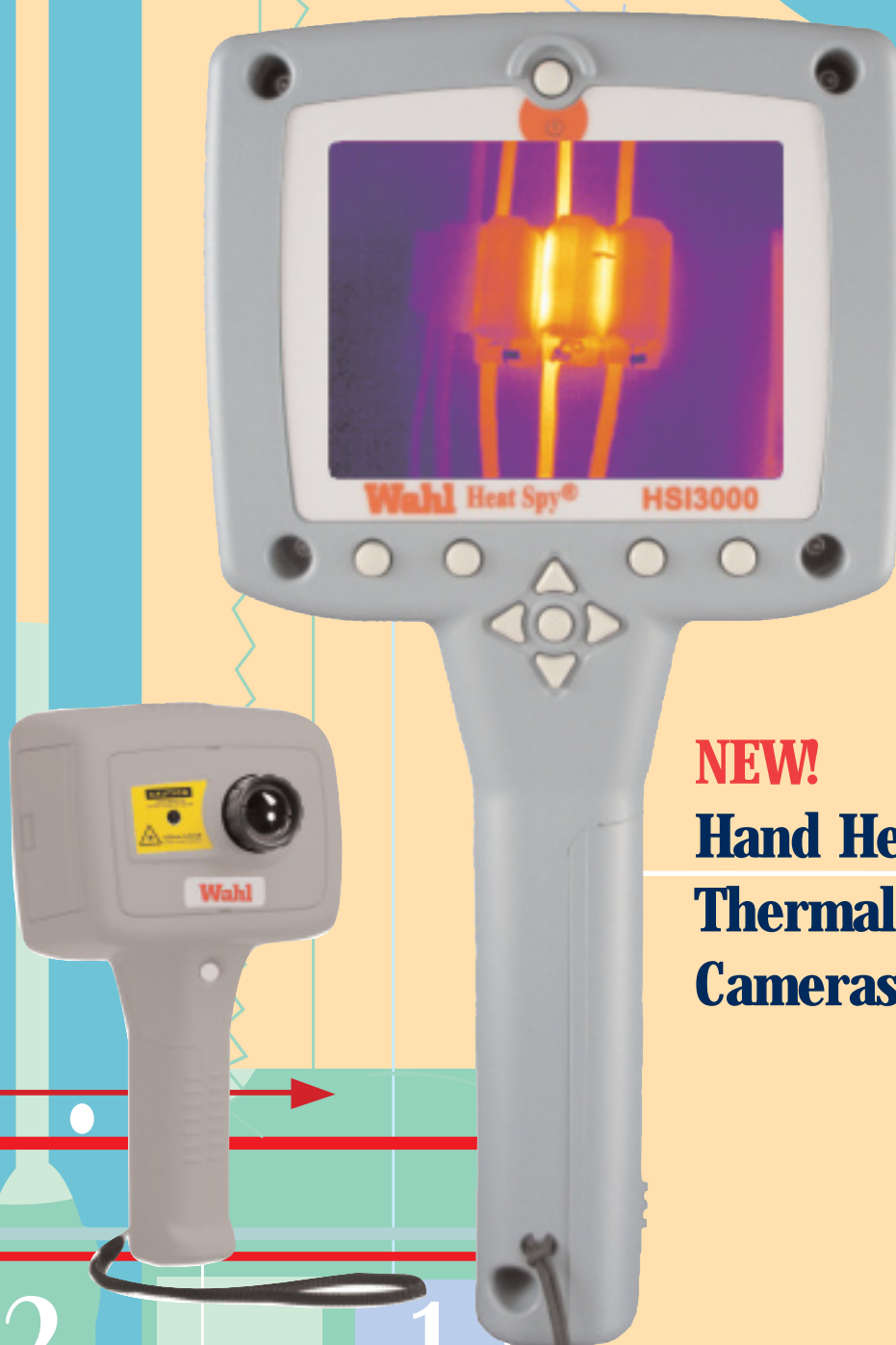


# WAHL HEAT SPY® IMAGERS



**NEW!**  
**Hand Held  
Thermal Imaging  
Cameras**

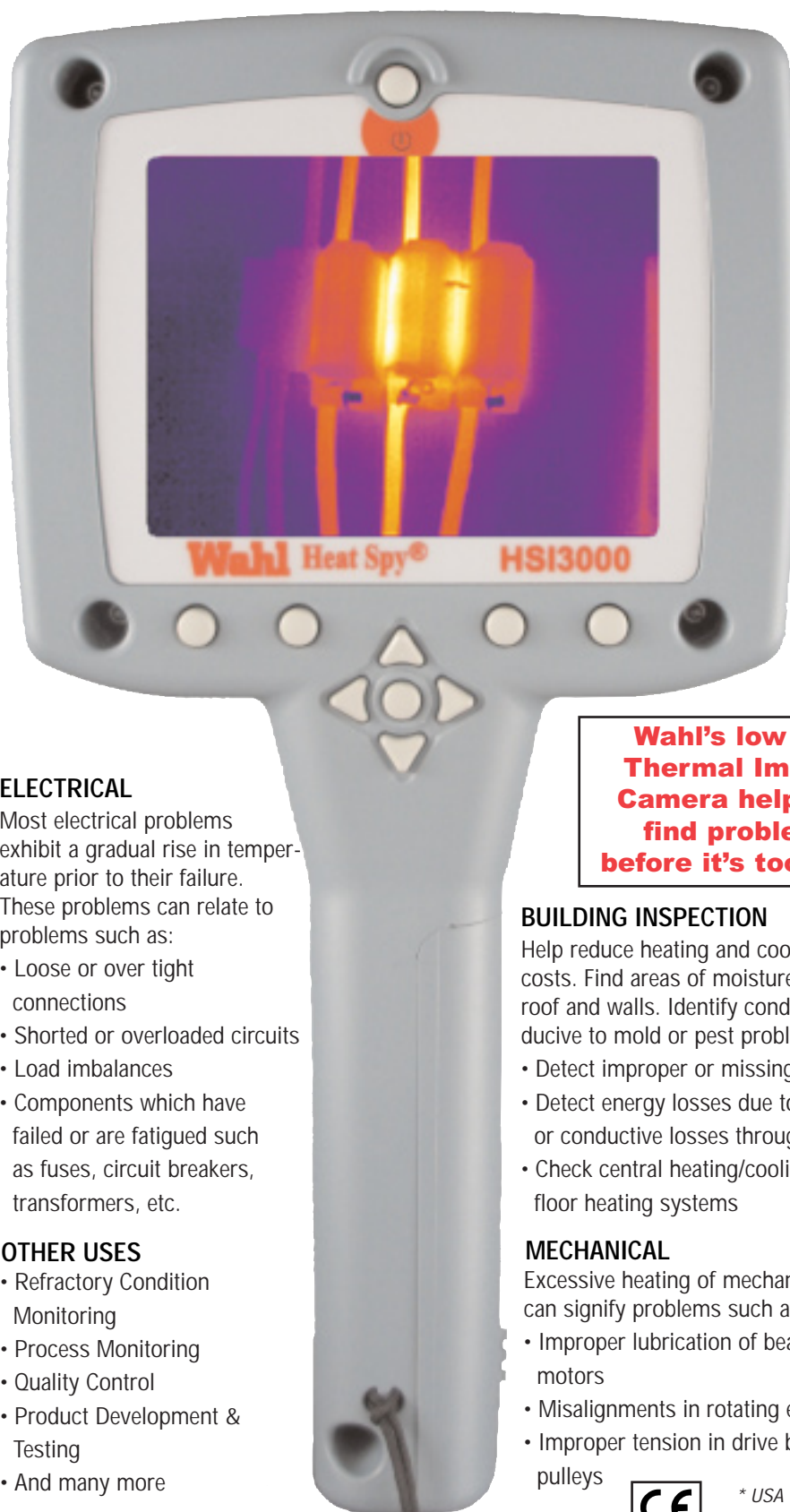
2

1

**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, moveable 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
- Software included

**Now with Money Back Guarantee\* and a Free Wahl 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

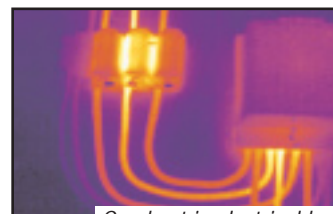
Help reduce heating and cooling energy costs. Find areas of moisture intrusion in roof and walls. Identify conditions conducive to mold or pest problems.

