ES40/ES41 Series Positioning System

ESPRIT® SE STANDARD AND PRESSURIZED MODELS

Product Features

- Receiver, Pan/Tilt, and Enclosure with Integrated Optics Package (IOP) or Pressurized Integrated Optics Cartridge (IOC), NTSC/PAL
- Day/Night, 540 TVL, Autofocus, 128X Wide Dynamic Range (WDR), Motion Detection, Image Enhancement, and Electronic Image Stabilization
- Integrated Window Wiper with Configurable Delay and Shut-Off (ES41 Models)
- Preset Positioning Accuracy ±0.1, Variable Speed Pan: 0.1° to 100°/Sec with Proportional Pan
- Window Blanking, Multishaped
- Internal Scheduling Clock
- On-Screen Compass, Tilt, and Zoom Display
- Autotracking
- Tilt Range of +36° to –85° from Horizontal
- Password Protection

Pelco’s ES40/ES41 Esprit® SE Positioning System features a receiver, pan/tilt, enclosure, and either an Integrated Optics Package (IOP) or a pressurized Integrated Optics Cartridge (IOC) in a single, easy-to-install system. Options include IOP or IOC models with or without wiper.

For a wide range of applications, the ES40/ES41 Series offers a high resolution, color/black-white camera (540 TVL) with an infrared cut filter, 432X zoom (36X optical, 12X digital), electronic image stabilization, and wide dynamic range. A powder-coated, aluminum construction makes the ES40/ES41 Series ideal for either indoor or outdoor applications. The system has an absolute maximum ambient temperature of 24°C (75.2°F) 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).

The ES40/ES41 Series variable pan and tilt speeds range from 0.1 to 40 degrees per second in manual pan mode, and 0.1 to 20 degrees per second in manual tilt. Pan preset and turbo speeds are 100 degrees per second in wind speeds of 80 kph (50 mph) and 50 degrees per second in the 145 kph (90 mph) wind-speed profile. Tilt preset speed is 30 degrees per second. The ES40/ES41 Series is capable of 360 degrees of continuous pan rotation. The tilt range allows for horizontal viewing of +36 to –85 degrees. There are 256 configurable preset positions with a preset accuracy of 0.1 degree.

The ES40P/ES41P system’s IOC contains dry nitrogen pressurized to 10 psig, which protects the environment inside the cartridge eliminating internal condensation and corrosion. Sensors strategically placed in the cartridge send an “Alert” message if changes in pressure, temperature, and humidity are beyond factory-set acceptable limits. The sensors also allow for instant on-screen display of temperature, pressure, and dew point. The IOC is factory assembled and installed in the ES40P/ES41P systems. All labor intensive procedures of setting up the camera, lens and charging the unit with dry nitrogen are eliminated. The miniature size of the cartridge decreases the future need for maintenance and increases the overall reliability of the pressurized unit.

The ES41 Series includes a window wiper. The wiper is completely integrated into the enclosure and does not interfere with the viewing range of the system. The wiper can be configured to delay between wipes and to automatically shut off after a specified period. The wiper design also allows for easy replacement of the wiper blade. A built-in heater, window defroster/defogger, sun shroud, and insulation blanket are standard features on the ES40/ES41 units, which also include open collector auxiliary outputs that function for two seconds before deactivating.

The systems are available with an input voltage of 24 VAC or with a selectable power source of 120/230 VAC. The ES40/ES41 Series also has a power-up recovery mode that allows the user to specify what operation the system will resume whenever the power is cycled.
TECHNICAL SPECIFICATIONS

ADDITIONAL PRODUCT FEATURES

- Deterrent Surveillance
- Integral Multiprotocol (Coaxitron®, RS-422 Pelco D and Pelco P Protocols) Receiver/Driver
- Digital Position and Zoom Control and Feedback Using Pelco D Protocol
- Integral Camera Enclosure
- Operational in 145 kph (90 mph) Winds, Can Withstand Wind Velocity up to 209 kph (130 mph)
- Pan Preset Speed: 100°/Sec in 80 kph (50 mph) Winds and 50°/Sec in 145 kph (90 mph) Winds
- Variable Scan Speeds (1° to 40°/Sec)
- Translator Boards for Selected Competitive Protocols
- Easy to Install: Quick and Simple Electrical Connections
- 24 VAC or 120/230 VAC Selectable
- Full Continuous-Duty Warranty
- 850 nm and 950 nm Active IR Illumination Focus Algorithms
- 256 Configurable Presets with Labels
- Auto, Frame, and Random Scan
- Configurable Power-Up Mode, Park, Manual Limit Stops (Pan), and Scan Limit Stops (Pan)
- Patterns: Up to 8, On-Screen, User-Defined Configurable Patterns; Includes Pan, Tilt, Zoom, and Preset Functions
- Proportional Pan/Tilt: Continually Decreases Pan/Tilt Speeds in Proportion to Depth of Zoom
- 8 Zones (configurable in size) Can Be Labeled with up to 20 Characters Each
- Window Blanking: Up to 8, Four-Sided, User-Defined Shapes
- 10-Inch Integrated Enclosure with Pre-Assembled IOP Camera
- Sun Shroud, Heater/Window Defroster, and Insulation All Standard
- 1 Auxiliary Output
- Electronic Image Stabilization
- Image Enhancement
- Multilingual Menus (English, Spanish, Portuguese, Italian, French, German, Russian, Polish, Turkish, Czech, and Asian language package: Chinese, Japanese, Korean)
- Software Update and Setup
- Configurable Locations of Labels and On-Screen Displays
- Configurable Zoom Speeds
- Low Lux Noise Reduction (reduces noise in low light)
- Autosensing Protocol (Coaxitron®, RS-422 Pelco P and Pelco D, Sensormatic®, Vicon®); Accepts Other Control Protocols with Optional Translator Card

