

**EAT•N**

**Powerware**

**Product Catalog**

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# Powerware® Solutions

Eaton offers a comprehensive selection of Powerware power management solutions to grow with your changing requirements in today's digital networking economy. From the desktop to the data center, we deliver a complete solution through our line of Powerware AC and DC power systems, connectivity options, software, and world-class service offerings. Whatever your application, Eaton is your one-stop partner for all your power protection needs.

It is our mission to provide you with the confidence that power problems will not disrupt your systems, data, and operation. This confidence is delivered through more than 40 years of solid performance, in-depth knowledge of customer applications, continuous innovations, and outstanding services. Our Powerware solutions have been recognized by end-users and industry experts for delivering the highest customer value and satisfaction, as well as for demonstrating insight into customer needs, among all UPS vendors.\*

Powerware solutions are the global market share leader in medium- and large-range UPSs above 5 kVA, and second-leading in small system UPSs at and below 5000 VA.\*\* Our loyal customers range from home office users to the blue-chip leading IT equipment providers, the largest global telecommunications companies, Fortune 100 businesses, and government agencies.

\* Frost & Sullivan Award for Customer Value and Satisfaction and Frost & Sullivan Award for Product Line Strategy

\*\* Based on Frost & Sullivan 2004 World UPS Market Report data



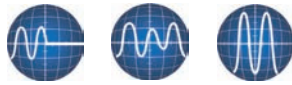
# Powerware UPS Solution Overview

## Selecting the Right UPS

Eaton's Powerware power management solutions are based on protecting the nine most common power problems present in any environment. This unique approach makes your product selection decisions about power protection much simpler. The nine power problems listed below are potentially harmful to both your data and your hardware. Powerware products offer three levels of power protection: Series 3, Series 5, and Series 9. Based on the parameters defined by your application, you can select an uninterruptible power system (UPS) from the series that best matches your power protection needs. To provide maximum power protection, Eaton offers a full line of Powerware Series 9 UPSs with both single-phase and three-phase models in the Series 9 family.

### Series 3

#### Basic Solution: Protection from three potential problems

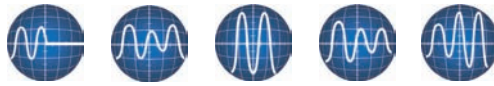


Power Failure    Power Sag    Power Surge

The Powerware Series 3 UPS primarily protects against three of the nine power problems including power failures, power sags and power surges. This essential, cost-effective protection is necessary in order to prevent damage such as data loss, file corruption, flickering lights, hardware damage, and equipment shutoff. For example, if your utility fails you could lose all of your work-in-progress. The Series 3 UPS offers a degree of protection against the remaining power problems and is most commonly used to protect single workstations and point-of-sale (POS) equipment.

### Series 5

#### Intermediate Solution: Protection from five potential problems

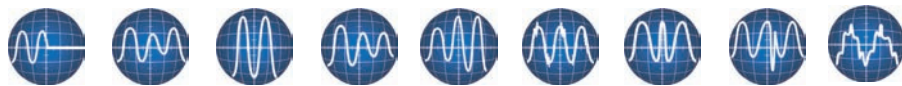


Power Failure    Power Sag    Power Surge    Under-voltage    Over-voltage

Powerware Series 5 UPSs are most effective against five power problems (power failures, power sags, power surges, under-voltage and over-voltage) and offer a degree of protection against other power problems. Some of the damages you risk by not using a Series 5 UPS include premature hardware failure, data loss and corruption, data error, keyboard lockup, storage loss, and system lockup. Series 5 UPSs are recommended for small network systems—all the way up to enterprise networking environments.

### Series 9

#### Complete Solution: Protection from all nine potential problems



Power Failure    Power Sag    Power Surge    Under-voltage    Over-voltage    Line Noise    Frequency Variation    Switching Transient    Harmonic Distortion

Powerware Series 9 UPSs protect against all nine power problems: power failures, power sags, power surges, under-voltage, electrical line noise, over-voltage, frequency variation, switching transients, and harmonic distortion. Powerware Series 9 comprehensive protection minimizes the opportunity for component stress, burned circuit boards, data crashes and program failures. Series 9 UPSs offer the highest level of power protection available and are always recommended for mission-critical applications like server farms, hospitals, and VOIP applications.

# Powerware

## Single-phase UPS Products

### Features

Eaton offers an extensive and innovative line of Powerware single-phase UPS solutions. The following are just a few features that enable us to provide you with the best power protection available:



#### Extended Battery Runtimes

Your application may require several hours of backup time and Powerware solutions can deliver it with extended battery modules and other battery solutions. Featured on the following models: Powerware 5125, 9120, 9125, 9155, 9170+, and FERRUPS®.

#### Load Segments

Using Powerware LanSafe™ power management software, you can independently control load segments, which are groups of receptacles on the rear panel of the Powerware UPS. This feature, available on Powerware 5115RM, 5125, 9120 and 9125 models, enables you to manage scheduled shutdowns and sequential startups of protected loads. During a power outage, you can shut down power to non-critical devices, thereby extending battery backup time available for critical devices. Additionally, when the load segments of the Powerware 9125 are used in combination with Powerware ConnectUPS connectivity cards, users can remotely reboot locked-up network equipment. Simply link to the ConnectUPS connectivity card via the network and toggle the password-protected Load Segment Controller to get your network back online.



#### Load Segments

To preserve battery power for selected equipment connected to **Load Segment 1**, you can schedule **Load Segment 2** supporting less critical equipment to shut down. As a result, less critical devices do not drain battery power.

#### Triple Power Warranty

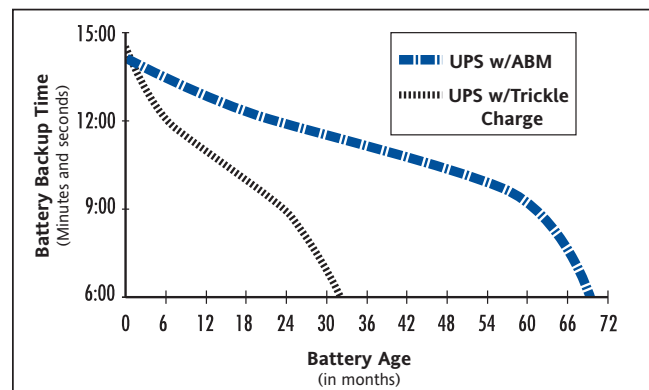
Not only does Eaton offer outstanding Powerware UPS products, we stand behind their performance with the Triple Power Warranty. Most single-phase UPSs include a standard two-year warranty and a load protection guarantee. In addition, by returning your warranty registration card, you'll receive our exclusive prorated warranty, the longest in the industry. Featured on the following models: Powerware 3105, 5110, 5115RM, 5125, 9120, 9125, 9155, 9170+, and FERRUPS.

