

Product Family Overview

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*XT Combination Motor Controller
and Manual Motor Controller*

Product Description

The new Cutler-Hammer® XT IEC Open Non-reversing and Reversing Manual Motor Controllers from Eaton's electrical business combine a Manual Motor Protector with an IEC Contactor(s) to provide a complete motor protection solution by combining motor disconnect function, thermal overload protection, magnetic short circuit protection and remote control operation in one compact, assembled unit. These assembled Manual Motor Controllers cover motors with FLA ratings from 0.10A to 63A.

The UL 508 Type F labeled Combination Motor Controller (CMC) includes a Line Side Adapter (LSA). These assembled Combination Motor Controllers cover motors with FLA ratings from 0.10A to 52A.

Application Description

The XT IEC Non-reversing and Reversing Manual and Combination Motor Controllers can be used in the following applications:

XTSC and XTSR

- Manual Motor Controller for Single and Multi Motor Panels — The pre-assembled XT Manual Motor Controllers (MMC) combine a Manual Motor Protector, a Wiring Connector Link and IEC Contactor. MMCs can also be field installed with separate MMP, WCL and Contactor(s). An IEC magnetic contactor has been added to allow for remote operation of the motor circuit.

XTFC and XTFR

- Combination Motor Controller (UL 508, Type F), for Single and Multi Motor Panels — The preassembled IEC Combination Motor Controllers combine a Line Side Adapter, Manual Motor Protector, Wiring Connector Link and IEC Contactor. The XTPR Manual Motor Protectors are UL listed as UL 508, Type E Self-Protected Manual Combination Starters. This UL listing allows these devices to be used in motor circuits without having to add separate branch short circuit protection. An IEC magnetic contactor has been added to allow for remote operation of the motor circuit.
- Group Motor Installations — Since the Manual Motor Protectors (Manual Combination Starters) are UL listed for Group Motor Installations, the IEC Manual Motor Controllers provide a compact, assembled package for Group Motor Installations up to 600V.

For Group Installations (in-panel SCPD) applying the traditional 1/3 tap rule, the Manual Motor Protectors and Combination Motor Controllers may be used on 480V Delta systems along with 480Y/277V and 600Y/347V slash rated Wye systems. For Group Installations, applying the more recent 1/10 tap conductor rule, a maximum 240V Delta is permitted or 480Y/277V and 600Y/347V slash rated Wye systems.

For actual UL 508 Type E/F applications (out-of-panel upstream feeder Short-Circuit Protective Device [SCPD] only), a maximum 240V Delta is permitted or 480Y/277V and 600Y/347V slash rated Wye systems.

For Manual "At Motor" Disconnect applications, a maximum 240V Delta is permitted or 480Y/277V and 600Y/347V slash rated Wye systems.

Features

- ON/OFF rotary handle with lockout provision
- Visible trip indication
- Test trip function
- Motor applications from 0.10A to 63A
- Class 10 overload protection
- Built-in heater and magnetic trip elements to protect the motor
- Phase loss sensitivity
- Type 2 coordination
- Ambient compensated up to 55°C [140°F]
- Control inputs located at front of starter for easy access and wiring
- Wide range of coils
- DIN Rail mount — XTSC...BB_
- Mounting plates — XTSC...BC_, XTSC...D motor controllers
- Adjustment dial for setting motor FLA
- Short circuit trip at 14 times the maximum setting of the FLA adjustment dial
- UL 508 Type F CMC High Fault Short Circuit Ratings: Refer to **Table 232**.
- 1NO-1NC Auxiliary Contact as standard on Manual Motor Controller and Combination Motor Controller

Standards and Certifications

UL 508 Type F Combination Motor Controller

- IEC Type 2 Approved per IEC 60947-4-1
- UL Listed File No. E245398
- CE Mark



Note: For Type 2 Coordination of MMCs, see **Tables 247** through **249** on **Pages 199** and **200**.

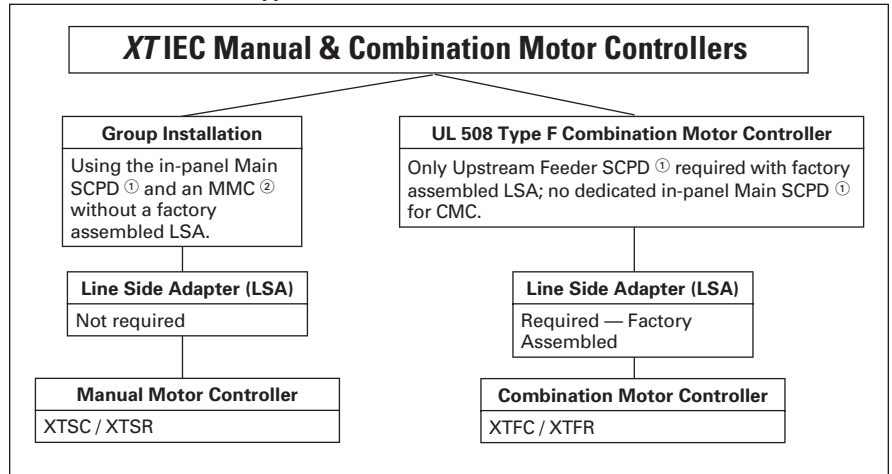
Protection in Different Controller Types

A *UL 508 Type E Self-protected Manual Combination Starter/Motor Controller* consists of a single device having integral short circuit protection, a main set of contacts, motor overload protection, and may also include a UL listed Line Side Adapter (see **Table 221**). This type of controller is a legitimate short circuit protective device and disconnect means for the downstream motor. It does require an upstream feeder short circuit protective device, but does not require a dedicated branch circuit protection or a disconnect means if used with a Line Side Adapter. A UL 508 Type E rating means that the unit clears a fault and does not experience any welding of the power poles. A UL 508 Type E self-protected manual motor controller will remain fully functional should a short circuit within its ratings occur. *E.g.* XTPR.

An *XT UL 508 Type F Self-protected Combination Motor Controller* consists of a UL Listed Type E Self-protected Manual Combination Starter/Motor Controller, a UL Listed Contactor, and a UL Listed Line Side Adapter (see **Table 221**). While the UL 508 Type E self-protected manual motor protector of this combination motor controller device is a legitimate short circuit protective device and disconnect means for the downstream motor, the contactor is *not* "self-protected." *E.g.* XTFC, XTFR.

