



Xi 410 LT Series Infrared Thermal Cameras

Overview

The Optris Xi 410 LT is a compact, rugged industrial infrared thermal imaging camera designed for continuous, non-contact surface temperature measurement in demanding manufacturing and process control environments. Using a 384×240 pixel uncooled focal plane array detector with an 8–14 μm spectral range, it delivers accurate two-dimensional thermal images with a thermal sensitivity of 60 mK and accuracy of $\pm 2^\circ\text{C}$ or $\pm 2\%$, whichever is greater. Four fixed models with fields of view ranging from $18^\circ \times 12^\circ$ to $80^\circ \times 44^\circ$ allow the camera to be matched to specific measurement distances and target sizes, with optical resolution reaching 390:1 with the 18° optics. A defining feature of the Xi 410 LT is its autonomous smart pyrometer mode, which operates independently of a connected PC at up to 1.5 Hz frame rate and includes an automatic hot spot finder with direct 0/4–20 mA analog output — making it well-suited for 24/7 condition monitoring and OEM integration without dedicated computing hardware. For process integration, the camera supports a stackable

industrial process interface (PIF) that provides up to 9 analog and alarm outputs (with 3 PIFs cascaded and PC software), along with a dedicated fail-safe relay that monitors camera hardware, cabling, and software integrity continuously. The Xi 410 LT communicates over Fast Ethernet, USB 2.0, or RS485, and supports the industrial protocol Modbus TCP via an optional interface accessory. Housed in a $\varnothing 36\text{mm} \times 100\text{mm}$ stainless body rated IP67 (NEMA 4) with motorized focus, the camera operates in ambient temperatures from 0 to 50°C and is powered by 5–30 VDC, PoE, or USB. The free PIX Connect software provides full radiometric analysis, multi-area measurement, data logging, web server capability, and configurable alarm output programming. Network deployments require 39 Mbps per camera at 25 Hz; a Gigabit network can support up to ~20 (25 max.) simultaneous Xi 410 units.



Xi 410 LT Series

Camera Operation

Every object gives off heat you cannot see with your eyes. The hotter something is, the more invisible heat energy it puts out. The Xi 410 LT is basically a camera that sees that invisible heat and turns it into a color picture, where hot spots show up as bright colors and cooler areas show up as dark ones.

Unlike a handheld infrared thermometer or pyrometer that gives you a single temperature reading from one point, this camera has over 92,000 tiny sensors packed into a grid, so every point in the image has its own temperature value.

The one thing you need to get right is something called emissivity. Different materials broadcast their heat differently. A painted surface broadcasts it very clearly, so the camera reads it easily and accurately. A shiny bare metal surface tends to bounce heat around instead of broadcasting it cleanly, which can throw off your readings. The emissivity sticker labels solve that problem by giving the camera a consistent, easy-to-read target on an otherwise tricky surface.

Once the camera is set up and pointed at whatever you want to monitor, it runs continuously and can automatically flag hot spots or send a signal to your control system the moment something goes out of range, no computer required.

Features

- 384×240 pixel uncooled FPA detector, 8–14 μm spectral range, 60 mK thermal sensitivity, and $\pm 2^\circ\text{C} / \pm 2\%$ accuracy for precise, non-contact two-dimensional temperature measurement
- Autonomous smart pyrometer operation at 1.5 Hz with automatic hot spot/cold spot finder and direct 0/4–20 mA analog output — no PC required for basic process monitoring
- Four models with fixed lenses ($18^\circ \times 12^\circ$, $29^\circ \times 18^\circ$, $53^\circ \times 31^\circ$, $80^\circ \times 44^\circ$) with motorized focus
- Stackable industrial process interface (PIF) provides up to 9 analog/alarm outputs (3 $\times$ PIFs and PC software), 3 $\times$ analog/digital inputs, and a dedicated fail-safe relay
- Modbus TCP support for direct PLC and SCADA integration; USB 2.0 and RS485 also supported
- IP67 (NEMA 4) rated enclosure ($\varnothing 36\text{mm} \times 100\text{mm}$), M30 $\times$ 1 thread mount, designed for continuous industrial installation in wet, dusty, or vibration-prone environments
- Flexible power options: 5–30 VDC, Power over Ethernet (PoE), or USB; Ethernet cable runs up to 100m [328ft]
- PIX Connect software with full radiometric analysis, configurable measure areas, alarm programming, data logging, histogram, and built-in web server for remote monitoring (free download)
- Available accessories include laminar air purge (ACXIAPL), 2-axis adjustable mounting bracket (ACXIAPLAB), and Ethernet cables in 5m, 10m, and 20m lengths for flexible installation configurations

