Spectra® Enhanced 7 Series IP PTZ Domes

HIGH-SPEED PTZ, 30X, 2 MP, SUREVISION AND DEEP LEARNING CAPABLE

Product Features

- SureVision Technology, Including:
  - Up to 130 dB Wide Dynamic Range (WDR)
  - Advanced Low Light Down to 0.02 lux (Color), 0.013 lux (Mono)
  - Anti-Bloom Technology
  - 3D Noise Filtering
  - Enhanced Tone Mapping
- Up to 2 MP and up to 60 Images per Second (ips) Pan/Tilt Drive
- Robust Image Stabilization (EIS) with Gyro
- Built-in Analytics Suite
- Deep Learning Capable
- Power over Ethernet (802.3bt), 24 VAC, 48 VDC
- Pelco H.265 and H.264 Smart Compression Technology
- Three Automatic Defog Options
- Vandal Resistant IK10 Housing and Smoked or Clear Bubble
- SD Card Slot with Support for SDXC Cards
- Compatible with Pelco and Third-Party Video Systems

VideoXpert™

ENDURA ENABLED

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

Top of the Line IP Performance

Pelco's Spectra® Series of high speed IP PTZ domes provide top tier image quality, performance, and intelligent embedded features for state-of-the-art surveillance solutions. 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 700 degree/second to position the camera on target avoiding perceived PT delays so that critical forensic evidence is captured. Direct Drive closed loop systems have advantages such as limited wear and tear and maintenance, extremely accurate positioning, and the camera always knows its position.

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

Full High Definition SureVision Cameras

Spectra Enhanced Series IP PTZ domes feature up to 2 MP, 30x 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.

Intelligent Imaging Features

The Spectra Enhanced Series PTZ domes have the capability to run deep learning DNN analytics. Included in all models are 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. 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. Spectra Enhanced supports up to 2TB of onboard local storage (not supplied) that is easily accessible through the ONVIF Profile G protocol or FTP.

Intuitive Design

Spectra Enhanced Series features the same ease of installation and maintenance that the industry has 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 three form factors: in-ceiling, environmental in-ceiling, and environmental pendant.
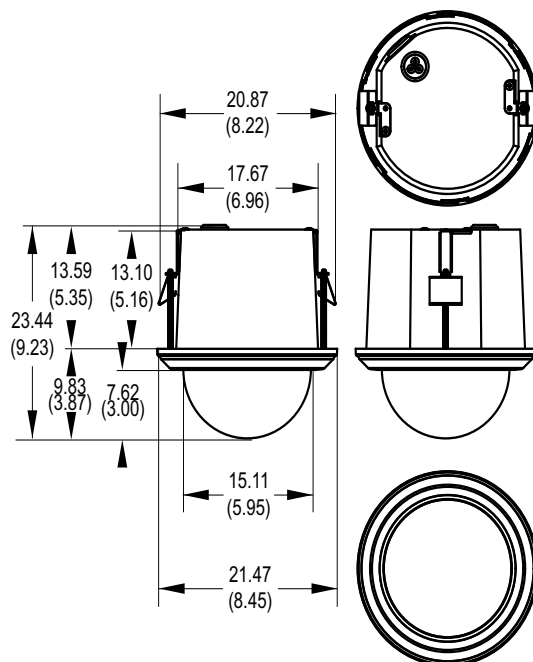
VMS Integration

Spectra Enhanced Series 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).
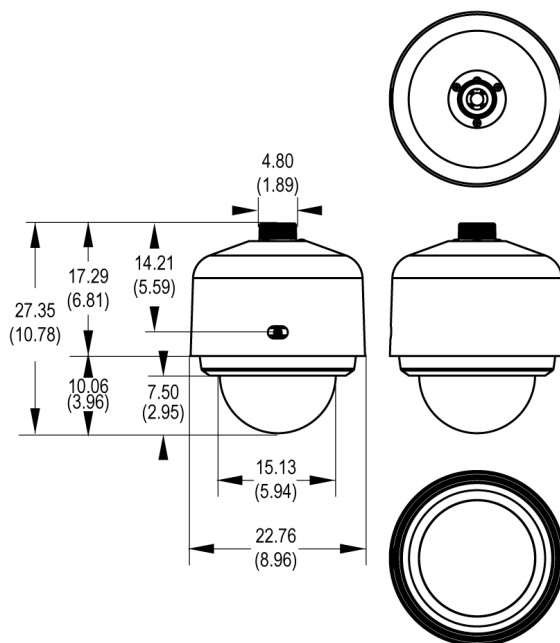
BACK BOX FEATURES

✋ NOTE: VALUES IN PARENTHESES ARE INCHES; ALL OTHERS ARE CENTIMETERS.

