Overview

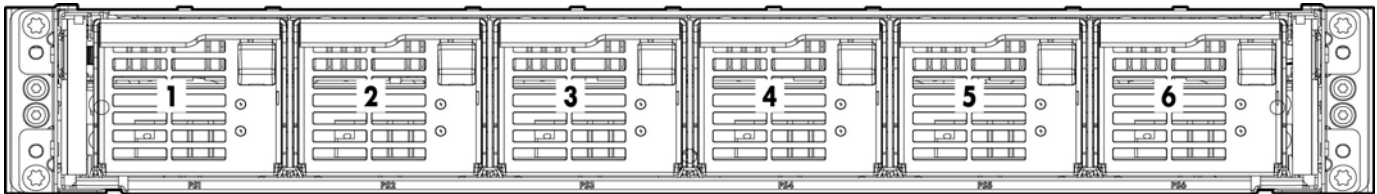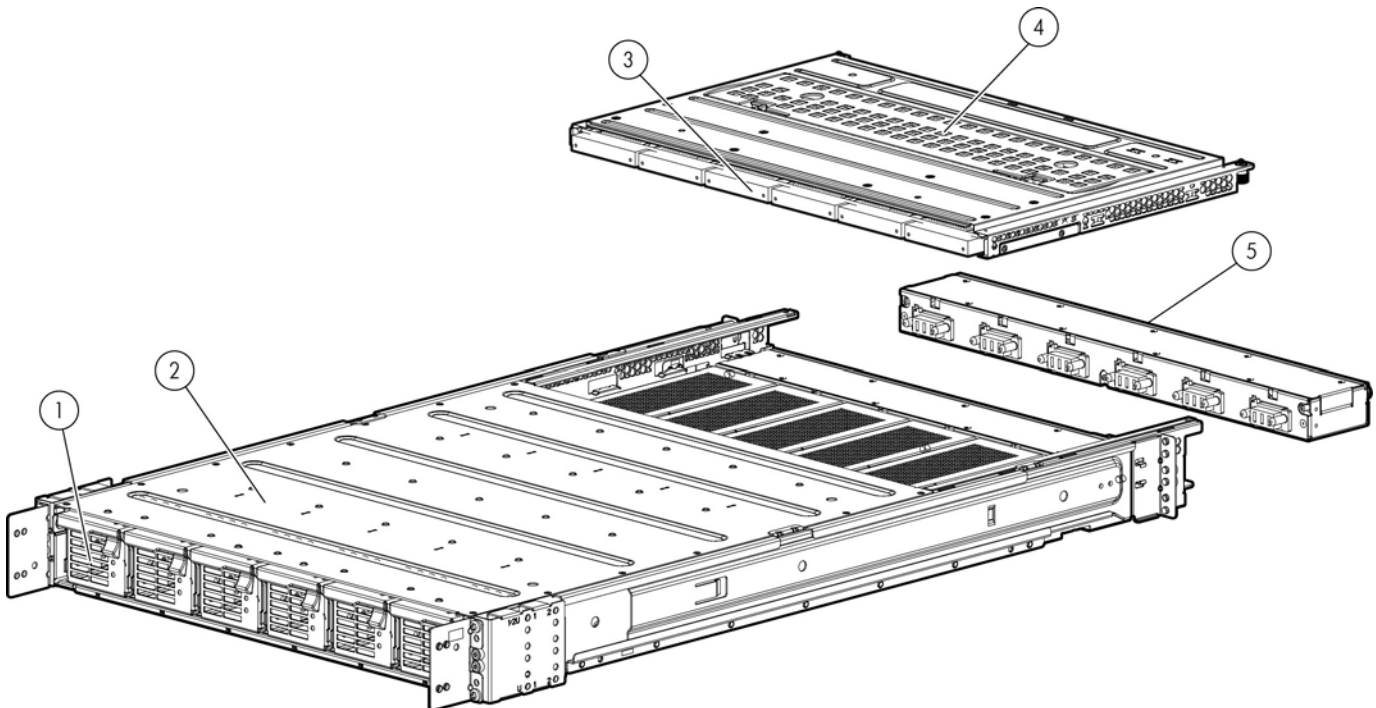### HP Apollo 6000 Power Shelf

HP Apollo 6000 Power Shelf can support up to four HP Apollo a6000 Chassis[*], with up to 15.9 kW of DC power. The HP Apollo 6000 Power Shelf with its redundant hot-plug power supplies can be configured for single-phase or three-phase input. The HP Apollo 6000 Power Shelf offers efficient and redundant power for your data center to support high-performance computing (HPC).

