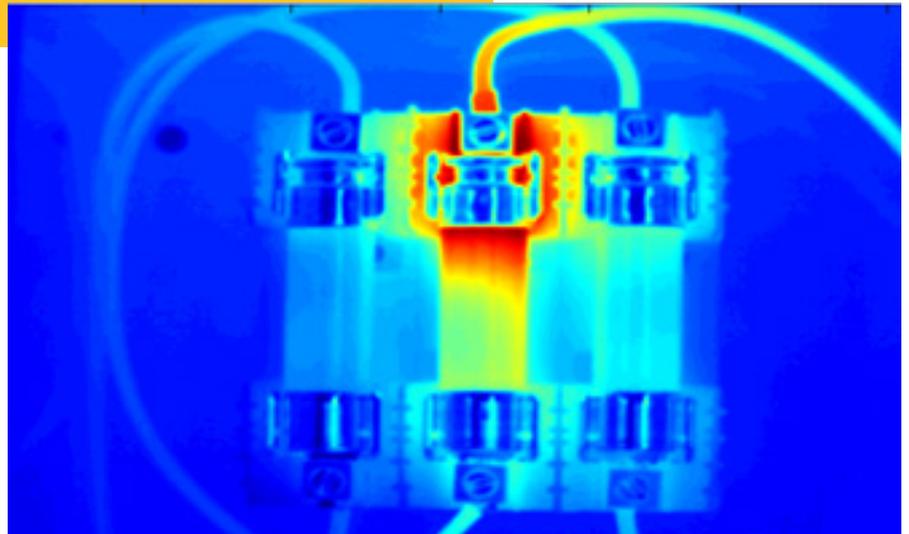
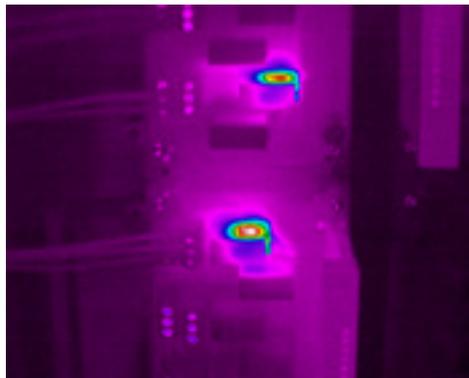
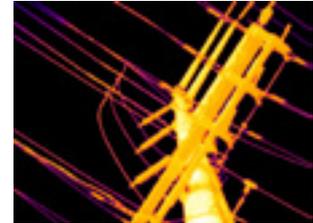


# Expedite electrical troubleshooting with infrared flexibility

## Application Note

A typical industrial plant has thousands of electrical connections and components that need to be inspected. Those include contactors, switches, circuit breakers, switchgear, and battery banks, among others. A failure in even the smallest component can cause exponential damage to a company's bottom line.



At the same time, the move to leaner maintenance staffing has made performing regular maintenance on all those components nearly impossible. So the challenge now is to find electrical problems at an early stage.

Fortunately, infrared camera technology has started to level the playing field. With the thermal sensitivity, resolution, ease of use and innovative new features available in the new Fluke TiX560 and TiX520 Expert Series Infrared Cameras they can help you perform maintenance tasks more quickly and easily, helping you get more done in less time.

