IEE20 Series Sarix™ EP Integrated Rugged Fixed Dome

INDOOR/OUTDOOR, NETWORK, 2.1 MPX HIGH DEFINITION DIGITAL CAMERA

Product Features

- Up to 2.1 Megapixel Resolution (1920 x 1080)
- Up to 30 Images per Second (ips) at 1920 x 1080
- Optional CS-Mount Lenses
- Auto Back Focus for High Precision Focusing
- H.264 and MJPEG Compression
- Day/Night Capability
- Sensitivity Down to 0.03 lux
- Power over Ethernet (IEEE 802.3af) or 24 VAC
- Focus Button with Delay Enables Precision Focus Through Bubble
- Up to 2 Simultaneous Video Streams
- Local Storage (Micro SD) for Alarm Capture
- Bi-directional Half-Duplex Audio
- Built-in Analytics

(SHOWN WITH OPTIONAL IE-S SURFACE MOUNT ADAPTER)

- Open IP Standards
- Motion Detection

The **IEE20 Series extended platform (EP) camera with Sarix™ technology** is a 2.1 megapixel (MPx) network indoor/outdoor rugged fixed dome camera designed with industry-leading image quality and high performance processing power. The **IEE20 Series** is also equipped with a mechanical IR cut filter for superior performance in low-light conditions. Its sturdy metal construction is vandal and tamper resistant and is designed for worry-free use in a wide range of environmental operating conditions.

The **IEE20 Series** is perfect for use in environmental air handling spaces. The back box is plenum rated per 2008 NEC article 300.22(C)(2).

Sarix technology defines the next generation of video security imaging performance, delivering high definition (HD) resolution, advanced low-light capabilities, consistent color science, and fast processing power. The H.264 compression video files are considerably smaller making high definition video more affordable.

The **IEE20 Series** can be ordered with or without lenses. All models include a camera in an outdoor enclosure that can be recessed into a ceiling. Accessories are available to allow mounting directly to a surface or in pendant configuration. These cameras accept a wide range of megapixel varifocal CS-mount lenses.

The **IEE20 Series** supports two simultaneous video streams. The two streams can be compressed in MJPEG and H.264 formats across several resolution configurations. The extended platform gives real-time video (30 ips) with HD resolution using H.264 compression for optimized bandwidth and storage efficiency. The streams can be configured in a variety of frame rates, bit rates, and group of pictures (GOP) structures for additional bandwidth administration.

The **IEE20 Series** is simple to install, and the automatic back focus control feature makes sharp scene focus setup easy with the bubble on or off. A convenient video setup jack eliminates the need to use a laptop for viewing video when installing the camera.

Pelco® Analytic Suites and ObjectVideo® (OV) Analytic Suites enhance the flexibility and performance of the IEE20 Series camera. Pelco's Camera Sabotage behavior is a standard feature of seven models, including the IEE20DN-0, IEE20DN-1, IEE20DN8-1 and all models that are preloaded with **Pelco Analytic Suites.** IEE20 Series models are also available preloaded with **OV Analytic Suites.**

Pelco Analytic Suites are easy to configure for alarm notification when used with Endura® or a third-party system that supports Pelco's Analytics application programming interface (API). OV Analytic Suites offer rule configurations and alarm notifications that are easy to enable when using OV Ready™ systems.

The **IEE20 Series** uses a standard Web browser for powerful remote setup and administration. Up to 16 cameras can be viewed on the same network.

The **IEE20 Series** supports up to four blanked windows. Window blanking is used to conceal user-defined privacy areas that cannot be viewed by an operator. A blanked area will appear on the screen as a solid gray window.

The **IEE20 Series** easily connects to Pelco IP and hybrid systems such as Endura version 2.0 (or later) and Digital Sentry® version 4.3 (or later). The camera also features open architecture connectivity to third-party software. Pelco offers an API that enables third-party systems to interface with Pelco's network cameras.

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PELCO ANALYTIC SUITES

Pelco Analytic Suites are offered in two packages: the **Standard Suite** and the **Enhanced Suite.**

The Standard Suite allows you to run the Camera Sabotage behavior plus one other behavior. The Enhanced Suite is capable of running up to three behaviors at the same time. The number of behaviors is limited to the available processing power of the camera.

Note: Available processing power is determined by the settings for compression standards, resolution, image rate, bit rate, and analytic configuration.

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.