In addition, as a complete assembly or modular components, the device should have Type 2 Coordination certification. Type 2 Coordination means the Starter or the Controller must exhibit little or no damage following a major short circuit fault and should be able to be returned to proper service without replacing any parts.

Table 221. MMC and CMC Applications



① SCPD = Short Circuit Protective Device (Circuit Breaker, Fuses).

② MMC = Manual Motor Controller

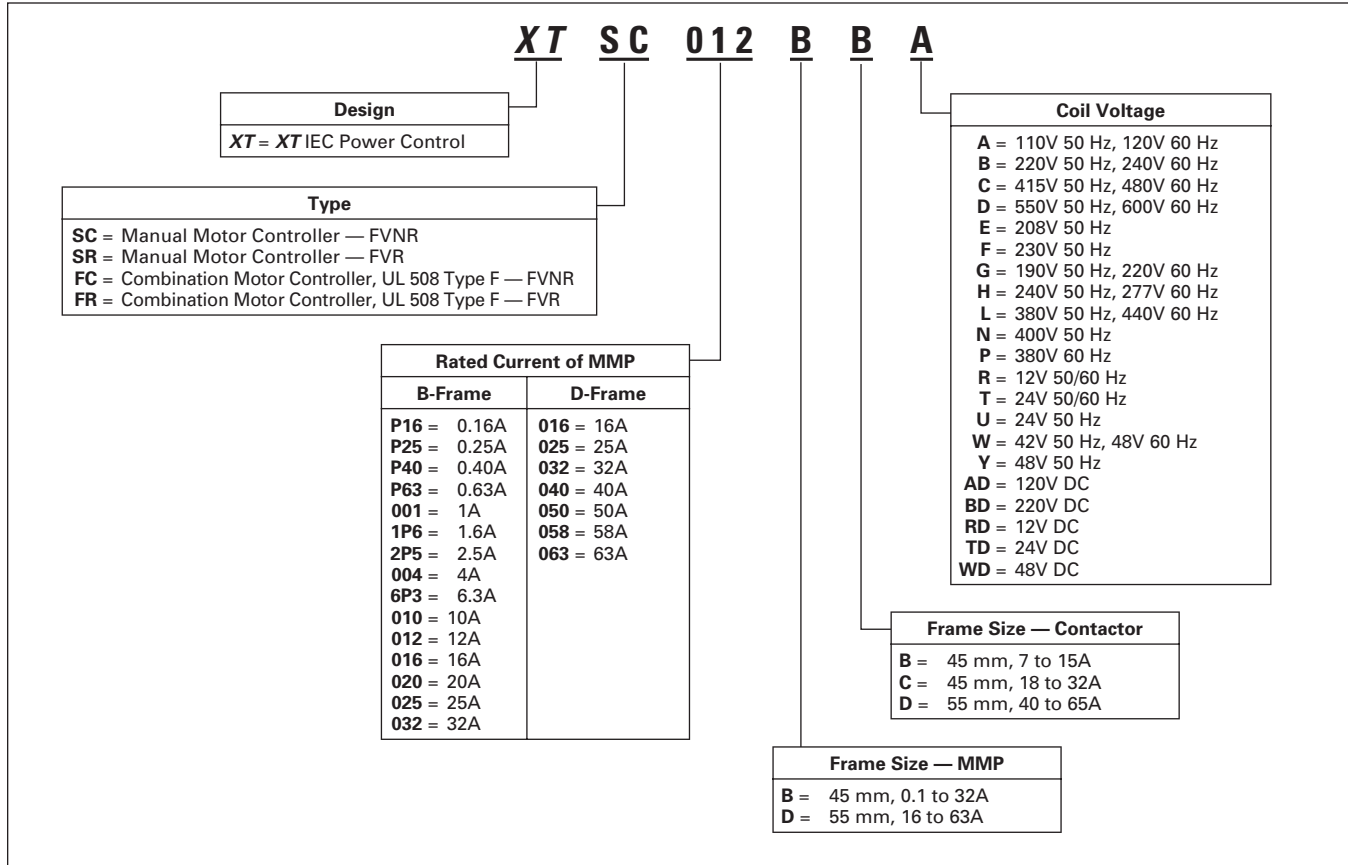
Reference: Technical Paper AP03402001E.

Note: Line Side Adapters are not required for non-U.S. applications. Most countries outside of the U.S. classify the MMP as a thermal magnetic circuit breaker.

Catalog Number Selection

Catalog Number Selection

Table 222. Combination Motor Controllers — Catalog Numbering System



XTSC FVNR
Frame B MMP
& Frame B Contactor



XTSC FVNR
Frame B MMP
& Frame C Contactor



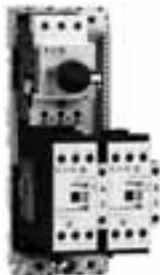
XTSC FVNR
Frame D MMP
& Frame C Contactor



XTSC FVNR
Frame D MMP
& Frame D Contactor



XTSR FVR
Frame B MMP
& (2) Frame B Contactors



XTSR FVR
Frame B MMP
& (2) Frame C Contactors



XTSR FVR
Frame D MMP
& (2) Frame C Contactors



XTSR FVR
Frame D MMP
& (2) Frame D Contactors

Product Selection

Product Selection

Table 223. XTSC and XTSR Manual Motor Controllers (MMC) / Starter Combinations

Factory Assembled Motor Protective Device with Thermal and Magnetic Trip + Contactor															
FLA Adjustment Range / Overload Release — I_r (Amps)	Short-Circuit Release — I_{rm} (Amps)	Maximum Motor Ratings — P ①								Assembled Manual Motor Controller ③					
		Maximum Motor kW Rating AC-3 — P (kW)				Maximum hp Rating — P (hp)				Non-reversing			Reversing		
		Three-Phase				Three-Phase				Catalog Number	Price U.S. \$ AC Coil	Price U.S. \$ DC Coil	Catalog Number	Price U.S. \$ AC Coil	Price U.S. \$ DC Coil
		220 – 240V	380 – 415V	500V	660 – 690V	200V	240V	480V	600V						

