

# FLIR Thermal Imaging Cameras



All New  
E-Series

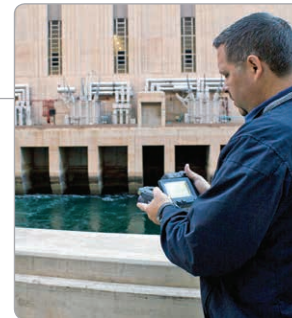
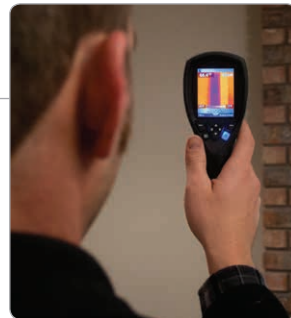


T-Series

## A Thermography Hero's Welcome from FLIR

Patrol officers, security personnel, and American troops use FLIR infrared technology to protect lives and resources every day. In many ways, you as a thermographer do, too. With thermal imager in hand, you have access to an amazing ability—to see problems you otherwise couldn't and fix them before they cause delays, waste energy dollars, hurt someone, or shut things down. We think that's pretty heroic stuff and certainly a respectable way to make a good living.

Enjoy learning more about the technology as you explore our showcase of FLIR products. Then get ready to grab hold of the growing number of opportunities. And count on us to help you find the exact thermal imaging solution you need to help save the day.



## What You'll Discover in this Guide

- The revealing world of infrared
- Why thermal imaging with MSX matters
- Various applications for finding hidden problems
- Details on FLIR's advanced camera choices and features
- Resolutions comparisons to size up imaging needs
- FLIR mobile app and reporting software productivity tools
- Camera specifications to match your requirements
- Previews of accessories, Extech instruments, & FLIR IR windows
- How ITC & InfraMation help lift you to hero status



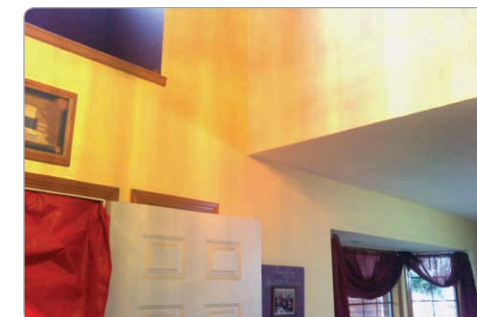
## Which Camera is Right for You?

Whether you're new to infrared inspections or already a Level III thermographer, a variety of important factors will figure into your thermal camera decision: how often you use the camera, what you're inspecting, the angles you're shooting from, target size, high temperatures, distance, and other considerations. That's why we've created this guide to help you determine the right fit for your application, budget, and the way you like to work.

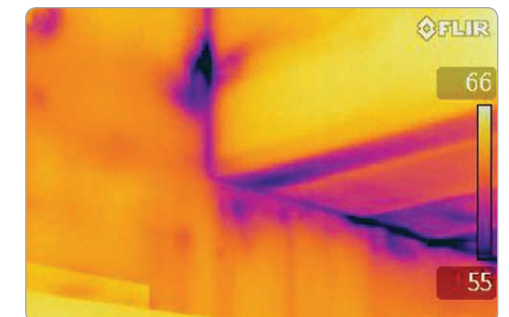
For example, many utilities prefer our T640 because the camera's rotating lens system makes it comfortable to aim up at overhead components – significant when doing a full day of intensive substation inspections. 640 resolution and interchangeable lenses make detecting distant, small targets easier for them, too. Those same companies may also outfit crews with handy E4 or E6 cameras for quick scans and safety checks before entering underground vaults or using a disconnect stick.

Or, consider the insulation contractor who got off to a fast start with a low-cost i7 and quickly became known for finding all kinds of ways to help people save on their energy bills. Needing to add a second camera to keep pace, he chose an E60 for its higher IR detail, built-in digital camera, and MSX® enhancement for clearer documentation. The FLIR app connectivity to his iPad made it easier to show results to customers. And the 320 x 240 image clarity improved his web site.

Obviously, different requirements mean one thermal imager may or may not fit all. So, along with this guide, we encourage you to consult with your FLIR dealer or representative who will gladly help you hone your decision.



Visible



Thermal



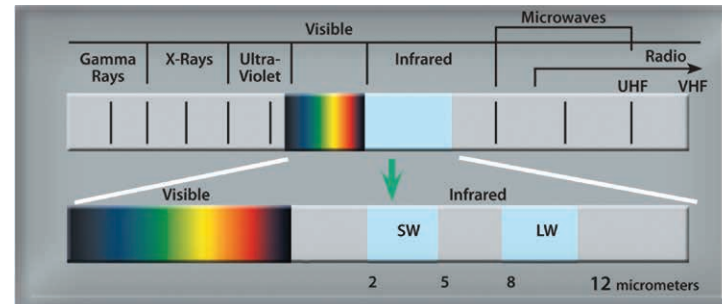
## Why Thermal Imaging is Heating Up

You'll be excited to know thermography services are in high demand. But first a few of the basics in case you want a quick refresher on how infrared technology works.

### Making the Invisible Visible

Virtually everything in our world emits infrared radiation. While neither the naked eye nor a digital camera can see the infrared spectrum, you feel its effects all around all the time in the form of heat – from sunlight, electrical equipment, and industrial processes to cold air drafts, ice cubes, and even the nose of a dog.

Fortunately, FLIR infrared cameras can detect and capture thousands of non-contact temperature measurements in real time, transforming them into vivid thermal images that instantly show you where hot and cold spots are.

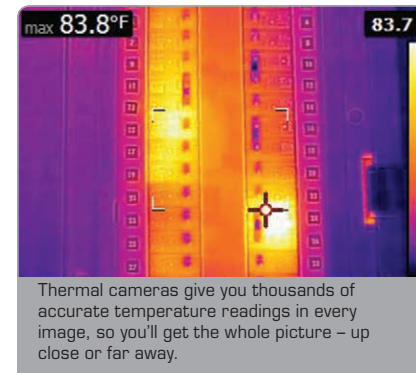
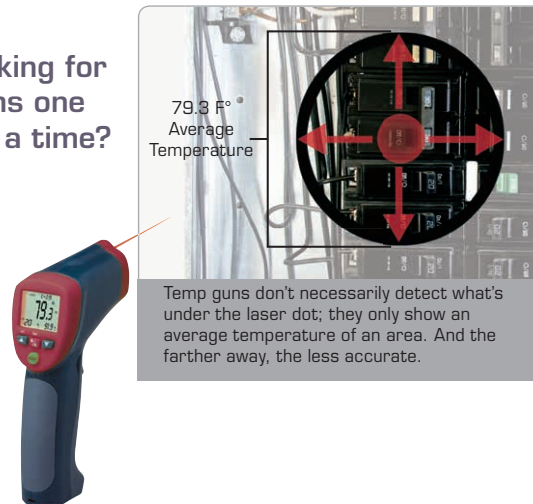


### The Advantage of a FLIR Camera Over an IR Thermometer: One Sees and One is Blind

IR thermometers, a.k.a. temperature guns may be able to give you one average temperature reading at a time but they can't produce a single image. So imagine how long would it take to scan a room full of electrical panels. Accuracy is another concern. The farther away, the more general the measurement and more likely you'll miss a critical anomaly. Standing closer might yield better results but it's also more dangerous.

With a FLIR thermal camera, each snapshot provides a picture worth thousands of calibrated, radiometric temperature measurements whether taken up close or farther away. To actually be able to see heat signatures arms you with the power to locate and solve hidden problems much more quickly.

Still looking for problems one spot at a time?



Thermal cameras give you thousands of accurate temperature readings in every image, so you'll get the whole picture – up close or far away.



Instead, see the whole picture instantly with thermal imaging!

## MSX: A Bold New Form of Thermal Imaging

If you plan to share saved images with customers or co-workers, a thermal image alone isn't always enough to help them understand what they're seeing. That's why FLIR developed MSX® Multi-Spectral Dynamic Imaging to bring together the best of both spectrums in a striking, innovative way. Now onboard the full line of new FLIR E-Series and T-Series cameras, MSX instantaneously generates a definitive, all-in-one thermal picture that easily orients you to the location of the problem as soon you see it on the screen or in a report. No more guesswork or messing around with extra photos.

### Why You Need MSX

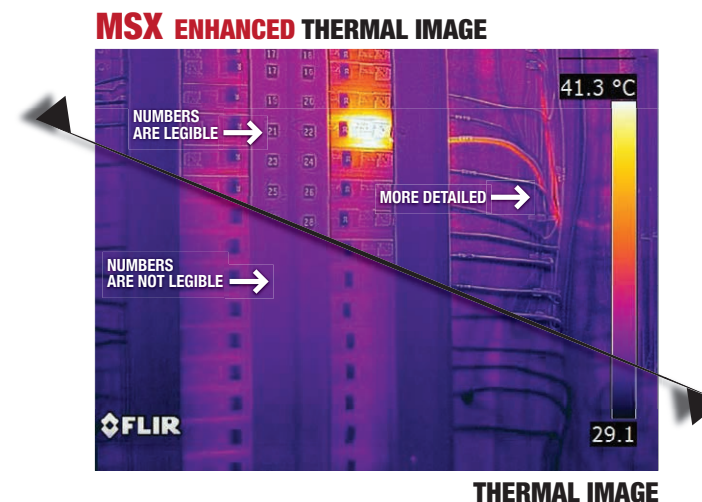
Key details apparent to the naked eye like numbers, labels, signage, and structural features can get lost in a regular thermal image, often requiring a separate digital photo to reference the location of the temperature issue you've found. Thermal imagers of the past have featured ways to blend or insert a portion of a thermal image into a visible light picture. But these modes have only provided a partial solution and typically take extra time to dial in and interpret. They also tend to limit or obscure the thermal view of the scene.

