

VideoXpert Enterprise v 3.5 Hardware and Software

Scalable Video Management and Surveillance System

Product Features

- Designed to eliminate single points of failure and ensure reliability through fault-tolerant software, distributed architecture, and multiple levels of redundancy
- Provides scalability and modular expansion
- Supports monitor walls, including cell layouts and cameras
- Provides seamless transition from VideoXpert™ Professional
- Supports MJPEG, MPEG-4, H.264, and H.265
- Provides migration paths for Endura® and Digital Sentry® systems
- Supports environments that use anti-virus and firewall software
- Imports users and roles from existing LDAP servers to reduce administrative overhead, and enables single sign-on (SSO)
- Aggregates VMS networks and manage all video through a single system
- Available in hardware and software-only solutions, for measured performance or convenient migration of customer-owned hardware
- Microsoft® Windows®-based for easy setup and maintenance
- VxPortal web based client allows viewing and exporting video without installing any software
- Check on VMS and camera health using SNMP (VxSNMP is available as a free, separate download)
- Capable of listening for ASCII commands on a serial and Ethernet port simultaneously (ASCII Service is available as a free, separate download)
- Includes Event Monitor Service feature, capable of polling for alarms from devices and performing specified actions when an alarm state change occurs (VideoXpert Event Monitor Service is available as a free, separate download)
- Ability to expose video streams to third-party clients, with customizable RTSP endpoints that allow a client application connection to a VideoXpert System stream via the VxConnect service (VxConnect is available as a free separate download)
- VxToolbox provides administration interface for device and system management capabilities
- Supports up to 6 monitors per workstation, with the option for independent CPUs displaying up to 25 streams per monitor
- Workstations are available with 3D mouse and programmable keyboard accessories to customize and optimize operator efficiency
- Extensible through mapping and plugins, including video information overlays and license plate recognition
- Create and assign tags, organizing network resources as you see fit
- Native RAID 6 storage solution for high-availability recording



- Edge Storage Auto Gap Fill functionality detects when a gap in local camera recording occurs, and automatically downloads video and audio (if present) to fill the gap
- Supports ONVIF S- and G-compliant cameras and devices
- Supports shared displays so operators can send video to surveillance personnel who need it most
- Supports DNS hostnames for ONVIF-compliant cameras and Pelco cameras
- Enables and supports Risk Management Framework (RMF) and FIPS 104-2
- Investigation mode enables operators to synchronize video playback and export investigative playlists covering scenes of interest

Overview

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. But VideoXpert Enterprise is more than a VMS, it is an enterprise video-centric data management solution, designed to bring in data from any source and reference it to other data, to provide predictive capability to every customer.

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 Enterprise 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 VxToolbox utility, 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/NSM5300 and Digital Sentry storage hardware as recording solutions, preserving the video stored on those devices while providing access to VideoXpert features.

As distributed systems, the VideoXpert Enterprise architecture ensures 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 programming 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 software components: Core, Media Gateway, VxOpsCenter, 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. VxOpsCenter 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 works with VxToolbox, from which you can configure and manage the system. Through VxToolbox, 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.

Media Gateway

The Media Gateway routes video traffic to appropriate users as requested. When a user requests a video stream, the Media Gateway 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/Media Gateway for your VideoXpert server. The double-duty Core/Media Gateway server provides the complete range of VideoXpert functionality that you would expect for systems with fewer than 2000 cameras and 100 simultaneous users.

VxPortal

VxPortal is a powerful web-based client which can be used for live, playback, and PTZ. It can also activate relays, acknowledge events, de-warp Optera cameras, create bookmarks, edit camera names and numbers, and start easy exports. VxPortal uses standard web ports, making it easy to provide remote access to your VideoXpert system via MJPEG and H.264.

VxOpsCenter, Workstations, and Enhanced Decoders

The VxOpsCenter is a Windows-based application, providing an optimal environment from which users can watch live and recorded video. With the support of VX Workstations and Enhanced Decoders, the VxOpsCenter supports up to six monitors, each capable of displaying up to 25 video streams simultaneously. Through the VxOpsCenter, users can configure and recall complete workspaces, enabling operators to quickly log in and get to work.



