

# LAND



thermal imaging camera  
**GUIDE** ThermoPro™ **TP8**

An **AMETEK**® Company

# GUIDE ThermoPro™ TP8

## thermal imaging camera



The TP8 thermal imaging camera is used for plant condition monitoring, structural integrity inspection, quality control, and research and development in a wide range of industries - in a measurement range from -20 to 800 °C / -4 to 1470 °F.

On-board IR and visual cameras enable high resolution thermal and visual images to be stored simultaneously. Your preferred operational settings can be saved and recalled instantly. Automatic capabilities include hot spot and image centre detection. Large capacity (2 Gb) plus image sequence storage come as standard on the TP8.

### Key Features

- New-generation high-resolution IR detector -  
*45% higher performance than a 320 x 240 pixel detector*
- Capture thermal and visual images simultaneously
- Bluetooth voice recording technology
- Store up to 1000 images on the 2Gb storage card
- Real-time radiometric recording and JPEG storage - capture dynamic radiometric sequences of moving targets
- Automatic indication of hot spots and image centre temperature
- Create an inspection report in minutes with the IrAnalyser® software
  
- Automatic or manual focus (motorized)
- On board image processing
- Laser targeting pointer
- High sensitivity and measurement accuracy
- Audible and visible alarms
- Multiple measurement modes - Eight spot and area analysis, line profile, isotherm and histogram
- Automatic memory for customized setting - user defined settings recalled instantly
- Intuitive touch screen - for setup and operation
- Intelligent automatic speech recognition system - camera reacts to voice commands
- High speed data transfer via USB port



## Imaging Performance

The TP8 uses a 384 × 288 IR camera and a colour 1280 × 1024 visual camera. Operators can simply locate the scene to be inspected, snap the shutter and then have both high-resolution thermal and visual images taken and saved together in a single file with one name. The integrated laser locator also helps operators accurately associate a hot spot shown in thermal images with the real physical target.

- Display 256-level grey and colour thermal images on both the VGA LCD and in the viewfinder
- Output both thermal and visual images
- Transfer live thermal video into a PC via the USB connection

## Temperature Measurement

- Automatic calibration ensures high measurement accuracy
- Auto hotspot tracing and centre-cursor temperature measurement isolate the problem quickly
- Up to 8 spots can be analyzed simultaneously (in live, zoomed, frozen or saved format)
- Up to 8 areas can be analyzed simultaneously (in live, zoomed, frozen or saved format) with respective max., min. or average temperatures within each area.
- Line, Histogram and Isotherm analysis (in live, zoomed, frozen or saved format)

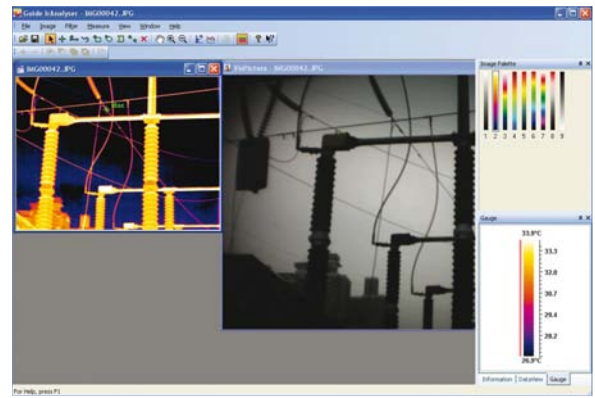
## Image Storage

The TP8 flash internal memory can store up to 450 images, the SD card a further 1000 images. The recording captures dynamic radiometric sequences of moving targets at different frame frequency. Sequences as well as still images that are stored in JPEG file format, can be played back on the camera or transferred to a PC for further analysis.

- Store the radiometric data, thermal and visual images plus voice and text annotation into memory
- Store up to a 30 second voice recording

## Image Analysis and Report Generation

IrAnalyser® image processing and report generation software is a simple to use, Windows® based system. It provides measurement analysis, image filter and correction, plus report generation capability. Thermal and visual images are displayed simultaneously to aid analysis.