#### Power Density

Powerware rackmount UPSs provide optimal, high-density power protection for critical loads – delivering more performance in smaller packages. Our space-saving models allow valuable rack space to be freed up for other essential equipment.

#### ABM® Technology

Most UPS manufacturers on the market today offer constant trickle-charge batteries. This process degrades the battery's internal chemical composition, reducing potential battery service life by as much as 50 percent. In contrast, Powerware ABM Technology uses sophisticated sensing circuitry and an innovative three-stage charging technique that extends the useful service life of UPS batteries while optimizing the battery recharge time. It also provides advanced notice of the end of useful battery service life to allow you ample time to hot-swap batteries without ever having to shut down connected equipment. ABM Technology is available on Powerware 5115, 5125, 9120, 9125, 9155, 9170+, and 9390.



#### Advanced Battery Management

Data based upon tests performed by an independent battery manufacturer.

# Powerware

## Single-phase UPS Products

### Powerware Series 3

#### Single-phase UPS



Power Failure

Power Sag

Power Surge

#### Powerware 3105 350–700 VA

##### Features and Benefits

- Protect small office and home office equipment from power outages, surges, and sags
- Save space with a compact design that fits easily under a desk or can be conveniently wall-mounted, with quick access to all receptacles
- Protect loads on eight outlets—four with surge suppression and battery backups, four with surge suppression only
- Protect networked equipment from “back door” power surges coming through LAN or telephone lines
- Extend UPS service life with user-replaceable batteries
- Stay informed of power problems and low battery conditions with audible alarms and remote alarm notification
- Deliver short-term mobile power with start-on-battery capability.
- Optional multi-year Gold Plan service is available to provide repair and replacement coverage that goes beyond the provisions of the limited warranty



##### Typical Applications

- Small office, home office equipment
- POS systems
- PCs and peripherals

### Powerware Series 5

#### Single-phase UPS



Power Failure

Power Sag

Power Surge

Under-voltage

Over-voltage

#### Powerware 5110 350–1550 VA

##### Features and Benefits

- Save space with a compact design that can be deployed as a tower, under a computer monitor, or in a rack
- Protect loads on eight outlets—four with surge suppression and battery backup, four with surge suppression only
- Deliver consistent, clean output with automatic voltage regulation (AVR) that doesn't drain battery power
- Protect networked equipment from “back door” power surges coming through LAN or telephone lines
- Extend UPS service life with user-replaceable batteries
- Stay informed of power problems and battery conditions with audible alarms and remote alarm notification via e-mail, pager, the Web, or SNMP
- Deliver short-term mobile power with start-on-battery capability
- Optional multi-year Gold Plan service is available to provide repair and replacement coverage that goes beyond the provisions of the limited warranty



##### Typical Applications

- Office workstations
- PBX or key phone systems
- Servers and network nodes
- POS systems
- Peripheral devices

# Powerware

## Single-phase UPS Products

### Powerware Series 5

#### Single-phase UPS



Power Failure



Power Sag



Power Surge



Under-voltage



Over-voltage

#### Powerware 5115

500–1400 VA

##### Features and Benefits

- Extends battery service life and provides advanced warning of the end of useful battery life with ABM Technology
- Delivers smooth, continuous power with pure sine wave output
- Regulates power fluctuations with Buck and Boost voltage regulation
- Protects equipment connected by network or phone wiring from “back door” power surges with a Network Transient Protector
- Minimizes downtime with hot-swappable batteries
- Communicates with LanSafe software via serial and USB ports
- Enhanced warranty coverage with optional Gold Plans



##### Typical Applications

- Workstations
- Small servers
- Hubs and routers
- Single and multiple PCs
- Small to medium business equipment

#### Powerware 5115 Rackmount

500–1500 VA

##### Features and Benefits

- Conserves valuable space with 1U rack height
- Extends battery service life and provides advanced warning of the end of useful battery life with ABM Technology
- Delivers smooth, continuous power with pure sine wave output
- Protects your equipment from power fluctuations with Buck and Boost voltage regulation
- Includes mounting hardware for 1U and 0U rack and bench-top installations
- Integrates connectivity products, such as the Powerware ConnectUPS-X Web/SNMP/xHub card, easily with an X-Slot™
- Enhanced warranty coverage with optional Gold Plans



##### Typical Applications

- Low profile rack servers
- Routers and hubs
- Wall-mount telecom key systems
- Rack or wall-mount Voice Over Internet Protocol (VOIP) equipment

# Powerware

## Single-phase UPS Products

### Powerware 5125 1000–2200 VA

#### Features and Benefits

- Extends battery service life and provides advanced warning of the end of useful battery life with ABM Technology
- Prolongs backup time with Extended Battery Modules
- Extends battery backup time for select devices with Load Segment control
- Delivers smooth, continuous power with pure sine wave output
- Protects your equipment from power fluctuations with Buck and Boost voltage regulation
- Integrates connectivity products, such as the Powerware ConnectUPS-X Web/SNMP/xHub card, easily with an X-Slot
- Minimizes downtime with hot-swappable batteries
- Guarantees performance with the Triple Power Warranty
- Enhanced warranty coverage with optional Gold Plans



#### Typical Applications

- Multiple PCs
- Servers
- Workstations
- Switches and routers
- Blood analyzers

### Powerware 5125 Tower and Rackmount 1000–6000 VA

#### Features and Benefits

- Conserves valuable space with 2U (1000–3000 VA) and 3U (5000–6000 VA) rack height
- Extends battery service life and provides advanced warning of the end of useful battery life with ABM Technology
- Prolongs backup time with 2U and 3U Extended Battery Modules
- Delivers smooth, continuous power with pure sine wave output
- Protects your equipment from power fluctuations with automatic voltage regulation
- Powers more of today's modern power supplies with high wattage output
- Virtually eliminates downtime with hot-swappable electronics and battery modules
- Integrates connectivity products, such as the Powerware ConnectUPS-X Web/SNMP/xHub card, easily with an X-Slot
- Enhanced warranty coverage with optional Gold Plans

Two-in-one  
form factor  
provides  
versatility  
(1000–3000 VA)



