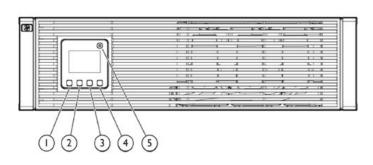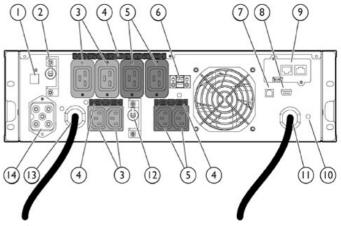## Overview

The innovative Minimally Switched Technology used in the HP R5000 UPS improves the performance over traditional line-interactive UPS designs while reducing the cost, weight, and size of traditional double-conversion online UPS designs. The digital signal processing (DSP) enables complete digital control of the UPS resulting in increased power conditioning, lower system cost, and enhanced user interface interactivity.

DSP technology enables the practical implementation of sophisticated UPS topologies and controls. The DSP can simultaneously control multiple power converters to optimize system efficiency and other performance characteristics such as: enhanced battery management for extended battery life, and improved output voltage regulation. The result is a higher performance UPS in smaller, lighter, more reliable designs-an advantage for space-constrained equipment racks and cost conscious, co-located data center applications.

Front View:

1. Escape Button
2. Scroll up button
3. Scroll down button
4. Enter/Select button
5. Power button

Rear View:

1. ERM connector for the small plug on the split ERM cable
2. Load segment 1 circuit breaker (controls the C19 and C13 receptacles, but does not control the large output receptacle)
3. Load segment 1 (two IEC-320-C19 receptacles, two IEC-320-C13 receptacles)
4. Cord retention clip attachment locations
5. Load segment 2 (two IEC-320-C19 receptacles and two IEC-320-C13 receptacles)
6. REPO port
7. USB communications port
8. Serial communications port
9. HP UPS Network Module (included)
10. Ground bonding screw
11. Input power line cord with NEMA L6-30 plug (NA/JPN) or IEC-309-32A plug (INTL)
12. Load segment 2 circuit breaker
13. Large output NEMA L6-30R receptacle (NA/JPN) or IEC-309-32A receptacle (INTL) associated with load segment 1
14. ERM Connector for large plug

Overview

Models

NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is indicated.

HP R5KVA 3U IEC309-32A High Voltage INTL Uninterruptible Power System   AF461A

HP R5KVA 3U L630 High Voltage NA/JP Uninterruptible Power System   AF460A

Kit Contents
- HP UPS R5000
- HP UPS Network Module
- Power Products Documentation CD
- Depth adjustable fixed rack mounting rails, mounting brackets, cord retention clips
- Communications cable
- Two 10 Amp IEC to IEC jumper cords

Standard Features

Key Features	- High power density with 5000VA/4500 Watts of power packed in just 3U rack space - Greater system uptime with support for Extended Runtime Modules (ERM) - Easy configuration through enhanced front panel display - Enterprise-wide intelligent manageability with bundled UPS Network Module and HP Power Protector software - More efficient voltage regulation with revolutionary Digital Signal Processing technology - Ultimate long-term battery reliability with HP Enhanced Battery Management - Enhanced system flexibility with two independently controlled load segments - Support for Remote Emergency Power Off (REPO) circuitry - Easy serviceability through modular design - Hot-Swappable Battery - Backed by a three year warranty with the first year including parts and labor. HP's Pre-Failure warranty, and a $250,000 load protection guarantee*. (Certain restrictions and exclusions apply; *Load protection guarantee available in North America only.) - Optional Extended Runtime Modules (ERM) increase batter runtime during a power failure

