Spectra® Enhanced 7 Series IR Look-Up PTZ

High-Speed PTZ, Surevision, and including Pelco Advanced Analytics

Product Features



- 2 MP x 30, 2 MP x 40, or 4K x 20 to capture more details at distance
- Integrated Varizoom IR 200 m to see in total darkness
- Laser Focus Assist
- SureVision Technology, including:
  - Up to 130 dB Wide Dynamic Range (WDR)
  - Advanced Low Light down to 0.035 LUX (color), 0.0195 lux (mono)
  - Anti-Bloom Technology
- Up to 8 MP and up to 60 images per second (ips)
- 8 GB Flash, 4 GB RAM
- Robust image stabilization (EIS with Gyro 4K x 20, and 2 MP x 30, OIS 2 MP x 40)
- Optical Image Stabilization (for the 2 MP 40x model)
- Built-in Enhanced Analytics suite
- Pelco Advanced Analytics Suite powered by MSI Analytics
- Lookup tilt range +30° to see above the horizon
- Wiper for clear images in wet environments, available on some models
- Pelco H.264 and H.265 Smart Compression Technology
- Vandal-resistant IK10
- IP67 water resistant, NEMA 4X enclosure rating for windblown dust, water, and corrosion resistance
- Pelco Camera Link
- Compatible with Pelco and third-party video systems
- ONVIF Profile G, Profile M, Profile S, and Profile T Conformant
- 5-year warranty and support

Top of the Line IP Performance

Pelco's Spectra® Enhanced 7 Series of high speed IR Look-up PTZ cameras provide top tier image quality, performance, and intelligent embedded features for critical infrastructures such as cities, bridges, roadways, ports, transportation and stadiums. Image quality, performance, and intelligent embedded features for state-of-the-art surveillance solutions. This PTZ camera brings wide area coverage, high-speed tracking and long range detail in poorly lit areas allowing security operators to monitor larger areas

with the 30 degrees look above the horizon and automated IR illumination to see in the dark so no incident can be missed.

Low latency video and control make the camera incredibly easy to control. Direct Drive closed loop control enables blazing pan and tilt speeds up to 450 degree/second to position the camera on target avoiding perceived delays so that critical forensic evidence is captured. Direct Drive closed loop systems have advantages such as limited wear and tear and maintenance, silent, extremely accurate positioning, and the camera always knows its position.

Laser Focus Assist rapidly pinpoints the focus of targets, delivering crystal clear details in fast changing scenes due to camera or target movement and difficult lighting conditions. One can now focus on a license plate on a moving car at night with headlight glaring into the camera with confidence.

The 2 MP 40x model includes Optical Image Stabilization to optimize image clarity in high-vibration environments by maintaining resolution for high zoom ratios above 30x in low-light conditions.

Power redundancy between PoE and 48 VDC/24 VAC ensures 24-hour, 365-day continuous operation even under unstable power supply situations.

Spectra Enhanced 7 Series IR look-up PTZ domes feature up to 2 MP, 30x and 40x or 4K, 20x optical zoom. They run at up to 60 frames per second and provide up to 130dB of Wide Dynamic Range (WDR) with Pelco's latest SureVision low light performance.

Spectra Enhanced also allows for up to 16 window blanking privacy zones that are configurable with custom blurring options. Three levels of Image Defog provide options for enhancing the image on foggy or rainy days. Five White Balance modes are available for overcoming difficult lighting conditions day and night. A Vivid Imaging mode can be enabled to automatically increases color saturation and sharpening. Spe ctra Enhanced supports up to 2TB of onboard local storage (not supplied) that is easily accessible through the ONVIF Profile G protocol or FTP.

Intelligent Analytics

The Spectra Enhanced 7 Series PTZ domes come complete with Pelco Advance Analytics Suite power by MSI object detection technologies. Included in all models are Pelco Advanced Analytics and a Pelco Enhanced Suite of analytics including: Abandoned Object, Adaptive Motion Detection, AutoTracker, Camera Sabotage, Directional Motion, Loitering Detection, Object Counting, Object Removal, and Stopped Vehicle.

