FLUKE®

Fluke Ti Series
Industrial Thermal Imagers
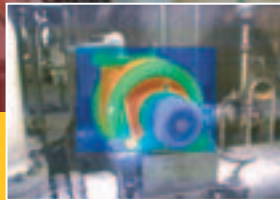
The ultimate tools for troubleshooting and maintenance

Rugged, reliable, easy to use... what you expect from Fluke

Made in the U.S.A.

Ti32 shown with optional telephoto lens

Where can thermal imaging save me time and money?

Why thermal imaging?

Safety

Thermal imaging is a non-contact technology used to help identify potential electrical, mechanical, or process problems from a safe distance. This means you can scan moving, elevated, and high temperature surfaces without needing to get too close.

Productivity

Whether you work in an industrial or commercial facility, you can quickly scan large surface areas for temperature differences that often indicate that a problem exists or a failure could be imminent.

Profitability

Turn to thermal imaging to drive improvements to your bottom line. Use it to reduce energy usage or to help keep your mission critical equipment running.

- **Inside electrical distribution and service** (switch gear, panels, controls, fuses, transformers, receptacles, lighting, conductors, overhead buss work, and motor control centers)
- **Motors, pumps and mechanical** (electric motors and generators, pumps, compressors, evaporators, bearings, couplings, gearboxes, gaskets/seals, belts, rollers, and disconnects)
- **Process** (tanks and vessels, pipes, valves and traps, reactors, and process insulation)
- **HVAC/R** (air conditioning, heating, air handlers, and refrigeration)
- **Outside electrical distribution for utilities** (transformers, bushings, insulators, transmission lines, other exterior conductors, service connections, disconnects, and capacitor banks)
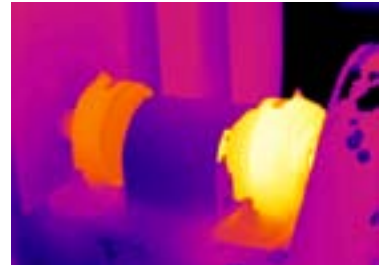
Visit **www.fluke.com/tistories** for a library of thermal imaging case studies and application notes.
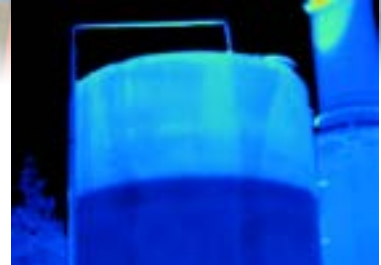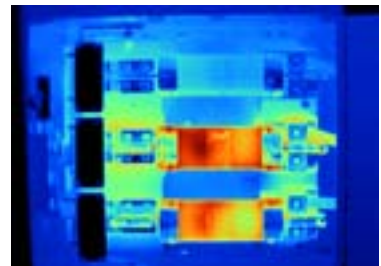
Tank level too low.
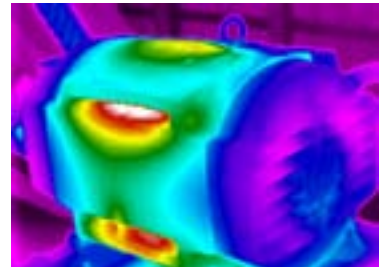
Abnormal or uneven heating on motor.

Overheating bearing cap.

Three-phase switchgear load imbalance or single-phasing.

Industrial, mechanical, electro-mechanical and general building maintenance.

Process, refractory insulation, tank and vessel levels, steam systems and traps, pipes and valves, etc.

Electrical, unbalanced loads, overloaded systems, wiring mistakes-or component failure, etc.

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Fluke Ti Series Industrial Thermal Imagers

Superior image quality

Just pick up a Fluke imager and you'll immediately see the difference. Fluke delivers the clear, crisp images needed to find and fix problems fast.

