

WAHL HEAT SPY® IMAGERS



NEW!
**Hand Held
Thermal Imaging
Cameras**

2

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PALMER Wahl
INSTRUMENTATION GROUP

NEW! Wahl Heat Spy® Imager HSI3000

High Performance Portable Thermal Imaging Camera



***The Lowest Cost,
High Performance,
Thermal Imaging
Camera on the Market!***

- Affordable Easy-to-Use Diagnostic Tool
- Precisely identifies Problem Hot Spots
- Ergonomically Designed, and Compact
- 160 x 120 Detector Array
- Two measurement cursors, movable anywhere in the image
- Temperature and Differential Temperature Measurement
- Download images to PC with the supplied SD Card Reader for Post Analysis
- Images may be captured directly to a PC using the USB interface
- Includes *Wahl Easy Report*¹ and Operating Software

Now with Money Back Guarantee* and a Free Heat Spy® Infrared Thermometer included with purchase! Call for details.

ELECTRICAL

Most electrical problems exhibit a gradual rise in temperature prior to their failure. These problems can relate to problems such as:

- Loose or over tight connections
- Shorted or overloaded circuits
- Load imbalances
- Components which have failed or are fatigued such as fuses, circuit breakers, transformers, etc.

OTHER USES

- Refractory Condition Monitoring
- Process Monitoring
- Quality Control
- Product Development & Testing
- And many more

Wahl's low cost Thermal Imaging Camera helps you find problems, before it's too late...

BUILDING INSPECTION

Help reduce heating and cooling energy costs. Find areas of moisture intrusion in roof and walls. Identify conditions conducive to mold or pest problems.

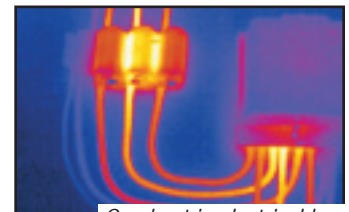
- Detect improper or missing insulation
- Detect energy losses due to air leakage or conductive losses through walls
- Check central heating/cooling and under-floor heating systems

MECHANICAL

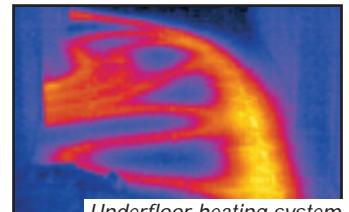
Excessive heating of mechanical devices can signify problems such as:

- Improper lubrication of bearings and motors
- Misalignments in rotating equipment
- Improper tension in drive belts and pulleys

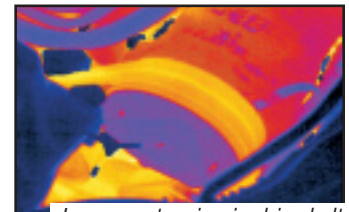
* USA Customers only
¹ Requires Microsoft Outlook



Overheat in electrical box



Underfloor heating system



Improper tension in drive belt



Overheat in process monitoring



Calibration Services Available

PALMER Wahl
INSTRUMENTATION GROUP

172 Years of Continued Innovation

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PW1275
03/08

NEW! Wahl Heat Spy® Imager HSI3000

High Performance Portable Thermal Imaging Camera



FEATURES

- Real Time Image and Temperature Measurement display
- Crisp High Resolution Images
- Large 3-1/2" LCD Display with LED backlight
- Fully Radiometric - Measures the Temperature of every Pixel
- Multiple Temperature Measurements
- Stores up to 1000 Images with supplied SD Card
- Image Browser with full image adjustment
- Includes Operating Software, Wahl Easy Report¹ Software, SD Card & Card Reader
- Lightweight • Simple Operation

SETTING & CONTROLS

- On/Off Soft Power Control
- User Selectable Span Control
- User Selectable Level Control
- Auto Adjust Span and Level
- Trigger activated Class II Laser
- Image Capture, Time and Date
- Display palettes: Rainbow, Ironbow, and Grayscale
- Readout in °C or °F • 2x Digital Zoom