PRESSURIZED INTEGRATED OPTICS CARTRIDGE (IOC)

- Pressurized to 10 psig, Nominal (Sea Level, 21°C [70°F])
- Internal Sensors for Temperature, Dew Point, and Pressure
- On-Screen Alert for High and Low Temperature, High and Low Pressure, and High Humidity
- 4 Alert On-Screen Display Modes
- 4 Acknowledge Modes
- Pressurized Relief Valve
- Meets IP67 Standards

ELECTRICAL

- Input Voltage: 24, 120, or 230 VAC, 50/60 Hz; switch selectable for 120/230 VAC inputs
- Input Voltage Range ±10%
- Power Consumption: Maximum 70 VA per system
- Heater and Defroster: Thermostatically controlled
- Electrical Connections: 2 power source connections made at mount location with wire splices and 1 ground wire splice, 1 BNC receptacle and 4 wire splices for open collector auxiliary output
- Aux 2: Open collector output with 2-second activation; connected relay must require no more than 32 VDC and 40 mA to energize relay coil; wire length between Esprit SE and relay must be less than 30 m (100 ft)

Video Coaxial Cable Wiring Distances

<table>
<thead>
<tr>
<th>Cable Type</th>
<th>Maximum Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG59/U</td>
<td>229 m (750 ft)</td>
</tr>
<tr>
<td>RG6/U</td>
<td>305 m (1,000 ft)</td>
</tr>
<tr>
<td>RG11/U</td>
<td>457 m (1,500 ft)</td>
</tr>
</tbody>
</table>

* Minimum cable requirements: 75-ohms impedance; all copper center conductor; all copper braided shield with 95% braid coverage.

MECHANICAL

- Pan Movement: 360° Continuous pan rotation
- Vertical Tilt: Unobstructed +36° to –85°
- Variable Pan/Tilt Speed
  - Pan: 0.1° to 40°/sec variable-speed operation, 100°/sec turbo
  - Tilt: 0.1° to 30°/sec variable-speed operation
- Preset Speeds
  - Pan: 100°/sec
  - Tilt: 30°/sec
- Camera Mounting: Integrated camera sled assembly
- Latches: One link-lock, No. 3 stainless-steel latch; can be secured with padlock (not supplied)
TECHNICAL SPECIFICATIONS

GENERAL
Construction  Die-cast, extruded and sheet aluminum; stainless steel hardware
Finish  Gray polyester powder coat
Viewing Window  5.84 mm (0.23”) thick, optically clear, polycarbonate with proprietary impact-resistant UV rated coating
Operating Temperature  –45° to 50°C (–50° to 122°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)
Operating Environment  Will remain operational in 145 kph (90 mph) wind conditions; withstands 209 kph (130 mph)
Operating Humidity
Unit  Standard with IOP: 5 to 95% relative humidity (noncondensing)
      Standard with IOC: 5 to 100% relative humidity (condensing)
Weight
Unit
Pedestal Adapter  Standard with IOP 9.0 kg (20 lb)  With Wiper and IOP 9.5 kg (21 lb)  Standard with IOC 9.5 kg (21 lb)  With Wiper and IOC 10.0 kg (22 lb)
Wall Mount  Standard with IOP 9.9 kg (22 lb)  With Wiper and IOP 10.4 kg (23 lb)  Standard with IOC 10.4 kg (23 lb)  With Wiper and IOC 11.0 kg (24 lb)
Shipping
Standard with IOP 11.3 kg (25 lb)  With Wiper and IOP 11.7 kg (26 lb)  Standard with IOC 11.7 kg (26 lb)  With Wiper and IOC 12.3 kg (27 lb)
CERTIFICATIONS/RATINGS/PATENTS
IOP MODELS
• CE, Class B
• FCC, Class B
• UL/cUL Listed
• C-Tick
• Meets NEMA Type 4X and IP66 standards
• NEMA TS-2 (Temp.) para 2.2.7.3 - 2.2.7.7
• U.S. Patents 340,940 and 5,224,675
IOC MODELS
• CE, Class B
• FCC, Class B
• UL/cUL Listed
• C-Tick
• Meets NEMA Type 4X and IP66 standards
• Meets IP67 standards (Pressurized IOC)
• NEMA TS-2 (Temp.) para 2.2.7.3 - 2.2.7.7
• U.S. Patent D472,260

