

Sarix® TI Series Thermal IP Positioning Systems

IP AND ANALOG THERMAL CAMERA WITH INTEGRATED ESPRIT® PAN/TILT

Product Features

- Uncooled, Sun-Safe, Amorphous Silicon Microbolometer
- Long Wave Infrared (LWIR)
- Esprit® Pan/Tilt
- IP and Analog Capability
- 640 x 480 and 384 x 288 Resolution Options
- 17 µm Pixel Size (640 x 480 model)
- 25 µm Pixel Size (384 x 288 model)
- Sensitivity Below NETD <50 mK at f/1.0
- 24 VAC or 120/230 VAC 50/60 Hz Selectable
- H.264 and MJPEG Compression
- Up to 2 Simultaneous Video Streams
- Built-in Analytics
- Variable Speed Pan, 0.1° to 100°/Sec with Proportional Pan
- 360° Continuous Pan Rotation

Positioning System

The **Sarix® TI Series Thermal IP Positioning System** is an advanced thermal imaging pan/tilt system designed for easy integration into any new or existing video security application. The system is designed to provide detection, recognition, and identification of people and vehicles in any lighting condition, including complete darkness. Every **Sarix TI Series** features IP or analog outputs in the same package and an integrated environmentally protected IP66 rated enclosure with Esprit® pan/tilt positioner, which can be controlled using IP or analog systems that use Coaxitron® or RS-422 Pelco D and Pelco P protocols. Additionally, when used in an IP system, the **Sarix TI Series** features a full suite of designed-for-thermal analytics.

At the core of the **Sarix TI Series** is an uncooled, sun-safe microbolometer, long-wavelength infrared (LWIR) camera that delivers up to 640 x 480 thermal video. These cameras feature an amorphous silicon detector, which has lower fixed pattern noise and a more uniform response than vanadium oxide detectors, while still maintaining high resolution and sensitivity when exposed directly to the sun during normal daylight hours.

The **Sarix TI Series** provides outstanding sensitivity below 50 mK at f/1.0. It is capable of multiple display formats, including white hot, black hot, and color signatures. The **Sarix TI Series** is available with multiple lens configurations for effective deployment in a wide range of applications.



- Tilt Range of +33° to -83° from Horizontal
- Preset Positioning, Patterns, and Multiple Scan Modes
- Designed for Minimal Maintenance, No Gears to Adjust

The **Sarix TI Series** is available in 640 x 480 and 384 x 288 resolution options. The camera has an input voltage of 24 VAC or a selectable power source of 120/230 VAC.

In IP installations, the **Sarix TI Series** can support two simultaneous video streams. The two streams can be compressed in MJPEG and H.264 formats across several resolution configurations. The streams can be configured to a variety of frame rates, bit rates, and group of pictures (GOP) structures for additional bandwidth administration. When used in analog installations, the **Sarix TI Series** supports camera control and limited camera setup using Coaxitron®, Pelco P, and Pelco D protocols.

The **Sarix TI Series** provides variable pan and tilt speeds ranging from 0.1 to 40 degrees per second in manual pan mode and 0.1 to 20 degrees per second in manual tilt mode. Pan preset and turbo speeds are 100 degrees per second in wind speeds of 50 mph and 50 degrees per second in the 90 mph wind-speed profile. Tilt preset speed is 30 degrees per second. The **Sarix TI Series** is capable of 360 degrees of continuous pan rotation. The tilt range allows for horizontal viewing of +33 to -83 degrees. Preset positions have a preset accuracy of one-quarter degree.

The powder-coated aluminum enclosure makes the **Sarix TI Series** ideal for either indoor or outdoor applications. The system has a sustained operating temperature range of -40° to 50°C (-40° to 122°F). A built-in heater/defroster and sun shroud are standard features on the **Sarix TI Series**.



by Schneider Electric



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TECHNICAL SPECIFICATIONS

PELCO ANALYTICS

Pelco® Analytics enhance the flexibility and performance of the Sarix TI Series when used in an IP video system. Pelco Analytics are easy to configure for alarm notification when used with Endura® or a third-party system that supports Pelco's Analytics API system.

The Sarix TI Series includes five user-configurable behaviors. The camera is capable of running up to three behaviors simultaneously.

