XT Family of Contactors

Contents

Contactors and Starters

Product Description

The Eaton ***XT*** contactors and starters includes non-reversing and reversing contactors, overload relays and a variety of related accessories. Because ***XT*** meets IEC, UL®, CSA® 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 2450A.

Application Description

The ***XT*** line of IEC power control was engineered to provide highly effective control and protection for a variety of loads, including motors, compressors, pumps, resistive, capacitor banks, isolation, and others. ***XT*** also includes IEC ratings for lighting applications as well.

XT contactors can be used in safety applications according to EN 954-1, EN ISO 13849-1 and IEC 62061 up to Category 4, PI e and SIL 3. Information concerning safety related characteristics (B10 and B10d values) is available online. The auxiliary contact modules and built-in auxiliary contacts meet IEC EN 60947-5-1 Annex L (positively driven) and IEC EN 60947-4-1 Annex F (mirror contacts).

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 AC and 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
- ATEX
- RoHS

Reference

Refer to **Volume 10—Enclosed Control**, CA08100012E, Tab 3, section 3.1 for additional Product information on IEC Non-Metallic Enclosed Contactors and Starters.

Note: For Type 2 Coordination, see **Page V5-T1-230**.

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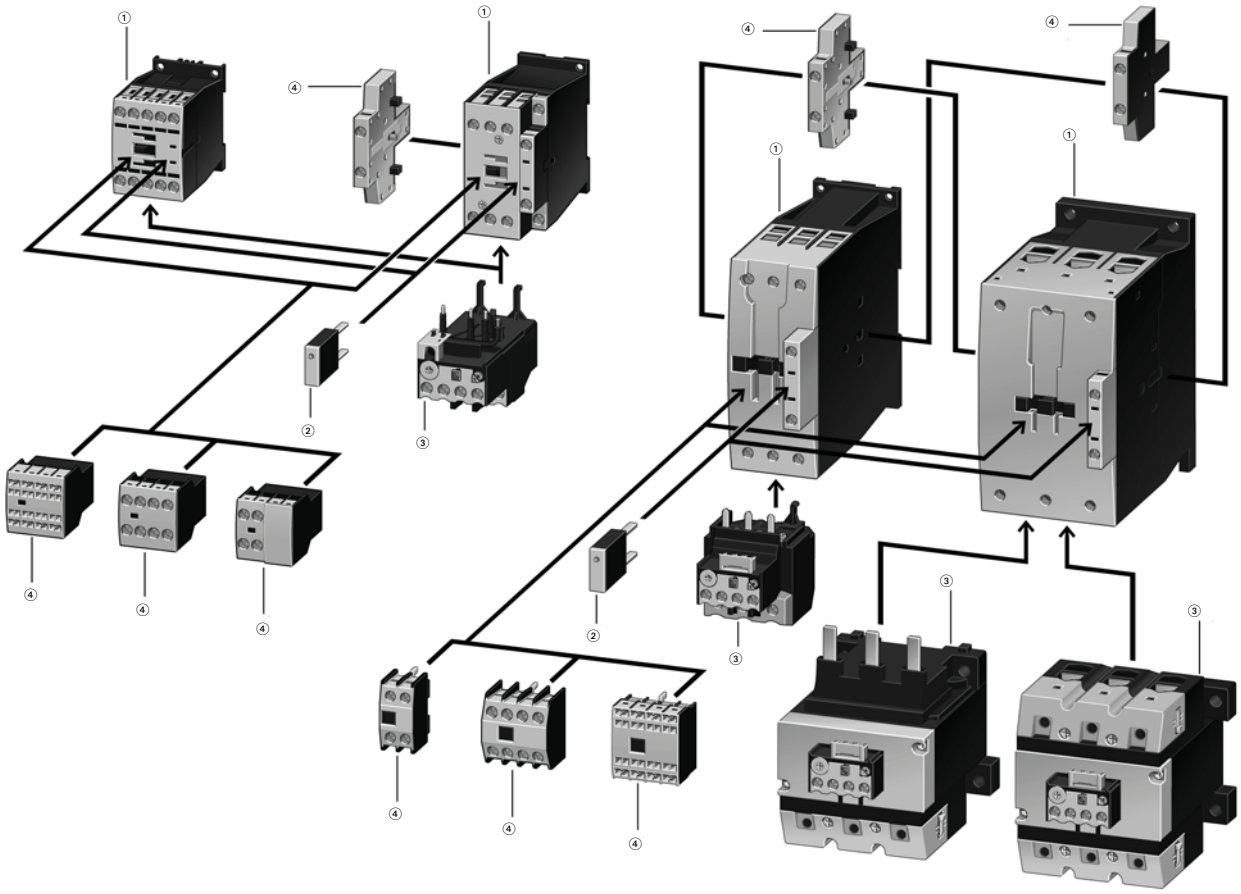
Product Identification