- Industry leading thermal sensitivity (NETD) enables you to identify the small temperature differences that could indicate big problems
- Even the smallest details become visible with the large, widescreen full VGA color LCD display
- Patented IR–Fusion®, only from Fluke, delivers the industry's best visible/infrared image alignment and focusing

Easy to use

When you pick up a tool, you need it to operate and deliver results without having to read a heavy manual.

- Intuitive, three–button menu is easy to use…simply navigate with the push of a thumb
- Add comments quickly and easily with voice annotation feature
- Easy, manual focus allows for precise image viewing control
- File management is effortless with the Fluke proprietary .is2 file format, which automatically stores the visual image, infrared image, voice and text annotations in one simple file (other file formats are also supported both on imager and in SmartView® software)

Rugged

Tools are meant to be used, and Fluke thermal imagers are designed to reliably operate in the toughest industrial environments.

- Engineered and tested to withstand a 2 meter (6.5 foot) drop—when was the last time you dropped a tool?
- Withstands dust and water, tested to an IP54 rating
- Use in ambient temperatures as low as –10 °C (14 °F) and high as +50 °C (122 °F)
- Protected by two–year warranty with one or two year extended warranties available. Ask your Fluke representative for more details.

Made in the U.S.A.

The rugged conditions of the Whistler ski resort in Western Canada are no match for Fluke thermal imagers.

Field replaceable batteries and optional visor on the Ti32 gives you maximum flexibility no matter where your work takes you.

Fluke Ti25

Award winning performance—what you've come to expect from Fluke.

- Plant Engineering 2008 Product of Year
- NECA (National Electrical Contractor's Association) Show Stopper Award
- IDCC Award for Excellence (International Die Casting Competition)
- Building Operating Management 2009 Top Products Award
- AHR Expo (Air-Conditioning, Heating, Refrigeration Expo) Innovation Award – Honorable Mention
- Control Engineering Engineer's Choice
- International Design Magazine – 2009 Annual Design Review, Best in Category - Equipment, Ti25/Ti10
- CSE (Consulting Specifying Engineer) Magazine 2009 Product of the Year – Gold (Test instrument category)
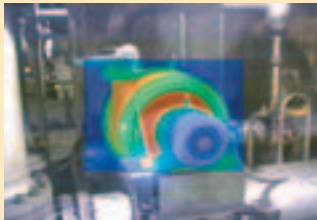
Fluke IR-Fusion®

IR-Fusion® viewing options
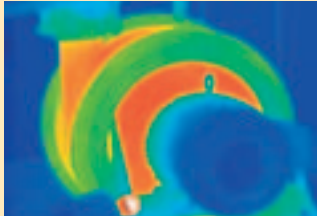
Full (traditional) infrared: Displays a full screen infrared view for maximum infrared detail.
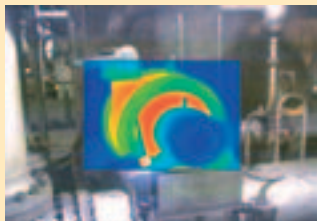
Picture-in-picture: Maintains a frame of reference by placing an IR "window" within a visual (visible light) image.

Blending: Blends the visible and infrared images together in any user-selected proportion to create a more compelling, understandable image.

IR/color alarm: Isolates problematic areas by displaying a visual image with infrared highlights for surface temperatures in between, above or below, or outside a user-selected range.

Full Visual (visible light): Displays a digital photographic image, as you would get from a digital camera.

More than picture in picture

Infrared images alone can be difficult to understand, which is why Fluke pioneered IR–Fusion, a revolutionary marriage of visible and infrared images never before seen in commercial or industrial thermal imagers. Automatically capturing a visible image with every infrared image allows you to always know exactly what you're looking at.

Not all fusion is created equal

Don't be fooled by imitators. Patented IR–Fusion is the only solution with physical parallax correction, enabling the perfect alignment and blending of both infrared and visible images. While many manufacturers have attempted to duplicate Fluke IR-Fusion, none have been able to match it. Turn to Fluke IR-Fusion to deliver the industry's best thermal images.

