Spectra® IV IP Series Network Dome System
H.264, DIGITAL PAN/TILT/ZOOM HIGH-SPEED DOME

Product Features

- Ability to Control and Monitor Video Over IPv4 and IPv6 Networks
- Simultaneous IP and Analog Video and Control
- H.264, MPEG-4, and MJPEG Compression
- Supported Protocols: TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, SNMP, GoS, HTTP, HTTPS, LDAP (client), SSH, SSL, SMTP, FTP, and 802.1x (EAP)
- Multilevel Password Protection
- 3 Autofocus, High Resolution Integrated Camera/Optics Packages
- Autotracking
- Horizontal Zone and Window Blanking
- Sensitivity Down to 0.0015 Lux PAL (36X Models)
- On-Screen Compass and Tilt Display
- Up to 2 Simultaneous Video Streams
- Web Viewing
- Open IP Standards
- ONVIF v1.02 Conformant
- Bidirectional Full-Duplex Audio

Spectra® IV IP dome systems incorporate all of the features and functions of Spectra IV (including analog), while allowing you to control and monitor video over an IP network from virtually anywhere in the world. Spectra IV IP is a high-speed dome with a built-in 100Base-TX network interface for live streaming to any network application.

Spectra IV IP supports two simultaneous video streams. The two streams can be compressed in MJPEG, MPEG-4, and H.264 formats across several resolution configurations. The streams can be configured in a variety of frame rates, bit rates, and group of pictures (GOP) structures for additional bandwidth administration. The H.264 compression video files are up to 20 times smaller than MJPEG, making network video storage more affordable.

Spectra IV IP allows you to view and control analog video while viewing, recording, and controlling network IP video. There is no need to abandon your current analog infrastructure if you are making the move to network video as a recording solution. Continue to monitor and control video in the analog domain while recording video in the network domain, and let Spectra IV IP’s professional compression method do the work for you without the need for external encoders.

Spectra IV IP dome system consists of a back box, a dome drive, and a lower dome. These three system components are interchangeable with other Spectra IV IP dome systems, making retrofitting and application adjustments simple.

Spectra IV IP features several back box options. All back boxes feature built-in memory, which can be used to store camera and location-specific dome settings, including labels, presets, patterns, and zones.

All cameras in Spectra IV IP dome drives feature an EXview HAD™ imager for increased sensitivity and LowLight™ technology allowing the cameras to compensate for scenes where minimal light is present. Both the 29X and the 36X cameras feature built-in motion detection and advanced 128X wide dynamic range (WDR) that enables the system to compensate for scenes where dramatic contrasts in lighting are present. The 36X day/night camera’s electronic image stabilization digitally reduces blurring of the camera image due to vibration caused by external sources, such as wind and traffic.

Web Interface
Spectra IV IP uses a standard Web browser for powerful remote setup and administration.

Network protocols such as Secure Sockets Layer (SSL) configuration for security certificates, Secure Shell (SSH) for remote logon, and Quality of Service (QoS) for priority or guarantee data flow can be managed using a Web browser.

Video Systemization
Spectra IV IP easily connects to Pelco IP and hybrid systems such as Endura® version 1.5 (or later), MPEG-4; Endura version 2.0 (or later), H.264; Digital Sentry® version 7.3 (or later); DX8100 version 2.0 (or later); DX4700/DX4800 Series 1.1 (or later); DX4700HD/DX4800HD Series v2.0 (or later); and DVR5100 version 1.5.4 (or later). The camera also features open architecture connectivity to third-party software. Pelco offers an application programming interface (API) and software developer’s kit (SDK) for interfacing with Pelco’s IP cameras.
## TECHNICAL SPECIFICATIONS