Applications

- Condition monitoring of electrical equipment — continuously scans switchgear, transformer banks, or motor housings in autonomous mode, triggering relay alarms when hot spots exceed set thresholds, without requiring a connected PC
- Furnace and heat treatment monitoring — tracks temperature distribution across workpieces or refractory surfaces in real time, with PIF analog outputs feeding temperature data directly to a PLC or DCS for process control
- Web or conveyor process inspection — monitors moving film, sheet metal, or food products for temperature uniformity, using the high-resolution thermal image and multi-area analysis to catch defects or uneven heating zones
- Fire detection and prevention — deployed in bulk material storage, battery rooms, or waste processing facilities where continuous thermal surveillance identifies early-stage heat buildup before ignition
- Replace multiple pyrometers — accurately read multiple points in a process at one time and/or search for highest or lowest temperature

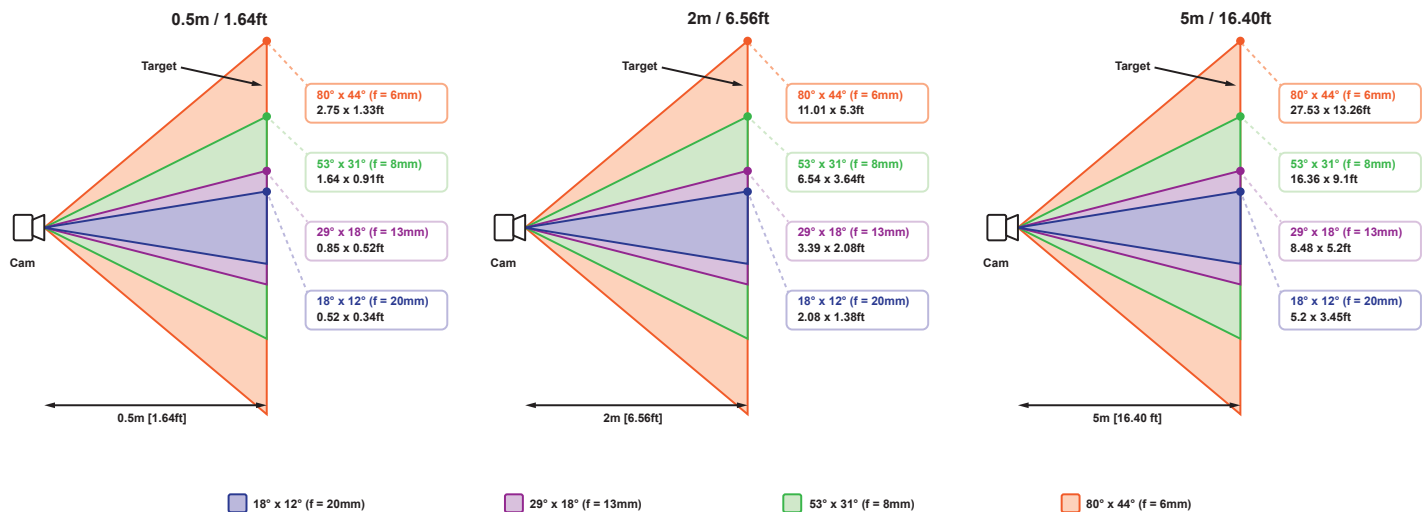


Xi 410 LT Series Infrared Thermal Cameras

Viewing

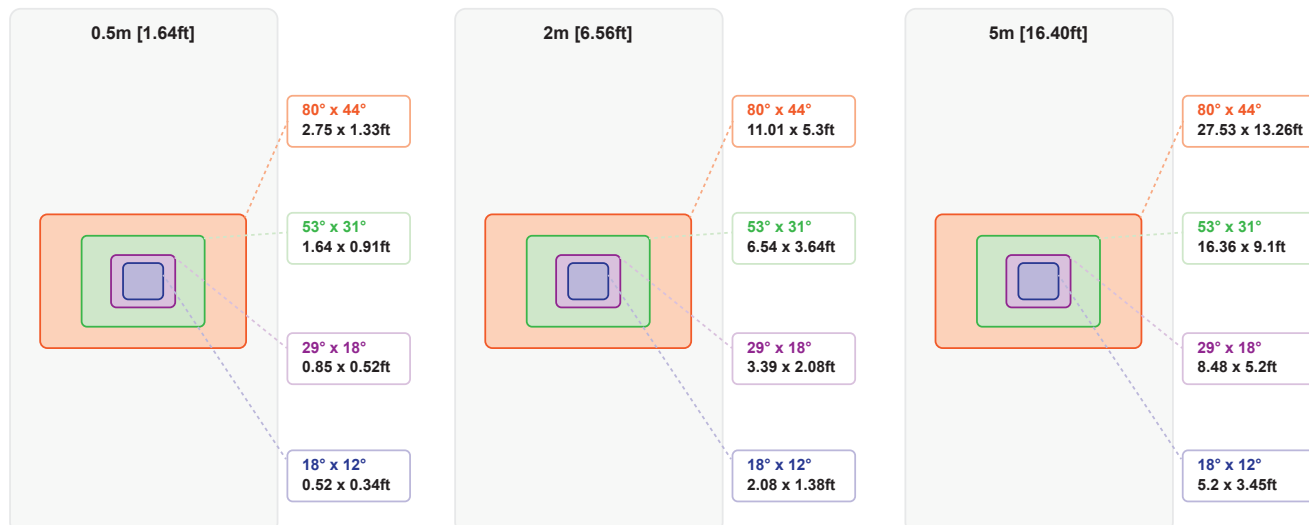
