**COMPAQ**

# White Paper

## Contents

# Compaq UPS R3000 XR Uninterruptible Power System

*Abstract:* The new Compaq UPS R3000 XR is a high power density Uninterruptible Power System (UPS), designed for customers who want to provide power protection in space constrained rack enterprise environments.

The leading edge UPS R3000 XR features a 2U rack-mount design offering up to 3000 VA / 2700 Watts of true power. This new rack space-saving design allows more support for critical rack-mountable equipment. Modular in design, the UPS R3000 XR employs a revolutionary new UPS technology that improves power protection for critical loads while reducing size and weight.

Ideal for space constrained data centers where power protection is key–the UPS R3000 XR provides more value in less space than any UPS in its class. The high density UPS R3000 XR is "The Intelligent Choice" in power protection.

# Notice

# Product Overview

The Compaq UPS R3000 XR (as displayed in Figure 1) features an industry leading 2U rack-mount design offering up to 3000 VA / 2700 Watts of true power.



**Figure 1 : Compaq UPS R3000 XR**

This new rack-space saving design allows more support for critical rack-mountable equipment. This product is an enhancement of Compaq's existing R3000UPS and brings unprecedented power density and innovative features to the proven Compaq family of rack-mountable UPS products. This high power-density solution is designed for customers who want to provide power protection in space-constrained rack enterprise environments and data centers. The "XR" in Compaq UPS R3000 XR denotes e**X**tended **R**untime capability. The UPS R3000 XR can be connected to an optional Extended Runtime Module (ERM) to increase the runtime.

 The Compaq R3000 XR utilizes a new industry leading technology via digital signal processor (DSP) controls that continually conditions and regulates power without using the batteries. In addition, by using DSP controls instead of a transformer to regulate the battery, the Compaq UPS R3000 XR achieves a small (2U) and lightweight (82 lb/37 kg) design.

## Benefits at a Glance

- Increased power density with up to 3000VA / 2700 Watt protection packed in just 2U rack space
- Increased power conditioning and more efficient voltage regulation with revolutionary technology
- Ultimate long-term battery reliability with Compaq Enhanced Battery Management
- Easy configuration through enhanced front panel display
- Increased availability and easy serviceability with hot-swappable battery and electronics module
- Enhanced system flexibility with three independently controlled load segments
- Greater system uptime with support from an ERM
- Enterprise-wide intelligent manageability with bundled power management software
- Support for Compaq option cards that extend the power management capabilities of the UPS
- Support for Remote Emergency Power Off (REPO) circuitry
- Backed by a limited three-year warranty, Compaq's Pre-Failure warranty, and a $25,000 load protection guarantee. Certain restrictions and exclusions apply.

# Product Highlights

## Innovative 2U Design

Rated near unity at 3000VA / 2700W (refer to Table 1 for specific ratings on low voltage models), the Compaq UPS R3000 XR packs more power in space-conserving rack-mount design allowing customers to support more critical equipment in their racks.

## Increased System Uptime with Extended Runtime Module (ERM)

The ERM is a rack-mountable dual battery module that occupies 2U (3.5 inches) of rack space. The Compaq UPS R3000 XR supports one ERM, which extends the overall battery runtime up to 30 minutes at 80% load. (Refer to Table 3 for estimated backup times.)

## Lower Cost of Ownership with Innovative Technology

The Compaq UPS R3000 XR utilizes a new industry leading technology that continually conditions and regulates power without using the battery, increasing the life of the battery. The output voltage is automatically regulated based on the connected load and the input voltage.

## Investment Protection with Compaq Enhanced Battery Management

The Compaq UPS R3000 XR incorporates Enhanced Battery Management; an exclusive technology that doubles battery service life, optimizes battery recharge time, and provides advance notice of end of useful battery life. With Enhanced Battery Management, customers have a lower total cost of ownership and receive the best in the industry protection for their critical equipment.

## Enhanced System Flexibility with Compaq Option Cards

The Compaq UPS R3000 XR models are equipped with a standard serial communications port through an internal slot. The Compaq UPS R3000 XR supports two UPS option cards, the SNMP / Serial Port Card and the Six Port Card.

### Communicate with up to Three Servers with the Six Port Card

This option card can be used to communicate with up to three servers.

### Remotely Monitor UPSs on the Network with the SNMP / Serial Port Card

Ideal for networked environments, the SNMP / Serial Port Card enables network administrators to remotely diagnose, monitor, and reboot network devices through SNMP. The SNMP / Serial Port Card features the ability to perform simultaneous network and out-of-band communications.

## Easy Configuration through Enhanced Front Panel Display

The LED and switch membrane are integrated into the front panel with four button controls (three buttons for UPS power control and one button under the front bezel for voltage configuration). Figure 2 displays the Configure Front Panel featuring the Test/Alarm, Standby, On and Configure buttons.
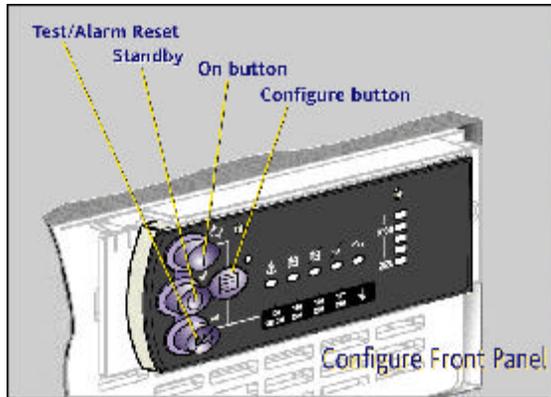
**Figure 2 : Configure Front Panel**

## Intelligent Manageability

Compaq Power Management (CPM) Software, an integrated component of Compaq Insight Manager™, the industry leading hardware management platform, is included with the Compaq UPS R3000 XR models. The CPM software is a versatile, fully configurable alert response tool. System administrators get a full overview of the network's conditions, including monitoring system status and power conditions, configuring shut down timing, customizing alert messages, and can perform UPS diagnostic checks quickly and easily.