Frame B MMP + Frame B Contactor

0.1 – 0.16	3.2	—	—	—	0.06	0.06	0.12	②	②	1/2	1/2	XTSCP16BB	326.	359.	XTSRP16BB	486.	555.
0.16 – 0.25	3.5	—	0.06	0.06	0.12	0.12	②	②	1/2	1/2	XTSCP25BB	326.	359.	XTSRP25BB	486.	555.	
0.25 – 0.4	5.6	0.06	0.09	0.12	0.18	0.18	②	②	1/2	1/2	XTSCP40BB	326.	359.	XTSRP40BB	486.	555.	
0.4 – 0.63	8.82	0.09	0.18	0.25	0.25	0.25	②	②	1/2	1/2	XTSCP63BB	343.	378.	XTSRP63BB	505.	570.	
0.63 – 1	14	0.12	0.25	0.37	0.55	0.55	②	②	1/2	1/2	XTSC001BB	343.	378.	XTSR001BB	505.	570.	
1 – 1.6	22.4	0.25	0.55	0.75	1.1	1.1	②	②	3/4	1	XTSC1P6BB	343.	378.	XTSR1P6BB	505.	570.	
1.6 – 2.5	35	0.37	0.75	1.1	1.5	1.5	1/2	1/2	1	1-1/2	XTSC2P5BB	343.	378.	XTSR2P5BB	505.	570.	
2.5 – 4	56	0.75	1.5	2.2	3	3	1	1	2	3	XTSC004BB	343.	378.	XTSR004BB	505.	570.	
4 – 6.3	88.2	1.1	2.2	3	4	4	1-1/2	1-1/2	3	5	XTSC6P3BB	343.	378.	XTSR6P3BB	505.	570.	
6.3 – 10	140	2.2	4	4	7.5	7.5	3	3	7-1/2	10	XTSC010BB	353.	387.	XTSR010BB	520.	590.	
8 – 12	168	3	5.5	5.5	11	11	3	3	7-1/2	10	XTSC012BB	396.	436.	XTSR012BB	595.	675.	
10 – 16	224	4	7.5	9	12.5	12.5	3	3	10	10	XTSC016BB	412.	445.	—	—	—	

Frame B MMP + Frame C Contactor

10 – 16	224	4	7.5	9	12.5	12.5	3	3	10	10	XTSC016BC	417.	454.	XTSR016BC	635.	710.
16 – 20	280	5.5	9	12.5	15	15	5	5	10	15	XTSC020BC	473.	510.	XTSR020BC	730.	795.
20 – 25	350	5.5	11	15	22	22	5	7-1/2	15	20	XTSC025BC	473.	510.	XTSR025BC	730.	795.
25 – 32	448	7.5	15	22	30	30	7-1/2	10	20	25	XTSC032BC	555.	600.	XTSR032BC	860.	945.

Frame D MMP + Frame C Contactor

10 – 16	224	4	7.5	9	12.5	12.5	3	5	10	15	XTSC016DC	555.	589.	XTSR016DC	829.	903.
16 – 25	350	5.5	12.5	12.5	22	22	7-1/2	7-1/2	20	25	XTSC025DC	588.	619.	XTSR025DC	900.	966.
25 – 32	448	7.5	15	17.5	22	22	10	10	25	30	XTSC032DC	635.	674.	XTSR032DC	1,001.	1,084.

Frame D MMP + Frame D Contactor

32 – 40	560	11	20	22	30	30	10	—	30	30	XTSC040DD	715.	759.	XTSR040DD	1,126.	1,222.
40 – 50	700	14	25	30	45	45	15	15	30	40	XTSC050DD	742.	820.	XTSR050DD	1,186.	1,352.
50 – 58	812	17	30	37	55	55	—	—	40	—	XTSC058DD	761.	838.	XTSR058DD	1,224.	1,388.
55 – 63	882	18.5	34	37	55	55	—	—	40	—	XTSC063DD	761.	838.	XTSR063DD	1,224.	1,388.

① Select Manual Motor Protectors by full load amperes. Maximum Motor Ratings (kW, hp) are for reference only. For additional voltages not listed, see **Table 228** on **Page 182**.

② In this range, calculate motor rating according to rated current. Specified values to NEC Table 430-150.

③ Underscore () indicates Magnetic Coil Suffix required. See **Table 225** on **Page 179**.

Notes:

The assembled Manual Motor Controller (MMC) consists of an XTPR Manual Motor Protector (MMP) and an XTCE contactor. For Frame B MMP + Frame B Contactor assemblies, the XTSC and XTSR can be mounted directly on DIN rail without an adapter. The contactors are supported mechanically with a mechanical connection element (included in XTPAXTPCB, XTPAXRPCRB). For 16A and above, the assembly is mounted via a DIN Rail Adapter Plate (XTPAXTPCPC, XTPAXTPCPD) and the electrical connection is made with electrical contact modules (XTPAXECMC, XTPAXECMD), both included in XTPAXTPCC and XTPAXTPCD. For detailed component lists, see **Table 229**, **Page 183**.

Service Factor Settings: Setting I_r of current scale in dependence of load factor:

$$SF = 1.15 \rightarrow I_r = 1 \times I_{n \text{ mot}}$$

$$SF = 1 \rightarrow I_r = 0.9 \times I_{n \text{ mot}}$$

Single-phasing sensitivity to IEC/EN 60947-4-1, VDE 0660 Part 102.

