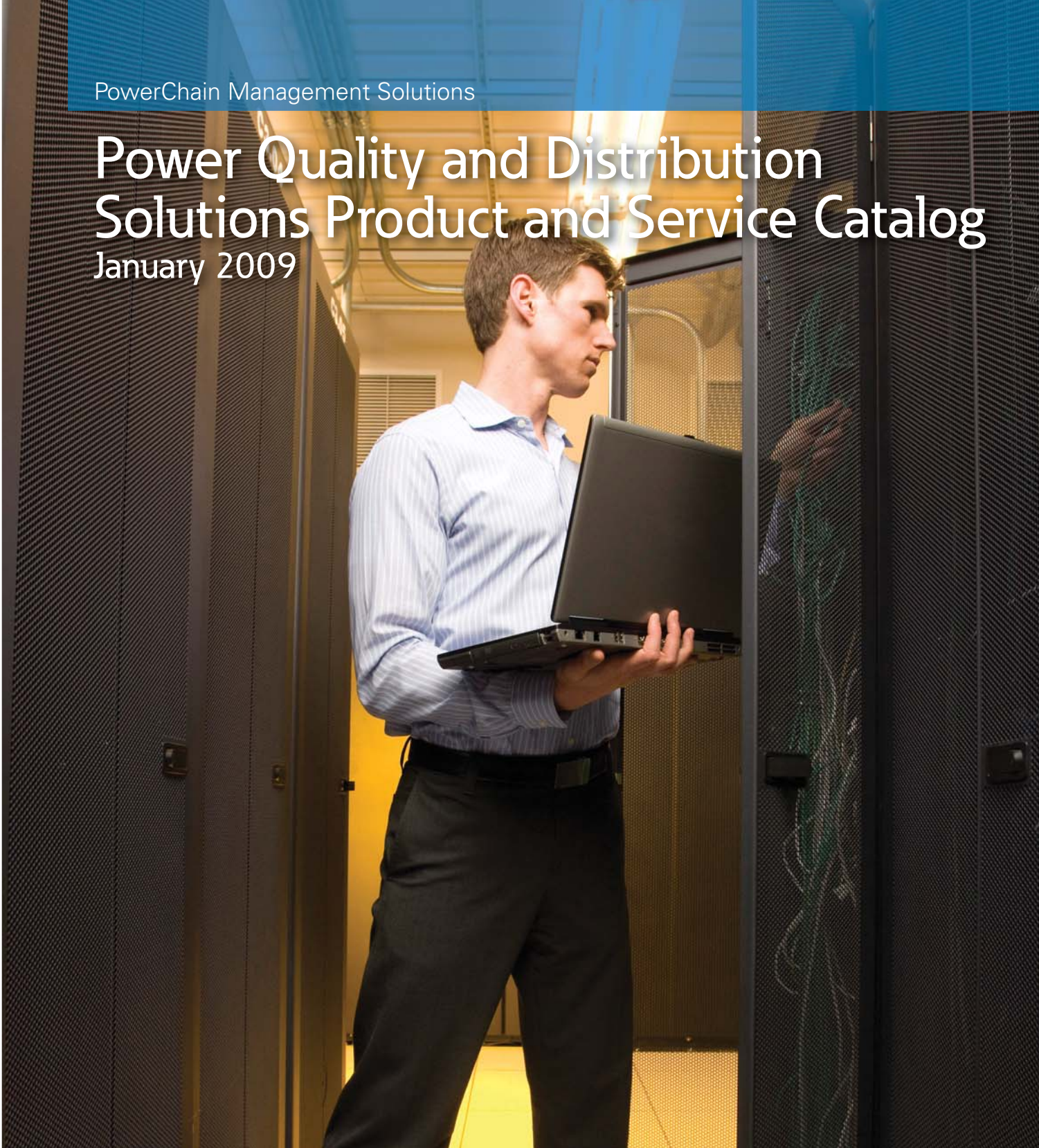


PowerChain Management Solutions

# Power Quality and Distribution Solutions Product and Service Catalog

January 2009



**EATON**

*Powering Business Worldwide*

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# Eaton overview

Eaton Corporation is a diversified power management company with global leadership in the electrical, fluid power, truck, automotive and aerospace industries. Our electrical product series and families—including Cutler-Hammer®, Holec®, MEM®, The Moeller Group, Phoenixtec Power Company Ltd., Santak, MGE Office Protection Systems, Bill, Elek and Pulizzi—encompass electrical control, power distribution, uninterruptible power systems (UPSs) and industrial automation products and services.

Electrical power is more than just a convenience; it's an essential element of doing business today. To deliver the competitive advantage our customers demand, Eaton helps enterprises proactively measure and manage the power system as a strategic, integrated asset throughout its lifecycle.

PowerChain Management solutions provide the power to make a difference, helping our customers achieve their business goals while maintaining environmentally sustainable enterprises as well. Tools such as energy audits and real-time monitoring of energy consumption enable customers to manage energy resources wisely. Products such as Eaton's state-of-the-art UPSs, variable speed drives and lighting controls help conserve energy and increase efficiency. Eaton is committed to sustainable solutions—for our customers and for ourselves.

Eaton 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.\* Our solutions are also the global market share leader in medium- and large-range UPSs above 5 kVA; they are second-leading in small system UPSs at and below 5 kVA.\*\*

## Award-winning leadership

Some of Eaton's accomplishments are reflected in recent headline news:

- Eaton 9395 UPS wins 2007 Electrical Power Product of the Year from Plant Engineering.
- Eaton BladeUPS® wins the gold from SearchDataCenter.com's 2007 Product of the Year awards.
- Eaton's Power Xpert meters received the 2007 North American Power Quality Emerging Technology of the Year award by Frost & Sullivan.
- Eaton ranks second on the "100 Best Corporate Citizens" list for 2008 according to *Corporate Responsibility Officer (CRO)* magazine.
- Eaton certified by CMP channel's VARBusiness as a Gold Five-Star Overall Winner in its 2008 Partner Program Guide.
- Eaton received the 2007 Power Quality Vendor of the Year in the Asia Pacific region by Frost & Sullivan.
- Eaton received the 2006 Power Quality Company of the Year award for the third consecutive year by Frost & Sullivan.



\* Frost & Sullivan Award for 2003 Customer Value and Satisfaction and Frost & Sullivan Award for 2004 Product Line Strategy.

\*\* Based on Frost & Sullivan 2004 World UPS Markets report data.

# Eaton overview

## Tradition of technical innovation

From patenting the first AC inverter in 1962 to introducing the unsurpassed Eaton 9395 UPS with 1100 kVA, we have a continuing history of technical innovation. With more than 120 active patents and another 98 patents pending, Eaton maintains a long tradition of using our technical expertise to provide customers with what they need most in a power management solution:

<b>2007</b>	Eaton introduces a quantum leap in large, three-phase UPS technology, the 9395, which incorporates a modular and upgradeable design with internal redundancy for maximum reliability	<b>1993</b>	First UPS to offer load segmentation
<b>2006</b>	Eaton introduces the high power density and high efficiency BladeUPS rackmount UPS, a 12 kVA modular featuring N+1 parallel redundant systems up to 60 kVA with modular distribution	<b>1993</b>	First UPS with ABM® technology to extend battery life
<b>2003</b>	First 6 kVA UPS in 3U for high-density rack applications increases power density by 33%	<b>1989</b>	First high frequency, transformer-free UPS
<b>2002</b>	First dual source UPS for rackmount applications	<b>1987</b>	First UPS with advanced pulse-width modulated (PWM) technology and microprocessor-based diagnostics
<b>2002</b>	Monitoring deployment for over 225,000 data points with Foreseer® proactive enterprise facility monitoring solution	<b>1986</b>	First UPS over 100 kVA for computer rooms
<b>2002</b>	First full 100 Mbps switch hub integrated on a network card	<b>1982</b>	First UPS suitable for computer rooms
<b>2001</b>	UPS with 3 kVA increases power density by 40%	<b>1982</b>	First UPS suitable specifically designed for offices
<b>1996</b>	First UPS with wireless paralleling	<b>1972</b>	First all digitally-controlled UPS
		<b>1968</b>	First commercial UPS combining battery chargers and inverters
		<b>1962</b>	First AC power inverter



# Single-phase products and solutions

## UPS solution overview

### Selecting the right UPS

Eaton's 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. Eaton products offer three levels of power protection: Series 3, Series 5 and Series 9, plus the rugged FERRUPS® product line that provides protection from eight potential problems in harsh environments. Based on the parameters defined by your application, you can select a UPS from the level that best matches your power protection needs.