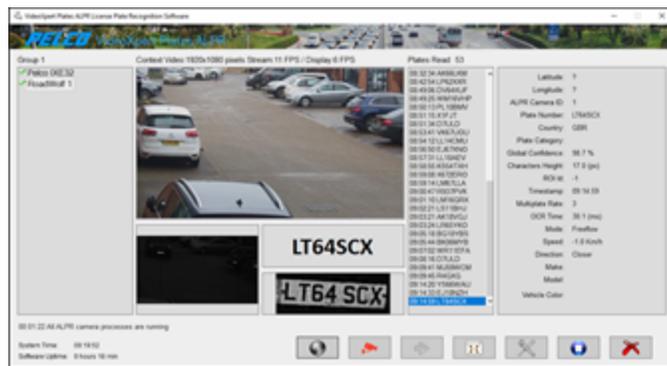
Note: The Enhanced Decoder is a separate hardware option, available from Pelco.com.

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 workspaces and even use the same tabs simultaneously, enabling collaboration within your surveillance operations.

The VxOpsCenter 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 VxOpsCenter supports modular plugins, exposing additional functionality for operators as required by your surveillance operations. The Mapping plugin enables operators to arrange and find cameras on maps. Through mapping, operators can find the camera providing the view they need, when they need it. Access Control support in VxMaps allows users to view the status of doors in the building, and allows them to control the door locks. The VideoXpert Plates plugin exposes license plate numbers, to track vehicles as they come and go.



Storage

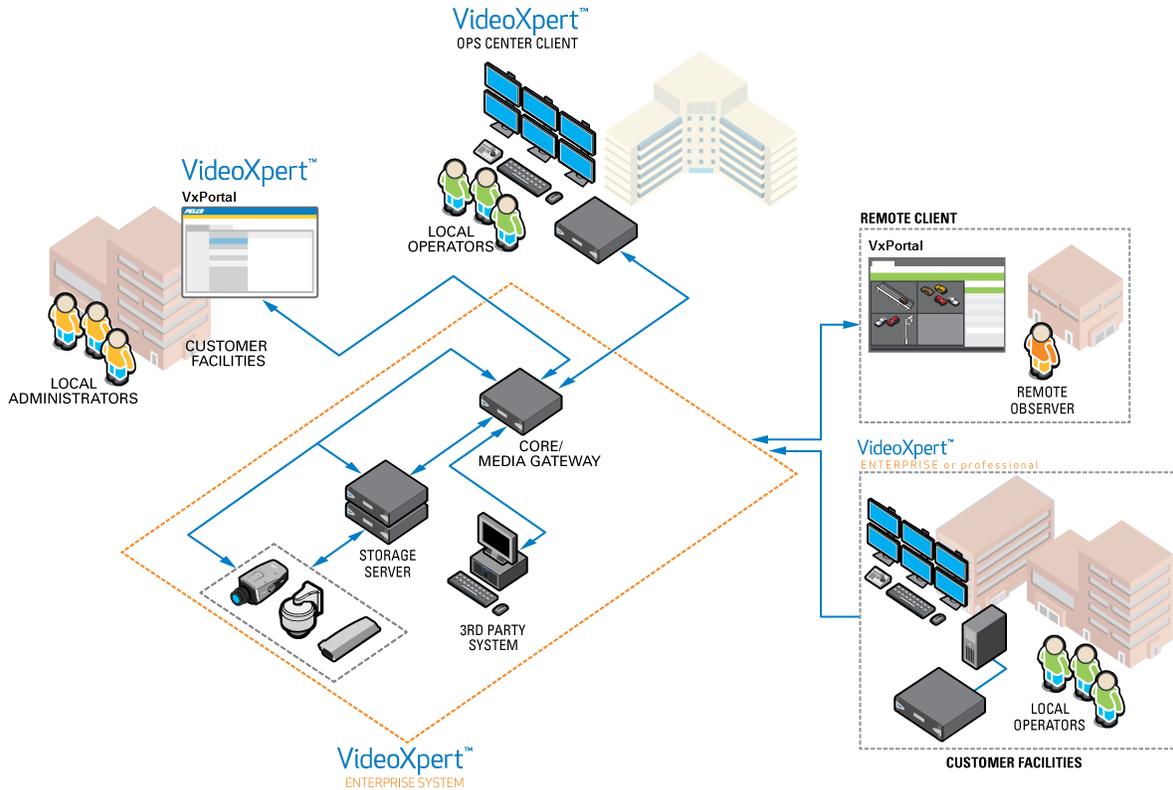
VideoXpert Storage (VXS) is a RAID 6, high-availability recording platform that captures recorded video for your VideoXpert system. The system's operating system is contained on an SSD, freeing more space for video and ensuring higher reliability; hard drives belonging to the RAID array are front-loading and hot-swappable, 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 via ONVIF S and driver packages, so you can bring your cameras into VideoXpert without expensive translation interfaces.

