

AMPGARD XP3™



# AMPGARD XP3™

The Next Revolution in Medium Voltage Motor Control

**EATON**

*Powering Business Worldwide*

Every Industrial and Commercial Facility operator needs reliable motor starting, simple and quick diagnostics of potential issues, and the peace of mind that comes with knowing your facility is operating at optimal levels.

## Eaton's Ampgard XP3™ Delivers!

The Ampgard XP3 is the newest member of the market leading Ampgard family of Medium Voltage Motor Starters. The design uses time tested Ampgard components integrated with new innovations in motor protection, wellness diagnostics, and system information to yield the new benchmark in motor starting performance.

From traditional protective relay functions, to intelligent operating sensing, to quick clearing characteristics, the XP3 has all the functionality required for today's demanding motor starting applications – and then some.

To further enhance the power of XP3, add an optional Central Display Module. System parameters, wiring diagrams, renewal parts data and more will be available at the touch of a button.

It's all there. It's all Ampgard. It's Ampgard XP3.

## Ampgard XP3™ System Components

### MPCC— The Brains of the System

High-end processor enables advanced features



### Voltage Dividers

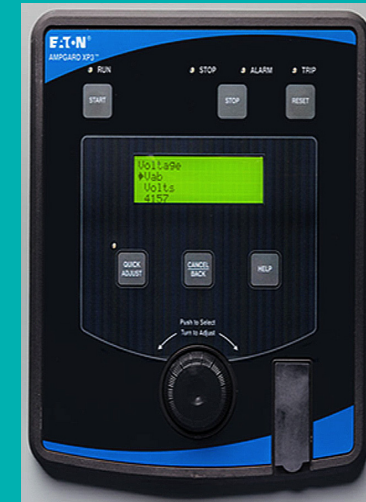
Accurate voltage signals in a small space

### Rogowski Current Sensors

Highly accurate at all currents, low to high

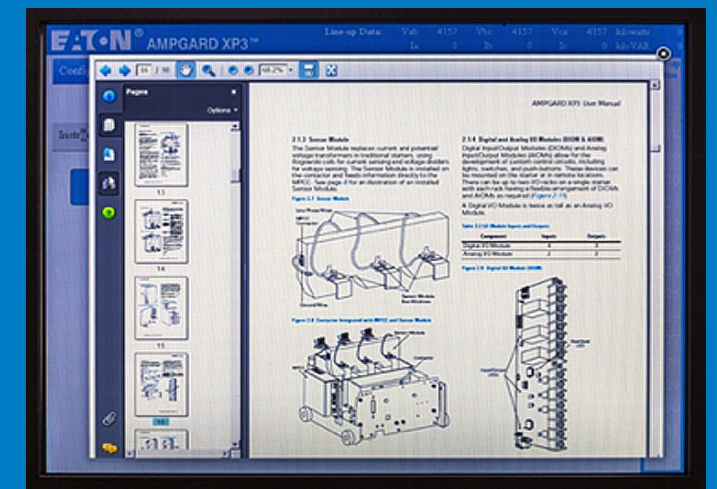
### Starter Display Module (SDM)

- Mounted on each starter LV door
- Provides local display of starter status and program values
- Programmable using local HMI or SD card



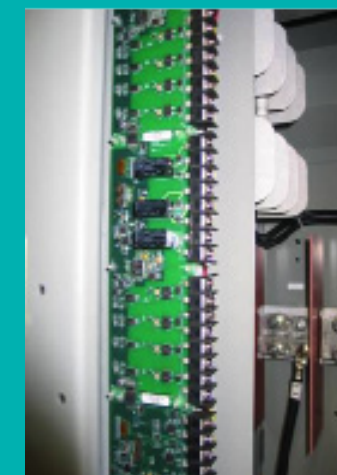
### Central Display Module (CDM)

- Communicates with each XP3 starter
- Provides remote access to equipment status, allowing operators to remain out of the arc flash zone
- Provides instant availability to instruction books, drawings, and renewal parts data to reduce troubleshooting and repair time



### I/O Modules

- Available in Digital and Analog configurations
- Accepts Ring Terminals
- Implement control circuit modifications by program change instead of re-wiring



# Ampgard XP3 – The Benefit Statement

## Unique features provide unmatched protection and safety

### Contactorfuse coordination quickly clears faults

If the fault is less than the contactor interrupting rating, the XP3 will identify the fault (30ms) and the contactor will open without delay (20 ms). If the fault is greater than the contactor interrupting rating, the contactor will stay closed until the fuse blows (up to 130 milliseconds). Less damage, upstream and downstream. And you may save a set of fuses along the way.

