

# EMC VIDEO SURVEILLANCE STORAGE (VSS1600) FOR DISTRIBUTED ENVIRONMENTS



EMC Video Surveillance Storage VSS1600  
Purpose-Built for Distributed Environments

The next generation EMC Video Surveillance Storage (EMC VSS1600) system is a simple, affordable, reliable, and efficient block storage array, purpose-built for highly distributed surveillance environments.

All of the capabilities and functionality of the EMC VSS1600 are compacted into an easy-to-deploy system designed to meet the needs of entry level distributed surveillance workload requirements. EMC VSS1600 offers support for a variety of advanced storage features including data protection functionality, and 5-nines availability. And its built-in simplicity and ease of use allows it to be both low touch and extremely affordable.

The EMC VSS1600 includes advanced features such as Fiber Channel and iSCSI (IPv4/6) host connectivity, and MCx™ multicore optimization for increased processor efficiency – all in a very small 2U footprint - to deliver incredible value.



## Specifications

### ARCHITECTURE

The EMC VSS1600 is a dense, 2U dual-controller block system that provides FC and IP connectivity for distributed surveillance storage operations. With it you can:

- Setup and be operational in minutes with new Unisphere wizards.
- Be just one click away from a support specialist via online chat.

The EMC VSS1600's advanced functionality, bandwidth performance, and low \$/GB sets a new bar for entry-level distributed surveillance storage.

### EMC VSS1600 PHYSICAL SPECIFICATIONS

	<b>EMC VSS1600</b>
<b>Min/Max Drives</b>	6 to 200*
<b>Drive Enclosure Options</b>	12x3.5" NL SAS drives (2U)
<b>CPU/Memory per Controller</b>	1 x 2.6 GHz Xeon (Ivy Bridge) Dual Core/ 8 GB
<b>Embedded Host Ports per Controller</b>	2 per Converged Network Adapter (CNA) capable of either 8/16Gb** Fibre Channel or 10Gb Ethernet connectivity.
<b>Max Flex IO Modules per Controller</b>	1
<b>Raid Options</b>	RAID 10/5/6

\* 400 TB maximum raw capacity.

\*\* Ports can auto-negotiate to 4/8Gb FC



---

## SYSTEM LIMITS AND SUPPORT

<b>Supported Pool LUNs</b>	Up to 500
<b>Maximum LUN Size</b>	16 TB
<b>Total Raw Capacity</b>	400 TB

---

## EMC VSS1600 CONNECTIVITY

The EMC VSS1600 provides flexible DAS or SAN connectivity options through Ethernet iSCSI and Fibre Channel ports.

---

## FLEX IO MODULE OPTIONS

<b>IO Modules</b>	<b>EMC VSS1600</b>
1GbE	4 ports per module
10GbE Optical	4 ports per module
8/16 Gb/s Fibre Channel Module	4 ports per module

---

## BACK-END (DISK) CONNECTIVITY

Each storage processor includes two 6 Gb/s x 4 Serial Attached SCSI (SAS) ports providing connection to additional disk drive expansion enclosures.

---

## MAXIMUM CABLE LENGTHS

SAS Cable Length (enclosure to enclosure): 6 meters

---

## SUPPORTED DISK ARRAY ENCLOSURES (DAEs)

The EMC VSS1600 supports one or more of the following DAEs:

	<b>EMC VSS1600 12 Drive Disk Expansion</b>
<b>Drive Enclosures</b>	3.5" NL-SAS (2U)
<b>Drive Quantity</b>	12
<b>Controller Interface</b>	6 Gb SAS

---

## SUPPORTED DISK DRIVES

	<b>2 TB NL</b>	<b>4TB NL</b>
<b>Interface</b>	6 Gb/s SAS	6 Gb/s SAS
<b>Capacity (RPM)</b>	2 TB (7,200)	4 TB (7,200)
<b>Formatted Capacity*</b>	1823.56 GB	3668.55 GB
<b>Form Factor</b>	3.5"	3.5"
<b>Height</b>	1.0"	1.0"
<b>Data Buffer</b>	128 MB	128 MB
<b>Buffer to/from Media</b>	84 MB/s	84 MB/s
<b>SP to/from Buffer</b>	600 MB/s (max)	600 MB/s (max)
<b>Average Seek</b>	8.2 ms (Read) 9.2 ms (Write)	8.5 ms (Read) 9.5 ms (Write)

