



# ES30PC/ES31PC Series Positioning System

## ESPRIT® WITH PRESSURIZED IOC AND OPTIONAL WIPER

### Product Features

- Receiver, Pan/Tilt, and Enclosure with Pressurized Integrated Optics Cartridge (IOC), NTSC/PAL
- All Components Factory Assembled and System Tested
- Pressurized Integrated Optics Cartridge Factory Charged to 10 psig
- Solid-State Sensors For Temperature, Pressure, and Dew Point
- On-Demand Environmental Status Display For Temperature, Pressure, and Dew Point
- On-Screen Multiple Fault Alert Modes
- On-Screen Compass, Tilt, and Zoom Display
- On-Screen Programmable Zone Blanking
- On-Screen Programmable Menus For Pan/Tilt, Camera, and Sensor Alert Settings
- All Standard Features of the Esprit® Positioning System

Pelco's **ES30PC/ES31PC** Esprit® Positioning System is optimally designed to protect camera optics and electronics from moisture and airborne contaminants. The system features a receiver, pan/tilt, enclosure, and a pressurized Integrated Optics Cartridge (IOC).

The **ES30PC/ES31PC** system's IOC packages an auto focus camera, lens, heater, and sensors in a small, self-contained, sealed unit. Dry nitrogen pressurized to 10 psig 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 **ES30PC/ES31PC** 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 **ES30PC** and **ES31PC** Series feature four models of pressurized IOCs. Models include a color camera (470 TVL) with a 16X zoom capability (16X optical, 10X digital); a high-resolution camera with LowLight™ color technology and 22X zoom (22X optical, 10X digital); a low light, high resolution day/night camera (520 TVL) with an infrared cut filter, and 24X zoom lens (24X optical, 10X digital); and a low light, high resolution day/night camera (540 TVL) with an infrared cut filter, 35X zoom lens (35X optical, 12X digital), and electronic image stabilization.



A powder-coated, aluminum construction makes the **ES30PC** and **ES31PC** ideal for either indoor or outdoor applications. The system has an absolute operating temperature range of -50° to 140°F (-45° to 50°C). Within two hours after power-up, the entire unit can de-ice and be operational from a temperature of -13°F (-25°C).

The **ES31PC Series** has a window wiper completely integrated into the enclosure and designed not to interfere with the viewing range of the system. The wiper can be programmed to delay between wipes and to shut off automatically after a specified period. The wiper design also allows for easy replacement of the wiper blade.

The **ES30PC** and **ES31PC** 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 up to 50 mph and 50 degrees per second in the 90 mph wind-speed profile. Tilt preset speed is 30 degrees per second. The **ES30PC** and **ES31PC** are capable of 360 degrees of continuous pan rotation. The tilt range allows for horizontal viewing of +33 to -83 degrees. There are 64 programmable preset positions with a preset accuracy of one-quarter degree.

The systems are available with an input voltage of 24 VAC or with a selectable power source of 120/230 VAC. The **ES30PC** and **ES31PC** also have a power-up recovery mode that allows the user to specify what operation the system will resume whenever the power is cycled.



C311 / REVISED 11-07

IP66 IP67



U.S. Patent D472,260

International Standards  
Organization Registered Firm;  
ISO 9001 Quality System



# 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
- Variable Speed 0.1 to 100°/Sec
- 360° Continuous Pan Rotation
- +33° to -83° Tilt Range
- Operational in 90 mph Winds, Can Withstand Wind Velocity up to 130 mph
- Pan Preset Speed of 100°/Sec in 50 mph Winds and 50°/Sec in 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
- Designed for Minimal Maintenance, No Gears to Adjust
- Full Continuous-Duty Warranty
- 850 nm and 950 nm Active IR Illumination Focus Algorithms (24X and 35X models only)

## SOFTWARE/HARDWARE

- 64 Programmable Presets with Labels
- Auto, Frame, and Random Scan
- Programmable Power-up Mode
- Programmable Park
- Programmable Manual Limit Stops (Pan)
- Programmable Scan Limit Stops (Pan)
- Patterns
- Proportional Pan/Tilt
- 8 Zones (programmable in size) Can Be Labeled with up to 20 Characters Each and Set to Output Blank Video
- 10-Inch Integrated Enclosure with Pre-Assembled, Pressurized IOC
- Sun Shroud, Heater/Window Defroster, and Insulation All Standard
- 1 Auxiliary Output
- Integrated Window Wiper with Programmable Delay and Shut-Off (ES31PC Models)