## Independently Controllable Load Segments

With three independently controllable load segments on a single UPS, network administrators have the flexibility to configure scheduled startups and shutdowns for each segment. Working in conjunction with CPM Software, the Compaq UPS R3000 XR can be configured to extend the runtime for more critical devices. For more details on the load segments, refer to Figure 5.

## Increased Availability and Ease of Maintenance with Hot-Swappable Batteries and Hot-Swappable Electronics Module

When batteries reach the end of their useful life, replacement is easy with hot-swappable batteries. Compaq UPSs are designed with simple access through the front panel. Users can safely install new batteries without ever powering down connected server and server options. Figure 3 illustrates the Compaq UPS R3000 XR hot-swappable batteries and electronic module features.
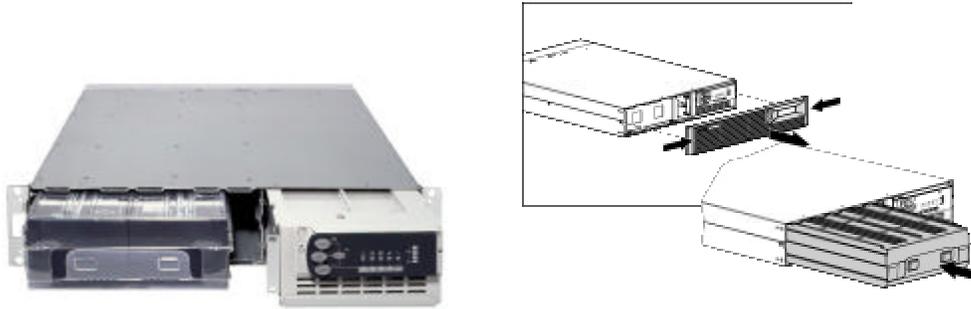


**Figure 3 : Hot-swappable battery and electronics module**

As a result of the UPS R3000 XR's modular design, the electronics module is also hot-swappable.

## Remote Emergency Power Off (REPO) Port

The Compaq UPS R3000 XR models include a REPO port that allows the UPS to be shut down from a remote location. To use this feature, the REPO port must be connected to a remote, usually an open switch (which is not supplied with the UPS). When this switch is closed, the UPS immediately disconnects power from its load segments. To shut down the entire network in the event of an emergency, the REPO ports from multiple UPS units can be connected to a single switch.

## Field Upgradeable through Firmware Flash

The Compaq UPS R3000 XR comes equipped with field upgradeable Firmware Flash. To update CPM software, download the latest version updates from the Compaq website and follow the LED display instructions.

**IMPORTANT:** The Compaq UPS R3000 XR should be undisturbed during the Firmware Flash upgrade to ensure proper installation and maintenance.

## Compatibility

The Compaq UPS R3000 XR is compatible with all Compaq servers, storage, racks, rack option, and other rack-mountable Compaq equipment.

## Compaq Quality

Compaq's hardware qualification is the most stringent in the industry. Extensive evaluation, testing, product improvement, and an unsurpassed warranty guarantee the highest level of system protection, electrical performance, product quality, and compatibility.

## Warranty

The Compaq UPS R3000 XR is covered by a three year limited warranty.

Also, standard on all Compaq UPS units, is an exclusive Pre-Failure Warranty which extends the advantage of a Compaq three year limited warranty by applying it to the battery before it actually fails. Specifically, the Pre-Failure Battery Warranty ensures that when customers receive notification from CPM software that the battery may fail, the battery is replaced free of charge under the warranty.

# Compaq UPS R3000 XR Models

**Table 1. Compaq UPS R3000 XR Model Selection Matrix[*]**

| | Nominal Voltage | Power Out (VA / Watts) | Input Connection | Output Connections |
|---|---|---|---|---|
| **North America / Latin America** | | | | |
| R3000 XR, NA Low | 120V[1] | 2880 / 2700 | L5-30P | (1) L5-30R; (6) 5-15R |
| R3000 XR, NA High | 208V[2] | 3000 / 2700 | L6-20P | (1) L6-20R; (9) IEC 320-C13 |
| **Japan** | | | | |
| R3000 XR, JPN Low | 100V[1] | 2400 / 2250 | L5-30P | (1) L5-30R; (6) 5-15R |
| R3000, JPN High | 208V[2] | 3000 / 2700 | L6-20P | (1)L6-20R; (9)IEC 320-C13 |
| **Europe, Middle East & Africa, Asia Pacific, and China** | | | | |
| R3000 XR, Detached Cord | 230V[3] | 3000 / 2700 | Country specific plug | (1) IEC320-C19; (9) IEC320-C13 |
| R3000 XR, IEC 309 | 230V[3] | 3000 / 2700 | 16A IEC 309 plug | (1) IEC320-C19; (9) IEC320-C13 |
| R3000 XR, SCHUKO Plug | 230V[3] | 3000 / 2700 | 16A CEE 7/7 SCHUKO Plug | (1) IEC320-C19; (9) IEC320-C13 |
| R3000 XR, South Africa Plug | 230V[3] | 3000 / 2700 | 16A BS-546 Plug (South Africa/ India Plug) | (1) IEC320-C19; (9) IEC320-C13 |

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[*] The low voltage models have a total of 7 receptacles including the PDU receptacles. The high voltage models have a total of 10 receptacles including the PDU receptacle.
[1] User selectable for 100, 110, 120, 127V via front panel
[2] User selectable for 200, 208, 220, 230, 240V via front panel
[3] User selectable for 208, 220, 230, 240V via front panel

