Together we are stronger

FLIR T-Series

Thermal Imaging Cameras for Temperature Measurement with 320x240 detectors

- New high resolution options
- Bluetooth® connectivity
- Advanced ergonomics
- P-i-P & Fusion overlays
- Professional analysis
- Easy annotation
- Instant report

METER LiNK
Bluetooth®

FLIR®

www.flir.com/thg/t-Series

The Professional Thermographers Choice

The FLIR T-Series thermal imaging cameras takes ergonomics, light weight and ease-of-use to a whole new level. Our engineers have translated user feedback on comfort and clarity into a series of comprehensive and innovative features.

T300 & T400 Features

High Resolution IR Images - Razor-sharp thermal images up to 76,800 pixels (320 x 240) for greater accuracy from further away

High Thermal Sensitivity - Clear, low-noise images that reveal subtle problems and temperature differences

Visible Light Digital Camera with Video Lamp - 3.1 megapixel resolution with video lamp provides clear images regardless of lighting conditions

Rotating Lens - Ergonomic tiltable lens detents up to 120° for easy, comfortable viewing angles from above the head, below the knees and around corners

Advanced Optics - The widest range of optics to fit the view and spot size you need for your application; built-in 25° and optional 6°, 15°, 45°, 90° and close-up lens 2x and 4x available.

Laser Pointer - Pinpoints a reference spot with a laser and aligns a marker to it on the image for precise detection

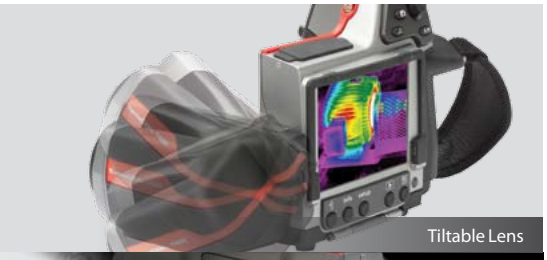
Scalable P-i-P and Thermal Fusion - FLIR invented it. Display both the thermal and visible image onscreen for easy identification and control the size of the Picture-in-Picture window

Delta T & Multiple Spot Measurements - Powerful tools include differential temperature, 5 measurement spots, 5 box areas, isotherm and auto hot/cold measurements for detailed analysis

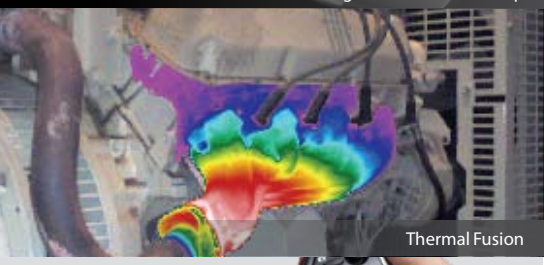
MeterLink™ - Wirelessly transmit vital diagnostic data such as amperage, voltage, and resistance from clamp meters directly to the camera for annotating thermal images

Annotation - Add voice and text comments to images or use the touch-screen to sketch notes

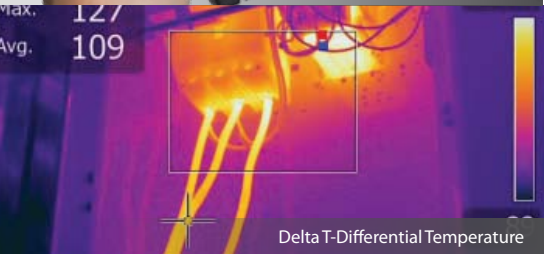
InstantReport - Generate a professional PDF document in the camera without an external computer and complete the job before you leave the site


Tiltable Lens


Digital Camera with Lamp


Thermal Fusion


3.5"Touch-Screen LCD



Delta T-Differential Temperature

Up to 320 x 240 pixel resolution - The T-Series thermal image resolution is 320 x 240 pixels.

