Esprit® Enhanced Series IP Positioning System
SUREVISION 3.0 CAMERAS IN STANDARD AND PRESSURIZED MODELS

Product Features

- Surevision 3.0 Technology, Including:
  - 130dB Wide Dynamic Range (WDR)
  - Advanced Low Light Down to 0.03 LUX, Anti-Bloom Technology, 3D Noise Filtering, Enhanced Tone Mapping
- Up to Full HD 1080p and up to 60 Images per Second
- Full Suite of Built-In Analytics Including AutoTracker, Adaptive Motion Detection, Abandoned Object, and More.
- Defog Mode Provides Three Levels of Fog Removal Within the Image for Improved Image Quality During Bad Weather Conditions
- Vivid Mode Can be Turned On/Off to Drastically Improve the Image Contrast and Color Saturation
- Electronic Image Stabilization (EIS)
- Pan/Tilt and Enclosure with Integrated Optics Package (IOP) or Pressurized Integrated Optics Cartridge (IOC)
- Dual Stream H.264 IP Video with Smart Compression
- Vari-Zoom IR Illuminator Option with 200 Meter Range
- Dual Mode Illumination Option with IR and White Light LED Banks
- 16 Preset Tours, 256 Presets, 32 Window Blanks, 8 Patterns, 8 Scans
- Integrated Window Wiper with Configurable Delay and Shut-Off (ES6230-1x Models)
- ONVIF Profile S, Profile G, and Profile Q Conformant
- 360° Continuous Pan Rotation at 140° per Second
- 2 SFP Ports

Top of the Line IP Performance
Pelco’s iconic Esprit® Series positioning system provides best-in-class image quality and pan/tilt performance. Esprit Enhanced provides the total package of impressive image quality, valuable software features, and time-tested pan/tilt performance suitable for any installation environment.

Full High Definition SureVision 3.0 Cameras
Esprit Enhanced has long provided a Full HD 1080p 30x optical zoom camera but with Pelco’s latest product evolution a powerful new SureVision 3.0 enabled camera is now available featuring 130dB of True Wide Dynamic Range and low light performance up to twenty times better than past Esprit models. The new SureVision 3.0 camera is available in either a standard or pressurized 30x optical zoom module that delivers market leading image quality for even the toughest outdoor environments. Paired with Pelco’s illuminator modification, the camera ensures that image quality is top-of-the-line, even on the darkest of nights.

Image Enhancement Features
Esprit Enhanced has historically packed in many features that enhance the total value of the system, and with the new SureVision 3.0 cameras, even more value has been added. Since its inception, Esprit Enhanced has had a full suite of built in video analytics, 32 window blanking privacy zones, and electronic image stabilization.

Standard IP Ethernet Connection and Integrated Transmission
Options via two small, form-factor pluggable transceivers (2 SFP ports). This may include Fiber, Ethernet over Coax, and UTP Extension. In addition to the vastly improved low light and wide dynamic range performance, the new SureVision 3.0 cameras now provide Image Defog, five new White Balance modes, and the popular Vivid Imaging Mode. Three levels of Image Defog are now available helping enhance images on foggy or rainy days. New White Balance modes allow the user to overcome difficult lighting conditions caused by external sources such as Sodium Vapor lamps and the Vivid Imaging mode provides an option for automatically increased color saturation and sharpening when enabled.

Proven Performance and Reliability
Esprit Enhanced brings together the very best in enclosure design, PTZ mechanics, and receiver technologies to produce the industry’s leading high-speed camera system. Installed around the world for more than 16 years, Esprit Enhanced has been constantly updated to provide the latest pan/tilt and imaging performance. The camera is easy to install, easy to use, and highly reliable.

VMS Integration
Esprit Enhanced 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.
The Esprit Enhanced Series can be operational from a temperature of –25°C (–13°F). Within two hours after power-up, the entire unit can de-ice and be operational from a temperature of –25°C (–13°F).

The Esprit Enhanced Series variable pan and tilt speeds range from 0.1 to 80 degrees per second in manual pan mode, and 0.1 to 40 degrees per second in manual tilt. Tilt preset speed is 140 degrees per second.

The systems are available with a universal mains power supply. The pressurized Integrated Optics Cartridge (IOC) in a single, easy-to-install system. Options include IOC with or without wiper and IOC models with wiper.

Variable pan and tilt speeds range from 0.1 to 80 degrees per second in manual pan mode, and 0.1 to 40 degrees per second in manual tilt. Pan preset and turbo speeds are 140 degrees per second. Tilt preset speed is 140 degrees per second.

