POWER & PERFORMANCE

FLIR P-Series
Infrared perfection
FLIR P-Series

... a giant leap for infrared technology
Your mission, our challenge

Your mission is to get your job done accurately and efficiently. Our challenge is to meet your requirements and make the most accurate handheld infrared camera for demanding professional users.

FLIR engineers master all the disciplines needed to make the best cameras in the world; from detector development to the camera’s optics and hardware. But this is not the real challenge for a market leader and driver: at FLIR Systems, competence teams also focus on how to combine an advanced infrared camera with the best possible usability and how to develop and add new, innovative features to ease the task of demanding professional users.

The P-Series is the result of engineering power, market insight and customer focus. It’s the most advanced, most accurate infrared camera technology on the market today – with a lot of industry-first features.

FLIR Systems has developed infrared cameras for commercial use since the fifties. Our camera systems and software solutions are planned, developed and manufactured at plants in Stockholm, Sweden and Boston, USA.

High quality Infrared lens made of germanium

Arne Almerfors, President Thermography Division
Utility companies across the globe use infrared images every day to analyze facilities, to avoid power outages and to gain efficiencies for daily operations.

As a thermographer at a utility company, you may work in remote locations or tough environments. You may have to inspect small details at longer distances, from the ground or even airborne. You will be required to work fast. And you have to provide excellent images in professional reports.

Quality records of previous inspections are important sources of information. They enable maintenance services to monitor the state of the infrastructure and its further operational functionality and integrity.

**P-Series for Infrared Consultants:**
Looking for the highest infrared image quality available

As a well-trained, certified expert, companies call you in to inspect their assets and trace anomalies which are invisible to the naked eye. You work in various locations and situations, often under time-pressure and in difficult circumstances.

To focus on your job you need a infrared camera that you can rely on, that will perform and generate results, and that is easy to handle.

Our aim is to meet your requirements and we are confident that the P-Series is the best and most complete handheld infrared camera for professional infrared consultants.

**Why the P-Series is ideal for Infrared Consultants:**
- Highest image quality available
- High performance camera based on the latest technology
- Increasing personal safety as the high resolution camera allows longer distance to target
- Fully adaptable camera for personal settings and for a wide range of applications
- Wireless remote control for hard to reach areas

**P-Series in the Utilities sector: Durability, reliability for efficient inspections**

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The durability, reliability and dependability of the P-Series mean that these cameras are ideal for indoor and outdoor inspections in the utilities sector.

**Why the P-Series is ideal in Utilities applications:**
- 640x480 pixel resolution to inspect small objects at a distance
- Wireless remote control to inspect areas that are hazardous or difficult to access
- Built-in GPS for localization of objects
- Tilted viewfinder for outdoor inspections
- Thermal Fusion & Picture-in-Picture functionality to highlight problem areas
- Range of available lenses from wide angle to tele lens

Reporting is key: local maintenance management decides what’s too hot, and what can be delayed until a planned shutdown. They need this info immediately, clear and correct.

The consistent use of infrared inspections generates not only substantial savings in terms of money and time: unspotted deficiencies at manufacturing plants can put your employees at risk.

To meet all these varying requirements, there is only one solution: the P-Series.

**Why the P-Series is ideal for Industrial applications:**
- Extended temperature range allowing measurements up to +2,000 °C
- Wireless remote control for enhanced safety and ergonomics
- Wide range of lenses available
- Voice and text comments
- Compatibility with FLIR Reporter™ and Researcher™ software suites
- Equipped with precision laser pointer to locate your problem area

P-Series for Industrial manufacturing applications:
Accurate inspections while production plant is running.

Your role as a thermographer at a production or manufacturing plant will involve measuring heat generation in machines and installations, preventing breakdowns.

Flexibility and focus is required, both from you and your camera. You may have to operate in confined, remote, dark, poorly accessible areas. It is also important that not only infrared images can be stored, but also infrared video sequences of moving or rotating machinery parts.

Inspecting a substation using infrared technology reveals hidden problems. Looking for refractory lining condition or solids buildup in industrial piping systems.
Powerful infrared lens
The P660 has the best infrared lens in the FLIR product range, and offers extremely high sensitivity and resolution. The combination of the powerful lens and the high detector sensitivity generates the best image available.

Tiltable high resolution viewfinder
For outdoor inspections or used when the LCD screen is not used.

Integrated visual camera
Its 3.2 megapixel visual camera provides clear and detailed visual evidence that can be stored with and assigned to the infrared images.

Large high resolution LCD screen
A 5.6" large and bright, high resolution LCD screen, presents sharp images. The screen can be placed in practically every angle enabling you to adjust it to even the most difficult working conditions.

