Spectra® Enhanced Series IP PTZ Domes

HIGH-SPEED PTZ, 20X & 30X MODELS, FULL HD, WDR, LOW-LIGHT PERFORMANCE

Product Features

- SureVision 3.0 Technology, Including:
 - 130 dB Wide Dynamic Range (WDR)
 - Advanced Low Light Down to 0.03 LUX on Select Models
 - Anti-Bloom Technology
 - 3D Noise Filtering
 - Enhanced Tone Mapping
- Up to Full HD 1080p
- Up to 60 Images per Second (ips)
- Power over Ethernet (HPoE and PoE+), 24 VAC, 24 VDC
- Three Automatic Defog Options
- Electronic Image Stabilization (EIS)
- Built-in Analytics Suite
- · Vandal Resistant IK10 Smoked or Clear Bubble
- Up to 32 GB Edge Storage with Micro SD Card
- · Compatible with Pelco and Third-Party Video Systems

Top of the Line IP Performance

Pelco's Spectra® Series of high speed PTZ domes provide top tier image quality and performance. They include valuable embedded features that enhance the value of the product. Low latency video and control make the camera incredibly easy to use.

Full High Definition SureVision 3.0 Cameras

Spectra Enhanced has long provided Full HD 1080p 20x and 30x optical zoom cameras that run at up to 60 frames per second and provide 130dB of True Wide Dynamic Range (WDR). With Pelco's latest product evolution a powerful new camera option is now available that features the same powerful WDR capabilities as before but now with the addition of Pelco's latest SureVision 3.0 low light performance. In addition to 130dB of True WDR SureVision 3.0 adds a new level of low light performance that is up to twenty times better than base Spectra Enhanced models. The new SureVision 3.0 camera is available in both the 20x and 30x optical zoom in select models.

Embedded Features

Included in all models are a full suite of built in video analytics including: Abandoned Object, Adaptive Motion Detection, AutoTracker, Camera Sabotage, Directional Motion, Loitering Detection, Object Counting, Object Removal, and Stopped Vehicle. Spectra Enhanced also allows for up to 32 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



- ONVIF Profile S and Profile G Conformant
- 3-Year Warranty and Support

overcoming difficult lighting conditions day and night. A Vivid Imaging mode can be enabled to automatically increases color saturation and sharpening. Spectra Enhanced supports up to 32GB of onboard local storage (not supplied) that is easily accessible through the ONVIF Profile G protocol or FTP.

Intuitive Design

Spectra Enhanced features the same ease of installation and maintenance that you have come to expect from Spectra. Each dome system consists of a back-box, a dome drive, and an IK10 rated lower dome. There is a choice of five form factors: in-ceiling, environmental in-ceiling, pendant, environmental pendant, and stainless steel environmental pendant.

VMS Integration

Spectra Enhanced easily connects to Pelco IP and hybrid video systems such as VideoXpert, Endura 2.0 (or later), and Digital Sentry 7.3 (or later). The camera is also compatible with Digital Sentry NVS (DS NVS), a full-featured video management software, which is available as a free download at www.pelco.com. DS NVS includes four free Pelco IP licenses and allows for the management of video from up to 64 cameras.

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 3rd party software and Video Management Systems (VMS).



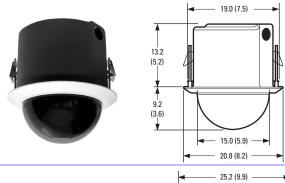




BACK BOX FEATURES



(W) NOTE: VALUES IN PARENTHESES ARE INCHES; ALL OTHERS ARE CENTIMETERS.



In-Ceiling (Indoor)

- · Single Back Box for Suspended or Hard Ceiling Applications with Light Gray Trim Ring, RAL9002
- Requires 13.35 cm (5.25 in.) Space Above Ceiling and 8.25 cm (3.25 in.) Below
- Minimum Ceiling Thickness 1.27 cm (0.50 in.); Maximum 4.45 cm (1.75 in.)
- Aluminum Construction, IK10 Rated Nylon Bubble
- Suitable for Use in Environmental Air Handling Spaces
- 0° to 50°C (32° to 122°F) Sustained Operating Temperature



