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Choosing The Right Eaton UPS
For Your Application

- *Small Office Applications*
- *Network Applications*
- *Server Room Applications*
- *Data Center Applications*
- *Facility and Industrial Applications*
- *Emergency Lighting*

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EXECUTIVE SUMMARY:

Eaton offers a wide range UPS equipment and choosing the right one to meet specific needs can be complicated. There are many available options, different battery chemistries, power ratings, power factors, and discharge rates. Additionally, there are several choices available for input and output voltages, topology, capacity, load, runtime, environment, and form factor. This whitepaper walks you through the selection process based on application.

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Finding the right Eaton UPS for your application can be complicated. One of the most common questions we hear is, "Which Eaton UPS do I need?" There are many available options, different battery chemistries, power ratings, power factors, and discharge rates. Then you need to consider input and output voltages, topology, capacity, load, runtime, environment and form factor.

So how do you choose the right Eaton UPS for your application? Start by considering the load size and environment the UPS will be operating in. Below are a few categories with some detail to help distinguish between the different product families.

Small Office Applications

The UPS equipment for small offices are ideal for a single or handful of workstations and their accessory equipment such as printers and scanners. These UPS can also be used to back up one or a few modems and routers. Designed to provide enough back up time to safely power down computers and equipment, the UPS equipment in this category is not appropriate for longer runtimes.

If the power to the workstation is already being backed up by a larger UPS in the data center or if the building has a facility UPS, adding a smaller UPS – or daisy chain – does not add additional power protection or runtime and can even create a false sense of security.

For the top four reasons you should never daisy chain UPS units, refer to our article.

Eaton 5SC (500VA – 1500VA) – The Eaton 5SC pure sine wave UPS provides high-quality output voltage for wider compatibility with today's active PFC (power factor corrected) power supplies in sensitive IT equipment. Ideal for small business, high-end workstations, servers, storage and network equipment, the 5SC UPS corrects a wide range of input voltage variations through continuous regulation without the use of batteries. The LCD interface provides clear status of key parameters and allows configuration for output voltage, the audible alarm and power input sensitivity. By paring

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the 5SC pure sine wave UPS with Eaton's Intelligent Power Protector software, you can avoid data loss by gracefully shutting down your connected computer during an extended power outage.

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Network Applications

Network applications typically have a relatively small load size. The average data center rack has a power draw of 5kW. The UPS ideal for network applications is appropriate for individual data center racks, remote network closets, branch offices with a relatively low IT power draw, and workstation or small office back-up power.

Eaton 5P (550VA – 3000VA) – The Eaton 5P UPS is an enterprise-class integrated backup power solution with the flexibility to support network closets, server rooms, distributed IT and edge computing environments. The 5P is available as a tower, wall mount or rackmount UPS to ensure a perfect fit for a variety of applications. Several models are available as a compact UPS – which are 2U in height with shorter depths than a traditional UPS – making them perfect for 4-post or 2-post rail mounting and wall mounting. The 5P UPS even offers flexibility in battery types with two models offering lithium-ion batteries. Pairing a 5P UPS with an Eaton Gigabit Network card – the first in the industry to comply with UL 2900-2-2 cybersecurity standard – and Eaton's Intelligent Power Management (IPM) platform allows for seamless management of your connected equipment, even in virtualized environments, which makes this UPS a complete backup power solution.

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Eaton 5PX (1000VA – 3000VA) – The Eaton 5PX UPS features the connection of up to four extended battery modules for maximum runtime and premium backup of your professional and enterprise-grade servers, storage and networking equipment. The 5PX is available in a convertible form factor for use as a tower UPS or rackmount UPS to ensure a perfect fit for a variety of applications. This extended runtime UPS is also available in convenient bundles with a network card and management software for rapid integration into your virtual environment or hyperconverged infrastructure.

Eaton 9SX (700VA – 3000VA) – With robust online double-conversion power protection, zero transfer time to battery, continuous filtering of power, and an internal, automatic static bypass, the Eaton 9SX tower UPS consistently delivers reliable performance. The 9SX UPS provides up to 28 percent more wattage compared to traditional UPSs, allowing you to connect more devices and leave room for expanding IT systems. Compatible, line-and-match battery packs allow you to tailor the runtime of the 9SX UPS to meet your requirements. The 9SX easy-to-ready LCD display gives you access to UPS alarm history, energy logs, unit serial numbers and firmware versions to enable first-time issue resolution right at the source.