### CAMERA/OPTICS

<table>
<thead>
<tr>
<th></th>
<th>Day/Night (36X)</th>
<th>Day/Night (29X)</th>
<th>Day/Night (23X)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Signal Format</strong></td>
<td>NTSC (DD436)</td>
<td>NTSC (DD429)</td>
<td>NTSC (DD423)</td>
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<tr>
<td></td>
<td>PAL (DD436-X)</td>
<td>PAL (DD429-X)</td>
<td>PAL (DD423-X)</td>
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<tr>
<td><strong>Image Sensor</strong></td>
<td>768 (H) X 494 (V)</td>
<td>768 (H) X 494 (V)</td>
<td>768 (H) X 494 (V)</td>
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<tr>
<td></td>
<td>752 (H) X 582 (V)</td>
<td>752 (H) X 582 (V)</td>
<td>752 (H) X 582 (V)</td>
</tr>
<tr>
<td><strong>Horizontal Resolution</strong></td>
<td>&gt;540 TV Lines</td>
<td>&gt;540 TV Lines</td>
<td>540 TV Lines</td>
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<tr>
<td><strong>Zoom</strong></td>
<td>f/1.4 (focal length, 3.3 ~ 119 mm)</td>
<td>f/1.4 (focal length, 3.3 ~ 95.7 mm)</td>
<td>1/1.6 (focal length, 3.6 ~ 82.8 mm)</td>
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<tr>
<td><strong>Zoom Speed (optical range)</strong></td>
<td>3.2/4.6/6.6 seconds</td>
<td>3.2/4.6/6.6 seconds</td>
<td>2.9/4.2/5.8 seconds</td>
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<tr>
<td><strong>Maximum Sensitivity</strong></td>
<td>0.55 lux at 1/60 sec (color)</td>
<td>0.55 lux at 1/60 sec (color)</td>
<td>0.55 lux at 1/60 sec (color)</td>
</tr>
<tr>
<td></td>
<td>0.18 lux at 1/2 sec (color)</td>
<td>0.18 lux at 1/2 sec (color)</td>
<td>0.18 lux at 1/2 sec (color)</td>
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<tr>
<td></td>
<td>0.055 lux at 1/60 sec (B-W)</td>
<td>0.055 lux at 1/60 sec (B-W)</td>
<td>0.055 lux at 1/60 sec (B-W)</td>
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<tr>
<td></td>
<td>0.0018 lux at 1/2 sec (B-W)</td>
<td>0.0018 lux at 1/2 sec (B-W)</td>
<td>0.0018 lux at 1/2 sec (B-W)</td>
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<tr>
<td><strong>Video Output</strong></td>
<td>1 Vp-p, 75 ohms</td>
<td>1 Vp-p, 75 ohms</td>
<td>1 Vp-p, 75 ohms</td>
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<tr>
<td><strong>Video Signal-to-Noise</strong></td>
<td>&gt;50 dB</td>
<td>&gt;50 dB</td>
<td>&gt;50 dB</td>
</tr>
<tr>
<td><strong>White Balance</strong></td>
<td>Automatic/AC line lock, phase adjustable using remote control, V-Sync</td>
<td>Automatic/AC line lock, phase adjustable using remote control, V-Sync</td>
<td>Automatic/AC line lock, phase adjustable using remote control, V-Sync</td>
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<tr>
<td><strong>Video Motion Detection</strong></td>
<td>Integrated/Selective</td>
<td>Integrated/Selective</td>
<td>Integrated/Selective</td>
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<tr>
<td></td>
<td>1/2 ~ 1/30,000</td>
<td>1/2 ~ 1/30,000</td>
<td>1/2 ~ 1/30,000</td>
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<tr>
<td><strong>Video Output</strong></td>
<td>1 Vp-p, 75 ohms</td>
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<td>1 Vp-p, 75 ohms</td>
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<tr>
<td><strong>Video Signal-to-Noise</strong></td>
<td>&gt;50 dB</td>
<td>&gt;50 dB</td>
<td>&gt;50 dB</td>
</tr>
<tr>
<td><strong>Wide Dynamic Range</strong></td>
<td>128X</td>
<td>128X</td>
<td>128X</td>
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<tr>
<td><strong>Electronic Image Stabilization</strong></td>
<td>Integrated/Selective</td>
<td>—</td>
<td>—</td>
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<tr>
<td><strong>Auto Sharpness</strong></td>
<td>Integrated/Selective</td>
<td>Integrated/Selective</td>
<td>Integrated/Selective</td>
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<tr>
<td><strong>Video Motion Detection</strong></td>
<td>Integrated</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>
**VIDEO**

