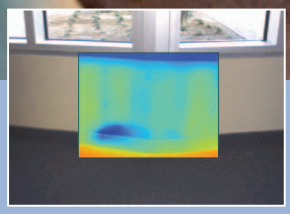
FLUKE®

Fluke Ti Series Buildings Thermal Imagers



Ti32 shown with optional wide angle lens

The ultimate tools for energy audits, building maintenance, restoration and remediation.

Rugged, reliable, easy to use... what you expect from the worldwide leader in test and measurement tools—Fluke.

Where can thermal imaging save me time and money?

Why thermal imaging?

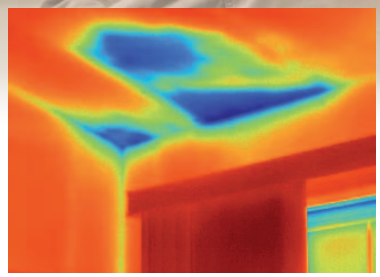
Productivity
Scan large areas quickly to detect problems or the extent of any damage. Whether you own your own business or maintain a commercial or residential facility, time is on your side when you use thermal imaging to get your work done.

Profitability
Turn to thermal imaging to drive improvements to your bottom line. Building inspections go much faster, saving you time and money—getting you to your next job faster. Use it to reduce energy usage or help keep mission critical equipment running.

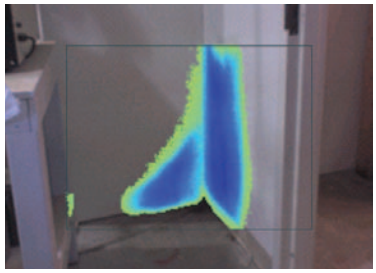
Safety
Thermal imaging is a non-contact technology and can identify potential problems from a safe distance. Scan elevated or hard to reach surfaces without risking you or your employees' safety.

- Locate air leakage resulting from improperly installed or worn seals on windows and doors
- Verify missing, damaged or incorrectly installed insulation
- Detect moisture intrusion and the possible existence of mold or mildew
- Extend the life of roofs by locating and fixing leaks
- Locate damaged or unsealed components of HVAC/R systems (air conditioning, heating, air handlers, and refrigeration)

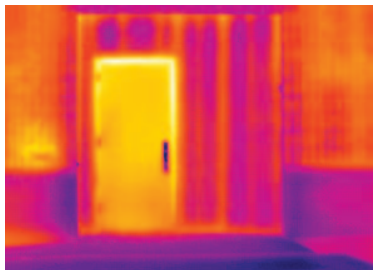
Visit **www.fluke.com/tistories** for a library of thermal imaging case studies and application notes.



Insulation failures: Discover problems with insulation that result in elevated energy bills.



Moisture detection: Easily detect the extent of moisture damage behind interior walls, in ceilings and under carpets.

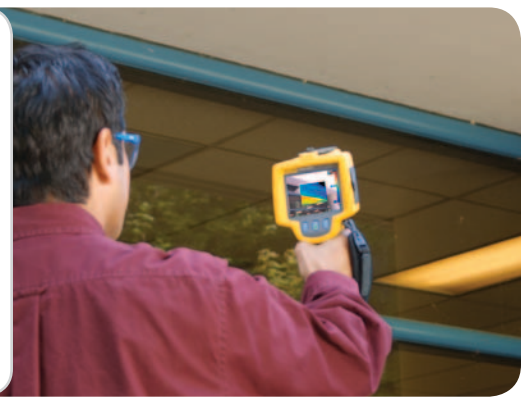


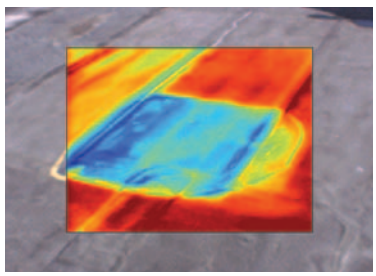
Air leakage: Identify sources of energy loss due to improperly installed or worn seals on windows and doors.

Building problems, defects and general maintenance

Energy audit, building inspection, and weatherization

Restoration, water damage, and roofing





Roofing: Detect water-saturated insulation in flat-roof systems to locate damaged portions of roofing structure.

Fluke Ti Series Building Diagnostic 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
- 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 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)

Fluke thermal imagers are built tough to withstand long hours in the field so users can move from job-to-job quickly.