307,200 pixels tell a story
Image quality is one of the most important features of any infrared camera. State-of-art image quality offers you the possibility to see more details at a distance, make better and faster decisions and to use analysis tools with greater accuracy. At FLIR, we turn images into carriers of content.
High Resolution & Sensitivity: unmatched image quality

The FLIR P660 comes with the highest camera sensitivity (<45 mK) and highest number of pixels (640x480) on the market. This powerful combination allows you to scan more objects, to work more efficient and also to work safer.

With this infrared camera you can be twice the distance away from your target than with a 320 x 240 pixels camera and still measure with full accuracy.

Infrared image of a high voltage installation taken from a longer distance still allows you to see all details, and therefore increasing worker safety.

Picture-in-Picture (PiP)

The P660 carries a function which allows to overlay the infrared image on the visual image while retaining all measurement data. The infrared image can be panned and scaled freely throughout the available visual image. This feature helps to spot and highlight sensitive or dangerous temperature developments and makes report interpretation easy even for a person unfamiliar with infrared.

This function is built into the camera and is very useful in your reports.

Picture-in-Picture allows a clear overview of this high voltage installation.

Thermal Fusion

FLIR’s new Thermal Fusion functionality allows for easier identification and interpretation of infrared images. This advanced technology enhances the value of an infrared image by allowing you to overlay it directly over the corresponding visible image. This functionality combines the benefits of both the infrared and visual picture at the push of a button. The P660 camera does this in real-time and the overlay function can be easily adjusted to suit any application such as electrical surveys, building diagnostics and mechanical inspections.

Thermal image enhanced with the Contrast Optimizer function.

Contrast Optimizer

The Contrast Optimizer is a special feature that enhances details in contrast-rich infrared images. The Contrast Optimizer optimizes the brightness and contrast adjustment and enables to view both the scanned object and its surroundings.

As such, the Contrast Optimizer also contributes to the ease of use of the P660 camera, as it decreases the need for manual adjustments of level and span, while preserving the background details. It allows the P660 camera user to concentrate on the image, not on the camera control.
Ground breaking functionalities

We added the world as a feature: locate your infrared images

Geographical location information has a growing impact on many industrial sectors that use infrared cameras to inspect and maintain their assets.

FLIR Systems has built-in GPS technology into the P660 which allows to clearly position the inspected area and the corresponding infrared images to that area.

Infrared images now become geo-referenced. The images can be loaded into the Reporter software suite, offering links to available map and satellite imagery information systems (like Google Earth) that indicates the geographic location of the images.

The built-in GPS clarifies reports and helps maintenance in utilities, energy, telecom, mining, facility management, logistics and other sectors that have to deal with inspection objects scattered over larger areas.

The system enables technicians to view, analyze and directly localize infrared images from many different locations easily and quickly. It will also guide inspection and field repair teams to the correct location.
Wireless Remote control

Improve safety, protect yourself

• Inspection in hazardous areas
• Inspection of areas difficult to access
• Process monitoring from a safe distance

Professional infrared camera users often work in hazardous areas or in places that are difficult to access.

We have responded to our customer feedback and developed a remote control that allows you to control all vital functions of the camera from a safe distance in a wireless mode.

The wireless remote control is an optional feature compatible with P660, P640*, P620*

(*) estimated release for P640 & P620 sept. 2008
Functionality, Features and Ease of Use for the best results

High Quality images

High quality infrared images
A large diameter lens means more IR radiation reaches the detector, resulting in crisp IR images. The high-precision germanium lenses with integral USM focusing mechanism are designed to take full advantage of the 640x480 pixel FPA detector.

640x480 pixel resolution
The P-Series have a high resolution pixel detector of 640x480 pixels that allows more accuracy and shows more details at a longer distance.

High sensitivity
<45 mK thermal sensitivity captures the finest image details and temperature difference information.

High quality visual camera
An integrated 3.2 megapixel visual camera for generating crisp visual images in all conditions.

Power / Functionality

Remote control
Wireless remote control provides comfort and safety for hazardous measurements or inspections in remote places.

Built-in GPS
GPS allows to georeference infrared images to determine its geographic location.

Laser locator
A conveniently located button activates the laser locator that will help you associate the hot or cold spot in the IR image with the real physical target in the field.

Flexible interfaces
Easy access to composite video connection, USB, FireWire, and a direct connection to charge the battery inside the camera.

MPEG-4 video
Create visual and infrared non radiometric MPEG-4 video files.

FLIR Thermal Fusion
Merges visual and infrared images to offer better analysis.

