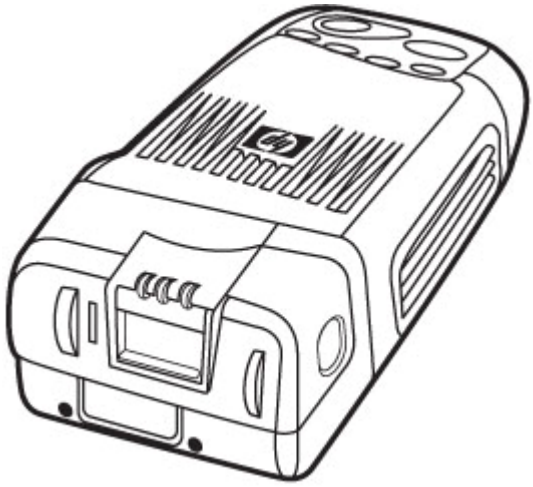
HP Handheld sp400 series

All-in-One Scanner Printer

System Administrator Guide



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Contents

1 Introduction

About this guide

This guide provides information that users and system administrators need to set up and maintain the HP Handheld sp400 series All-in-One.

The All-in-One briefly explained

The HP Handheld sp400 series All-in-One lets you scan and print in almost any location in your environment. The entire unit, including power source, attaches comfortably to your hand and arm so you can move around while working. The All-in-One can also communicate wirelessly with a server to exchange scan and print information.

Handle and wireless options

Handle options

There are two options for holding the All-in-One during use:

- Hand mount
- Handle accessory

Instructions for using the hand mount are included in this guide; instructions for using the handle accessory are in the box with the handle accessory.

Wireless connectivity

Wireless connectivity can be accomplished in two ways:

- 802.11b LAN wireless
- Bluetooth

Instructions for using 802.11b wireless are included in this guide; instructions for using Bluetooth are available online at www.hp.com/support/handheldsp400aio.

All-in-One components

The HP Handheld sp400 series All-in-One is designed to be worn comfortably on the hand and arm when performing scanning, printing, and package handling tasks.

The All-in-One consists of the following key components:

- A battery inside a wrist case which is mounted on the forearm (hand mount version only)
- The scanner printer device attached to a hand mount or handle accessory

IMPORTANT: If you are using the handle accessory instead of the hand mount, see the instructions that were included with the handle accessory.

1 Battery inside wrist case

2 Control panel

3 All-in-One

4 Hand mount

Hand mount components

1 Finger strap

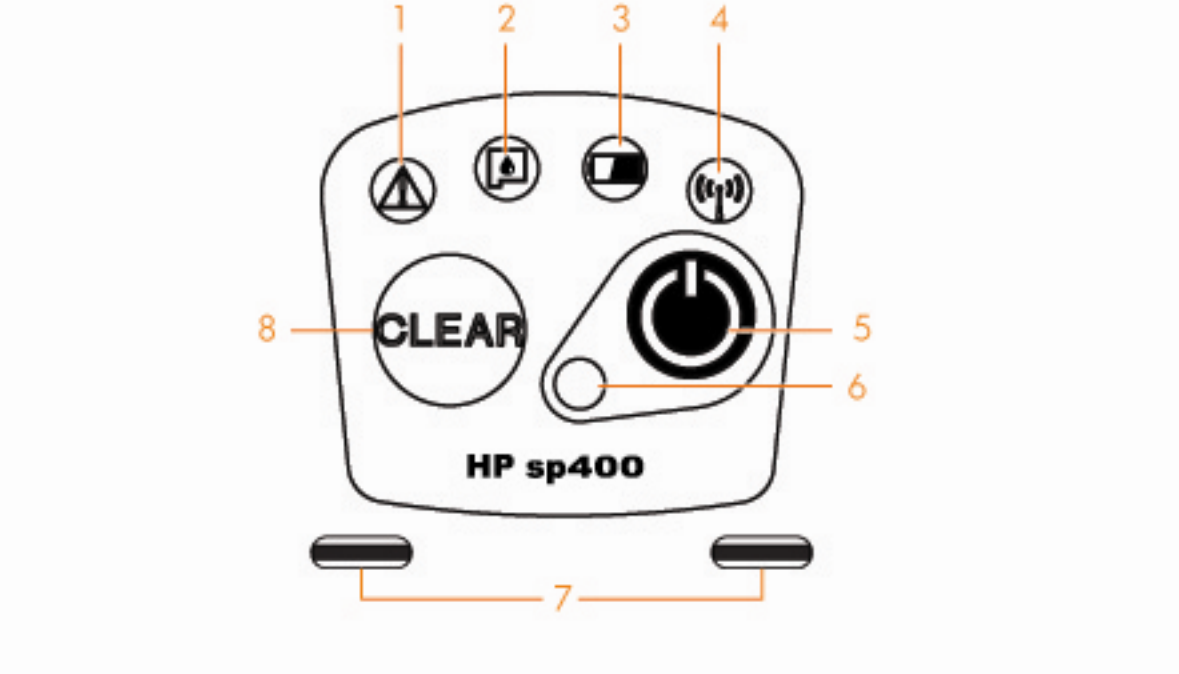
2 Rudder

3 Strap fasteners

4 Wrist strap

Control panel components

The All-in-One control panel displays several buttons and LED lights for operation and visual feedback.



1	Error light (red)	5	Power button
2	Print cartridge light (orange)	6	Power light (green)
3	Battery light (orange)	7	Tail lights (green or red) on back corners of All-in-One
4	Wireless light (blue)	8	CLEAR button

2 Safety information

General safety

CAUTION:

- The HP sp400 series Handheld All-in-One is meant for hand-held or hand-mounted use only. It is not intended or authorized for operation within 20 centimeters (8 inches) of the head or torso.
- Do not submerge this device in water.
- If you experience discomfort, discontinue use of the All-in-One and notify your supervisor immediately. If you experience persistent or recurring pain or discomfort that you think may be related to using the All-in-One, you should promptly consult a qualified physician and, if available, your company's health and safety department.

LED safety

The scanning imager located on this device is classified as a Class 1 LED device according to International Standard IEC 825-1 (EN60825-1). The following precautions are recommended:

CAUTION:

- If the unit requires service, contact an authorized HP service center.
- Do not attempt to make any adjustment to the LED imaging scanner.
- Avoid looking into the LED imaging scanner.
- Do not attempt to view the LED imaging scanner with any type of optical device.

Battery safety

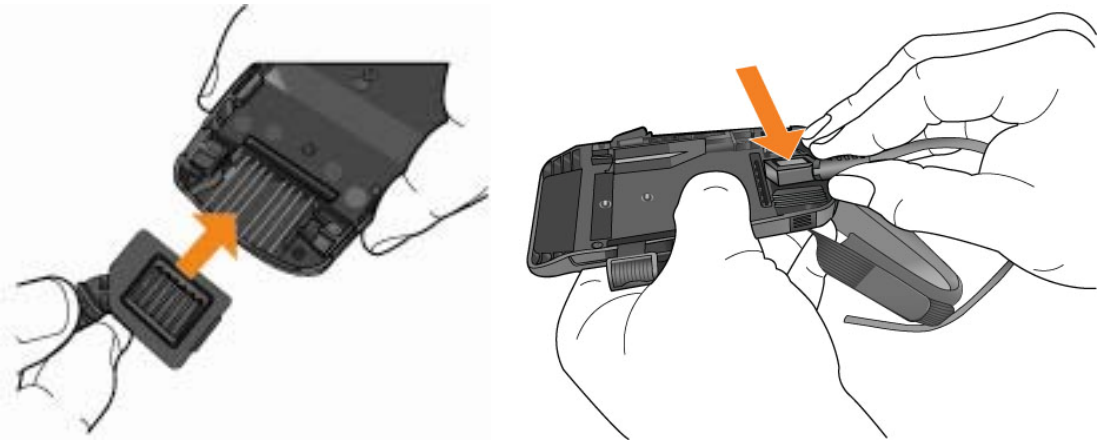
CAUTION:

- There is a risk of explosion if the battery is replaced by an incorrect type.
- Use only the following HP batteries: product number CE199A or CE201A.
- When discarding old batteries, contact your local waste-disposal provider regarding local restrictions on the disposal or recycling of batteries. For information about HP recycling programs, go to www.hp.com/recycle.
- Only use Hewlett-Packard approved accessories and UL recognized battery packs and chargers.
- To reduce the risk of fire or burns, do not disassemble, crush, or puncture a battery; short the external contacts on a battery; or dispose of a battery in fire or water. Do not expose a battery to temperatures above 60 °C (140 °F).

3 Set up the All-in-One

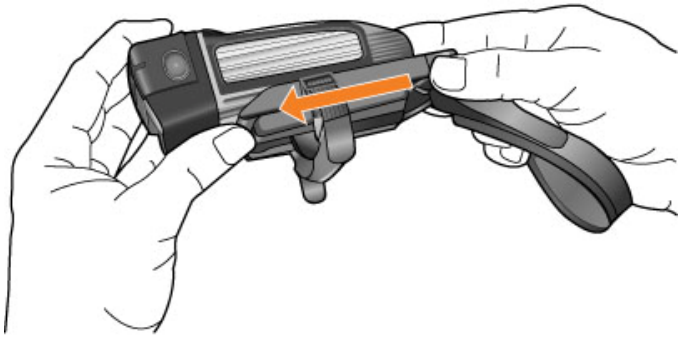
Install the battery cable

Insert the battery cable into the bottom of the hand mount, as shown.



