

APPLICATION NOTE

Why you need a real thermal imager, not a toy

Not all thermal infrared cameras are created equal. While advertisements and promotions may present specifications that at first glance make imagers seem one and the same, many factors make up a quality thermal imager—one that can withstand the rigors of day after day work in harsh environments. The next time you shop for a thermal imaging camera, contrast and compare a professional tool from what can amount to a gimmicky toy. Lower quality thermal imaging devices tend to be breakable and unrated in drop tests. While these toys might look the part, they often impersonate industrial-worthy tools, as they tend to lack adequate image resolution, built-in battery monitoring and require a cumbersome workflow to collect and save thermal image data. Professional tools are rugged, long-lasting, and save you time. Look for the following features to ensure that you wind up with a superior thermal imager.



An engineer uses a Fluke TiS75 Infrared Camera to inspect a motor

Features of a professional infrared tool

1. Ruggedness, survivability and form factor

While toys often cannot withstand repeated use or one accidental tumble, tools for professionals should be tough so they can work in harsh environments. Considering a manufacturer's reputation for quality construction is an important factor when evaluating products. When you talk about ruggedness, it's more than expecting the unit to work after being dropped on the floor. The build quality is important, down to the most minute details. How well does the snap on the battery door close? Does its handle have an ergonomic pistol grip with good weight distribution? Does the thermal imager have a hand strap that can be moved to either side of the imager so it's well-gripped by right- or left-handers? Does the lens cover provide the right amount of protection?





2. Different focus options

A blurry infrared image can give you data that might not truly reflect the appropriate level of criticality of the components under inspection. Fixed focus cameras offer point and shoot technology that are generally in focus on targets at a certain distance and beyond. Performing scans with fixed focus is often faster than with manual focus, but can be less precise. With a higher resolution camera, the ability to precisely focus the camera becomes critical. Cameras with adjustable or manual focus can focus much closer to the target, often from 15 cm (6 in) and beyond. They can also obtain much sharper images and more accurate results from further distances. For even more precision, some infrared cameras come with a built-in laser pointer to help pinpoint your exact image target.

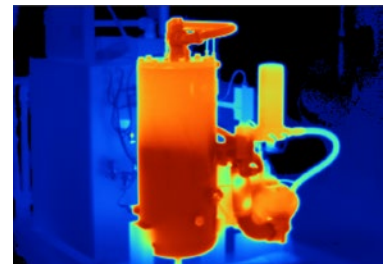
3. Blended visible light and infrared images

Infrared cameras that combine visible light and infrared images allow operators to quickly locate and identify potential problems. Essentially, this means that the camera blends the two images together, pixel for pixel, in a single display, making it easier to see the source of a heat issue. Fluke Corporation has patented IR Fusion® technology, a feature that Fluke innovated in portable, hand-held industrial thermal imagers. IR Fusion® automatically captures a digital visible light image at the same time as an infrared image. A technician using the camera can then view the image in full infrared, full visible light or at several degrees of blending in between.

