



## Spectra® Pro Series 2 PTZ Camera

### High-Speed PTZ, 30x, Full HD, WDR, Low-Light Performance

#### Product Features

- Up to Full HD 1080p
- Up to 60 Images per Second (ips)
- H.265, H.264, and MJPEG Video Encoding
- Tilt Range +1° to -90° Degrees
- Low Light Down to 0.1 lux
- Up to 120 dB Wide Dynamic Range (WDR)
- Professional Analytics Suite including:
  - Loitering Detection,
  - Object Counting,
  - Motion Detection,
  - Camera Sabotage,
  - and Audio Detection
- Pelco's Smart Compression Technology
- Power Over Ethernet (802.3at/bt), 24 VAC, 48 VDC
- Electronic Image Stabilizer (EIS)
- IK10
- Up to 2 TB Edge Storage with micro SDHC/SDXC Card
- 3-Year Warranty and Support



#### Cost Effective

Pelco's Spectra® Pro Series 2 is an ideal, cost-effective solution for common applications. The Spectra Pro Series 2 is easy to order, easy to install and ready to get you focused on what matters most in your organization.

#### Full High Definition Camera

Spectra Pro Series 2 is ideal for common applications such as commercial, corrections, education, gaming and healthcare requiring a broad coverage areas with fewer cameras, Spectra Pro Series assures coverage of large areas without the need for PTZ management by live operator. Low latency and smooth PTZ, the camera is easy to control with a joystick for high performance tracking of objects. It provides a wide angle with 360° continuous pan rotation to cover expansive areas with 2MP and 30x optical zoom to get details.

#### Embedded Features

Included in all models are built in video analytics (e.g. Professional Analytics Suite including: Loitering Detection, Object Counting, Motion Detection, Camera Sabotage, and Audio Detection). Spectra Pro Series 2 also allows for up to 8 configurable privacy zones. White Balance modes including Auto or

Manual are available for overcoming difficult lighting conditions day and night. Spectra Pro Series 2 supports up to 2 TB of onboard local storage (not supplied) that is easily accessible through the ONVIF Profile G protocol or FTP.

### **Video Encoding**

Spectra Pro Series 2 provides three methods of video encoding: H.265 Main profile, H.264 High/Main/Baseline profiles and MJPEG. Latest generation H.265 compression lowers bandwidth and storage requirements by up to 70% while retaining resolution and image quality and critical information for forensic purposes.

### **Intuitive Design**

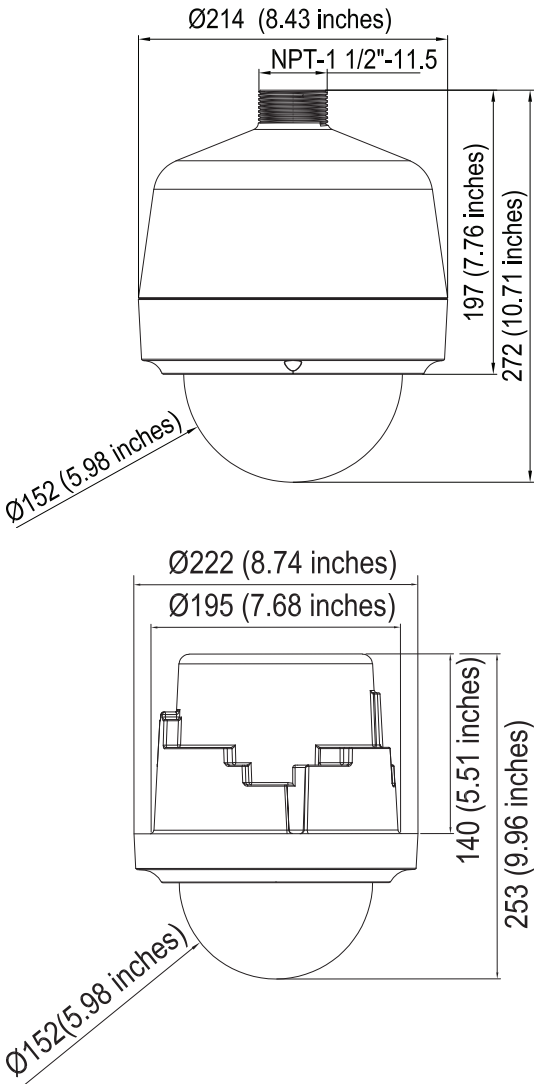
Spectra Pro Series 2 features the same ease of installation and maintenance that you have come to expect from Spectra as well as flexible power options to fit into existing or new infrastructure.

