Thermal imager TMTI 300

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 300 is fit for purpose 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

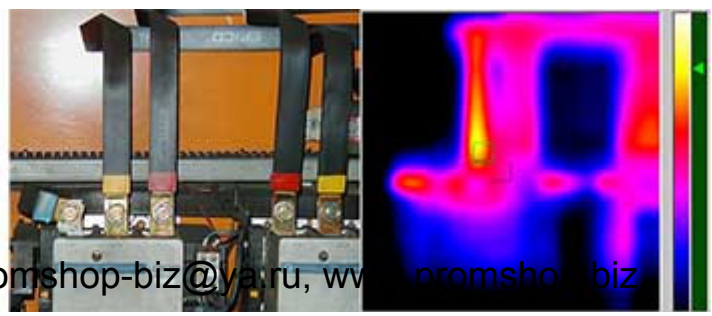
Description
The TMTI 300 uses a bank of 16x16 array based detectors and interpolating techniques to produce an image of 96x96 pixels on a Pocket PC (128x128 pixels on a PC). The image is displayed on a pocket PC device running Windows® CE, and can be saved. Using the software included, the images can be downloaded to a PC for further analysis.

After connecting the TMTI 300 to a Pocket PC, simply switch the thermal imager and the pocket PC on. Open the software on the Pocket PC, and a thermal image is displayed on the screen. Temperatures between -10°C and 300°C can be displayed.

Features such as auto temperature ranging, different colour pallets, and selectable emissivity are all available. Two spot temperatures are displayed on the screen and these can be independently moved to select an area of interest. A power class II laser pointer is incorporated in the TMTI 300, so the operator always know what they are looking at. Required images can be easily saved to the pocket PC, and these can be transferred to a PC by using MS ActiveSync® software. Images transferred to the PC can be further processed using the software provided.

The TMTI 300 operates on 4x AA batteries (or AC power supply included) and is supplied in a sturdy "ready use" carrying case. The TMTI 300 is supplied with software, pistol grip handle (to mount TMTI 300 and Pocket PC together), and a cable to suit most iPaq's®.

The Pocket PC must be purchased separately, and is not available from SKF MaPro.



The TMTI 300 is used to show a difference in temperature between two running bearings. This temperature difference could indicate a potential bearing problem that could lead to a failure and downtime

The TMTI 300 is used to inspect cable connections. The temperature of one of the cable connections is significantly higher than the others. This could indicate potential problems and should be further investigated

Technical data	
Designation	**TMTI 300**
Performance	
Temperature measurement	Range -10 to 300 °C (14 to 572 °F)
Field of view (FOV)	20° x 20°
Spectral response	8 to 14 µm
Sensitivity	~0.3 K @ 30 °C (@ 102.2 °F)
Displayed image	96 x 96 pixels on Pocket PC. 128 x 128 pixels on PC
Detector	16 x 16 pixel array
Frame rate:	8 Hz
Range	0.7m - infinity (2.29 ft - infinity)
Image storage	Up to 1000 images per Mb of Memory
Laser Pointer	Class II laser
Imager power supply	
Battery	4 x AA (LR6) alkaline batteries
Operation time	Up to 8 hours
AC operation	AC adaptor (supplied)
Mechanical	
Housing	Impact resistant plastic
Dimensions	120 x 125 x 80 mm (3.72x4.92x3.1 in)
Weight	<600g (21.16 oz) not including 'Pocket PC' and handle
Mounting	Handheld & tripod mounting
Environment	
Temp. operating range	-5 to 50 °C (23 to 122 °F)
Humidity	10% to 90% non condensing
Temp. storage range	-20 to 80 °C (-4 to 176 °F)
CE mark (Europe)	EMC DIRECTIVE 89/336/EEC as outlined in harmonized norm for Emission EN 50081-1, EN 55011 (B) Immunity EN 50082-2, EN 61000-4-2, -3, level 3.
IP	40
Laser conformance	USA 21, CFR 1040.10
Included accessories	
	Imager & handle Software for 'Pocket PC' & PC iPaq type synchronization cable 2m RS232 connection cable - imager to PC User manual AC power supply Tool case
Computer requirements	
Pocket PC	Compatible with most 'Pocket PC' devices running Microsoft 'Pocket PC' 2000, 2002 and 2003 RS 232 to 'Pocket PC' communication cable or CompactFlash RS 232 adaptor where applicable.
PC	IBM compatible PC with a minimum of: 32Mb RAM, 300MHz processor, MS Windows (2000 and XP), RS 232 serial port (115k Baud), 16 bit colour graphics capability

Requirements for Pocket PC's

A Pocket PC is required in order to view images. This must be obtained separately.

In general all "Pocket PCs" running Pocket PC 2000, 2002 or 2003 with a serial RS232 connector should work with the SKF Thermal imager, TMTI 300. It may be possible to use a CompactFlash RS232 adaptor on those Pocket PCs that do not have an RS232 connector.

The following Pocket PC's types have been tested and give good performance with the TMTI 300:
HP RZ1710
HP iPAQ hx2000 series
HP iPAQ H5100 & H5500 series
HP iPAQ H4150 series
HP iPAQ rx3700 series
HP iPAQ hx 4700 series
HP H2210

NB:
The TMTI is classified under commodity code 9027.50.00.
This means that the TMTI 300 can normally be exported to all countries without restriction.

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