

## Fluke Industrial Thermal Imagers

Models: Ti32, Ti29 and Ti27. Three models specifically for industrial and electrical applications.

### Technical Data

P3  
Series

Proven  
Practical  
Performance

The P3 Series: Superior, not Superfluous. Fluke is how other tools are measured.



**Ti27**  
• 240x180 IR resolution  
• 43,200 total IR pixels

**Ti29**  
• 280x210 IR resolution  
• 58,800 total IR pixels

**Ti32**  
• 320x240 IR resolution  
• 76,800 total IR pixels

The greatest technological advancement in thermography may be how Fluke has made it so simple to capture images and analyze data right out of the box.

#### Superior image quality

Industry-leading thermal sensitivity and spatial resolution combined with a high definition display, creates the sharpest images in the industry.

#### One-handed, easy-to-use interface

With just a push of your thumb, go from one-handed manual smart focus to adding picture-in-picture and even add voice comments.

#### Torture tested™

Before a Fluke goes into your hands, we drop it from ours. Only Fluke thermal imagers are designed from the inside out to withstand a 6.5 ft drop.

#### Patented Fluke IR-Fusion®

(Picture-in-picture and auto blending)

Precision visible and IR image alignment allows Fluke to offer the only on-camera blended infrared and visible image to better diagnose issues.

#### Interchangeable lenses

Interchangeable wide-angle and IR-Fusion compatible telephoto lenses to cover any application.

**Fluke. Not just infrared, infrared you can use.®**



**Industrial**  
Mechanical, electromechanical and general building maintenance.



**Process**  
Refractory insulation, tank and vessel levels, steam systems and traps, pipes and valves, etc.



**Electrical**  
Unbalanced loads, overloaded systems, wiring mistakes or component failure, etc.

IR-Fusion®

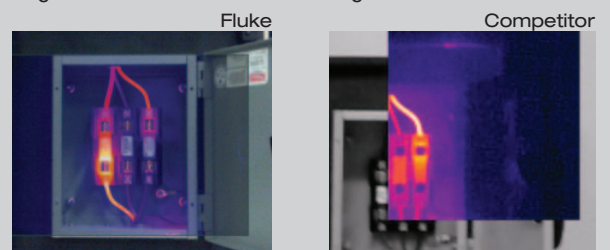
#### Patented Fluke IR-Fusion® Technology

##### More than picture in picture

Infrared images alone can be difficult to understand, which is why Fluke pioneered IR-Fusion, a revolutionary marriage of visible and infrared images never before seen in commercial or industrial thermal imagers. Automatically capturing a visible image with every infrared image allows you to always know exactly what you're looking at.

##### Not all fusion is created equal

Don't be fooled by imitators. No other manufacturer can boast on-camera blending. Compare the images. Only Fluke has mastered the ability to create the industry's only transparent, perfectly blended and aligned visible and infrared images.



