

Thermal cameras



Detect **hot spots** before they cause you trouble



Thermal imaging

Detect hot spots before they cause you trouble

Using an SKF Thermal camera is a proactive way to help you detect problems before they occur, increasing uptime and improving safety. They allow you to be able to visualise potential problems, invisible to the naked eye, by presenting a picture of the heat distribution of an asset. The thermal image, presented on a large LCD screen, shows you where the temperature is either too hot or too cold allowing you to pinpoint potential problems fast.



SKF Thermal Cameras allow you to:

- Detect problems before they occur.
- Inspect your running equipment under full load, minimising production interference.
- Safely inspect difficult to access live electrical equipment.
- Inspect your plant under varying running conditions, allowing you to determine the potential causes of intermittent faults.
- Reduce production losses due to unplanned downtime.
- Reduce the time necessary for planned shutdowns.
- Reduce your maintenance and repair costs.
- Increase your equipment's lifetime and mean time between failures (MTBF).
- Increase your plant availability and reliability.
- Realise a high return on your investment when used as a part of a well-run proactive maintenance programme.

TKTI 21



- Easy hotspot detection and pinpointing at moderate distances.
- Alarm function alerts you to troublesome hot spots.
- Advanced display options available for experienced thermographers.

TKTI 31



- High resolution thermal imaging capability (40% more pixels than a 320x240 thermal camera).
- Wide temperature range from -20 to $+600$ °C.
- Suitable for many thermal imaging applications at far distances.

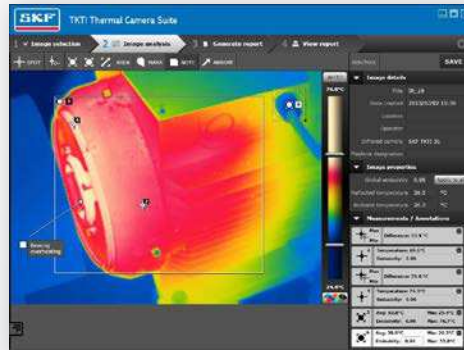
Analysis and reporting software suite

- Unique SKF software designed by and for real users.
- Comprehensive analysis and reporting options are simple to use.
- Easily produce professional results.

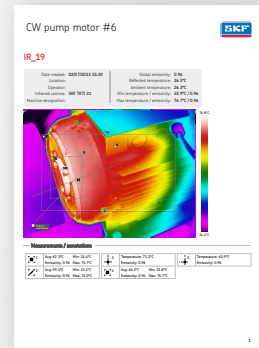
Image



Analysis



Report



Rugged and ready

- Designed for use in tough work environments.
- Wide operating temperature from -15 to $+50$ °C (5 to 122 °F).
- Supplied with two user rechargeable batteries which allow for almost constant use.

Water splash

IP54

Dust protected



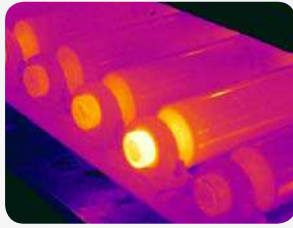
Easy to use

- Tactile button feedback allows use with gloves.
- Simple, but comprehensive, menu structure.
- Camera, with good weight balance, reduces user fatigue.
- Live thermal pictures can be displayed on standard TV monitor (PAL/NTSC).

