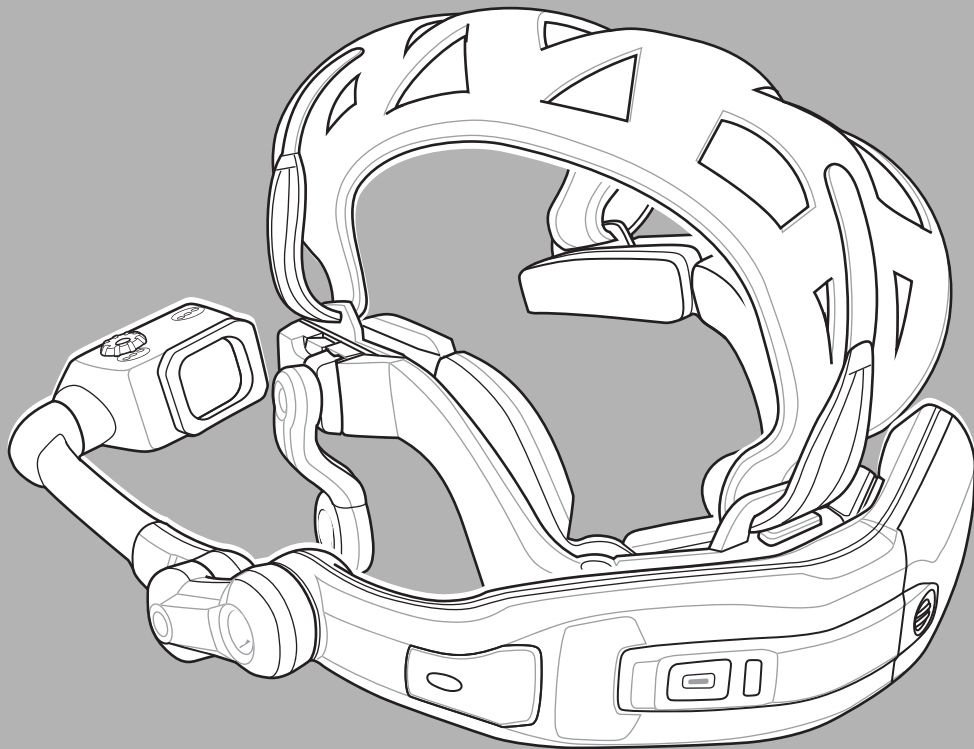


HC1 HEADSET COMPUTER USER GUIDE



HC1 HEADSET COMPUTER USER GUIDE

72E-165011-02

Rev. A

April 2015

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Revision History

Changes to the original guide are listed below:

Change	Date	Description
-01 Rev. A	07/10/13	Initial release.
-01 Rev. B	10/1/13	Minor updates.
-02 Rev. A	4/15	Zebra Rebranding

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ABOUT THIS GUIDE

Introduction

This guide provides information about using the HC1 headset computers and accessories.

**NOTE**

Screens and windows pictured in this guide are samples and may differ from actual screens.

Documentation Set

The documentation set for the HC1 is divided into guides that provide information for specific user needs.

- **HC1 Quick Reference Guide** - describes how to start using the HC1 for the first time.
- **HC1 User Guide** - describes how to use the HC1.
- **HC1 Integrator Guide** - describes how to set up the HC1 and the accessories.

Configurations

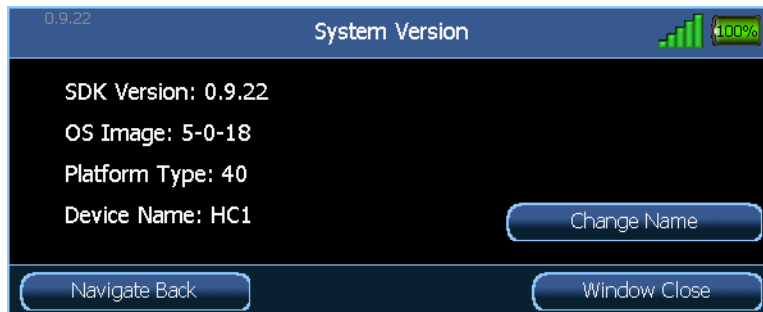
This guide covers the following configurations:

Configuration	Radios	Display	Memory	Data Capture	Operating System
HC1	WLAN: 802.11 b/g WPAN: Bluetooth 2.1 with EDR	Color screen	512 MB RAM/ 512 MB Flash	optional camera, CS3070, RS507	Windows CE 6.0 R3

Software Versions

This guide covers various software configurations and references are made to operating system or software versions. To determine the software versions:

Say “My Computer” > “My Controls” > “System Version.”



Chapter Descriptions

Topics covered in this guide are as follows:

- [Chapter 1, Getting Started](#), describes the HC1’s physical characteristics, how to install and charge the batteries, remove and replace the handstrap and how to start the HC1 for the first time.
- [Chapter 2, Operation](#), provides basic instructions for using the HC1 and navigating the HC1 software.
- [Chapter 3, File Viewers](#), provides information for viewing photos, videos and documents.
- [Chapter 4, My Controls](#), describes how the HC1 works and affect its basic operation
- [Chapter 5, My Network Controls](#), provides information for connecting to a wireless network.
- [Chapter 6, My Bluetooth Controls](#), provides information for connecting to Bluetooth devices.
- [Chapter 7, My Telephone Controls](#), provides information for making and receiving phone calls using a mobile phone or device.
- [Chapter 8, Data Capture](#), provides information about the optional data capture accessories.
- [Chapter 9, Accessories](#), describes the accessories available for the HC1 and how to use the accessories to charge the HC1.
- [Chapter 10, Maintenance & Troubleshooting](#), includes instructions on cleaning and storing the HC1, and provides troubleshooting solutions for potential problems during HC1 operation.
- [Appendix A, Specifications](#), includes a table listing the technical specifications for the HC1.

Notational Conventions

The following conventions are used in this document:

- The term “headset computer” refers to the Zebra HC1.
- *Italics* are used to highlight the following:
 - Chapters and sections in this and related documents
 - Dialog box, window and screen names
 - Drop-down list and list box names
 - Check box and radio button names
 - Icons on a screen.

- **Bold** text is used to highlight the following:
 - Key names on a keypad
 - Button names on a screen.
- Bullets (•) indicate:
 - Action items
 - Lists of alternatives
 - Lists of required steps that are not necessarily sequential.
- Sequential lists (e.g., those that describe step-by-step procedures) appear as numbered lists.

Related Documents and Software

The following items provide more information about the HC1.

- *HC1 Quick Reference Guide*, p/n 72-165008-xx
- *HC1 Integrator Guide*, p/n 72E-165012-xx

For the latest version of this guide and all guides, go to: <http://www.zebra.com/support>

Service Information

If you have a problem with your equipment, contact Zebra Global Customer support for your region. Contact information is available at: <http://www.zebra.com/support>.

When contacting Zebra Global Customer support, please have the following information available:

- Serial number of the unit
- Model number or product name
- Software type and version number

Zebra responds to calls by email or telephone within the time limits set forth in support agreements.

If your problem cannot be solved by Zebra Global Customer Support, you may need to return your equipment for servicing and will be given specific directions. Zebra is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty.

If you purchased your product from a Zebra business partner, contact that business partner for support.

CHAPTER 1 GETTING STARTED

Introduction

This chapter describes the HC1 physical characteristics, how to install and charge the battery and how to install the HC1 on your head.

Unpacking the Mobile Computer

Carefully remove all protective material from around the HC1 and save the shipping container for later storage and shipping.

Verify that you received all equipment listed below:

- HC1 headset computer
 - Computer/Optical Pod Assembly
 - Firm Goods Assembly
- Lithium-ion battery
- Speaker Module
- Battery Cover
- Quick Reference Guide.

Inspect the equipment for damage. If equipment is missing or damaged, contact the Zebra Global Customer Support immediately. See [Service Information on page xi](#) for contact information.

Features

The features of the HC1 mobile computer are shown in [Figure 1-1](#).

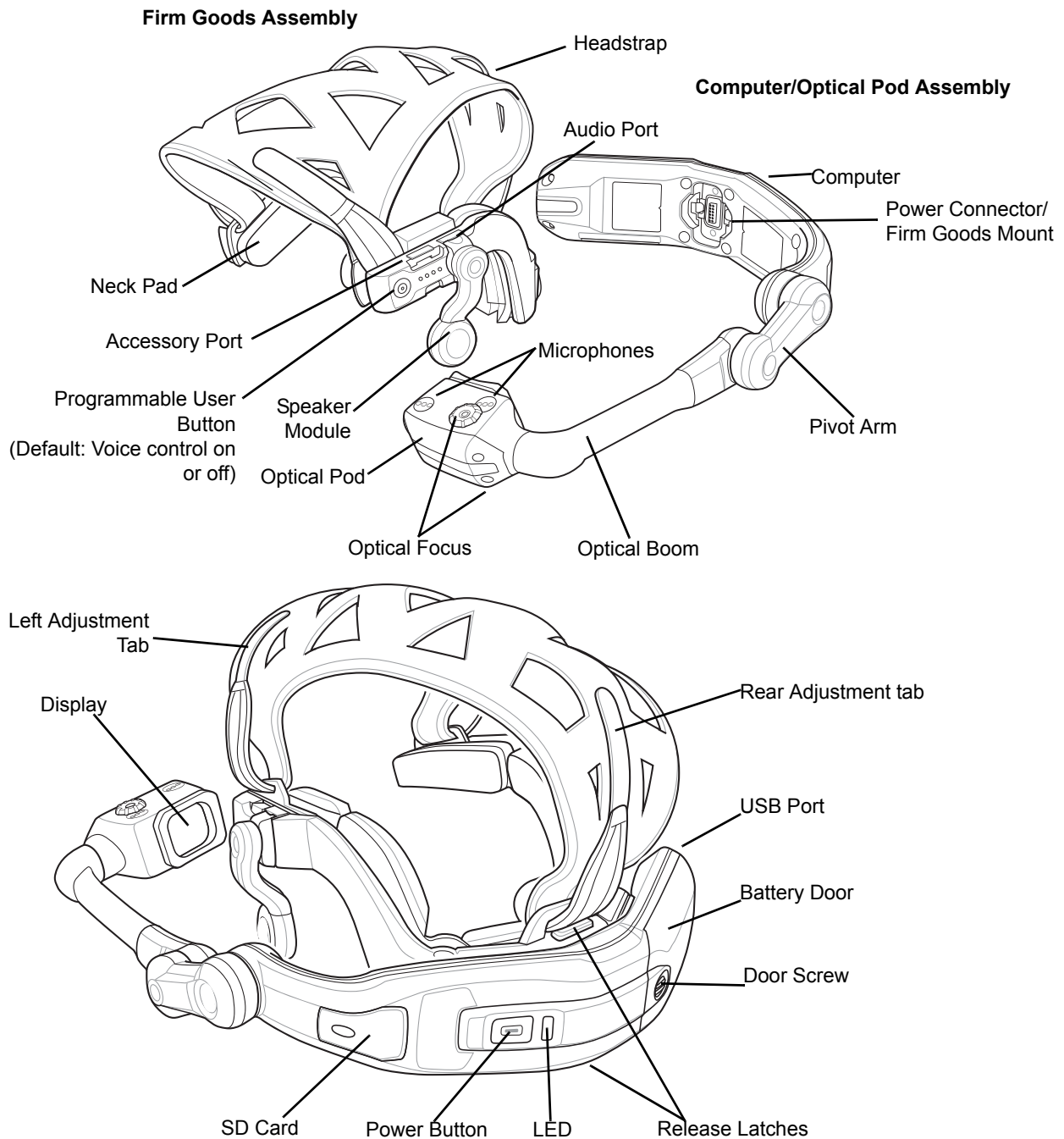


Figure 1-1 HC1 Headset Computer

HC1 Setup

Perform the following to setup the HC1:

- Install the battery
- Charge the HC1
- Determining dominant eye
- Re-position Computer/Optical Pod Assembly
- Re-position speaker module
- Place the HC1 on head
- Adjust headset
- Adjust optic pod.

Installing the Battery

To install the battery:

1. Insert the battery into the battery well with the battery notches facing down and the release latch facing up.

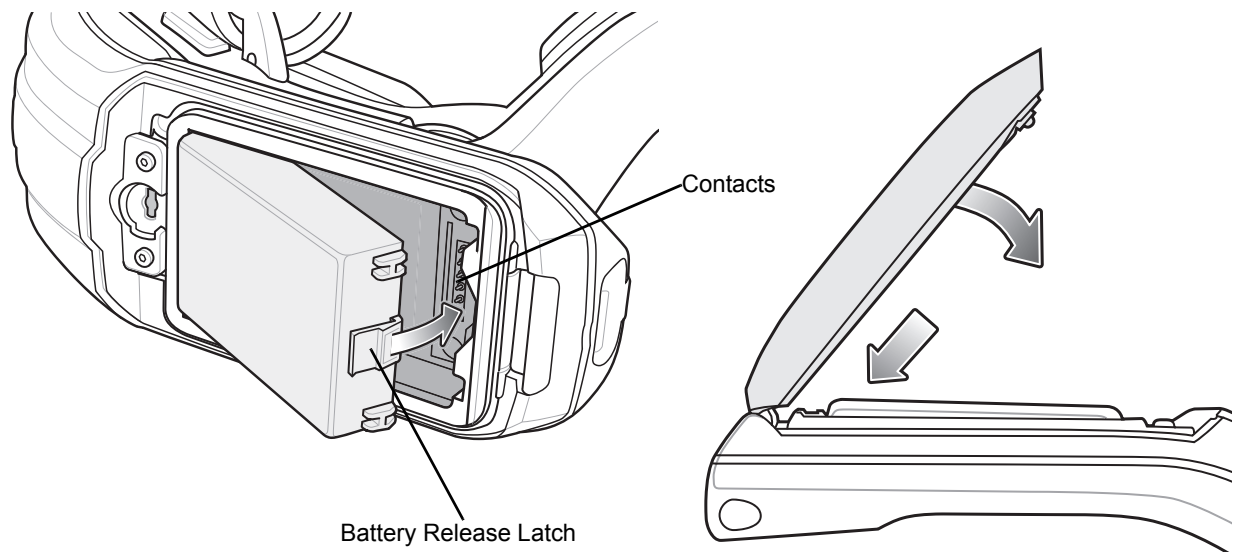


Figure 1-2 *Insert Battery*

2. Rotate the battery into the battery well until it snaps into place. If the battery is charged, the HC1 turns on.
3. Align the battery door with the housing.
4. Close battery door.