Camera sensitivity - The thermal sensitivity in the FLIR T-Series ranges from 80 mK to < 50 mK depending on model.

High quality visual camera - All models in the FLIR T-Series have an integrated 3.1 Mpixel digital camera. This makes observing and inspecting faster and easier .

Measurement range - Depending on the model the T-series can measure temperature between -20°C to +1200°C.

Interchangeable infrared lenses - The T-Series features a standard 25° lens and optional 6°, 15°, 45° and 90° lenses and close-up lens 2x and 4x available.

Flexible interfaces - The T-Series is equipped with standard video, USB outputs as well as a removable SD card.

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

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

Temperature sound, image alarms - (T365/T425) Make surveying easier and faster.

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

Text and voice annotations - Text comments can be made from a pre-defined list or using the touch-screen. A headset can be connected to make voice annotations.

Sketch annotations - Use the touch-screen as pen and paper to add sketch annotations.

Image storage - FLIR uses a non proprietary radiometric JPEG image format that allows for post processing and report writing with Microsoft Word® based FLIR software.

Touch-screen - 3.5"LCD touch-screen plus stylus brings interactivity and user comfort to a new level.

Measurement Modes - Measurement spots, area with auto hot/cold spot indication, isotherms, ΔT calculation (depending on model).

MeterLiNK™ - FLIR MeterLiNK™ technology makes it possible to transfer, via Bluetooth®, the data acquired by an Extech meter into the infrared camera, saving time and eliminating the risk of erroneous records or notes.

Copy to USB - Transfer on board images or reports directly from the thermal imaging camera to a USB stick.

Instant reports (T365/T425) - Create instant reports directly in camera, easily copy report to USB

Taking ease of use to a whole new level

Multifunctional LCD Touch-Screen

Allows sketching and marking directly on the screen.

METER LINK Bluetooth

FLIR®

T-Series Camera Model Comparison

FLIR T335

- Thermal image quality: 320x240 pixels
- Temperature range: -20°C to +650°C
- < 50 mK NETD
- 2x digital zoom
- Picture-in-Picture (scalable)

FLIR T365

- Thermal image quality: 320x240 pixels
- Temperature range: -20°C to +650°C
- < 50 mK NETD
- 4x digital zoom
- Picture-in-Picture (resizable/moveable)
- Sketch annotations
- Image marker
- Thermal Fusion interval
- Delta T
- Audible/visible alarms
- Screening Difference temperature alarm/audible
- Instant reports

