Powerware® 9330

10-40kVA

invensys

POWERWARE®
UNINTERRUPTIBLE POWER SYSTEMS

Powerware® 9330
Uninterruptible Power System

Powerware integrates the latest in its technological advances, built on more than 37 years of engineering excellence, with a fresh new design in the Powerware 9330.

Reliability by Design

With the introduction of the Powerware 9330, Powerware provides IT managers with a state-of-the-art UPS designed for optimal efficiency and the highest reliability. This new double conversion online UPS integrates Powerware's awarding-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, including Powerware Hot Sync® wireless paralleling for redundancy and capacity, redundant fans, DC Expert Plus™ Built-in Battery Monitoring and advanced communications, the Powerware 9330 now 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 – Redundant*
- –Powerware Hot Sync – Capacity*

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%, 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.
- **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 Service provides you with peace of mind that potential downtime is prevented by proactive service and monitoring.

** available late-2001*

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 available. Whether chosen for an IT or facilities 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 (4 line by 80 characters)
- LED status indicators
- Soft keys provide easy navigation through info screens
- Smart Load Off button prevents unintentional load losses
- Multilingual LCD panel meets global requirements
- Current status, history, events and alarms and an active mimic bus can be viewed

Superior cooling design

- Air filter prevents 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
- Double conversion online technology
- Cold start capability from battery
- Wide input voltage and frequency window
- kVA/kW field upgradeable
- Supports alternative external battery options
- Dual source input to rectifier and bypass
- Quiet operation, less than 60 dBA
- ProActive Service Plan
- RS–232 port
- Building alarm contacts
- 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.

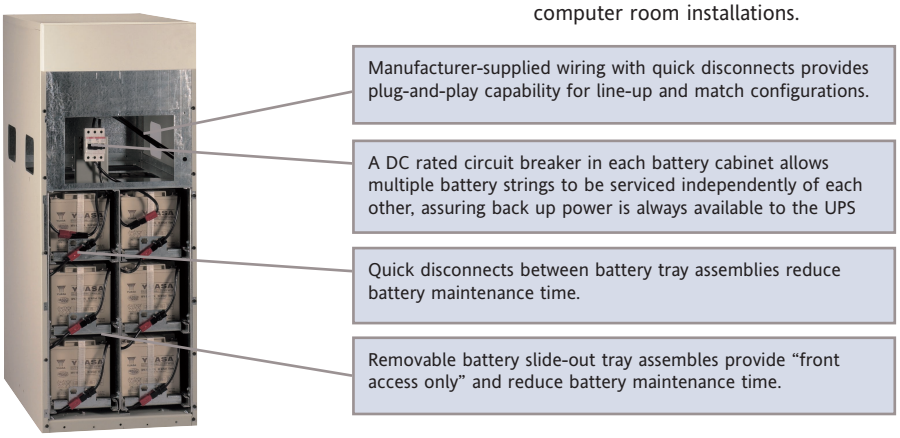
DC Expert Plus advanced features include:

- **Powerware Battery Lifetime Monitor** uses measures of chronological time, number of battery discharges, battery temperature, and system loading to determine 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.

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 run times. (Up to 3 on model 20 and up to 5 on model 40)
- Integral configuration, which line up and match, is 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.

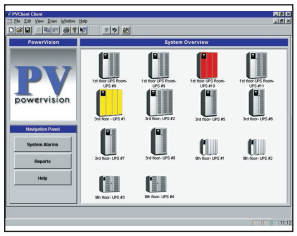


UPS Battery Run Times

	RUN TIME AT: INSTALLED						
	10kVA	15kVA	20kVA	25kVA	30kVA	35kVA	40kVA
	7kW	10.5kW	14kW	17.5kW	21kW	24.5kW	28kW
Internal Battery	35	20	12	26	20	15	12
1 external battery cabinet	95	50	35	49	38	33	26
2 external battery cabinets	150	95	60	64	50	44	35
3 external battery cabinets	200	130	95	98	76	62	49
4 external battery cabinets	N/A	N/A	N/A	122	95	75	60
5 external battery cabinets	N/A	N/A	N/A	146	114	100	79

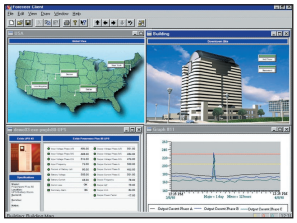
Intelligent Communications

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 ConnectUPS-M communications adapters provide a self-contained link between the UPS and the Ethernet LAN/WAN. Using HTTP (-X version only), 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
- THD input filter

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 wireless design 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+I (up to a total of 4 modules) for redundancy and/or capacity. When analyzing the traditional, empirical ways of determining system availability through Mean Time Between Failure (MTBF) and Mean Time To Repair (MTTR) with Powerware Hot Sync technology, Powerware 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

