FLUKE®

Fluke TiR Series Thermal Imagers

Locate building problems quickly and easily.

- Largest, sharpest thermal images
- Best sensitivity
- Fusion of thermal and visual images

IR·Fusion™

- Innovative articulating lens
- Powerful on-camera analysis
- Reporting software included

FLUKE THERMAL IMAGER

TiR4

TiR2, R3, and R4 IR FlexCam™ Thermal Imagers

The expert's choice for building diagnostics.

**High resolution (with select models 320 x 240 and <0.05 ˚C NETD) and a large, five-inch color display make these imagers perfect for building diagnostics. IR Fusion technology integrates thermal and visual images. A 180° articulating lens plus one-finger SmartFocus deliver great images when access is poor. Built-in auto-capture, alarm, and analysis functions help you locate intermittent problems (TiR2 and TiR4 only). Powerful analysis and reporting software is included.**

Features

|	TiR4-FT	TiR4	TiR3-FT	TiR3	TiR2-FT	TiR2
High-resolution, low noise VOx detector for high-quality images	320 x 240				160 x 120	
Temperature range for building diagnostic applications	–20 to +100 °C					
High thermal sensitivity for viewing even the smallest temperature differences	≤0.05 °C		≤0.07 °C			
180° articulating flexible lens to view images in every situation	•	•	•	•	•	•
Choice of two interchangeable lenses to cover building applications	•	•	•	•	•	•
Large 5" high-contrast color LCD for a clear picture independent of lighting conditions	•	•	•	•	•	•
Fully radiometric for detailed temperature analysis and tracking	•	•	•	•	•	•
SmartFocus for best image quality and accurate temperature measurements	•	•	•	•	•	•
Windows CE based menu structure for ease of use	•	•	•	•	•	•
Personalized instrument set-up for multiple user profiles	•	•	•	•	•	•
CompactFlash memory cards store more than 1000 IR images plus fully radiometric temperature data	•	•	•	•	•	•
SmartView reporting and analysis software included	•	•	•	•	•	•
AutoCapture for making intermittent problems visible	•	•			•	•
On-board analysis functions	•	•			•	•
User defined text annotations for simplified reporting	•	•			•	•
Built-in visible light (digital) camera	•		•		•	
IR-Fusion blending thermal and visible light images to easily pinpoint suspect components	•		•		•	
IR/Visible Alarm function	•		•		•	
Laser pointer for easy targeting	•		•		•	
Flash and torch light for high quality images in dark environments	•		•		•	

Typical applications
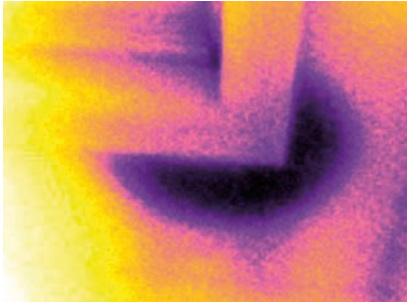
Moisture detection:
Accurately detect moisture behind interior walls, in ceilings, and under carpets

Mold remediation:
Control mold by revealing undetected sources of moisture.
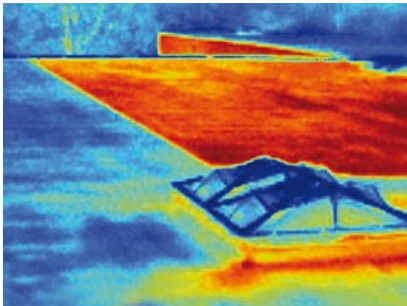
Roofing:
Detect water-saturated insulation in flat-roof systems to locate damaged portions of roofing structure.
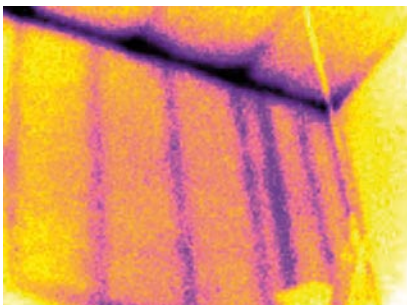
Energy Audits:
Perform residential and commercial energy audits by scanning for heat loss, moisture invasion, and HVAC problems.

