

EMC VNX-VSS: VIDEO SURVEILLANCE STORAGE AT THE EDGE



EMC® VNX-VSS® video surveillance storage, based on the industry-leading VNX technology platform, delivers uncompromising performance, “plug & play” simplicity, and affordability for the entry-level and more highly distributed video surveillance environments.

Specifications

ARCHITECTURE

The EMC VNX-VSS implements a modular architecture that integrates block-based components with concurrent support for native iSCSI and Fibre Channel protocols. The VNX-VSS delivers block (iSCSI and FC) storage via dual storage processors leveraging full 6 Gb SAS disk drive topology. The block-based configuration includes the following rack-mounted enclosures:

- Disk processor enclosure (holds disk drives) or storage processor enclosure (requires disk drive tray) plus standby power system to deliver block protocols

VNX-VSS*

MIN/MAX DRIVES	6/120
ARRAY ENCLOSURE	3U Disk Processor Enclosure (Holds 15x3.5" drives)
DRIVE ENCLOSURE OPTIONS (DAE)	15x3.5" NL-SAS drives—3 U
STANDBY POWER SYSTEM	1U 1.2KW
RAID OPTIONS	5/6
CPU/MEMORY PER ARRAY	Intel Xeon 5600/16 GB
MAX BLOCK ULTRAFLEX™ IO MODULES PER ARRAY	4
EMBEDDED USABLE IO PORTS PER ARRAY	4 FC ports or 2 FC ports/SP (auto-negotiate 2/4/8Gb/s)
1 GB I SCSI MAX TOTAL PORTS PER ARRAY	8
6 GB/S SAS BUSES (4 LANES PER BUS) FOR DAE CONNECTIONS	2
MANAGEMENT	LAN 2x 10/100/1000 Copper GbE

*VNX-VSS100 24TB base configuration: DPE (3U) + Power Supply (1U)

*VNX-VSS200 120TB base configuration: DPE (3U) + DAE (3U) + Power Supply (1U)



REDEFINE

SPECIFICATION SHEET



VNX-VSS PHYSICAL SPECIFICATIONS

VNX-VSS100 FUNCTIONAL LIMITS

MAX RAW CAPACITY	480 TB
MAX SAN HOSTS	2,048
MAX NUMBER OF POOLS	20
MAX NUMBER OF LUNS	2,048
MAX LUN SIZE	16 TB (Virtual Pool LUN)
OS SUPPORT	Block OS's see E-Lab Navigator on EMC.com

VNX-VSS CONNECTIVITY

The VNX series provides flexible connectivity options via UltraFlex™ IO modules for the block storage processors for FC and iSCSI host connectivity (see above table for number of modules supported per SP).

UltraFlex IO Module Options (block)

IO MODULE	DESCRIPTION
FOUR-PORT FIBRE CHANNEL MODULE	FC module with four ports auto-negotiating to 2/4/8 Gbps; uses optical SFP and OM2/OM3 cabling to connect directly to host HBA or FC switch
FOUR-PORT 1 GB/S ISCSI MODULE WITH TOE	iSCSI module with four 1 GBaseT RJ-45 copper connections to Cat 6 cabling to Ethernet switch; includes TCP offload engine

MAXIMUM CABLE LENGTHS

SHORTWAVE OPTICAL OM2	50 meters (8 Gb), 100 meters (4 Gb), and 300 meters (2 Gb)
SHORTWAVE OPTICAL OM3	150 meters (8 Gb), 380 meters (4 Gb), and 500 meters (2 Gb)

BACK-END (DISK) CONNECTIVITY

Each storage processor connects to one side of each of two or four redundant pairs of four-lane x 6 Gb/s Serial Attached SCSI (SAS) buses, providing continuous drive access to hosts in the event of a storage processor or bus fault. VNX-VSS100 requires a minimum of four "vault" drives (Near-line SAS) and support a platform specific maximum number of disks (see VNX physical specifications table above).

Approximately 200 GB per vault drive is consumed by VNX operating environment software and data structures.