Picture-in-picture
Create an infrared overlay on your visual image. Scalable, moveable and resizable (depending on model).

Thumbnail image gallery
An easy-to-access thumbnail image gallery helps you to quickly review and find your infrared images.

Radiometric JPEG
FLIR Systems uses a radiometric JPEG image format that allows for postprocessing and report writing with Microsoft Word® based FLIR software. Single image/periodic storage.

Text and voice annotations
Text comments can be uploaded to the camera through a wireless IrDa interface. A headset can be connected to make voice annotations.

Intelligent battery system
The Li-Ion battery of the P-Series gives the user an autonomy of over 3 hours IR inspections. The battery can be charged while still in the camera, in a 2-bay charger or in a car.

Automatic focus and Manual focus, Digital zoom
Dual focus possibilities including autofocusing.

Ergonomics/ Ease of Use

Tiltable viewfinder
The high-resolution viewfinder is tiltable and can be adapted to the individual user. It is ideal for outdoor use or when the LCD screen is not used.

IP54 standard
The P-Series meets the IP54 standard, is dust-proof and water splash-proof, and is designed to be used in harsh industrial environments and weather conditions.

Large LCD screen
Super size 5.6” foldable high-quality LCD screen allows you to see the smallest details and temperature differences.

Multi-angle handle with integrated direct access buttons
A tunable control grip allows you to use the camera in the most comfortable position. The buttons and joystick to control the camera are integrated in this handle and always stay right underneath your fingertips. Functions like auto focus, freezing and storing of images are just a button away.

Programmable direct access buttons
For increased flexibility the operator can program buttons located on the top of the camera to change color palettes, emissivity settings or temperature ranges, or activate analysis tools such as spots and areas.
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Infrared perfection

- High performance with 640x480 resolution
- Contrast Optimizer
- Built-in GPS
- Wireless remote control

Intuitive graphical user interface

- Easy and logical user interface

- Large LCD screen
- Programmable direct access buttons
- Laser pointer
- High quality digital camera and video light
- IR-lens
- Manual focus ring
- Multi-angle handle
- Control buttons (on handle)
- Tiltable viewfinder
- SD-card slots
- USB connector
- Video connector
- Door for connectors

Easy connectivity

- Interfaces
- Intelligent battery system
- Power over Ethernet
- MPEG-4
- Measurement
- GENICAM
- Lightweight
- MPEG-4
- Masking
- GIG E
- 45°
- 320
- 240x
- 640
- 480
- PoE
- FTP
- Remote control
- DIGITAL
- Events
- 16bit
- 24°
- FIREWIRE
- BURST
- RECORDING
- GIGABIT ETHERNET
- TRIGG
- SYNC
- HIGH SENSITIVITY
- < 70 mK
- ALARMS

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The FLIR P-Series consists of three models to meet varying user requirements: the P620, P640 and P660. Within the FLIR P-Series range we have also industry specific versions like the B660 (building) and the SC 660 (R&D).

Common features shared by all P-Series cameras include:
- High resolution with flexible viewing options (640 x 480 pixels)
- 3.2 Megapixel visual camera*
- Text and voice annotations
- Periodic storage
- Programmable buttons
- WLAN interface*

FLIR P660
The FLIR P660 is the latest top of the line addition to the FLIR P-Series, with new groundbreaking features such as:
- <45 mK sensitivity at an accuracy of +/- 1%
- Wide range of lenses
- 8x digital zoom
- Extended measurement functions
- Built-in GPS
- Contrast Optimizer
- USB and Firewire connection
- Sequence recording in camera
- Upgradable to FLIR P660*

FLIR P640
For more sophisticated applications, the FLIR P640 offers features such as:
- 55 mK sensitivity* at an accuracy of +/- 2%
- Wide range of lenses
- 8x digital zoom
- Extended measurement functions
- USB and Firewire connection
- Sequence recording in camera
- Upgradable to FLIR P660*

FLIR P620
The FLIR P620 is your access to the world of high resolution infrared technology. More basic than the other models, it is still designed to handle a wide range of applications.
- 65 mK sensitivity* at an accuracy of +/- 2%
- 2x digital zoom
- Standard 24° lens
- Standard measurement functions
- USB connection
- Upgradable to FLIR P660*

B-Series, top of the range infrared cameras for building applications
The FLIR B620 and FLIR B660 are the best possible infrared cameras for building and construction applications. Common features include dew point, humidity and insulation defect alarms. The FLIR B660 offers an built-in GPS system, Contrast Optimizer and an optional remote control.

