Sarix® TI Series Thermal IP Cameras

IP AND ANALOG THERMAL CAMERA WITH INTEGRATED FIXED ENCLOSURE

Product Features

- Uncooled, Sun-Safe, Amorphous Silicon Microbolometer
- Long Wave Infrared (LWIR)
- IP and Analog Capability
- 640 x 480, 384 x 288, or 240 x 184 Resolution Options
- 17 µm Pixel Size (640 x 480 model)
- 25 µm Pixel Size (384 x 288 and 240 x 184 models)
- Sensitivity Below NETD <50 mK at f/1.0
- 24 VAC/24 VDC
- H.264 and MJPEG Compression
- Ability to Control and Monitor Video Over IPv4 and IPv6 Networks
- Built-in Analytics
- 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
- Adaptive Motion Detection
- ONVIF v1.02 Conformant

Camera

The **Sarix® TI Series Fixed Thermal IP Camera** is an advanced thermal imaging 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. 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.

The **Sarix TI Series** is available in 640 x 480, 384 x 288, or 240 x 184 resolution options. The fixed camera has an input voltage of 24 VAC or 24 VDC.

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 analog video output.

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.**

Built-in 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 alarms using Pelco's API.

Web Interface

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

PELCO ANALYTICS

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 behavior alarms are compatible with Endura or a third-party system that supports Pelco's 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 Detection:** 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.

THERMAL CAMERA/OPTICS

Detector	Uncooled, sun-safe, amorphous silicon microbolometer
Array Format	640 x 480, 384 x 288, or 240 x 184
Pixel Size	
640 x 480	17 µm
384 x 288, 240 x 184	25 µm
Effective Resolution	307,200 (640 x 480); 110,592 (384 x 288); 19,200 (240 x 184)
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
Front Window	Germanium with Diamond-Like Coating (DLC) with resistance to abrasion, salts, acids, alkalis, and oil
Display Formats	White hot, black hot, and rainbow

LENS

640 x 480 Resolution			
Lens (mm)	**F-Number (f)**	**Field of View (H/V/D)**	**Near Focus Distance**
14.25	1.2	44° x 33° x 54°	2.3 m (7.5 ft)
35	1.4	18° x 13° x 22°	13.0 m (42.6 ft)
50	1.2	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 Resolution			
14.25	1.2	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)
240 x 184 Resolution			
6.30	1.2	55° x 41° x 68°	0.3 m (0.9 ft)

TECHNICAL SPECIFICATIONS

VIDEO

IP/NETWORK

Video Encoding	H.264 High, Main, or Base profiles; MJPEG, and JPEG
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			JPEG		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
240 x 184 Resolution						
240	184	4:3	30	0.68	30	0.29
160	120	4:3	30	0.29	30	0.10

*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, IPv6†, 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® 7.3 (or later)
Open API	Pelco API or ONVIF v1.02