## Detailed specifications

|                                                                   | Ti32                                                                                                                                                                                                                                                                                  | Ti29                                                         | Ti27                                                         |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| <b>Temperature</b>                                                |                                                                                                                                                                                                                                                                                       |                                                              |                                                              |
| Temperature measurement range (not calibrated below -10 °C)       | -20 °C to +600 °C (-4 °F to +1112 °F)                                                                                                                                                                                                                                                 |                                                              |                                                              |
| Temperature measurement accuracy                                  | ± 2 °C or 2 % (at 25 °C nominal, whichever is greater)                                                                                                                                                                                                                                |                                                              |                                                              |
| On-screen emissivity correction                                   | Yes                                                                                                                                                                                                                                                                                   |                                                              |                                                              |
| On-screen reflected background temperature compensation           | Yes                                                                                                                                                                                                                                                                                   |                                                              |                                                              |
| On-screen transmission correction                                 | Yes                                                                                                                                                                                                                                                                                   |                                                              |                                                              |
| <b>Imaging performance</b>                                        |                                                                                                                                                                                                                                                                                       |                                                              |                                                              |
| Image capture frequency                                           | 9 Hz refresh rate or 60 Hz refresh rate depending upon model variation                                                                                                                                                                                                                |                                                              |                                                              |
| Detector type                                                     | Focal Plane Array, uncooled microbolometer, 320 x 240 pixels                                                                                                                                                                                                                          | Focal Plane Array, uncooled microbolometer, 280 x 210 pixels | Focal Plane Array, uncooled microbolometer, 240 x 180 pixels |
| Thermal sensitivity (NETD)                                        | ≤ 0.045 °C at 30 °C target temp. (45 mK)                                                                                                                                                                                                                                              | ≤ 0.05 °C at 30 °C target temp (50 mK)                       |                                                              |
| Total pixels                                                      | 76,800                                                                                                                                                                                                                                                                                | 58,800                                                       | 43,200                                                       |
| Infrared spectral band                                            | 7.5 µm to 14 µm (long wave)                                                                                                                                                                                                                                                           |                                                              |                                                              |
| Visual (visible light) camera                                     | Industrial performance 2.0 megapixel                                                                                                                                                                                                                                                  |                                                              |                                                              |
| Minimum focus distance                                            | 45 cm (approx. 18 in)                                                                                                                                                                                                                                                                 |                                                              |                                                              |
| <b>Standard infrared lens type</b>                                |                                                                                                                                                                                                                                                                                       |                                                              |                                                              |
| Field of view                                                     | 23 ° x 17 °                                                                                                                                                                                                                                                                           |                                                              |                                                              |
| Spatial resolution (IFOV)                                         | 1.25 mRad                                                                                                                                                                                                                                                                             | 1.43 mRad                                                    | 1.67 mRad                                                    |
| Minimum focus distance                                            | 15 cm (approx. 6 in)                                                                                                                                                                                                                                                                  |                                                              |                                                              |
| <b>Optional telephoto infrared lens type</b>                      |                                                                                                                                                                                                                                                                                       |                                                              |                                                              |
| Field of view                                                     | 11.5 ° x 8.7 °                                                                                                                                                                                                                                                                        |                                                              |                                                              |
| Spatial resolution (IFOV)                                         | 0.63 mRad                                                                                                                                                                                                                                                                             | 0.72 mRad                                                    | 0.84 mRad                                                    |
| Minimum focus distance                                            | 45 cm (approx. 18 in)                                                                                                                                                                                                                                                                 |                                                              |                                                              |
| <b>Optional wide-angle infrared lens type</b>                     |                                                                                                                                                                                                                                                                                       |                                                              |                                                              |
| Field of view                                                     | 46 ° x 34 °                                                                                                                                                                                                                                                                           |                                                              |                                                              |