### What Makes It Unique

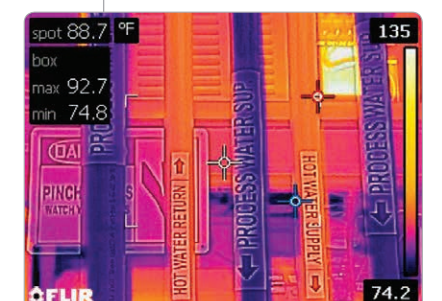
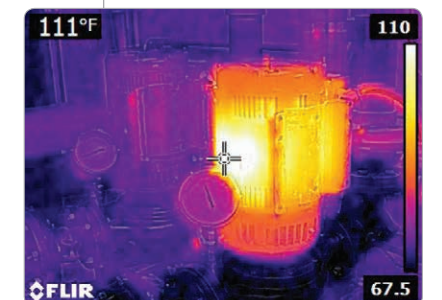
MSX is completely different. Using FLIR's patented algorithm, MSX extracts the high-contrast highlights from the built-in visible camera's image and then virtually etches the skeletonized details onto the entire corresponding FLIR infrared image in real time, enhancing the clarity and maintaining the integrity across the whole frame instead of compromising it. The result: totally recognizable thermal video and snapshots integrated with all the texture, depth and definition you need to isolate the problem in one simple picture.

### MSX Marks the Spot

Whether it's in person, on a smartphone, or delivered in a report, stunning and convincing MSX images give you an extra edge to help you tell a much better story, get a faster yes for repairs, save customers and companies money, and look like a hero in their eyes.



MSX®

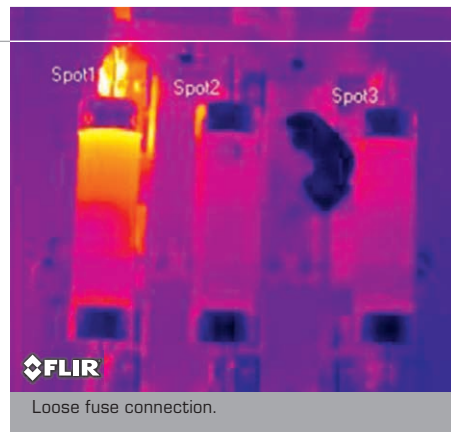




## Thermal Imaging for Predictive Maintenance

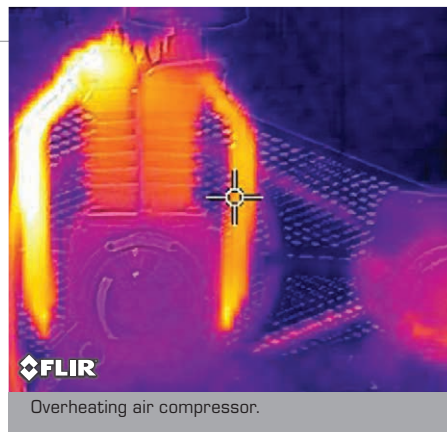
The most effective tools for predictive maintenance applications, FLIR infrared cameras give you the amazing ability to see what other diagnostic instruments miss. Keep your facility operating at peak performance, avoid expensive equipment failures, improve safety, and prevent loss of production capacity.

Use FLIR thermal imaging to find hidden problems before they turn into serious trouble.



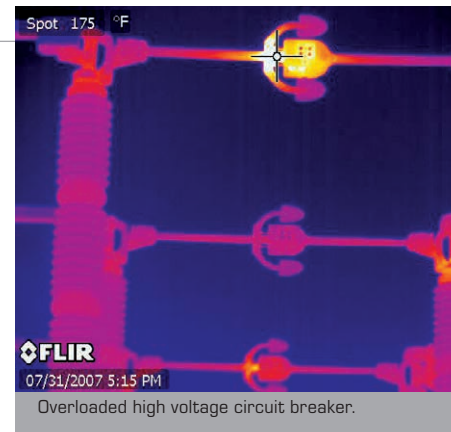
### Electrical

Find hidden problems quickly, make timely repairs, prevent unscheduled shutdowns, and improve plant safety.



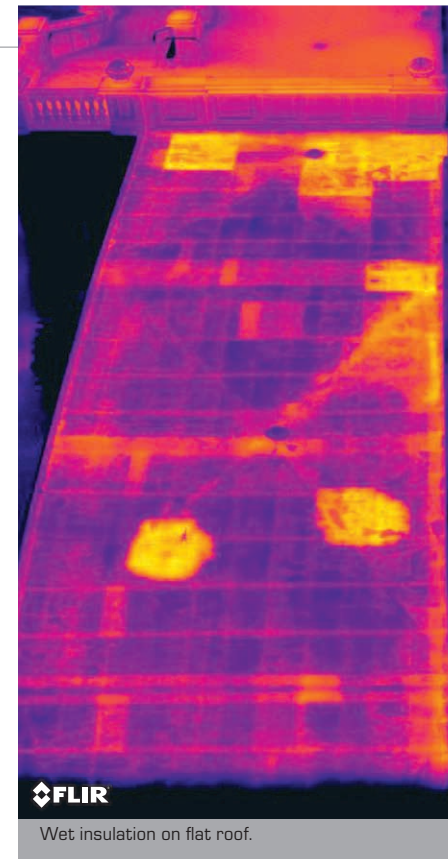
### Mechanical

Discover overheated bearings, linkages, and other components before they can interrupt your operations or create safety hazards.



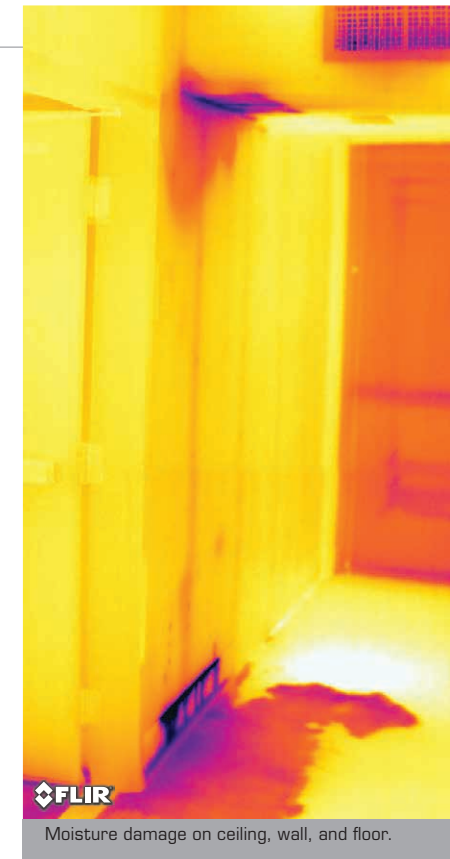
### Utility

Scan large areas and hundreds of connections quickly and efficiently to prevent unexpected service outages and lost revenues.



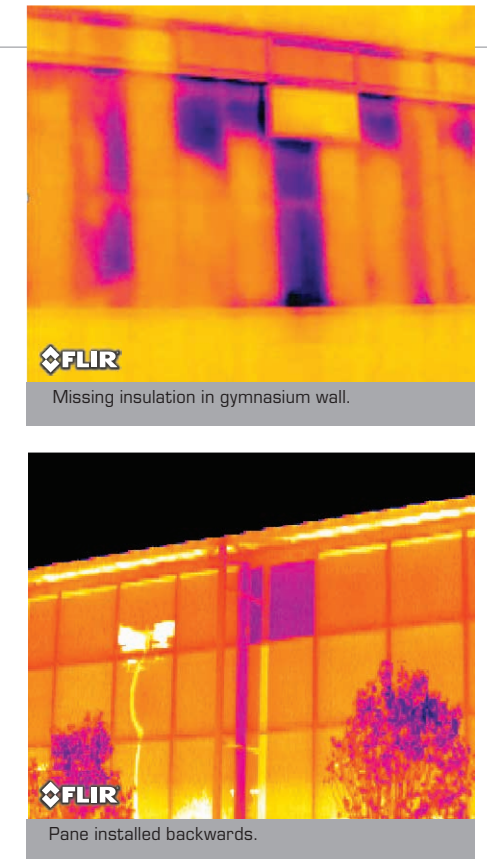
### Roofing

Find compromised roofing areas at your facility, and repair it before problems quickly become a safety hazard or require replacing the entire structure.



### Building Diagnostics

Even small areas of moisture intrusion can be easy to spot with an infrared camera. Locate and repair hidden water damage before a trickle turns into a flood.



### Energy Loss

Discover missing insulation, faulty HVAC systems, and other issues that waste energy and lots of money.