# Front Panel
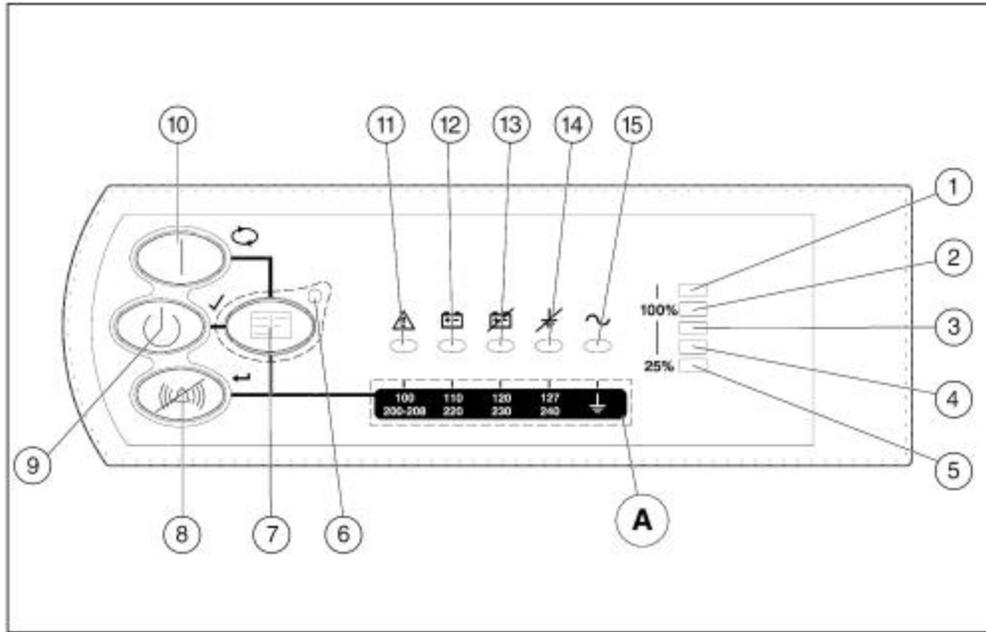


**Figure 4 : Front Panel of the Compaq UPS R3000 XR[1]**

1. LED indicating Overload capacity
2. LED indicating 76% to 100% load capacity
3. LED indicating 51% to 75% load capacity
4. LED indicating 26% to 50% load capacity
5. LED indicating 0% to 25% load capacity
6. Configure mode on LED*
7. Configure Button*
8. TEST/ALARM RESET Button

9. STANDBY Button
10. ON Button
11. General Alarm
12. On Battery
13. Bad Battery / Low Battery
14. Site Wiring Fault Indicator
15. Utility LED

A. Voltage Configuration Panel*
   * Accessible only when the front bezel is removed

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[1] The low voltage models have a total of 7 receptacles including the PDU receptacles. The high voltage models have a total of 10 receptacles including the PDU receptacle.

# Rear Panel
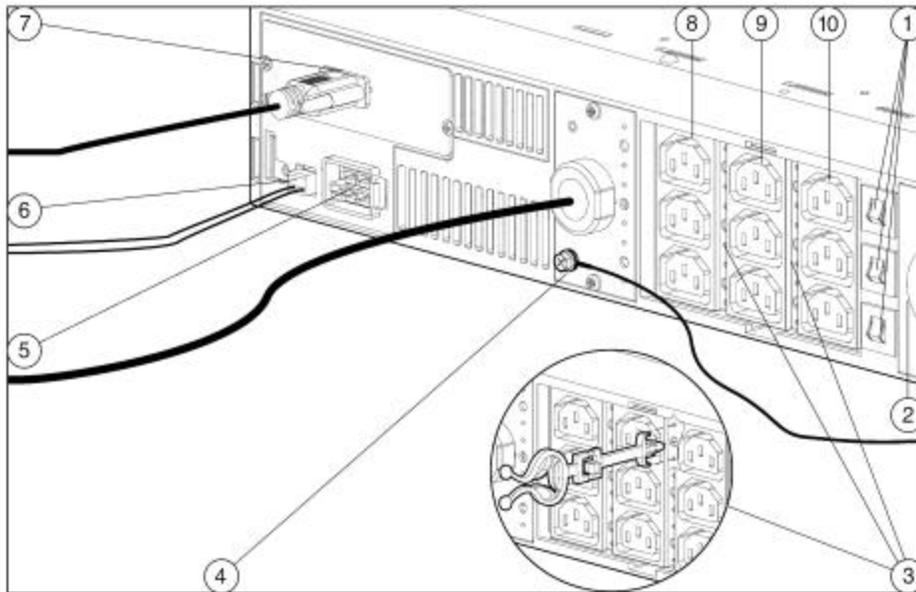


**Figure 5 : Rear Panel of the Compaq UPS R3000 XR[2]**

1. Load Segment Circuit Protectors
2. Compaq PDU output receptacle*
3. Cord retention clip attachment locations
4. Ground bonding screw
5. ERM Connector

6. REPO Port
7. Communications Port/Option Slot
8. Load Segment 1
9. Load Segment 2
10. Load Segment 3

*The PDU receptacle varies with the model. Refer to Table 1, the model selection matrix, for more details on the PDU receptacles.

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[2] The low voltage models have a total of 7 receptacles including the PDU receptacles. The high voltage models have a total of 10 receptacles including the PDU receptacle.

# Innovative UPS R3000 XR Technology

The Compaq UPS R3000 XR incorporates the newest innovation in UPS technology by using a digital signal processor (DSP) to control three solid state electronic power stages instead of a transformer to regulate and condition power to protected loads. Today's low-cost, DSP controllers, combined with reliable solid state electronics, provide a higher performance, cost-effective solution for the UPS design.

The DSP controls voltage through three electronic stages of the UPS as compared to using a series of relays for mechanical tap switching with a transformer.

