



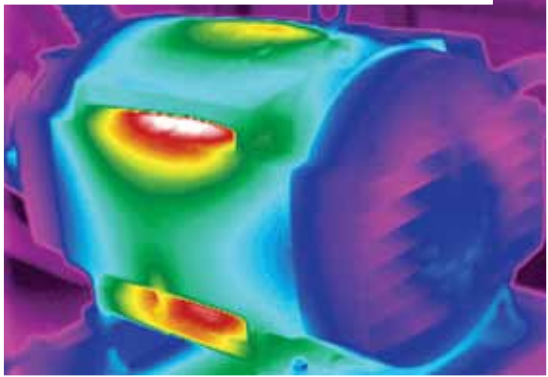
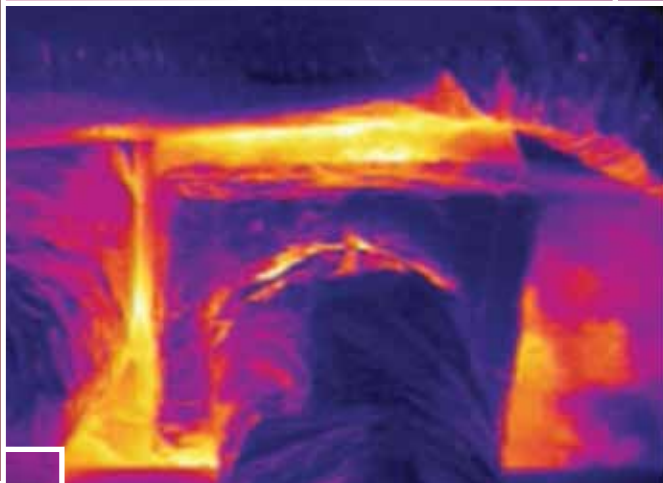
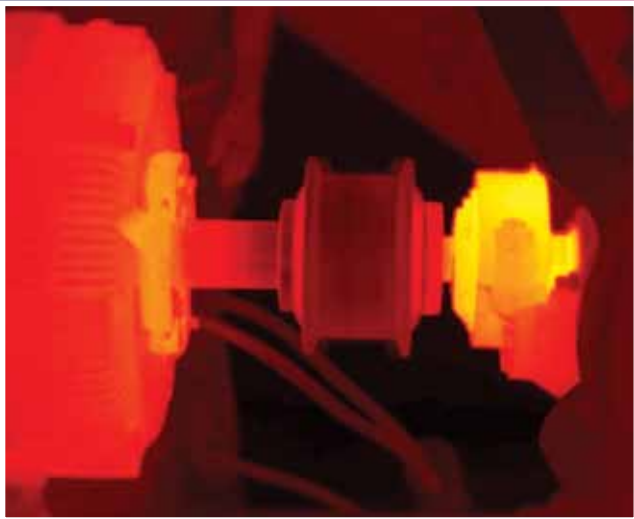
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# Thermal Imaging Technical Resource



FLUKE®



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# Offering you the latest in Thermal Imaging



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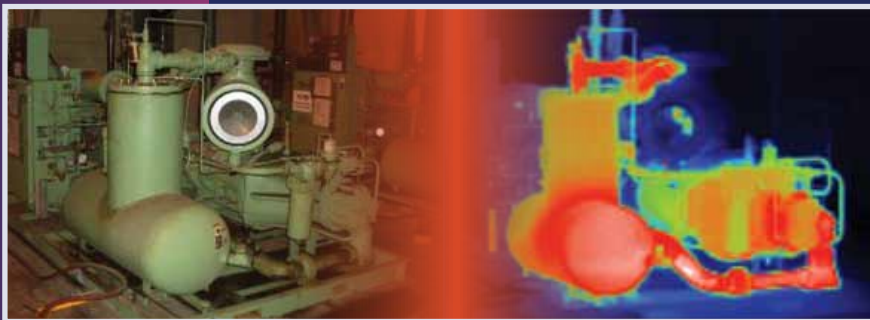
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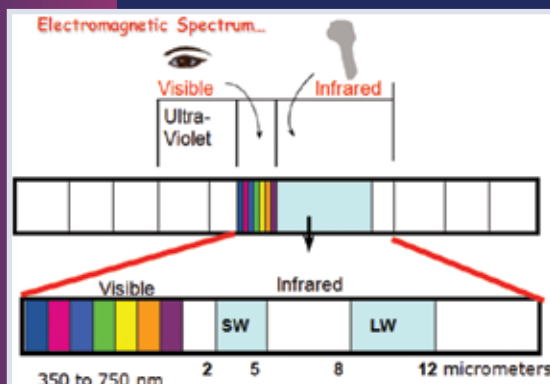
## What is Thermal Imaging?



### Thermal Imaging, or Infrared Thermography,

is a noncontact technology that measures or "sees" infrared wavelengths emitted from objects, and then converts the temperature information into an image. The image features a color palette that represents a temperature range of the image displayed.