Disk Array Enclosures

5x3.5" Drive DAE	
DRIVE TYPES SUPPORTED	3.5" NL-SAS
CONTROLLER INTERFACE	6 Gb SAS

Disk Drives for 15x3.5" Drive Disk Processor Enclosure/ Disk Array Enclosure

4 TB, 7.2K DRIVE	
SUPPORTED IN 15 DRIVE DAE	√
CAPACITY UPGRADE OPTION	Supports 9 & 15 drive upgrade options
FORMATTED CAPACITY (GB)	3,726 GB
DRIVE FORM FACTOR	3.5"
ROTATIONAL SPEED	7,200 rpm
INTERFACE	6 Gb SAS
DATA BUFFER	16 MB min
ACCESS TIME	
AVERAGE READ	8.5 msec
AVERAGE WRITE	9.5 msec
ROTATION LATENCY	4.16 msec
NOMINAL POWER CONSUMPTION (WATTS)	
OPERATING MODE	12.2
IDLE MODE	8.0

VNX-VSS OE PROTOCOLS AND SOFTWARE FACILITIES

The VNX-VSS offers support for varied block level protocols and facilities.

PROTOCOLS AND FACILITIES SUPPORTED

- Block Protocols: iSCSI, Fibre Channel (FCP SCSI-3)
- Common Criteria Certification: EAL 3+ Assurance Level
- Lightweight Directory Access Protocol (LDAP)
- Network Data Management Protocol (NDMP) v1-v4
- Network Information Service (NIS) Client
- Routing Information Protocol (RIP) v1-v2
- Simple Network Management Protocol V1-V3 (SNMP)
- Virtual LAN (IEEE 802.1q)

VNX-VSS SOFTWARE

VNX-VSS	
MANAGEMENT	Unisphere™ for Block, Unisphere Central
PROTOCOLS	iSCSI, FC
BASE SOFTWARE (INCLUDED WITH VNX OE)	EMC Virtual Provisioning™, CLI
VIRTUALIZATION SUPPORT	VMware integrations (vSphere, VASA, VAAI) Microsoft integrations (Hyper-V, ODX, SCM)

NOTE: For more detail on software licensing, please contact your sales representative.

OPTIONAL VMWARE FACILITIES AND TITLES

The VNX-VSS offers support for a wide variety of protocol and advanced features available via various software options.

- EMC Virtual Storage Integrator (VSI) for VMware® vSphere5: For provisioning, management, cloning, and deduplication
- Site Recovery Manager (SRM) Integration: Managing failover and failback making disaster recovery rapid and reliable

ADDITIONAL OPTIONAL EMC TITLES

- EMC ProSphere®: Integration with EMC Storage management infrastructure
- EMC PowerPath®: path management

VNX-VSS ELECTRICAL SPECIFICATIONS

(For specific power specifications please refer to the EMC Power Calculator at power.emc.com with your Powerlink account.)

DPE Enclosures

VNX-VSS DPE (15x3.5" drives)	
AC Line Voltage	100 to 240 Vac± 10%, single-phase, 47 to 63 Hz
AC Line Current (operating maximum)	5.84 A max at 100 Vac, 2.99 A max at 200 Vac
Power Consumption (operating maximum)	599 VA (574 W) max
Power Factor	0.98 min at 100 Vac full load, 0.95 min at 200 Vac full load
Heat Dissipation (operating maximum)	2.07×10^6 J/hr, (1,959 Btu/hr) max
In-rush Current	15 A max for ½ line cycle, per line cord at 240 Vac 8 A max for ½ line cycle, per line cord at 120 Vac
Startup Surge Current	27 A rms max for 50 ms, at any line voltage
AC Protection	7.8 A Normal-blow (non-time delay) fuse on each power supply, both phases
AC Inlet Type	IEC320-C14 appliance coupler, per power zone
Ride-through Time	30 ms min
Current Sharing	± 15 percent of full load, between power supplies
Height (in/cm)	5.25 in/ 13.34 cm
Width (in/cm)	17.5 in/ 44.45 cm
Depth (in/cm)	24.25 in/ 61.6 cm
Weight (lb/kg) (with and without drives)	Full: 96.8/44.0 Empty: 61.8/28.1

NOTE 1: Each DPE requires a Standby Power Supply (see the following information)

NOTE 2: Ratings assume a fully loaded DPE that includes 2 power supplies and worst case disk drives.

NOTE 3: All power figures shown represent max normal operating numbers with the chassis running in a normal ambient temperature environment. The chassis power numbers given may increase 5% when running in a higher ambient temperature environment.