Eaton 9PX (700VA – 11kVA) – The Eaton 9PX is a proven best-in-class online UPS featuring ABM technology which extends battery service life by up to 50 percent. With double-conversion topology for constant power conditioning, optional battery packs for extended runtime and ENERGY STAR qualification, the 9PX tower/rackmount UPS supports your overall goal of business continuity. It's also built for scalable deployment and features a graphical LCD interface that gives you local access to configurations and settings, history and diagnostics, energy consumption and load segment control. For a well-rounded backup power solution, you can easily pair your 9PX online UPS with the Eaton Intelligence Platform for seamless management of your connected equipment in your physical and virtual environment. In addition, select 9PX UPS models include the Eaton Gigabit Network card—the first UPS network card in the industry to comply with both UL 2900-2-2 and IEC cybersecurity standards.

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Server Room Applications

Eaton's family of single-phase and 3-Phase UPS equipment includes UPS specifically designed for server rooms and small data center applications. These compact UPS systems offer clean, reliable back-up power to the most critical applications and are ideal for supporting a few data center racks.

Eaton 9PXM (4kVA – 20kVA) – The Eaton 9PXM UPS is a scalable, modular UPS that combines the highest levels of reliability and the lowest total cost of ownership. Eaton's 9PXM enables you to build a mission critical power solution specific to your needs. Its patented design allows you to add capacity or redundancy and increase runtime as your power needs change.

The plug-and-play power and battery modules are lightweight and user replaceable so you can add them as needed without a service call or having to put a redundant system in bypass. The 9PXM's 20kVA N+1 capacity, small footprint and easy rack conversion make it an ideal solution for an array of data center, mission critical, and retail applications. The design offers harmonious compatibility with 4-post or high-density racks, PDU's and network gear for seamless integration into existing IT infrastructure.

Eaton 9155 (8kVA – 15kVA) – The Eaton 9155 UPS (formerly the Powerware 9155 UPS) is a single-phase, double-conversion online UPS. Providing 5,500 watts per square foot with a 0.9 output power factor, the 9155 UPS helps get the most value out of your floor space and data center operating budget. This UPS offers endless opportunities to build out the backup power system you need with an optional maintenance bypass switch, network card and relay communications outputs, and Eaton's patented HotSync technology that makes it easy to add redundancy or capacity.

Eaton 9355 (10kVA – 30kVA) – The Eaton 9355 UPS (formerly the Powerware 9355) is a three-phase, double-conversion online UPS that provides a complete power protection solution. In a footprint that is up to 75 percent smaller than comparable UPS, the 9355 UPS comes complete with internal batteries, an integrated power distribution module and a maintenance bypass switch. Without the need for large external battery cabinets, it is possible to parallel up to four UPS to build out redundancy or add capacity with less space than a typical large UPS requires, thanks to Eaton's patented HotSync paralleling technology.

Data Center Applications

Eaton's three-phase UPS products, designed for multi-rack data center applications, large network closets, and other highly critical loads, are installed upstream of the power panels that feed most of the IT and networking gear throughout an office building. This category of UPS provides both back-up power and some degree of power conditioning. Ideal for sensitive IT equipment and servers, these UPSs should be installed in

temperature and humidity-controlled environments that are closely monitored.

Eaton 93E (20kVA – 60kVA) – The Eaton 93E UPS is three-phase, double-conversion online UPS that helps you address your biggest data center challenges: operating costs, remote management and unplanned downtime. With internal batteries that provide up to 21 minutes of runtime and a 7% higher efficiency rating than competitive units, the 93E UPS maximizes the protection you get for every square foot of floor space and every utility dollar you spend. A detachable maintenance bypass with a mean time to repair of <30 minutes and enhanced management and monitoring capabilities from Eaton's Intelligence Platform increase the reliability of the system and the amount of control you have without even setting foot in the data center.

