

# TECHNICAL DATA

## Ti401 PRO, Ti480 PRO, TiX501 and TiX580 Infrared Cameras



**Fluke Connect™ compatible**

We recognize that it's not one approach for all—each industry, business and success measure is unique. Optimally engineered, Fluke cameras are aligned to drive efficiency through the latest in thermography technology advancements. They offer everything needed for industrial professionals to safely, quickly and easily find, assess and solve mission-critical problems before they result in downtime, become costly or even disastrous.

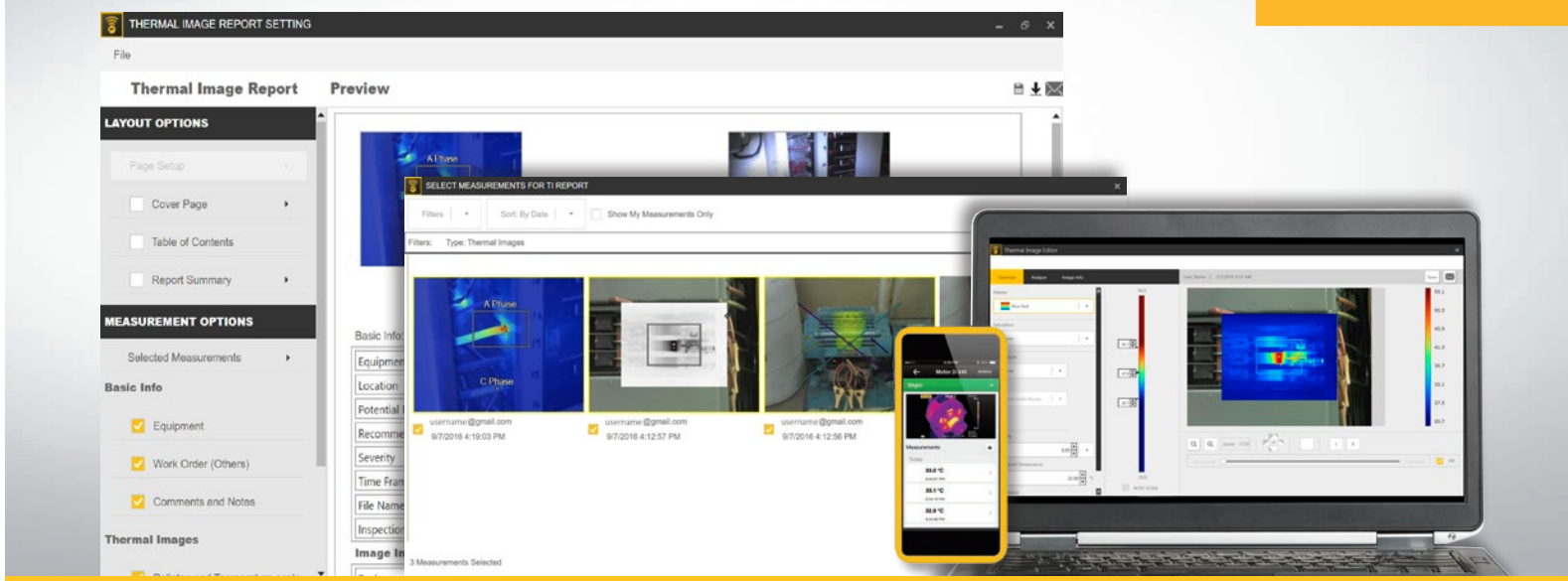
- In-focus images in a matter of seconds. **LaserSharp™ Auto Focus** uses a built-in laser distance meter that calculates and displays the distance from your designated target and immediately adjusts the focus.
- Shoot images near...and far. Interchangeable **Smart Lenses** require no calibration and give you the versatility and image quality needed to conduct inspections in almost any environment.
- Simply the best optics to transmit energy and produce high quality infrared images. Fluke uses only 100 % diamond-turned germanium lenses with specialty coatings.
- See more details when you adjust the level of infrared and visible light with patented IR-Fusion™ technology.
- Edit and analyze images on camera—edit emissivity, enable color alarms and markers, and adjust IR-Fusion™ visual and infrared image blending.
- Manage data, capture multiple measurements (mechanical, electrical and thermal) and organize them by piece of equipment with Fluke Connect™ software.
- Inspect multiple complex targets or targets from varying distances. Capture a clear, accurate image focused throughout the field of view with **MultiSharp™ Focus**. The camera automatically processes a stack of images focused near and far with the Ti480 PRO and TiX580.