Assemble the hand mount or handle accessory

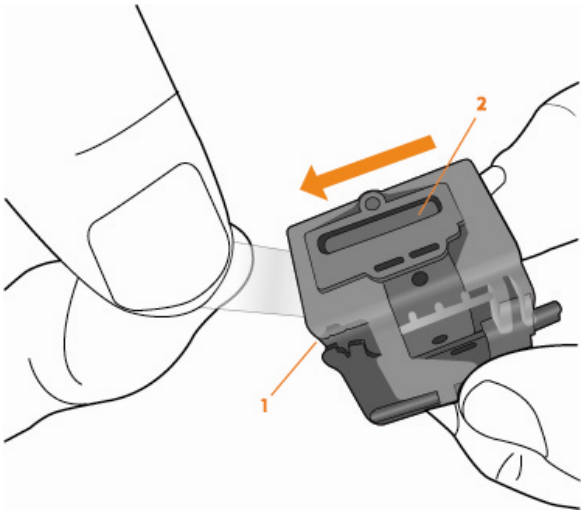
1. Align the hand mount with the All-in-One as shown.
2. Slide the hand mount until it clicks into place.



IMPORTANT: If you are using the handle accessory instead of the hand mount, see the instructions that were included with the handle accessory.

Install the print cartridge

1. Remove the protective tape from the print cartridge by pulling it straight out.

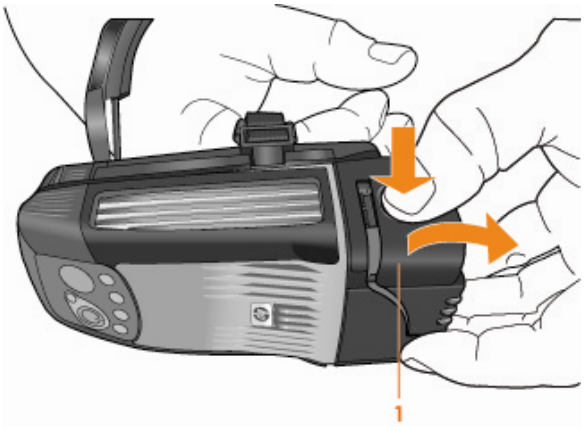


1 Metal contacts

2 Ink nozzles

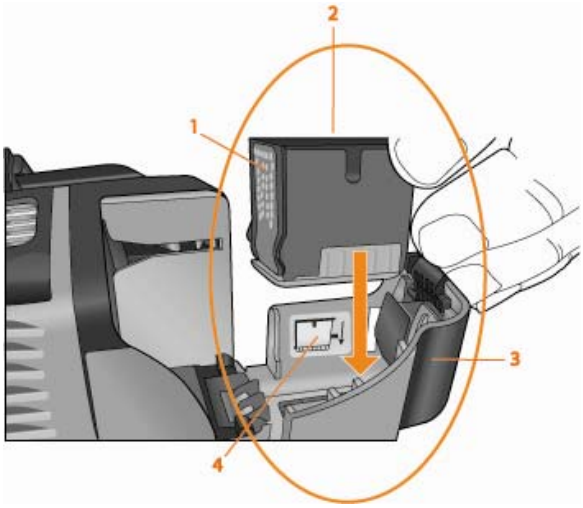
IMPORTANT: Hold the print cartridge by its sides, as shown above. Do not touch the metal contacts or the ink nozzles.

2. Push the side button to release the door, and swing the door open.



1 Door

3. Align the print cartridge with the drawing on the door, and then carefully seat the cartridge in the door. The label on the print cartridge should face away from the door. The metal contacts should face the All-in-One.



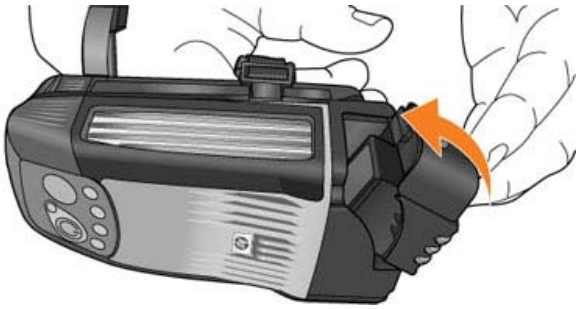
1 Metal contacts

2 Label

3 Door

4 Drawing

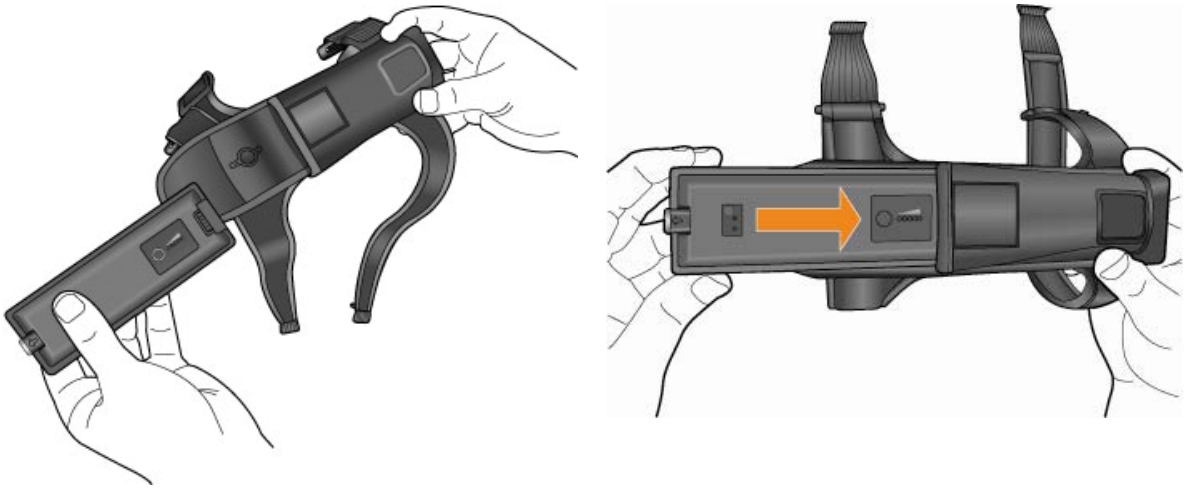
4. Close the door, ensuring it latches securely.



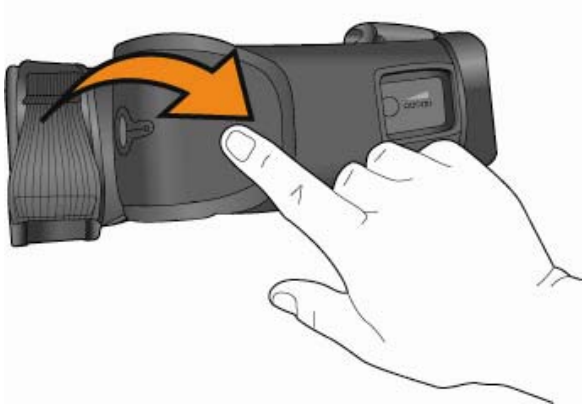
Install the battery and fit the wrist case

IMPORTANT: Remove all jewelry from your wrist and hand before fitting the All-in-One.

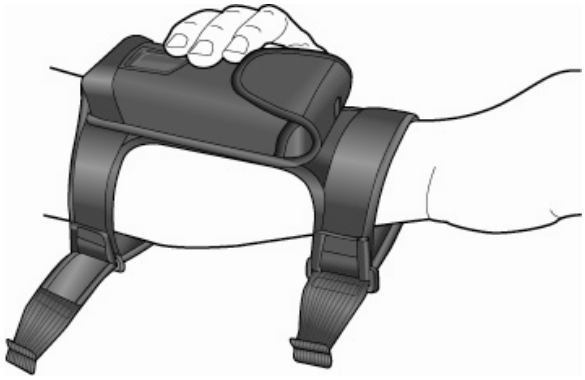
1. Insert a fresh battery as shown.



2. Secure the flap to retain the battery.



3. Position the front strap behind your wrist.



4. Secure the arm straps.

1 Battery gauge

NOTE: The battery gauge should face upward and be visible through the cutout on top of the battery wrist case.

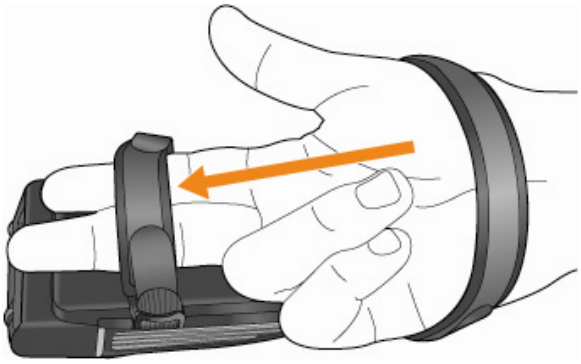
CAUTION: Do not over-tighten the straps. Over-tightening can cause discomfort.