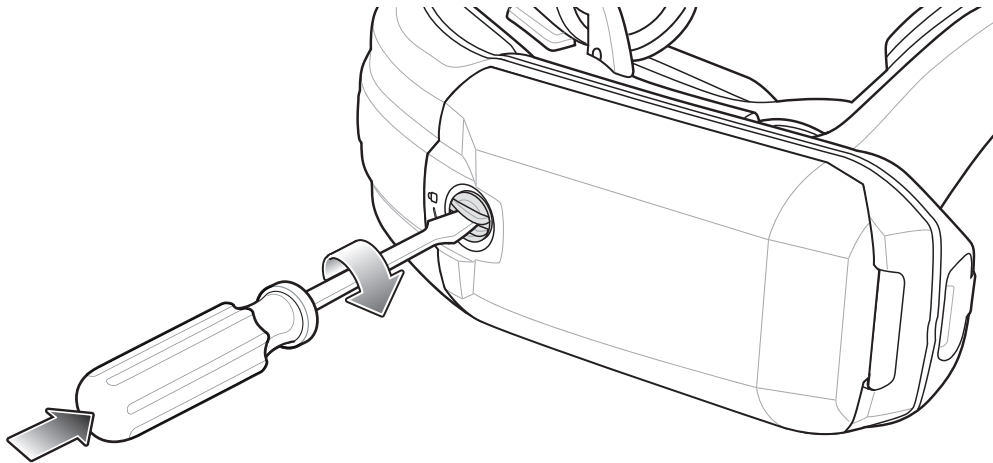


Figure 1-3 Secure Battery Door

5. Using a screwdriver or coin, turn the locking screw clockwise 1/4 turn to the lock position.

Charging the HC1



CAUTION Do not place on head while charging.



CAUTION Ensure that you follow the guidelines for battery safety described in [Battery Safety Guidelines on page 10-1](#).

The battery can be charged before insertion into the HC1 or after it is installed. Use the Four-slot Battery Charger to charge the battery (out of the HC1) or the power module to charge the battery while it is installed in the HC1.

Before using the HC1 for the first time, fully charge the battery until the LED Indicator remains lit (see [Table 1-1 on page 1-7](#) for charge status indications). The 1950 mAh battery fully charges in less than four hours and the 4800 mAh battery fully charges in less than eight hours.

The HC1 is equipped with a backup battery which automatically charges from the fully-charged main battery. When using the HC1 for the first time, the backup battery requires approximately 30 hours to fully charge. This is also true any time the backup battery is discharged, which occurs when the main battery is removed for several hours. When the HC1 reaches a very low battery state, the combination of main battery and backup battery retains clock data for at least 39 hours.



NOTE Batteries must be charged within the 0 ° to +40 ° C (32 ° to 104 ° F) ambient temperature range.

1. Press the release latches to remove the Firm Goods Assembly from the Computer/Optical Pod Assembly.

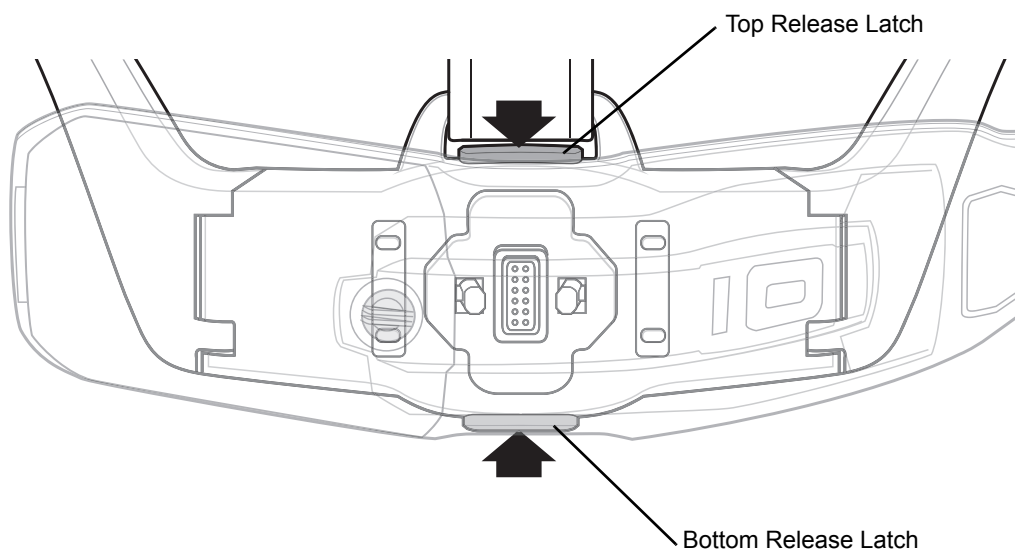


Figure 1-4 Remove Firm Goods from Computer/Optical Pod Assembly

2. Connect the Charging Adapter to the Computer/Optical Pod Assembly.

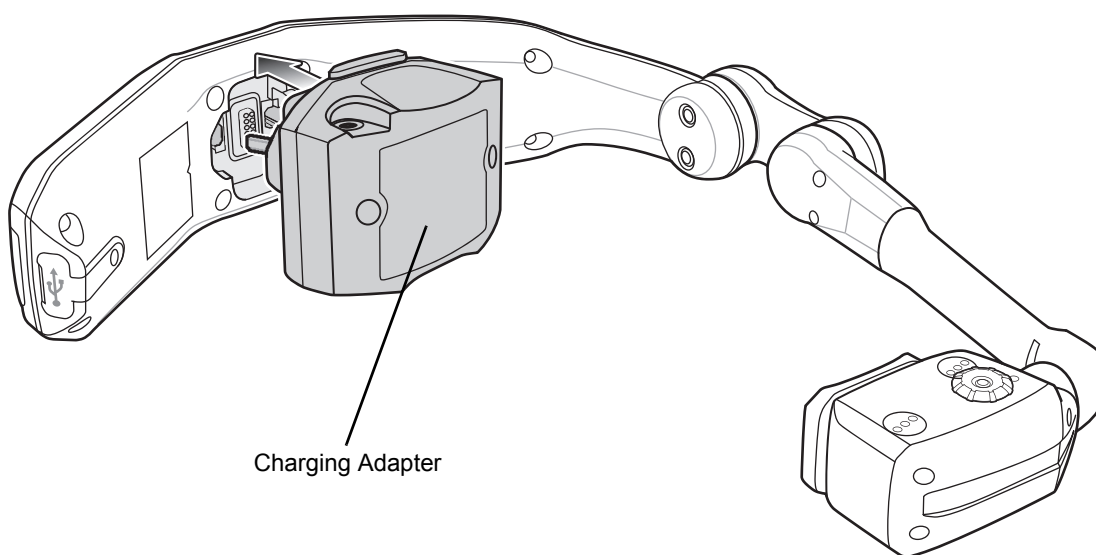


Figure 1-5 Connect Charging Adapter

3. Plug the Power Supply plug into the Charging Adapter and the Power Supply into a wall outlet.
or
Plug the Vehicle Charge Cable into the Charging Adapter and into the vehicle power socket.

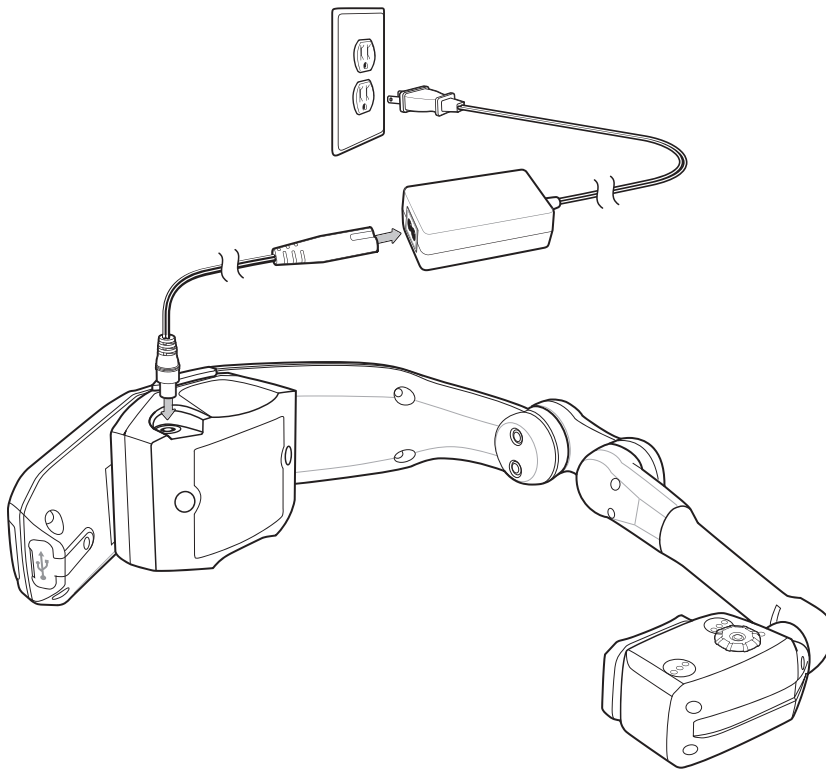


Figure 1-6 *Connect AC Power Supply*

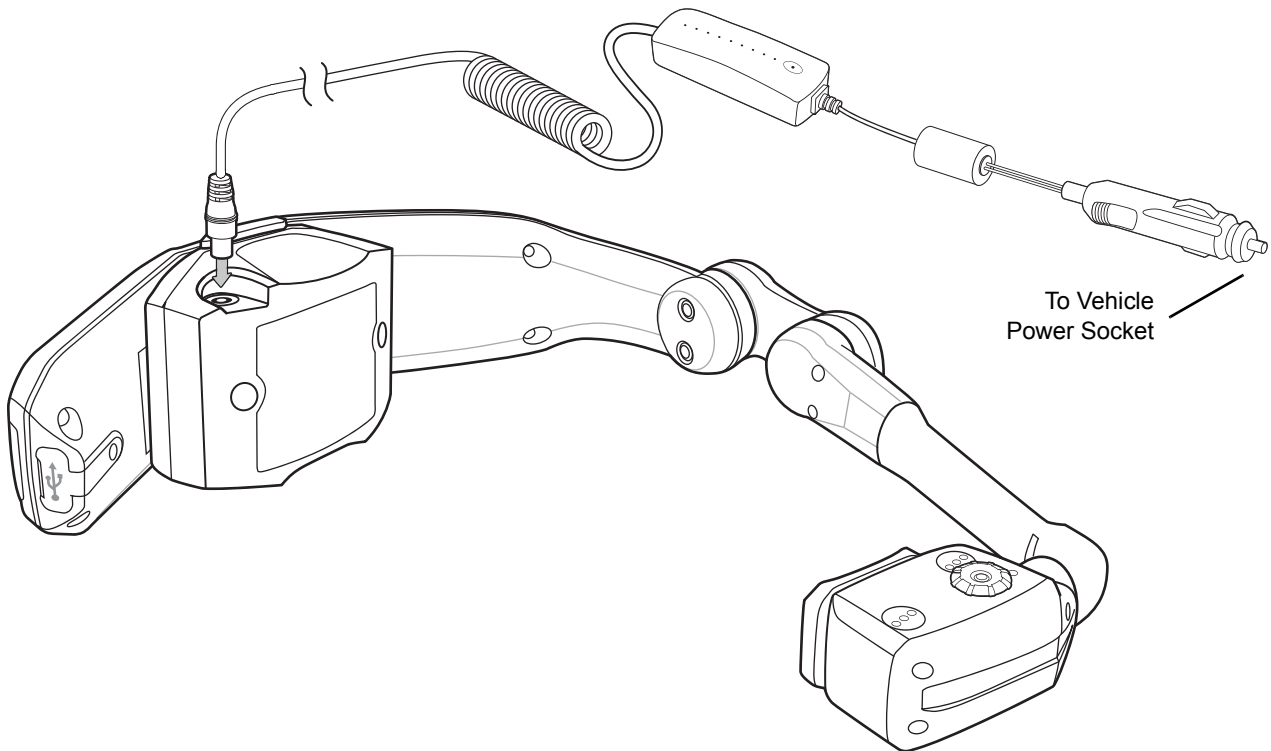


Figure 1-7 *Connect Vehicle Power Adapter*

4. Charge until the LED turns green.

Table 1-1 LED Indicator

LED State	Description
Slow Flashing Amber	HC1 is charging.
Solid Green	HC1 is fully charged.
Fast Flashing Amber	Charging error.