## Series 3

**Basic solution:** Protection from three potential problems



The 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 the 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

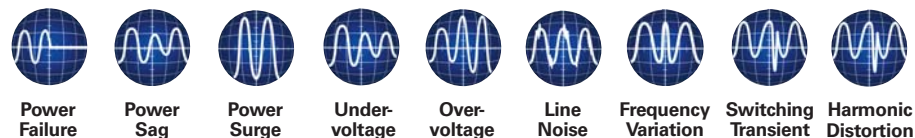
**Intermediate solution:** Protection from five potential problems



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



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. 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 Voice-over-Internet-Protocol (VoIP) applications.

# Single-phase products and solutions

## Feature focus

Eaton offers an extensive and innovative line of single-phase UPS solutions in Series 3, 5 and 9 with power ranges from 500 VA to 18 kVA. With industry-leading power protection in optimized form factors, Eaton offers a solution that fits your application. Here are just a few features that enable us to provide you with the best power protection available.

## Power density—don't let power management take over your rack

Eaton developed high-density rackmount UPSs to provide optimal, reliable power protection for critical loads—delivering more performance in smaller packages. We offer the highest power density by VA rating with sizes from 0U to 5U. Our space-saving models free up valuable rack space for other essential equipment.



## Communication—monitor your UPS via an Ethernet network or the Internet

All of our UPSs include a USB or serial port that allows you to communicate with the UPS, and most have an X-Slot® bay or card installed for increased power protection and control. Our variety of connectivity products ensure compatibility with a range of external devices via the Web, serial, USB, relays, Modbus or SNMP. Some cards allow you to connect your UPS directly to the Ethernet network and the Internet, allowing you to monitor and manage your UPS conveniently with a standard Web browser.

## Energy efficiency—use less energy, save more money

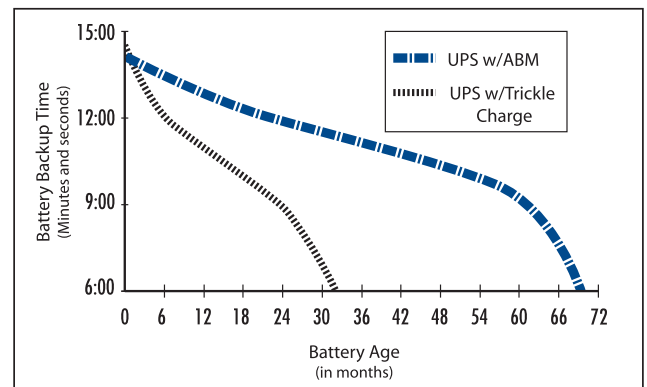
As power density in modern data centers increases, more focus has been placed on improving efficiency in the power distribution infrastructure. We offer practical and affordable options to significantly improve efficiency without making major changes to your existing power delivery infrastructure. Our advancements in UPSs and power distribution products can reduce energy, cabling and cooling costs for your data center.

## Investment protection—our products are backed by a full range of service options and dedicated support teams so you always feel protected

Eaton stands behind our outstanding single-phase UPS products with a standard two-year factory warranty with the option to purchase up to three years of extended coverage. For additional protection, select a service plan from basic advanced exchange to on-site startup and preventive maintenance performed by certified customer service engineers. All single-phase UPSs also include a load protection guarantee.

## ABM technology—extend the life of your batteries and decrease recharge time

Most UPS manufacturers offer constant trickle-charge on their batteries, which degrades the batteries and reduces battery service life by as much as 50 percent. In contrast, Eaton's 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 advance 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.



## Extended battery run-times—increase the backup time of your UPS

Your application may require several hours of backup time; Eaton can deliver it with extended battery modules (EBMs) and other battery solutions.



## Load segments—extend battery time when necessary

Using LanSafe® power management software, you can independently control load segments, which are groups of receptacles on the rear panel of the UPS. This feature enables you to maximize battery power and provide orderly shutdown and startup of critical equipment. During a power outage, you can shut down non-critical devices, thereby extending available battery time to critical equipment.



### Load segments

To preserve battery power for critical devices connected to [Load Segment 1](#), shut down the less-critical equipment connected to [Load Segment 2](#).

# Single-phase products and solutions



Power Failure



Power Sag



Power Surge



Under-voltage



Over-voltage

## Series 3 and Series 5

### Eaton 3105 UPS

500–700 VA

Protects loads on eight outlets—four with surge suppression and battery backups, four with suppression only

**Typical applications:**

- Small office, home office
- Point-of-sale (POS) systems
- PCs and peripherals
- Fax machines and telephone equipment



### Eaton 5110 UPS

500–1500 VA

Protects loads on eight outlets—four with surge suppression and battery backups, four with suppression only

**Typical applications:**

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



### Eaton 5115 UPS Tower

500–1400 VA

Delivers smooth, continuous power with pure sine wave output

**Typical applications:**

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



### Eaton 5115 UPS Rackmount

500–1500 VA

Provides high-density, advanced power protection

**Typical applications:**

- Low profile rack servers
- Routers and hubs
- Wall-mount telecom key systems
- Rack or wall-mount VoIP
- Servers and storage systems



### Eaton 5130 UPS Rack/Tower

1250–3000 VA

Provides more real available power and flexibility with hot-swappable batteries and load segmentation—full-featured power protection in a small package at a value price

**Typical applications:**

- IT network wiring closets
- Medical systems
- Communications/VoIP network systems



# Single-phase products and solutions

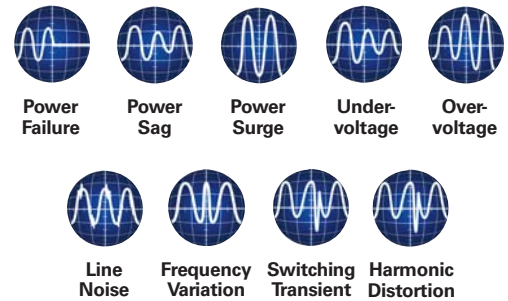
## Series 3 and Series 5 feature overview

	3105 500–700 VA	5110 500–1500 VA	5115 Tower 500–1400 VA	5115 Rackmount 500–1500 VA	5130 1250–3000 VA
<b>Features</b>					
Form factor	Standalone or wall-mount	Tower, under computer terminal mounting or computer shelf mounting	Tower	0U or 1U rackmount, wall-mount or bench-top	Tower, 2U rackmount or 3U rackmount
ABM technology			•	•	
Load segment control				•	•
Hot-swappable batteries			•	•	•
Start-on-battery	•	•	•	•	•
Audible alarms	•	•	•	•	•
Serial or USB port	USB	USB	Serial & USB	Serial & USB	Serial & USB
LanSafe software			•	•	•
X-Slot cards available				•	
Network transient protector	•	•	•	•	•
Remote emergency power-off (REPO)					•
Power distribution unit (optional)					•
Extended battery modules (optional)					•
Extended warranty (optional)					•
Flex™ and PowerTrust™ on-site service plans (optional)					•
Gold plans (optional)	•	•	•	•	

# Single-phase products and solutions

## Series 9

A Series 9 UPS is the best way to protect critical computer equipment from all potentially harmful power problems. With double-conversion technology, the Series 9 UPSs provide the highest level of power protection.