Field replaceable batteries and optional visor on the TiR32 gives you maximum flexibility no matter where your work takes you.

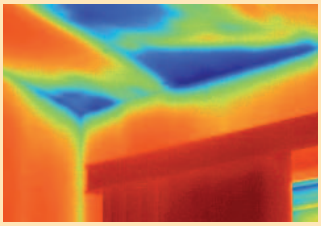
Fluke TiR1

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

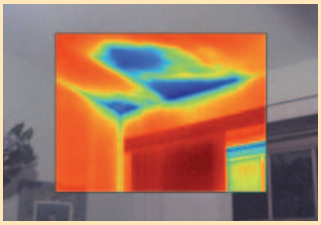
- Plant Engineering 2008 Product of Year
- NECA (National Electrical Contractor's Association) Show Stopper Award
- IDCC Award for Excellence (International Die Casting Competition)
- Building Operating Management 2009 Top Products Award
- AHR Expo Innovation Award – Honorable Mention (Air-Conditioning,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

Fluke IR-Fusion®

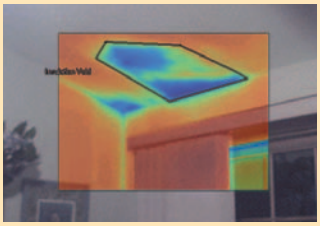
IR-Fusion® samples



Full (traditional) infrared: Displays a full screen infrared view for maximum infrared detail.

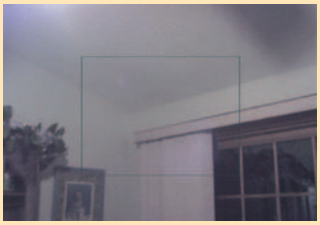


Picture-in-picture: Maintains a frame of reference by placing an IR "window" within a visual (visible light) image.



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 to you 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

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

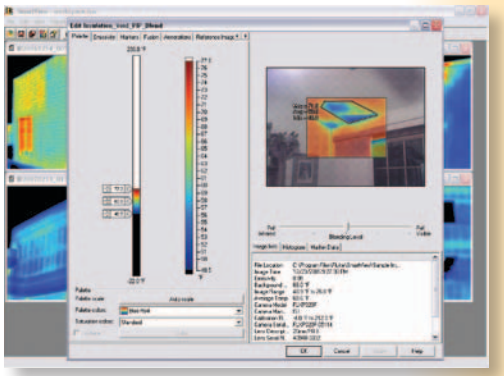
It's never been easier to enhance and analyze your thermal images.

- SmartView tools and controls allow easy access to editing functions
- Report Wizard guides you through automatic, professional report generation

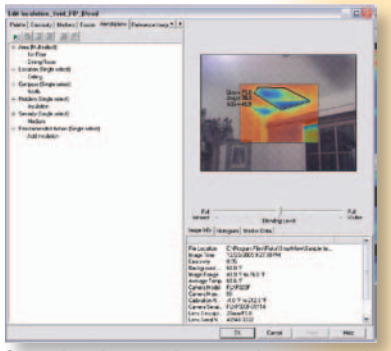
Included with every imager

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

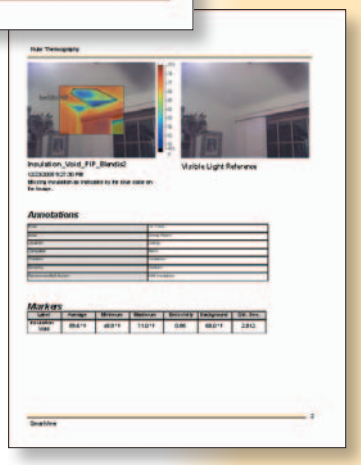
- No need to pay extra for a professional software solution



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®

Fluke authorized training is provided by our partner,

The Snell Group™

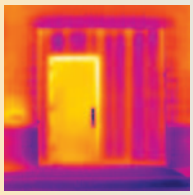
Unsure where to begin with your new thermal imager?

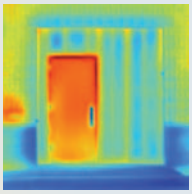
Don't worry. Fluke utilizes an extensive network of industry experts to deliver a full portfolio of training solutions.