Fit the hand mount

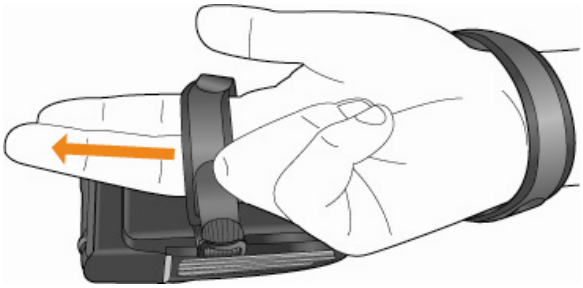
IMPORTANT: Remove all jewelry from your wrist and hand before fitting the All-in-One.

1. Loosen the finger strap by detaching the fastener ends and then rotating the buckles outward so that the strap can slip freely through the buckles.

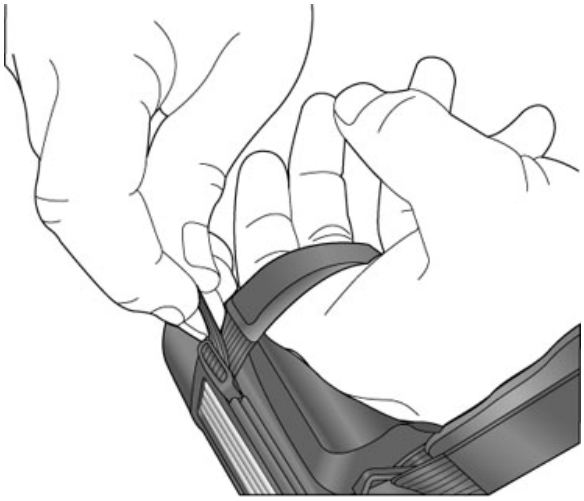
2. Center the rubberized portion of the finger strap between the buckles.
3. Loosen the wrist strap by releasing the fastener ends and pulling the straps through the buckles.
4. Slide your hand through the wrist strap, palm away from the All-in-One.
5. Insert pointer and middle fingers under the finger strap with the rudder positioned between the two fingers.



6. Slide the All-in-One onto your hand until the finger strap is at the base of your fingers, and the wrist strap is at the wrist.



7. Tighten the finger strap by pulling straight up from the buckle until there is no movement between the hand and the All-in-One and then secure the fastener ends to lock the finger strap in place.



IMPORTANT: The finger strap must be tight enough to prevent motion between the fingers and the All-in-One because under-tightening may lead to irritation. Do not over-tighten to the point that numbness or discomfort results.

NOTE: To loosen the finger strap, release the fastener strap and rotate the buckle outwards until it is at a 90-degree angle to the All-in-One, as shown in step #1. Then pull the strap with your fingers until it is comfortable.

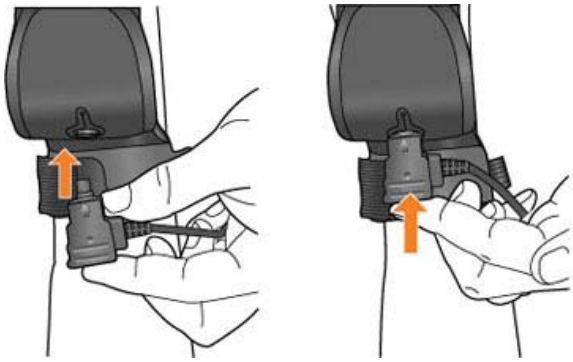
8. To tighten the wrist strap, bend the wrist upward while making a relaxed fist, and then pull the strap until the All-in-One makes light contact with the knuckles. *Light tension is sufficient.*

CAUTION: Do not over-tighten the wrist strap. It should not create pressure on the knuckles.

Connect the battery cable

IMPORTANT: Use only the following HP batteries: product number CE199A or CE201A.

1. Align the arrow on the battery cable connector with the top of the battery case.
2. Push in to connect the battery cable to the battery.



4 Configure the All-in-One

Overview

The All-in-One is designed for use with a server-based application that sends print data in response to scan data received from the All-in-One. The general process is as follows:

1. When turned on, the All-in-One attempts to register with the server using network and server configuration parameters that are stored in the All-in-One.
2. The All-in-One queries the server for any updates (firmware or configuration, for example).
3. The All-in-One is ready to scan.
4. After scanning a bar code, the All-in-One sends the information contained in the bar code to the server.
5. The server responds with print data.
6. When the All-in-One receives the print data, the All-in-One signals the user that it is ready to print.
7. After printing (or timing out) the All-in-One is ready to scan again.

In order to perform this scan-print process, several steps must be taken to ensure that all of the devices in the process can communicate with each other. These steps are as follows:

- Implement the server application. Refer to the Scan Print Protocol document, available at www.hp.com/support/handheldsp400aio.
- Configure the All-in-One devices to communicate with the server application.
- Design the print templates.
- Configure the server application and All-in-One devices to receive wireless updates (optional).

Implement the server application

The communication between the server application and the All-in-One is implemented using the All-in-One Scan Print Protocol (SPP). SPP is an ASCII-based protocol that contains a number of command and response pairs used to communicate with and configure the All-in-One.

A number of factors must be considered when designing the server application. The primary considerations are the number of devices that will be communicating with the server, and the desired response time of the server application.

Refer to the All-in-One Scan Print Protocol document for a detailed explanation of the protocol that needs to be implemented on the server. It is available at www.hp.com/support/handheldsp400aio. In addition, a sample server application is available for download from this website.

Configure the All-in-One

HP sp400 Series Configuration Software is available for download from the All-in-One website (www.hp.com/support/handheldsp400aio). This Windows-based software is used to configure the necessary device settings so that the All-in-One can communicate with the server application. The settings that need to be configured fall into three categories:

- Wireless settings: security type, ESSID and Encryption keys
- Server settings: primary and alternate registration servers, file server, application name
- Application settings: application name, print template

The HP sp400 Series Configuration Software connects to an All-in-One device using a USB cable. The software allows the user to configure the above settings and perform diagnostic and maintenance functions on the All-in-One.

Refer to the *HP sp400 Series Configuration Software Users Guide* for details on installing and using this software. It is available at www.hp.com/support/handheldsp400aio. For brief instructions on configuring the server, see "**Configure the server**."

Design a custom print template

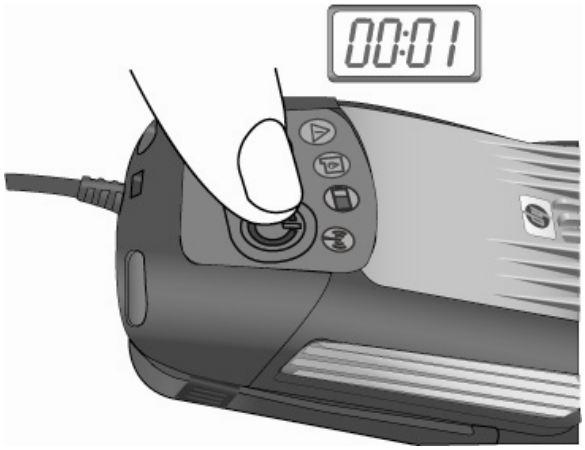
HP sp400 Series Template Design Software is available for download from the All-in-One website (www.hp.com/support/handheldsp400aio). This Windows-based software is used to design a custom print template for your particular needs. It allows the user to create templates that consist of static text and graphics and also dynamic text fields. The design software merges all the text and graphics into a single template which is stored on the device.

The HP sp400 Series Template Design Software connects to the All-in-One using a USB cable. The software allows the user to design and download templates and to perform maintenance functions. Refer to the *HP sp400 Series Template Design Software Users Guide* for details on installing and using this application, available at www.hp.com/support/handheldsp400aio. For brief instructions on designing print templates, see "**Design print templates**."

5 Operate the All-in-One

Turn on the All-in-One

Press the green **Power** button and hold for one second.



- All lights on the control panel and the tail lights will blink once, and the All-in-One will emit a tone.
- The green Power light will continue to blink until the All-in-One completes its initialization phase.
- The blue Wireless light will blink until the All-in-One establishes wireless connectivity. When connected, the All-in-One will emit a Lo-Hi tone.

The All-in-One is ready for use when the green Power light and the blue Wireless light stop blinking and remain solid.

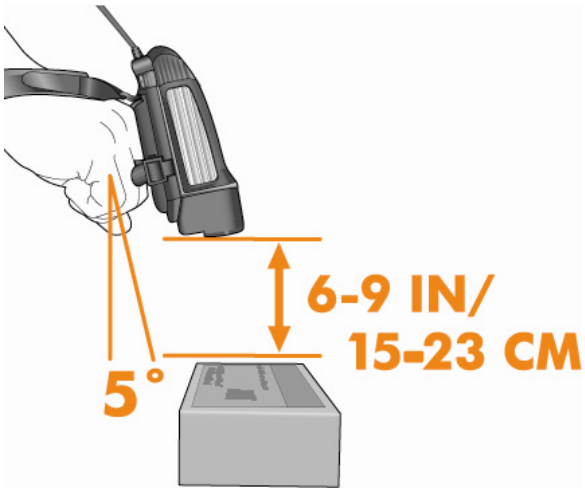
Scan

The All-in-One can scan most one-dimensional and two-dimensional bar code symbologies. See "**All-in-One specifications**" for a complete list.

1. Aim the green light bar at the bar code.

powered by Adaptus® imaging technology 5.0

2. Hold the All-in-One 6 - 9 inches from the bar code.
3. Hold the All-in-One at a slight angle (approximately 5 degrees) to the scan surface.



