Sarix® IBE Series Indoor and Environmental Bullets
UP TO 3 MPx, WDR AND LOW-LIGHT PERFORMANCE, H.264, IK10, IP66

Product Features

- **SureVision 3.0 Technology**, Including:
  - 130dB Wide Dynamic Range (WDR)
  - Advanced Low-Light Performance
  - Anti-Bloom Technology
  - 3D Noise Filtering
  - Enhanced Tone Mapping
- Up to 3 Megapixel (MPx) Resolution
- Up to 60 Images per Second (ips) at 3MPx
- Autofocus Varifocal 3 ~ 9 mm
- Power over Ethernet (PoE), IEEE 802.3af, 24 VAC, 12 VDC
- Built-in Analytics Suite
- Adaptive IR Illumination up to 30 Meters
- Compatible with Pelco and Third-Party Video Systems

Sarix Enhanced Range with SureVision 3.0
Sarix® Enhanced (E) range cameras feature SureVision technology, delivering high definition (HD) resolution, consistent color science, fast processing power, and simultaneous advanced low-light performance with wide dynamic range (WDR) and anti-bloom technologies. New advancements include 3D noise filtering, smooth response to illumination changes, and improved tone mapping to retain color accuracy and overall image contrast.

Designed to install quickly, the cameras include autofocus, motorized zoom, built-in analytics, and other advanced features needed for demanding security applications.

Camera
The IBE Series contains an integrated varifocal MPx autofocus lens (3 ~ 9 mm). All models include a camera in a compact surface mount enclosure that is ready to install. All models feature a sturdy design that is both vandal- and tamper-resistant. The environmental models feature worry-free use in a wide range of environmental operating conditions.

Sarix Enhanced range cameras include four unique, advanced autofocus options: temperature change (every 10°C / 18°F), day/night transition, a daily autofocus routine, and manual autofocus. These benefits ensure clear, focused images regardless of the scene or environment. All autofocus options are available through the web UI.

Video
The IBE Series supports two independently-configurable video streams in addition to a service video stream. The streams can be compressed in MJPEG and H.264 formats across several resolution configurations. The IBE Series offers real-time video (60 ips) with full HD resolution (up to 3 MPx) using H.264 compression for optimized bandwidth and storage efficiency.

The streams can be configured to a variety of frame rates, bit rates, and group of pictures (GOP) structures for additional flexibility in bandwidth administration. In addition, streams can be encoded as constrained variable bit rate (CVBR) or constant bit rate (CBR).

Open and Integrated
Sarix Enhanced range cameras seamlessly connect to Pelco video management systems such as VideoXpert®, Endura® version 2.0 (or later), and Digital Sentry® version 7.3 (or later). Sarix Enhanced range cameras integrate with major third-party video management systems through the Pelco API, and other third-party software and systems through the ONVIF Profile S and Profile G standards.

Built-In Analytics
Analytics enhance the flexibility and performance of Sarix Enhanced range cameras. Eight behaviors can be configured and enabled using a standard Web browser, and they are compatible with VideoXpert, Endura, or a third-party system that supports alarms using Pelco’s API.
**Convenient Power**

Sarix Enhanced range cameras are designed with Power over Ethernet (PoE) 24 VAC and 12 VDC to reduce costs and simplify planning, wiring, and installation. PoE functionality works with PoE-enabled network switches or power injectors, eliminating the need for separate power supplies and cabling, and increasing camera fail safety through an uninterruptable power supply (UPS).

**Analytics**

Sarix Enhanced range cameras include eight user-configurable behaviors. The camera is capable of running up to two behaviors at the same time.

For each behavior, you can create several custom profiles that contain different camera settings. With these profiles, you can set up different scenarios for the behavior, which will automatically detect and trigger alarms when specific activity is detected.

Analytics are configured and enabled using a standard Web browser, and behavior alarms are compatible with VideoXpert or a third-party system that supports Pelco’s API system.