- 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

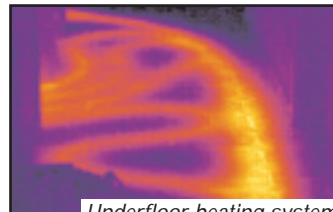
### MECHANICAL

Excessive heating of mechanical devices can signify problems such as:

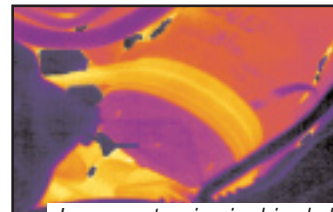
- Improper lubrication of bearings and motors
- Misalignments in rotating equipment
- Improper tension in drive belts and pulleys



*Overheat in electrical box*



*Underfloor heating system*



*Improper tension in drive belt*



*Overheat in process monitoring*



\* USA Customers only

**PALMER Wahl**  
INSTRUMENTATION GROUP

170 Years of Continued Innovation

(800) 421-2853 • FAX (828) 658-0728 • [www.palmerwahl.com](http://www.palmerwahl.com)

**Calibration Services Available**

PW1275  
12/06 Rev A

# 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 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, Software CD, USB Cable, SD Card and SD Card Reader <b>Plus! Free Wahl Heat Spy® Infrared Thermometer and Money Back Guarantee*</b>
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!**

*\* USA Customers only*

# 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

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

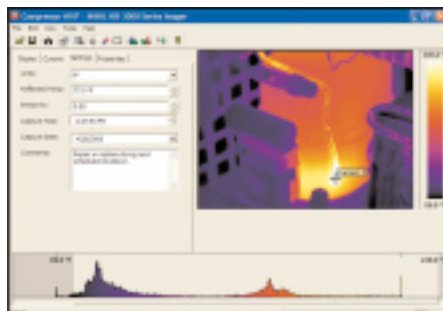
to add multiple temperature points any where in the scene. Or select the "hot and cold spot cursors" feature that directs cursors to the hottest and coldest measurements in the scene. The values of these (and the difference) are shown in a measurement cursors list. In addition, all individual pixel temperatures

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

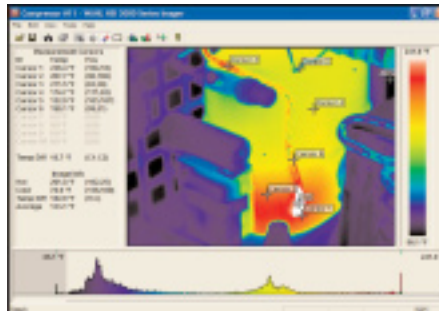
**Add Comments** to each image and then copy a screen capture of the application window, or copy to Bitmap (BMP) and paste into a picture editor or Microsoft Windows applications, e.g. Word, Excel etc.

**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.

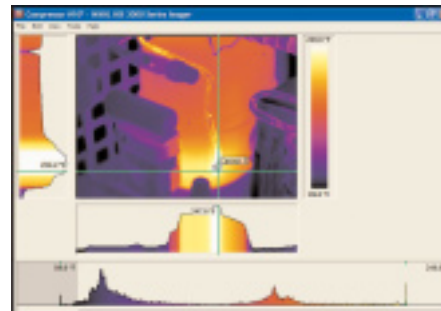
## ENHANCE IMAGE DETAILS



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® Imager HSI1000

## Portable Thermal Imaging Camera

**Point - Shoot - Save**

Find the Hot Spot - Label Image with Temperature, Date and Time

### HOT SPOT FINDER!

Wahl's easy to use, low cost Heat Spy Imager has the same ability as the expensive thermal imaging cameras to find the hottest spot or area of the target, and tell you the temperature of it.

Just scan the target area and find the hottest spot on the screen. Laser identification can be achieved by centering the hot spot of the target on the center of the screen and depressing the laser button. This will indicate the problem area. You can then take a thermal picture and store it in the Pocket PC (included), labeling the temperature, date, and time of the image.

Ergonomically designed, flexible and easy to use, this affordable imager can be used in a variety of applications.

Now included with the Wahl Heat Spy® Camera is a Pocket PC, RS232 Connection Cable and Pistol Grip Handle making it the most versatile thermal imager available!



#### APPLICATIONS

- Predictive and Preventive Maintenance
- Process Monitoring
- Research and Development
- HVAC Troubleshooting
- Building Inspections
- Vehicle Maintenance



Photo illustration from Racecar Engineering magazine.

