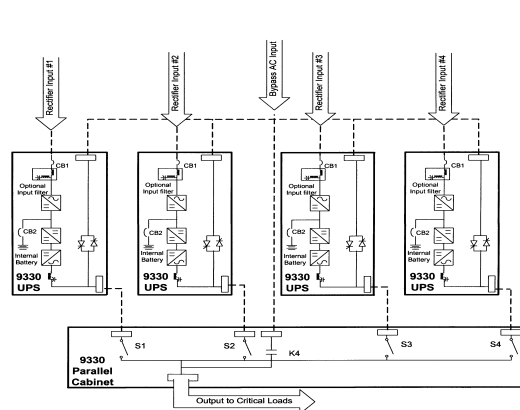


### Powerware Benefits

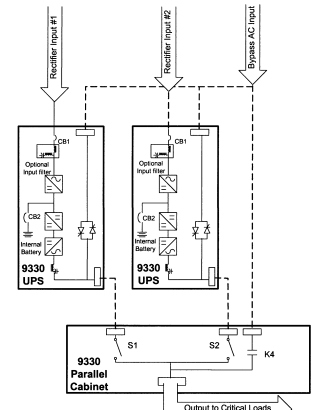
- ▶ **Maximum Availability** – with true double conversion online design, the proven technology that is used for the most mission-critical applications in the world. It's unusual to find line-interactive, pseudo-online or any other kind of UPS other than double-conversion online supporting 24/365 data 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 is now 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 high performance by using digital signal processing, true pulse-width-modulation and maximum IGBT responsiveness. This provides easy setup, drift-free operation and a more pristine output signal.
- ▶ **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 customers with peace-of-mind that potential downtime is prevented by taking steps ahead of time.

## Powerware Hot Sync®

### Redundant and Capacity Powerware 9330 Systems



**9330 Hot Sync® Parallel Capacity + Redundant 3+1 System**



**9330 Hot Sync® Parallel Redundant 1+1 System**

Powerware Hot Sync paralleling technology is a bona fide breakthrough that uses firmware and patented algorithms to dramatically increase reliability and system availability. This has solidified Powerware's reputation as the leader in power technology development, and has sent other vendors scrambling to catch up.

The Powerware 9330 and Powerware Hot Sync technology combine Powerware's expertise with high-speed digital processors, the component technology and enabling software.

Powerware Hot Sync has been proven in the field and is used for mission-critical systems by such high-profile organizations as CitiBank, E\*Trade, New York Stock Exchange and MCI Communications.

With Powerware Hot Sync, a multi-module system configuration operates in parallel without the need for inter-module communications. This eliminates the system level single-point-of-failure inherent in traditional parallel configurations, subsequently increasing reliability.

The significance of this technology is that it overcomes the primary problem facing power

technology engineers: how to parallel UPS modules to provide N+1, N+2, or higher, redundancy without introducing a single-point-of failure. By eliminating the communication wires between the UPS modules, and employing an algorithm by which each UPS constantly checks its own output for any variation on the critical bus, each UPS operates independently, yet in complete synchronization with the other UPS in the system. The result of this operation is that the UPS modules automatically share the critical load, and the UPS modules can selectively trip and remove themselves from the critical bus if inverter failure or some other critical event occurs.

The load share algorithms maintain synchronization and load balance by constantly making minute adjustments to variations on the output power requirements. The modules conform to the demand and are not in conflict with each other for the load. This means that each module need only monitor its own output, constantly performing an algorithm, which gives it all the necessary information it needs to know if it should assume the load or if it has failed and needs to remove itself from the critical bus.

## Who cares?

The decision makers for the Powerware 9330 product will be the CIO, IT director or IT manager. They may include traditional influencers – consulting engineers, facility managers and electricians – if a Powerware Hot Sync solution is being considered. Either way, they are concerned about purchasing a system that will deliver 24/365 system availability and reliability.

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.

## Why is it important?

Powerware Hot Sync, the award-winning, firmware-based technology that achieves paralleling for redundancy (up to four modules), was created with design features that make it inherently more stable and reliable, including:

- ▶ No system level single-point-of-failure
- ▶ By using a peer configuration, as opposed to a "master/slave" configuration, Powerware Hot Sync ensures that each module is operating independently
- ▶ No added circuitry or components are required to be "switched in" to operate in parallel
- ▶ No inter-module communications are required
- ▶ Continuous-duty fully-rated maintenance bypass is a standard feature

Enabling two or more UPS modules to work in parallel, in complete synchronization, with only the power wires connecting them Powerware Hot Sync, removes traditional inter-module communications wiring requirements. This wireless design means that while the modules are in sync, they are functioning independently of each other.

Competitive approaches to paralleling for redundancy or capacity share the following traits:

System level single-point-of-failure:

- ▶ They rely on communications wiring or fiber optic cable for communications between the modules. This is required to:
  - ▶ Control the systems operation
  - ▶ Maintain module synchronization
  - ▶ Ensure balanced load sharing
  - ▶ Provide selective tripping of a module should a failure occur
- ▶ They must incorporate an external maintenance bypass into their design to fully maintain the static switch. Without this external breaker they subject the critical load to shutdown.
- ▶ To ensure proper load sharing occurs between the modules, installation contractors have to completely "impedance-balance" the power wiring. Improper load sharing can cause many problems like the inability to transfer to bypass in an emergency situation or just to perform necessary maintenance.

## What are the major benefits?

**Maximum Availability** – No system level single point of failure.

**Maximum Reliability** – Patented control technology is accomplished without inter-module communications.

**Maximum Performance** – The combination of load sharing, selective tripping and advanced IGBT technology provide the customer with 99.9999% system availability.

## What is Enterprise Advantage?

The Powerware 9330, like the Powerware 9315 systems, were designed as a cornerstone on which Powerware can build solutions with the highest level of reliability and availability for our customers critical applications. By incorporating exclusive features/options like DC Expert Plus™ and Powerware Hot Sync, the Powerware 9330 sets a new standard by which acceptable solutions will be judged.

### Invensys Powerware Division

8609 Six Forks Road  
Raleigh, NC 27615 U.S.A.  
Toll Free: 1.800.356.5794  
or 919.872.3020  
Fax: 1.800.753.9433  
www.powerware.com

PLS47FXA  
Revision 4/02  
Reprint 4/02

### Europe

Finland: 358 94 52 661  
France: 33 1 6012 7400  
Germany: 49 721 961790  
Italy: 39 02 6600661 2  
UK: 44 (0) 1753 608700

### Southeast Asia

Singapore: 65 6861 0377

### China and North Asia

Hong Kong: 852 2745 6682

### Japan

Shinagawa, Tokyo: 81 3 3447 4441

### Australia and South Pacific

Sydney, Australia: 61 29878 5000

### Canada

Toronto, Ontario: 416.798.0112

### Brazil

Sao Paulo, Brazil:  
55 11 3842 7740

### Mexico

Col. Napoles, Mexico:  
525.488.3333