The chart below illustrates the field of view (FOV) coverage area for the Optris Xi 410's four available lens options at three different working distances — 0.5m [1.64ft], 2m [6.56ft], and 5m [16.40ft]. Each lens is represented by a cone extending from the camera, showing how wide and tall the coverage footprint becomes as distance increases. The widest lens (80° x 44°, f = 6mm) produces the largest footprint at every distance — reaching 27.53 x 13.26ft at 5m — while the narrowest lens (18° x 12°, f = 20mm) stays the most compact, topping out at 5.2 x 3.45ft at the same distance. The side-view layout makes it easy to compare how dramatically FOV expands with distance across all four optics simultaneously.

Side View – Cone depth at each distance
Labels ordered largest FOV (top) to smallest (bottom)



This chart below displays the sensor footprint — the actual area captured by the camera — from the camera's perspective looking toward the target, at three working distances: 0.5m [1.64ft], 2m [6.56ft], and 5m [16.40ft]. At each distance, four nested rectangles represent the Xi 410's four lens options, showing how the captured area grows with distance. At 0.5m the footprints range from 0.52 x 0.34ft for the narrowest 18° lens up to 2.75 x 1.33ft for the widest 80° lens; at 5m those same lenses cover 5.2 x 3.45ft and 27.53 x 13.26ft respectively, illustrating how dramatically coverage scales as distance increases.