### Contactorfuse health verifies correct operation

Contactorfuse pick-up and drop-out voltages are measured and compared to previous values. Changes from previous readings can indicate vacuum loss, incorrect core alignment, coil problem, debris on core face, incorrectly installed replacement vacuum interrupters, etc. Insures contactorfuse operation to original design parameters.

### Thermal Age of Motor identifies "overworked" motors

XP3 compares actual motor temperature to allowable temperature (based on insulation class of motor). High temperatures will shorten the life of the motor. Algorithm calculates thermal life based on actual temperatures over time, helps identify motor repair or replacement timing, avoiding downtime surprises.

### Fuse health algorithm identifies potential fuse fatigue before the fuses cause an unwanted shutdown

"Fuse Fatigue" displayed if a fuse has experienced a high level of overcurrent (4 or more of the last 20 starts had currents that exceeded 100% of the I2T fuse rating).

"Fuse Damage" displayed if a fuse has experienced an excessive amount of overcurrent (current has exceeded 125% of the I2T fuse rating).



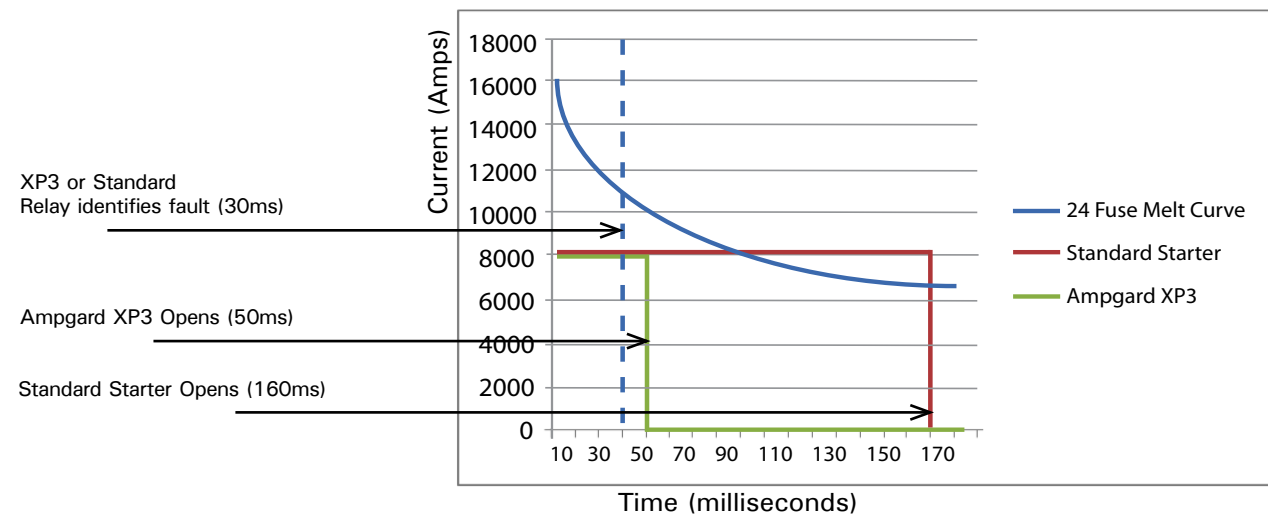
### Available Fault Current determined at the starter

Calculated by accurate measurement of voltage drop during motor starting (at locked rotor current). Displays incident energy available at starter when clearing time of upstream device is programmed. Personal Protective Equipment (PPE) needed to protect the operator will be displayed on the CDM. Operators will know the correct PPE needed to approach the starter.

### Sensitive ground fault detection to 3 amperes [without GFCT]

High accuracy of Rogowski coils allows XP3 to calculate ground currents down to 3 amperes. Provides early identification of insulation problems.