Thermal imager features

Protective lens cover

Visual camera lens

Speaker for sound and voice annotation playback

Large, landscape format LCD display

Microphone for voice annotation

2 GB SD memory card slot

Photoelectric sensor for AUTO LCD Brightness

Picture-in-picture, full IR or blended high-quality image

Easy to use three-button menu

AC adapter /charging terminal

Thermal imager lens

Focus ring

Wide angle and telephoto optional lenses attach here (Ti32 only)

Image capture trigger

Heavy-duty, rechargeable, replaceable LiON battery (Ti32 only)

Hand strap (adjusts for right or left handed use)

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SmartView® Software

Powerful

Everything you need for analysis and reporting.

- Extensive annotation, editing, and viewing options with full IR-Fusion® capabilities
- 3D-IR™ delivers unique three-dimensional analysis capabilities
- Multiple reporting options and templates

Easy to use

It's never been easier to enhance and analyze your thermal images.

- SmartView tools and controls allow easy access to editing functions
- Report Wizard guides you through automatic, professional report generation
- Communicate image details on reports quickly and easily with the text annotation *drag and drop* feature
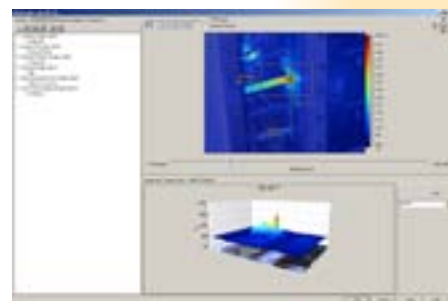
Included with every imager

Fluke includes SmartView software with unlimited licenses and lifetime upgrades with every thermal imager.

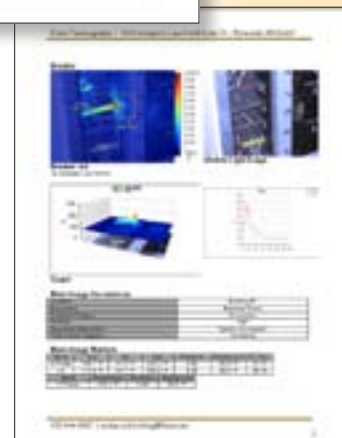- No need to pay extra for a professional software solution
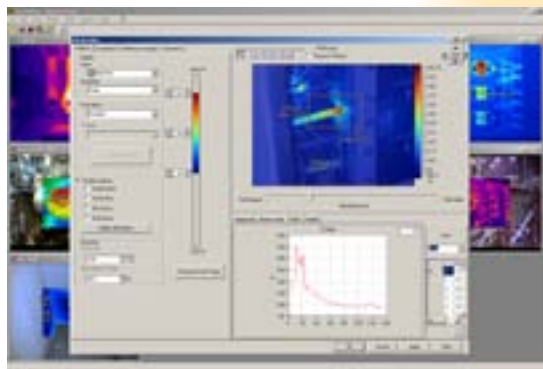
Navigate, analyze and enhance IR images.

Organize data with extensive annotations.

Simplified, professional report generation.

SmartView® system requirements

Software requirements
- Microsoft Windows XP/Vista
- Web browser for product registration and viewing FAQs: Microsoft® Internet Explorer 5.0 or newer
- Microsoft® Word 2007 for report template modification (optional)

Hardware requirements
- Memory card reader to transfer images to computer (included)
- 512 MB RAM (1GB for Vista), not including the space requirements for web browser and Microsoft® Word
- 16-bit color, 1024x768 resolution video or better
- Color printer for printing images (optional)
- CD-ROM drive for installing SmartView software

Fluke training solutions

Fluke authorized training is provided by our partner,

The Snell Group™

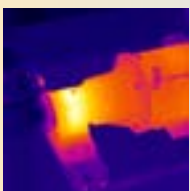## Unsure where to begin with your new thermal imager?

Don't worry. Fluke utilizes an extensive network of industry experts to deliver a full portfolio of training solutions.

