Eaton helps the
Mt. Washington Observatory
power through the
world's worst weather.

Product and Service Solutions Catalog

For network closets, server rooms and data center applications

March 2015

EAT·N

Powering Business Worldwide

Switch**O**N to Eaton.

Eaton overview

Eaton is a power management company and provides energy-efficient solutions that help customers effectively manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. We are energized by the challenge of powering a world that demands more.

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 through its lifecycle. Eaton's electrical business is a global leader with expertise in many areas:

- power distribution and circuit protection
- backup power protection
- control and automation
- lighting and security
- structural solutions and wiring devices
- solutions for harsh and hazardous environments
- engineering services

With more than 100 years of experience in electrical power management, Eaton is positioned through its global solutions to answer today's most critical electrical power management challenges. From groundbreaking products to turnkey design and engineering services, critical industries around the globe count on Eaton. And, combined with our personal service, support and bold thinking, we are answering tomorrow's needs today.

Our story

Over the years, our innovative portfolio has grown, including solutions from Best Power, B-Line, MGE Office Protection Systems, Phoenixtec, Powerware, Santak and Wright Line. Our products and solutions serve the needs of institutional, government, utility, commercial, residential, IT and data center markets worldwide.

Our portfolio

Eaton's power quality portfolio of products for network closet, server room, data center and multi-tenant data center applications is comprehensive and offers power management solutions from a single-source provider. This includes UPSs, surge protective devices, power distribution units (PDUs), remote monitoring, meters, software, connectivity, enclosures, airflow and cable management, lighting and professional services. Our portfolio is designed to fulfill specific customer requirements, complement new or pre-existing environments and deliver comprehensive solutions.

Eaton.com/powerquality

Our customers

Eaton has been safeguarding the critical systems of businesses across the globe from desktop and small network closets to the largest data centers. Eaton solutions provide clean, continuous power to keep business operations flowing. We work with IT and facilities managers to effectively manage power in virtually every business segment, including data centers, retail outlets, healthcare organizations, governmental agencies, manufacturing firms, financial institutions and a wide variety of other applications.

Eaton.com/pqsuccess

Eaton overview

UPS Selector

Selecting the correct power protection solution is critical to ensuring the flexibility and scalability needed for data center growth. That's why Eaton is focused on providing the most reliable power quality solutions for enterprise and business IT systems, from network closets to large data centers.

Use our UPS selector tool by visiting **Eaton.com/UPSselector** to choose the correct UPS for your application.

TAA-compliant UPSs

Eaton is proud to offer TAA-compliant products to our customers. These *Assembled in the U.S.A.* UPSs are designed to be used in a wide range of public sector applications, allowing us to better serve the government's needs.

Please visit **Eaton.com/taaups** to learn more about these products.

The Eaton Blackout Tracker

Every day in the US and Canada thousands of people experience an interruption to their electrical service in homes, businesses and public sector organizations. Eaton's interactive Blackout Tracker provides a snapshot of the causes and impact of these outages.
Eaton.com/blackouttracker

Strengthen your connections with resources

Be on top of the latest IT industry issues and technologies with Eaton's library of thought leadership articles and white papers.

Eaton.com/pq/whitepapers

Eaton is proud to be an ENERGY STAR® partner. A joint program established by the U.S. Environmental Protection Agency and the U.S. Department of Energy, ENERGY STAR is intended to help consumers save money and protect the environment through energy efficient products and practices.

Eaton power management solutions

Network closet

NC

Network closets are a critical link for IT networks and infrastructure. Whether a single network closet is your entire IT setup or you have thousands of them scattered across the globe, Eaton has a variety of products and services to help keep your IT systems running efficiently.

Eaton products to support your network closet

Organization

1. Two-post rack
2. Rack shelf
3. Cable managers (vertical and horizontal)
4. Overhead cable tray
5. Basic rackmount PDU
6. Automatic transfer switch

Protection

7. Rackmount UPS
8. Extended battery module
9. Maintenance bypass module

Management

10. Environmental rack monitor and probe
11. Water sensor
12. Power management software

Server room

SR

Server rooms continually change to serve shifting business priorities, applications and advancing computing technologies. When space is a premium, Eaton's compact UPS solutions minimize footprint—whether they're installed in the rack, at the end of a row or against the wall. Our rackmount solutions also provide more power per rack unit.

Eaton products to support your server room

Organization

1. Enclosure
2. Open frame rack
3. Cable managers (vertical and horizontal)
4. Overhead cable tray

Protection

5. Rack power module
6. Maintenance bypass module
7. Rackmount UPS

Management

8. Intelligent rackmount PDU
9. Environmental rack monitor and probe
10. Power management software
11. Water sensor

Eaton power management solutions

Your data center is the backbone of your business, and Eaton has efficient, innovative, scalable, mission-critical solutions to meet your specific needs. We provide reliable distribution equipment, network power systems and UPSs to ensure a steady flow of high-quality power—because an outage of just a few seconds can mean catastrophe in a data center.

Eaton products to support your data center

Organization

1. Enclosure
2. Cable managers (vertical and horizontal)
3. Overhead cable tray

Protection

4. End-of-row/in-row UPS
5. Battery cabinet
6. Distribution cabinet
7. Busway
8. Airflow chimney
9. Automatic transfer switch

Management

10. Intelligent Rackmount PDU
11. Enterprise management software
12. Environmental rack monitor and probe
13. Water sensor
14. Smoke detector
15. UPS service and support

Look for these symbols at the top, right corner of each page to help determine which products will provide the best solution for your needs. Note: PoS stands for point of sale.

PoS NC SR DC

UPS overview

Selecting the right UPS

Eaton's power management solutions protect against the nine most common power problems present in any environment——all of which can be harmful to your data and hardware. Our unique approach makes your product selection decisions about power protection much simpler.

Eaton offers 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
Standby or offline

Power Failure	Power Sag	Power Surge

Basic solution: Protection from three potential problems

The Series 3 UPS primarily protects against three of the nine power problems: power failures, power sags and power surges. This essential, cost-effective protection is necessary to prevent damage such as data loss, file corruption, flickering lights, hardware issues and equipment shutoff. For example, if the utility fails, you could lose all 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
Line-interactive

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

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. They also 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 errors, keyboard lockup, storage loss and system lockup. Series 5 UPSs are recommended for everything from small network systems to enterprise networking environments.
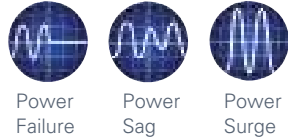
Series 9
True online, double conversion

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

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.

3 series, 5S, 5SC

Powerware series

Power Failure | Power Sag | Power Surge

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

Eaton 3S

350–750 VA

Delivers high efficiency and energy-saving battery backup and surge protection for your premium home and office equipment—ready to go right out of the box

Typical applications:

- Premium small office/home office computers and accessories
- VoIP equipment
- Home entertainment devices

CUSTOMER TESTIMONIAL

"I'm really glad to have found Eaton, and to have found a company that's willing to give me a warranty like that."

- Arland Head, director of information technology, LeBlanc's Food Stores, referring to the Eaton 3S UPS

Eaton 5S

550 – 1500 VA

Energy-efficient UPS with user friendly LCD screen and convenient form factor delivering surge protection and battery backup

Typical applications:

- Premium small office/home office computers and accessories
- Home entertainment devices
- VoIP equipment

Eaton 5SC

500 – 1500 VA

Energy-efficient UPS with user friendly LCD screen, USB port for automatic HID identification on Windows®, Mac® and Linux®, best price to performance ratio in its class and a small footprint for easy integration within small spaces

Typical applications:

- Small business servers
- Network-attached storage (NAS)
- Network equipment
- ATMs
- Ticket machines and kiosks

Product details: PC, workstation and home A/V UPS

Features	3S 350–750 VA	5S 550–1500 VA	5SC 500–1500 VA
Form factor	Standalone or wall-mount	Tower	Tower
Start-on-battery	•	•	
Audible alarms	•	•	•
Serial or USB port	USB	USB	USB
Eaton UPS Companion software	•	•	•
Data line surge protection	•	•	•
Three-year warranty (with registration)	•	•	•
Extended warranty (optional)	•	•	•
Plug and play feature	•	•	
EcoControl for energy efficiency (750 VA only)	•	•	
Sinewave output on battery			•
Icon-based LCD		•	•
ABM technology (50% longer battery service life)			•

5P, 5PX

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

Eaton 5P

1500–3000VA

Delivers reliable enterprise class backup power with an efficiency rating of up to 99 percent

Typical applications:

- Servers
- Voice/data networks
- Storage systems
- Cisco switches and servers

Eaton 5PX

1000–3000 VA

Provides an integrated power management solution for any IT environment with extended runtime capabilities, 99 percent efficiency and two managed outlet segments

Typical applications:

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

CUSTOMER TESTIMONIAL

"The 5PX was exactly the solution we needed for our current location and size. It was affordable, easy to self-install and it can grow and move with us."