### SUPERIOR IMAGE QUALITY

**RESOLUTION**  
640 x 480 (307,200 pixels)

**SPATIAL RESOLUTION**  
0.93 mRad

**FIELD OF VIEW**  
34 °H x 24 °V



### Powerful, easy-to-use Fluke Connect™

A comprehensive and connected software platform that represents the future of integrated equipment maintenance, monitoring, analysis and reporting. It's easier than ever to optimize thermal images, perform analytics, generate quick, customizable, robust reports, and export images to the format of your choice in the cloud. And you will be able to integrate with Fluke Connect—the largest integrated system of maintenance software and tools in the world.

- Modern visual design
- Intuitive navigation—easier to learn, easier and faster to work in
- Simplified work flows
- Simplified reporting workflow and better report templates
- Fluke Connect Cloud storage

**Fluke Connect and Fluke Connect cloud storage not available in all countries.**

**100% Focused—Every object. Near and far. MultiSharp™ Focus.**



Manual focus



MultiSharp Focus

## Detailed specifications

|                                                 | Ti401 PRO                                                                                                                                                         | Ti480 PRO                                                                              | TiX501                                                                                                                                             | TiX580                                                                           |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Key Features                                    |                                                                                                                                                                   |                                                                                        |                                                                                                                                                    |                                                                                  |
| Infrared resolution                             | 640 x 480 (307,200 pixels)                                                                                                                                        |                                                                                        |                                                                                                                                                    |                                                                                  |
| SuperResolution                                 | No                                                                                                                                                                | Yes, in software. Captures and combines 4x the data to create a 1280 x 960 image       | No                                                                                                                                                 | Yes, in software. Captures and combines 4x the data to create a 1280 x 960 image |
| IFOV with standard lens (spatial resolution)    | 0.93 mRad, D:S 1065:1                                                                                                                                             |                                                                                        |                                                                                                                                                    |                                                                                  |
| Field of view                                   | 34 °H x 24 °V                                                                                                                                                     |                                                                                        |                                                                                                                                                    |                                                                                  |
| Minimum focus distance                          | 15 cm (approx. 6 in)                                                                                                                                              |                                                                                        |                                                                                                                                                    |                                                                                  |
| MultiSharp Focus                                | No                                                                                                                                                                | Yes, focused near and far, throughout the field of view                                | No                                                                                                                                                 | Yes, focused near and far, throughout the field of view                          |
| LaserSharp Auto Focus                           | Yes, for consistently in-focus images. Every. Single. Time                                                                                                        |                                                                                        |                                                                                                                                                    |                                                                                  |
| Laser distance meter                            | Yes, calculates distance to the target for precisely focused images and displays distance on screen                                                               |                                                                                        |                                                                                                                                                    |                                                                                  |
| Advanced manual focus                           | Yes                                                                                                                                                               |                                                                                        |                                                                                                                                                    |                                                                                  |
| Wireless connectivity                           | Yes, to PC, iPhone® and iPad® (iOS 4s and later), Android™ 4.3 and up, and WiFi to LAN (where available)                                                          |                                                                                        |                                                                                                                                                    |                                                                                  |
| Fluke Connect app compatible                    | Yes*, connect your camera to your smartphone, and images taken automatically upload to the Fluke Connect app for saving and sharing                               |                                                                                        |                                                                                                                                                    |                                                                                  |
| Fluke Connect Assets                            | Through the desktop, assign images to assets, easily compare measurement types in one location and create reports.                                                |                                                                                        | Future**, Automatically assign images to assets, easily compare measurement types in one location and create reports through a cloud-based system. |                                                                                  |
| Fluke Connect instant cloud upload              | Yes*, connect your camera to your building's WiFi network, and images taken automatically upload to the Fluke Connect system for viewing on your smartphone or PC |                                                                                        |                                                                                                                                                    |                                                                                  |
| Fluke Connect instant server upload             | Yes**                                                                                                                                                             | Yes**                                                                                  | Yes**                                                                                                                                              | Yes**                                                                            |
| IR-Fusion technology                            | Yes, adds the context of the visible details to your infrared image                                                                                               |                                                                                        |                                                                                                                                                    |                                                                                  |
| Ruggedized touchscreen display                  | 3.5 inch (landscape), 640 x 480 LCD                                                                                                                               |                                                                                        | 5.7 inch (14.4 cm) landscape 640 x 480 LCD                                                                                                         |                                                                                  |
| Ergonomic design                                | Pistol-grip design for one-handed use                                                                                                                             |                                                                                        | 240 ° rotatable (articulating) lens                                                                                                                |                                                                                  |
| Thermal sensitivity (NETD)**                    | ≤ 0.075 °C at 30 °C target temp (75 mK)                                                                                                                           | ≤ 0.05 °C at 30 °C target temp (50 mK)                                                 | ≤ 0.075 °C at 30 °C target temp (75 mK)                                                                                                            | ≤ 0.05 °C at 30 °C target temp (50 mK)                                           |
| Level and span                                  | Smooth auto and manual scaling                                                                                                                                    |                                                                                        |                                                                                                                                                    |                                                                                  |
| Touchscreen adjustable level/span               | Yes. Span and level can be easily and quickly set by simply touching the screen                                                                                   |                                                                                        |                                                                                                                                                    |                                                                                  |
