The Feature Packed line of Manual Motor Protectors

Eaton's new XT family of Manual Motor Protectors (MMPs) features a pushbutton or rotary ON/OFF manual disconnect, Class 10 adjustable bimetallic overload relay and fixed magnetic short circuit trip capability in one compact unit.
Two frame sizes are available: Frame B (45 mm) for motors with FLC ratings up to 32A and Frame D (55 mm) covers motor FLC ratings up to 63A.





Technical Characteristics

- ON/OFF Rotary Handle with Lockout Provision
- Visible Trip Indication
- Class 10 Overload Protection
- Phase Loss Sensitivity
- Ambient Temperature Compensation to IEC/EN 60947, VDE 0660
- Fixed Short Circuit Trip — 14 times maximum setting of overload FLC dial
- Type 2 Coordination per IEC 947
- Identification Markers Standard on Starter Faceplate
- Motor Applications from 0.1A to 63A
- Built-in heater and magnetic trip elements to protect the motor
- Adjustment dial for setting motor FLC
- DIN Rail Mount
- Terminal Types Available:
  - Screw terminals
  - Screw (line) and Spring Cage (load) terminals
  - Spring Cage terminals
- Accessories include:
  - Front and Side Auxiliary Contacts
  - Trip Indicating Contacts
  - Tamperproof Cover for OLR Dial
  - Undervoltage Release
  - Shunt Trip
  - Thru-the-Door Operators
  - Enclosures
  - 3-Phase Line Side Connecting Links

Standards and Certifications

- IEC/EN 60947
- DIN VDE 0660 Part 100, Part 101 and Part 102
- UL Listed
- UL 508 Group Motor and Type E Compliant
- CSA File LR12530, Class 3211-05

Types (Configurations)

- Motor Protective Device with Thermal and Magnetic Trip
  - XTPB Pushbutton Actuated Manual Motor Protector up to 25A
  - XTPR Rotary Actuated Manual Motor Protector up to 63A
- For the Protection of Transformers with a high inrush current:
  - XTPT Manual Transformer Protector up to 25A
- Motor Protective Device without Overload Function:
  - XTPM Motor Protective Circuit Breaker up to 32A — not UL Approved



XTPR032BC1

Manual Motor Protectors, Rotary, Frame B, Screw Terminals

- Type 1 and Type 2 Coordination
- Motor Protective Device with Thermal and Magnetic Trip.
- Select Manual Motor Protectors by full load current. Maximum Motor Ratings (kW) are for reference only.

Rated Uninterrupted Current — $I_u = I_e$ (Amps)	FLA Adjustment Range / Overload Release — I_r (Amps)	Short Circuit Release — I_{rm} (Amps)	Maximum Motor Ratings Maximum kW Rating AC-3 — P (kW) 3-Phase 220 – 240V	380 – 415V	440V	500V	660 – 690V	Eaton list number
0.16	0.1 – 0.16	2.2	—	—	—	—	0.06	**XTPRP16BC1**
0.25	0.16 – 0.25	3.5	—	0.06	0.06	0.06	0.12	**XTPRP25BC1**
0.4	0.25 – 0.4	5.6	0.06	0.09	0.12	0.12	0.18	**XTPRP40BC1**
0.63	0.4 – 0.63	8.8	0.09	0.12	0.18	0.25	0.25	**XTPRP63BC1**
1	0.63 – 1	14	0.12	0.25	0.25	0.37	0.55	**XTPR001BC1**
1.6	1 – 1.6	22	0.25	0.55	0.55	0.75	1.1	**XTPR1P6BC1**
2.5	1.6 – 2.5	35	0.37	0.75	1.1	1.1	1.5	**XTPR2P5BC1**
4	2.5 – 4	56	0.75	1.5	1.5	2.2	3	**XTPR004BC1**
6.3	4 – 6.3	88	1.1	2.2	3	3	4	**XTPR6P3BC1**
10	6.3 – 10	140	2.2	4	4	4	7.5	**XTPR010BC1**
12	8 – 12	168	3	5.5	5.5	5.5	11	**XTPR012BC1**
16	10 – 16	224	4	7.5	9	9	12.5	**XTPR016BC1**
20	16 – 20	280	5.5	9	11	12.5	15	**XTPR020BC1**
25	20 – 25	350	5.5	12.5	12.5	15	22	**XTPR025BC1**
32	25 – 32	448	7.5	15	15	22	30	**XTPR032BC1**