You can configure Storage through VxToolbox, making it easy to set recording schedules and assign cameras to your storage servers. Storage supports motion, alarm, and bump-on-alarm style recording, so you can always capture events relevant to your environment at high quality. You can set different retention times per camera or camera group. Storage also supports redundant recording, by assigning cameras to multiple recorders, ensuring that VideoXpert continues recording video even if a single Storage server falls offline.

System Topology

VideoXpert Enterprise with Aggregation allows for expansion at any level of your security environment. Your system begins with a single server running Core and Media Gateway software. Your system can use dedicated VxOpsCenter Clients to view live and recorded video, or it can use VxPortal, which fully utilizes HTML5 browser technology to deliver a similarly rich experience with no client software required. As your surveillance needs grow, you can add servers to expand modularly within a single environment, or you can aggregate multiple VideoXpert Enterprise 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.

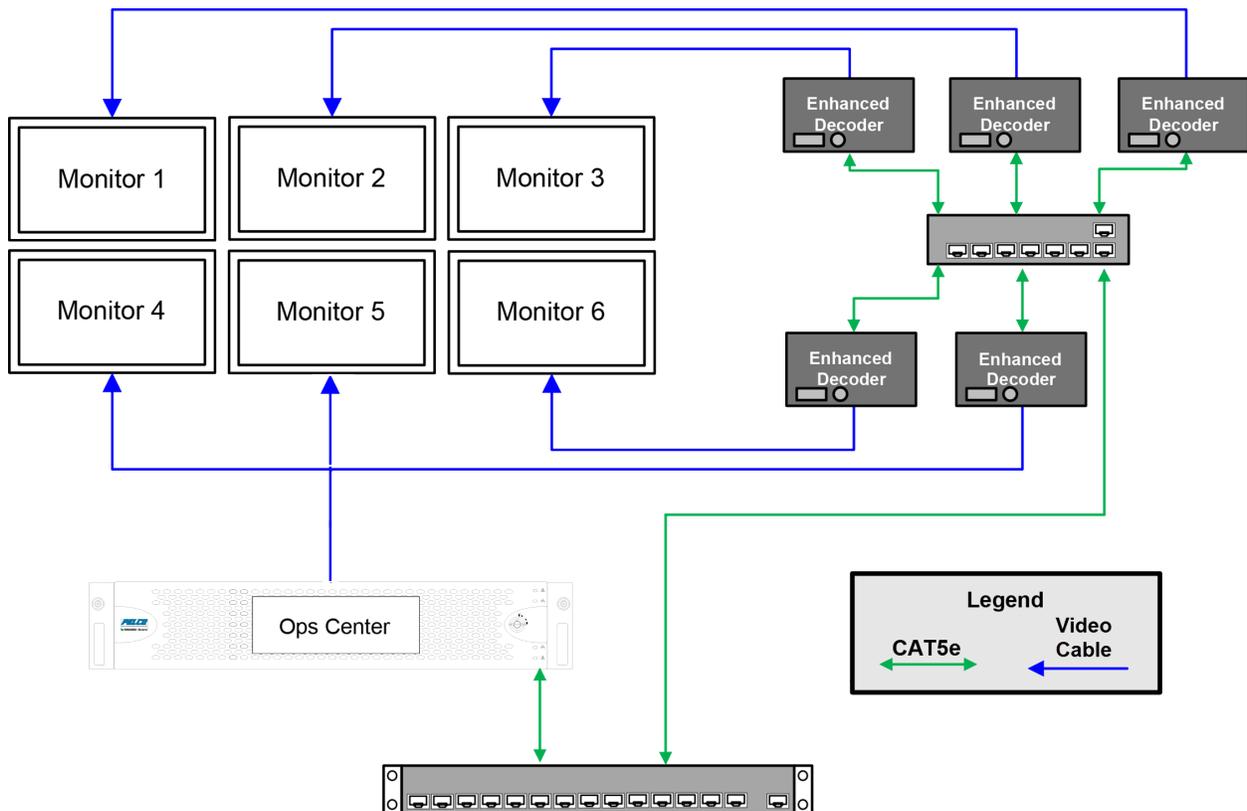
When acting as a load balancer, the Accessory Server bridges multiple Core/Media Gateway (CMG) servers, optimizing performance and providing redundancy for your VideoXpert network. With the Accessory Server, you can easily increase your VideoXpert network's capacity and ensure the system's uptime so that users always have access to video.