Environmental In-Ceiling

- Single Back Box, RAL9011, for Hard Ceiling Applications
- Requires 11.18 cm (4.40 in.) Space Above Ceiling;10.92 cm (4.30 in.) Below
- Type 4X and IP66
- · Includes Heater and Blower
- Minimum Ceiling Thickness 1.27 cm (0.50 in.); Maximum 4.45 cm (1.75 in.)
- Aluminum Construction, IK10 Rated Nylon Bubble
- -45° to 50°C (-50° to 122°F) Sustained Operating Temperature



Standard Pendant

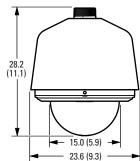
- Standard Pendant Available in Black or Light Gray Finish, RAL9002
- Aluminum Construction, IK10 Rated Nylon Bubble
- Uses 1 1/2-inch NPT Thread
- −5° to 35°C (23° to 95°F) Sustained Operating Temperature



Environmental Pendant

- Environmental Pendant Available in Light Gray Finish, RAL9002
- Aluminum Construction, IK10 Rated Nylon Bubble
- Type 4X and IP66
- Uses 1 1/2-inch NPT Thread
- Includes Sun Shield, Heater, and Blower
- -45° to 50°C (-50°F to 122°F) Sustained Operating Temperature





Stainless Steel Environmental Pendant

- Stainless Steel Environmental Pendant Available in Light Gray Finish, RAL9002
- All Stainless Steel Construction, IK10 Rated Nylon Bubble
- Type 4X and IP66
- Uses 1 1/2-inch NPT Thread
- · Includes Sun Shield, Heater, and Blower
- -45° to 50°C (-50° to 122°F) Sustained Operating Temperature

TECHNICAL SPECIFICATIONS

CAMERA/OPTICS

Specification		20X	20X Low Light	30X	30X Low Light	
Sensor Type		1/2.8-inch Type Ex	mor CMOS Sensor	1/2.8-inch Type Exmor CMOS Sensor		
Optical Zoom		20	ΣX	30X		
Digital Zoom		12	2X	12	12X	
Maximum Resolu	tion	1920	x 1080	1920 x 1080		
Lens		f/1.6 ~ f/3.5, focal length 4.7 mm (wide) ~ 94.0 mm (tele)		f/1.6 ~ f/4.7, focal length 4.3 mm (wide) ~ 129.0 mm (tele)		
Horizontal Angle	of View	55.4° (wide) ~ 2.9° (tele)	59.5° wide - 3.3° tele	59.5° (wide) ~ 2.1° (tele)	63.7° wide - 2.3° tele	
Aspect Ratio		16	5:9	16:9		
	Color (33 ms)	0.20 lux	0.03 lux	0.20 lux	0.03 lux	
Links Consistivity	Color (250 ms)	0.025 lux	0.008 lux	0.025 lux	0.008 lux	
Light Sensitivity	Mono (33 ms)	0.06 lux	0.004 lux	0.06 lux	0.004 lux	
	Mono (250 ms)	0.008 lux	0.001 lux	0.008 lux	0.001 lux	
		Note: Sensitivity in lux for 90% reflectance, f/1.6 (wide angle), 50 dB gain at 30 IRE (30% of signal level) with Sensitivity Boost OFF; 4X improvement to sensitivity with Sensitivity Boost ON				
Day/Night Capab	ilities	Yes		Ye	2S	
Shutter Range		1/1 ~ 1/10,000 sec		1/1 ~ 1/10,000 sec		
Signal-to-Noise Ratio		>50dB		>50dB		
IR Cut Filter		Yes		Yes		
Wide Dynamic Range		130 dB		130 dB		
Iris Control		Auto iris with manual override		Auto iris with manual override		
Backlight Compensation		Yes		Yes		
Automatic Gain Control		Yes		Yes		
Active Noise Filtering		Yes	3D Noise Filtering	Yes	3D Noise Filtering	
Electronic Image Stabilization (EIS)		Yes	No	Ye	es .	

