

Benefits

- ▶ **Maximum Availability** – with true double conversion online design, the proven technology that is used for the most mission-critical applications in the world. It's unusual to find line-interactive, pseudo-online or any other kind of UPS, other than double conversion online, supporting 24/365 data centers, facilities, ISPs and major telecommunications installations.
- ▶ **Maximum Reliability** – with Powerware Hot Sync®, the award-winning, patented technology that achieves paralleling for redundancy and capacity (up to four modules) with no system-level single-point-of-failure. The preferred paralleling technology installed around the world with such major customers as E*Trade, Colo.com, and Citibank, Powerware Hot Sync will be available in the 10-40 kVA range with the Powerware 9330*.
- ▶ **Maximum Efficiency** – the Powerware 9330's advanced design features efficiency of up to 93%, the highest for a double conversion online UPS in this kVA range. No need to compromise reliability for efficiency with the Powerware 9330.
- ▶ **Maximum Performance** – the Powerware 9330 delivers the highest performance by using digital signal processing, true pulse-width-modulation and maximum IGBT responsiveness. This provides easy setup, drift-free operation and a pristine output.
- ▶ **Global Services** – Powerware service professionals provide round-the-clock monitoring, remote diagnostics, and on-site maintenance programs. More than just a material warranty, this is the most comprehensive service coverage available in the industry. Powerware Global Services provides you with peace of mind that potential downtime is prevented by proactive service and monitoring.

*Available late-2001

Why Powerware® 9330?



Company Confidential

The Internet is the number one driver of new technologies, including power technologies. As we move into an e-commerce-centric business climate, the terms "mission-critical," and "24/365" are more pertinent than ever, especially to market segments that have never had the uptime pressure that larger, traditional mission-critical systems have had to cope with. To that end, constant system availability for mid-range computers, server farms, and other Internet infrastructure and telecommunications applications is a new focus, and top priority.

To meet the unique requirements of this emerging marketplace, Powerware has developed the Powerware 9330 in the 10 – 40 kVA range. Building on its developments for large mission-critical applications, and drawing on the best feature/function attributes of products from its global R&D Centers, Powerware has packed the features and capabilities of its large power solutions into a new, innovative, and truly global mid-range solution. It also offers the lowest cost of ownership, most flexibility and highest reliability of any UPS in this power range. (While the Powerware 9330 was developed with new emerging applications in mind, existing Plus 18/36 customers and their applications will benefit from the feature rich enhancements.)

*Available late-2001

Who cares?

It is more likely than not that the decision-maker for the Powerware 9330 product will be the CIO, IT director or IT manager. While this group is not necessarily biased to purchasing a particular brand of UPS, they are likely more familiar with vendors of single phase product that are stretching into the three phase products.

They are looking for a UPS system that will deliver what their users demand – 24/365 system availability. They are also more likely to listen to the merits of product reliability and reduced cost of ownership. As the actual user of the UPS system, they are the ones that are measured on its availability. They are also the ones stuck with the headaches if the UPS system fails and they can't get a qualified service engineer in to fix it immediately.

The Powerware 9330 is not tied to any specific industry or application, since in this 24/365 world applications run the gamut of verticals and channels.

What are the major benefits?

The Powerware 9330 integrates the latest in Powerware's patented technology breakthroughs into a state-of-the-art UPS designed for optimal efficiency and the highest reliability, here's how:

Double Conversion Online topology

The Powerware 9330 is a traditional double conversion online UPS module with true dual input capability, providing the highest level of isolation from the input and protection to the load. The output voltage and frequency are independent of input voltage and frequency conditions. (For additional information see the Double Conversion Online Focus Paper)

DC Expert Plus™ Built-in Battery Monitoring

Real world business applications require a complete range of battery management and testing features, including battery runtime remaining, lifetime remaining, battery health, and notification, to help make critical decisions, from scheduling preventive maintenance to load shedding. Advances in firmware, digital technology and battery monitoring techniques enable the Powerware 9330 to offer sophisticated battery management features, previously available only in expensive add-on systems. By ensuring optimal battery health and availability, DC Expert Plus raises the reliability of the Powerware 9330 far beyond any other UPS in this kVA range.

DC Expert Plus advanced features include:

- ▶ **Powerware Battery Lifetime Monitor** uses measures of chronological time, number of battery discharges, battery temperature, and system loading to determine runtime remaining and battery lifetime remaining.
- ▶ **Battery Runtime Remaining Monitor** uses system loading plus internal sensing points for voltage and current data to calculate runtime remaining.
- ▶ **Advanced Battery Management (ABM)** uses patented three-stage charging technique that not only doubles battery service life, but also optimizes recharge time.
- ▶ **Battery Circuit Test (BCT)** performs a periodic pulse test of the battery string to ensure that there are no open circuits that would jeopardize battery performance and system availability.
- ▶ **Temperature Compensated Charging (TCC)** monitors the battery temperature and through sophisticated algorithms adjusts the rate of charge, compensating for the ambient temperature to prolong the life of the battery.

