VideoXpert™

SCALABLE VIDEO MANAGEMENT AND SURVEILLANCE SYSTEM

Product Features

- Designed to eliminate single points of failure and ensure reliability though fault-tolerant software, distributed architecture, and multiple levels of redundancy

- Provides scalability and modular expansion

- Provides migration paths for Endura® and Digital Sentry® systems

- Aggregates VMS networks and manage all video through a single system (VideoXpert Ultimate distributions)

- Available in hardware and software-only distributions, for measured performance or convenient migration of customer-owned hardware

- Microsoft® Windows®-based for easy setup and maintenance

- Browser-based administration interface provides management capabilities without a hard client

- Supports up to 6 monitors per workstation, each driven by independent CPUs, displaying up to 16 HD streams per monitor

- Workstations available with 3D mouse and programmable keyboard accessories to maximize operator control

- Extensible through plug-ins including mapping, video information overlays (eConnect), and license plate recognition (PlateSmart)

- Create and assign tags, organizing network resources as you see fit

- Native RAID 6 storage solution supports 3rd party (ONVIF) and Pelco Optera cameras

- Investigation mode enables operators to synchronize video playback and export investigative playlists covering scenes of interest

- Supported languages: German, Spanish, French, Italian, Korean, Polish, Portuguese, Russian, Turkish, Arabic, and Chinese (Simplified)

VideoXpert is a video management solution designed to fit surveillance operations of any size. Whether your operation has 100 cameras or 10,000, VideoXpert presents a solution to display, record, and manage your video resources.

VideoXpert servers can be clustered to provide redundancy and scalability within a single environment, enabling the system to grow in tune with your surveillance needs. As you add cameras, users, or recording devices, you can add servers and storage, enabling the system to support the additional resources and perform to your expectations. VideoXpert Ultimate can even aggregate other VideoXpert systems, tying multiple VideoXpert systems into a single interface. Through aggregation, administrators can build and maintain a concerted video management system containing multiple sites.

Designed for Windows platforms, VideoXpert is easy to install, quick to setup, and should be familiar to most users. The system supports unicast and multicast transmission modes, making it easy to adapt to your current network scheme. Simplified interfaces ensure that users can adopt and use the system with relative ease. From the Web-based Admin Portal, you can configure the system, manage the database of devices, configure users and permissions, and assign cameras to recording devices. Through the Ops Center software, operators gain access to high quality video and powerful investigative tools.

Administrators can migrate current Endura and Digital Sentry hardware and environments to VideoXpert, re-purposing hardware and reusing current video management infrastructures while gaining the benefits of VideoXpert. VideoXpert can also utilize NSM5200 and Digital Sentry storage hardware as recording solutions, preserving the video stored on those devices while providing access to VideoXpert features.

As distributed systems, VideoXpert Ultimate and Enterprise architecture ensure that there is no single point of failure that would compromise the system or video recording services. The system is designed with multiple levels of redundancy – through both purpose-built hardware and sophisticated failover and redundant recording schemes – maximizing system uptime. The architecture allows individual components to continue operating in the event of failures elsewhere in the system.

VideoXpert can integrate with physical security systems and other building systems to deliver situational awareness and control. Built around open standards, VideoXpert includes a complete application programing interface (API), software development kits (SDKs), and dedicated technical support, allowing other systems' manufacturers to develop interfaces leveraging VideoXpert's capabilities. VideoXpert also supports third-party IP cameras, allowing users to choose across hundreds of camera options from Pelco and third-party partners when configuring a system.

VideoXpert consists of four major components: Core, Media Gateway, Ops Center, and Storage Server. The Core performs central management operations, maintaining the system database, administering user rights and permissions, routing traffic, and other central operations. The Media Gateway handles all requests for video, ensuring that users at all levels of network access, LAN, WAN and even cellular, receive the right type of video for their application. The Ops Center Client is the operator console, providing an intuitive, but powerful interface from which users can access and investigate video throughout the system. The Storage Server (VXS) records video and delivers recorded video to users.

CORE

The Core is the heart of the VideoXpert system, it maintains the database of cameras and recording devices. The Core also hosts a convenient Web interface called the Admin Portal, from which you can configure and manage the system. Through the Admin Portal, you can administer user accounts and permissions, determining the system functions and devices users can access. You can create and assign "tags" to quickly organize cameras and devices within the system. You can also configure and respond to events within the system.