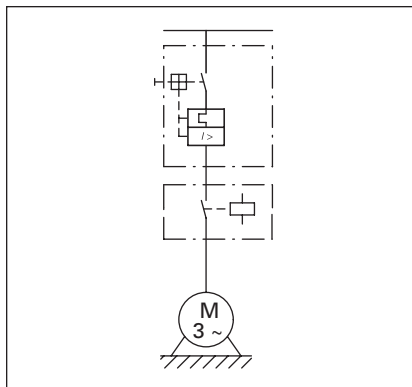


Figure 128. XTSC Manual Motor Controller

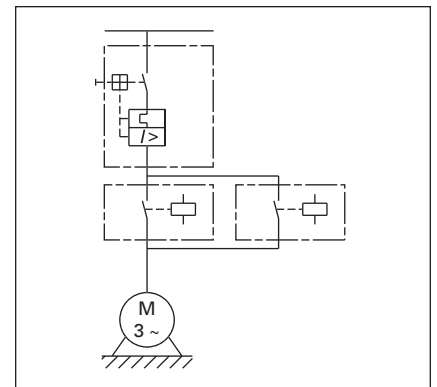


Figure 129. XTSR Manual Motor Controller

Accessories **Page 147**
 Technical Data **Page 182**
 Discount Symbol **1CD7**

Product Selection

Table 224. XTFC and XTFR Combination Motor Controllers (CMC), UL508 Type F

Factory Assembled Motor Protective Device with Thermal and Magnetic Trip + Contactor + Required Line Side Adapter															
FLA Adjustment Range / Overload Release — I _r (Amps)	Short-Circuit Release — I _{rm} (Amps)	Maximum Motor Ratings ①								Assembled Combination Motor Controller ③					
		Maximum Motor kW Rating AC-3 — P (kW)				Maximum hp Rating — P (hp)				Non-reversing			Reversing		
		Three-Phase				Three-Phase				Catalog Number	Price U.S. \$ AC Coil	Price U.S. \$ DC Coil	Catalog Number	Price U.S. \$ AC Coil	Price U.S. \$ DC Coil
		220 – 240V	380 – 415V	500V	660 – 690V	200V	240V	480V	600V						
Frame B MMP + Frame B Contactor															
0.1 – 0.16	2.2	—	—	—	0.06	②	②	1/2	1/2	XTFCP16BB_	357.	390.	XTFRP16BB_	520.	585.
0.16 – 0.25	3.5	—	0.06	0.06	0.12	②	②	1/2	1/2	XTFCP25BB_	357.	390.	XTFRP25BB_	520.	585.
0.25 – 0.4	5.6	0.06	0.09	0.12	0.18	②	②	1/2	1/2	XTFCP40BB_	357.	390.	XTFRP40BB_	520.	585.
0.4 – 0.63	8.82	0.09	0.18	0.25	0.25	②	②	1/2	1/2	XTFCP63BB_	374.	407.	XTFRP63BB_	535.	600.
0.63 – 1	14	0.12	0.25	0.37	0.55	②	②	1/2	1/2	XTFC001BB_	374.	407.	XTFR001BB_	535.	600.
1 – 1.6	22.4	0.25	0.55	0.75	1.1	②	②	3/4	1	XTFC1P6BB_	374.	407.	XTFR1P6BB_	535.	600.
1.6 – 2.5	35	0.37	0.75	1.1	1.5	1/2	1/2	1	1-1/2	XTFC2P5BB_	374.	407.	XTFR2P5BB_	535.	600.
2.5 – 4	56	0.75	1.5	2.2	3	1	1	2	3	XTFC004BB_	374.	407.	XTFR004BB_	535.	600.
4 – 6.3	88.2	1.1	2.2	3	4	1-1/2	1-1/2	3	5	XTFC6P3BB_	374.	407.	XTFR6P3BB_	535.	600.
6.3 – 10	140	2.2	4	4	7.5	3	3	7-1/2	10	XTFC010BB_	383.	417.	XTFR010BB_	550.	620.
8 – 12	168	3	5.5	5.5	11	3	3	7-1/2	—	XTFC012BB_	425.	466.	XTFR012BB_	625.	705.
10 – 16	224	4	7.5	9	12.5	3	3	10	—	XTFC016BB_	441.	474.	—	—	—
Frame B MMP + Frame C Contactor															
10 – 16	224	4	7.5	9	12.5	3	5	10	—	XTFC016BC_	448.	484.	XTFR016BC_	665.	740.
16 – 20	280	5.5	9	12.5	15	5	5	10	—	XTFC020BC_	505.	540.	XTFR020BC_	760.	825.
20 – 25	350	5.5	11	15	22	5	7-1/2	15	—	XTFC025BC_	505.	540.	XTFR025BC_	760.	825.
25 – 32	448	7.5	15	22	30	7-1/2	10	20	—	XTFC032BC_	590.	630.	XTFR032BC_	890.	975.
Frame D MMP + Frame C Contactor															
10 – 16	224	4	7.5	9	12.5	3	5	10	15	XTFC016DC_	598.	633.	XTFR016DC_	876.	949.
16 – 25	350	5.5	12.5	12.5	22	7-1/2	7-1/2	20	25	XTFC025DC_	632.	663.	XTFR025DC_	946.	1,012.
25 – 32	448	7.5	15	17.5	22	10	10	25	30	XTFC032DC_	679.	718.	XTFR032DC_	1,047.	1,130.
Frame D MMP + Frame D Contactor															
32 – 40	560	11	20	22	30	10	—	30	30	XTFC040DD_	758.	803.	XTFR040DD_	1,173.	1,269.

- ① Select Combination Motor Controllers by full load amperes. Maximum Motor Ratings (kW, hp) are for reference only. For additional voltages not listed, see Table 228 on Page 182.
- ② In this range, calculate motor rating according to rated current. Specified values to NEC Table 430-150.
- ③ Underscore (_) indicates Magnetic Coil Suffix required. See Table 225 on Page 179.

Notes:

The assembled Combination Motor Controller (CMC) consists of an XTPR Manual Motor Protector (MMP) and an XTCE contactor and a required Line Side Adapter. For Frame B MMP + Frame B Contactor assemblies, the XTFC and XTFR can be mounted directly on DIN rail without an adapter. The contactors are supported mechanically with a mechanical connection element (included in XTPAXTPCB, XTPAXRCRB). For 16A and above, the assembly is mounted via a DIN Rail Adapter Plate (XTPAXTPCPC, XTPAXTPCPD) and the electrical connection is made with electrical contact modules (XTPAXECMC, XTPAXECMD), both included in XTPAXTPCC and XTPAXTPCD. For detailed component lists, see Table 230, Page 184.

Service Factor Settings: Setting I_r of current scale in dependence of load factor:

$$SF = 1.15 \rightarrow I_r = 1 \times I_n \text{ mot}$$

$$SF = 1 \rightarrow I_r = 0.9 \times I_n \text{ mot}$$

Single-phasing sensitivity to IEC/EN 60947-4-1, VDE 0660 Part 102.