## PRESSURIZED INTEGRATED OPTICS CARTRIDGE (IOC)

- Pressurized to 10 psig, Nominal (Sea Level, 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/Defroster	Digital temperature control
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 at mount location for RS-422 Pelco D and Pelco P protocols; 2 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 and relay must be less than 100 ft (30 m)

Video Coaxial Cable  
Max. Wiring Distances

Cable Type*	Maximum Distance
RG59/U	750 ft (229 m)
RG6/U	1,000 ft (305 m)
RG11/U	1,500 ft (457 m)

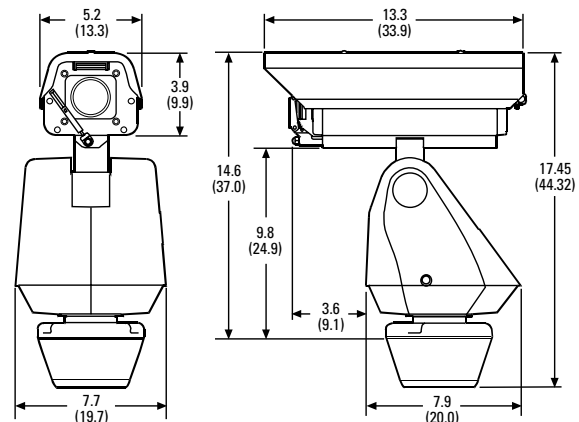
\*Minimum cable requirements:  
75-ohms impedance; all-copper center conductor; all copper braided shield with 95% braid coverage

## MECHANICAL

Pan Movement	360° Continuous pan rotation
Vertical Tilt	Unobstructed +33° to -83°
Variable Pan/Tilt Speed	
Pan	0.1° to 40°/sec variable-speed operation, 100°/sec Turbo
Tilt	0.1° to 20°/sec variable-speed operation
Preset Speeds	
Pan	100°/sec
Tilt	30°/sec
Camera Mounting	Replaceable pressurized cartridge
Latches	1 link-lock, No. 3 stainless-steel latch; can be secured with padlock (not supplied)

## GENERAL

Construction	Die-cast, extruded and sheet aluminum; stainless steel hardware	
Finish	Gray polyester powder coat	
Viewing Window	0.23" (5.84 mm) thick, optically clear tempered glass	
Operating Temperature	-50° to 122°F (-45° to 50°C) for sustained system operation or 140°F (60°C) absolute maximum. Within two hours after power-up, the entire unit can de-ice and be operational from a temperature of -13°F (-25°C).	
Operating Environment	Will remain operational in 90 mph wind conditions; withstands 130 mph	
Weight	With Pedestal Adapter	With Wall Mount
Unit		
Standard w/IOC	21 lb (9.5 kg)	23 lb (10.4 kg)
With Wiper and IOC	22 lb (10 kg)	24 lb (11 kg)
Shipping		
Standard w/IOC	26 lb (11.7 kg)	29 lb (13.1 kg)
With Wiper and IOC	27 lb (12.3 kg)	30 lb (13.6 kg)



NOTE: VALUES IN PARENTHESES ARE CENTIMETERS;  
ALL OTHERS ARE INCHES.

# TECHNICAL SPECIFICATIONS

## CERTIFICATIONS/RATINGS/PATENTS

- CE, Class B
  - UL Listed
  - UL Listed to Canadian safety standards
  - FCC, Class B (NTSC models)
  - U.S. Patent D472,260
- Meets the following standards:
- NEMA Type 4X (Pan/Tilt and Enclosure)
  - IP66 (Pan/Tilt and Enclosure)
  - IP67 (Pressurized Integrated Optics Cartridge [IOC])