### **VMS Integration**

Spectra Pro Series 2 easily connects to Pelco VideoXpert and provides limited support of legacy systems such as Endura 2.0 (or later), and Digital Sentry 7.3 (or later).

Pelco endeavors to be the most open and integrated camera provider in the industry and as a part of that effort Spectra Pro Series 2 is integrated with a long and ever-growing list of 3rd party software and Video Management Systems (VMS).

## Back Box Features




## Environmental Pendant

- Environmental Pendant Available in White Finish, RAL 9003
- Aluminum Construction, IK10 Rated Housing and Nylon Bubble
- Meets Type 4X
- Meets IP66, IP67
- 1 1/2-inch NPT Mounting Thread
- Includes Heater and Blower
- Clear or Smoked Dome
- Sustained Operating Temperature – 40° to 50°C (–40°F to 122°F)

## Indoor In-Ceiling

- Single Back Box for Suspended or Hard Ceiling Applications
- Aluminum Construction, IK10 Rated Housing and Nylon Bubble
- Requires 152.4 mm (6.0 in) Space Above Ceiling
- Minimum Ceiling Thickness 12.7 mm (0.50 in.); Maximum 38.1 mm (1.5 in.)
- Suitable for Use in Environmental Air Handling Spaces
- Black Finish with White Trim Ring, RAL 9003
- Clear or Smoked Dome

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

## Camera/Optics

Specification	Value
Sensor Type	1/2.8-inch CMOS Sensor
Optical Zoom	30X
Digital Zoom	12X
Maximum Resolution	1920 x 1080
Lens	f/1.6 ~ f/4.4, focal length 4.5 mm (wide) ~ 135 mm (tele)
Angle of View	
Horizontal	59.8° (wide) ~ 2.34° (tele)
Vertical	40.5° (wide) ~ 1.48° (tele)
Diagonal	67.8° (wide) ~ 2.77° (tele)
Aspect Ratio	16:9
Light Sensitivity	
Color (33 ms)	0.1 lux
Color (125 ms)	0.025 lux
Mono (33 ms)	0.05 lux
Mono (125 ms)	0.01 lux
<b>Note:</b> Sensitivity in lux for 90% reflectance, f/1.6 (wide angle), 45 dB gain at 30 IRE (30% of signal level)	
Day/Night Capabilities	Yes
Shutter Range	1/4 ~ 1/30,000 sec
Signal-to-Noise Ratio	>50 dB
IR Cut Filter	Yes
True Wide Dynamic Range	Up to 120 dB Max; 100 dB per IEC 62676-5
Iris Control	Auto Iris with Manual Override
Backlight Compensation	Yes
Automatic Gain Control	Yes
Active Noise Filtering	3D Noise Filtering
Digital Image Stabilization (DIS)	Yes
Scanning	Progressive Scanning System

### Software Features

- 256 presets
- 16 tours
- 4 patterns
- Field of View scan
- $\pm 0.1^\circ$  preset accuracy
- Multilingual menus (English, Spanish, Portuguese, Italian, German, French, Russian, Turkish, Arabic, Simplified Chinese, and Korean)
- Password protection
- 16 window blanks, configurable in size
- “Auto Flip” feature rotates camera  $180^\circ$  at bottom of tilt travel
- Configurable park with actions
- Proportional pan/tilt continually decreases pan/tilt speeds in proportion to depth of zoom

### Pelco Pro Analytics Suite

Spectra Professional range cameras feature the Pro suite of video analytics including Motion Detection, Loitering Detection, Camera Sabotage, Audio Detection, and Object Counting.