- Marty Sellers, director of IT & facilities, Synapse Wireless

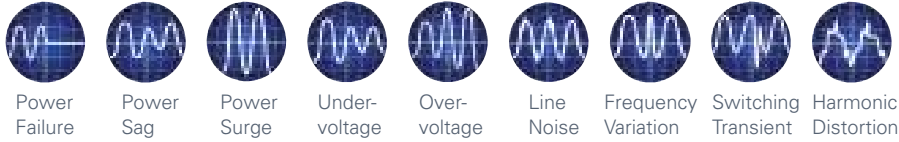**Product details: series 5, network and server tower UPS**

Features	5PX 1000–3000 VA	5P 550–3000 VA	5PRM 550–3000 VA
Form factor	Tower, 2U rackmount or 3U rackmount	Tower	2U rackmount
Sine wave output	●	●	●
Intuitive LCD interface	●	●	●
ABM technology (50% longer battery life)	●	●	●
Load segment control	●		
Hot-swappable batteries	●	●	●
Start-on-battery	●	●	●
Audible alarms	●	●	●
Serial or USB port	Both	Both	
Intelligent Power Software Suite*	●	●	●
Network cards available	Mini-Slot	Mini-Slot	
Data line surge protection	●	●	●
Remote emergency power-off (REPO)	●	●	●
Power distribution unit (optional)	●	●	●
Extended battery modules (optional)	●		
TAA-compliant models	●	●	●
Three-year warranty (with registration)	●	●	●
Extended warranty (optional)	●	●	●

* Intelligent Power Protector also works with these units and provides many of the same monitoring and management capabilities of Intelligent Power Manager.

9130, EX, 9PX, 9PXSP

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

Eaton 9130

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
- 911 call centers
- Remote IC locations
- Central IM location
- Mid-range telephone systems
- IP-based security systems
- VoIP equipment
- Lab equipment

Eaton EX

700–3000 VA

Modular, online UPS with automatic bypass for fault-tolerance

Typical applications:

- Servers, data storage and network equipment
- Medical equipment
- VoIP equipment
- Industrial processes

Eaton 9PX

5–11 kVA

Latest UPS innovation from Eaton features a graphical user interface and is bundled with a network card for easy management

Typical applications:

- Servers
- Voice/data networks
- Storage systems
- Cisco switches and servers

Eaton 9PXSP

5-11 kVA

Split-phase models offer both 120V and 208V output without a transformer, saving vertical rack (U) space, weight and cost

Typical applications:

- Servers
- Voice/data networks
- Storage systems
- Cisco switches and servers

ENERGY STAR

9155, 9170+

Eaton 9155

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 power ratings

Typical applications:

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

Eaton 9170+

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

CUSTOMER TESTIMONIAL

"It's (9155 UPS) done everything we wanted—and more. It was a good match for our operations and a really good value."

- Shay Santos, assistant vice president, finance/IT Dane County Credit Union

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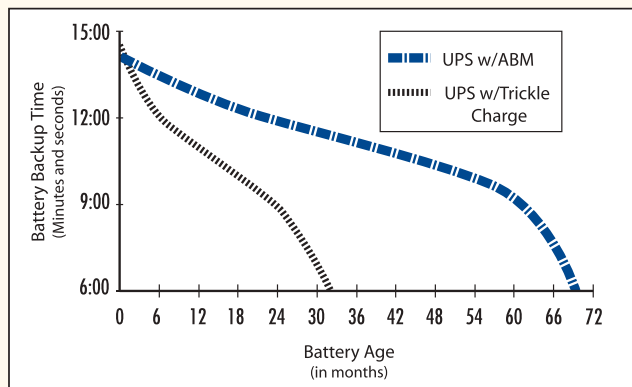**Product details: series 9, network and server room UPS**

Features	9130 700–3000 VA	9PX 5–11 kVA	9155 8–15 kVA	9170+ 3–18 kVA	EX
Form factor	Tower	Rack/tower	Tower	Tower	Tower
Sine wave output	●	●	●	●	●
ABM technology (50% longer battery life)	●	●	●	●	●
Intuitive LCD interface	●	●	●	●	
Hot-swappable batteries	●	●		●	●
Extended battery module (optional)[1]	●		●	●	●
Load segment control	●	●			
Data line surge protection	●	●			
Serial or USB port	Serial & USB	Serial & USB	Serial	Serial	Serial & USB
Start-on-battery	●	●	●		
Audible alarms	●	●	●	●	●
Intelligent Power Software Suite	●	●	●	●	●
Communication bay	Mini-Slot	Mini-Slot		Mini-Slot	Mini-Slot
Remote emergency power-off (REPO)	●	●	●	●	●
Power distribution module (optional)[2]	●	●	●		●
External maintenance bypass (optional)	●	●	●	●	●
TAA-compliant			●	●	
High-efficiency mode	●	●	●	●	●
Extended warranty (optional)	●	●	●	●	

1. Extended battery module not available for the 9130 700 VA Tower UPS.
2. Includes bypass switch; available with and without bypass switch on the 9155.

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

Most UPS manufacturers offer constant trickle-charge on their batteries, which degrades them and reduces their 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 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 runtime—increase your backup time

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

Load segments—extend battery time when necessary

Using our protection 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, extending available battery time to critical equipment.

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

Eaton single-phase UPS onsite service plans (US)

Features:

- 24x7 onsite coverage (anytime hours)

- Covers all parts and labor for both electronics and batteries

- Available as 8-hour or next day response

- Easy-to-order 2-year warranty upgrade or extension for up to 5 years of coverage

Warranty Upgrade

- 2-year length

- 24x7, 8-hour or next-day response

Flex Plan Post Warranty

- 1- or 3-year length (up to 5 years total)

- 24x7, 8-hour or next-day response

Details:

- Eaton single-phase UPS factory warranty is 2 years from date of purchase[1]
- Eaton's 2-year warranty upgrade adds onsite coverage to standard factory warranty
- Eaton offers 1-and 3-year FLEX service plans for post-warranty coverage
- Purchase warranty upgrades concurrently with product purchase along with FLEX plans for up to 5 years of onsite coverage
- Purchase external battery coverage to complement UPS coverage

[1]See Eaton limited warranty for specific details: 3 and 5 Series UPS models offer a 3-year warranty with online registration

Power management software

Intelligent Power Software Suite

Eaton's Intelligent Power Software Suite incorporates two important applications for ensuring quality power and uptime: remote monitoring and management of power devices across the network and automatic, graceful shutdown when faced with an extended power outage.

Intelligent Power Protector protection software provides graceful, automatic shutdown of network devices during a prolonged power disruption, preventing data loss and saving work-in-progress.

Intelligent Power Manager (IPM) supervisory software lets you monitor and manage multiple power and environmental devices across the network from a single interface, giving you up-to-the-minute information on the status of power in your network. It also integrates seamlessly into the major virtual platforms, including VMware®, Citrix®, Microsoft® and Red Hat®.

Benefits for virtual environments

Intelligent Power Manager's integration with virtual platforms enables data center managers to extend the runtime of their virtual network. They can also:

- View critical power information on devices including UPSs, ePDUs and environmental sensors from their current dashboard
- Instantly access critical information, such as UPS battery condition, load levels and battery runtime
- Initiate load shedding during an extended power outage to maximize run time of critical equipment
- Trigger live migration to transparently move virtual machines to an available server on the network
- Monitor power usage and kWh to help you calculate your power usage effectiveness (PUE) and identify where to cut costs
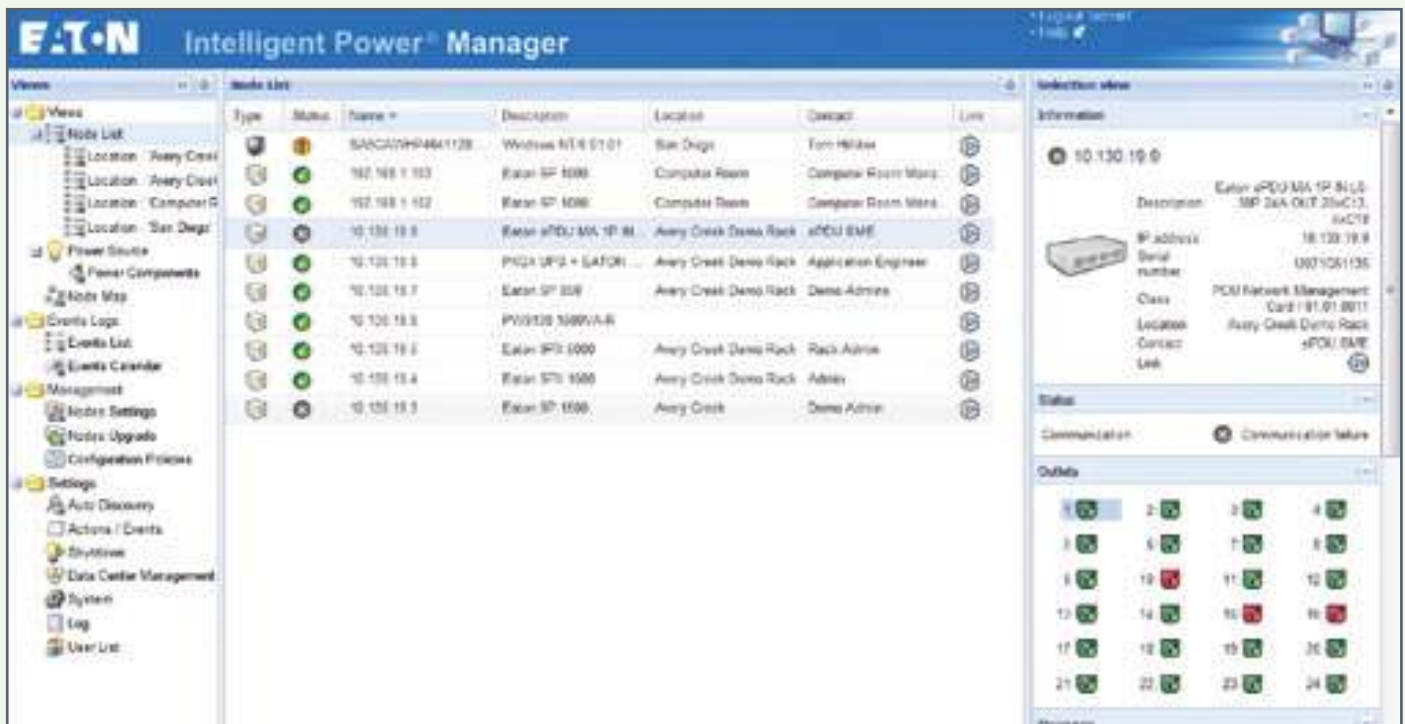
**Eaton.com/intelligentpower
Eaton.com/virtualization**