## Eaton 9130 UPS Tower or Rackmount

700–3000 VA

Provides more available power, >95 percent efficiency, high performance protection and battery backup for unpredictable power in any IT environment

### Typical applications:

- Small to medium business networks
- Remote IC locations
- Central IM location
- Mid-range telephone systems
- IP-based security systems
- VoIP systems
- Lab equipment



## Eaton 9135 UPS Rack/Tower

5000–6000 VA

Delivers up to 6000 VA in 40 percent less space than previous technologies, provides both hot-swappable batteries and power modules

### Typical applications:

- Small to medium business networks
- Remote IC locations
- Central IM location
- Mid-range telephone systems
- VoIP systems
- Lab equipment
- Centralized retail



## Eaton 9140 UPS

7.5–10 kVA

Superior de-centralized power protection for medium and high density rack environments

### Typical applications:

- Medium and high-density rack environments
- Server farms, especially blade servers
- LAN gateways
- Clustered PCs
- Enterprise telecommunications and engineering systems



## Eaton 9155 UPS

8–15 kVA

Provides industry-leading power density and a 75 percent footprint reduction versus comparable UPS solutions; internal batteries provide up to 350 percent more runtime and offer 13 percent more capacity at equivalent VA ratings

### Typical applications:

- Data centers
- Centralized servers
- LAN gateways
- Clustered PCs
- Enterprise telecommunications and engineering systems



# Single-phase products and solutions

## Eaton 9170+ UPS

3–18 kVA

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

### Typical applications:

- Mission-critical applications
- Internet service providers
- E-commerce networks
- Data centers
- Enterprise telecommunications systems
- Rack equipment



## Eaton FERRUPS

Tower: 500–18000 VA

Rackmount: 850–7000 VA

Provides superior power protection with our patented ferroresonant technology

### Typical applications:

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



Features	9130 700–3000 VA	9135 5000–6000 VA	9140 75–10 kVA	9155 8–15 kVA	9170+ 3–18 kVA	FERRUPS Rackmount: 800–7000 VA Tower: 500–18000 VA
Form factor	Tower or 2U rackmount	Tower or 3U rackmount	6U rackmount	Tower	Tower or rackmount	Tower or rackmount
ABM technology	•		•	•	•	
Intuitive LCD interface	•	•	•	•	•	•
Hot-swappable batteries	•	•	•		•	
Extended battery module (optional)	•	3U	3U	•	•	•
Load segment control	•					
Network transient protector	•					
Serial or USB port	Serial & USB	Serial, USB and DB-9	(2) Serial & (1) USB	Serial	Serial	Serial
Start-on-battery	•	•	•	•		•
Audible alarms	•	•	•	•	•	•
LanSafe software	•	•	•	•	•	•
X-Slot communication bay	BestDock	Mini-Slot	•	•	BestDock	
REPO or emergency power-off (EPO)	REPO	REPO	REPO	REPO	REPO	REPO
Power distribution module (optional) <sup>1</sup>	•	3U	•	•		
External maintenance bypass (optional)				•	•	•
Extended warranty (optional)	•	•				
Flex and PowerTrust on-site service plans (optional)	•	•				
Gold plans (optional)			•	•	•	•

1. Includes bypass switch; available with and without bypass switch on the 9155

# Single-phase products and solutions

## MGE Office Protection Systems family

Eaton's MGE Office Protection Systems family of secured power products and solutions are perfect for enterprises, small business and homes. This family has earned its strong reputation for quality, reliability and service. Visit [www.eaton.com/mgeops](http://www.eaton.com/mgeops) for more information on the broad range of this family's power products and solutions.

### Evolution

**650–2000 VA**

High-density power protection for servers, storage systems and networking equipment



### Evolution S

**1250–3000 VA**

High-density power protection for servers, storage systems and networking equipment with optimized form factors and extended runtime options



### Pulsar

**700–1500 VA**

Double-conversion UPS—ideal protection for servers, data storage, network equipment, telephony (VoIP and medical equipment) and industrial processes



### Pulsar M

**2200–3000 VA**

Modular, online, double-conversion UPS—ideal protection for servers, data storage, network equipment, telephony (VoIP and medical equipment) and industrial processes



### Pulsar MX

**400–20000 VA**

A unique, double-conversion product family designed to let you pay as you grow with high density power protection



### EX RT

**500–11000 VA**

High performance UPS, perfect for rack servers, enclosure and industrial environments



### Power over Ethernet (PoE)

**Midspan**

Protection against power surges, spikes, nearby lightning strikes and line noise



# Three-phase products and solutions

## Three-phase UPS overview

With a rich history of technical innovation and proven performance, the three-phase UPS products continue to personify Eaton's pioneering spirit in the power quality industry. Whether you are designing or procuring a UPS, each three-phase model can be deployed around the world. Designed to meet global requirements, the same UPS can be installed anywhere—from Argentina to Russia, China to South Africa or the United States.

The following features differentiate Eaton's three-phase UPS solutions:

### Leading sustainability

- Highest efficiency ratings lower utility costs
- Lowest total cost of ownership and lifecycle carbon footprint
- Smallest footprint and weight
- Lowest transportation and installation costs

### Stronger power performance

- Lowest input total harmonic distortion (THD) enhances compatibility with upstream power systems
- Lowest output THD
- Optimum generator sizing
- PFC power supply compatibility

### Highest reliability and availability

- Powerware Hot Sync® wireless paralleling
- Easy Capacity test
- Superior battery management
- Inherent redundancy
- Scalable architecture that adapts to increasing power requirements

### Robust manageability

- Superior control and connectivity

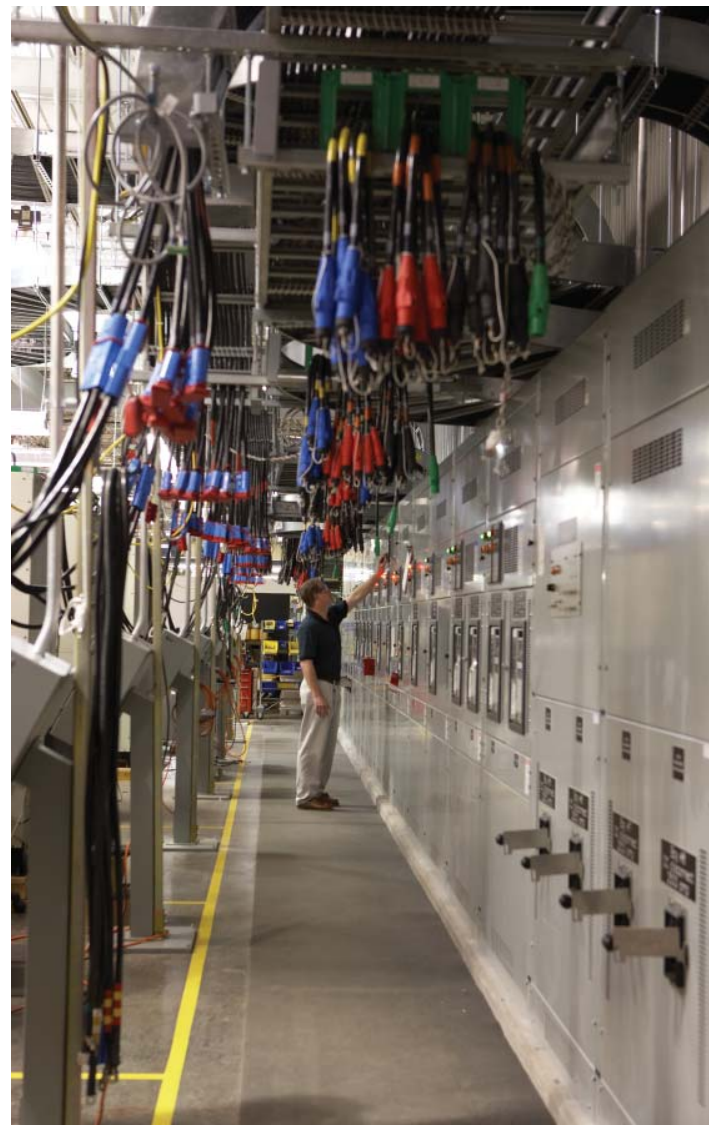
## Beyond technology: Eaton multi-module UPS solutions