Pelco Analytic Suites are configured with an Endura or API system, which enables the analytics to automatically detect and trigger alarms when specific activity is detected. Multiple Pelco analytics can be scheduled to work during a certain time or condition. For example, during the day, a camera can be programmed 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. Each suite includes the following behaviors:

- **Abandoned Object:** Detects objects placed in 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:** 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 with spray paint, a cloth, or covered with 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 or cross a tripwire. This behavior might 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 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.

OBJECTVIDEO (OV) ANALYTIC SUITES

ObjectVideo Analytics Suites are preloaded on selected IEE20 Series cameras and require an OV Ready system to configure the behaviors for alarm notification.

OV Security Suite
The OV Security Suite is easy to use and includes Tripwire Detection, Inside Area Detection, and Camera Tamper Detection behaviors.

- Tripwire Detection identifies objects that cross a user-defined line drawn within the camera's field of view.

- Inside Area Detection identifies objects entering, appearing, or moving within a user-defined area.

- Camera Tamper Detection identifies significant contrast changes in the camera's field of view; for example, if the lens is obstructed by spray paint, a cloth, or a lens cap.

OV Security Suite Plus
The OV Security Suite Plus includes the behaviors of the OV Security Suite, plus Multi-Line Tripwire Detection, Loitering Detection, and Leave Behind Detection behaviors.

- Multi-Line Tripwire Detection identifies objects that cross two defined lines and generates an event based on defined parameters, including directionality. Defined parameters for this behavior include direction, sequential order, and time between crossing each tripwire.

- Loitering Detection identifies when people or vehicles remain within a defined area beyond a specified period of time. This behavior is effective for real-time notification of suspicious behavior around ATMs, stairwells, and school grounds.

- Leave Behind Detection detects objects placed in a defined zone and triggers an alarm if the object remains in the zone longer than the user-defined time allows.

OV Event Counting Suite
The OV Event Counting Suite uses advanced object calibration and additional features for schedules, parameters, and multiple rules. The suite includes behaviors for Tripwire Counting, Enters/Exits Counting, Loiter Counting, Occupancy Sensing, and Dwell-Time Monitoring.

- Tripwire Counting counts people or objects that cross a user-defined line.

- Enters/Exits Counting calculates the number of people that enter and exit an area without using a tripwire.

- Loiter Counting is useful in analyzing how frequently people stop in front of a product, display, or other area of interest. This feature is also useful in assessing promotion effectiveness and product interest.

- Occupancy Sensing counts people and generates a new value every time the occupancy level changes. Since each occupancy output is time-stamped, the data can be used to determine average occupancy levels or to correlate data to point-of-sale or other business scenarios.

- Dwell-Time Monitoring rules can be set up to record the length of time between when an object enters and then exits an area. Along with queue size information, wait times can also be assessed. This behavior can be used to evaluate consumer interaction for a point-of-sale display or digital advertisement.

The following diagram illustrates how the camera system interprets streaming video when embedded analytics are configured and enabled.