Eaton's IPM integrates seamlessly into VMware's vCenter dashboard.

Power management software

PoS NC SR DC

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, but as the number of components grows or becomes more complex, Power Xpert Software is the logical choice for the required trending, analysis and alarming systems.

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 available in two editions: Professional and Enterprise.

Power Xpert Software Professional Edition

- Geared toward end users, with built-in support for Eaton power distribution products such as switchgear, UPSs, breakers, PDUs, RPPs, meters, relays, VFDs and MCCs, among others

- Eaton products connect with the software directly via an Ethernet connection, while legacy devices use a Power Xpert Gateway to web-enable their communications

- A subset of third-party meters and devices are supported as standard via the gateway connection

Power Xpert Software Enterprise Edition

- Geared toward advanced power users, system integrators and enterprises with a heterogeneous device spectrum and system developers who can take advantage of the included SNMP and Modbus integration development utilities

- Extensive support for third-party devices via standard SNMP and Modbus TCP protocols

- Large variety of ready-made third-party drop-in drivers

Power Xpert reporting

Standard reports include Energy Summary Report, Energy Cost Allocation Report, Power Quality Report, Branch Circuit Report, Capacity Summary Report, Event Summary Report, Joint Commission (JCAHO) Report, Data Center Efficiency Report, Greenhouse Gas Report, Utilities Report, Baseline Comparison Report, Dashboard Report, Custom Report.

- Helps qualify for LEED credits

- Reporting hierarchies organize device data

- Microsoft Excel integration for further analysis

- Web browser access

- Connect to multiple databases simultaneously

- Custom report development with user selectable or virtual attributes utilizing complex formulas to display custom data.

Foreseer Services

Foreseer Services provide vendor independent, power and energy infrastructure integration solutions that help companies reduce energy consumption and unplanned downtime due to the failure of critical power, environmental, safety or security systems.

- Turns data into distributed, scalable architecture that is tailored to meet organizational needs

- Offered in three main categories: Foreseer Software Services, Foreseer Project Management Services and Foreseer Engineering Services

- High performance trend analysis and forecasting tools assess equipment performance through cause analysis, impact analysis, capacity planning, preventive maintenance assessments and trending

- Extensive, multi-vendor, device-driven library interfaces monitor a multitude of different device types

- Customizable, graphic user interface (GUI) depicts any company or organizational topology in the initial design

- Web browser access and remote notification enables easy system access without the need for additional client seat licenses

Power management connectivity

Solutions for the changing global customer landscape

Eaton's connectivity products are accessory hardware options that link UPS products with external communication devices. These 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.

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.

Modbus card

The Modbus card provides continuous, reliable and accurate remote monitoring of a UPS 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.

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 -20ºC and 80ºC) 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.

Network Card-MS

5PX UPS rear view with Network Card-MS

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 low profile, freestanding base unit can be placed horizontally or vertically in unused space. The temperature/humidity sensor units can be placed anywhere in the enclosure.

- 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 email, SNMP, PDA or pager
- Simplifies operations with an intuitive, web browser interface, rich graphing of data, auto-discovery and auto-aggregation utilities, and more
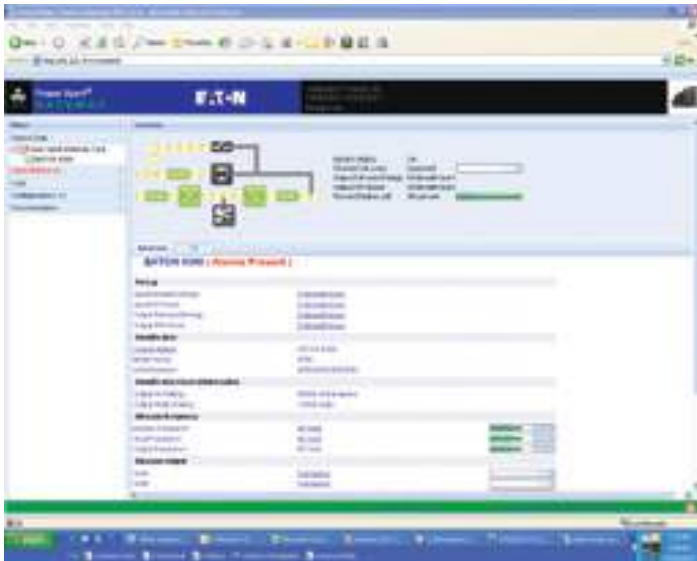
Environmental Monitoring Probe and Environmental Rack Monitor mounted on top of Eaton UPS

Power management connectivity

Power Xpert UPS card

The Power Xpert UPS card allows you to connect your Eaton Series 9 UPS directly to your Ethernet network and the Internet. With its built-in web server, the Power Xpert Gateway UPS card provides UPS information remotely, without additional software.

- Remotely monitors critical data such as: actual UPS energy usage, THD, multiple UPS modules with one card, load segment status, percent of full load, output power, battery status, alarm status
- Enables you to configure the shutdown agent, set up UPS shutdown schedules and test and control the UPS remotely
- Automatically maintains data, interval and event logs with time stamp for power and energy parameter analysis
- Integrates your UPS into existing building management or network management systems including Power Xpert Software (monitoring software)
- Expands your UPS' LCD to a fully-graphical, web-enabled, remote monitoring system

Power Xpert Gateway UPS card homepage

Power Xpert PDP card

The Power Xpert PDP card allows you to connect your Eaton power distribution products directly to your Ethernet network and the Internet.

With its built-in web server, the Power Xpert Gateway PDP card provides power distribution products' (PDP) information remotely, without additional software.

- Remotely monitor and record energy usage data to reveal opportunities and verify results of efficiency improvements
- Configure the Energy Management System through graphical, easy-to navigate screens rather than fumbling through a small LCD
- Web-enabled monitoring of power quality data down to the branch circuit level allows for safely tagging and monitoring individual circuit information
- Automatically maintains data, interval and event logs with time stamp for power and energy analysis
- Ability to integrate your PDP into existing building management or network management systems including Power Xpert Software monitoring software
- Expands your PDP's LCD to a fully-graphical, web-enabled, remote monitoring system

Power Xpert Gateway PDP card—panel view

Rackmount power distribution
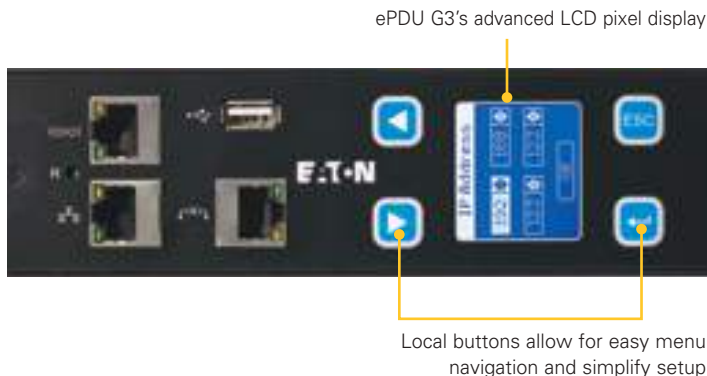
Eaton ePDU

Eaton offers the largest selection of rackmount power distribution units available on the market, called Eaton ePDUs. This complete suite of power distribution products is designed specifically for data centers and IT environments and provides manageability, control and power consumption monitoring at the outlet level. For more information, please visit **Eaton.com/epdu**.
(See our rack solutions on pages 33-34)

These ePDUs are Cisco EnergyWise certified

Eaton's Advanced Monitored and Managed ePDUs

Eaton offers two leading technologies for power distribution management at the rack enclosure level, Advanced Monitored (AM) and Managed (MA) technologies. Both technologies offer outlet-level monitoring of power usage in kilowatt hours. They monitor critical factors such as voltage, current and power factor in high accuracy. This level of monitoring provides the granularity to understand your energy consumption. Specifically, it can reveal where extra capacity resides and allows you to assign power usage by customer, for example, an external customer within a colocation situation.