| Fast auto toggle between manual and auto modes  | Yes                                                                                                                                                               |                                                                                        |                                                                                                                                                    |                                                                                  |
| Fast auto-rescale in manual mode                | Yes                                                                                                                                                               |                                                                                        |                                                                                                                                                    |                                                                                  |
| Minimum span (in manual mode)                   | 2.0 °C (3.6 °F)                                                                                                                                                   |                                                                                        |                                                                                                                                                    |                                                                                  |
| Minimum span (in auto mode)                     | 3.0 °C (5.4 °F)                                                                                                                                                   |                                                                                        |                                                                                                                                                    |                                                                                  |
| Built-in digital camera (visible light)         | 5MP                                                                                                                                                               |                                                                                        |                                                                                                                                                    |                                                                                  |
| Frame rate                                      | 60 Hz or 9 Hz versions                                                                                                                                            |                                                                                        |                                                                                                                                                    |                                                                                  |
| Laser pointer                                   | Yes                                                                                                                                                               |                                                                                        |                                                                                                                                                    |                                                                                  |
| LED light (torch)                               | Yes                                                                                                                                                               |                                                                                        |                                                                                                                                                    |                                                                                  |
| Digital Zoom                                    | No                                                                                                                                                                | 2x and 4x                                                                              | 2x                                                                                                                                                 | 2x, 4x, 8x                                                                       |
| Data storage and image capture                  |                                                                                                                                                                   |                                                                                        |                                                                                                                                                    |                                                                                  |
| Extensive memory options                        | Removable 4 GB micro SD memory card, 4 GB internal flash memory, save to USB flash drive capability, upload for permanent storage                                 |                                                                                        |                                                                                                                                                    |                                                                                  |
| Image capture, review, save mechanism           | One-handed image capture, review, and save capability                                                                                                             |                                                                                        | Yes, edit and analyze captured images on camera                                                                                                    |                                                                                  |
| Image file formats                              | bmp, jpeg, is2                                                                                                                                                    | bmp, jpeg, is2, is3, AVI                                                               | bmp, jpeg, is2, is3, AVI                                                                                                                           | bmp, jpeg, is2, is3, AVI                                                         |
| Memory review                                   | Thumbnail and full screen review                                                                                                                                  |                                                                                        |                                                                                                                                                    |                                                                                  |
| Software                                        | Full analysis and reporting software with access to the Fluke Connect system                                                                                      |                                                                                        |                                                                                                                                                    |                                                                                  |
| Analyze and store radiometric data on a PC      | Yes                                                                                                                                                               |                                                                                        |                                                                                                                                                    |                                                                                  |
| Export file formats with Fluke Connect software | Bitmap (.bmp), GIF, JPEG, PNG, TIFF                                                                                                                               |                                                                                        |                                                                                                                                                    |                                                                                  |
| Voice annotation                                | 60 seconds maximum recording time per image; reviewable playback on camera, optional Bluetooth headset available but not required                                 |                                                                                        |                                                                                                                                                    |                                                                                  |
| IR-PhotoNotes                                   | Yes - 2 images                                                                                                                                                    | Yes - 5 images                                                                         | Yes - 2 images                                                                                                                                     | Yes - 5 images                                                                   |
| Text annotations                                | Yes. Including standard shortcuts as well as user programmable options                                                                                            |                                                                                        |                                                                                                                                                    |                                                                                  |
| Video recording and formats                     | No                                                                                                                                                                | Standard and radiometric                                                               | Standard                                                                                                                                           | Standard and radiometric                                                         |
| Remote control operations                       | Remote display through Fluke Connect                                                                                                                              | Remote display and control operation through Fluke Connect                             | Remote display through Fluke Connect                                                                                                               | Remote display and control operation through Fluke Connect                       |
| Auto capture (temperature and interval)         | No                                                                                                                                                                | Yes                                                                                    | No                                                                                                                                                 | Yes                                                                              |
| MATLAB® and LabVIEW® tool boxes                 | –                                                                                                                                                                 | Integrate camera data, infrared video and images into software to support R&D analysis |                                                                                                                                                    |                                                                                  |