**Video Encoding**
H.264 base profile, MPEG-4, 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 30, 25, 15, 12.5, 12, 10, 8, 7.5, 6, 5, 4, 3, 2, 1 (dependent upon coding, resolution, and stream configuration)

**Available Resolutions**

<table>
<thead>
<tr>
<th>Resolution</th>
<th>MJPEG</th>
<th>H.264 Base Profile</th>
<th>MPEG-4</th>
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<td>480</td>
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<td>352</td>
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<td></td>
</tr>
<tr>
<td>704</td>
<td>576</td>
<td>PAL</td>
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</tbody>
</table>

**Supported Protocols**
TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, IPv6*, SNMP, QUIC, HTTP, HTTPS, LDAP (client), SSH, SSL, SMTP, FTP, and 802.1x (EAP)

**Users**

- **Unicast**
  Up to 20 simultaneous users depending on resolution settings (2 guaranteed streams)

- **Multicast**
  Unlimited users H.264 or MPEG-4

**Security Access**
Password protected

**Software Interface**
Web browser view and setup

**Pelco System Integration**
Endura 1.5 or later (MPEG-4) or Endura 2.0 or later (H.264); Digital Sentry 7.3 IP bundle 3 or later; DX8100 Series 2.0 or later; DX4700/DX4800 Series 1.1 or later; DX4700HD/DX4800HD Series v2.0 or later; and DVR5100 version 1.5.4 or later

**Open API**
Pelco API or ONVIF v1.02

**Minimum System Requirements**

- **Processor**
  Intel® Pentium® 4 microprocessor, 1.6 GHz

- **Operating System**
  Microsoft® Windows® XP, Windows Vista®, Windows 7, or Mac® OS X 10.4 (or later)

- **Memory**
  512 MB 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® 7.0 (or later) or Mozilla® Firefox® 3.0 (or later)

- **Media Player†**
  Pelco Media Player or QuickTime® 7.6.5 for Windows XP, Windows Vista, or QuickTime 7.6.4 for Mac OS X 10.4

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*Supports mixed IPv4 and IPv6 installations, but not IPv6-only deployments.
†This product is not compatible with QuickTime version 7.6.4 for Windows XP or Windows Vista. If you have this version installed on your PC, you will need to upgrade to QuickTime version 7.6.5.*
DOME DRIVE FEATURES

36X and 29X Models

- 256 Presets
- ±0.1° Preset Accuracy
- Electronic Image Stabilization (36X model)
- Auto Sharpness
- Multilingual Menus (English, Spanish, Portuguese, Italian, French, German, Russian, Polish, Turkish, and Czech)
- RJ-45 Data Port for Software Update and Setup
- On-Screen Compass, Tilt, and Zoom Display
- Password Protection
- 400°/sec Pan Preset Speed and 200°/sec Tilt Preset Speed
- Rotating Discreet Liner with Sealed Fixed Bubble
- Window Blanking: Up to 8, Four-Sided, User-Defined Shapes
- 8 Zones (configurable in size) Can Be Labeled with up to 20 Characters Each or Set to Output Blank Video
- 7 Alarm Inputs
- 1 Auxiliary (Form C) Relay Output and 1 Open Collector Auxiliary Output (can be alternately configured to operate upon alarm)
- Configurable Locations of Labels and On-Screen Displays
- Action on Alarm: Alarms Can Be Individually Configured for 3 Priority Levels, to Initiate a Stored Pattern, or to Go to an Associated Preset When Received
- Resume After Alarm: Allows the Dome to Return to a Previously Configured State After Alarm Acknowledgement or to its Previous Position Before Alarm
- Multiple Park and Power-Up Action
- 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
- Variable Scan Speed: Scan Speed Can Be Configurable Between 1 to 40°/sec
- Pan Motion Allows 0.1° to 150°/sec Pan Speed
- Configurable Limit Stops for Auto/Random/Frame Scan Modes
- Autosensing Protocol (Coaxitron®, RS-422 Pelco P and Pelco D, Sensormatic®, Vicon®); Accepts Other Control Protocols with Optional Translator Card
- Digital Position and Zoom Control and Feedback Through Pelco D Protocol
- Built-in Menu System for Setup of Configurable Functions
- “Auto Flip” Rotates Dome 180° at Bottom of Tilt Travel
- Configurable Zoom Speeds
- Freeze Frame During Presets