The first stage includes a front end filter and surge protection with an electronic boost circuit controlled by the DSP. The filter and surge section condition the power by removing damaging spikes and surges. The electronic boost circuit provides dynamic voltage regulation by boosting the voltage when the input voltage sags. The electronic voltage boost controlled by the DSP enables a well regulated output without having to use battery power. This results in improved voltage regulation for the load and increased battery life.

The second Inverter (balancing) stage functions as a balancing circuit during normal operation, a DC to AC Inverter during battery operation, and also provides energy for the battery charger.

The third stage of conditioning functions as an electronic buck that is controlled by the DSP and regulates the output voltage down when the input voltage is higher than required. This innovative technology improves the performance over traditional line-interactive UPS designs while reducing the cost, weight, and size of traditional double-conversion online UPS designs. A DSP enables complete digital control of the UPS resulting in increased power conditioning, lower system cost, and enhanced user interface interactivity. As illustrated in Figure 6, the DSP controller manages all aspects of the UPS including the following:

- Sensing input voltage levels

- Setting and controlling buck and boost voltage regulation based on input voltage

- Controlling the inverter and battery charger

- Providing one button voltage configuration control from the front panel

- Interfacing with the power management software through the standard single port card, Six Port Card or SNMP / Serial Port Card

- Switching to electronic bypass

**UPS R3000 XR Block Diagram**
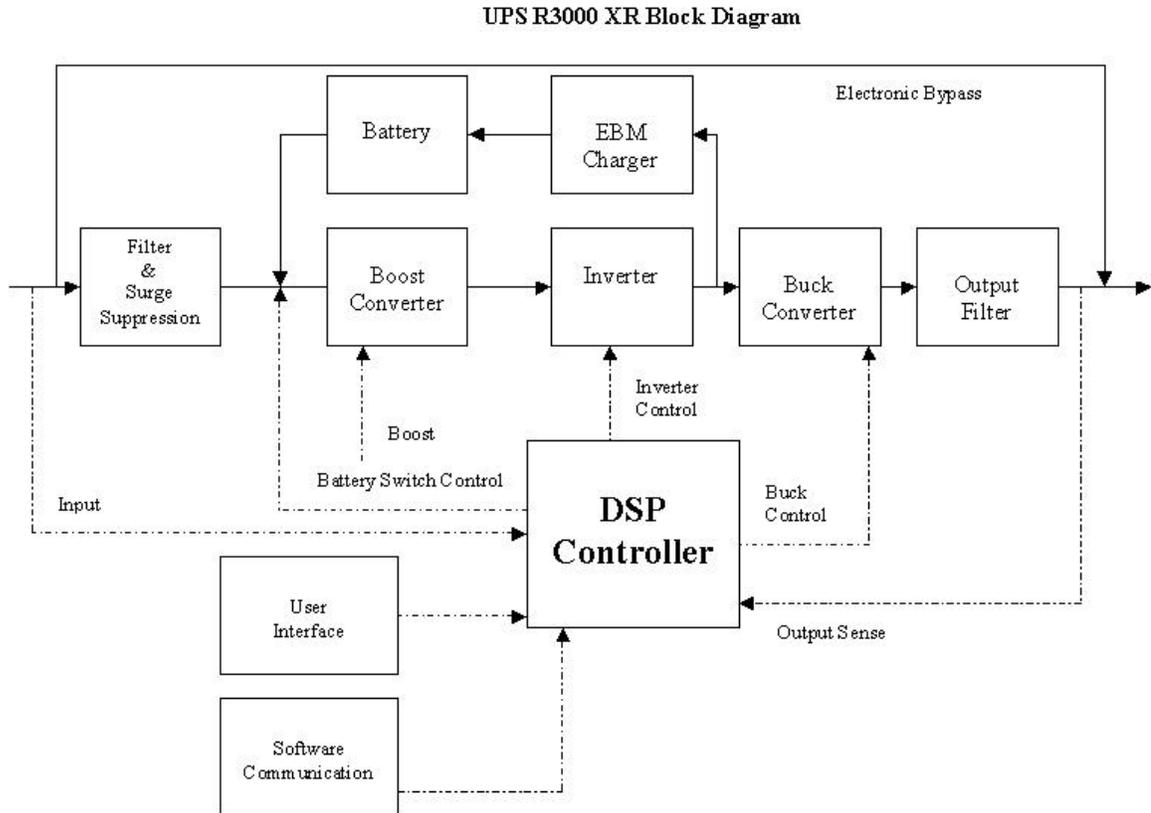
Figure 6 : UPS R3000 XR Digital Signal Processor (DSP)

The Compaq UPS R3000 XR also includes an innovative bypass circuit that enables continuous power to the critical load in the event of an unlikely UPS failure or UPS maintenance. The electronic bypass eliminates the necessity of a large expensive mechanical bypass switch needed to provide power to load during a UPS failure or maintenance. The entire electronics module that includes the DSP controller and three stage power conditioner can be removed and replaced through the front panel without having to remove power to the load or the UPS from the rack.

By using a DSP to control an electronic three-stage power conditioner instead of relays and a transformer, the Compaq UPS R3000 XR has many competitive advantages for a space-constrained rack environment. Digital control also brings the benefits of programmability, flash firmware, immunity to noise, and the elimination of redundant voltage and current sensors for each controller. With fewer components, the UPS is smaller and more reliable.

# Compaq Power Management (CPM) Software

Compaq UPSs come bundled with the CPM software. The UPS R3000 XR uses CPM 1.8. This software is included on a CD-ROM that is shipped with the system. Included on the same CD is the LanSafe III power management software which supports Linux, Compaq *Tru64™*, and other operating systems.