5000–6000 VA

#### Typical Applications

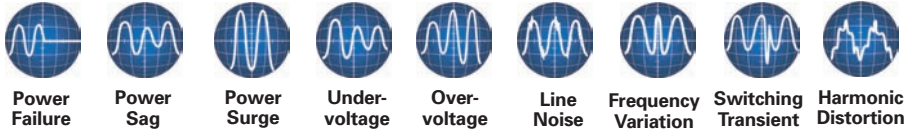
- RAID
- Storage Area Networks
- Rack servers
- Switches, hubs, and routers
- Various rack equipment

# Powerware

## Single-phase UPS Products

### Powerware Series 9

#### Single-phase UPS



#### Powerware 9120

##### 700–3000 VA

#### Features and Benefits

- Isolates connected equipment from all incoming power problems to provide the highest degree of protection
- Extends battery service life and provides advanced warning of the end of useful battery life with ABM Technology
- Conditions incoming power without depleting the battery
- Prolongs backup time with Extended Battery Modules
- Quickly collects information on UPS status, power usage, battery backup time, and other critical parameters with an intuitive LCD screen
- Easily incorporates connectivity products with an X-Slot to integrate into various environments and applications
- Extends backup time for select equipment with Load Segment control
- Protects equipment connected by network or phone wiring from “back door” power surges with a Network Transient Protector
- Enhanced warranty coverage with optional Gold Plans



#### Typical Applications

- Servers
- RAID
- Storage Area Networks
- Telephone PBXs

#### Powerware 9125 Tower and Rackmount

##### 700–6000 VA

#### Features and Benefits

- Conserves valuable space with 2U rack height (700–3000 VA); and 5U rack height (5000–6000 VA)
- Isolates connected equipment from all incoming power problems to provide the highest degree of protection
- Extends battery service life and provides advanced warning of the end of useful battery life with ABM Technology
- Preserves battery power through a wide input voltage range
- 5U models (5000–6000 VA) deliver maximum power density
- Increases backup time with 2U and 3U Extended Battery Modules
- Allows for specific outlet requirements with PowerPass® Distribution Modules
- Extends backup time for select equipment with Load Segment control
- Integrates connectivity products, such as the Powerware ConnectUPS-X Web/SNMP/xHub card, easily with an X-Slot
- Enhanced warranty coverage with optional Gold Plans
- Reduces downtime for maintenance with optional PPDMs



#### Typical Applications

- Rack servers
- Telecom PBX
- RAID
- Storage Area Networks
- Switches, hubs, and routers
- Various rack equipment



# Powerware

## Single-phase UPS Products

### Powerware 9170+ 3–18 kVA

#### Features and Benefits

- Grows with changing IT environments by incorporating scalable design of 3 kVA power modules and batteries
- Eliminates single point-of-failure with N+X power and logic redundancy
- Isolates connected equipment from all incoming power problems to provide the highest degree of protection with online, double-conversion technology
- Extends battery service life and provides advanced warning of the end of useful battery life with ABM Technology
- Conditions incoming power without depleting the battery
- Eases setup and service with hot-swappable, lightweight power and battery modules
- Easily incorporates connectivity products with an X-Slot



#### Typical Applications

- Mission-critical applications
- Enterprise telecommunication systems
- Server farms
- E-commerce networks
- Data centers
- Rack equipment

### Powerware 9155 8–15 kVA

#### Features and Benefits

- Provides more real wattage in less space with a 0.9 power factor—protecting more equipment and leaving more room for expansion
- Supports Powerware Hot Sync for paralleling of multiple modules for redundancy or extra capacity
- Increases battery life through microprocessor-controlled ABM Technology
- Reduces input current total harmonic distortion (THD) to less than five percent, using active input power factor correction
- Ensures data and system integrity with a complete power management software package for remote monitoring, management, and shutdown—over the network and the Internet
- Provides investment protection with a two-year limited warranty, 10-year pro-rated warranty, \$250,000 load protection guarantee (US and Canada), and optional service plans



#### Typical Applications

- Server farms
- LAN gateways
- Clustered PCs
- Enterprise telecommunication and engineering systems

# Powerware

## Single-phase UPS Products

### Powerware FERRUPS

**Tower: 500 VA–18 kVA**

**Rackmount:  
850 VA–7 kVA**

#### Features and Benefits

- Delivers bulletproof protection with ferroresonant technology
- Converts power from almost any AC source into computer-grade power
- Prolongs backup time with external battery cabinets
- Conditions incoming power without depleting the battery to preserve battery power for complete power outages
- Adapts to virtually any application with customizable receptacles, input plugs, voltage matching transformers, and bypass switches
- Incorporates connectivity products to fit various environments and applications
- Enhanced warranty coverage with optional Gold Plans
- Saves money on installation costs by minimizing input breaker and wire size with low input THD and high power factor



#### Typical Applications

- Telecommunications equipment
- Industrial process control equipment
- Midrange computing systems
- Data centers

### Powerware Power Distribution Unit

Securing a comprehensive power management solution has never been simpler – or easier to accommodate. The new Powerware Power Distribution Unit (PDU) was created to complement your uninterruptible power system solution, managing power distribution in rack environments. With up to 12 output receptacles to distribute power within the rack cabinets, the new Powerware PDU was designed to be fully compatible with most single phase rackmount UPSs and features standard surge and spike protection. Since the Powerware PDU is compatible with a variety of Powerware equipment and other manufacturer's equipment, the installation process is quick and easy. With the Powerware PDU, it's never been a more convenient time to complete your total power management solution.



#### Typical Applications

- Server farms
- LAN gateways
- Clustered PCs
- Enterprise telecommunications and engineering systems

# Powerware

## Three-phase UPS Products

### Feature Focus

The rise of the Internet, telecommunications, and other digital technologies has driven greater dependence on both business-to-business and business-to-consumer technologies. Today's vast and complex digital infrastructure demands bulletproof protection from power disturbances. That's why customers put their confidence in Powerware solutions to protect their mission-critical applications.

#### Technical Innovation

Powerware solutions boast a long—and continuing—history of technical innovation. With more than 100 active patents for Powerware solutions, and over 80 patents pending, Eaton has a long tradition of leveraging its technical leadership to provide customers with what they need most in a power protection solution.