Hot spots or a rise in temperature often indicate problems or potential failure. Thermal imagers are fully radiometric by measuring and storing temperatures at every point in the image.



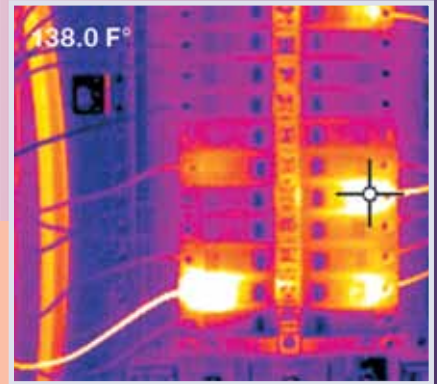
**Infrared wavelengths** are too long for the human eye to detect; it is part of the electromagnetic spectrum that we perceive as heat. All objects that have a temperature above absolute zero emit heat.

# Benefits of Thermal Imaging

Thermal imaging technology has created a more efficient and safer method of measurement. The benefits of thermal imaging impact many aspects of your job.

## Lower costs

- Incorporating thermal imaging into a predictive maintenance program can save money by locating potential failures and hot spots that could cause expensive manufacturing downtime, production losses, power outages, and fires
- Extending equipment life with scheduled outages and reducing employee overtime



## Increase productivity

- Thermal imaging provides fast and accurate measurements of objects that are difficult to reach, altered by touch, or impossible to shut off
- Troubleshoot and make informed decisions by viewing the thermal performance of equipment in seconds

## Reduce Risk

- Thermal imaging allows accurate temperature measurements from a distance for objects that are moving, very hot, and dangerous to contact
- Decrease unplanned downtime and the risk of arc flash with regular inspections while maintaining a safe distance from equipment

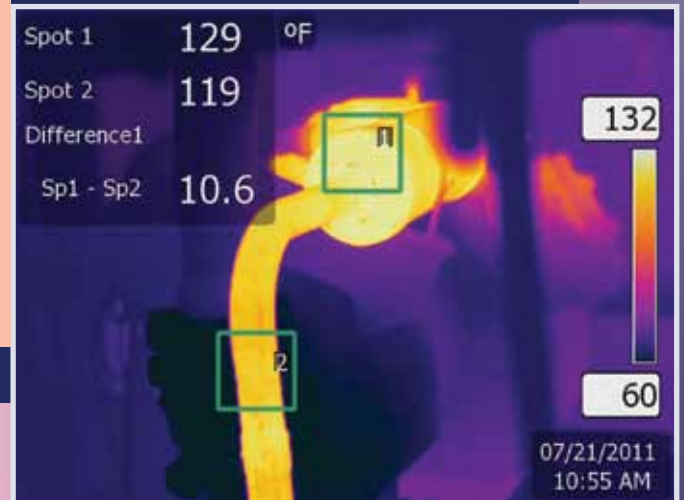


# Critical Specifications of Thermal Imaging

There are three main specifications that are critical in the process of selecting a thermal imager: temperature range, thermal sensitivity (NETD), and resolution.

## Temperature Range

When selecting a thermal imager, evaluate the temperature range that will be suitable for your applications. For industrial applications, the temperature range is the number one specification to consider. Industrial thermal imagers feature a wider temperature range to accommodate facilities that have high-temperature equipment such as boilers and steam systems.



## Thermal Sensitivity (NETD)

Thermal sensitivity, or Noise-Equivalent Temperature Difference (NETD), measures the smallest temperature difference that a thermal imaging camera can detect in the presence of electronic circuit noise. Cameras with a low NETD will detect smaller temperature differences and provide higher resolution images with increased accuracy.

Thermal sensitivity is measured in milliKelvins (mK). Cameras are more sensitive with values at the low end of the scale. For example, cameras with 50 mK are about 4 times as sensitive as a camera with 200 mK. The more sensitive (50 mK) cameras provide a wider temperature difference, resulting in more colors on the thermal display.



# Critical Specifications of Thermal Imaging

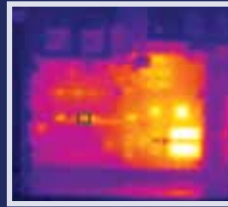
## Resolution

Detector resolution plays a pivotal role in image quality of thermal imaging cameras. Higher resolutions provide precise and reliable measurements of smaller targets from further distances, creating sharper thermal images. The higher the detector resolution, the more accurate the camera.

When evaluating between detector resolution and display resolution, be aware that the quality of the thermal image and its data is always determined by the detector resolution.

For example, if the built-in screen has a resolution of 307,200 pixels (640 x 480) but the thermal detector resolution is only 19,200 pixels (160 x 120), the thermal image can only be measured by the resolution of the thermal detector.

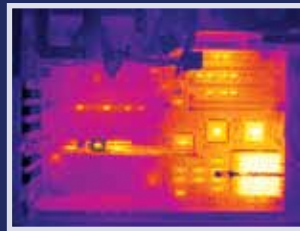
The examples at right show that as the thermal detector resolution increases, the image detail becomes clearer and the temperature at a single point is more accurate.



