

Thermal imaging

Thermal imaging works based on the fact that all objects emit infrared radiation based on their temperature. Heat consists of long wavelength infrared radiation, which cannot be seen with the human eye. Thermal imaging converts this invisible radiation into a visible picture by using sensors to convert the electronic signals in to an easy to view picture.

Application

Thermography is recognised as a valuable tool for predictive maintenance. The main applications for which the TMTI 2DT can be used for include;

Electrical

- Detect and troubleshoot electrical defects
- Check electrical panels for hot spots
- Detect defective transformers and detect loose electrical connections

Industrial

- Measure bearing temperature
- Measure coupling temperatures as an indicator of misalignment
- Check efficiency of heat exchanges
- Monitor process machinery
- Monitor industrial ovens for seal leaks and damaged insulation

Automotive

- Check engines, ignition system and fuel/air adjustments
- Check cooling systems, thermostats, radiators, catalytic converters, brakes and tyres
- Check climate control

HVAC

- Balance room temperatures
- Test ductwork
- Check efficiency of heat exchanges
- Examine stream traps
- Check furnace performance
- Perform energy audits

Research and development

- Monitoring temperatures over a time period for tracking and recording a process

Food Industry

- Ensure safe and uniform storage and transportation temperatures
- Check freezers, cold rooms and ovens

Description

The TMTI 2DT is an uncooled microbolometer-based thermal imager. The thermal images are displayed on a large 3.1/2" colour screen with a LED backlight. In total 19200 pixels can be displayed, giving a clear high-resolution image. Images can be viewed using one of four user selectable colour palettes. The centre pixel on the screen can be indicated on the application by means of a laser pointer.

Temperatures between -10°C and 500 °C (14 °F and 932 °F) can be displayed, and a user selectable hot and cold spot finder helps to pin point the hottest and coldest spots in the imager view. This is useful in establishing boundary conditions in a scene.

The fully radiometric images can be captured on a SD card (supplied) for recall and further analysis. Images can also be downloaded to a PC from the memory card for analysis, report generation and printing.

A comprehensive thermal imaging processing software is included for ease of data analysis. Many options are available including; different colour palettes, spot temperatures, hot and cold spots, temperature profiles, temperature distribution, isotherms, temperature differential, emissivity setting, reflected temperature setting and image zoom. Changes to an image can be saved direct to the PC.

The TMTI 2DT is supplied with powerful report writing software, for unlimited use by every member of the maintenance team (no additional software license fees). This software enables professional looking reports to be made in a quick and easy manner.

The imager, PC and report writing software is supplied in English, French, German, Spanish, Portuguese and Italian allowing the imager to be used in many markets.



The TMTI 2DT is supplied in a heavy-duty carrying case and includes the thermal Imager, rechargeable Li-ion battery, AC adaptor with regional adapters, rubber protection sleeve, high temperature range filter, USB Cable, CD with user manual, PC software and report writing software, wrist strap, SD card and SD card reader.

The TMTI 2DT has a 7,5 Hz refresh rate and is classified under customs tariff 9027.50.00. This means that generally the TMTI 2DT can be exported without restriction.



Technical data

Designation

Description

TMTI 2DT

Advanced thermal imager TMTI 2DT

Performance

Field of view (FOV):	20° x 15°
Focus:	Manual
Minimum focus:	50 cm (19,6 in)
Spectral response:	8 µm to 14 µm
Thermal sensitivity:	150 mK (0,15 °C) @ 25 °C scene
Temperature detector:	160 x 120 pixels un-cooled microbolometer
Measurement	
Temperature range:	-10 °C to + 500 °C (14 °F to 932 °F)
Radiometry:	Two movable temperature measurement cursors
Temperature difference measurement	
Emissivity correction:	User selectable 0,2 to 1,0 in steps of 0,01 with reflected ambient temperature compensation
Accuracy:	-10/250°C: The greater of ± 2 °C (± 3,6 °F) or 2 % 250/500°C: With filter attached. The greater of ± 15°C or 5% of reading in °C
Display	
	3½" colour LCD with LED backlight 4 colour palettes: Ironbow, Rainbow, HC (high contrast) Rainbow and Greyscale.
	Up to 10 live images per minute displayable on PC screen using sequence control
Image storage	
Number:	Up to 1000 images on SD card supplied
Medium:	SD card (1 GB maximum)
Laser pointer	
	A built in Class 2 laser is supplied to highlight the central measurement area
Imager power supply	
Battery	Lithium-ion field rechargeable, replaceable batteries
Operation time	4 hours continuous operation
AC operation	AC adaptor supplied
Mechanical	
Housing	Impact resistant plastic
Dimensions	230 mm x 120 mm x 110 mm (9 x 4,7 x 4,3 in)
Weight	0,75 kg including battery (1,6 lbs)
Mounting	Handheld & tripod mounting
Interfaces	
	USB type B
Environment	
Temp. operating range	-15 °C to + 45 °C (5 °F to 113 °F)
Humidity	10% to 90% non condensing
Temp. storage range	-20 to 70 °C (-4 to 158 °F)
Kit contents	
	TMTI 2DT advanced thermal imager
	Rechargeable battery,
	12V power supply
	Rubber protection sleeve
	High temperature range filter
	128 MB SD Card and case
	USB Card reader and cable
	Lens cap
	Regional plug adapters
	CD ROM (instructions for use, PC software and report writer using MS Windows 2000, XP or Vista)
	USB cable to connect to PC
	Wrist strap
	Carrying case

Accessories and spare parts

Designation	Description
TMTI 2-DESK	Desktop charger
TMTI 2-CAR	12V car charger
TMTI 2-BAT	Battery pack
TMTI 2-SHADE	Light shade

Software updates

Software updates for PC software and report writer available by [clicking here](#) (internet connection required)



TMTI 2



TMTI 2DT
Addendum



Report writing
software