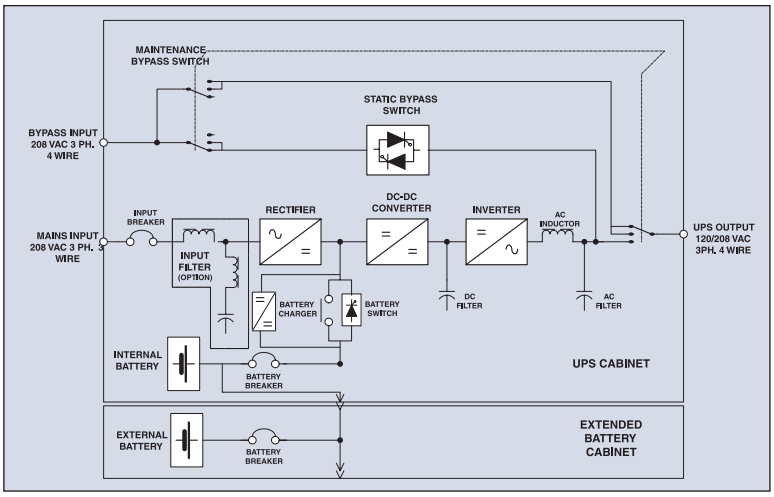
- Protect your investment by simply upgrading from a single module system to Powerware Hot Sync-Redundant or Powerware Hot Sync-Capacity system as your needs change.

* *available late-2001*

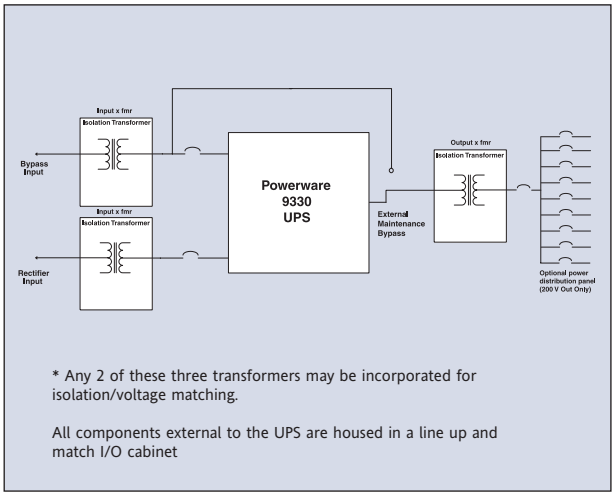
invensys

Oneline Diagrams

POWERWARE 9330 UPS SHOWN WITH EXTERNAL BATTERY



POWERWARE 9330 UPS SHOWN WITH OPTIONAL FEATURES



* Any 2 of these three transformers may be incorporated for isolation/voltage matching.

All components external to the UPS are housed in a line up and match I/O cabinet

Technical Specifications[1]

ENVIRONMENTAL

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

SAFETY

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

MECHANICAL

Cable Entry	Bottom rear, bottom front
Cooling	Filtered forced air with redundant fans
Access	Front and top for servicing

ELECTRICAL INPUT

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

Due to continuing product improvement programs, specifications are subject to change without notice.

** additional voltages available with options cabinet*

ELECTRICAL OUTPUT

Output Voltage	120/208 *
Voltage Regulation	Static: better than ±1% Dynamic: better than EN50091-3 (IEC 62040-3)
Voltage Distortion	Less than 3% for 100% linear load Less than 5% for nonlinear load when tested in accordance with EN50091-3
Frequency Regulation	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
Over Current	101 - 125% for 10 min (inverter) 126 - 150% for 30 sec (inverter)

COMMUNICATIONS

Serial Port	RS-232 communications port standard
Service Port	RS-232 for service of equipment by qualified service personnel standard
Communication Cards	up to four optional cards can be installed in the UPS module at any time and provide the following connectivity: – x-slot serial (AS 400/RS232) – x-slot multi-port (6xRS232) – x-slot serial connectUPS-X (SNMP/Web adapter) – x-slot serial connectUPS-M (SNMP/Network/Modem adapter)
Remote Communications	Four input building alarm dry contacts Two summary alarm contacts
Relay Interface Module	Optional– provides four relay contacts

Invensys Powerware Division
8609 Six Forks Road
Raleigh, NC 27615 U.S.A.
Toll Free: 1.877.797.9273
or 919.872.3020
Fax: 1.800.753.9433
www.powerware.com

Europe/Middle East/Africa
Finland:+358 9 452 661

Southeast Asia
Singapore: 65-8610377

China and North Asia
Hong Kong: 852.2745.6682

Japan
Shinagawa Tokyo: 813.3447.5251

Australia and South Pacific
Sydney, Australia: 612..9878.5000

Canada
Toronto, Ontario: 416.798.0112

Brazil
Sao Paulo, Brazil:
55.11.3933.8555/855.8500

Mexico
Col. Napoles C.P.,
Mexico 525.527.61.69/
525.488.33.33

9330FXA
Reprint 08/01
Revisions 08/01