## Detailed specifications

|                                                             | Ti401 PRO                                                                                                                                                                                 |                                                                               | Ti480 PRO                                  | TiX501                                                                                                                                               | TiX580                                                                  |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Battery                                                     |                                                                                                                                                                                           |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Batteries (field-replaceable, rechargeable)                 | Two lithium ion smart battery packs with five-segment LED display to show charge level                                                                                                    |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Battery life                                                | 2-3 hours per battery (actual life varies depending on settings and usage)                                                                                                                |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Battery charging time                                       | 2.5 hours to full charge                                                                                                                                                                  |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Battery charging system                                     | Two-bay battery charger or in-imager charging. Optional 12 V automotive charging adapter                                                                                                  |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| AC operation                                                | AC operation with included power supply (100 V AC to 240 V AC, 50/60 Hz)                                                                                                                  |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Power saving                                                | User selectable sleep and power off modes                                                                                                                                                 |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Temperature measurement                                     |                                                                                                                                                                                           |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Temperature measurement range (not calibrated below -10 °C) | -20 °C to +650 °C<br>(-4 °F to +1,202 °F)                                                                                                                                                 |                                                                               | -20 °C to +1,000 °C<br>(-4 °F to 1,832 °F) | -20 °C to +650 °C<br>(-4 °F to +1,202 °F)                                                                                                            | -20 °C to +1,000 °C<br>(-4 °F to 1,832 °F)                              |
| Accuracy                                                    | ± 2 °C or 2 % (at 25 °C nominal, whichever is greater)                                                                                                                                    |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| On-screen emissivity correction                             | Yes (both value and table)                                                                                                                                                                |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| On-screen reflected background temperature compensation     | Yes                                                                                                                                                                                       |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| On-screen transmission correction                           | Yes                                                                                                                                                                                       |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Line temperature graph                                      | No                                                                                                                                                                                        | Yes                                                                           |                                            | No                                                                                                                                                   | Yes                                                                     |
| Color palettes                                              |                                                                                                                                                                                           |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Standard palettes                                           | 9: Rainbow, Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted                                                                             |                                                                               |                                            | 8: Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted                                                 |                                                                         |
| Ultra Contrast palettes                                     | 9: Rainbow, Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted                                                                             |                                                                               |                                            | 8: Ironbow Ultra, Blue-Red Ultra, High Contrast Ultra, Amber Ultra, Amber Inverted Ultra, Hot Metal Ultra, Grayscale Ultra, Grayscale Inverted Ultra |                                                                         |
| Smart lenses                                                |                                                                                                                                                                                           |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Macro-25 micron lens: 25 MAC2                               |                                                                                                                                                                                           |                                                                               |                                            | Yes                                                                                                                                                  |                                                                         |
| 2 x telephoto lens: TELE 2                                  |                                                                                                                                                                                           |                                                                               |                                            | Yes                                                                                                                                                  |                                                                         |
| 4 x telephoto lens: TELE4                                   |                                                                                                                                                                                           |                                                                               |                                            | Yes                                                                                                                                                  |                                                                         |
| Wide angle lens: WIDE 2                                     |                                                                                                                                                                                           |                                                                               |                                            | Yes                                                                                                                                                  |                                                                         |