**Camera Perspective
Sensor Footprint At Target**





Xi 410 LT Series Infrared Thermal Cameras

Optris Xi 410 LT Series Infrared Thermal Cameras Selection

Part No.	Temperature Range	Spectral Range	Minimum Operating Distance	Fixed Viewing Angle / Focal Length	Operating Voltage	IP Rating	Mounting	Connection	Weight (lbs)	Price
OPTXI41LTF20T090	-20 to +900 °C [-4 to +1652 °F]	8–14 μm	350mm [13.78in]	18° × 12° f = 20mm [0.79in]	5–30 VDC	IP67	M30x1 threaded end	PoE adapter cable and USB adapter cable included	1.46	\$3,675.00
OPTXI41LTF13T090				29° × 18° f = 13mm [0.51in]					1.46	\$3,675.00
OPTXI41LTF08T090			250mm [9.84in]	53° × 31° f = 8mm [0.31in]					1.45	\$3,675.00
OPTXI41LTF06T090			200mm [7.87in]	80° × 44° f = 6mm [0.24in]					1.46	\$3,675.00

Specifications

Optris Xi 410 LT Camera General Specifications

Optical Resolution	384 × 240 pixels
Detector	FPA, uncooled (17μm pixel pitch)
Spectral Range	8–14μm
Selectable Temperature Ranges	-20 to +100 °C [-4 to +212 °F] 0–250 °C [32–482 °F] 150–900 °C [302–1652 °F]
Frame Rate — Ethernet	384 × 240 px @ 25 Hz
Frame Rate — USB	384 × 240 px @ 4 Hz
Frame Rate — Autonomous Operation	384 × 240 px @ 1.5 Hz
Focus	Motorized focus (controlled from software)
Optical Resolution (D:S)	390:1 (18° optics)
Thermal Sensitivity (NETD)	60 mK
Accuracy	±2 °C [±3.6 °F] or ±2%, whichever is greater
Ambient Temperature (Operating)	0–50 °C
Enclosure Size	Ø 36mm × 100mm [Ø 1.4in × 3.9in] — M30×1 thread
Enclosure Rating	IP67 (NEMA 4)
Shock / Vibration	IEC 60068-2-27 (25g and 50g) / IEC 60068-2-6 (sinusoidal), IEC 60068-2-64 (broadband noise)
Power Supply	5–30 VDC / PoE / USB
PC Interface	Fast Ethernet / USB 2.0 / RS485
Input / Output Specifications	
Direct Analog Output	1× analog output, 0/4–20 mA; electrically isolated
Direct Input	1× input, analog or digital; electrically isolated
Ind. Process Interface (PIF) — Analog Outputs	3× analog outputs: 0/4–20 mA or 0–10V; stackable up to 3 PIFs (9 outputs total when connected to PIX Connect software)
Ind. Process Interface (PIF) — Alarm Outputs	3× alarm outputs (relay), stackable up to 3 PIFs (9 outputs total when connected to PIX Connect software)
Ind. Process Interface (PIF) — Inputs	3× inputs: analog or digital
Ind. Process Interface (PIF) — Fail-Safe	Dedicated fail-safe relay and LED; electrically isolated; 500 VAC RMS isolation
Supported Industrial Protocols	Ethernet TCP/IP / Modbus TCP (via ACXICSVIENMBTCPK interface kit)
Supported Bus Interfaces	USB 2.0, RS485, Ethernet TCP/IP, Modbus TCP



Xi 410 LT Series Infrared Thermal Cameras

Optris Xi 410 LT Camera General Specifications

<i>Cable Lengths – Included / Available</i>	
<i>Ethernet PoE Adapter Cable (Included)</i>	1m [3.3ft]
<i>Ethernet Cable (Optional)</i>	5m [16.4ft], 10m [32.8ft], 20m [65.6ft]
<i>USB Cable (Included)</i>	1m [3.3ft]
<i>Process Interface Cable (Included)</i>	1m [3.3ft], includes terminal block
<i>Network Requirements (Xi 410 @ 25 Hz — Ethernet Mode)</i>	
<i>Data Transfer Rate (Xi 410 @ 25 Hz)</i>	39 Mbps per camera
<i>Max Cameras — 100 Mbps Network</i>	2
<i>Max Cameras — 1000 Mbps (GigE) Network</i>	25
<i>IP Address Mode</i>	Static IP required; DHCP not supported for camera/PIF network
<i>Required Network Hardware</i>	Managed industrial switch; static IP addresses required for all devices; dedicated network isolated from general company traffic recommended

For additional details and wiring information see *Manufacturer's Technical Specifications and Manual*.