Each color-coded outlet section matches a corresponding circuit breaker in the new ePDU G3 models. This coding allows you to easily identify which circuit breaker feeds which outlets, and prevents unbalanced loading that could trip a breaker.

ePDU G3 Metered Input EMI301-10 shown

Daisy-chain capability allows up to four ePDUs to share the same network connection and IP address reducing network infrastructure cost by 75%

ePDU G3's advanced LCD pixel display

Local buttons allow for easy menu navigation and simplify setup

For more information about Eaton's newest ePDU platform, visit
Eaton.com/ePDUG3

Hot-swap meter is able to be replaced without powering down the rack
(ePDU G3)

Rackmount power distribution

Understanding ePDU technologies

Eaton's ePDU technologies satisfy the demand of every data center. Eaton ePDUs offer single and dual chassis, five technology options, the broadest power range in the market and the ability to manufacture custom ePDUs. They also offer an arrangement of outlets (number and type) for every region.

ePDU technologies

Feature	Basic (BA)	Monitored Network (MI)	Advanced Monitored (AM)	Switched (SW)	Managed (MA)	Automatic Transfer (AT)
Rugged construction	•	•	•	•	•	•
Horizontal products	•	•		•		•
Vertical products	•	•	•	•	•	
Local current display		•	•	•	•	
Current monitoring type		Section	Outlet	Section	Outlet	
Voltage monitoring				•	•	
Serial interface				•	•	
Ethernet interface		•	•	•	•	
Environmental sensors		•	•	•	•	

Available on some models

ePDU software options

Eaton offers a number of software management tools for you based on the number of ePDUs you need to manage.

Software	Rack quantity best supported	Type of software	Application	Cost
Web browser / email	1-25	Included requires web browser	Data closet small network stand alone	Included
SNMP	1-1000	Integrates to third party software	Small to large enterprise	Low-high
IPM	1-200	Eaton software free to try	Small to medium enterprise	Low-medium
Power Xpert®	100-1000	Eaton enterprise solution	Facility or large enterprise	High

Industrial ePDUs

Frequently used in test and measurement applications, Eaton offers a variety of industrial ePDU options, many which are designed to be controlled with remote emergency power off. In addition, Eaton offers a full range of products with this feature from basic North American models to three-phase international units. Use your own switches or simply plug our Remote Control Panel (RCP) into an ePDU.

Rackmount power distribution

Rack Power Module (RPM)

The RPM provides plug-and-play 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.

- Distributes up to 36 kW of power from a panelboard or UPS with greater flexibility

- Enables modifications and changes to rack level power distribution to be made without hiring a licensed electrician

The RPM offers 15 different receptacle plate options to meet specific applications.

Pow-R-Flex busway

Eaton's Pow-R-Flex™ low ampere busway provides flexibility, modularity, safety and reliability. It meets all NEMA, UL, CSA and ISO requirements and provides flexible neutral ground options as well as multiple short-circuit withstand ratings that ensure coordination with any electrical system. In addition, Pow-R-Flex offers an extensive range of fittings to meet every application need.

- Pow-R-Bridge joint assembly and torque indicating bolt provide a durable, flexible, secure and easy-to-install connection

- Non-magnetic, all-aluminum housing provides for excellent heat dissipation and a significant reduction in reactance and magnetic flux leakage

- Totally enclosed conductors increase safety by preventing any incidental contact with live conductors

- Extruded housing channels provide simple and secure support and accessory connections

- Silver-plated contact surfaces provide high quality connections

- Unique hinge-housing design locks in one side of the cover, reducing fasteners and offering clean lines

Multiple plug-in unit configurations are available to connect power to server cabinet loads with capacity to meet high power demands.

Feature focus

Eaton sets the standard for your IT environment. The new Eaton ePDU G3 Platform: Setting the standard for rack power distribution.

- IEC outlet grip plug retention
- ± billing grade accuracy
- Color-coded outlet sections
- Advanced LCD pixel display
- Hot-swap meter

- Low-profile form factor
- High operating temperature
- Daisy chain of IP addresses
- Ease of installation

The new ePDU G3 incorporates best-in-class features for rack power distribution currently in demand in the marketplace.

Whether you're looking to satisfy local utility rebate demands, run your IT environment with a high operating temperature or monitor your power usage more effectively, having a solution for best-in-class rack power distribution is a must.

Floor-based power distribution

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 new Eaton SBM allows the paralleling of up to 32 Eaton 9395 UPSs. 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. Four ratings are available as standard: 2000A, 2500A, 3000A and 4000A. The customizable cabinet features a 10-inch color LCD screen for display status for up to eight 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 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. Our battery-free energy flywheel storage system bridges the power gap—acting as either a backup 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

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.

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.

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.
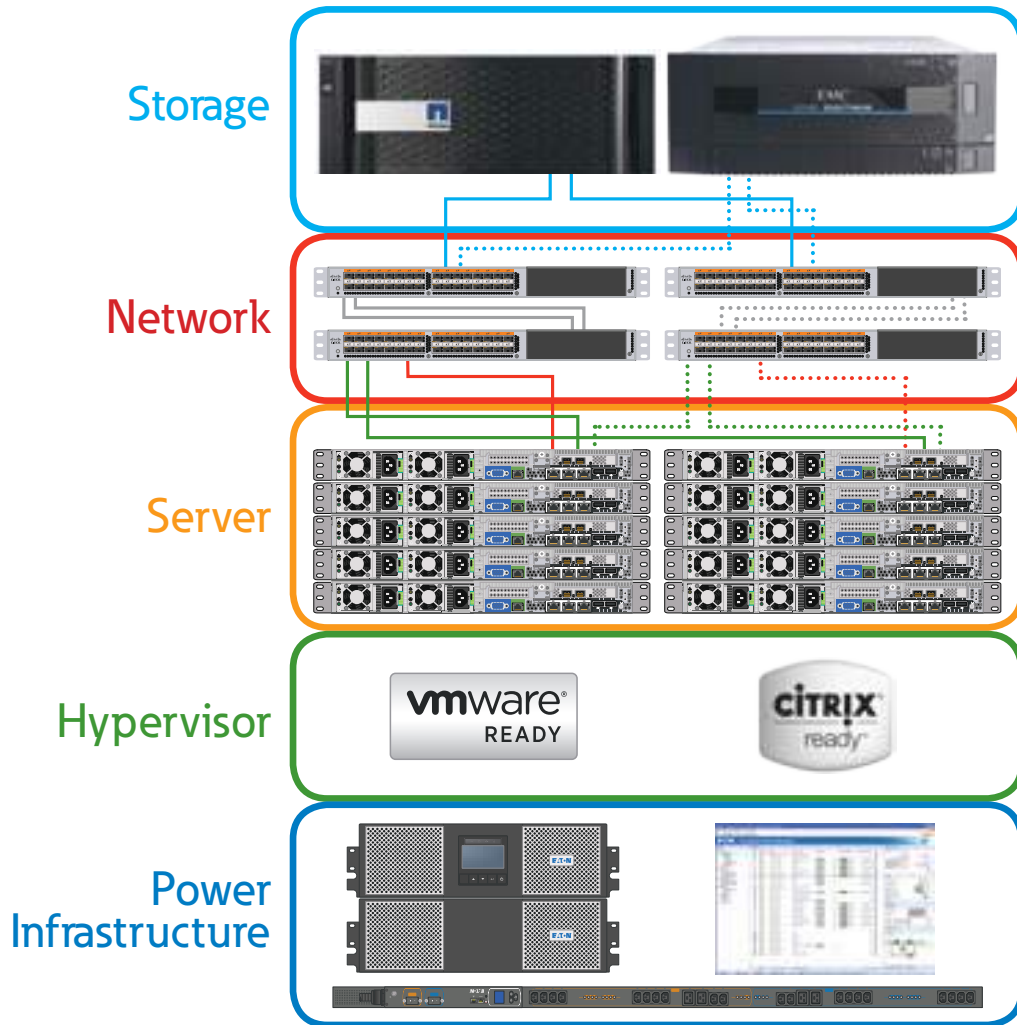
Hot Tie Cabinet

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 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.

Eaton: The Fifth Element of Converged Infrastructure

Compute, networking, storage, software and power. We've partnered with the leading CI creators for the ultimate power protection.