In the world of large power systems, single-unit solutions are becoming less common. High-capacity power needs, redundancy requirements, integration into building management system (BMS) and network management system (NMS) for system monitoring data gathering, and extended battery backup time often leads customers to a multi-module system that can include redundant UPSs, software, power distribution and battery systems tailored to individual needs.

Designing, testing and implementing a multi-module system requires engineering knowledge and experience in making sure everything works together as anticipated, every time. That's where Eaton excels—starting with state-of-the-art technology and pairing it with rigorous design, testing and implementation standards guarantees Eaton multi-module systems deliver the highest level of reliability.

When customers choose a custom Eaton solution, they come to the Customer Witness Test Centers in Raleigh, NC, and Helsinki, Finland, to see their system put through its paces, giving them hands-on experience with the system that will be in their facility and confidence that the system will operate efficiently and trouble-free from day one.

The Eaton Customer Witness Test Center tests power modules, including UPS, PDU, switchgear, static transfer switches and battery cabinets. It also tests third-party equipment interfaces, a crucial capability in a multi-vendor world. In addition to testing the individual devices, the entire system is tested, ensuring end-to-end interoperability.



Eaton's Witness Test Centers allow you to see your large multi-module system tested before it is deployed.

# Three-phase products and solutions

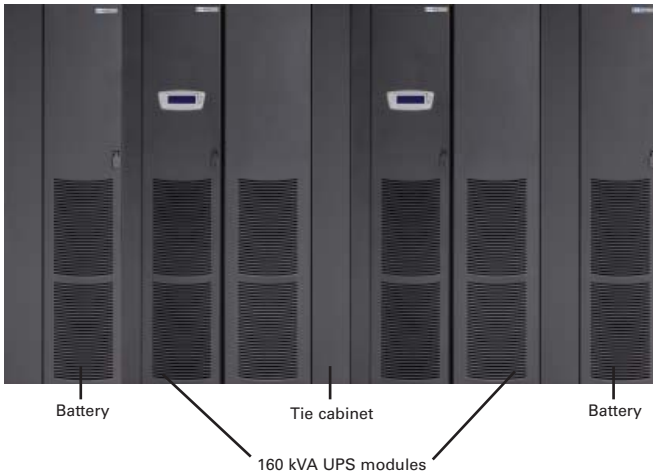
## Feature focus

Packed with an array of features to benefit end-users, consultants and contractors, the three-phase UPS family of products shares the same essential design elements. The 9355, 9390 and 9395 all leverage the following features.

## Powerware Hot Sync wireless paralleling technology

Using our signature Powerware Hot Sync technology, multiple UPS modules can be paralleled for extra capacity or redundancy. A 15 kVA 9355, for example, can grow to support loads of up to 45 kVA. There's no dependence on communications wiring among these modules, enhancing reliability and simplifying installation. This paralleling capability is far more elegantly and reliably implemented with the 9355, 9390 and 9395 than with competitive products.

This two-module 9390 system shown below can be configured as 160 kVA N+1 redundant (320 kVA capacity with 36-inch tie cabinet). The width of this configuration is a compact 164.6 inches.



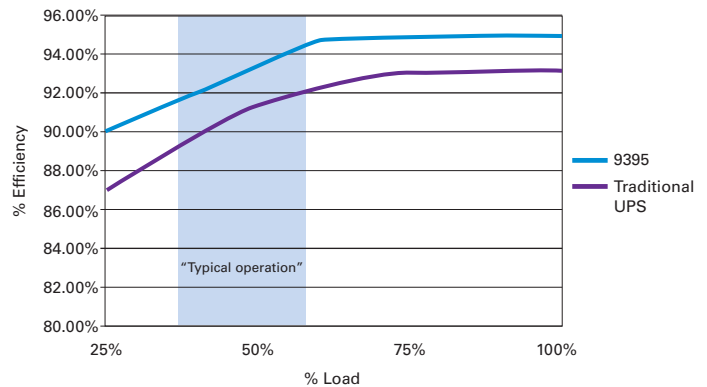
## Smallest footprint and weight

The 9390 offers the smallest footprint of any UPS in its class—35 to 50 percent smaller than competitive units. Cabling can enter the UPS from either the top or bottom of the cabinet to provide easier, more flexible installation. The 9390 provides front panel access for all services and operation, increasing serviceability and reducing mean time to repair (MTTR). And since the compact 9390 cabinet can be installed against back and side walls, you have more location options, installation is fast and easy, deployment cost is lower, and you save valuable data center space.

## Highest efficiency ratings

To demonstrate the importance of total system efficiency in relation to load level, the Efficiency vs. Load graph shows how efficiency generally dips as load level decreases. In general, manufacturers list an optimal efficiency rating at full load. In reality, however, most three-phase UPSs operate well below full load. As a result, it is extremely important to evaluate the efficiency of a UPS at lighter loads as this graph depicts. Eaton three-phase UPS products operate efficiently even at lighter loads to reduce utility costs.

9395 Efficiency vs. Load



# Three-phase products and solutions



## Eaton 9355 UPS

**10–30 kVA**

Delivering efficient, reliable performance in a sleek tower half the size of most competitive units on the market today, the 9355 can be deployed to protect small data centers, multiple servers, educational facilities, critical machinery in factories and retail applications.



## Eaton 9390 UPS

**20–160 kVA**

The 9390 combines extensive customer research with technical innovation to deliver power protection for medium-sized data centers, general IT applications, healthcare applications (such as CT scanners), banking infrastructure, co-location facilities, hotels, casinos and even marine applications.



## Eaton 9395 UPS

**225–1100 kVA**

Our latest three-phase UPS innovation, the 9395 provides a high-end power quality solution for the largest data centers, mainframes, supercomputing equipment, large office buildings and applications requiring large, multi-module protection.

*Winner of the 2007  
Electrical Power Product  
of the Year from Plant  
Engineering*



**An Eaton Green Product**

# Three-phase products and solutions



## System Bypass Module (SBM)

Four decades of experience in paralleling UPS systems is incorporated in this newest SBM. For use with multi-module 9395 systems, the switchgear enclosure encompasses a centralized static switch along with system-level circuit breakers for bypass, UPS system output and maintenance, or wraparound bypass functions. Three ratings are available as standard: 2000A, 3000A and 4000A. This customizable cabinet features a 10-inch color LCD screen for display status for up to 32 uninterruptible power modules and provides an intuitive user operation interface. To enhance flexibility, the system controls/monitoring section may also be deployed in custom or third party switchgear to ensure that the most reliable monitoring and user-friendly controls are included with alternative power circuit components.



