

The Eaton logo, featuring the word "EATON" in a bold, white, sans-serif font. The letter "A" is stylized with a dot in the center.The Cutler-Hammer logo, featuring the words "Cutler-Hammer" in a bold, white, sans-serif font.

## Clipper Power System - Visor™ Series

Product Focus

A smarter, safer,  
and smaller surge  
protective device.



# Give Us Your Best Surge...

Once more, we took something good and made it great. Eaton Corporation is proud to introduce the newest product in the Cutler-Hammer Clipper Power System (CPS) – the Visor™ Series. The Visor Series is a substantially smarter, safer and more compact surge protective device (SPD).

Advances in electronic and microprocessor-based equipment affords many benefits and conveniences, however the same advances also increase the sensitivity of this equipment to surges. Surges, also known as transients, are caused by lightning, utility grid switching, switching of external/internal inductive or capacitive loads, and other disturbances which travel on conductors; causing damage to your electrical distribution system.

In North America, power surges cause hundreds of millions of dollars of damage each year. With

the right protection, most of this damage can be avoided.

A trusted supplier in the surge protection industry, Eaton's Cutler-Hammer business has been developing power system solutions for over a century. Intensive research and development as well as a commitment to continual product enhancement has led to the creation of the Clipper Power System - Visor Series.

## Surge Protection from the Inside Out

The new Visor Series offers improved quality and reliability including enhanced monitoring capabilities and new patent pending technology; the Thermo-Dynamic Fusing™ System provides a safer surge protective device in a smaller package.





*Monitor from anywhere – The Visor Series has a completely removable monitoring display.*

*NetVisor display must be remotely mounted on integrated units.*



*360° – With a fully rotating display the Visor can be installed horizontally or vertically, offering four mounting positions.*



## Top of its Class

### Smarter:

The Visor Series is an intelligent surge suppression device that offers advanced monitoring options. In addition, all Visor Series displays are capable of being mounted remotely.

The NetVisor, our premium display, allows you to monitor your surge protective device from across the plant or across the world. In addition to the local display, the NetVisor has built-in Ethernet and Modbus communications. This means that the device can be monitored remotely and the right person can be notified immediately when a damaging surge or power quality event occurs. The NetVisor has a time and date stamp log. Up to 1000 power quality events can be captured and stored, giving you a personalized history of your system. The NetVisor monitors and displays voltage levels and duration for sags, swells and outages on a 2 x 16 LCD.

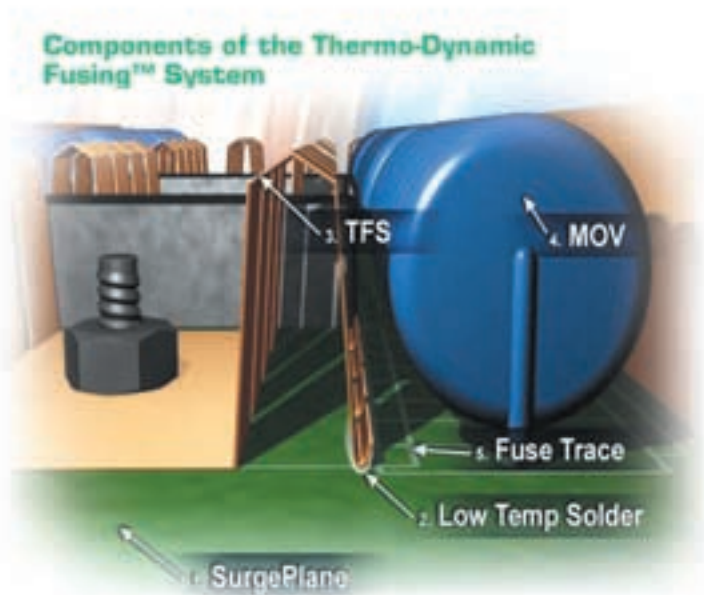
The SuperVisor, our standard display, offers features not found on even the highest functioning displays of our competitors. In addition to typical features such as a surge counter, push to test button and phase operating status LEDs, the SuperVisor is a mini power quality meter with surge, sag, swell and outage counters and a voltmeter. All information is displayed on a 2 x 16 LCD.

Even our most basic display, the Advisor, is loaded with features. An audible alarm, form C contact and phase operating status LEDs are all features standard on the Advisor display.