| General specifications                                      |                                                                                                                                                                                           |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Color alarms (temperature alarms)                           | High temperature, low temperature, and isotherms (within range)                                                                                                                           |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Infrared spectral band                                      | 7.5 µm to 14 µm (long wave)                                                                                                                                                               |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Operating Temperature                                       | -10 °C to +50 °C (14 °F to 122 °F)                                                                                                                                                        |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Storage Temperature                                         | -20 °C to +50 °C (-4 °F to 122 °F) without batteries                                                                                                                                      |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Relative humidity                                           | 10 % to 95 % non-condensing                                                                                                                                                               |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Center-point temperature measurement                        | Yes                                                                                                                                                                                       |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Spot temperature                                            | Hot and cold spot markers                                                                                                                                                                 |                                                                               |                                            | Hot and cold spot markers, individually enabled                                                                                                      |                                                                         |
| User-definable spot markers                                 | No                                                                                                                                                                                        | 3 user-definable spot markers                                                 |                                            | 2 user-definable spot markers                                                                                                                        | 3 user-definable spot markers                                           |
| User defined measurement boxes                              | 1 expandable-contractible measurement box with MIN-MAX-AVG temp display                                                                                                                   | Up to 3 expandable-contractible measurement box with MIN-MAX-AVG temp display |                                            | 1 expandable-contractible measurement box with MIN-MAX-AVG temp display                                                                              | 3-Expandable-contractible measurement box with MIN-MAX-AVG temp display |
| Hard Case                                                   | Rugged, hard carrying case; soft transport bag                                                                                                                                            | Rugged, IP67 rated, airtight hardcase with custom foam insert                 |                                            |                                                                                                                                                      |                                                                         |
| Safety                                                      | IEC 61010-1: Overvoltage category II, Pollution Degree 2                                                                                                                                  |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Electromagnetic compatibility                               | IEC 61326-1: Basic EM environment. CISPR 11: Group 1, Class A                                                                                                                             |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Australian RCM                                              | IEC 61326-1                                                                                                                                                                               |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| US FCC                                                      | CFR 47, Part 15 Subpart B                                                                                                                                                                 |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Vibration                                                   | 0.03 g2/Hz (3.8 g), 2.5 g IEC 60068-2-6                                                                                                                                                   |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Shock                                                       | 25 g, IEC 68-2-29                                                                                                                                                                         |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Drop                                                        | Engineered to withstand 2 meter (6.5 feet) drop with standard lens                                                                                                                        |                                                                               |                                            | Engineered to withstand 1 meter (3.3 feet) drop with standard lens                                                                                   |                                                                         |
| Size (H x W x L)                                            | 27.7 cm x 12.2 cm x 16.7 cm (10.9 in x 4.8 in x 6.5 in)                                                                                                                                   |                                                                               |                                            | 27.3 cm x 15.9 cm x 9.7 cm (10.8 in x 6.3 in x 3.8 in)                                                                                               |                                                                         |
| Weight (battery included)                                   | 1.04 kg (2.3 lb)                                                                                                                                                                          |                                                                               |                                            | 1.54 kg (3.4 lb)                                                                                                                                     |                                                                         |
| Enclosure rating                                            | IEC 60529: IP54 (protected against dust, limited ingress; protection against water spray from all directions)                                                                             |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Warranty                                                    | Two-years (standard), extended warranties are available                                                                                                                                   |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Recommended calibration cycle                               | Two-years (assumes normal operation and normal aging)                                                                                                                                     |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| Supported languages                                         | Czech, Dutch, English, Finnish, French, German, Hungarian, Italian, Japanese, Korean, Polish, Portuguese, Russian, Simplified Chinese, Spanish, Swedish, Traditional Chinese, and Turkish |                                                                               |                                            |                                                                                                                                                      |                                                                         |
| RoHS compliant                                              | Yes                                                                                                                                                                                       |                                                                               |                                            |                                                                                                                                                      |                                                                         |