Following are several features that help differentiate Powerware three-phase UPS solutions:

- **Power Performance**

Today's high power factor load requirements and rising utility costs have placed a premium on power performance. Each Powerware three-phase UPS operates at a high efficiency to reduce utility costs, increase reliability and extend battery life. Features such as an optional intelligent input filter and innovative input circuit design

keep input current harmonic distortion (THD) low, resulting in maximum transfer of power between the power source and protected load, and enhancing total compatibility with upstream power sources. Output power factors as high as 0.9 easily accommodate high power factor load requirements and increase power density. Please see the Powerware 9315, 9320, 9330, and 9390 datasheets for each product's optional features and technical specifications.

- **Redundancy and Scalability**

Field-tested and installed in thousands of installations around the world, Powerware Hot Sync technology has become the global reliability standard. This technology enables a multi-module system configuration to operate in parallel without the need for inter-module communications, eliminating the system-level single-point-of-failure inherent in traditional parallel configurations and maximizes availability. Powerware Hot Sync technology can provide redundancy of N+1, N+2 or higher, and enable up to eight modules to be paralleled for capacity. This technology is available on the Powerware 9315, 9330, and 9390 models.

- **Battery Management**

Improper battery maintenance is the number one cause of load loss. Eaton's Powerware solutions feature innovative



battery management systems to take the guesswork out of battery maintenance. Available on almost all of the Powerware 9390s, ABM Technology uses an innovative three-stage charging technique to optimize recharge time and significantly extend battery life. DC Expert® technology, featured on the Powerware 9315, helps avoid load losses caused by unexpected battery failure by continuously monitoring battery health and dynamically updating information on battery time remaining.

- **Double-Conversion Topology**

All Powerware three-phase UPSs employ a double-conversion topology to completely isolate the protected load from utility power, providing the best level of power protection available.

#### World-Class Service

Powerware three-phase solutions are backed by a best-in-class services organization. More than 300 North American field technicians and an \$8 million field inventory of spare parts help ensure each system's reliability and performance. Our Customer Reliability Center provides 7x24 technical support, dispatch and remote monitoring of over 100 UPS and battery alarms. A wide variety of support plans and services, including on-site startup, corrective and preventive maintenance, and training provide added confidence and peace of mind.

# Powerware

## Three-phase UPS Products

### Powerware 9315

30–750 kVA

The Powerware 9315 uses intelligent communication and parallel configurations to provide maximum uptime. In addition, the Powerware 9315 can be paralleled for both redundancy and capacity using patented Powerware Hot Sync technology.

#### Features and Benefits

- Provides flexible runtime options for your application
- Delivers maximum uptime for mission-critical systems by including ProActive Service Plan for the first year following installation, including:
  - One year of 7x24 corrective maintenance
  - One year of 7x24 remote monitoring service
  - Annual performance check and Power Protection Audit
  - 7x24 technical support
- Isolates connected equipment from all incoming power problems to provide the highest degree of protection with online, double-conversion technology
- Maintains and monitors battery health continuously, dynamically updating information on battery time remaining
- Integrates seamlessly with generators by using an intelligent input filter



100–160 kVA

#### Typical Applications

- Data centers
- Facilities
- Security operations
- Enterprise networks
- Server farms
- Telecommunications installations
- Internet service providers
- Diagnostic imaging equipment
- Positron Emission Tomography (PET)
- HDTV station applications

### Powerware 9330

10–40 kVA

Integrating all of Powerware's award-winning technology, software, and service capabilities into a single module, the Powerware 9330 sets the standard for availability. By incorporating many features found only in UPS products at a higher kVA range, the Powerware 9330 offers the highest level of reliability of any UPS in its class.

#### Features and Benefits

- Isolates connected equipment from all incoming power problems to provide the highest degree of protection with online, double-conversion technology
- Monitors battery health with DC Expert Plus technology, the most comprehensive battery management system in the industry
- Delivers 7x24 availability with Powerware Hot Sync technology, a paralleling system that allows you to configure the UPS for additional capacity and redundancy
- Displays critical information with a large LCD screen and intuitive status LEDs
- Provides complete UPS isolation during service with a maintenance bypass switch
- Conserves valuable floor space with a compact footprint
- Easily incorporates connectivity products with an X-Slot to integrate power management into various environments and applications
- Increases system reliability and ensures perfect output power by using true pulse width modulation (PWM) to enable the Insulated Gate Bipolar Transistors (IGBT) to switch at their highest capacity
- Comes standard with a one-year ProActive Service Plan for maximum uptime and security



#### Typical Applications

- Server farms
- Networking gear
- Telecommunications equipment
- Process control
- Internet service providers
- Medical equipment
- Clinical labs

# Powerware

## Three-phase UPS Products

### Powerware 9390 40–160 kVA

Built upon 40 years of power management experience, performance and continuous innovation, the Powerware 9390 combines extensive customer research with technical innovation to deliver the next-generation of power protection. The result is a UPS that provides the best combination of power performance, battery management, scalable architecture, flexibility, power density, warranty and service.

#### Features and Benefits

- Unmatched Power Performance
  - High efficiency of 94 percent reduces total cost of ownership by reducing cost of power to support protected loads
  - Low input current total harmonic distortion (THD) of less than 4.5 percent enhances compatibility with upstream power systems, especially generators
  - Input power factor of 0.99 minimizes auxiliary generator sizing requirements and provides more power to unity power factor servers
  - Output power rated at 0.9 power factor accommodates high power factor load requirements
  - Double-conversion design offers the highest protection possible
- Enhanced Scalability
  - Uses Powerware Hot Sync technology to parallel for capacity and redundancy
  - Up to four UPS modules can be paralleled without a tie cabinet, while a total of eight modules can be paralleled (providing a total capacity of 1280 kVA) with a tie cabinet
- Best Total Battery Management
  - Extends battery life and optimizes battery recharge time via patented ABM Technology
  - Integrated battery management system tests and monitors battery health
- Variable battery bus matches battery capacity to exact customer runtimes
- Enables remote monitoring of UPS and battery system
- Flexible Installation and Serviceability
  - Reduces installation time and costs with small footprint and flexibility to install against walls, using top- or bottom-entry cabling
  - Front-panel access for all services and operation increases serviceability and reduces repair time
- Highest Power Density
  - Power module footprint is 35–50 percent smaller than nearest competing unit
  - Delivers 72 kW in less than four square feet of space
- Superior Warranty and Service
  - Features a two-year limited factory warranty (parts and labor)
  - Service protection package includes startup service, UPS performance check, two years of battery replacement labor coverage,\* and two years of Web remote monitoring of both the UPS and batteries
  - Optional service plans provide added confidence and peace of mind

\* Batteries warranted by the battery manufacturer and not by Eaton



#### Typical Applications

- Data centers
- Medical facilities
- Diagnostic imaging equipment
- Enterprise networks
- Networking gear

# Powerware

## Three-phase UPS Products

### Powerware 9320 10–60 kVA

The Powerware 9320 UPS system solution addresses today's critical power quality and backup power needs by delivering comprehensive power management of all nine common threats. With data center architects and IT managers constantly working to increase the functionality and scope of the data center they require more than a surge protector or backup power protection. They maintain scalability, improve performance and reduce the total cost of ownership.