## Features

The CPM software features include:

- Automatic shutdown of server applications

- Automatic or scheduled load shedding

- Network, e-mail, telephone, or pager alert

- Remote reboot of server

- Diagnostic tool for power quality

- Simple Network Management Protocol (SNMP) Communications

- Status indicators with audio/visual alarms

- Monitoring utility power and the power supplied by the UPS

- Logging events such as utility power blackouts and brownouts

- Prioritizing protected devices

- Powering up and powering down protected devices

### Information Displayed by CPM Software

CPM Software displays information via several graphic screens. Displayed below is the PowerScope screen. The PowerScope is a dynamic, functional block diagram showing the flow of power from the utility, through the UPS, and out to the load, with values for input, output, and other data. The PowerScope diagram reads from left to right. It includes values for input voltage, output voltage, available run time, the current battery or Enhanced Battery Management status, and the current load percentage. The PowerScope screen's illustration of the power flow is displayed in Figure 7.
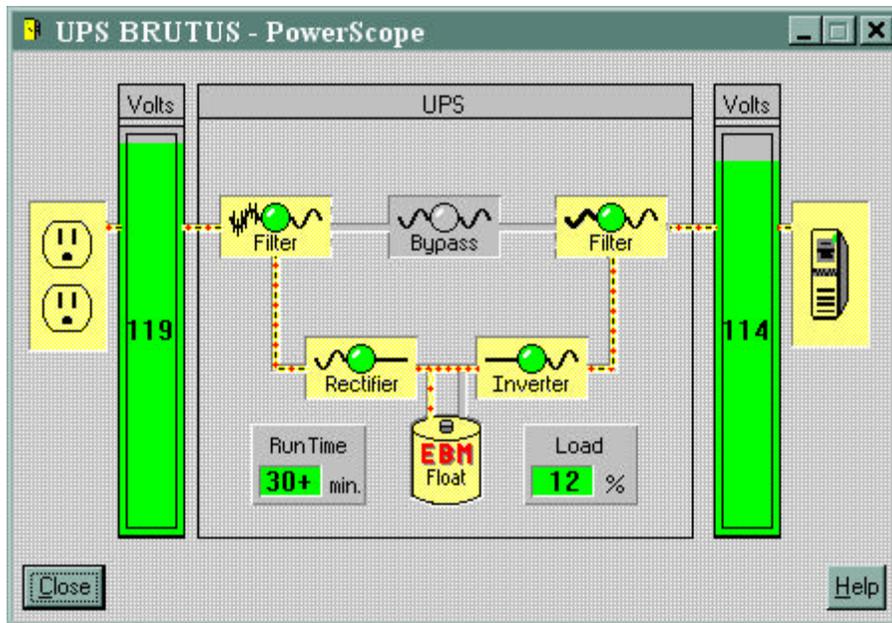
**Figure 7: PowerScope Screen**

# Options Available with the Compaq UPS R3000 XR

The Compaq UPS R3000 XR is a powerful and versatile power protection system. It can be upgraded to suit changing system requirements by adding an ERM, the Compaq option cards, the new SNMP / Serial Port Card, or the new Six Port Card, as well as through the bundled power management software. The UPS R3000 XR ships with one communication port. Figure 8 illustrates the option slot where either Option Card may be added.
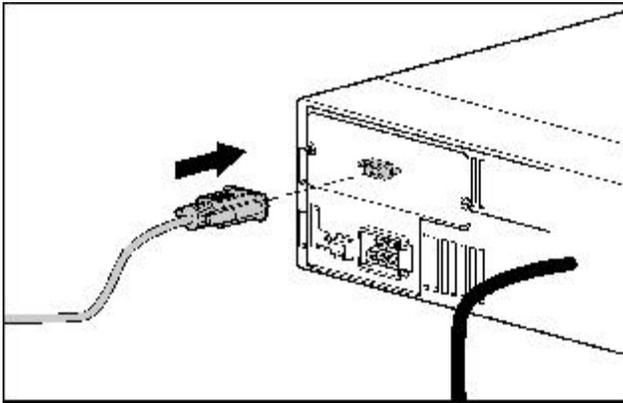


**Figure 8 : Option slot**

The Option Cards allow further extension and customization of current load requirements and configuration capabilities, while minimizing investment in the purchase of additional power protection systems.

**Table 2. New UPS R3000 XR Options**

| Option | Part Number | Description |
| --- | --- | --- |
| SNMP / Serial Port Card | 192189-B21 | Ideal for networked environments, this option card enables network administrators to remotely diagnose, monitor and reboot network devices through SNMP. |
| Six Port Card | 192185-B21 | This option card allows communication (through standard DB-9 serial ports) with up to three servers. It supports multiple operating systems for heterogeneous environments. |
| ERM for UPS R3000 XR | 192188-B21 | The new Compaq UPS R3000 XR supports one 2U (3.5 inches) ERM, a rack-mountable dual battery module that extends your overall battery runtime. |