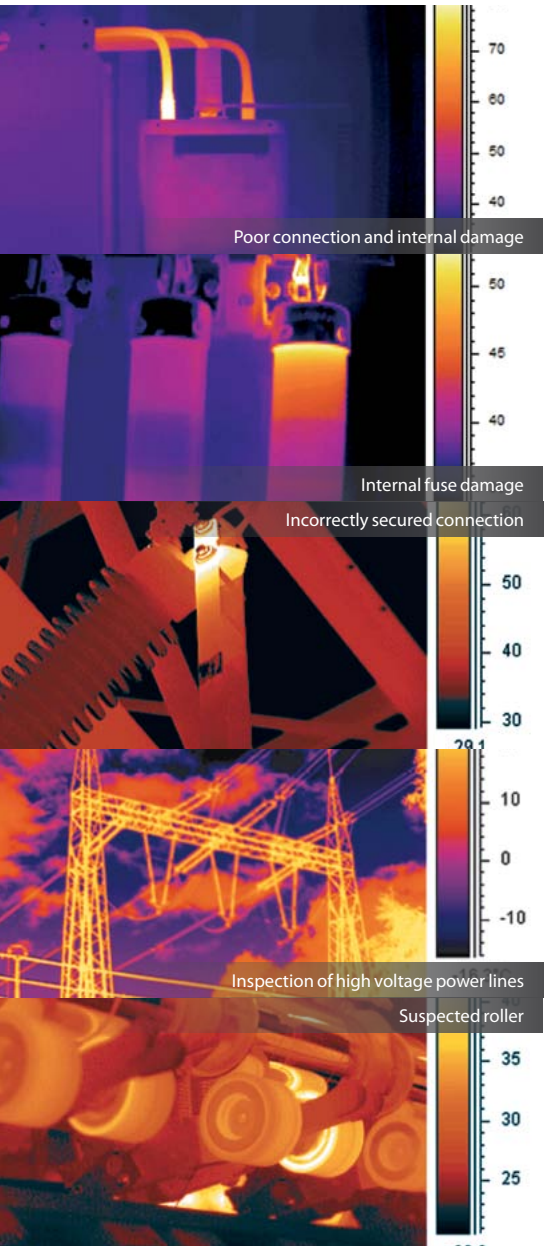
FLIR T425

- Thermal image quality: 320x240 pixels
- Temperature range: -20°C to +1200°C
- < 50 mK NETD
- 8x digital zoom
- Picture-in-Picture (resizable/moveable)
- Sketch annotations
- Image marker
- Thermal Fusion interval/above/below
- Delta T
- Audible/visible alarms
- Screening Difference temperature alarm/audible
- Instant reports
- Periodic image storage
- Digital camera video recording

Thermal Imaging Cameras For Predictive Maintenance Applications

Thermal imaging has evolved into one of the most valuable diagnostic tools for Predictive Maintenance. By detecting anomalies often invisible to the naked eye, thermography allows corrective action to be taken before costly system failures occur.

Infrared cameras have become compact systems that look just like a normal video camera/digital camera, are easy to use and generate a real-time high-resolution image. Numerous industries worldwide have discovered the advantage of incorporating infrared cameras in their Predictive Maintenance programs.



Applications

Low voltage inspections

Infrared cameras, are commonly used for electrical inspections. As electrical connections become loose, there is a resistance to current that can cause an increase in temperature. This can then cause components to fail, resulting in unplanned outages and injuries. In addition, the efficiency of an electrical grid becomes low prior to failure, thus energy is spent generating heat, causing unnecessary losses.

High voltage inspections

Power transformers are often checked with infrared cameras. Temperatures of the cooling fins and the high voltage connections can be compared so that, if necessary, corrective action can be taken before real problems occur. Other high voltage installations that are checked with an infrared camera include circuit breakers and switchers and high-voltage power lines. Potential problem areas will be clearly shown in the infrared image.

Mechanical

In many industries, mechanical systems serve as the backbone of operations. Thermographic data can be an invaluable source of complimentary information to vibration studies in mechanical equipment monitoring.

Pipework

Infrared thermography is also a great tool for detecting faults in pipes and insulation. Heat exchangers are regularly checked with infrared to detect blocked pipes. An infrared camera can quickly give an overview of the entire installation. There is no need to check each pipe individually.

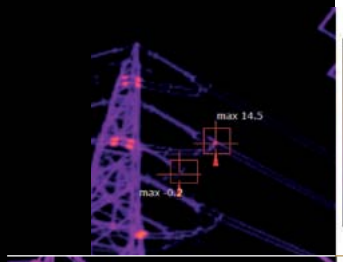
Refractory

Infrared camera systems provide rapid and accurate diagnoses for furnace maintenance, refractory loss management, condenser fin diagnosis, etc.

www.flir.com/thg/t-Series

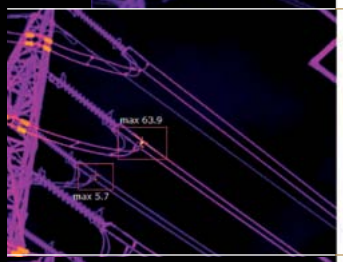
The Impact of Image Resolution

The infrared images represent the individual hot spots registered on a utility substation from a distance of 20 metres. The increased number of pixels and thermal sensitivity have a major impact on the image quality and definition and means the temperature measurements recorded will be much more accurate.