SOFTWARE FEATURES

- 256 presets
- 16 tours
- ±0.1° preset accuracy
- Multilingual menus (English, Spanish, Portuguese, Italian, German, French, Russian, Turkish, Arabic, Simplified Chinese, and Korean)
- Password protection
- 32 window blanks, configurable in size, with 5 window blur options
- "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
- Image Defog modes

PELCO ANALYTICS BEHAVIORS

Spectra Enhanced includes nine user-configurable behaviors. The camera is capable of running up to three behaviors simultaneously; although, the number of behaviors is limited to the available processing power of the camera and the type of analytic being used.

- Abandoned Object: 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: 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: 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: 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: 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: 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 around ATMs,
 stairwells, and school grounds.
- Object Counting: 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: 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.
- Stopped Vehicle: 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.

TECHNICAL SPECIFICATIONS

VIDEO

Video Encoding H.264 High, Main, or Base profiles and

MJPEG

Video Streams Up to 2 simultaneous streams; the second

stream is variable based on the setup of the

primary stream

Frame Rate Up to 60, 50, 30, 25, 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

	Resol	ution		High Profile P structure)	
MPx	Width	Height	Aspect Ratio	Maximum IPS	Recommended Bit Rate (Mbps)
2.07	1920	1080	16:9	60	8.00
2.07	1920	1080	16:9	30	6.05
0.92	1280	720	16:9	30	3.00
0.36	800	448	16:9	30	2.00
0.23	640	352	16:9	30	1.80

NETWORK

Supported Protocols TCP/IP, UDP/IP (Unicast, Multicast IGMP),

UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, IPv6*, SNMP v2c/v3, QoS, HTTP, HTTPS, SSH, SSL,

SMTP, FTP, and 802.1x (EAP)

Users

Unicast Up to 20 simultaneous users depending on

resolution settings (2 guaranteed streams)

Multicast Unlimited users H.264 Security Access Password protected

Software Interface Web browser view and setup

Pelco System Integration Endura 2.0 (or later)

Digital Sentry 7.3 (or later)

Open API Pelco API or ONVIF Profile G and Profile S

Mobile Application Integrated to Pelco Mobile App
Video Motion Detection Simple motion detection and camera

sabotage

Local Storage 32 GB SD Card;

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

MINIMUM SYSTEM REQUIREMENTS

Processor Intel® Core™ i3 Processor, 2.4 GHz
Operating System Windows® 7 (32-bit and 64-bit) with

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

Media Player Pelco Media Player[†] or QuickTime[®] 7.6.5 for

Windows XP and Windows 7; or QuickTime 7.6.4 for Mac OS X 10.4 (or later)

ANALYTICS

Open API

Required Systems for Pelco Analytics

Pelco Interface WS5200 Advanced System Management

Software on an Endura 2.0 (or later) system The Pelco API can transmit behavior alarm

data to third-party applications, available at

pdn.pelco.com

GENERAL

Construction

Back Box Aluminum

Dome Drive Aluminum, thermo plastic

Lower Dome Nylon

Stainless Steel Construction

Back Box 316 stainless steel; gray, polyurethane

powder coated finish

Lower Dome 316 stainless steel; black, polyurethane

powder coated finish Nylon, clear or smoked

Light Attenuation

Smoked f/0.5 light loss Clear f/0.0 light loss

Cable Entry (back box)

In-Ceiling 0.75-inch conduit fitting

Pendant Through 1.5-inch NPT pendant mount

Weight (approximate) Shipping In-Ceiling 2.6 kg (5.7 lb) 4.6 kg (10.2 lb) **Environmental In-Ceiling** 2.9 kg (6.5 lb) 4.9 kg (10.8 lb) Standard Pendant 3.1 kg (6.8 lb) 5.0 kg (11 lb) 3.7 kg (8.2 lb) 5.5 kg (12.2 lb) **Environmental Pendant** Stainless Steel 6.5 kg (14.3 lb) 8.6 kg (19 lb)

Environmental Pendant

Effective Projected Area (EPA) 20.5 square inches (without mount),

47 square inches (with IWM Series mount)

ALARM

Unsupervised Detects open or closed alarm state

Supervised Detects open and short alarm state with

external 1-kohm resistor

Input 3.5 VDC maximum, 3.5 mA maximum
Relay Output ±32 VDC maximum, 150 mA maximum

AUDIO

Input/Output Line level/external microphone input;

600-ohm differential, 1Vp-p maximum signal

level

Streaming Embedded audio

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

[†] Pelco Media Player is recommended for control, smoothness, and reduced latency as compared to QuickTime.