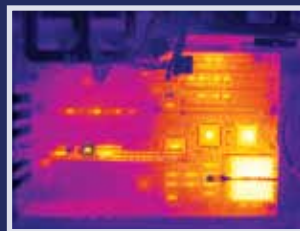
3600 pixels (60 x 60)  
Max temp = 111.2°F (44°C)



14,400 pixels (120 x 120)  
Max temp = 133.1°F (56.2°C)



43,200 pixels (240 x 180)  
Max temp = 152.3°F (66.8°C)



76,800 pixels (320 x 240)  
Max temp = 160.6°F (71.4°C)



307,200 pixels (640 x 480)  
Max temp = 177.9°F (81°C)

Low resolution

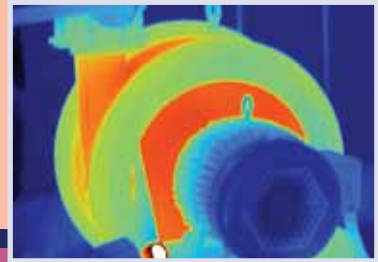
High resolution

# Image Viewing Technology

Enhance your viewing experience. Thermal imaging cameras provide a multitude of ways to view images of the equipment being inspected. Depending on the level of the camera, the viewing options will differ. **NOTE:** Camera screen limits full visual analysis. For complete analysis, view images through software included with cameras.

## *Traditional Infrared Imaging*

All thermal imagers provide the function of a full-screen infrared view for troubleshooting and analyzing equipment. Thermal imagers are fully radiometric by measuring and storing temperatures at every point in the image.



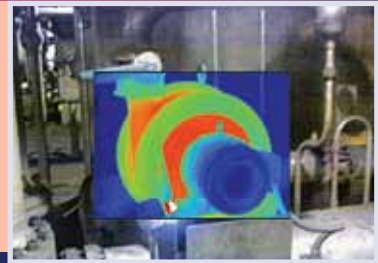
## *Visible Light Imaging*

Displays a digital photographic image, like a digital camera, to give reference to the equipment and environment being measured.



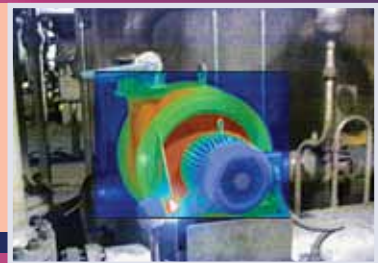
## *Picture-in-Picture (PiP) Imaging*

Combines thermal and visible-light images by placing a "framed" thermal image over its corresponding visible-light photo. Some cameras have fixed Picture-in-Picture functionality, while others provide more flexibility to move the "frame" and make it larger or smaller.



## *Fusion/Blending Imaging*

Blends the visible and thermal images together with a partial overlay of the equipment. This allows the user to choose how much of the image needs to be revealed with enhanced detail to locate problems.



## *Infrared/Color Alarms*

Displays a visual image with infrared highlights for temperatures between, above, below or outside of a user-programmed range. This allows easy detection of trouble areas during regularly scheduled inspections.



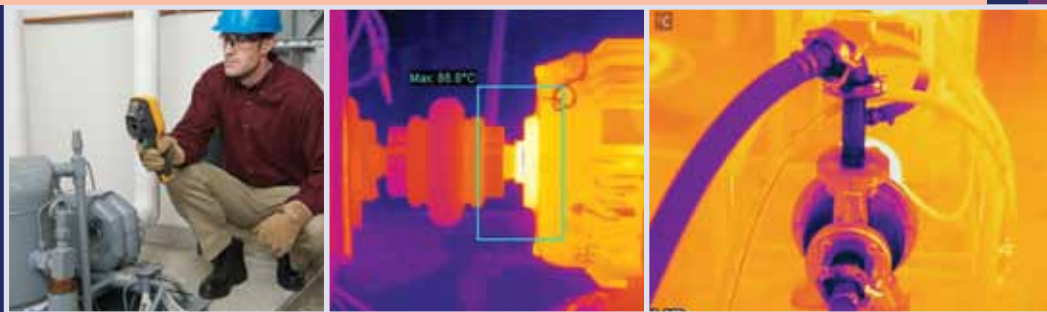
# Differences Between Industrial & Building Thermal Imagers

When selecting a thermal imaging camera, your application defines certain specifications that are important to consider. Most thermal imagers fall into two categories: industrial and building.