Standby Power Supply		
POWER	1.2kW Standby Power Supply	2.2KW 2U SPS (Note all ratings assume fully configured systems)
AC Line Voltage	100 to 240 Vac \pm 10%, single-phase, 47 to 63 Hz	200 to 240 Vac \pm 10%, single-phase, 47 to 63 Hz
AC Line Current, Internal and Pass-through	0.10 A max at 100 Vac, internal power consumption (Up to 10 A max at 100 Vac, pass-through to AC outlets)	
0.05 A max at 200 Vac, internal power consumption (Up to 6 A max at 200 Vac, pass-through to AC outlets)	0.1 A max at 200 Vac, internal power consumption (Up to 11 A max at 200 Vac, pass-through to AC outlets)	
Internal Power Consumption	70 VA (40 W) pk in hi-charge mode, 10 VA	
(6 W) in float charge mode	150 VA (135 W) pk in hi-charge mode, 20 VA (12 W) in float charge mode	
Power Factor	N/A for pass-through load, internal 10 VA load is 0.60 power factor	N/A for pass-through load, internal 10 VA load is 0.60 power factor
Heat Dissipation	21.6 x 103 J/hr, (20 Btu/hr) steady state	43.2 x 103 J/hr, (40 Btu/hr) steady state
In-rush Current	9 A max for ½ line cycle, per power supply at 240 Vac	25 A max for ½ line cycle, per power supply at 240 Vac
AC Protection	15 A fuse, both phases	20 A circuit breaker
AC Inlet Type	IEC320-C14 appliance coupler with switch	IEC320-C14 appliance coupler with switch
AC Outlet Type	IEC320-C13 appliance coupler, quantity two	IEC320-C13 appliance coupler, quantity four
Charge Times	190 minutes max	5.5 hours max
AC Failure Detect Time	10 ms max	12 ms max
Transfer Time	25 ms max	25 ms max
Dimensions (H/W/L)	1.6 in/17.5 in/23.75 in or 4.0 cm/44.45 cm/60.3 cm	3.37 in/17.5 in/28 in or 8.56 cm/44.45 cm/71.1 cm
Weight	47 lb/21.6 Kg	79 lb/35.9 Kg

Enclosures	
	Standard 40U Cabinet
AC Line Voltage	200 to 240 Vac \pm 10%, single-phase, 47 to 63 Hz
Power Configuration	Two power domains (base and extended), each redundant
Power Inlet Count	Either two (for redundant base configuration) or four (for redundant extended configuration)
Plug Types	NEMA L6-30P or IEC309-332 P6 or IP57 (Australia)
Input Power Capacity	4,800 VA @ 200 Vac, 5,760 VA @ 240 Vac (base configuration) 9,600 VA @ 200 Vac, 11,520 VA @ 240 Vac (extended configuration)
AC Protection	30 A site circuit breakers on each power branch
40U Cabinet Dimensions	Height - 75 in (190.8 cm); Width - 24.0 in (61.1 cm); Depth - 39.0 in (99.2 cm); Weight Empty – 380 lb (173 kg)

OPERATING ENVIRONMENT

TEMPERATURE:	50–104 degrees F (10–40 degrees C)
TEMPERATURE GRADIENT:	18 degrees F/hr (10 degrees C/hr)
RELATIVE HUMIDITY:	20% to 80% (non-condensing)
ALTITUDE:	7,500 ft. (2,286.4 m) @ 104 degrees F (40 degrees C) max 10,000 ft (3,048 m) @ 98.6 degrees F (37 degrees C) max

ELECTROMAGNETIC EMISSIONS AND IMMUNITY

FCC Class A EN55022 Class A

CE Mark VCCI Class A (for Japan)

ICES-003 Class A (for Canada) AS/NZS 3548 Class A (for Australia/New Zealand)

EN55024 Immunity, ITE BSMI Class A (for Taiwan)

QUALITY AND SAFETY STANDARDS

UL 60950; CSAC 22.2-60950, EN 60950

Manufactured under an ISO 9000-registered quality system

ETSI EN 300 386



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The EMC logo, consisting of the letters 'EMC' in a bold, white, serif font, with a superscript '2' to the right of the 'C'. The logo is set against a solid blue rectangular background.