Note: 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 Analytics are configured and enabled using a standard Web browser, and Pelco behaviors are compatible with Endura or a third-party system that supports Pelco's Analytics API system. Multiple Pelco analytics 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. Each suite includes the following behaviors:

- **Adaptive Motion:** Detects and tracks objects that enter a scene and then triggers an alarm when the objects enter a user-defined zone or cross a trip wire. 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.
- **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 trip wire. 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.
- **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.

WEB INTERFACE

The Sarix TI Series uses a standard Web browser for powerful remote setup and administration.

ADDITIONAL PRODUCT FEATURES

- 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)
- Multiple Lens Options
- Designed for Maximum Environmental Protection
- Compact, Lightweight Aluminum Construction
- Meets NEMA Type 4X and IP66 Standards
- Complete with Sun Shroud and Heater/Defroster
- Analog Control using Coaxitron, Pelco P, or Pelco D Protocols

THERMAL CAMERA/OPTICS

| | |
|----------------------|--|
| Detector | Sun-safe, uncooled microbolometer, amorphous silicon |
| Array Format | 640 x 480 or 384 x 288 |
| Pixel Size | 17 µm 25 µm |
| Effective Resolution | 307,200 (640 x 480); 110,592 (384 x 288) |
| Spectral Response | 7.5 to 13.5 µm, LWIR |
| Normalization Source | Internal shutter (offset only), 0.3 second video freeze during shutter |
| Temporal NETD | 50 mK at f/1.0 |
| Display Formats | White hot, black hot, and rainbow |

LENS

| 640 x 480 | | | |
|-----------|--------------|-----------------------|---------------------|
| Lens (mm) | F-Number (f) | Field of View (H/V/D) | Near Focus Distance |
| 35 | 1.4 | 18° x 13° x 22° | 13.0 m (42.6 ft) |
| 50 | 1.7 | 12° x 9° x 15° | 22.0 m (72.2 ft) |
| 100 | 1.6 | 6° x 5° x 8° | 92.0 m (301.8 ft) |
| 384 x 288 | | | |
| 14.25 | 1.3 | 39° x 29° x 48° | 1.6 m (5.2 ft) |
| 35 | 1.4 | 16° x 12° x 19° | 8.8 m (28.8 ft) |
| 50 | 1.7 | 11° x 8° x 14° | 15.0 m (49.2 ft) |
| 100 | 1.6 | 6° x 4° x 7° | 63.0 m (206.6 ft) |

TECHNICAL SPECIFICATIONS

VIDEO

IP/NETWORK

| | |
|----------------|---|
| Video Encoding | H.264 High, Main, or Base profiles 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, 2.5, 2, 1 (dependent upon stream configuration) |

Available Resolutions

| Resolution | | | MJPEG | | H.264 High Profile | |
|-----------------------------|--------|--------------|--------------|-----------------------------|--------------------|-----------------------------|
| Width | Height | Aspect Ratio | Maximum IPS* | Recommended Bit Rate (Mbps) | Maximum IPS* | Recommended Bit Rate (Mbps) |
| 640 x 480 Resolution | | | | | | |
| 640 | 480 | 4:3 | 30 | 4.79 | 30 | 1.41 |
| 320 | 240 | 4:3 | 30 | 1.17 | 30 | 0.49 |
| 384 x 288 Resolution | | | | | | |
| 384 | 288 | 4:3 | 30 | 1.71 | 30 | 0.63 |
| 320 | 240 | 4:3 | 30 | 1.17 | 30 | 0.49 |
| 320 | 176 | 16:9 | 30 | 0.88 | 30 | 0.34 |

*Models with a "-X" suffix part number have a maximum images per second (ips) of 25. Models with a "-X1" suffix part number have a maximum ips of 8.3.

| | |
|---------------------|---|
| Supported Protocols | TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, SNMP, QoS, 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 |
| Security Access | Password protected |
| Software Interface | Web browser view and setup |
| Pelco System Integration | Endura 2.0 (or later) Digital Sentry® 4.2 (or later) |

ANALOG

| | |
|----------------------|---------------------|
| Video/Coaxitron Port | 75 ohms, unbalanced |
| Video Modes | NTSC or PAL |
| Video Level | 1 Vp-p |

