PRODUCT SPECIFICATION

Spectra® Pro 4K Series IP PTZ Outdoor Camera
HIGH-SPEED PTZ, 20X MODELS, UP TO 8 MPX (4K) RESOLUTION

Product Features

- Up to 4K Resolution (2160p)
- Up to 30 Images per Second (ips) at 8 MPx
- 850 nm IR Illumination to 150 m
- H.265, H.264, and MJPEG Video Encoding
- Tilt Range +15° to –90° Degrees
- IR Illumination with Proportional Brightness Based Upon Zoom
- High Dynamic Range (HDR) Mode, 72 dB
- Sabotage and Simple Motion Detection
- Pelco’s Smart Compression Technology
- Power Over Ethernet (802.3bt), 24 VAC, 48 VDC
- Electronic Image Stabilization (EIS)
- Up to 2 TB Edge Storage with micro SDHC/SDXC Card
- Super Resolution Zoom Mode
- 3-Year Warranty and Support

Full High Definition Camera
Pelco’s Spectra® Pro 4K (2160p) Series provides up to 8 MPx resolution, which is four times the resolution of 1080p. Combined with 20x optical zoom, one single camera can cover a large area with crystal clear detailed information such as a license plate, face, etc. Depending on the imaging scene, the HDR mode makes the darker part of a camera image brighter, and automatically corrects brightness and contrast to show bright parts clearly.

Video Encoding
Spectra Pro 4K Series provides three methods of video encoding: H.265 Main profile, H.264 High/Main/Baseline profiles and MJPEG.

High Resolution Zoom
Spectra Pro 4K provides superior images while maintaining the resolution without degrading image quality, even when magnified. By combining with optical zoom 20x, zoom is achieved up to 30x in 4K and 40x in FHD.

IR Illumination with Lookup
Spectra Pro 4K Series can see in absolute darkness. The infrared illumination (IR) has proportional brightness based upon zoom, creating visible pictures without any light up to 150 m from the camera. The IR wavelength is 850 nm giving an almost undetectable light source in locations where visible light is undesired or light pollution is regulated.

The Pro 4K Series offers a wider tilt range giving the camera the ability to look above the horizon 15 degrees (center of field of view).

Embedded Features
Included in all models are built in video analytics (e.g. Sabotage and Simple Motion Detection). Spectra Pro 4K also allows for up to 16 configurable window blanks. White Balance modes including Auto or Manual are available for overcoming difficult lighting conditions day and night. Spectra Pro 4K supports up to 2 TB of onboard local storage (not supplied) that is easily accessible through the ONVIF Profile G protocol or FTP.

Intuitive Design
Spectra Pro 4K Series features the same ease of installation and maintenance that you have come to expect from Spectra. In addition, the top cover is hinged so that after installation on a mount, the wiring connections can be made while the camera weight hangs on the mount.

VMS Integration
Spectra Pro 4K 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 Pro 4K 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.

Environmental Pendant
- Environmental Pendant Available in Light Gray Finish, RAL7047
- Aluminum Construction
- IK10 Except for Glass (Glass IK7)
- Type 4X and IP66
- Uses 1 1/2-inch NPT Thread
- Includes Sun Shield, Heater, and Blower
- –40° to 60°C (–40°F to 140°F) Sustained Operating Temperature