**Rotation  
Latency**

4.17 ms

4.16 ms

---

## PROTOCOLS SUPPORTED

iSCSI, Fibre Channel

Routing Information Protocol (RIP) v1-v2

Simple Network Management Protocol (SNMP)

Address Resolution Protocol (ARP)

Internet Control Message Protocol (ICMP)

Simple Network Time Protocol (SNTP)

Lightweight Directory Access Protocol (LDAP)

---

## SERVER OPERATING SYSTEM SUPPORT

Apple MAC O/S 10.8 or greater

Citrix XenServer 6.1

HP-UX

IBM AIX

IBM VIOS 2.2, 2.3

Microsoft Windows Server 2008, Windows Server 2008 R2+

Windows Server 2012, Windows Server 2012 R2

Microsoft Windows 7, Microsoft Windows 8 and Vista

Microsoft Hyper-V

Novell Suse Enterprise Linux

Oracle Linux

RedHat Enterprise Linux

Solaris 10 x86, Solaris 10 Sparc

Solaris 11 and 11.1 supported, SPARC & x86

VMware® ESXi5.x®

---

## EMC VSS1600 SOFTWARE

**EMC VSS1600 Base Software Package** – Standard integrated management and monitoring of all aspects of EMC VSS1600 systems including the Operating Environment 3.1.3\*, all protocols (as listed above), Unisphere Management with integrated support, Block Snapshots, Remote Protection – Native Asynchronous Block Replication, and Thin Provisioning.

### OPTIONAL SOFTWARE:

#### PowerPath

Intelligent load balancing and multi-pathing software for networked storage environments

\*The EMC VSS1600 Operating Environment is a licensed and priced item.

---

## CLIENT CONNECTIVITY FACILITIES

Block access by iSCSI and FC

Virtual LAN (IEEE 802.1q)

---

## EMC VSS1600 ELECTRICAL SPECIFICATIONS

Requirement	EMC VSS1600 Processor Enclosure (3.5" Drives)	EMC VSS1600 Expansion Enclosure (12 x 3.5" Drives)
-------------	---	--

<b>AC Line Voltage</b>	100 to 240 Vac $\pm$ 10%, single-phase, 47 to 63 Hz	100 to 240 V ac $\pm$ 10%, single-phase, 47 to 63 Hz
<b>AC Line Current</b>	4.21 A max, at 100Vac, 2.27 A max, at 200Vac	2.5 A max at 100 Vac, 1.3 A max at 200 Vac
<b>Power Consumption</b>	421 VA (400 W) max	250 Vac (240 W) max
<b>Power Factor</b>	0.95 min at full load, low voltage	0.98 min at full load, low voltage
<b>Heat Dissipation</b>	$1.44 \times 10^6$ J/hr. (1,365 Btu/hr.) max	$8.64 \times 10^5$ J/hr, (820 Btu/hr) max
<b>AC Protection</b>	15 A fuse on each power supply, both phases	15 A fuse on each power supply, both phases
<b>AC Inlet Type</b>	IEC320-C14 appliance coupler, per power zone	IEC320-C14 appliance coupler, per power supply
<b>Ride-through Time</b>	12 ms min	30 ms min
<b>Current Sharing</b>	$\pm$ 5 percent of full load, between power supplies	$\pm$ 15 percent of full load, between power supplies

---

### EMC VSS1600 PHYSICAL DIMENSIONS (APPROXIMATE)

	<b>EMC VSS1600 Processor Enclosure (3.5" Drives)</b>	<b>EMC VSS1600 Expansion Enclosure (12 x 3.5" Drives)</b>
<b>Dimension (H/W/L)</b>	3.40 in x 17.5 in x 20.0 in/ 8.64 cm x 44.45 cm x 50.8 cm	3.40 in x 17.5 in x 20.0 in/ 8.64 cm x 44.45 cm x 50.8 cm
<b>Weight (max)</b>	61.8lb/28.1kg	52.0 lb/23.6 kg