Storage

Network

Server

Hypervisor

Power Infrastructure

To learn more, visit
Eaton.com/CI

- View and manage your entire power system in your existing dashboard

- Powerful, integrated and scalable solutions to properly protect your IT infrastructure and maintain business continuity

- Remotely manage power usage, cycle hung servers and maintain control of your infrastructure

Data center and facility UPS

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

Data center and facility UPS overview

With a rich history of technical innovation and proven performance, Eaton's data center and facility UPS products continue to personify its pioneering spirit in the power quality industry. Whether you're designing or procuring a UPS, models can be deployed around the world since they're designed to meet global requirements. That means the same UPS can be installed anywhere—from Argentina to Russia, China to South Africa or the United States.

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 systems (NMS) for system monitoring, data gathering, and extended battery backup time often lead 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 you choose a custom Eaton solution, you come to the Customer Witness Test Center in Raleigh, North Carolina, or Helsinki, Finland, to see your system put through its paces. This gives you hands-on experience and the confidence that the system will operate efficiently and trouble-free from day one.

Eaton Customer Witness Test Centers test power modules, including UPS, PDU, switchgear, static transfer switches and battery cabinets. They also test 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.
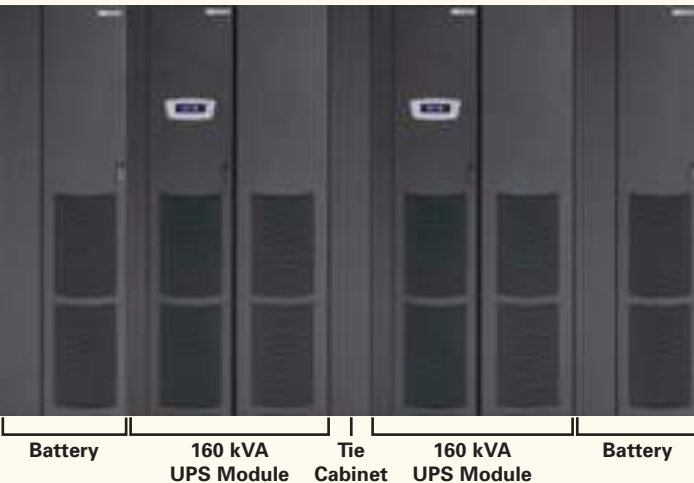
Feature focus

Eaton three-phase UPS products are packed with features and available options to integrate easily with a wide array of site requirements. Industry-leading technologies and performance allow consultants and contractors to exceed customer expectations and deliver more value.

For example, Energy Advantage Architecture is a suite of options, technologies and designs that allow specifying engineers and facility managers to get the best possible performance from their UPS. Options like Energy Saver System (ESS) dramatically increase UPS efficiency without sacrificing protection, reducing energy costs and putting money back into the budget. In addition, site designs using 400V can capture savings in equipment and operating costs that can dramatically improve end-to-end facility efficiencies.

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.

The 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 service-ability and reducing mean time to repair (MTTR). Since its compact 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.
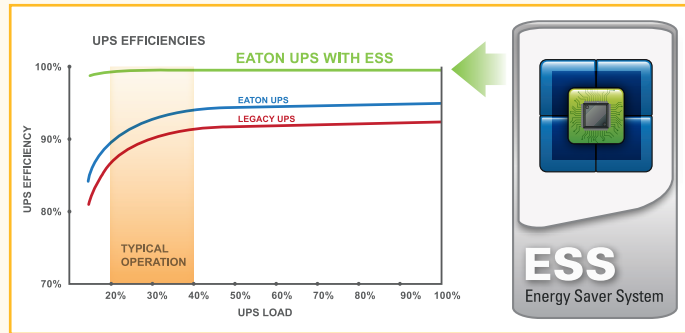
Big power, small footprint

Eaton 9390
Weight = 580 pounds
18.9 in. x 31.6 in.

Competitor product
Weight = 2700 pounds
32.5 in. x 34.9 in.

| Battery | 160 kVA UPS Module | Tie Cabinet | 160 kVA UPS Module | Battery |

Data center and facility UPS

Energy Saver System (ESS)

Eaton three-phase UPS solutions have always delivered excellent energy-efficiency, helping facilities save thousands in energy costs over traditional UPS designs. Now with the available ESS option, Eaton three-phase UPSs achieve more than 99 percent efficiency no matter how large or small the load. This additional energy savings is achieved through advanced power core technology and continues to provide the load with maximum protection. Unlike traditional "eco" modes, ESS is not just a utility bypass. The load is always protected. Learn more at **Eaton.com/ESS**.

All models on this page are
TAA-compliant.

Eaton 9355

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.

Emergency Lighting UPS (UL 924) models now available from 8–30 kVA.

CUSTOMER TESTIMONIAL

"We have no extra space here and we were going to have to retrofit another area to accommodate a new UPS. But because of the 9355's form factor, we were able to put in right into our computer room and we didn't have to modify any of our other systems around it."

- Pat Abban, senior technician, Genzyme

Eaton 93E

20–60 kVA

The Eaton 93E UPS delivers the most efficient power quality solution in three key areas: space, power and cost. Engineered for maximum efficiency, the 93E delivers up to 98 percent efficiency while maintaining a small physical footprint. With internal batteries up to 60 kVA, the 93E provides an all-in-one solution that also reduces the complexity of installation and startup.

Eaton 9390IT

40–160 kVA

The 9390IT UPS offers superior efficiency and flexible distribution options previously unavailable in 40 kVA to 160 kVA UPSs. ESS technology in the 9390IT delivers an industry-leading 99 percent efficiency, reducing energy costs and heat output. With available integrated IT distribution options connecting and expanding IT equipment is a simple plug-and-play procedure.

Eaton 93PM

20–200 kW

The Eaton 93PM UPS combines unprecedented efficiency and reliability with an eye-catching design. A space-saving, scalable and flexible device that's as easy to deploy as it is to manage, it's the perfect three-phase white or grey space solution for today's data center.

- **Lowest total cost of ownership:** Conserves valuable data center floor space with its compact footprint and internal redundancy design. Reduces cost and unexpected future growth risks with its vertical scalability, enabling you to scale as you grow. Reduces power and cooling OPEX through industry-leading energy-efficiency.

- **Easy deployment:** Maximizes deployment flexibility by providing flexible configurability.

- **Easy management:** Provides easier access to detailed status information through its large, user-friendly LCD touchscreen interface. Integrates with the leading virtual platforms through its full suite of power management and connectivity software. Increases uptime through its 24x7 remote monitoring and reporting capabilities.

Eaton.com/93PM

An Eaton Green Solution

ENERGY STAR

The 275 kVA model of the 9395 is ENERGY STAR qualified

Power Xpert 9395

225–1100 kVA

The 9395 with new 10-inch color LCD touchscreen 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.

Eaton 9390

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, colocation facilities, hotels, casinos and even marine applications.

Emergency lighting UPS (UL 924) models now available from 40-80 kVA.

Data center and facility UPS

Eaton.com/bladeups

Eaton BladeUPS

8–60 kW

The revolutionary Eaton BladeUPS® power quality system expands power protection from 8 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.

- 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

- Features hot-swappable battery modules and electronics

- Uses off-the-shelf options, including line cord kits, X-Slot cards, extended battery modules, racks, sub-distribution and rack power strips

An Eaton Green Solution

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

CUSTOMER TESTIMONIAL

"Aside from industry-leading power performance, the deciding factor in choosing BladeUPS was its modular design and built-in bypass capability. With a modular system there are no downtime requirements, and when additional capacity is needed, you simply plug in another module."

- Ray Graham, IT consultant for Carolina Hospital System

BladeUPS Preassembled Systems

Eaton has expanded the BladeUPS product offering and simplified it for easy customization, shipping and installation. The Eaton BladeUPS Preassembled System is a truly turnkey solution for growing data center needs. Depending on your power requirements, preassembled systems can be ordered with one to six BladeUPS units installed to offer the right level of power protection, while still providing for future growth. All you have to do is bring power to the unit and perform the simple start-up procedure.

Features

- Factory pre-tested system accelerates installation and minimizes onsite testing requirements

- Save up to 20 percent in shipping costs

- Modularity and scalability allow the system to be easily moved

- Top- and bottom-entry models available

- The top-entry models are ideal for data center environments that do not have a raised floor and offer a flexible option when facing moves, additions or changes to the data center

Preassembled system ready for shipment.

Feature focus

The Eaton UPS efficiency calculator

Compare efficiency data and calculate annual savings with Eaton's exclusive Energy Saver System for 9390 and 9395 UPSs using the Eaton efficiency calculator. This easy-to-use tool illustrates how Eaton UPSs perform with their load profile, showing financial and energy savings as well as annual costs compared to other UPSs. The new format also allows for each report to be saved as a PDF for quotes and submittals. Check out the efficiency calculator at **Eaton.com/ESS**.

Eaton efficiency calculator

Surge suppression

Eaton SPD Series

Eaton's SPD Series surge protective devices are the latest and most advanced UL 1449 3rd Edition certified surge protectors. Application of SPD Series units throughout a facility will ensure equipment is protected with the safest and most reliable surge protective devices available. SPD Series units are available in all common voltages and configurations and also in a variety of surge current capacity ratings from 50 through 400 kA. Three feature package options are also available. The breadth of the SPD Series' features, options and configurations ensures the correct unit is available for all electrical applications.