A powder-coated, aluminum construction makes the Esprit Enhanced Series ideal for either indoor or outdoor applications. The system has an absolute operating temperature range of –45° to 60°C (–50° to 140°F). Within two hours after power-up, the entire unit can de-ice and be operational from a temperature of –25°C (–13°F).

Electronic Image Stabilization (EIS)

Electronic image stabilization (EIS) is a feature of the camera that can help compensate for some frequencies of vibration. In all cases, care should be taken to ensure that any positioning system is mounted to a rigid location.

The default for EIS is OFF. The user can turn EIS ON if vibration is affecting image quality. Although EIS can reduce the impact of vibration on image quality, it cannot correct for all levels of vibration. Other measures should be taken to isolate the camera from the source of the vibration or to seek a more rigid mounting location.

Pelco Analytics Behaviors

The Esprit Enhanced Series includes nine user-configurable behaviors. The camera is capable of running up to three behaviors simultaneously; although, the number of behaviors is limited to the available processing power of the camera and the type of analytic being used.

- **Abandoned Object**: Detects objects placed within a defined zone and triggers an alarm if the object remains in the zone longer than the user-defined time allows. 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 Detection**: 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.
- **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.
- **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 longer than the user-defined time allows. 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 ideal for airports curbside drop-offs, parking enforcement, suspicious parking, traffic lane breakdowns, and vehicles waiting at gates.

Illumination Options

Esprit Enhanced is available with options for IR illumination as well as Dual mode: IR and white light illumination. The vari-zoom IR illumination option dynamically matches the field of view of the camera and adapts in intensity to maintain consistent illumination across the range of zoom all the way out to 200 meters. The Dual Mode illumination option has both IR illumination as well as white light illumination that can be switched from one to the other with a click.
## Technical Specifications

### Camera/Optics

<table>
<thead>
<tr>
<th>Specification</th>
<th>ES6230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor Type</td>
<td>1/2.8-inch Type Exmor 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 – 4.7, focal length 4.3 mm (wide) – 129.0 mm (tele)</td>
</tr>
<tr>
<td>Horizontal Angle of View</td>
<td>63.7° (wide) – 2.3° (tele)</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Light Sensitivity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Color (33 ms) 0.03 lux</td>
</tr>
<tr>
<td></td>
<td>Color (250 ms) 0.008 lux</td>
</tr>
<tr>
<td></td>
<td>Mono (33 ms) 0.004 lux</td>
</tr>
<tr>
<td></td>
<td>Mono (250 ms) 0.001 lux</td>
</tr>
<tr>
<td>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</td>
<td></td>
</tr>
<tr>
<td>Day/Night Capabilities</td>
<td>Yes</td>
</tr>
<tr>
<td>Shutter Range</td>
<td>1/1 – 1/10,000 sec</td>
</tr>
<tr>
<td>Signal-to-Noise Ratio</td>
<td>&gt;50dB</td>
</tr>
<tr>
<td>IR Cut Filter</td>
<td>Yes</td>
</tr>
<tr>
<td>Wide Dynamic Range</td>
<td>130 dB</td>
</tr>
<tr>
<td>Iris Control</td>
<td>Auto Iris with manual override</td>
</tr>
<tr>
<td>Backlight Compensation</td>
<td>Yes</td>
</tr>
<tr>
<td>Automatic Gain Control</td>
<td>Yes</td>
</tr>
<tr>
<td>Active Noise Filtering</td>
<td>3D Noise Filtering</td>
</tr>
<tr>
<td>Electronic Image Stabilization (EIS)</td>
<td>Yes</td>
</tr>
<tr>
<td>IR Illumination Range</td>
<td>2 light option: Vari-Zoom up to 200 meter, Dual Mode 1 light option: Vari-Zoom up to 100 meter</td>
</tr>
<tr>
<td>IR Wavelength</td>
<td>850nm</td>
</tr>
<tr>
<td>White Light Illumination Range</td>
<td>Dual Mode 1 light option: Adjustable up to 250 meter (20% mean pixel value brightness increase in color mode)</td>
</tr>
</tbody>
</table>

### Video

- **Video Encoding**
  - H.264 High, Main, or Base profiles and MJPEG
- **Video Streams**
  - Up to 2 simultaneous streams; the second stream is variable based on the setup of the primary stream
- **Frame Rate**
  - Up to 60, 50, 30, 25, 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