## Compaq SNMP / Serial Port Card

The SNMP / Serial Port Card gives network administrators the ability to perform simultaneous network and out-of-band communications. It provides SNMP functionality including power event alerts, network power diagnostics, and remote UPS reboot and testing. It also features out-of-band (modem) communications allowing alerts to be received even if the network is down. Used in conjunction with the OnliNet power management software or SNMP-capable Network Management Software, power related problems on the network are quickly discovered and remedied. Figure 9 illustrates the SNMP / Serial Port Card added to a Compaq UPS R3000 XR.
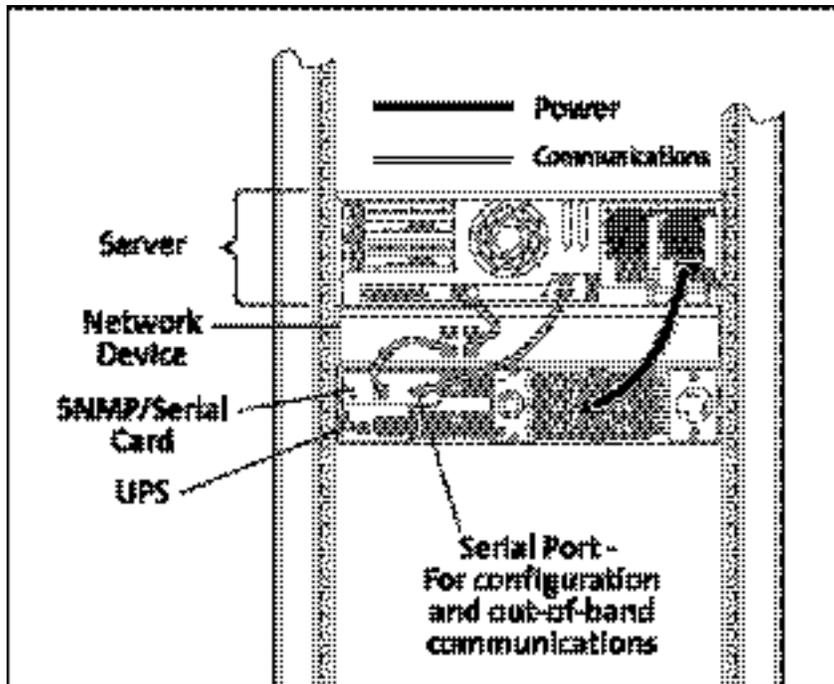


**Figure 9 : SNMP / Serial Port Card**

## Six Port Card

The Six Port Card has six communications ports and fits in the back panel of the Compaq UPS R3000 XR. This option card can be used to communicate with multiple servers. One port is designated for communication with the host server. Three other ports are designated for connecting additional servers. The card allows administrators to connect servers running different operating systems to the same Compaq UPS R3000 XR.
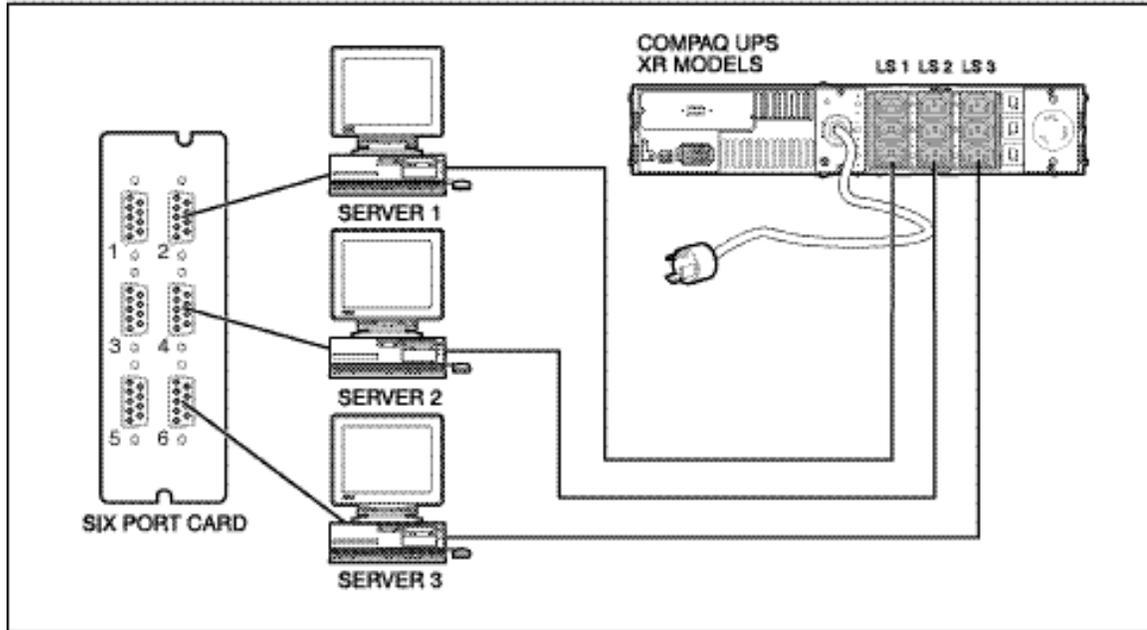
**Figure 10: Six Port Card**

The Six Port Card can communicate *serially* with the connected servers to perform key power management tasks. Used in conjunction with Compaq Power Management Software and LanSafe III power management software, the card provides prioritized sequential shutdown of up to three servers connected serially. This ability protects vital data in the event of an extended power failure.

The UPS R3000 XR can communicate directly with a single host server. The Six Port Card expands the communications capability of the UPS so that a single UPS can exchange data with up to three host servers. Individual server control can be obtained by connecting the servers to different UPS load segments. For example, if a network includes three servers (with one running Windows NT, one running Unix, and one running NetWare), a Six Port Card can be used to establish direct communications between the UPS and all three servers. Even if networks go down, this option allows direct communication from the UPS to each server to conduct a graceful shutdown of each operating system.

### Communicating with multiple UPSs over a network (vs serial communication) using the *UPS Groups Configuration*

Another way to communicate with multiple servers over a network is to use the *UPS Group Configuration.* When a single UPS supports more than one server or workstation, the resultant system is called a UPS group. Compaq Power Management Software and LanSafe III power management software support up to 64 network devices in a single UPS group and provides unattended, sequential shutdown of every device in that group, regardless of operating system.

Of the servers or workstations in a UPS group, only one is connected via a serial communication cable to the UPS. This workstation or server is called the UPS group controller, while the group's other workstations or servers are called UPS group members. If the UPS group controller shuts down, its group members must shut down. UPS group members may not have a longer shutdown time than the UPS group controller.

# Compaq UPS R3000 XR Extended Runtime Module (ERM)

The ERM provides additional runtime capacity for the Compaq UPS R3000 XR in 2U of space. With two battery strings within one module, the ERM can extend the runtime capacity up to 30 minutes at 80% recommended load. (Refer to Table 3 for estimated backup times.) Figure 11 illustrates the UPS R3000 XR with the ERM.