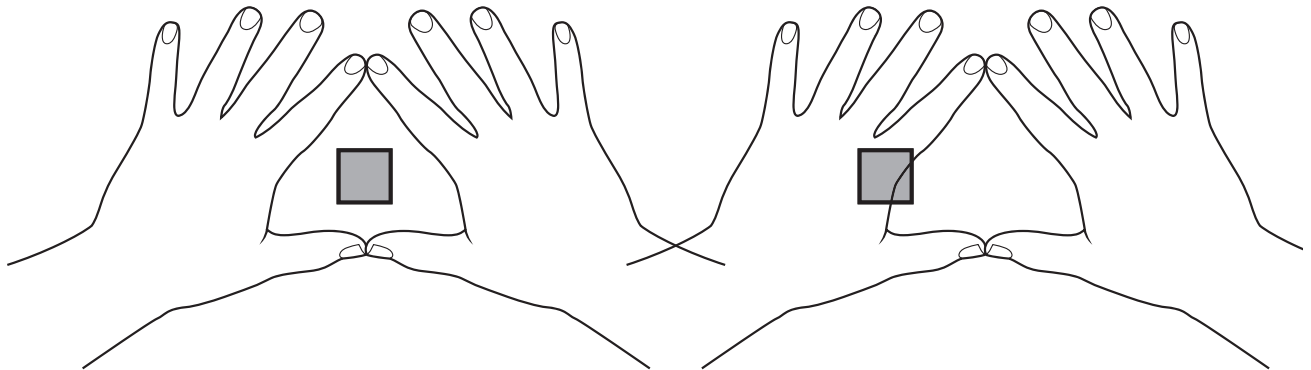
- Press the Charging Adapter release latches and remove the Charging Adapter from the Computer/Optical Pod Assembly.

Determining Dominant Eye

Eye dominance is the tendency to prefer visual input from one eye to the other. Most people are right-eye dominant; however in a small portion of the population neither eye is dominant. It is best to use your dominant eye when viewing the display.

To determine which eye is dominant:

- Place hands together as shown forming a triangle.

**Figure 1-8** Dominant Eye Test

- Keeping both eyes open, focus on any distant object.
- Maintaining focus on the object centered in the triangle, close your right eye. If the object is still in the triangle, you are left eye dominant.
- Maintaining focus on the object centered in the triangle, close your left eye. If the object is still in the triangle, you are right eye dominant.
- If the object is in the triangle with either eye then you are dominant eye neutral.
- Repeat test to confirm.

Re-positioning the Computer/Optical Pod Assembly

From the factory, the HC1 is configured for left eye dominant. To switch the optical pod position:

- If not already removed, press the release latches to remove the Firm Goods Assembly from the Computer/Optical Pod Assembly.

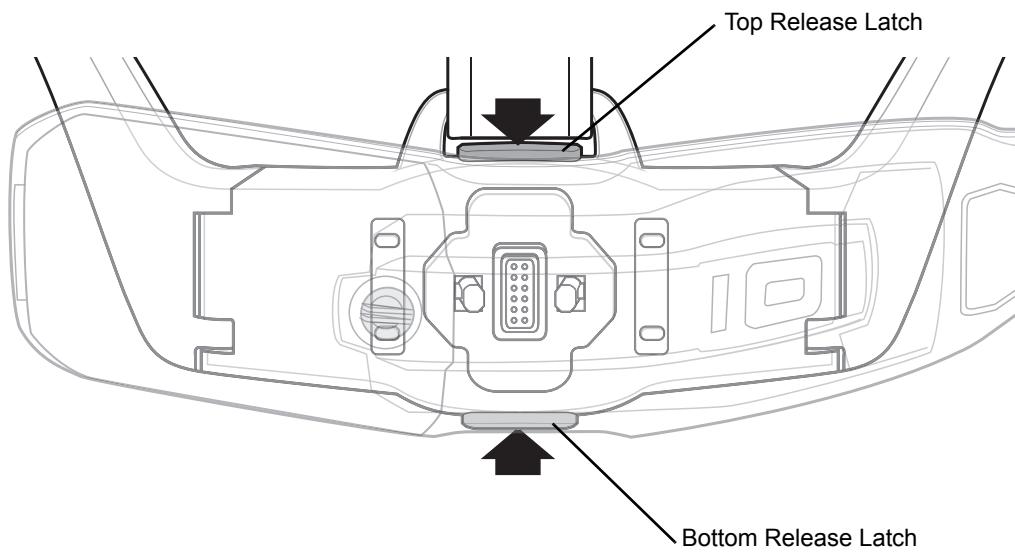


Figure 1-9 Press Release Latches

2. Rotate the Computer/Optical Pod Assembly 180°.

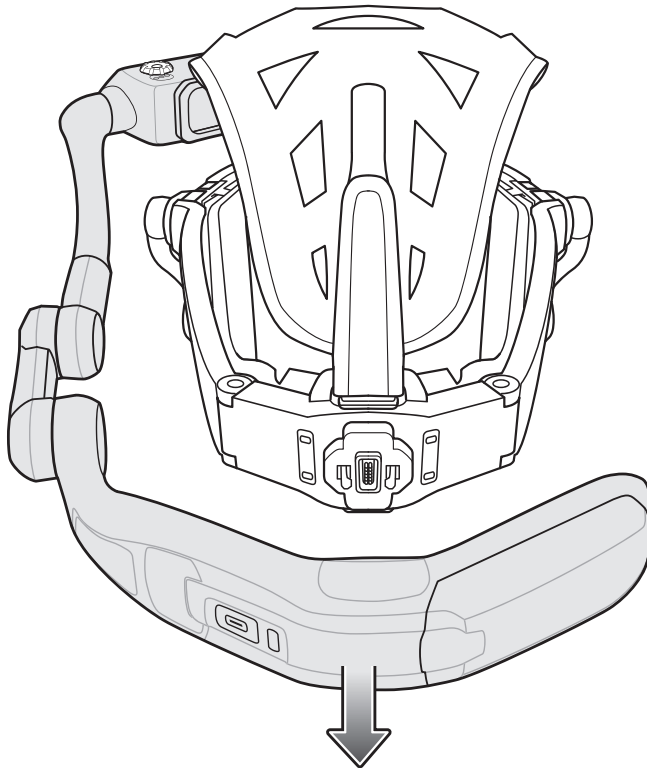


Figure 1-10 Separate Firm Goods Assembly from Computer/Optical Pod Assembly

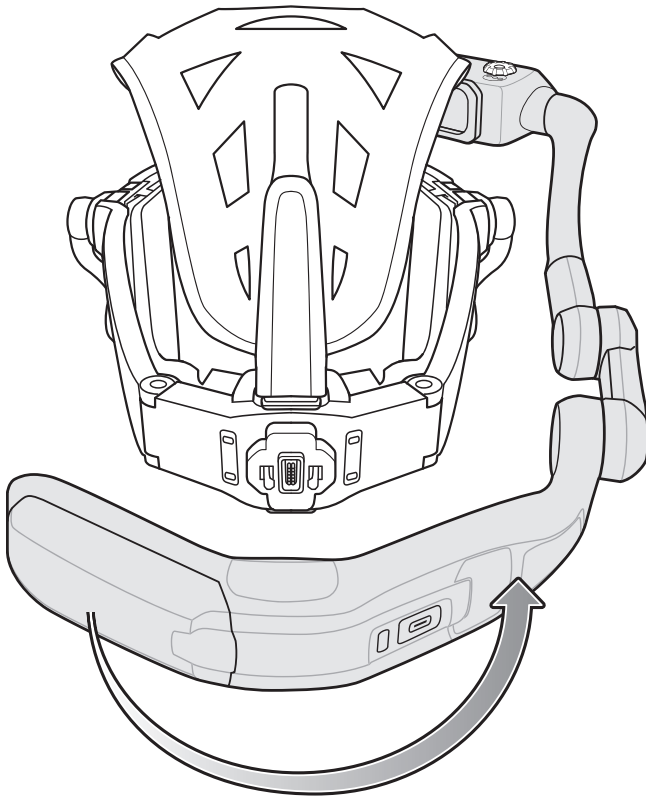


Figure 1-11 *Flip Computer/Optical Pod Assembly*

3. Reconnect the Firm Goods Assembly to the Computer/Optical Pod Assembly.



Figure 1-12 *Re-Attach Computer/Optical Pod Assembly*

Re-positioning Speaker Module



NOTE By default, the Speaker Module is installed on the right side. The user can switch the Speaker Module to the left side if desired.

If switching the position of the Computer/Optical Pod Assembly was shifted it might be necessary to re-position the Speaker Module.

4. Press release latch to remove Speaker Module from the Firm Good Assembly.

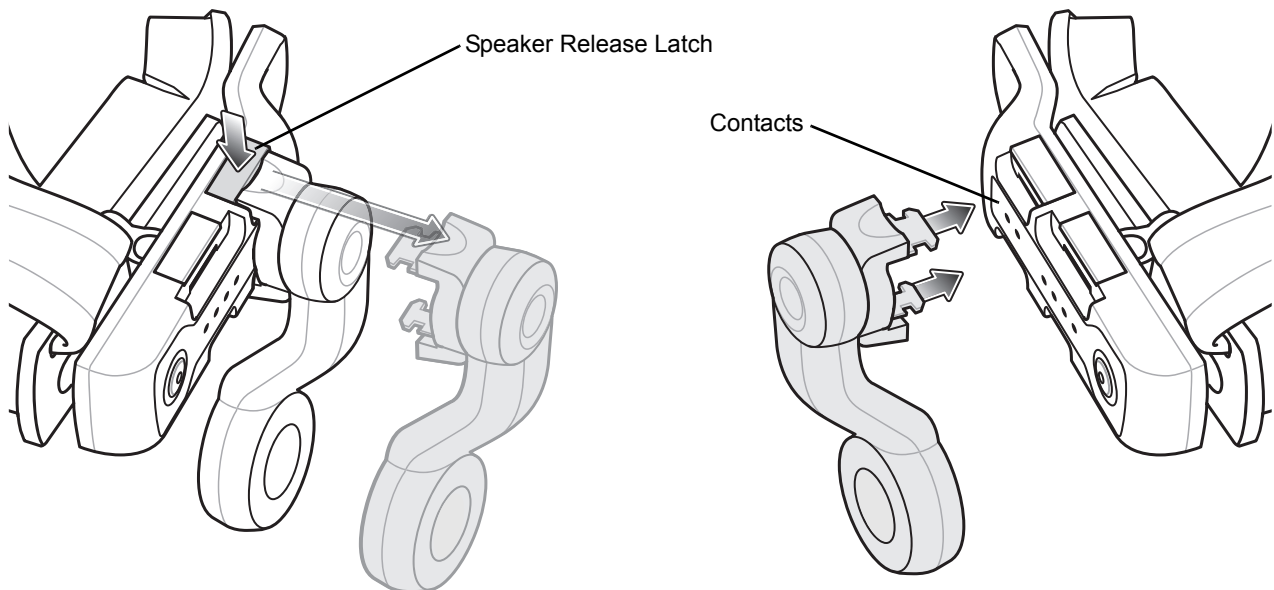


Figure 1-13 *Re-Position Speaker Module*

5. Align the Speaker Module on the opposite arm. Ensure that the Speaker Module is connected to the mating connector with the two contacts.
6. Press the Speaker Module in until it snaps into place.

Placing the HC1 on Head

The HC1 is worn on the head so that the main body of the device fits behind the base of the head with the strap sitting on top of the head.

1. If the HC1 is off, press the power button to turn it on.
2. Grasp the HC1 by the Firm Goods Assembly arms.
3. Pull the arms out to expand Firm Goods Assembly arms.
4. Position the HC1 over head.

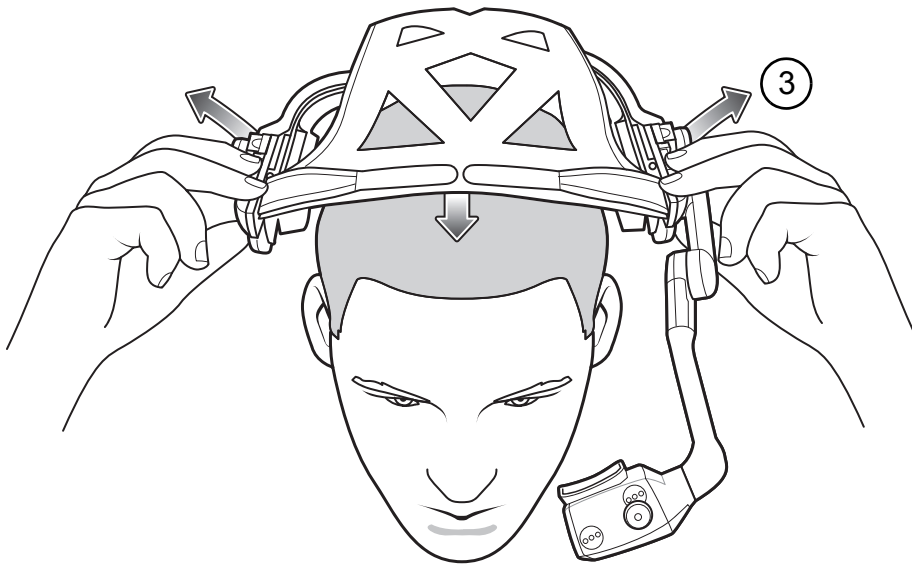


Figure 1-14 *Expand HC1 Firm Goods Arms*

5. Place the HC1 onto the head. The front of the headstrap must be positioned at the top of the forehead.



Figure 1-15 *Place HC1 on Head*

6. Re-position the rear headstrap tab to position the height of the Computer/Optical Pod Assembly.
7. Re-position the left and right headstrap tabs to position the arms above the ears.
Lengthen or shorten the head strap so that the ear loops are resting just above but not touching the ears.