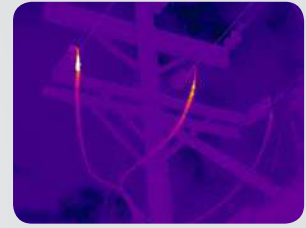
Visual and thermal



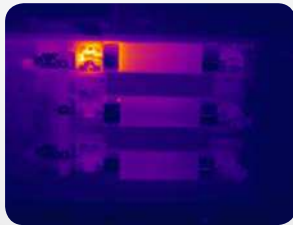
Overheating conveyor bearing



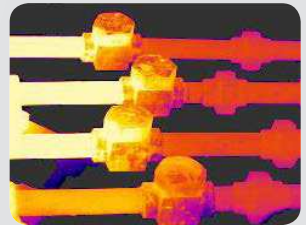
Distribution line faults



Fused disconnect



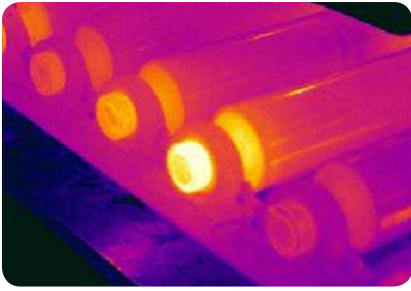
Steam traps



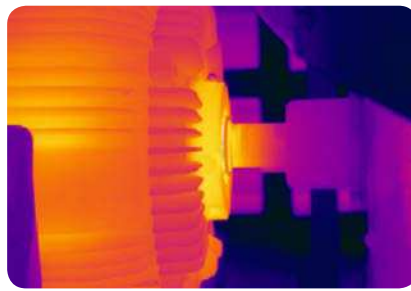
	TKTI 21	TKTI 31
Mechanical		
Bearings and housings	✓	✓
Belt and chain drives	✓	✓
Conveyor belt bearings	✓	✓
Coupling alignment	✓	✓
Heat exchangers	✓	✓
HVAC	✓	✓
Loose bolts		✓
Pipe insulation	✓	✓
Pumps	✓	✓
Refractory insulation		✓
Steam traps	✓	✓
Tank levels		✓
Valves	✓	✓
Electrical		
Electric motors, inc junction boxes	✓	✓
Electrical cabinet inspections	✓	✓
Electrical connection problems, incl. unbalanced loads, fuses and overloads	✓	✓
Power line connections		✓
Power lines		✓
Powerline capacitors		✓
Transformer bushings		✓
Transformer cooling and electrical	✓	✓
Buildings		
Buildings - indoors - insulation, moisture	✓	✓
Buildings - outdoors - moisture, heat, insulation, energy audits, roofs	✓	✓

Technical data

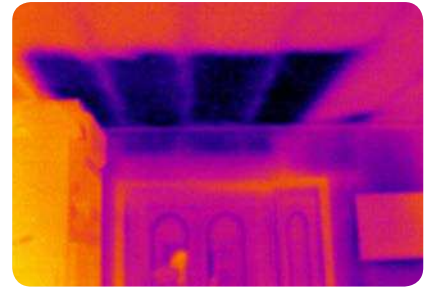
Designation	TKTI 21	TKTI 31
Performance		
Thermal detector (FPA)	160 × 120 uncooled FPA microbolometer	380 × 280 uncooled FPA microbolometer
Display	3.5 in. colour LCD with LED backlight, 11 colour palettes, thermal or visual Image	3.5 in. colour LCD with LED backlight, 11 colour palettes, thermal or visual Image
Thermal sensitivity	NETD ≤100 mK (0.10 °C) at 23 °C (73 °F) ambient and 30 °C (86 °F) scene temperature	NETD ≤60 mK (0.06 °C) at 23 °C (73 °F) ambient and 30 °C (86 °F) scene temperature
Field of view (FOV)	25 × 19°	25 × 19°
Spectral range	8–14 microns	8–14 microns
Theoretical spatial resolution IFOV	2.77 mrad	1.15 mrad
Measureable spatial resolution IFOV	8.31 mrad	3.46 mrad
Accuracy	The greater of ±2 °C or ±2% of reading in °C	The greater of ±2 °C or ±2% of reading in °C
Focus	Manual, easy turn ring, minimum distance 10 cm (3.9 in.)	Manual, easy turn ring, minimum distance 10 cm (3.9 in.)
Visual camera	1.3 Megapixel digital camera	1.3 Megapixel digital camera
Laser pointer	Built-in class 2 laser	Built-in class 2 laser
Frame rate and image frequency	9 Hz	9 Hz
Measurement		
Standard mode	–20 to +350 °C (–4 to +662 °F)	–20 to +180 °C (–4 to +356 °F)
High temperature mode	N/A	100 to 600 °C (212 to 1 112 °F)
Measurement modes	Up to 4 movable spots. Up to 3 movable areas and 2 movable lines (maximum, minimum and average temperatures). Automatic temperature difference. Hot and cold spots. Visual and audible alarms. Isotherms.	
Emissivity correction	User selectable 0.1 to 1.0 in steps of 0.01 with reflected and ambient temperature compensation. Emissivity can be individually adjusted on each cursor. Emissivity table of common surfaces built-in.	
Image Storage		
Medium	2 GB Micro SD card	2 GB Micro SD card
Number	Up to 10 000 images on Micro SD card supplied	Up to 10 000 images on Micro SD card supplied
Voice annotation	Input via built-in microphone for up to 60 seconds clip per image	Input via built-in microphone for up to 60 seconds clip per image
Software	Included SKF TKTI Thermal Camera suite. Comprehensive image analysis and report generation software compatible with TKTI 21 and TKTI 31, Free updates available on SKF.com	
Computer requirements	PC with Windows XP, Vista, Windows 7 or above	PC with Windows XP, Vista, Windows 7 or above
Connections		
PC connection	Mini USB connector for image export to PC software (Cable provided)	Mini USB connector for image export to PC software (Cable provided)
External DC input	12 V DC Input connector (DC Charger not provided)	12 V DC Input connector (DC Charger not provided)
Video output	1 × Mini-jack output for live image viewing (mini-jack to video cable provided)	1 × Mini-jack output for live image viewing (mini-jack to video cable provided)
Mounting	Handheld and tripod mounting 0.25 in. BSW.	Handheld and tripod mounting 0.25 in. BSW.
Battery and Power		
Battery	2 × 14.8 W, 7.4 V standard camcorder Li-ion batteries. Rechargeable and field replaceable	2 × 14.8 W, 7.4 V standard camcorder Li-ion batteries. Rechargeable and field replaceable
Operation time	Up to 4 hours continuous operation with 80% brightness	Up to 4 hours continuous operation with 80% brightness
Power adapter	External 100–240 V, 50–60 Hz AC battery compact charger with Europe cable, USA, UK and Australian plugs	External 100–240 V, 50–60 Hz AC battery compact charger with Europe cable, USA, UK and Australian plugs
Charging time	2 hours and 45 minutes	2 hours and 45 minutes
Complete system		
Contents	Thermal camera TKTI 21 with 2 × batteries; AC Battery Charger; Micro SD card (2GB); Mini USB to USB connection cable; Mini-jack to video connection cable; Micro SD card to USB adapter; CD containing instructions for use and PC software; Certificate of calibration and conformance; Quick start guide (English); Carrying case.	Thermal camera TKTI 31 with 2 × batteries; AC Battery Charger; Micro SD card (2GB); Mini USB to USB connection cable; Mini-jack to video connection cable; Micro SD card to USB adapter; CD containing instructions for use and PC software; Certificate of calibration and conformance; Quick start guide (English); Carrying case.
Carrying case dimensions (w × d × h)	105 × 230 × 345 mm (4.13 × 9.06 × 9.65 in.)	105 × 230 × 345 mm (4.13 × 9.06 × 9.65 in.)
Weight (incl. battery)	1.1 kg (2.42 lb)	1.1 kg (2.42 lb)



