

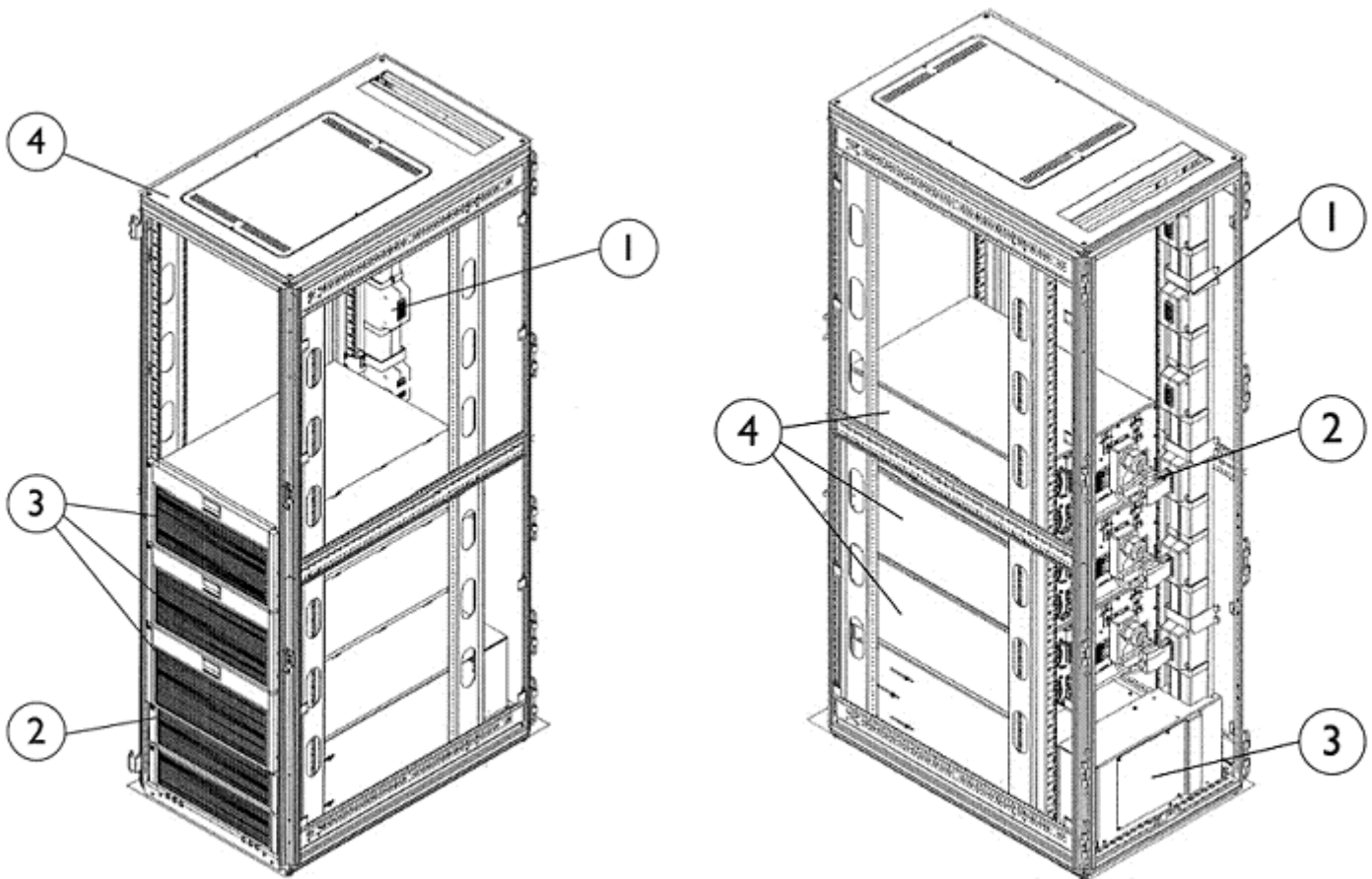
QuickSpecs

HP Parallel 3 Phase Uninterruptible Power Systems

Overview

Power protection in the data center is critical to maintain up time, and the increased densities in data centers is driving the need for uninterruptible power with increased power density, power efficiency, and flexibility. The HP RP36000/3 does just that. This pre-racked uninterruptible power systems provides 36 kilowatts (KW) of power or 24KW with N+1 redundancy. Housed in a single rack cabinet, (HP Rack 10000 Series G2 42U) it can be expanded to 60KW with N+1 simply by installing up to 3 additional RP12000/3 UPS Modules. Digital signal processing, UPS paralleling, and a new On-line On Demand hybrid technology answer the demands for density, redundancy, efficiency and flexibility.