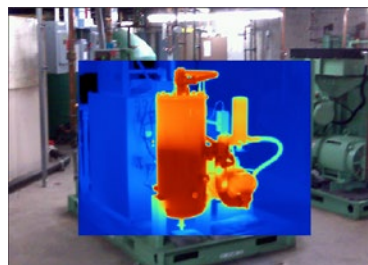
Fluke IR Fusion® blending options



Industrial compressor



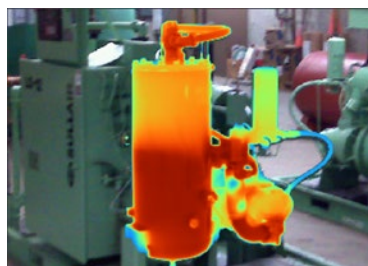
Industrial compressor, full infrared



Industrial compressor, picture-in-picture



Industrial compressor, blending



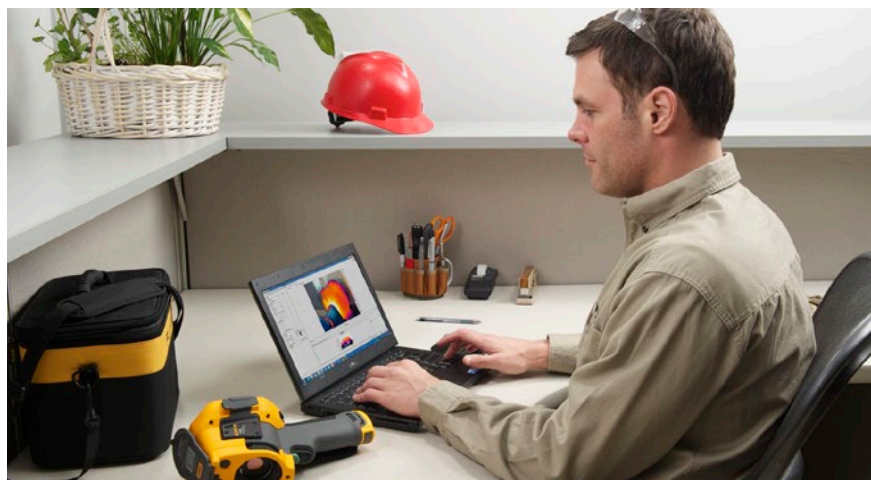
Industrial compressor, visible alarm



Fluke battery packs have LED charge indicators—5 dots means a fully charged battery

4. Battery life and monitoring

A thermal imager should allow you to monitor your battery charge and avoid unexpected power loss with an LED charge indicator. The best thermal imagers use rechargeable lithium ion batteries, which power their advanced features. Lithium provides high energy density and is slow to self-discharge. In addition, this lithium technology typically delivers a five-year operating life, and often can be recycled. To maximize the life of lithium packs, a good rule is to use them to full discharge and then fully recharge them the first 5-10 times. The Fluke TiS Performance Series infrared cameras come with five-segment LED charge level display. With this feature, you'll have clear visual indication on when you should recharge. The chargers in newer tools are designed to optimize battery life.



5. Advanced diagnosis and reporting software

Software helps enhance and clarify images, adds analysis, and empowers teams to share professional-looking reports in many different applications and industries. Software can be used as a tool to analyze, enhance and fine tune thermal images before sharing with managers. Robust software allows users to make adjustments to optimize image quality and display findings with features like multiple image formats, ability to combine visible light and infrared images, and custom reports.



6. Wireless image upload and sharing

Viewing thermal images from your camera on your smartphone or computer can be an important factor depending on the work you do. Wireless sharing can save time by showing potential issues to clients or co-workers offsite. That can allow for faster decision making and real-time collaboration. Wasting time on frequent back-and-forth trips to your office is not how you want to spend your day. Nearly instant, professional reports to present to managers or clients

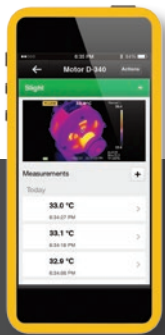
are imperative for quick decision-making. Using the Fluke Connect® mobile app for example, you can share images across the internet for viewing by remote team members. Once saved to the Fluke Cloud, thermal images will be permanently accessible by you and others on your team with an active account.

7. Image quality to see issues clearly

The focus of an infrared camera directly affects the accuracy of the temperature measurement calculation data that is captured. An out-of-focus image can produce a temperature measurement that is off by 20 degrees or more. For better quality images, you need more detector pixels properly focused on the target. A camera with a wider field of view (FOV), which defines the area the imager sees at a given moment, displays a larger area. If two cameras operate with the same detector resolution, but one has a tighter FOV, the latter will typically produce images with more detail.

8. Robust memory

As anyone with a digital camera knows, images can use up memory in a hurry, so look for an infrared camera that has sufficient onboard memory for your needs. Going further, it's better for a camera to have gigabytes of memory storage for maintaining a database of thermal images that can be used for consistent and comparative machine diagnoses over time. Also, consider that you might be in the field for extended periods of time and unable to upload until later. A removable SD card allows you to have easy access to saved images, as well as extra storage if you have spare SD cards for those long inspection days.



Multiply your resources with Fluke Connect® wireless capabilities¹

With the Fluke Connect mobile app you can transmit images and measurements from Fluke infrared cameras in real-time to authorized smart phones or tablets that have the Fluke Connect mobile app. You can also share results instantly with team members to enhance collaboration and resolve issues faster. With Fluke Connect® Assets, you can also associate images to assets, see your images and other measurements by asset in one place, and generate reports that include other measurement types. See www.flukeconnect.com for more information.

¹Within your provider's wireless service area; Fluke Connect® and Fluke Connect® Assets are not available in all countries. Smart phone not included with purchase.

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