## CAMERA/OPTICS

	Day/Night (35X)	Day/Night (24X)	Color, LowLight (22X)	Color, LowLight (16X)
Signal Format	NTSC, PAL	NTSC, PAL	NTSC, PAL	NTSC, PAL
Scanning System	Progressive	2:1 Interlace	2:1 Interlace	2:1 Interlace
Image Sensor	1/4-inch EXview HAD™ CCD	1/4-inch CCD	1/4-inch EXview HAD CCD	1/4-inch interline transfer CCD
Effective pixels	768 (H) x 494 (V)	768 (H) x 494 (V)	768 (H) x 494 (V)	768 (H) x 494 (V)
NTSC	752 (H) x 582 (V)	724 (H) x 582 (V)	752 (H) x 582 (V)	752 (H) x 582 (V)
PAL				
Horizontal Resolution	>540 TV lines	>520 TV lines	>470 TV lines	470 TV lines
NTSC	>540 TV lines	>520 TV lines	>460 TV lines	460 TV lines
PAL				
Lens	f/1.4 (focal length, 3.4~119 mm optical)	f/1.2 (focal length, 3.8~91.2 mm optical)	f/1.6 (focal length, 4~88 mm optical)	f/1.4 (focal length, 4~64 mm optical)
Zoom	35X optical, 12X digital	24X optical, 10X digital	22X optical, 10X digital	16X optical, 10X digital
Zoom Speed (optical range)	3.2 /4.6/6.6 seconds	3.9 seconds	3.9 seconds	3.6 seconds
Horizontal Angle of View	55.8° at 3.4 mm wide zoom; 1.7° at 119 mm telephoto zoom	50.7° at 3.8 mm wide zoom; 2.3° at 91.2 mm telephoto zoom	47.3° at 4.0 mm wide zoom; 2.2° at 88 mm telephoto zoom	43° at 4.0 mm wide zoom; 3° at 64 mm telephoto zoom
Focus	Automatic with manual override	Automatic with manual override	Automatic with manual override	Automatic with manual override
Maximum Sensitivity @ 35 IRE				
NTSC	0.55 lux at 1/60 sec shutter ( <b>color</b> ) 0.063 lux at 1/4 sec shutter ( <b>color</b> ) 0.00018 lux at 1/2 sec shutter ( <b>B-W</b> )	0.005 lux at 1/2 sec shutter ( <b>color</b> ) 0.015 lux at 1/60 sec shutter ( <b>B-W</b> ) 0.0005 lux at 1/2 sec shutter ( <b>B-W</b> )	0.02 lux at 1/2 sec shutter	0.05 lux at 1/2 sec shutter
PAL	0.50 lux at 1/50 sec shutter ( <b>color</b> ) 0.062 lux at 1/3 sec shutter ( <b>color</b> ) 0.00014 lux at 1/1.5 sec shutter ( <b>B-W</b> )	0.005 lux at 1/1.5 sec shutter ( <b>color</b> ) 0.015 lux at 1/50 sec shutter ( <b>B-W</b> ) 0.0005 lux at 1/1.5 sec shutter ( <b>B-W</b> )	0.02 lux at 1/1.5 sec shutter	0.05 lux at 1/1.5 sec shutter
Sync System	Internal/AC line lock, phase adjustable using remote control, V-Sync	Internal/AC line lock, phase adjustable using remote control, V-Sync*	Internal/AC line lock, phase adjustable using remote control, V-Sync*	Internal/AC line lock, phase adjustable using remote control, V-Sync*
White Balance	Automatic with manual override	Automatic with manual override*	Automatic with manual override*	Automatic with manual override*
Shutter Speed	Automatic (electronic iris)/Manual 1/2~1/30,000	Automatic (electronic iris)/Manual 1/2~1/30,000*	Automatic (electronic iris)/Manual 1/2~1/30,000*	Automatic (electronic iris)/Manual 1/2~1/30,000*
NTSC	1/1.5~1/30,000	1/1.5~1/30,000*	1/1.5~1/30,000*	1/1.5~1/30,000*
PAL				
Iris Control	Automatic with manual override	Automatic iris control with manual override*	Automatic iris control with manual override*	Automatic iris control with manual override*
Gain Control	Automatic/OFF*	Automatic/OFF*	Automatic/OFF*	Automatic with manual override*
Video Output	1 Vp-p, 75 ohms	1 Vp-p, 75 ohms	1 Vp-p, 75 ohms	1 Vp-p, 75 ohms
Video Signal-to-Noise	>50 dB	>50 dB	>50 dB	>46 dB
Electronic Image Stabilization	Integrated	—	—	—

\*Manual control of camera setup functions can be done with CM6700, CM6800, CM8500, CM9500, CM9700 Series, KBD200A, KBD300A, and MPT9500 controllers, but not with CM7500, MPT9000 or KBD9000 controllers.