Analytics behaviors can be scheduled to work during a certain time or condition. For example, during the day, a camera can be configured with Object Counting to count the number of people that enter a lobby door. At night, the operator can change the profile to Camera Sabotage to trigger an alarm if a camera is moved or obstructed. Available Pelco behaviors include:

- **Abandoned Object**: Detects objects placed within a defined zone and triggers an alarm if the object remains in the zone unattended. 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.
- **Intrusion 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.
- **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.
- **Wrong Direction**: 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 too long. 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 cross a defined line. 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 a 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 airport curbside drop-offs, parking enforcement, suspicious parking, traffic lane breakdowns, and vehicles waiting at gates.
**COMPONENT FEATURES**

VALUES IN PARENTHESES ARE INCHES; ALL OTHERS ARE CENTIMETERS.

**CAMERA**
- **Imaging Device**: 1/2.8-inch
- **Imager Type**: CMOS
- **Imager Readout**: Progressive scan
- **Highest Resolution**
  - 3 MPx: 2048 x 1536
  - 2 MPx: 1920 x 1080
  - 1 MPx: 1280 x 960
- **Signal-to-Noise Ratio**: >60 dB
- **Electronic Shutter Range**: 1/20,000 sec (or faster) to 2 sec
- **White Balance Range**: 2,000° to 10,000°K
- **Sensitivity 3 – 9 mm**: f/1.3, 2,850°K; SNR >20 dB
- **Color (33 ms)**: 0.005 lux
- **Color (500 ms)**: 0.010 lux
- **Mono (33 ms)**: 0.001 lux
- **Mono (500 ms)**: 0.001 lux
- **Mono (IR on)**: 0.000 lux
- **Day/Night Capabilities**: Yes
- **Mechanical IR Cut Filter**: Yes, (ON/OFF/AUTO selectable), with different set points on lux

**LENS**
- **Lens Type**: Built-in; varifocal
- **Focal Length**: f/1.3, 3 – 9 mm
- **Focus**: Autofocus, motorized
- **Zoom**: Remote
- **Auto Iris Type**: DC drive P-iris lens

<table>
<thead>
<tr>
<th>Lens</th>
<th>Focal Length</th>
<th>Angle of View</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – 9 mm</td>
<td>Wide</td>
<td>113.7°</td>
</tr>
<tr>
<td></td>
<td>Tele</td>
<td>38.0°</td>
</tr>
</tbody>
</table>

**Indoor Bullet**
- **SE White 3, RAL 9003**
- **Aluminum body with plastic heat shield**
- **IP66, IK10 on front and side**
- **Camera can mount directly to the wall.**

**Outdoor Bullet**
- **Telegray 4, RAL 7047**
- **Aluminum body with plastic heat shield**
- **IP66, IK10 on front and side**
- **Camera can mount directly to the wall.**
## TECHNICAL SPECIFICATIONS

### AUDIO
- **Streaming**: Bidirectional: full or half duplex
- **Input/Output**: Line level/external microphone input; Single-ended, stereo, 1 Vp-p max. signal
- **Compression**: G.711 PCM 8 bit, 8 kHz mono at 64 kbit/s

### MECHANICAL
- **Pan/Tilt Adjustment**: Manual
  - **Pan**: 360°
  - **Tilt**: +5, –90°
  - **Rotation**: 360°

### PHYSICAL
- **Weight**
  - Indoor Bullet: 940 gm (2.07 lb)
  - Environmental Bullet: 940 gm (2.07 lb)

### ENVIRONMENTAL
- **Operating Temperature**
  - Indoor/Vandal-Resistant: –10° to 55°C (14° to 131°F)
  - Environmental: –40° to 55°C (–40° to 131°F)
- **Start-Up Temperature**
  - Indoor/Vandal-Resistant: –10°C (14°F)
  - Environmental With Heater: –40°C (–40°F)
- **Storage Temperature**
  - Indoor and Environmental: –40° to 60°C (–40° to 140°F)
- **Operating Humidity**
  - Indoor/Vandal-Resistant: 10 to 90%, RH noncondensing
  - Environmental: 0 to 90%, RH condensing
- **Storage Humidity**: 20 to 80%, RH noncondensing
- **Impact Resistance**: IK10, all surfaces, per IEC 62262