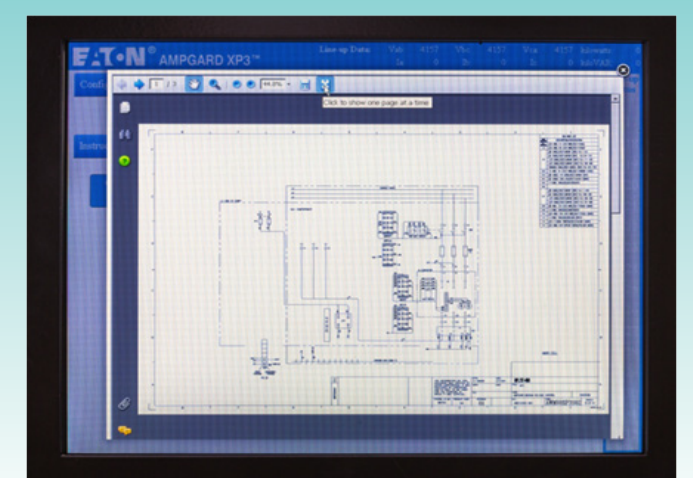
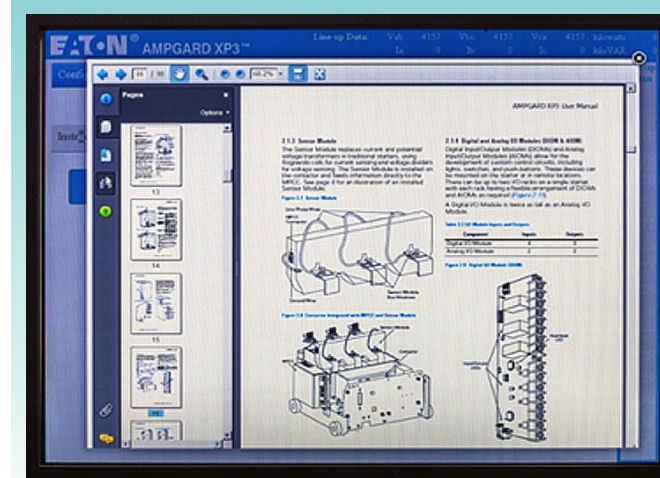
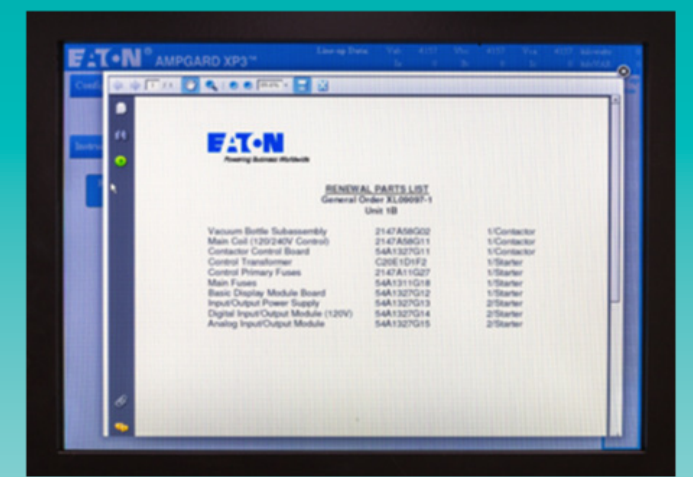
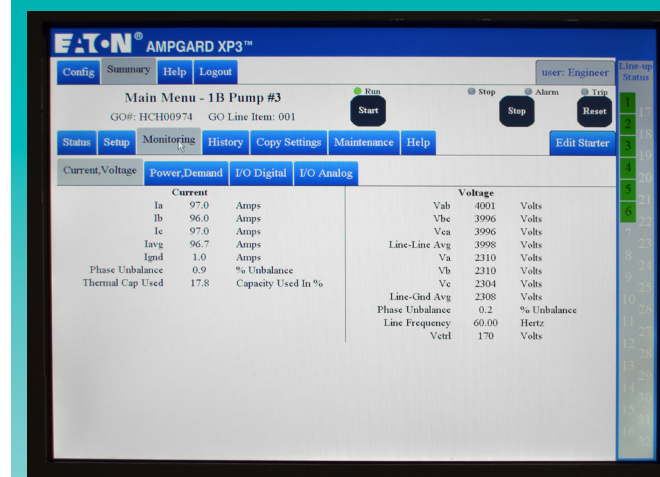
## Ampgard XP3 can clear an 8000 amp fault before fuse damage occurs

