

Overview

HPE Nimble Storage All Flash Arrays

The HPE Nimble Storage platform leverages flash storage and the power of predictive analytics to deliver fast and reliable access to data. This approach closes the app-data gap and radically simplifies operations. HPE InfoSight predictive analytics predict and prevent issues with guaranteed 99.9999% availability¹. Utilize a single multicloud architecture to flexibly deploy workloads on flash arrays, converged infrastructure, and the public cloud.

As part of the HPE Nimble Storage platform, All Flash storage arrays combine flash performance with radical simplicity for a wide variety of performance sensitive workloads. All Flash Arrays are cloud-ready – providing an easy on-ramp to the cloud through HPE Cloud Volumes. Backed by our Timeless Storage guarantee², optional software is included and forklift upgrades can become a thing of the past.

All Flash Arrays allow you to start small and scale-out to over 8PB effective capacity, assuming 5:1 data reduction⁴.

HPE Nimble Storage All Flash Arrays feature HPE InfoSight predictive analytics to predict and prevent issues across the infrastructure stack. Even the most complex issues are rapidly resolved because HPE InfoSight has already collected the necessary information to solve the problem, removing the need for complex troubleshooting. As a result, traditional level 1 and 2 support staff is completely automated. The HPE Nimble Storage support organization is entirely comprised of level 3 experts who answer calls in less than a minute on average.

NOTE: For more information about the entire HPE Nimble Storage product portfolio, go to <https://www.hpe.com/us/en/storage/nimble.html>.



HPE Nimble Storage All Flash Array
(Base array, 4U; all 24 bays hold Dual Flash Carriers with Small Form Factor SSDs)

NOTE:

¹For details on the HPE Nimble Storage 6-nines guarantee, refer to <https://www.hpe.com/h20195/v2/Getdocument.aspx?docname=a00018503enw>.

²For details on the HPE Nimble Storage Timeless Storage program, refer to <https://www.hpe.com/h20195/v2/Getdocument.aspx?docname=a00021804enw>.

Overview

Radical Simplicity and Non-disruptive Scale

- Simple deployment. Simple configuration. Simple management.
- Deploy flash anywhere, on-prem, or in the public cloud through common data services across the HPE Nimble Storage family.
- Seamlessly migrate data between all-flash, hybrid-flash, and multicloud storage
- Scale-to-fit: Scale-up performance and capacity independently and non-disruptively. Scale-out to 4 arrays managed as one.
- The Timeless Storage guarantee is your assurance of business value. No worries today. No worries tomorrow.
- Radically easy to integrate with many ecosystems. Deep integration with VMware and Veeam.

HPE InfoSight

- Automatically predicts and resolves 86% of problems³ before you even know there is an issue
- Transforms the support experience through predictive automation and Level 3-only support
- Sees across the infrastructure stack and resolves problems beyond storage
- Simplifies planning with prescriptive forecasts into capacity, performance, and bandwidth needs
- Makes infrastructure smarter and more reliable by learning from the installed base

Fast and Reliable

- Up to 5X, or more, data reduction from variable block deduplication and compression⁴
- Backup and DR to **Secondary Flash** arrays at one-third the cost
- Data reduction, snapshots, and RAID...with no performance impact
- Sub-millisecond response time for performance-sensitive enterprise workloads

Absolute Resiliency

- 99.9999% (six-nines) guaranteed availability¹
- Triple+ Parity RAID tolerates 3 simultaneous drive failures plus additional protection through intra-drive parity
- App-granular, FIPS-certified encryption provides over-the-wire protection. Secure data shredding is built-in.
- Built-in application-consistent snapshots and replication. Integration with leading backup software.

NOTE:

³ Based on actual customer data collected by the HPE Nimble Storage Support organization. See also <https://www.hpe.com/h20195/v2/Getdocument.aspx?docname=a00018503ENW>.

⁴ Based on internal HPE Nimble Storage testing and validation performed March, 2017.