ELECTRICAL

| Ethernet Port | Inline RJ-45 for 100Base-TX, auto MDI/MDI-X | | | | | | | | |
|---------------------------|--|------|-------|--------|----------------------------|---------|----------------------------|---------|----------------------------|
| Ethernet Cabling Required | Cat5 or better for 100Base-TX | | | | | | | | |
| Input Power | 24/120/230 VAC, 50/60 Hz, switch selectable for 120/230 VAC | | | | | | | | |
| Input Power Range | +15%/-20% | | | | | | | | |
| Power Consumption | <table> <thead> <tr> <th>Lens</th> <th>Power</th> </tr> </thead> <tbody> <tr> <td>24 VAC</td> <td>14.25, 35, 50 mm 100 mm</td> </tr> <tr> <td>115 VAC</td> <td>14.25, 35, 50 mm 100 mm</td> </tr> <tr> <td>230 VAC</td> <td>14.25, 35, 50 mm 100 mm</td> </tr> </tbody> </table> | Lens | Power | 24 VAC | 14.25, 35, 50 mm 100 mm | 115 VAC | 14.25, 35, 50 mm 100 mm | 230 VAC | 14.25, 35, 50 mm 100 mm |
| Lens | Power | | | | | | | | |
| 24 VAC | 14.25, 35, 50 mm 100 mm | | | | | | | | |
| 115 VAC | 14.25, 35, 50 mm 100 mm | | | | | | | | |
| 230 VAC | 14.25, 35, 50 mm 100 mm | | | | | | | | |
| 24 VAC Fu1se | 8.0 A, slow-blow | | | | | | | | |
| 120/230 VAC Fuse | 2 A, slow-blow | | | | | | | | |
| Heater | Thermostat controlled | | | | | | | | |
| Local Storage | Micro SD | | | | | | | | |

| | | | |
|-----------------------------|--|----------------|---------------|
| Alarm Inputs | N.O. switch, N.C. switch, or 1 kohm; supervised | | |
| Mechanical Relay Output† | <u>Voltage</u> | <u>Current</u> | <u>Power</u> |
| | 60 VDC, 125 VAC | 1 A | 62.5 VA, 30 W |
| Solid-State Relay Output† | 60 V | 600 mA | (N/A) |
| Audio | UTP 600 ohm mono, 12 VDC power source, line level/external microphone input, 1 Vp-p maximum signal level | | |
| Compression | G.711 PCM, 64 kbps | | |
| Serial Control Port | 4-wire, RS-422/RS-485 (Pelco D or Pelco P) | | |
| Serial Control Cabling Type | UTP | | |

MECHANICAL

| | | |
|-------------------------|--|-------------------|
| Pan Movement | 360° continuous pan rotation | |
| Vertical Tilt | 33° to -79° unobstructed from horizontal | |
| Variable Pan/Tilt Speed | <u>Analog Control</u> | <u>IP Control</u> |
| Pan | 0.5° to 40°/sec 100°/sec turbo | 0.1° to 100°/sec |
| Tilt | 0.5° to 20°/sec | 0.1° to 30°/sec |
| Preset Speeds | 100° per second | |
| Pan | 30° per second | |
| Tilt | 30° per second | |
| Latching | 2 captive Torx™ screws | |

†Assumes maximum operating capacity.

GENERAL

| | | |
|-----------------------|------------------------------|---------------------------------|
| Construction | Aluminum | |
| Finish | Gray polyester powder coat | |
| Environment | Indoor/outdoor | |
| Operating Temperature | -40° to 50°C (-40° to 122°F) | |
| Storage Temperature | -40° to 60°C (-40° to 140°F) | |
| Weight | Unit | Shipping |
| | ESTI314-2N/5N | 11.2 kg (24.6 lb) 15 kg (33 lb) |
| | ESTI314-2W/5W | 11.8 kg (26.1 lb) 16 kg (34 lb) |
| | ESTI335-2N/5N | 11.3 kg (24.9 lb) 15 kg (33 lb) |
| | ESTI335-2W/5W | 12.0 kg (26.4 lb) 16 kg (35 lb) |
| | ESTI350-2N/5N | 11.3 kg (25.0 lb) 15 kg (33 lb) |
| | ESTI350-2W/5W | 12.0 kg (26.5 lb) 16 kg (35 lb) |
| | ESTI3100-2N/5N | 11.4 kg (25.2 lb) 15 kg (33 lb) |
| | ESTI3100-2W/5W | 12.1 kg (26.7 lb) 16 kg (35 lb) |
| | ESTI635-2N/5N | 11.3 kg (24.9 lb) 15 kg (33 lb) |
| | ESTI635-2W/5W | 12.0 kg (26.4 lb) 16 kg (35 lb) |
| | ESTI650-2N/5N | 11.3 kg (25.0 lb) 15 kg (33 lb) |
| | ESTI650-2W/5W | 12.0 kg (26.5 lb) 16 kg (35 lb) |
| | ESTI6100-2N/5N | 11.4 kg (25.2 lb) 15 kg (33 lb) |
| | ESTI6100-2W/5W | 12.1 kg (26.7 lb) 16 kg (35 lb) |