3U Power Packed Design	Rated near unity at 5000VA / 4500W, the HP UPS R5000 packs more power in space-conserving rack-mount design, allowing you to support more critical equipment in your rack.
Increase System Uptime with Extended Runtime Modules	The Extended Runtime Modules are rack mounted battery modules that occupy 3U (5.25 inches) of rack space. The HP UPS R5000 supports up to four Extended Runtime Modules (ERM), which extends your overall battery runtime.
Lower Cost of Ownership with Innovative Technology	The HP UPS R5000 utilizes a new industry-leading technology that continually conditions and regulates power without using the battery, thereby increasing the life of the battery. The output voltage is automatically regulated, based on the connected load and the input voltage.
Investment Protection with HP Enhanced Battery Management	HP UPS R5000 incorporates Enhanced Battery Management: an exclusive, patented technology that doubles battery service life, optimizes battery recharge time, and provides advance notice of pending battery failure. With Enhanced Battery Management, you can save 2-3 battery replacements over the life of the UPS saving hundreds of dollars giving you a lower total cost of ownership while still receiving the power protection for your critical equipment.
Enhanced Flexibility	Four C13 outlets, four C19 outlets, and a L6-30 outlet (32A IEC on the International model) provide a wide range of connection options. Adding the HP PDU Extension Bars, AF500A, provides additional C13 outlets making the R5000 and extremely flexible UPS for all environments.
Remotely Monitor UPSs on the Network	The installed UPS Network Module enables network administrators to remotely monitor UPSs and reboot network devices. It provides SNMP functionality, including power event alerts, network power diagnostics, and remote UPS reboot and testing. Used in conjunction with HP Systems Insight Manager or other SNMP capable Network Management Software, power-related problems on the network are quickly discovered and remedied.

Standard Features

Easy Configuration via Enhanced Front Panel Display	LCD system integrated into the front panel with five button controls (three buttons for UPS power control and one button under the front bezel for configuration)
Independently Controllable Load Segments	With two load segments, you have the flexibility to configure scheduled startups and shutdowns, in addition to independently control the separate load segments. Working in conjunction with HP UPS Management Module, the HP UPS R5000 can be configured to extend the runtime for more critical devices.
Ease of Maintenance with Hot-Swappable Batteries and Electronics Modules	The UPS R5000 is modular in design, and both the battery and the electronics modules are hot swappable. HP UPSs are designed with simple access through the front panel. Users can safely install new batteries and even the electronics module without ever powering down connected server and server options.
Extended Runtime Module (ERM), R5000	The UPS R5000 supports up to four Extended Runtime Modules. Each module is 3U (5.25 inches), a rack mountable battery module that extends your overall battery runtime.
HP Quality	HP's hardware qualification is the toughest 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.
Compatibility	Compatible with all HP servers, storage, racks, rack options, and other rack mountable HP equipment. For PDU options please refer to the UPS/PDU compatibility matrix on www.hp.com/products/ups.
Warranty	The HP UPS R5000 is covered by a three year warranty, with the first year including parts and labor. Also, standard on all HP UPS units, is our exclusive Pre-Failure Warranty, which extends the advantage of a HP three-year, limited warranty by applying it to the battery before it actually fails. This warranty is offered worldwide. Specifically, the Pre-Failure Battery Warranty ensures that when customers receive notification from HP Power Management Software that the battery may fail, the battery is replaced free of charge under the warranty. All HP Rackmount UPSs are also automatically covered to the full service level of ProLiant Care Packs in the same rack so there is no need to purchase additional Care Packs for the UPSs. Batteries are not covered under Care Pack Coverage **NOTE:** $250,000 Computer/Load Protection Guarantee is also provided in NA, in addition to the HP three year, limited warranty.

Service and Support

Service and Support	**HP Technology Services** HP Technology Services offers you consultants and support experts to solve your most complex infrastructure problems. We help keep your business running, boost availability and avoid downtime. **Protect your business beyond warranty with HP Care Pack Services** When you buy HP Options, it's also a good time to think about what level of service you may need. HP Care Pack services provide total care and support expertise with committed response choices designed to meet your IT and business need.

Recommended HP Care Pack Services for optimal satisfaction with your HP product

Recommended Services	**3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service** Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged. http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE **HP ProLiant Server Hardware Installation** Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN

Related HP Care Pack Services to enhance your HP product experience

Related Services	**3-Year HP 6 hour Hardware Support Onsite Call-to-Repair Service** Provides an IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 hours of the initial service request to the HP Global Solution Center http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EN **HP Proactive Select Service** Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN
Insight Remote Support	Delivers secure remote monitoring and support for HP servers and storage, 24x7 at no additional cost. Available as part of HP Warranty, Care Pack and Service Contract offers.
Parts and materials	HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements. Supplies and consumable parts will not be provided as part of this service; standard warranty terms and conditions apply. Parts and components that have exceeded their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual or the technical product data sheet will not be provided, repaired or replaced as part of this service.
Coverage	For ProLiant servers and storage systems, this service covers HP-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by HP as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating

Service and Support

For more information

manual or the technical data sheet are not eligible for the defective media retention service feature option. To learn more on services for HP ESSN Options, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: http://www.hp.com/services/proliant or www.hp.com/services/bladesystem

Related Options

HP UPS Options	HP R5KVA and R7KVA 3U Extended Runtime Module	AF464A
	NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is indicated.	
HP Care Pack	HP Install Universal Power Supply 3KVA to Below 6KVA Service	U4693E

UPS Model Matrix

High Voltage Models

Part Number	Operating Voltage Settings	Power Out (VA/Watts)	Input Connection	Output Connection
AF460A (NA/JPN)	200/208*, 220, 230, 240	5000/4500	L6-30P, 3m cord	LS1: 15A CB - 2 x C19 + 2 x C13 LS2: 15A CB - 2 x C19 + 2 x C13 Plus one pigtailed receptacle (LS1) 1 x L6-30R for NA/JPN model
AF461A (International)	220, 230*, 240	5000/4500	IEC-309 32Amp, 3m cord	LS1: 15A CB - 2 x C19 + 2 x C13 LS2: 15A CB - 2 x C19 + 2 x C13 Plus one pigtailed receptacle (LS1) 1 x IEC-309 32Amp for Int'l model

* Factory default setting.

Estimated Backup Times Chart (Minutes)

Average Battery Runtime

Load (Percent*)	With Internal batteries	With One Extended Runtime Module (Minutes)	With Four Extended Runtime Modules (Minutes)
25	44	143	436
50	16	44	145
80	7	25	83
100	5.7	20	64
NOTE: Backup times are estimated for typical applications. Actual performance will depend on load and battery conditions.			

Technical Specifications

Unit Dimensions (HxWxD)	5 5 in (12.7 cm) x 17.2 in (43.7 cm) x 29.3 in (74.4 cm)	
Shipping Dimensions (HxWxD)	14.4 in (36.58 cm) x 23.6 in (60 cm) x 38.78 in (98.5 cm)	
Unit Weight	126 lbs (57kg)	
Shipping Weight	192 lbs (87 kg)	
BTU Break Down	**BTU On Line**	478 all models
	BTU On Battery	846 INTL, 1041 NA/JPN
	Battery String Voltage	216V
	Battery Type	12V 27W
	Battery Quantity	18
Electrical Input	**Voltage Range**	160-253V at 200/208V nominal; 176-253V at 220, 230, and 240V nominal
	Frequency	50/60 Hz
	Input Plug	Part number AF460A: L6-30P, 3m cord Part number AF461A: IEC-309 32Amp, 3m cord
	Online Efficiency	94%
	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 Model Selection Matrix; divided into 2 Load Segments
	Output Protection	Re-settable circuit protectors
Battery	**Type**	Maintenance-free, sealed, valve-regulated lead acid (VRLA)
	Extended Batteries	Up to four ERMs supported
	Backup Time	See Backup Times Chart
	Recharge Time	<3 hours to 80% usable capacity; <48 hours for complete recharge
	Battery String Voltage	216V
	Battery Type	12V 27W
	Battery Quantity	18
Communications	**LED Indicators**	LCD and switch membrane integrated into the front panel; with five-button control (four buttons for UPS power control and one button under the front bezel for 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° to 77° F (0° to 25° C)
	Operating Humidity	20% to 80% (non-condensing)
	Storage Humidity	5% to 95%
	Operating Altitude	Up to 6,60 ft (2000 m) above sea level
	Transit Altitude	49,000 ft (15,000 m) above sea level
	Audible Noise	<45db (in normal operation)

Technical Specifications

Safety Markings	NA/JPN: UL, cUL Int'l: GS, CE, GOST
Safety Certifications	UL1778, UL60950-1; CSA22.2 No.107.3, No.60-1950; EN50091-1-1; EN60950-1 IEC62040-1-1
EMC Markings	NA/JPN: FCC, VCCI, ICES, CISPR Int'l: BSMI, C-Tick, CISPR
Emissions	FCC CFR 47, Part 15 Class A, EN50091-2
Immunity	IEC 801-2, IEC 801-3, IEC 801-4, IEC 801-5
REPO Port	Meets NEC code 645-11 intent and UL requirements

Environment-friendly Products and Approach

End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.