| Spatial resolution (IFOV)                                         | 2.50 mRad                                                                                                                                                                                                                                                                             | 2.86 mRad                                                    | 3.34 mRad                                                    |
| Minimum focus distance                                            | 7.5 cm (approx. 3 in)                                                                                                                                                                                                                                                                 |                                                              |                                                              |
| Focus mechanism                                                   | Manual, one-handed Smart Focus capability                                                                                                                                                                                                                                             |                                                              |                                                              |
| <b>Image presentation</b>                                         |                                                                                                                                                                                                                                                                                       |                                                              |                                                              |
| <b>Palettes</b>                                                   |                                                                                                                                                                                                                                                                                       |                                                              |                                                              |
| Standard                                                          | Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted                                                                                                                                                                                     |                                                              |                                                              |
| Ultra Contrast™                                                   | Ironbow Ultra, Blue-Red Ultra, High Contrast Ultra, Amber Ultra, Amber Inverted Ultra, Hot Metal Ultra, Grayscale Ultra, Grayscale Inverted Ultra                                                                                                                                     |                                                              |                                                              |
| Level and span                                                    | Smooth auto-scaling and manual scaling of level and span                                                                                                                                                                                                                              |                                                              |                                                              |
| Fast auto toggle between manual and auto modes                    | Yes                                                                                                                                                                                                                                                                                   |                                                              |                                                              |
| Fast auto-rescale in manual mode                                  | Yes                                                                                                                                                                                                                                                                                   |                                                              |                                                              |
| Minimum span (in manual mode)                                     | 2.5 °C (4.5 °F)                                                                                                                                                                                                                                                                       |                                                              |                                                              |
| Minimum span (in auto mode)                                       | 5 °C (9 °F)                                                                                                                                                                                                                                                                           |                                                              |                                                              |
| <b>IR-Fusion® information</b>                                     |                                                                                                                                                                                                                                                                                       |                                                              |                                                              |
| Automatically aligned (parallax corrected) visual and IR blending | Yes                                                                                                                                                                                                                                                                                   |                                                              |                                                              |
| Picture-In-Picture (PIP)                                          | Three levels of on-screen IR blending displayed in center of LCD                                                                                                                                                                                                                      |                                                              |                                                              |
| Full screen infrared                                              | Three levels of on-screen IR blending displayed on LCD                                                                                                                                                                                                                                |                                                              |                                                              |
| Color alarms (temperature alarms)                                 | High-temperature alarm (user-selectable)                                                                                                                                                                                                                                              |                                                              |                                                              |
| Voice annotation                                                  | 60 seconds maximum recording time per image; reviewable playback on imager                                                                                                                                                                                                            |                                                              |                                                              |
| <b>Image capture and data storage</b>                             |                                                                                                                                                                                                                                                                                       |                                                              |                                                              |
|                                                                   | The Ti32, Ti29 and Ti27 allow users to adjust palette, blending, level, span, IR-Fusion® mode, emissivity, and reflected background temperature compensation, and transmission correction on a captured image before it is stored                                                     |                                                              |                                                              |
| Image capture, review, save mechanism                             | One-handed image capture, review, and save capability                                                                                                                                                                                                                                 |                                                              |                                                              |
| Storage medium                                                    | SD Memory Card (2 GB memory card will store at least 1200 fully radiometric (.is2) IR and linked visual images each with 60 seconds voice annotations, or 3000 basic bitmap (.bmp) images, or 3000 jpeg (.jpeg) images; transferrable to PC via included multi-format USB card reader |                                                              |                                                              |
| File formats                                                      | Non-radiometric (.bmp) or fully-radiometric (.is2)                                                                                                                                                                                                                                    |                                                              |                                                              |
|                                                                   | No analysis software required for non-radiometric (.bmp and .jpeg) files                                                                                                                                                                                                              |                                                              |                                                              |
| Export file formats w/SmartView® software                         | BMP, DIB, GIF, JPE, JFIF, JPEG, JPG, PNG, TIF, and TIFF                                                                                                                                                                                                                               |                                                              |                                                              |
| Memory review                                                     | Thumbnail view navigation and review selection                                                                                                                                                                                                                                        |                                                              |                                                              |