## **Industrial**

Industrial cameras are used to troubleshoot process, electrical, or mechanical applications. These cameras are ideal for preventive maintenance schedules and providing safety. Specifications to consider are:

- Temperature range—industrial cameras feature a wider temperature range to accommodate industrial facilities that have high-temperature equipment (boilers and steam systems)
- Resolution—the higher the resolution, the greater the detail and accuracy of the images



## **Building**

Building cameras are used to detect issues in a building's envelope. Applications such as moisture detection/restoration, insulation/energy issues, and ventilation leaks would be measured with a building camera. These cameras are ideal for making you aware of potential issues that are concealed within a home or building. Specifications to consider are:

- Thermal sensitivity (NETD)—higher sensitivities detect small differences in temperature that need to be measured within building envelopes
- Resolution—the higher the resolution, the greater the detail and accuracy of the images

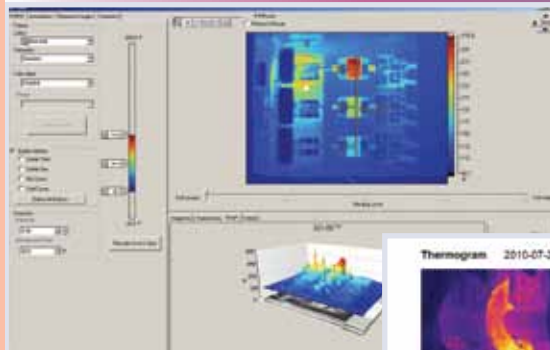


# Thermal Data Analysis and Sharing

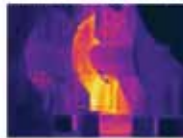
After taking your thermal measurements, analyzing and sharing your data is easy and convenient, from inspection reports to mobile technology.

## Analysis Software

All thermal imagers include SD cards and software to download and analyze data. The software enhances the thermal imager data by providing in-depth temperature analysis and resolution. The software generates custom inspection reports that include images, temperature data, annotations and other information necessary to complete your analysis. This report generation allows easy and efficient communication.




Thermogram 2010-07-21 10:47 AM



| Measurements |         |
|--------------|---------|
| Spot 1       | 77.3°C  |
| Area 1 Max   | 217.3°C |
| Ar1max-Sp1   | 140.4°C |
| DC           | 08.5A   |
| DC           | 08.5A   |

Building 18 - electrical



| Parameters |        |
|------------|--------|
| Emissivity | 0.98   |
| Ref temp   | 20.0°C |
| Obj dist   | 1.0m   |
| FOV        | 25°    |



## Wi-Fi Connectivity

Increase your efficiency and speed up analysis, reporting and data sharing with Wi-Fi connectivity. Some thermal imagers feature this enhanced technology to import images to mobile devices such as iPhone®, iPad®, iPod® and Android™ for portable thermal analysis, report generation, and critical information sharing by e-mail.

## MeterLink®

Another technology that some thermal imagers feature is MeterLink®, a Bluetooth® wireless connection between thermal imagers and test and measurement instruments. Diagnostic data, such as amperage, voltage, resistance and humidity is transmitted directly to the camera and embedded in the radiometric image. This allows you to quickly review and record multiple parameters at the location being inspected.

**NOTE:** the Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc.





# Enhance your Thermal Imaging Experience

## Training & Certification

Learning the features and functionality of your thermal imager is an important element in the process of understanding your thermal camera. Davis Instruments can provide on-site training by our Certified Level I Thermographer (contact us for details).

Davis Instruments also works with third-party companies that provide extensive training and certification for thermal imaging professionals: Infrared Training Center (ITC) and the Snell Group. Both companies offer training courses throughout the US, on-site training, and online courses. They offer IR training, certification, and recertification in all aspects of thermography including Level I, II, and III classes.

- **Level I:** Geared to the new infrared camera user and focuses on the camera's use for a variety of condition monitoring/predictive maintenance applications.
- **Level II:** Designed for the practicing Level I thermographer who seeks more advanced infrared training. Level II focuses on strengthening and improving your predictive maintenance thermography expertise.
- **Level III:** Advanced infrared training for Level II professionals who want to begin and manage IR thermographic programs. Covers advanced thermographic techniques, temperature measurement, device selection, infrared program management, calculating program ROI, and developing written infrared testing and inspection procedures.



## Accessories

Enhance the features and operation of your thermal imagers with accessories that make your job easier.

- **IR windows** provide increased safety (inspect without opening enclosures), speed (inspect quicker without removing panels) and frequency of inspection (instant access allows greater frequency of inspections). See page 19 for more information.
- **Lenses** allow you to magnify smaller objects at a distance (telephoto) or increase the field of view (wide angle) of the imager.
- **Other accessories** include sun visor, battery car charger, tripod and carrying case.