On-line On Demand combines the high efficiency of a line interactive UPS, up to 97%, with the stability of a double conversion on-line UPS when power fluctuates beyond acceptable limits. Hot swappable batteries and electronics modules and an automatic bypass reduce MTTER (mean time to repair) - down time in the event service is needed.



RP36000/3 Front

RP36000/3 Rear

Overview

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|--|---|
| 1. Power bus bar | 1. Power bus bar |
| 2. Cabling wire tray (6U) | 2. Input and output connections for RP12000/3 UPS Modules |
| 3. RP12000/3 UPS Modules (qty3) | 3. Cabling wire tray (6U) |
| 4. HP 10000 Series G2 42U rack with front and rear doors | 4. RP12000/3 UPS Expansion Modules (qty3) |
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Models

HP RP36000/3	HP RP36000/3 Uninterruptible Power System	AF438A
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Related Options

Expansion Upgrade for HP RPS36000/3	HP RP12000/3 UPS Expansion Module 6U	AF436A
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Key Features

- State-of-the-art UPS paralleling technology provides no single point of failure
- Modular design for growth and flexibility
- Configured to Order in 36kW, 48kW, and 60kW configurations
- Unity Rated, volt amperage out equals wattage out for minimum lose
- On-line On Demand hybrid technology provide industry leading efficiency
- Hot-swappable battery and electronics modules provide ease of maintenance and faster time to repair
- Enhanced Battery Management (EBM) extends battery life and improved battery monitoring
- Optional Extended Runtime Modules (ERMs) can extend up time during a power failure
- Enhanced front panel display for easy configuration
- The HP UPS Management Module is included for remote management and monitoring from most web browsers
- Backed by a limited three-year warranty, HP's pre-failure warning for batteries

Product Highlights

NOTE: For a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: <http://h71028.www7.hp.com/ERC/downloads/4AA1-5885ENW.pdf>.

Superior power conditioning and thermal efficiency with On-line On Demand technology and Unity Rating When apparent power (VA) equals true power (Watts), the UPS is said to be unity rated (or power factor correction=unity=maximum efficiency). Also, the HP RP36000/3 UPS uses On-line On Demand hybrid technology which operates in line interactive mode during general use to maximize efficiency and minimize heat output. If input voltage fluctuates outside of the established range, such as if a generator comes on line, the UPS immediately switches to double conversion on-line mode to provide the cleanest power possible. This hybrid technology provides 97% efficiency in standard mode, even with output loads as low as 40% of maximum.

Superior Battery Management Each HP RP12000/3 UPS Module 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 have a lower total cost of ownership and receive the best in the industry protection for your critical equipment.

State-of-the-art UPS Paralleling Technology Configured to order, the HP RP36000/3 UPS ships with three HP RP12000/3 UPS Modules, the power bus bar, and the wiring cabinet installed in an HP Rack 10000 G2 Series 42U rack cabinet. Each module houses its own electronics, batteries, and intelligent automatic bypass module for maximum redundancy. A unique patented state-of-the-art UPS paralleling technology allows all the modules to function independently of each other while presenting themselves as a single, much larger UPS. Should one of the modules fail then the remaining modules seamlessly redistribute the new load requirement through an automatic load sharing process (with transparent transfer time). And since both the logic and electronics are housed in the each of the individual HP RP12000/3 UPS Modules this technology eliminates system-level single points of failure. The base configuration can be configured as either a 36kW UPS or a 24kW parallel UPS with N+1 redundancy. Up to three additional HP RP12000/3 UPS Modules can be added to provide a maximum of 60 kilowatts with N+1 redundancy (in a single 42U rack).