### E4 thru E8 for occasional IR inspections and reports

Utility troubleshooters, HVAC pros, and facility maintenance

- Perfect for quick scans and safety checks
- Far more effective than IR temp guns
- Rugged and affordable enough for everyone



### E40 thru E60 for more frequent inspections and reports

Plant maintenance, electricians, & facility contractors

- Higher temperature ranges & extra sensitivity
- Interchangeable telephoto & wide angle lenses
- FLIR Wi-Fi app & touchscreen efficiency



### T420 thru T640 for intensive inspection schedules and fast reporting

Substation & solar farm surveys, roofing companies, and RCM programs

- Ergonomic and hi-res for hero shots from any angle
- Long-range imaging of small, high-temp targets
- Feature-rich performance



## Thermal Imaging for Building Diagnostics

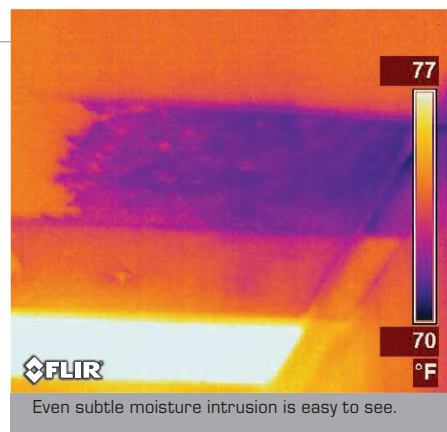
FLIR infrared cameras give you the power to make the invisible visible. With thermal imaging, you can see, detect, and document telltale temperature differences that show moisture damage, missing insulation, air drafts, nests in walls, and more.

Thermal imagers from FLIR can help you find hidden building problems faster than any other technology, and produce customized reports to justify and validate the quality of repair work.



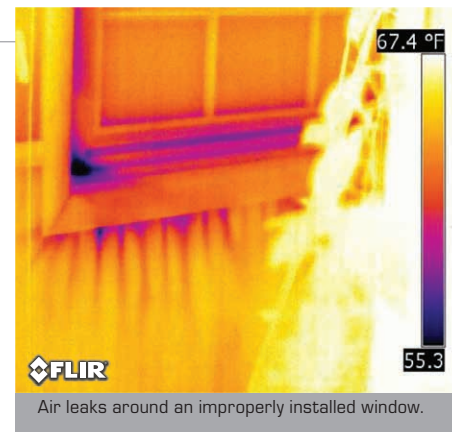
### Missing Insulation

Locate poor insulation quickly by detecting and comparing differences with surrounding areas.



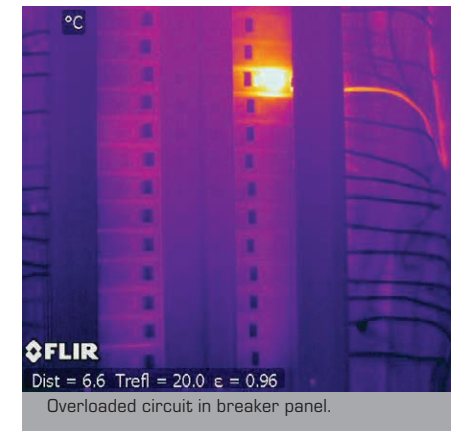
### Water Damage

Find and fix hidden water damage quickly before small problems become big, expensive ones, and document proof of your repairs.



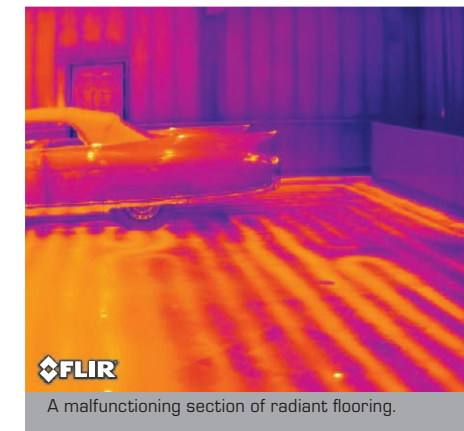
### Air Infiltration

Detect air leaks around windows, doors, and other structures. Repairing them saves energy and money.



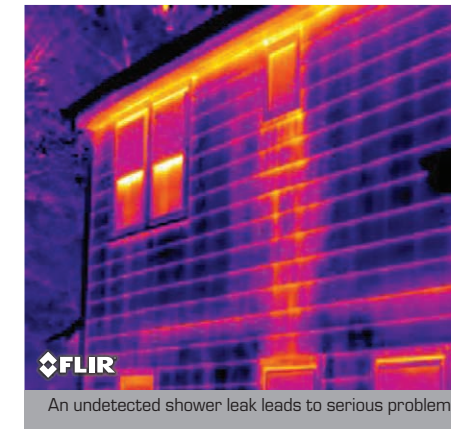
### Electrical Problems

Finding hidden electrical problems is easy with FLIR, allowing you to take quick action to solve them.



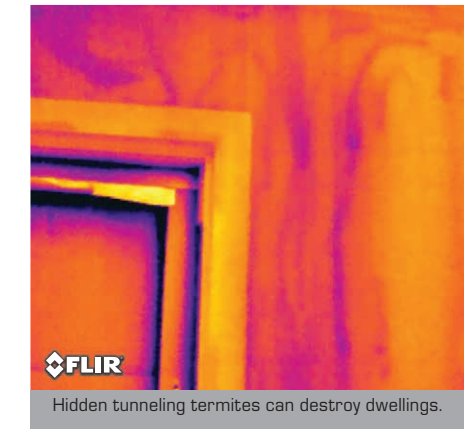
### HVAC Problems

Discover leaking ductwork and troubleshoot heating, AC, and radiant flooring problems to maximize energy efficiency.



### Mold and Rot

See temperature differences to expose hidden leaks that can lead to expensive and extensive health issues and structural damage.



### Destructive Pests

Hunt down burrowing and nesting insects and rodents before they eat customers out of house and home.

E4 thru E8 for occasional IR inspections and simple reports

Home weatherization, HVAC, and restoration contractors

- Affordable simplicity for any application
- RESNET-standard E6 for energy reviews
- Tool box ruggedness you can trust



E40bx thru E60bx for more frequent inspections and detailed reports

Structural inspections, energy performance, & pest control

- FLIR Wi-Fi app & touchscreen efficiency
- MeterLink communication to moisture meter data
- Interchangeable telephoto & wide angle lenses



T420bx thru T640bx for high-demand IR services and consistent reporting

Commercial building, restoration companies, and roofing experts

- Gets the best shots from any angle comfortably
- Highest image detail for clearest documentation
- Feature-rich high performance



Visit [www.flir.com](http://www.flir.com), or call 866.477.3687

\*The thermal images shown are for illustrative purposes only, and may not have been taken by the camera series depicted.





## Introducing the FLIR E4, E5, E6 and E8 Visible, and MSX Imaging

Now every technician and home inspector can afford to keep an E-Series camera handy for quick scans and safety checks. Easier to use than a smartphone, FLIR's newest line of economical thermal imagers offers everything you need for a wide variety of IR inspections. Clearly see and find hidden electrical-mechanical overheating, sources of energy waste, moisture issues, and more. These are must-have tools that can help you help companies and homeowners significantly improve uptime and comfort, and reduce costs, while you increase your marketability.

Excellent 3" Color LCD Shows the Whole MSX Scene

Quick Button Access to Measurement, Parameters and Imaging Tools

Quick-release Re-chargeable Battery

Focus-free IR and Visible Camera for Point-and-Shoot Simplicity

Protective Lens Cover Slides Open Easily

Trigger Captures Radiometric JPEG Images

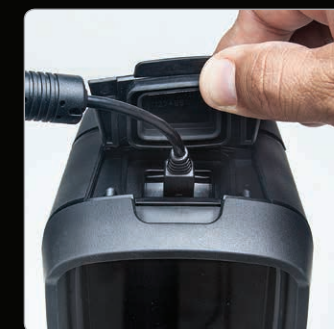
Ruggedness You Can Trust Withstands 2 Meter Drop

### What New E4, E5, E6 & E8 Cameras Offer

- **MSX** – Recognize problem locations instantly when you see thermal images enhanced with visible camera details such as numbers, signage, labels, and other identifiable features.
- **IR Resolutions to Fit Your Application** – Choose from the E4's 4800 pixel resolution all the way up to the impressive 320 x 240 thermal imagery of the E8.
- **Reliable Results** – FLIR's outstanding thermal accuracy (within 2% or +/- 2°C) and broad measurement range (-20°C to 250°C) for results you can count on.
- **Fully Radiometric Images** – Stores hundreds of thermal, MSX and visible image JPEGs with all temperature data intact ready to download to your Mac or PC.
- **Compact Design** – Light at about 20 ounces (575g) for easy one-handed operation yet tough enough to stow with the rest of your tools.



Reporting Software Included



USB Output for Fast Image Downloads





## The New FLIR E40, E50 and E60

### What Keeps Getting Better

If you're a busy electrician, plant maintenance expert, building inspector, energy auditor, or HVAC pro performing frequent thermal inspections, you need to work efficiently and be able to share images and detailed reports of your findings quickly. FLIR's latest E40, E50 and E60 cameras with MSX can help you do just that, providing an excellent, new array of imaging, communication, and productivity tools to make your job a whole lot easier.



Connect to Smartphones and Tablets with FLIR Tools Mobile for Apple® and Android™ to Stream Video and Import, Process, and Share Images Fast



Large 3.5" Touchscreen Puts Thermal Details at Your Fingertips



Visible Light Pictures Align with Thermal Images

- 3.1 MP Digital Camera
- LED Lamp
- Laser Pointer



Superior MSX Thermal Imaging up to 76,800 Pixels for Longer Range

Built Rugged to Withstand a 2 Meter Drop

Simple, One-Handed Operation

More E40, E50, and E60 Productivity and Imaging Features

- **Incredible Choices** – Four standard and four bx (building) models with resolutions ranging from 160 x 120 up to 320 x 240.
- **MSX** – Every model allows you to view and save images in stunning MSX mode as well as picture-in-picture to overlay thermal onto visible images for easy location orientation and clearer documentation.
- **Multiple Measurements** – Add up to 3 box areas and 3 moveable spots with the touchscreen to gather detailed temperature information.
- **Perpetual Battery Operation** – 2-bay charger and spare battery option means plenty of power to keep you running all day.
- **MeterLink®** – Measure more than temperature by connecting compatible clamp & moisture meters to E-Series cameras via Bluetooth to annotate images to further support findings.
- **Reliable Measurements** – Accuracy calibrated within 2% or  $\pm 2^{\circ}\text{C}$  to meet the standard you can always trust FLIR to deliver.