**Figure 11: UPS R3000 XR with ERM**

Each ERM includes a single battery connector for easy interconnection to the UPS R3000 XRand consists of two pullout hot-swappable battery trays. Figure 12 illustrates the Compaq UPS R3000 XR configured with an ERM.
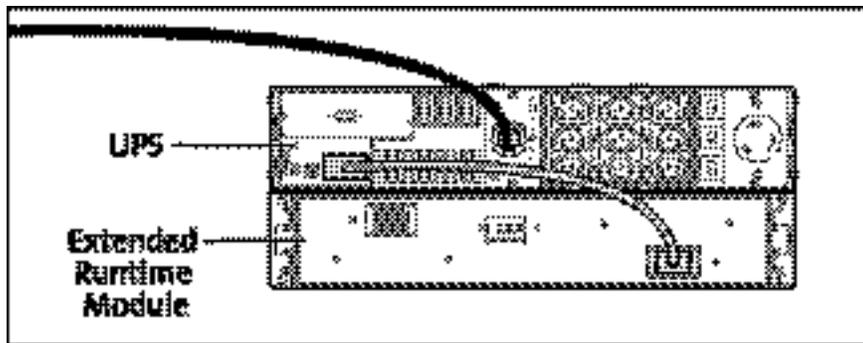


**Figure 12: UPS R3000 XR ERM**

The Compaq UPS R3000 XR offers a wide range of battery backup times over a variety of loads. The Compaq UPS R3000 XR can provide battery backup protection for critical loads ranging from minutes to hours. Table 3 shows a matrix of load and battery backup times that can be achieved with the Compaq UPS R3000 XR.

**Table 3. Backup Times in Minutes[*]**

| Load | With Standard Battery | With Extended Runtime Module |
|------|----------------------|------------------------------|
| 600 VA / 510 W | 40 | 120 |
| 1500 VA / 1350 W | 12 | 45 |
| 2400 VA / 2160 W | 6.5 | 30 |

[*] Backup times are estimated for typical applications and actual performance will depend on load and battery conditions.

| 3000 VA / 2700 W | 5 | 20 |
| --- | --- | --- |

# Frequently Asked Questions

**Q. How is this new UPS R3000 XR different from the legacy product?**

A. The new UPS R3000 XR represents a new generation of UPS technology. The UPS R3000 XR offers industry leading power density by supporting more power in less rack U-space. It supports 3000VA / 2700W in just 2U of rack space.

| Model | R3000 XR | Legacy R3000 |
|---|---|---|
| UPS technology | DSP Controlled three stage electronic power conditioning | Line-interactive with transformer and relays |
| Power Rating | 3000VA / 2700 watts | 3000VA / 2250 watts |
| Weight | 82 lb. | 132 lb. |
| Height | 2U (3.5 inches) | 3U (5.25 inches) |
| Field upgrades | Hot-swappable electronics module, electronic bypass, firmware flash, hot-swappable batteries | Hot-swappable batteries |
| Backup time | Extended run battery module available for additional backup time | Standard batteries only |
| User interface | Single button configuration; up to six server connection via option card | Multiple button configuration; up to three server connection via option card |
| Watts per U | 1350 watts per U | 750 watts per U |

**Q. Has the legacy product been discontinued?**

A. The legacy R3000 UPS was discontinued December 30, 2000.

**Q. How many Option Card slots does the UPS R3000 XR have?**

A. The UPS R3000 XR has one option card slot.

**Q. How many receptacles does the UPS R3000 XR have?**

A. The high voltage models of the UPS R3000 XR have a total of ten receptacles (including the PDU receptacle) divided into three load segments. The low voltage models have a total of seven receptacles (including the PDU receptacle) divided into three load segments.

**Q. What options are offered in support with this product?**

A. The Six-Port Card, the SNMP / Serial Card, and Extended Runtime Module are available with the UPS R3000 XR.

Compaq also offers several Power Distribution Units (PDUs) that can be used in conjunction with the UPS R3000 XR. More information on Compaq PDU products can be found at www.compaq.com/ups

**Q. Will these new options also work with the older, legacy product?**

A. No, the Six Port Card, the SNMP / Serial Port Card, and the ERM will not work with the legacy UPS products, including the legacy R1500, R3000 and R6000 rack-mount UPS models.

**Q. Will the UPS R3000 XR support the older, legacy multi-server card and the scaleable card?**

A. No.

**Q. What hardware does the UPS R3000 XR support?**

A. The UPS R3000 XR supports all Compaq rack-mountable servers, storage and options products.

**Q. Does the Compaq UPS R3000 XR ship with any software?**

A. The Compaq UPS R3000 XR supports Compaq Power Management Software 1.8. In addition the UPS R3000 XR also supports the LanSafe III power management software 4.15.

**Q. What Operating Systems will the Compaq Power Management Software 1.8 support?**

A. The Compaq Power Management Software 1.8 supports the following operating systems:

- Microsoft Windows NT 4.0 Server, Microsoft Windows NT 4.0 Server Japanese

- Microsoft Windows 2000 Server, Microsoft Windows 2000 Server Japanese

- Microsoft Windows 2000 Advanced Server, Microsoft Windows 2000 Advanced Server Japanese

- NetWare 3.x, 4.x, and 5.x,

- SCO 5, UnixWare 2 and 7

**Q. What additional Operating Systems will be supported with through LanSafe III 4.15?**

A. LanSafe III 4.15 supports the following operating systems:

- Microsoft Windows NT 3.5x-4.0, 2000 (Intel; English & Japanese versions)

- Novell NetWare 3.x-4.11, 5.0

- Compaq Tru64

- Linux
    – Caldera 2.3 (English)
    – Debian 2.1 (English)
    – Laser5 (Japanese)
    – Redhat 5.1, 6.1 (English), Redhat 6.0 (English & Japanese versions)
    – SuSE 2.2 (English)
    – Turbo Linux Server 1.2 (Japanese), Turbo Linux 4.0 (Japanese)
    – SCO Unix, OpenServer 3.x, 5.x, UnixWare 2.x

**Q. Does the UPS R3000 XR support Alpha Systems and Tru64?**

A. The Compaq UPS R3000 XR ships with LanSafe III power management software which supports Tru64 Unix.

**Q. Does the Compaq UPS R3000 XR have a bypass switch like the Compaq R6000 UPS?**

A. No, The UPS R3000 XR goes into automatic bypass mode if the UPS power module fails or is removed. The R6000 UPS features a manual bypass switch.