# MODEL NUMBERS

## MODELS

Model		Format	Pedestal Mount*		Wall Mount**	
			24 VAC	120/230 VAC	24 VAC	120/230 VAC
<b>16X Color</b>	Standard	NTSC PAL	ES30PC16-2N ES30PC16-2N-X	ES30PC16-5N ES30PC16-5N-X	ES30PC16-2W ES30PC16-2W-X	ES30PC16-5W ES30PC16-5W-X
	With Wiper	NTSC PAL	ES31PC16-2N ES31PC16-2N-X	ES31PC16-5N ES31PC16-5N-X	ES31PC16-2W ES31PC16-2W-X	ES31PC16-5W ES31PC16-5W-X
<b>22X Color</b>	Standard	NTSC PAL	ES30PC22-2N ES30PC22-2N-X	ES30PC22-5N ES30PC22-5N-X	ES30PC22-2W ES30PC22-2W-X	ES30PC22-5W ES30PC22-5W-X
	With Wiper	NTSC PAL	ES31PC22-2N ES31PC22-2N-X	ES31PC22-5N ES31PC22-5N-X	ES31PC22-2W ES31PC22-2W-X	ES31PC22-5W ES31PC22-5W-X
<b>24X Day/ Night</b>	Standard	NTSC PAL	ES30PCBW24-2N ES30PCBW24-2N-X	ES30PCBW24-5N ES30PCBW24-5N-X	ES30PCBW24-2W ES30PCBW24-2W-X	ES30PCBW24-5W ES30PCBW24-5W-X
	With Wiper	NTSC PAL	ES31PCBW24-2N ES31PCBW24-2N-X	ES31PCBW24-5N ES31PCBW24-5N-X	ES31PCBW24-2W ES31PCBW24-2W-X	ES31PCBW24-5W ES31PCBW24-5W-X
<b>35X Day/ Night</b>	Standard	NTSC PAL	ES30PCBW35-2N ES30PCBW35-2N-X	ES30PCBW35-5N ES30PCBW35-5N-X	ES30PCBW35-2W ES30PCBW35-2W-X	ES30PCBW35-5W ES30PCBW35-5W-X
	With Wiper	NTSC PAL	ES31PCBW35-2N ES31PCBW35-2N-X	ES31PCBW35-5N ES31PCBW35-5N-X	ES31PCBW35-2W ES31PCBW35-2W-X	ES31PCBW35-5W ES31PCBW35-5W-X

\*Pedestal mount models include Esprit EPP pedestal adapter.

\*\*Wall mount models include Esprit EWM wall mount.

## REPLACEMENT PRESSURIZED INTEGRATED OPTICS CARTRIDGE (IOC)

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

IOC-C16	Esprit high resolution color camera and lens module, 16X, NTSC format
IOC-C16-X	Same as IOC-C16 except PAL format
IOC-C22	Esprit high resolution color camera and lens module, 22X, NTSC format
IOC-C22-X	Same as IOC-C22 except PAL format
IOC-CBW24	Esprit high resolution day/night camera and lens module, 24X, NTSC format
IOC-CBW24-X	Same as IOC-CBW24 except PAL format
IOC-CBW35	Esprit high resolution day/night camera and lens module, 35X, NTSC format
IOC-CBW35-X	Same as IOC-CBW35 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

## RELATED PRODUCTS

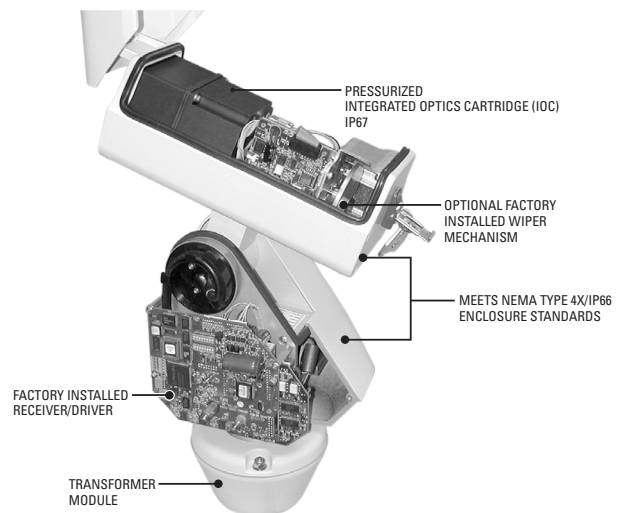
IPS-RDPE-2	Remote data port. 24 VAC, wall/pole mount video/data breakout box. Allows ground-level control/programming when used with the IPS-RMK. (No code upload.)
IPS-RMK	Remote monitor kit. Includes TFT-LCD monitor, PDA handheld, cables, and carrying case. Allows viewing of camera video, local PTZ control, and system setup.
TXB Series	Translator boards for AD™ Manchester, Hermis, Bosch® (Philips, Burle), Sensomatic®, TASS, Vicon™, and NTCIP protocols.

## RECOMMENDED MOUNTS

Esprit Series	Includes mounts for wall, pedestal, corner, parapet, and pole applications.
PM2000/PM2010	Pedestal mount with cable feedthrough. For use with Esprit systems with 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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