# Selection Guide (Point and Shoot)



## *E30/E30bx*

19,200 pixels (160 x 120)  
<0.10°C (<100 mK)  
**\$2995**



## *Ti105/TiR105*

19,200 pixels (160 x 120)  
<0.10°C (100 mK) industrial;  
<0.08°C (80 mK) building  
**\$2995**



## *Ti100*

19,200 pixels (160 x 120)  
<0.10°C (100 mK)  
**\$2495**

## *i7*

19,600 pixels (140 x 140)  
<0.10°C (<100 mK)  
**\$1995**



## *i5*

10,000 pixels (100 x 100)  
<0.10°C (<100 mK)  
**\$1595**



## *i3*

3600 pixels (60 x 60)  
<0.15°C (<150 mK)  
**\$1195**



## *Ti9*

19,200 pixels (160 x 120)  
<0.2°C (200 mK)  
**\$2195**



## *TiS*

14,000 pixels (120 x 120)  
<0.1°C (100 mK)  
**\$1995**



# Selection Guide (Performance)



## E60/E60bx

76,800 pixels (320 x 240)  
<0.05°C (<50 mK) industrial;  
<0.045°C (<45 mK) building  
**\$7995**



## Ti32/TiR32

76,800 pixels (320 x 240)  
<0.05°C (45 mK) industrial;  
<0.045°C (40 mK) building  
**\$7995**



## Ti29/TiR29

58,800 pixels (280 x 210)  
<0.05°C (50 mK) industrial;  
<0.045°C (45 mK) building  
**\$6995**



## Ti27/TiR27

43,200 pixels (240 x 180)  
<0.05°C (50 mK) industrial;  
<0.045°C (45 mK) building  
**\$5995**



## E50/E50bx

43,200 pixels (240 x 180)  
<0.05°C (<70 mK) industrial;  
<0.045°C (<45 mK) building  
**\$5995**



## Ti125/TiR125

19,200 pixels (160 x 120)  
<0.10°C (100 mK) industrial;  
<0.08°C (80 mK) building  
**\$5495**



## Ti25/TiR1

19,200 pixels (160 x 120)  
<0.10°C (100 mK) industrial;  
<0.07°C (70 mK) building  
**\$5295**



## E40/E40bx

19,200 pixels (160 x 120)  
<0.07°C (<70 mK) industrial;  
<0.045°C (<45 mK) building  
**\$3995**



## Ti110/TiR110

19,200 pixels (160 x 120)  
<0.10°C (100 mK) industrial;  
<0.08°C (80 mK) building  
**\$4495**



## Ti10/TiR

19,200 pixels (160 x 120)  
<0.2°C (130 mK) industrial;  
<0.1°C (90 mK) building  
**\$4495**

# Selection Guide (High Performance)

## T640

307,200 pixels (640 x 480)  
<0.035°C (<35 mK)  
**\$25,950**



## T620

307,200 pixels (640 x 480)  
<0.04°C (<40 mK)  
**\$20,450**



## T440/T440bx

76,800 pixels (320 x 240)  
<0.045°C (<45 mK)  
**\$11,495**



## T420/T420bx

76,800 pixels (320 x 240)  
<0.05°C (<50 mK)  
**\$8495**



## Ti55FT/TiR4FT

76,800 pixels (320 x 240)  
<0.05°C (50 mK)  
**\$21,990/\$15,495**



## Ti50FT/TiR3FT

76,800 pixels (320 x 240)  
<0.07°C (70 mK)  
**\$18,490/\$11,995**

# FLIR® *i-Series Point-and-Shoot Thermal Imagers*

- Most affordable thermal imager on the market
- Image viewing technology: infrared
- Replaces outdated single-point IR thermometers; more accurate and higher resolution technology
- Designed for entry-level infrared camera users (Focus-Free and menu-driven operation)
- Stores up to 5000 radiometric JPEG images



## i3 Model

**Temperature range:** -4 to 482°F (-20 to 250°C)

**Resolution:** 3600 pixels (60 x 60)

**Thermal sensitivity (NETD):** <0.15°C (<150 mK)

**Accuracy:** ±2% of reading

**UF-39754-12 \$1195**

## i5 Model

**Temperature range:** -4 to 482°F (-20 to 250°C)

**Resolution:** 10,000 pixels (100 x 100)

**Thermal sensitivity (NETD):** <0.10°C (<100 mK)

**Accuracy:** ±2% of reading

**UF-39754-04 \$1595**

## i7 Model

**Temperature range:** -4 to 482°F (-20 to 250°C)

**Resolution:** 19,600 pixels (140 x 140)

**Thermal sensitivity (NETD):** <0.10°C (<100 mK)

**Accuracy:** ±2% of reading

**UF-39754-08 \$1995**



# FLIR® E-Series Performance Thermal Imagers

- Touch screen provides intuitive interface and easy access to features and data
- Image viewing technology: infrared and visible light
- High-resolution digital camera with LED lamp provides sharp images in low-lit applications
- Stores up to 1000 radiometric JPEG images
- Voice and text annotation allows notes to be recorded on each thermal image (excludes E30/E30bx)
- Wi-Fi connectivity downloads images and reports, and streams live videos to mobile devices (excludes E30/E30bx)
- MeterLink™ Bluetooth™ communication sends data to the camera from select Extech® products (excludes E30/E30bx)
- Drop test: 6.6 feet (2 meters)