CERTIFICATIONS/RATINGS/PATENTS

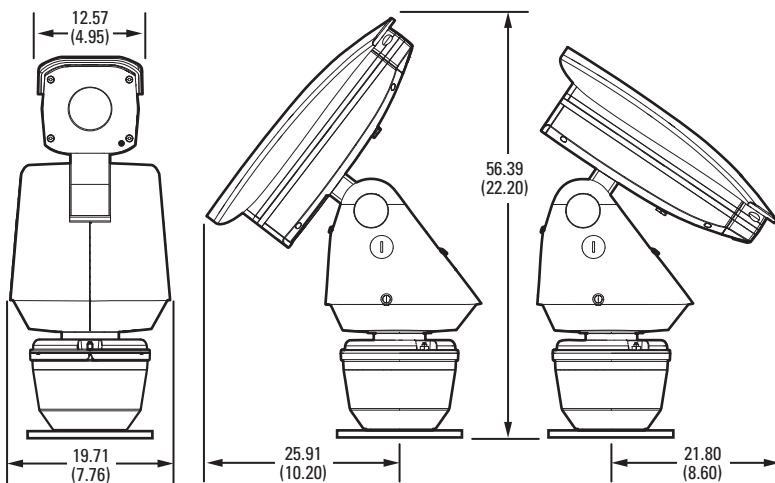
- CE, Class A†
- FCC, Class A†
- UL/cUL Listed†
- C-Tick†
- Meets NEMA Type 4 and IP66 standards†
- Shock and Vibration, Meets NEMA TS 2; IEC613736-8, -9, -10†
- Patents†

† As of the date of this publication, these items are pending. Please consult the factory, our Web site at www.pelco.com, or the most recent B.O.S.S.® update for the current status of certifications.