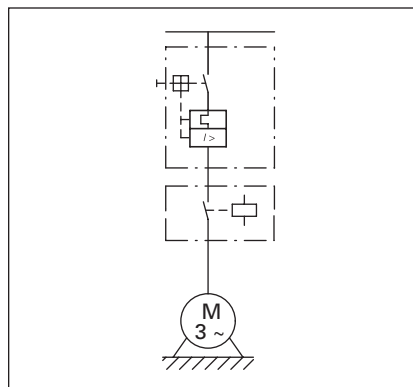


Figure 130. XTFC Combination Motor Controller

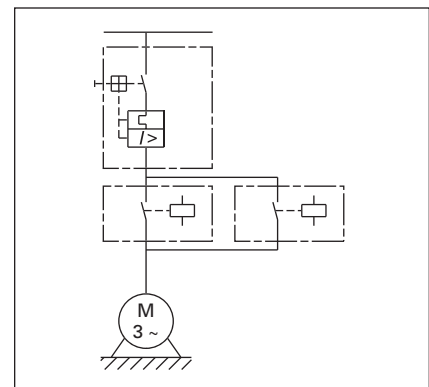


Figure 131. XTFR Combination Motor Controller

Discount Symbol 1CD7

Accessories

Table 225. AC and DC Coil Suffixes

Coil Voltage	Suffix Code
Frame B Contactors	
110V 50 Hz, 120V 60 Hz	A
220V 50 Hz, 240V 60 Hz	B
230V 50 Hz	F
24V 50/60 Hz	T
24V DC	TD ^①
415V 50 Hz, 480V 60 Hz	C ^②
550V 50 Hz, 600V 60 Hz	D ^②
208V 60 Hz	E ^②
190V 50 Hz, 220V 60 Hz	G ^②
240V 50 Hz, 277V 60 Hz	H ^②
380V 50 Hz, 440V 60 Hz	L ^②
400V 50 Hz	N ^②
380V 60 Hz	P ^②
12V 50/60 Hz	R ^②
24V 50 Hz	U ^②
42V 50 Hz, 48V 60 Hz	W ^②
48V 50 Hz	Y ^②
120V DC	AD ^{①②}
220V DC	BD ^{①②}
12V DC	RD ^{①②}
48V DC	WD ^{①②}

Coil Voltage	Suffix Code
Frame C and D Contactors	
110V 50 Hz, 120V 60 Hz	A
220V 50 Hz, 240V 60 Hz	B
230V 50 Hz	F
24V 50/60 Hz	T
24 – 27V DC	TD ^①
415V 50 Hz, 480V 60 Hz	C ^②
550V 50 Hz, 600V 60 Hz	D ^②
208V 60 Hz	E ^②
190V 50 Hz, 220V 60 Hz	G ^②
240V 50 Hz, 277V 60 Hz	H ^②
380V 50 Hz, 440V 60 Hz	L ^②
400V 50 Hz	N ^②
380V 60 Hz	P ^②
12V 50/60 Hz	R ^②
24V 50 Hz	U ^②
42V 50 Hz, 48V 60 Hz	W ^②
48V 50 Hz	Y ^②
110 – 130V DC	AD ^{①②}
200 – 240V DC	BD ^{①②}
12 – 14V DC	RD ^{①②}
48 – 60V DC	WD ^{①②}

① With DC Operation: Integrated diode-resistor combination, coil rating 2.6W.



② For indicated coils, price adder of 10% must be applied to the MMC list price in **Tables 223 and 224**.

Accessories

Line Side Adapters

Line Side Adapters are required for use with XTPR MMPs only when used as Type E Self-Protected Manual Combination Starters or as part of XTFC or XTFR Type F Combination Motor Controllers. Not required for Group Installation.

Table 226. Line Side Adapters

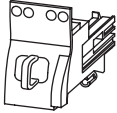
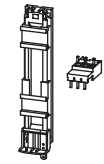
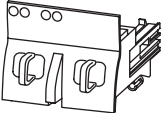
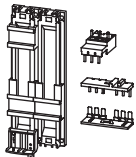
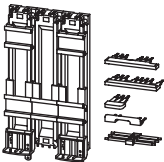
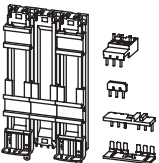
	Description	Catalog Number	Price U.S. \$
	For use with Frame B MMPs (up to 32A)	XTPAXLSA	26.25
	For use with Frame D MMPs (up to 40A)	XTPAXLSAD	40.50

Accessories

Combination Connection Kits

Combination Connection Kits include the necessary components to field assemble a Manual Motor Controller with an MMP (XTPR) and Contactor (XTCE).

Table 227. Combination Connection Kits

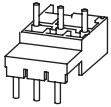

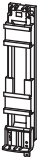
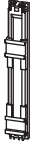
	For Use with...	Description	Std. Pack	Catalog Number	Price U.S. \$
Non-reversing Starters					
	XTPR...B + XTCE...B	Comprised of: ■ Mechanical connection element for XTPR...B and contactor ■ Main current wiring between XTPR...B and contactor in tool-less plug connection ■ Cable guidance Use as contactor auxiliary switch XTCEXFAT_ Control cable guidance: max. 6 cables up to 2.5 mm ² external diameter or 4 cables up to 3.5 mm ² external diameter.	1	XTPAXTPCB	41.75
	XTPR...B + XTCE...C	Comprised of: ■ DIN rail adapter plate ■ Main current wiring between XTPR and contactor	1	XTPAXTPCC	41.75
	XTPR...D + XTCE...D		1	XTPAXTPCD	52.50
Reversing Starters					
	XTPR...B + XTCE...B01_	Comprised of: ■ Mechanical connection element for XTPR...B and contactor ■ Reversing starter main current wiring in tool-less plug connection ■ Control cables for electrical interlocking in tool-less plug connection: – K1M: A1 – K2M: 21 – K1M: 21 – K2M: A1 – K1M: A2 – K2M: A2 ■ Cable guidance Use as contactor auxiliary switch XTCEXFAT_ Control cable guidance: max. 6 cables up to 2.5 mm ² external diameter or 4 cables up to 3.5 mm ² external diameter.	1	XTPAXTPCRB	83.50
	XTPR...B + XTCE...C	Comprised of: ■ DIN rail adapter plate ■ Reversing starter main current wiring	1	XTPAXTPCRC	83.50
Star-Delta Starter Sets					
	XTPR...B + XTCE...B	Comprised of: ■ DIN rail adapter plate ■ Main current wiring between XTPR...B and contactor ■ Electrical interlock between delta and star contactor ■ Use as contactor auxiliary switch XTCEXFAT_	1	XTPAXSDSB	280.00
	XTPR...B + XTCE...C	Comprised of: ■ DIN rail adapter plate ■ Main current wiring between XTPR...B and contactor	1	XTPAXSDSC	290.00