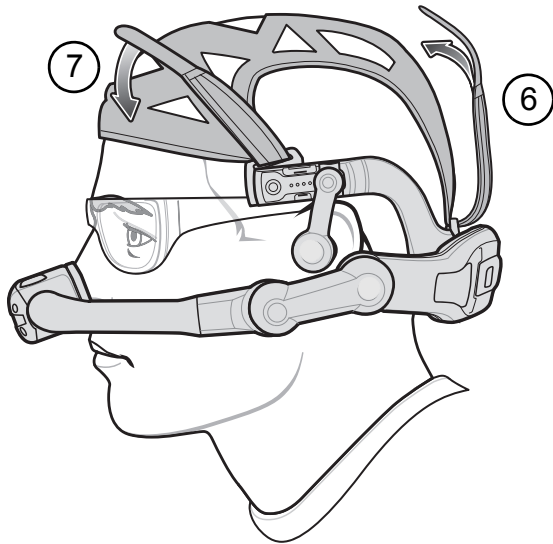


Figure 1-16 *Adjust Headstraps*

8. Make sure the HC1 is balanced on head like you would a pair of eyeglasses.

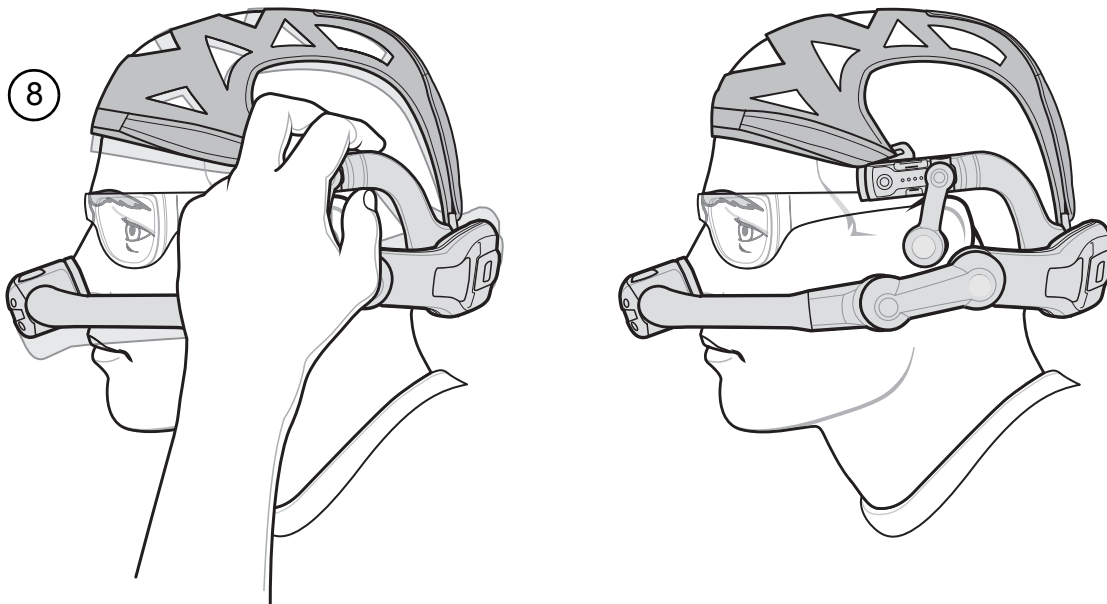


Figure 1-17 *Adjust HC1 on Head*

Adjusting the Optical Boom

When adjusting the HC1 boom, hold the arm on the side opposite the boom when moving the boom up and down.

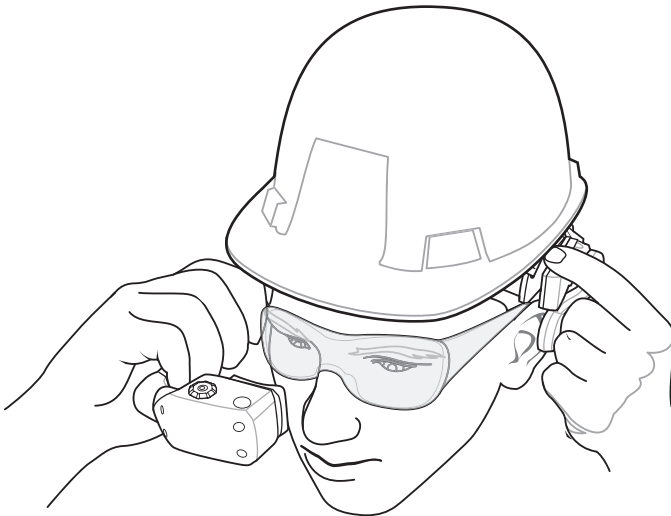


Figure 1-18 *Adjusting the Optical Boom*

The HC1 pivot points allow the user to properly position the Optical Pod and to move the optical Pod when the user does not need to use it.

The Coarse Pivot Point allows for moving the Optical Pod large distances. The Fine Pivot point allow for fine tuning of the position. The Pod Pivot point allow for positioning of the display for viewing.

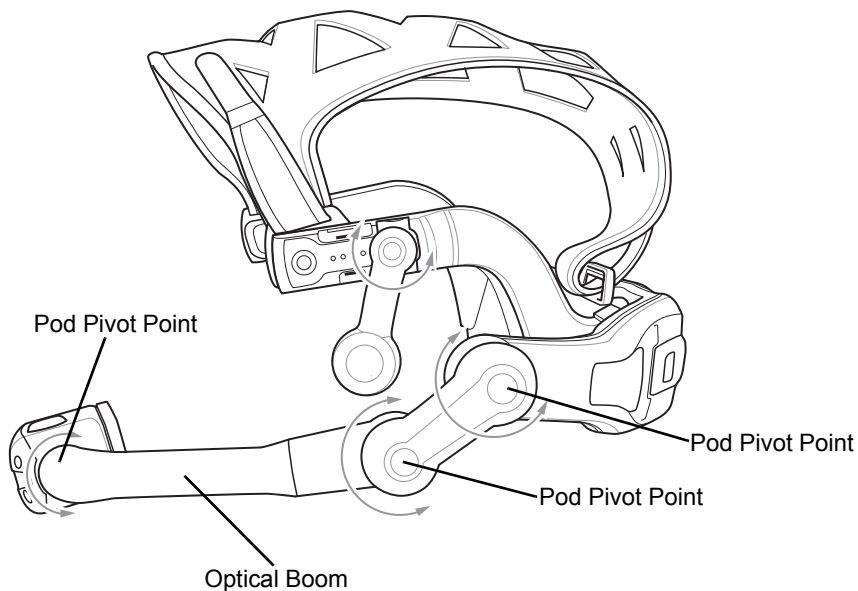


Figure 1-19 *Pivot Points*

Move the Optical Boom in or out to position under eye.

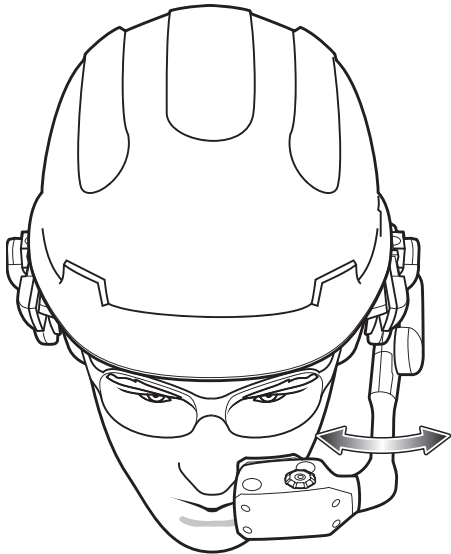


Figure 1-20 Move Optical Boom

Position the optical boom so that the Optical Pod is positioned approximately two fingers distance from the eye wear.

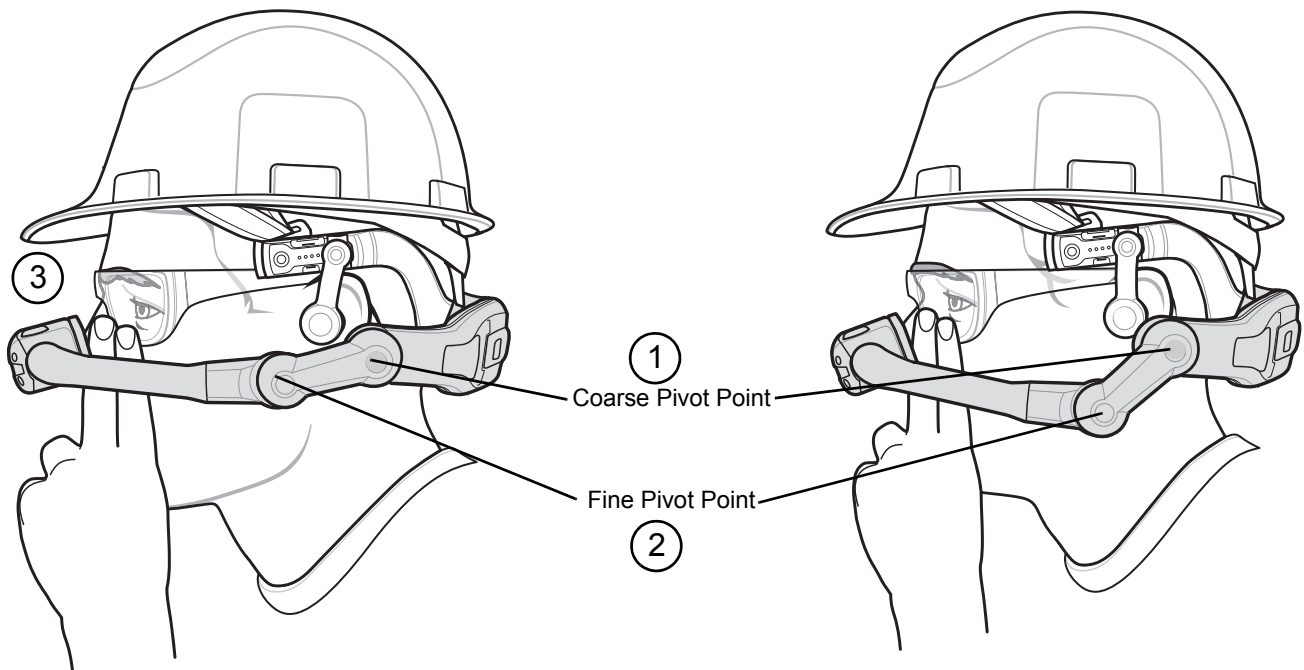


Figure 1-21 Optical Pod Alignment

The Optical Pod must be positioned so that it does not block the line of sight of the user.

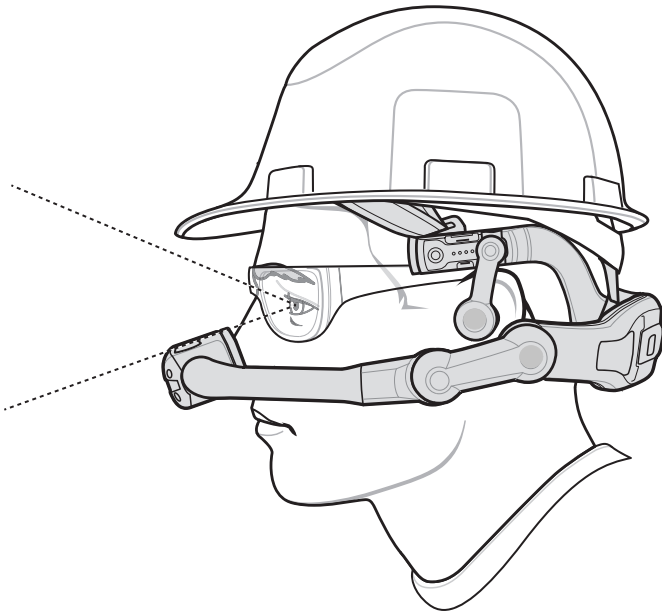


Figure 1-22 *Proper Position of Optical Pod*

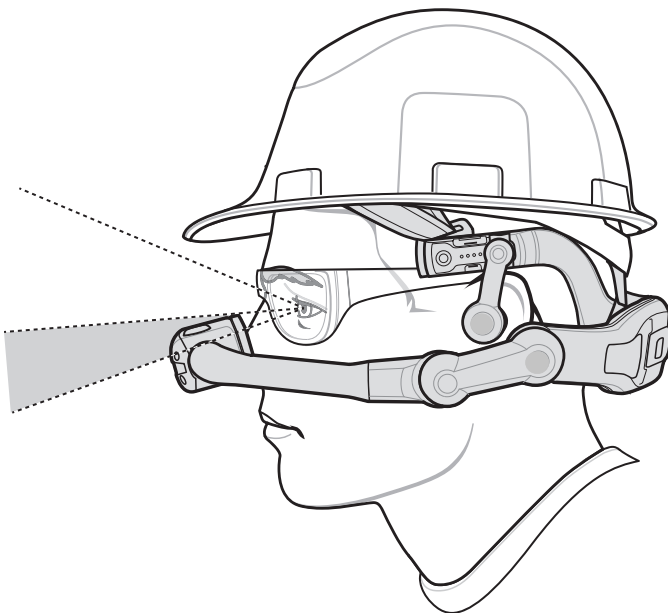


Figure 1-23 *Blocked Field of View*

1. Hold the HC1 with one hand and rotate the arm at the Coarse Pivot Point.
2. Hold the HC1 with one hand and rotate the arm at the Fine Pivot Point.
3. Repeat adjustments until the Optical Pod is two finger lengths away from safety glasses and out of the user's line of sight.
4. Adjust the optical boom to position the display left or right.
5. Rotate the Optical Pod for best viewing angle.

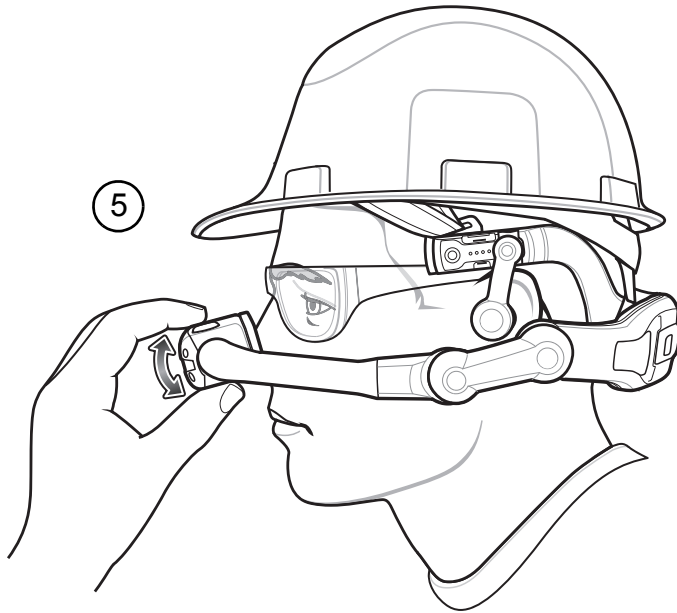


Figure 1-24 *Adjust Optical Pod*

Focus Display

To focus the display:

1. Look into the display.
2. There are two display dials for controlling the focus. One on top and one on the bottom. With thumb and index finger, squeeze dials.
3. Rotate the display dials either clockwise or counter-clockwise until the display appears in focus.