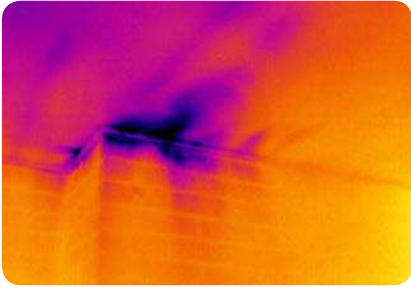
Overheating conveyor bearing



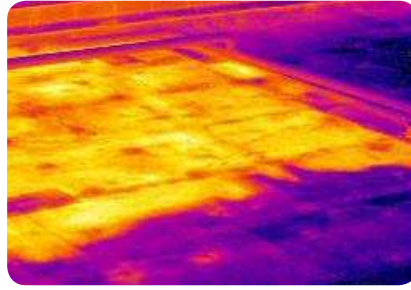
Motor bearing



Missing insulation



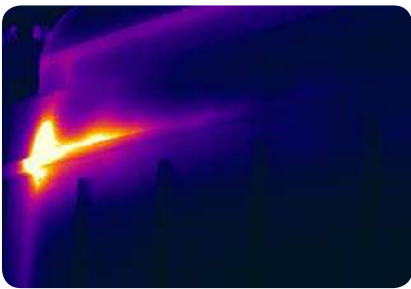
Air infiltration



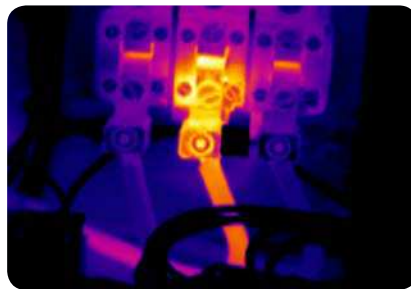
Roof



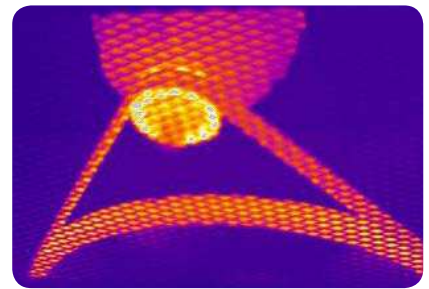
Transformer



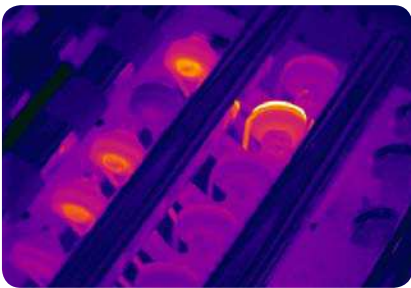
Boiler



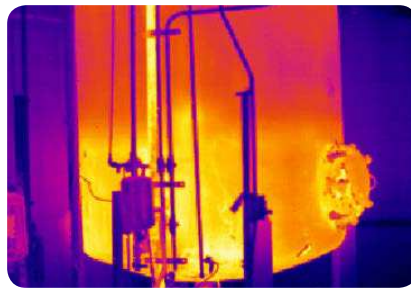
Loose cable connection



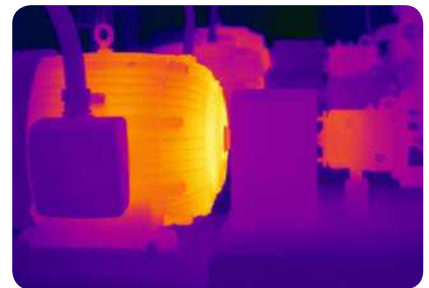
Belt drive



Belt conveyer



Tank



Motor and pump

Note: pictures are for illustration purposes only

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