Auto-Orientation Keeps Diagnostics Overlays Upright



## FLIR T-Series

### For Intensive IR Inspections

Look high and low comfortably all day and get those hero shots effortlessly with T-Series, thermal imaging's most flexible and highest resolution hand-held cameras. Scan targets from the toughest angles without stress with our unique rotating optical block that lets you point the lens up or down while keeping the display relaxed at eye level. And take advantage of FLIR's other industry-first features, including MSX enhancement to help you image more clearly and isolate problems even faster.

## FLIR T420 & T440

### A Superior Value No Matter How You Look At It

Work smarter and let the camera bend over backwards to get the job done right. Reasonable as well as flexible, the T420 and T440 offer an ideal combination of productivity tools and 320 x 240 thermal power at a price and in an ergonomic design that feels just right.

Auto Focus and Image Capture Button

Fine Focus Adjust

LED Lamp and Laser Pointer for Visible Light and MSX Images

Built-in 3.1 MP Digital Camera for MSX and Reference Images

### T420 & T440 Features

- **Superior IR Images** – Sharp thermal resolution at 76,800 pixels for solid accuracy from farther away.
- **Advanced Optics** – The widest array of lens options to fit the view and spot size you need for your application.
- **MSX Enhancement** – Multi-Spectral Dynamic Imaging adds visible spectrum definition to IR images in real time for extraordinary thermal detail that instantly highlights and orients problem locations.
- **Scalable P-i-P** – Overlay thermal images onto visible light pictures as an alternative reference.
- **Delta T & Multiple Measurement Tools** – Powerful onscreen analytics include differential temperature, 5 measurement spots, 5 box areas, isotherm and more for detailed diagnostics.
- **Sketch on IR/Visual** – Draw circles and pointers on stored images right from the touchscreen to highlight points of interest\*
- **Annotation** – Add voice or text comments to images or use the touchscreen to sketch notes and drawings; include additional measurements with MeterLink-enabled clamp and moisture meters.
- **Humidity & Insulation Alarms** – Available on bx models to quickly alert you to detected moisture intrusion and insulation issues.
- **Compass** – Adds camera pointing direction to every image for additional location documentation

\*Available on T440 only

## FLIR T620 & T640

### Thermal Imaging with a Capital T

With the highest infrared resolution available in portable thermal imaging, feature-rich and very user-friendly T620 and T640 cameras with MSX provide the ultimate IR image clarity and accuracy, making it easier to get through challenging inspections and the busiest schedules.

Diopter

Auto Focus and Image Capture Button

LED Lamps and Laser Pointer for Visible Light Photos

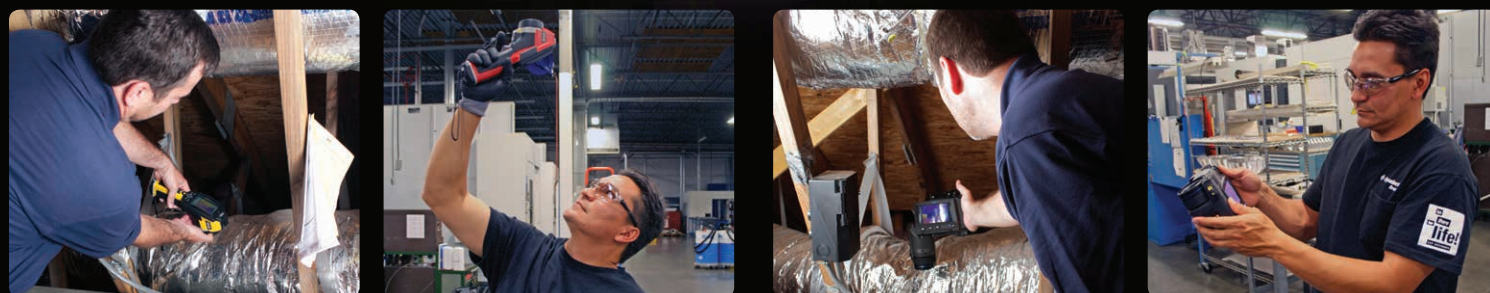
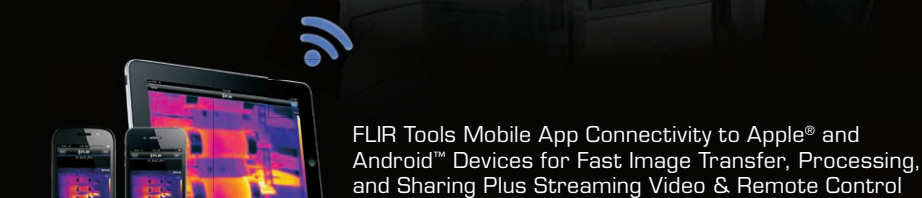
Integrated 5 MP Digital Camera for Crisp Reference Pictures

Manual Focus

### T620 & T640 Features

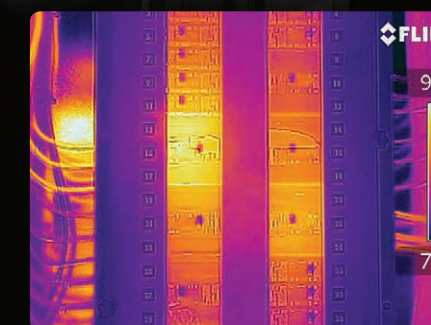
- **Highest IR Resolution in Its Class** – Crisp thermal images with 307,200 pixels (640 x 480) for the best detection, pictures, and temperature measurements from long range.
- **Advanced Optics** – A range of lens options includes our new, light 7° telephoto lens that provides astounding clarity, accuracy, and portability for imaging overhead and distant targets.
- **Continuous Auto Focus** – Keeps your image sharp automatically no matter where you aim for the highest clarity, accuracy, and efficiency\*
- **MSX Image Enhancement** – Onboard and real time, MSX adds visible spectrum definition to IR images for extraordinary thermal detail that instantly highlights and orients problem locations.
- **Thermal Fusion & P-i-P** – Blend thermal and visible light images onscreen as another way to identify targets and locations easily; use fusion "threshold" to isolate hotspots in a scene.
- **More Measurement Tools** – Report all the details with 10 measurement spots, 5 box areas, Delta T temperature differential, isotherm, and auto hot/cold markers
- **Sketch on IR/Visual** – Draw circles, pointers, and notes on stored images using the touchscreen to highlight points of interest.\*
- **GPS** – Built-in GPS automatically adds location data to images for including in reports