XTCE007B to XTCE170G (7 to 170A) Contactors



Notes

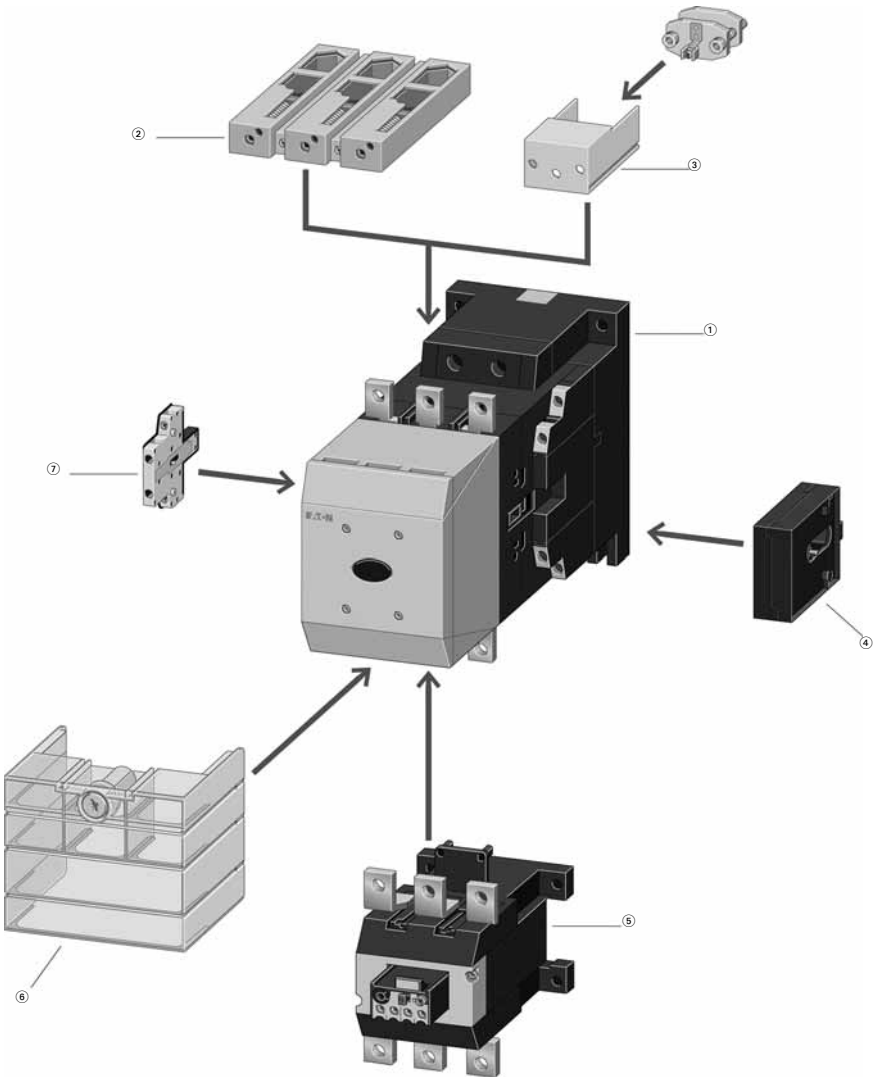
① **Contactor up to 170A AC-3** (see **Page V5-T1-39**)
AC: 12–600V, 50, 60, 50/60 Hz
0.8–1.1 x U_c)
DC: 12–250V
XTCE…B_ (7–15A): 0.8–1.1 x U_c
XTCE…C_–XTCE…G_(18–150A): 0.7–1.2 x U_c
24V: 0.7–1.3 x U_c at 40°C without additional auxiliary contacts
Coils for special voltages
"Safe Isolation" to IEC 536 between coil and contacts

② **Suppressors** (see **Page V5-T1-71**)
RC suppressor
Varistor suppressor
Free-wheel diode suppressor

③ **Overload Relays** (see **Page V5-T1-130**)
Can be mounted directly
Separate mounting, possible
Protection of EEx e-motors

④ **Auxiliary Contact Modules** (see **Page V5-T1-24**)
Two-pole, plug-in type
Four-pole, plug-in type
Overlapping contacts
Two-pole, side-mounting