Pelco Advanced Analytics

Pelco Advanced Analytics uses object detection AI technologies delivering improved accuracy in both perimeter protection and in crowded, indoor environments. Added processing power enables the tracking and classification of over 50 objects. Objects are classified even when they remain stationary. Pelco Advanced Analytics go beyond people and vehicles to include car, truck, bus, motorcycle, and bicycle classification. Three different object behaviors can be recognized to create events integrated with many VMS systems.

Objects Detected	Behaviors
People	Zone
Vehicles	Counterflow
	Line Counting

- **Zone:** Know if there are people or vehicles in locations where they are not expected.
- **Counterflow:** Know if there are people or vehicles going the wrong way in an area.
- **Line Counting:** Automate counting people and vehicles crossing a user designated line.

Pelco Advanced Analytics Suite

Embedded in our Spectra® Enhanced and Sarix® Enhanced camera models, Pelco Advanced Analytics Suite leverages AI-powered algorithms to detect threats so you can quickly focus on situations needing immediate attention. Advanced Analytics uses an AI-powered object detection engine that categorizes objects and sets up “behaviors”– the rules of how these objects interact within a user-designated area of interest, known as a “zone.”

Pelco Analytics Behaviors

Spectra includes two Basic and eight Enhanced user-configurable behaviors to enhance the flexibility and performance of the camera. The camera is capable of running up to two Enhanced behaviors in addition to two Basic behaviors simultaneously.

For each behavior, you can create several custom profiles that contain different camera settings. With these profiles, you can set up different scenarios for the behavior, which will automatically detect and trigger alarms when specific activity is detected.

Analytics are configured and enabled using a standard Web browser, and behavior alarms are compatible with VideoXpert or a third-party system that supports Pelco’s API.

Available Basic and Enhanced behaviors include:

- **Abandoned Object:** (Enhanced) Detects objects placed within a defined zone and triggers an alarm if the object remains in the zone longer than the user-defined time allows. An airport terminal is a typical installation for this behavior. This behavior can also detect objects left behind at an ATM, signaling possible card skimming.
- **Adaptive Motion Detection:** (Enhanced) Detects and tracks objects that enter a scene and then triggers an alarm when the objects enter a user-defined zone. This behavior is primarily used in outdoor environments with light traffic to reduce the number of false alarms caused by environmental changes.

- **AutoTracker:** (Enhanced) Detects and tracks movement in the field of view. When the AutoTracker behavior is configured, the system automatically pans and tilts to follow the moving object until the object stops or disappears from the monitored area.
- **Camera Sabotage:** (Basic) Detects contrast changes in the field of view. An alarm is triggered if the lens is obstructed by spray paint, a cloth, or a lens cap. Any unauthorized repositioning of the camera also triggers an alarm.
- **Directional Motion:**(Enhanced) Generates an alarm in a high traffic area when a person or object moves in a specified direction. Typical installations for this behavior include an airport gate or tunnel where cameras can detect objects moving in the opposite direction of the normal flow of traffic or an individual entering through an exit door.
- **Loitering Detection:**(Enhanced) Identifies when people or vehicles remain in a defined zone longer than the user-defined time allows. This behavior is effective in real-time notification of suspicious behavior.
- **Object Counting:**(Enhanced) Counts the number of objects that enter a defined zone. This behavior can be used to count the number of people at a store entrance/exit or inside a store where the traffic is light. This behavior is based on tracking and does not count people in a crowded setting.
- **Object Removal:**(Enhanced) Triggers an alarm if an object is removed from a user-defined zone. This behavior is ideal for customers who want to detect the removal of high value objects, such as painting from a wall or a statue from a pedestal.
- **Region-based Simple Motion Detection:** (Basic) Based on sensitivity, the camera determines if sufficient motion is detected within a configurable region.
- **Stopped Vehicle:**(Enhanced) Detects vehicles stopped near a sensitive area longer than the user-defined time allows. This behavior is idea for airport curbside drop-offs, parking enforcement, suspicious parking, traffic lane breakdowns, and vehicles waiting at gates.

Pelco Camera Link

Pelco Camera Link technology brings together the best of two flagship Pelco products: You get the seamless and continual situational awareness of Optera across a wide space along with the ability to automatically zoom in for great detail with nearby Spectra Enhanced and follow people and vehicles closely.

