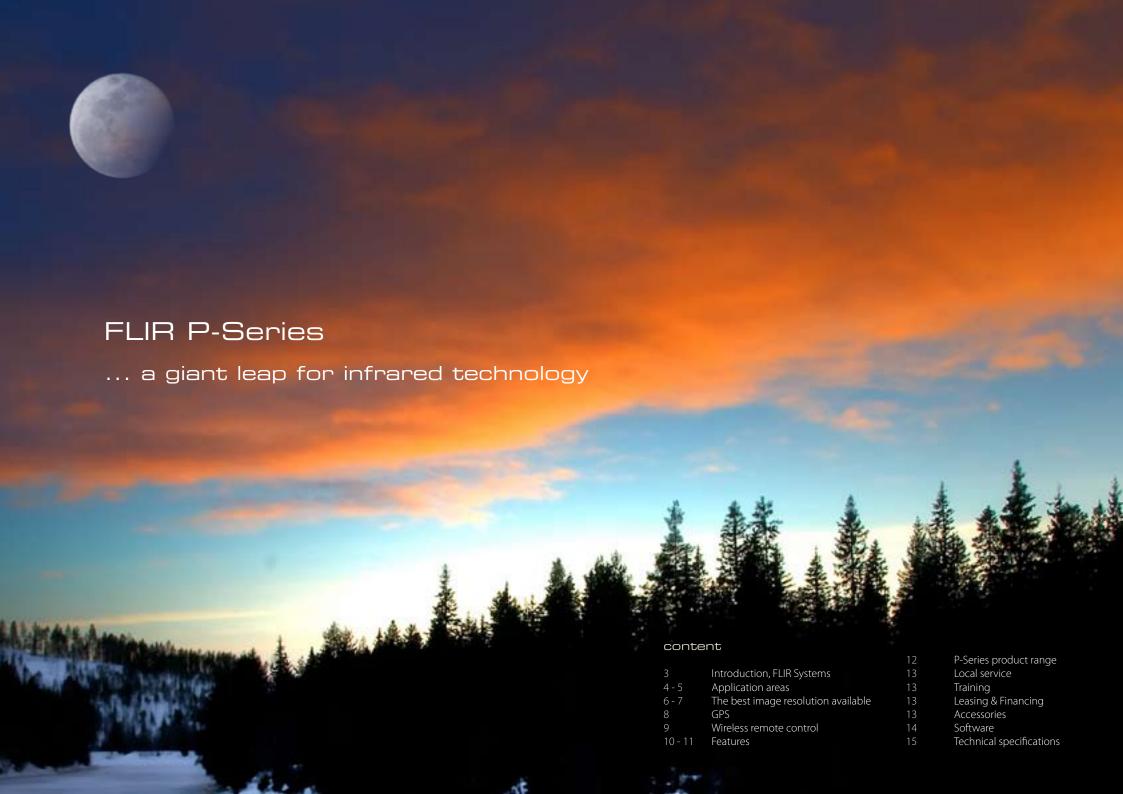


POWER & PERFORMANCE



Infrared perfection



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.

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.

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-



High quality Infrared lens made of germanium

Jun Mungon

Arne Almerfors, President Thermography Division

Application areas

The FLIR P-Series state-of-the-art infrared cameras are designed for professional infrared camera users. A P-Series camera is the perfect instrument for users who know the advantages that infrared has to offer, and who rely on an infrared camera at work







nfrared image



The infrared an Thermal Fusion images show clearly overheated

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 easy to handle. trace anomalies which are invisible to the naked eye. You work in various locations Our aim is to meet your requirements • High performance camera based on the latest technology and situations, often under time-pressure and we are confident that the P-Series is and in difficult circumstances.

To focus on your job you need a infrared consultants. camera that you can rely on, that will

perform and generate results, and that is

the best and most complete handheld infrared camera for professional infrared

Why the P-Series is ideal for **Infrared Consultants:**

- Highest image quality available
- 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

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.



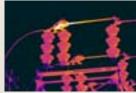
The durability, reliability and dependability of the P-Series mean that these cameras are ideal for indoor and outdoor inspections in the utilities sector.