XTCE185–XTCE20 Contactors



Notes

① **XTCE Contactors for 185–2000A**
(see **Page V5-T1-46**)
Multi-voltage coils:
24–48 Vdc
48–110 Vac/Vdc
110–250 Vac/Vdc
250–500 Vac
0.7–1.15 x U_c
Actuation options:
Directly
From the PLC
With low-consumption contact
XTCS Contactors for 185–570A AC-3
(see **Page V5-T1-42**)
Control voltages:
110–120V 50/60 Hz
220–240V 50/60 Hz
Conventional operation

② **Cable Terminal Block**
(see **Page V5-T1-97**)
One or two conductors per phase
Round and flat conductor connectable
Finger-proof

③ **Flat Strip Conductor Terminals**
(see **Page V5-T1-97**)
One or two strips per phase
Control circuit terminal
Cover for fingerproofing

④ **Mechanical Interlock**
(see **Page V5-T1-73**)
Fits between contactors

⑤ **Overload Relays**
(see **Page V5-T1-130**)
Can be mounted directly
Separate mounting, possible
Protection of EEx e-motors
PTB certificate

⑥ **Terminal Shroud**
(see **Page V5-T1-75**)
Finger-proof

⑦ **Auxiliary Contact Modules**
(see **Page V5-T1-24**)
Two-pole, side-mounting

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Catalog Number Selection

XT IEC Contactors and Starters

XT CE C 007 B 01 AD P16

Designation
XT = ***XT*** line of IEC control

Type
CE = Three-pole FVNR IEC contactor
CS = Three-pole FVNR S Series IEC contactor
CF = Four-pole FVNR IEC contactor
CR = Three-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 consult local sales office for availability

Coil Codes
See **Page V5-T1-53**.

Built-In Auxiliary Contact
01 = 1NC
10 = 1NO
00 = 0NO–0NC
S1 = 1NO–1NC side-mount auxiliary
11 = 1NO–1NC top-mount auxiliary
22 = 2NO–2NC

Current Ratings, AC-3		
007 = 7A	**080** = 80A	**570** = 570A
009 = 9A	**095** = 95A	**580** = 580A
012 = 12A	**115**= 115A	**650** = 650A
015 = 15A	**150** = 150A	**750** = 750A
018 = 18A	**170** = 170A	**820** = 820A
025 = 25A	**185** = 185A	**C10** = 1000A
032 = 32A	**225** = 225A	**C14** = 1400A, AC-1
040 = 40A	**250** = 250A	**C16** = 1600A, AC-3
050 = 50A	**300** = 300A	**C20** = 2000A, AC-1
065 = 65A	**400** = 400A	
072 = 72A	**500** = 500A	

Frame Size Designation			
B	= 45 mm	**L**	= 140 mm
C	= 45 mm	**M**	= 160 mm
D	= 55 mm	**N**	= 250 mm
F	= 90 mm	**P**	= 260 mm
G	= 90 mm	**R**	= 515 mm
H	= 140 mm		

XTAE, XTAS and XTAR Starters Only—Maximum Overload Relay	
XTOB Maximum Overload Rating	
Frame B	**Frame D**
P16 = 0.1–0.16A	**010** = 6–10A
P24 = 0.16–0.24A	**016** = 10–16A
P40 = 0.24–0.4A	**024** = 16–24A
P60 = 0.4–0.6A	**040** = 24–40A
001 = 0.6–1A	**057** = 40–57A
1P6 = 1.0–1.6A	**065** = 50–65A
2P4 = 1.6–2.4A	**075** = 65–75A
004 = 2.4–4A	
006 = 4–6A	**Frame F**
010 = 6–10A	**035** = 25–35A
012 = 9–12A	**050** = 35–50A
016 = 12–16A	**070** = 50–70A
	100 = 70–100A
Frame C	**Frame G**
P16 = 0.1–0.16A	**035** = 25–35A
P24 = 0.16–0.24A	**050** = 35–50A
P40 = 0.24–0.4A	**070** = 50–70A
P60 = 0.4–0.6A	**100** = 70–100A
001 = 0.6–1A	**125** = 95–125A
1P6 = 1.0–1.6A	**150** = 120–150A
2P4 = 1.6–2.4A	**175** = 145–175A
004 = 2.4–4A	
006 = 4–6A	**Frame L**
010 = 6–10A	**070** = 50–70A
016 = 10–16A	**100** = 70–100A
024 = 16–24A	**125** = 95–125A
032 = 24–32A	**160** = 120–160A
	220 = 160–220A
	250 = 200–250A