XTPR063DC1

Manual Motor Protectors, Rotary, Frame D, Screw Terminals

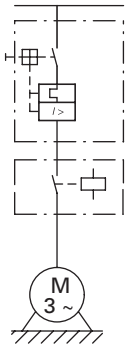
- Type 1 and Type 2 Coordination
- Motor Protective Device with Thermal and Magnetic Trip.
- Select Manual Motor Protectors by full load current. Maximum Motor Ratings (kW) are for reference only.

Rated Uninterrupted Current — $I_u = I_e$ (Amps)	FLA Adjustment Range / Overload Release — I_r (Amps)	Short Circuit Release — I_{rm} (Amps)	Maximum Motor Ratings Maximum kW Rating AC-3 — P (kW) 3-Phase 220 – 240V	380 – 415V	440V	500V	660 – 690V	Eaton list number
16	10 – 16	224	4	7.5	9	9	12.5	**XTPR016DC1**
25	16 – 25	350	5.5	12.5	12.5	12.5	22	**XTPR025DC1**
32	25 – 32	448	7.5	15	17.5	17.5	22	**XTPR032DC1**
40	32 – 40	560	11	20	22	22	30	**XTPR040DC1**
50	40 – 50	700	14	25	30	30	45	**XTPR050DC1**
58	50 – 58	812	17	30	37	37	55	**XTPR058DC1**
65	55 – 63	882	18.5	34	37	37	55	**XTPR063DC1**

Manual Motor Protectors

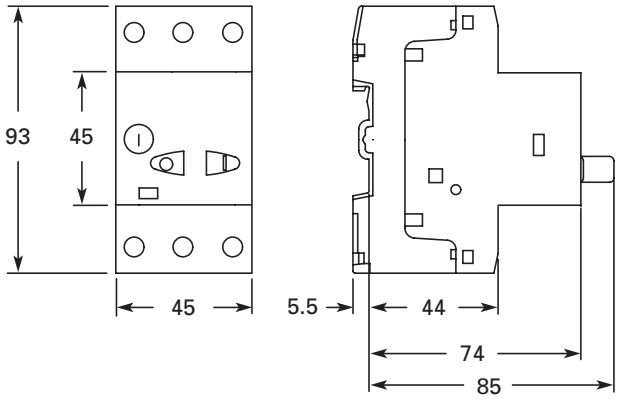
For motors with service factors less than 1.15, multiply the motor FLA by .90 to select appropriate MMP.
Example: For motor having FLA of 6.4A and service factor of 1.0 (6.4A x .90 = 5.76A) select Eaton list number XTPB6P3B01.
For motor with service factor of 1.15 or greater, use motor nameplate Full Load Amperes to select the appropriate MMP.
Example: For motor having FLA of 11A and service factor of 1.15, select Eaton list number XTPR012BC1.

The assembled Manual Motor Controller (MMC) consists of a XTPR Manual Motor Protector (MMP) and a XTCE contactor. Up to 12A, the assembly can be mounted directly on DIN rail without an adapter. The contactors are supported mechanically with a mechanical connection element (included in XTPAXTPCB). For 16A and above, the assembly is mounted via a DIN Rail Adapter Plate (XTPAXTPCCP) and the electrical connection is made with electrical contact modules (XTPAXEMMC), both included in XTPAXTPCC.
Service Factor Settings: For motors with a service factor (SF) of 1.15, use motor nameplate Full Load Amperes (FLA) to select the appropriate motor controller —> I_r = 1 x $I_{n\ mot}$. For motors with a service factor (SF) of 1.0 or less, multiply the motor FLA by 0.9 to select the appropriate motor controller —> I_r = 0.9 x $I_{n\ mot}$.
Single-phasing sensitivity to IEC/EN 60947-4-1, VDE 0660 Part 102.