Eaton PSPV

Eaton's PSPV series is a commercial grade and light industrial SPD that combines surge suppression components and EMI/RFI filtering, providing effective protection for sensitive electronic loads. Surges (also known as transients) due to lightning, utility grid switching, switching of external/internal inductive or capacitive loads, and other sources travel on power line conductors throughout the electrical distribution system, causing system operating problems and equipment downtime.

Use of PSPV units can prevent these costly occurrences and equipment damage. Available with six surge current capacity ratings, the PSPV can be installed on the main of light commercial buildings, on any subpanel in a facility and in any control panel to protect sensitive electronic equipment.

Power factor correction capacitors and filters

Eaton's capacitor and electronic means of power factor correction saves energy and can also reduce the required sizes of electrical equipment due to lower kVA. Power factor correction enables your organization to become more environmentally responsible without reducing the amount of working power available. This corresponds to additional savings in material costs that would have been used to produce larger electrical equipment and distribution systems, which can contribute to Leadership in Energy and Environmental Design (LEED®) points for buildings and projects seeking LEED certification.

As part of a power factor correction system, harmonic filters resolve the power anomalies caused by harmonics that shorten equipment life and trigger unexpected shutdowns. By controlling harmonics, current levels in the system are reduced and heat is removed from the system. This, in turn, minimizes troublesome issues such as blown fuses, damaged motors and failed transformers, extending equipment life.

For more information, visit **Eaton.com/PFC**. To learn more about credit categories and the USGBC LEED certification system, visit **www.usgbc.com/LEED**.

The Eaton Unipump is a non-fused capacitor based product designed to be used at the motor locations of outdoor irrigation, oil field installations or other weather restricted areas requiring power factor correction at the motor load.

Unipaks are capacitor-based products designed to be used when fixed, static capacitance (wall or floor mounted) is needed within parts of your electrical system.

Power management meters

Power Xpert Meter 4000/6000/8000

Eaton's Power Xpert Meter 4000/6000/8000 series represents 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 an embedded web server, advanced power diagnostics, data trending and performance benchmarking, along with a twist-n-click LCD for simplicity and ease of use.

- Free download of Power Xpert Meter Profiler to trend and predict energy usage
- Embedded web server
- Automatic power quality analysis and trigger setting with built-in ITIC performance curve
- Comprehensive power, energy and demand measurements for 138 standard data points logged
- At-a-glance view of power quality analysis with patented Power Quality Index gauge
- Industry-standard communication protocols to support a multitude of configurations and third-party software: HTTP, FTP, Modbus RTU, Modbus TCP, SNMP, SMTP, NTP, COMTRADE

Power Xpert Meter 2000 series

The meters combine state-of-the-art technology with waveform viewing and recording, data trending and performance benchmarking. The embedded web server enables users to surf to the meter over the Internet via a standard web browser. This platform offers adaptability such as field-upgradeable firmware and optional digital inputs/outputs and analog outputs.

Identify power quality problems to help

- Protect motors from damage
- Preserve the integrity of processes and batches
- Prevent blown capacitor bank fuses
- Protect transformers and conductors from overheating

IQ 250/260 series

The IQ 250 and IQ 260 electronic meters provide capabilities you wouldn't normally expect in an affordable, compact meter—such as fast sampling rate and accurate metering for a full range of power attributes. The meter can be configured either from the easy-to-read display or remotely (accessible via a Power Xpert Gateway) via included configuration software. In addition, built-in slots allow for upgrades to input/output option cards.

- Comprehensive metering
- High-end accuracy
- Large, easy-to-read display
- Local or remote configuration
- Industry-standard communication protocols (Modbus)
- Mix-and-match input/output options
- Field-upgradeable

IQ 100 series

Providing the first line of defense against costly power problems, Eaton's IQ 100 electronic power meters can perform the work of an entire wall of legacy metering equipment utilizing today's technology. Eaton's IQ 100 meters use 24-bit AD converters that sample at more than 400 samples per cycle and meet ANSI C12.20 standards for accuracy of 0.5 percent. With such high-performance measurement capability, these meters can be confidently used for primary revenue metering and submetering applications.

Applications

- Utility and commercial metering
- Substations, industrial facilities, power generation sites and campuses
- Submetering
- Load studies and voltage recording
- Analog meter replacement

Enclosed Meters

Designed for the IQ 35M, IQ 150, IQ 250/260 and Power Xpert Meter 2000, Eaton's single and multi unit Enclosed Meter offers mounting and installation flexibility, especially in retrofit applications where no metering compartment or mounting space is available in the existing electrical distribution equipment or where installation time is a premium. Factory-designed and wired, Eaton's Enclosed Meter offers savings in labor and installation costs since input current and voltage wiring as well as I/O wiring is pre-wired to terminal blocks inside the enclosure. To ensure safety, Eaton's Enclosed Meter includes a primary breaker for line voltage that can be turned off during meter maintenance.

Applications

Standalone, enclosed meters are ideal for new metering applications where no metering existed previously, for retrofit installations or where ease of installation is required.
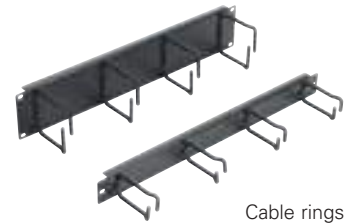
Eaton S-Series Enclosures

Unmatched reliability and service for your critical IT electronics and servers

Designed for small and medium-sized businesses, the Eaton S-Series Enclosure with rack hygiene supports and optimizes IT equipment. These standard configured enclosures are scalable and integrate an array of options including cable management, power distribution and backup power to provide a full network solution.

Features

- Enhanced frame ensures zero leakage around the front perimeter and also features oval grommets in front frame verticals for cable pass-thru between enclosures.

- High flow single front door with 75 percent open perforation pattern

- Top panel with two six-inch wide brushed openings for cable egress

- Standard models available with side or divider panels

- 19-inch EIA-310 vertical mounting rails with U-markings

- Vertical blanking panels with cable pass-thru for 30 inch wide models only

- Integrated cable trough for overhead cable distribution

- Grounding pre-installed

To interact with the Eaton S-Series Enclosure,

please visit **Eaton.com/S-Series**

Cable rings

Solid side panel

Standard feature

Cable management

Accommodates large cable quantities and provides unmatched rack-to-rack raised floor and overhead cable access.

Optional accessories*

Cable rings
Allows for vertical cable management with flexible mounting to multiple points.

Solid side panel
A solid side panel kit is available to further enclose your rack where end-of-row or single-rack aesthetics are necessary.

Lacing bars
Flexible management bar for attaching/mounting cables and power strips.

Blanking panels
Tool-less plastic blanking panels prevent air recirculation.

Floor grommet
Allows maximum pressure to be maintained in the sub-floor plenum when cables are installed.

Lifetime warranty
Eaton S-Series Enclosures are backed by a limited lifetime warranty.

Cable management

Blanking panels (5 shown)

Lacing bars

Floor grommet

For a complete listing of available accessories, please visit Eaton.com/S-series and click on the options tab.

Racks and accessories

Eaton Paramount enclosure system

Our premier enclosure platform, Paramount not only supports an industry leading 2,200 pounds of equipment in a fully welded frame, but it is also designed to adapt to the ever-changing requirements of the data center through a scalable and modular approach. Speed of deployment is essential to any company when considering time to market. Paramount's modularity and building block design ensures quick reconfigurations and minimizes downtime, protecting your initial investment.

- Superior airflow control and management
- Flexible platform allows for ever-changing requirements, protecting your initial investment
- Industry leading weight capacity of up to 2,200 pounds handles even the heaviest server equipment
- Guaranteed compatibility with TIA/EIA-310-D* standard size equipment
- Eaton's patented Heat Containment System (HCS) cools up to 25 kW or more per enclosure, without the expense of adding supplemental CRAC units to your data center
- Full complement of accessories to handle non-rackmount devices
- Industry leading cable access and management

Eaton Vantage S2 enclosure system

The Vantage S2 enclosure platform was designed with change in mind, which is why so many Fortune 500 companies have standardized on it. This scalable enclosure solution helps store the latest technology without having to change enclosure platforms, maximizing your original investment.

- Provides superior airflow with its fully perforated front and rear door system
- Fully welded frame rated for a 2,000-pound static and dynamic load capacity handles even the heaviest server equipment
- Guaranteed compatibility with TIA/EIA-310-D* standard sized equipment
- Eaton's patented heat containment system cools up to 25 kW or more per enclosure, without the expense of adding supplemental CRAC units to your data center

Compatibility Guarantee

We guarantee that all 19" TIA/EIA-310-D compliant equipment will physically fit into the Paramount and Vantage S2 enclosures.

Racts and accessories

Eaton four-post racks

Whether you're working in a network closet, server room or data center, a few common needs exist where enclosures are concerned: accessibility to equipment, sufficient airflow, design flexibility and cable management, to name a few. Eaton's four-post rack addresses these needs while also accommodating other Eaton equipment and cable management accessories.