Discount Symbol 1CD7

Accessories

Combination Connection Kits

Table 227. Combination Connection Kits (Continued)

	For Use with...	Description	Std. Pack	Catalog Number	Price U.S. \$ ^①
Electric Contact Module					
	XTPR...B + XTCE...C	Comprised of: <ul style="list-style-type: none"> ■ Main current wiring between XTPR...B and contactor ■ Use only in combination with busbar adapter 	5	XTPAXECMC	11.80
	XTPR...D + XTCE...D	Comprised of: <ul style="list-style-type: none"> ■ Main current wiring between XTPR...D and contactor ■ Use only in combination with busbar adapter 	5	XTPAXECMD	17.10
DIN Rail Adapter Plates					
	XTPAXTPCB XTPAXTPCRB	Comprised of: <ul style="list-style-type: none"> ■ 45 mm wide adapter plate with one DIN rail ■ Connection element for side-by-side positioning of further plates 	4	XTPAXTPCPB	25.75
	XTPR...B + XTCE...C XTPAXECMC	Comprised of: <ul style="list-style-type: none"> ■ 45 mm wide adapter plate with two DIN rails ■ Connection element for side-by-side positioning of further plates 	4	XTPAXTPCRPB	31.00
	XTPAXECMD XTPR...D + XTCE...C XTPR...D + XTCE...D	Comprised of: <ul style="list-style-type: none"> ■ 55 mm wide adapter plate with two DIN rails ■ Connection cams for further plates ■ For use with reversing and star-delta starters 	4	XTPAXTPCPD	35.25
Lateral Module					
	—	<ul style="list-style-type: none"> ■ Can be grouped on the DIN rail adapter ■ Expansion of the mounting width by 9 mm 	10	XTPAXLM	26.75
Connection Element					
	—	<ul style="list-style-type: none"> ■ For connection of several DIN rail adapters 	50	XTPAXCNE	2.15

① Price listed is for a quantity of one (1). Orders must be placed in multiples of package quantity listed.

Technical Data and Specifications

Table 228. Manual and Combination Motor Controllers Motor Ratings

Assembled Controller ^③		FLA Adjustment Range / Overload Release — I _r (Amps)	Maximum Motor Ratings — P ^①													
			Maximum Motor kW Rating AC-3 — P (kW)					Maximum hp Rating — P (hp)								
			Three-Phase					Single-Phase				Three-Phase				
Non-reversing	Reversing		220 – 240V	380 – 415V	440V	500V	660 – 690V	115V	200V	208V	240V	200V	208V	240V	480V	600V



XTSC & XTSR Manual Motor Controllers (MMC) / Starter Combinations

XTSC & XTSR Frame B MMP + Frame B Contactor

XTSCP16BB	XTSRP16BB	0.1 – 0.16	—	—	—	—	0.06	②	②	②	②	②	②	②	②	②	1/2	1/2
XTSCP25BB	XTSRP25BB	0.16 – 0.25	—	0.06	0.06	0.06	0.12	②	②	②	②	②	②	②	②	②	1/2	1/2
XTSCP40BB	XTSRP40BB	0.25 – 0.4	0.06	0.09	0.12	0.12	0.18	②	②	②	②	②	②	②	②	②	1/2	1/2
XTSCP63BB	XTSRP63BB	0.4 – 0.63	0.09	0.18	0.18	0.25	0.25	②	②	②	②	②	②	②	②	②	1/2	1/2
XTSC001BB	XTSR001BB	0.63 – 1	0.12	0.25	0.25	0.37	0.55	②	②	②	②	②	②	②	②	②	1/2	1/2
XTSC1P6BB	XTSR1P6BB	1 – 1.6	0.25	0.55	0.55	0.75	1.1	②	②	②	1/10	②	②	②	②	②	3/4	1
XTSC2P5BB	XTSR2P5BB	1.6 – 2.5	0.37	0.75	1.1	1.1	1.5	—	1/8	1/8	1/8	1/6	1/2	1/2	1/2	1	1-1/2	1-1/2
XTSC004BB	XTSR004BB	2.5 – 4	0.75	1.5	1.5	2.2	3	1/8	1/4	1/4	1/3	1	1	1	1	2	3	3
XTSC6P3BB	XTSR6P3BB	4 – 6.3	1.1	2.2	3	3	4	1/4	1/2	1/2	1/2	1-1/2	1-1/2	1-1/2	3	5	5	5
XTSC010BB	XTSR010BB	6.3 – 10	2.2	4	4	4	7.5	1/2	1	1	1-1/2	3	3	3	7-1/2	10	10	10
XTSC012BB	XTSR012BB	8 – 12	3	5.5	5.5	5.5	11	1/2	1-1/2	1-1/2	2	3	3	3	7-1/2	10	10	10
XTSC016BB	—	10 – 16	4	7.5	9	9	12.5	1	2	2	2	3	3	3	10	10	10	10

XTSC & XTSR Frame B MMP + Frame C Contactor

XTSC016BC	XTSR016BC	10 – 16	4	7.5	9	9	12.5	1	2	2	2	3	3	3	5	5	10	10
XTSC020BC	XTSR020BC	16 – 20	5.5	9	11	12.5	15	1-1/2	3	3	3	3	5	5	5	5	10	15
XTSC025BC	XTSR025BC	20 – 25	5.5	11	12.5	15	22	1-1/2	3	3	3	5	5	5	7-1/2	15	20	20
XTSC032BC	XTSR032BC	25 – 32	7.5	15	15	22	30	2	3	3	5	7-1/2	7-1/2	10	20	25	25	25

XTSC & XTSR Frame D MMP + Frame C Contactor

XTSC016DC	XTSR016DC	10 – 16	4	7.5	9	9	12.5	1	2	2	3	3	5	5	10	15	15	15
XTSC025DC	XTSR025DC	16 – 25	5.5	12.5	12.5	12.5	22	2	3	3	3	7-1/2	7-1/2	7-1/2	20	25	25	25
XTSC032DC	XTSR032DC	25 – 32	7.5	15	17.5	17.5	22	3	5	5	5	10	10	10	25	30	30	30