CAMERA/OPTICS
Signal Format  NTSC, PAL
Scanning System  Progressive or 2.1 interface
Image Sensor  1/4-inch CCD
Effective pixels
NTSC  768 (H) x 494 (V)
PAL  752 (H) x 582 (V)
Horizontal Resolution
Lens  f/1.4 (focal length, 3.3 – 119 mm optical)
Zoom  36X optical, 12X digital
Zoom Speed (optical range)  3.2/4.6/6.6 seconds
Horizontal Angle of View  57.2° at 3.3 mm wide zoom;
1.7° at 119 mm telephoto zoom
Focus  Automatic with manual override
Maximum Sensitivity
  NTSC  90% scene reflectance; f/1.4; 27 dB gain;
  35 IRE (245 mV equivalent)
  0.018 lux at 1/2 sec shutter (color)
  0.015 lux at 1/5 sec shutter (color)
  0.0018 lux at 1/2 sec shutter (B-W)
  0.015 lux at 1/5 sec shutter (color)
  0.0015 lux at 1/1.5 sec shutter (B-W)
PAL  0.45 lux at 1/100 sec shutter (color)
  0.045 lux at 1/5 sec shutter (B-W)
  0.0015 lux at 1/1.5 sec shutter (B-W)
Sync System  AC line lock, phase adjustable using remote control, V-Sync
White Balance  Automatic with manual override
Shutter Speed  Automatic manual
  NTSC  1/2 ~ 1/30,000
  PAL  1/1.5 ~ 1/30,000
Iris Control  Automatic with manual override
Gain Control  Automatic/OFF
Video Output  1 Vp-p, 75 ohms
Video Signal-to-Noise Ratio  >50 dB
Electronic Image Stabilization  Integrated
Wide Dynamic Range  128X

VALUES IN PARENTHESES ARE INCHES; ALL OTHERS ARE CENTIMETERS.
### MODEL NUMBERS

#### MODELS

<table>
<thead>
<tr>
<th>Enclosure Type</th>
<th>Signal Format</th>
<th>Pedestal Mount*</th>
<th>Wall Mount†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24 VAC</td>
<td>120/230 VAC</td>
<td>24 VAC</td>
</tr>
<tr>
<td>Standard with IOP</td>
<td>NTSC</td>
<td>ES4036-2N</td>
<td>ES4036-2W</td>
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<tr>
<td></td>
<td>PAL</td>
<td>ES4036-5N</td>
<td>ES4036-5N-X</td>
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<tr>
<td>With Wiper with IOP</td>
<td>NTSC</td>
<td>ES4136-2N</td>
<td>ES4136-2W</td>
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<tr>
<td></td>
<td>PAL</td>
<td>ES4136-5N</td>
<td>ES4136-5N-X</td>
</tr>
<tr>
<td>Standard with IOC</td>
<td>NTSC</td>
<td>ES40P36-2N</td>
<td>ES40P36-2W</td>
</tr>
<tr>
<td></td>
<td>PAL</td>
<td>ES40P36-5N</td>
<td>ES40P36-5N-X</td>
</tr>
<tr>
<td>With Wiper with IOC</td>
<td>NTSC</td>
<td>ES41P36-2N</td>
<td>ES41P36-2W</td>
</tr>
<tr>
<td></td>
<td>PAL</td>
<td>ES41P36-5N</td>
<td>ES41P36-5N-X</td>
</tr>
</tbody>
</table>

*Pedestal mount models include Esprit EPP pedestal adapter plate. Use with PM2000/PM2010 mount (not supplied) for pedestal application.
† Wall mount models include Esprit EWM wall mount. Optional mounting adapters for corner, pole, and parapet applications are available.

#### REPLACEMENT INTEGRATED OPTICS PACKAGE (IOP)

The following IOP modules are replacement components only; they are not interchangeable.

- **ESIOP36**: Esprit high resolution day/night camera and lens module, 36X, NTSC format
- **ESIOP36-X**: Same as ESIOP36 except PAL format

#### REPLACEMENT PRESSURIZED INTEGRATED OPTICS CARTRIDGE (IOC)

The following IOC models are replacement components only; they are not interchangeable.

- **IOC-36**: Esprit high resolution day/night camera and lens module, 36X, NTSC format
- **IOC-36-X**: Same as IOC-36 except PAL format

#### OPTIONAL ACCESSORIES

- **ES-REPLBLADE-2**: Package of 2 window wiper replacement blades
- **ES-REPLBLADE-10**: Package of 10 window wiper replacement blades
- **IPS-RDPE-2**: Remote data port. 24 VAC, wall/pole mount video/data breakout box. Allows ground-level control/configuration when used with the IPS-CABLE
- **IPS-CABLE**: Kit consisting of the remote monitor interface cable and necessary software for use with a PC
- **TXB Series**: Translator boards for AD™ Manchester, Hurnia, Bosch® (Philips, Burle), Sensormatic®, TASS, Vicon®, and NTCIP protocols

#### OPTIONAL MOUNTS AND ADAPTERS

- **ECM100**: Corner mount adapter for use with EWM wall mount
- **EPM**: Pole mount adapter for use with EWM wall mount
- **EA4348**: EWM-to-Legacy adapter; use with PP4348 parapet 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

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