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
- Tiltable viewfinder for outdoor inspections
- Thermal Fusion & Picture-in-Picture functionality to highlight problem areas
- Range of available lenses from wide angle to tele lens









Inspecting a substation using infrared technology reveals hidden problems.









Thermal Fusion

Lookina for refractory linina condition or solids buildup in industrial piping systems.

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.

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 • Wide range of lenses available 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
- Voice and text comments
- Compatibility with FLIR Reporter[™] and Researcher[™] software suites
- · Equipped with precision laser pointer to locate your problem area

The best image resolution available

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.

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

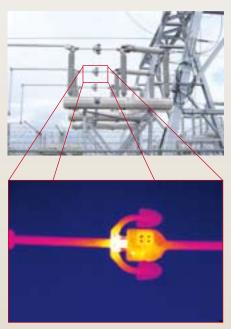
A 5.6" large and bright, high resolution LCD screen, presents sharp images. The screen can be placed in practically every angle enabling you to adjust it to even the most difficult working conditions.



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.



Visual imaae



Thermal image



Thermal Fusion image

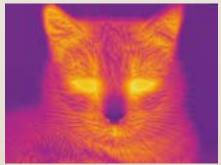
Contrast Optimizer

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.



Basic thermal image.



Thermal image enhanced with the Contrast Optimizer function.

Lat. 59,3° Lon. 17,9°

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 satelite 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



Embedded GPS tags in the IR images allow you to zoom in on exact locations and speed up repairs.



See all the hot spots with a new 3.2 megapixel auto-focus visual camera and the new Thermal Fusion and Picture-in-Picture tools.



Wireless Remote control



Danger of electrocution and rotating mechanical wheel.



No more uncomfortable positions.

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.







Functionality, Features and Ease of Use for the best results



3.2 Megapixel visual camera



Large LCD screen



Powerful infrared lens

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 themal 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-lon 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 autofocus.





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 turnable 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

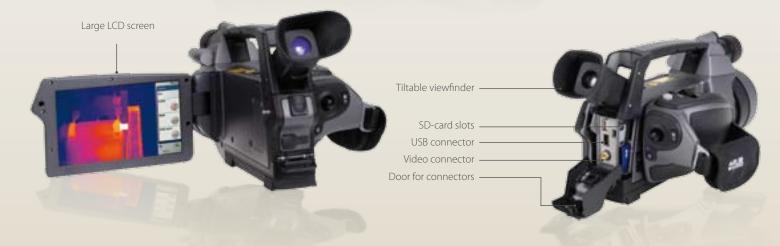
For increased flexibility the operator can program buttons located on the top of the camera to change color palettes, emissivity settings or temperature ranges, or activate analysis tools such as spots and areas.



FLIR P-Series

Infrared perfection







High performance with 640x480 resolution



Contrast Optimizer



GPS Built-in GPS



Wireless remote control

Intuitive graphical user interface





Easy and logical user interface

A FLIR P-Series for every mission

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
- WI AN interface*

- Optional remote control*
- User profiles
- Excellent ergonomics (rotatable handle, configurable camera, manual/auto focus etc.)
- FLIR Reporter and Researcher software compatibility
- Thermal Fusion and Picture-in-Picture functionality*



FLIR P660

The FLIR P660 is the latest top of the line addition to the FLIR P-Series, with new grondbreaking 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



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 appications.

- 65 mK sensitivity*
 at an accuracy of +/- 2%
- 2x digital zoom
- Standard 24° lens
- Standard measurement functions
- USB connection
- Upgradable to FLIR P660*

Be the best in your field: become a FLIR Pioneer



As a professional owner of the most advanced FLIR Infrared camera series you are one of our most valuable customers. We have created a customer program "FLIR Pioneers" where owners of a P-Series will become a member. The Pioneer program provides a range of extra advantages and activities, for example will all P 660 owners be granted a 3 year warranty.

(For example or more details of the program, please visit www.flirthermography.com)

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.



Our worldwide network of service centers provides you with instant service, calibration and support, ensuring maximum uptime of your infrared camera.



The ITC offers standard and customized infrared training programs at its own facilities as well as at customer sites.

Service: stay the best in your field

· Protect your investment

Without proper maintenance, an infrared camera can yield false readings. Servicing your camera every year guarantees accurate measurement results, better performance and a better trade-in value of your infrared camera.