Note: The Accessory Server is a separate hardware option, available from Pelco.com.

Operator Workspace Topology

The VxOpsCenter, running on a 6-monitor rackmount Workstation, supports up to six monitors: one connected directly to the Workstation, and the other five driven independently by Enhanced Decoders. The Enhanced Decoders enable each monitor connected through a workstation to display up to 25 video streams while maintaining a seamless user experience.



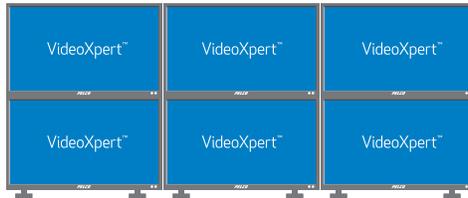
Enhanced Decoder-driven monitors operate just like native monitors; users can move windows across monitors seamlessly. But, when the user requests a video stream or plugin, the Enhanced Decoder communicates directly with VideoXpert servers to get and decode video. This enables operators to maximize the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

Because the enhanced decoders do not run the VxOpsCenter application themselves, you might experience better performance in quantity and responsiveness of HD streams on decoder-driven monitors, over directly-connected monitors.

VxOpsCenter also supports Shared Display mode which provides monitor-wall functionality for a VX Workstation or a Shared Display Decoder. Monitor walls are specific groups of monitors that are frequently viewed or used together. Users can send tabs and video to the shared display and control the shared display remotely.

Advanced Operator Controls

In addition to the standard keyboard and mouse, 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 VxOpsCenter controls. An operator can perform any and all operations using either control.



KBD5000 Jog/Shuttle, Keypad, and Joystick



Enhanced Keyboard



Enhanced 3D Mouse

Technical Specifications

Hardware

Item	Core/Media Gateway	Storage	Decoders*	Rackmount Workstation	Desktop Workstation
Processor	Intel® Xeon® E3-1275 v3		Intel® Core™ i7-7700T	Intel® Xeon® E3-1275 v3	Intel® Core i7-8700
Memory	32 GB DDR3 ECC		8 GB DDR4	8 GB DDR3	16 GB DDR4
Operating System	Microsoft® Windows® Server 2016	Microsoft® Windows® Server 2012	Windows® 10 IOT Enterprise (Shared Display Decoder)	Windows® 10 IOT Enterprise	
SSD Storage	480 GB	240 GB	256 GB	120 GB	256 GB
HDD					
Storage	1 TB	Up to 96 TB	N/A		
RAID Level	N/A	RAID 6	N/A		