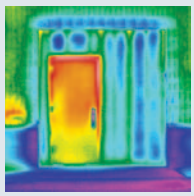
- **Free in-box training DVD:** This convenient training solution provides a general introduction to thermal imaging, product information, and common applications.
- **Free online webinars:** Fluke offers both pre-recorded and live webinars to meet the needs of busy professionals. Visit **www.fluke.com/titraining** for course listings and schedules.
- **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

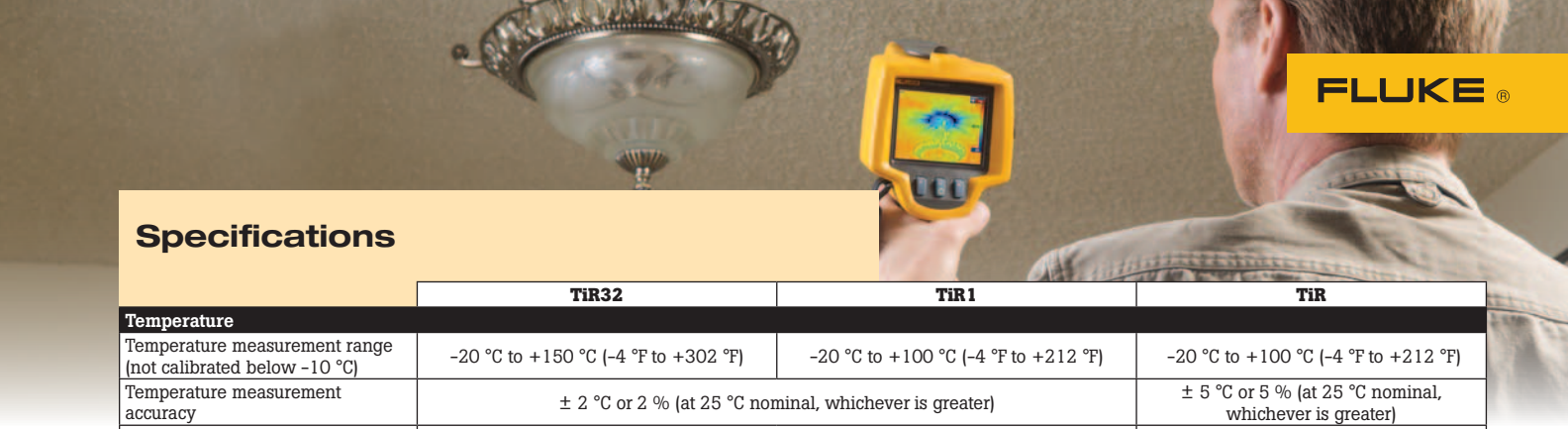

Blue-red


High contrast


Amber


Hot metal


Grey



Specifications

	TiR32	TiR1	TiR
Temperature			
Temperature measurement range (not calibrated below –10 °C)	–20 °C to +150 °C (–4 °F to +302 °F)	–20 °C to +100 °C (–4 °F to +212 °F)	–20 °C to +100 °C (–4 °F to +212 °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)	≤ 0.07 °C at 30 °C target temp. (70 mK)	≤ 0.1 °C at 30 °C target temp. (100 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		
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 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)	2.0 °C (3.6 °F)	2.5 °C (4.5 °F)	
Minimum span (in auto mode)	3 °C (5.4 °F)	5 °C (9 °F)	
Image capture and data storage			
	The TiR32 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 TiR1 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 (TiR32 and TiR1 only)		
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, DIB, GIF, PNG, TIF, and TIFF		
Memory review	Thumbnail view navigation and review selection	Sequential image navigation and review	

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

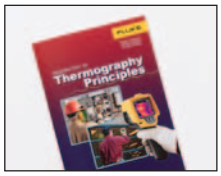
Thermal imaging accessories

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 of right handed user
- Rechargeable battery (TiR32 includes two external smart rechargeable batteries)
- AC charger/power supply

Note: Included accessories vary by model.

Expand your thermal imaging capabilities with the following Fluke accessories:



BOOK-ITP Introduction to Thermography Principles Book

FLK-LENS/TELE1 Telephoto Infrared Lens (TiR32 only)

FLK-LENS/WIDE1 Wide-angle Infrared Lens (TiR32 only)

TI-CAR-CHARGER Thermal Imager Vehicle Charger

TI-VISOR Thermal Imager Visor

Extra battery (TiR32 only)

TI-SBC3 Charging Base (TiR32 only)

TI-TRIPOD Tripod Mounting Base Accessory

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