Intuitive Design

IR Illumination with Spectra Enhanced IR look-up models can see in absolute darkness. The infrared illumination (IR) has proportional brightness based upon zoom, creating visible pictures without any light up to 200 m from the camera. Spectra Enhanced IR look-up models offer a wider tilt range giving the camera the ability to look above the horizon 30 degrees and have a wiper for clear images in wet environments.

Spectra Enhanced Series features the same ease of installation and maintenance that you have come to expect from Spectra.

VMS Integration

Spectra Enhanced easily connects to Pelco IP and hybrid video systems such as VideoXpert.

Pelco endeavors to be the most open and integrated camera provider in the industry and as a part of that effort Spectra Enhanced is integrated with a long and ever-growing list of third-party software and Video Management Systems (VMS).

Camera/Optics

Specification	2MP, 30x Model	2MP, 40X Model	4K, 20x Model
Sensor type	Progressive 1/2.8-inch type Exmor CMOS sensor	1/2.8-inch type Exmor CMOS sensor	Progressive 1/1.8-inch CMOS sensor
Optical zoom	30X	40X	20X
Digital zoom	12X	10X	12X
Maximum resolution	1920 x 1080		3840 x 2160
Lens	f/1.6 ~ f/4.4, focal length 4.5 mm (wide) ~ 135.0 mm (tele)	f/2 ~ f/5, focal length 7 mm (wide) ~ 280 mm (tele)	f/1.5 ~ f/3.4, focal length 6.36 mm (wide) ~ 127.2 mm (tele)
Horizontal angle of view	62° wide - 2.3° tele	41.54° wide - 1.16° tele	59.8° - 3.19° tele
Aspect ratio	16:9		
Light sensitivity			
Color (33 ms)	0.035 lux	0.1 lux	0.1 lux
Color (250 ms)	0.00375 lux	0.0125 lux	0.0125 lux
Mono (33 ms)	0.0195 lux	0.06 lux	0.066 lux
Mono (250 ms)	0.0024 lux	0.0075 lux	0.0085 lux
Day/night capabilities	Yes		
Shutter range	1/1 ~ 1/10,000 sec		
White Balance Range	2,000º to 10,000ºK		
Signal-to-noise ratio	>50db		
IR cut filter	Yes		
Wide Dynamic Range	130 dB maximum; 120 dB per IEC62676		
Iris control	Auto iris with manual override		
Backlight compensation	Yes		

Specification	2MP, 30x Model	2MP, 40X Model	4K, 20x Model
Automatic gain control	Yes		
Active noise filtering	3D noise filtering		
Image Stabilization (EIS)	Electronic	Optical	Electronic
Bit rate control	Constrained variable bit rate (CVBR) and constant bit rate (CBR)		
Video snapshot	JPEG capture at the same resolution as the highest stream configured		
Window blanking	16 configurable windows		
Video overlay	Camera name, time, date, and customizable text with multiple supported languages. Embedding of custom images and logos supported.		
Flicker correction	Auto		

Software Features

- 256 presets
- 32 tours
- ±0.03° preset accuracy
- 8 configurable scans
- Patterns–8 recordable patterns (up to 5 minutes each)
- Multilingual menus (English, Spanish, Portuguese, Italian, German, French, Russian, Turkish, Simplified Chinese, and Korean)
- Password protection
- 16 window blanks, configurable in size
- “Auto Flip” feature rotates dome 180° at bottom of tilt travel
- Configurable park with actions
- Proportional pan/tilt continually decreases pan/tilt speeds in proportion to depth of zoom
- Pelco analytics including nine user-configurable behaviors
- Multiple DNN analytics behaviors
- Image Defog modes
- IR illumination with proportional brightness based upon zoom
- Laser-enhanced focus

Video

General Video Specifications

Item	Specification
Video Encoding	H.265 Main, H.264 High, Main profiles and MJPEG
Video Streams	Up to 3 simultaneous streams; the second and third stream is variable based on the setup of the primary stream
Frame Rate	Up to 60, 50, 30, 25, 20, 15, 12.5, 10, 8.333, 7.5, 6, 5, 3, 2.5, 2, 1 (depending on the coding, resolution, and stream configuration)