With its high speed Digital Signal Processing (DSP) design all necessary information for paralleling is available to all UPS modules and eliminates single points of failure. The load share control algorithms maintain synchronization and load balance by constantly making minute adjustments to variations in the output power requirements. The paralleling technology in the HP RP36000/3 UPS provides the highest level of reliability and system availability.

Ease of serviceability through hot-swappable batteries and electronics modules The HP RP36000/3 UPS and HP RP12000/3 UPS Modules have a uniquely designed architecture, consisting of separate, hot swappable battery and electronics modules. Further, a built-in intelligent automatic bypass feature ensures continuous power to your connected load even while the modules are being replaced. Ease of maintenance and serviceability

- Faster time to repair (low MTTR)
- Automatic and manual bypass
- Increased flexibility through modular design

Product Highlights

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- Increase battery back-up time with up to four Extended Runtime Modules** Each HP RP12000/3 UPS Module supports a maximum of four Extended Runtime Modules (ERM), to further increase your battery back-up time, should you have a sudden brief power outage. Each ERM is 3U high and can be automatically detected and configured when attached to the UPS. For maximum runtime the ERMs should be configured evenly across all UPS Expansion Modules in the HP RP36000/3 UPS. For more information on battery back up times, please refer to the Back-up Times Chart or the Runtime Calculator located at www.hp.com/products/ups
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- Remote management increase flexibility** The HP RP36000/3 systems can be fully configured and monitored from any of the front management LCDs. For remote management the HP UPS Management Module is included at no charge and provides an embedded web interface allowing the UPS to be managed from anywhere on the network.
NOTE: for more information on the UPS Management Module please see: <http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/software/module/ups/index.html>
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- Remote Emergency Power Off Feature** The HP RP36000/3 UPS includes an isolated REPO (Remote Emergency Power Off) port. The REPO feature allows the power to the UPS outlets to be switched off from a remote location. For more information, refer to the HP RP36000/3 UPS user manual.
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- Flexible output configuration** Output may be hardwired to a remote power panel, such as the HP Power Distribution Rack, to a wall mounted distribution panel, or optionally via the UPS Output Modules which provide two 3 phase connections per HP RP12000/3 UPS Modules to connect directly to adjacent racks of equipment.
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- Output Configuration Options**
- HP Power Distribution Rack** The HP Power Distribution Rack enhances power management in the data center by moving power distribution to the row level. Decentralizing power improves cable management, decreases diagnostic time for problems, and saves installation costs by reducing the size and number of long power feeds required to reach from large wall mounted distribution units. Housed in a single HP Rack 10000 G2 42U rack cabinet, the HP PDR also saves floor space and allows you to move heat robbing transformers off of the data center floor improving cooling.
- Fully redundant inputs and outputs, can power large numbers of racks with shorter cable runs than conventional site level power distribution systems while providing dependable power to protect valuable IT hardware. Individual branch circuit monitoring and redundant management modules insure you can always determine status and power consumption of each attached rack.
- NOTE:** for more information on the HP Power Distribution Rack please see: www.hp.com/go/pdr
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- Wall mounted distribution panel** The HP RP36000/3 UPS output may be connected to a customer supplied wall mounted distribution panel with a variety of breakers. Panel capacity (amperage) should be determined by the final output power the UPS is configured for. The maximum panel size necessary would be 225A (NA) or 125A (INTL)
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- Output Modules and Jumpers** Output modules attach directly to each HP RP12000/3 UPS Modules in the configuration. Each output module provides two L15-30R outputs (NA) or 2 IEC 309 516C9 (16A, 3 phase) outlets (INTL). By using 3 phase jumper cables the output modules can be connected directly to HP 3 Phase Modular or Monitored PDUs in several individual racks. Because of the UPS Parallel design even a loss of a HP RP12000/3 UPS Expansion Module would not interrupt the load on the output module attached to it. Up to 6 Output Modules can be configured in a fully loaded HP Parallel UPS.
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Product Highlights

HP UPS Management Module

The HP UPS Management Module (included) enables you to monitor and manage power environments through comprehensive control of HP UPSs. The HP UPS Management Module can support either a single UPS configuration or provides additional power protection with support for dual redundant UPS configuration for no-single-point-of-failure. The additional serial ports will provide greater power management control and flexible monitoring.