XTSC… Manual Motor Controller

Manual Motor Protectors, Frame B, Pushbutton, dimensional drawing



Manual Motor Protectors — XTPB

XT PR 012 B C1

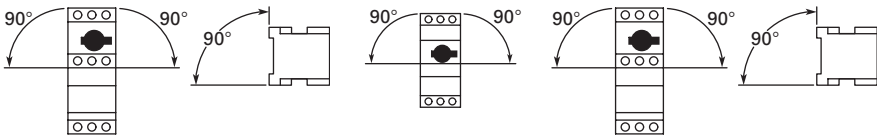
Designation
XT = XT IEC Power Control

Type
PB = Manual Motor Protector — Pushbutton
PR = Manual Motor Protector — Rotary
PM = Manual Motor Protector — Magnetic Only
PT = Manual Transformer Protector (High Mag.)

Trip Class
C1 = Class 10
Blank = Magnetic only (No thermal trip)

Frame Size	
B = 45 mm	**D** = 55 mm

Current Ratings	
B Frame	
P16 = 0.16A	**6P3** = 6.3A
P25 = 0.25A	**010** = 10A
P40 = 0.40A	**012** = 12A
P63 = 0.63A	**016** = 16A
001 = 1A	**020** = 20A
1P6 = 1.6A	**025** = 25A
2P5 = 2.5A	**032** = 32A
004 = 4A	
D Frame	
016 = 16A	**050** = 50A
025 = 25A	**058** = 58A
032 = 32A	**063** = 63A
040 = 40A	

	XTPBP16B – XTPB016B	XTPRP16B – XTPR032B	XTPR016D – XTPR063D	XTPMP16B –[1] XTPM032B	XTPTP16B – XTPT025B
Standards	**IEC/EN 60947, VDE 0660, UL 508, CSA C 22.2 No. 14**				
General					
Climatic proofing					
Ambient temperature, °C					
Storage	-25 / 80	-25 / 80	-25 / 70	-25 / 80	-25 / 80
Open	-25 / 55	-25 / 55	-25 / 55	-25 / 55	-25 / 55
Enclosed	-25 / 40	-25 / 40	-25 / 40	-25 / 40	-25 / 40
Temperature compensation					
to IEC/EN 60947, VDE 0660, °C	-5 / 40	-5 / 40	-5 / 40	-5 / 40	-5 / 40
Operating range, °C	-25 / 55	-25 / 55	-25 / 55	-25 / 55	-25 / 55
Temperature compensation residual error for T > 20°C, %/K	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25
Mounting position					
Direction of incoming supply	As required	As required	As required	As required	As required
Degree of protection					
Device	IP20	IP20	IP20	IP20	IP20
Terminals	IP00	IP00	IP00	IP00	IP00
Protection against direct contact	Finger- and back-of-hand proof				
Shock resistance half-sinusoidal shock 10 mS to IEC 60068-2-27 (g)	25	25	15	25	25
Altitude (m)	max. 2000	max. 2000	max. 2000	max. 2000	max. 2000
Terminal capacity					
Solid (mm^2)	1 x (1 – 6)	1 x (1 – 6)	1 x (1 – 50)	1 x (1 – 6)	1 x (1 – 6)
	2 x (1 – 6)	2 x (1 – 6)	2 x (1 – 35)	2 x (1 – 6)	2 x (1 – 6)
Flexible with ferrule to DIN 46228, (mm^2)	1 x (1 – 6)	1 x (1 – 6)	1 x (1 – 35)	1 x (1 – 6)	1 x (1 – 6)
	2 x (1 – 6)	2 x (1 – 6)	2 x (1 – 35)	2 x (1 – 6)	2 x (1 – 6)
Solid or stranded (AWG)	18 – 10	18 – 10	14 – 2	18 – 10	18 – 10
Terminal screw tightening torque					
Main cable, Nm	1.7	1.7	3	1.7	1.7
Control circuit cable, Nm	1	1	1	1	1
Main contacts					
Rated impulse withstand voltage (U_{imp}), V AC	6000	6000	6000	6000	6000
Overvoltage category / pollution degree	III / 3	III / 3	III / 3	III / 3	III / 3
Rated operational voltage (U_e), V AC	690	690	690	690	690
Rated uninterrupted current = rated operational current ($I_u = I_e$) in amperes	16 or current setting of the overcurrent release	32 or current setting of the overcurrent release	63 or current setting of the overcurrent release	32 or current setting of the overcurrent release	25 or current setting of the overcurrent release
Rated frequency, Hz	40 – 60	40 – 60	40 – 60	40 – 60	40 – 60
Current heat loss (3-pole at operating temperature), W	6	6	22	6	6
Lifespan, mechanical (ops)	50,000	100,000	30,000	100,000	100,000
Lifespan, electrical (AC-3 at 400 V) (ops)	50,000	100,000	30,000	100,000	100,000
Maximum operating frequency, operations/hr	25	40	40	40	40