<table>
<thead>
<tr>
<th>Resolution</th>
<th>H.264 High Profile (IP GOP structure)</th>
</tr>
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<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>800</td>
</tr>
<tr>
<td>0.23</td>
<td>640</td>
</tr>
<tr>
<td>1.23</td>
<td>1280</td>
</tr>
<tr>
<td>0.49</td>
<td>800</td>
</tr>
<tr>
<td>0.31</td>
<td>640</td>
</tr>
<tr>
<td>0.08</td>
<td>320</td>
</tr>
</tbody>
</table>

### Network

- **Interface**
  - Ethernet (100Base-TX)
  - Auto MDI/MDI-X
  - Auto-Negotiate
- **Ethernet Cabling Type**
  - Cat5e or better
- **SFP Interface**
  - Supports SFP Transceivers
- **Supported Protocols**
  - TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, IPv6*, SNMPv2c/v3, DoS, HTTP, HTTPS, SSH, SSL, SMTP, FTP, and 802.1x (EAP), NTCIP 1.205
- **Users**
  - Unicast: Up to 20 simultaneous users depending on resolution settings (2 guaranteed streams)
  - Multicast: Unlimited users H.264
- **Security Access**
  - Password protected, 802.1x, HTTPS
- **Software Interface**
  - Web browser view and setup
- **Pelco System Integration**
  - VideoXpert Enterprise and VideoXpert 2.0 or later
  - Endura 2.0 (or later)
  - Digital Sentry 7.3 (or later)
- **Open API**
  - Pelco API or ONVIF Profile S, Profile G, and Profile Q
- **Mobile Application**
  - Integrated to Pelco Mobile App
- **Video Motion Detection**
  - Simple motion detection and camera sabotage
- **Local Storage**
  - 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
- **SDXC Card**
  - Addressable up to 2TB

### Software Features

- 256 presets
- 16 tours
- ±0.1° preset accuracy
- Frame Scan (8 configurable scans)
- Patterns (8 recordable patterns, 5 minutes each)
- Multilingual Menus (English, Spanish, Portuguese, Italian, German, French, Russian, Turkish, Arabic, Chinese, and Korean)
- Password protection
- 32 Window Blanks, configurable in size, with 5 window blur options
- 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
- Image Defog modes

### Specimen

- **Resolution**
  - 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

- **SDXC Card**
  - Addressable up to 2TB

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*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.*
**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 10.0 (or later) or Firefox 3.5 (or later); Internet Explorer 8.0 (or later) is recommended for configuring analytics

*Supports mixed IPv4 and IPv6 installations, but not IPv6-only deployments.

**ANALYTICS**

- **Required Systems for Pelco Analytics**
  - Pelco Interface VideoXpert Enterprise and VideoXpert Pro 2.0 or later
  - WSS200 Advanced System Management Software on an Endura 2.0 (or later) system
  - The Pelco API can transmit behavior alarm data to third-party applications, available at pdn.pelco.com. ONVIF Analytic Service Support for Analytic Events.

**GENERAL**

- **Construction**: Die-cast, extruded and sheet aluminum; stainless steel hardware
- **Finish**: Gray polyester powder coat
- **Operating Temperature**: –45° to 60°C (–50° to 140°F) ambient for sustained system operation or 74°C (165.2°F) absolute maximum ambient per NEMA TS-2; within two hours after power-up, the entire unit can de-ice and be operational from a temperature of –25°C (–13°F). Cold start from –40°C.
- **Impact Resistance**: Metal housing meetings IK10, IOP window meets IK8, IOC window meets IK7
- **Wind**: Full Motion Control 0 to 65 knots (75 mph/120 kph) Limited Speed Control 65 to 78 knots (90 mph/145 kph) Survive 78 to 130 knots (150 mph/240 kph)
- **Storage Temperature**: –20° to 60°C (–4° to 140°F)
- **Operating Humidity**: Standard with IOP: 10 to 90% relative humidity (noncondensing) Standard with IOC: 10 to 100% relative humidity (condensing)

**ELECTRICAL**

- **Input Voltage**: HPoE, 24 VAC, 48 VDC
- **Mains**: 100 to 240 VAC
- **Voltage Range**: ±10%
- **Max Power Consumption**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>With Heaters</th>
<th>24 VAC</th>
<th>HPoE</th>
<th>48 VDC</th>
<th>Mains</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>72 VA</td>
<td>72 VA</td>
<td>72 VA</td>
<td>72 VA</td>
</tr>
<tr>
<td><strong>24 VAC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HPoE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>48 VDC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mains</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Heater and Defroster**: Thermostatically controlled
- **Electrical Connections**: 24 VAC, 48 VDC, 100 to 240 VAC
- **Alarms**: Four; Detects open or closed alarm state
  - Input: 3.5 VDC maximum, 3.5 mA maximum
  - Unsupervised: Detects open or closed alarm state
  - Supervised: Detects open and short alarm state with external 1K-ohm resistor
- **Relay Outputs**: Two; 30 VDC maximum, 1A maximum