TECHNICAL SPECIFICATIONS

OPERATING TEMPERATURE*

Models						
Temperature			Standard Pendant (24 VAC, PoE+)	Environmental Pendant and In-Ceiling		
		In-Ceiling (24 VAC, PoE+)		24 VAC	HPoE⁵	PoE+
Sustaining	Maximum	50°C (122°F)	35°C (95°F)	50°C (122°F)	50°C (122°F)	50°C (122°F)
	Minimum	0°C (32°F)	−5°C (23°F)	-45°C (-49°F)	-45°C (-49°F)	-45°C (-49°F)
Absolute	Maximum	N/A	45°C (113°F)	60°C (140.2°F)	60°C (140.2°F)	60°C (140.2°F)
	Minimum	N/A	N/A	-51°C (-60°F)	N/A	N/A
Ice Free		N/A	N/A	-30°C (-22°F)	−30°C (−22°F)	-10°C (-14°F)
Cold Start [†]		0°C (32°F)	0°C (32°F)	-40°C (-40°F)	−35°C (−31°F)	-10°C (-14°F)
De-Icing [‡]		N/A	N/A	−30°C (−22°F)	−30°C (−22°F)	N/A
Storage Ten	nperature		-2	0°C to 60°C (-5°F to 140	°F)	

^{*} Assumes no wind chill factor.

OPERATING HUMIDITY

In-Ceiling (indoor),

Standard Pendant 10 to 90% RH (noncondensing)

Environmental In-Ceiling, Environmental Pendant,

Stainless Steel

Environmental Pendant 10 to 100% RH (condensing)

MECHANICAL

(Dome Drive Only)

Variable Speed 0.1° to 80°/sec (manual pan speed)

Preset Accuracy ±0.1°

Pan Movement 360° continuous pan rotation

Vertical Tilt $+1^{\circ}$ to -90°

 $\begin{array}{ll} \mbox{Maximum Pan Speed} & \mbox{Up to } 450^{\circ} \mbox{ per second} \\ \mbox{Maximum Tilt Speed} & \mbox{Up to } 450^{\circ} \mbox{ per second} \end{array}$

Manual Pan/Tilt Speeds

Pan 0.1° to 80°/sec manual operation
Tilt 0.1° to 45°/sec manual operation

Preset Speeds

 Pan
 450°/sec

 Tilt
 450°/sec

ELECTRICAL

Ports	RJ-45 connector for 100Base-TX Auto MDI/MDI-X Autonegotiate/manual setting
Cabling Type	Cat5e or better for 100Base-TX
Input Voltage	18 to 32 VAC; 24 VAC nominal 22 to 27 VDC; 24 VDC nominal
Input Power	
24 VAC	24 VA nominal (without heater and blower); 81 VA nominal (with heater and blower)
24 VDC	1 VA nominal (without heater and blower); 3 VA nominal (with heater and blower)
PoE+	18 W, Environmental models (with heater off, blower on);*
	15 W, Non-Environmental (with heater and blower off)
HPoE	60 W, Environmental models (with heater and blower on),†
	15 W, Non-environmental (with heater and blower off)
*** * * * * * * * * * * * * * * * * * *	1

^{*} Heater is disabled with PoE+ power selection.
†Only 27 W of power is supplied to the heater.

CERTIFICATIONS/RATINGS/PATENTS

- CE, Class A
- FCC, Class A
- ICES-003, Class A
- UL/cUL Listed
- C-Tick
- NEMA TS-2 (Temp.) para 2.2.7.3 2.2.7.7
- KI
- ONVIF Profile S
- ONVIF Profile G
- Cisco® Medianet Media Services Proxy 2.0 compatible
- Environmental models, including stainless steel, were 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
- Environmental pendants, including stainless steel, were tested in accordance with:
 - IEC 60068-2-6 and IEC 60068-2-27
- Environmental models meet NEMA Type 4X and IP66 standards when installed properly (B6-F-E, B6-PG-E, and B6-PSG-E)
- U.S. Patents 5,931,432; 6,793,415 B2; 6,802,656 B2; 6,821,222 B2; 7,161,615 B2
- IK10 impact-resistant bubble on all models were tested in accordance with:
 - IEC 62262

[†] Cold starts within 90 minutes at specified temperature.