### Measurement Analysis

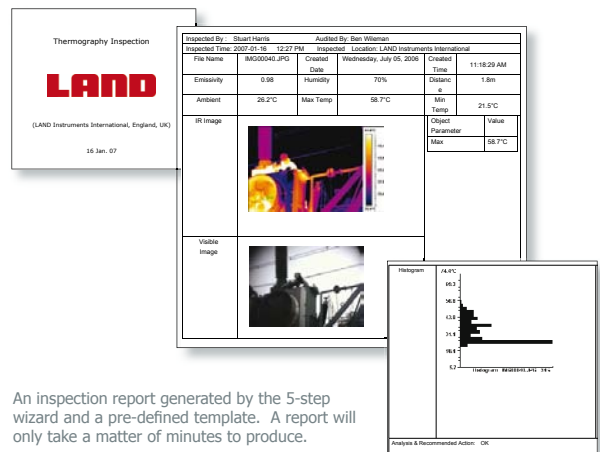
A range of measurement modes is available: Spot, Line, Circle, Polygon Line, Polygon, Rectangle, Delta two, Isotherms and Histograms

### Image Filter and Correction

A range of image post-processing tools is available to improve image clarity (where necessary) prior to measurement analysis. These include: Blur, Emboss, Gaussian, Soften, Sharpen, Edge, Median, Add Noise, Erode, Dilate, Contour and Jitter

### Creating an Inspection Report

Creating a report is a straightforward process, using a simple Microsoft® Word® interface. A report can be created using the wizard (by using a pre-defined template) or manually by the user. Report generation using the wizard involves only 5 steps and takes a matter of minutes. New templates can be easily created. A report can include the thermal and visual images, measurement details, annotated text and any other essential information.



An inspection report generated by the 5-step wizard and a pre-defined template. A report will only take a matter of minutes to produce.

## Applications for the TP8

### Power generation, transmission and distribution

Overheating of switchgear, transformers, bus-bars, overhead power lines and substations can be easily detected

### Steel and glass

Products and refractory wear can be determined in furnaces, glass tanks, ladles and torpedo cars

### Electrical and electronics

Faulty components in electronic equipment quickly identified

### Energy management and thermal surveys

Building leaks, air infiltration, missing boiler insulation, blocked pipework and steamtraps can be easily monitored

### Petrochemical and plastics

Detect tank levels, blockages, missing insulation, motors, pumps and bearings, hot spot surveillance

### Construction and civil engineering

Integrity of cladding on buildings, faulty construction methods, cold storage units and asphalt surfacing

## What is included...

ThermoPro TP8  
User Manual  
35mm IR lens  
3.5" VGA LCD screen, viewfinder & touch pen  
2 GB SD card & reader  
Bluetooth wireless headset  
Two rechargeable Li-ion batteries  
Battery Charger  
AC Adaptor & cable  
VGA cable  
USB extension cable  
RS232 communications & TV video cable  
RS232 communications protocol  
USB driver  
Guide IrAnalyser® Software  
Carry case & strap

## Options

Remote control handle  
Tele lens  
Wide angle lens  
Extended temperature range

## Imaging Performance

### Thermal

Detector type: Uncooled FPA microbolometer (384 × 288 pixels)  
Spectral Range: 8-14 μm  
Thermal Sensitivity: 0.08 °C at 30 °C (Frame averaging algorithm)  
Frame Rate: PAL 50 Hz, NTSC 60 Hz  
Standard Lens Field of View/ Focus: 22° × 16°/ 35 mm  
Optional Lenses Field of View/ Focus: 7.7° × 5.8°/ 100mm; 45.6° × 35°/ 16mm  
Focus: Automatic or Manual (motorized)  
Electronic Zoom: x1 to ×10 continuous zoom

### Visual

Built-in Digital Video: CMOS Sensor, 1280 × 1024 pixels, 215 colors

### Image Presentation

External Display: 3.5" high resolution color VGA LCD, 640 × 480 pixels  
Viewfinder: 0.6" built-in high resolution color OLED, 640 × 480 pixels  
Video Output: VGA/PAL/ NTSC switchable  
Image Display: Thermal image alone/ Visual image alone/ Picture in picture