XTOE Maximum Overload Rating

	Standard Type Suffix	Ground Fault Type Suffix
Frame B		
0.33–1.65A	5E1P6	5G1P6
1–5A	5E005	5G005
4–20A	5E020	5G020
Frame C		
0.33–1.65A	5E1P6	5G1P6
1–5A	5E005	5G005
4–20A	5E020	5G020
9–45A	5E045	5G045
Frame D		
9–45A	5E045	5G045
20–100A	5E100	5G100
Frame F, G		
20–100A	5E100	5G100
Frame G, H		
35–175A	5E175	5G175

Product Selection

Full Voltage, Non-Reversing Contactors

Frame B

Three-Pole Contactors, Frame B—UL/CSA Ratings

UL General Purpose Ampere Rating	Single-Phase hp Ratings 115V	200V	230V	Three-Phase hp Ratings 200V	230V	460V	575V	Auxiliary Contacts	Screw Terminal Catalog Number ①②
20	1/4	3/4	1	1-1/2	2	3	5	1NO	**XTCE007B10_**
20	1/4	3/4	1	1-1/2	2	3	5	1NC	**XTCE007B01_**
20	1/2	1	1-1/2	3	3	5	7-1/2	1NO	**XTCE009B10_**
20	1/2	1	1-1/2	3	3	5	7-1/2	1NC	**XTCE009B01_**
20	1	2	2	3	3	10 ③	10	1NO	**XTCE012B10_**
20	1	2	2	3	3	10 ③	10	1NC	**XTCE012B01_**
20	1	2	3	5	5	10 ③	10	1NO	**XTCE015B10_**
20	1	2	3	5	5	10 ③	10	1NC	**XTCE015B01_**

Three-Pole Contactors, Frame B—IEC Ratings

AC-3 I_e (A)	AC-1 (40°C) $I_e = I_{th}$ (A)	Maximum kW Ratings AC-3/Three-Phase Motors 50–60 Hz 220/230V	380/400V	415V	660/690V	Auxiliary Contacts	Screw Terminal Catalog Number ①②
7	22	2.2	3	4	3.5	1NO	**XTCE007B10_**
7	22	2.2	3	4	3.5	1NC	**XTCE007B01_**
9	22	2.5	4	5.5	4.5	1NO	**XTCE009B10_**
9	22	2.5	4	5.5	4.5	1NC	**XTCE009B01_**
12	22	3.5	5.5	7	6.5	1NO	**XTCE012B10_**
12	22	3.5	5.5	7	6.5	1NC	**XTCE012B01_**
15.5	22	4	7.5	8	7	1NO	**XTCE015B10_**
15.5	22	4	7.5	8	7	1NC	**XTCE015B01_**

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.

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

① Underscore (_) indicates magnet coil suffix required. See **Page V5-T1-53**.

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 **Page V5-T1-45**.

Starter Application Data ①

Catalog Prefix	AC-3	Electrical Life (Operations)
XTAE012B	12A	1 million
XTAE015B	15A	1.2 million
XTAE018C	18A	2 million

Magnet Coil Suffix

Coil Voltage	Suffix Code
Frames A–B	
110V 50 Hz, 120V 60 Hz	**A**
220V 50 Hz, 240V 60 Hz	**B**
230V 50 Hz	**F**
24V 50/60 Hz	**T**
24 Vdc	**TD**
415V 50 Hz, 480V 60 Hz	**C**
550V 50 Hz, 600V 60 Hz	**D**
208V 60 Hz	**E**
190V 50 Hz, 220V 60 Hz	**G**
240V 50 Hz, 277V 60 Hz	**H**
380V 50 Hz, 440V 60 Hz	**L**
400V 50 Hz	**N**
380V 60 Hz	**P**
12V 50/60 Hz	**R**
42V 50 Hz, 48V 60 Hz	**W**
48V 50 Hz	**Y**
120 Vdc	**AD**
220 Vdc	**BD**
12 Vdc	**RD**
48 Vdc	**WD**

Coil Voltage	Suffix Code
Frames C–F	
110V 50 Hz, 120V 60 Hz	**A**
220V 50 Hz, 240V 60 Hz	**B**
230V 50 Hz	**F**
24V 50/60 Hz	**T**
24–27 Vdc	**TD**
415V 50 Hz, 480V 60 Hz	**C**
550V 50 Hz, 600V 60 Hz	**D**
208V 60 Hz	**E**
190V 50 Hz, 220V 60 Hz	**G**
240V 50 Hz, 277V 60 Hz	**H**
380V 50 Hz, 440V 60 Hz	**L**
400V 50 Hz	**N**
380V 60 Hz	**P**
12V 50/60 Hz	**R**
42V 50 Hz, 48V 60 Hz	**W**
48V 50 Hz	**Y**
110–130 Vdc	**AD**
200–240 Vdc	**BD**
48–60 Vdc	**WD**