NOTE: Hold steady for best results.

When the scan is complete, the imager light will turn off, and the All-in-One will emit a Hi tone.

When the All-in-One is ready to print, it will display green tail lights and emit a Hi tone.

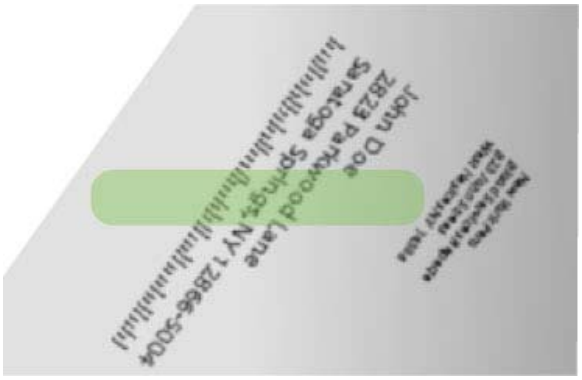
NOTE: There are two ways to clear the bar code or symbol and prepare the All-in-One to scan again:

- Press the yellow **CLEAR** button. The red tail lights will flash once and the All-in-One will emit a tone.
- Wait for the All-in-One to time out and erase the scan from the memory. The All-in-One will emit a Hi-Lo tone and the red tail lights will flash once.

Scanning tips

- The All-in-One's scanner is similar to a digital camera in that it takes digital pictures of a bar code. Like a digital camera, the scanner should be held as still as possible when reading a bar code.
- The green light bar should be approximately centered on the bar code.
- The green light bar should cover approximately 3/4 of a wide linear bar code.
- The All-in-One is capable of reading bar codes at a distance of from 2 - 12 inches, but 6 - 9 inches is the ideal range. Actual reading distances may vary depending on the dimensions of the bar code.
- Reading bar codes straight on is appropriate in many cases, but the reflected light can interfere with reading. Holding the All-in-one at an angle of about 5 degrees to the bar code may give better results.
- The All-in-One reads bar codes in an omnidirectional manner. This means the All-in-One does not need to be pointed in the same direction as the bar code.

The green light bar should be approximately centered on the bar code and cover approximately 3/4 of a wide bar code

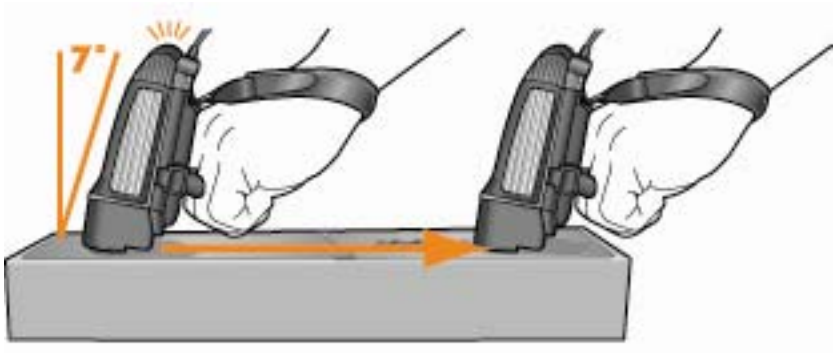


The All-in-One reads bar codes in an omnidirectional manner

Print

Print instructions

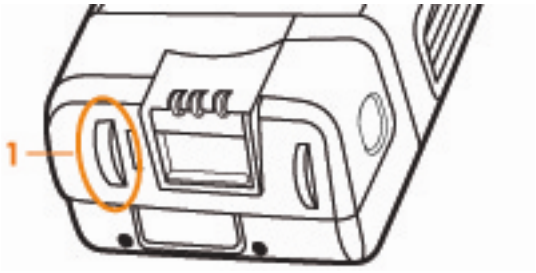
1. Locate a clean, flat surface near the bar code for printing.
2. Place the nose of the All-in-One against the surface. The All-in-One should rest at an angle of about 7 degrees from vertical.
3. Move the All-in-One straight across the surface.
4. When the print is finished, the green light will turn off and the All-in-One will emit a Hi tone.



CAUTION: Maintain a relaxed wrist and hand posture and use low force when printing.

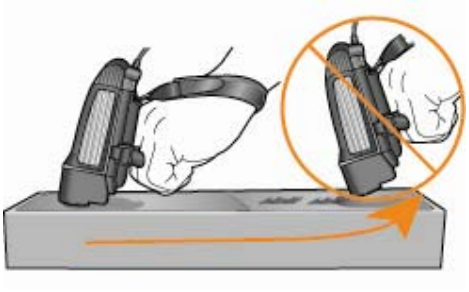
IMPORTANT:

- Keep the printer wheel continuously in contact with the print surface while printing.



1 Print wheel

- Hold the All-in-One so that the angle of the device to the surface is approximately 7 degrees.
- Do not push hard on the surface; light pressure will result in better prints, especially with soft packages.
- Do not rotate your wrist. Rotating your wrist while printing can cause skipping or incomplete prints.



- If you perform a partial or incomplete print, the All-in-One will time out, emit a Hi-Lo tone, and the red tail lights will flash once.

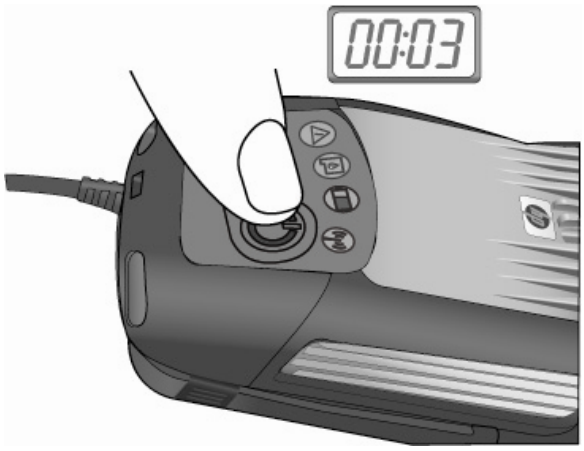
Clear print data

If you find that you have an incomplete print or do not wish to print, two options are available:

- Press the yellow **CLEAR** button on the control panel, then scan and print again. The All-in-One will emit a single mid-tone note and the green tail lights will turn off after the **CLEAR** button is pressed.
- Wait for the All-in-One to time out and erase the scan from the memory. The All-in-One will emit a Hi-Lo tone and the red tail lights will flash once, letting you know you can scan and print again.

Turn off the All-in-One

To turn off the All-in-One, press and hold the green **Power** button for three seconds.



IMPORTANT: Turn off the All-in-One before disconnecting the battery cable.

Remove the All-in-One and wrist case

1. After turning off the All-in-One, grasp the battery cable connector and pull straight out.

IMPORTANT: Do not pull on the battery cable; pull on the battery cable connector that is plugged into the battery.

2. Release the fastener ends of the finger strap.
3. Loosen the finger strap by rotating the front buckle (finger strap buckle) outward about 90 degrees, and then pulling the strap free through the buckles with your fingers. Repeat on the buckle on the other side until the All-in-One is loose enough to easily slide your fingers out.
4. Loosen the wrist strap until the hand can slide out freely.

5. Slide the hand and fingers backwards out of the All-in-One.
6. Release and loosen the wrist case straps and slide the wrist case off the arm.

6 Maximize print quality

For information about solving print problems, see "**Problems printing**."

CAUTION: HP ink is not certified for application to people or animals. Do not intentionally print on any part of a person or animal.

CAUTION: Do not print on food. The ink used in the All-in-One is not approved for consumption.

HP recommends testing the printed images for readability in your environment and on your material. Improving lighting conditions, optimizing font size, increasing the heat and air flow, reducing the humidity of the room, and choosing opaque, light-colored materials can all help improve readability of the printed image.

Materials and technique

For best results, do the following when printing:

- Locate a clean, flat surface near the bar code to print on.
- Hold the All-in-One so that the angle of the device to the surface is approximately 7 degrees.
- Pull the All-in-One in a straight line until the print is complete; do not your rotate wrist or the All-in-One during the print.
- Keep the printer wheel continuously in contact with the print surface while printing.
- Maintain a relaxed wrist and hand posture and use low force when printing.
- Maintain a constant speed when printing.

To achieve the best possible readability, consider the following:

- Magenta prints are easier to see than black prints on tan-colored surfaces like cardboard boxes.
- Prints on opaque white material show up best.
- Prints on dark surfaces are not very visible, especially if the surfaces are similar in color.

NOTE: Prints on porous materials like cardboard and paper dry instantly, but prints on non-porous materials can take a few moments to dry.

Optimal conditions

Prints dry fastest in warm, dry environments where there is good air flow.