The management module can be configured to send alert traps to HP Systems Insight Manager and other SNMP management programs or used as a standalone management system. This flexibility enables you to monitor and manage UPSs through the network. To facilitate day-to-day maintenance tasks, the embedded management software provides detailed system logs.

The HP UPS Management Module provides remote management of a UPS by connecting the UPS directly to the network. Configuration & Management of the UPS from anywhere and at anytime via a standard web browser.

NOTE: For more information on the UPS Management Module please see:
<http://h18004.www1.hp.com/products/servers/proliantstorage/powerprotection/software/module/ups/index.html>

Configure to Order

Each HP Parallel UPS is configured to order in either a 36kW, 48kW or 60kW configuration. The base RP36000/3 configuration includes an HP 10000G2 series 42U rack with front and rear doors, a wiring tray installed in the bottom 6U of the rack, the power bus bar installed in the rear of the rack, and three RP12000/3 UPS Expansion Modules with communication cards and one UPS Management Module preinstalled. Up to three additional RP12000/3 UPS Expansion Modules can be installed in the same rack and shipped directly to the installation site.

Due to weight limitations Extended Runtime Modules will not be shipped in the same rack as the UPS.

Please allow appropriate time for configuration and shipping.

Service and Support, HP Care Pack, and Warranty Information

Warranty

- HP RP12000/3 UPS Expansion Modules are backed by a standard three-year limited warranty; 3-year parts, 1-year Labor, 1-year onsite. Optional UPS HP Care Pack services are also available for purchase. The power bus bar is covered by a 3-year parts only warranty.
- Pre-Failure Battery Warning and its associated Warranty.
 - The Pre-Failure Battery Warning is proactively detected and notified by a LED indicator light, showing that the battery needs to be replaced. This notice is given 30 days prior to the battery failure. This indicator provides ample time to order a spare battery (1-800-HP-Invent). Avoid storing battery spares as a back up because of short shelf life of the battery. The battery warranty coverage is 3 years for parts. The warranty for the first year of ownership includes parts and labor.
 - Warranty, standard on all HP Uninterruptible Power System (UPS) units, extends the advantage of a HP three-year limited warranty by applying it to the battery before it actually fails. Specifically, the Pre-Failure Battery Warning ensures that when customers receive the notification from their HP UPS that the battery may fail, the battery is replaced free of charge under the warranty. HP maintains the highest standards in the industry, as evidenced by the HP Pre-Failure Battery Warranty.
- In addition, HP UPSs are covered by a \$250,000 equipment protection guarantee. Should your connected equipment get damaged due to a UPS failure, then your damaged equipment is covered to up to \$250,000.

NOTE: The \$250,000 Equipment Protection Guarantee is offered only in North America.

HP Care Pack Services

These HP Care Pack Services help increase uptime and productivity with rapid-response support on a 24x7 or 13x5 basis. Coverage of UPS batteries is not included with Care Pack Services.

NOTE: For more information on HP Care Pack services, contact any of our worldwide sales offices or resellers or visit our worldwide Web site on the internet at: <http://www.hp.com/hps/carepack>

NOTE: For more complete information on HP Services offerings, customers and resellers, please visit us at: <http://www.hp.com/hps>

NOTE: Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

NOTE: The information contained herein is subject to change without notice and is provided "as is" without warranty of any kind.

NOTE: The warranties for HP products and services are set forth in the express limited warranty statements accompanying such products and services.