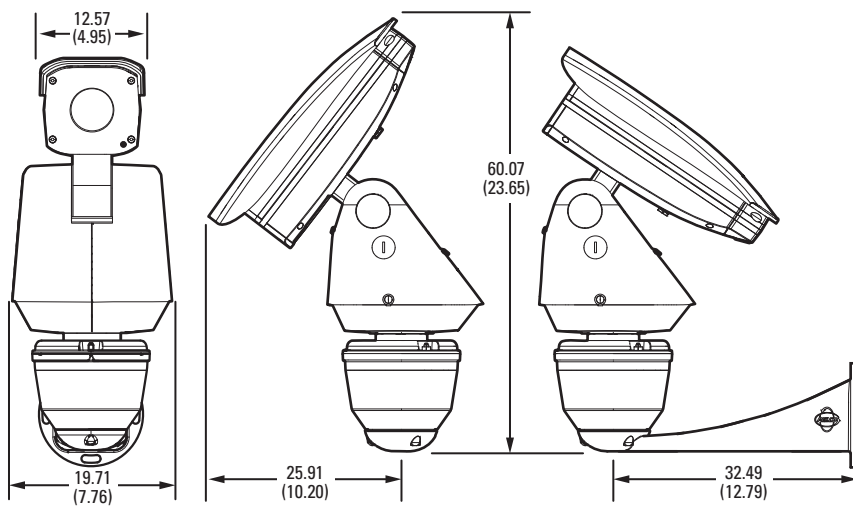
TECHNICAL SPECIFICATIONS

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

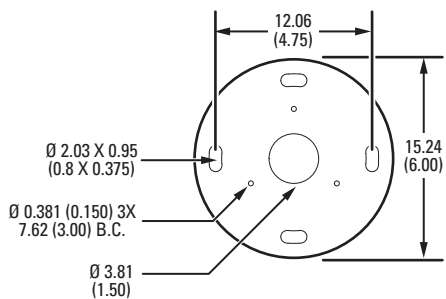
PEDESTAL MOUNT MODELS



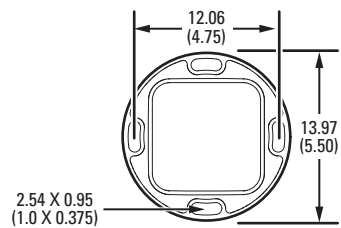
WALL MOUNT MODELS



PEDESTAL MOUNTING PATTERN



WALL MOUNTING PATTERN

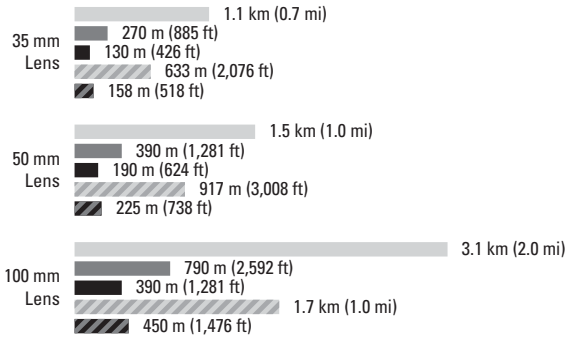


TECHNICAL SPECIFICATIONS

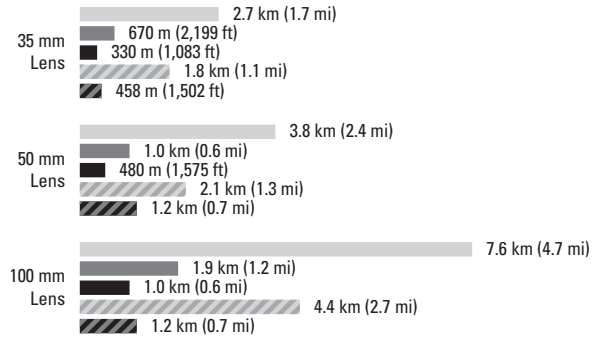
RANGE PERFORMANCE*

640 x 480

Detection, Recognition, and Identification of a Human Target[†]



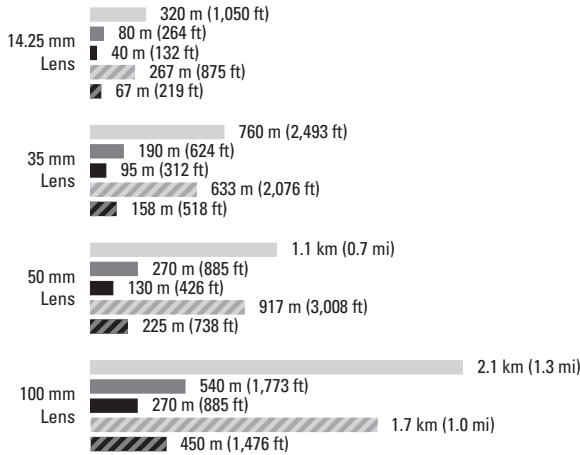
Detection, Recognition, and Identification of a Vehicle Target[†]



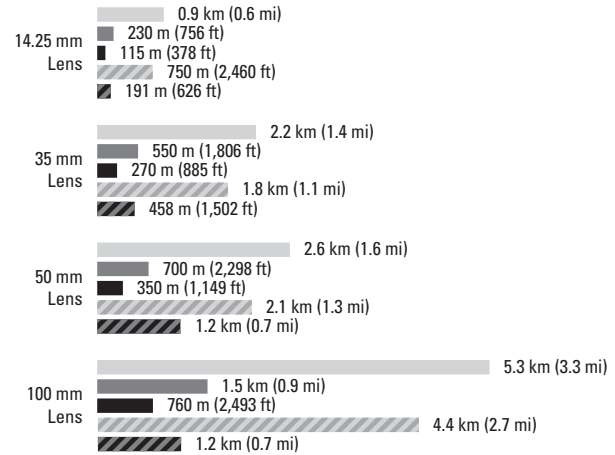
Detection
 Recognition
 Identification
 Analytics Detection[‡]
 Analytics Recognition[‡]

384 x 288

Detection, Recognition, and Identification of a Human Target[†]



Detection, Recognition, and Identification of a Vehicle Target[†]



Detection
 Recognition
 Identification
 Analytics Detection[‡]
 Analytics Recognition[‡]

*Range performance can vary based on camera setup, user experience, environmental conditions, and display type used. Calculations are based on 2°C (36°F) difference, 50 percent probability of target detection, and 0.85/km atmospheric attenuation factor.

[†]The number of pixels on target are assumed to be 1.5 pixels for detection, 6 pixels for recognition, and 12 pixels for identification; the size of a human target is assumed to be 1.8 m (5.9 ft) vertical and 0.5 m (1.6 ft) horizontal; the size of a vehicle target is assumed to be 2.3 m (7.6 ft) vertical and 2.3 m (7.6 ft) horizontal.