\*Available on T640 only



Challenging

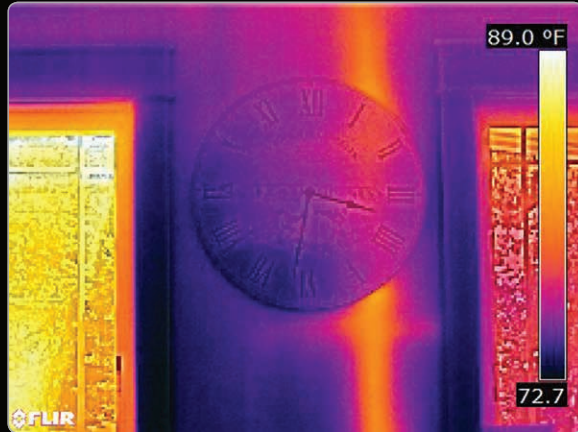
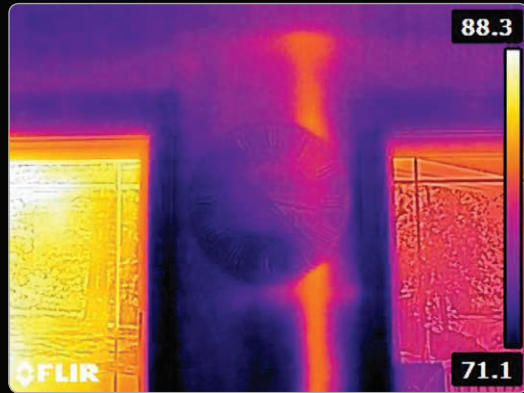
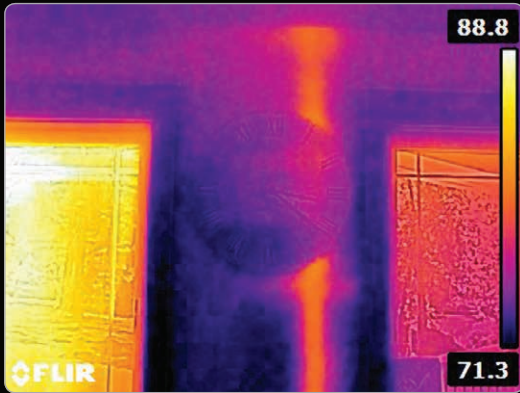
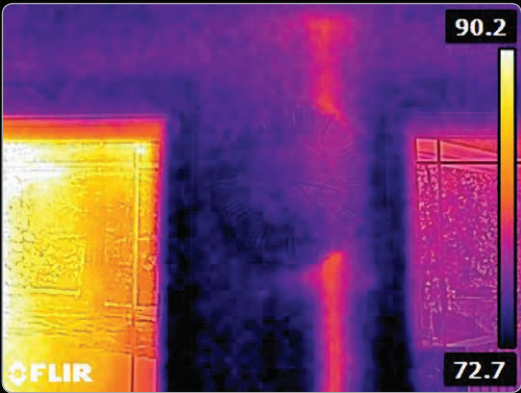
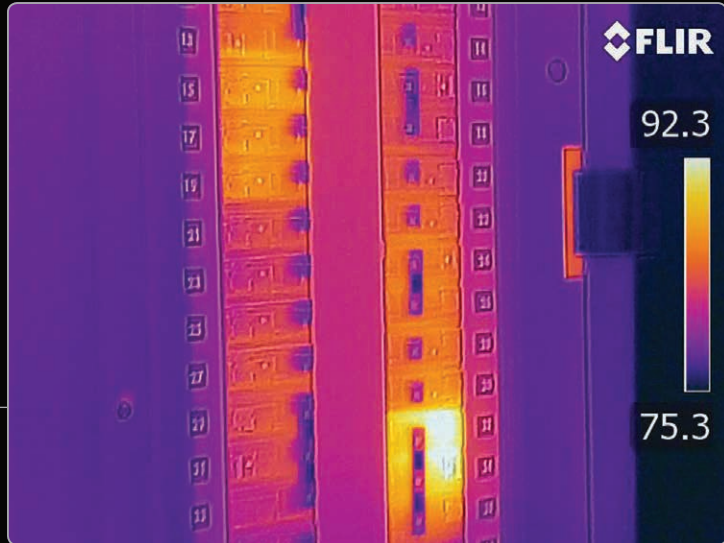
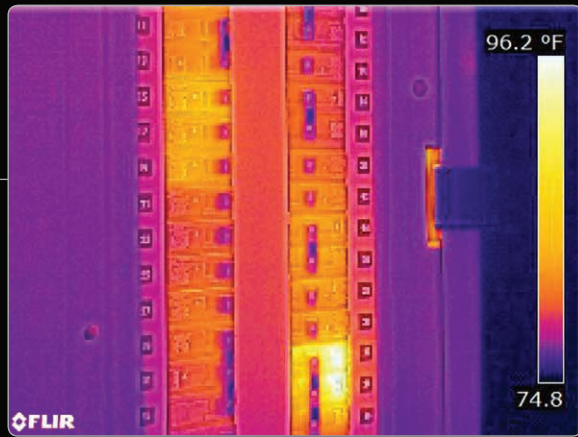
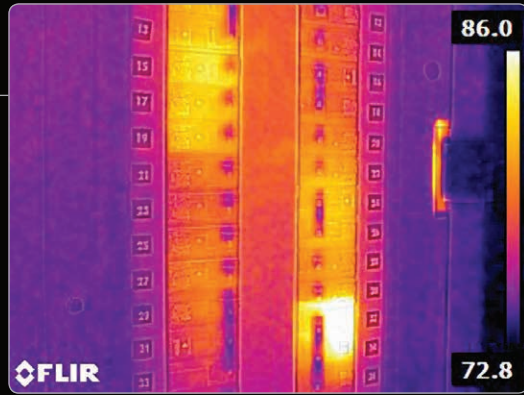
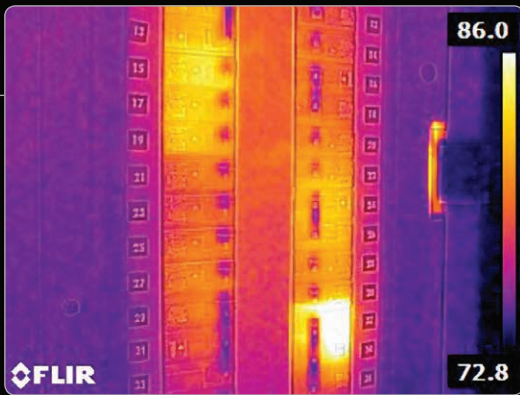
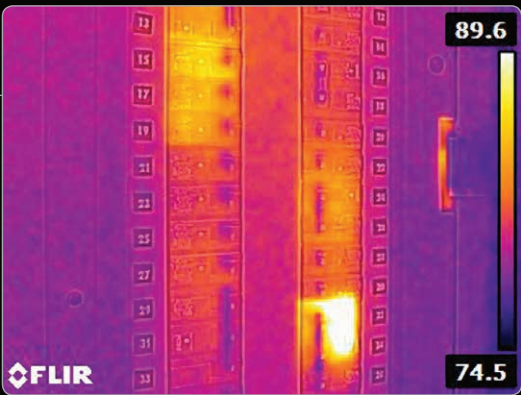
Effortless





# Which FLIR Thermal Camera Resolution is Right for You?

school IR thermometer with a serious thermal imaging tool. Perhaps you standards and gives you a wider field of view to scan larger areas. Or higher resolutions for greater image detail and temperature accuracy that helps tell the story even better. Whatever your infrared inspection program or business calls for, FLIR offers the best choice of resolutions, features, and innovations to create the right mix and the right fit.



**E4**  
80 x 60 (4,800 Pixels)



**E5**  
120 x 90 (10,900 Pixels)



**E6 & E40**  
160 x 120 (19,200 Pixels)



**E50**  
240 x 180 (43,200 Pixels)



**E8, E60, T420 & T440**  
320 x 240 (76,800 Pixels)



**T620 & T640**  
640 x 480 (307,200 Pixels)

Optional lenses available. See specifications for details.



## FLIR Tools Mobile

Import, Process, and Share Images Quickly with the Free App that Speeds Decisions

Get the word out straight from the field with FLIR Tools Mobile for Apple and Android™. Connect your smartphone or tablet via Wi-Fi to an E40, E50, E60 or any T-Series camera. Then use the app to download images, tack on more measurement spots, adjust span and level, change palettes, add notes, and generate reports as PDFs. Email images and findings to colleagues and customers in no time. Upload to Dropbox and Box.net accounts. Or use the app to show images right on site to those who need to know immediately.

FLIR Tools Mobile also lets you stream live video from to your mobile device so co-workers and customers can watch along from a convenient distance live. Plus take remote control of T-Series functions like focus, level, span and many other modes – great when you need to place the camera off on its own for safety reasons, or monitor a target over a long time-span.

With FLIR app mobility, your IR inspections will make a bigger impact, get problems solved sooner, and help put you on the fast track to greater productivity.

### Key Features:

- Wirelessly import images from the camera's SD card.
- Stream live video from compatible E-Series and T-Series cameras.
- Remotely control and record images and MPEG movies from T-Series cameras.
- Analyze and tune imported radiometric images and measure temperatures.
- Create PDF reports with text and custom logos.
- Share images and reports using e-mail, Box, and Dropbox.
- Edit MSX and Sketch on IR images.



## FLIR Tools+

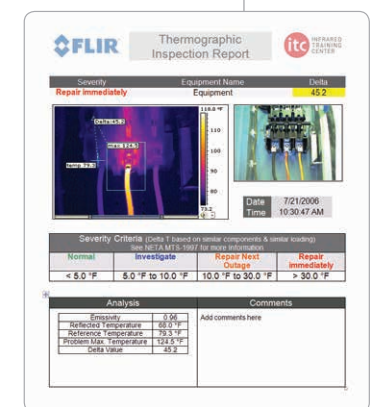
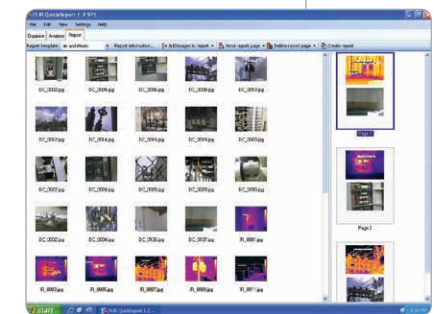
Extra Ground breaking Reporting Power for Busy Professional Thermographers\*

Along with all of our standard FLIR Tools software features, new FLIR Tools+ provides an expanded set of cutting-edge controls for generating more comprehensive thermal imaging inspection and research reports. Record and playback thermal video and temporal plots. Build a panoramic thermal image. Quickly create reports. And provide advanced analysis data and more detailed thermal imagery in impressive PDF documents that show anomalies, trends, and results with greater precision.

### Key Features:

- Pair and group FLIR thermal images and digital photos independent of when or how the separate images were originally captured.
- Stitch FLIR IR images (including MSX) into radiometric panoramas regardless of the order they were taken to help you measure and paint the complete thermal picture in one full scene (minimum 30% overlap).
- Record and replay radiometric thermal video sequences, create a temporal plot with the recording, and export the sequence to AVI.
- Merges the power of FLIR Reporter with improved speed, allowing you to create a Microsoft Word report 50% faster.
- Predictive trend analysis functionality
- Automatically link to Google Maps™ for images with GPS coordinates

\*FLIR Tools+ is designed to replace FLIR Reporter and Quickplot. Contact your authorized FLIR representative or dealer for upgrade details.