## Flywheel solutions

When you need to ensure maximum productivity and system availability, Eaton's flywheel solutions can help. Eaton's battery-free energy flywheel storage system bridges the power gap—acting as either a back-up power source or backup battery source if power quality or delivery is disturbed. Flywheel solutions can also act as effective UPS battery enhancements, battery backup systems or UPS battery replacements for traditional systems.

Flywheel solutions are an environmentally friendly alternative to batteries, offering reduced energy consumption for cooling, elimination of lead use in facilities and a long lifespan of more than 20 years. Use flywheel solutions to take advantage of:

- Minimal space requirements due to the flywheel's high power density in a small, light footprint.
- Low costs made possible by reduced maintenance requirements and long service intervals.
- High efficiency, operational integrity and reliability—with 20 times the reliability of a single bank of batteries.
- Simple plug-and-play installation.



## Remote Power Panel (RPP)

The Eaton 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.



## Static Transfer Switch (STS)

The Eaton 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 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 Unit (PDU)

The Eaton PDU series can be easily expanded as power needs change by adding up to three side-cars. This expands the distribution capacity from 84 to up to 252 circuit breaker pole positions. Each PDU 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.



## Hot Tie Cabinet

The Eaton 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 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 Hot Sync, to work together for an even greater level of redundancy and protection.

# Rack-based power solutions

For organizations with large IT systems, it's essential to maintain optimal protection and power quality for servers and other mission-critical devices. Eaton's three-phase rack-based solutions are designed for settings ranging from high-density data and telecommunications centers to equipment rooms, wiring closets, medical laboratories and warehouses.

Eaton rack-based solutions address issues related to power, temperature and space—helping you save money, prevent downtime and use energy more efficiently. The comprehensive rack-based portfolio includes enclosures, rackmount UPSs, enclosure power distribution units and a host of other power quality equipment.

To achieve high availability and reliability for environments with volatile demands, use flexible rack-based solutions that:

- Incorporate a wide range of VA/watt ratings to support many types of applications.
- Free space for IT systems and allow room for future growth by offering a very small footprint and weight.
- Distribute power efficiently in high-density rack environments and add or change equipment without an electrician.
- Monitor environmental conditions at the rack level, for ultimate protection and power quality.
- Work in conjunction with Eaton's PowerChain Management solutions to provide visibility and control across the entire power chain—from the point where utility power enters your facility all the way to individual servers.



## Enclosures

Eaton enclosure solutions address the first critical step in planning an ideal data center and encompass a wide range of cabinets and racks for network, telecom and server applications.

### Features and benefits

- Highly functional and stylish, value packed and competitively priced
- Perforated doors exceed server airflow requirements
- Split rear doors minimized floor space requirements and provide ease of installation and maintenance
- Floating 19-inch rails provide more room for 0U cable management and PDU installations
- Z-server rails offer additional mounting locations for enclosure power distribution units (ePDU™) and cable management
- Internal, welded frame with repetitive hold pattern delivers high load bearing capacity and additional mounting locations
- Internal door hinges offer a high level of cabinet security
- Door stiffeners offer mounting locations for fan trays
- Tool-free accessories facilitate installation and reduce installation time and costs

# Rack-based power solutions



## Eaton BladeUPS

12–60 kW

The revolutionary Eaton BladeUPS power quality system expands power protection from 12 kW to 60 kW (N+1) in a single industry-standard 19-inch rack. Equally important, the BladeUPS provides this robust, compact solution while generating 75 percent less heat than the competitors' legacy end-of-row solutions.

### Features and benefits

- Achieves the highest power density in the marketplace with a 6U rack height per module
- Reduces operating expenses with flexible, compact configuration options
- Reduces single points-of-failure with an intelligent bypass design that eliminates human error
- Provides Powerware Hot Sync paralleling that enables scalability and reliability through a 'peer-to-peer' paralleling relationship
- Increases system availability by not requiring any external controllers for paralleling
- Features hot-swappable battery modules and electronics
- Uses off-the-shelf options, including line cord kits, X-Slot cards, EBMs, racks, sub-distribution and rack power strips
- Input configurations using industry-standard plugs, for easy deployment

### Typical applications

- Blade server support
- Small, medium and large data centers
- Network closets
- VoIP equipment
- Networking applications: IPTV, security
- Storage area networks and RAID



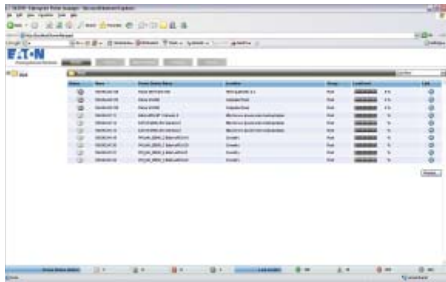
Easily remove power modules or hot-swappable batteries without disrupting power to the unit.



## Eaton BladeUPS Maintenance Bypass Cabinet (MBC)

The Eaton BladeUPS MBC saves money and space in the data center or network operations center while offering three functions in one cabinet. The MBC combines step-down transformation, power distribution (up to 84 pole positions) and maintenance bypass into a single cabinet—the perfect complement to a 60 kVA BladeUPS system.

# Rack-based power solutions



## Enterprise Power Manager (EPM)

This software provides a straightforward, cost-effective tool for managing networked ePDUs and UPSs up to 10 kVA.

- Monitor and manage multiple ePDUs and UPS systems over an IP network using a standard Web browser.
- Create custom hierarchical and visual arrangements of monitored equipment for easy navigation.
- View and report details of ePDU parameters, measurements and settings from anywhere in the network.
- Aggregate power data from a virtually unlimited number of ePDUs on an IP network.
- Protect servers and equipment with user-definable alarms, shutdown e-mail and SMS alerts.
- Supervise and manage all your mid-range UPSs and ePDUs via a single user interface.

## Rack Power Module (RPM)

The RPM provides plug-and-power primary power distribution from a three-phase UPS or utility source to secondary power distribution devices (such as power strips) or directly to IT equipment. The resulting architecture has fewer cables to manage, fewer distribution points to monitor and greater flexibility for IT personnel to install and change the power distribution architecture.



### Features and benefits

- Delivers power in a simplified and organized manner to loads of various voltages, input power cord types and output receptacles
- Supplies sufficient power (with surge protection) to support two racks of high-density IT equipment or up to nine racks at low density (~2 kVA)
- Enables installation and changes of IT equipment without the services of a licensed electrician
- Saves space with a small footprint, high power density and the flexibility to share the same rack with IT and UPS equipment
- Provides a quick visual indication of each circuit's load (as a percentage of NEC®-derated rating), reducing the risk of overloads and tripped breakers; no need to check individual power strips
- Enables easy load monitoring over the network to optimize management of the RPM as part of a unified, end-to-end power infrastructure

### Typical applications

- High-density data centers
- Telecommunications equipment centers



## Environmental Rack Monitor (ERM)

Eaton's ERM guards against environmental threats by continuously monitoring temperature and humidity at two locations in an enclosure, plus the status of up to four additional contact sensor devices (such as detectors for smoke, vibration or fire), for a total of eight sensors per monitor. In a typical rack application, the 0U base unit can be placed horizontally or vertically in unused space. The temperature/humidity sensor units can be placed anywhere in the enclosure.