23X Models

- 64 Presets
- ±0.1° Preset Accuracy
- Multilingual Menus (English, Spanish, Portuguese, Italian, French, German, Russian, Polish, Turkish, and Czech)
- RJ-45 Data Port for Software Update and Setup
- On-Screen Compass, Tilt, and Zoom Display
- Password Protection
- 400°/sec Pan Preset Speed and 200°/sec Tilt Preset Speed
- Rotating Discreet Liner with Sealed Fixed Bubble
- Window Blanking: Up to 4, Four-Sided, User-Defined Shapes
- 8 Zones (configurable in size) Can Be Labeled with up to 20 Characters Each or Set to Output Blank Video
- 1 Alarm Input
- 1 Auxiliary (Form C) Relay Output
- Configurable Locations of Labels and On-Screen Displays
- Patterns: 1 On-Screen, User-Defined Configurable Pattern; Includes Pan, Tilt, Zoom, and Preset Functions
- Proportional Pan/Tilt: Continually Decreases Pan/Tilt Speeds in Proportion to Depth of Zoom
- Variable Scan Speed: Scan Speed Can Be Configurable Between 1 to 40°/sec
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- Built-in Menu System for Setup of Configurable Functions
- “Auto Flip” Rotates Dome 180° at Bottom of Tilt Travel
- Freeze Frame During Presets
**BACK BOX FEATURES**

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

**In-Ceiling (Indoor)**
- Built-in Memory Stores Camera/Dome Settings
- Single Back Box for Suspended or Hard Ceiling Applications
- Requires 13.35 cm (5.25 in.) Space Above Ceiling and 8.25 cm (3.25 in.) Below
- Minimum Ceiling Thickness 1.27 cm (0.50 in.); Maximum 4.45 cm (1.75 in.)
- Quick Disconnect to Dome Drive
- Aluminum Construction
- Suitable for Use in Environmental Air Handling Spaces

**Standard and Environmental Pendant**
- Standard and Environmental Models
- Built-in Memory Stores Camera/Dome Settings
- Standard Pendant Available in Black or Gray Finish; Environmental Pendant Gray Finish Only
- Quick Disconnect to Dome Drive
- Aluminum Construction
- Environmental Model Includes Sun Shield, Fan, and Heater

**Environmental In-Ceiling**
- Built-in Memory Stores Camera/Dome Settings
- Single Back Box for Hard Ceiling Applications
- Requires 11.18 cm (4.40 in.) Space Above Ceiling and 10.92 cm (4.30 in.) Below
- Includes Heater and Fan
- Minimum Ceiling Thickness 1.27 cm (0.50 in.); Maximum 4.45 cm (1.75 in.)
- Quick Disconnect to Dome Drive
- Aluminum Construction
TECHNICAL SPECIFICATIONS

BACK BOX FEATURES

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

Heavy-Duty In-Ceiling (Indoor)
Available only with 29X and 36X models
- Built-in Memory Stores Camera/Dome Settings
- Single Back Box for Hard Ceiling Applications
- Requires 13.35 cm (5.25 in.) Space Above Ceiling and 8.25 cm (3.25 in.) Below
- Quick Disconnect to Dome Drive
- Reinforced Mounting System
- Heavy-Duty Polycarbonate Dome Bubble
- Aluminum Trim Ring with Barrel-Type Key Locks
- Optional Protective Cage