7 Ensure optimal comfort

Ergonomic recommendations

For optimal results and comfort, follow these ergonomic recommendations:

- The All-in-One is designed for scan and print applications. It is not recommended to be worn when performing keyboarding or other office-related tasks.
- If you experience discomfort, discontinue use of the All-in-One and notify your supervisor immediately. If you experience persistent or recurring pain or discomfort that you think may be related to using the All-in-One, you should promptly consult a qualified physician and, if available, your company's health and safety department.
- Adjust the All-in-One finger strap so it is snug, but not too tight. The wrist strap should have light tension to keep the device against the knuckles without pressure.
- Maintain a relaxed, neutral posture while using the All-in-One. Avoid making a tight fist.
- Select a comfortable print location:
  - Print at heights between elbow and shoulder level whenever possible.
  - When printing at heights at or below elbow level, printing horizontally is recommended (on the top of the package, for example).
  - When printing at heights above elbow level, printing vertically is recommended (on the side of the package, facing you, for example).
  - When printing at heights lower than waist level, bending at the knees (not at the waist) is recommended.
  - To avoid extended reaches, slide packages close to you before scanning and printing.
- Minimize bending the wrist to position the All-in-One. Position hand in a light, relaxed fist when using the All-in-One.
- Make a light fist when printing to keep the fingers out of the way and help stabilize the hand around the rudder and finger strap.
- To ensure good quality prints on different types of packages and to ensure comfort, use light pressure to maintain contact with the package when printing. Applying more force will not improve print quality.
- The All-in-One can be worn on the right or left hand and arm. You may alternate wearing the All-in-One on the right and left hand and arm.
- When handling boxes, lift with both hands and use good lifting techniques.
- If the print is difficult to read, consider the following:
  - The print cartridge might need to be replaced.
  - The work area lighting might need to be improved.
  - You might need to slow down the speed at which you are printing.
- Change your posture during the day by varying your tasks:
  - If your job requires standing for long periods, then sit during breaks.
  - If your job requires standing in one position, place one foot on a box or a bar to shift your posture.
  - If your job requires standing in one position, use an anti-fatigue mat to improve comfort.
  - If your job requires you to walk, use cushioned insoles in your shoes to improve comfort.

8 Maintain the All-in-One

Order supplies and accessories

Use the information in this section to order replacement print cartridges and other supplies. The All-in-One is designed to enable easy, in-the-field replacement of heavily-used components.

Table 8-1 Supplies

Item	Description	HP part number
HP Handheld 400 Series Finger Strap, 25 Pk	Field-replaceable front straps	CE196A
HP Handheld 400 Series Wrist Strap, 25 Pk	Field-replaceable wrist straps	CE197A
HP Handheld 400 Series Hand Mount	Allows hands free use of HP sp400 All-in-One	CE192A
HP Handheld 400 Series Front Buckle, 30 Pk	Field-replaceable front buckles	CE198A
HP Handheld 400 Series Extended Life Battery	Extra long life wrist-mounted battery	CE199A
HP Handheld 400 Series Standard Life Battery	Standard life wrist-mounted battery	CE201A
HP Handheld 400 Series Extended Life Battery Wrist Case	Wrist case for extended life battery	CE200A
HP Handheld 400 Series Standard Life Battery Wrist Case	Wrist case for standard life battery	CE202A
HP Handheld 400 Series Battery Cable	Connects battery to hand mount	CE203A
Charger for HP Handheld 400 Series Battery	5 bay smart battery charger	CDE11403053
HP Handheld 400 Series Extended Battery Adapter	Fits extended life battery to battery charger	CG021A
HP Handheld 400 Series Cartridge Door	Replacement print cartridge door	CE204A
HP Handheld 400 Series 5 Bay Cradle	5 bay sp400 storage unit	CE194A
HP Handheld 400 Series Rear Buckle, 20 Pk	Replacement rear buckle	CE205A
HP Magenta Print Cartridges		CC602A

HP also offers extended warranty and service for the All-in-One.

Condition the battery

For best results, condition new batteries before they are used. To condition batteries, follow the instructions that came with your battery charger.

Clean the All-in-One

CAUTION: Unplug the battery from the All-in-One before doing any cleaning procedure.

CAUTION: Never spray or douse the All-in-One with any liquid. Use only *dampened* wipes, cloths, or swabs to clean the All-in-One.

IMPORTANT: Use only materials from the list below to clean the All-in-One (see "**Cleaning materials**," below). Other solvents or cleaners may damage the plastic, paint, or the adhesives used in the All-in-One.

Cleaning materials

The following materials may be used to clean the All-in-One:

- Cotton cloths
- Alcohol wipes
- Cotton swabs
- Baby wipes
- Deionized water
- Isopropyl alcohol
- Eyeglass cleaning wipes (anti-static and anti-fog types only)

Clean outside surfaces

Use a cotton cloth dampened with water to clean the outside surfaces of the All-in-One.

- To remove difficult material, such as gummy adhesive or built-up grime, use a cotton cloth dampened with isopropyl alcohol or an alcohol wipe, and dry with a dry cotton cloth.
- To clean hard-to-reach places, such as the cooling ribs of the case, use cotton swabs dampened with isopropyl alcohol.

Clean the imager window

Use eyeglass cleaning wipes to clean the imager window. Eyeglass cleaning wipes provide the best anti-glare cleaning solution.

  - Be sure to wipe away any build-up from the center area of the imager window.
  - Cotton swabs may be used to lightly remove smudges from the window edges.

NOTE: If eyeglass cleaning wipes are not available, use a cotton swab dampened with isopropyl alcohol to clean the imager window.

Clean the wrist case and hand mount

1. Use an alcohol wipe or a cotton cloth dampened with deionized water to scrub all areas of the hand mount, straps, and wrist case that have come into direct contact with the skin.
2. Use a second alcohol wipe or cotton cloth dampened with deionized water to wipe affected areas.

Clean the door

To clean the opening in the door, do the following:

IMPORTANT: Do not touch the metal contacts or the ink nozzles.

1. Remove the print cartridge from the door.
2. Use a dry cotton cloth to remove the ink-soaked fibers from the opening in the door.
3. If the ink is too dry to easily remove the fibers, use a cotton swab dampened with deionized water or isopropyl alcohol to break down the ink buildup.

Charge the battery

To charge batteries, follow the instructions that came with your battery charger.

Remove the hand mount or handle accessory

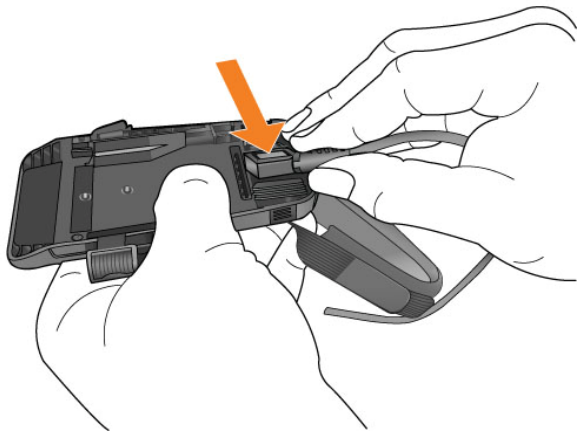
1. Squeeze both of the release buttons on the back of the hand mount.
2. Slide the hand mount backward, off of the All-in-One.

1 Release button

IMPORTANT: If you are using the handle accessory instead of the hand mount, see the instructions that were included with the handle accessory.

Replace the battery cable

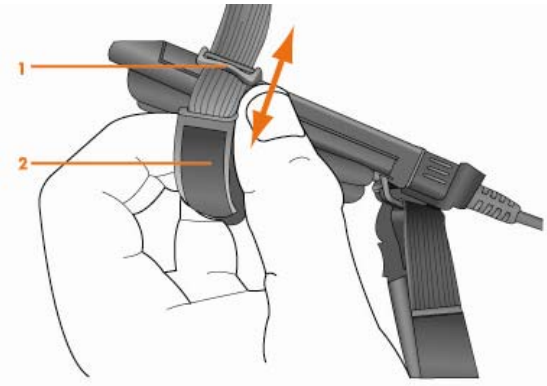
1. Remove the hand mount from the All-in-One. See "**Remove the hand mount or handle accessory**," above.
2. Remove the battery cable by lifting up.
3. Insert a new battery cable.



4. Reinstall the hand mount.

Replace the finger strap

1. Remove the hand mount. See "**Remove the hand mount or handle accessory**."
2. Remove the finger strap by lifting the old buckles out of the notches.



1 Buckle

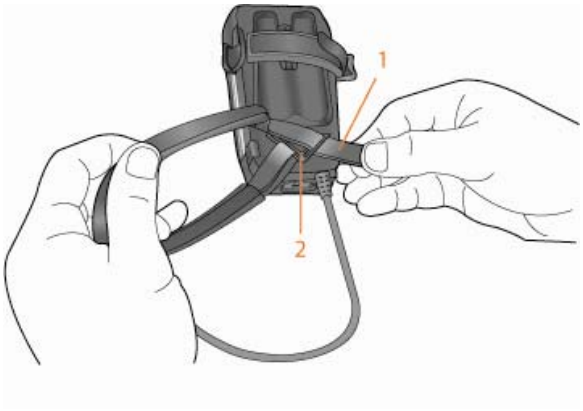
2 Strap

3. Insert a new finger strap by snapping each buckle into its notch.
4. Reinstall the hand mount.

Replace the wrist strap

NOTE: This procedure can be done without removing the hand mount.