### Features and benefits

- Monitors environmental conditions to protect valuable assets from heat, humidity, smoke, vibration, water leaks or intrusion
- Displays real-time and historical status of all sensors to a PC, Internet-ready wireless device or Network Management System (NMS) software
- Aggregates real-time information from up to 100 ERMs in a single Web page
- Automatically notifies designated recipients of out-of-range conditions, via e-mail, SNMP, PDA or pager
- Simplifies operations with an intuitive, Web browser interface, rich graphing of data, auto-discovery and auto-aggregation utilities and more



### Typical applications

- Data centers
- Warehouses and distribution centers
- Unmanned equipment centers
- Libraries and museums
- Laboratories and hospitals

# Rack-based power solutions

## Eaton ePDUs

The enclosure power distribution units (ePDUs) distribute power from UPSs to up to 24 or 45 receptacles in high-density rack environments—or anywhere conditioned power must be distributed to multiple pieces of equipment. These ePDUs save valuable enclosure space with flexible mounting options, including 0U, 1U, wall mounting and floor mounting.

Eaton provides a robust line of ePDU offerings that includes five different function types and power levels in excess of 23,000W.



## ePDU families by functionality

### Basic

Economical power distribution to up to 24 receptacles in a rack or wiring closet

### Metered

Distribution with power monitoring on any receptacle, branch circuit or the entire unit

### Monitored

Power distribution with secure, remote monitoring and alerts over IP networks

### Switched

Provides secure, network receptacle-level control and network monitoring; optional integrated environmental and inter-networking capabilities

### Managed

Local and remote monitoring, plus advanced Revelation technology that provides receptacle-level monitoring and remote server boot-up or electronically lock designated receptacles to prevent unauthorized use

### eATS

The enclosure automatic transfer switch (eATS) provides in-rack power distribution with redundant power sourcing for single-corded loads



## ePDU families by power rating

The plug-and-power portfolio includes nearly every combination of power rating and functionality level—plus user-selectable combinations of NEMA, IEC and hardwired inputs and NEMA and IEC output receptacles.

### Standard—Up to 4 kW, 15–30A

Supports up to six 1U/2U servers or peripherals

### Mid-range—4–10 kW, 15–40A

Supports up to 16 1U/2U servers or two blade server chassis

### High—10–15 kW, 30–60A

Supports up to 25 1U/2U servers or three blade server chassis

### Ultra-high—15 kW and up, 60A

Supports up to four blade chassis and other high-energy equipment

### Typical applications

- High-density data centers
- Telecommunications equipment centers
- Wiring closets

## ePDU cables

These three types of cables—adapters, jumpers and splitters—are a new offering from Eaton, enabling one-stop shopping for rack power distribution needs.

- Select from a broad range of input/output connectors.
- Streamline cabling in enclosures by deploying exactly the cable length needed.
- Count on assured performance with pre-tested products that meet UL and Eaton standards.

# Additional power protection products

## DC power systems

Eaton provides a range of DC power solutions that provide high-reliability and cost-effective -48V and +24V battery-backed DC power for your data network and telecommunications equipment. Eaton offers standard and custom-designed solutions for providing long-duration DC power backup for a wide range of applications including PoE devices compliant with IEEE standard 802.3af. All DC power systems are complete with pre-configured system controllers for easy system setup along with remote control and monitoring via Ethernet as standard with SNMP and secure Web access. Just contact Eaton for expert advice on your -48V and +24V DC power requirements.



## Power factor correction

Power factor correction products are the simplest and most economical means of increasing the capacity of any power system, minimizing energy losses and correcting load power factor. In addition, power factor penalties can be reduced and power quality can be greatly enhanced. By installing power factor correction products, you can reduce total kVA demand, resulting in offloading transformers, switchgear and other equipment. The reduced total kVA demand translates in lower energy bills, cooler equipment operation and longer equipment life.



## 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. For effective surge protection, the IEEE also recommends a cascaded approach, applying surge protection at the service entrance, downstream panels and point of use for critical loads. Surge protection systems are available to meet these application needs, including a full offering of data line protection.



## 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.



# Power Xpert

## Power Xpert Architecture

### Manage power as a strategic asset

Today, the IT infrastructure is viewed—and managed—as a strategic business asset. Clearly, the quality of the electrical power that flows through facilities, data centers and server rooms should be a factor when IT managers measure infrastructure performance. Yet, invisible and fleeting power disturbances can be silent killers—often going unmonitored and unnoticed.

With Eaton's Power Xpert Architecture—the backbone of our PowerChain Management solutions—you gain unprecedented visibility into the entire power system. A framework to view your entire power system, Power Xpert Architecture encompasses conditioned power in the data center as well as unconditioned power coming into the facility.

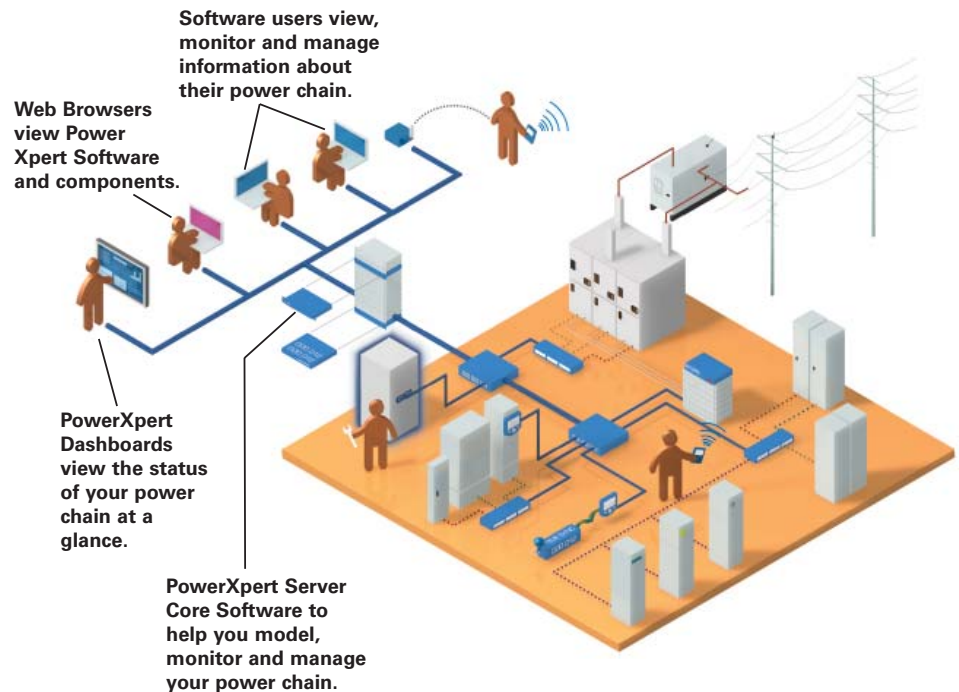
Through hardware, software and communication elements, the architecture unites diverse power components across your enterprise into a single view—old and new PDUs, batteries and other critical equipment from multiple manufacturers. So you can monitor, control and manage the power system more effectively and efficiently as you correlate events across the power system, drill into details for quick diagnosis and use tools to determine appropriate actions.

### A simple, Web-based interface helps you to:

- Understand energy usage patterns and baselines
- Reduce peak loads, identify high energy users and realize energy savings
- Find the real causes of issues, including power event “ghosts,” sags, swells and transients
- Analyze event severity according to IT standards
- See your power quality at a glance

Leverage Power Xpert Architecture to establish a unified management approach for your enterprise. The solution is based on open standards so that devices can communicate. It synchronizes equipment clocks through a network time server so you can accurately correlate events at different points in the system.