Heavy-Duty Pendant
Available only with 29X and 36X models
- Standard and Environmental Models
- Built-in Memory Stores Camera/Dome Settings
- Quick Disconnect to Dome Drive
- Dual Wall Construction
- Heavy-Duty Polycarbonate Dome Bubble
- Aluminum Trim Ring with Barrel-Type Key Locks
- Optional Protective Cage
- Environmental Model Includes Sun Shield, Fan, and Heater

Stainless Steel Pendant
Available only with 29X and 36X models
- Standard and Environmental Models
- Built-in Memory Stores Camera/Dome Settings
- Quick Disconnect to Dome Drive
- All Stainless Steel Construction
- Includes Sun Shield, Fan, and Heater
TECHNICAL SPECIFICATIONS

GENERAL

Construction
Back Box
In-Ceiling Aluminum
Pendant Aluminum
Heavy-Duty Aluminum
Stainless Steel 316 stainless steel; gray, polyurethane powder coated finish
Dome Drive Aluminum, thermo plastic
Lower Dome
In-Ceiling Acrylic
Pendant Acrylic
Heavy-Duty Polycarbonate, 0.09-inch thick
Stainless Steel Acrylic

Light Attenuation
Smoked f/0.5 light loss
Clear Zero light loss
Chrome f/2.0 light loss
Gold f/2.0 light loss

Cable Entry (back box)
In-Ceiling 0.75-inch conduit fitting
Pendant Through 1.5-inch NPT pendant mount

Weight (approximate)
In-Ceiling 2.4 kg (5.2 lb) 3.6 kg (7.9 lb)
Environmental In-Ceiling 2.8 kg (6.2 lb) 4.5 kg (9.9 lb)
Standard Pendant 3.0 kg (6.5 lb) 5.0 kg (11.0 lb)
Environmental Pendant 3.5 kg (7.6 lb) 5.4 kg (11.9 lb)
Heavy-Duty In-Ceiling 3.3 kg (7.3 lb) 5.4 kg (11.9 lb)
Heavy-Duty Pendant* 4.5 kg (9.8 lb) 7.3 kg (16.1 lb)
Heavy-Duty Environmental Pendant* 4.5 kg (9.8 lb) 7.3 kg (16.1 lb)
Stainless Steel 4.6 kg (10.1 lb) 7.3 kg (16.1 lb)

Environment
In-Ceiling Indoor
Environmental In-Ceiling Outdoors
Standard Pendant Indoor
Environmental Pendant Indoor/outdoor
Heavy-Duty In-Ceiling Indoor
Heavy-Duty Pendant, Standard & Environmental Indoor/outdoor
Stainless Steel Indoor/outdoor

Operating Temperature
In-Ceiling 0° to 50°C (32° to 122°F)
Standard Pendant ( Assumes no wind chill factor)
Maximum 45°C (113°F) absolute maximum; 35°C (95°F) sustained maximum
Minimum –4°C (25°F) sustained minimum
Environmental In-Ceiling and Environmental Pendant ( Assumes no wind chill factor)
Maximum 60°C (140°F) absolute maximum;
50°C (122°F) sustained maximum
Minimum –51°C (–60°F) absolute minimum; prevents icing at sustained minimum of –45°C (–50°F); de-ices 2.5 mm (0.1 inch) within 3 hours after power-up

Effective Projected Area (EPA)
132.257 sq cm (20.5 sq in.) without mount;
303.225 sq cm (47 sq in.) with IWM Series mount

MECHANICAL

(Dome Drive Only)

Pan Movement 360° continuous pan rotation
Vertical Tilt Unobstructed +2° to –92°
Manual Pan/Tilt Speeds
Pan 0.1° to 80°/sec manual operation, 110°/sec Turbo
Tilt 0.1° to 45°/sec manual operation

Preset Speeds
Pan 400°/sec
Tilt 200°/sec
For variable-speed operation, an appropriate controller is required; (with nonvariable speed control, Spectra IV IP pan/tilt speed is 20°/sec)

AUDIO

Streaming Bidirectional: full or half duplex
Input/Output Terminal block, analog for microphone and speaker; 600-ohm differential; 1 Vp-p maximum signal level
Compression G.711 PCM 8 bit, 8 kHz mono at 64 kbit/sec