Specifications

		TiR4	TiR3	TiR2
Imaging performance	**Thermal**			
	Field of view (FOV)*	23° horizontal x 17° vertical		
	Spatial resolution (IFOV)*	1.30 mrad		2.60 mrad
	Minimum focus distance*	0.15 m		
	Thermal sensitivity (NETD)	≤ 0.05 °C at 30 °C	≤ 0.07 °C at 30 °C	
	Detector data acquisition / Image frequency	60 Hz		30 Hz
	Focus	SmartFocus; one finger continuous focus		
	IR digital zoom	2x, 4x, 8x	2x	
	Detector type	Vanadium Oxide (VOx) Uncooled Microbolometer		
	Detector size	320 x 240 Focal Plane Array		160 x 120
	Spectral band	8 µm to 14 µm		
	Digital image enhancement	Automatic full-time enhanced		
	Visual (IR-Fusion models only)			
	On camera operating modes	Full thermal, full visual light or merged thermal-visual images. Picture-in-picture. Alarm.		
	Visible light camera	1280 x 1024 pixels, full color (1.3 Mega pixel)		
	Visible light digital zoom	2x, 4x	2x	
Temperature measurement	Calibrated temperature range	-20 °C to 100 °C (-4 °F to 212 °F)		
	Accuracy	± 2 °C or 2 % (whichever is greater)		
	Measurement modes	TiR2/TiR4 - Centerpoint, center box (area min/max, average) moveable spot, user defined field/text annotations, isotherms, automatic hot and cold point detection, visible color alarm above and below		
		TiR3 - Centerpoint, center box (area min/max, average)		
	Emissivity correction	0.1 to 1.0 (0.01 increments)		
Image presentation	Digital display	5" large high-resolution digital display		
	LCD backlight	Sunlight readable color LCD		
	Video output	RS170 EIA/NTSC or CCIR/PAL composite video		
	Palettes	Grayscale, grayscale inverted, blue red, high contrast, hot metal, iron bow, amber, amber inverted		
Optional lens	**10.5 mm wide-angle lens**	High precision Germanium lens		
	Field of view (FOV)	42° horizontal x 32° vertical		
	Spatial resolution (IFOV)	2.45 mrad		4.9 mrad
	Minimum focus distance	0.3 m		
Image and data storage	Storage medium	Compact flash card stores more than 1000 IR images (512 MB card standard)		
	File formats supported	14 bit measurement data included. Exportable BMP, GIF, JPEG, PNG, TIFF		
Interfaces and software	Interface	Compact flash card reader included		
	Software	SmartView; full analysis and reporting software included		
Laser (IR-Fusion models only)	Classification	Class II		
	Laser targeting	Laser dot visible on screen when blending thermal and visible image		
Controls and adjustments	Set-up controls	Date/time, temperature units C/F, language, calibration range, LCD intensity (high/normal/low)		
	Image controls	Level, span, auto adjust, emissivity and background (continuous/manual)		
	On-screen indicators	Battery status, target emissivity, background temperature and realtime clock		
Power	Battery type	Li-Ion smart battery, rechargeable, field-replaceable		
	Battery operating time	Three hours continuous operation (two hours for models with IR-Fusion)		
	Battery charging	2 bay intelligent charger powered via AC outlet		
	AC operation	AC adapter 110/220 VAC, 50/60 Hz (TiR2/TiR4 only)		
	Power saving	Automatic shutdown and sleep modes (user specified)		
	DC operation	Vehicle/12 volt adaptor optional		
Environmental and mechanical design	Operating temperature	-10 °C to +50 °C (14 °F to 122 °F)		
	Storage temperature	-40 °C to +70 °C (-40 °F to 158 °F)		
	Relative humidity	Operating and storage 10 % to 95 %, non-condensing		
	Water and dust resistant	IP54		
	Weight (including batteries)	1.95 kg (4.29 pounds)		
	Camera size (HxWxD)	162 mm x 262 mm x 101 mm (6.5 in x 10.5 in x 4.0 in)		
Other	Warranty	Two years		

*standard 20 mm Germanium lens

Included accessories

Heavy duty carrying case
2 rechargeable battery packs
Battery charger
AC adapter (for R2 and R4 models only)
Video cable
512 MB compact flash card
Compact flash card adaptor and USB cable
PCMCIA compact flash card adapter
Neck strap
SmartView reporting and analysis software on CD
User manual on CD