Overview

HPE Nimble Storage All Flash Array models

AF-Series Arrays	AF1000	AF3000	AF5000	AF7000	AF9000	Scale-out ¹ 4X AF9000
Raw capacity (TB/TiB) ²	6-46/5-42	6-92/5-83	11-184/10-167	11-323/10-293	23-553/20-503	2212/2012
Usable capacity (TB/TiB) ²	4-33/3-30	4-67/3-61	8-136/7-123	8-238/7-217	17-409/15-372	1636/1488
Effective capacity (TB/TiB) ^{2,3}	20-165/15-150	20-335/15-305	40-680/35-615	40-1190/35-1085	85-2045/75-1860	8180/7440
Max. # of expansion shelves	1	1	1	2	2	8
RAID level	Triple+ Parity					
Onboard iSCSI/Mgmt. 1 Gb/10 Gb ports per array ⁴	4	4	4	4	4	16
Optional iSCSI 1 Gb ports per array ⁶	4 or 8	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96
Optional iSCSI 10 Gb ports per array ⁶	4 or 8	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96
Optional FC 8 Gb/16 Gb ports per array	4 or 8	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96
Max. power requirement (watts/kVA)	550 W/0.61 kVA	600 W/0.67 kVA	700 W/0.78 kVA	800 W/0.89 kVA	900 W/1 kVA	3600 W/4 kVA
Thermal (BTU)	1802	1965	2293	2620	2948	11,792

NOTE: Specifications are subject to change without notice.

¹ Scale-out configuration consists of 4x AF9000 arrays, each with two all-flash shelves

² Raw, usable, and effective capacities are shown in TB (1012 bytes) and TiB (240 bytes)

³ Effective capacity is the capacity of the base array and maximum number of expansion shelves. Assumes data reduction of five to one from deduplication and compression.

⁴ Onboard ports are 10GbaseT. Optional ports are: 1GbaseT, 10GbaseT, or 10GbE SFP+

Overview

SSD Expansion Shelves for All Flash Arrays

Raw capacity (TB/TiB)¹	6-184/5-167
Usable capacity (TB/TiB)¹	4-137/4-124
Effective capacity (TB/TiB)^{1,2}	20-685/19-620
Max. power requirement (Watts/kVA)	325 W/0.36 kVA

NOTE: Specifications are subject to change without notice.

¹ Raw, usable, and effective capacities are shown in TB (1012 bytes) and TiB (240 bytes)

² Effective capacity is the capacity of the base array and maximum number of expansion shelves. Assumes data reduction of five to one from deduplication and compression.

Host OS Support

Microsoft® Windows® Server, including Microsoft® Hyper-V™ | VMware vSphere™ | HP-UX® | Ubuntu

SUSE® Linux Enterprise | SUSE® Linux Virtualization | Red Hat® Enterprise Linux® | Red Hat® Enterprise Virtualization

CentOS | Oracle® Linux® (UEK and RHEL compatible kernels) | Oracle® Solaris Citrix® | IBM® AIX®

For the latest information on supported operating systems refer to Single Point of Connectivity Knowledge (SPOCK) for HPE Storage products, including HPE Nimble Storage: <http://www.hpe.com/storage/spock>

Service and Support and Warranty Information

Warranty

HPE Nimble Storage arrays come with the following warranties:

- 1 year; parts-only warranty for hardware components
- 90 day, software updates for defects

Additionally, HPE Nimble Storage will provide phone support for replacing a defective part. Additional support coverage is required for HPE Nimble Storage arrays.

NOTE: For hardware warranty claims, defective part must be received before replacement parts are shipped.

NOTE: Warranty is provided by HPE Nimble Storage.

Service and Support

Support is required for all HPE Nimble Storage arrays. Support SKUs provide up to five years of 24x7 telephone and email support for the arrays with a choice of Next Business Day (NBD) parts exchange, 4-hour parts delivery, or 4 hour onsite support, access to the HPE InfoSight predictive analytics platform and software updates.

NOTE: Support contract is mandatory for all HPE Nimble Storage products.

Installation Service

HPE Nimble Storage Array Start-up service

On-site installation of a new HPE Nimble Storage array in a data center with up to six (6) shelves.

HPE Nimble Storage Upgrade service

On-site installation of upgrades kits or expansion shelves for an existing HPE Nimble Storage array.

NOTE: Installation services are optional for all HPE Nimble Storage products.

Configuration Information

Step 1 – Choose Base configuration

All HPE Nimble Storage All Flash Arrays come in a 4U form-factor chassis with

- (2) controllers with fans and NVDIMM, and
- (4) 1GbE/10GbE network ports, i.e. (2) per controller for iSCSI or management traffic, and
- (2) power supplies and
- All-inclusive software including HPE InfoSight predictive analytics

Additional host connectivity per controller is indicated in the product descriptions below.