Optris Xi 410 LT Series Infrared Thermal Camera Information Links

<i>Part Number</i>	<i>Drawing Link</i>	<i>Manufacturer Specs</i>	<i>Manufacturer Quick Start</i>	<i>Manufacturer Manual</i>
<i>OPTXI41LTF06T090</i>	PDF	PDF	PDF	PDF
<i>OPTXI41LTF08T090</i>	PDF			
<i>OPTXI41LTF13T090</i>	PDF			
<i>OPTXI41LTF20T090</i>	PDF			

Autonomous Operation (Without PC) With Up to 3 Analog Outputs / Alarm Outputs





Xi 410 LT Series Infrared Thermal Cameras - Accessories

Accessories



Part No. [ACXIETCB5](#)

Communication Cables

The Optris Xi 410 LT Ethernet communication cables connect the camera directly to a network switch or PC and are available in three lengths to accommodate different installation distances. All three cables feature a shielded construction with a 4-pin M9 quick-disconnect connector on the camera end and a standard RJ45 connector on the network end. The 1m PoE adapter cable included with the camera allows connection to a network switch with power over Ethernet capabilities. The [ACXIETCB5](#) (5m / 16.4ft), [ACXIETCB10](#) (10m / 32.8ft), and [ACXIETCB20](#) (20m / 65.6ft) options provide Ethernet connection while the camera is powered separately.

Optris Xi 410 LT Series Infrared Thermal Camera Communication Cables				
Part No.	Description	Weight	Drawing Link	Price
ACXIETCB5	Optris communication cable, 4-pin M9 quick-disconnect to RJ45 male, shielded, 16.4ft [5m] cable length. For use with Optris Xi 410 LT series thermal cameras.	0.49	PDF	\$105.00
ACXIETCB10	Optris communication cable, 4-pin M9 quick-disconnect to RJ45 male, shielded, 32.8ft [10m] cable length. For use with Optris Xi 410 LT series thermal cameras.	0.79	PDF	\$115.00
ACXIETCB20	Optris communication cable, 4-pin M9 quick-disconnect to RJ45 male, shielded, 65.6ft [20m] cable length. For use with Optris Xi 410 LT series thermal cameras.	1.06	PDF	\$150.00

For additional details and wiring information see *Manufacturer's Technical Specifications and Manual*.



Part No. [ACXIAPL](#)

General Accessories

ACXIAPL — Air Purge Assembly

The Optris air purge assembly mounts directly to the Xi 410 LT camera and directs a continuous flow of clean, dry air across the lens to keep it free of dust, smoke, moisture, and other airborne contaminants in harsh installation environments. It includes a protective silicone window and requires the ACXIAPLAB 2-axis mounting bracket for installation.

ACXIAPLAB — 2-Axis Mounting Bracket

The Optris 2-axis adjustable mounting bracket provides flexible pan and tilt positioning for the Xi 410 LT camera and is compatible with the air purge assembly. It includes a standard tripod thread for broad mounting compatibility.

ACLSED — Emissivity Labels, Package of 70

The Optris emissivity labels are small, 25mm diameter adhesive stickers designed to be applied to reflective or low-emissivity surfaces, such as bare metals, that are otherwise difficult for infrared cameras and thermometers to read accurately. Made from white polyimide with a pressure sensitive permanent acrylic adhesive, each label has a known emissivity of 0.95, giving the camera a consistent, reliable surface to read rather than the unpredictable reflectivity of the underlying material. They are rated for service temperatures from -40 to +388 °C, optimized for the 8–14µm spectral range, and come 70 per package.