Coil Voltage	Suffix Code
Frame G	
100–120V 50/60 Hz	**A**
190–240V 50/60 Hz	**B**
24V 50/60 Hz	**T**
24–27 Vdc	**TD**
480–500V 50/60 Hz	**C**
380–440V 50/60 Hz	**L**
42–48V 50/60 Hz	**W**
110–130 Vdc	**AD**
200–240 Vdc	**BD**
48–60 Vdc	**WD**
Frame H	
100–120V 50/60 Hz	**A**
190–240V 50/60 Hz	**B**
480–500V 50/60 Hz	**C**
380–440V 50/60 Hz	**L**
24V 50/60Hz	**T**
42–48V 50/60Hz	**W**
110–130 Vdc	**AD**
200–240 Vdc	**BD**
24–27 Vdc	**TD**
48–60 Vdc	**WD**

Coil Voltage	Suffix Code
Frames L–N	
110–250 Vdc 40–60 Hz	**A**
250–500V 40–60 Hz	**C**
48–110 Vdc 40–60 Hz	**Y**
24–48 Vdc	**TD** ②
Frames L–M, S-Series	
110–120V 50/60 Hz	**A**
220–240V 50/60 Hz	**B**
Frames P–R	
230–250 Vdc 50–60 Hz	**B**

Notes

① See **Page V5-T1-111** for electrical life curves.

② Frames L–M only.

500V Type 2 Coordination—Contactor and Overload Relay (Motor Starter) with Fused Disconnect

P (kW)	I_e (A)	I_q (kA)	Fuses Class gG/gL	Contactor Catalog Number ①	Overload Relay Catalog Number	Assembled Starter Catalog Number ①
0.12	0.33	100	2	XTCE007B10_	XTOBP40BC1	XTAE007B10_P40
0.18	0.48	100	2	XTCE007B10_	XTOBP60BC1	XTAE007B10_P60
0.25	0.70	100	2	XTCE007B10_	XTOB001BC1	XTAE007B10_001
0.37	0.90	100	2	XTCE007B10_	XTOB001BC1	XTAE007B10_001
0.55	1.20	100	4	XTCE007B10_	XTOB1P6BC1	XTAE007B10_1P6
0.75	1.50	100	4	XTCE007B10_	XTOB1P6BC1	XTAE007B10_1P6
1.10	2.10	100	6	XTCE007B10_	XTOB2P4BC1	XTAE007B10_2P4
1.50	2.90	100	6	XTCE007B10_	XTOB004BC1	XTAE007B10_004
2.20	4.00	100	10	XTCE007B10_	XTOB006BC1	XTAE007B10_006
3.00	5.30	100	16	XTCE009B10_	XTOB006BC1	XTAE009B10_006
4.00	6.80	100	16	XTCE009B10_	XTOB010BC1	XTAE009B10_010
5.50	9.00	100	20	XTCE012B10_	XTOB010BC1	XTAE012B10_010
7.50	12.1	100	25	XTCE018C10_	XTOB016CC1	XTAE018C10_016
11.0	17.4	100	32	XTCE025C10_	XTOB024CC1	XTAE025C10_024
15.0	23.4	100	50	XTCE040D00_	XTOB024DC1	XTAE040D00_024
18.5	28.9	100	50	XTCE040D00_	XTOB040DC1	XTAE040D00_040
22.0	33.0	100	63	XTCE050D00_	XTOB040DC1	XTAE050D00_040
30.0	44.0	100	80	XTCE065D00_	XTOB057DC1	XTAE065D00_057
37.0	54.0	100	100	XTCE080F00_	XTOB070GC1	XTAE080F00_070
45.0	65.0	100	125	XTCE095F00_	XTOB070GC1	XTAE095F00_070
55.0	79.0	100	160	XTCE115G00_	XTOB100GC1	XTAE115G00_100
75.0	107.0	100	200	XTCE185L22_	XTOB125LC1	XTAE185L22_125
90.0	129.0	100	200	XTCE185L22_	XTOB125LC1	XTAE185L22_125
110.0	157.0	100	250	XTCE185L22_	XTOB160LC1	XTAE185L22_160
132.0	184.0	100	250	XTCE185L22_	XTOB220LC1	XTAE185L22_220
160.0	224.0	100	315	XTCE225L22_	XTOB250LC1	XTAE225L22_250

Notes

See **Page V5-T1-238** for more information on wye-delta (star delta) applications.

① Underscore (_) indicates magnet coil code required. See **Page V5-T1-238**.