CAMERA/OPTICS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Spectra Pro 4K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor Type</td>
<td>1/2.5-inch Exmor R CMOS</td>
</tr>
<tr>
<td>Optical Zoom</td>
<td>20X</td>
</tr>
<tr>
<td>Digital Zoom</td>
<td>12X</td>
</tr>
<tr>
<td>Maximum Resolution</td>
<td>3840 x 2160</td>
</tr>
<tr>
<td>Lens</td>
<td>f/2.0 – f/3.8, focal length 4.4 mm (wide) – 88.4 mm (tele)</td>
</tr>
<tr>
<td>Angle of View</td>
<td></td>
</tr>
<tr>
<td>Horizontal</td>
<td>70.2° (wide) – 4.1° (tele)</td>
</tr>
<tr>
<td>Vertical</td>
<td>42.1° (wide) – 2.3° (tele)</td>
</tr>
<tr>
<td>Diagonal</td>
<td>77.8° (wide) – 4.7° (tele)</td>
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<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Light Sensitivity</td>
<td></td>
</tr>
<tr>
<td>Color (33 ms)</td>
<td>1.0 lux</td>
</tr>
<tr>
<td>Color (125 ms)</td>
<td>0.3 lux</td>
</tr>
<tr>
<td>Mono (33 ms)</td>
<td>0.5 lux</td>
</tr>
<tr>
<td>Mono (125 ms)</td>
<td>0.2 lux</td>
</tr>
<tr>
<td>Mono with IR</td>
<td>0.0 lux</td>
</tr>
<tr>
<td>Note: Sensitivity in lux for 90% reflectance, f/1.6 (wide angle), 45 dB gain at 30 IRE (30% of signal level)</td>
<td></td>
</tr>
<tr>
<td>Day/Night Capabilities</td>
<td>Yes</td>
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<tr>
<td>Shutter Range</td>
<td>1/4 – 1/10,000 sec</td>
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<tr>
<td>Signal-to-Noise Ratio</td>
<td>&gt;45 dB</td>
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<tr>
<td>IR Cut Filter</td>
<td>Yes</td>
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<tr>
<td>Electronic Dynamic Range</td>
<td>72 dB</td>
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<tr>
<td>Iris Control</td>
<td>Auto iris with manual override</td>
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<tr>
<td>Backlight Compensation</td>
<td>Yes</td>
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<tr>
<td>Automatic Gain Control</td>
<td>Yes</td>
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<tr>
<td>Active Noise Filtering</td>
<td>3D Noise Filtering</td>
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<tr>
<td>Electronic Image Stabilization (EIS)</td>
<td>Yes</td>
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</table>
SOFTWARE FEATURES
- 256 presets
- 16 tours
- 4 patterns
- Field of View scan
- ±0.1° 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° at bottom of tilt travel
- Configurable park with actions
- Proportional pan/tilt continually decreases pan/tilt speeds in proportion to depth of zoom

ANALYTICS BEHAVIORS
- 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.
- Motion: Generates an alarm in a high traffic area when a person or object moves.

VIDEO
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)
Scan Type: Progressive
Available Resolutions

<table>
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<tr>
<th>MPx</th>
<th>Width</th>
<th>Height</th>
<th>Aspect Ratio</th>
<th>Maximum IPS</th>
<th>Recommended Bit Rate (kbps)</th>
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<td>30</td>
<td>9500</td>
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<td>6</td>
<td>3264</td>
<td>1840</td>
<td>16:9</td>
<td>30</td>
<td>9500</td>
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<td>4</td>
<td>2688</td>
<td>1520</td>
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<td>30</td>
<td>9000</td>
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<td>2.07</td>
<td>1920</td>
<td>1080</td>
<td>16:9</td>
<td>60</td>
<td>10000</td>
</tr>
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<td>2.07</td>
<td>1920</td>
<td>1080</td>
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<td>10000</td>
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<tr>
<td>0.92</td>
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<td>720</td>
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<td>60</td>
<td>8100</td>
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<tr>
<td>0.92</td>
<td>1280</td>
<td>720</td>
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<tr>
<td>0.59</td>
<td>1024</td>
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<td>8000</td>
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<tr>
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<td>8000</td>
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<td>0.52</td>
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<td>540</td>
<td>16:9</td>
<td>60</td>
<td>7400</td>
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<tr>
<td>0.06</td>
<td>320</td>
<td>180</td>
<td>16:9</td>
<td>30</td>
<td>1400</td>
</tr>
</tbody>
</table>

NETWORK
Supported Protocols: TCP/IP, UDP/IP (Unicast, Multicast IGMP), ARP, ICMP, UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, IPv6, SNMP v2c/v3, OoS, HTTP, HTTPS, SSH, 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
Secure Transmission: Transport Layer Security (TLS 1.2)
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, Profile S, Profile Q, and Profile T
Mobile Application: Integrated to Pelco Mobile App
Video Analytics: Simple motion detection and camera sabotage
Local Storage: Micro SDHC/SDXC slot (card not included), 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

MINIMUM SYSTEM REQUIREMENTS
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
Pelco Interface: VideoXpert and Digital Sentry, WS5200 Advanced System Management Software on an Endura 2.0 (or later) system
Open API: The Pelco API can transmit behavior alarm data to third-party applications, available at pdn.pelco.com

PELCO’S SMART COMPRESSION TECHNOLOGY
Pelco’s Smart Compression Technology lowers bandwidth and storage requirements by up to 70%. Our technology allows the user to make intelligent decisions regarding storage savings and image quality.