Related Options

Care Pack Services	4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UH804E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UH805E
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UH806E
	<p>NOTE: Additional Care Packs are available.</p> <p>NOTE: The UPS batteries, power bus bar, and wire tray components are covered by a 3 year parts warranty only.</p>	
Power Distribution Rack	400 Amp Dual Input Power Distribution Rack	AF514A
<p>NOTE: For more information on the HP Power Distribution Rack please go to: www.hp.com/go/pdr.</p>		
Extended Runtime Module	Extended Runtime Module	AF434A
<p>NOTE: Each HP R12000/3 UPS Expansion Module supports a maximum of four Extended Runtime Modules (ERM), to further increase your battery back-up time. Each ERM is 3U high and can be automatically detected and configure when attached to the UPS. For maximum runtime, ERMs should be evenly distributed across all UPS Expansion Modules. All installed RP12000/3 UPS Expansion modules should have the same number of ERMs attached. For more information on battery back up times, please refer to the Back-up Times Chart.</p>		
UPS Output Modules	UPS Output Module, Dual L15-30	AF440A
3 Phase Jumper Cables	L15-30P to L15-30R, 5ft	460151-005
	L15-30P to L15-30R, 10ft	460151-010
	L15-30P to L15-30R, 15ft	460151-015
Rackmount Power Distribution Units (PDUs) and PDU options	8.6 kVA Modular PDU, 24A 3Ø	AF512A
	HP 8.3 kVA S1324 Monitored PDU- single input, 3Ø, 24A	AF504A
	HP 17.3 kVA S2324 Monitored PDU- dual input, 3Ø24A	AF503A
HP PDU Extension Bars	HP C-13 PDU Extension Bar Kit, pair	AF500A
	<p>NOTE: Each extension bar has a C-20 input cord and 7 x C-13 receptacles.</p> <p>Fixed Cord Extension Bars, 100 - 240 VAC</p> <p>NOTE: Each extension bar has a C-20 input cord and 7 attached 13 inch C-13 power cords for use with 1U servers.</p> <p>NOTE: Extension bars may be used with any HP PDU that has C-19 outlets</p>	351655-B21
HP PDU Management Module	HP PDU Management Module	AF400A
<p>NOTE: For additional information on the PDU Management Module please go to: http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/power-distribution/module/index.html</p>		

Related Options

HP Power Cords	10A, IEC320 C-14 to IEC320 C-13 Cables, 4.5ft (1.37m), 15 pack	142257-007
	10A, IEC320 C-14 to IEC320 C-13 Cables, 4.5ft (1.37m), single 15 pack	142257-006
	10A, IEC320 C-14 to IEC320 C-13 Cables, 1.6ft (0.5m), single pack	142257-B28
	16A, IEC320 C-19 to IEC320 C-20 Cables, 8ft (2.5m), single pack	295633-B22
	16A, IEC320 C-19 to IEC320 C-20 Cables, 6.5ft (2m), single pack	AF574A
	16A, IEC320 C-19 to IEC320 C-20 Cables, 4ft (1.2m), single pack	AF575A
	16A, IEC320 C-19 to IEC320 C-20 Cables, 3ft (1m), single pack	E7798A
	NOTE: For more information on HP power cords please go to: ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/power-cord-option-kits.pdf	
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Sidewall Panel Kits	10642 G2 (42U) Side Panels (set of two) (Graphite Metallic) NOTE: The lightweight, locking side panels for the G2 Series racks come in 3 sections for better handling. Side panels are included with the 22U and 14U racks.	AF054A
Rack Stabilization Kits	HP 10K G2 600mm Stabilizer Option Kit (Graphite) NOTE: The anti-tip stabilizer kits provide stability and support when equipment is installed, removed or accessed within the rack.	AF062A
HP Rack Cable Trays	Rack Top Cable Tray, 600W (set of 8)	383982-B21
	Rack to Rack Adjustable Cable Tray, Aisle Transfer Bridge NOTE: The Aisle Transfer bridge allows for cabling trays to be connected even across different aisles in the datacenter. NOTE: These kits mount on the top of the 9000 and 10000 Series rack (except the S10614 rack). Kit color is graphite.	383984-B21
Rack Coupling Kit	Rack Coupling Kit (Carbon) NOTE: Supported by both the Rack 10000 and Rack 10000 G2 series. Supports 24 in and 600 mm floor tile spacing. The kit is used to join two or more 10000 series racks of the same height together in minutes to create a multi-bay configuration. NOTE: for a complete list of all HP 10000 G2 Series rack option please go to www.hp.com/go/rackandpower	248929-B21
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Service and Support Offerings (HP Care Pack Services)	Hardware Installation (Electronic) NOTE: Covers field installation of an additional RP12000/3 UPS module into an existing RP36000/3. The RP36000/3 must be installed by a qualified electrical contractor. One U4696E Service must be purchased for each additional RP12000/3 UPS Expansion module to be installed.	U4696E