Ordering information*

FLK-TIR2-20 — IR FLEXCAM BD Thermal Imager

FLK-TIR2/FT-20 — IR FLEXCAM BD Thermal Imager with IR-Fusion

FLK-TIR3-20 — IR FLEXCAM BD Thermal Imager

FLK-TIR3/FT-20 — IR FLEXCAM BD Thermal Imager with IR-Fusion

FLK-TIR4-20 — IR FLEXCAM BD Thermal Imager

FLK-TIR4/FT-20 — IR FLEXCAM BD Thermal Imager with IR-Fusion

*For ordering information of optional lenses, check the Fluke web: **www.fluke.com**

IR-Fusion™ Technology

Infrared and visible light images fused together on one display.
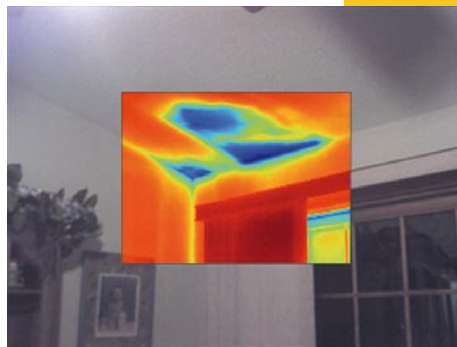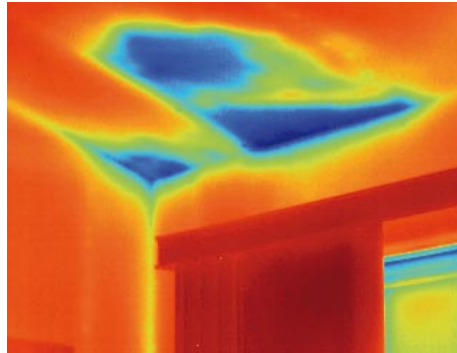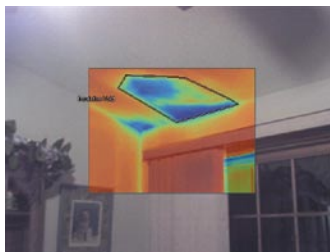
IR-Fusion Technology captures a visible light image in addition to the infrared image and takes the mystery out of IR image analysis. It helps to better identify and report suspect components and enable the repair to be done right the first time.

Five viewing modes

Full IR – For analyzing very high resolution IR imaging. Detect the smallest temperature variations to track down the origin of problems and fully document the extent of remediation. Full IR images are automatically linked to full visible light images.

Picture-in-Picture – For creating an IR "window" surrounded by a visible light frame to easily identify thermal anomalies, while maintaining a frame of reference with surroundings.

See things both ways

To communicate critical information, infrared images only are no longer enough. With revolutionary IR-Fusion technology, one can better identify details, manage and analyze images by combining both the infrared and visible light images. IR-Fusion technology simultaneously captures pixel-for-pixel infrared and visible light images and allows full image optimization with five different on-camera as well as software viewing modes. With the integrated laser pointer visible on the images, precise fault identification is easy. All FT models of the Fluke IR FlexCam Thermal Imagers feature this unique technology.

Alpha blending – For combining visible and infrared images together in any ratio to create a single image with enhanced detail that will help in precisely locating problems.

IR/visible alarm – For displaying only temperatures that fall above, below, or in between a specified range as IR image, leaving the rest of the scene as a fully visible light image

Full visible light – A bright, detailed pixel-for-pixel reference image of subject areas for documentation and reporting.