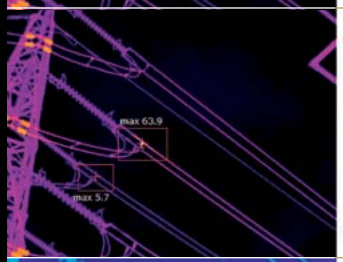
120x120

Image taken with 120x120 pixel resolution and <100mK thermal sensitivity.



320x240

Image taken with 320x240 pixel resolution and <50mK thermal sensitivity. Please note how the increased number of pixels will result in a more accurate temperature reading in the hot spot.



640x480

Image taken with 640x480 pixel resolution and <45mK thermal sensitivity. Notice how the hot spot now is clearly visible and that the increased number of pixels will result in an even more accurate temperature reading in the the hot spot.

640x480

Close up image taken with a 640x480 pixel resolution to pinpoint the exact spot.

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FLIR Reporter

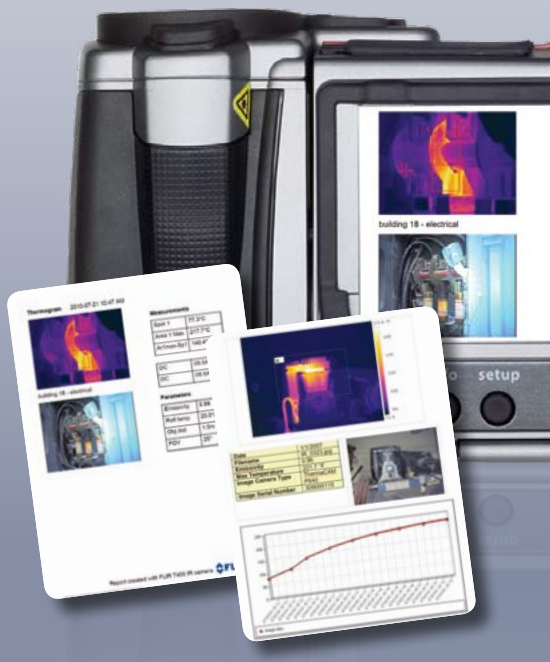
FLIR Reporter is a powerful software for creating compelling and professional reports with powerful new TripleFusion, Picture-in-Picture, and the latest Microsoft operating system and Word compatibility.

TripleFusion Picture-in-Picture capabilities - FLIR Reporter´s Picture-in-Picture (P-i-P) features to make your reporting easy and efficient. Simply download infrared and visible images to Reporter. Easy-to-use dialog boxes and drag-and-drop features help you superimpose a smaller IR image inside the visible light photo.

Automatic report generation - With FLIR Reporter it´s easy to create customized reports, such as insertion of logos, etc. The ReportWizard guides you step-by-step to make a professional inspection report.

Predictive trending functionality - Trending is a powerful tool to help you track thermal information relating to your IR surveys. Armed with this information you can better determine when maintenance procedures need to be performed.

More advanced features - FLIR Reporter includes numerous advanced features, including: digital zoom, color palette changes, play back of voice comments recorded in the field. Automate calculations with the powerful formula tool and the time-saving one-click T function. Instant report summary creation with the Summary Table tool. Histogram and line profile graph features to facilitate more advanced analysis.



FLIR Reporter key features:

- Fully integrated with Microsoft Word™
- Powerful temperature analysis
- Wizard-guided report generation
- TripleFusion Picture-in-Picture (movable, sizable, scalable)
- Automatic report generation by drag-and-drop
- Predictive trending functionality
- Automatically adds GPS coordinates to imagesFlexible report page design and layout for customized reports
- Use quick insert function to easily create custom report pages
- Fully integrated with standard Microsoft Word
- Generates reports in standard MS Office format and PDF-format
- Powerful temperature analysis
- Triple Fusion Picture-in-Picture (movable, sizable, scalable)

Panorama Support

Take images in a sequence and automatically combine them to one large image using the Reporter BuildIR. The images can be shot in vertical or horizontal direction or in a combination of the two. When taking the series of images, the camera will support you by displaying a grid and part of the previous taken image will be displayed. Now it is easy to align the camera so the next image roughly fits the previous image. You just continue until you have covered the whole area. In the Reporter Building SW you choose one image in a series and press 'combine'. A large image is automatically created.

