XT IEC Power Control

Manual Motor Protectors



Contents

Description	Page
Relays and Timers	V5-T1-3
Miniature Controls	V5-T1-18
Contactors and Starters	V5-T1-35
Thermal Overload Relays	V5-T1-128
C440/ XT Electronic Overload Relay	V5-T1-141
Manual Motor Protectors	
Features and Benefits	V5-T1-158
Standards and Certifications	V5-T1-158
Product Identification	V5-T1-159
Catalog Number Selection	V5-T1-160
Product Selection	V5-T1-161
Accessories	V5-T1-164
Technical Data and Specifications	V5-T1-176
Dimensions	V5-T1-185
Combination Motor Controllers	V5-T1-193
XT Electronic Manual Motor Protector	V5-T1-216
EMS—Electronic Motor Starter	V5-T1-229
Reference Data	V5-T1-231

Manual Motor Protectors

Product Description

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 FLA ratings up to 32A and Frame D (55 mm) covers motor FLA ratings up to 65A.

Application Description

The XTPB and XTPR MMPs can be used in the following applications.

Motor Protective Circuit Breaker

In many countries outside of the United States and Canada, especially Europe, the MMPs are tested and classified as thermalmagnetic circuit breakers for use in motor branch circuits. This can be an important consideration for all companies who export their equipment and machines internationally. Both the XTPB and XTPR conform to IEC/EN 60947 and have the CE Mark.

Manual Motor Protectors

The XTPB and XTPR MMPs are UL listed under UL 508 as manual motor protectors. They provide an economical solution for applications requiring simple manual starting and stopping of motors. When used as a manual starter, they are typically installed in an enclosure. Many enclosures are offered as accessories for the MMPs. Separate shortcircuit protective devices, such as circuit breakers or fuses, are wired ahead of the MMPs. The short-circuit protective device should be sized per the NEC and should not exceed 400% of the maximum FLA dial setting of the MMP.

Group Motor Installations

A group motor installation can be defined as more than one motor circuit protected by a single set of fuses or circuit breaker on a motor branch circuit. This eliminates the need for individual fuses or circuit breakers for each motor circuit. Substantial component cost savings, panel space savings and reduced wiring installation time can be achieved in group motor installations.

The MMPs are tested and listed for group installation. If remote operation is required, a magnetic contactor can be wired in series with the MMP.

Article 430.53 of the NEC contains the rules and requirements for group motor installations. Refer to application note AP03402001E for NEC requirement for group motor installation.

Individual Branch Motor Applications

A UL 508 Type E selfprotected manual combination starter/motor controller consists of a single device possessing four essential elements: disconnect, short circuit protection, motor controller, and motor overload protection. Some MMPs require use of a lineside adapter for this type of approval. When tested as an official combination by UL, this device takes the place of a fuse-starter or breakerstarter, XT Type E MMPs are self-protected, meaning they do not need additional short circuit protection of a fuse or breaker. Type E devices can also be used with a contactor or other types of UL approved controllers. If tested with a contactor, the combination motor controller becomes a Type F device. See Page V5-T1-199 for XTFC Type F devices

Features and Benefits

- ON/OFF rotary handle with lockout provision
- Visible trip indicationClass 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 FLA dial
- Type 2 coordination per IEC
 947
- Identification markers standard on starter faceplate
- Motor applications from 0.1A to 65A
- Built-in heater and magnetic trip elements to protect the motor

Standards and Certifications

- CE approved
- UL listed File No. E245398
- UL 508 group motor and Type E compliant
- IEC/EN 60947
- CSA File 229767, Class 3211-05
- DIN VDE 0660 Part 100, Part 101 and Part 102

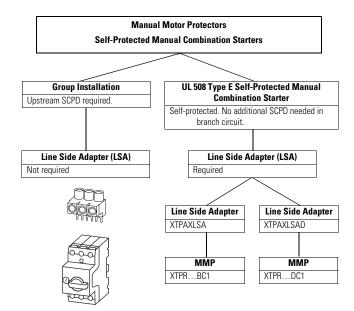


Note: For Type 2 Coordination of MMCs, see Page V5-T1-232.

- Adjustment dial for setting motor FLA
 - 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 contactsTamperproof cover for
 - OLR dial • Undervoltage release
 - Shunt trip
 - Through-the-door operators
 - Enclosures
 - Three-phase line side connecting links



Note: Line side adapters are not required for non-US applications. Most countries outside of the US classify the MMP as a thermal magnetic circuit breaker.