Item	Core/Media Gateway	Storage	Decoders*	Rackmount Workstation	Desktop Workstation
Effective Capacity	N/A	VXS-00: 00.00 TB VXS-48: 32.70 TB VXS-72: 54.50 TB VXS-96: 76.40 TB	N/A		
Optical Drive	N/A			DVD±RW	
USB Ports					
USB 2.0	1x front, x2 rear	2x front, 2x rear	N/A	1x front, x2 rear	2x front, 2x rear
USB 3.0	2x rear		N/A	2x rear	N/A
USB 3.1	N/A		1x front, 4x rear	N/A	1x front, 4x rear
USB 3.1 Type-C	N/A		1x front	N/A	1x front

*Enhanced Decoder / Accessory Server / Shared Display Decoders

Video

Item	Core/Media Gateway	Storage	Decoders*	Rackmount Workstation	Desktop Workstation
Video system	Intel HD Graphics P4700	VGA interface; VXS models are designed to be configured remotely through web interface.	Intel HD	Intel HD Graphics P4700	NVIDIA Quadro P620
Memory	Shared		Shared	Shared; 1 GB for OPS-WKS6	2 GB GDDR5
Video Outputs	2x DisplayPort, DVI-D, VGA		DisplayPort, HDMI	2x DisplayPort, DVI-D, VGA	4x Mini DisplayPort 1.4

Item	Core/Media Gateway	Storage	Decoders*	Rackmount Workstation	Desktop Workstation
Display Support (live and playback) ²	N/A		- Enhanced Decoder, Accessory Server: 1x 1080p monitor - Shared Display Decoder: 2x 1080p monitor - 25 streams per monitor	- E1-OPS-WKSP: 2x 1080p monitors - E1-OPS-WKS6P: up to 6x 1080p monitors - 25 streams per monitor, up to 64 streams total across all monitors	- 2x 4K monitors or 4x 1080p monitors - 25 streams per monitor, up to 64 streams total across all monitors
Max Resolution					
DisplayPort	3840 x 2160 at 60 hz	N/A	3840 x 2160 at 60 Hz ¹		N/A
DVI-D and VGA	1920 x 1200 at 60 hz	N/A		1920 x 1200 at 60 hz	N/A
HDMI	N/A		1920 x 1080 at 60 Hz	N/A	
mDP 1.4 direct connect	N/A				4096 x 2160 at 60 Hz
Video Standards					
NTSC	60 Hz				60 Hz capable
PAL	75 Hz		50 Hz	75 Hz	75 Hz capable

*Enhanced Decoder / Accessory Server / Shared Display Decoders

¹For the Enhanced Decoder only, maximum resolution is 1920 x 1080 at 60 Hz.

²Memory will support up to 20 synchronized playback streams across all monitors.

Networking

Item	Core/Media Gateway	Storage	Decoders*	Rackmount Workstation	Desktop Workstation
Interface	Gigabit Ethernet (1000Base-T) ports (2x)		Gigabit Ethernet (1000Base-T) port (1x)	Gigabit Ethernet (1000Base-T) ports (2x)	Gigabit Ethernet (1000Base-T) port (1x)
Throughput	N/A	450 Mbps recording / 176 Mbps playback (Simultaneously)	N/A		
IP version	IPv4 and IPv6		IPv4	IPv4 and IPv6	

*Enhanced Decoder / Accessory Server / Shared Display Decoders

Front Panel

Item	Core/Media Gateway	Storage	Decoders*	Rackmount Workstation	Desktop Workstation
Buttons	Power	Power, Reset	Power		
Indicators					
Unit Status	Green, amber, red	Blue, red, off	White, flashing white	Green, amber, red	White, amber, off
Primary Network	Green, amber, red	Green, off	Green, orange, off	Green, amber, red	Green, orange, off
Secondary Network	Green, amber, red	Green, off	N/A	Green, amber, red	N/A
Software Status	Green, amber, red (based on diagnostics)	N/A		Green, amber, red (based on diagnostics)	N/A
Hard Disk Status	Green, red, off (behind bezel)	OS Drive (SSD): Amber off RAID Drives: Green, red, off	Flashing white	Green, red, off (behind bezel)	Flashing white

Item	Core/Media Gateway	Storage	Decoders*	Rackmount Workstation	Desktop Workstation
Power Status	N/A	Green, off	N/A		White, off (front of unit), Green, off (rear of unit)
Power Fail Status	N/A	Red, off	N/A		

