

Powerware® 9330

10-40kVA



# Powerware® 9330 Uninterruptible Power System



## Reliability by design

The Powerware 9330 provides IT managers with a state-of-the-art UPS designed for optimal efficiency and the highest reliability. This double conversion online UPS integrates Powerware's award-winning technology, software and service capabilities into a single module capable of supporting critical applications, including:

- Server farms
- Networking
- Telecommunications
- Medical/medical imaging
- Branch offices
- Data centers
- Process control

By incorporating many features previously found only in power solutions at much higher kVA ratings, such as Powerware Hot Sync® paralleling for redundancy and capacity, redundant fans, DC Expert Plus™ Built-in Battery Monitoring, and advanced communications, the Powerware 9330 offers the highest reliability for critical systems in this power range. Further, the Powerware 9330 provides the lowest overall cost of ownership for a double conversion online UPS in this kVA range because of its high efficiency design.

## The Powerware 9330 is available in the following system configurations:

- Single Module – Reverse Transfer
- Powerware Hot Sync® –
  - Parallel Redundant
  - Parallel Capacity
  - Parallel Capacity/Redundant

## 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, NASA,





MBNA and Citibank, Powerware Hot Sync is available for Powerware 9330 models.

▶ **Maximum Efficiency** – the Powerware 9330's advanced design features efficiency of up to 93%, among 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.

▶ **Powerware Global Services** – Service professionals provide around-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 Recommends

Software	Connectivity	Service	System Solutions
> PowerVision® > FORESEER® 	> Powerware Modbus card > Powerware ConnectUPS-X Web/SNMP card 	> Uptime Guarantee Service Plan > Two year ProActive Service Plan > ProActive Battery Coverage 	> Input filter > Option cabinet with power distribution > Remote monitor panel 

Please contact your sales representative for a solution tailored to your specific needs.

## Powerware 9330 - Advanced Technology

The Powerware 9330 offers a complete feature set to deliver the highest performance in the 10–40 kVA range of UPS. Whether chosen for an IT or facility environment, locally or remotely located, the Powerware 9330 is the only choice to keep your business in business – around the clock.

### Advanced ergonomically designed user interface panel

- ▶ Easily accessed from a standing position, panel is tilted 15 degrees for optimum viewing
- ▶ Large LCD panel for graphic displays (4 line by 40 characters)
- ▶ LED status indicators
- ▶ Soft keys provide easy navigation through info screens
- ▶ Smart Load Off button prevents unintentional load losses
- ▶ Current status, history, events and alarms and an active mimic bus can be viewed

### Superior cooling design

- ▶ Air filters prevent contaminants from entering the UPS
- ▶ Redundant fans provide continuous operation without derating if a fan fails
- ▶ Fan failure detection and notification
- ▶ Load-based fan speed control maximizes fan life and efficiency while minimizing audible noise and heat dissipation
- ▶ Fans easily replaced while online

### Easy installation

- ▶ Casters provide for easy placement of unit
- ▶ Multiple wire entry locations
- ▶ Simple installation of communication option cards
- ▶ Terminal blocks for input/output wiring
- ▶ Front covers designed with magnetic latches for effortless removal and replacement

### Exceptional design for service

- ▶ Front and top access for service
- ▶ Dedicated service port prevents any disturbance to the customer's communication setup
- ▶ Battery circuit breaker
- ▶ Internal maintenance bypass switch provides isolation for safe servicing
- ▶ Input circuit breaker
- ▶ Slide out battery trays with quick disconnects

### Other standard features include:

- ▶ UL 1778
- ▶ CUL CAN/CSA C22.2 No. 107.1
- ▶ Exceeds IEC 62040-3, UPS definition
- ▶ Double conversion online technology
- ▶ Cold start capability from battery
- ▶ Wide input voltage and frequency window
- ▶ kVA/kW field upgradeable
- ▶ Supports up to four different communications options
- ▶ Dual source input to rectifier and bypass
- ▶ Quiet operation, less than 60 dBA
- ▶ ProActive 1 Year Service Plan
- ▶ RS-232 port
- ▶ (4) Building alarm inputs
- ▶ (2) Summary contacts



Powerware 9330 model 40

# 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 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) technology** uses patented three-stage charging technique that not only increases battery service life, but also optimizes recharge time.
- ▶ **Battery Circuit Test (BCT)** performs a periodic 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.
- ▶ **Intelligent Battery Protection (IBP)** automatically adjusts the shutdown voltage of the batteries based on the length of the AC outage. This prevents severe battery discharge if the system is lightly loaded.

# Extended Battery Cabinets

Powerware offers a full line of battery cabinets for the Powerware 9330.