Available Resolutions

Resolution				H.264 High Profile (IP GOP structure)	
MPx	Width	Height	Aspect Ratio	Maximum IPS	Recommended Bit Rate (kbps)
8.3	3840	2160	16:9	30	15.00
2.1	1920	1080	16:9	60	8.00
2.1	1920	1080	16:9	30	6.00
0.9	1280	720	16:9	30	2.90
0.5	896	504	16:9	30	1.90
0.2	640	360	16:9	30	1.20
1.6	1440	1080	4:3	30	5.00
1.2	1280	960	4:3	30	3.80
0.7	960	720	4:3	30	2.80
0.5	800	600	4:3	30	2.00
0.3	640	480	4:3	30	1.40

Pelco's H.264 and H.265 Smart Compression Technology

Pelco’s H.264 and H.265 Smart Compression Technology lowers bandwidth and storage requirements by up to 70%, while reducing storage requirements. Our technology allows the user to make informed optimization between storage savings and image quality.

Pelco’s Smart Compression Technology dynamically analyzes motion occurring within live video in real-time, to intelligently compress the information you don’t need, while retaining details with clear quality in the areas that are important in the scene. By enabling Dynamic GOP, an added feature of Smart Compression, the number of I-frames are automatically reduced in scenes with low motion. Based on the

complexity of scenes and motion occurring, such as a store room that has limited entry and exit, up to 70% bandwidth savings can be achieved.

Network

Item	Specification
Supported Protocols	TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, IPv6*, SNMP v2c/v3, QoS, HTTP, HTTPS, SSH, TLS, SMTP, FTP, 802.1x (EAP), and NTCIP 1205
Users	
Unicast	Up to 20 simultaneous users depending on resolution settings (2 guaranteed streams)
Multicast	Unlimited users
Security Access	Password protected
Software Interface	Web browser view and setup
Pelco System Integration	VideoXpert™ Endura™ 2.0 (or later) Digital Sentry™ 7.3 (or later)
Open API	Pelco API or ONVIF Profile G,M, S, and T
Mobile Application	Integrated to Pelco Mobile App
Video Motion Detection	Simple motion detection and camera sabotage
Local Storage	SD card slot with support for Micro SD, SDHC or SDXC cards, up to 2 TB; Capture 1–5–10 second video clips on camera sabotage, motion detection, or alarm input; record video continuously in the case of network outage with option to overwrite; access video through FTP protocol and ONVIF Profile G

* Supports mixed IPv4 and IPv6 installations, but not IPv6-only deployments.

Cybersecurity

Spectra Enhanced 7 PTZ Series cameras implement several cybersecurity measures to protect device access as well as data transport including credential setup for device access, authentication, Https using TLS1.2, AES encryption with 256 bit keys, digital signature for firmware upload, denial of access to shell, 802.1X, camera firewall with whitelist/blacklist address support, digital certificate support, TLS 1.2 2048 RSA key pairs, and X.509 v3 digital certificates with SHA256 signature hash.

Minimum System Requirements

Item	Specification
Processor	Intel® Core™ i3 processor, 2.4 GHz
Operating System	Microsoft® Windows® 7 (32- and 64-bit), or DirectX®11, Windows XP Service Pack 3 with DirectX 9.0c; or Mac® OS X 10.4 (or later)
Memory	4 GB RAM
Network Interface Card	100 megabits (or greater)
Monitor	Minimum of 1024 x 768 resolution, 16- or 32-bit pixel color resolution
Web Browser	Internet Explorer® 8.0 (or later) or Firefox 3.5 (or later); Internet Explorer 8.0 (or later) is recommended for configuring analytics

Analytics

Required Systems for Pelco Analytics

Item	Specification
Pelco Interface	VideoXpert™, VX Toolbox™; Endura™ 2.0 (or later); Digital Sentry™ 7.3 (or later)
Open API	The Pelco API can transmit behavior alarm data to third-party applications, available at pdn.pelco.com