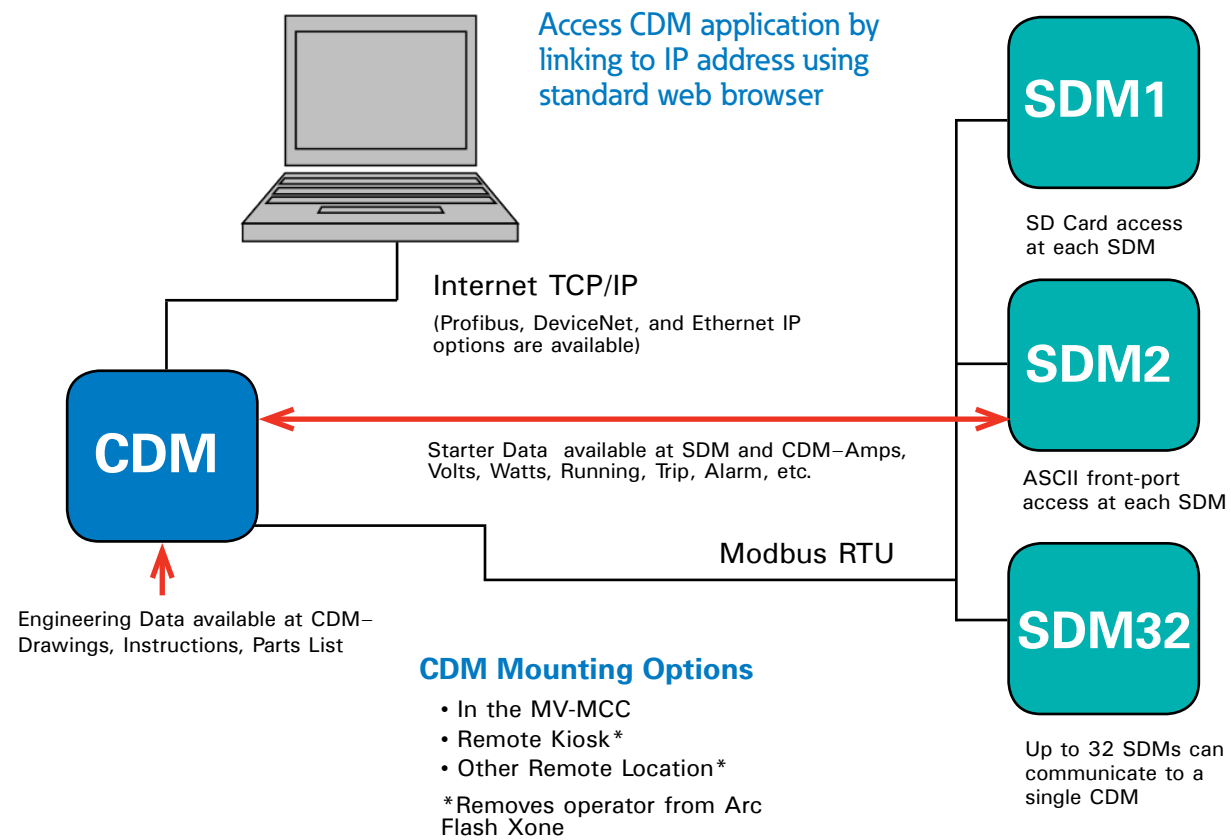


# What you need. Where you need it. When you need it.

- High level of accessible information puts you in control
- Remote Central Display Module allows operators to monitor and control motor loads outside the arc flash zone
- Real-time status of all starters in the lineup
- Historical information for all starters
- Instructions/Drawings/Parts/Maintenance Tutorials
- Instruction Books
- Schemes, Wiring Diagrams and Outlines
- Starter Specific Renewal Parts
- Ability to add tutorials and customized messages
- Event alarm via e-mail communicates operational issues quickly for fast resolution