- **Simple Motion Detection** algorithms allow the camera to record or send an alarm when there is motion detected in a selected zone or with the entire scene.
- **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.
- A **Camera Sabotage** alarm is triggered if the lens is obstructed or when the camera is repositioned.
- **Audio Detection** allows user to define an audio intensity threshold to trigger surrounding audio.
- **Object Counting** counts the number of moving objects passing through the defined virtual lines.

### Video

#### General Video Specifications

Item	Specification
Video Encoding	H.264 High, Main or H.265 Main, 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, 16.67, 15, 12.5, 10, 7.5, 5, 3, 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	10
2.07	1920	1080	16:9	60	7
0.92	1280	720	16:9	60	5.1
0.59	1024	576	16:9	60	5.0
0.36	960	540	16:9	60	4.9
0.23	640	360	16:9	60	2.35
0.06	320	180	16:9	60	1.4

### Network

Item	Specification
Supported Protocols	TCP/IP, UDP/IP (Unicast, Multicast IGMP), ARP, ICMP, UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, IPv6, SNMP v2c/v3, QoS, HTTP, HTTPS, SSH, TLS/SSL, SMTP, FTP, and 802.1x (EAP)
Users	
Unicast	Up to 5 simultaneous users depending on resolution settings (2 guaranteed streams)
Multicast	Unlimited users H.264 or H.265
Security Access	Password protected. Admin password required for initial login.
Software Interface	Web browser view and setup
Pelco System Integration	VideoXpert
	Endura 2.0 (or later), limited support
	Digital Sentry 7.3 (or later), limited support
Open API	Pelco API or ONVIF Profile G, Profile S, and Profile T
Mobile Application	Integrated to Pelco Mobile App

Item	Specification
Video Analytics	Simple Motion Detection, Loitering Detection, Camera Sabotage, Audio Detection, and Object Counting
Local Storage	Micro SDHC/SDXC slot (card not included), up to 2 TB; Capture 1–5–10 second video clips on camera sabotage, simple 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

## Cybersecurity

Pelco's Spectra Pro Series 2 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, 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
Web Browser	Google Chrome 61.0 (or later), Internet Explorer® 8.0 (or later) or Firefox 3.5 (or later)

## Analytics

Required Systems for Pelco Analytics

Item	Specification
Pelco Interface	VideoXpert and Digital Sentry, WS5200 Advanced System Management Software on an Endura 2.0 (or later) system. Limited support for Digital Sentry and Endura.
Open API	The Pelco API can transmit behavior alarm data to third-party applications, available at <a href="http://pdn.pelco.com">pdn.pelco.com</a>

## Pelco's Smart Compression Technology

Pelco's 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.

## General

Item	Specification
Construction	Aluminum Construction, IK10 Rated Housing and Nylon Bubble
Cable Entry (Back Box)	Through 1.5-inch NPT (pendant mount), 0.75-inch conduit fitting (indoor in-ceiling)
Effective Projected Area (EPA)	43.5 in <sup>2</sup> (.028 m <sup>2</sup> ) without mount 93.5 in <sup>2</sup> (.060 m <sup>2</sup> ) with IWM mount

## Weight (Approximate)

Type	Unit	Shipping
Environmental Pendant	3.12 kg (6.89 lb)	4.69 kg (10.35 lb)
Indoor In-Ceiling	2.79 kg (6.17 lb)	4.41 kg (9.73 lb)

## Alarm

Item	Specification
Unsupervised	Detects open or closed alarm state
Input	Four alarms, 3.5 VDC maximum, 3.5 mA maximum
Relay Output	One output, normally open, ±30 V maximum, 150 mA maximum

## Audio

Item	Specification
Input/Output	Line level/external microphone input; 1Vp-p maximum signal level
Streaming	Embedded audio

**Operating Temperature\***

Temperature	Environmental Pendant	In-Ceiling Indoor
Maximum <sup>1</sup>	50°C (122°F)	50°C (122°F)
Minimum <sup>1</sup>	-40°C (-40°F)	-10°C (14°F)
Cold Start <sup>2</sup>	-30°C (-22°F)	-10°C (14°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°F)

\* Assumes no wind chill factor.

<sup>1</sup> For outdoor applications.

<sup>2</sup> Cold starts within 20 minutes at specified temperature for environmental units.