Calibration Services Available

Specifications	
Model Number	HSI3000
Temperature Range	14° to 482°F (-10° to 250°C)
Field of View	20° x 15°
Focus	Manual
Minimum Focus	Approx. 11.8 inches (30 cm)
Spectral Response	8 to 14 microns
Thermal Sensitivity	150 mK @ 25°C Scene Temperature
Detector	160 x 120 pixels uncooled microbolometer
Image Storage	Up to 1000 images on supplied SD Card
Accuracy	The greater of ±2% of reading or ±2°C
Display	3-1/2" Color LCD with LED Backlight and 4 Color Palettes
Laser Pointer	Built in Class II Laser highlights the central measurement area
Radiometry	Two moveable cursors, delta temperature measurement
Emissivity Correction	User selectable 0.2 to 1.0 in steps of 0.01 with reflected ambient temperature compensation
Operating Range	5° to 113°F (-15° to 45°C)
Storage Range	-4° to 150°F (-20° to 70°C)
Humidity	10% to 90% Non-Condensing
Power	Lithium-ion field rechargeable, replaceable batteries
AC Operation	AC Adapter included
Interfaces	USB type B
Housing	Impact Resistant Plastic
Dimensions	9.05 x 4.72 x 4.33 inches (230 x 120 x 110 mm)
Weight	1.65 lbs (0.75 kg) including Battery
Mounting	Handheld and Tripod Mounting
Included Accessories	Rugged Waterproof Carrying Case, Wrist Strap, Battery, AC Adapter, User Manual, Wahl Easy Report ¹ Software, Operating Software CD, USB Cable, SD Card and SD Card Reader Plus! Free Wahl Heat Spy® Infrared Thermometer and Money Back Guarantee*
Optional Accessories	Replacement Battery Part Number #12437-01



HSI3000 is shipped complete with: Rugged, Waterproof, Carrying Case, Wrist Strap, Battery, AC Adapter, User Manual, Software CD, USB Cable, SD Card and SD Card Reader.

Plus - Free Wahl Heat Spy® Infrared Thermometer and Money Back Guarantee* included with purchase!

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¹ Requires Microsoft Outlook

NEW! Wahl Heat Spy® Imager HSI3000 Image Processing Software

• Manipulate, Analyze, and Store Thermal Images

When you purchase a Wahl Heat Spy® HSI3000 Thermal Imager it includes easy to use, Heat Spy® image processing software which allows the user to manipulate, analyze and store thermal images obtained with the HSI3000 thermal imaging camera.

Thermal images taken in the field and stored on the HSI3000 camera's removable SD memory card can be transferred to a PC by means of the SD card reader included in package. Live thermal images can also be downloaded from the HSI3000 via the supplied USB cable.



POWERFUL FEATURES OF THE WAHL HEAT SPY® HSI3000 IMAGE PROCESSING SOFTWARE

Download and View previously stored thermal images in any of five Window Explorer views: thumbnail, tile, icon, list or details. Images are date and time stamped, contains imager settings and the temperature of each individual pixel (160 x 120) composing the thermal scene, which can be viewed by moving your mouse anywhere in the scene.

Enhance Image Details by manually or automatically adjusting temperature level and span, and change emissivity and reflected temperature settings if necessary. Select from four-color palettes and a zoom capability up to 4X. Select to interpolate the image to 320 x 240 or 640 x 480.

Perform Accurate Detailed Temperature Measurement Analysis with histograms, 2D profiles, dual isotherms and the ability

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High Performance,
Thermal Imaging
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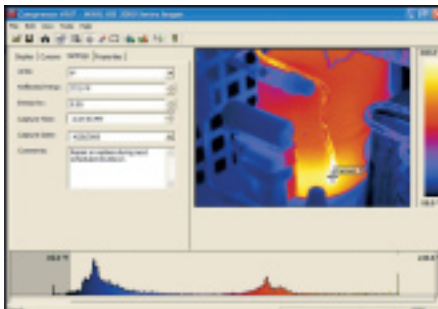
to add multiple temperature points any where in the scene. Or select the "hot and cold spot cursors" feature that directs cursors to the hottest and coldest measurements in the scene. The values of these (and the difference) are shown in a measurement cursors list. In addition, all individual pixel temperatures

in the image can also be output to a Microsoft Excel .csv file for further analysis and trending.

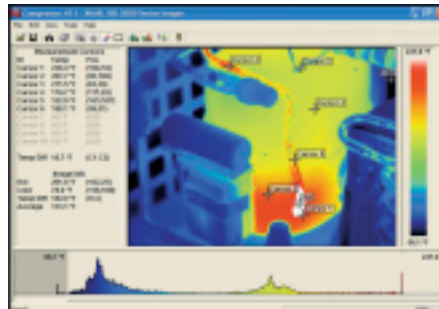
Add Comments to each image and then copy a screen capture of the application window, or copy to Bitmap (BMP) and paste into a picture editor or Microsoft Windows applications, e.g. Word, Excel etc.