## E30 Models

**Temperature range:** -4 to 662°F (-20 to 350°C) industrial;  
-4 to 248°F (-20 to 120°C) building

**Resolution:** 19,200 pixels (160 x 120)

**Thermal sensitivity (NETD):** <0.10°C (<100 mK)

**Accuracy:** ±2% of reading

**UF-39754-34 E30 Industrial \$2995**

**UF-39754-35 E30bx Building \$2995**

## E40 Models

**Temperature range:** -4 to 1202°F (-20 to 650°C) industrial;  
-4 to 248°F (-20 to 120°C) building

**Resolution:** 19,200 pixels (160 x 120)

**Thermal sensitivity (NETD):** <0.07°C (<70 mK) industrial;  
<0.045°C (<45 mK) building

**Accuracy:** ±2% of reading

**Fixed Picture-in-Picture**

**UF-39754-40 E40 Industrial \$3995**

**UF-39754-41 E40bx Building \$3995**

## E50 Models

**Temperature range:** -4 to 1202°F (-20 to 650°C) industrial; -4 to 248°F (-20 to 120°C) building

**Resolution:** 43,200 pixels (240 x 180)

**Thermal sensitivity (NETD):** <0.05°C (<70 mK) industrial; <0.045°C (<45 mK) building

**Accuracy:** ±2% of reading

**Scalable Picture-in-Picture and image fusion/blending**

**UF-39754-50 E50 Industrial \$5995**

**UF-39754-51 E50bx Building \$5995**

## E60 Models

**Temperature range:** -4 to 1202°F (-20 to 650°C) industrial; -4 to 248°F (-20 to 120°C) building

**Resolution:** 76,800 pixels (320 x 240)

**Thermal sensitivity (NETD):** <0.05°C (<50 mK) industrial; <0.045°C (<45 mK) building

**Accuracy:** ±2% of reading

**Scalable Picture-in-Picture and image fusion/blending**

**UF-39754-60 E60 Industrial \$7995**

**UF-39754-61 E60bx Building \$7995**



# FLIR® T-Series High-Performance Thermal Imagers



- Ergonomic design with rotatable optical block for comfortable viewing angles
- Image viewing technology: infrared, visible light, scalable Picture-in-Picture and image fusion/blending
- Laser LocatIR™ pointer pinpoints a reference spot with a laser and aligns a marker to it on the image
- Touch screen provides intuitive interface and easy access to features and data
- High-resolution digital camera with LED lamp provides sharp images in low-lit applications
- Stores up to 1000 radiometric JPEG images
- Voice, text, and sketch annotation allows notes to be recorded on each thermal image (T420/T420bx doesn't offer sketch annotation)
- Wi-Fi connectivity downloads images and reports to mobile devices
- MeterLink™ Bluetooth® communication sends data to the camera from select Extech products



## T420 Models

Temperature range: -4 to 1202°F (-20 to 650°C) industrial;  
-4 to 662°F (-20 to 350°C) building

Resolution: 76,800 pixels (320 x 240)

Thermal sensitivity (NETD): <0.05°C (<50 mK)

Accuracy: ±2% of reading

|             |                 |        |
|-------------|-----------------|--------|
| UF-39754-14 | T420 Industrial | \$8495 |
| UF-39754-15 | T420bx Building | \$8495 |

## T440 Models

Temperature range: -4 to 2192°F (-20 to 1200°C) industrial;  
-4 to 662°F (-20 to 350°C) building

Resolution: 76,800 pixels (320 x 240)

Thermal sensitivity (NETD): <0.045°C (<45 mK)

Accuracy: ±2% of reading

**Movable Picture-in-Picture**

**MSX Thermal image enhancement**

|             |                 |          |
|-------------|-----------------|----------|
| UF-39754-16 | T440 Industrial | \$11,495 |
| UF-39754-17 | T440bx Building | \$11,495 |



## T620 Model

Temperature range: -40 to 1202°F (-40 to 650°C)

Resolution: 307,200 pixels (640 x 480)

Thermal sensitivity (NETD): <0.04°C (<40 mK)

Accuracy: ±2% of reading

**Movable Picture-in-Picture**

|             |      |          |
|-------------|------|----------|
| UF-39754-18 | T620 | \$20,450 |
|-------------|------|----------|

## T640 Model

Temperature range: -40 to 3632°F (-40 to 2000°C)

Resolution: 307,200 pixels (640 x 480)

Thermal sensitivity (NETD): <0.035°C (<35 mK)

Accuracy: ±2% of reading

**Movable Picture-in-Picture**

**MSX Thermal image enhancement**

|             |      |          |
|-------------|------|----------|
| UF-39754-46 | T640 | \$25,950 |
|-------------|------|----------|

- Fluke's lightest, most rugged, and easiest-to-use thermal imager
- IR-OptiFlex™ focus system—focus-free from 4 feet (1.2 meters) and beyond (excludes Ti100, Ti105, and TiR105)
- IR-PhotoNotes™ stores up to three digital images per infrared image to document issues (excludes Ti100, Ti105, and TiR105)
- Image viewing technology: infrared
- Voice annotation allows notes to be recorded on each thermal image (excludes Ti100, Ti105, and TiR105)
- Eight-point compass easily communicates the location of problems
- Design allows rotation of camera to capture images in portrait or landscape view
- Stores up to 1200 radiometric JPEG images
- Drop test: 6.6 feet (2 meters)