20.87 (8.22)

17.67 (6.96)

13.59 (5.35)   13.10 (5.16)

23.44 (9.23)

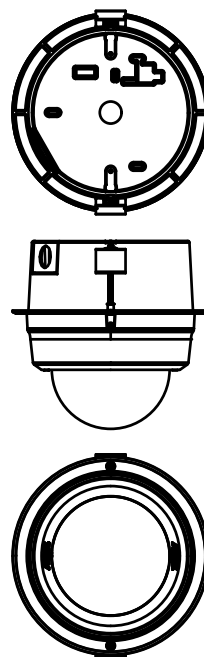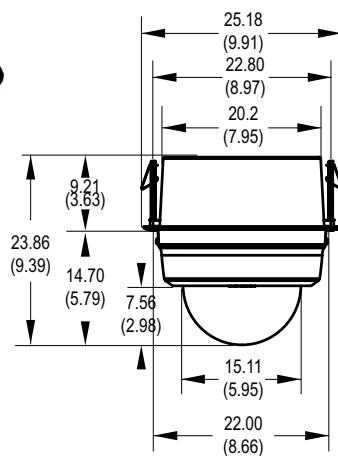9.83 (3.87)   7.62 (3.00)

15.11 (5.95)

21.47 (8.45)

In-Ceiling (Indoor)

- Single Back Box for Suspended or Hard Ceiling Applications with White Trim Ring, RAL9003

- 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 Housing and Nylon Bubble

- Suitable for Use in Environmental Air Handling Spaces

- −10° to 55°C (14° to 131°F) Sustained Operating Temperature

4.80 (1.89)

17.29 (6.81)   14.21 (5.59)

27.35 (10.78)

10.06 (3.96)   7.50 (2.95)

15.13 (5.94)

22.76 (8.96)

Environmental Pendant

- Environmental Pendant Available in White Finish (RAL9003) or Black Finish (RAL9017)

- Aluminum Construction, IK10 Rated Housing and Nylon Bubble

- Type 4X, IP66, and IP67

- Uses 1 1/2-inch NPT Thread

- Includes Heater, Blower, and Sun Shield

- −50° to 60°C (−58° to 140°F) Sustained Operating Temperature

25.18
(9.91)

22.80
(8.97)

20.2
(7.95)

9.21
(3.63)

23.86
(9.39)

14.70
(5.79)

7.56
(2.98)

15.11
(5.95)

22.00
(8.66)

In-Ceiling (Environmental)

- Single Back Box for Suspended or Hard Ceiling Applications with Black Trim Ring, RAL9017

- 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 Housing and Nylon Bubble

- Type 4X, IP66, and IP67

- Includes Heater and Blower

- –50° to 60°C (–58° to 140°F) Sustained Operating Temperature

CAMERA/OPTICS

Specification		30X Low Light
Sensor Type		1/2.8-inch Type Exmor CMOS Sensor
Optical Zoom		30X
Digital Zoom		10X
Maximum Resolution		1920 x 1080
Lens		f/1.6 ~ f/4.7, focal length 4.3 mm (wide) ~ 129.0 mm (tele)
Horizontal Angle of View		59.8° wide - 2.3° tele
Aspect Ratio		16:9
Light Sensitivity	Color (33 ms)	0.02 lux (Color)
	Color (250 ms)	0.0025 lux (Color)
	Mono (33 ms)	0.013 lux (Mono)
	Mono (250 ms)	0.0016 lux (Mono)
		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 Capabilities		Yes
Shutter Range		1/1 ~ 1/10,000 sec
Signal-to-Noise Ratio		>50dB
IR Cut Filter		Yes
Wide Dynamic Range		Up to 130 dB maximum; 120 dB per IEC62676
Iris Control		Auto iris with manual override
Backlight Compensation		Yes
Automatic Gain Control		Yes
Active Noise Filtering		3D Noise Filtering
Electronic Image Stabilization (EIS)		Yes
Bit Rate Control		Constrained variable bit rate (CVBR) and constant bit rate (CBR)
Orientation Modes		Electronic image rotation 90, 180, and 270 degrees (Corridor Mode)
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		Selectable Auto On/Off, 50 Hz or 60 Hz modes

SOFTWARE FEATURES

- 256 presets
- 32 tours
- ±0.05° 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 analytic behaviors
- Image Defog modes

PELCO ENHANCED ANALYTICS SUITE

Spectra Enhanced range cameras 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 the two Basic behaviors at the same time.