Front View with Power Supply Slots 1-6

Side View:

1. Power supply
2. HP Apollo 6000 Power Shelf
3. Power management tray
4. Air baffle
5. AC input module

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[*] Depending on the power configuration of chassis.

Overview

Key features

- Each power shelf can support up to 15.9 kW of DC power.
- The power shelf has six power supply slots for maximum configurability.
- Can be configured for single-phase or three-phase AC input.
- Supports N, N+1 and N+N power redundancy with hot-plug power supplies.
- Provides full AC redundancy with no power zones.

QuickSpecs

HP Apollo 6000 Power Shelf

Standard Features

NOTE: For the Standard Features shipped in the Factory Integrated Models, please see the "Configuration Information - Factory Integrated Models" section.

HP Power Supplies	**NOTE:** Mixing of types of power supplies is not supported on the HP Apollo 6000 Power Shelf. **NOTE:** If Three-Phase Power is selected, a minimum of 3 Power Supply Option Kits are needed. For full redundancy 6 Power Supply Option Kits are required.	
	HP 2650W Platinum Hot Plug Power Supply Kit **NOTE:** The power supplies meet multiple Energy Efficiency Initiatives: 2650W, 94%: Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 Plus Platinum. **NOTE:** Includes one WW 250W C19 - C20 2.0m Jumper Cord.	733459-B21
	HP 2400W Platinum Hot Plug Power Supply Kit **NOTE:** The power supplies meet multiple Energy Efficiency Initiatives: 2400W, 94%: Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 Plus Platinum. **NOTE:** Includes one WW 250W C19 - C20 2.0m Jumper Cord.	588603-B21
AC Power Input Modules	HP BLc7000 1 PH FIO Power Module Option	413379-B21
	HP BLc7000 3 PH Intl FIO Power Module Option **NOTE:** If Three Phase Power Module selected, a minimum of 3 Power Supply Option Kits are needed. For full redundancy 6 Power Supply Option Kits are required.	413381-B21
AC Power Cables	HP Apollo 6000 Pwr Shelf 863.3mm Pwr Cbl	757398-B21
	HP Apollo 6000 Pwr Shelf 984mm Pwr Cbl	757399-B21
	HP Apollo 6000 Pwr Shelf 1168mm Pwr Cbl	757397-B21
	NOTE: For additional power cable information, please visit: http://h18000.www1.hp.com/products/servers/proliantstorage/power-protection/options/power-cable.html.	
HP Power Cords	**HP C19 - C20 Jumper Cords**	
	HP 2.0m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK738A
	HP 2.0m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK739A
	HP 2.5m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK740A
	HP 2.5m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK741A
	HP 3.0m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK742A
	HP 3.0m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK743A
	HP 1.37m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK744A
	HP 1.37m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK745A
	HP C19 - C20 WW 250V 16Amp Flint Gray 2.0m Jumper Cord	AF574A
	HP C19 - C20 WW 250V 16Amp Flint Gray 1.20m Jumper Cord	AF575A
	HP C19 - CEE-VII EU 250V 16Amp 3.6m Power Cord	AF576A
	HP C19 - AS3112-3 AU/NZ 250V 15Amp 3.6m Power Cord	AF577A
	HP C19 - SABS-164 ZA 250V 16Amp 3.6m Power Cord	AF579A
	HP C19 - CEI-23-50 IT/CL 250V 16Amp 3.6m Power Cord	AF580A
	HP C19 - IEC-309 DK/SE/AR 250V 16Amp 3.6m Power Cord	AF581A
	HP C19 - IS-1293 IN/PK/BD 250V 16Amp 2.5m Power Cord	AF582A

Standard Features

HP C19 - ISI-32 IL 250V 16Amp 2.5m Power Cord	AF583A
HP C19 - GB-1002 CN 250V 16Amp 2.5m Power Cord	AF584A
HP C19 - CNS-690 TW 250V 16Amp 2.5m Power Cord	AF585A
HP C19 - NBR-14136 BR 250V 16Amp 2.5m Power Cord	AF592A
HP C19 - Nema L6-20P NA/JP 250V 20Amp High Voltage 3.6m Power Cord	AF593A

NOTE: For additional power cable information, please visit:
http://h18000.www1.hp.com/products/servers/proliantstorage/power-protection/options/power-cable.html.

Power Shelf Rails	HP Apollo 6000 Pwr Shelf Rail Kit	765439-B21

Caution: HP recommends that a minimum of two people are required for all rack installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

Services   Refer to the HP website at **http:/www.hp.com/go/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Warranty   This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty.

NOTE: Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html.