Power Xpert Architecture—it's one of Eaton's powerful innovations in facility monitoring and management. For additional information about Power Xpert Architecture and to download the product data sheets, visit [www.eaton.com/powerxpert](http://www.eaton.com/powerxpert).



# Power Xpert

## Power Xpert Software

Power Xpert Software enables you to manage the complexities of large system deployments, from one desktop, on one screen. Web-enabled hardware devices are fine in limited numbers. However, as the number of components grows or becomes more complex, Power Xpert Software is the logical choice for the trending, analysis and alarming systems that are required.

The Power Xpert Software is Web-enabled, open and time synchronized. Using only a browser, you can access the software from anywhere your network can reach, including remotely. Designed to communicate graphically with the broad range of Eaton and non-Eaton devices, Power Xpert Software uses industry standard protocols. The software is offered in the Server Core Class and the Foreseer Class.

### Server Core Class

Power Xpert Software Server Core Class (Server Core) represents the perfect balance between sophistication and ease of deployment and use. Server Core offers great value through browser-based views to Eaton and non-Eaton equipment. With the additional Layout Manager, you can customize your own Web pages to display information, as you need it.

Server Core connects via your Ethernet network to Eaton and non-Eaton devices that use the standard Modbus TCP/IP or SNMP protocol. Within a building or campus environment in a single location, the software continually monitors your key equipment. It provides trending graphs, alarming notifications and real-time information. Flexible user views allow you to display and organize information to suit individual needs.



### Foreseer Class

Power Xpert Software Foreseer Class (Foreseer Class) is the solution for a mission-critical infrastructure, providing enterprise-wide monitoring and proactive management. With a vast selection of existing device interfaces (and customizability for almost any type of communicating equipment), Foreseer Class allows you to tailor your complete monitoring solution. The distributed, scalable architecture is tailored to your organizational needs, whether it is an individual site with thousands of data inputs or a distributed global enterprise with hundreds of remote locations.

Foreseer Class' unparalleled data handling engine allows it to sample an unprecedented number of data points from thousands of devices. The proactive data gathering algorithm means data is continuously collected 24 hours a day, 365 days a year. Unlike other systems where only certain data is stored, or noticed only after an event occurs, the aggressive monitoring engine gathers all data for dependable trend analysis and performance reporting. The data is also archived safely offsite for fast and seamless retrieval.



# Power Xpert

## Power Xpert 4000/6000/8000 meters

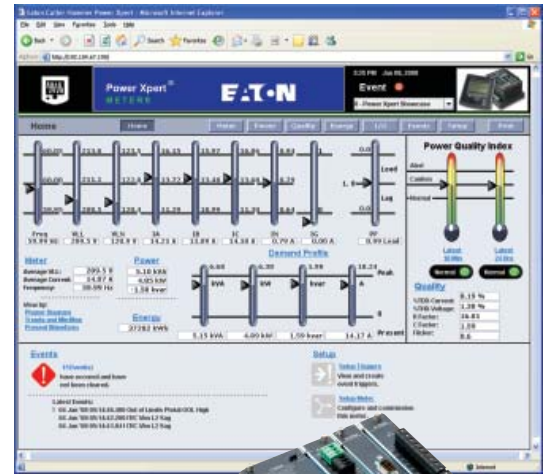
Eaton's Power Xpert 4000/6000/8000 meters represent a new genre of power quality instruments and world-class power monitoring that reduces day-to-day operating costs and helps avoid costly business interruptions. The meters combine state-of-the-art technology with next generation power diagnostics, data trending and performance benchmarking, along with a twist-n-click LCD for simplicity and ease of use.

### Features and benefits

- Comprehensive power and power quality measurements for 138 standard data points logged
- Embedded Web server—see and analyze waveforms, trends and harmonics directly in your Web browser/meter display
- High speed 6 MHz impulsive transient detection and waveform capture
- Up to 1 millisecond time synchronization and event logging capability
- Open protocol support: HTTP, Modbus TCP, Modbus RTU, SNMP, NTP, FTP and COMTRADE

### Identify power quality problems

- Identify harmonics, sags, swells and transients
- Maximize IT equipment's service life
- Analyze sequence of events up to 1 millisecond time resolution
- Protect motors from damage
- Preserve the integrity of processes and batches
- Prevent blown capacitor bank fuses
- Protect transformers and conductors from overheating



## Power Xpert Gateway series cards

The Power Xpert Gateway series cards provide Web-enabled, real-time monitoring of UPSs, PDUs and RPPs through standard onboard Web pages, Power Xpert Software or third-party software. As an integral part of the Power Xpert Architecture, the cards provide a central point to connect UPSs, PDUs and RPPs to an Ethernet network via an X-Slot communication bay.

### Features and benefits

- View data from any location via Web-enabled monitoring of power quality data
- Generate accurate logs for power quality analysis via time-stamped data and event logging
- Integrate with standard BMSs and NMSs via the card's open communication protocols
- Allow for quick corrective action with customized e-mail messaging for events notification, including data and event logs
- Access improved overall facility monitoring via seamless integration of equipment into Power Xpert Software
- Supports Eaton Energy Management System (EMS) for power distribution products, including remote configuration and editing capability



# Connectivity products

## Solutions for the changing global customer landscape

Eaton's connectivity products are accessory hardware options that link UPS products with external communication devices. Eaton's connectivity products help ensure communication compatibility with a variety of external devices through the Web, serial, relays or SNMP.

### ConnectUPS family of networking products

The ConnectUPS family of products seamlessly integrates UPS information to the Ethernet network and the Internet. This unique solution allows you to conveniently monitor and manage your UPS with a standard Web browser, while simultaneously providing graceful shutdown for multiple computer systems over the network.



### Environmental monitoring probe

The environmental monitoring probe enables you to remotely monitor environmental conditions. Using a standard Web browser, you can view the ambient temperature (between -20°C and 80°C) and relative humidity (between 10 and 90 percent) of the remote environment, as well as the status of two additional contact devices, such as a smoke detector or open-door sensor.



### Relay interface cards

The relay interface cards are dedicated adapters that provide the essential dry-contact interface between your UPS and any relay-connected computer, including the AS/400, as well as a variety of industrial applications. The card is available in two models: the X-Slot version and BestDock version.



### Modbus card

The Modbus card provides continuous, reliable and accurate remote monitoring of a UPS system through a BMS or industrial automation system (IAS). The card integrates data from the UPS into the user-provided management system using the Modbus RTU protocol.



# Software products

Eaton's software products deliver the ability to manage all your power products over your network or the Web, from one or more PCs.

## Eaton Software Suite

Arriving bundled with every UPS, the Software Suite CD incorporates user-friendly features including our Software Wizard to guide you through software selection and installation. The Software Suite includes LanSafe power management software and a 30-day trial version of PowerVision® software.



## PowerVision software

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 comes in two different packages, each one tailored for its own unique application:



- **Network Edition** provides remote monitoring and computer operating system shutdown for multiple single-phase UPSs and small to mid-range three-phase UPSs, from Eaton and others using industry-standard SNMP communications and integration with popular network management systems
- **Facility Edition** provides one-line detailed UPS information, monitors system status of other elements in the critical power distribution system such as generators, static switches, PDUs and air conditioners through alarm contacts and supports in-depth reporting, analysis and graphics
- **Enterprise Manager** serves a unique role as an optional enhancement to either edition providing an enterprise-wide view that spans multiple PowerVision systems across your organization

## Eaton LanSafe software

LanSafe software delivers comprehensive support including graceful, remote shutdown of UPSs and network monitoring tools via serial, USB and network connectivity options.