Flash Cache upgrades, network upgrades and expansion shelves are available for integration in the field.

HPE Nimble Storage AF-Series Adaptive Flash Arrays – Base Configuration

Base Array	HPE Nimble Storage AF1000 All Flash Dual Controller 10GBASE-T 2-port Base Array	Q8B40A
	HPE Nimble Storage AF3000 All Flash Dual Controller 10GBASE-T 2-port Base Array	Q8B41A
	HPE Nimble Storage AF5000 All Flash Dual Controller 10GBASE-T 2-port Base Array	Q8B33A
	HPE Nimble Storage AF7000 All Flash Dual Controller 10GBASE-T 2-port Base Array	Q8B34A
	HPE Nimble Storage AF9000 All Flash Dual Controller 10GBASE-T 2-port Base Array	Q8B35A

HPE Nimble Storage AF-Series – Controller Upgrades

Use the appropriate controller upgrade to convert a previously existing AF-Series array to a higher level AF-Series array.

Controller Upgrade	HPE Nimble Storage AF3000 All Flash Array Dual Controller Field Upgrade	Q8D06A
	HPE Nimble Storage AF5000 All Flash Array Dual Controller Field Upgrade	Q8C93A
	HPE Nimble Storage AF7000 All Flash Array Dual Controller Field Upgrade	Q8C94A
	HPE Nimble Storage AF9000 All Flash Array Dual Controller Field Upgrade	Q8C95A

Configuration Information

Step 2 – Choose Head SSD Capacity

All HPE Nimble Storage All Flash Arrays come with one or two of the following SSD capacity options. If two capacities are selected the capacities must not be the same unless they are both the highest capacity option. Additional capacity can be added by connecting up to (2) flash expansion shelves to the base array – depending on the model.

NOTE: R2 and non-R2 SKUs are functionally equivalent. The OCA quote tool will guide to the appropriate SKU option when configuring a model.

Head SSD Capacity Options

HPE Nimble Storage AF All Flash Array 24x240GB Flash Bundle	Q8B70A
HPE Nimble Storage AF7000/9000 All Flash Array 24x480GB Flash Bundle	Q8B71A
HPE Nimble Storage AF1000/3000/5000 All Flash Array R2 24x480GB Flash Bundle	Q8B72A
HPE Nimble Storage AF1000 All Flash Array R2 24x960GB Flash Bundle	Q8B74A
HPE Nimble Storage AF7000/9000 All Flash Array 24x960GB Flash Bundle	Q8G43A
HPE Nimble Storage AF3000/5000 All Flash Array R2 24x960GB Flash Bundle	Q8G44A
HPE Nimble Storage AF1000/3000 All Flash Array 24x1.92TB Flash Bundle	Q8B58A
HPE Nimble Storage AF5000/7000/9000 All Flash Array 24x1.92TB Flash Bundle	Q8G61A
HPE Nimble Storage AF3000/5000/7000/9000 All Flash Array 24x3.84TB Flash Bundle	Q8G62A

Head SSD Capacity Upgrades

HPE Nimble Storage AF All Flash Array 24x240GB Flash Field Upgrade	Q8D08A
HPE Nimble Storage AF All Flash Array 24x480GB Flash Field Upgrade	Q8D09A
HPE Nimble Storage AF All Flash Array 24x960GB Flash Field Upgrade	Q8D10A
HPE Nimble Storage AF3000/5000/7000/9000 All Flash Array 24x1.92TB Flash Field Upgrade	Q8G63A
HPE Nimble Storage AF5000/7000/9000 All Flash Array 24x3.84TB Flash Field Upgrade	Q8C98A

Step 3 – Choose Head Networking Option

Head Networking Options

Only ONE of the following options can be selected. Please refer to configuration guidelines for specific support of networking options on AF-Series arrays.