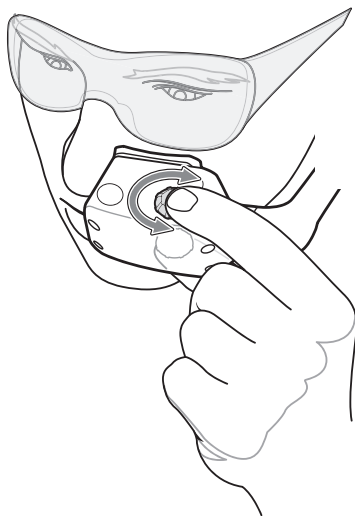


Figure 1-25 *Focus Display*

If the Computer/Optical Pod Assembly was rotated, the display appears upside down. Say "My Computer" > "My Controls" > "Screen Rotation" > "Rotate Screen."

Replacing the Battery



CAUTION Prior to replacing the battery, save all data to persistent storage or the microSD card and close all running applications. Failure to do so will result in loss of data.

To replace the same battery size:

1. Press the Power button for one second to place the HC1 in suspend mode. The display turns off and the LED light red.
2. Wait for the LED to turn off.
3. Using a screwdriver or coin, turn the locking screws counterclockwise 1/4 turn to the unlock position.

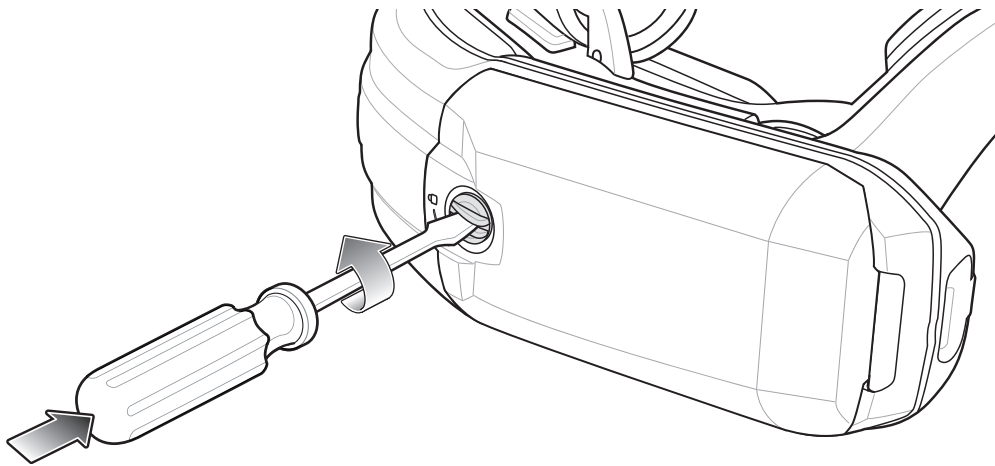


Figure 1-26 *Unlock Battery Door*

4. Lift battery door.
5. Remove the battery from the HC1.
6. Insert the replacement battery into the battery well with the battery notches facing down and the release latch facing up.

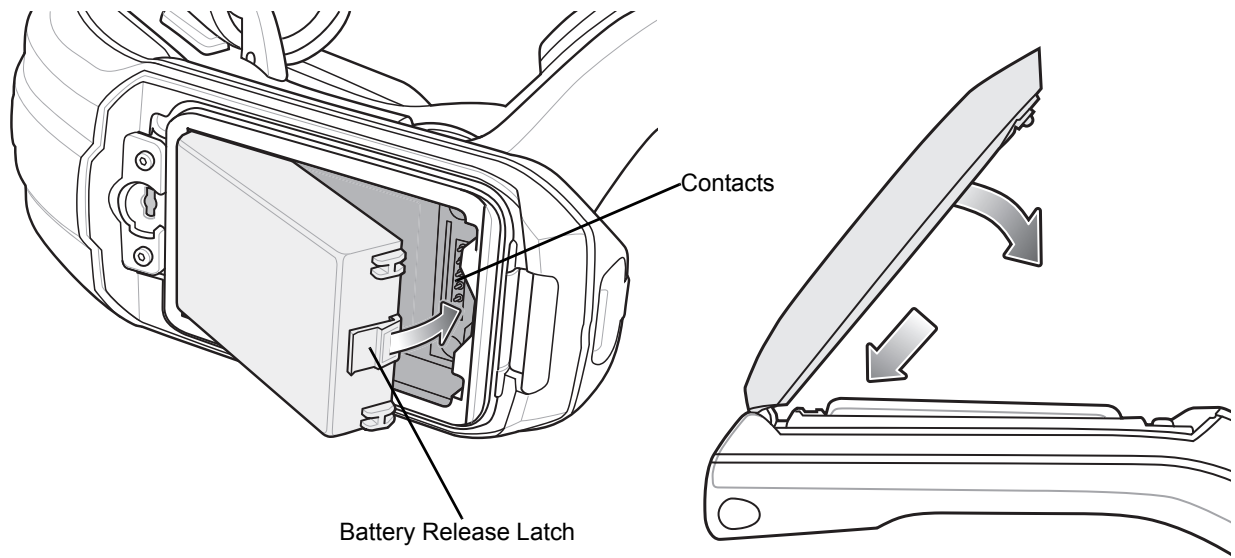


Figure 1-27 *Insert Battery*

7. Rotate the battery into the battery well until it snaps into place.
8. Align the battery door with the housing.
9. Close battery door.

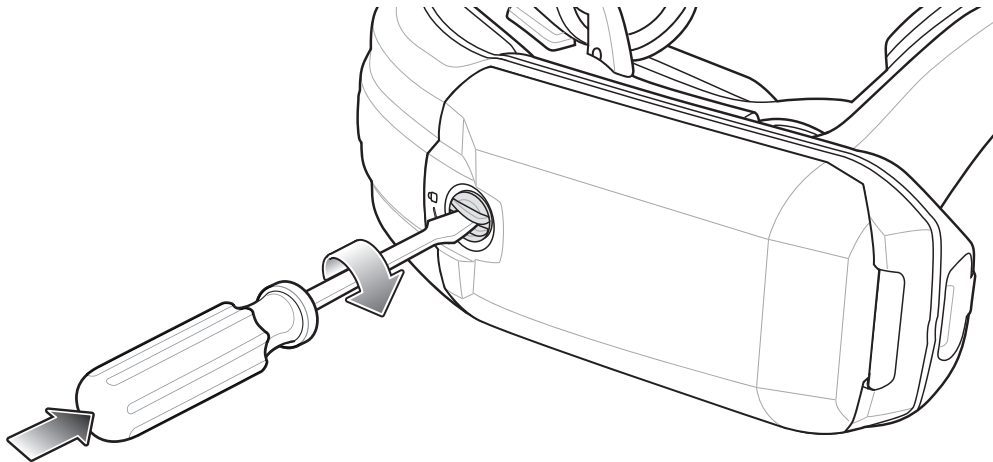


Figure 1-28 *Secure Battery Door*

10. Using a screwdriver or coin, turn the locking screws clockwise 1/4 turn to the lock position. The HC1 turns on.

Replacing a Battery with Different Size



CAUTION Prior to replacing the battery, save all data to persistent storage or the microSD card and close all running applications. Failure to do so will result in loss of data.

To replace a 1950 mAh battery with a 4800 mAh battery or a 4800 mAh battery with a 1950 mAh battery:

1. Press the Power button for one second to place the HC1 in suspend mode. The display turns off and the LED light red.
2. Wait for the LED to turn off.
3. Using a screwdriver or coin, turn the locking screws counterclockwise 1/4 turn to the unlock position.

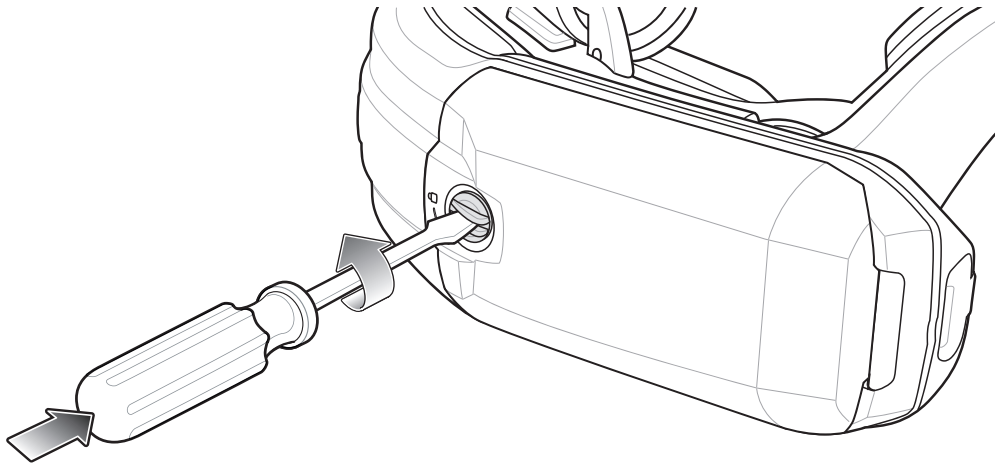


Figure 1-29 *Unlock Battery Door*

4. Lift battery door.
5. Remove the battery from the HC1.
6. Insert the replacement battery into the battery well with the battery notches facing down and the release latch facing up.

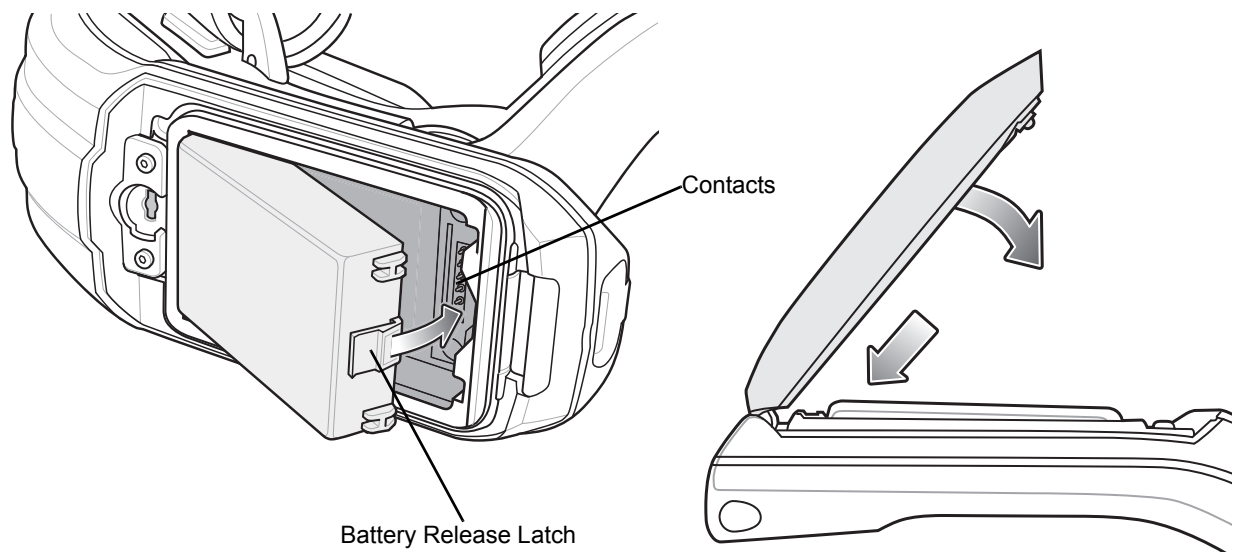


Figure 1-30 *Insert Battery*

7. Rotate the replacement battery into the battery well until it snaps into place.
8. Align the appropriate battery door with the housing.
9. Close battery door.

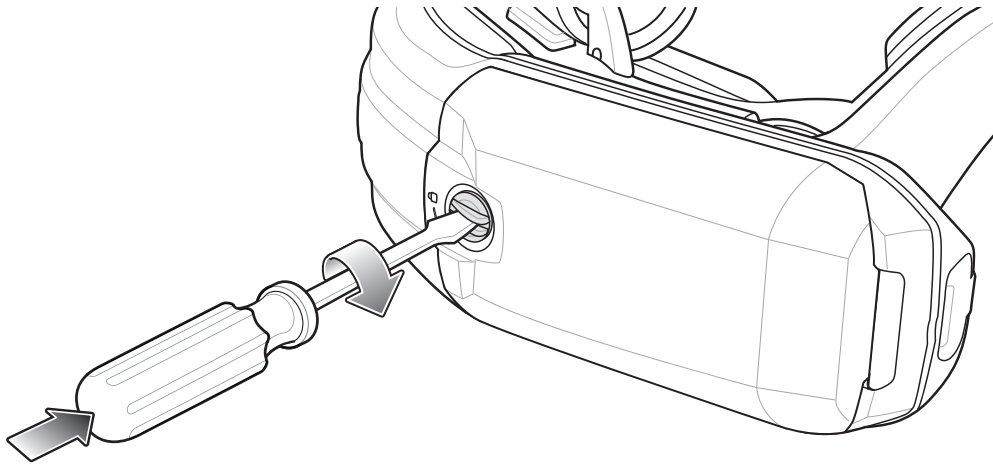


Figure 1-31 *Secure Battery Door*

10. Using a screwdriver or coin, turn the locking screws clockwise 1/4 turn to the lock position.
11. The HC1 boots. A message appears on the display indicating that the user must connect the HC1 to external power or perform a reboot.
12. Perform a cold boot (see [Resetting the HC1 on page 2-5](#)) or connect the HC1 to external power for approximately eight seconds.