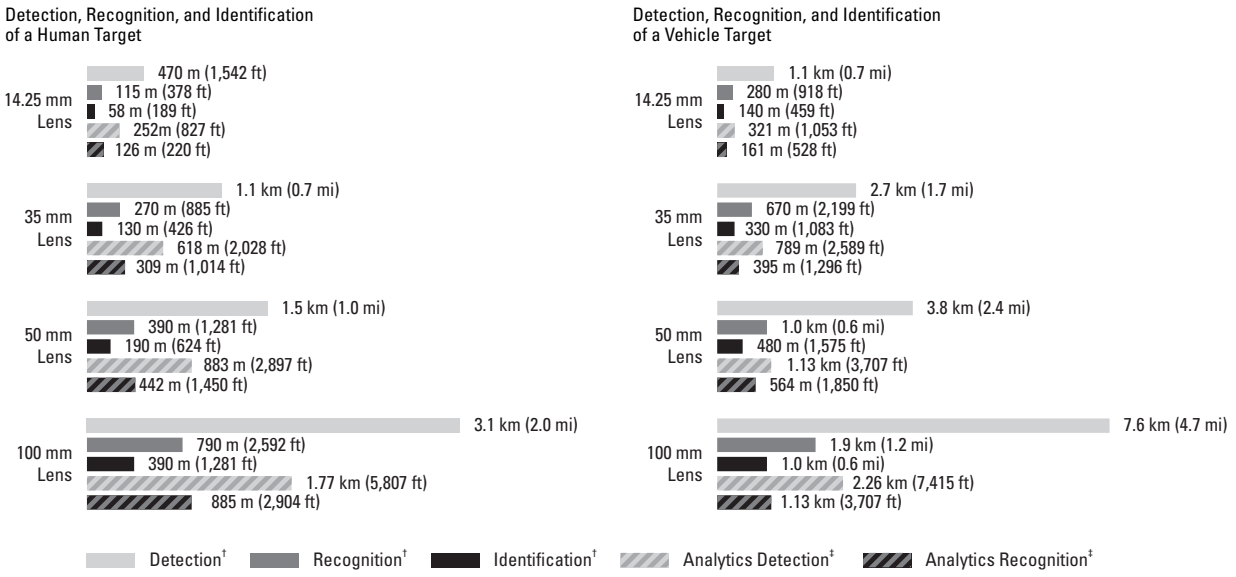
ANALOG

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

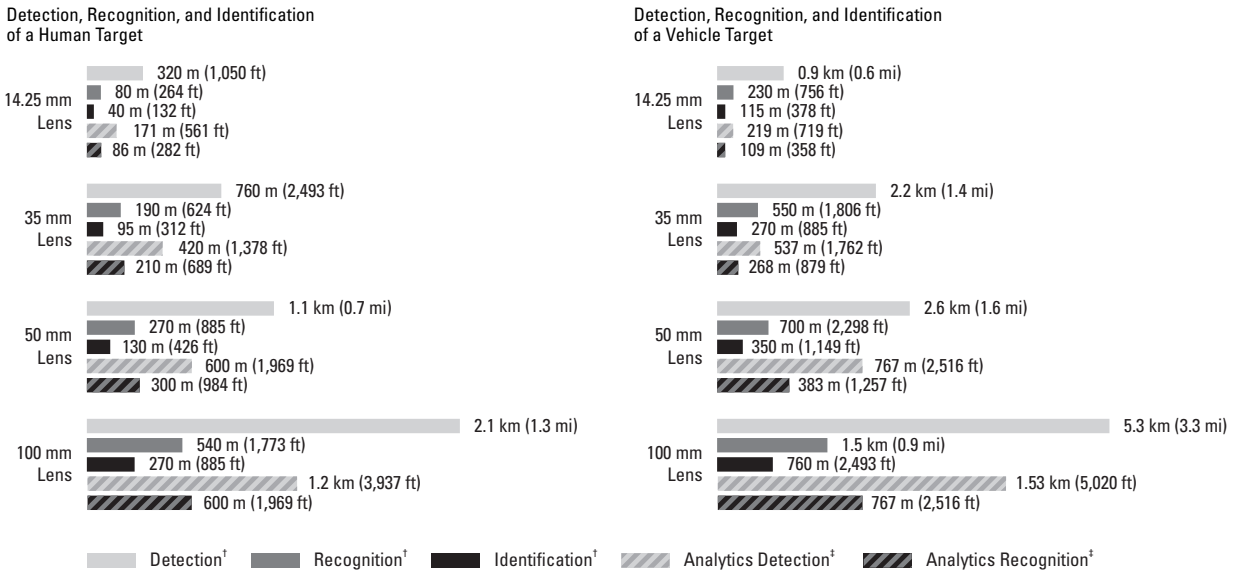
† Supports mixed IPv4 and IPv6 environments, but not IPv6-only deployments.

RANGE PERFORMANCE*

640 x 480



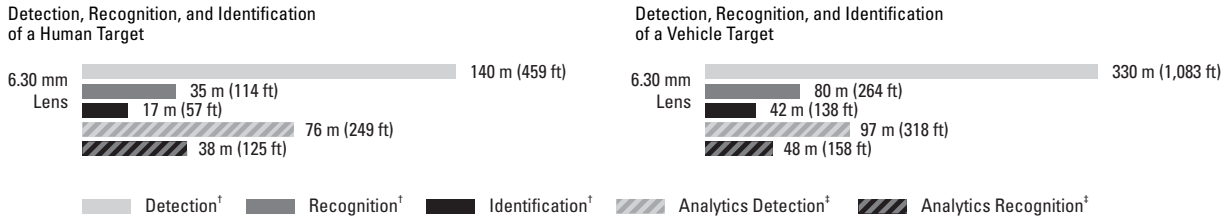
384 x 288



TECHNICAL SPECIFICATIONS

RANGE PERFORMANCE (CONTINUED)*

240 x 184



*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. Because a vehicle is larger than a human, the vehicle analytics detection and recognition ranges can be larger than the human ranges as described below:

Range	Human Analytics	Vehicle Analytics
Detection	1.8 m/6 pixels	2.3 m/6 pixels
Recognition	1.8 m/12 pixels	2.3 m/12 pixels

