Spectra® Pro IR Series IP PTZ Outdoor Camera
HIGH-SPEED PTZ, 30X MODELS, FULL HD, WDR, LOW-LIGHT PERFORMANCE

Product Features

- 850 nm IR Illumination to 150 m
- H.265, H.264, and MJPEG Video Encoding
- Tilt Range +15° to –90° Degrees
- Low Light Down to 0.1 lux
- IR Illumination with Proportional Brightness Based Upon Zoom
- Up to 120 dB True Wide Dynamic Range (WDR)
- Sabotage and Simple Motion Detection
- Pelco's Smart Compression Technology
- Up to Full HD 1080p
- Up to 60 Images per Second (ips)
- Power Over Ethernet (802.3bt), 24 VAC, 48 VDC
- Electronic Image Stabilizer (EIS)
- Up to 2 TB Edge Storage with micro SDHC/SDXC Card
- 3-Year Warranty and Support

IR Illumination with Lookup
Pelco’s Spectra® Pro IR 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 IR Series offers a wider tilt range giving the camera the ability to look above the horizon 15 degrees (center of field of view).

Full High Definition Camera
Spectra Pro IR Series provides a Full HD 1080p 30x optical zoom camera that runs at up to 60 frames per second and provides up to 120dB of True Wide Dynamic Range (WDR). The new camera is available with 30x optical zoom.

Embedded Features
Included in all models are built in video analytics (e.g. Sabotage and Simple Motion Detection). Spectra Pro IR 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 IR 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 IR Series provides three methods of video encoding: H.265 Main profile, H.264 High/Main/Baseline profiles and MJPEG.

Intuitive Design
Spectra Pro IR Series features the same ease of installation and maintenance that you have come to expect from Spectra.

VMS Integration
Spectra Pro IR 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 IR 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>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor Type</td>
<td>1/2.8-inch CMOS Sensor</td>
</tr>
<tr>
<td>Optical Zoom</td>
<td>30X</td>
</tr>
<tr>
<td>Digital Zoom</td>
<td>12X</td>
</tr>
<tr>
<td>Maximum Resolution</td>
<td>1920 x 1080</td>
</tr>
<tr>
<td>Lens</td>
<td>f/1.6 – f/4.4, focal length 4.5 mm (wide) – 135 mm (tele)</td>
</tr>
<tr>
<td>Angle of View</td>
<td></td>
</tr>
<tr>
<td>Horizontal</td>
<td>59.8° (wide) – 2.34° (tele)</td>
</tr>
<tr>
<td>Vertical</td>
<td>40.5° (wide) – 1.48° (tele)</td>
</tr>
<tr>
<td>Diagonal</td>
<td>67.8° (wide) – 2.77° (tele)</td>
</tr>
<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>0.1 lux</td>
</tr>
<tr>
<td>Color (125 ms)</td>
<td>0.025 lux</td>
</tr>
<tr>
<td>Mono (33 ms)</td>
<td>0.05 lux</td>
</tr>
<tr>
<td>Mono (125 ms)</td>
<td>0.01 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>
</tbody>
</table>

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 IEC62676 |
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
- ±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, or 1 (depending on the coding, resolution, and stream configuration)
- Scan Type: Progressive

<table>
<thead>
<tr>
<th>Resolution</th>
<th>H.264 High Profile (IP GOP structure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPx</td>
<td>Width</td>
</tr>
<tr>
<td>2.07</td>
<td>1920</td>
</tr>
<tr>
<td>2.07</td>
<td>1920</td>
</tr>
<tr>
<td>0.92</td>
<td>1280</td>
</tr>
<tr>
<td>0.36</td>
<td>960</td>
</tr>
<tr>
<td>0.23</td>
<td>640</td>
</tr>
<tr>
<td>0.06</td>
<td>320</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, DoS, 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 G, 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, 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.
TECHNICAL SPECIFICATIONS

GENERAL

<table>
<thead>
<tr>
<th>Construction</th>
<th>Aluminum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable Entry (Back Box) Pendant</td>
<td>Through 1.5-inch NPT pendant mount</td>
</tr>
<tr>
<td>Weight (Approximate)</td>
<td>5.2 kg (11.5 lb) Shipping</td>
</tr>
<tr>
<td>Environmental Pendant</td>
<td>6.2 kg (13.7 lb)</td>
</tr>
<tr>
<td>Effective Projected Area (EPA)*</td>
<td>63.5 square inches (without mount), 109.8 square inches (with IWM Series mount)</td>
</tr>
</tbody>
</table>

*0.8 drag coefficient assumed. Air temperature and wind velocity impact drag coefficient so if a more accurate EPA is required, then the drag coefficient must be determined experimentally.

ALARM

Unsupervised Detects open or closed alarm state

Input

Two alarms, 3.5 VDC maximum, 3.5 mA maximum

Relay Output

Two outputs, ±30 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>Maximum†</td>
<td>60 °C (140°F)</td>
</tr>
<tr>
<td>Minimum†</td>
<td>–40 °C (–40°F)</td>
</tr>
<tr>
<td>Cold Start‡</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>

† Assumes no wind chill factor.
‡ For outdoor applications.
‡ Cold starts within 20 minutes at specified temperature.

OPERATING HUMIDITY

Environmental Pendant 0 to 90% RH (condensing)

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

Auto MDI/MDI-X Autonegotiate/manual setting

Cabling Type Cat5e or better for 100Base-TX

Input Voltage 21 to 32 VAC; 24 VAC nominal

38 to 57 VDC; 48 VDC nominal

Input Power

24 VAC 1 A (24 VA) maximum (without IR, PTZ, and heater);

3.3 A (80 VA) maximum (with IR, PTZ, and heater)

48 VDC 0.46 A (22 W) maximum (without IR, PTZ, and heater);

1.2 A (57 W) maximum (with IR, PTZ, and heater)

802.3bt (56 V) 0.37 A (20 W) maximum (without IR, PTZ, and heater);

1.1 A (61 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>P2230L-ESR</td>
<td>2 Mpix</td>
<td>20x</td>
<td>Light Gray</td>
<td>Spectra Pro IR 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 IR 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
- **ECPS-48VDC-5A**: 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