## FLIR Tools for PC and Mac OS

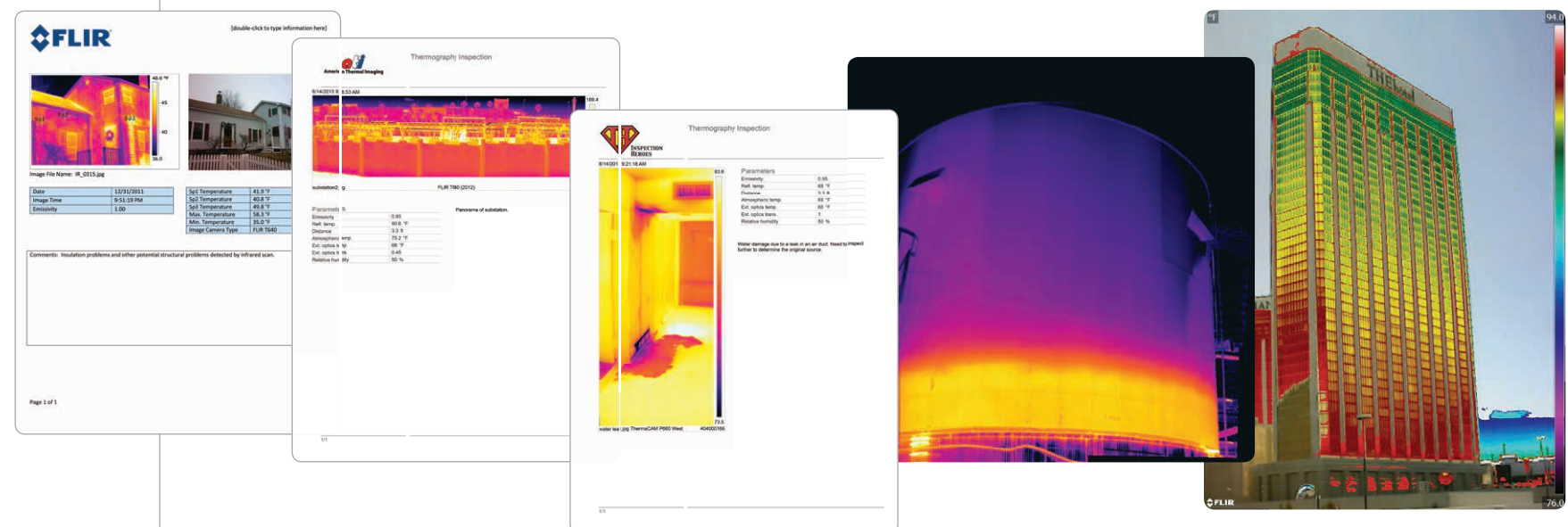
Free Reporting Software That Helps You Look Good

No matter what handheld FLIR thermography camera you decide on, we want you to be able to share important images with others efficiently and professionally. To make sure, all come with FLIR Tools. Easy to load onto your PC or Mac OS, FLIR Tools is a versatile software program that allows you to quickly import and analyze images, create inspection reports, remote control select cameras over USB, and update camera firmware.

### Key Features:

- Import images from your camera to the PC or Mac via USB.
- Search for images using file name, text description, and other image properties.
- Analyze and tune radiometric images and measure temperatures.
- Create PDF reports from a variety of pre-defined template formats.
- Customize the report layout, header, footer, and company logo.
- Display stored Compass and GPS information.
- Remotely control USB Video, Ethernet, and Firewire cameras.
- Edit MSX and Sketch on IR images.

Visit the software page at [www.flir.com/thermography](http://www.flir.com/thermography) for more details.



Visit [www.flir.com](http://www.flir.com), or call 866.477.3687

\*The thermal images shown are for illustrative purposes only, and may not have been taken by the camera series depicted.





# Imaging Specifications



Specifications	Point & Shoot				Performance			High-Performance			
Model	E4	E5	E6	E8	E40/E40bx	E50/E50bx	E60/E60bx	T420/T420bx	T440/T440bx	T620/T620bx	T640/640bx
Accuracy	±2% or 2°C				±2% or 2°C			±2% or 2°C			
IR Pixel Resolution	4,800 (80 × 60)	10,800 (120 × 90)	19,200 (160 × 120)	76,800 (320 × 240)	19,200 (160 × 120)	43,200 (240 × 180)	76,800 (320 × 240)	76,800 (320 × 240)		307,200 (640 × 480)	
Thermal Sensitivity	<0.15°C	<0.10°C	<0.06°C	<0.06°C	<0.07°C / <0.045°C	<0.05°C / <0.045°C		<0.045°C		<0.04°C	<0.035°C
Temperature Range	-4° F to 482°F (-20° to 250°C)				-4°F to 1,202°F (-20°C to 650°C) bx: -4°F to 248°F (-20°C to 120°C)			-4°F to 1,202°F (-20°C to 650°C) Optional to 2,192°F (1,200°C) bx: -4°F to 662°F (-20°C to 350°C)	-4°F to 2,192°F (-20°C to 1,200°C) bx: -4°F to 1202°F (-20°C to 650°C)	-40°F to 1,202°F (-40°C to 650°C) Optional: to 3,632°F (2,000°C) bx: -40°F to 1202°F (-40°C to 650°C)	-40°F to 3,632°F (-40°C to 2,000°C) bx: -40°F to 1,202°F (-40°C to 650°C)
Display Size/Format	3.0"/Landscape				3.5"/ Landscape			3.5"/Landscape		4.3"/Landscape (Widescreen)	
Auto Orientation	—	—	—	—	•	•	•	—	—	—	—
MSX® Thermal Image Enhancement	•	•	•	•	•	•	•	•	•	•	•
Viewfinder	—	—	—	—	—	—	—	—	—	—	•
Measurement Modes	Spot (center) mode	2 modes: 1 Spot (center); 1 Area Box (Min/Max)	3 modes: 1 Spot (center); 1 Area Box (Min/Max); Isotherm (above/below)		5 modes: 3 Spots; 3 Area Boxes (Min/Max); Color Alarm – blue below or red above set Temp.;Auto hot/cold spot; Delta T			6 modes: 5 Spotmeters, 5 Area Boxes, Isotherm, Auto hot/cold spot, Delta T and 1 live line profile		6 modes:10 Spots, 5 Area Boxes/Circles, Isotherm, Auto hot/cold spot, Delta T and 1 live line profile	
Spot mode	Center/Fixed				3 moveable			5 moveable		10 moveable	
Frame Rate	9 Hz				60Hz			60 Hz		30 Hz	
Field of View	45° × 34°				25° × 19°			25° × 19°			
Optional Lenses	—	—	—	—	2: 15° Telephoto; 45° Wide Angle			6: 6°, 15° Tele, 45° Wide, 90°; Close up: 100, 50 µm		6: 7° & 15° Tele, 45° Wide; Close-up: 80, 100, 50µm	
Focus	Focus free				Manual			Manual & Automatic			
Continuous Auto Focus	—	—	—	—	—	—	—	—	—	—	•
Min. Focus Distance	1.6 ft. (0.5m)				1.31 ft (0.4 m)			1.31 ft (0.4 m)		0.82 ft (0.25 m)	
Radiometric JPEG via USB	•	•	•	•	•	•	•	•	•	•	•
Radiometric JPEG to SD Card	—	—	—	—	•	•	•	•	•	•	•
MPEG4 to SD (non-radiometric IR)	—	—	—	—	•	•	•	•	•	•	•
Thermal color palettes	3: Iron, Rainbow, and Gray				7: Arctic, White hot, Black hot, Iron, Lava, Rainbow, and Rainbow High Contrast			6: Arctic, Gray, Iron, Lava, Rainbow, and Rainbow High Contrast			
FLIR Tools for PC and Mac	•	•	•	•	•	•	•	•	•	•	•
Battery Operating Time	~4 hrs				>4hrs			>4hrs		>2.5 hrs	>2.5 hrs
Built-in Digital Camera	640 × 480				3.1 MP			3.1 MP		5 MP	
Built-in Illuminator LED	—	—	—	—	•	•	•	•	•	•	•
Touchscreen	—	—	—	—	•	•	•	•	•	•	•
Digital Zoom	—	—	—	—	2x	4x		4x	8x	4x	8x
Insulation Alarm	—	—	—	—	bx	bx	bx	bx	bx	bx	bx
Humidity Alarm	—	—	—	—	bx	bx	bx	bx	bx	bx	bx
MeterLink® connectivity	—	—	—	—	•	•	•	•	•	•	•
Laser Pointer + Laser Locator (on IR image)	—	—	—	—	•	•	•	•	•	•	•
Compass	—	—	—	—	—	—	—	•	•	•	•
GPS	—	—	—	—	—	—	—	•	•	•	•
IR Window Correction	—	—	—	—	•	•	•	•	•	•	•
Delta T	—	—	—	—	•	•	•	•	•	•	•
Picture in Picture	—	—	Fixed PIP	Fixed PIP	Fixed PIP	Scalable PIP		Scalable & Moveable			
Thermal/Visual Fusion	—	—	—	—	—	—	—	•	•	•	•
Onscreen Sketching	—	—	—	—	—	—	—	•	•	•	•
Sketch on IR/Visual Image	—	—	—	—	—	—	—	—	•	—	•
Voice/Text Annotation	—	—	—	—	•	•	•	•	•	•	•
FLIR Tools Mobile Wi-Fi app	—	—	—	—	•	•	•	•	•	•	•
Streaming Video via Wi-Fi app	—	—	—	—	•	•	•	•	•	•	•
Remote Control via Wi-Fi app	—	—	—	—	—	—	—	•	•	•	•
Drop (2 meter/6.6 feet)	•	•	•	•	•	•	•	—	—	—	—
Weight (including battery)	1.27 lbs (0.575 kg)				1.94 lbs (0.88 kg)			1.94 lbs (0.88 kg)		2.87 lbs (1.3 kg)	





## MeterLink®

### Measure More than Temperature with Your Camera

FLIR thermal imagers help you find electrical problems, moisture damage, and energy loss quickly and easily by detecting and measuring temperature differences. But in many cases you'll need to quantify the severity of those problems with electrical load data or moisture content readings. MeterLink puts it all together.

MeterLink-enabled Extech clamp and moisture meters transmit essential diagnostic data wirelessly to compatible FLIR cameras and automatically annotate the thermal image with the extra information that customers, colleagues, and insurance companies require.