#### Features and Benefits

- Ensures maximum uptime with self-contained units that have no system-level single point-of-failure
- Delivers unmatched reliability with up to N+2 redundancy using distributed parallel architecture (DPA)
- Isolates connected equipment from all incoming power problems to provide the highest degree of protection with online, double-conversion technology
- Extends battery backup time with external battery cabinets
- Adapts to growing applications with scalable design of 10 and 20 kVA modules that allow you to increase UPS capacity as your needs change
- Reduces operating costs without sacrificing reliability with its high efficiency rating
- Incorporates connectivity products to fit various environments and applications
- Saves money on installation costs by minimizing input breaker and wire size with low input THD and high power factor

#### Typical Applications

- Server farms
- Networking gear
- Telecommunications equipment
- Process control
- Medical equipment
- Data centers

## Powerware BP Series Industrial UPS

Today's industrial environment relies heavily on a complex power infrastructure where equipment is often required to operate in less-than-ideal environments. Factors such as temperature extremes, dust and dirt, high inrush loads, and even special configuration requirements make it difficult for a UPS designed for an office or computer room to provide optimal protection. To meet the demands of these applications, Eaton offers an industrial Powerware BP Series that is built to deliver optimal performance in rugged locations.

### Powerware BPIV 10–30 kVA

#### Features and Benefits

- Supports today's complex industrial equipment without de-rating the UPS by using high (0.9) output power factor
- Effectively handles high inrush loads common in process control and industrial applications with 200 percent overload sensing
- Monitors battery health with DC Expert Plus technology, the most comprehensive battery management system in the industry
- Lowers total cost of ownership with 92 percent energy efficiency rating
- Isolates connected equipment from all incoming power problems to provide the highest degree of protection with online, double-conversion technology
- Enhances total system availability and provides added flexibility during installation with standard dual input

#### Typical Applications

- Water waste treatment
- Petrochemical sites
- Airport transportation systems

# Powerware

## Three-phase Additional Products



PF2 Flywheels

### PF2 Flywheel

The PF2, a battery-free DC energy storage technology, is an integrated motor-generator-flywheel that stores kinetic energy in a constantly spinning, quiet, low-friction steel disc. Compared to traditional battery systems, the PF2 dramatically reduces space requirements, temperature restrictions, replacement cycles, and maintenance cost while improving UPS reliability and operational integrity.

### Maintenance Bypass Module (MBM)

Designed for use with the Powerware 9315 UPS family up to 500 kVA, this floor-mounted, enclosed line-up-and-match cabinet provides continuous support for critical loads during service or testing of the UPS module. The MBM includes 65 KAIC, 100 percent continuous current-rated maintenance isolation breaker (MIS), maintenance bypass breaker (MBP), bypass input breaker (BIB), electrical interlocking, and voltage conversion capabilities.



Static Transfer Switch

### Static Transfer Switch (STS)

The Powerware STS is a high-speed switch that can transfer electrical loads from one AC power source to another in a fraction of a single electrical cycle. The Powerware STS eliminates the chance of a loss of power to critical loads by properly coordinating with the electrical distribution system. During a fault condition, the STS continues to conduct current, allowing downstream circuit breakers to work selectively.



Power Distribution Module

### Powerware Hot Tie Cabinet

Powerware Hot Tie cabinet is an ideal solution for two UPS modules powering two separate loads, allowing you to transfer the load of one unit to the other so that the loads are always protected. The Powerware Hot Tie cabinet has become more important than ever with the development of Powerware Hot Sync technology, as it enables two systems whose units are paralleled with Powerware Hot Sync, to work together for an even greater level of redundancy and protection.

### Power Distribution Module (PDM)

The Powerware PDM series can be easily expanded as power needs change by adding up to two field-installable distribution cabinets. This expands the distribution capacity from 84 to up to 252 circuit breaker pole positions. Each Powerware PDM can be configured to meet your specific needs for isolation, voltage transformation, harmonic reduction and voltage regulation with virtually limitless distribution options. Built-in system monitoring and diagnostics facilitate load balancing and warn of potential threats to your critical equipment.



Remote Power Panel

### Remote Power Panel (RPP)

The Powerware RPP allows for electrical expansion without the need for costly electrical rework. By simply feeding the RPP Distribution Module from the existing transformer or panel board, distribution capacity can be expanded by up to 168 pole positions.

### Switchboard System Bypass Module (SSBM)

To enhance the reliability of redundant power systems, we offer the PowerHandler™ Plus SSBM. Designed specifically for the Powerware 9315 UPS family, the PowerHandler Plus allows up to eight UPSs to operate in parallel to provide more capacity than a single UPS, and as backup for each other. The parallel capacity/redundant system can supply up to 4,000 amperes, depending on the SSBM used.

# Powerware

## Other Power Protection Products



DC Power Systems

### DC Power Systems

Eaton provides a range of Powerware DC power solutions to provide high-reliability and cost-effective 48V battery-backed DC power for your data network and telecommunications equipment. Eaton offers the industry's only custom-designed solution for providing long-duration backup 48V DC power to power-over-Ethernet devices compliant with the new IEEE standard 802.3af. All Powerware DC power systems are complete with pre-configured system controllers for easy system setup, and have options for remote control and monitoring via standard modem or TCP/IP communications. Just contact Eaton for expert advice on your 48V DC power requirements.



Metering

### Meters

Power related problems undermine competitiveness and result in business interruption and equipment damage. Unless you have accurate PQ metering, you may not recognize problems until your profitability is in jeopardy....by then it's too late. The smartest metering in the industry will help you make quick and confident power management decisions.



Protective Relay

### Protective Relays

The financial consequences of downtime illustrate the significance of adding protection to the electrical system. Relays are engineered with protective features to enhance the reliability and uptime of any process. When a trip occurs, these devices capture the critical information necessary for speedy diagnosis and restoration of operations. Many times, trips can be avoided entirely because protective relays warn of impending trips and record information about possible causes, enabling corrective action before a disruption occurs. Our relays have been designed with safety in mind, protecting personnel from ground faults and unintentional trips.