The Core browser provides basic access to video streaming resources, ensuring that users with appropriate permissions can view video from the system even without a hard client, using just a standard web browser.

MEDIA GATEWAY

The Media Gateway routes video traffic to appropriate users as requested. When a user requests a video stream, the Core fields the request and determines whether the user possesses the appropriate permissions to view the video stream. If the user can view the stream, the Media Gateway connects the user with the appropriate device — camera, encoder, or recorder as necessary.

Like Core servers, Media Gateways can be added to VideoXpert modularly, allowing a system with 1000 cameras to support 20 users, or a system with 100 cameras to support 200 users. You can add Media Gateways to the system in tune with media delivery needs.

CORE/MEDIA GATEWAY COMBINATION

While you can leverage separate Core and Media Gateway servers for systems of sufficient scale, most systems can easily support a single server acting as a combined, Core and Media Gateway for your VideoXpert server. The double-duty server provides the complete range of VideoXpert functionality that you would expect for systems with fewer than 2000 cameras and 100 simultaneous users.
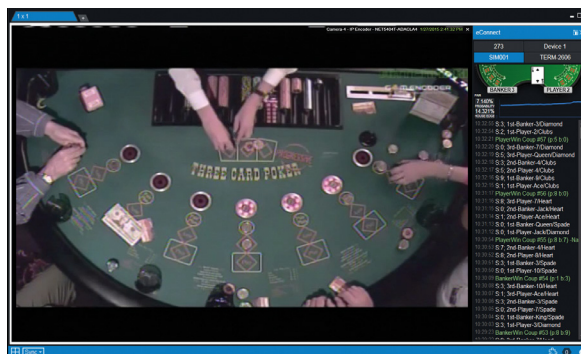
OPS CENTER

The Ops Center is a Windows-based application, providing an optimal environment from which users can watch live and recorded video. With the support of Enhanced Decoders, the Ops Center supports up to six monitors, each capable of displaying up to 16 video streams simultaneously. Through the Ops Center, users can configure and recall complete workspaces, enabling operators to quickly log in and get to work.

The application provides mechanisms to sort cameras by tags and other criteria, making it easy for users to find the cameras they need. Users can switch between live and recorded video on the fly, ensuring a seamless viewing experience. With appropriate permissions, users can also share window arrangements, and views with other users, enabling collaboration within your surveillance operations.

The Ops Center also provides an Investigation Mode, through which users can create playlists from multiple video clips encompassing important scenes from an investigation. Users can export and encrypt their investigations, storing clips relevant to their investigation independent of the system's network video storage for evidentiary safe-keeping and quick access.

The Ops Center supports modular plug-ins, exposing additional functionality for operators as required by your surveillance operations. The **Mapping** plug-in enables operators to arrange and find cameras on maps. Through mapping, operators can find and the camera providing the view they need, when they need it. The **PlateSmart** plug-in exposes license plate numbers, to track vehicles as they come and go. The **eConnect** plug-in displays real-time gaming information as a video overlay.