Manual Motor Protector and Line Side Adapter

XT IEC Power Control

Product Identification

① XTPB pushbutton manual motor

Single-phasing sensitive

Single-phasing sensitive

With screws or spring-loaded

(see Page V5-T1-162)

XTPR rotary manual motor protectors

Rated operational current up to

Switching capacity 150/50 kA/415V Short-circuit release, fixed setting to

Overload release, adjustable 0.6-1 x lu

0.6–1 x l_u

32A, 65A

14 x I_u

terminals

protectors (see Page V5-T1-161)

Switching capacity 50 kA/415V

Short-circuit release, adjustable

Rated operational current up to 25A



(see Page V5-T1-167)

ON/OFF/tripped switch position indication Lockable door/cover interlock Extendable y plug fit extension shaft Handle latched in switch positions Optionally also without locking and door interlock function

Insulated enclosures (see Page V5-T1-171)

Surface mounting, enclosures, IP40, IP55 and IP40 and IP55 front flush mounting enclosure

Mounting/wiring (see Page V5-T1-167) Component adapter for busbar mounting Three-phase commoning link for side-by-side-mounting Mounting kits for rapid mounting of

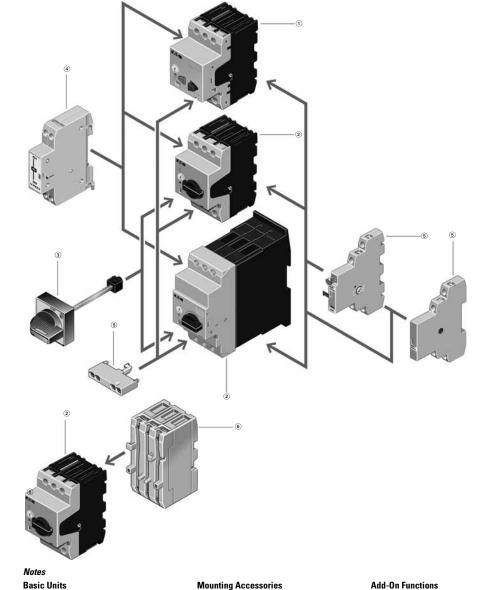
direct-on-line, reversing and stardelta starters

Add-On Functions

④ Voltage releases (see Page V5-T1-166) Undervoltage release Shunt releases With screws or spring-loaded terminals

Standard auxiliary contacts (see Page V5-T1-164) ON/OFF indication Differential fault indication overload/ short-circuit release ON/OFF for (high capacity) contact

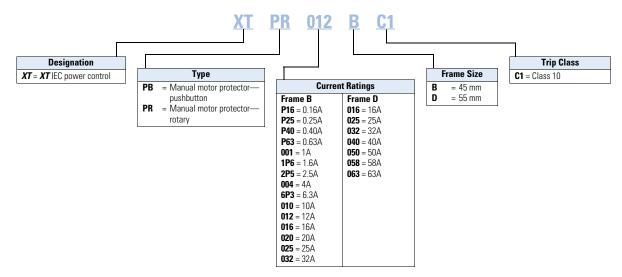
- module ON/OFF for starter combination
- With early-make contacts
- With screws or spring-loaded terminals © Current limiter (see Page V5-T1-166)
 - Increases the switching capacity of the 10-25A manual motor protectors to 100 kA/440V Can be used for individual group
 - protection



1 1

Catalog Number Selection

XT Manual Motor Protectors



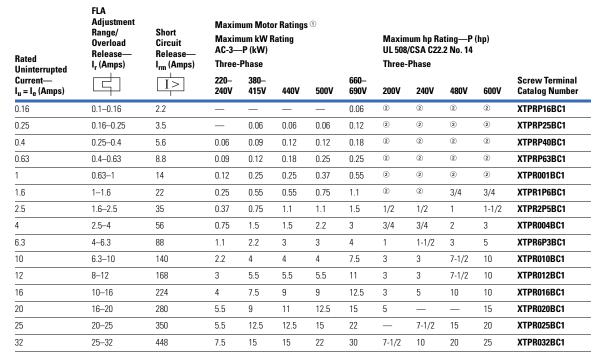
Frame B

XT IEC Power Control

XTPR Rotary Manual Motor Protectors with Screw Terminals-

Global Ratings and North American Ratings-Frame B

Type 1 and Type 2 Coordination Motor Protective Device with Thermal and Magnetic Trip



Frame D



FLA Adjustment Maximum Motor Ratings 1 Range/ Short Maximum hp Rating—P (hp) Maximum kW Rating Overload Circuit UL 508/CSA C22.2 No. 14 AC-3-P (kW) Release-Release-Rated Three-Phase Three-Phase I, (Amps) I_{rm} (Amps) Uninterrupted 220-380-660-**Screw Terminal** Current-I >Г I_u = I_e (Amps) 240V 415V 440V 500V 690V 200V 240V 480V 600V **Catalog Number** 16 10-16 224 7.5 9 9 12.5 3 10 15 XTPR016DC1 4 5 25 XTPR025DC1 16-25 350 5.5 12.5 12.5 15 22 7-1/2 7-1/2 15 20 32 25-32 448 7.5 15 17.5 22 10 30 XTPR032DC1 22 10 20 40 32-40 560 11 20 22 24 30 10 15 30 30 XTPR040DC1 50 40-50 700 14 25 30 30 45 10 15 30 40 XTPR050DC1 XTPR058DC1 58 50-58 812 17 30 37 37 55 15 15 40 50 65 55-65 882 18.5 34 37 45 55 15 15 40 50 XTPR063DC1

Notes

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 Ir of current scale in dependence of load factor:

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

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

For manual motor protective circuit breaker switching capacity, see Page V5-T1-181.

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 430.6(A)(1).