1. Release the wrist strap fastener ends.
2. Pull the old wrist strap through the buckle.
3. Insert the new wrist strap.



1 Wrist strap

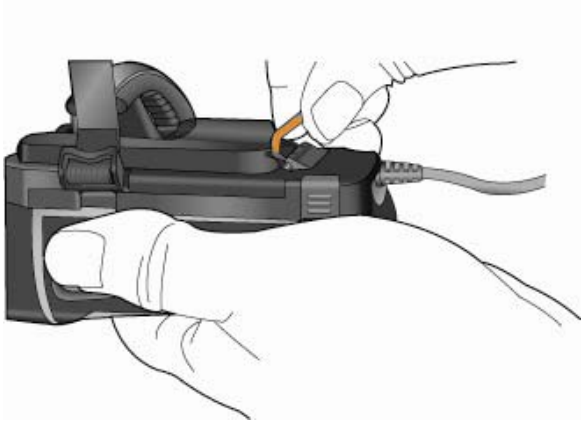
2 Buckle

IMPORTANT: Make sure the fastener strap is on the outside of the wrist strap, away from the skin.

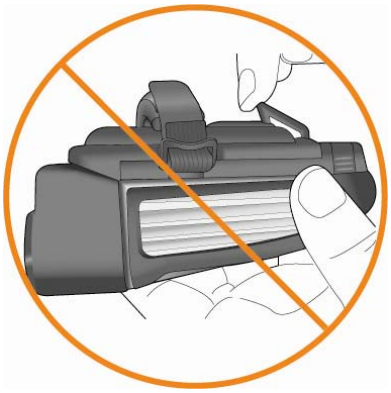
Replace the rear buckle

NOTE: This procedure can be done without removing the hand mount.

1. Grasp the buckle firmly and push it toward the gel pad until it releases.
2. Position the new buckle so it is angled as illustrated and press it into place.

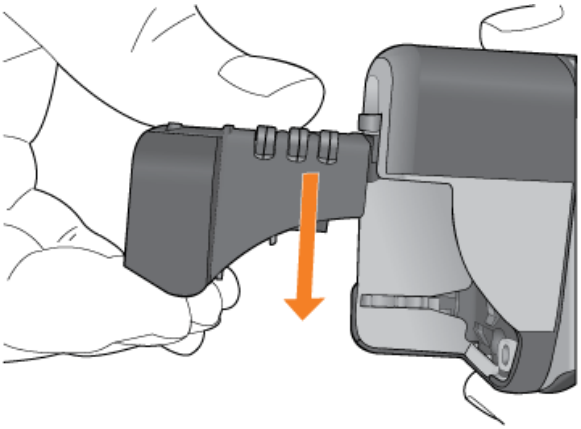


NOTE: The circled illustration, below, shows the *incorrect* angle of the buckle.

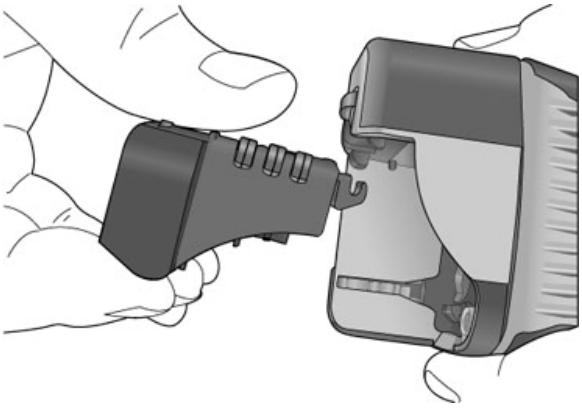


Replace the door

1. Remove the old door by opening the door 90 degrees and then pulling away to disengage the hinge.



2. Replace with a new door by aligning the hinge and pressing the hinge onto the metal pin.



Recycle

HP encourages customers to recycle used electronic hardware, HP original cartridges, and rechargeable batteries. For more information about HP recycling programs, go to www.hp.com/recycle.

Locate the serial number

The All-in-One serial number is located on the product regulatory and identification label, on the bottom of the All-in-One. Remove the hand mount to view the label on the bottom of the metal case.

The battery serial number is located on the product regulatory and identification label, on the bottom surface of the battery.

The battery charger serial number is located in the upper-right portion of the product regulatory and identification label, on the bottom of the battery charger.

9 Troubleshoot problems and get support

Note: For problems concerning comfort, see "**Ergonomic recommendations**."

General problems

Table 9-2 General problems

Problem	Cause	Solution
The power goes out or the All-in-One will not turn on.	The battery is depleted.	Recharge or replace the battery. See "**Charge the battery**."
	The All-in-One is not properly seated on the hand mount or handle.	Be sure the latch is engaged.
	The battery cable is not connected well to the battery.	Seat the battery cable connector properly.
	The cable is defective.	Replace the cable. See "**Replace the battery cable**."
The All-in-One will not stop beeping	Internal error	Reboot.
The All-in-One imager lights will not come on	Internal error	Reboot.

Problems scanning

Table 9-3 Problems scanning

Problem	Cause	Solution
The All-in-One imager takes a long time to acquire the bar code.	The imager window is obstructed.	Clean the imager window and inspect for scratches or cracks near the center of the window. See "**Clean the imager window**" in the Maintenance section.
Scans are not successful.	The technique of the user might need improvement.	Make sure you are following the instructions in "**Scan**," and "**Scanning tips**."
	Damaged or poor print template quality.	If available, scan an alternate bar code. **NOTE:** It may be necessary to scan the Standard Product Default Settings bar code in "**Reset the standard product defaults**" in the "Advanced use" section.
	The surface is highly reflective (for example, tape or lamination).	It may be necessary to tilt the All-in-One further to prevent unwanted reflection.
	Unrecognized bar code symbology.	It may be necessary to scan the Standard Product Default Settings bar code in "**Reset the standard product defaults**" in the "Advanced use" section.

Problems printing

Table 9-4 Problems printing

Problem	Cause	Solution
Prints are faded or streaked.	The print cartridge is out of ink.	Replace the print cartridge.
	The print cartridge is dried out due to age.	Replace the print cartridge.
	There is a faulty connection between the print cartridge and the All-in-One.	Replace the print cartridge.
There are blank lines in the printed image.	The opening in the door is partially blocked.	See “**Clean the door**.”
The ink smears while printing.	Wheels on the door are broken or missing.	Replace the door. See "**Replace the door**."
Ink drips are present on the printed surface.	Ink and fibers may be accumulating on the print cartridge and/or the door.	Clean the door. See “**Clean the door**.”
		If cleaning the door does not solve the problem, replace the cartridge with a new one.
The print smears after printing.	The ink is not dry.	• Allow more time for the ink to dry. • Increase air flow in the area. • Make sure the printed surface is dry. • Increase the temperature in the area. • Lower the humidity of the area. • Change to Fast Dry template.
	The ink is not dry due to stacking or contact with other objects.	Allow the ink to dry before placing printed materials on top of or next to each other.
Print rubs off.	The printing was done on a non-porous material.	Allow the ink to dry before placing the printed area in contact with other objects.

Errors and warning conditions

General errors and warning conditions

Table 9-5 Critical error

Visual feedback		Audio	Cause	Solution
	Solid, red Error light	Hi tone, 3x	Critical error	All-in-One needs to be serviced.
	Solid, red tail lights **Note:** Other lights may be on (blinking or solid) also.			

Table 9-6 No print template

Visual feedback		Audio	Cause	Solution
	Red tail lights, slow blink, 2x	Lo-Mid-Hi tone, 3x or 4x	There is no print template loaded on the All-in-One.	Load the desired print template.

Table 9-7 Upgrade failure (only applicable following wireless upgrade attempt)

Visual feedback		Audio	Cause	Solution
	Fast blinking, red Error light	Hi tone	Wireless upgrade failure (following wireless upgrade attempt)	Attempt upgrade again.
	Red tail lights, fast blink, 20x			

Battery errors and warning conditions

Table 9-8 Battery: Low

Visual feedback		Audio	Cause	Solution
	Slow blinking, orange Battery light	None	Battery low (configurable %)	Warning only. **CAUTION:** As the battery approaches very low, the light will blink faster and the Hi tone will sound every minute.

Table 9-9 Battery: Very low

Visual feedback		Audio	Cause	Solution
	Fast blinking, orange Battery light	Hi tone	Battery very low (configurable %)	Replace battery soon. **CAUTION:** As the battery approaches empty, the All-in-One may shut down without warning.

Table 9-10 Battery: Empty, shutting down

Visual feedback		Audio	Cause	Solution
	Fast-blinking, red Error light	Hi tone	Empty, shutting down	Replace battery. **NOTE:** The All-in-One may shut down without providing this feedback.
	Solid, orange Battery light			
	Fast-blinking, red tail lights			

Print cartridge errors and warning conditions

Table 9-11 Print Cartridge: Bad installation

Visual feedback		Audio	Cause	Solution
	Fast blinking, red Error light	Hi-Lo tone, 2x	Print cartridge error: • bad installation • missing cartridge • bad cartridge	Ensure that the print cartridge is seated correctly. Ensure that the door is closed. If problem persists, replace the print cartridge.
	Solid, orange Print Cartridge light			
	Fast blinking, red tail lights			

Table 9-12 Print cartridge opening or closing error

Visual feedback		Audio	Cause	Solution
	Fast-blinking, red Error light	Hi-Lo tone, 5x	Error occurred in the opening or closing of the print cartridge	Press the **CLEAR** button. If the problem persists, turn the All-in-One off and then on again.
	Solid, orange Print Cartridge light			
	Fast-blinking, red tail lights			

Table 9-13 Print Cartridge: Door ajar

Visual feedback		Audio	Cause	Solution
	Slow blinking, red Error light	Hi-Lo tone, 3x	Door ajar or damaged	Ensure door is closed.
	Solid, orange Print Cartridge light		Door damaged	Replace door. See “**Replace the door**.”
	Slow blinking, red tail lights			

Table 9-14 Print Cartridge: Ink level unknown

Visual feedback		Audio	Cause	Solution
	Solid, orange Print Cartridge light	None	Ink level unknown	Warning only.