System Requirements: The personal computer should be IBM compatible running MS Windows XP or 2000, with a CD drive, and a USB rev. 2.0 port or an SD card reader.

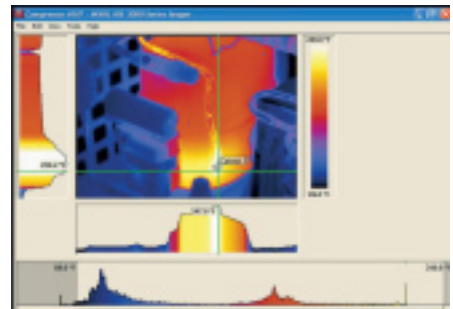
ENHANCE IMAGE DETAILS



Add comments to the image: select either °F, °C or °K: adjust the target object emissivity: adjust the reflected temperature correction: adjust capture time and date.



Placing measurement cursors anywhere in the image creates a list that includes the spot measurement, pixel position, and the difference between measurement cursors 1 and 2. Also displays the hottest and coldest measurements in the scene, their difference, and the average.



2D profile which displays a graphical representation of the temperature values along the selected vertical and horizontal lines. Also thermal intensity plots which correspond to the vertical and horizontal cross-sections through the image.

Wahl Heat Spy® Portable Thermal Imaging Cameras

Mid Temperature Range • HSI3001

High Temperature Range • HSI3002

Long Distance • HSI3003

► FIND THE RIGHT
MODEL TO FIT
YOUR NEEDS



Wahl Heat Spy®
DHS85XL

**Free Wahl Heat Spy®
Infrared Thermometer
and Money Back
Guarantee* included
with purchase!**

** USA Customers only*

APPLICATIONS

HIGH TEMPERATURE IMAGER

- PetroChemical
- Glass & Cement Industries
- Metal & Refractory Industries

LONG DISTANCE IMAGER

- R&D Testing
- Utility Market
- Law Enforcement
- Home & Building Inspection
- Electrical & Mechanical Inspection

SWITCH TEMPERATURE RANGES:

Two Models offer TWO CAMERAS IN ONE - with the removal of a lens filter, and a simple change in a menu setting, you have the ability to switch between two temperature ranges in the same camera:

Mid Temperature HSI3001 switches temperature range between 392° to 932°F (200° to 500°C) or 14° to 482°F (-10° to 250°C).

High Temperature HSI3002 switches temperature range between 392° to 1652°F (200° to 900°C) or 14° to 482°F (-10° to 250°C).

MEASURE LONG DISTANCE:

One Model enables detection and temperature measurement of small objects over long distances

Long Distance HSI3003 offers a narrow angle 9.1° x 6.8° lens, in the range of 32° to 482°F (0° to 250°C)

All 3000 Series Models:

- Price, Performance and Flexibility
- Automatically Identifies Problem Hot & Cold Spots
- Rectangular Hi/Lo feature for targeted areas
- 160 x 120 Pixel Detector Array
- Two measurement cursors, movable anywhere in the image, even after picture is taken
- Temperature & Differential Temperature Measurement
- Image Analysis can be performed on camera in the field, or after downloading images to PC
- Images may be captured directly to a PC using the USB interface
- Easy Report software for quick, one page inspection reports
- Report Writer software for multiple image inspection reports

The high-capacity, field replaceable, rechargeable Lithium battery allows up to 6 hours of continuous operation in all models. Fully radiometric; temperature measurements can be made over the entire image, and hot spots can be identified by use of a trigger activated laser pointer. High quality images can be captured and manipulated online or problems can be resolved on the spot.



*HSI3001 shown with
Protective Rubber Boot,
designed to mold itself
around the imager and
lock into the camera with
internal rubber bumps.*

**The Highest
Performance
Thermal
Imaging
Camera
in its Class!**

Calibration Services Available

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Wahl Heat Spy® Portable Thermal Imaging Cameras



Display Sun Shade for outdoor use. Standard accessory on the HSI3003, optional for the HSI3001 and HSI3002.