Images of the MCG stitched together using FLIR BuildIR software

Trends: Accurately track thermal performance over time with easy-to-understand charts and graphs.

Rapid report manager supporting automatic report generation by drag-and-drop

Trending functionality

Automatic link to Google™ Maps for images with GPS coordinates

Fine tune images and make full temperature analysis directly in Microsoft Word

Spell check

Create your own formulas including measurement values from images

Play radiometric sequences directly in the report

Search functionality to quickly find images for your report

Panorama tool for combining several images to a larger image

Support for MeterLink™ data

***.docx compatibility**

www.flir.com/thg/software

At FLIR Systems, we recognize that our job is to go beyond just producing the best possible infrared camera systems. We are committed to enabling all users of our thermal imaging camera systems to work more efficiently and productively by providing them with the most professional camera-software combination.

Our team of committed specialists are constantly developing new, better and more user-friendly software packages to satisfy the most demanding thermal imaging professionals. All software is Windows-based, allows fast, detailed and accurate analysis and evaluation of thermal inspections.

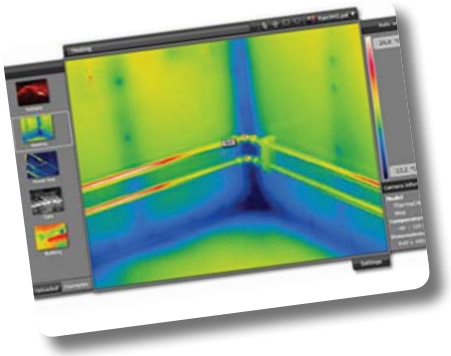
QuickReport Software

FLIR QuickReport, allows users to organize and analyze the radiometric images from their infrared cameras and present them in a report in just three easy steps.

The software allows the user to adjust the level, span, zoom and pan of the camera. FLIR QuickReport features a choice of ten different color palettes.

WebViewer

Free online tool to evaluate infrared images - FLIR WebViewer is an intuitive and easy-to-use online tool to analyze and evaluate your infrared images – FREE to use. You can upload images, create, move and delete measurement tools, change palettes, read out camera properties, and more. You can also save the changed images to your Desktop. With FLIR WebViewer you are also able to generate a simple one page report in XPS-format.



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T-Series Accessories

T197412
The 90° wide angle lens is used when working in confined areas or when a large object area needs to be covered. This lens is also designed to look into electrical cabinets down to 1/2" windows.

1196960
The 45° angle lens has a field of view almost double that of the standard lens. Perfect for wide or tall targets or when working in crowded spaces.

1196961
The 15° lens is a popular lens accessory and provides 1.7x magnification compared to the standard lens. Ideal for small or distant targets such as overhead power lines.

T197408
The 6° lens with a narrow FOV is used in applications where the object that is going to be monitored is remote from the camera or when the camera needs to be far away from the object, as an example, high temperatures.

T197214
Close-up 2x lens for R&D usage or development purposes. As an example looking at PCB's or small electronic components.

T197215
Close-up 4x lens for R&D usage or development purposes. As an example looking at PCB's or small electronic components.

1196398
High capacity battery for the IR camera.

T197650
Stand-alone 2-bay battery charger, including power supply with multiple plugs.

1196497
Cable, used to power the camera from the cigarette lighter socket in a car. The cable can also be connected directly to the battery.

T910750
Combined power supply, including multi plugs and battery charger to charge the battery when it is inside or outside of the camera.

T910737
Capture images on the go with your camera. These small cards are easy to use and can hold a great amount of data.