STORAGE

VideoXpert Storage (VXS) is a RAID 6, high-availability recording platform that captures recorded video for your VideoXpert system. The system's operating system is contained on an SSD, freeing more space for video and ensuring higher reliability; hard drives belonging to the RAID array are front-loading, making it easy to remove and replace failed drives. Storage servers also maintain performance levels in both normal and RAID error conditions, preventing dips in performance and ensuring that users can always obtain the video they need through VideoXpert.
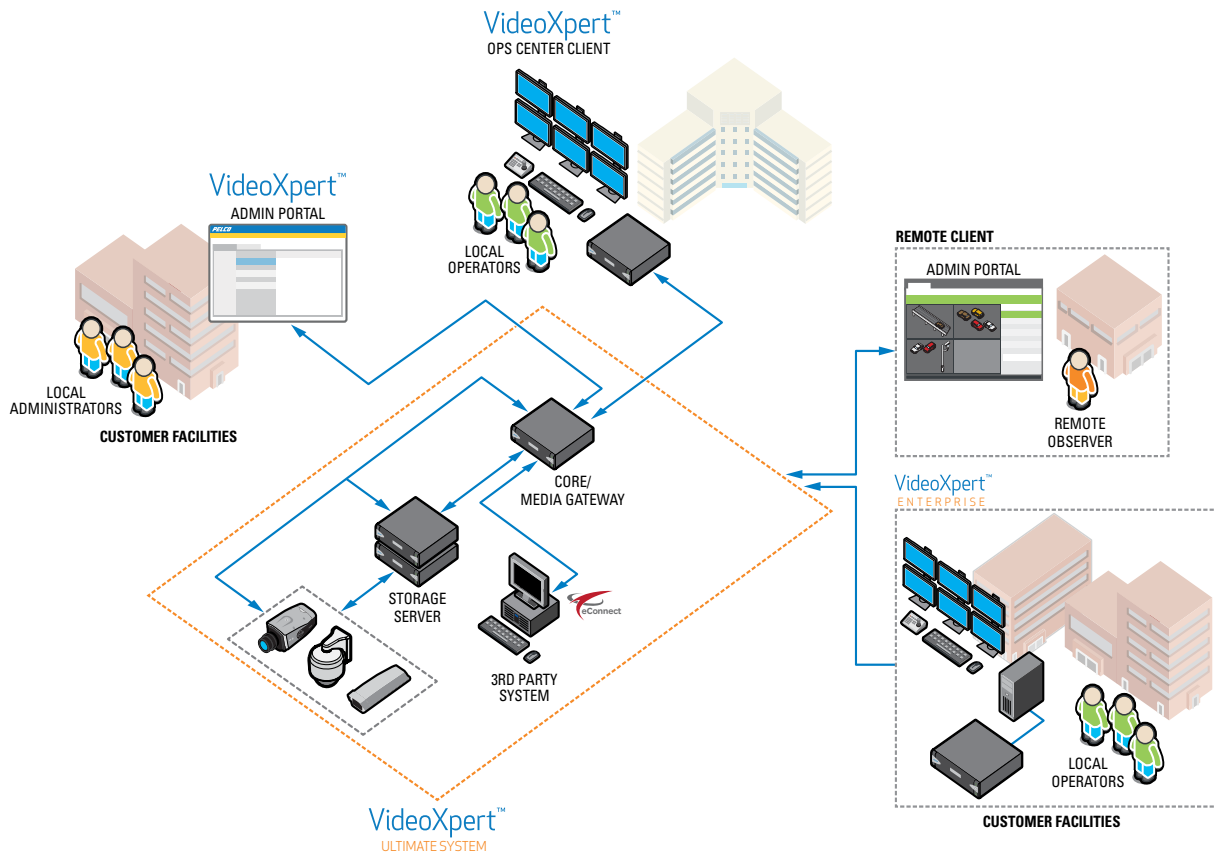
VideoXpert Storage natively supports third-party IP cameras using ONVIF Profile S drivers and Optera cameras, so you can bring your 3rd party cameras into VideoXpert without expensive translation interfaces.

You can configure Storage through the same Web interface you use to configure the rest of your VideoXpert system, making it easy to set recording schedules and assign cameras to your storage servers. Storage supports redundant recording, ensuring that VideoXpert continues recording video even if a single Storage server falls offline.

SYSTEM TOPOLOGY

VideoXpert Ultimate allows for expansion at any level of your security environment. Your system begins with a single server hosting the Core and Media Gateway. In addition your system requires the OPS Center and Storage Server. As your surveillance needs grow, you can add servers to expand modularly within a single environment, or you can aggregate multiple VideoXpert systems to provide a single point of access for distributed video management networks.