Part No. [ACXIAPLAB](#)



Part No. [ACLSED](#)

Optris Xi 410 LT Series Infrared Thermal Camera General Accessories					
Part No.	Description	Weight	Drawing Link	Manufacturer Specifications	Price
ACXIAPL	Optris air purge assembly, for use with Optris Xi 410 LT series thermal cameras. Requires Optris ACXIAPLAB 2-axis mounting bracket.	0.07	PDF	N/A	\$275.00
ACXIAPLAB	Optris 2-axis mounting bracket, for use with Optris Xi 410 LT series thermal cameras.	1.00	PDF	N/A	\$125.00
ACLSED	Optris emissivity sticker, package of 70. For use with infrared pyrometers and cameras with a spectral range of 8–14 µm.	0.05	N/A	PDF	\$160.00

For additional details and wiring information see *Manufacturer's Technical Specifications and Manual*.



Xi 410 LT Series Infrared Thermal Cameras - Software

PIX Connect Software

Optris PIX Connect is a free Windows software package for the Xi 410 LT camera that serves as the central hub for camera configuration, real-time thermal image display, data analysis, and process integration. Once installed, it delivers a live thermal image from the camera directly to your PC screen, with every pixel displaying its own temperature value and a fully customizable layout to show exactly the information you need at a glance. Multiple measurement areas can be defined within the image — rectangles, lines, or custom shapes — each independently reporting values like average, hot spot, or cold spot temperatures in real time. A built-in temperature time diagram tracks how temperatures in any defined area trend over time, making it easy to spot gradual changes or catch sudden spikes before

they become a problem. The software also handles full camera setup including emissivity, ambient temperature compensation, temperature range selection, and motorized focus adjustment, so everything can be configured from one place without additional tools. For facilities running multiple cameras, PIX Connect supports simultaneous operation of several imagers, with synchronized flag control and frame synchronization available across units. Data recording is equally flexible, with options for standard video, fully radiometric video, and snapshot capture, all of which can be replayed and analyzed after the fact. A built-in web server allows the live thermal image and temperature data to be accessed remotely over a network.

Features

- Real-time thermal image display with fully adjustable color palettes, manual or automatic temperature scaling, and desktop, touch, and tablet display modes
- Configurable measurement areas with independent reporting of average, minimum, maximum, hot spot, and cold spot temperatures per zone
- Temperature time diagram and histogram for tracking temperature trends and statistical distribution across the image over time
- Radiometric video and snapshot recording with post-processing and replay tools for detailed after-the-fact analysis
- Complete camera configuration including emissivity, transmissivity, ambient temperature, temperature range, and motorized focus — all from a single software interface
- Built-in web server for remote monitoring of live thermal data over a network
- Autonomous operation setup for the Xi 410 LT, allowing the camera to run independently without a connected PC once configured

Optris Xi 410 LT Series Infrared Thermal Camera Software			
Part No.	Description	Manufacturer Manual	Price
<u>OPTRIS-PIX-CONNECT</u>	Optris Windows configuration and monitoring software, free download only. For use with Optris Xi 410 LT series thermal cameras.	PDF	Free Download

For additional details and wiring information see *Manufacturer's Manual*.

How it works and what it does

PIX Connect is the software that acts as the brain between the Xi 410 LT camera and your computer. When you plug the camera in and open the software, it pulls the live thermal image from the camera and displays it on your screen in real time — every pixel glowing with its own color based on temperature, hot areas showing up bright and cool areas dark.

From there, you can draw boxes or lines anywhere on that image and tell the software to watch those specific spots. It will continuously track the temperature in each of those areas and show you the numbers live on screen, so if something starts getting too hot you can see it happening as it occurs rather than finding out after the fact.

The software also lets you set alarms, so if a temperature climbs above or drops below a threshold you set, it flags it immediately. You can record everything as a video and go back and review it later, which is useful for troubleshooting or documenting a process. The built-in graphs show you how temperatures have changed over time, so patterns and trends are easy to spot.

On the setup side, it is where you configure all the camera settings — things like emissivity, temperature range, and focus — so you only need one program to both run and adjust the camera for autonomous operation. A free download link means you never need to hunt down a disc to install it.