Eaton two-post racts

These durable racks are designed to meet a variety of application requirements from enterprise data centers to colocation facilities to network closets. Cable management is one of the critical functions of two-post racks, and we offer vertical and horizontal management systems to increase flexibility and optimize performance.

Eaton two-post seismic racts

The seismic 19-inch, two-post relay rack is designed for areas where shock and vibration are a factor, such as power plants and airports. Seismic enclosures protect your electronics by providing enhanced frame strength and rigidity with reinforced dual uprights. Eaton's seismic two-post rack It's tested to GR-63-Core shock and vibration to a load of 900 lbs.

Eaton wall mount cabinets and racts

Eaton's wall mount equipment is a cost effective, secure way to mount communications cabling, networking gear and related equipment to conserve floor space. It's designed to work with network, IT, telecom, datacomm, A/V or other applications. Wall mount cabinets provide a secure enclosure with protection from tampering and other hazards, while open-frame swing gate wall mount racks offer easy access to and unrestricted airflow around mounted equipment

Racks and accessories

Blanking panels

Blanking panels provide a quick, easy and cost-effective solution to optimize air circulation within an enclosure while maintaining high aesthetics. Eaton offers blanking panels in a variety of styles including tool-less, mechanically fastened, clear and with cable pass through options in steel as well as plastic. The width meets EIA-310-D standards and they come in various heights (depending on style). Most panels are bulk packed in quantities of 10 and 100.

- Significantly reduces re-circulation of hot exhaust air to the equipment inlet

- Adds to the overall aesthetics of the data center

- 1U, 2U, 3U, 4U, 5U, 6U, 7U, 8U and 20U (depending on style)

- EIA-310-D compliant for 19" equipment

- Color: Black steel, black plastic, clear plastic

- Available in tool-less, mechanically fastened, clear and cable pass-through styles

Brush strip models allow routing of cables through the panel.

Adjustable blanking panels, offered in two sizes (7-12U, 12-22U), easily adapt to your hardware requirements.

Raised floor grommets

By installing Eaton's raised floor grommets, you can optimize the effectiveness of existing cooling equipment and manage increasing heat loads. The raised floor sealing system specifically addresses bypass airflow and its detrimental effect on data center cooling.

- Increased energy efficiency and predictability—eliminates bypass airflow while maintaining a consistent subfloor plenum pressure

- Flexible, thoughtful design—overlapping serrated fingers and optional plastic ties adapt to any size or shape cable bundle; ties ensure a complete and lasting seal by providing tension against the cabling

- Superior performance—delivers a faster and greater ROI than any other solution on the market

Non-permeable material allows maximum pressure to be maintained in the sub-floor plenum when cables are installed, minimizing bypass airflow.

Aisle containment

End of row doors

End of row doors create more efficient cold aisles by blocking an obvious cold-air escape route and entry for hot air re-circulation and air mixing. This allows you to set a higher overall temperature within the data center thus saving energy and extending hardware life.

- Variety of door models—choose from three styles of doors— single-swing, double-swing café style and sliding doors

- Ease of installation—field-installable, rack-integrated and freestanding options available

- Rack agnostic—flexible enough to install almost anywhere on any manufacturer's brand enclosure

- Improve efficiency and predictability—increases cold air intake efficiency, from the bottom of the enclosure to the top, within the cold aisle

- Minimize air re-mixing—cost-effectively minimize air mixing between the hot and cold aisle while keeping the uniform cold air supply in front of the servers for a consistent temperature top to bottom

Our space-efficient sliding end of row doors open with little effort and offer a self-close option. They are a great choice when end-of-row space is at a premium and air containment is required at the end of a cold or hot aisle.

Aisle containment ceilings

Eaton's ceiling system is comprised of clear panels made from materials with multiple ratings, including UL94 V-0, ASTM E 84, FM4910 or antistatic. The panels mount easily to the top of Paramount, Vantage S2 and third-party enclosures. This ceiling system is modular and scalable to accommodate differences in rack heights and row spacing. The self-supporting structure allows for easy rack changes within the row. Fire-activated ceiling panels ensure quick row access for critical fire suppression.

Single-swing end of row doors are a simple, cost-effective solution to improve efficiency while lowering overall operating costs.

Eaton's double-swing café style doors help achieve aisle containment while offering quick entry and exit.

CRAC collars

The CRAC collar for downflow systems is integral to Eaton's total containment solution. By containing and directing the warm plenum air to your air conditioning system you increase efficiency and equipment performance while reducing overall energy consumption.
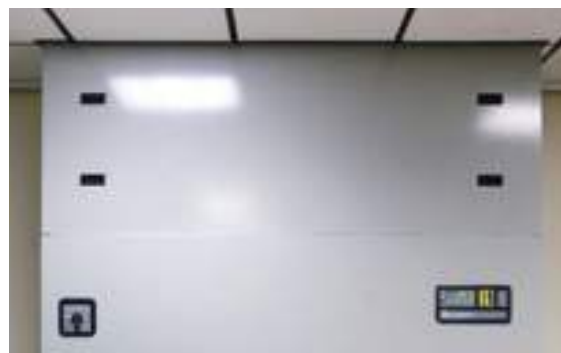
The CRAC collar features an integrated design, comprised of steel panels that mount easily to the top of any CRAC unit with simple installation. Collars allow front filter installation and service and completely integrate with optional airflow dampening devices. This closed-loop integration of the air conditioning supply and exhaust completes the modular airflow containment strategy in the data center, resulting in a more energy-efficient operation.

Tool-less access panels allow quick and easy installation on your existing CRAC units.

Independent Containment System (ICS)

The culmination of Eaton containment strategies is its patent-pending ICS, a free-standing, scalable, sustainable and vendor-neutral containment solution for high-density computing environments.

Designed to provide maximum flexibility in all environments, the ICS, assembled within the footprint of a standard aisle, is constructed with a tubular steel frame. The frame's structure is designed to be freestanding and meets seismic NEBS Zone 4 standards. Additionally, it accepts a variety of Eaton's End of Row Doors including café style, swing and sliding models.

Aisle ceilings are constructed of a light-weight steel frame and clear Lexan panels allowing ambient room light to illuminate the ICS aisle, eliminating the need for energy-consuming supplemental lighting. The ceiling accepts 2' x 2' aisle ducts which can be added anywhere on the ceiling structure as IT loads increase.

Eaton Heat Containment System (HCS)

Eaton's HCS is a simple, scalable and low cost rack-based solution to cool up to 25 kW or more per enclosure without the expense of adding supplemental CRAC units to your data center. This patented technology is available on Eaton's Paramount and Vantage S2 enclosure systems and can also be field retrofitted to most manufacturers' enclosures. The HCS contains and directs the heat exhaust of your IT equipment through the chimney that is attached to the top rear of the enclosure. The hot air is then ducted to your existing CRAC units through a plenum ceiling or high air returns.

Optional chimney fans can increase airflow up to 2600 CFM

Photo courtesy of Humana

- Scalable—adapts to existing infrastructures to increase rack utilization as your capacity demands grow

- Predictable—separates hot exhaust air and cold supply air, dramatically increasing the reliability of the data center

- Efficient—allows hotter air to return directly to the CRACs, increasing their efficiency by operating at a higher Delta T (ΔT)

- Reliable—extends existing cooling capacity throughout the data center, freeing up stranded assets and lowering operational costs

- Flexible—does not require you to alter existing enclosure locations and is also field-installable on third-party enclosures

Airflow management, containment and cages

Active Airflow Manager

Eaton's HCS pressure based system with active airflow, when combined with best practices, improves performance metrics considerably. Allocating the correct amount of airflow at known intake locations is key to reducing energy consumption while increasing equipment performance. Best practices such as blanking panels, proper perforated tile placement and the reduction of bypass airflow must be employed to ensure desired results.

- SNMP managed device with user-friendly web interface

- Controller continuously monitors pressure differentials to ensure that air entering the enclosure and server is properly removed

- Local LEDs indicate fan status including fan fail and over temperature

- Manage up to 64 peer Active Airflow Managers via Ethernet

- Two integrated temperature sensors with e-mail alert capabilities

- Redundant power input; C13 plug type is required for each input, 90-240 Vac supplied by enclosure PDU(s)

- Controller is RoHS compliant

HCS for third-party racks

Convert existing enclosures to the HCS to eliminate incremental capital expense associated with having to add more CRAC units or other supplemental cooling.

- Implement heat containment with minimal interruption to operations by building up from existing enclosures without having to re-route or disconnect cables and power

- By isolating the hot exhaust air from the cold supply air, you can load more than 25 kW of equipment in an enclosure

- Requires no additional air conditioners or other space consuming supplemental equipment at the perimeter of the data center, in-row or overhead

- Eliminates chaos airflow results in a more predictable operating environment, allowing you to drive efficient energy use and create a reliable infrastructure for moves, additions and changes

Data center cages

Eaton cages provide secure partitioning for data centers, providing the ultimate level of security for your valuable information systems. Built to the durable standards of our enclosure systems, the rugged steel construction ensures structural integrity. Its unique design, with 3/8″ perforations, is large enough to provide ample ventilation while maintaining a secure structure.