Pelco’s Smart Compression Technology dynamically analyzes motion occurring within live video in real-time, 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**

- **Construction**: Aluminum
- **Cable Entry (Back Box)**: Through 1.5-inch NPT pendant mount
- **Weight (Approximate)**: Environmental Pendant 5.2 kg (11.5 lb), 6.2 kg (13.7 lb)
- **Effective Projected Area (EPA)**: 63.5 square inches (without mount), 109.8 square inches (with IWM Series mount)
- **Clock**: Real time clock
- **IR Wavelength**: 850 nm
- **IR Range**: 150 m

**ALARM**

- **Unsupervised**: Detects open or closed alarm state
- **Input**: Two alarms, 3.5 VDC maximum, 3.5 mA maximum
- **Relay Output**: Two outputs, ±32 VDC maximum, 150 mA maximum

**AUDIO**

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

**OPERATING TEMPERATURE**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Environmental Pendant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum¹</td>
<td>60°C (140°F)</td>
</tr>
<tr>
<td>Minimum¹</td>
<td>–40°C (–40°F)</td>
</tr>
<tr>
<td>Cold Start²</td>
<td>–40°C (–40°F)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>–40°C to 60°C (–40°F to 140°F)</td>
</tr>
</tbody>
</table>

¹ Assumes no wind chill factor.
² For outdoor applications.

**MECHANICAL**

- **Variable Speed**: 0.1° to 100°/sec (manual pan speed)
- **Preset Accuracy**: ±0.1°
- **Pan Movement**: 360° continuous pan rotation
- **Vertical Tilt**: +15° to ~90° degrees
- **Maximum Pan Speed**: Up to 300° per second
- **Maximum Tilt Speed**: Up to 145° per second
- **Manual Pan/Tilt Speeds**:
  - Pan: 0.1° to 100°/sec manual operation
  - Tilt: 0.1° to 50°/sec manual operation
- **Presets Speeds**:
  - Pan: 300°/sec
  - Tilt: 145°/sec

**ELECTRICAL**

- **Ports**: RJ-45 connector for 100Base-TX
- **Cabling Type**: Auto MDI/MDI-X
- **Input Voltage**: 21 to 32 VAC, 24 VAC nominal, 38 to 57 VDC, 48 VDC nominal
- **Input Power**:
  - 24 VAC: 1.35 A (32 VA) maximum (without IR, PTZ, and heater); 3.3 A (72 VA) maximum (with IR, PTZ, and heater)
  - 48 VDC: 0.53 A (26 W) maximum (without IR, PTZ, and heater); 1.2 A (62 W) maximum (with IR, PTZ, and heater)
  - 802.3bt (56 V): 0.46 A (26 W) maximum (without IR, PTZ, and heater); 1.2 A (67 W) maximum (with IR, PTZ, and heater)

**CERTIFICATIONS/RATINGS**

- CE, Class A
- FCC, Class A
- ICES-003, Class A
- UL/cUL Listed
- RCM
- KC
- ONVIF Profile S
- ONVIF Profile G
- ONVIF Profile Q
- ONVIF Profile T
- IEC 62676 Part 5

Environmental models meet Type 4X and IP66 standards when installed properly.
TECHNICAL SPECIFICATIONS

SYSTEM MODEL NUMBERS

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Resolution</th>
<th>Optical Zoom</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2820-ESR</td>
<td>4K</td>
<td>20x</td>
<td>Light Gray</td>
<td>Spectra Pro 4K Environmental Pendant</td>
</tr>
</tbody>
</table>

RECOMMENDED MOUNTS

- IWM-SR, IWM24-SR: Wall mount, with or without integral 24 VAC, 100 VA transformer; can be adapted for corner, parapet, or pole application
- WMVE-SR: Environmental wall mount; can also be mounted using a pole
- PP350/PP351: Spectra dome parapet; wall/rooftop mount

Note: For ease of installation, the Spectra Pro 4K Series has a top cover that is hinged. This way, after installation on a mount, while the camera weight is hanging on a mount, wiring connections can be made.

POWER SUPPLIES

- WCS1-4 Model (WCS Series): Single 24 VAC camera power supply, indoor
- ECP5-48VDC-SA: 48 VDC indoor power supply
- POE90U1BT-EUK: 90 W HPOE 802.3BT single port injector EU and UK power cord included
- POE90U1BT-US: 90 W HPOE 802.3BT single port injector US power cord included
- POE90U1BT: 90 W HPOE 802.3BT single port injector power cord not included

SPECTRA PRO 4K SERIES WITH HINGED TOP COVER

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