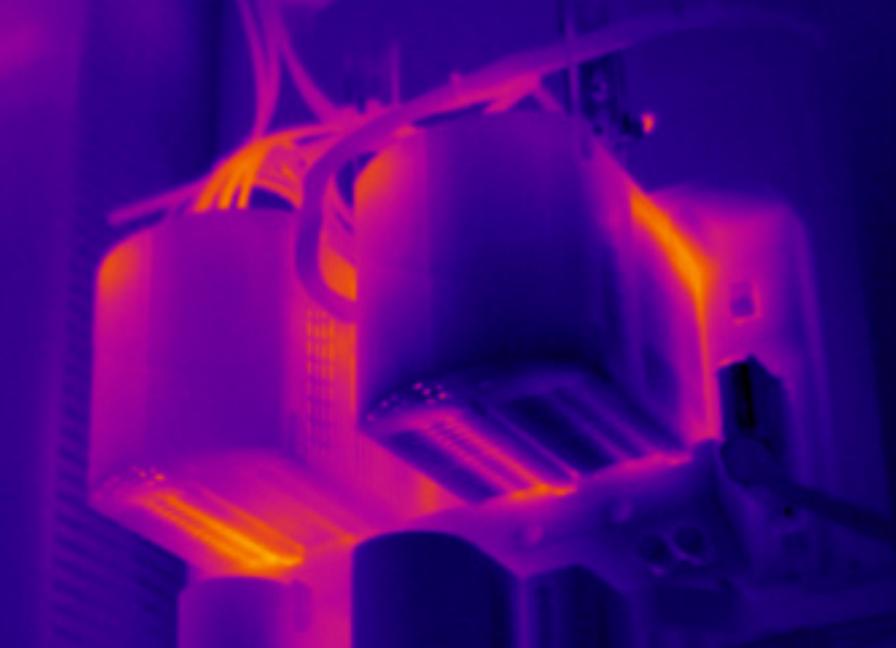
Most problems in electrical supply or distribution systems show up as excessive heat, which can be caused by:

- Overloaded systems or excessive current
- Loose, tight, dirty or corroded connections
- Component failures
- Wiring mistakes or under-specified components
- Power quality issues like phase unbalance or harmonics

One of the quickest ways to find these problems is to scan the area with a high resolution infrared camera.

### Top 4 Electrical applications

- 1 Overhead cable trays
- 2 Three-phase conductors
- 3 Switch gear cabinets
- 4 Electrical panels



## Finding electrical anomalies with infrared cameras

Understanding your applications and having baseline information will make it easier for you to find possible issues in your facility. Once you have that information, you can put the Fluke TiX560 and TiX520 infrared cameras to work inspecting a wide range of electrical components, including:

### Overhead cable trays

Scanning miles of overhead cable in an industrial facility can be a pain in the neck. With the 180° articulating lens in the TiX560 and TiX520 you can tilt the lens to scan the ceiling while you're looking at the large 5.7 inch LCD touchscreen on the camera from a comfortable angle. As you scan, you can capture images, annotate points of concern with text or voice notes or record radiometric video for further analysis or documentation. Plus you don't have to worry about debris falling on your face.

### Three-phase conductors

You can use spot temperature markers to quickly find hot neutrals or overheated conductors in a three-phase system. Just put a spot temperature marker on each conductor to see all three phase temperatures simultaneously and quickly locate temperature differences.

### Switch gear cabinets

With the TiX560 or TiX520 you can scan switch gear through an infrared window to find internal faults while the system is running, without having to open electrical panel doors. The high resolution and low NETD help you find very subtle differences in temperature indicating possible internal faults. You can capture IR images and combine them with visible light images in AutoBlend™ on the camera to quickly identify the label of an overheated component in the cabinet. Or record radiometric video to analyze the equipment over time.

### Electrical panel

Using the TiX5xx Expert Series cameras, you can quickly scan a panel. Where you discover higher temperatures, just follow that circuit and examine associated branches and loads from a safe distance. With Continuous AutoBlend on the TiX560 you can blend the infrared image with up to 100 % visible light image to clearly read the labels on the circuit breakers or tags on the equipment to easily locate problem points.