#### MeterLink helps thermographers:

- Quantify electrical problems in reports
- Add detail to load imbalance diagnostics
- Document energy-consumption data
- Improve documentation of moisture detection

MeterLink is a patented technology only available with compatible FLIR cameras.



## Accessories:

No other infrared camera manufacturer offers a wider selection of ways to accessorize your thermal imager than FLIR. Choose from a range of lenses, carrying pouches, Bluetooth headsets, cables, chargers, and more.

#### E40, E50, E60:

Accessories include: 15° and 45° lenses, sunshield, tripod adaptor, car charger kit, Bluetooth headset, video cable, extra batteries, and more.

#### T-Series:

Accessories include: 7°, 15°, 45°, close-up lenses, pouches, sunshield, tripod adaptor, car charger, Bluetooth headset, HDMI to DVI cable, video cable, neck strap, and more.

Contact your nearest FLIR dealer or representative for more information and to order accessories. Or visit [www.FLIR.com](http://www.FLIR.com)



E40 – E60



T-Series

## FLIR IRW-Series

### IR Inspection Windows with PIRma-Lock™

FLIR IR Windows put additional safety between you and energized equipment, eliminate the need for opening live electrical cabinets during IR inspections, and help protect you from the danger of a potential arc flash. Much easier to mount and use than other brands, FLIR IR Windows allow you to perform scans more efficiently as you comply with NFPA 70E requirements.

**Easy Installation** – Only one hole to drill and FLIR's single PIRma-Lock™ ring nut to tighten; same design as conduit connections that use standard US punch tools

**Quick Access Hinged Cover** – Simple flip-open cover with integrated equipment ID label stays permanently attached so it never gets dropped, mismatched, or lost

**Broadband Transmission** – Calcium fluoride lens supports short-, mid-, and longwave IR cameras, visual inspections, and fusion technology; allows FLIR cameras with integrated lamps to capture video documentation



One hole to cut.



Easy placement.



Single PIRma-Lock™ ring nut.





## The Next Generation of Test & Measurement

Building upon our 50-year history as the world leader in thermal imaging, FLIR introduces our new line of test & measurement tools. Engineered from the ground up, FLIR's new product lineup is specifically designed to meet our customers' real-world need for improved diagnostics, enhanced productivity, and increased connectivity.

### Electrical Troubleshooters: Simplify Your Diagnostics

FLIR's new electrical meters offer world-class features that meet your real-world needs

#### FLIR DM93: Reduce Guesswork in Your VFD Troubleshooting

Helping eliminate your electrical troubleshooting guesswork, the new FLIR DM93 is a rugged DMM designed with advanced VFD filtering and shielding that help you accurately analyze the non-traditional sine waves and noisy signals in VFD-controlled equipment. Along with LoZ Mode to reduce ghost readings in long runs, continuous data recording to detect intermittent glitches, Bluetooth links to Android devices for safer/easier remote diagnostics, and bright LED worklights to illuminate poorly lit inspection areas, the FLIR DM93 will equip you to tackle the toughest jobs.

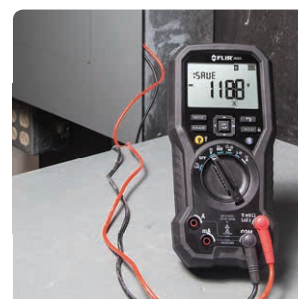
- VFD Mode for superior accuracy
- LoZ reduces Ghost Voltage errors
- Extremely bright dual-LED worklights
- METERLiNK™ & Bluetooth® capability
- Android enabled via FLIR Tools Mobile



Extremely bright dual-LED worklights



VFD Mode offers superior accuracy



Data recording finds sporadic faults

#### FLIR CM83: Ideal for Power Analysis and VFD Diagnostics

Designed for complex diagnostics, the new FLIR CM83 is an industrial power clamp meter with premier power analysis functions and advanced VFD filtering that enable you to accurately analyze three-phase systems, non-traditional sine waves, and noisy signals associated with VFD-controlled equipment. And with Harmonics Mode to find noise from different electrical draws, Phase Rotation to confirm power is evenly balanced, and Inrush Current to detect start-up related current spikes, the FLIR CM83 will help you locate issues associated with your complex industrial systems.

- VFD Mode for enhanced diagnostics
- Extremely bright dual-LED worklights
- METERLiNK™ & Bluetooth® capability
- Android enabled via FLIR Tools Mobile

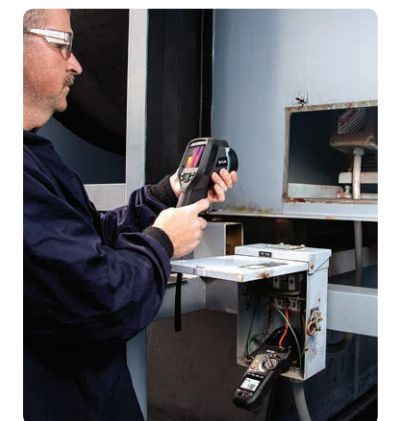


FLIR CM83 incorporates a bright dual-LED worklight

#### FLIR CM78: Multifunctional Meter Reduces Your Payload

The new FLIR CM78 is a 1000A clamp meter that combines a True RMS digital multimeter and non-contact clamp meter with temperature measurement capabilities. Useful for working on high-powered equipment, this new clamp meter enables you to take accurate AC/DC readings up to 1000A or 1000V safely and quickly. And the built-in IR thermometer with laser spot – along with a Type K thermocouple – allow users to quickly scan for hot spots, and verify that current/temperature specs are correct.

- Spot-Laser IR Thermometer
- Type K Thermocouple
- Extremely bright dual-LED worklights
- METERLiNK™ & Bluetooth® capability
- Android enabled on FLIR Tools Mobile



FLIR CM78 transmits real-time electrical measurements to FLIR IR cameras via METERLiNK

#### FLIR VP50: NCV Detector Plus Ultra-Bright Worklight

Your new pocket pal for quick voltage checks, the FLIR VP50 is a compact, CAT IV-rated NCV detector. One of the key features of this detector is its powerful LED worklight for illuminating dimly lit areas, along with a dual-LED convenience light at the probe tip for up-close work. Also useful are the dual alarms, which use a combination of visual (red LED) and vibration feedback to alert users to the presence of voltage when working in noisy locations; and the high/low sensitivity modes detect voltage on industrial equipment, low-voltage installations, and obstructed systems.

- Visual & vibration alerts for noisy locations
- Powerful worklight (60 lumens) for dim areas
- High/Low sensitivity range enhances versatility
- Rugged, waterproof, CAT IV-rated



High sensitivity detects voltage in low-powered systems; visual & vibration alerts for noisy areas



## Move Beyond Moisture Detection Mediocrity

### FLIR MR77: Prepare Yourself for the Most Demanding Restoration Jobs

Expand your moisture detection capabilities with the new FLIR MR77, a rugged, feature-rich moisture meter specifically designed to help you tackle mission-critical restoration jobs. The FLIR MR77 accurately measures moisture content in a wide range of building materials using a pinless sensor that captures non-destructive readings up to 0.75" below material surfaces. Perfect for monitoring the drying process, the MR77 can also measure moisture levels using a wired pin probe. The unit also features a field-replaceable temperature/humidity sensor, Bluetooth connectivity to Android devices, and the ability to capture surface temperatures using a non-contact, laser-spot IR thermometer. Outfitted with the FLIR MR77, you'll be ready to handle the most demanding restoration projects.

- Integrated pinless moisture sensor
- External moisture probe on 30" wire
- Field-replaceable temp/humidity sensor
- Built-in IR thermometer with laser spot
- High/Low Moisture and Humidity Alarms
- Bluetooth connectivity to Android devices
- Links to METERLiNK-enabled FLIR IR cameras



**FLIR MR77 features a pinless moisture sensor and a wired pin probe**

## Go Where Many Have Never Gone Before

Bring hidden problems into clear view by accessing extremely tight areas.

### FLIR VS70: Deep Diagnostics, Dynamic Display, Durable Design

Uncover problems in extremely tight spaces with the FLIR VS70, a rugged, waterproof and shock-resistant videoscope that enables users to maneuver the narrow camera probe into tight areas to deliver clear video and vivid images to a large 5.7" color LCD display. Featuring a durable yet portable design for rough use in the field, the FLIR VS70 provides intuitive handset controls so users can easily maneuver to target areas, wide-angle 180-degree and standard 90-degree viewing angles that are selected on-the-fly by pressing a switch on either side of the handset, and the included headset provides easy voice annotations during inspections to simplify reporting and documentation.

The FLIR VS70 includes SD card storage of video/image and audio files, a built-in USB port for easy battery charging (as well as file transfers), and an extended battery life – perform inspections all day without recharging. The base FLIR VS70 system can be expanded to use a range of detachable camera heads, allowing a single spool to work in multiple situations to support various inspection situations.

The unit can also accommodate various wireless options, further extending its versatility.

- Durable – IP67 rated (2M drop)
- Easy camera & probe controls
- USB charging/file transfers
- Extended battery life



**Recharge the FLIR VS70 on the go with the included car charger**



**The narrow camera probe is perfect for accessing extremely tight areas**

## METERLiNK Brings it All Together

FLIR thermal cameras can help you find electrical problems, moisture damage, and energy loss quickly and easily by detecting and measuring temperature differences. But in many cases you'll need to quantify the severity of those problems with electrical load data or moisture content readings.