- **Free in-box training DVD:** This convenient training solution provides a general introduction to thermal imaging, product information, and common applications.
- **Free online webinars:** Fluke offers both pre-recorded and live webinars to meet the needs of busy professionals. Visit **www.fluke.com/titraining** for course listings and schedules.
- **Hands-on training seminars:** Join us for one of our many local seminars where Fluke Thermography experts will teach basic thermography with hands-on demonstrations. Go to **www.fluke.com/titraining** for schedules.
- **Advanced training:** For advanced thermography (Level I to Level III) and application specific training either online, in the classroom or at your site, sign up through Fluke authorized, independent training partners. Visit **www.fluke.com/titraining** for training options and schedules.
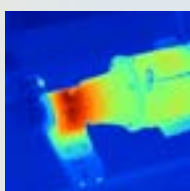
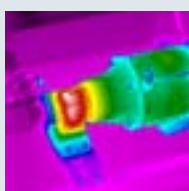For definitions of thermal imaging terminology go to **www.fluke.com/terminology**

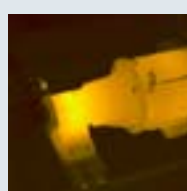## Fluke palette options (six of 16 available, varies by model)
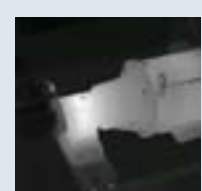
| Ironbow | Blue-red | High contrast | Amber | Hot metal | Grey |

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Specifications

Specifications	Ti32	Ti25	Ti10
Temperature			
Temperature measurement range (not calibrated below –10 °C)	–20 °C to +600 °C (–4 °F to +1112 °F)	–20 °C to +350 °C (–4 °F to +662 °F)	–20 °C to +250 °C (–4 °F to +482 °F)
Temperature measurement accuracy	± 2 °C or 2 % (at 25 °C nominal, whichever is greater)		± 5 °C or 5 % (at 25 °C nominal, whichever is greater)
On-screen emissivity correction	Yes		–
On-screen reflected background temperature compensation	Yes		–
On-screen transmission correction	Yes	–	
Imaging performance			
Image capture frequency	9 Hz refresh rate or 60 Hz refresh rate depending upon model variation	9 Hz refresh rate	
Detector type	320 X 240 Focal Plane Array, uncooled microbolometer	160 X 120 Focal Plane Array, uncooled microbolometer	
Thermal sensitivity (NETD)	≤ 0.05 °C at 30 °C target temp. (50 mK)	≤ 0.1 °C at 30 °C target temp. (100 mK)	≤ 0.2 °C at 30 °C target temp. (200 mK)
Infrared spectral band	7.5 µm to 14 µm (long wave)		
Visual (visible light) camera	Industrial performance 2.0 megapixel	Industrial performance 1.3 megapixel	
Minimum focus distance	46 cm (approx. 18 in)		
Standard infrared lens type			
Field of view	23 ° x 17 °		
Spatial resolution (IFOV)	1.25 mRad	2.5 mRad	2.5 mRad
Minimum focus distance	15 cm (approx. 6 in)		
Optional telephoto infrared lens type			
Field of view	11.5 ° x 8.7 °	–	
Spatial resolution (IFOV)	0.63 mRad	–	
Minimum focus distance	45 cm (approx. 18 in)	–	
Optional wide-angle infrared lens type			
Field of view	46 ° x 34 °	–	
Spatial resolution (IFOV)	2.50 mRad	–	
Minimum focus distance	7.5 cm (approx. 3 in)	–	
Focus mechanism	Manual, one-handed Smart Focus capability		
Image presentation			
Palettes			
Standard	Ironbow, Blue–Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted	Ironbow, Blue–Red, High Contrast, Amber, Hot Metal, Grayscale	Ironbow, Blue–Red, High Contrast, Grayscale
Ultra Contrast™	Ironbow Ultra, Blue–Red Ultra, High Contrast Ultra, Amber Ultra, Amber Inverted Ultra, Hot Metal Ultra, Grayscale Ultra, Grayscale Inverted Ultra	–	
Level and span	Smooth auto-scaling and manual scaling of level and span		
Fast auto toggle between manual and auto modes	Yes		–
Fast auto-rescale in manual mode	Yes		–
Minimum span (in manual mode)	2.5 °C (4.5 °F)		5 °C (9 °F)
Minimum span (in auto mode)	5 °C (9 °F)		10 °C (18 °F)
IR-Fusion® information			
Automatically aligned (parallax corrected) visual and IR blending	Yes		
Picture-In-Picture (PIP)	Three levels of on-screen IR blending displayed in center of LCD		100 % IR displayed in center of LCD
Full screen infrared	Three levels of on-screen IR blending displayed on LCD		100 % IR displayed on LCD
Color alarms (temperature alarms)	High-temperature alarm (user-selectable)	–	
Image capture and data storage			
	The Ti32 allows user to adjust palette, blending, level, span, IR-Fusion® mode, emissivity, and reflected background temperature compensation, and transmission correction on a captured image before it is stored.	The Ti25 allows user to adjust palette, blending, level, span, IR-Fusion® mode, emissivity, and reflected background temperature compensation on a captured image before it is stored.	–
Image capture, review, save mechanism	One-handed image capture, review, and save capability		
Storage medium	SD Memory Card (2 GB memory card will store at least 1200 fully radiometric (.is2) IR and linked visual images each with 60 seconds voice annotations, or 3000 basic bitmap (.bmp) images, or 3000 jpeg (.jpeg) images; transferrable to PC via included multi-format USB card reader		
File formats	Non-radiometric (.bmp) or (.jpeg) or fully-radiometric (.is2)	Non-radiometric (.bmp) or fully-radiometric (.is2)	
	No analysis software required for non-radiometric (.bmp and .jpeg) files	No analysis software required for non-radiometic bitmap (.bmp) files	
Export file formats w/SmartView® software	JPEG, JPG, JPE, JFIF, BMP, GIF, DIB, PNG, TIF, and TIFF		