## Safety:

The Visor is the first surge protective device to utilize our patent pending Thermo-Dynamic Fusing™ System to provide both safety and performance. This technology uses fuse traces (FT) on each individual Metal Oxide Varistor (MOV) that can sustain high surge currents and provide the necessary interruption of high fault currents (kAIC). In addition, a thermal fuse spring (TFS), utilizing a special low temperature solder, is designed to disconnect the MOV before it exceeds a safe temperature during low-level fault current events. Low-level fault currents are most common during temporary over-voltage conditions (TOV) and are the main cause of SPD failure. SPD products that promote fuses with excessive surge current ratings do not provide the proper system coordination. They sacrifice low-level fault protection and do not disconnect during low

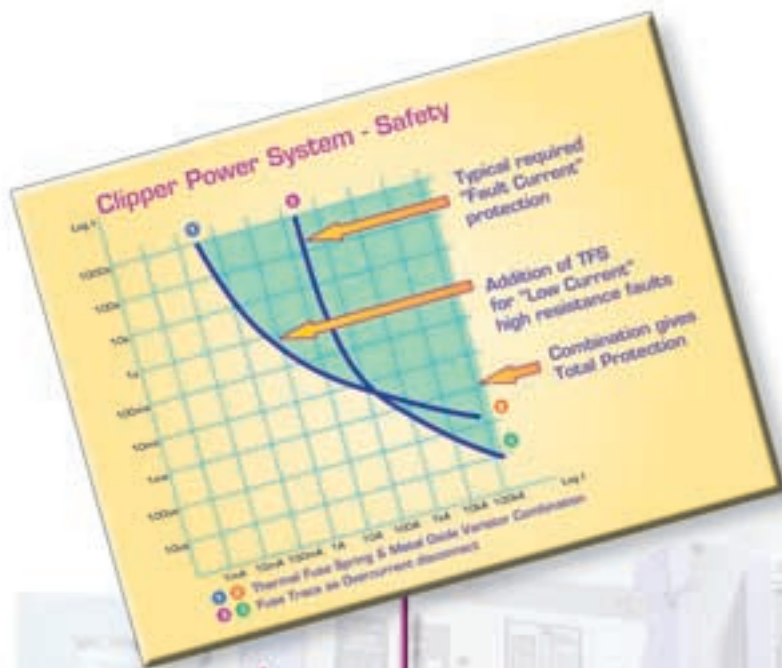


current fault events. This can result in catastrophic failure (fire) and eventual tripping of the upstream breaker or fuse. With the Visor, you get both safety and system coordination.

## Reduced Size:

Cutler-Hammer leadership in research and development has allowed us to significantly reduce the footprint of this product - without jeopardizing performance.

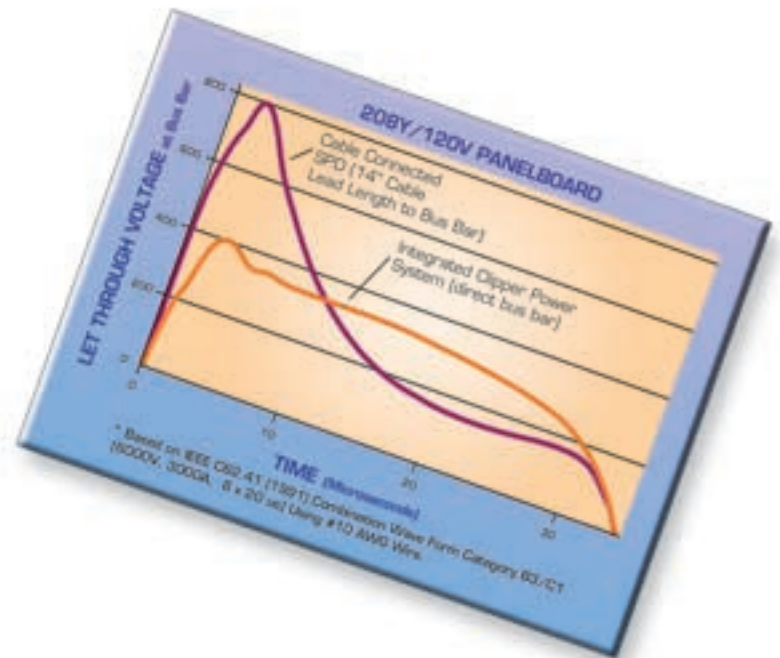
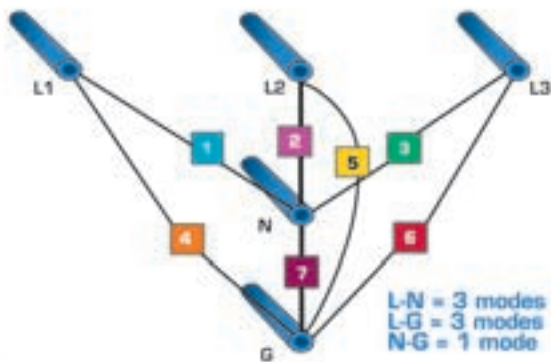
Let through voltage is a key performance measurement for SPDs.