Service and Support

Recommended HP Care Pack Services for your HP product
The Apollo 6000 Power Shelf is supported as part of your HP Apollo a6000 Chassis.

Service and Support

HP Technology Services for Apollo 6000
Capitalizing on the capabilities of new technology requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services.

Support for the HP Apollo 6000 servers, APM and chassis are all covered by support purchased at the chassis level. This simplifies your support experience and can reduce total cost of ownership over support purchased per server.

What HP Technology Services can do for you
We can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. Our services solutions include more than just uplift of base warranty; we help deliver high levels of application availability through proactive service management and advanced technical response.

Protect your business beyond warranty with HP Care Pack Services that provide total support expertise to meet your IT and business needs. We have made it simple to select among 3 levels of recommended services; optimized, standard, or basic.

Optimized Recommendation

Optimized recommendation: Supports maintaining servers at optimum performance availability

Installation Services
HP Factory Express brings simplicity to complex implementations by integrating and testing the hardware before it leaves the factory then providing onsite assistance to ensure your systems are ready for operation, saving valuable deployment time. www.hp.com/go/startupservices

HP Proactive Care with 24x7 coverage, 4 hour response - 3 year Care Pack Service
Helps prevent IT issues, maintain stability so you can focus on business requirements. Includes proactive reports, 24x7 hardware coverage with four hour response, collaborative software support with rapid access to advanced technical expertise. System connectivity to HP support tools is a prerequisite.
www.hp.com/services/proactivecare

Standard Recommendation

Installation Services
HP Factory Express brings simplicity to complex implementations by integrating and testing the hardware before it leaves the factory then providing onsite assistance to ensure your systems are ready for operation, saving valuable deployment time. www.hp.com/go/startupservices

HP Proactive Care, Next Business Day response, 3-Year Care Pack Service
Helps prevent IT issues, maintain stability so you can focus on business requirements. Includes proactive reports, hardware coverage with next business day response, collaborative software support with rapid access to advanced technical expertise. System connectivity to HP support tools is a prerequisite. www.hp.com/services/proactivecare

Service and Support

Basic Recommendation	Basic recommendation: delivers minimum recommended support services
	-Year HP Foundation Care Service, Next Business Day response This service connects you to HP during business hours for assistance on resolving issues. It features next business day hardware onsite response and software call back within two hours after opening your case. Make HP your first call for hardware or software questions; Collaborative Support is included in this level of service and provides troubleshooting assistance on software such as Microsoft Server, Red Hat Linux, VMware and more. http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-8876enw.pdf
Insight Remote Support	HP Insight Remote Support provides 24 X 7 remote monitoring, and notifications that assist with problem resolution. This comes at no additional cost with your HP solution. Learn more about Insight Remote Support http://www.hp.com/go/insightremotesupport **NOTE:** Insight Remote Support is a prerequisite for Proactive Care.
HP Support Center	Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more http://www.hp.com/go/hpsc. HP's Support Center Mobile App allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime. HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack Service or HP contractual support agreement. **NOTE:** HP Support Center Mobile App is subject to local availability.
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.

QuickSpecs

Configuration Information - Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

Step 1: Choose a Power Shelf

HP Power Shelf	HP Apollo 6000 Power Shelf	735131-B21

NOTE: One Power Shelf can support up to 4 Chassis.
NOTE: Both Power Shelf and Chassis are required if ordered as factory integrated into rack.
NOTE: A Power Shelf can also be ordered without a rack.

Step 2: Choose the type of Power Supplies and choose up to six

HP Power Supplies

NOTE: Mixing of Power Supplies Is Not Supported on HP Apollo 6000 Power Shelf.
NOTE: If Three-Phase Power is selected, a minimum of 3 Power Supply Option Kits are needed. For full redundancy 6 Power Supply Option Kits are required.

HP 2650W Platinum Hot Plug Power Supply Kit	733459-B21

NOTE: HP Apollo 6000 power supplies meet multiple Energy Efficiency Initiatives: 2650W, 94%: Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 Plus Platinum.
NOTE: Includes one WW 250W C19 - C20 2.0m Jumper Cord.

HP 2400W Platinum Hot Plug Power Supply Kit	588603-B21

NOTE: HP Apollo power supplies meet multiple Energy Efficiency Initiatives: 2400W, 94%: Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 Plus Platinum.
NOTE: Includes one WW 250W C19 - C20 2.0m Jumper Cord.

Step 3: Choose up to 12 DC Power Cables per Power Shelf

DC Power Cables

NOTE: Each chassis can support up to twelve 12V DC cables

NOTE: Depending on the number of Chassis to be supported, the cable length varies.