FEATURES

- Real Time Image and Temperature Measurement display
- Selectable Hot/Cold seeker
- Area Analysis
- Crisp High Resolution Images
- Large 3-½" LCD Display with LED backlight
- Multiple Temperature Measurements
- Multiple image storage and retrieval at full digital resolution
- Image Browser with full image adjustment
- Includes Operating Software, Easy Report & Report Writer Software, SD Card & Card Reader
- Battery Charge Indicator
- Simple Operation
- Lightweight

SETTING & CONTROLS

- On/Off Soft Power Control
- User Selectable Span Control
- User Selectable Level Control
- Auto Adjust Span and Level
- Four Display Palettes: Rainbow, Ironbow, High Contrast and Grayscale
- Image Capture, Time and Date
- Laser Trigger Switch
- Readout in °C, °F, or K
- 2x Digital Zoom

Calibration Services Available



FREE PRODUCT TRAINING AVAILABLE!
1-800-421-2853
or 828-658-3131

Specifications are subject to change without notice
 * USA Customers only

Model Number	HSI3001	HSI3002	HSI3003
	Mid Temperature	High Temperature	Long Distance
Measurement Range with Filter	392° to 932°F (200 to 500°C)	392° to 1652°F (200° to 900°C)	(no Filter)
Measurement Range without Filter	14° to 482°F (-10° to 250°C)	14° to 482°F (-10° to 250°C)	32° to 482°F (0° to 250°C)
Field of View	20° x 15°	20° x 15°	9.1° x 6.8°
Focus	Manual		
Minimum Focus	19.68" (50cm)	19.68" (50cm)	19.68" (50cm) (120cm for Radiometry)
Spectral Response	8 μm to 14 μm		
Thermal Sensitivity with Filter	0.7°C @ 23°C ambient and 50°C Scene Temperature	1°C @ 23°C ambient and 50°C Scene Temperature	(no Filter)
Thermal Sensitivity without Filter	0.15°C @ 23°C ambient and 25°C Scene Temperature	0.15°C @ 23°C ambient and 25°C Scene Temperature	0.15°C @ 23°C ambient and 25°C Scene Temperature
Detector	160 x 120 pixels uncooled microbolometer		
Image Storage	Up to 2000 images on supplied 256 MB SD Card (or MMC)		
Accuracy with Filter	The greater of ± 15°C or ± 5% of reading in °C	The greater of ± 20°C or ± 5% of reading in °C	(no Filter)
Accuracy without Filter	The greater of ± 2°C or ± 2% of reading in °C	The greater of ± 2°C or ± 2% of reading in °C	The greater of ± 2°C or ± 2% of reading in °C
Display	3-½" Color LCD with LED Backlight, 4 Color Palettes		
Laser Pointer	Built in Class II Laser highlights the central measurement area		
Radiometry	Two movable temperature measurement cursors, Delta temperature measurement		
Emissivity Correction	User selectable 0.2 to 1.0 in steps of 0.01 with reflected ambient temperature compensation.		
Ambient Operating Temperature Range	5° to 113°F (-15° to +45°C)		
Storage Temperature Range	-4° to 158°F (-20° to +70°C)		
IP Rating	IP42		
MIL SPECS	Vibration: MIL-PRF-28800F Class 2 Section 4.5.5.3.1 Shock: MIL-PRF-28800F Class 2 Section 4.5.5.4.1	N/A	
Humidity	10% to 90% non-condensing		
Power	Lithium field replaceable, rechargeable batteries with up to 6 hours continuous operation, AC Adapter included		
Interfaces	USB Type B		
Housing	Impact Resistant Plastic		
Dimensions	9.05 x 4.72 x 4.33 inches (230mm x 120mm x 110mm)	9.05 x 4.72 x 4.33 inches (230mm x 120mm x 110mm)	9.05 x 4.72 x 5.31 inches (230mm x 120mm x 135mm)
Weight (with Battery)	approx. 1.65 lbs (0.75kg)	approx. 1.65 lbs (0.75kg)	approx. 1.76 lbs (0.8kg)
Mounting	Hand Held & Tripod Mounting		
Included Accessories	Easy Report & Report Writer Software, Carrying Case, Wrist Strap, Rubber Boot, Battery, AC Adapter, User Manual and Operating Software CD, USB Cable, SD Card, SD Card Reader, and DHS85XL. HSI3003 includes Display Sun Shade.		
Optional Accessories	Desktop Charger and additional Battery. Optional Display Sun Shade for the HSI3001 and HSI3002.		
Optional Frame Rate	Optional 30Hz Frame Rate* - add "Z" to end of part number: HSI3001Z		