General

Item	Specification
Construction	Aluminum, thermo plastic
Cable Entry (back box, pendant)	Through 1.5-inch NPT pendant mount
Unit Weight (2MP, 30X)	7.65 kg (16.9 lbs)
Shipping Weight (2MP, 30X)	8.85 kg (19.5 lbs)
Effective Projected Area (EPA)	0.048 square meters (75 square inches) w/out wiper, 0.05 sq. m. (78 sq. in.) w/wiper
Effective Projected Area with IWM Mount	0.086 square meters (134 square inches) w/out wiper, 0.088 sq. m. (137 sq. in) w/wiper
Alarm	
Unsupervised	Detects open or closed alarm state
Supervised	Detects open and short alarm state with external 1-kohm resistor
Inputs (4)	3.5 VDC maximum, 3.5 mA maximum
Relay outputs (2)	±32 VDC maximum, 150 mA maximum

Audio

Item	Specification
Type	Bidirectional, full or half duplex
Input	Line level; 3-kohm differential impedance, 1Vp-p maximum signal level
Output	Line level; 600-ohm differential impedance, 1Vp-p
Streaming	Embedded audio

Operating Temperature

Item	Temperature
Environmental Units	
Sustained operating temperature	–51°C to 60°C (–60°F to 140°F)
Absolute maximum operating temperature	65°C (4 hours per day)
Ice Free	–35°C (–31°F)
Cold Start	–40°C (–40°F)
De-Ice	–35°C (–31°F)
Storage Temperature	–20°C to 60°C (–4°F to 140°F)

Operating Humidity

Item	Specification
Environmental Pendant	10 to 100% RH

Mechanical (Dome Drive Only)

Item	Specification
Variable Speed	0.01° to 100°/sec (manual pan speed)
Preset Accuracy	±0.03°
Pan Movement	360° continuous pan rotation
Vertical Tilt	+30° to –90°
Maximum Pan Speed	Up to 450° per second
Maximum Tilt Speed	Up to 320° per second
Manual Pan/Tilt Speeds	
Pan	0.01° to 100°/sec manual operation
Tilt	0.05° to 50°/sec manual operation
Preset Speeds	
Pan	450°/sec
Tilt	320°/sec

Electrical

Item	Specification
Ports	RJ-45 connector for 100Base-TX and 1000Base-TX Auto MDI/MDI-X Autonegotiate/manual setting
Cabling Type	Cat5e or better
SFP/FSFP Interface	Supports Pelco FSFP Series transceivers and third-party MSA compliant transceivers.
Input Voltage	20 to 32 VAC; 24 VAC nominal 42 to 53 VDC; 48 VDC nominal
Input Power*	
24 VAC	1 A (20 VA) without heaters and IR. No planning or tilting. 2 A (40 VA) without heaters and IR, pan and tilt active. 4.3 A (85 VA) maximum with heaters, IR, and pan/tilt active.
48 VDC	0.5 A (20 W) without heaters and IR. No pan or tilt. 1 A (40 W) without heaters and IR. Pan and tilt active. 1.9 A (85 W) maximum with heaters, IR, and pan and tilt active.
PoE (802.3bt)	0.5 A (20 W) without heaters and IR. No pan or tilt. 0.9 A (40 W) without heaters and IR, pan and tilt active. 1.3 A (71 W) maximum with heaters, IR, and pant and tilt active.

* The camera supports power supply failover between PoE and 48 VDC/24 VAC. Power failover is only supported when the camera is connected to a dedicated auxiliary power supply, 48 VDC/24 VAC. No other cameras can be connected to this auxiliary power supply. It is OK for the camera to share PoE from a switch that has other cameras connected to it. As soon as the camera is powered it will start to rotate and configure pan/tilt/zoom.

Certifications/Ratings/Patents

- CE, Class A
- FCC, Class A
- ICES-003, Class A
- UL/cUL Listed
- UL/IEC/EN 60950-1, 60950-22, 62368-1
- KC
- EN 50121-4 (Railway immunity)
- NOM

- RCM
- IEC/EN 60825-1 (Class 1 laser product for S7240L/S7820L only)
- UKCA
- EAC
- BIS
- Type 4X
- EN 50155 (EN 61373 Category 1, Class B)
- IEC/EN 62262 Impact (IK10)
- IEC/EN 60529 (IP66, IP67)
- IEC 62676-5 data specifications and image quality performance for camera devices
- NEMA TS-2 para 2.2.7-2.2.9
- FDOT*
- Cisco® Medianet Media Services Proxy 2.0 compatible
- ONVIF Profile G
- ONVIF Profile M
- ONVIF Profile S
- ONVIF Profile T
- Tested in accordance with IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14, IEC 60068-2-30, and IEC 60068-2-78
- Tested in accordance with IEC 60068-2-6 and IEC 60068-2-27
- U.S. Patents 5,931,432; 6,793,415 B2; 6,802,656 B2; 6,821,222 B2; 7,161,615 B2

*At the time of publication, certifications are pending. Consult the factory or www.pelco.com for the current status of certifications.