- Secure data center segmentation

- Modular design for easy reconfiguration

- Multiple standard height and width options (7', 8', 9',10' heights and multiple widths)

- Ceiling and wall-mounting capabilities

- Multiple access control options

- 1½" clearance for floor tile access

Service and support solutions

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

In winter, the Mt. Washington Observatory is an ice and snow palace, battered by hurricane-force wind gusts.

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 field technicians in North America, 1,200 international authorized service providers and more than 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 at 95 percent or higher since 1999 (based on returned surveys from clients who used services). More than 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 our field technicians—requiring each new technician to complete 24 weeks of training before becoming certified and being placed in the field. To minimize mean time to repair, Eaton provides the latest technologies in scheduling, call management, parts optimization and remote diagnostics.

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.

Success story: Mt. Washington Observatory

Located at the summit of a 6,228-foot mountain, the Mt. Washington Observatory (MWO) is home to the world's worst weather, with recorded wind gusts of 231 mph and an all-time low temperature of -50°F. That makes it difficult to reach (especially in winter) and maintain reliable power supply and quality.

MWO deployed a 15 kVA Eaton 9355 UPS years ago with more than 170 minutes of runtime to help ensure that even when the most extreme weather hits, the organization can continue gathering and storing vital weather data that it reports to the National Weather Service. While the 9355 performed flawlessly through the years, by 2014, its batteries needed to be replaced. The MWO IT team reached out to Eaton to arrange a battery replacement and get the UPS on a service plan.

Ahead of the replacement, we conducted a site assessment and power usage study to determine the battery backup time required. Discovering that MWO had reduced its equipment and adjusted its generator use since the UPS was first installed, we determined that 90 minutes of runtime—rather than the originally slotted 170 minutes—would be more than sufficient.

On the scheduled day of service, two technicians trekked to the top of Mt. Washington with four new strings of batteries. They safely removed 32 trays of batteries and two cabinets—about 3,840 pounds of materials—helping MWO significantly consolidate its UPS solution. They also performed comprehensive preventive maintenance on the 9355 as part of a new, two-year service agreement, added an environmental monitoring probe and upgraded MWO to Eaton's remote monitoring service.

New batteries combined with the support of Eaton's service and remote monitoring teams now put MWO in an excellent position to preserve its 80-year weather history and capture as much data as possible during extreme weather. Watch this video for the full story: **Eaton.com/MWO**.

Service and support solutions

Replacement batteries for optimal performance

The single most critical element of UPS performance is battery quality. All it takes is one bad battery to ruin an entire string and bring your systems down during a power outage or other interruption. Battery failure is the number one cause of UPS load loss and system downtime.

Battery performance varies greatly from one manufacturer to another. Making the wrong decision on batteries can have a serious impact on UPS uptime reliability, causing potentially devastating consequences from power interruptions. That's why Eaton offers a line of qualified premium batteries for use with Eaton UPS models.

Eaton continuously scans the globe to ensure the highest-quality batteries are available and qualified for use. As new batteries are introduced, we apply a proven qualification process, testing them with our products to verify that they meet or exceed manufacturer specifications and supply maximum runtime.

For more information on replacement UPS batteries for your specific application, or to obtain a copy of our informative battery handbook, please visit **Eaton.com/UPSbatteries**.
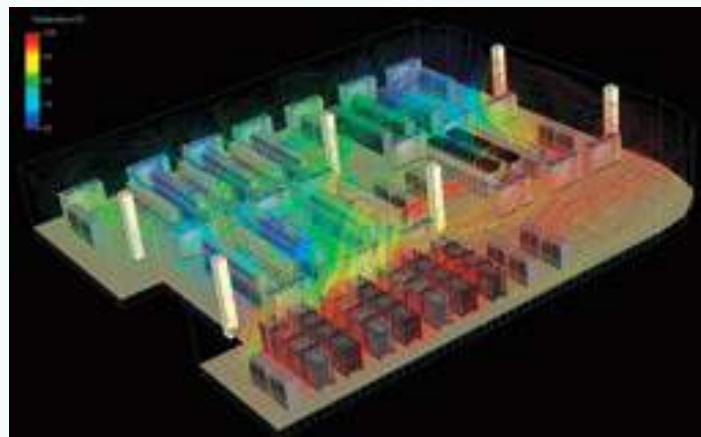
Computational Fluid Dynamics Modeling Services

Eaton's Computational Fluid Dynamics (CFD) Modeling Service provides a comprehensive approach to modeling the airflow, temperature, static pressure and energy profile of dynamic, critical environments. Using Future Facilities' 6SigmaDC software, we construct a virtual representation of your data center. This representation models the impact of load distribution within the facility, as well as the flow of hot and cold air within the space. It also illustrates how to increase rack densities and server installations without creating additional hot spots and airflow issues.

The service compares and substantiates which design decisions will maximize your data center flexibility, scalability and resilience. It enables you to explore the best possible options for IT and facility growth, create a calculated plan and avoid major capital commitments and costly design/implementation mistakes.

Data Center Cooling and Aisle Containment Integrity Services

Eaton also offers integrity testing and data center analysis to improve infrastructure performance. Our professional services group specializes in identifying airflow management issues and taking corrective actions as well as providing the information necessary to make cost-effective decisions.

Stream line plot showing temperature of air as it flows throughout the data center. Plots can be animated to illustrate direction of flow.

Service and support solutions

Eaton's Remote Monitoring Command Center is available 24x7 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 service solutions and stand behind every product with 24x7 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.

Remote monitoring

Imagine the security of having trained service technicians standing by around-the-clock to attend to the needs of your UPS. With remote monitoring from Eaton, 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. We evaluate the health of your UPS by comparing current and historical performance data with specified parameters.

Daily heartbeat data reveals the status of batteries and Eaton sends reports to you 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 it continually monitors your UPS, Eaton's Remote Monitoring Command Center can contact you immediately if there is an emergency.

Eaton 9390, 93PM, Power Xpert 9395 and 93E UPS customers with remote monitoring service can also receive a monthly energy savings summary. This summary calculates savings using the UPS's actual kWh/day in energy consumption, which is reported daily into an easy-to-read dashboard. You can see energy savings by using remote monitoring while operating in high-efficiency mode (93E) or ESS mode (9390, 9395, 93PM) with the new energy savings summary.

Energy savings summary

Visit **Eaton.com/enotify** for details.

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, and 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.

Visit **Eaton.com/Cellwatch** to learn more.

Cellwatch report

Marine UPS solutions

Eaton has extensive experience in supplying the marine industry with UPSs. We integrate a full line of AC and DC power systems, power conversion products, power management software, remote monitoring, turnkey integration services and site support. In addition, we offer service through every step of installation projects, from detailed design to a full installation.

Equipment that needs power can be divided into roughly four groups:

• Safety and cruising related systems, such as navigation equipment and emergency lighting. Classification organizations normally require UPS protection for these systems.

• Commercial applications such as casinos and electronic point-of-sale (EPOS) devices at restaurants and shops.

• Business and management support, such as computer systems that enable continuous business management.

• Special systems on board specialized vessels. Exploring, drilling, lifting and cable laying, for example, are accurate and sensitive work where mistakes cannot be tolerated.

The Eaton product offering includes:

• AC UPS single and three-phase 1 kVA – 4 MVA

• Battery systems, cabinets and racks

• Power converters (frequency converters)

• Power management and monitoring software

• Customized systems built to exact needs

In addition, Eaton can deliver a number of battery and transformer options, power distribution panels and other optional devices in external battery and option cabinets. For additional information, visit **Eaton.com/marineUSA**.

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"We have worked with Eaton for over ten years in all of our most demanding cruise ship construction projects. Their high quality products and field services around the world have guaranteed an enjoyable cruise experience for passengers and uninterrupted working for the sophisticated technology on board our ships."

- System Coordinator Ville Talsi of shipbuilding group STX Europe, Turku, Finland

Eaton 9390M

Eaton 9155M/9355M

Industrial UPS

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	FERRUPS Rackmount: 800-7000 VA Tower: 500-18000 VA
Form factor	Tower or rackmount
Sine wave output	●
Hot-swappable batteries	
Extended battery modules (optional)	●
Automatic bypass	
Serial or USB port	Serial
Start-on-battery	●
Audible alarms	●
Management software	●
Communication bay	
REPO or emergency power-off (EPO)	REPO
Power distribution module (optional)	
External maintenance bypass (optional)	●
TAA-compliant	●

CUSTOMER TESTIMONIAL

"When reliability is a very critical part of your business, the FERRUPS is great because its design really cleans up power."

- Douglas Schmidt, President, CEO Hardsoft Corporation

Stay connected

We're always updating product information, sharing new validations and configurations from our alliance partners, and adding new success stories, white papers and videos.

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Powering Business Worldwide