### Features and benefits

- Helps you determine how much money is saved from prevented downtime with a cost savings calculator
- Runs in the background without visual traces using our exclusive Stealth Mode Operation
- Eliminates the guesswork from UPS metering and status information with 3-D PowerScope and ControlRoom views
- Compiles UPS events and provides around-the-clock visual representation of the system event log in a calendar format

## NetWatch software

The NetWatch client software acts as a network-monitoring tool through a ConnectUPS card. During an extended power outage, the ConnectUPS card informs all registered NetWatch clients that it is time to shut down their respective operating systems. Up to 255 NetWatch clients can be registered to and controlled by a ConnectUPS card.

# Service and support solutions

Eaton's comprehensive, world-class service solutions for all Eaton AC, DC, software and connectivity products are designed to improve costs, uptime, reliability, power quality and safety. We demonstrate our commitment to strong, lasting customer relationships through our technical expertise and expansive support network. With 240 customer service engineers (CSEs) in North America, 1,200 international authorized service providers and over 100 dedicated customer support team members, we have more service personnel than any other UPS manufacturer.

## Count on our proven performance

Our customers consistently rank our services number one in quality. In fact, they've rated our quality of service (QOS) at 95 percent or higher since 1999 (based on returned surveys from clients who used services). Over 97 percent of Eaton service contract customers (Eaton large systems) renew their service contracts each year.

From assisting you with determining your power quality needs to sales support, order management, choosing a servicing plan and installation, we'll stand by you every step of the way.

To back our service excellence after your UPS is up and running, Eaton invests hundreds of thousands of dollars each year in its CSEs—requiring each new CSE to complete 24 weeks of training before becoming certified and being placed in the field. To minimize MTTR, Eaton provides the latest technologies in scheduling, call management, parts optimization and remote diagnostics.



**Proper preventive maintenance reduces the risk of UPS failure through thorough inspection, cleaning, testing and calibrating the various electronic and mechanical components of a UPS.**

## Enhance reliability and performance with multiple service plan options

At Eaton, we deliver service 24 hours a day, 7 days a week when and where you need it. Our services include onsite startup, corrective and preventive maintenance, battery solutions, training, remote monitoring and factory spare parts and upgrades. In addition to our UPS services, we offer extensive engineering, product management and integrated power systems solutions to deliver reliability, improved operations, cost savings and asset optimization for your facility and your business.

Eaton offers an extensive range of service options for single-phase, three-phase and DC power, software and multi-vendor products. Let us help you select an onsite or depot repair service plan that is right for you.

### Single-phase UPS services

- Choose from a full range of options that includes service plans for both UPSs and batteries.
- Enhance and extend your standard warranty with a service plan that provides up to five years of bumper-to-bumper services, ranging from basic overnight replacement to comprehensive onsite system coverage—including preventive maintenance.

### Three-phase UPS services

- Find the service plan that provides the system uptime, convenience and value that's best for you.
- Leverage onsite services to meet your specific site or application needs for UPSs, batteries and related equipment.

### DC power, software and multi-vendor services

- Select from a variety of service plans to support all your DC power systems, power system software and related products.

Establish a single contract to cover all of your AC and DC power system maintenance needs, regardless of manufacturer—and enjoy a convenient, single point of contact with our 7x24 Customer Support Center.

*"Eaton has taken care of us through the years and continues to take care of us."*

– Steve Hurst, Project Leader, Southwest Airlines

*"Of all the companies that I deal with, this is one of the best organizations I have ever come across. I feel like a part of the family, and I've never felt anything like that from another company."*

– Ed Ferguson, Assistant Treasurer, New York Branch, SEB Group

*"I'm perhaps old school, but to me, service has become a lost art over the years. I find Robert to be that rare individual who, in addition to being technically competent, projects the old style of service that makes customers feel like they are important."*

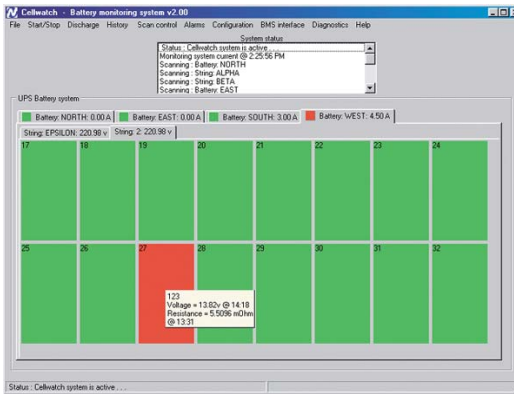
– James McDonald, MIS Systems Manager, Indiana Packers Corporation

# Service and support solutions

## Cellwatch software

Cellwatch software continuously monitors the three-phase UPS battery system, including string and cell level voltage, internal resistance, current and temperature throughout the charge, discharge and float periods. It also provides immediate warnings of deterioration and imminent failure of batteries and identifies any individual battery that exhibits problems—providing a proactive approach to ensuring UPS reliability.

Cellwatch software includes one-year corrective maintenance coverage on parts and labor and a 24-hour hotline for technical support. An optional comprehensive service plan is also available.



## eNotify Remote Monitoring

Imagine the security of having trained service technicians standing by around-the-clock to attend to the needs of your UPS. With eNotify analysis software, processors and firmware inside the UPS collect performance data and send status messages to Eaton's Remote Monitoring Command Center, where analysts are on duty 24 hours a day, 7 days a week. eNotify evaluates the health of your UPS by comparing current and historical performance data with specified parameters. The analyzed data is then used to make accurate performance reports of UPS status.

Daily heartbeat data reveals the status of batteries and Eaton sends reports to customers through the Internet using a firewall. The comprehensive Customer Monitoring Report provides a summary of the top 10 performance and environmental parameters, battery events, availability percentage and comparative status against recommended applications—so you can always know the current status of your UPS and its batteries.

If performance data matches pre-programmed alarm conditions or if the analysis software detects an anomaly, an alarm is triggered. Because they continually monitor your UPS, Eaton's Remote Monitoring Command Center can contact you immediately if there is an emergency. Depending on your service plan, coordinators may dispatch technicians with the appropriate skills—and the appropriate parts—to make repairs or replacements.



With eNotify Remote Monitoring, Eaton's Remote Monitoring Command Center is available 7x24 to monitor the health of your UPS.

## Contact our dedicated team

Whether you have multiple sites or multiple vendors, Eaton is your total solutions provider. We deliver unsurpassed expertise through our services solutions and stand behind every product with 7x24 support to ensure reliable power for the most demanding applications. Contact our Crisis Response team day or night, 365 days a year, to speak directly with our most experienced service consultants and technical support experts.

### Customer Support Center

For three-phase UPS and battery services, DC services and software services: 1.800.843.9433.

For single-phase UPSs and technical support: 1.800.356.5737.

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Raleigh, NC 27615 U.S.A.  
Toll Free: 1.800.356.5794  
or 919.872.3020

[www.eaton.com/powerquality](http://www.eaton.com/powerquality)

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Ontario: 416.798.0112  
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LATIN AMERICA  
Argentina: 54.11.4124.4000  
Brazil: 55.11.3616.8500  
México: 52.55.9000.5252

EUROPE/MIDDLE EAST/AFRICA  
Denmark: 45.3686.7910  
Finland: 358.94.52.661  
France: 33.1.6012.7400  
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China: 86.21.6361.5599  
HK/Korea/Taiwan: 852.2745.6682  
India: 91.11.2649.9414 to 18  
Singapore/SEA: 65.6825.1668

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