System Model Numbers

Model numbers for pendant, environmental cameras are:

Back Box Color	System Resolution	Model #	Description
White (RAL 9003)	2 MP 30X	S7230L-PW	Spectra Enhanced 7 IR Look-Up PTZ
White (RAL 9003)	2 MP 40X	S7240L-PW	Spectra Enhanced 7 IR Look-Up IR PTZ Wiper Laser-Focus
White (RAL 9003)	4 K 20X	S7820L-PW	Spectra Enhanced 7 IR Look-Up PTZ Wiper Laser-Focus

Recommended Mounts

Pendant Domes

Part Number	Mount
IWM-SW	Wall mount, white (RAL 9003) finish; can be adapted for corner, parapet, or pole application
WMVE-SW	Wall mount, 1.5 in. NPT, white (RAL 9003) finish
IWM-MKIT	Marine kit is designed to protect the Spectra Series dome system mounted to the IWM arm from galvanic corrosion.
IWM24-SW	Wall mount, with integral 24 VAC, 100 VA transformer; white (RAL 9003) finish; can be adapted for corner, parapet or pole application
PP350-SW/PP351-SW	Parapet wall/roof mount, white (RAL 9003) finish
IDM4018-SW	Mount arm feed-thru, white (RAL 9003) finish

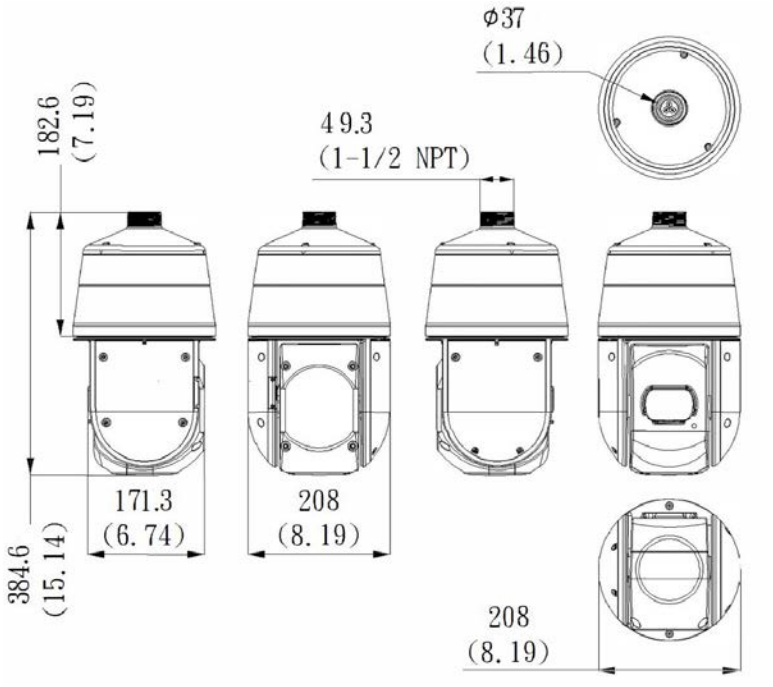
Wind Specifications

Item	Specification
Full Motion Control	0 to 78 knots (90 mph/145 kmh)

Optional Accessories

Part Number	Accessory
POE90U-1BT	PoE injector 802.3bt 90W Single Port
ECPS-48VDC-5A	48 VDC indoor power supply

Dimensions



Note: Values in parentheses are inches; all others are millimeters.

Spectra® Enhanced 7 Series IR Look-Up PTZ High-Speed PTZ, Surevision, and including Pelco Advanced Analytics

Product Specification, camera solutions

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⚠**ADVERTENCIA:** Cáncer y Daño Reproductivo - www.P65Warnings.ca.gov.
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