1910475
Adapter, SD memory card to USB
Easy to install and use; No additional driver installation required for Windows ME, 2000 and XP. Driver included for Windows 98SE.

1910423
This cable is used to connect the infrared camera with a computer using the USB protocol.

1910582
This cable is used to transfer video signals from the infrared camera to an external monitor or to a computer featuring an internal video card.

1910489
Standard headset with 3.5 mm plug, including microphone.

1124545
Pouch with strap and belt clip. Used to carry and protect the camera. Made of durable nylon.

1124544
Ties the camera around your neck so that it is protected against falling.

1123970
Snap-on sunshield to increase visibility of the LCD display.

T951235
Bluetooth® USB micro adapter for wireless connection between the infrared camera and external Bluetooth™ equipment.

T197771
Headset with Bluetooth® for wireless connection with the infrared camera.

T910972
Extech EX845 - Clamp Meter + IR therm TRMS 1000A AC/DC Bluetooth® Transmitter with MeterLiNK™. Wirelessly transmits voltage and current readings to your FLIR infrared camera. See www.extech.com for more info.

T910973
Extech MO297 - Moisture meter, pinless with memory Bluetooth® Transmitter with MeterLiNK™. Wirelessly transmits voltage and current readings to your FLIR infrared camera. See www.extech.com for more info.

T197453 - FLIR ResearchIR software
T197453L5 - FLIR ResearchIR, 5 user licenses
T197453L10 - FLIR ResearchIR, 10 user licenses
Aimed for more advanced users that need to monitor thermal events that are more agile or transient. FLIR ResearchIR visualizes thermal patterns and enables viewing pre-& post recording and stores images at high speed. Do post processing of fast thermal events as well and use analyze value conditional to start/stop recording.

T197454 FLIR QuickPlot software
T197454L5 - FLIR QuickPlot, 5 user licenses
T197454L10 - FLIR QuickPlot, 10 user licenses. Designed for entry-mid level R&D users that want to get an understanding on thermal events for design, product or process.

T197454 FLIR QuickPlot software
T197717L5 - FLIR Reporter Pro, 5 user licenses
T197717L10 - FLIR Reporter Pro, 10 user licenses.
Professional and powerful software for creating compelling, fully customized and easy to interpret maintenance reports.

T197778 - FLIR BuildIR software
T197778L5 - FLIR BuildIR, 5 user licenses
T197778L10 - FLIR BuildIR, 10 user licenses
Dedicated and flexible software for advanced analyses of building related applications. Report templates for energy loss/cost savings potential, air infiltration, moisture and insulation deficiencies.

FLIR®

itc INFRARED TRAINING CENTER

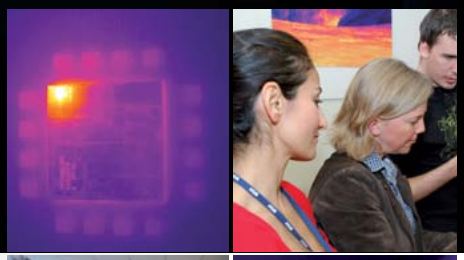
Join more than 10,000 professional thermographers who have graduated from the world's largest ITC program.

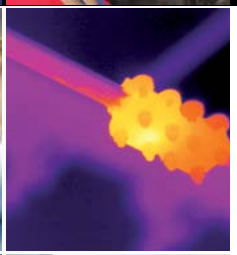
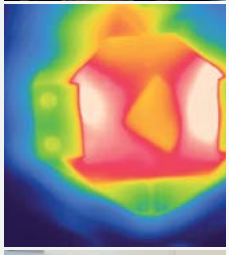
Although all our cameras are designed for easy installation and operation, there is a lot more to thermal imaging than just knowing how to handle the camera. As the leading company for thermal imaging technology, we like to share our knowledge with our customers and other interested parties.