ELECTRICAL

Ports RJ-45 connector for 100Base-TX
Auto MDI/MDI-X
Auto-negotiate/Manual setting
Cabling Type Cat5 or better for 100Base-TX
Input Voltage 18 to 32 VAC; 24 VAC nominal
22 to 27 VDC; 24 VDC nominal
Input Power 24 VAC 23 VA nominal (without heater);
73 VA nominal (with heater)
24 VDC 0.7 A nominal (without heater);
3 A nominal (with heater)
Fuse 1.25 A
Auxiliary Outputs 2
Alarm Inputs 7

*Add 0.90 kg (2 lb) to the total weight if the system includes a lower dome cage.
RELATED PRODUCTS

CERTIFICATIONS/RATINGS/PATENTS
- CE, Class B
- FCC, Class B
- UL/cUL Listed
- C-Tick
- Cisco® Medianet (MSP) compatible
- ONVIF 1.02
- U.S. Patents 5,931,432; 6,793,415 B2; 6,802,656 B2; 6,821,222 B2; 7,161,615 B2
- Meets NEMA Type 1, IP40 (BB4E-F and BB4EHD-F)

OPTIONAL ACCESSORIES
HD-KEYS 1 set of keys for heavy-duty lower dome
IPS-CABLE Remote monitor cable and software kit consisting of the Spectra IV remote monitor interface cable and necessary software for use with a PC; refer to www.pelco.com for a list of compatible devices
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
LD5F-2* Flush in-ceiling lower dome with chrome bubble (f/2.0 light loss).
LD5F-3* Flush in-ceiling lower dome with gold bubble (f/2.0 light loss).
LD53PB-2* Pendant lower dome with black trim and chrome bubble (f/2.0 light loss).
LD53PB-3* Pendant lower dome with black trim and gold bubble (f/2.0 light loss).
SECURE-SLA License Enables Information Assurance compliant mode of operation
* Not recommended for outdoor use due to possible light reflections.

RECOMMENDED MOUNTS

In-Ceiling Domes
- SD5-P 2’ x 2’ drop ceiling panel, aluminum construction; replaces 2’ x 2’ ceiling tile
- SCA1 Support rails for BB4N-F; for use in ceiling tile applications

Pendant Domes
- BB5-PCA-BK Pendant conduit adapter, black
- BB5-PCA-GY Pendant conduit adapter, gray
- IWM Series Wall mount, with or without integral 24 VAC, 100 VA transformer; black or gray finish; can be adapted for corner, parapet or pole application
- MRCA Ceiling mount, black
- PP348 Parapet roof mount
- PP350/PP351 Parapet wall/roof mount
- SWM Series Compact wall mount, black or gray finish; can be adapted for corner or pole applications
- IDM4012SS Stainless steel wall mount with feedthrough capabilities

RECOMMENDED POWER SUPPLIES
- MCS Series Indoor, 24 VAC power supply
- WCS Series Outdoor, 24 VAC power supply

Refer to individual power supply specifications for more information.
## SYSTEM MODEL NUMBERS

<table>
<thead>
<tr>
<th>Type</th>
<th>Back Box Color</th>
<th>Lower Dome Color</th>
<th>Cage</th>
<th>36X Day/Night NTSC</th>
<th>36X Day/Night PAL</th>
<th>29X Day/Night NTSC</th>
<th>29X Day/Night PAL</th>
<th>23X Day/Night NTSC</th>
<th>23X Day/Night PAL</th>
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<td>SD4E36-F0</td>
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<td>SD4E36-F1</td>
<td>SD4E36-F1-X</td>
<td>SD4E29-F1</td>
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<td>SD4E29-F-E0</td>
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*Environmental dome systems include a heater, fan, and sun shield.
### COMPONENT MODEL NUMBERS

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*Environmental dome systems include a heater, fan, and sun shield.
†Use the pendant lower domes with the environmental in-ceiling and environmental pendant back boxes.

**Note:** For environmental applications you must order an environmental back box.