Table 9-15 Print Cartridge: Ink low

Visual feedback		Audio	Cause	Solution
	Slow blinking, orange Print Cartridge light	None	Ink low (configurable %)	Warning only.

Table 9-16 Print Cartridge: Ink very low

Visual feedback		Audio	Cause	Solution
	Fast blinking, orange Print Cartridge light	Hi tone	Ink very low (configurable %)	Replace print cartridge soon. **NOTE:** As long as printing continues, the audio tone will be heard at approximately 1 minute or intervals.

Table 9-17 Print Cartridge: Ink cutoff/out reached

Visual feedback		Audio	Cause	Solution
	Fast blinking, red Error light	Hi tone, 3x	Ink cutoff/out reached	Replace print cartridge.
	Fast blinking, orange Print Cartridge light			
	Fast blinking, red tail lights			

Scanning/Wireless errors and warning conditions

Table 9-18 Scanning/Wireless: Wireless network unavailable

Visual feedback		Audio	Cause	Solution
	Fast blinking, blue Wireless light	Hi-Lo tone	The wireless network is unavailable.	Verify that the network settings on the All-in-One match the settings of your wireless network access point. These settings must include the ESSID, security mode (WPA-PSK, WEP or none) and network key. If the problem persists, contact your network administrator.

Table 9-19 Scanning/Wireless: Application server unavailable

Visual feedback		Audio	Cause	Solution
	Slow blinking, blue Wireless light	Hi-Lo tone	The All-in-One is configured incorrectly.	Verify that your network has a DHCP server. If the network does not have a DHCP server, you must configure the All-in-One for static IP addressing (see "**Set up the wireless network**" in the "Advanced use" section). Verify that the server addresses are set up correctly (see "**Configure the server**" in the "Advanced use" section). If problem persists, contact your network administrator.
			The application server is unavailable.	Verify that the application server is running. If the problem persists, contact your network administrator.

Table 9-20 Scanning/Wireless: Server error

Visual feedback		Audio	Cause	Solution
	Red tail lights, blinking, 2x	Mid tone	Server error	Try to scan again.

Table 9-21 Scanning/Wireless: Invalid bar code or bad data

Visual feedback		Audio	Cause	Solution
	Red tail lights, blinking, 2x	Hi-Lo tone	Invalid bar code or bad data was sent to the server.	**1** Check the bar code. **2** Try to scan again. **3** If the problem persists, contact your supervisor.

Table 9-22 Scanning/Wireless: Incomplete print

Visual feedback		Audio	Cause	Solution
	Red tail lights, blink 1x	Hi-Lo tone	Incomplete print timeout (configurable timeout)	Rescan and print.

Support services

If you have a problem, follow these steps:

1. Check the documentation that came with the product.
2. Visit the HP online support Web site at www.hp.com/support/handheldsp400aio. Online support is available to all HP customers. It is the fastest source for up-to-date device information and assistance and includes the following features:
   - Access to qualified online support specialists
   - Valuable product and troubleshooting information for common problems
3. Call HP support: 1-800-HP Invent (800-474-6836). Support options and availability vary by device, country/region, and language.

10 Advanced use

System requirements

- All-in-One device and accessories
- Wireless network and server application
- Windows XP computer with HP sp400 Series Configuration Software and HP sp400 Series Template Design Software (see “**Download and install software**”)
- USB-compliant cable that does not exceed 3 meters (10 feet) in length with a Type B 5-pin plug at one end to connect to the All-in-One's port

Download and install software

Two software programs are required to configure the All-in-One:

- HP sp400 Series Configuration Software
- HP sp400 Series Template Design Software

To download this software, visit www.hp.com/support/handheldsp400aio.

Set up the wireless network

Bluetooth

For instructions for using Bluetooth wireless, see the Bluetooth configuration instructions at www.hp.com/support/handheldsp400aio.

802.11b wireless

1. Connect the All-in-One to a computer with a USB cable.
2. Use the HP sp400 Series Configuration Software to configure the 802.11b settings. See "**Download and install software**."
3. Select the **Network** tab and configure the All-in-One to connect to your 802.11 network.
4. Select the **Server** tab and configure the All-in-One to connect to your application server.

NOTE: See the *HP sp400 Series Configuration Software Users Guide* for more detailed instructions and help. It is available at www.hp.com/support/handheldsp400aio.

Configure the server

1. Select the **Server** tab.

NOTE: All IP addresses must be entered using IP address dot notation.

2. Enter the Primary Server IP address.
3. Enter the Primary Server Port.
4. Enter the Alternate Server IP address.
5. Enter the Alternate Server Port.
6. Enter the File Server IP address.
7. Enter the File Server Port.

Design print templates

Use the HP sp400 Series Template Design Software to design print templates for the All-in-One.

1. Download the HP sp400 Series Template Design Software at www.hp.com/support/handheldsp400aio.
2. Use the software to lay out dynamic data fields and static data and images for your template.

IMPORTANT: The field name given to a dynamic text field and the field width must match the field name and width used by the server. The print template name must also match the print template name used by the server application.

3. Select a dry time print mode setting for your template.
4. Perform a print test if desired.
5. Save the template on your All-in-One.

NOTE: See the *HP sp400 Series Template Design Software Users Guide* for more detailed instructions and help. It is available at www.hp.com/support/handheldsp400aio.

Use the default print templates

Four default print templates are already saved on the All-in-One.

There are three non-wireless templates for use in demonstration mode (where a wireless connection is not used):

- System information print template
- Generic sp400 print template
- Nozzle health diagnostic print template

There is one wireless print template (for use with a wireless connection):

- Wireless print template

System information print template

Generic sp400 print template

Nozzle health diagnostic print template

Wireless print template

To turn the All-in-One on in demonstration mode, press the **CLEAR** button while pressing the **Power** button.

To move between these print templates on the All-in-One while in demonstration mode, press the **CLEAR** button. You will hear one Hi tone when the system information template is selected, two when the generic sp400 template is selected, and three when the nozzle health diagnostic template is selected, and so on.

The All-in-One can save up to nine demonstration print templates if there is enough memory on the All-in-One.

The system information print template and the nozzle health diagnostic print template contain information that is useful to service technicians when problems arise.

To restore the default templates, follow these steps:

1. Click **Printer→Restore to Factory Default Templates**.
2. Turn the All-in-One off and then turn it back on.

Calibrate the scanner

The bar code scanning device in the All-in-One is a model 5180 imager that was manufactured by Hand Held Products. To understand the imager better or to modify settings, refer to the 5X80 Engine Series *5X10/5X80 User's Guide* that can be downloaded at www.handheld.com.

The *5X10/5X80 User's Guide* contains configuration bar codes that can be used to customize the desired allowable bar codes and to change options and settings on the imager.

Reset the standard product defaults

If you are not sure what programming options are in your imager, or if you have changed some options and want the factory settings restored, scan the Standard Product Default Settings bar code, below.

Figure 10-1 Standard product default settings bar code

NOTE: The light bar will briefly go out to indicate that the scan was completed successfully.

Upgrade firmware

1. Connect the All-in-One to a computer with a USB cable.
2. Open the HP sp400 Series Configuration Software. See "**Download and install software**."
3. Select the **Update** tab.

   There are four types of firmware update files:

   - Firmware: the main program running on the All-in-One
   - FPGA: the processor configuration
   - Imager: the program running on the bar code scanner module
   - Communication: the program running on the wireless communication module
4. In the File boxes, enter the names of the update files. You can use the **Browse** button to navigate to the update files.

   NOTE: All of the update file names must have an “.hhp” extension.
5. Click the **Write to Device** button and wait for the completion messages to appear.

   NOTE: The device may reboot in the process of upgrading.

11 All-in-One specifications

General device specifications

The approximate dimensions at the widest part of the All-In-One and hand mount are as shown in **Table 11-23**. The approximate weight is also shown in this table.

Table 11-23 General device specifications

Component	Width in. (mm)	Height in. (mm)	Length in. (mm)	Weight in oz
All-In-One only	2.6 (65)	1.9 (47)	5.4 (136)	9.49
Hand Mount*	2.6 (66)	1.2 (31)	5.0 (126)	3.31
All-in-One with hand mount	2.6 (66)	2.8 (71)	5.7 (145)	12.79

*Hand mount dimensions do not include straps or battery cable. Hand mount weight does include straps and battery cable.

Environmental specifications

Table 11-24 Environmental specifications

Feature	Specification
Operating temperature	-5 to 50 degrees C (23 to 122 degrees F)
Storage temperature	-40 to 55 degrees C (-40 to 131 degrees F)
Relative humidity	5 to 95 percent, non-condensing
Vibration	MIL-STD-810E
Altitude	1,200 feet (366 meters) below sea level to 15,000 feet (4,572 meters)

Wireless specifications

Range of wireless module

The typical wireless range is 100 feet (30.5 meters) or more within an office environment, and two to three times that distance in wide open spaces. The range depends greatly upon the design and use of the infrastructure. Interference from other RF devices, obstructions such as walls and trees, ambient noise levels, and the performance of other communications devices and their antenna selection and placement may all significantly impact the performance of the whole system.