**Operating Humidity**

Item	Specification
Environmental Pendant	10 to 100% RH
In-Ceiling Indoor	10 to 90% RH (Noncondensing)

## Mechanical

Item	Specification
Variable Speed	0.1° to 100°/sec (manual pan speed)
Preset Accuracy	Pan ±0.1°, Tilt ±0.05°
Vertical Tilt	+1° to -90° degrees
Maximum Pan Speed	Up to 400° per second
Maximum Tilt Speed	Up to 200° per second
Manual Pan/Tilt Speeds	
Pan	0.1° to 100°/sec manual operation
Tilt	0.1° to 50°/sec manual operation
Preset Speeds	
Pan	400°/sec
Tilt	200°/sec

## Electrical

Item	Specification
Ports	RJ-45 connector for 100Base-TX Auto MDI/MDI-X Autonegotiate/manual setting
Cabling Type	Cat5e or better for 100Base-TX
Input Voltage	20 to 32 VAC; 24 VAC normal 42 to 53 VDC; 48 VDC normal
Input Power	
24 VAC	0.95A (19VA) Indoor and Environmental without heaters. No pan or tilt. 1.40A (27VA) Indoor and Environmental without heaters. Pan and tilt active. 2.00A (40VA) Environmental with heaters. Pan and tilt active.
48 VDC	0.40A (16W) Indoor and Environmental without heaters. No pan or tilt. 0.77A (21W) Indoor and Environmental without heaters. Pan and tilt active. 1.00A (35W) Environmental with heaters. Pan and tilt active.
802.3bt (Environmental) 802.3at (Indoor)	0.40A (16W) Indoor and Environmental without heaters. No pan or tilt. 0.50A (21W) Indoor and Environmental without heaters. Pan and tilt active. 1.00A (35W) Environmental with heaters. Pan and tilt active.

## **Certifications/Ratings**

- CE (Class A)
- FCC (Class A)
- ICES-003 (Class A)
- UL/cUL Listed
- UL/IEC/EN 60950-1, 60950-22, 62368-1
- EN 50121-4
- IEC/EN 62262 IK10
- Environmental Models:
  - IEC/EN 60529 (IP66, IP67)
  - Type 4X
- KC
- NOM
- RCM
- EAC\*
- BIS
- IEC 62676-5 Data specifications and image quality performance for camera devices
- ONVIF Profile S, Profile G, and Profile T Conformant

\*At the time of this publication, certifications are pending.

## System Model Numbers

Model Number	Resolution	Optical Zoom	Color	Type	Bubble	Description
P2230L-EW0	2 MP	30x	White	Environmental Pendant	Smoked	Spectra Pro Series 2, Environmental Pendant, Smoked with White Trim Ring
P2230L-EW1	2 MP	30x	White	Environmental Pendant	Clear	Spectra Pro Series 2, Environmental Pendant, Clear with White Trim Ring
P2230L-FW0	2 MP	30x	Black	Indoor In-Ceiling	Smoked	Spectra Pro Series 2, Indoor In-Ceiling, Smoked with White Trim Ring
P2230L-FW1	2 MP	30x	Black	Indoor In-Ceiling	Clear	Spectra Pro Series 2, Indoor In-Ceiling, Clear with White Trim Ring

## Recommended Mounts

Part Number	Mount
IWM-SW, IWM24-BK	Wall mount, white (RAL 9003) or black (RAL 9017) finish; can be adapted for corner, parapet, or pole application
IWM24-SW, IWM24BK	Wall mount, with integral 24 VAC, 100 VA transformer; white (RAL 9003) or black (RAL 9017) finish; can be adapted for corner, parapet or pole application
WMVE-SW	Environmental wall mount (white, RAL 9003); can also be mounted using a pole
PP350-SW/PP351-SW, PP450-SW, PP451-SW	Parapet; wall/rooftop mount

## Power Supplies

Item	Specification
WCS1-4 Model (WCS Series )	Outdoor single 24 VAC camera power supply, power cord not included
ECPS-48VDC-5A	48 VDC indoor power supply
POE190-BT	90 W HPoE 802.3BT single port injector power cord not included



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