FLIR's new METERLiNK-enabled DMM, clamp and moisture meters transmit essential diagnostic data wirelessly to compatible FLIR cameras so that thermal images can be automatically annotated with the extra information that customers, colleagues, and insurance companies require. METERLiNK helps electrical/mechanical troubleshooters:

- Quantify electrical problems in reports
- Add detail to load imbalance diagnostics
- Improve moisture detection reporting
- Document energy-consumption readings



**Embed moisture readings into thermal images in real time**



**Automatically annotate thermal images with critical load data**

## FLIR Tools Mobile

### The Free Wi-Fi App for Android™ Devices

The new line of FLIR electrical and moisture meters can send measurement data directly to the FLIR Tools Mobile app on your Android device. Enabling you to monitor readings from a distance, FLIR Tools Mobile is useful when you need to capture measurement data in hazardous and hard-to-reach inspection areas, or when you want allow other people see data as it's captured in real time.

And in Version 3.0, the FLIR Tools Mobile app for Android allows users to create a data snapshot file. Users may add comments, attach images from the Android device's camera, or record a voice comment. This inspection overview is compiled into a snapshot file that can be viewed, saved, emailed to your customers, coworkers, and managers, and exported to PDF for use in reports.

The new app also uses Bluetooth to connect to the new METERLiNK-enabled FLIR T&M meters and FLIR IR cameras, making it easier to automatically embed measurement data into your thermal images. FLIR Tools Mobile also allows users to create data logs by simply pressing the record button. Logs, or part of logs, can later be viewed exported to the CSV format for offline analysis.



**MR77 transmitting data to an Android tablet using FLIR Tools Mobile**



## The Infrared Training Center

### Thermal Imaging Heroes Needed: Be Ready to Answer the Call

Today's cameras are simple to turn on, point at a target, and start capturing images or video clips. Determining whether you're seeing a problem, analyzing your images, navigating your free software, and developing an accurate, actionable report is what's going to make you a thermography hero. That's going to require some training. The Infrared Training Center (ITC)—FLIR Systems' education arm—wants to see you succeed.

The greater your knowledge about thermal imaging, the greater the dividends you'll realize for your company and your career. The ITC offers classes for practically every application, from free online courses to advanced training that can certify you as a thermography expert, qualifying you to take a leadership role in your internal IR program.

#### ITC classes include:

- Building Inspection
- Condition Monitoring
- Roofing Applications
- Custom R&D Applications
- Optical Gas Imaging

#### FREE Online Courses

These user-friendly, on-demand courses are designed to show you how to use your camera and get started on electrical surveys, energy audits and more.

#### Thermography Certification Training

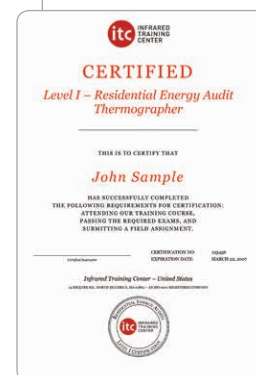
Level I certifies that you know how a thermal imager works and how to use it. Level II cranks your credibility up a notch with more in-depth concepts and intensive labs. Level III asserts that you have knowledge and skills to administer your company's thermography program. These certifications offer strong validation to support the work you do as a thermographer.

#### Other classes include:

- IR Electrical Inspection/IR Roofing Inspection
- Optical Gas Imaging Safety and Leak Detection
- Level I Certified Building Investigations
- Consulting, R&D and Program Development

Come to classes at our training center or at one of our many regional classes. Mobile Training Units and on-site training at your facility are encouraged if you would like to certify a group of 10 or more.

**For a complete list and schedule of courses and more information, visit [www.infraredtraining.com](http://www.infraredtraining.com) or call 1.866.872.4647.**



Scan for  
Full ITC  
Schedule



## InfraMation

Join us for the world's largest infrared applications conference.

FLIR's thermal imaging cameras are opening up a new world of opportunities, providing thermographers with innovative ways to solve technical challenges that were simply invisible in the past. The technology is exciting, with new ideas and applications popping up every day, making it essential to keep up.

A fun and informative career-building event, InfraMation is ideal for anyone who wants to learn more about thermal imaging. Hear from the experts as they cover such topics as plant and facility predictive maintenance, building diagnostics, software efficiencies, marketing tips, and case studies.

**Stay current and maintain certification** – Earn credits towards your Level I, II, or III re-certification as you keep up-to-date with the latest thermography analysis techniques, and learn new and innovative ways to put the technology to great use.

**Sharpen your infrared camera skills** – InfraMation dedicates several days to proper camera operation and image interpretation through interactive clinics, panel discussions, and poster sessions that give you practical, real-world instruction.

**Pick the track that's right for you** – Presentations and clinics include topics on Home & Energy Audit Thermal Inspections, IR Windows and Arc Flash Safety, Infrared Business Marketing, Indoor Electrical, Advanced Substation and Transformer Inspections, and sessions on thermal camera reporting software, among many others.

**Network while you learn** – Rub elbows with presenters, colleagues, and keynote speakers during breaks and special social events. What better way to make new friends and absorb more information than sharing experiences with thermography heroes like yourself.

**Get more InfraMation on this year's upcoming conference at [www.inframation.org](http://www.inframation.org) or call 1.877.773.3547.**





## Try them first!

Not sure which FLIR is right for you? Rent or lease the model you think fits your needs first and take it for a test drive!

## Rent

FLIR's rental program is a great way to make sure you are getting the model, performance, and features you need. Our rental department has all the current models in stock, and we are ready to help.

## Lease

Leasing is a great way to minimize your initial expense, and there may be tax advantages for you to lease. FLIR has several options for those interested in starting or upgrading your program. Give us a call and we can help.

## Trade Up

FLIR offers trade-in value for many existing cameras. Contact your FLIR representative our trade-in program, and check into our stock of Pre-Owned cameras while you're at it.



## About FLIR

All infrared cameras are not created equal, because infrared camera manufacturers are not all the same. FLIR stands above the rest.

The largest commercial infrared company in the world, FLIR has nearly 50 years of experience building and integrating high-performance infrared cameras, giving us a command of these specialized technologies that no one else can touch.

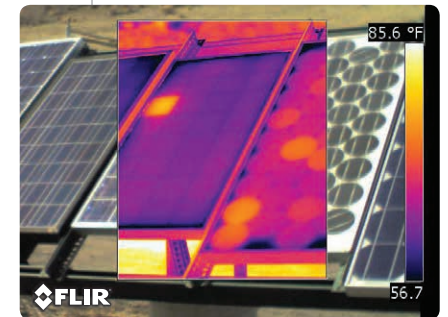
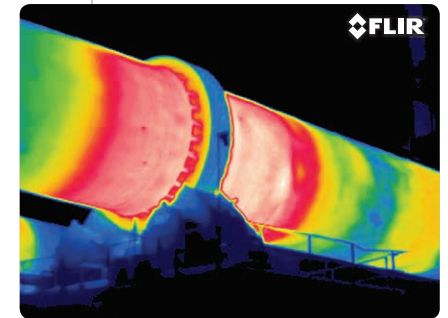
FLIR's products are at work every day saving lives, protecting our troops overseas, and helping to keep borders and facilities safe.

Now, FLIR's cameras are available for your personal use, too. You can have a FLIR on your boat, your car, or even as a home security camera. The same FLIR technology in your maintenance camera is in Audi and BMW cars as a pedestrian detection system. And if you enjoy hunting and outdoor activities, there's an inexpensive FLIR for you too. You might not know FLIR by name, but you have been seeing our products at work since the 1960's.

**If you are looking for infrared camera products, you've come to the right place.**

## 12 things to consider before you invest in an infrared camera:

- 1 Most infrared cameras have fewer pixels than visible-light cameras, so pay close attention to detector resolution. Higher resolution models can measure smaller targets from farther away.
- 2 If you need to report findings to others, be sure to buy a system with a built-in visible-light camera outfitted with a lamp and a laser pointer to help document problems in darker areas.
- 3 Not all infrared cameras offer the same measurement accuracy. Select the camera that delivers the most precise, repeatable results.
- 4 Many infrared cameras store images in a proprietary format, making it a hassle for others to view them. Choose one that supports radiometric JPEG and MPEG 4 video for easier image sharing.
- 5 Infrared cameras that link wirelessly to clamp and moisture meters can measure more than just temperature. Choose one that works with MeterLink-enabled gear to quantify the severity of problems.
- 6 New Wi-Fi apps for mobile devices help streamline the communication of infrared images and data. Select a camera compatible with this leading technology.
- 7 Consider the camera's design ergonomics and the types of inspections you will likely perform, as some cameras are much easier to use when imaging in hard-to-reach areas.
- 8 An image fusion feature blends the thermal and visible-light images, providing reports that are easy to understand.
- 9 Not all reporting software products are created equal. Be sure to try out the product first to find the one that's right for you.
- 10 Choose a camera with a wide temperature range so you measure ambient and high-temp spots in the same image.
- 11 Look for cameras with a reliable, extended warranty program that covers parts and labor, batteries, and the detector for at least two years so you're protected for the long haul.
- 12 Make sure your investment in an infrared camera is backed by a strong manufacturer who will provide ongoing technical support and training.



## FLIR 2-5-10 Warranty

All E-Series and T-Series cameras are covered by our revolutionary 2-5-10 Warranty when registered with FLIR within 60 days of purchase (see details at [FLIR.com](http://FLIR.com)).

**2 Years on Parts & Labor for the Camera**

**5 Years of Coverage on Batteries**

**10 Years of Protection on the IR Detector**

Only FLIR can give you peace of mind with a warranty program like this, because only FLIR makes all of the camera's critical components from the ground up.







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NASDAQ: FLIR

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