence	Catalog Number ①	Price U.S. $	
AC-3	AC-1 (60°C)	3-Phase Motors 50 – 60 Hz					1-Phase hp Ratings		3-Phase hp Ratings						AC Coil	DC Coil
		220/ 230V	380/ 400V	415V	660/ 690V	1000V	115V	230V	200V	230V	460V	575V				
12	20	3.5	5.5		6.5	—	1/2	1-1/2	3	3	5	7-1/2		**XTCF020B00_**	134.	169.

① Underscore (_) indicates magnet coil suffix required. See **Table 58**.

Table 54. Controlling XTCS and XTCE Contactors Frame L – R (185 – 2000A)

Description	XTCS185L – XTCS500M	XTCEC16R, XTCEC20R	XTCE185L – XTCEC14P
Conventional A1/A2 are applied to voltage in the usual manner.			
Direct from the PLC A 24V output from the PLC can be connected directly to connections A3/A4. 	—		
From Low-Consumption Command Devices Command devices which can only be subject to minimal loads such as circuit board relays, control circuit devices or position switches can be connected directly to A10/A11.	—		

② Standstill in an emergency (Emergency-Stop).
③ Command device connection.

Discount Symbol **1CD7**