VIDEOXPERT ACCESSORY SERVER

You can install the VideoXpert Accessory Server to provide NTP, basic DHCP, active failover, and load balancing services for smaller networks. The Accessory Server offers a native, multipurpose solution to control your time and addressing services from within VideoXpert.
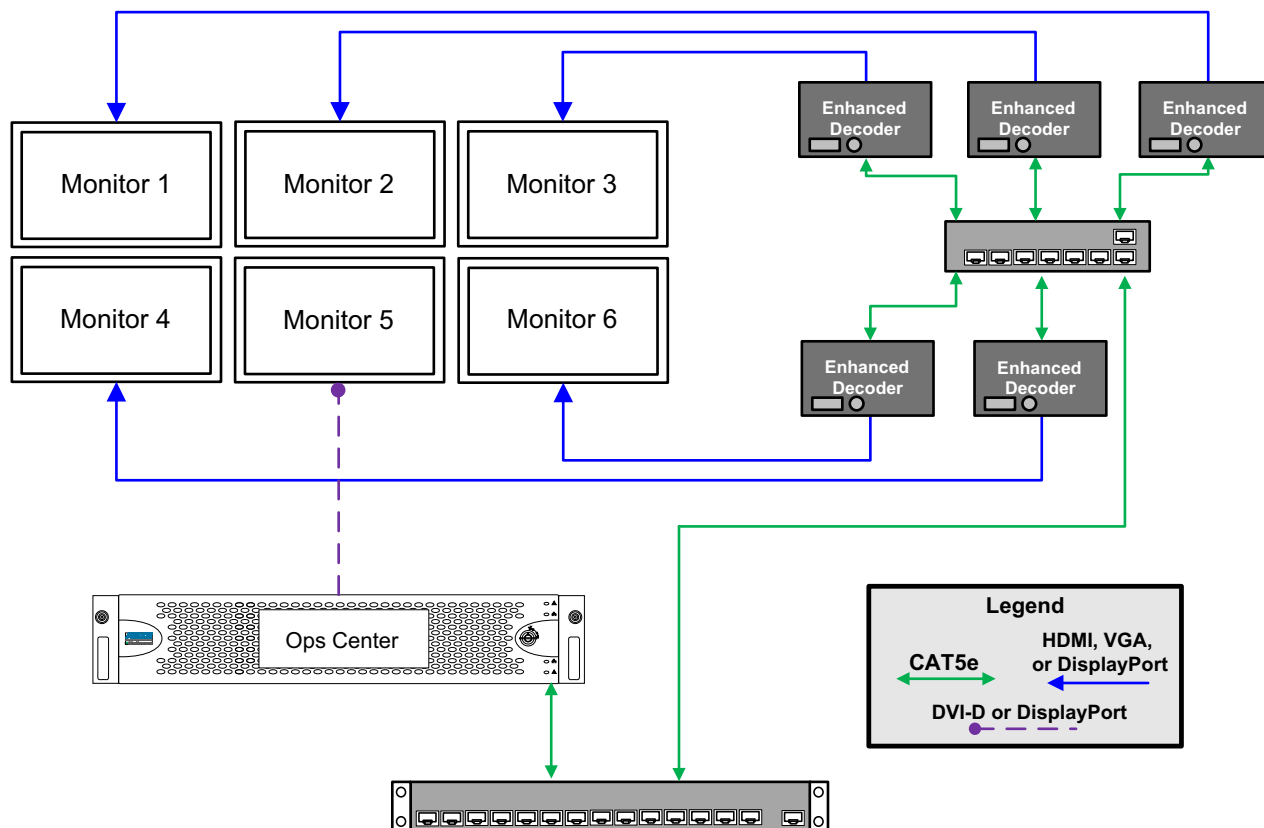
When acting as a load balancer, the Accessory Server bridges multiple Core/Media Gateway (CMG) servers, optimizing performance and providing redundancy for your VideoXpert network. With the Accessory Server, you can easily increase your VideoXpert network's capacity and ensure the system's uptime so that users always have access to video.

OPERATOR WORKSPACE TOPOLOGY

The Ops Center supports up to six monitors: one connected directly to the Ops Center, and the other five driven independently by Enhanced Decoders. The Enhanced Decoders enable each monitor connected through a workstation to display up to 16 high definition video streams or independent plug-ins while maintaining a seamless user experience.

Enhanced Decoder-driven monitors operate just like native monitors; users can move windows across monitors seamlessly. But, when the user requests a video stream or plug-in, the Enhanced Decoder communicates directly with VideoXpert servers to get and decode video. This enables operators to maximize the display-capabilities of the Ops Center without complicating the user experience.

ADVANCED OPERATOR CONTROLS

In addition to the standard keyboard and mouse, Ops Center workstations support an Enhanced Keyboard, and Enhanced Mouse, and the KBD5000.The Enhanced keyboard includes programmable keys to which operators can map shortcuts to their favorite tabs and workspaces; The new Enhanced Mouse or your existing KBD5000 are mapped to the full range of Ops Center controls; an operator can perform any and all operations using either control.

KBD5000   ENHANCED KEYBOARD   ENHANCED 3D MOUSE

TECHNICAL SPECIFICATIONS

NOTE: Storage specifications subject to change before formal launch.