SARIX

VIDEO

ANALYTICS OVERLAY
- CONFIGURATION
- ALARMS
- PELCO ANALYTICS API / OV READY

SYSTEM
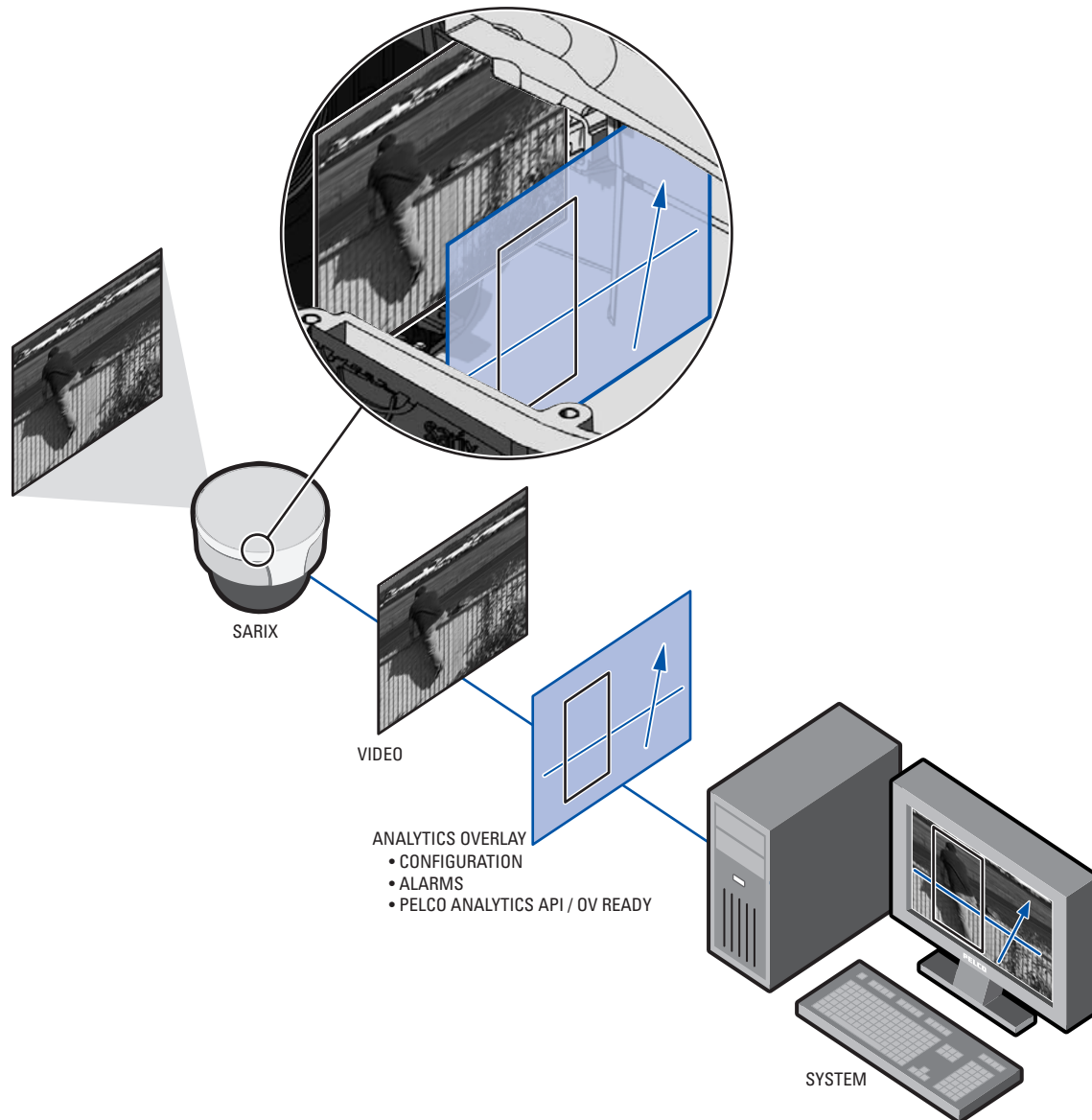
IMPORTANT NOTE: PLEASE READ. The network implementation is shown as a general representation only and is not intended to show a detailed network topology. Your actual network will differ, requiring changes or perhaps additional network equipment to accommodate the system as illustrated. Please contact your local Pelco Representative to discuss your specific requirements.

GENERAL

Imaging Device	1/3-inch (effective)
Imager Type	CMOS
Imager Readout	Progressive scan
Maximum Resolution	1920 x 1080
Signal-to-Noise Ratio	50 dB
Auto Iris Lens Type	DC drive
Electronic Shutter Range	1 ~ 1/100,000 sec
Wide Dynamic Range	60 dB
White Balance Range	2,000° to 10,000°K
Sensitivity	f/1.2; 2850°K; SNR >24 dB
Color (1x/33 ms)	0.5 lux
Color SENS (15x/500 ms)	0.12 lux
Mono (1x/33 ms)	0.25 lux
Mono SENS (15x/500 ms)	0.03 lux
Dome Attenuation	
Clear	Zero light loss
Smoked	f/1.0 light loss
Construction	Cast aluminum body with polycarbonate bubble
Finish	Light gray powder coated
Weight (without lens)	
Unit	3.3 lb (1.5 kg)
Shipping	5.0 lb (2.3 kg)
Available Languages	Chinese, English, French, German, Italian, Portuguese, Russian, Spanish, and Turkish

ELECTRICAL

Port	RJ-45 connector for 100Base-TX Auto MDI/MDI-X
Cable Type	Cat5 or better for 100Base-TX
Power Input	18 to 30 VAC; 24 VAC nominal or PoE (IEEE 802.3af class 3)
Power Consumption*	<7W; <40 W with heater operation
Current Consumption	
PoE	<140 mA maximum
24 VAC†	<510 mA without heater operation; <2.5 A maximum with heater operation
Local Storage	Micro SD
Alarm Input	10 VDC maximum, 5 mA maximum
Alarm Output	0 to 15 VDC maximum, 75 mA maximum
Service Port	External 3-connector, 2.5 mm provides NTSC/PAL video output
Accessory Port	Connects Pelco accessories
Audio	Bi-directional: half duplex Line level/external microphone input; 600 Ohm differential, 1 Vp-p max signal level
Compression	G.711 PCM 64 kbit/s