### Measurement

Temperature Range: -20 +800 °C / -4 to 1470 °F (up to 2000 °C / 3600 °F option)  
Accuracy: ±1 °C or ±1 % of reading  
Measurement Modes: Auto hot spot & auto alarm in live/zoomed image & video; 8 moveable spots, 8 moveable & changeable areas displaying either max., min., or average, vertical & horizontal line profile, histogram & isotherm in live/zoomed/frozen/ saved image & video  
Emissivity Correction: Variable from 0.01 to 1.00 (in 0.01 increment)  
Measurement Features: Automatic correction based on distance, relative humidity, atmospheric transmission and external optics  
Optics Transmission Correction: Automatic based on signals from sensors

### Image Storage

Type: Removable 2GB SD card or built-in flash memory  
File Format: JPEG (an individual file consists of infrared image, visual image, voice annotation and text annotation if any)  
Voice Annotation: Up to 30 seconds per file (more than 30 seconds optional)  
Bluetooth wireless headset  
Text Annotation: Selected from preset texts

### Live Video Recording, Measurement and Storage

Recording/Measurement: Thermal video recording to PC via USB 2.0  
Storage: In PC, capacity dependent on PC hard disk capacity

### Laser Locator

Classification Type: Class 2 semiconductor laser

### Power Source

Battery Type: Rechargeable Li-ion Camcorder battery, field-replaceable  
Charging System: In camera or in battery charger  
Battery Operating Time: Over 2.5 hours continuous operation  
External Power Operation: AC adapter 110 / 220 VAC, 50/ 60 Hz

### Environmental Specification

Operating Temperature: -20 to +60 °C / -4 to 140 °F  
Storage Temperature: -20 to +60 °C / -4 to 140 °F  
Humidity: Operating and storing 10% to 95%, non-condensing  
Enclosure: IP54 IEC 529 housing  
Shock: Operational: 30G, IEC 68-2-29  
Vibration: Operational: 3G, IEC 68-2-6

### Interfaces

USB 2.0: Real-time data transfer and control via PC  
RS232 communication: Control of camera on PC

### Operator Communications

Touch Screen: Camera can be setup and operated via the touch screen  
Auto Speech Recognition: Automatically recognize and react to operator's voice commands

### Physical Characteristics

Housing: Magnalium  
Weight: 0.85 kg / 1.8 lb (excluding battery & LCD);  
1.1 kg / 2.4 lb (including battery & LCD)  
Size: 186 × 106 × 83 mm / 7.3 × 4.2 × 3.3 in (standard model)  
Tripod Mounting: 1/4" - 20

# LAND

Infrared Temperature Measurement

An **AMETEK**® Company

Land Instruments International Ltd • Dronfield S18 1DJ • England • Tel: +44 (0) 1246 417691

Email: [infrared.sales@landinst.com](mailto:infrared.sales@landinst.com) • [www.landinst.com](http://www.landinst.com)

AMETEK Land, Inc. • 150 Freepoint Rd. • Pittsburgh, PA 15238 • U.S.A. • Tel: +1 (412) 826 4444

Email: [irsales@ametek.com](mailto:irsales@ametek.com) • [www.landinstruments.net](http://www.landinstruments.net)

#### France

Land Instruments Sarl  
Tel: (1) 34 62 05 45 • Fax: (1) 30 56 51 12  
Email: [commercial@landinst.fr](mailto:commercial@landinst.fr)

#### Japan

Land Instruments Ltd  
Tel: 06 6330 5153 • Fax: 06 6330 5338  
Email: [info@landinst.jp](mailto:info@landinst.jp)

#### Germany

Land Instruments GmbH  
Tel: 02171/7673-0 • Fax: 02171/7673-9  
Email: [infrarot@landinst.de](mailto:infrarot@landinst.de)

#### Spain

Land Instruments International  
Tel: 91 630 0791 • Fax: 91 630 2918  
Email: [land-infrared@landinst.es](mailto:land-infrared@landinst.es)

#### Italy

Land Instruments Srl  
Tel: 02/99040423 • Fax: 02/99040418  
Email: [info@landinst.it](mailto:info@landinst.it)

#### Mexico

Land Instruments International  
Tel: 52 55 5281 1165 • Fax: 52 55 5281 5364  
Email: [ventas@landinstruments.net](mailto:ventas@landinstruments.net)