

FLUKE®

Fluke Ti25 and Ti10 Thermal Imagers

**The ultimate tools
for troubleshooting
and maintenance**

IR-Fusion® Technology—
infrared and visual images
fused together makes
infrared easy to understand

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

Models for almost any
application and budget



IR-Fusion®

Find it, fix it, fast!

The versatility of thermal imaging

Applications

Temperature changes can indicate problems in many areas you see everyday, some include:

- **Inside electrical distribution and service** (switch gear, panels, controls, fuses, transformers, receptacles, lighting, conductors, bus bars, motor control centers)
- **Motors, pumps and mechanical** (electric motors and generators, pumps, compressors, evaporators, bearings, couplings, gearboxes, gaskets/seals, belts, rollers, disconnects)
- **Process** (tanks and vessels, pipes, valves and traps, reactors, process insulation)
- **HVAC/R** (air conditioning, heating, air handlers, refrigeration)
- **Outside electrical distribution for utilities** (transformers, bushings, insulators, transmission lines, other exterior conductors, service connections, disconnects, capacitor banks)

Thermal imaging is a non-contact technology that measures infrared wavelengths to determine temperatures from a safe distance.

A thermal imager displays an image that uses different colors to represent different temperatures. This image makes it quick and easy to visually check surface temperatures and identify hot spots. Hot spots or a rise in temperature often indicate that a problem exists or a failure could be imminent.

Until recently, thermal imaging was complex and expensive, keeping it in the domain of thermography specialists. Fortunately, recent advances in technology and Fluke engineering have not only lowered the costs but also made imagers easier to use and practical as an everyday troubleshooting tool in harsh work environments.

Diagnostic power—the data behind the picture

All Fluke thermal imagers are fully radiometric. These units not only graphically display temperature differences, they also measure and store temperatures at every point in the image. All these data points can be recalled and used for detailed analysis of a potential problem or just monitoring trends over time of the same location.

Whether you work in an industrial, electrical or commercial facility you can discover if and where a problem exists quickly and easily before contact measurements even need to be made.



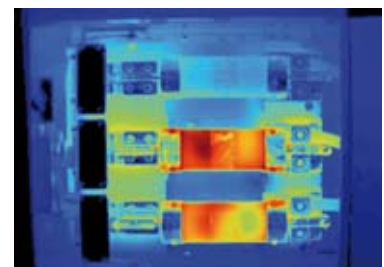
Tank level too low



Abnormal uneven heating on motor



Overheating bearing cap



Three-phase switchgear load imbalance



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IR-Fusion® Technology*

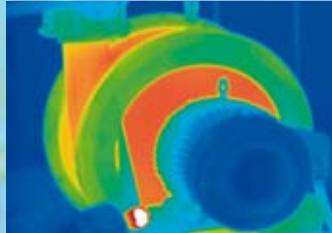
See things both ways—Infrared and visual (visible light) images fused together communicating critical information faster and easier—traditional infrared images are no longer enough.

Patent-pending IR-Fusion® Technology simultaneously captures a digital photo in addition to the infrared image and fuses it together taking the mystery out of IR image analysis.

Images enhanced with IR-Fusion help identify and report suspect or faulty components, enabling repairs to be done, and proving that the problem was corrected effectively.

IR-Fusion—multiple viewing modes

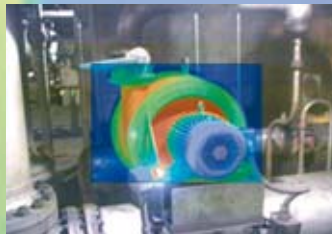
Identify problems quickly using different on-screen modes—the user selects the mode that works best for each situation. While some viewing modes are not included in every model, all are available for viewing and analysis in the included free SmartView™ software.



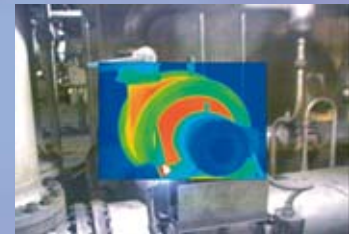
Full (traditional) IR Full screen infrared view for maximum infrared detail.



Full Visual (Visible light) Image A digital photographic image, as you would get from a digital camera. (In software only.)



Automatic Blend A blend of the visual (visible light) and infrared image together to create a single image for optimal viewing. Easy menu options give you access to the different blending options from full thermal image to full visual image. Automatic blend provides enhanced detail to help locate problems precisely along with a visual frame of reference and helps to better focus the image.



Picture-in-Picture Creates an IR 'window' surrounded by a visual (visible light) frame to easily identify problems, while maintaining a frame of reference with surroundings.



IR/Color Alarm Displays only temperatures falling above, below, or in between a user-selected range in infrared, and anything outside the selected range as a visual (visible light) image. (In software only.)