· Standard inspection & calibration procedure

A worldwide network of local ISO 9001:2000 certified FLIR Systems service centers provides standardized inspection and calibration as well as repair for all FLIR branded infrared cameras.

Training:

Improve your expert knowledge

Working with an infrared camera has never been easier, but interpreting what you see requires some basic knowledge about infrared thermography. FLIR Systems cooperates with the Infrared Training Center, an independent, ISO certified, worldwide training facility. The ITC offers infrared training, certifications accepted by many standardization organizations, and specialized instruction in various application areas.

The Infrared Training Center offers:

- Different levels of infrared thermography training, level I, level II and level III
- Application specific cources: building and R&D, GasFindIR
- Software specific courses

For more info visit www.infraredtraining.com

Leasing & Financing

To enable as many as possible access to a real high performance infrared camera, we offer leasing alternatives and trade in/ trade up offers. Contact your local office for leasing and financing options for your FLIR infrared camera.

Accessories

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:

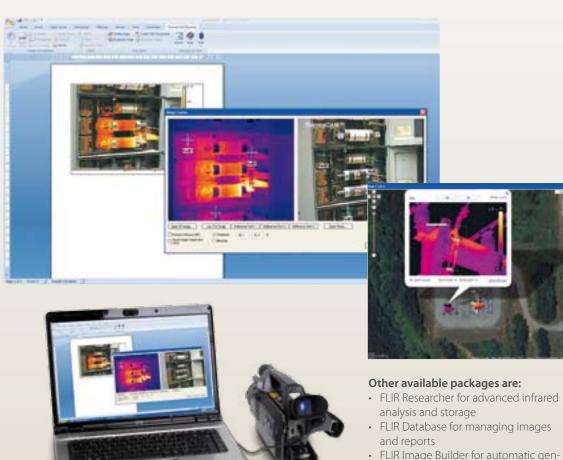
- Standard, easy to share image formats: (Microsoft Word® or PDF reports-, JPEG images)
- GPS info and maps in reports
- Full flexibility and efficiency
- Wizard based
- Automatic report, Drag & Drop
- Live reports allow you to make immediate changes

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.



- eration of a large image from a number of smaller images.