For detailed product specifications download the datasheet at www.fluke.com/tispecs

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Thermal imaging accessories

Expand your thermal imaging capabilities with the following Fluke accessories:

BOOK-ITP Introduction to Thermography Principles Book

FLK-LENS/TELE1 Telephoto Infrared Lens (Ti32 only)

FLK-LENS/WIDE1 Wide-angle Infrared Lens (Ti32 only)

TI-CAR-CHARGER Thermal Imager Vehicle Charger

TI-VISOR Thermal Imager Visor

TI-SBP3 Extra battery pack (Ti32 only)

TI-SBC3 Charging Base (Ti32 only)

Available late 2009

TI-TRIPOD Tripod Mounting Base Accessory

Got switchgear? You need Hawk IR Windows, from Fluke

Use arc-resistant IR Windows with Quadraband™ optic technology, exclusive to Hawk IR.

• Reduce the labor required to inspect your switchgear from three heads to one

• Stay safety compliant with NFPA70E and other safety protocols and leave the panels closed

• Extend the life of your equipment with more frequent IR scans

For more information, talk to your Hawk IR representative or visit **www.irwindows.com**

Ordering information

FLK-Ti32 9 Hz Industrial-Commercial Thermal Imager, 9 Hz
FLK-Ti32 60 Hz Industrial-Commercial Thermal Imager, 60 Hz
FLK-Ti25 9 Hz Thermal Imager
FLK-Ti10 9 Hz Thermal Imager

Everything you need to get started is included:

• In-box training DVD
• SmartView® analysis and reporting software
• 2 GB SD Memory Card
• Multi-function memory card reader for downloading images into your computer
• Rugged, hard carry case and portable, soft carry case
• Hand strap, adjustable for left or right handed user
• Rechargeable battery (Ti32 includes two external smart rechargeable batteries)
• AC charger/power supply
Note: Included accessories vary by model.

Fluke. *Not just infrared. Infrared you can use.*™

For information:

United States
1-800-760-4523

Canada
1-800-363-5853

Australia
(02) 8850-3333