CHAPTER 2 OPERATION

This chapter provides basic operation information for the HC1 headset computer.

Head Tracker Navigation

The HC1 contains 9-axis head tracking sensors that allow the user to move the objects on the display by moving their head up and down and left and right.

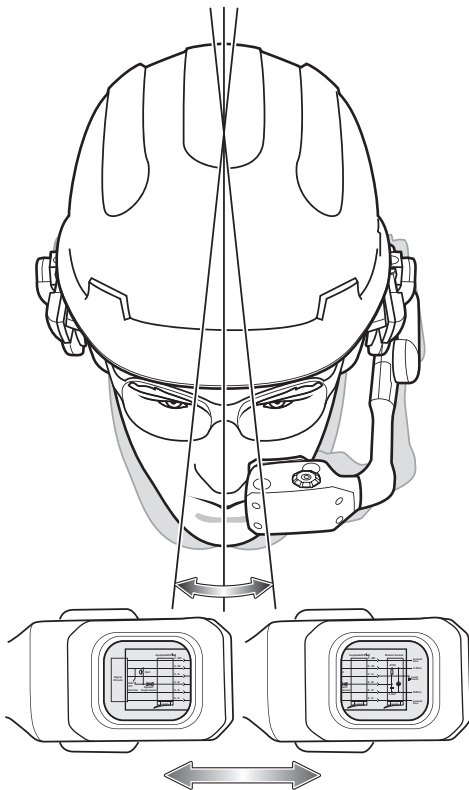


Figure 2-1 *Scrolling Left and Right*

As the user moves head left or right, the image on the display scrolls accordingly. Moving the head up and down moves the image on the display accordingly.

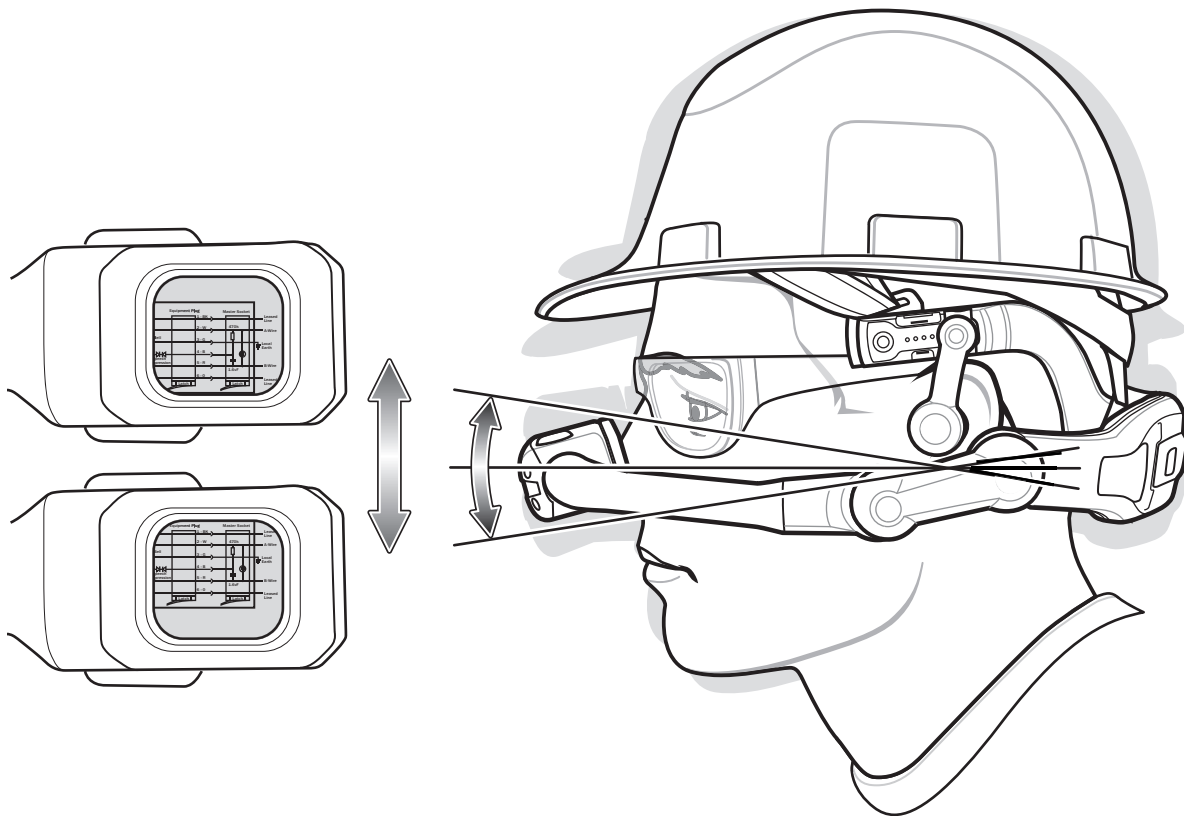


Figure 2-2 *Scrolling Up and Down*

Voice Control

The HC1 is equipped with voice recognition software that allows the user to control software functionality by speaking on-screen commands.

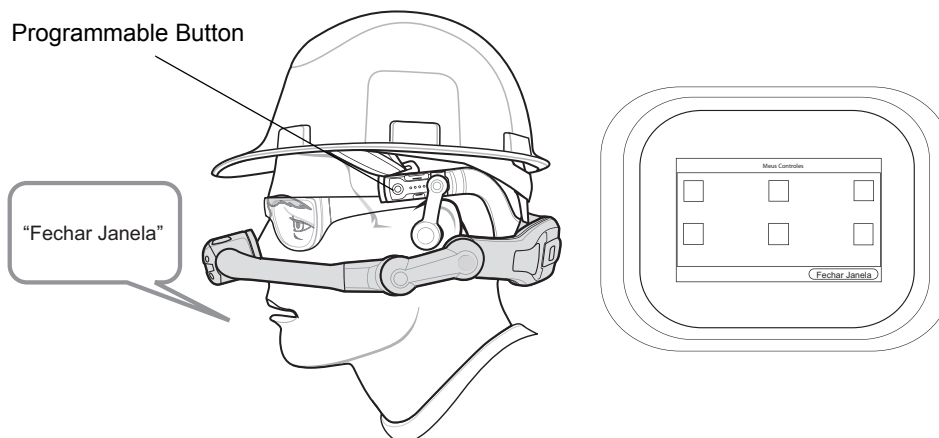


Figure 2-3 *Voice Commands*

Each Firm Goods arm contains a programmable user button. By default, when the user presses and releases either of the buttons, voice controls are turned off. A dialog box appears on the screen notifying the user.

Zebra recommends that the user turn off voice controls to eliminate any inadvertent commands due to noisy environments or communication with another person. Press and release the button to turn on voice control.

Speech Recognizer commands can only be directed at the currently focused foreground window.

Languages

The HC1 supports the following languages:

- English
- French
- German
- Italian
- Spanish.

See [My Language on page 4-3](#) for information about setting a different language.

Mouse Navigation

For applications that are not voice control enabled (such as the desktop), the user can control the mouse cursor movement on the screen by moving their head left and right and up and down. The cursor moves across the screen according to the Head-controlled mouse settings. See [Head-Controlled Mouse on page 4-4](#) for more information.

To simulate pressing the left button once, say “Mouse Click.” To simulate pressing the left button twice say “Mouse Double-click.” To simulate pressing the right button once, say “Mouse Right Click.”

Positioning Optical Pod When Not in Use

The user can move the Optical Pod away from the face when it is not being used for long periods of time. Grasps the boom and rotate up and away from the face.

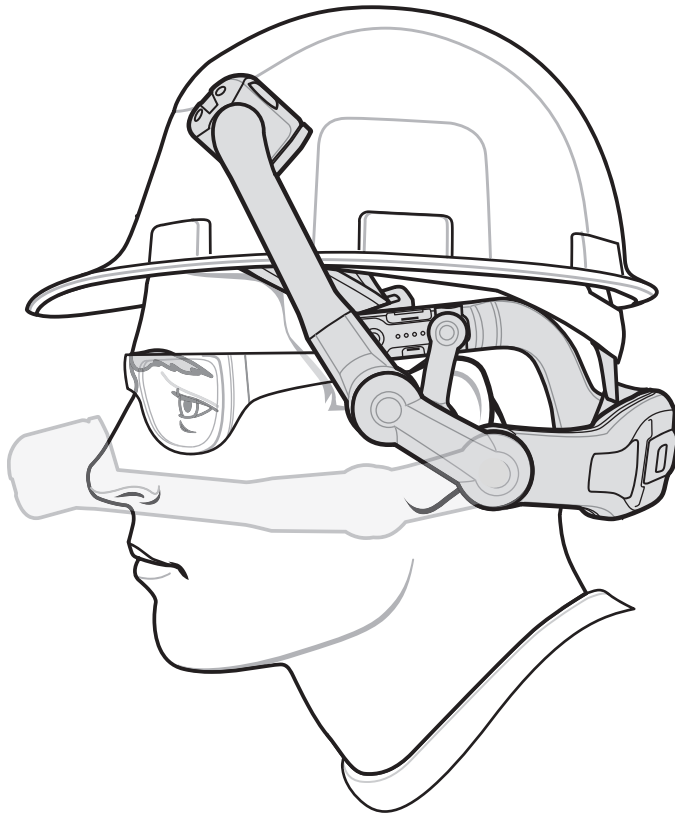


Figure 2-4 *Raise Optical Pod*

LED

The LED on the HC1 indicates the following:

Table 2-1 *LED Indicator*

LED State	Description
Charging	
Slow Flashing Amber	HC1 is charging.
Solid Green	HC1 is fully charged.
Fast Flashing Amber	Charging error.

Table 2-1 LED Indicator

LED State	Description
Boot Up	
Fast Flashing Red	During boot up on battery power, battery door or SD card cover are open.
Slow Flashing Red	During booting up operating system update. User must attach power to the HC1 to update image.

Suspend Mode

In suspend mode the HC1 powers down to save battery power. The HC1 can be placed in suspend mode manually or it can go into suspend mode automatically.

To place the HC1 in suspend mode press and hold the Power button for one second. The LED lights red and then display turns off.

After a period of inactivity, the HC1 first goes into idle mode (screen darkens) and then goes into Suspend mode.

To wake the HC1 from suspend mode press the Power button. After about six seconds the display turns on.

Resetting the HC1



CAUTION All unsaved data is lost when performing a cold boot.

If the HC1 stops responding perform a cold boot. Press the Power button for eight seconds. Initially the HC1 requires approximately 30 seconds to boot-up, during which time the booting screen displays.

After boot up, the desktop or applications window displays.

Desktop

The HC1 is a Windows CE 6.0 computer with a number of HC1 specific features. These features include: the speech recognizer, the Head-Tracker, the Bluetooth and the Wi-Fi subsystems.

Together these features allow applications to be designed and implemented for the HC1, applications that are typically hands-free and voice driven.

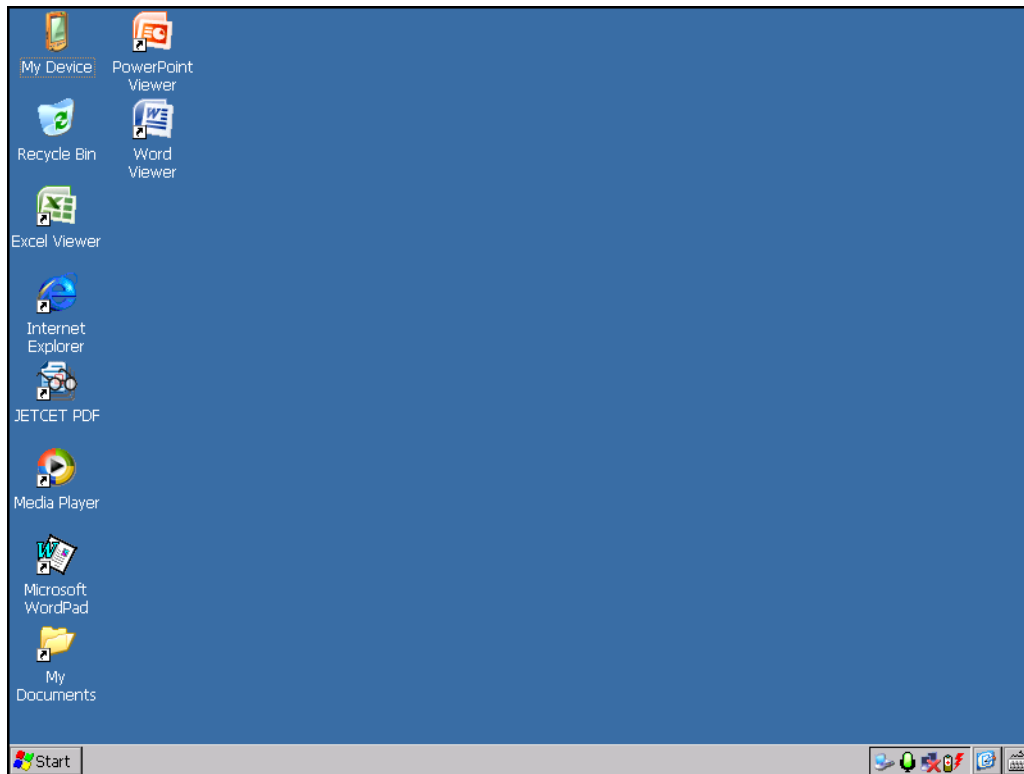


Figure 2-5 *HC1 Desktop*

The desktop is not the ideal starting place for end users. The HC1 is highly configurable as it is expected that as the HC1 is deployed it will be configured to completely hide the desktop in favor of a more speech driven solution.