Note: Single-phasing sensitivity to IEC/EN 60947-4-1, VDE 0660 Part 102.
Can be snap-fit to IEC/EN 60715 top-hat (DIN) with 7.5 or 15 mm height.
Service Factor (SF) — Setting I_r of current scale in dependence of load factor:
SF = 1.15 -> $I_r = 1 \times I_{n\ mot}$
SF = 1 -> $I_r = 0.9 \times I_{n\ mot}$

[1] When using the XTPM as short-circuit protection for motors with heavy starting duty, the rated operational current I_e must be derated during engineering with the following factors:

Class 5 = 1.0, Class 10 = 1.0, Class 15 = 0.82, Class 20 = 0.71

Class 25 = 0.63, Class 30 = 0.58, Class 35 = 0.53, Class 40 = 0.50

Manual Motor Protectors, Frames B and D, Technical Data and Standards (Continued)

	XTPBP16B – XTPB016B	XTPRP16B – XTPR032B	XTPR016D – XTPR063D	XTPMP16B – XTPM032B	XTPTP16B – XTPT025B
Main contacts (Continued)					
Short-circuit rating					
AC	See Page 150.				
DC (kA)	60	60 (up to XTPR016B) 40 (XTPR020B – XTPR032B)	60	60 (up to XTPM016B) 40 (XTPM020B – XTPR032B)	60 (up to XTPT016B) 40 (XTPT020B – XTPT025B)
Motor switching capacity					
AC-3 (up to 690 V) in amperes	16	32	63	32	25
DC-5 (up to 250 V) in amperes	16	25 (3 contacts in series)	63 (3 contacts in series)		
Overload release setting range (x I_u)	0.6 – 1.0	0.6 – 1.0	0.6 – 1.0	—	0.6 – 1.0
Fixed short-circuit release (x I_u)	14	14	14	14	14
Short-circuit release tolerance	± 20%	± 20%	± 20%	± 20%	± 20%
Phase-failure sensitivity	IEC/EN 60947-1-1, VDE 0660 Part 102			—	IEC/EN 60947-1-1, VDE 0660 Part 102