**Q. Does the UPS R3000 XR (low voltage model) still allow the opportunity to connect to my low voltage Compaq PDU to the new UPS (the PDU with the L5-30 receptacle)?**

A. Yes.

**Q. Does the UPS R3000 XR still allow the opportunity to connect to my high voltageCompaq PDU (the PDU with the IEC 320 receptacle)?**

A. Yes.

**Q I need to buy a Compaq rack-mountable UPS. How do I know if the UPS R3000 XR will support my needs?**

A. You can size your UPS using the Compaq Rack Builder Pro sizing tool. More information on this tool can be found at www.compaq.com/racks.

**Q. What service and warranty support does this product have?**

A. The Compaq UPS R3000 XR includes the following service and warranty support:

- Three-year limited warranty

- Compaq's Pre-Failure Warranty, which extends the advantage of a Compaq three-year limited warranty by applying it to the battery before it actually fails.

- $25,000 Computer Load Protection Guarantee

**Q. Where can I find more information on Compaq UPS products?**

A. More information on Compaq UPS products can be found at www.compaq.com/UPS.

# Technical Specifications

**Table 4.**

| Product Specifications | |
| --- | --- |
| Unit Dimensions | 3.5 x 19.0 x 24.5 in / 89 x 483 x 622 mm |
| Unit Weight | 82 lb / 37 kg |
| **Electrical Input** | |
| Voltage | 100, 120, 200, 208, and 230V Models |
| | See Table 1 Model Selection Matrix for nominal and user selectable voltage settings |
| Frequency | 50/60 Hz |
| Connection | See Table 1 Model Selection Matrix |
| Online Efficiency | 96% |
| Surge Suppression | High Energy 6500A peak |
| REPO | Remote Emergency Power-Off disables AC power to load |
| **Electrical Output** | |
| Online Regulation | −10% to +6% of nominal voltage |
| On battery Regulation | ±5% of nominal voltage |
| Voltage Wave Form | Sine wave |
| Connections | See Table 1 Model Selection Matrix; divided into 3 Load Segments |
| Output Protection | Re-settable Circuit Protectors |
| **Battery** | |
| Type | Maintenance-free, sealed, valve regulated lead acid (VRLA) |
| Extended Batteries | One ERM containing two battery strings |
| Backup Time | See Table 3 Backup Times |
| Recharge Time | <3 hours to 80% usable capacity; <24 hours for complete recharge |
| **Communications** | |
| Serial Ports | Standard DB-9 ports (ships with communication cable) |
| Option Cards | Six-Port Card and SNMP / Serial Port Card |
| LED Indicators | LED and switch membrane integrated into the front panel; with four button controls (three buttons for UPS power control and one button under the front bezel for voltage configuration). |
| **Environmental and Safety** | |
| Operating Temperature | 50° to 104°F / 10° to 40°C |
| Transit Temperature | −13° to 131°F / −25° to 55°C |
| Storage Temperature | 32° F to 77° F / 0°C to 25°C |
| Humidity (Operation) | 20% to 80% (non-condensing) |
| Humidity (Non-operating) | 5% to 95% |
| Operating Altitude | Up to 2000 m. (6,562 ft) above sea level |
| Transit Altitude | 15,000m (49,212 ft) above sea level |
| Safety Markings | FCS, UL, CSA, VDE, NEMKO, FIMKO, DEMKO, SEMKO, NOM |
| Safety Certifications | UL1778; CSA22.2 No.107.1,No.107.2,No.950; CB Bulletin No.86AI; EN50091-1; EN60950; EMKO-TSE207/95; NOM-019-SCFI-1993 |
| EMC Markings | FCC; CISPR; VCCI; CE |
| Emissions | FCC CFR 47, Part 15 Class A, EN50091-2 |
| Immunity | IEC 801-2, IEC 801-3, IEC 801-4, IEC 801-5 |
| Surge Suppression | Conforms to IEEE 587B and ANSI C62.41 |
| REPO Port | Meets NEC code 645-11 intent and UL requirements |

# Contact Information

For comprehensive online support, refer to:

www.compaq.com

For international information, refer to:

www.compaq.com/corporate/overview/world_offices.html

For a list of Compaq products, refer to:

www.compaq.com/showroom

**Departments and Telephone Numbers for the United States and Canada**

| Department | Telephone Number |
| --- | --- |
| Consumer Direct | 1-800-888-0220 |
| Compaq DirectPlus | 1-800-888-5858 (U.S.) |
| Compaq Partner Direct | 1-800-888-5874 |
| Compaq Reseller Locator | 1-800-345-1518 (Option 3) |
| Compaq Canadian Reseller Locator and Product Literature | 1-800-567-1616 |
| Diskette Fulfillment (backup diskettes for preinstalled software) | 1-800-952-7689 (U.S.) 1-800-349-8498 (Canada) |
| Compaq Product Information | 1-800-345-1518 (U.S.) 1-800-567-1616 (Canada) |
| Compaq Technical Support | 1-800-OK-COMPAQ (U.S. and Canada) 1-800-652-6672 |