HARDWARE

		Core/CMG	Media Gateway	Ops Center	Storage	Enhanced Decoder Accessory Server (D09U Models)
Processor		Intel® Xeon® E3-1275 v3			Intel® Xeon® E3-1276 v3	Intel® Core™ i7-4785T
Memory		32 GB DDR3 ECC	8 GB DDR3 Non-ECC		32 GB DDR3 ECC	8 GB DDR3
Operating System		Microsoft® Windows® Server 2012		Windows 7 Ultimate SP3	Microsoft® Windows® Server 2012	–
SSD Storage		480 GB	120 GB	120 GB	200 GB	128 GB
HDD	Storage	1 TB	N/A		Up to 96 TB	N/A
	RAID Level	N/A			RAID 6	
	Effective Capacity	N/A	N/A		VXS-48: 32.70 TB VXS-72: 54.50 TB VXS-96: 76.40 TB	
Optical Drive		N/A		DVD±RW	N/A	
USB Ports	USB 2.0	1 front, 2 rear			2 front, 2 rear	1 internal
	USB 3.0	2 rear			2 rear	2 front, 4 rear

MINIMUM SYSTEM REQUIREMENTS[1]

	Core/CMG[2]	Media Gateway[2]	Ops Center	Storage	D09U Models
Processor	Intel i7	Intel i7	64-bit CPU	VideoXpert Storage is not available as a software distribution	Enhanced Decoder is not available as a software distribution
Memory	16 GB	8 GB	8 GB (2x 4 GB dual-channel)[3]		
Operating System	Windows 7 SP3	Windows 7 SP3	Windows 7 SP3 64-bit		

[1] Software distributions tested without antivirus software installed.

[2] Core and Media Gateway servers were also tested in VirtualBox and ESXi 5.1 virtual environments, each with 8 GB memory.

[3] Failing to use dual-channel memory may result in lowered performance when viewing video on local monitors.

VIDEO

		Core/CMG	Media Gateway	Ops Center	Storage	D09U Models
Video System		Intel HD Graphics P4700		Intel HD Graphics P4700; supports optional upgrade	VGA interface; VXS models are designed to be configured remotely through web interface.	Intel HD
Memory		Shared		Shared; 1 GB for OPS-WKS6		Shared
Video Outputs		2x DisplayPort, DVI-D, VGA		2x DisplayPort, DVI-D, VGA; Supports up to 6 outputs for OPS-WKS6		DisplayPort, HDMI, VGA
Max Resolution	DisplayPort	3840 x 2160 at 60 hz				3840 x 2160 at 60 hz
	DVI-D and VGA	1920 x 1200 at 60 hz				1920 x 1200 at 60 hz
Video Standards	NTSC	60 Hz				60 Hz
	PAL	75 Hz				50 Hz

NETWORKING

	Core/CMG	Media Gateway	Ops Center	Storage	D09U Models
Interface	Gigabit Ethernet (1000Base-T) ports (2x)				Gigabit Ethernet (1000Base-T) port (1x)
Throughput	N/A			350 Mbps / 120 Streams	N/A

TECHNICAL SPECIFICATIONS

FRONT PANEL		Core/CMG	Media Gateway	Ops Center	Storage	D09U Models
Buttons		Power, configuration/reset				Power
Indicators	Unit Status	Green, amber, red			Blue, red, off	White, flashing white
	Primary Network	Green, amber, red			Green, off	Green, orange, off
	Secondary Network	Green, amber, red			Green, off	N/A
	Software Status	Green, amber, red (based on diagnostics)			N/A	
	Hard Disk Status	Green, red, off (behind bezel)			OS Drive (SSD): Amber, off / RAID Drives: Blue, red, off	Flashing white
	Power Status	N/A			Green, off	N/A
	Power Fail Status	N/A			Red, off	N/A

POWER		Core/CMG	Media Gateway	Ops Center	Storage	D09U Models
Power Input		100 to 240 VAC 50/60 Hz, autoranging				
Power Supply		Internal			Internal, Redundant Power Supply	External, 65 W
Power Consumption	100 VAC	160 W, 1.60 A, 547 BTU/H			N/A	19.5 VDC, 3.34 A
	115 VAC	160 W, 1.39 A, 547 BTU/H			N/A	
	120 VAC	N/A			414W, 3.45A, 1411 BTU/H *	
	220 VAC	160 W, 0.72 A, 547 BTU/H			N/A	
	240 VAC	N/A			406W, 1.69A, 1386 BTU/H *	

* Power consumption is based upon maximum capacity.