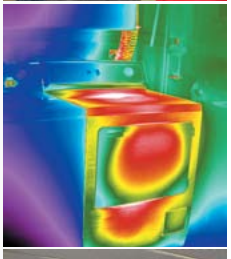
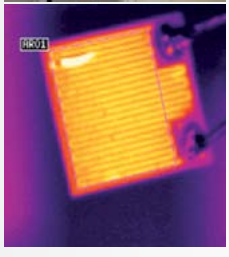
We therefore organize regular courses and seminars. We also organize in-company training on request, so that you, or your staff, can gain familiarity with thermal imaging and its applications.

The ITC not only welcomes FLIR Systems customers but also users of other brands of cameras. In fact, anyone who wants to learn more about thermal imaging for any applications, before deciding to purchase a camera, is also invited.

Each ITC course is a perfect combination of theoretical fundamentals and practical excercises. It guarantees participants a real hands-on learning experience.




www.flir.com/thg/itc

T-Series Specifications

T335

T365

T425

	T335	T365	T425
Imaging performance			
Thermal sensitivity/NETD	50 mK at 30°C	50 mK at 30°C	50 mK at 30°C
IR resolution	320 × 240 pixels	320 × 240 pixels	320 × 240 pixels
Zoom	1-2× continuous, digital zoom, including panning	1-4× continuous, digital zoom, including panning	1-8× continuous, digital zoom, including panning
Image presentation			
Image modes	General	General + Thermal Fusion	General + Thermal Fusion
Thermal Fusion	N/A	IR image shown within temp interval on visual image	IR image shown above, below or within temp interval on visual image
Picture in Picture	Scalable IR area on visual image	Resizable and movable IR area on visual image	Resizable and movable IR area on visual area on visual image
Measurement			
Object temperature range	-20 °C to +650 °C in 3 ranges: -20°C to +120°C or 0°C to +350°C or +200 degC to +650 degC	-20 °C to +650 °C in 3 ranges: -20°C to +120°C or 0°C to +350°C or +200°C to +650°C	-20 °C to +1200 °C in 3 ranges: -20°C to +120°C or 0°C to +350°C or +200°C to +1200°C
Measurement analysis			
Difference temperature	N/A	Delta temperature between measurement functions or reference temperature	Delta temperature between measurement functions or reference temperature
Measurement function alarm	N/A	Audible/visual alarm (above/below) on spotmeter, box or difference temperature	Audible/visual alarm (above/below) on spotmeter, box or difference temperature
Set-up			
Color palettes	BW, BW inv, Iron, Rain	BW, BW inv, Iron, Rain	BW, BW inv, Iron, Rain, RainHC, Bluered
Image storage			
Periodic image storage	N/A	N/A	Every 10 seconds up to 24 hours
Image annotations			
Voice	60 seconds	60 seconds	60 seconds via Bluetooth®
Image marker	N/A	4 on IR or visual image	4 on IR or visual image
Sketch	N/A	From touch-screen	From touch-screen
Video recording in camera and streaming to PC			
Radiometric IR-video streaming	Full dynamic to PC using USB	Full dynamic to PC using USB	Full dynamic to PC using USB
Non-radiometric IR-video streaming	MPEG-4 to PC using USB	MPEG-4 to PC using USB	MPEG-4 to PC using USB
Digital camera			
Digital camera video recording	N/A	N/A	Video clip to memory card
Report generation			
Instant report	N/A	.pdf file in camera including thermal and visual image	.pdf file in camera including thermal and visual image
Imaging performance General			
Field of view (FOV) / Minimum focus	25° × 19° / 0.4 m		
Spectral range	7.5 - 13 µm		
Spatial resolution (IFOV)	1.36 mrad for T335, T365, T425		
Image frequency	9 Hz or 30 Hz		
Focus	Automatic or manual		
Focal Plane Array (FPA)	Uncoooled microbolometer		
Image presentation General			
Display	Built-in touch-screen, 3.5" color LCD, 320 x 240 pixels		
Image modes	IR image, Visual image, Picture in Picture, Thumbnail gallery		
Measurement General			
Accuracy	±2°C or 2% of reading		
Measurement analysis General			
Spotmeter	5		
Area	5 boxes with max./min./average		
Isotherm	Detect high/low temperature/interval		
Automatic hot / cold detection	Auto hot or cold spotmeter markers within area		
Emissivity correction	Variable from 0.01 to 1.0 or selected from list of materials		
Measurement corrections	Reflected temperature, optics transmission and atmospheric transmission		
External optics/windows correction	Automatic, based on inputs of optics/window transmission and temperature		
Set-up General			
Color palettes	BW, BW inv, Iron, Rain , T425: Rain HC, Bluered		
Set-up controls	Local adaptation of units, language, date and time formats; automatic shutdown, display intensity		