### ELECTRICAL
- **Network Port**: RJ-45 connector for 100Base-TX
- **Cable Type**: Auto MDI/MDI-X
- **Input Power**: Cat5 or better for 100Base-TX
- **Power Consumption**: PoE (IEEE 802.3af, Class 3), 12 VDC, 24 VAC
  - 8.5 W nominal
  - 350 mA maximum
- **Current Consumption**: SD, SDHC, SDXC
  - Detects open or closed alarm state
  - 5 VDC maximum, 0.5 mA maximum
  - ±350V VDC maximum, ±130 mA maximum

### NETWORK
- **Supported Protocols**
  - TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, IPv6, SNMP v2c/v3, QoS, HTTP, HTTPS, SSH, SSL, SMTP, FTP, ARP, ICMP, and 802.1x (EAP)
- **Users**
  - Unicast: Up to 20 simultaneous users depending on the resolution settings
  - Multicast: Unlimited users H.264
- **Security Access**
  - Password protected
- **Software Interface**
  - Web browser view and setup
TECHNICAL SPECIFICATIONS

VIDEO
Video Streams
Independently configurable primary and secondary streams plus service stream

Available Resolutions
Two configurable streams as follows:

<table>
<thead>
<tr>
<th>Camera Model</th>
<th>MPx</th>
<th>Width</th>
<th>Height</th>
<th>Aspect Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 MPx</td>
<td>3.0</td>
<td>2048</td>
<td>1536</td>
<td>4:3</td>
</tr>
<tr>
<td></td>
<td>1.8</td>
<td>1600</td>
<td>1200</td>
<td>4:3</td>
</tr>
<tr>
<td>1 MPx</td>
<td>1.2</td>
<td>1280</td>
<td>960</td>
<td>4:3</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>800</td>
<td>600</td>
<td>4:3</td>
</tr>
<tr>
<td></td>
<td>0.3</td>
<td>704</td>
<td>480</td>
<td>4:3</td>
</tr>
<tr>
<td></td>
<td>0.3</td>
<td>640</td>
<td>480</td>
<td>4:3</td>
</tr>
<tr>
<td></td>
<td>0.07</td>
<td>320</td>
<td>240</td>
<td>4:3</td>
</tr>
<tr>
<td>0.5 MPx</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 MPx and 2 MPx</td>
<td>2.0</td>
<td>1920</td>
<td>1080</td>
<td>16:9</td>
</tr>
<tr>
<td>1 MPx</td>
<td>0.9</td>
<td>1280</td>
<td>720</td>
<td>16:9</td>
</tr>
<tr>
<td></td>
<td>0.6</td>
<td>1024</td>
<td>576</td>
<td>16:9</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>960</td>
<td>544</td>
<td>16:9</td>
</tr>
<tr>
<td></td>
<td>0.3</td>
<td>800</td>
<td>448</td>
<td>16:9</td>
</tr>
<tr>
<td></td>
<td>0.2</td>
<td>640</td>
<td>360</td>
<td>16:9</td>
</tr>
<tr>
<td></td>
<td>0.06</td>
<td>320</td>
<td>192</td>
<td>16:9</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Frame Rate
Up to 60, 50, 30, 25, 20, 16, 15, 12, 10, 8, 7, 6, 5, 4, 3, 2, 1 (depending on the coding, resolution, and stream and WDR configuration)

Video Encoding
H.264 High, Main, or Base profiles; and MJPEG

Bit Rate Control
Constrained variable bit rate (CVBR), constant bit rate (CBR)

Service Stream
JPEG stream; the JPEGs will be the same resolution as the primary stream

MINIMUM SYSTEM REQUIREMENTS

Processor
Intel® Core™ i3 processor, 2.4 GHz

Operating System
Microsoft® Windows® 7 (32- and 64-bit), or 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
100 megabits (or greater)