**PRESSURIZED INTEGRATED OPTICS CARTRIDGE (IOC)**

- Pressurized to 10 psig, Nominal (Sea Level, 21°C [70°F])
- Internal Sensor for Pressure Reading
- Designed to IP67 Standards
- U.S. Patent D472,260

**MECHANICAL**

- **Variable Speed**: 0.1° to 140°
- **Preset Accuracy**: ±0.1°
- **Pan Movement**: 360° continuous pan rotation
- **Vertical Tilt**: Unobstructed +40° to –90°
- **Manual Pan/Tilt Speeds**
  - Pan: 0.1° to 80°/sec
  - Tilt: 0.1° to 40°/sec
- **Preset Speeds**: 140°/sec

**PHYSICAL**

- **Weight**
  - **Unit Weight**
    - Without Illuminator: 12.83 kg (28 lb)
    - With Illuminator: N/A
  - **Shipping Weight**
    - Without Illuminator: 16.7 kg (37 lb)
    - With Illuminator: N/A
    - With Wiper and IOP: 16.94 kg (37 lb)
    - With Wiper and IOC: 17.44 kg (38 lb)
  - **Effective Projected Area**
    - Without Illuminator: 193 inch²
    - With Illuminator: 243 inch²

**AUDIO**

- **Input/Output**: Line level/external microphone input; 600-ohm differential, 1V-p maximum signal level
- **Streaming**: Embedded audio
TECHNICAL SPECIFICATIONS

CERTIFICATIONS/RATINGS
- CE, Class A
- FCC, Class A
- KCC
- UL/cUL Listed
- C-Tick
- NEMA TS-2 (Temp.) para 2.2.7.3 - 2.2.7.7
- Meets NEMA Type 4X and IP66 Standards
- ONVIF Profile S
- ONVIF Profile G
- ONVIF Profile Q
- Shock test per IEC 60068-2-27 Ea
- Cisco® Medianet Media Services Proxy 2.0 compatible
- Vibration per IEC60068-2-6 Fc
- Shock test per IEC 60068-2-27 Ea
- Impact resistance of housing and glass was tested in accordance with
  IEC 62262

VALUES IN PARENTHESSES ARE INCHES; ALL OTHERS ARE CENTIMETERS.

OPTIONAL ACCESSORIES
- ES-BLADE-2 Package of 2 window wiper replacement blades
- ES-BLADE-10 Package of 10 window wiper replacement blades

VALUES IN PARENTHESSES ARE INCHES; ALL OTHERS ARE CENTIMETERS.
## Models

<table>
<thead>
<tr>
<th>Enclosure Type</th>
<th>Non IR</th>
<th>200m IR</th>
<th>IR + White Light</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HPoE, 24 VAC, 48 VDC</td>
<td>100 to 240 VAC</td>
<td>48 VDC</td>
</tr>
<tr>
<td>Standard</td>
<td>ES6230-02</td>
<td>ES6230-05</td>
<td>—</td>
</tr>
<tr>
<td>With Wiper</td>
<td>ES6230-12</td>
<td>ES6230-15</td>
<td>ES6230-12-R2</td>
</tr>
<tr>
<td>Pressurized and Wiper</td>
<td>ES6230-12P</td>
<td>ES6230-15P</td>
<td>ES6230-12P-R2</td>
</tr>
</tbody>
</table>

## Optional Mounts and Adapters

- **EPP2**: Esprit pedestal adapter; for use with PM20/PM2010 pedestal mount.
- **EWM**: Esprit wall mount.
- **EPM**: Pole mount adapter for use with EWM wall mount.
- **ECM101**: Corner mount adapter for use with EWM wall mount.
- **PM2000/PM2010**: Pedestal mount with cable feedthrough. For use with Esprit systems with EPP pedestal adapter plate.

## Recommended Power Supplies

- **MCS Series**: Multiple 24 VAC camera power supply, indoor.
- **WCS Series**: Single/multiple 24 VAC camera power supply, outdoor.
- **ECPS-48VDC-5A**: 48 VDC indoor power supply.
- **POE9OU1BT-EUK**: 90 W HPOE 802.3BT single port injector EU and UK power cord included.
- **POE9OU1BT-US**: 90 W HPOE 802.3BT single port injector US power cord included.
- **POE9OU1BT**: 90 W HPOE 802.3BT single port injector power cord not included.

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