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

VideoXpert™

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 8 configurable privacy zones. 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.

Ø 3.80
(1.50)

4.80
(1.89)

25.10
(9.88)

31.40
(12.36)

15.53
(6.11)

16.19
(6.37)

20.91
(8.23)
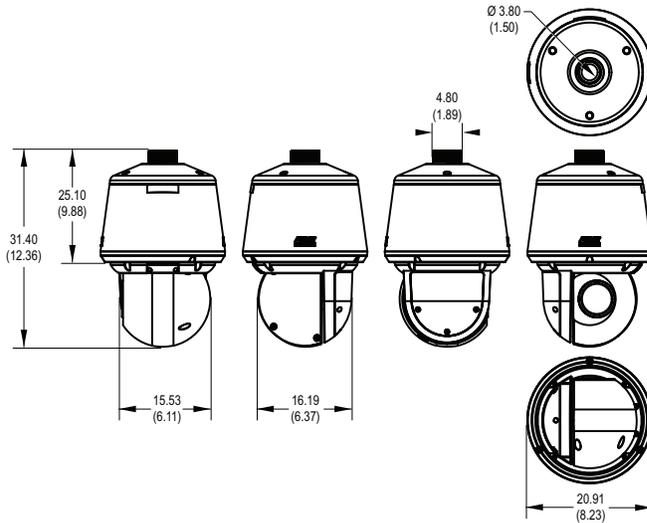
Environmental Pendant

- 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

Specification		Spectra Pro 4K
Sensor Type		1/2.5-inch Exmor R CMOS
Optical Zoom		20X
Digital Zoom		12X
Maximum Resolution		3840 x 2160
Lens		f/2.0 ~ f/3.8, focal length 4.4 mm (wide) ~ 88.4 mm (tele)
Angle of View	Horizontal	70.2° (wide) ~ 4.1° (tele)
	Vertical	42.1° (wide) ~ 2.3° (tele)
	Diagonal	77.8° (wide) ~ 4.7° (tele)
Aspect Ratio		16:9
Light Sensitivity	Color (33 ms)	1.0 lux
	Color (125 ms)	0.3 lux
	Mono (33 ms)	0.5 lux
	Mono (125 ms)	0.2 lux
	Mono with IR	0.0 lux
	Note: 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 ~ 1/10,000 sec
Signal-to-Noise Ratio		>45 dB
IR Cut Filter		Yes
Electronic Dynamic Range		72 dB
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

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	

Resolution				H.264 High, Main Profiles, H.265 Main Profile (IP GOP structure)	
MPx	Width	Height	Aspect Ratio	Maximum IPS	Recommended Bit Rate (kbps)
8	3840	2160	16:9	30	9500
6	3264	1840	16:9	30	9500
4	2688	1520	16:9	30	9000
2.07	1920	1080	16:9	60	10000
2.07	1920	1080	16:9	30	7000
0.92	1280	720	16:9	60	8100
0.92	1280	720	16:9	30	5100
0.59	1024	576	16:9	60	8000
0.59	1024	576	16:9	30	5000
0.52	960	540	16:9	60	7400
0.52	960	540	16:9	30	4900
0.23	640	360	16:9	60	4750
0.23	640	360	16:9	30	2350
0.06	320	180	16:9	60	2600
0.06	320	180	16:9	30	1400

NETWORK

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, 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, 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

Construction	Aluminum	
Cable Entry (Back Box)		
Pendant	Through 1.5-inch NPT pendant mount	
Weight (Approximate)	Unit	Shipping
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)	

*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.

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*

Temperature	Environmental Pendant
Maximum[1]	60°C (140°F)
Minimum[1]	−40°C (−40°F)
Cold Start[2]	−40°C (−40°F)
Storage Temperature	−40°C to 60°C (−40°F to 140°F)

* Assumes no wind chill factor.

[1] For outdoor applications.

[2] 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
Preset 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	1.35 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
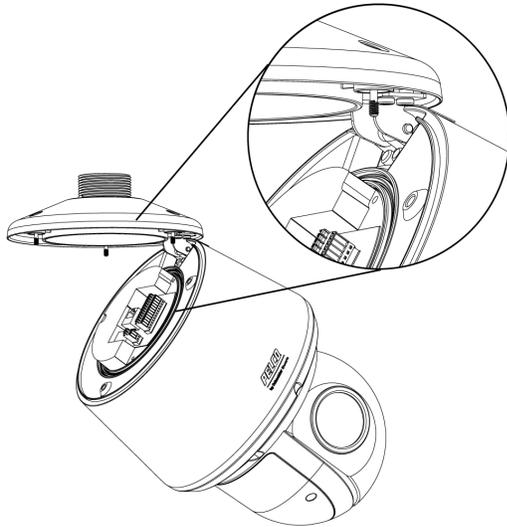- Environmental models meet Type 4X and IP66 standards when installed properly

SYSTEM MODEL NUMBERS

Model Number	Resolution	Optical Zoom	Color	Description
P2820-ESR	4K	20x	Light Gray	Spectra Pro 4K Environmental Pendant

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
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

SPECTRA PRO 4K SERIES WITH HINGED TOP COVER