The WinCE desktop is standard but has a built in speech recognizer and a built in set of commands and applications that are designed to be used in hands-free mode.

The green microphone in the task tray indicates that the speech-enabled services are running. This icon has a pop-up menu associated with it, allowing key components of the services to be accessed as an alternative to issuing similar spoken commands.



Figure 2-6 *G-i Services Icon*

My Computer

✓ **NOTE** When the **My Computer** window is in focus, the head-tracking mouse cursor is disabled.

Use the **My Computer** window as a launch pad for operating the HC1. Say “My Computer” to launch the **My Computer** screen.

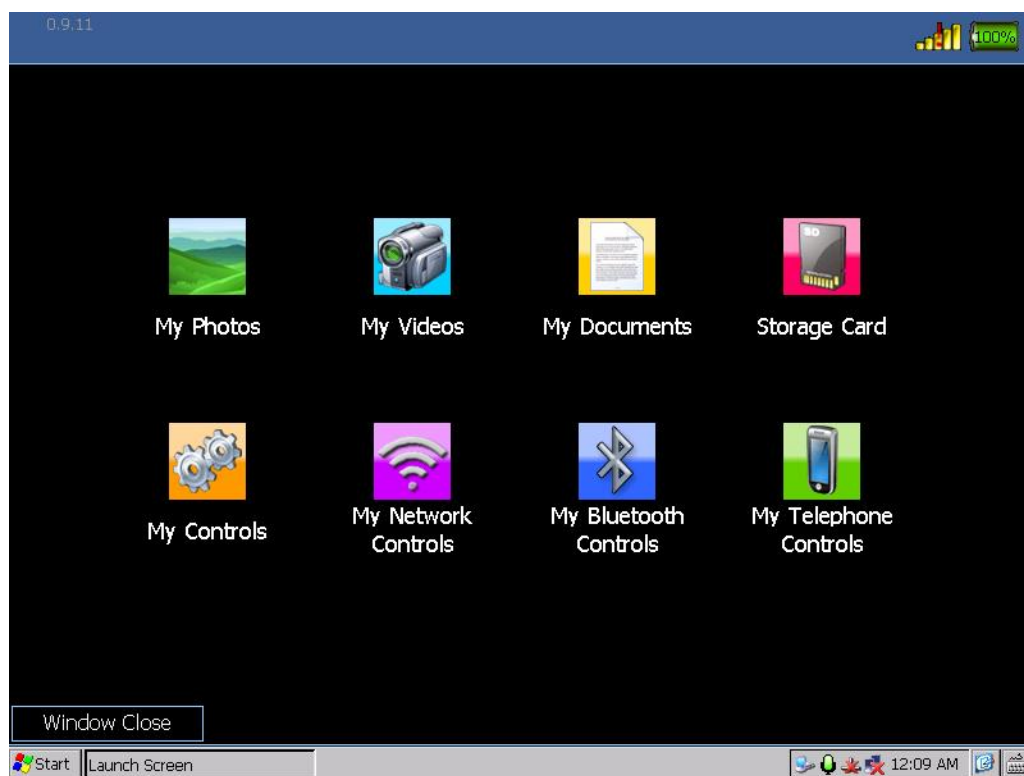


Figure 2-7 *My Computer Window*

✓ **NOTE** The My Computer window shows the default configuration and may vary depending upon applications installed on the HC1.












The main screen has the following options:

- **My Photos** - view photos on the HC1. See [My Photos on page 3-1](#) for more information.
- **My Videos** - view videos on the HC1. See [My Videos on page 3-7](#) for more information.
- **My Documents** - view documents on the HC1. See [My Documents on page 3-4](#) for more information.
- **Storage Card** - view files on the optional microSD card installed in the HC1. See [Storage Card on page 3-9](#) for more information.
- **My Controls** - use to control settings of the HC1. See [Chapter 4, My Controls](#) for more information.
- **My Network Controls** - use to setup wireless network. See [Chapter 5, My Network Controls](#) for more information.

- **My Bluetooth Controls** - use to configure Bluetooth and connect Bluetooth devices to the HC1. See [Chapter 6, My Bluetooth Controls](#) for more information.
- **My Telephone Controls** - use to make and answer phone calls when connected to a phone. See [Chapter 7, My Telephone Controls](#) for more information.

The status bar at the top of the window lists various icons depending upon configuration. [Table 2-2](#) lists the various icons that may appear in the status bar.

Table 2-2 *Status Icons*

Icon	Name	Description
	Battery Very Low	Indicates the battery charge level is less than 15%.
	Battery Low	Indicates the battery charge level is greater than 15%.
	Battery Good	Indicates the battery charge level is greater than 30%.
	Battery Very Good	Indicates the battery charge level is greater than 60%.
	Battery Fully Charged	Indicates the battery charge level Greater than 80%.
	Wi-Fi Off	The Wi-Fi radio is off.
	Wi-Fi On Not Connected	The Wi-Fi radio is on but not connected to a network.
	Wi-Fi Connected	The Wi-Fi radio is on and connected to a network. Each bar indicates the signal strength of the connection.
	Bluetooth On	The Bluetooth radio is on.
	Telephone Connected	The HC1 is connected to a mobile device.
	Telephone Call In Progress	The HC1 is connected to a mobile device and a phone call is in process.

Keyboards

✓ **NOTE** Keyboard access is application dependent.

Throughout the use and configuration of the HC1, there are times when text or numbers are required. In these events, menus of pre-configured options are not applicable. To allow for this the HC1 can display a number of virtual keyboards that allow text or numbers to be entered.

✓ **NOTE** All virtual keyboards allow direct typed input from a real keyboard. For example, a Bluetooth keyboard can be connected and used, a USB keyboard can be connect and used and remote control software allows a computer keyboard to be used with the HC1.

Alpha-Numeric Keyboard

The Alpha-Numeric keyboard allows any text or number combination to be entered via voice. To enter single text characters, the radio-alphabet code must be spoken, for example “alpha.” The radio code to speak is shown beneath each virtual key.

Numbers are entered by speaking the number, for example “one.”

To increase speed and accuracy, digits, lowercase letters and uppercase letters can be spoken in groups of three, for example “alpha-delta-tango” or “one-two-three.”

To delete the previous spoken command, say “Clear.”

The user can also enter number and letters by using the head-tracking to move the arrow cursor around the keyboard. Say “Mouse Click” to select a key on the keyboard.



Figure 2-8 Alpha-numeric Virtual Keyboard

Telephone Number Keyboard

The Telephone Number keyboard allows any number combination to be entered via voice. To enter single numbers simply say the numbers one at a time.

To increase speed and accuracy, numbers can be spoken in groups of three, for example “one,” “three,” “seven.”

To delete the previous spoken command, say “Undo.”

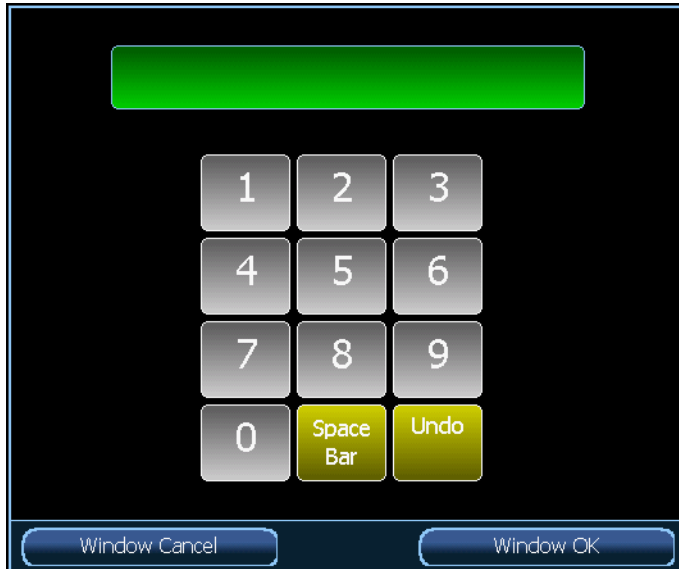


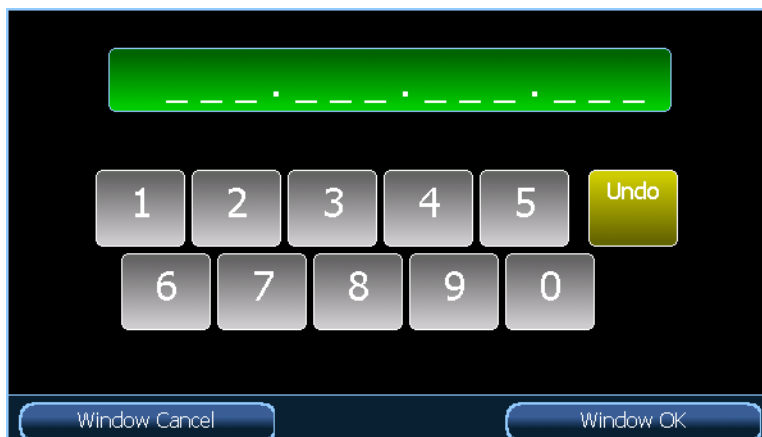
Figure 2-9 Telephone Number Virtual Keyboard

IP Address Number Keyboard

The IP Address keyboard allows any number combination to be entered via voice. To enter single numbers simply say the numbers one at a time.

To increase speed and accuracy, numbers can be spoken in groups of three, for example “one,” “three,” “seven.”

To delete the previous spoken command, say “Undo.”



IP Address Virtual Keyboard

CHAPTER 3 FILE VIEWERS

File viewers allows the user to view photos, videos and documents loaded on the HC1.

My Photos

Use **My Photos** to view photos that are loaded on the HC1. The HC1 supports the following formats:

- JPEG
- PNG
- GIF
- BMP.

To view photos:

1. Say "My Computer."
2. Say "My Photos." The **Photos** window appears.

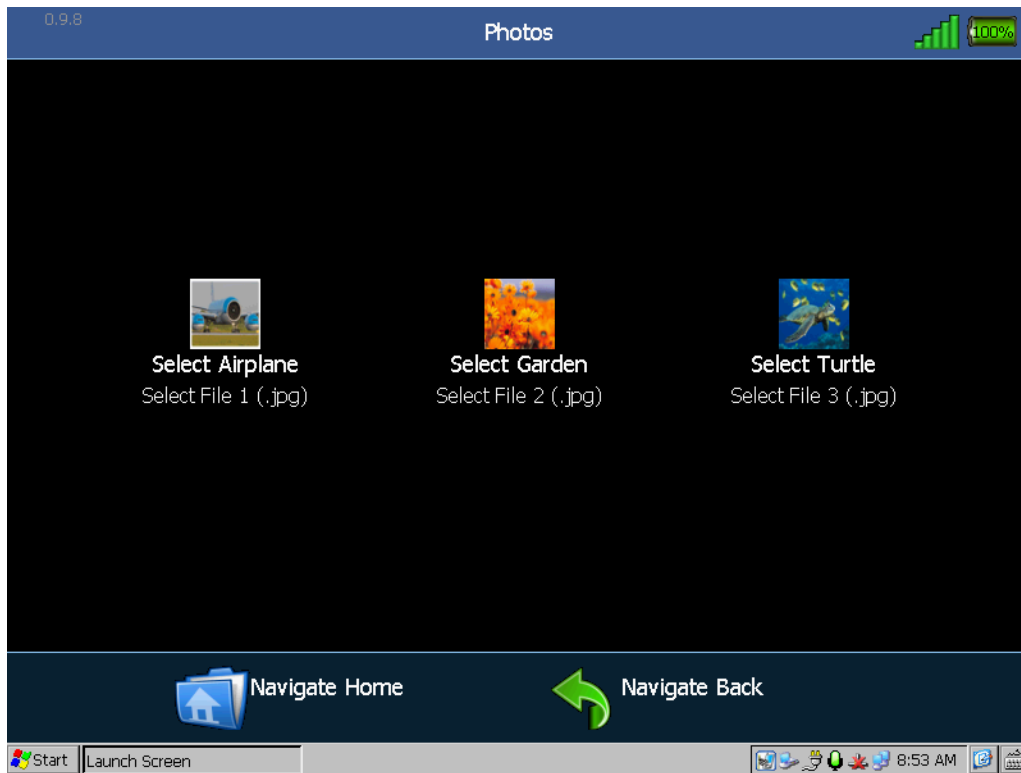


Figure 3-1 *Photos Window*

Each icon in the window represents a photo on the HC1 internal memory. Under the icon is the filename prefixed by **Select**. Under the filename is **Select File x**, where x is the number of the file.

To open the file say the filename or the file number. For example: say "Select Building 1" or say "Select File 3."

The photo opens in the photo viewer.