#### Specifications

Model Number	HSI1000	HSI1001	HSI1002
	Hand Held Imager	Hand Held Imager High Accuracy Option	Hand Held Imager High Temperature Option
Temperature Range	14° to 572°F -10° to 300°C	86° to 572°F 30° to 300°C	572° to 1832°F 300° to 1000°C
Field of View	20° x 20°		
Model Number	HSI1003	HSI1004	HSI1005
	Hand Held Imager Narrow Field of View	Hand Held Imager High Accuracy Option Narrow Field of View	Hand Held Imager High Temperature Option Narrow Field of View
Temperature Range	14° to 572°F -10° to 300°C	86° to 572°F 30° to 300°C	572° to 1832°F 300° to 1000°C
Field of View	10° x 10°		
Measurement Array	16 x 16	Central 12 x 12	Central 12 x 12
Accuracy @ Ambient Temp of 23°C	Not Defined	±2°C or ±2% Whichever is greater	±30°C
Power	4 x AA Alkaline Batteries, AC adapter included		

\* Software compatibility: Pocket PC: Microsoft "Pocket PC" 2000, 2002, and 2003.  
Palm: OS5 and higher. PC: Windows 2000, and XP.



#### FEATURES

- User selectable sensitivity settings, offset control and emissivity values
- Auto adjust sensitivity/range
- "Pocket PC"/ "Palm" device has two moveable temperature measurement cursors
- Desktop or Laptop PC has up to ten moveable temperature measurement cursors on any of the 256 pixels
- User selectable image integration: 1 to 10 frames
- Readout in °C, °F and K
- Shipped with Pocket PC, Pistol Grip Handle, Software for Pocket PC, Palm & PC, RS232 2m Connection Cable, User Manual, AC Power Adapter and Carrying Case

Specifications subject to change without notice

# Heat Spy® Imager HSI1000 Accessories

## HOT SPOT FINDER!



Heat Spy Thermal Imaging Camera *now comes standard* with an HP Pocket PC, HP USB/Serial Auto Sync Cable, and Pistol Grip Handle. Additional accessories shown below can be added to make it even more easy and convenient to use!

Heat Spy Imager Included Accessories	
HSIPPC	Standard Hewlett Packard Pocket PC* (most compatible, currently available model at time of purchase)
FA122A	HP USB/Serial Auto Sync Cable
H100	Pistol Grip Handle (fits Thermal Imaging Camera, Pocket PC and Cable)
Heat Spy Imager Optional Accessories	
H101	Folding Handle (fits Thermal Imaging Camera, HP Pocket PC, Cable, Users Digital Camera, ReadyLite and Neck Strap.
H102	ReadyLite
H105	Neoprene Neck Strap with Quick Disconnect
NISTTI	NIST Certification



*Thermal Imager includes Pocket PC, Pistol Grip and Cable*



*Heat Spy Imager Camera is delivered complete in a Rugged Carrying Case.*



*H100 Pistol Grip Handle (Included)*



*HSIPPC Standard HP Pocket PC (Included)*



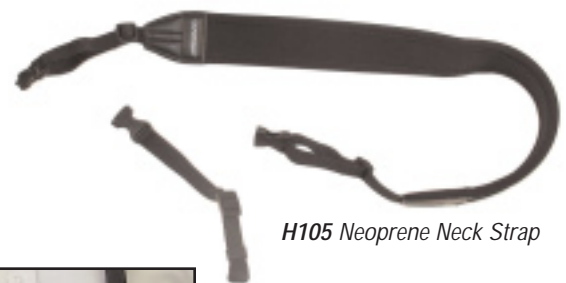
*FA122A HP USB/Serial Auto Sync Cable (Included)*



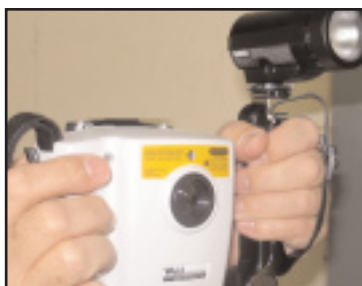
*H102 - ReadyLite*



*H101 Folding Handle*



*H105 Neoprene Neck Strap*



*Camera, Pocket PC and ReadyLite shown attached to the Folding Handle, add a digital camera to take digital pictures and store for later reporting.*



*H105 Neoprene Neck Strap attaches to handles, for safety and convenient carrying. Insert at right shows "Quick Disconnect" feature on both sides of neck strap.*



## RECOMMENDED "POCKET PC's" AND "PALMS" FOR USE WITH THE WAHL HEAT SPY IMAGER® HSI1000

**Important Note:** The serial cable provided with the HSI1000 is for "Imager - Pocket PC" connection only. Synchronizing serial cables for "Pocket PC - Imager" connectivity have to be purchased separately as they are not normally supplied with the Pocket PC's.