Manual Motor Protectors, Auxiliary Contacts, Technical Data and Standards

Description	XTPAXSA_ _	XTPAXFA_ _	XTPAXCMSA_ _	XTPA(B)XFAEM_ _	XTPAXSATR_ _
Rated Impulse withstand voltage, U_{imp} (V AC)	6000	4000	6000	4000	6000
Overvoltage category/pollution degree	III/3	III/3	III/3	III/3	III/3
Rated operational voltage					
U_e (VAC)	500	440	500	440	500
U_e (VDC)	250	250	250	250	250
Safe isolation to VDE 0106 Part 101 and Part 101/A1					
Between auxiliary contacts and main contacts (V AC)	690	690	690	690	690
Rated operational current					
AC-15					
220 – 240 V, I_e (A)	3.5	1	3.5	1	3.5
380 – 415 V, I_e (A)	2	—	2	—	2
440 – 500 V, I_e (A)	1	—	1	—	1
DC-13 L/R < 100 ms					
24 V, I_e (A)	2	—	2	—	2
60 V, I_e (A)	1.5	—	1.5	—	1.5
110 V, I_e (A)	1	—	1	—	1
220 V, I_e (A)	0.25	—	0.25	—	0.25
Lifespan					
Mechanical, operations (x 10^6)	> 0.1	> 0.1	> 5	> 0.1	> 0.01
Electrical, operations (x 10^6)	> 0.05	> 0.1	> 1	> 0.1	> 0.005
Contact reliability (@ U_e = 24V DC, U_{min} – 17V, I_{min} = 5.4 mA, fault probability (λ)	< 10^{-8} < 1 fault at 1 x 10^8 operations				
Positively driven contacts to ZH 1/457	Yes	–	Yes	–	–
Short-circuit rating without welding					
Fuseless	FAZ-B4/1-HI	–	FAZ-B4/1-HI	–	FAZ-B4/1-HI
Fuse (A gG/gL)	10	10	10	10	10
Terminal Capacity					
Solid or flexible conductor with ferrule (mm^2)	0.75 –2.5	0.75 – 1.5	0.75 – 2.5	0.75 – 1.5	0.75 – 2.5
Solid or stranded (AWG)	18 – 14	18 – 16	18 – 14	18 – 16	18 – 14

Manual Motor Protectors, FramesB and D, Ratings for Goup Motor Applications - UL 508/CSA C22.2 No.14