XTSC & XTSR Frame D MMP + Frame D Contactor

XTSC040DD	XTSR040DD	32 – 40	11	20	22	22	30	3	5	—	7-1/2	10	—	—	30	30	30	30
XTSC050DD	XTSR050DD	40 – 50	14	25	30	30	45	—	7-1/2	7-1/2	—	15	15	15	30	40	40	40
XTSC058DD	XTSR058DD	50 – 58	17	30	37	37	55	—	—	—	10	—	—	—	40	—	—	—
XTSC063DD	XTSR063DD	55 – 63	18.5	34	37	37	55	—	—	—	—	—	—	—	40	—	—	—

XTFC & XTFR Combination Motor Controllers (CMC), UL508 Type F

XTFC & XTFR Frame B MMP + Frame B Contactor

XTFCP16BB	XTFRP16BB	0.1 – 0.16	—	—	—	—	0.06	②	②	②	②	②	②	②	②	②	1/2	1/2
XTFCP25BB	XTFRP25BB	0.16 – 0.25	—	0.06	0.06	0.06	0.12	②	②	②	②	②	②	②	②	②	1/2	1/2
XTFCP40BB	XTFRP40BB	0.25 – 0.4	0.06	0.09	0.12	0.12	0.18	②	②	②	②	②	②	②	②	②	1/2	1/2
XTFCP63BB	XTFRP63BB	0.4 – 0.63	0.09	0.18	0.18	0.25	0.25	②	②	②	②	②	②	②	②	②	1/2	1/2
XTFC001BB	XTFR001BB	0.63 – 1	0.12	0.25	0.25	0.37	0.55	②	②	②	②	②	②	②	②	②	1/2	1/2
XTFC1P6BB	XTFR1P6BB	1 – 1.6	0.25	0.55	0.55	0.75	1.1	②	②	②	1/10	②	②	②	②	②	3/4	1
XTFC2P5BB	XTFR2P5BB	1.6 – 2.5	0.37	0.75	1.1	1.1	1.5	—	1/8	1/8	1/8	1/6	1/2	1/2	1/2	1	1-1/2	1-1/2
XTFC004BB	XTFR004BB	2.5 – 4	0.75	1.5	1.5	2.2	3	1/8	1/4	1/4	1/4	1/3	1	1	1	2	3	3
XTFC6P3BB	XTFR6P3BB	4 – 6.3	1.1	2.2	3	3	4	1/4	1/2	1/2	1/2	1-1/2	1-1/2	1-1/2	3	5	5	5
XTFC010BB	XTFR010BB	6.3 – 10	2.2	4	4	4	7.5	1/2	1	1	1-1/2	3	3	3	7-1/2	10	10	10
XTFC012BB	XTFR012BB	8 – 12	3	5.5	5.5	5.5	11	1/2	1-1/2	1-1/2	2	3	3	3	7-1/2	—	—	—
XTFC016BB	—	10 – 16	4	7.5	9	9	12.5	1	2	2	2	3	3	3	10	—	—	—

XTFC & XTFR Frame B MMP + Frame C Contactor

XTFC016BC	XTFR016BC	10 – 16	4	7.5	9	9	12.5	1	2	2	2	3	3	3	5	5	10	—
XTFC020BC	XTFR020BC	16 – 20	5.5	9	11	12.5	15	1-1/2	3	3	3	3	5	5	5	5	10	—
XTFC025BC	XTFR025BC	20 – 25	5.5	11	12.5	15	22	1-1/2	3	3	3	5	5	5	7-1/2	15	—	—
XTFC032BC	XTFR032BC	25 – 32	7.5	15	15	22	30	2	3	3	5	7-1/2	7-1/2	10	20	—	—	—

XTFC & XTFR Frame D MMP + Frame C Contactor

XTFC016DC	XTFR016DC	10 – 16	4	7.5	9	9	12.5	1	2	2	3	3	5	5	10	15	15	15
XTFC025DC	XTFR025DC	16 – 25	5.5	12.5	12.5	12.5	22	2	3	3	3	7-1/2	7-1/2	7-1/2	20	25	25	25
XTFC032DC	XTFR032DC	25 – 32	7.5	15	17.5	17.5	22	3	5	5	5	10	10	10	25	30	30	30

XTFC & XTFR Frame D MMP + Frame D Contactor

XTFC040DD	XTFR040DD	32 – 40	11	20	22	22	30	3	5	—	7-1/2	10	—	—	30	30	30	30
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① Select Manual Motor Protectors by full load amperes. Maximum Motor Ratings (kW, hp) are for reference only.

② In this range, calculate motor rating according to rated current. Specified values to NEC Table 430-150.

③ Underscore (_) indicates Magnetic Coil Suffix required. See Table 225 on Page 179.

Notes:

Service Factor Settings: Setting I_r of current scale in dependence of load factor:

SF = 1.15 → I_r = 1 × I_n mot

SF = 1 → I_r = 0.9 × I_n mot

Single-phasing sensitivity to IEC/EN 60947-4-1, VDE 0660 Part 102.

Table 229. XTSC and XTSR Manual Motor Controllers (MMC) / Starter Combinations — Component Bill of Material