HPE Nimble Storage 2x1GbE 2-port Adapter Kit	Q8B84A
HPE Nimble Storage 4x1GbE 2-port Adapter Kit	Q8B85A
HPE Nimble Storage 2x10GBASE-T 2-port Adapter Kit	Q8B86A
HPE Nimble Storage 4x10GBASE-T 2-port Adapter Kit	Q8B87A
HPE Nimble Storage 2x10GbE 2-port Adapter Kit	Q8B88A
HPE Nimble Storage 4x10GbE 2-port Adapter Kit	Q8B89A
HPE Nimble Storage 2x16Gb Fibre Channel 2-port Adapter Kit	Q8B90A
HPE Nimble Storage 4x16Gb Fibre Channel 2-port Adapter Kit	Q8B91A
HPE Nimble Storage 6x16Gb Fibre Channel 2-port Adapter Kit	Q8B92A
HPE Nimble Storage 2x10GBASE-T 2-port and 2x16Gb Fibre Channel 2-port Adapter Kit	Q8B93A
HPE Nimble Storage 2x10GBASE-T 2-port and 4x16Gb Fibre Channel 2-port Adapter Kit	Q8B94A
HPE Nimble Storage 2x10GbE 2-port and 2x16Gb Fibre Channel 2-port Adapter Kit	Q8B95A
HPE Nimble Storage 2x10GbE 2-port and 4x16Gb Fibre Channel 2-port Adapter Kit	Q8B96A
HPE Nimble Storage 4x10GBASE-T 2-port and 2x16Gb Fibre Channel 2-port Adapter Kit	Q8B97A

Configuration Information

HPE Nimble Storage 4x10GbE 2-port and 2x16Gb Fibre Channel 2-port Adapter Kit	Q8B98A
HPE Nimble Storage 2x1GbE 2-port and 2x10GBASE-T 2-port Adapter Kit	Q8B99A
HPE Nimble Storage 2x1GbE 2-port and 4x10GBASE-T 2-port Adapter Kit	Q8C00A
HPE Nimble Storage 6x10GbE 2-port Adapter Kit	Q8C01A
HPE Nimble Storage 6x10GBASE-T 2-port Adapter Kit	Q8C02A
HPE Nimble Storage 2x16Gb Fibre Channel 4-port Adapter Kit	Q8C03A
HPE Nimble Storage 4x16Gb Fibre Channel 4-port Adapter Kit	Q8C04A
HPE Nimble Storage 6x16Gb Fibre Channel 4-port Adapter Kit	Q8C05A
HPE Nimble Storage 2x10GbE 2-port and 4x16Gb Fibre Channel 4-port Adapter Kit	Q8C06A
HPE Nimble Storage 4x10GbE 2-port and 2x16Gb Fibre Channel 4-port Adapter Kit	Q8C07A
HPE Nimble Storage 2x10GbE 2-port and 2x16Gb FC 4-port and 2x16Gb FC 2-port Adapter Kit	Q8C08A
HPE Nimble Storage 2x1GbE 4-port Adapter Kit	Q8C09A
HPE Nimble Storage 2x10GBASE-T 2-port and 4x16Gb Fibre Channel 4-port Adapter Kit	Q8C10A
HPE Nimble Storage 4x1GbE 4-port Adapter Kit	Q8C11A
HPE Nimble Storage 6x1GbE 4-port Adapter Kit	Q8C12A
HPE Nimble Storage 2x1GbE 4-port and 2x16Gb Fibre Channel 2-port Adapter Kit	Q8C13A
HPE Nimble Storage 2x1GbE 4-port and 2x10GbE 2-port Adapter Kit	Q8C14A
HPE Nimble Storage 2x1GbE 4-port and 4x16Gb Fibre Channel 2-port Adapter Kit	Q8C15A
HPE Nimble Storage 2x1GbE 4-port and 4x10GbE 2-port Adapter Kit	Q8C16A
HPE Nimble Storage 2x10GbE 4-port Adapter Kit	Q8C17A
HPE Nimble Storage 4x10GbE 4-port Adapter Kit	Q8C18A
HPE Nimble Storage 6x10GbE 4-port Adapter Kit	Q8C19A
HPE Nimble Storage 2x10GBASE-T 4-port Adapter Kit	Q8C20A
HPE Nimble Storage 4x10GBASE-T 4-port Adapter Kit	Q8C21A
HPE Nimble Storage 6x10GBASE-T 4-port Adapter Kit	Q8C22A
HPE Nimble Storage 2x10GbE 4-port and 4x16Gb Fibre Channel 4-port Adapter Kit	Q8C23A
HPE Nimble Storage 4x10GbE 4-port and 2x16Gb Fibre Channel 4-port Adapter Kit	Q8C24A

Head Network Upgrade Options

Only ONE of the following options can be selected. Please refer to configuration guidelines for specific support of networking options on AF-Series arrays.