Maximum Efficiency

The Powerware 9330's advanced design features efficiency of up to 93%, the highest for a double conversion online UPS in this kVA range. No need to compromise reliability for efficiency with the Powerware 9330.

(* Available late 2001)

Digital Signal Processing

The Powerware 9330's use of Digital Signal Processing (DSP) eliminates all 50/60 Hz iron core magnetics for the highest operating efficiencies. The use of DSP eliminates all "control pots" facilitating easy setup, drift-free operation and a pristine output signal.

True Pulse Width Modulation (PWM) Technology

True PWM is achieved through the use of digital signal processing (DSP), which enables the IGBTs to work at their highest capacity, increasing system reliability and ensuring perfect power on the output.

Built-in Control Area Network (CAN)

An integral internal and external Control Area Network (CAN) is incorporated into the Powerware 9330 that assists in seamlessly integrating peripherals and options, controllable from the front panel. It also reduces the internal wiring connections required, therefore increasing overall system reliability.

Superior Cooling Design

The Superior Cooling Design of the Powerware 9330 draws from Powerware's extensive almost 40 years of industry and product development experience.

The unique design uses:

- ▶ Constant positive air flow pushes cool ambient air through the UPS over the most critical and sensitive components, such as electronics and power switching elements. Thereby maintaining the coolest possible levels at all times to ensure correct operation and extend operational life.
- ▶ Four independent fans, located in the front of the Powerware 9330, pull in cool ambient air and push it through the unit. By locating the fans in front and pulling cool ambient air into the UPS, rather than locating fans in back or the top and exhausting hot air from the UPS cabinet, the fans run cooler and last longer. Fan redundancy also enhances availability and lowers MTTR.
- ▶ Fan Power is monitored to detect fan failure and the UPS logic controls the fan speed, which adjusts according to load and ambient temperature, reducing operating sound levels. Fan failures are annunciated locally on the monitor panel and remotely through the communications port.
- ▶ An air filter is used to keep airborne contaminants from entering the unit and extend the life of the fans and other critical electronic components.

By keeping critical components at the coolest possible levels, the Superior Cooling Design enhances the already outstanding performance of the Powerware 9330 by ensuring precise system operation and extending the life of system elements. (For more information see the Superior Cooling Focus Paper)

Comprehensive Communications & User Interface

A large (LCD) display, control panel is ergonomically situated for operator interface with the unit. The soft keys help guide the operator through all menus and setups. A dedicated microprocessor had been designed and engineered to provide sophisticated full-featured monitoring and extensive alarm history plus allows for additional communication options, like Ethernet, network links, and modems.

Internal Battery

The Powerware 9330 comes with internal batteries that provide up to 12 minutes of back up at full load. The batteries are easily accessed and maintained through front access slide out trays. The complete battery monitoring system monitors and significantly enhances battery life. (For additional information see the focus paper on Battery Management)

Ease of Service

Of interest to those responsible for servicing the Powerware 9330 is the top/front access only requirement, and the integral manual maintenance bypass, which assists with serviceability. Since the unit rarely requires any side or rear access for most service needs, the floor space required is significantly reduced.

Powerware Hot Sync® Technology*

The Powerware 9330 will be available in a single module reverse transfer configuration, as well as in parallel redundant and N+1 on up to 3 modules for capacity in parallel redundant configurations using patented Powerware Hot Sync technology.

(*Available late-2001)

Mechanical Design

Mechanically, the units have been designed to reduce the number of parts, and functional modules are constructed as subassemblies. Extensive use has been made of newer technologies such as Planar Transformers and Power PCBs (printed circuit boards) which, as a whole reduce component count, simplify assembly and wiring, and lower MTTR, hence increasing unit reliability.

Optional Accessories

The additional options available on the Powerware 9330 include:

- ▶ External batteries (line up and match, extended-runtime in standalone racks or cabinets)
- ▶ Input current filters (for input current distortion to < 10%)
- ▶ External maintenance bypass
- ▶ Distribution panel options
- ▶ Voltage matching transformers
- ▶ Galvanic isolation transformers
- ▶ Communication interfaces for network connection

All of these options are available in line-up and match cabinets, except for extend-run external batteries exceeding 2 hours.

The fit with Powerware Enterprise Advantage

The Powerware 9330, like the Powerware 9315 before it, was designed as a cornerstone to providing UPS solutions with the highest reliability and availability to our customer's critical applications. By incorporating exclusive features and options like DC Expert Plus, Built-in Battery Monitoring and Powerware Hot Sync, the Powerware 9330 sets a new standard by which acceptable solutions will be judged.





Powerware® 9330 UPS 10-40kVA

- ▶ Maximum Availability with true double conversion online design, the proven technology.
- ▶ Maximum Reliability – with Powerware Hot Sync®, award-winning, patented technology used in the most mission-critical applications in the world.
- ▶ Maximum Performance through the use of digital signal processing enables true pulse width modulation and maximum IGBT responsiveness.
- ▶ Advanced Battery Management system monitors, manages and maintains the Powerware 9330's battery system.

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