For each behavior, 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 analytic behaviors include:

- **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.
- **Region-Based Simple Motion Detection:** Based on sensitivity, the camera determines if sufficient motion is detected within a configurable region.

Available Enhanced analytic behaviors include:

- **Abandoned Object:** Detects objects placed within a defined zone and triggers an alarm if the object remains in the zone unattended. 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:** 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.
- **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 too long. 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.

VIDEO

Video Encoding	H.264 and H.265 High, Main, or Base profiles and MJPEG
Video Streams	Up to 3 simultaneous streams; the second 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 (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
1.23	1280	960	4:3	30	3.80
0.49	800	608	4:3	30	2.00
0.31	640	480	4:3	30	1.45
0.08	320	240	4:3	30	0.50

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, 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	Endura 2.0 (or later) Digital Sentry 7.3 (or later)
Open API	Pelco API or ONVIF Profile S, G, and T
Mobile Application	Integrated to Pelco Mobile App

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

ANALYTICS

Required Systems for Pelco Analytics

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

Construction	
Back Box	Aluminum
Dome Drive	Aluminum, thermo plastic
Lower Dome	Nylon for 2 MP models
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 (1080p models)	Unit
In-Ceiling, Indoor	3.0 kg (6.6 lb)
In-Ceiling, Environmental	3.4 kg (7.5 lb)
Pendant, Environmental	3.9 kg (8.6 lb)
Effective Projected Area (EPA)	
Pendant	Without mount and without sun shield, 43 square inches
	Without mount with sun shield, 47 square inches
	With IWM Series mount without sun shield, 92.5 square inches
	With IWM Series mount with sun shield, 96.5 square inches

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

Input/Output	Line level; 600-ohm differential, 1Vp-p maximum signal level
Streaming	Embedded audio

STORAGE

Local Storage	SD card slot with support for SDXC cards 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.

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

OPERATING TEMPERATURE

In-Ceiling (Indoor):

Operating Temperature	−10°C to 55°C (14°F to 131°F)
Cold Start	−10° C

Environmental Units:

Sustained Operating Temperature	−50°C to 60°C (−58°F to 140°F)
Absolute Max Operating Temperature	65°C (4 hours per day)
Cold Start	−40°C (−40°F)
Ice Free	−20°C (−4°F)
De-Ice	−20°C (−4°F)
Storage Temperature	−20°C to 65°C (−4°F to 149°F)

OPERATING HUMIDITY

In-Ceiling (Indoor)	10 to 90% RH (noncondensing)
Environmental In-Ceiling, Environmental Pendant	10 to 100% RH

MECHANICAL
(Dome Drive Only)

Variable Speed	0.05° to 100°/sec (manual pan speed)
Preset Accuracy	±0.05°
Pan Movement	360° continuous pan rotation
Vertical Tilt	+1° to −90°
Maximum Pan Speed	Up to 700° per second
Maximum Tilt Speed	Up to 500° per second
Manual Pan/Tilt Speeds	
Pan	0.05° to 100°/sec manual operation
Tilt	0.05° to 50°/sec manual operation
Preset Speeds	
Pan	700°/sec
Tilt	500°/sec

WIND SPECIFICATIONS

Full Motion Control	0 to 130 knots (150 mph/241 kmh)

PELCO'S H.264 SMART COMPRESSION TECHNOLOGY

Pelco's H.264 Smart Compression Technology lowers bandwidth and storage requirements by up to 70%, while reducing storage requirements.

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.

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.