*Patent-pending IR-Fusion Technology from Fluke links the infrared image to full visual (visible light) image automatically. No need to carry a digital camera or spend additional time and energy to manage the infrared and visual images.

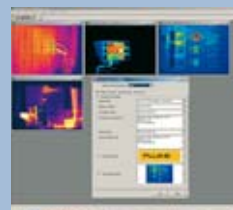
IR-Fusion links the two images together to make image management effortless.

The perfect thermal imagers for everyday troubleshooting

The Fluke Ti25 and Ti10 are the perfect tools to add to your problem solving arsenal. Built for tough work environments, these high-performance, fully radiometric imagers are ideal for troubleshooting electrical installations, electro-mechanical equipment, process instrumentation, HVAC equipment and others.

- Enhanced problem detection and analysis capabilities with IR-Fusion® Technology. Simply scroll through the different viewing modes quickly to better identify trouble areas in Full IR thermal or Automatic (auto) Blend visual and thermal images.
- Optimized for field use in rough work environments.
 - Engineered and tested to withstand a 2 meter drop—when was the last time you dropped a tool?
 - Withstands dust and water—tested to an IP54 rating
 - Innovative protective lens cover protects the lens when not in use. The cover is securely attached and out of the way while images are being taken.
 - Works in ambient temperatures as low as -10 °C and high as +50 °C, and the Ti25 measures up to 350 °C
- Delivers the clear, crisp images needed to find problems fast
 - Identify even small temperature differences that could indicate problems with excellent thermal sensitivity (NETD)
 - High performance, low noise sensor provides high quality image and stable temperature reading
 - Even the smallest details become visible with the large, widescreen full VGA color LCD display

- Intuitive, three-button menu is easy to use... simply navigate with the push of a thumb.
- No need to carry pen and paper—record findings by speaking into the camera. Voice annotations can be recorded with every image you take. Voice comments are saved along with individual images for future reference (Ti25 only)
- Store more than 3,000 screen images (.bmp format) for easy reporting direct into Microsoft Word® and other programs or 1,200 IR-Fusion images, including thermal image, visual image, temperature data and voice recorded comments for reporting and analysis purpose. Data is stored on included 2 GB SD memory card.





Fluke SmartView™ software is included with each Fluke thermal imager.

- Powerful, modular suite of software tools for viewing, annotating, editing and analyzing of infrared images.
- Generate customizable, professional-looking reports in a few easy steps.
- Full support of IR-Fusion Technology lets you edit images in five viewing modes.

SmartView™ software system requirements

- Windows® 2000 SP4 with update rollup 1/XP SP2/ Vista
- A web browser for product registration. Internet Explorer 5.0 or newer or Netscape® 5.0 or newer
- 500 MB available disk space, not counting space requirements for web browser
- 16-bit color, 800 x 600 resolution video or better
- Color printer for printing the images
- CD-ROM drive (for installing SmartView software)

Thermal imaging terminology explained



Palette—Color representation of the temperatures (temperature scale) in a displayed image. Certain color palettes meet personal preferences or optimize the image for different applications and/or problems. An example of the different palettes appear to the right.

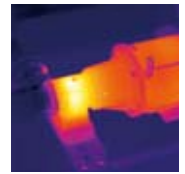
Sensor Size—Similar to digital cameras the sensor size describes the amount of displayed points per image of a thermal imager. A sensor size of 160 x 120 captures and displays more than 19,000 measurement points with each measurement. If the imager is fully radiometric then it also truly measures and stores all captured points with the image.

Field of view (FOV)—Indicates what the thermal imager sees or measures at a given moment. The combination of the Field Of View specification and the distance to the measured object determines which surface or part of an object will be measured as a total. A FOV calculator on www.fluke.eu/ti helps you calculate the measurement surface at various distances to the object.

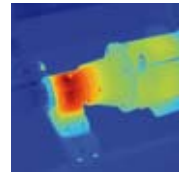
Thermal sensitivity—Indicates what the smallest temperature difference is which can be measured/displayed in an image. It basically is the maximum resolution of the image and is referred to as NETD (noise equivalent temperature difference).

Emissivity adjustment—All surfaces emit infrared energy or heat. The level of emission varies much per surface and is described with the term emissivity. Painted coatings and materials usually have a high emissivity while polished aluminum has a low emissivity. Visit www.fluke.eu/ti for a table with emissivities for different materials. To measure the temperature of a material accurately it will be necessary to adjust for the material's emissivity.

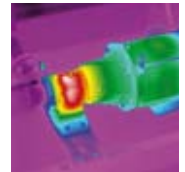
Span—The set of temperature values that can be measured within a preset range. Adjusting the span allows you to see more subtle temperature gradients (or contrast) in a captured image. When the span is optimized the imager shows 256 different shades of color in an image.