Wahl Heat Spy® Portable Thermal Imaging Camera Hot Spot Finder • HSI1200



HSI1200

SETTING & CONTROLS

- On/Off Soft Power Control
- User Selectable Span and Level Control
- Auto Adjust Span and Level
- Laser Trigger Switch
- Three Display palettes: Red-Blue, Green-Blue, or Grayscale
- Readout in °C, °F or K
- User Selectable Image Integration
- User Selectable Emissivity Values
- User Selectable Reflected Temperature
- Two moveable temperature measurement cursors
- Image Capture, Time, and Date

FEATURES

- Real Time Image & Temperature Measurement Display
- Multiple Temperature Measurement
- Battery Charge indicator
- Large 3-1/2" Display
- Simple Operation
- Image Browser
- Laser Pointer

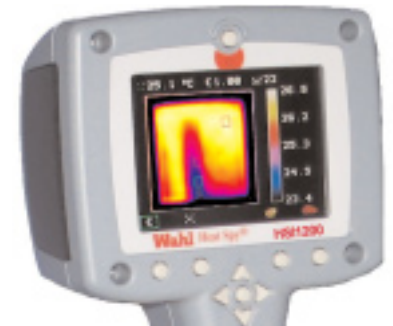


▶ EASILY LOCATES HOT SPOTS

Wahl's **NEW** Hot Spot Finder is an innovative new camera providing real-time thermal images, image storage, analysis and report writing. Images are displayed on a large 3-1/2" color LCD in one of three display palettes: Red-Blue, Green-Blue, or Grayscale. The camera offers user selectable image integration, emissivity values, reflected temperature, Fahrenheit, Celsius, or K scales, and manual or automatic setting of temperature level and span.

The HSI1200 brings the benefits of a real-time thermal image to all industrial, commercial and domestic applications. Designed for self-contained use, the camera is the ideal tool for all users wanting temperature measurement and imaging. The high-capacity lithium battery is field replaceable, rechargeable, and allows up to 6 hours of continuous operation.

- Real-Time Thermal Image Display
- Now with Storage Capabilities
- Analysis and Report Writing



- ▶ Center the Hot Spot
- ▶ Trigger the Laser
- ▶ Pinpoint the Hot Spot

Model Number	HSI1200
Temperature Range	14° to 572°F (-10° to 300°C)
Field of View	20° x 20°
Spectral Response	8 µm to 14 µm
Sensitivity	-0.3°C @ 30°C
Displayed Image	192 x 192 pixels
Detector	16 x 16 array
Image Storage	Up to 2000 images on supplied 256 MB SD Card (or MMC)
Frame Rate	8Hz
Focal Range	0.7m to infinity
Laser Pointer	Built in Class II Laser highlights the reference pixel
Emissivity	User selectable 0.2 to 1.0 in steps of 0.05 with reflected ambient temperature compensation.
Ambient Operating Temperature Range	22.9° to 122°F (-5° to +50°C)
Storage Temperature Range	-4° to 158°F (-20° to +70°C)
IP Rating	IP42
Humidity	10% to 90% non-condensing
Power	Lithium field replaceable, rechargeable batteries with up to 6 hours continuous operation, AC Adapter included
Housing	Impact Resistant Plastic
Dimensions	9.05 x 4.72 x 3.54 inches (230mm x 120mm x 90mm)
Weight (with Battery)	< 1.54 lbs (0.70kg)
Mounting	Hand Held & Tripod Mounting (1/4" BSW)
Included Accessories	Carrying Case, Rubber Boot, Battery, AC Adapter, User Manual & Operating Software CD, USB Cable, SD Card & Reader
Optional Accessories	Report Writer Software, Desktop Charger, additional Battery, and Display Sun Shade

Specifications are subject to change without notice

Calibration Services Available

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Wahl Heat Spy® Hot Spot Finder • HSI1200

APPLICATIONS

ELECTRICAL

Common faults in electrical systems are:

- Loose or corroded connections
- Over-twisted wires
- Over-heated motors
- Overloaded components
- Uneven voltage distribution
- Failed/fatigued components

With a fast start up and easy to use menu, the HSI1200 is ideally suited for quick diagnostics of electrical systems where problems need to be quickly identified and fixed.