Surge Protection

### Surge protection

Power surges are among the most common power quality issues facing facilities today - resulting in safety concerns, equipment damage, costly downtime and decreased productivity. Our surge protective devices are recommended at the service entrance on the ac power lines, as well as telephone and data lines to stop harmful high-energy surges. The IEEE also recommends adequate downstream protection at the panel board or near the critical load. Surge protection systems are available in two formats: integrated and retrofit versions. Integrated is the most popular for new installations and provides the best performance, smallest footprint and is easiest to install. Retrofit surge is an effective method to add protection to existing electrical panels and systems.



Power Factor Correction

### Power Factor Correction

Every facility wants to reduce costs and gain that competitive edge. However, it's difficult when dealing with utility penalties, excessive equipment operation and a high kVA demand. By installing power factor correction products you can reduce total kVA demand, resulting in off-loading transformers, switchgear and other equipment. The reduced total kVA demand translates in lower energy bills, cooler equipment operation and longer equipment life.



Automatic Transfer Switch

### Automatic Transfer Switch

In today's market, to be productive and meet demand, your facility needs to have reliable standby power. Automatic transfer switches offer continuous system monitoring and automatic transfer control for the fastest, most reliable standby power system.



# Powerware

## Single- and Three-phase Software Products

Delivering a full line of Powerware software, strategic equipment, and connectivity devices, Eaton provides the perfect solution. Implementing these key components along with our UPS products allows you to get the most out of your power protection system.

### Powerware Software Suite

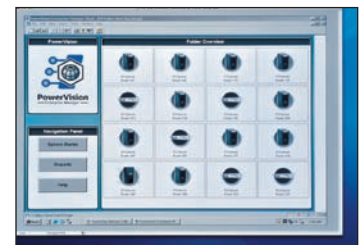
Providing the highest level of availability to vital network equipment is a top priority. Because a variety of communication methods are used to monitor network equipment, realizing that goal requires thorough planning, careful design, and the right power management software. Arriving bundled with every Powerware UPS,\* the Powerware Software Suite CD incorporates user-friendly features including our Software Wizard to guide you through software selection and installation. The Software Suite includes LanSafe network shutdown software and a 30-day trial version of PowerVision® software.



### PowerVision Software

For Enterprise-wide Monitoring of UPSs and Mission Critical Equipment

PowerVision v4.0 software is the next generation of power management designed with a modular approach, offering the flexibility and scalability to adapt to the dynamic needs within the power protection infrastructure. PowerVision power management software is the solution for the progressive system administrator or facility engineer who needs local or enterprise-wide monitoring of multiple UPSs and/or other power components supporting mission-critical applications.



PowerVision software comes in two different packages, Network Edition and Facility Edition, and has additional options for enhancing the PowerVision software:

**PowerVision Network Edition** — monitors multiple Powerware and non-Powerware UPSs in a distributed power environment over your existing local area network (LAN).

**PowerVision Facility Edition** — is the industrial-strength solution for monitoring a wide range of UPSs, including multi-module synchronized parallel UPS configurations and other components of a centralized infrastructure.

**PowerVision Data Acquisition Terminal (DAT)** — designed specifically for the Facility Edition, the optional PowerVision DAT adds the ability to monitor non-UPS equipment and provides data for graphing and statistical over an Ethernet network.

**PowerVision Enterprise Manager** — serves a unique role as an optional enhancement to either edition by providing an enterprise-wide view that spans multiple PowerVision systems across your organization.

#### Features and Benefits

- Centralizes supervision of multiple UPSs and other equipment
- Sustains premium power performance through enterprise-wide monitoring and real-time alarm management
- Analyzes and predicts issues quickly with graphs and statistical reports with the Facility Edition
- Provides continuous equipment status with online and wireless alarm notification
- Graceful shutdowns protect critical data servers
- Streamlines asset management tasks for all UPSs on a network
- Uses standard SNMP traps to integrate your network management systems
- Automatically reminders for scheduled maintenance and battery replacement
- Provides advanced reporting, statistics, and graphs with the PowerVision Enterprise Manager

# Powerware

## Single- and Three-phase Software Products

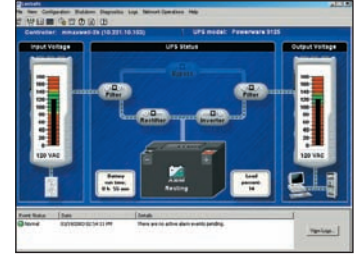
### LanSafe Software

#### Power Management Software for Network Shutdown

Running mission-critical applications and connecting widely-distributed nationwide and global operations are key strategic initiatives in today's business organizations. LanSafe power management software provides, in combination with a UPS, the best possible protection for this valuable data.

#### Features and Benefits

- Automatically performs a graceful shutdown of the computer system and saves work-in-progress during an extended power failure
- Runs invisibly with Stealth Mode Operation, which is particularly useful when integrating LanSafe software into a POS, ATM, or other environment where discretion is necessary
- Helps you determine how much money is saved from prevented downtime with a cost savings calculator
- Displays vital UPS information with an intuitive, graphic format for non-technical personnel
- Compiles a full year of UPS events with a graphical calendar view instead of text-intensive log files
- Communicates UPS status change messages via e-mail, pager, or cell phone to keep you informed at all times
- Remotely recycles power of hung-up hubs, routers, and computer systems with UPS power on/off capability



### FORESEER® Software

#### Management Solution for Mission-Critical Infrastructure

FORESEER system software provides enterprise-wide monitoring and proactive management of the infrastructure supporting your critical operations

#### Features and Benefits

- Distributed, scalable architecture tailored to your organizational needs
- Dependable trend analysis and forecasting tools allow for proactive management and monitoring as well as performance reports
- Extensive, multi-vendor device-driven library interfaces so you can manage all your infrastructure equipment from a single system
- Customizable graphic user interface (GUI) accurately depicts individual sites, allowing for personalized views based on individual preferences
- Web browser access allows you and your staff to gain a remote, customizable view of critical facilities from anywhere in the world



# Powerware

## Single- and Three-phase Software Products

### Powerware CoreLogic™ Software Development Toolkit

Software Development  
tools for system  
integrators and  
software developers

A one-of-a-kind product in the industry, CoreLogic combines a suite of proven software utilities and components with an API-based driver library. The toolkit creates an easy, reliable, and flexible approach to integrating or embedding UPS management capabilities into customer or third-party software applications. Unique functionality and straightforward design equips developers and integrators to create applications more quickly and to lower development time and cost.