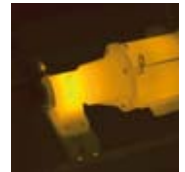
Ironbow



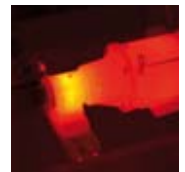
Blue-red



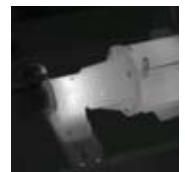
High contrast



Amber



Hot metal



Grey



	Fluke Ti25	Fluke Ti10
Thermal imaging performance		
Field of View (FOV)	23° horizontal x 17° vertical	
Spatial resolution (IFOV)	2.5 mrad	
Minimum focus distance	15 cm	
Thermal sensitivity (NETD)	≤ 0.1 °C at 30 °C (100 mK)	≤ 0.2 °C at 30 °C (200 mK)
Minimum span (Auto/Manual)	5 °C/2.5 °C	10 °C/5 °C
Focus	Manual	
Detector size	160 x 120	
Visual imaging performance		
Minimum focus distance	46 cm	
On camera operating modes	Picture-in-Picture (Blending is user selectable between MAX, MID and MIN) and full screen IR (Blending is user selectable between MAX, MID and MIN)	Full Picture-in-Picture and full screen IR
Visual (Visible light) camera	640 x 480 pixels, full color	
Temperature measurement		
Temperature range	-20 °C to +350 °C, 2 ranges	-20 °C to +250 °C
Accuracy	± 2 °C or 2 % (whichever is greater)	± 5 °C or 5 % (whichever is greater)
Measurement modes	Center point and hot and cold markers	Center point
On-screen emissivity correction	Yes	No
Image presentation		
Digital display	9.1 cm (3.6 in) diagonal landscape color VGA (640 x 480) LCD	
LCD backlight	Selectable bright or auto	
Pallettes	Ironbow, blue-red, high contrast, amber, hot metal, grey	Ironbow, blue-red, high contrast, grey
Image and data storage		
Fully radiometric	Yes	
Storage medium	2 GB SD card stores up to 3000 .bmp IR images or 1200 .IS2 IR-Fusion images	
File formats supported	Exportable to JPEG, BMP, GIF, PNG, TIFF, WMF EXIF, and EMF	
Voice memo recorder (voice annotation)	Yes	No
Software	SmartView; Full analysis and reporting software included	
Controls and adjustments		
Set-up controls	Date/time, °C/°F, language, emissivity, hot spot and cold spot on image	Date/time, °C/°F, language
Language selection	English, German, French, Spanish, Portuguese, Italian, Swedish, Finnish, Russian, Czech, Polish, Turkish, Simplified Chinese, Traditional Chinese, Korean, Japanese	
Image controls	Smooth auto scaling and manual scaling	
On-screen indicators	Battery status, real time clock and center point temperature, range and span indication and high and low alarm settings	
Power		
Battery type	Internal rechargeable battery (included)	
Battery operating time	3 to 4 hours continuous operation	
Battery charging	2 hours with ac charger or dc car charger (charges battery while operating)	
AC operation	AC adapter/charger 110/230 V ac, 50/60 Hz	
Power saving	Automatic shutdown and sleep modes (user specified)	
Environmental and mechanical design		
Operating temperature	-10 °C to +50 °C	
Storage temperature	-20 °C to +50 °C	
Relative humidity	Operating and storage 10 % to 90 %, non-condensing	
Water and dust resistant	IP54	
Two meter drop test	Yes	
Protective lens cover	Yes	
Weight (including battery)	1.2 kg	
Imager size (HxWxD)	267 mm x 127 mm x 152 mm	
Other		
Warranty	Two-years	
EN 61010-1 2nd edition and EN61326-1	Yes	

Keeping your world up and running



Fluke 435 Three-Phase Power Quality Analyzer

Fluke offers a wide range of electronic, electrical and power quality troubleshooting tools for the industry. With our long experience in delivering top quality, easy-to-use and safe tools, we understand your job and the challenges you face day in-day out. Fluke tools are designed to improve your ability to do a better job by offering rugged, reliable and innovative instruments.



Fluke 289 True-rms Industrial Logging Multimeter with TrendCapture



Everything you need to get started is included:

- SmartView™ analysis and reporting software (with free upgrades through life of product)
- 2 GB SD Memory Card
- SD Card Reader for downloading images into your computer
- Rugged hard carry case
- Portable soft carry case
- Hand strap adjustable for left or right handed user
- Internal rechargeable battery
- AC charger/power supply

Ordering Information

Fluke Ti25 Thermal Imager
Fluke Ti10 Thermal Imager



Fluke 1587 Insulation Multimeter



Fluke 337 True-rms Clamp Meter



Fluke 771 Milliamp Process Clamp Meter

Check out the interactive Thermal Imager Selection Tool

Enter your application requirements and the selection tool will match the best imagers to your application. Go to www.fluke.eu/ti



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