ELECTRICAL

Port	RJ-45 connector for 100Base-TX, auto MDI/MDI-X	
Cabling Type	Cat5 or better for 100Base-TX	
Power Input	24 VAC or 24 VDC	
Input Voltage Range	+15%, –20%	
Power Consumption	Lens (mm)	Power
24 VAC	6.30, 14.25, 35, 50	1.51 A, 39.90 VA (35 W)
	100	3.26 A, 86.10 VA (85 W)
24 VDC	6.30, 14.25, 35, 50	1.26 A (35 W)
	100	3.21 A (85 W)
Current Consumption	<750 mA nominal; <1.2 A maximum	
Local Storage	Micro SD	
Alarm Input	N.O. switch, N.C. switch, or 1 kohm; supervised	
Alarm Output	0 to 32 VDC maximum, 100 mA maximum	
Audio	Bidirectional, half duplex; line level/external microphone input; 600 Ohm differential; 1 Vp-p maximum signal level	
Compression	G.711 PCM 64 kbps	

MECHANICAL

Latching	2 captive Torx™ screws
Cable Entry	2 adjustable 0.5-inch NPT liquid-tight glands

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
6.30 mm	3.1 kg (6.9 lb)	4 kg (9 lb)
14.25 mm	3.1 kg (6.9 lb)	4 kg (9 lb)
35 mm	3.2 kg (7.2 lb)	4 kg (9 lb)
50 mm	3.3 kg (7.3 lb)	4 kg (9 lb)
100 mm	3.4 kg (7.5 lb)	4 kg (9 lb)

TECHNICAL SPECIFICATIONS

MODELS*

Lens	Format	Resolution		
		640 x 480	384 x 288	240 x 184
6.30 mm	NTSC	—	—	TI206
	PAL	—	—	TI206-X
14.25 mm	NTSC	TI614	TI314	—
	PAL	TI614-X	TI314-X	—
	PAL, 8.3 ips	TI614-X1	TI314-X1	—
35 mm	NTSC	TI635	TI335	—
	PAL	TI635-X	TI335-X	—
	PAL, 8.3 ips	TI635-X1	TI335-X1	—
50 mm	NTSC	TI650	TI350	—
	PAL	TI650-X	TI350-X	—
	PAL, 8.3 ips	TI650-X1	TI350-X1	—
100 mm	NTSC	TI6100	TI3100	—
	PAL	TI6100-X	TI3100-X	—
	PAL, 8.3 ips	TI6100-X1	TI3100-X1	—

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

RECOMMENDED MOUNTS

Ceiling/Pedestal

EM1009U, EM1015U	Medium duty ceiling/pedestal mount

Wall

EM1450	Light duty wall mount
EM1900U	Medium duty wall mount

Pipe/Pole

EM1109	Medium duty pedestal mount for horizontal or vertical pipe/pole applications
EM2000	Medium duty mount for vertical applications

RECOMMENDED POWER SUPPLIES

WCS1-4	Outdoor camera power supply, 100/120/240 VAC input; one 24/26/28 VAC output; total current capacity of 4 A (100 VA)
WCS4-20	Outdoor multiple camera power supply, 120/240 VAC input; four fused 24/28 VAC outputs; total current capacity of 20 A (480 VA)

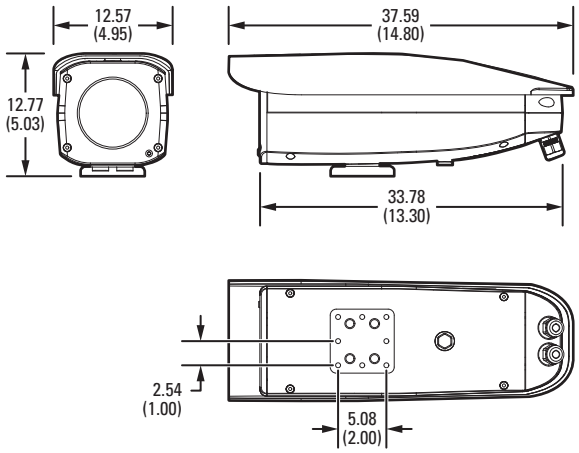
OPTIONAL ACCESSORIES

SECURE-SLA License	Enables Information Assurance compliant mode of operation

CERTIFICATIONS/RATINGS/PATENTS

- CE, Class A
- FCC, Class A
- UL Listed
- C-Tick
- Meets NEMA Type 4X and IP66 standards
- Shock and Vibration, Meets NEMA TS 2; IEC613736-8, -9, -10
- Cisco® Medianet (MSP) compatible
- ONVIF 1.02

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



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