The most significant factor affecting let through voltage is lead length. The Visor's reduced size allows the device to be installed as close as possible to the equipment being protected. By minimizing the lead length, let through voltage is reduced and performance enhanced.

### Modes of Protection:

- The Visor Series uses a 7 mode design layout for 3-phase applications; Line to Neutral, Line to Ground and Neutral to Ground.
- Transients can occur on any mode, therefore all modes must have a path to ground.



In addition to creating a product that has advanced display capabilities, that is smaller and safer, we have continued to use our world-class design methodologies including direct bus connection and SurgePlane™ technology.

### Direct Bus Connection

The Visor Series offers a direct bus bar connection that provides customers with the lowest system let through voltage at the bus bar when compared to traditional cable connected surge protectors.

*There are 3 different levels of display options available*





In order to reduce the footprint, our design engineers developed the 3D SurgePlane which provides the same cross sectional copper area, but utilizes the x-y and z axes. Saving space while providing the same tried and trusted technology - Eaton's Cutler-Hammer business, once again thinking outside the box.

### Cutler-Hammer SurgePlane:

- Lowest possible self-inductance copper plane construction maximizes surface area for shunting high frequency surges

- Reduced mutual inductance - minimizes the loop area of all modes, resulting in lower let through voltage
- Longer life expectancy - diverts surge current equally to all matched MOVs within each phase
- Matched MOVs with  $\pm 1\text{-}2\%$  maximum continuous operating voltage (MCOV)

## Unbeatable Performance

In addition, the Clipper Power System - Visor Series is built to last with a rugged thermoresin enclosure. This non-flexible casing is designed to withstand harsh environments. It protects critical internal components from stresses common with metal enclosures.

## Physical Specifications

- **Temperature:** -40 deg C to 60 deg C
- **Altitude:** 6500 feet (2000 meters)
- **Dimensions (for NEMA 1/3R):**
  - ▲ 100 kA to 200 kA 11"W X 16"H X 4"D  
(480V or less)
  - ▲ 250 kA to 500 kA 13"W X 18"H X 4"D\*  
(480V or less)