*Does not include optional devices connected to the accessory port

†Required for heater operation

MECHANICAL

Lens Mount	CS mount, adjustable
Pan/Tilt Adjustment	
Pan	368°
Tilt	160° (10° to 170°)
Rotate	355°

ENVIRONMENTAL

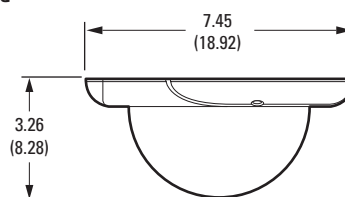|	
Operational Temperature	−22° to 122°F (−30° to 50°C); PoE operates between 32° to 122°F (0° to 50°C), 24 VAC power is required for heater operation below 32°F (0°C)
Thermostat Operation	Heater thermostatically controlled to operate below <41°F (<5°C)
Operational Humidity	20% to 80%, noncondensing

IMPACT RESISTANCE

Impact Resistance	IK10++ per EN62262 (70J)

IN-CEILING

7.45 (18.92)

3.26 (8.28)

SURFACE MOUNT
(Mounting Ring Is Available as an Accessory)

7.68 (19.51)

6.28 (15.95)
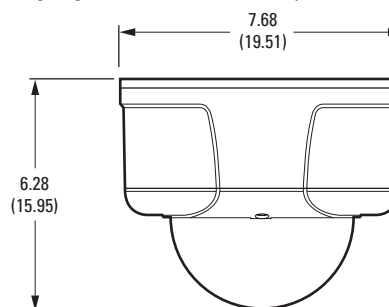
PENDANT
(Mount Is Available as an Accessory)

7.63 (19.38)

7.54 (19.15)

Ø 5.00 (12.70)
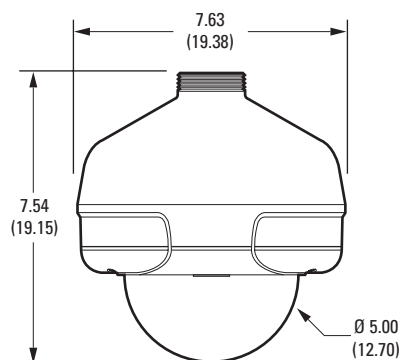
NOTE: VALUES IN PARENTHESES ARE CENTIMETERS; ALL OTHERS ARE INCHES.

TECHNICAL SPECIFICATIONS

VIDEO

Video Encoding	H.264 high, main, or base profile 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, 24, 15, 12.5, 12, 10, 8, 7. 5, 6, 5, 4, 3, 2, 1 (dependent upon coding, resolution, and stream configuration)

Available Resolutions

Resolution				MJPEG		H.264 High Profile	
MPx	Width	Height	Aspect Ratio	Maximum IPS	Recommended Bit Rate	Maximum IPS	Recommended Bit Rate
2.1	1920	1080	16:9	30.0 ips	10.0 Mbps	30.0 ips	6.0 Mbps
1.9	1600	1200	4:3	20.0 ips	10.0 Mbps	20.0 ips	4.0 Mbps
1.3	1280	1024	5:4	20.0 ips	10.0 Mbps	20.0 ips	3.3 Mbps
1.2	1280	960	4:3	20.0 ips	10.0 Mbps	20.0 ips	3.0 Mbps
0.9	1280	720	16:9	30.0 ips	10.0 Mbps	30.0 ips	2.9 Mbps
0.5	800	600	4:3	30.0 ips	7.7 Mbps	30.0 ips	2.0 Mbps
0.3	640	480	4:3	30.0 ips	4.9 Mbps	30.0 ips	1.5 Mbps
0.1	320	240	4:3	30.0 ips	1.2 Mbps	30.0 ips	0.5 Mbps

Additional Resolutions	640 x 512, 640 x 352, 480 x 368, 480 x 272, 320 x 256, and 320 x 176
Supported Protocols	TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, SNMP v2c/v3, QoS, HTTP, HTTPS, LDAP (client), SSH, SSL, SMTP, FTP, mDNS (Bonjour®), and 802.1x (EAP)
Users	
Unicast	Up to 20 simultaneous users depending on resolution settings (2 guaranteed streams)
Multicast	Unlimited users H.264
Security Access	Password protected
Software Interface	Web browser view and setup, up to 16 cameras
Pelco System Integration	Endura 2.0 (or later) or Digital Sentry 4.2 (or later)
Open IP Integration	Pelco IP camera API
Minimum System Requirements	
Processor	Intel® Core® 2 Duo microprocessor, 2.6 GHz
Operating System	Microsoft® Windows® XP, Windows Vista®, or Mac® OS X 10.4 (or later)
Memory	2 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® 7.0 (or later) or Mozilla® Firefox® 3.5 (or later); Internet Explorer® 8.0 (or later) is recommended for configuring analytics
Media Player†	QuickTime® 7.6.5 for Windows XP, Windows Vista, or QuickTime 7.6.4 for Mac OS X 10.4