Fluke SmartView™ IR analysis and reporting software

## For the TiR2, TiR3 and TiR4 IR FlexCam Thermal Imagers.

Fluke SmartView software is included with each Fluke IR FlexCam® Thermal Imager. This powerful software is a modular suite of tools that annotates, views, edits and analyzes IR images. It also generates fully customizable and professional–looking reports in a few easy steps. The IR–Fusion technology is fully supported. The software is easy to use for the technician, yet delivers the performance specialized thermographers require for advanced analysis.
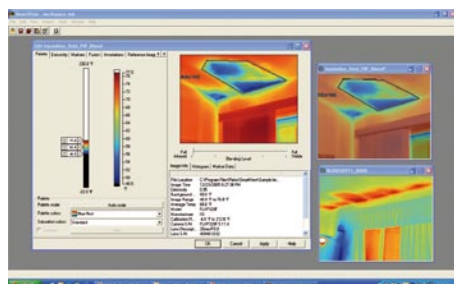
Navigate, analyze and enhance IR images
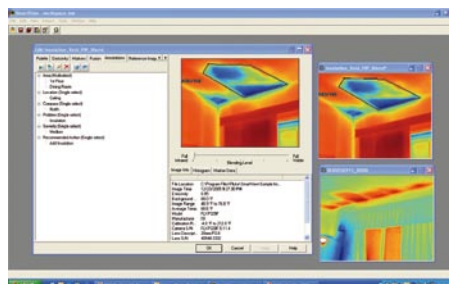
Organize data with extensive annotations
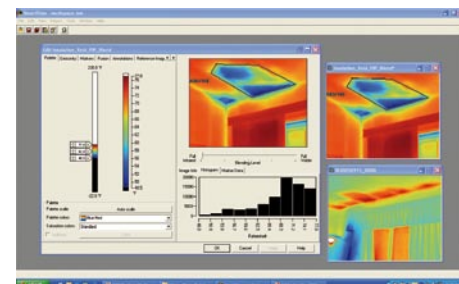
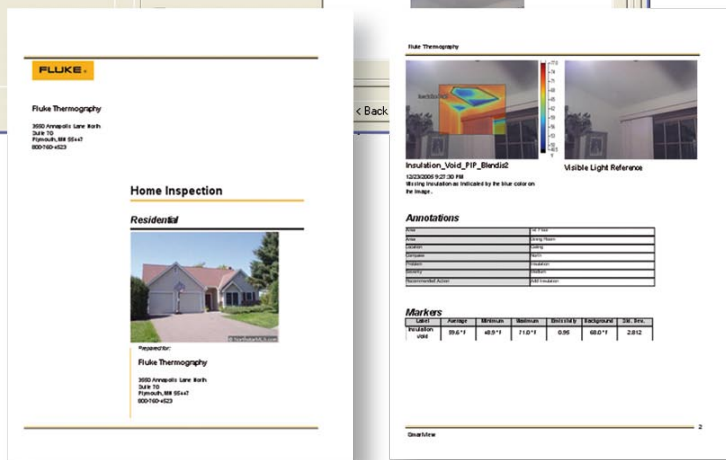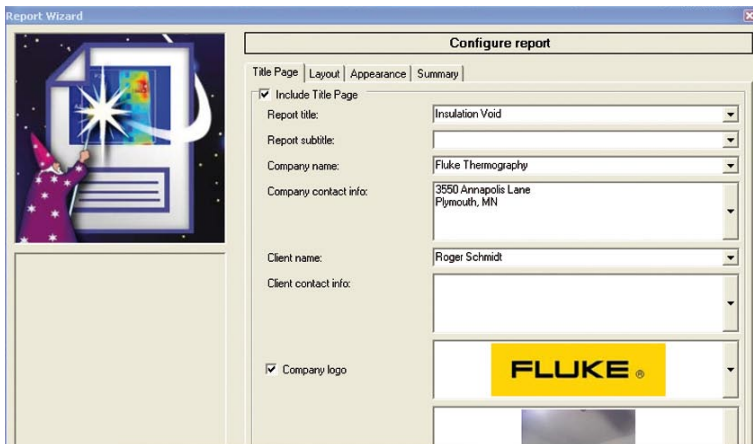*Optimize images and quickly reveal issues*

Image viewing and editing

- Display an array of open images for convenient selection and analysis
- Scroll across the image to display the temperature at any given point
- Edit color palettes, reference images, markers, emissivity, and more

Extensive annotation possibilities

- Add annotations to images in the camera or in the PC software
- Input information such as locations, category and other notes
- Reference images can be linked together for good/bad and before/after analysis
- Annotations can be included in reports

Detailed analysis and total image control

- Alter level, span, and palette selection to enhance contrast or display detail more effectively
- A complete set of marker tools are provided (Hot, Cold, Center Point, Center Box, and user defined.)
- Five viewing modes enable image optimization based on application needs (IR-Fusion models only)

System requirements

- Windows® 98SE/ME/2000/XP
- A web browser for product registration. Internet Explorer 5.0 or newer or Netscape® 5.0 or newer
- CompactFlash memory card reader (included)
- 20 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)

Simplified report generation

- Generate professional customized reports fast
- One-click report generation for a quick result
- Choice of features including before/after, IR plus visible light, annotations, supporting data and graphics
- Report wizard guides the user through report generation

To find out more about Fluke thermal imagers, go to **www.fluke.com/thermography** or in the United States, call **1-800-760-4523.**

Fluke. *Keeping your world up and running.*™