## Ti100 Model

**Temperature range:** -4 to 482°F (-20 to 250°C)  
**Resolution:** 19,200 pixels (160 x 120)  
**Thermal sensitivity (NETD):** <0.10°C (100 mK)  
**Accuracy:** ±2°C or 2% at 25°C, whichever is greater

**UF-39750-01 Ti100 General-use \$2495**

## Ti105/TiR105 Models

**Temperature range:** -4 to 482°F (-20 to 250°C) industrial;  
 -4 to 302°F (-20 to 150°C) building

**Resolution:** 19,200 pixels (160 x 120)  
**Thermal sensitivity (NETD):** <0.10°C (100 mK) industrial;  
 <0.08°C (80 mK) building

**Accuracy:** ±2°C or 2% at 25°C, whichever is greater

**Visible light, IR-Fusion® Technology with Picture-in-Picture**

**UF-39750-34 Ti105 Industrial \$2995**  
**UF-39750-35 TiR105 Building \$2995**

## Ti110/TiR110 Models

**Temperature range:** -4 to 482°F (-20 to 250°C) industrial;  
 -4 to 302°F (-20 to 150°C) building

**Resolution:** 19,200 pixels (160 x 120)  
**Thermal sensitivity (NETD):** <0.10°C (100 mK) industrial;  
 <0.08°C (80 mK) building

**Accuracy:** ±2°C or 2% at 25°C, whichever is greater

**Visible light, IR-Fusion® Technology with Picture-in-Picture, and IR/color alarms**

**UF-39750-02 Ti110 Industrial \$4495**  
**UF-39750-03 TiR110 Building \$4495**

## Ti125/TiR125 Models

**Temperature range:** -4 to 662°F (-20 to 350°C) industrial;  
 -4 to 302°F (-20 to 150°C) building

**Resolution:** 19,200 pixels (160 x 120)  
**Thermal sensitivity (NETD):** <0.10°C (100 mK) industrial;  
 <0.08°C (80 mK) building

**Accuracy:** ±2°C or 2% at 25°C, whichever is greater

**Visible light, IR-Fusion® Technology with Picture-in-Picture, AutoBlend™ image fusion/blending, and IR/color alarms**

**Multimode focus-free video recording eliminates refocusing during recording**

**UF-39750-04 Ti125 Industrial \$5495**  
**UF-39750-05 TiR125 Building \$5495**





- The ultimate tools for troubleshooting and maintenance
- Versatile, one-handed manual focus
- Image viewing technology: infrared
- Stores up to 1200 radiometric JPEG images
- Drop test: 6.6 feet (2 meters)

## Ti9/TiS Models

**Temperature range:** -4 to 482°F (-20 to 250°C) industrial;  
-4 to 212°F (-20 to 100°C) building

**Resolution:** 19,200 pixels (160 x 120) industrial;  
14,000 pixels (120 x 120) building

**Thermal sensitivity (NETD):** <0.2°C (200 mK) industrial;  
<0.1°C (100 mK) building

**Accuracy:** ±5°C or 5% at 25°C, whichever is greater

|                    |                       |               |
|--------------------|-----------------------|---------------|
| <b>UF-39750-09</b> | <b>Ti9 Industrial</b> | <b>\$2195</b> |
| <b>UF-39750-10</b> | <b>TiS Building</b>   | <b>\$1995</b> |

## Ti10/TiR Models

**Temperature range:** -4 to 482°F (-20 to 250°C) industrial;  
-4 to 302°F (-20 to 150°C) building

**Resolution:** 19,200 pixels (160 x 120)

**Thermal sensitivity (NETD):** <0.2°C (130 mK) industrial;  
<0.1°C (90 mK) building

**Accuracy:** ±2°C or 2% at 25°C, whichever is greater

**Visible light, IR-Fusion® Technology with Picture-in-Picture**

|                    |                        |               |
|--------------------|------------------------|---------------|
| <b>UF-39750-21</b> | <b>Ti10 Industrial</b> | <b>\$4495</b> |
| <b>UF-39750-24</b> | <b>TiR Building</b>    | <b>\$4495</b> |

## Ti25/TiR1 Models

**Temperature range:** -4 to 662°F (-20 to 350°C) industrial;  
-4 to 302°F (-20 to 150°C) building

**Resolution:** 19,200 pixels (160 x 120)

**Thermal sensitivity (NETD):** <0.10°C (100 mK) industrial;  
<0.07°C (70 mK) building

**Accuracy:** ±2°C or 2% at 25°C, whichever is greater

**Visible light, IR-Fusion® Technology with Picture-in-Picture and AutoBlend™ image fusion/blending**

**Voice annotation allows notes to be recorded on each thermal image**

|                    |                        |               |
|--------------------|------------------------|---------------|
| <b>UF-39750-22</b> | <b>Ti25 Industrial</b> | <b>\$5295</b> |
| <b>UF-39750-25</b> | <b>TiR1 Building</b>   | <b>\$5295</b> |