HPE Nimble Storage 2x10GBASE-T 2-port Adapter Field Upgrade	Q8C62A
HPE Nimble Storage 2x10GbE 2-port Adapter Field Upgrade	Q8C63A
HPE Nimble Storage 2x1GbE 2-port Adapter Field Upgrade	Q8C64A
HPE Nimble Storage 2x16Gb Fibre Channel 2-port Adapter Field Upgrade	Q8C65A
HPE Nimble Storage 2x16Gb Fibre Channel 4-port Adapter Field Upgrade	Q8C66A
HPE Nimble Storage 2x1GbE 4-port Adapter Field Upgrade	Q8C67A
HPE Nimble Storage 2x10GbE 4-port Adapter Field Upgrade	Q8C68A
HPE Nimble Storage 2x10GBASE-T 4-port Adapter Field Upgrade	Q8C69A
HPE Nimble Storage Card Cage 2x1GbE 2-port Adapter Field Upgrade	Q8C70A
HPE Nimble Storage Card Cage 4x1GbE 2-port Adapter Field Upgrade	Q8C71A
HPE Nimble Storage Card Cage 2x10GBASE-T 2-port Adapter Field Upgrade	Q8C72A
HPE Nimble Storage Card Cage 4x10GBASE-T 2-port Adapter Field Upgrade	Q8C73A
HPE Nimble Storage Card Cage 2x10GbE 2-port Adapter Field Upgrade	Q8C74A

Configuration Information

HPE Nimble Storage Card Cage 4x10GbE 2-port Adapter Field Upgrade	Q8C75A
HPE Nimble Storage Card Cage 2x16Gb Fibre Channel 2-port Adapter Field Upgrade	Q8C76A
HPE Nimble Storage Card Cage 4x16Gb Fibre Channel 2-port Adapter Field Upgrade	Q8C77A
HPE Nimble Storage Card Cage 6x16Gb Fibre Channel 2-port Adapter Field Upgrade	Q8C78A
HPE Nimble Storage Card Cage 2x10GBASE-T 2-port and 2x16Gb FC 2-port Adapter Field Upgrade	Q8C79A
HPE Nimble Storage Card Cage 2x10GBASE-T 2-port and 4x16Gb FC 2-port Adapter Field Upgrade	Q8C80A
HPE Nimble Storage Card Cage 2x10GbE 2-port and 2x16Gb Fibre Channel 2-port Adapter Field Upgrade	Q8C81A
HPE Nimble Storage Card Cage 2x10GbE 2-port and 4x16Gb Fibre Channel 2-port Adapter Field Upgrade	Q8C82A
HPE Nimble Storage Card Cage 4x10GBASE-T 2-port and 2x16Gb FC 2-port Adapter Field Upgrade	Q8C83A
HPE Nimble Storage Card Cage 4x10GbE 2-port and 2x16Gb Fibre Channel 2-port Adapter Field Upgrade	Q8C84A
HPE Nimble Storage Card Cage 2x16Gb Fibre Channel 4-port Adapter Field Upgrade	Q8C85A
HPE Nimble Storage Card Cage 2x1GbE 4-port Adapter Field Upgrade	Q8C86A
HPE Nimble Storage Card Cage 2x10GbE 4-port Adapter Field Upgrade	Q8C87A
HPE Nimble Storage Card Cage 2x10GBASE-T 4-port Adapter Field Upgrade	Q8C88A

Step 5 – Add Expansion Shelves

All Flash Array AFS2 Expansion Shelves

AF1000, AF3000, and AF5000 support a maximum of one AFS2 expansion shelf. AF7000 and 9000 support a maximum of two AFS2 expansion shelves. Any two expansion shelf options may be selected for AF7000 and 9000 provided they have different capacities, unless they are both the highest capacity options. **Please refer to configuration guidelines for specific array capacity limits on AF-Series arrays.**