\* 100 kA to 500 kA @ 600V

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■ **Weight:**

- ▲ 100 kA to 200 kA = 10.11 lbs
- ▲ 250 kA to 500 kA = 11.43 lbs

■ **Let Through Voltage Rating:**

- ▲ IEEE C3 Combination Wave  
(20 kV, 10 kA): 560V

- ▲ IEEE C1 Combination Wave  
(6 kV, 3 kA): 400V

- ▲ IEEE B3 Ringwave  
(6 kV, 500 A, 100 kHz): 165V

■ **Circuit Construction:** SurgePlane

■ **Approvals:** UL 1449 2nd edition, UL 1283, CSA

■ **Enclosures:** NEMA 1, NEMA 3R, NEMA 4X

■ **Warranty:** 10-years

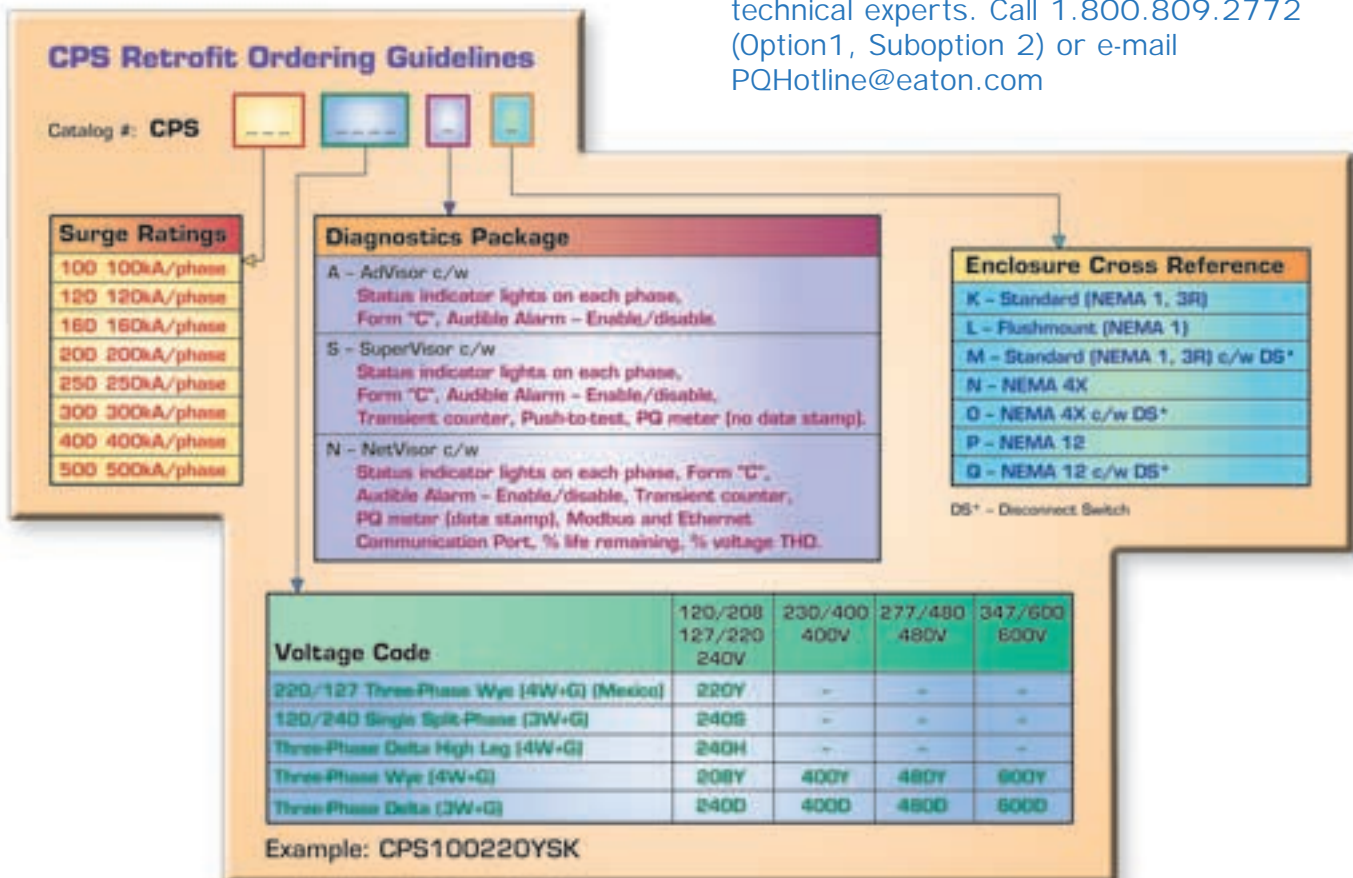
*The Visor Series can be mounted in any new or existing distribution applications – in fact, the Visor is an ideal retrofit solution, providing safety, monitoring, and versatile mounting abilities.*



## Customer Designed Service

Installation, maintenance, system studies, turnkey projects....Cutler-Hammer Engineering Services and Systems (C-H ESS) can satisfy your needs. They are available for the maintenance of your electrical system, from complete project management to short-term projects. Call on C-H ESS, 1-800-498-2678 for evaluation and implementation regarding the upgrade of your power system with the new Visor Series surge protective device.

For all your power quality questions, call our PQ Hotline and talk to our technical experts. Call 1.800.809.2772 (Option1, Suboption 2) or e-mail [PQHotline@eaton.com](mailto:PQHotline@eaton.com)



## Company Information

Eaton's Cutler-Hammer business is a worldwide leader providing customer-driven solutions. From power distribution and electrical control products to industrial automation, the Cutler-Hammer business utilizes advanced product development, world-class manufacturing, and offers global engineering services and support. To learn more about Eaton's innovative Cutler-Hammer products and solutions call 1-800-525-2000 or 1-800-268-3578 (Canada only), for engineering services call 1-800-498-2678, or visit [www.cutler-hammer.com](http://www.cutler-hammer.com).

Eaton Corporation is a global \$8 billion diversified industrial manufacturer that is a leader in fluid power systems; electrical power quality, distribution and control; automotive engine air management and fuel economy; and intelligent truck systems for fuel economy and safety. Eaton has 54,000 employees and sells products in more than 50 countries. For more information, visit [www.eaton.com](http://www.eaton.com).

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