#### Features and Benefits

- Performs highly targeted power protection tasks, including status monitoring, control, discovery, and operating system shutdown
- API-based
- Can be customized to run as Microsoft® Windows® services or Linux daemons
- Designed for easy integration with small code footprints
- Broad operating system support including Microsoft Windows, Linux, and Unix
- Source code for batch scripts and utilities included
- Includes documentation, technical support and maintenance releases
- Enterprise and distribution licensing available
- Available online for purchase <http://www.powerware.com/software/corelogic.asp>
- Customizable graphic user interface (GUI) accurately depicts individual sites, allowing for personalized views based on individual preferences
- Web browser access allows you and your staff to gain a remote, customizable view of critical facilities from anywhere in the world



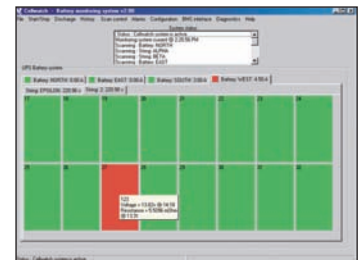
### Powerware CELLWATCH Software

Advanced monitoring of  
your UPS batteries for  
their health and your  
peace for mind

Eaton understands just how critical your batteries are to your UPS. Temperature, float level, cycling, and other factors all degrade batteries to the point where they are unable to provide adequate backup time for your UPS or fail completely. Powerware CELLWATCH software provides the solution to ensure your batteries are continuously monitored and mission-critical systems are fully protected.

#### Features and Benefits

- Monitors voltage, internal resistance, and temperature
- Provides immediate warning and specific battery identification of deterioration and imminent failure
- Reduces the possibility of damage to an entire battery string
- Enables replacement based on battery condition, preventing expensive premature replacement
- Minimum 120 days of activity history enables you to trend individual battery and strings performance
- Initiates continuous monitoring during discharge, recharge, and float
- Remote monitoring capabilities optional
- Continuously monitors string and battery discharge currents ranging from 25A to 1000A
- Installation by trained battery technicians



# Powerware

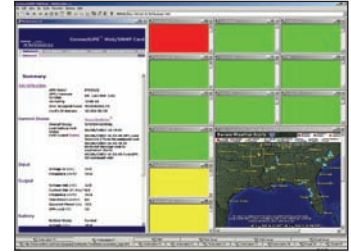
## Single- and Three-phase Software Products

### MultiView Software

#### Desktop Power Management and Network Monitoring Tool

#### Features and Benefits

- Allows user to view multiple Web sites at once within a single browser window
- Can detect and add the browser pages of connected ConnectUPS Web/SNMP Cards from Powerware UPSs, as well as the Status@aGlance page from Powerware's new LanSafe v5 software
- Powerware MultiView software provides simultaneous monitoring of multiple ConnectUPS cards from a single console



### Powerware Extensions for Network Management Systems

#### Network Management System integration software

Powerware Extensions for Network Management Systems simplify UPS network management tasks by allowing you to monitor, diagnose, configure, set alarms, schedule self-tests, check battery, gather inventory information, and control Powerware UPSs network-wide from a single console within your network management system.

#### Features and Benefits

- Seamlessly integrates UPS devices into industry-leading Network Management Systems such as IBM® Director™
- Enables remote management of multiple UPS devices in a network or server management environment
- Provides a central log for UPS inventory and events
- Manages Load Segment control (separate groups of receptacles on a single UPS) to extend battery backup times for selected devices
- Facilitates network-wide UPS battery testing, rebooting, and shutdown scheduling



# Powerware

## Single- and Three-phase Connectivity Products

Eaton's Powerware offering additionally includes connectivity products - accessory hardware options used to link Powerware UPS products to external communication devices. Eaton provides a variety of connectivity products to ensure communication compatibility with a variety of external devices through the Web, serial, USB, relays, or SNMP.

### Powerware ConnectUPS Family of Ethernet Networking Products

Solutions for the changing global customer landscape

The Powerware ConnectUPS family of products provides seamless integration of Powerware UPS information into Network Management Systems using SNMP (Simple Network Management Protocol). These powerful and intelligent devices are designed for the rigorous task of managing the UPS devices that protect the critical equipment and, ultimately, the critical data residing throughout the network.

#### Features and Benefits

- Out-of-the box features coupled with the Powerware Software Suite provide users with all the necessary tools to monitor and manage the UPS supporting the critical IT environment
- Provides anytime, anywhere access by using any Powerware ConnectUPS Web/SNMP model via network management software packages, such as HP OpenView® and via the Web using a computer, PDA, or cell phone
- Prevents unwanted access via the Internet from unauthorized personnel with built-in security at all levels
- Analyzes chronic power problems and determines trends through data logging and sophisticated graphing tools
- Adds three 10/100Mb network connections with no additional expense using a built-in three port switching hub (X-Slot Web/SNMP version)
- Speeds corrective action by delivering alarm notification through any combination of email, SNMP traps, or NetWatch network message
- Integrated NetWatch software provides graceful, unattended shutdown of computer operating systems to preserve data integrity in the event of an extended power failure
- Powerware ConnectUPS MultiView software allows simultaneous monitoring of multiple Powerware ConnectUPS-X, -BD, and -E cards
- SSL and SSH data encryption and authentication
- Automatic local language detection and support



### Powerware Environmental Monitoring Probe UPS Connectivity Device

The Powerware Environmental Monitoring Probe (EMP) enables you to remotely monitor environmental conditions as easily as you monitor power conditions. Using a standard Web browser, you can view the ambient temperature and humidity of the remote environment, as well as the status of two additional contact devices, such as a smoke detector or open-door sensor.

#### Features and Benefits

- Monitors temperature, humidity, and status of two contacts/sensors
- Works with any Powerware UPS and ConnectUPS Web/SNMP card
- Can be located up to 20 meters (65.6 feet) from the UPS
- Measures ambient temperatures between 0°C and 80°C
- Measures relative humidity between 10 and 90 percent
- Displays status on Web page, IP phone or PDA, or network management system
- Auto-sends alarms via email, PCS phone, or pager
- Two-year limited warranty; option for enhanced warranty (US and Canada)



# Powerware

## Single- and Three-phase Connectivity Products

### Multi-Server Card & Relay Interface Cards

Out-of-band communication and notification of UPS alarm status

The Multi-Server Card provides out-of-band serial communication with LanSafe software when Ethernet connectivity is not available or required. Load Segment control is mapped to specific serial ports on the card to provide selective control over critical loads. The Relay Interface Cards provide simple alarm notification via isolated contacts to signal remote annunciation panels or security systems in the event of a change of state in UPS operation.