ANALYTICS

Required Systems for Pelco Analytic Suites	
Pelco Interface	WS5200 Advanced System Management Software on an Endura 2.0 (or later) system
Open API	Pelco analytics allow streaming information to communicate though Pelco's API Guide for Video Analytics version 0.55.30 (or later), available at *Pelco.com/IP*
Required System for Object Video Suites	OV ready-compliant system with OV Ready video management system

*Internet Explorer is not supported by Mac OS X 10.4.

†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.

MODELS

IEE20DN-0	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, no lens, smoked dome
IEE20DN-1	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, no lens, clear dome
IEE20DN8-1	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, 2.8 ~ 8 mm varifocal megapixel lens, clear dome
IEE20DN-OCP0	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, no lens, smoked dome, with built-in OV Event Counting Plus Suite
IEE20DN-OS0	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, no lens, smoked dome, with built-in OV Security Suite
IEE20DN-OSP0	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, no lens, smoked dome, with built-in OV Security Plus Suite
IEE20DN-PM0	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, no lens, smoked dome, with built-in Pelco Standard Suite
IEE20DN-PO0	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, no lens, smoked dome, with built-in Pelco Enhanced Suite
IEE20DN-OCP1	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, no lens, clear dome, with built-in OV Event Counting Plus Suite
IEE20DN-OS1	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, no lens, clear dome, with built-in OV Security Suite
IEE20DN-OSP1	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, no lens, clear dome, with built-in OV Security Plus Suite
IEE20DN-PM1	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, no lens, clear dome, with built-in Pelco Standard Suite
IEE20DN-PO1	Sarix outdoor fixed dome network camera, extended platform, 2.1 megapixel, day/night, no lens, clear dome, with built-in Pelco Enhanced Suite

CERTIFICATIONS/RATINGS/PATENTS

- CE, Class A
- FCC, Class A
- UL/cUL Listed
- C-Tick
- Meets IP66 standards

OPTIONAL ACCESSORIES

IX-SC	4-foot service/monitor cable, compatible with any standard monitor BNC connector
POE20U560G	Single port PoE injector

RECOMMENDED MOUNTS

IE-P	Pendant mount adapter, light gray
IE-S	Surface mount adapter, light gray
SWM-SR, IWM-SR*	Wall mounts, light gray
PP350*	Parapet mount, gray
PP351*	Rooftop or horizontal surface mount, gray

*Requires the IE-P pendant mount adapter.

RECOMMENDED LENSES

13M2.2-6	Megapixel lens, varifocal, 2.2 ~ 6.0 mm, f/1.3 ~ 2.0
13M2.8-8	Megapixel lens, varifocal, 2.8 ~ 8.0 mm, f/1.2 ~ 1.9
13M2.8-12	Megapixel lens, varifocal, 2.8 ~ 12.0 mm, f/1.4 ~ 2.7
13M15-50	Megapixel lens, varifocal, 15.0 ~ 50.0 mm, f/1.5 ~ 2.1

Pelco megapixel lenses have been designed and tested to deliver optimal image quality for the IEE20 Series dome. The use of standard definition lenses on IEE20 Series megapixel cameras will limit the resolution of the camera, creating poor image quality.

Field of View in Degrees		High Resolution Streams (> 800 x 600) Aspect Ratio		
		16:9	4:3	5:4
2.2 mm	Horizontal	109	109	109
	Vertical	63	83	89
2.8 mm	Horizontal	89	89	89
	Vertical	48	66	70
6.0 mm	Horizontal	42	42	42
	Vertical	24	32	34
8.0 mm	Horizontal	32	32	32
	Vertical	18	24	25
12.0 mm	Horizontal	21	21	21
	Vertical	12	16	17
15.0 mm	Horizontal	16	16	16
	Vertical	9	12	13
50.0 mm	Horizontal	5	5	5
	Vertical	3	4	4

Note: For 800 x 600 (or lower) resolutions in 4:3 or 5:4 aspect ratios, the field of view is smaller than listed above. Refer to the Installation/Operation manual for details.