- ▶ Battery cabinets may be daisy-chained together for extended battery runtimes. (Up to 2 on model 20 and up to 3 on model 40)
- ▶ Integral configurations, which line up and match, are standard.
- ▶ Front-access-only enhances servicing and installation.
- ▶ Slide trays and modular battery packaging makes periodic servicing easy.
- ▶ Cabinets are UL 1778 listed.
- ▶ Flame retardant batteries meet UL 94V2 for computer room installations.



- Manufacturer-supplied wiring with quick disconnects provides plug-and-play capability for line-up and match configurations.
- A DC rated circuit breaker in each battery cabinet allows multiple battery strings to be serviced independently of each other, assuring back up power is always available to the UPS
- Quick disconnects between battery tray assemblies reduce battery maintenance time.
- Removable battery slide-out tray assemblies provide "front access only" and reduce battery maintenance time.

Battery cabinets can be configured as Line up and match or remotely located. Customer must provide wiring for remotely located cabinets.

# UPS Battery Run Times

	RUN TIME AT:			INSTALLED			
	10kVA	15kVA	20kVA	25kVA	30kVA	35kVA	40kVA
	7kW	10.5kW	14kW	17.5kW	21kW	24.5kW	28kW
Internal Battery	45	26	17	32	25	21	17
1 external battery cabinet	90	65	48	58	48	40	30
2 external battery cabinets	155	90	75	77	65	55	48
3 external battery cabinets	N/A	N/A	N/A	90	80	71	61

## Intelligent Communications

The intelligent communications capability of the Powerware 9330 family of UPS means improved reliability, easier network power management and expanded network communications. With both hardware and software communications options, Powerware provides the right communications solution for your specific situation.



### PowerVision®

PowerVision power management software can monitor up to 64 network devices, provide data archiving and analysis to prevent power problems, and offers sophisticated notification, plus Modbus® connectivity. Through its easy-to-use graphical user interface, PowerVision provides critical information about the power, network-wide, in real time.



### FORESEER®

FORESEER environmental monitoring software puts an end to worries about risks to your critical foundation equipment and systems. From air conditioners to water cooling systems, generators to UPS, FORESEER gives you up-to-the-minute information about any system or device that is fundamental to your system availability. Plus, with its unique data archiving capabilities,

FORESEER can identify potential problems before they occur, and notify you so you can implement a solution before a crisis.

### ConnectUPS Adapters

Powerware's ConnectUPS-X and communications adapters provide a self-contained link between the UPS and the Ethernet LAN/WAN. Using HTTP, Telnet or SNMP, you can easily monitor, manage, and shut down or reboot remote UPS-protected servers, routers, hubs and other key network devices in a controlled manner. These adapters are also compatible with many third-party network management software packages.

## Options for a Total Solution

A complete Powerware 9330 solution will be ideally suited to your needs. This comes from the Powerware 9330's wide range of system options that lets you tailor your power solution to your exact specifications, taking into account your unique uptime requirements.

- ▶ Voltage matching transformers
- ▶ Power distribution panel
- ▶ External maintenance bypass
- ▶ Input/output galvanic isolation
- ▶ Input THD filter
- ▶ Remote status panel
- ▶ Remote EPO button

## Powerware Hot Sync®

### Paralleling for redundancy and capacity

Powerware Hot Sync technology, available only from Powerware, enables two or more UPS modules to work in parallel (in complete synchronization) with only the power wiring connecting them. No inter-module communications are required to keep the modules online. This peer-to-peer relationship, means that while the modules are in sync, they are functioning independently of each other. Consequently, there is no system-level single-point-of-failure. When the proven reliability of the advanced design of Powerware 9330 is further augmented by Powerware's groundbreaking Powerware Hot Sync technology, a new pinnacle of system availability is achieved. Powerware Hot Sync technology provides paralleling for N+1 (up to a total of 4 modules) for redundancy and/or capacity up to 120kVA. When analyzing the traditional empirical ways of determining system availability through Mean Time Between Failure (MTBF) and Mean Time To Repair, (MTTR) Powerware Hot Sync technology once again sets a new standard of reliability.

### Maximum Availability

- ▶ No system-level single-point-of-failure.