ENVIRONMENTAL	Core/CMG	Media Gateway	Ops Center	Storage	D09U Models
Operating Temperature	10° to 35°C (32° to 95°F) at unit air intake (front of unit)				5° to 35°C (41° to 95°F)
Non-Operating Temperature	–40° to 65°C (–40° to 149°F)			–40° to 60°C (–40° to 140°F)	–40° to 65°C (–40° to 149°F)
Operating Relative Humidity	20% to 80%, noncondensing			20% to 95%, noncondensing	20% to 80%, noncondensing
Non-Operating Relative Humidity	10% per hour			5% to 95%, noncondensing	10% per hour
Operating Altitude	–15 to 3,048 m (–50 to 10,000 ft)				
Operating Vibration	0.25 G at 3 Hz to 200 Hz at a sweep rate of 0.5 octave/minute				0.66 GRMS

Note: The temperature at the unit air intake can be significantly higher than room temperature. Temperature is affected by rack configuration, floor layout, air conditioning strategy, and other issues. To prevent performance failure and unit damage, make sure the temperature at the unit is continuously within the operating temperature range.

PHYSICAL		Core/CMG	Media Gateway	Ops Center	Storage	D09U Models
Construction		Steel and plastic cabinet				
Finish	Front Panel	Dark gray with metallic silver end caps				Black
	Chassis	Dark gray			Silver	Black
Dimensions (D x W x H)		50.8 x 43.4 x 8.9 cm (20 x 17.1 x 3.5 in)			64.8 x 43.7 x 13.2 cm (25" x 17.2" x 5.2")	17.6 x 3.6 x 18.2 cm (6.93 x 1.4 x 7.17 in)
Mounting (RU)		2 RU			3 RU	N/A (mount included)
Unit Weight		13.06 kg (28.8 lb)	12.38 kg (27.29 lb)	12.38 kg (27.29 lb)	35.5 kg (78 lb)	1.28 kg (2.82 lb)

SOFTWARE LICENSE, SERVER, AND WORKSTATION MODELS

Use the following table to create a model number for your VideoXpert hardware and/or software package. Your model number consists of the distribution you want to choose, the model, and the country-code (where applicable). Models ending in US and EUK include power cords for their respective regions; models without a country code do not. Power cords are available as separate accessories. For example, an Enterprise Core server for Europe is labeled E1-COR-SVR-EUK

Due to the complexity of network and system design for larger distributions, VideoXpert Ultimate requires either training certification, or that the installation be performed by Pelco Professional Services. While not required for Enterprise distributions, it is strongly recommended that system installers and administrators be Pelco-certified.

Distribution	Model	Country Code (optional)	Description
(Ultimate) U1 (Enterprise) E1	CMG-SVR	US = North America EUK = Europe/United Kingdom	VideoXpert Core and Media Gateway all-in-one hardware with software licenses
	COR-SVR		VideoXpert Core server hardware and software license
	MGW-SVR		Media Gateway server hardware and software license
	OPS-WKS		Ops Center workstation and software license
	OPS-WKS6		Ops Center workstation with upgraded graphics card, enabling use of up to 6 monitors using Enhanced Decoders (D09U-A1-DEC).
	COR-SW		Core software license
	MGW-SW		Media Gateway software license
	NSM-1UP		Upgrade license enabling NSM5200 models to support VideoXpert systems
	DSS-1UP		Upgrade license enabling DS servers to serve as recorders within VideoXpert
	AGG-1C		(Optional) Ultimate site upgrade license for managing one camera
	COR-SUP		(Optional) Core software upgrade subscription; entitles users to upgrades for one year
	MGW-SUP		(Optional) Media Gateway software upgrade subscription; entitles users to upgrades for one year

STORAGE MODELS

Use the table below to find the model number for your VideoXpert Storage Server. The model number consists of the VideoXpert distribution, model, the amount of storage, and the country-code (where applicable). Models ending in US and EUK include power cords for their respective regions; models without a country code do not. For example, an Enterprise Storage Server with 48 TB of storage for the US is labeled E1-VXS-48-US