HP Apollo 6000 Power Shelf 1168mm 12V DC Power Cable	757397-B21

NOTE: Recommended for 1st (adjacent) enclosure to the power shelf

HP Apollo 6000 Power Shelf 863.3mm 12V DC Power Cable	757398-B21

NOTE: Recommended for 2nd enclosure from power shelf

HP Apollo 6000 Power Shelf 984mm 12V DC Power Cable	757399-B21

NOTE: Recommended for 3rd enclosure from power shelf

NOTE: For additional power cable information, please visit: http://h18000.www1.hp.com/products/servers/proliantstorage/power-protection/options/power-cable.html

Step 4: Choose HP Power Cords

HP Power Cords

HP C19 - C20 Jumper Cords

HP 2.0m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK738A
HP 2.0m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK739A
HP 2.5m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK740A
HP 2.5m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK741A
HP 3.0m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK742A
HP 3.0m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK743A
HP 1.37m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK744A

Configuration Information - Factory Integrated Models

HP 1.37m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK745A
HP C19 - C20 WW 250V 16Amp Flint Gray 2.0m Jumper Cord	AF574A
HP C19 - C20 WW 250V 16Amp Flint Gray 1.20m Jumper Cord	AF575A
HP C19 - CEE-VII EU 250V 16Amp 3.6m Power Cord	AF576A
HP C19 - AS3112-3 AU/NZ 250V 15Amp 3.6m Power Cord	AF577A
HP C19 - SABS-164 ZA 250V 16Amp 3.6m Power Cord	AF579A
HP C19 - CEI-23-50 IT/CL 250V 16Amp 3.6m Power Cord	AF580A
HP C19 - IEC-309 DK/SE/AR 250V 16Amp 3.6m Power Cord	AF581A
HP C19 - IS-1293 IN/PK/BD 250V 16Amp 2.5m Power Cord	AF582A
HP C19 - ISI-32 IL 250V 16Amp 2.5m Power Cord	AF583A
HP C19 - GB-1002 CN 250V 16Amp 2.5m Power Cord	AF584A
HP C19 - CNS-690 TW 250V 16Amp 2.5m Power Cord	AF585A
HP C19 - NBR-14136 BR 250V 16Amp 2.5m Power Cord	AF592A
HP C19 - Nema L6-20P NA/JP 250V 20Amp High Voltage 3.6m Power Cord	AF593A

NOTE: For additional power cable information, please visit:
http://h18000.www1.hp.com/products/servers/proliantstorage/power-protection/options/power-cable.html.

Step 5: Choose AC Power Input Module

AC Power Input Module	HP BLc7000 1 PH FIO Power Module Option	413379-B21
	HP BLc7000 3 PH Intl FIO Power Module Option	413381-B21

NOTE: If Three Phase Power Module selected, a minimum of 3 Power Supply Option Kits are needed. For full redundancy 6 Power Supply Option Kits are required.

Step 6: Choose Power Shelf Rails

Power Shelf Rails	HP Apollo 6000 Power Shelf Rail Kit	765439-B21

Caution: HP recommends that a minimum of two people are required for all rack installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

QuickSpecs

Power Specifications

HP 2650 Watts Platinum Hot Plug Power Supply

HP 2650 Watts Platinum Hot Plug Power Supply					
Part Number	733459-B21				
Input Voltage Range (Vrms)	200-240				
Frequency Range (Nominal) (Hz)	50 / 60				
Nominal Input Voltage (Vrms)	**200**	**208**	**220**	**230**	**240**
Maximum Rated Output Wattage	2650	2650	2650	2650	2650
Nominal Input Current (A rms)	14.7	14.1	13.3	12.7	12.1
Maximum Rated Input Wattage Rating (Watts)	2906	2902	2899	2887	2884
Maximum Rated VA (Volt-Amp)	2935	2932	2929	2916	2913
Efficiency (%) at Max. Rated Output Wattage	91.2	91.3	91.4	91.8	91.9
Power Factor	0.98				
Leakage Current (mA)	0.97	1.01	1.06	1.11	1.16
Maximum Inrush Current (A peak)	100				
Maximum Inrush Current duration (mS)	10				
Maximum British Thermal Unit Rating (BTU-Hr)	9918	9904	9894	9853	9843