## Other electrical connections to be inspected with an infrared camera

- Power inputs and outputs to devices like VFD's, transformers, and power supplies
- Bad contacts on contactors and high-voltage switches
- Power distribution, circuit breakers and fuses
- Junction boxes and terminal blocks



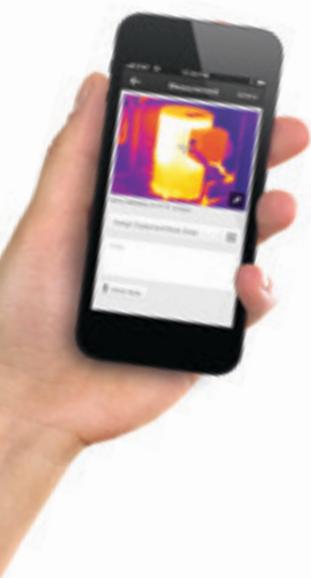
## Fluke TiX560 and TiX520 infrared cameras provide the first line of defense

The new Fluke TiX560 and TiX520 Expert Series Infrared Cameras provide a unique set of capabilities to help you quickly identify potential issues and keep you up and running.

- 1 Ergonomic 180° articulating lens** gives you maximum flexibility and makes it easy to navigate over, under, and around objects so you can see the image before you capture it. It allows you to verify that the image is in focus before you record it, unlike a pistol-grip camera that can be very difficult to focus when you're in an awkward position. This allows technicians to work in more ergonomically agreeable positions for all day use.
- 2 The only 5.7 inch responsive touchscreen** in its class<sup>1</sup> delivers 150%<sup>2</sup> more viewing area to make it easy to see even subtle changes and details right on the camera. Quickly finger scroll through saved thumbnail images on the screen, zoom in and out, and access shortcuts to save time and increase productivity.
- 3 Enhanced image quality** and temperature measurement accuracy allow you to increase 320 x 240 images to 640 x 480 in SuperResolution mode to find subtle anomalies faster.
- 4 LaserSharp® Auto Focus** at the touch of a button takes the guesswork out of precision focus. The built-in laser distance meter calculates the distance to your designated target and then automatically focuses to produce the optimum image.
- 5 Image Sharpening** reduces fixed pattern noise to create sharper images, particularly in high temperature environments. (On TiX560 only)
- 6 Filter mode** achieves Noise Equivalent Temperature Difference (NETD) as low as 30 mK to detect very slight temperature differences.
- 7 Hot and cold spot markers** highlight the hottest and coldest pixels on the image and displays their temperature values at the top of the screen for quick identification of anomalies.
- 8 On-camera storage, editing, and analysis** allow you to store thousands of images in memory and bring them up in the field to edit, add digital images, text or voice annotations, and analyze right on the camera.
- 9 Fluke Connect™** wireless compatibility enables you to see, save, and share live video, still images, and measurements with team members who have the Fluke Connect™ mobile app on their smart phones. Just push the shortcut button to connect.

<sup>1</sup>Compared to industrial handheld infrared cameras with 320x240 detector resolution as of October 14, 2014.

<sup>2</sup>Compared to a 3.5 inch screen.



**See and share more results at one time with Fluke Connect™ wireless capabilities**

The Fluke TiX560 and TiX520 cameras are Fluke Connect-enabled so you can transmit images and measurements from the cameras to smart phones or tablets that have the Fluke Connect\* mobile app. In so doing you can share results with authorized team members and thus enhance collaboration and help resolve problems faster.



With SmartView® software, included with Fluke infrared cameras, you can run additional analyses and document findings in reports that include thermal and visible light images, and measurement data. You can adjust most parameters on the stored image, including emissivity, color palette, and level/span, just to name few.

Fluke Connect™ is not available in all countries.  
\*Within providers wireless service area.

**Work faster and easier**

Unexplained hot spots could mean trouble for your operation. A high resolution infrared camera is the fastest way to get a clear, accurate view of those problems. Fluke TiX560 and TiX520 Expert Series cameras deliver the image resolution, thermal sensitivity and accuracy and ergonomic design to help you find those hot spots before they cause major damage.

To find out more, consult your Fluke sales representative or visit [www.fluke.com/infraredcameras](http://www.fluke.com/infraredcameras) for more information.

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

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