Distribution	Model	Storage	Country Code (optional)	Description
(Ultimate) U1 (Enterprise) E1	VXS	48 TB	US = North America EUK = Europe/United Kingdom	VXS with 48 TB storage (32.70 TB effective storage)
		72 TB		VXS with 72 TB storage (54.50 TB effective storage)
		96 TB		VXS with 96 TB storage (76.40 TB effective storage)

SUPPORTED LANGUAGES

The Admin Portal and Ops Center interfaces are available in:

- German
- Spanish
- French
- Italian
- Korean
- Polish
- Portuguese
- Russian
- Turkish
- Arabic
- Chinese (simplified)

SUPPLIED ACCESSORIES

Keyboard (Core, Media Gateway, CMG, and Ops Center models)

Mouse (Core, Media Gateway, CMG, and Ops Center models)

USB drive containing resource and recovery information

Rack mount kit

Power cord (for applicable models)

OPTIONAL POWER ACCESSORIES

PWRCRD-S-AR	Standard power cord, Argentina
PWRCRD-S-AU	Standard power cord, Australia
PWRCRD-S-EU	Standard power cord, Europe
PWRCRD-S-UK	Standard power cord, United Kingdom
PWRCRD-S-US	Standard power cord, United States
PWRCRD-R-AR	Round power cord, Argentina
PWRCRD-R-AU	Round power cord, Australia
PWRCRD-R-EU	Round power cord, Europe
PWRCRD-R-UK	Round power cord, United Kingdom
PWRCRD-R-US	Round power cord, United States

VIDEOXPERT ACCESSORY SERVER

D09U-ACCSVR	VideoXpert Accessory Server
D09U-ACCSVR-US	VideoXpert Accessory Server with US power cord
D09U-ACCSVR-EUK	VideoXpert Accessory Server with Europe/United Kingdom power cord

OPS CENTER CLIENT OPTIONAL ACCESSORIES

D09U-A1-DEC	Enhanced Decoder and mount
D09U-A1-DEC-US	Enhanced Decoder and mount with US power cord
D09U-A1-DEC-EUK	Enhanced Decoder and mount with Europe/United Kingdom power cord
3DX-600-3DMOUSE	Enhanced 3D Mouse and Joystick
Y-U0018-G710KBD	Enhanced Keyboard
A1-KBD-3D-KIT	Enhanced Keyboard and 3D Mouse Combination Kit

STORAGE SERVER ACCESSORIES

NSM5200-PS	Replacement power supply module for VSM/NSM5200 models
NSM5200-FAN	Replacement system fan (upper-middle) for VSM/NSM5200 models
NSM5200-FANB	Replacement rear-chassis (rear panel) fan for VSM/NSM5200 models
HD5200-3000	Replacement 3 TB hard drive and carrier for VSM/NSM5200 models
DS-EN-4TB-HDD	Replacement 4 TB hard drive and carrier for VSM/NSM5200 models
VXS-HDD-6TB	Replacement 6 TB hard drive and carrier for VXS Models

STANDARDS/ORGANIZATIONS

- Pelco is a member of the MPEG-4 Industry Forum
- Pelco is a member of the Universal Plug and Play (UPnP) Forum, Steering Committee
- Pelco is a member of the Universal Serial Bus (USB) Implementers Forum
- Pelco is a contributor to the International Standards for Organization / Electrotechnical Commission (ISO/IEC) Joint Technical Committee 1 (JTC1), "Information Technology," Subcommittee 29, Working Group 11
- Compliance, ISO/IEC 14496 standard (also known as MPEG-4)
- Compliance, International Telecommunication Union (ITU) Recommendation G.711, "Pulse Code Modulation (PCM) of Voice Frequencies"

CERTIFICATIONS

At the time of this publication, certifications for Class A products are pending. Consult the factory, our Web site (www.pelco.com), or the most recent B.O.S.S.® update for the current status of certifications.

	Core/CMG	Media Gateway	Ops Center	Storage	Enhanced Decoder/ Accessory Server (D09U Models)	Enhanced 3D Mouse 3DX-600-3DMOUSE	Enhanced Keyboard Y-U0018-G710KBD
CE	Class A	Class A	Class A	Class A	Class B	Class B	Class B
FCC, Part 15							
ICES-003							
UL/cUL Listed	✓	✓	✓	✓	✓		✓
C-Tick	✓	✓	✓	✓	✓	✓	✓
CCC	✓	✓	✓	✓	✓		
KC	✓	✓	✓	✓	✓	✓	✓