HPE Nimble Storage AF All Flash Array AFS2 Shelf 24x240GB Flash Field Upgrade	Q8C54A
HPE Nimble Storage AF All Flash Array AFS2 Shelf 24x480GB Flash Field Upgrade	Q8C55A
HPE Nimble Storage AF All Flash Array AFS2 Shelf 24x960GB Flash Field Upgrade	Q8C56A
HPE Nimble Storage AF5000/7000/9000 All Flash Array AFS2 Shelf 24x3.84TB Flash Field Upgrade	Q8C58A

Step 6 – Add Support (Mandatory)

Support recommendations are designed to help you enhance technology operations, lower risk and make it easier for you to seek the right balance between affordability and service-level commitments. Depending on your individual support needs, choose from three levels of care that cover the entire lifecycle to better address your needs from 1, 3, 4 and 5 year durations for service levels ranging from Next Business Day parts exchange to 4 hour onsite response.

NS 1/3/4/5Y FC NBD Parts Exchange Support	HT7A1A1/3/4/5*
NS 1/3/4/5Y FC NBD Parts Exchange w DMR Support	HT7A2A1/3/4/5
NS 1/3/4/5Y FC 4H Parts Exchange Support	HT6Z0A1/3/4/5
NS 1/3/4/5Y FC 4H Parts Exchange w DMR Support	HT6Z1A1/3/4/5
NS 1/3/4/5Y FC 4H Onsite Exchange Support	HT6Z2A1/3/4/5
NS 1/3/4/5Y FC 4H Onsite Exchange w DMR Support	HT6Z3A1/3/4/5
NS 1/3/4/5Y FC NBD Onsite Exchange Support	HT6Z4A1/3/4/5**
NS 1/3/4/5Y FC NBD Onsite Exchange w DMR Support	HT6Z5A1/3/4/5**

* Minimum support required 1 year Next Business Day Parts Exchange

** Support level available in Japan only

Configuration Information

Installation Services

Installation Services are intended to guide you from start to finish and to help make your installation a success. Our engagement includes the following phases:

Array Installation

- Inventory and verify HPE Nimble Storage equipment against the sales order
- Physically rack and cable all HPE Nimble Storage equipment, including connecting network cables provided by the customer
- Conduct power-on tests and verify operation
- Add the array to an existing HPE Nimble Storage Group, if applicable
- Configure array's basic management, monitoring, & reporting capabilities
- Configure array for additional data networks / SAN connectivity as needed
- Upgrade the array to the latest recommended HPE Nimble OS version

NOTE: Installation services are optional.

HPE Nimble Storage Array Start-up service

HA114A1#5MR

HPE Nimble Storage Array Upgrade service

HA124A1#5MS

Racks

HPE Nimble Storage arrays and expansion shelves are compatible with industry standard 4-post EIA 19 inch racks with square mounting holes, including HPE 36U, 42U and 47U Enterprise Shock Racks.

For more information on the HPE rack offerings, please see the following URL:

<http://h18004.www1.hpe.com/products/servers/platforms/rackandpower.html>

For more information on rack options, see:

<http://www.hpe.com/products/rackoptions>

For more information on PDUs, see:

<http://h18004.www1.hpe.com/products/servers/proliantstorage/power-protection/pdu.html>

Configuration Information

Required and additional power cords

HPE Nimble Storage arrays and expansion shelves do not ship with any power cords by default and require a minimum of 2 power cords per system. Please ensure these are selected at time of quoting. A pair of C13/C14 power cords are required when connecting base arrays or expansion shelves to Rack-Mounted Power Distribution Units (PDU). A pair of country/region specific power cords are required when connecting base arrays or expansion shelves to standard office wall power outlets.

Description	SKU
HPE NS AS 3112 to C13 AU Power Cord	Q8F89A
HPE NS WS-010A to C13 EU Power Cord	Q8F90A
HPE NS BS 1363 UK10 to C13 UK Power Cord	Q8F91A
HPE NS NEMA 5-15P to C13 US Power Cord	Q8F92A
HPE NS GB2099 to C13 CN Power Cord	Q8F93A
HPE NS WS-010A to C13 KR Power Cord	Q8F94A
HPE NS JIS 8303 to C13 TW/JP Power Cord	Q8F95A
HPE NS NEMA 6-15P to C13 JP Power Cord	Q8F96A
HPE NS C13/C14 PDU Base Array Power Cord	Q8F97A
HPE NS PE361L to LS-60 IN Power Cord	Q8G57A
HPE NS WS-016 to C13 ZA Power Cord	Q8G58A
HPE NS SI-32 to C13 IL Power Cord	Q8G59A
HPE NS CEI 23-16 to C13 IT Power Cord	Q8G60A