## General specifications

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Operating temperature</b>         | -10 °C to +50 °C (14 °F to 122 °F)                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Storage temperature</b>           | -20 °C to +50 °C (-4 °F to 122 °F) without batteries                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Relative humidity</b>             | 10 % to 95 % non-condensing                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Display</b>                       | 9.1 cm (3.7 in) diagonal landscape color VGA (640 x 480) LCD with backlight and clear protective cover                                                                                                                                                                                                                                                                                                                                   |
| <b>Controls and adjustments</b>      | User selectable temperature scale (°C/°F)<br>Language selection<br>Time/Date set<br>Emissivity selection<br>Reflected background temperature compensation<br>Transmission correction<br>User selectable hot spot and cold spot, and center point on the image (other custom markers and shapes in SmartView® software)<br>High temperature alarm<br>User selectable backlight: "Full Bright" or "Auto"<br>Information display preference |
| <b>Software</b>                      | SmartView® full analysis and reporting software included                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Batteries</b>                     | Two lithium ion rechargeable smart battery packs with five-segment LED display to show charge level                                                                                                                                                                                                                                                                                                                                      |
| <b>Battery life</b>                  | Four+ hours continuous use per battery pack (assumes 50 % brightness of LCD)                                                                                                                                                                                                                                                                                                                                                             |
| <b>Battery charge time</b>           | 2.5 hours to full charge                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>AC battery charging</b>           | Two-bay ac battery charger (110 V ac to 220 V ac, 50/60 Hz) (included), or in-imager charging. AC mains adapters included. Optional 12 V automotive charging adapter.                                                                                                                                                                                                                                                                    |
| <b>AC operation</b>                  | AC operation with included power supply (110 V ac to 220 V ac, 50/60 Hz). AC mains adapters included.                                                                                                                                                                                                                                                                                                                                    |
| <b>Power saving</b>                  | Sleep mode activated after five minutes of inactivity, automatic power off after 30 minutes of inactivity                                                                                                                                                                                                                                                                                                                                |
| <b>Safety standards</b>              | CSA (US and CAN): C22.2 No. 61010-1-04, UL: UL STD 61010-1 (2nd Edition), ISA: 82.02.01                                                                                                                                                                                                                                                                                                                                                  |
| <b>Electromagnetic compatibility</b> | Meets all applicable requirements in EN61326-1:2006                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>C Tick</b>                        | IEC/EN 61326-1                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>US FCC</b>                        | CFR 47, Part 15 Class B                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Vibration</b>                     | 0.03 g2/Hz (3.8 grms), IEC 68-2-6                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Shock</b>                         | 25 g, IEC 68-2-29                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Drop</b>                          | 2 meter (6.5 feet) with standard lens                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Size (H x W x L)</b>              | 27.7 cm x 12.2 cm x 17.0 cm (10.9 in x 4.8 in x 6.7 in)                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Weight (battery included)</b>     | 1.05 kg (2.3 lb)                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Enclosure rating</b>              | IP54 (protected against dust, limited ingress; protection against water spray from all directions)                                                                                                                                                                                                                                                                                                                                       |
| <b>Warranty</b>                      | Two-years (standard), extended warranties are available.                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Recommended calibration cycle</b> | Two-years (assumes normal operation and normal aging)                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Supported Languages</b>           | Czech, English, Finnish, French, German, Italian, Japanese, Korean, Polish, Portuguese, Russian, Simplified Chinese, Spanish, Swedish, Traditional Chinese, and Turkish                                                                                                                                                                                                                                                                  |

## Ordering information

- FLK-Ti32 9 Hz** Industrial-Commercial Thermal Imager, 9 Hz
- FLK-Ti32 60 Hz** Industrial-Commercial Thermal Imager, 60 Hz
- FLK-Ti29 9 Hz** Industrial-Commercial Thermal Imager, 9 Hz
- FLK-Ti29 60 Hz** Industrial-Commercial Thermal Imager, 60 Hz
- FLK-Ti27 9 Hz** Industrial-Commercial Thermal Imager, 9 Hz
- FLK-Ti27 60 Hz** Industrial-Commercial Thermal Imager, 60 Hz

### Included

Thermal imager with standard infrared lens; ac power supply and battery pack charger (including mains adapters); two, rugged lithium ion smart battery packs; SD memory card; multi-format USB memory card reader for downloading images into your computer; SmartView® software with free software upgrades for life; rugged, hard carrying case; soft transport bag; adjustable hand strap; printed users manual; warranty registration card.

### Optional accessories

- FLK-LENS/TELE1** Telephoto Infrared Lens
- FLK-LENS/WIDE1** Wide-angle Infrared Lens
- TI-CAR-CHARGER** Thermal Imager Vehicle Charger
- TI-VISOR** Thermal Imager Visor
- BOOK-ITP** Introduction to Thermography Principles Book
- TI-TRIPOD** Tripod Mounting Base Accessory



**Fluke.** *Not just infrared.  
Infrared you can use.™*

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