- Versatile, one-handed manual focus
- Image viewing technology: infrared, visible light, IR-Fusion® Technology with Picture-in-Picture, AutoBlend™ image fusion/blending, and IR/color alarms
- Voice annotation allows notes to be recorded on each thermal image
- Stores up to 1200 radiometric JPEG images
- Drop test: 6.6 feet (2 meters)

## Ti27/TiR27 Models

**Temperature range:** -4 to 1112°F (-20 to 600°C) industrial;  
-4 to 302°F (-20 to 150°C) building

**Resolution:** 43,200 pixels (240 x 180)

**Thermal sensitivity (NETD):** <0.05°C (50 mK) industrial;  
<0.045°C (45 mK) building

**Accuracy:** ±2°C or 2% at 25°C, whichever is greater

|                    |                        |               |
|--------------------|------------------------|---------------|
| <b>UF-39750-16</b> | <b>Ti27 Industrial</b> | <b>\$5995</b> |
| <b>UF-39750-17</b> | <b>TiR27 Building</b>  | <b>\$5995</b> |

## Ti29/TiR29 Models

**Temperature range:** -4 to 1112°F (-20 to 600°C) industrial;  
-4 to 302°F (-20 to 150°C) building

**Resolution:** 58,800 pixels (280 x 210)

**Thermal sensitivity (NETD):** <0.05°C (50 mK) industrial;  
<0.045°C (45 mK) building

**Accuracy:** ±2°C or 2% at 25°C, whichever is greater

|                    |                        |               |
|--------------------|------------------------|---------------|
| <b>UF-39750-18</b> | <b>Ti29 Industrial</b> | <b>\$6995</b> |
| <b>UF-39750-19</b> | <b>TiR29 Building</b>  | <b>\$6995</b> |

## Ti32/ TiR32 Models

**Temperature range:** -4 to 1112°F (-20 to 600°C) industrial;  
-4 to 302°F (-20 to 150°C) building

**Resolution:** 76,800 pixels (320 x 240)

**Thermal sensitivity (NETD):** <0.05°C (45 mK) industrial;  
<0.045°C (40 mK) building

**Accuracy:** ±2°C or 2% at 25°C, whichever is greater

|                    |                        |               |
|--------------------|------------------------|---------------|
| <b>UF-39750-26</b> | <b>Ti32 Industrial</b> | <b>\$7995</b> |
| <b>UF-39750-27</b> | <b>TiR32 Building</b>  | <b>\$7995</b> |





# FlexCam® High-Performance Thermal Imagers

- Ergonomic design with rotatable optical block for comfortable viewing angles
- Image viewing technology: infrared, visible light, Picture-in-Picture, image fusion/blending, and IR/color alarms
- High-resolution digital camera with LED lamp provides sharp images in low-lit applications
- Voice and text annotation allows notes to be recorded on each thermal image
- Stores up to 1000 radiometric JPEG images

## Ti50FT/ TiR3FT Models

**Temperature range:** -4 to 662°F (-20 to 350°C) industrial;  
-4 to 212°F (-20 to 100°C) building

**Resolution:** 76,800 pixels (320 x 240)

**Thermal sensitivity (NETD):** <0.07°C (70 mK)

**Accuracy:** ±2°C or 2% at 25°C, whichever is greater

|                    |                          |                 |
|--------------------|--------------------------|-----------------|
| <b>UF-39715-28</b> | <b>Ti50FT Industrial</b> | <b>\$18,490</b> |
| <b>UF-39715-34</b> | <b>TiR3FT Building</b>   | <b>\$11,995</b> |



## Ti55FT/TiR4FT Models

**Temperature range:** -4 to 1112°F (-20 to 600°C) industrial;  
-4 to 212°F (-20 to 100°C) building

**Resolution:** 76,800 pixels (320 x 240)

**Thermal sensitivity (NETD):** <0.05°C (50 mK)

**Accuracy:** ±2°C or 2% at 25°C, whichever is greater

|                    |                          |                 |
|--------------------|--------------------------|-----------------|
| <b>UF-39715-30</b> | <b>Ti55FT Industrial</b> | <b>\$21,990</b> |
| <b>UF-39715-36</b> | <b>TiR4FT Building</b>   | <b>\$15,495</b> |

## FLIR® IR Windows

- Provide increased safety by reducing dangers of potential arc flash
- Inspect panels quickly with easy access hinged cover. Thumb screw releases the cover and reveals a permanent ID label
- Single hole makes installation easy
- Crystal lens supports IR cameras, visual inspections, and fusion technology

|                    |                         |              |
|--------------------|-------------------------|--------------|
| <b>UF-39754-90</b> | <b>2" dia IR window</b> | <b>\$279</b> |
| <b>UF-39754-91</b> | <b>3" dia IR window</b> | <b>\$379</b> |
| <b>UF-39754-92</b> | <b>4" dia IR window</b> | <b>\$599</b> |





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# *Thermal Imaging Technical Resource*

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