Most Pocket PC's running Pocket PC 2000, 2002, 2003 with a serial RS232 connector should work. It is possible to use a CompactFlash RS232 adapter on those Pocket PC's that do not have an RS232 connector.. The eXpansys codes for cables provided in the table are intended as an example. For more information on synchronization cables it is advisable to contact your local manufacturer or supplier, or see: [www.expansys-usa.com](http://www.expansys-usa.com).

POCKET PC	SYNCHRONIZING CABLE (not supplied)	COMMENTS
HP RZ1710	Universal AutoSync Cable HP part number FA122A. eXpansys Code: 101828.	Entry level system.
HP iPAQ rx1950	Universal AutoSync Cable See <a href="http://www.expansys-usa.com">www.expansys-usa.com</a>	
HP iPAQ hx2000 Series	Universal AutoSync Cable HP part number FA122A. eXpansys Code: 101828.	Works very well.
HP H2215 (HP2210 European Model)	Universal AutoSync Cable HP part number FA122A. eXpansys Code: 101828.	Works very well. The software is installed into Programs, instead of the "Start" menu.
HP iPAQ rx3700 Series	Universal AutoSync Cable HP part number FA122A. eXpansys Code: 101828.	
HP iPAQ H4150 Series	Universal AutoSync Cable HP part number FA122A #AC3. eXpansys Code: 101828.	
HP iPAQ hx4700 Series	Universal AutoSync Cable HP part number FA122A. eXpansys Code: 101828.	Not tested by Wahl.
HP iPAQ H5100 and H5500 Series	Universal AutoSync Cable HP part number FA122A. eXpansys Code: 101828.	
O2 XDA	O2 Serial AutoSync cable for XDA. eXpansys Code: 104141.	Works well.

**Important Note:** Imager Software is not currently compatible with Pocket PC's running the Microsoft Windows Mobile 5.0 Operating System.

### DIFFICULT TO FIND OR DISCONTINUED MODELS

HP iPAQ H5000 Series*	iPAQ h3800 Serial AutoSync Cable eXpansys Code: 102236.	Works well, but is expensive.
Compaq iPAQ 3800 and 3900 Series*	iPAQ h3800 Serial AutoSync Cable eXpansys Code: 102236.	Works very well.
Toshiba e740*	Socket serial I/O CF card eXpansys Code: 102862.	Works but rather slow. Requires a Compact Flash RS232 adapter.
Dell Axim X5	Serial sync cable. Dell Part # IGOSKU-452-10339	This unit is not recommended. Wahl has observed a few communication problems.

PALM	SYNCHRONIZING CABLE (not supplied)	COMMENTS
<b>Important Note:</b> The new Palms now use a USB connection, and are unsuitable for use with the Heat Spy Imagers.		
Zire 71*	Palm Universal HotSync Cable eXpansys Code: 103725.	Works very well.
Tungsten T3*	Universal HotSync Cable. eXpansys Code: 103725.	Works very well.

All the newer model Pocket PC's use the same FA122A HP Cable listed above. See [www.expansys-usa.com](http://www.expansys-usa.com) for more information  
Serial Sync cables. \* May be discontinued or difficult to find.

**POCKET PC REQUIREMENTS:** Compatible with most "Pocket PC" devices running Microsoft "Pocket PC" 2000, 2002 and 2003. RS232 to "Pocket PC" communication cable or CompactFlash RS232 adapter where applicable.

**PALM REQUIREMENTS:** Palm devices conforming to OS5 or higher, double density screen 320 x 320 display resolution.

**PC REQUIREMENTS:** IBM compatible PC with a minimum of: 128Mb RAM, 300MHz processor, MS Windows (2000 or XP) RS232 serial port (115k Baud).