TECHNICAL SPECIFICATIONS

ELECTRICAL

Ports	RJ-45 connector for 100Base-TX as well as 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 complaint transceivers
Input Voltage	20 to 32 VAC; 24 VAC nominal 42 to 53 VDC; 48 VDC nominal
Input Power	
24 VAC	2 A (30 VA) maximum for indoor or environmental units without heater
	4.8 A (71 VA) maximum for environmental unit with heater
48 VDC	1 A (40 W) maximum for indoor or environmental units without heater
	1.9 A (80 W) maximum for environmental unit with heater
PoE (802.3bt)	0.7 A (32 W) maximum for indoor or environmental units without heater
	1.3 A (70 w) maximum for environmental unit with heater

CERTIFICATIONS/RATINGS/PATENTS

- CE, Class A
- FCC, Class A
- ICES-003, Class A
- UL/cUL Listed
- BIS
- NOM
- RCM
- NEMA TS-2 para 2.2.7 - 2.2.9
- ONVIF Profile S
- ONVIF Profile G
- ONVIF Profile T
- Cisco® Medianet Media Services Proxy 2.0 compatible
- IEC 62676 Part 5
- Environmental models 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, IEC 60068-2-6, and IEC 60068-2-27, EN61373 (Category 1, Class B)
- Environmental models meet Type 4X, IP66, and IP67 standards when installed properly
- 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 housing and bubble on all models were tested in accordance with:
  - IEC 62262

SYSTEM MODEL NUMBERS

Type	Back Box Color	Lower Dome	System Resolution	Model Number	Description
In-ceiling, Indoor	Black	Smoked	2 MP 30X	S7230L-FW0	Spectra Enhanced Dome 1080p
		Clear	2 MP 30X	S7230L-FW1	Spectra Enhanced Dome 1080p
In-ceiling, Environmental	Black	Smoked	2 MP 30X	S7230L-YB0	Spectra Enhanced Dome 1080p
		Clear	2 MP 30X	S7230L-YB1	Spectra Enhanced Dome 1080p
Pendant, Environmental	White	Smoked	2 MP 30X	S7230L-EW0	Spectra Enhanced Dome 1080p
		Clear	2 MP 30X	S7230L-EW1	Spectra Enhanced Dome 1080p
Pendant, Environmental	Black	Smoked	2 MP 30X	S7230L-EB0	Spectra Enhanced Dome 1080p
		Clear	2 MP 30X	S7230L-EB1	Spectra Enhanced Dome 1080p

COMPONENT MODEL NUMBERS

Back Box	
B7-F	In-ceiling Indoor
B7-F-E	In-ceiling, Environmental
B7-PW-E	Pendant Environmental, White
B7-PB-E	Pendant Environmental, Black

High Definition (HD) Lower Dome*	
LD7F-0	Indoor, White, Smoked, 1080p
LD7F-1	Indoor, White, Clear, 1080p
LD7PB-0	Environmental, Black, Smoked, 1080p
LD7PB-1	Environmental, Black, Clear, 1080p

Dome Drive	
D7230L	30X

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

RECOMMENDED MOUNTS

Pendant Domes

IWM Series	Wall mount, white or black finish; can be adapted for corner, parapet, or pole application
IWM-MKIT	Marine kit is designed to protect the Spectra Series dome system mounted to the IWM arm from galvanic corrosion.
IWM24 Series	Wall mount, with integral 24 VAC, 100 VA transformer; white or black finish; can be adapted for corner, parapet or pole application
PP350/PP351	Parapet wall/roof mount
SWM Series	Compact wall mount, white or black finish; can be adapted for corner or pole applications
IDM4012SS-SW	Mount arm feed-thru, stainless steel, RAL 9003
IDM4018-SW	Mount arm feed-thru, white, RAL 9003

OPTIONAL ACCESSORIES

POE90U1BT-EUK	90W HPoE 802.3BT single port injector EU and UK power cord included
POE90U1BT-US	90W HPoE 802.3BT single port injector US power cord included
POE90U1BT	90W HPoE 802.3BT single port injector power cord not included
WCS1-4 Model (WCS Series)	Outdoor single 24 VAC power supply power cord not included
ECPS-48VDC-5A	48 VDC indoor power supply

In-Ceiling Domes

SD5-P	2' x 2' ceiling panel, aluminum construction; replaces 2' x 2' ceiling tile
SCA1	Support rails for B7-F; for use in ceiling tile applications

⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.
⚠ **ADVERTENCIA:** Cáncer y Daño Reproductivo - www.P65Warnings.ca.gov.
⚠ **AVERTISSEMENT:** Cancer et Troubles de l'appareil reproducteur - www.P65Warnings.ca.gov.