*Enhanced Decoder / Accessory Server / Shared Display Decoders

Power

Item	Core/Media Gateway	Storage	Decoders*	Rackmount Workstation	Desktop Workstation
Power Input	100 to 240 VAC 50/60 Hz ±5%, autoranging				90-264 VAC, 3.2 A (max)
Power Supply	Internal	Internal, Redundant	External	Internal	Internal 200 W
Power Consumption					
100 VAC	160 W, 1.60 A, 547 BTU/H	N/A	222 BTU/H max (65 W power supply)	160 W, 1.60 A, 547 BTU/H	683 BTU/H max (200 W power supply)
115 VAC	160 W, 1.39 A, 547 BTU/H	N/A		160 W, 1.39 A, 547 BTU/H	
120 VAC	N/A	414W, 3.45A, 1411 BTU/H ¹		N/A	
220 VAC	160 W, 0.72 A, 547 BTU/H	N/A		160 W, 0.72 A, 547 BTU/H	
240 VAC	N/A	406W, 1.69A, 1386 BTU/H ¹		N/A	

*Enhanced Decoder / Accessory Server / Shared Display Decoders

¹Power consumption is based upon maximum capacity.

Environmental

Item	Core/Media Gateway	Storage	Decoders*	Rackmount Workstation	Desktop Workstation
Operating Temperature	10° to 35°C (50° to 95°F) at unit air intake (front of unit)		5° to 35°C (41° to 95°F)	10° to 35°C (50° to 95°F) at unit air intake (front of unit)	0° to 35°C (32° 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%, non-condensing	20% to 95%, non-condensing	20% to 80%, non-condensing		5% to 95%, non-condensing
Non-Operating Relative Humidity	5% to 95%, non-condensing				10% to 90%, non-condensing
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	0.25 G at 3 Hz to 200 Hz at a sweep rate of 0.5 octave/minute	0.66 GRMS

*Enhanced Decoder / Accessory Server / Shared Display Decoders



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

Item	Core/Media Gateway	Storage	Decoders*	Rackmount Workstation	Desktop Workstation
Construction	Steel and plastic cabinet				
Finish					
Finish—Front Panel	Dark gray with metallic silver end caps		Black	Dark gray with metallic silver end caps	Black

Item	Core/Media Gateway	Storage	Decoders*	Rackmount Workstation	Desktop Workstation
Finish—Chassis	Dark gray	Silver	Black	Dark gray	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 in)	3.6 x 17.8 x 18.2 cm (1.4 x 7.0 x 7.2 in)	50.8 x 43.4 x 8.9 cm (20 x 17.1 x 3.5 in)	29.2 x 9.26 x 29 cm (15.5 x 3.65 x 11.42 in)
Mounting (RU)	2 RU	3 RU	N/A (mount included)	2 RU	N/A
Unit Weight	13.06 kg (28.8 lb)	35.5 kg (78 lb), with maximum number of drives	1.41 kg (3.12 lb)	12.38 kg (27.29 lb)	5.26 kg (11.57 lb)

*Enhanced Decoder / Accessory Server / Shared Display Decoders

Certifications

Item	Core/CMG	Storage	Decoders*	Rackmount Workstation	Desktop Workstation	Enhanced 3D Mouse / 3DX-600-3D MOUSE	Enhanced Keyboard / Y-U0023-G910KBD
CE	Class A	Class A	Class B	Class A	Class B	Class B	Class B
FCC, Part 15	Class A	Class A	Class B	Class A	Class B	Class B	Class B
ICES-003	Class A	Class A	Class B	Class A	Class B	Class B	Class B
UL/cUL Listed	X	X	X	X	X		X
RCM	X	X	X	X	X	X	X
CCC	X	X	X	X	X		
KC	X	X	X	X	X	X	
NOM	X	X	X	X	X	X	X