[‡]User-configured analytics will trigger an alarm at the full analytics detection range; however, analytics will only classify objects at the analytics recognition range.

TECHNICAL SPECIFICATIONS

MODELS*

640 x 480

| Lens | Format | Pedestal Mount† | | Wall Mount‡ | |
|--------|---------------|-----------------|----------------|----------------|----------------|
| | | 24 VAC | 120/230 VAC | 24 VAC | 120/230 VAC |
| 35 mm | NTSC | ESTI635-2N | ESTI635-5N | ESTI635-2W | ESTI635-5W |
| | PAL | ESTI635-2N-X | ESTI635-5N-X | ESTI635-2W-X | ESTI635-5W-X |
| | PAL, 8.33 ips | ESTI635-2N-X1 | ESTI635-5N-X1 | ESTI635-2W-X1 | ESTI635-5W-X1 |
| 50 mm | NTSC | ESTI650-2N | ESTI650-5N | ESTI650-2W | ESTI650-5W |
| | PAL | ESTI650-2N-X | ESTI650-5N-X | ESTI650-2W-X | ESTI650-5W-X |
| | PAL, 8.33 ips | ESTI650-2N-X1 | ESTI650-5N-X1 | ESTI650-2W-X1 | ESTI650-5W-X1 |
| 100 mm | NTSC | ESTI6100-2N | ESTI6100-5N | ESTI6100-2W | ESTI6100-5W |
| | PAL | ESTI6100-2N-X | ESTI6100-5N-X | ESTI6100-2W-X | ESTI6100-5W-X |
| | PAL, 8.33 ips | ESTI6100-2N-X1 | ESTI6100-5N-X1 | ESTI6100-2W-X1 | ESTI6100-5W-X1 |

384 x 288

| Lens | Format | Pedestal Mount† | | Wall Mount‡ | |
|----------|---------------|-----------------|----------------|----------------|----------------|
| | | 24 VAC | 120/230 VAC | 24 VAC | 120/230 VAC |
| 14.25 mm | NTSC | ESTI314-2N | ESTI314-5N | ESTI314-2W | ESTI314-5W |
| | PAL | ESTI314-2N-X | ESTI314-5N-X | ESTI314-2W-X | ESTI314-5W-X |
| | PAL, 8.33 ips | ESTI314-2N-X1 | ESTI314-5N-X1 | ESTI314-2W-X1 | ESTI314-5W-X1 |
| 35 mm | NTSC | ESTI335-2N | ESTI335-5N | ESTI335-2W | ESTI335-5W |
| | PAL | ESTI335-2N-X | ESTI335-5N-X | ESTI335-2W-X | ESTI335-5W-X |
| | PAL, 8.33 ips | ESTI335-2N-X1 | ESTI335-5N-X1 | ESTI335-2W-X1 | ESTI335-5W-X1 |
| 50 mm | NTSC | ESTI350-2N | ESTI350-5N | ESTI350-2W | ESTI350-5W |
| | PAL | ESTI350-2N-X | ESTI350-5N-X | ESTI350-2W-X | ESTI350-5W-X |
| | PAL, 8.33 ips | ESTI350-2N-X1 | ESTI350-5N-X1 | ESTI350-2W-X1 | ESTI350-5W-X1 |
| 100 mm | NTSC | ESTI3100-2N | ESTI3100-5N | ESTI3100-2W | ESTI3100-5W |
| | PAL | ESTI3100-2N-X | ESTI3100-5N-X | ESTI3100-2W-X | ESTI3100-5W-X |
| | PAL, 8.33 ips | ESTI3100-2N-X1 | ESTI3100-5N-X1 | ESTI3100-2W-X1 | ESTI3100-5W-X1 |

*Some models may be subject to US government export control regulations.

† 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.

RECOMMENDED MOUNTS AND ADAPTERS

| | |
|---------------|--|
| ECM100 | Corner mount adapter; for use with EWM wall mount |
| EPM | Pole mount adapter; for use with EWM wall mount |
| EA4348 | Parapet mount adapter; for use with EWM wall mount |
| PM2000/PM2010 | Pedestal mount with cable feedthrough; for use with Esprit systems with EPP pedestal adapter plate |
| PP4348 | Rooftop parapet mount; use with EA4348 adapter |

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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