T335

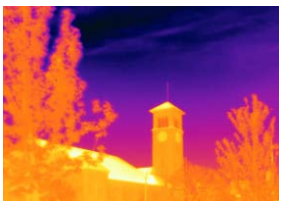
T365

T425

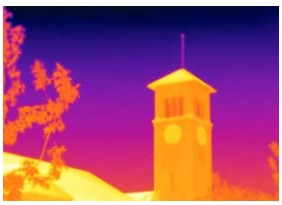
Image storage General	
Type	SD memory card
Format	Standard JPEG - including measurement data
Modes	IR/visual images, simultaneous storage of IR and visual images
Image annotations General	
Text	Text from predefined list or soft keyboard on touch-screen
MeterLink	Connect Extech Clamp Meter EX845 or Moisture Meter MO297 via Bluetooth
Digital camera General	
Built-in digital camera	3.1 Mpixel (2048 × 1536 pixels), and LED lights
Laser Pointer General	
Laser	Semiconductor AlGaInP diode laser, Class 2
Laser alignment	Position is displayed automtically on the IR image
Power System General	
Battery time	Rechargeable Lithium-ion battery, field replaceable
Battery operating time	4 hours
Charging system	In camera, AC adaptor, 2-bay charger or 12 V from a vehicle
Power management	Automatic shutdown (user selectable)
AC operation	AC adaptor, 100–240 V AC, 50/60 Hz
Adaptor voltage	12 Volt VDC out
Environmental specifications General	
Operating temperature range	-15 °C to +50 °C
Storage temperature range	-40 °C to +70 °C
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25 °C to +40 °C
Shock	25 g (IEC 60068-2-29)
Vibration	2 g (IEC 60068-2-6)
Encapsulation	Camera housing and lens: IP 54 (IEC 60529)
Interfaces General	
USB-A	Connect external USB device (copy to memory stick)
USB Mini-B	Data transfer to and from PC/streaming
Composite video	PAL or NTSC
Headset connection	Yes
Bluetooth	Communications with headset and external sensors.
Physical characteristics General	
Camera weight, incl. battery	0.88 kg
Camera size (L × W × H)	106 × 201 × 125 mm
Shipping size	180 x 500 x 360 mm
Shipping weight	5.6 kg
Standard package General	
	FLIR T335, FLIR T365 or FLIR T425: Hard transport case, Infrared camera with lens, Battery, Battery charger, Bluetooth® USB micro adaptor, Calibration certificate, FLIR QuickReport™ PC software CD-ROM, Headset, Mains cable, Memory card with adaptor, Power supply, Printed Getting Started Guide, Sunshield, USB cable, User documentation CD-ROM, Video cable, Warranty extension card or Registration card

www.flir.com/thg/t-Series

90˚ Lens

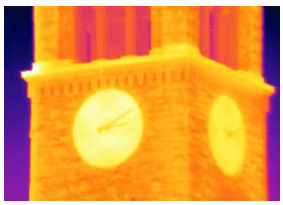


45˚ Lens



25˚ Lens

15˚ Lens



6˚ Lens

FLIR®

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