*Enhanced Decoder / Accessory Server / Shared Display Decoders

Minimum System Requirements¹

Item	Core/ CMG	Media Gateway	OpsCenter and Shared Display Decoder	Storage	Enhanced Decoder and Accessory Server
Processor	Intel i7		64-bit CPU	Intel® Xeon®E3-1275 v3	Enhanced Decoder and Accessory Server are not available as a software distribution. Refer to Ops Center minimum system requirements for Shared Display Decoder requirements.
Memory	16 GB	8 GB	8 GB (2x 4 GB dual-channel) ^{2, 3}	32 GB DDR3 ECC	
Operating System	Microsoft® Windows® Server 2012 or 2016 ⁴		Windows 7 SP1 or later (64-bit) or Windows 10 (64-bit)	Microsoft® Windows® Server 2012 or 2016 ⁴	
Video System	Intel HD Graphics P4700 or better			VGA interface	
Interface	Gigabit Ethernet (1000Base-T)				

¹Software-only systems tested without anti-virus software installed.

²Failing to use dual-channel memory may result in lowered performance when viewing video on local monitors

³A total of 16 GB of memory is required when VxToolbox is installed on the same machine as the VxOpsCenter client.

⁴Although server OS is supported, VxOpsCenter is not supported in the server OS.

VideoXpert Player

The VxPlayer decrypts, validates, and plays-back secured exports from VideoXpert. You can download the player directly from VideoXpert along with an exported video file or you can download it from Pelco.com. The following sections specify the minimum system requirements for non-VideoXpert machines running the VxPlayer.

Hardware Requirements

- Dual Core i5 2.67 GHZ
- 4 GB RAM
- 200+ GB of free HDD space or more
- GPU that supports OpenGL 3.0 or higher
- 1024 x 768 or higher screen resolution
- 100/1000 Ethernet Network Interface Card
- Sound Card

Software Requirements

- Windows 7 Pro or Ultimate 64-bit, or Windows 10 Pro 64-bit
- .NET 4.6.1 or higher
- OpenGL 3.0 or higher
- Direct3D 9 or higher

Security

VideoXpert includes the following security features:

- Client authentication
- Passwords stored in encrypted format only
- Configurable roles and permissions
- User action reports
- TLS-based encryption over HTTPS
- Support running with antivirus
- Ability to encrypt exports
- Synchronized system clocks using NTP
- Incorporates FIPS 140-2 validated cryptographic modules
- FISMA/NIST Configuration Guidance – This guide will help organizations documenting the system through their RMF process with information about:
 - How to categorize the system
 - Which NIST-based security controls are applicable
 - How VX implements NIST-based security controls
- FISMA/NIST Compliance Testing – VideoXpert is installed on a FISMA representative system with applicable DISA STIGs (Defense Information Systems Agency, Secure Technical Implementation Guidelines) and tested for functionality. Applicable STIGS include:
 - Microsoft Windows 10 for VxOpsCenter and VxToolbox
 - Microsoft Windows Server 2016 for VxCore and VxMedia Gateway
 - Microsoft .Net Framework 4
 - Microsoft Internet Explorer 11
 - Microsoft Windows Firewall and Advanced Security
 - Postgres Database 9.x for VxOpsCenter and VxToolbox

Supported Languages

The VxOpsCenter and VxPortal interfaces is are available in the following languages:

- Arabic
- Brazilian Portuguese
- German
- French

- Italian
- Korean
- Russian
- Simplified Chinese
- Spanish for Latin America
- Turkish

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”
- Compliance, Open Network Video Interface Forum (ONVIF) Profile S

Software Licenses

Pelco servers, workstations, recorders, and certain software features and platform upgrades require activation licenses. Aggregated cameras and cameras recorded to VideoXpert Storage require a single license per channel. Consult Pelco Sales to ensure you obtain all the necessary equipment and licenses required to support your environment.

Each camera/encoder on a VideoXpert system requires a channel license. To enable upgrades to VideoXpert software, an active software upgrade plan (SUP) is also required.

VxStorage Servers are bundled with 300 channel licenses and three years of SUP to enable a simple deployment of VideoXpert Enterprise. See [VideoXpert Components](#) for storage options.

Due to the complexity of network and system design for larger distributions, VideoXpert Enterprise with aggregation 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.