SC Series, top of the range infrared camera for R&D applications
The SC Series (FLIR SC620 and FLIR SC660) are mobile cameras for product development and R&D applications. They offer fully radiometric 14-bit real-time image stream to the PC via FireWire. The FLIR SC660 features a built-in GPS system, Contrast Optimizer and an optional remote control.

(*) estimated release for P640 & P620 sept. 2008
The P-Series can be used with a complete range of accessory lenses including close-up, wide angle, telescopic and microscopic lenses to suit the most demanding applications.

For clear identification of inspected objects it is important that the picture captured with the built-in digital camera has the highest possible quality. That’s why the P-Series is equipped with interchangeable optics for the digital camera. Other accessories include extra battery chargers, extension cables and memory cards.
Advanced reporting software for professionals

FLIR Reporter software, features and benefits:
- Standard, easy to share image formats: (Microsoft Word® or PDF reports, JPEG images)
- GPS info and maps in reports
- Full flexibility and efficiency
- Wizard based
- Automatic report, Drag & Drop
- Live reports allow you to make immediate changes

FLIR Reporter software is an easy-to-use Windows-based software package that integrates powerful image analysis and report generation functions for fast, accurate evaluation of infrared inspection results. It allows you to create professional reports in Microsoft Word, using all its features like spell check, font selection, etc. You can also analyze your infrared images within Microsoft Word; an extra toolbar on your screen gives you instant access to specific functions for detailed analysis.

FLIR Reporter software gives you great flexibility for efficient report generation.
- Select your images and drop them on a report icon for automatic report generation, or let a wizard guide you through the report creation process.
- When opening a previously stored report with FLIR Reporter, the infrared images are not only pictures. You can click on the images, change color scale, add temperature analysis and listen to the embedded voice comments.
- A built-in search functionality makes it easy to find certain images or reports, when for instance using the advanced time temperature trending tool.

Other available packages are:
- FLIR Researcher for advanced infrared analysis and storage
- FLIR Database for managing images and reports
- FLIR Image Builder for automatic generation of a large image from a number of smaller images.
### Technical Specifications

#### Environment Specifications

**Operating temperature range**
- 15°C to 50°C
- -40°C to +70°C

**Humidity, operating and storage**
- Non-condensing

**Electrical**
- 28 Vdc
- 0.5 A

**EMC**
- EN/IEC 61000-4

**Vibration**
- Operational IEC 60068-2-6
- Bump, Operational 25G, IEC 68-2-29

**Humidity, operating and storage**
- Non-condensing IEC 68-2-30

**Storage temperature range**
- -40 °C to +70 °C

**Operating temperature range**
- -15 °C to +50 °C

**Power management**
- Automatic shut down and sleep mode after settable time
- 3 h

**Rechargeable Lithium-Ion battery**
- 3 hours operating time
- Charging in camera
- 2 bay charging system, 10-16 V input. Charging status indicated by LED's
- AC adapter, 90-260 VAC input. 12 V output to camera

**Image Description**
- Using IrDA

**Voice annotation of images**
- 60 sec

**Resolution**
- Digital video camera with auto focus
- 3.2 Mpix/incl. lamp

**Image Modes**
- Video: MPEG-4 non-radiometric, IP-link
- Video: Built in RAM / SD-Card

**Physical Characteristics**
- Weight, total for operational system
- Tripod Mounting

**User Interface/Setup Functions**
- Programmable buttons (3)
- Local adaptation of units, language, date and time formats

**Dimensions**
- P660
- P640
- P620

**Display**
- 5.6" Widescreen LCD /1024x600 pixels

**Image Markers**
- Markers on visual an infrared images

**Storage Functions**
- Single image, periodic storage and simultaneous IR and visual

**Format**
- Standard JPEG, 1GB SD-Card

**Storage**
- Single image, periodic storage and simultaneous IR and visual

**Image Size**
- 640x480 pixels

**Video Streaming Functions**
- MPEG-4: Non-Radiometric, IP-Link

**GPS Information System**
- Location data automatically added to every image for referencing on WEB maps

**USB-mini, USB-A, Firewire, WLAN**
- RS-232, RS-170/EIA/NTSC or CCR/PAL
- Standard headset connection

**Remote Control**
- Built-in GPS

**Tripod Mounting**
- 1/4" - 20

**N/A**
- N/A

**Optional**
- Optional

**SD-card**
- 2 slots

<table>
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<tr>
<th>Model</th>
<th>P660</th>
<th>P640</th>
<th>P620</th>
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<tbody>
<tr>
<td>Resolution</td>
<td>640x480 pixels</td>
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<tr>
<td>Display</td>
<td>5.6&quot; Widescreen LCD /1024x600 pixels</td>
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