HP 2400 Watts Platinum Hot Plug Power Supply

HP 2400 Watts Platinum Hot Plug Power Supply					
Part Number	588603-B21				
Input Voltage Range (Vrms)	200-240				
Frequency Range (Nominal) (Hz)	50 / 60				
Nominal Input Voltage (Vrms)	**200**	**208**	**220**	**230**	**240**
Maximum Rated Output Wattage	2450	2450	2450	2450	2450
Nominal Input Current (A rms)	13.9	13.4	12.6	12.0	11.4
Maximum Rated Input Wattage Rating (Watts)	2692	2692	2678	2678	2663
Maximum Rated VA (Volt-Amp)	2778	2778	2762	2762	2747
Efficiency (%) at Max. Rated Output Wattage	91	91	91.5	91.5	92
Power Factor	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.97	1.01	1.06	1.11	1.16
Maximum Inrush Current (A peak)	100	100	100	100	100
Maximum Inrush Current duration (mS)	10	10	10	10	10
Maximum British Thermal Unit Rating (BTU-Hr)	9186	9186	9136	9136	9086

QuickSpecs

Power Specifications

Power				
	Input Requirements - Single Phase Model	Rated input frequency 2400W PSU	50 to 60 Hz	
		Rated input voltage	200 to 240 VAC	
		Rated input current per power supply	13.9 A at 200 V ac 13.3 A at 208 V ac 12.6 A at 220 V ac	
		Rated input power per power supply	2780 VA	
		Rated input Frequency 2650W PSU	50 to 60 Hz	
		Rated input voltage	200 to 240 VAC	
		Rated input current per power supply	14.4 A at 200 VAC 13.8 A at 208 VAC	
		Rated input power per power supply	2880 VA	
	Input Requirements - Three Phase NA/JPN Model	Rated input voltage	200 to 208 VAC Line to Line 3-Phase Delta	
		Rated input frequency 2400W PSU	50 to 60 Hz	
		Max input current per line cord	24 A at 200 V ac 23.1 A at 208 V ac	
		Max input power per line cord	8340 VA max	
		Rated input Frequency 2650W PSU	Max input current per line cord	25.3 A at 200 VAC 24 A at 208 VAC
			Max input power per line cord	8640 VA
	Input Requirements - Three Phase International Model	Rated input voltage	346 VAC to 415 VAC Line to Line 200 VAC to 240 VAC Line to Neutral 3-Phase WYE	
		Rated input frequency 2400W PSU	50 to 60 Hz	
		Max input current per line cord	12.6 A at 220 V ac 11.5 A at 240 V ac	
		Max input power per line cord	8340 VA max	
		Rated input Frequency 2650W PSU	Max input current per line cord	13.3 A at 220 VAC 12.1A at 240VAC
			Max input power per line cord	8340 VA
	Power Cords	Single Phase	IEC-320 C19-C20 1.22m (6 ft)	
		3-Phase NA/JPN	2 x NEMA L15-30p 3.048m (10 ft)	
		3-Phase International	2 x IEC-309 200/346 V - 240/415 V, 5-Pin, 6h 16A 3.048m (10 ft)	
	Output Specifications	HP 2400W High Efficiency Hot-Plug Power Supply	200 - 240 VAC 2400 W 92% Efficiency	

Power Specifications

(per power supply)	HP 2650W High Efficiency Hot-Plug Power Supply	200 - 240 VAC 2650 W 94% Efficiency

Technical Specifications

HP Apollo Power Shelf

Power Supply Slots	Six (6)	
Physical characteristics	**Dimensions (L x W x D)**	30.88 x 17.64 x 2.55 in (78.44 x 44.81 x 6.47 cm)
	Shipping dimension (L x W x D)	39.37 x23.63 x 13 in (100 x 60 x 45.7 cm)
	Weight Maximum	60 lb (27.22 kg)
	Minimum	20 lb (9.07 kg)
Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
	Operating relative humidity	15% to 95%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	15% to 95%, noncondensing
	Altitude	up to 9,842 ft (3 km)
Safety	GOST R MEK60950; EN62479:2010; UL 60950-1 2nd Edition; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010+A12:2011; IEC 60950-1:2005, Amd 1: 2009	
Emissions	FCC Rules Part 15, Subpart B Class A; VCCI Class A; BSMI CNS 13438; AS/NZS CISPR 22 Class A; KCC Class A; EN 55022:2010; EN 61000-3-3:2008; EN 6100-3-2:2006+A1:2009 + A2:2009; GOST R 51318.22	
Immunity	**Generic**	EN55024:2010
	ESD	IEC 61000-4-2:2008
	Radiated	IEC 61000-4-3:2010
	EFT/Burst	IEC 61000-4-4:2012
	Surge	IEC 61000-4-5:2005
	Conducted	IEC 61000-4-6:2008
	Power frequency magnetic field	IEC 61000-4-8:2009
	Voltage dips and interruptions	IEC 61000-4-11:2004