Factory Assembled Motor Protective Device with Thermal and Magnetic Trip + Contactor					
Assembled Manual Motor Controller ①	FLA Adjustment Range / Overload Release — I _r (Amps)	Component Catalog Numbers			
		Manual Motor Protector	Combination Connection Kit	Contactor ①	Manual Motor Protector Auxiliary Contact
Non-reversing					
XTSC Frame B MMP + Frame B Contactor					
XTSCP16BB_	0.1 – 0.16	XTPRP16BC1	XTPAXTPCB	XTCE007B10_	XTPAXFA11
XTSCP25BB_	0.16 – 0.25	XTPRP25BC1	XTPAXTPCB	XTCE007B10_	XTPAXFA11
XTSCP40BB_	0.25 – 0.4	XTPRP40BC1	XTPAXTPCB	XTCE007B10_	XTPAXFA11
XTSCP63BB_	0.4 – 0.63	XTPRP63BC1	XTPAXTPCB	XTCE007B10_	XTPAXFA11
XTSC001BB_	0.63 – 1	XTPR001BC1	XTPAXTPCB	XTCE007B10_	XTPAXFA11
XTSC1P6BB_	1 – 1.6	XTPR1P6BC1	XTPAXTPCB	XTCE007B10_	XTPAXFA11
XTSC2P5BB_	1.6 – 2.5	XTPR2P5BC1	XTPAXTPCB	XTCE007B10_	XTPAXFA11
XTSC004BB_	2.5 – 4	XTPR004BC1	XTPAXTPCB	XTCE007B10_	XTPAXFA11
XTSC6P3BB_	4 – 6.3	XTPR6P3BC1	XTPAXTPCB	XTCE007B10_	XTPAXFA11
XTSC010BB_	6.3 – 10	XTPR010BC1	XTPAXTPCB	XTCE009B10_	XTPAXFA11
XTSC012BB_	8 – 12	XTPR012BC1	XTPAXTPCB	XTCE012B10_	XTPAXFA11
XTSC016BB_	10 – 16	XTPR016BC1	XTPAXTPCB	XTCE015B10_	XTPAXFA11
XTSC Frame B MMP + Frame C Contactor					
XTSC016BC_	10 – 16	XTPR016BC1	XTPAXTPCC	XTCE018C10_	XTPAXFA11
XTSC020BC_	16 – 20	XTPR020BC1	XTPAXTPCC	XTCE025C10_	XTPAXFA11
XTSC025BC_	20 – 25	XTPR025BC1	XTPAXTPCC	XTCE025C10_	XTPAXFA11
XTSC032BC_	25 – 32	XTPR032BC1	XTPAXTPCC	XTCE032C10_	XTPAXFA11
XTSC Frame D MMP + Frame C Contactor					
XTSC016DC_	10 – 16	XTPR016DC1	②	XTCE018C10_	XTPAXFA11
XTSC025DC_	16 – 25	XTPR025DC1	②	XTCE025C10_	XTPAXFA11
XTSC032DC_	25 – 32	XTPR032DC1	②	XTCE032C10_	XTPAXFA11
XTSC Frame D MMP + Frame D Contactor					
XTSC040DD_	32 – 40	XTPR040DC1	XTPAXTPCD ③	XTCE040D00_	XTPAXFA11
XTSC050DD_	40 – 50	XTPR050DC1	XTPAXTPCD ③	XTCE050D00_	XTPAXFA11
XTSC058DD_	50 – 58	XTPR058DC1	XTPAXTPCD ③	XTCE065D00_	XTPAXFA11
XTSC063DD_	55 – 63	XTPR063DC1	XTPAXTPCD ③	XTCE065D00_	XTPAXFA11
Reversing					
XTSR Frame B MMP + Frame B Contactor					
XTSRP16BB_	0.1 – 0.16	XTPBP16BC1	XTPAXTPCRB	(2) XTCE007B10_	XTPAXFA11
XTSRP25BB_	0.16 – 0.25	XTPRP25BC1	XTPAXTPCRB	(2) XTCE007B10_	XTPAXFA11
XTSRP40BB_	0.25 – 0.4	XTPRP40BC1	XTPAXTPCRB	(2) XTCE007B10_	XTPAXFA11
XTSRP63BB_	0.4 – 0.63	XTPRP63BC1	XTPAXTPCRB	(2) XTCE007B10_	XTPAXFA11
XTSR001BB_	0.63 – 1	XTPR001BC1	XTPAXTPCRB	(2) XTCE007B10_	XTPAXFA11
XTSR1P6BB_	1 – 1.6	XTPR1P6BC1	XTPAXTPCRB	(2) XTCE007B10_	XTPAXFA11
XTSR2P5BB_	1.6 – 2.5	XTPR2P5BC1	XTPAXTPCRB	(2) XTCE007B10_	XTPAXFA11
XTSR004BB_	2.5 – 4	XTPR004BC1	XTPAXTPCRB	(2) XTCE007B10_	XTPAXFA11
XTSR6P3BB_	4 – 6.3	XTPR6P3BC1	XTPAXTPCRB	(2) XTCE007B10_	XTPAXFA11
XTSR010BB_	6.3 – 10	XTPR010BC1	XTPAXTPCRB	(2) XTCE009B10_	XTPAXFA11
XTSR012BB_	8 – 12	XTPR012BC1	XTPAXTPCRB	(2) XTCE012B10_	XTPAXFA11
XTSR Frame B MMP + Frame C Contactor					
XTSR016BC_	10 – 16	XTPR016BC1	XTPAXTPCRC	(2) XTCE018C10_	XTPAXFA11
XTSR020BC_	16 – 20	XTPR020BC1	XTPAXTPCRC	(2) XTCE025C10_	XTPAXFA11
XTSR025BC_	20 – 25	XTPR025BC1	XTPAXTPCRC	(2) XTCE025C10_	XTPAXFA11
XTSR032BC_	25 – 32	XTPR032BC1	XTPAXTPCRC	(2) XTCE032C10_	XTPAXFA11
XTSR Frame D MMP + Frame C Contactor					
XTSR016DC_	10 – 16	XTPR016DC1	②	(2) XTCE018C10_	XTPAXFA11
XTSR025DC_	16 – 25	XTPR025DC1	②	(2) XTCE025C10_	XTPAXFA11
XTSR032DC_	25 – 32	XTPR032DC1	②	(2) XTCE032C10_	XTPAXFA11
XTSR Frame D MMP + Frame D Contactor					
XTSR040DD_	32 – 40	XTPR040DC1	③	(2) XTCE040D00_	XTPAXFA11
XTSR050DD_	40 – 50	XTPR050DC1	③	(2) XTCE050D00_	XTPAXFA11
XTSR058DD_	50 – 58	XTPR058DC1	③	(2) XTCE065D00_	XTPAXFA11
XTSR063DD_	55 – 63	XTPR063DC1	③	(2) XTCE065D00_	XTPAXFA11

① Underscore (_) indicates Magnetic Coil Suffix required. See Table 225 on Page 179.

② The connection between the XTPR...DC1 and the XTCE...C... contactor will be made with flexible wire and mounted to the DIN Rail Adapter Plate (XTPAXTPCPD).

③ The reversing connection between the XTPR...DC1 and the (2) XTCE...C... contactors will be accomplished by using the non-reversing combination connection kit (XTPAXTPCD), Frame D reversing link kit (XTCEXRLD), additional DIN Rail Adapter Plate (XTPAXTPCPD), and DIN Adapter Connection Element (XTPAXCNE).