Eaton 93PM (10kW – 400kW) – The Eaton 93PM UPS is the perfect three-phase white or gray space solution for modern data centers. The 93PM is compatible with lithium-ion UPS batteries, which are 40 percent smaller than VRLA batteries and have twice the lifespan, saving money on battery replacement costs and extra square footage for battery cabinets. The option of front-to-back or front-to-top ventilation maximizes deployment flexibility and lowers your cooling costs. In addition, you can add a number of optional, full integrated accessories for a complete system, including a maintenance bypass, a distribution cabinet (with input and output transformer options), a power distribution cabinet, parallel tie cabinets and battery cabinets as well as a wall-mounted or floor mounted bypass. Whether for a large data center, medical facility or educational institution, the efficiency provided by the 93PM can play a vital role in any low maintenance, ten-year power solution.

Eaton Power Xpert 9395 (200kVA – 1200kVA) – The Eaton BladeUPS is a three-phase, scalable and modular UPS for high density computing environments, including virtualized or machine learning IT applications. The BladeUPS delivers 5, 8 or 12 kW of efficient, reliable power in only 6U of rack space, including batteries. You can expand its capacity by combining 12 kW modules in a scalable, building block fashion to deliver 60 kW (N+1) from a single rack enclosure. This powerful configuration delivers higher power

density than competitive, modular solutions while dissipating only one-third of the heat. By incorporating a BladeUPS bus bar, you can easily self-install new paralleled units to keep up with your data center needs. While you can design a BladeUPS from scratch, you can also quickly deploy the Eaton BladeUPS Preassembled System, which is a turnkey solution featuring easy customization, shipping and installation. The BladeUPS can be easily monitored via the units' brightly backlit LCD screen and through Eaton's Intelligence Platform.

Eaton BladeUPS (5kW – 60kW) – The Eaton BladeUPS is a three-phase, scalable and modular UPS for high density computing environments, including virtualized or machine learning IT applications. The BladeUPS delivers 5, 8 or 12 kW of efficient, reliable power in only 6U of rack space, including batteries. You can expand its capacity by combining 12 kW modules in a scalable, building block fashion to deliver 60 kW (N+1) from a single rack enclosure. This powerful configuration delivers higher power density than competitive, modular solutions while dissipating only one-third of the heat. By incorporating a BladeUPS bus bar, you can easily self-install new paralleled units to keep up with your data center needs. While you can design a BladeUPS from scratch, you can also quickly deploy the Eaton BladeUPS Preassembled System, which is a turnkey solution featuring easy customization, shipping and installation. The BladeUPS can be easily monitored via the units' brightly backlit LCD screen and through Eaton's Intelligence Platform.

Facility and Industrial Applications

Eaton FERRUPS (500VA – 18kVA) – The Eaton FERRUPS delivers proven, ferroresonant battery backup power and scalable runtimes for 911 centers, global military installations, marine vessels and other critical applications. Highly configurable with a wide range of voltages, frequencies, runtimes, power cords and receptacles, the Eaton FERRUPS continually regulates voltage and eliminates harmful harmonic currents.

Emergency Lighting Applications

Eaton Emergency Lighting UPS (10kVA – 200kVA) – Appropriate and effective emergency lighting systems are vital to facilitate occupant egress

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during an emergency, such as a building fire or other dangerous situation. In addition to prioritizing safety, proper emergency lighting is required by building codes such as NFPA 101, the Life Safety Code. Trust Eaton's emergency lighting UPS to keep your occupants safe and your commercial structures up to code. Our emergency lighting UPS are UL 924 tested and certified, providing the industry's highest capacity and smallest footprint options for emergency lighting applications.

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Conclusion

Eaton has one of the most varied product offerings of UPS equipment in the world. Choosing the right Eaton UPS for your application can be intimidating, but it doesn't have to be. Connecting with a power expert from Power Solutions will help identify the right the Eaton UPS to buy whether it's for your home office or for a multi-floor office building. Give us a call and we can get started.

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For more details about choosing the right Eaton UPS for your application, contact Power Solutions. 800-876-9373 or sales@power-solutions.com

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