Monitor
Minimum of 1024 x 768 resolution, 16- or 32-bit pixel color resolution

Web Browser*
Internet Explorer® 8.0 (or later) or Mozilla® Firefox® 3.5 (or later); Internet Explorer 8.0 (or later) is recommended for configuring analytics

Media Player†
Pelco Media Player for Windows 7, XP, or Vista, or QuickTime 7.6.4 for Mac OS X 10.4 (or later)

SOFTWARE FEATURES

Multilingual menus in user interface: Arabic, English, French, Italian, German, Korean, Spanish, Portuguese, Russian, Simplified Chinese, Turkish

16 window blanks, configurable in size

Password protection

Snapshot with JPEG capture at 2016 x 1523 resolution

Text overlays for camera name, time, date

Image overlays

CERTIFICATIONS/RATINGS*

CE (Class A)
FCC (Class A)
ICES-003 (Class A)
UL/cUL Listed
UL/IEC 60950-22
KC
RCM
Meets Type 4X, IP66 rating (Environmental), and IK10 (vandal resistant)
ONVIF Profile S and Profile G Conformant

ANALYTICS

Required Systems for Analytics
Open API
The Pelco API can transmit behavior alarm data to third-party applications, available at pdn.pelco.com

INTEGRATION

Pelco System Integration
VideoXpert
Endura 2.0 (or later)
Digital Sentry 7.3 (or later)
DX4700/DX4800

Open API
Pelco API or ONVIF Profile S and Profile G

Mobile Application
Integrated with Pelco Mobile Application

RECOMMENDED MOUNTS

IBE-PLMT-E
Environmental pole mount
IBE-WLMT-E
Environmental wall mount
IBE-WLMT-I
Indoor wall mount

IBE-PLMT-E ENVIRONMENTAL POLE MOUNT
### TECHNICAL SPECIFICATIONS

#### MODELS*

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Model Number</th>
<th>Lens</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3 MPx</td>
<td>IBE129-1I</td>
<td>3 ~ 9 mm</td>
<td>Sarix Enhanced Indoor Bullet</td>
</tr>
<tr>
<td>1.3 MPx</td>
<td>IBE129-1R</td>
<td>3 ~ 9 mm</td>
<td>Sarix Enhanced Environmental Bullet</td>
</tr>
<tr>
<td>2 MPx</td>
<td>IBE229-1I</td>
<td>3 ~ 9 mm</td>
<td>Sarix Enhanced Indoor Bullet</td>
</tr>
<tr>
<td>2 MPx</td>
<td>IBE229-1R</td>
<td>3 ~ 9 mm</td>
<td>Sarix Enhanced Environmental Bullet</td>
</tr>
<tr>
<td>3 MPx</td>
<td>IBE329-1I</td>
<td>3 ~ 9 mm</td>
<td>Sarix Enhanced Indoor Bullet</td>
</tr>
<tr>
<td>3 MPx</td>
<td>IBE329-1R</td>
<td>3 ~ 9 mm</td>
<td>Sarix Enhanced Environmental Bullet</td>
</tr>
</tbody>
</table>

IBE-WLMT-E (ENVIRONMENTAL) & IBE-WLMT-I (INDOOR) WALL MOUNT

HOW TO ORDER

Example: IBE329-1ES

IBE 3 2 9 — 1 E S

- **IBE**
- **3**
- **2**
- **9**
- **1**
- **E**
- **S**

- **FORM FACTOR**
  - Bullet = B
  - Mini Dome = M
  - Box = X

- **RESOLUTION**
  - 3MP = 3
  - 2MP = 2
  - 1MP = 1

- **RANGE**
  - Enhanced = E

- **GENERATION**
  - 2 = 2nd Generation

- **LENS**
  - 9 = 3mm to 9mm

- **ENVIRONMENT**
  - E = Environmental
  - R = Environmental with IR

- **I** = Indoor

- **S** = Surface Mount

- **T** = Clear Dome

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