## Optional CDM provides access to Starter Status, Renewal Parts Data, Drawings and Instructions





## Xtra Protection

- Contactor fuse coordination with quick-clear feature minimizes system damage
- Remote CDM allows operation from outside the arc flash zone
- Available fault current measured at the starter
- Incident energy and recommended PPE displayed for maximum worker safety

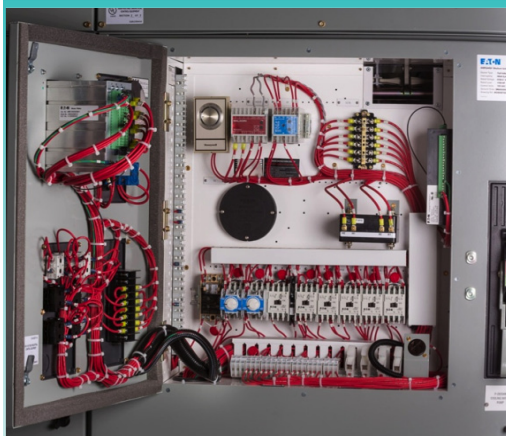
## Xtra Prediction

- Contactor health insures factory built performance
- Thermal Age of Motor helps identify motor repair or replacement timing, avoiding downtime surprises
- Fuse health algorithm reduces chance of unwanted shutdown
- Real-time status and historical information of all starters improves decision making and troubleshooting
- Event alarm via e-mail communicates operational issues quickly for fast resolution

## Xtra Performance

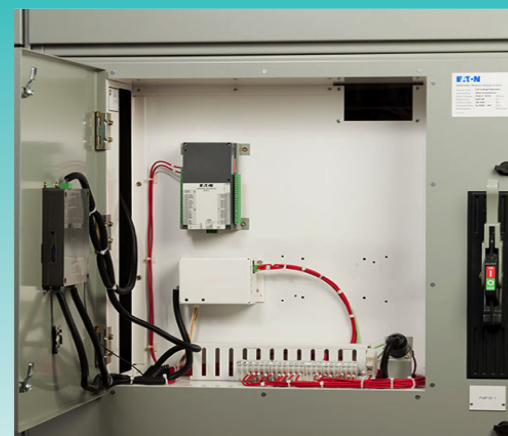
- Standard product configuration allows horsepower upgrades by simple fuse change
- High level of accessible information puts the user in control
- Programmable I/O eliminates complex control wiring. Circuit changes are simple
- No CT's or PT's, thus freeing up Xtra compartment space
- Troubleshooting/maintenance help

## Universal components keep things simple



- Linearity of current and voltage sensors means one style for all horse power ratings
- Fuses are the only items that need to be changed to modify starter horsepower
- Programmable I/O can be used to standardize control circuits with minimal internal wiring
- Control circuit modifications made by re-programming, not re-wiring

Typical Control Compartment for Traditional Starter



Typical XP3 Control Compartment

## Typical Ampgard XP3 Lineup



Eaton's electrical business is a global leader in electrical control, power distribution, uninterruptible power supply and industrial automation products and services.

Eaton's global electrical brands, including Cutler-Hammer®, Powerware®, Holec® and MEM®, provide customer-driven PowerChain™ Management solutions to serve the power system needs of the industrial, institutional, government, utility, commercial, residential, IT, mission-critical and OEM markets worldwide.

Eaton Corporation plc is a diversified power management company providing energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power.

The company is a global technology leader in electrical products, systems and services for power quality, distribution and control, power transmission, lighting and wiring products; hydraulics components, systems and services for industrial and mobile equipment; aerospace fuel, hydraulics and pneumatic systems for commercial and military use; and truck and automotive drivetrain and powertrain systems for performance, fuel economy and safety.

Eaton acquired Cooper Industries plc in 2012. The new company, Eaton Corporation plc, has approximately 100,000 employees and sells products to customers in more than 150 countries.

For more information, visit [www.eaton.com](http://www.eaton.com).



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