MECHANICAL

Common problems in mechanical systems are:

- Worn/overheated bearings and drive belts
- Misaligned bearings
- Missing/damaged insulation

By using the HSI1200 for comparison thermal imaging, faulty components can be quickly and easily identified long before failure becomes an expensive issue.

HVAC

Thermal Imaging in HVAC systems can be used to identify:

- Poor circulation in radiators
- Pipe routes in underfloor heating
- Leaking pipes
- The performance of fan coil units
- Temperature distribution within the building envelope.

The HSI1200 is an invaluable tool for all HVAC engineers where an overall thermal image of critical heating, ventilation & air conditioning equipment is the preferred option to multiple single point temperature measurements.

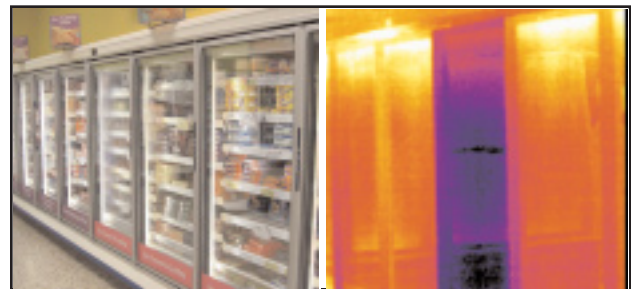
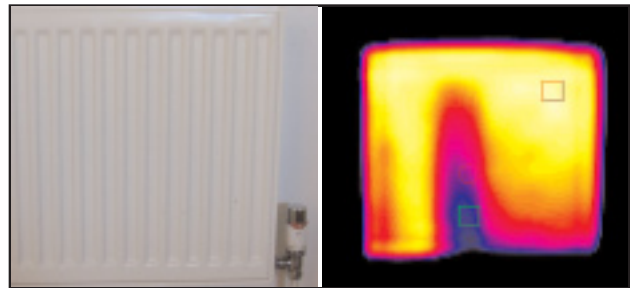
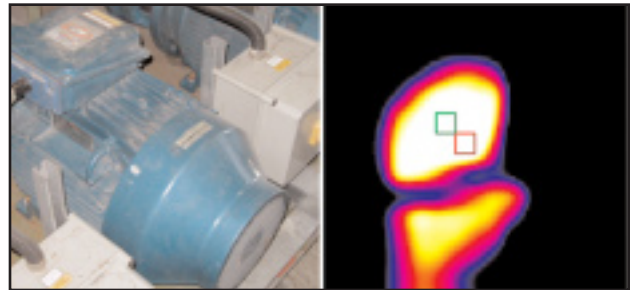
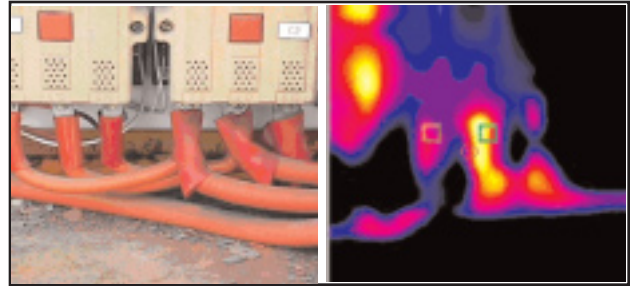
REFRIGERATION/OVENS

For engineers the ability to get a complete thermal image rather than single point temperature measurement is invaluable. Some of the benefits are:

- Temperature distribution in chilled/frozen cabinets or ovens
- Pack performance
- Check sealing performance around fridge and oven doors
- Check insulation in chilled/freezer/oven doors
- Checking for leaks in pipe work

The HSI1200 is a good addition for any engineer who can benefit from quickly identifying out of the ordinary hot and cold spots, and who needs an overall image of an area rather than a single spot temperature reading.

**FREE PRODUCT
TRAINING AVAILABLE!**
1-800-421-2853
or 828-658-3131



► **LOCATES HOT SPOTS
EASILY AND FAST!**

Light and easy to use with one hand operation, the HSI1200 is the ideal tool for many applications.

Now with image storage, analysis, and report writing!



Calibration Services Available