Item	Description
E1-1C	1 camera license for VideoXpert Enterprise, plus one year SUP
E1-1C-SUP1	Extension to current channel license (SUP); entitles you to upgrades for one year. One per channel is required.
E1-1C-SUP3	Extension to current channel license (SUP); entitles you to upgrades for three years. One per channel is required.

Item	Description
U1-AGG-1C	Optional one-camera license for VideoXpert Enterprise to aggregate into another VideoXpert Enterprise system. Professional services are recommended.
E1-NSM-1UP	Enables VxEnterprise to use the Endura NSM5200/NSM5300 as a storage device with up to 100 channels.
E1-NSM-1UP-50	Enables VxEnterprise to use the Endura NSM5200/NSM5300 as a storage device with up to 50 channels.
E1-NSM-1UP-25	Enables VxEnterprise to use the Endura NSM5200/NSM5300 as a storage device with up to 25 channels.

VideoXpert Components

Model	Description
Storage Servers	
E1-VXS-00-P	VxS with 0 TB storage (0.00 TB effective storage) with US-EU-UK power cords
E1-VXS-48-P	VxS with 48 TB storage (32.70 TB effective storage) with US-EU-UK power cords
E1-VXS-72-P	VxS with 72 TB storage (54.50 TB effective storage) with US-EU-UK power cords
E1-VXS-96-P	VxS with 96 TB storage (76.40 TB effective storage) with US-EU-UK power cords
Core/Media Gateway	
E1-CMG-SVRP	VideoXpert Core and Media Gateway all-in-one hardware; EU, US, and UK power cords included
Workstations	
E1-OPS-WKSP	Rackmount Workstation enabling the use of up to two monitors; EU, US, and UK power cords included
E1-OPS-WKS6P	Rackmount Workstation with upgraded graphics card, enabling the use of up to six monitors using Enhanced Decoders (VX-A3-DEC); EU, US, and UK power cords included
VX-WKS	Desktop Workstation enabling the use of up to four monitors; with EU, US, and UK power cords
Accessory Server	
VX-A3-ACC	VideoXpert Accessory Server with US, Europe, and United Kingdom power cords

Model	Description
Decoders	
VX-A3-DEC	Enhanced Decoder and mount with US, Europe, and United Kingdom power cords
VX-A3-SDD	Shared Display Decoder with US, Europe, and United Kingdom power cords

Supplied Accessories

- Keyboard (Core/Media Gateway and Workstation models)
- Mouse (Core/Media Gateway and Workstation models)
- USB drive containing resource and recovery information
- Rackmount kit Core/Media Gateway and rackmount Workstation models
- Rackmount workstations single DisplayPort to DVI adapter
- Desktop workstation 4 mini DisplayPort to DisplayPort and 1 mini DisplayPort to HDMI
- VESA mount kit (accessory server, enhanced decoder, and shared display)
- Power cord (US, UK, and EU)

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

Workstation Optional Accessories

- **VX-A3-ACC** Accessory Server with US, Europe, and United Kingdom power cords
- **VX-A3-DEC** Enhanced Decoder with US, Europe, and United Kingdom power cords
- **3DX-600-3DMOUSE** Enhanced 3D Mouse and Joystick
- **Y-U0023-G910KBD** Enhanced Keyboard
- **A1-KBD-3D-KIT2** Enhanced Keyboard and 3D Mouse Combination Kit
- **KBD5000** Keyboard with Jog/Shuttle, Keypad, and Joystick
- **PMCL622** Full High-Definition LED Monitor, 22"
- **PMCL624** Full High-Definition LED Monitor, 24"
- **PMCL632** Full High-Definition LED Monitor, 32"

- **PMCL643K** 4K Ultra-High-Definition LED Monitor, 43"
- **PMCL649K** 4K Ultra-High-Definition LED Monitor, 49"
- **PMCL655K** 4K Ultra-High-Definition LED Monitor, 55"
- **PMCL665K** 4K Ultra-High Definition LED Monitor, 65"

Storage Server Accessories

- **VXS-HDD-6TB** Replacement 6 TB hard drive and carrier for VXS Models



International Standards Organization
Registered Firm; ISO 9001 Quality System

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