

## When it comes to thermal imagers Image is everything

### Application Note

The new Fluke Ti32 and TiR32 Thermal Imagers are now available. Much like computers, when a new imager comes out, it usually does more, and does it faster and more easily than earlier models. But is that really worth getting excited about?



**You can drop them 6.5 feet and they'll still work.  
That's rugged.**

With thermography, image is everything. The more detailed the thermal image, the better your chance of detecting problems. The new Fluke Ti32 models offer the clearest image at the best price in the most rugged package yet. Specific improvements include:

- More image and detail clarity at any distance (with spatial resolution that surpasses all imagers in its class)
- More individual temperature measurement data points (with a 320 x 240 detector resolution)
- Maximized screen size (onscreen display)
- Seeing more from further away (2x telephoto lens option)
- Seeing more when closer in (wide-angle lens option)
- Ultra-Contrast™ color palettes (eight new palettes for making the small thermal details all the more evident)
- Color alarms (high temperature for the Ti32, dewpoint for the TiR32)

The new models also offer a few other improvements, outside the screen:

- Greater temperature measurement range (-20 °C to 600 °C for the Ti32, and -20 °C to 150 °C for the TiR32)
- Industry-leading thermal sensitivity ( $\leq 50$  mk,  $\leq 0.05$  °C)
- More image file formats to choose from, on the imager (.is2, .bmp and .jpg)
- Transmission (transmissivity) correction for more accurate temperature measurement through IR windows
- Easier level and span adjustment for more detail on specific objects and inspection targets

## Why it matters

**For electrical inspection,** any improvement in image clarity and temperature sensitivity is one step closer to early detection of component performance and failure issues. Greater detector resolution means four times as many individual temperature measurements are available on screen (compared to imagers with 160 x 120 detectors), to more specifically locate the hottest point—and potentially the source of the problem.

The new optional lenses will also help electricians. For those who spend time in small cramped electrical rooms, the wide-angle lens allows you to view a much wider section of equipment from closer in. Similarly, the telephoto lens allows you to inspect dangerous live equipment from farther away while maintaining image clarity. The more distance between the operator and an arc flash or electrocution hazard, the better.

Many facilities are also installing infrared windows in electrical cabinet doors, to allow thermal inspection without exposing the user to dangerous live connections. However, IR windows do transmit infrared differently. The Ti32 models allow you to correct for the window's transmission rate, improving measurement accuracy.

**For plants with their own substations,** and for electrical utility power line troubleshooters and inspectors, the telephoto lens allows the user to view small components on pole-mounted transformers and even high transmission lines from the ground, with great clarity and detail.

**For mechanical inspection,** greater image clarity improves your ability to get close-ups on smaller parts or on complex equipment and machinery. And the thermal sensitivity helps

here in the same way—earlier detection of problems that first show themselves with a slight heat variation or unexpected thermal pattern, even on objects without significant thermal differentiation in the first place.

People inspecting mechanical equipment will also like the easy-to-use high temperature alarms—set these for the threshold of your most important equipment, and then scan. The display screen will show a regular digital image, like a video camera, except for surfaces that exceed the temperature alarm, and those will have an infrared image overlay.

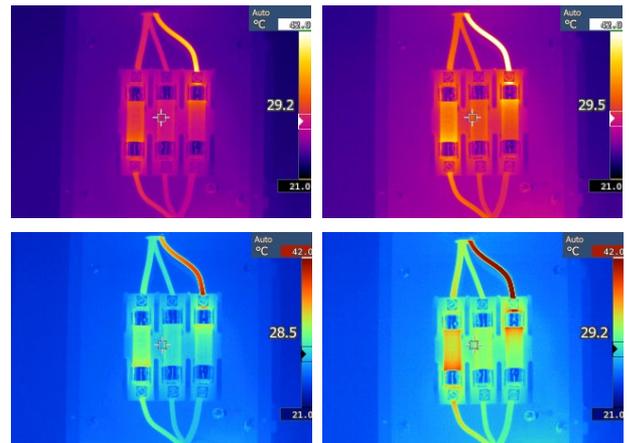
**For process industries** using extreme heat, these imagers can now provide temperature measurements up to 600 °C while allowing the technician to stand a safer distance away from the heat source. The superior thermal sensitivity will show thermoclines and other temperature variations and changes that are often critical to monitor and control. The enhanced thermal sensitivity also allows even more effective tank and container level inspections for many situations (in-plant storage tanks, tanks at refineries, and water utility storage tanks).

**For facility managers,** the improved temperature detail and sensitivity makes building inspection far more fruitful. Detecting moisture damage and air leaks can often require noticing temperature changes of just a few degrees. The TiR32 model is specifically designed for building diagnostics, but the regular Ti32 model is also quite sensitive. Expand your inspection process to your building envelope and find new ways to reduce energy costs.

**The rest of the changes** simply make the tool easier to use. It's nice to be able to save images directly as jpg or bmp files, for immediate use in other documents. It's nice to be able

to take all of the data clutter off the screen and just view thermally. It's nice to be able to easily adjust the level and span, if automatic mode isn't giving you enough detail. And of course the accompanying SmartView® software for image analysis and reporting gets better with each new revision.

After all of those nice-to-haves, and the image clarity, there's one more thing. This is an imager you can drop. Six and half feet. Many facilities keep their thermal imagers locked away, for fear of damaging a sensitive tool. This imager is a Fluke. You don't need to compromise.



The ultra contrast palette makes problem spots even more obvious. Hotter spots look hotter and colder spots look colder. Ironbow and blue-red are the two most popular full color palettes, though the difference between them is largely user preference.

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