Technical Specifications

	RP36000/3 Base UPS	RP12000/3 UPS Expansion Module
General Characteristics	Power rating (non-redundant)	36kW/36kVA
	Power rating (N+1)	24kW/24kVA
	Efficiency	>97% at 40% load and above
	Heat dissipation	1113W/3800 BTU
	Altitude before de-rating	1000 meters (3300 ft. ASL)
Output Characteristics	Output connections	Hardwired to power bus bar or uses optional output modules
	Rated Output voltage	100-120VAC Phase to Neutral 180-255VAC Phase to Phase 208VAC 3F Delta or Wye
	Output configuration	50 or 60Hz auto detecting at startup
	Frequency regulation	0.1Hz free running
	Load power factor range	Lagging: 0.7 Leading: 0.9
	Total output voltage distortion	<3% with IT loads (PFC power supplies) <5% non-linear or non-PFC power supplies
	Input Characteristics	Nominal input voltage
Voltage range		180 - 255VAC
Input Current (100% Load)		3 UPS Modules 150 Amps 4 UPS Modules 200 Amps 5 UPS Modules 225 Amps 6 UPS Modules 225 Amps
Input Current (N+1)		3 UPS Modules 150 Amps 4 UPS Modules 200 Amps 5 UPS Modules 225 Amps 6 UPS Modules 225 Amps
Battery Characteristics		Battery type
	Battery runtime (no ERM)	>5 minutes at 100% load
	Battery string voltage	240VDC
	Battery test	Automatic standard, manual available
	Battery recharge profile	Enhanced Battery Management 3 stage charging technology
	Battery pre-failure notification	Yes, up to 30 days advance notification
	ERM compatibility	Up to 4 per RP12000/3 UPS Expansion Module.

* Motor rated input breakers are recommended to minimize accidental tripping upon start-up.

** Rate input breakers for 100% future load if at all possible.

Technical Specifications

Physical Characteristics	Dimensions (HxWxD)	78.7 x 39.7 x 24 in (2000 x 1015 x 597 mm)	10.3 (6U) x 17.4 x 26 in (267 x 442 x 660 mm)
	Total Chassis Weight without batteries or electronics	653 lb. (396 kg.)	100 lb. (46 kg)
	Total Chassis Weight with batteries and electronics	1274 lb. (578 kg)	307 lb. (140 kg)
	ERM Weight		170 lb. (77 kg)
Communications and Management	Software compatibility	Ships with HP UPS Management Module	
	Control Panel	Two lines by 20 characters Four menu-driven interface buttons Four status at a glance LEDs 1 per UPS Module	
	Language support	English, Spanish, French, German	
	REPO Port	Yes, normally open or normally closed available	
Certifications	Safety	UL1778, CUL	
	EMI	FCC Part 15, Class A	
	Surge Protection	ANSI C62.41, Cat B-3	
	Hazardous Materials (RoHS)	EU Directive 2002/95/EC Category 3 (4 of 5)	

Estimated Backup Times Chart (100% Load) [Minutes]

Estimated Backup Times Chart [Minutes]

Number of modules	Total kW Load	Internal batteries	+ 1 ERM/Module	+ 2 ERM/Module	+ 3 ERM/Module	+ 4 ERM/Module
5	60	4.7	9.5	17	27	34
4	48	4.7	9.5	17	27	34
3	36	4.7	9.5	17	27	34

NOTE: Backup times are estimated for typical applications. Actual performance will depend on load and battery conditions.

Estimated Backup Times Chart (N+1) [Minutes]

Number of modules	Total kW Load	Internal batteries	+ 1 ERM/Module	+ 2 ERM/Module	+ 3 ERM/Module	+ 4 ERM/Module
6	60	9	15	22	29	37
5	48	6.9	17	26	34	44
4	36	7.7	18	28	37	47
3	24	9	21	32	43	54

* The above configurations are N+1

NOTE: Backup times are estimated for typical applications. Actual performance will depend on load and battery conditions.

NOTE: Additional back times information is available at www.hp.com/products/ups

Technical Specifications

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.

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