Eaton list Number	Rated Uninterrupted Current — I_u (Amps)	FLA Adjustment Range / Overload Release — I_r (Amps)	Short Circuit Release — I_{rm} (Amps)	Maximum Protective Device for UL/CSA Group Protection Max. RMS Sym Current — 600V (kA)		Maximum Fuse Rating (A)		Circuit Breaker Max (A)	
					w/Current Limiter — XTPAXCL		w/Current Limiter — XTPAXCL		w/Current Limiter — XTPAXCL
XTPB — Frame B, Manual Motor Protector with Thermal and Magnetic Trip									
XTPBP16BC1	0.16	0.1 – 0.16	2.2	50	—	600	—	600	—
XTPBP25BC1	0.25	0.16 – 0.25	3.5	50	—	600	—	600	—
XTPBP40BC1	0.4	0.25 – 0.4	5.6	50	—	600	—	600	—
XTPBP63BC1	0.63	0.4 – 0.63	8.8	50	—	600	—	600	—
XTPB001BC1	1	0.63 – 1	14	50	—	600	—	600	—
XTPB1P6BC1	1.6	1 – 1.6	22	50	—	600	—	600	—
XTPB2P5BC1	2.5	1.6 – 2.5	35	50	—	600	—	600	—
XTPB004BC1	4	2.5 – 4	56	50	—	600	—	600	—
XTPB6P3BC1	6.3	4 – 6.3	88	50	—	600	—	600	—
XTPB010BC1	10	6.3 – 10	140	10	50	150	600	125 2)	600
XTPB012BC1	12	8 – 12	168	10	50	150	600	125 2)	600
XTPB016BC1	16	10 – 16	224	10 1)	50 1)	150 1)	600 1)	125 1)2)	600 1)
XTPB020BC1 3)	20	16 – 20	280	10 1)	18 1)	150 1)	600 1)	125 1)	600 1)
XTPB025BC1 3)	25	20 – 25	350	10 1)	18 1)	150 1)	600 1)	125 1)	600 1)
XTPR — Frame B (all Screw and Spring Cage terminal options), Manual Motor Protector with Thermal and Magnetic Trip									
XTPRP16BC1	0.16	0.1 – 0.16	2.2	50	—	600	—	600	—
XTPRP25BC1	0.25	0.16 – 0.25	3.5	50	—	600	—	600	—
XTPRP40BC1	0.4	0.25 – 0.4	5.6	50	—	600	—	600	—
XTPRP63BC1	0.63	0.4 – 0.63	8.8	50	—	600	—	600	—
XTPR001BC1	1	0.63 – 1	14	50	—	600	—	600	—
XTPR1P6BC1	1.6	1 – 1.6	22	50	—	600	—	600	—
XTPR2P5BC1	2.5	1.6 – 2.5	35	50	—	600	—	600	—
XTPR004BC1	4	2.5 – 4	56	50	—	600	—	600	—
XTPR6P3BC1	6.3	4 – 6.3	88	50	—	600	—	600	—
XTPR010BC1	10	6.3 – 10	140	10	50	150	600	125 2)	600
XTPR012BC1	12	8 – 12	168	10	50	150	600	125	600
XTPR016BC1	16	10 – 16	224	10	50	150	600	125 2)	600
XTPR020BC1	20	16 – 20	280	10	18	150	600	125	600
XTPR025BC1	25	20 – 25	350	10	18	150	600	125	600
XTPR032BC1	32	25 – 32	448	10	18	150	600	125	600
XTPR — Frame D, Manual Motor Protector with Thermal and Magnetic Trip									
XTPR016DC1	16	10 – 16	224	10	—	600	—	600	—
XTPR025DC1	25	16 – 25	350	10	—	600	—	600	—
XTPR032DC1	32	25 – 32	448	10	—	600	—	600	—
XTPR040DC1	40	32 – 40	560	10	—	600	—	600	—
XTPR050DC1	50	40 – 50	700	10 1)	—	600 1)	—	600 1)	—
XTPR058DC1	58	50 – 58	812	10 1)	—	600 1)	—	600 1)	—
XTPR063DC1	65	55 – 63	882	10 1)	—	600 1)	—	600 1)	—
XTPT — Frame D, Manual Motor Protector with Thermal and Magnetic Trip									
XTPTP16BC1	0.16	0.1 – 0.16	2.4	50	—	600	—	600	—
XTPTP25BC1	0.25	0.16 – 0.25	4.25	50	—	600	—	600	—
XTPTP40BC1	0.4	0.25 – 0.4	6.8	50	—	600	—	600	—
XTPTP63BC1	0.63	0.4 – 0.63	12	50	—	600	—	600	—
XTPT001BC1	1	0.63 – 1	20	50	—	600	—	600	—
XTPT1P6BC1	1.6	1 – 1.6	32	50	—	600	—	600	—
XTPT2P5BC1	2.5	1.6 – 2.5	50	50	—	600	—	600	—
XTPT004BC1	4	2.5 – 4	84	50	—	600	—	600	—
XTPT6P3BC1	6.3	4 – 6.3	141	50	—	600	—	600	—
XTPT010BC1	10	6.3 – 10	224	10	50	150	600	125 2)	600
XTPT012BC1	12	8 – 12	224	10	50	150	600	125	600
XTPT016BC1	16	10 – 16	358	10	50	150	600	125	600
XTPT020BC1	20	16 – 20	380	10	18	150	600	125	600
XTPT025BC1	25	20 – 25	420	10	18	150	600	125	600

1) Rating is pending UL approval, available September 2005. Contact Eaton for availability.
2) 22kA 600V AC
3) IEC/EN 60947-4-1