## OPERATING ENVIRONMENT (MEETS ASHRAE EQUIPMENT CLASS A4)

<b>RECOMMENDED RANGE OPERATION</b>	The limits under which equipment will operate the most reliably while still achieving reasonably energy-efficient data center operation.	18C to 27C (64.4F to 80.6F) at 5.5C (41.9F) dew point to 60% relative humidity and 15C (59F) dew point.
<b>CONTINUOUS ALLOWABLE RANGE OF OPERATION</b>	Data center economization techniques (e.g. free cooling) may be employed to improve overall data center efficiency. These techniques may cause equipment inlet conditions to fall outside the recommended range but still within the continuously allowable range. Equipment may be operated without an hourly limitation in this range.	10°C to 35°C (50°F to 95°F) to 20% to 80% relative humidity with 21C (69.8°F) maximum dew point (maximum wet bulb temperature). De-rate maximum allowable dry bulb temperature at 1°C per 300m above 950m (1F per 547 ft above 3117ft).
<b>EXPANDED ALLOWABLE RANGE OF OPERATION</b>	During certain times of the year, equipment inlet conditions may fall outside of the continuously allowable range but still within the two expanded ranges. Equipment operation is limited to ≤ 10% or ≤ 1% of the annual operating hours in these ranges.	5°C to 10°C and 35°C to 45°C (with no direct sunlight on equipment) at -12°C dew point and 8% to 90% relative humidity with 24°C dew point (maximum wet bulb temperature). Outside the continuously allowable range (10°C to 35°C), the system can operate down to 5°C or up to 40°C for a maximum of 10% of its annual operating hours. Additionally, the system can operate as high as 45°C for a maximum of 1% of its annual operating hours. For temperatures between 40°C and 45°C (104°F to 113°F), derate maximum allowable dry bulb temperature by 1C per 125m above 950m (1.8°F/410 ft above 2953 ft.).
<b>EXCEPTIONS TO EXPANDED ALLOWABLE RANGE OPERATION</b>	When operating in the expanded allowable temperature range, system performance is guaranteed while the system is waiting or being serviced.	Due to certain rare operational modes, it is recommended that service be deferred on the 3.5" Disk Array enclosures when temperatures exceed 40°C.
<b>TEMPERATURE GRADIENT</b>	20°C/hr (36°F/hr)	
<b>ALTITUDE</b>	3050m (10,000ft)	

### Statement of Compliance

This Information Technology Equipment is compliant with the electromagnetic compatibility (EMC) and product safety regulations/standards required by the countries in which the product is sold. EMC compliance is based on FCC part 15, CISPR22/CISPR24 and EN55022/EN55024 standards, including applicable international variations. EMC compliant Class A products are marketed for use in business, industrial, and commercial environments. Product Safety compliance is based on IEC 60950-1 and EN60951-1 standards, including applicable national deviations.

This Information Technology Equipment is in compliance with EU RoHS Directive 2011/65/EU.

The individual devices used in this product are approved under a unique regulatory model identifier that is affixed to each individual device rating label, which may differ from any marketing or product family name in this data sheet.

For additional information see <https://support.emc.com> under the Safety & EMI Compliance Information tab.

## CONTACT US

To learn more about how EMC products, services, and solutions can help solve your business and IT challenges, [contact](#) your local representative or authorized reseller, visit [www.emc.com](http://www.emc.com), or explore and compare products in the [EMC Store](#).

EMC<sup>2</sup>, EMC, the EMC logo, FAST, MCx, Unisphere, VNXe, EMC VSS1600, VNXe3200, VNX, and VSPeX are registered trademarks or trademarks of EMC Corporation in the United States and other countries. VMware is a registered trademark or trademark of VMware, Inc., in the United States and other jurisdictions. © Copyright 2016 EMC Corporation. All rights reserved. Published in the USA. 3/16 Spec Sheet H14833

EMC believes the information in this document is accurate as of its publication date. The information is subject to change without notice.