### Maximum Reliability

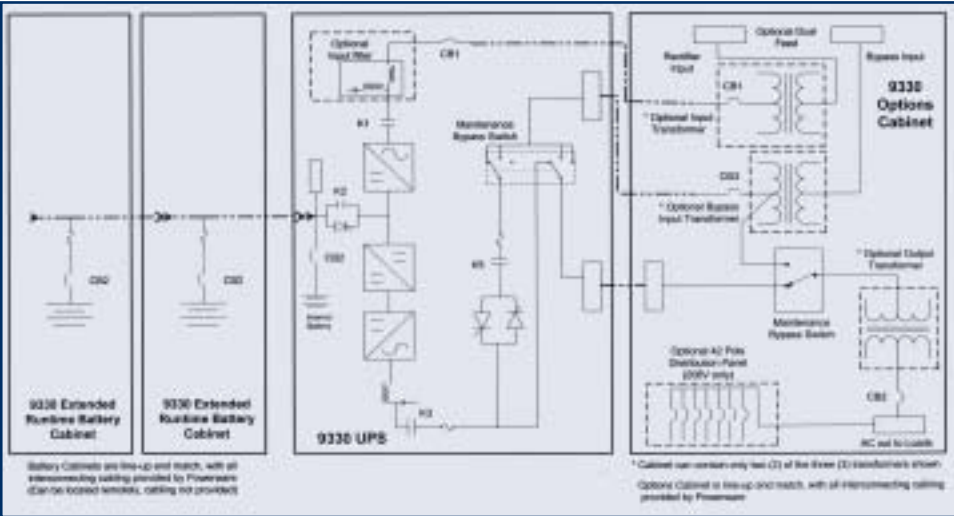
- ▶ Patented module load sharing control and selective tripping is accomplished without inter-module communications.

### Maximum Performance

- ▶ Protect your investment by simply upgrading from a single module system to Powerware Hot Sync-Redundant or Powerware Hot Sync-Capacity system as your needs change.

# Online Diagrams

Powerware 9330 UPS shown with optional external battery and features



ISD transformers shown.  
Auto transformer is standard.

## Technical Specifications

### Environmental

<b>Ambient Temperature</b>	Operation 0 to + 40°C (32 to 104°F) Storage -20 to 70°C (-4 to 140°F)
<b>Relative Humidity</b>	95% maximum, non-condensing
<b>Altitude</b>	1500 meters (5000ft) at 40°C ambient without load derating
<b>Audible noise</b>	Less than 60dBA typical at 1 meter; in accordance with ISO 7779
<b>Electrostatic Discharge</b>	Withstands 25kV without damage or disturbance to the load; exceeds requirements of IEC 801-2
<b>EMC</b>	Meets FCC Class A and EN50091-2 (IEC 62040-2)

### Safety

UL1778  
cUL CAN/CSA C22.2 NO.107.1  
EN 50091-1

### Mechanical

<b>Cable Entry</b>	Bottom, lower rear
<b>Cooling</b>	Filtered forced air with redundant fans
<b>Access</b>	Front and top for servicing

### Electrical Input

<b>Input Voltage</b>	120/208V or 127/220V 3 phase + GND (Rectifier)* 208Y/120V or 220Y/127V, 3 phase + N + GND (Bypass)*
<b>Voltage Range</b>	-15%, +10%
<b>Frequency</b>	50/60 Hz
<b>Frequency Range</b>	45 - 65 Hz
<b>Input Power Factor</b>	> 0.96, typical (up to 0.99 with optional input filter)
<b>Surge Protection</b>	Meets IEEE 587, Category A & B and EN 50091-2

Specifications are subject to change without notice. Please visit [www.powerware.com](http://www.powerware.com) for most current information

\* additional voltages available with options cabinet

### Electrical Output

<b>Output Voltage</b>	208Y/120V* or 220Y/127V*
<b>Voltage Regulation</b>	Static: better than ±1% Dynamic: better than EN50091-3 (IEC 62040-3)
<b>Voltage Distortion</b>	Less than 1.5% for 100% linear load Less than 3.5% for nonlinear load when tested in accordance with EN50091-3
<b>Frequency Regulation</b>	Synchronization: ±0.5, ±1.0, ±2.0 Hz, selectable Free-running: ±0.005 Hz Slew rate: 0.5, 1.0, 2.0, 3.0 Hz / sec, max selectable
<b>Over Current</b>	101 - 125% for 10 min (inverter) 126 - 150% for 30 sec (inverter)

### Communications

<b>Serial Port</b>	RS-232 communications port (standard)
<b>Service Port</b>	RS-232 for service of equipment by qualified service personnel (standard)
<b>Communication Cards</b>	up to four optional cards can be installed in the UPS module at any time and provide the following connectivity: - ConnectUPS-X WEB/SNMP/xHub - Single Port Serial Card - Relay Interface Card (Use for AS400's) - Multi Server card (5 - RS232 port output) - Modbus card - Industrial Relay Card (5A@250V) - Modem Card
<b>Remote Inputs/Outputs</b>	Four building alarm inputs Two summary alarm contacts (5A@120V)
<b>Remote Display</b>	Mimic diagram with 4 LEDs, and audible alarm with silence button

## Powerware

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9330FXA  
Revision 06/04  
Reprint 06/04

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France: 33.1.6012.7400  
Germany: 49.7841.666.0  
Italy: 39.02.66.04.05.40  
Norway: 47.23.03.65.50  
Sweden: 46.8.598.940.00  
United Kingdom: 44.1753.608.700

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