Technical Specifications

Physical Dimensions	Width in/mm	Depth in/mm	Height in/mm/U	Weight lb/kg
HPE Nimble Storage AF1000/3000/5000/7000/9000	17.5/445	26.5/673	7/175/4	80/36
HPE Nimble Storage Flash Upgrade Kits	15/381	17/432	6/153	24/11
HPE Nimble Storage AFS2 Expansion Shelf	17.5/445	26.5/673	7/175/4	70/32

Power Requirements	AF1000	AF3000	AF5000	AF7000	AF9000
Input Voltage					
AC PCM option	100 to 240 VAC (50 to 60 Hz)				
Max power requirements (Watts/kVA)	550 W / 0.61 kVA	600 W 0.67 kVA	700 W 0.78 kVA	800 W 0.89 kVA	900 W 1 kVA
Thermal (BTU)	1802 BTU	1965 BTU	2293 BTU	2620 BTU	2948 BTU

Environmental Specifications ¹	
Operating Temperature	10 - 35° C (50 - 95° F) Reduce rating by 1° F for each 1000 ft altitude (1.8° C/1,000 m)
Shipping Temperature	0° C - 40° C (32° F - 104° F) Maximum rate of change is 20°C/hr (36°F/hr)
Operating Altitude (ft/m) max.	10,000 ft / 3,048 m
Shipping Altitude (ft/m) max.	40,000ft/ 12,192 m
Humidity	8 - 90%, non-condensing
Shipping Humidity	5 - 95%, non-condensing
Operating Vibration	0.25 G, Sine 5 - 200 Hz (approx. 15 min/axis); 0.4 GRMS, Random 5 - 200 Hz (approx. 60 min/axis)
Non-operating Vibration	0.5 G, Sine 5 - 200 Hz (approx. 15 min/axis); 0.98 GRMS, Random 5 - 500Hz (approximate 30 min/axis)
Operating Shock	20 G, 2.5ms, half-sine, one shock on each side
Non-operating Shock	20 G, 10ms, square wave, one shock on each side
Electromagnetic Compatibility	Subpart B of Part 15 of FCC Rules for Class A digital devices ICES-003, Issue 6, dated January 2016 (Class A) VCCI V-3: April 2014 (Class A) EN 55022:2010 CISPR 22:2008 AS/NZS CISPR 22:2009 +A1:2010 EN55032:2012 CISPR 32:2012 EN 55024:2010 CISPR 24:2010 +A1:2015 TCVN 7189:2009 NBTC TS 3001-2555 TP TC 020/2011

Technical Specifications

Acoustics Sound pressure level measured per ISO 7779 specs during normal operating fan	Fan Speed (RPM)	Standard Speed (3540 RPM)	Full Speed (13000 RPM)
	Front	65.5	72.0
	Back	71.2	75.8
	Left	65.6	69.0
	Right	65.6	70.7

Safety

EN60950-1:2005 (Second Edition); Am1:2009 + Am2:2013
 IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013
 EN60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013
 UL/IEC 60960-1 2nd Ed. Am1 + Am2
 CNS14336-1 ('99)
 CNS13438 ('95)
 NOM-019-SCFI-1998
 NBTC TS 4001-2550
 TP TC 004/2011
 IS 13252 (PART 1):2010 +A1:2013 + A2:2-15
 SANS IEC 60950-1

NOTE: ¹ Specifications are subject to change without notice.

Certifications / Markings

UL	NOM
cUL	MoEc
CE	NBTC SDoC
FCC Class A	CITC/CoC*
IC Class A	EAC
VCCI Class A	BIS
RCM	LOA (S. Africa)
BSMI Class A	RoHS 2011/65/EU, EN50581:2012
KC	WEEE
CCC Exemption	

Summary of Changes

Date	Version History	Action	Description of Change
13-Nov-2017	From Version 3 to 4	Changed	Overview and Configuration Information were revised.
06-Nov-2017	From Version 2 to 3	Changed	Changes made to the entire document including the new Branding changes
12-Jun-2017	From Version 1 to 2	Changed	Detail on included power cords and SAS cables
5-Jun-2017	Version 1	Created	Created first version, including AF1000.



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