#### Features and Benefits

##### Multi-Server Card

- Provides out-of-band communication methods via RS-232 serial communication or isolated Form-C relay contacts
- Connects up to three servers for monitoring and graceful shutdown
- Supports Load Segment control and RS-232 signals for low battery and AC Fail

##### Relay Interface Card

- Increases reliability and system availability
- Provides isolated dry contact Form-C relay outputs for utility failure, low battery, UPS alarm/OK, and on bypass

- Is user-selectable for normally-open (NO) or normally-closed (NC) contacts
- Enables remote shut down of the UPS
- Comes equipped with DB-15 output connection and terminal block outputs on X-Slot model
- Adapts to IBM iSeries® (AS/400®) applications with optional cables
- Works with the following Powerware UPS products: Powerware 5115RM, 5125, 9120, 9125, 9155, 9170+, 9320, and 9315



### Expansion Chassis & Modbus® Card

Increasing the flexibility and effectiveness of power protection systems

The Expansion Chassis is a three-slot peripheral device that expands communication methods for a UPS through its support for additional X-Slot cards. The Expansion Chassis is pre-configured with the Powerware Modbus Card, which serves as the interface to Modbus networks and as the integral communications controller for the remaining two slots.

#### Features and Benefits

- Creates a wide array of communication options for Powerware UPS products by acting as the framework for protocol conversion via compatible X-Slot cards for Modbus, SNMP, and HTTP
- Adds expanded communication support for a wide range of UPSs: Powerware 5115RM, 5125, 9120, 9125, 9170+, 9315, 9320, and 9335
- Offers flexible mounting options via included feet, rackmount, and wall-mount kits
- Speeds corrective action by providing alarm notification through any combination of email, SNMP traps, or NetWatch network messages

- Compatible with the following X-Slot cards:
  - Modbus (one included)– Connect to another Modbus network or monitor via Building Management System (BMS)
  - Powerware ConnectUPS-X SNMP/Web card
  - Powerware ConnectUPS-M SNMP card
  - Single-Port Serial Card
  - Multi-Server Card



# Eaton Services for Powerware Solutions

Eaton provides world-class service for all Powerware AC, DC, software, and connectivity products. With over 300 customer service engineers (CSE) in North America and 1,200 international authorized service providers, we have more service personnel than any other UPS manufacturer. We are there when and where you need us by delivering 7x24 factory-certified service, including on-site startup, corrective and preventive maintenance, battery solutions, training, remote monitoring, and factory spare parts and upgrades. In addition to UPS services, Eaton also offers extensive engineering, product management, and integrated power systems solutions to bring about reliability, operating improvements, cost savings and asset optimization from your facility and your business.

## Single-phase Powerware UPS Services

Eaton provides a full range of single-phase UPS service options, including service plans for both UPSs and batteries. Service plans enhance and extend the standard warranty by providing up to five years of bumper-to-bumper service from basic overnight replacement to comprehensive on-site system coverage including preventive maintenance. We can help you select an on-site or depot repair service plan that is right for you.

## Three-phase Powerware UPS Services

Eaton ensures that your three-phase Powerware UPS continually provides reliability and performance. Our service plans are designed to provide you with system uptime, convenience, and value. We support the UPS, batteries, and related equipment with on-site service to meet your specific site or application needs.

## DC Power, Software, and Multi-Vendor Services

We support all Powerware DC power systems, power system software, and related products with a variety of service plans. Regardless of manufacturer, a single contract will cover all of your AC and DC power system maintenance needs, and our 7x24 Customer Reliability Center will provide you with the convenience of a single point-of-contact.

## Instant Response Center<sup>SM</sup> Services

With our remote monitoring services for mission-critical powertrain equipment, we provide the ultimate level of system reliability. From basic UPS and battery monitoring to your entire enterprise structure, our Instant Response Center continuously monitors power systems to detect power quality events and problems, perform predictive diagnostics, identify potential causes of power failures, take corrective actions, and deliver operational reports.

## Proven Performance

Quality service can make the difference in success or failure. Our customers have consistently placed our services number one in quality:

- Eaton customers have rated our quality of service (QOS) at 95 percent or higher since 1999 (based on returned surveys of clients who used services for Powerware products)
- Over 97 percent of Eaton service contract customers (Powerware large systems) renew their service contracts each year Eaton invests hundreds of thousands of dollars each year in its 300 customer support engineers (CSE); in fact, each new CSE completes 24 weeks of training before becoming certified and placed in the field
- Our services for Powerware solutions feature the latest technology in scheduling, call management, parts optimization, and remote diagnostics to minimize Mean Time To Repair (MTTR)

## Dedicated Team

Call from anywhere in the world and speak directly with our most experienced service consultants and technical support experts. Eaton stands behind every Powerware product with 7x24 service to ensure reliable power for your most demanding applications.

## Service Contact Information

### Customer Support Center

**1.800.356.5737**

- Small Powerware UPS and Battery Services
- Technical Support

### Customer Reliability Center

**1.800.843.9433**

- Large Powerware UPS and Battery Services
- Powerware DC Services
- Powerware Software Services

## Looking for additional information?

Are you uncertain about the right product for your application? Are you wondering where you can buy Powerware products and would like to have a quote prepared for you? Perhaps you want to sign up to be a part of the Powerware Power Alliance reseller program? Your answers are only a toll-free phone call away from our team of sales specialists who can answer your questions. You can also visit our Web site for detailed product and program information or send us an e-mail.

**1.800.356.5794 - US**

**1.800.461.9166 - Canada**

**www.powerware.com**

**e-mail: info@powerware.com**

## Complete Electrical Services

Eaton Electrical Services & Systems is dedicated to providing comprehensive solutions to improve costs, uptime, reliability, power quality and safety. Our commitment to creating stronger relationships with our customers is demonstrated by our lineup of technical expertise and support services

We provide unsurpassed expertise to integrate new products and solutions. We are on call 24/7/365 for Crisis response services. With one phone call to our **1-800-498-2678** we are able to mobilize hundreds of engineers, technicians and service personnel with the sole purpose of bringing your electrical systems back on-line quickly."

Whether you have single or multiple sites, Eaton has the capabilities and the expertise to function as your total solutions provider.

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