PAAO P640 **IMAGE PERFORMANCE** 640x480 pixels 640x480 pixels 640x480 pixels Thermal sensitivity (at 30 °C) Field of view/min focus distance Spatial resolution (IFOV) Electronic zoom 45 mK 24° x 18° /0.3 m 55 mK* 24° x 18° /0.3 m 65 mK* 24° x 18° /0.3 m 0.65 mrad 0.65 mrad 0.65 mrad 1-8x continuous including pan function 1-8x continuous including pan function 1-2x continuous including pan function Electric and manual focus with USM technology Digital video camera with auto focus Auto and manual 3.2 Mpix/incl, lamp Auto and manual 3.2 Mpix/incl. lamp* Auto and manual 3.2 Mpix/incl. lamp* Focal Plane array (FPA), with 7.5 to 13 µm spectral range Uncooled microbolometer 640x480 pixels Uncooled microbolometer 640x480 pixels Uncooled microbolometer 640x480 pixels **IMAGE PRESENTATION** Tiltable/800x600 pixels 5.6"Widescreen LCD /1024x600 pixels Tiltable/800x600 pixels 5.6"Widescreen LCD /1024x600 pixels Tiltable/800x600 pixels 5.6"Widescreen LCD /1024x600 pixels Standard or based on histogram from image content Standard or based on histogram from image content Adjustable DDE Automatic image adjustments, continuous or manual activation Standard or based on histogram from image content Automatic contrast optimization IMAGE MODES View IR-image or full color visual image Picture-In-Picture with fully adjustable IR-area Thermal fusion with treshold above, below and interval On screen live and reference image View IR-image or full color visual image Picture-In-Picture with fully adjustable IR-area* Thermal fusion with treshold above, below and interval* View IR-image or full color visual image Picture-In-Picture with fully adjustable IR-area* Thermal fusion with treshold above, below and interval* Infrared only/Visual only Simultaneous IR and visual Reference image On screen live and reference image On screen live and reference image MEASUREMENT -40 °C to +500 °C (optional up to +2000 °C) \pm 1°C or \pm 1% of reading (restricted range) \pm 2°C or \pm 2% Emissivity, reflected ambient, optics & atmospheric transmission, -40 °C to +500 °C (optional up to +2000 °C) \pm 2 °C or \pm 2 °C or eading Emissivity, reflected ambient, optics & atmospheric transmission, -40 °C to +500 °C (optional up to +2000 °C) \pm 2 °C or \pm 2% of reading Emissivity, reflected ambient, optics & atmospheric transmission, Temperature range, standard Accuarcy Automatic measurement corrections external window external window external window MEASUREMENT FUNCTIONS Spotmeter Area. Max/Min/Average value within box or circle Auto hot/cold spot Max/Min temp, value and position shown within box, circle or on a line Max/Min temp. value and position shown within box, circle or on a line Max/Min temp. value and position shown within box or circle Isotherm function - interval, above, below Line profile function Temperature difference between mesurement functions Reference temperature function Ñ/A Live profile, H/V-direction Live profile, H/V-direction Manually set or captured from any measurement function Manually set or captured from any measurement function Manually set or captured from any measurement function ALARM FUNCTIONS Automatic alarm on any selected measurement function Audible/visible alarm above/below Audible/visible alarm above/below N/A **LASER LOCATIR**Laser pointer activated by dedicated button Automatic alignment of laser spot Laser pointer N/A Laser pointer N/A Laser pointer automatic alignment **IMAGE STORAGE** Standard JPEG, 1GB SD-Card Standard JPEG, 1GB SD-Card Standard JPEG, 1GB SD-Card Format Single image, periodic storage and simultaneous IR and visual visual images automatically associated with corresponding thermal Single image, periodic storage and simultaneous IR and visual visual images automatically associated with corresponding thermal Single image, periodic storage and simultaneous IR and visual visual images automatically associated with corresponding thermal Storage functions Visual image image Markers on visual an infrared images Markers on visual an infrared images Markers on visual an infrared images Image markers VIDEO STORAGE FUNCTIONS Real-time radiometric sequence and non-radiometric MPEG recording Built in RAM / SD-Card Built in RAM / SD-Card N/A VIDEO STREAMING FUNCTIONS MPEG-4 non-radiometric , IP-link USB/Firewire USB/Firewire USB GEOGRAPHIC INFORMATION SYSTEM Location data automatically added to every image for referencing on WEB maps Built-in GPS N/A N/A INSPECTION AUTOMATION SYSTEM Voice annotation of images Text annotation of images 60 sec Select from predefined list Select from predefined list Select from predefined list Image description USB-mini, USB-A, Firewire, WLAN IrDA RS170 EIA/NTSC or CCIR/PAL USB-mini, USB-A, Firewire, WLAN* USB-mini, USB-A, WLAN* For PC connection For sending text comment files from PDA to camera, wireless transfer of text IrDA RS170 EIA/NTSC or CCIR/PAL Standard composite video output SD-card RS170 EIA/NTSC or CCIR/PAL 2 slots For adding voice comments Wireless Remote Control WLAN based with controls and image display Standard headset connection Standard headset connection Standard headset connection

Standard on all P-Series

POWER SYSTEM
Rechargeable Lithun-lon battery, 3 hours operating time
Power management, automatic shut down and sleep mode after settable time
AC adapter, 90-260 VAC input. 12 V output to camera
2 bay charging system, 10-16 V input. Charging status indicated by LED's
Charging in camera

ENVIRONMENTAL SPECIFICATIONS

Operating temperature range Storage temperature range Humidity, operating and storage, non-condensing Encapsulation Bump, Operational Vibration, Operational

-15 °C to +50 °C -40 °C to +70 °C IEC 68-2-30 IP 54, IEC60529 25G, IEC 68-2-29 60068-2-6

Optional

3 h

PHYSICAL CHARACTERISTICS Weight, total for operational system Size, Camera body including handle, WxHxL (mm) Tripod Mounting

USER INTERFACE/SET-UP FUNCTIONS Configurable measurment tools menu Programmable buttons (2)

Optional³

User profiles Local adaptation of units, language, date and time formats ThermaCAM QuickReport

1,7 kg 120 x 145 x 220 1/4" - 20

15

Optional*





www.flirthermography.com

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