[‡] Removes icing of 2.5 mm (0.1 in.) within 3 hours after power-up.

[§] PE075U HPoE injector accessory required for heater operation.

SYSTEM MODEL NUMBERS

Туре	Back Box Color	Lower Dome	Spectra Enhanced, 2.0 MPx, 20X	Spectra Enhanced, 2.0 MPx, 30X	Spectra Enhanced Low Light, 2.0 MPx, 20X	Spectra Enhanced Low Light, 2.0 MPx, 30X
In coiling indees	White with white trim ring	Smoked	S6220-FW0	S6230-FW0	N/A	N/A
In-ceiling, indoor		Clear	S6220-FW1	S6230-FW1	N/A	N/A
In-ceiling,	Black with	Smoked	S6220-YB0	S6230-YB0	N/A	N/A
environmental	black trim ring	Clear	S6220-YB1	S6230-YB1	N/A	N/A
Pendant, standard	Gray	Smoked	S6220-PG0	S6230-PG0	N/A	N/A
		Clear	S6220-PG1	S6230-PG1	N/A	N/A
	Black	Smoked	S6220-PB0	S6230-PB0	N/A	N/A
		Clear	S6220-PB1	S6230-PB1	N/A	N/A
Pendant, environmental	Gray	Smoked	S6220-EG0	S6230-EG0	S6220-EGL0	S6230-EGL0
		Clear	S6220-EG1	S6230-EG1	S6220-EGL1	S6230-EGL1
Pendant,	Gray	Smoked	S6220-ESG0	S6230-ESG0	S6220-ESGL0	S6230-ESGL0
environmental, stainless steel		Clear	S6220-ESG1	S6230-ESG1	S6220-ESGL1	S6230-ESGL1

COMPONENT MODEL NUMBERS

	Back Box		
B6-F	In-ceiling		
B6-F-E	In-ceiling, environmental		
B6-PG	Pendant, gray		
B6-PB	Pendant, black		
B6-PG-E	Pendant, gray, environmental		
B6-PSG-E	Pendant, gray, environmental, stainless steel		

High	High Definition (HD) Lower Dome*				
LD6F-0	IK10, In-ceiling, smoked				
LD6F-1	IK10, In-ceiling, clear				
LD6PB-0	IK10, Pendant, smoked				
LD6PB-1	IK10, Pendant, clear				
LD6SS-0	IK10, Pendant, smoked, stainless steel				
LD6SS-1	IK10, Pendant, clear, stainless steel				

Dome Drive		
D6220	20X	
D6230	30X	
D6220L	20X	
D6230L	30X	

RECOMMENDED MOUNTS

In-Ceiling Domes

SD5-P 2' x 2' drop ceiling panel, aluminum construction; replaces 2' x 2' ceiling tile

SCA1 Support rails for B5-F; for use in ceiling tile

applications

Pendant Domes

BB5-PCA-BK Pendant conduit adapter, black BB5-PCA-GY Pendant conduit adapter, gray

IWM Series Wall mount, with or without integral 24 VAC,

100 VA transformer; black or gray finish; can be adapted for corner, parapet or pole

application

MRCA Ceiling mount, black
PP4348 Parapet roof mount
PP350/PP351 Parapet wall/roof mount

SWM Series Compact wall mount, black or gray finish; can

be adapted for corner or pole applications

IDM4012SS Stainless steel wall mount with feed-through

capabilities

OPTIONAL ACCESSORIES

POE1AT-US
POE1 Injector[†] with US power cord
POE1AT-EU
POE75U-1UP
HPOE Injector[†] (no power cord)
POE75U-1UP-US
HPOE Injector[†] with US power cord
POE75U-1UP-EUK
HPOE Injector[†] with EU/UK power cord
MCS Series
Indoor, 24 VAC power supply
WCS Series
Outdoor, 24 VAC power supply

Refer to individual power supply specifications for more information.

[†]PoE+ will not provide enough power for heater operation. Use the HPoE Injector to provide sufficient heater power.

^{*}Use the pendant lower domes with the environmental in-ceiling and environmental pendant back boxes.