Please Note: Fluke Connect analysis and reporting software is available in all countries but Fluke Connect is not. Please check availability with your authorized Fluke distributor

\*\*Indicates Fluke Connect™ features that will be available soon. Watch the Fluke website for software and firmware updates

Shop for Fluke products online at: **www.MyFlukeStore.com** 1.888.610.7664

## Ordering information

**FLK-Ti401 PRO 60 Hz Infrared Camera**  
**FLK-Ti401 PRO 9 Hz Infrared Camera**  
**FLK-Ti480 PRO 60 Hz Infrared Camera**  
**FLK-Ti480 PRO 9 Hz Infrared Camera**  
**FLK-TiX501 60 Hz Infrared Camera**  
**FLK-TiX501 9 Hz Infrared Camera**  
**FLK-TiX580 60 Hz Infrared Camera**  
**FLK-TiX580 9 Hz Infrared Camera**

### Included

Included Infrared camera with standard infrared lens; AC power supply and battery pack charger (including universal AC adapters); two rugged lithium ion smart battery packs; USB cable; HDMI video cable; 4GB micro SD card; and adjustable hand strap. **Available by free download:** Fluke Connect™ desktop software and user manual

### Ti401 PRO only

Rugged, hard carrying case, soft transport bag

### Ti480 PRO, TiX501, TiX580 only

Rugged, IP67 rated, airtight hard carrying case

### TiX501, TiX580 only

Adjustable neck strap

### Optional accessories

**FLK-LENS/TELE2** Infrared Telephoto Lens  
(2X magnification)

**FLK-LENS/4XTELE2** Infrared Telephoto Lens  
(4X magnification)

**FLK-LENS/WIDE2** Infrared Wide Angle Lens

**FLK-LENS/25MAC2** 25 Micron Macro Infrared Lens

**TI-CAR-CHARGER** Car Charger

**FLK-TI-VISOR3** Sun Visor

**BOOK-ITP** Introduction to Thermography Principles Book

**TI-TRIPOD3** Tripod Mounting Accessory

**FLK-TI-BLUETOOTH** Bluetooth headset

**FLK-TI-SBP3** Additional Smart Battery

**FLK-TI-SBC3B** Additional Smart Battery Charger

**FLK-TIX5XX-SBP4** Additional Smart Battery

**FLK-TI-SBC3B** Additional Smart Battery Charger

### TiX501 and TiX580 additional accessories

**FLK-TIX5X-LENS CAP** Infrared Lens Cover

**FLK-TIX5XX-NECK** Neck strap

**FLUKE-TIX5XX HAND** Hand strap

**FLK-TI-BLUETOOTH** Bluetooth Headset

**FLK-TIX5XX-HDMI** HDMI Cable



### Preventive maintenance simplified. Rework eliminated.

Save time and improve the reliability of your maintenance data by wirelessly syncing measurements using the Fluke Connect™ system.

- Eliminate data-entry errors by saving measurements directly from the tool and associating them with the work order, report or asset record.
- Maximize uptime and make confident maintenance decisions with data you can trust and trace.
- Move away from clipboards, notebooks and multiple spreadsheets with a wireless one-step measurement transfer.
- Access baseline, historical and current measurements by asset.
- Share your measurement data using ShareLive™ video calls and emails.
- The PRO series infrared cameras are part of a growing system of connected test tools and equipment maintenance software. Visit the website to learn more about the Fluke Connect™ system.



Download on the  
**App Store**



ANDROID APP ON  
**Google play**



All trademarks are the property of their respective owners. WiFi or cellular service required to share data. Smartphone, wireless service and data plan not included with purchase. First 5GB of storage is free. Phone support details can be found at [www.flukeconnect.com](http://www.flukeconnect.com)

**Smart phone wireless service and data plan not included with purchase. Fluke Connect is not available in all countries.**

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

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