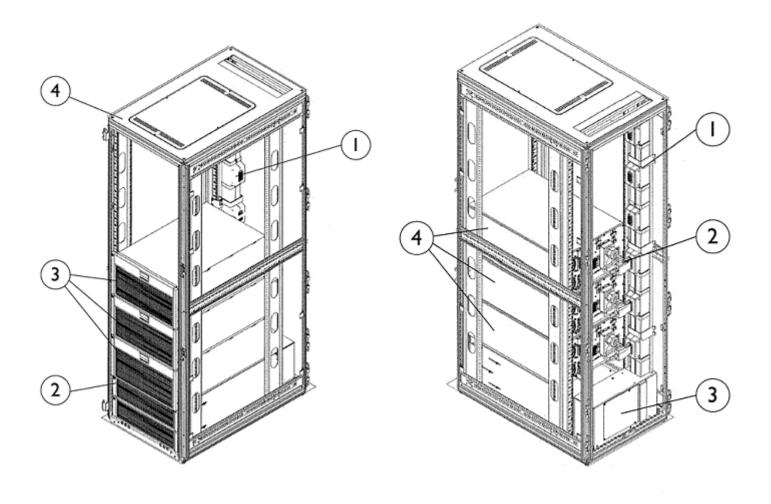# QuickSpecs

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

1. Power bus bar
2. Cabling wire tray (6U)
3. RP12000/3 UPS Modules (qty3)
4. HP 10000 Series G2 42U rack with front and rear doors

1. Power bus bar
2. Input and output connections for RP12000/3 UPS Modules
3. Cabling wire tray (6U)
4. RP12000/3 UPS Expansion Modules (qty3)

Models

HP RP36000/3	HP RP36000/3 36000VA Three Phase Uninterruptible Power System	AF438A

QuickSpecs

Standard Features

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

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.

QuickSpecs

Standard Features

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

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 configure 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

Remote management increase flexibility

The HP RP36000/3 systems can be fully configured and monitored from the 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

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 the HP RP36000/3 UPS user manual.

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.

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 save 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

Standard Features

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)

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 out puts (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.

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/power-protection/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.

Standard Features

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.

Service and Support

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

Expansion Upgrade for HP RPS36000/3	HP RP12000/3 12000VA Three Phase 6U Rackmount Uninterruptible Power System	AF436A
Extended Runtime Module (WW)	HP UPS R8000/3 R12000/3 Extended Runtime Module	AF434A
	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.	
UPS Output Modules	HP R12000/3 Uninterruptible Power System Output Module	AF440A
3 Phase Jumper Cables	HP 5ft L15-30P 3 Phase Jumper Cable	460151-005
	HP 10ft L15-30P 3 Phase Jumper Cable	460151-010
	HP 15ft L15-30P 3 Phase Jumper Cable	460151-015
Rackmount Power Distribution Units (PDUs) and PDU options	HP 24A 3PH Modular Power Distribution Unit	AF512A
	HP Single Input 3 Phase 24A Monitored Power Distribution Unit	AF504A
	HP Dual Input 3 Phase 24A Monitored Power Distribution Unit	AF503A
HP PDU Extension Bars	HP Two C13 PDU Extension Bars	AF500A
	NOTE: Each extension bar has a C-20 input cord and 7 x C-13 receptacles.	
	HP Fixed Cord Extension Bars	351655-B21
	NOTE: Each extension bar has a C-20 input cord and 7 attached 13 inch C-13 power cords for use with 1U servers.	
	NOTE: Extension bars may be used with any HP PDU that has C-19 outlets	
HP PDU Management Module	HP PDU Management Module	AF400A
	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	

Related Options

HP Power Cords	HP IEC320-C14 to C13 10A/4.5ft/1.37m/ 15 PDU Cable	142257-007
	HP IEC320-C14 to C13 (10A/4.5ft/1.37m) PDU Cable	142257-006
	10A, IEC320 C-14 to IEC320 C-13 Cables, 1.6ft (0.5m), single pack	142257-B28
	HP 1xC19-C120 16A 2.5m Cable	295633-B22
	HP 2m 16A C19-C20 Redundant Jumper Cord	AF574A
	HP 1.2m 16A C19-C20 Redundant Jumper Cord	AF575A

NOTE: For more information on HP power cords please go to:
http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/options/power-cable.html

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Sidewall Panel Kits	HP 10642 G2 Side Panel	AF054A

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.

Rack Stabilization Kits	HP 600mm JackBlack Rack Stabilizer Kit	BW932A

NOTE: The anti-tip stabilizer kits provide stability and support when equipment is installed, removed or accessed within the rack. Heavy Duty stabilizer kits should be used when a single racked component exceeds 200 lbs.
HP 10K G2 600W Graphite Stabilizer Kit

HP Rack Cable Trays	HP 600 Wide Rack Top Cable Tray	383982-B21
	HP Rack Top Cable Mgmt Transfer Tray	383984-B21

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.

Rack Coupling Kit	10000 Rack Coupling Kit	248929-B21

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

HP 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
	Hardware Installation (Electronic)	U4696E

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.

NOTE: Additional Care Packs are available.

NOTE: The UPS batteries, power bus bar, and wire tray components are covered by a 3 year parts warranty only.

Technical Specifications

		RP36000/3 Base UPS	RP12000/3 UPS Expansion Module
General Characteristics	**Power rating** (non-redundant)	36kW/36kVA	12kW/12kVA
	Power rating (N+1)	24kW/24kVA	Each unit adds 12kW/12kVA for a maximum of 60kW/60kVA
	Efficiency	>97% at 40% load and above	
	Heat dissipation	1113W/3800 BTU	371W/1266BTU
	Altitude before de-rating	1000 meters (3300 ft. ASL)	1000 meters (3300 ft. ASL)
Output Characteristics	**Output connections**	Hardwired to power bus bar or uses optional output modules	Connects 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**	208V/120V 3 Phase Wye 5 wire 4 pole	
	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 225Amps	
	Input Current (N+1)	3 UPS Modules 150 Amps 4 UPS Modules 200 Amps 5 UPS Modules 225 Amps 6 UPS Modules 225 Amps	

* Motor rated input breakers are recommended to minimize accidental tripping upon start-up.
** Rate input breakers for 100% future load if at all possible.

Battery Characteristics	**Battery type**	Valve regulated lead acid, sealed, maintenance free
	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

Technical Specifications

	Battery pre-failure notification	Yes, up to 30 days advance notification
	ERM compatibility	Up to 4 per RP12000/3 UPS Expansion Module.

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]

Technical Specifications

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

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.