Other specifications

Table 11-25 Other wireless specifications

Feature	Specification
Technology	IEEE 802.11b DSSS, wireless compliant
Frequency	2.4 ~ 2.4835 GHz (US/Can/Japan/Europe) 2.471 ~ 2.497 GHz (Japan)
Modulation	DQPSK, DBPSK and CCK
Channels	11 channels – USA/Canada 13 channels – Europe 14 channels – Japan 4 channels - France
Data Rate	11, 5.5, 2, 1 Mbps
MAC	CSMA/CA with ACK, RTS, CTS
Protocols	TCP/IP, ARP, ICMP, DHCP, DNS, HTTP UDAP Discovery
Data transfer	TCP/IP, HTTP, UDP
RF power	+15 dBm (typical) Approximately 23 mW
Sensitivity	-82dBm for 11 Mbps -86dBm for 5.5 Mbps -88dBm for 2 Mbps -90dBm for 1 Mbps
Security	WEP (64 & 123 bit), WPA (PSK & TKIP)

The following list shows the symbology types supported by the imager module.

Table 11-26 Symbology types

Code	Symbology
01	Australian Post
02	Aztec Code
03	British Post
04	Canadian Post
05	China Post
06	Codabar
07	Codablock F
08	Code 11
09	Code 16K
10	Code 2 of 5
11	Code 49
12	Code128

Table 11-26 Symbology types

Code	Symbology
13	Code39 (3of9)
14	Code93
15	Data Matrix
16	EAN-UCC Composite Codes
17	EAN/JAN-13
18	EAN/JAN-8
19	IATA Code 2 of 5
20	Interleaved 2 of 5
21	Japanese Post
22	Kix (Netherlands)Post
23	Korea Post
24	Matrix 2 of 5
25	MaxiCode
26	MicroPDF417
27	MSI
28	PDF417
29	Planet Code
30	Plessey Code
31	PosiCode A and B
32	Postnet
33	QR Code
34	RSS Expanded
35	RSS Limited
36	RSS-14

12 Warranty and regulatory information

Warranty

If you have an existing service contract, see the contract for warranty information. If you do not have an existing service contract, see www.hp.com/support/handheldsp400aio for information about your warranty.

Regulatory notices

U.S.A.

Federal Communications Commission notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by HP may void the user's authority to operate the equipment.

Canada

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Union notices

Compliance with these directives implies conformity to harmonized European standards (European Norms) that are listed in the EU Declaration of Conformity issued by HP for this product or product family.

This compliance is indicated by one of the following conformity markings placed on the product.

The following CE marking is valid for non-telecommunications products and for EU harmonized telecommunications products, such as 802.11B devices.

Hewlett-Packard GmbH, HQ-TRE, Herrenberger Strasse 140, 71034 Boeblingen, Germany

The following CE marking is valid for EU non-harmonized telecommunications products.

The following CE marking is valid for EU non-harmonized telecommunications products.

*If applicable, a notified body number is used. Refer to the regulatory label provided on this product. The telecommunications functionality of this product may be used in the following EU and EFTA countries:

Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and United Kingdom.

Products with 2.4-GHz wireless LAN devices

France

L'utilisation de cet equipement (2.4GHz wireless LAN) est soumise à certaines restrictions : cet equipement peut être utilisé à l'interieur d'un batiment en utilisant toutes les frequences de 2400 a 2483.5MHz (Chaine 1-13). Pour une utilisation en environnement exterieur, vous ne devez pas utiliser les frequences comprises entre 2454 a 2483.5-MHz (Chaine 10-13). Pour les dernières restrictions, voir http://www.art-telecom.fr.

For 2.4-GHz wireless LAN operation of this product, certain restrictions apply. This equipment may use the entire 2400-MHz to 2483.5-MHz frequency band (channels 1 through 13) for indoor applications. For outdoor use, the 2454-MHz to 2483.5-MHz frequency band (channels 10 through 13) may not be used. For the latest requirements, see http://www.art-telecom.fr.

Italy

E'necessaria una concessione ministeriale anche per l'uso del prodotto. Verifici per favore con il proprio distributore o direttamente presso la Direzione Generale Pianificazione e Gestione Frequenze. License required for use. Verify with your dealer or directly with the General Direction for Frequency Planning and Management (Direzione Generale Pianificazione e Gestione Frequenze).

Wireless LAN 802.11b devices

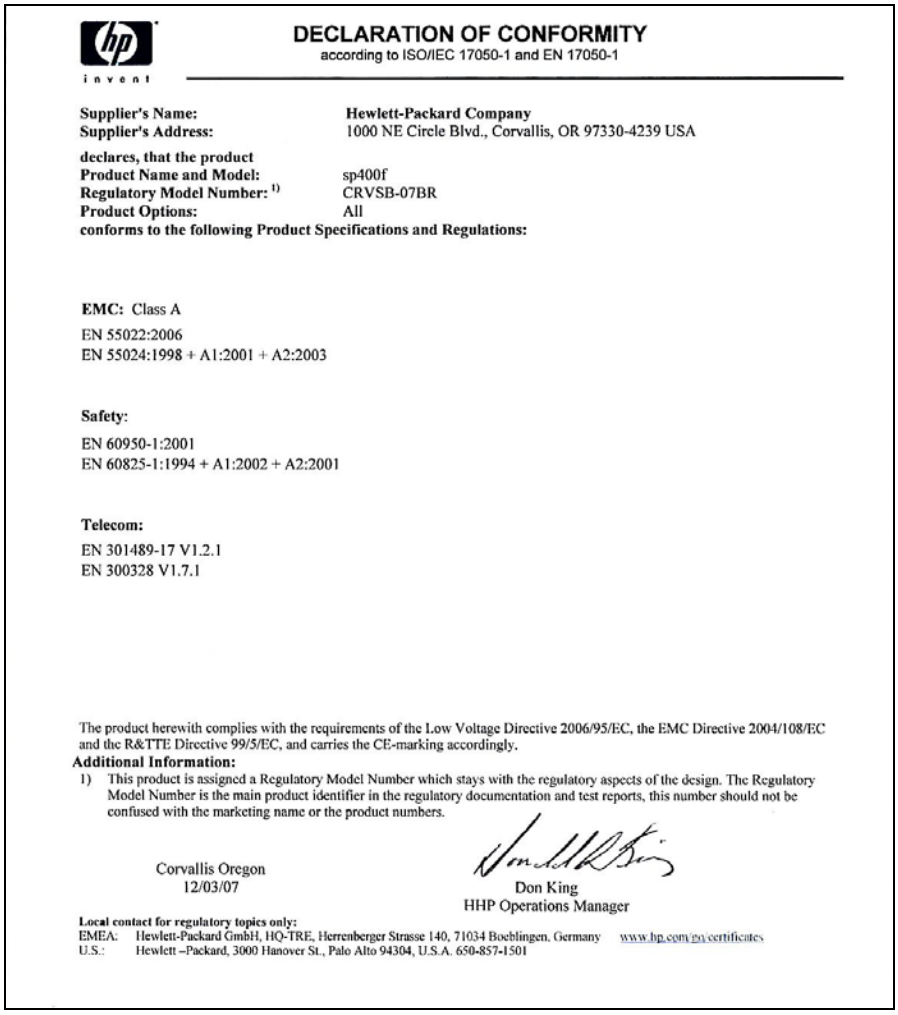
International

For regulatory identification purposes, your product is assigned a Regulatory Model Number.

The Regulatory Model Number for your product is listed in the Declaration of Conformity. This regulatory number is different from the marketing name and product number.

Regulatory Model Number: CRVSB-07BR

Declaration of conformity



DECLARATION OF CONFORMITY

according to ISO/IEC 17050-1 and EN 17050-1

Supplier's Name: **Hewlett-Packard Company**
Supplier's Address: 1000 NE Circle Blvd., Corvallis, OR 97330-4239 USA

declares, that the product
Product Name and Model: sp400f
Regulatory Model Number: [1)] CRVSB-07BR
Product Options: All
conforms to the following Product Specifications and Regulations:

EMC: Class A

EN 55022:2006
EN 55024:1998 + A1:2001 + A2:2003

Safety:

EN 60950-1:2001
EN 60825-1:1994 + A1:2002 + A2:2001

Telecom:

EN 301489-17 V1.2.1
EN 300328 V1.7.1

The product herewith complies with the requirements of the Low Voltage Directive 2006/95/EC, the EMC Directive 2004/108/EC and the R&TTE Directive 99/5/EC, and carries the CE-marking accordingly.

Additional Information:

1) This product is assigned a Regulatory Model Number which stays with the regulatory aspects of the design. The Regulatory Model Number is the main product identifier in the regulatory documentation and test reports, this number should not be confused with the marketing name or the product numbers.

Corvallis Oregon
12/03/07

Don King
HHP Operations Manager

Local contact for regulatory topics only:
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U.S.: Hewlett –Packard, 3000 Hanover St., Palo Alto 94304, U.S.A. 650-857-1501