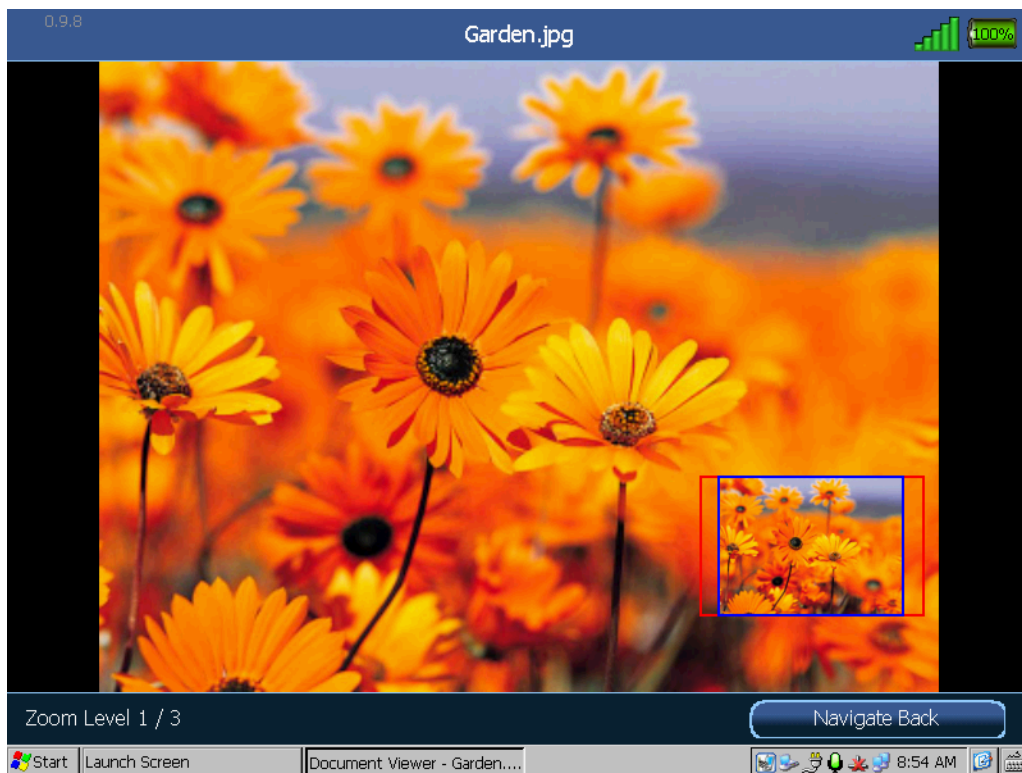


Figure 3-2 *Photo Viewer Window*

Zooming

The Photo Viewer supports three levels of zoom. To enlarge the photos say “Zoom Level 2” or “Zoom Level 3.”

Image Panning

The Photo Viewer allows the use to view parts of the photo that are off the screen. Move head left and right or up and down. The thumbnail of the photos indicates the position of the display in reference to the photo.

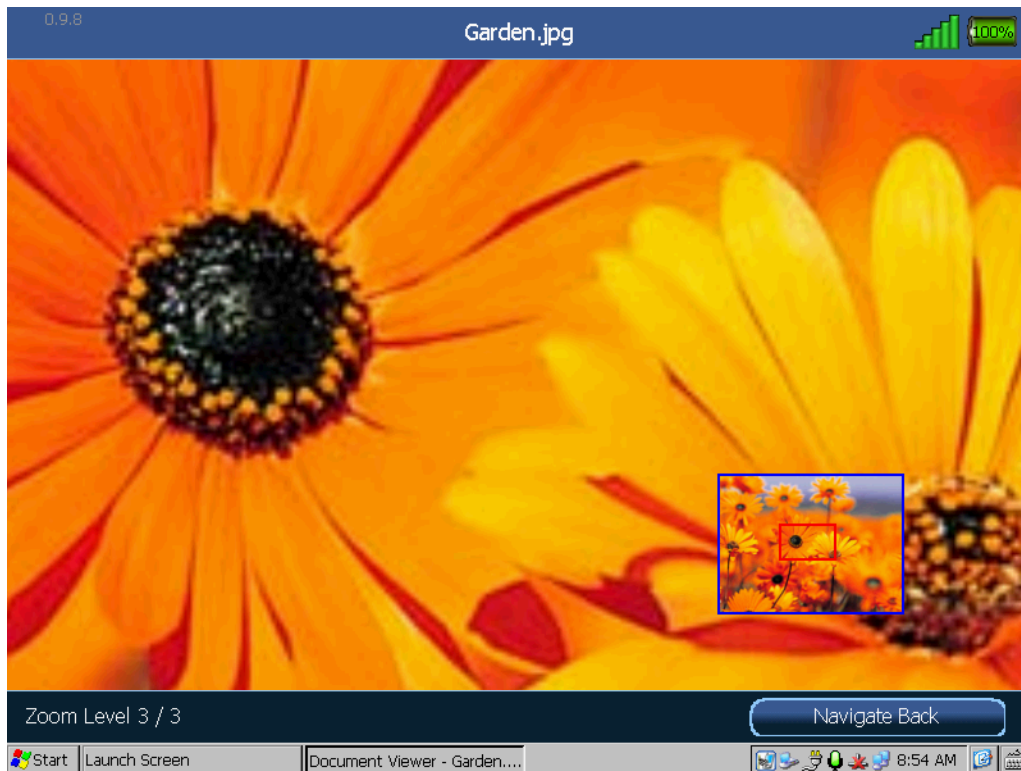


Figure 3-3 *Panning in Photo Viewer*

Freeze & Control Document Movement

If the user wants to keep the photo still while doing other work and ensure that the photo is in the same place, say “Freeze Document.” The display locks in position so that head movement does not move the photos. To return to normal viewing say “Control Document.”

My Documents

Use **My Documents** to view documents that are loaded on the HC1. The HC1 supports Microsoft® Office 2007 and newer file formats, text and pdf files.

To view a document:

1. Say “My Computer.”
2. Say “My Documents.” The **Documents** window appears.

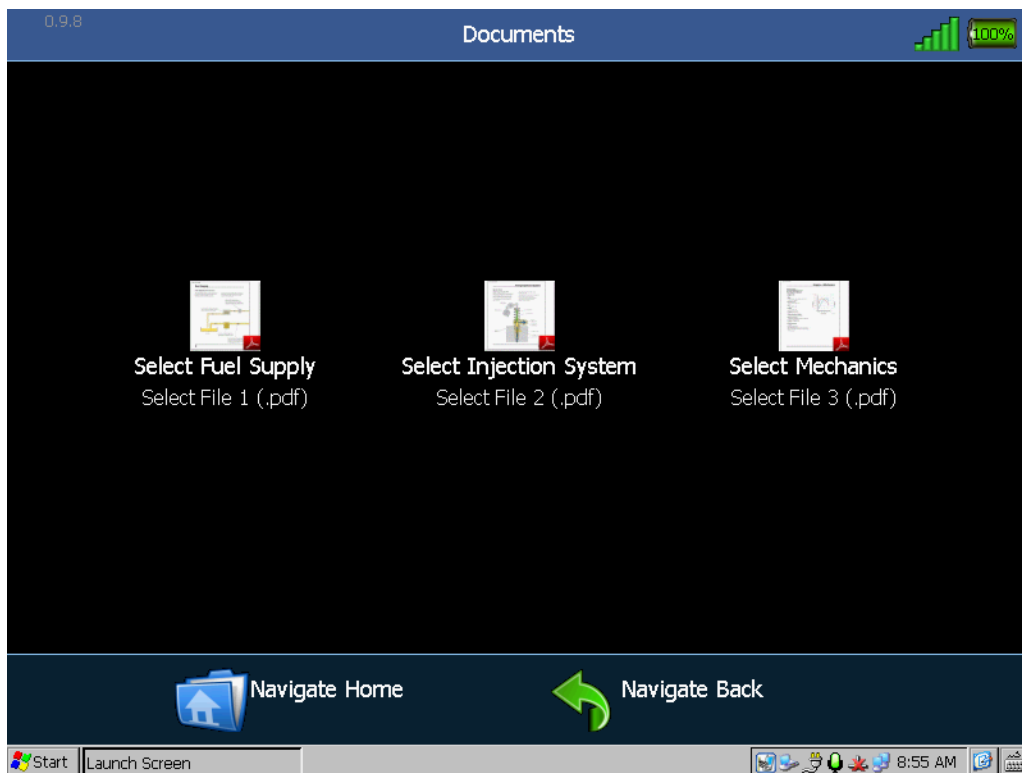


Figure 3-4 Documents Window

Each icon in the window represents a document on the HC1 internal memory. Under the icon is the filename prefixed by **Select**. Under the filename is **Select File x**, where x is the number of the file.

To open the file say the filename or the file number. For example: say "Select Circuit Locations" or say "Select File 2."

The document opens in a viewer depending upon the type of document.

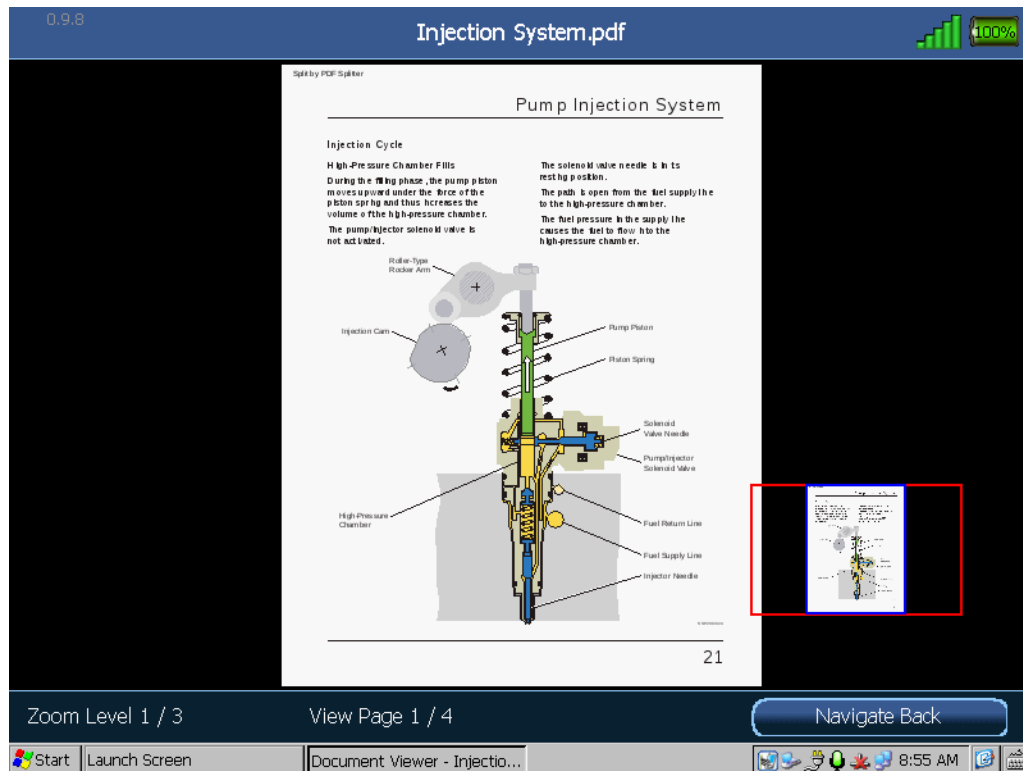


Figure 3-5 Document Viewer Window

Zooming

The Document Viewer supports three levels of zoom. To enlarge the photos say “Zoom Level 2” or “Zoom Level 3.”

Paging

The Document Viewer supports viewing multiple pages. To go to a specific page say “View Page x” Where x is the page number. To go to the next or previous page say “Next Page” or “Previous Page.”

Image Panning

The Document Viewer allows the use to view parts of the document that are off the screen. Move head left and right or up and down. The thumbnail of the document indicates the position of the display in reference to the document.

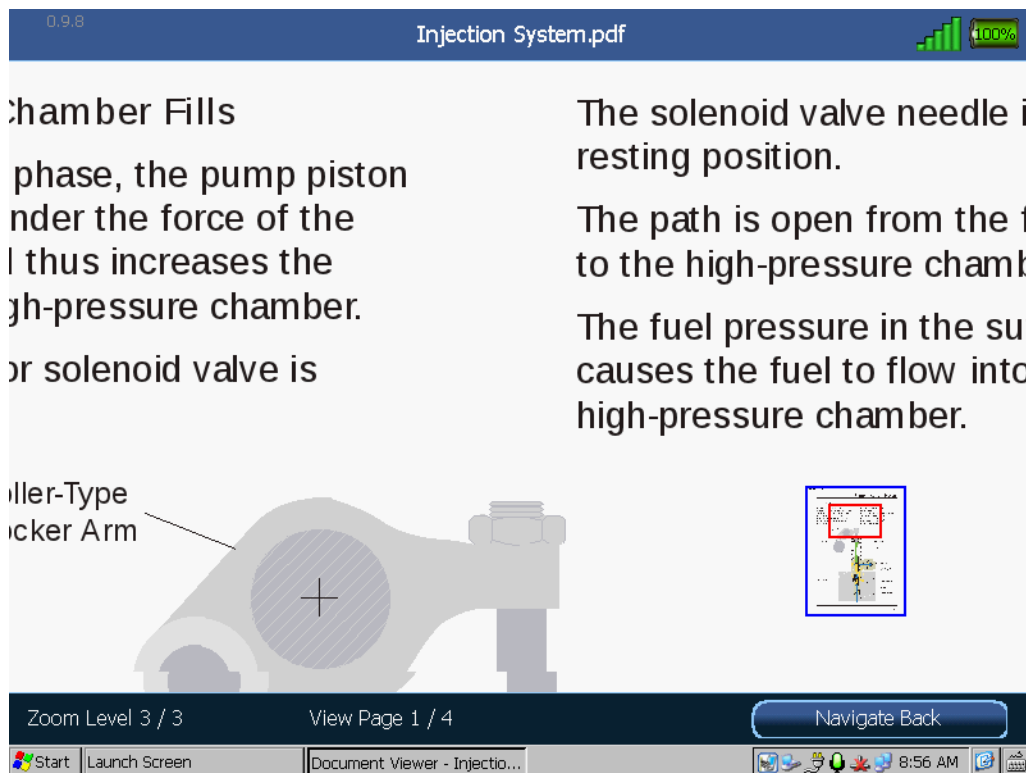


Figure 3-6 Panning in Document Viewer

Freeze & Control Document Movement

If the user wants to keep the photo still while doing other work and ensure that the photo is in the same place, say "Freeze Document." The display locks in position so that head movement does not move the photos. To return to normal viewing say "Control Document."

To set the document back to the original position and size say "Reset Document."

My Videos

Use **My Videos** to view video files that are loaded on the HC1 internal memory. The HC1 supports the following video formats:

- WMV9 (AVI)
- MPEG-4
- H.264

To view videos:

1. Say "My Computer."
2. Say "My Videos." The **Videos** window appears.

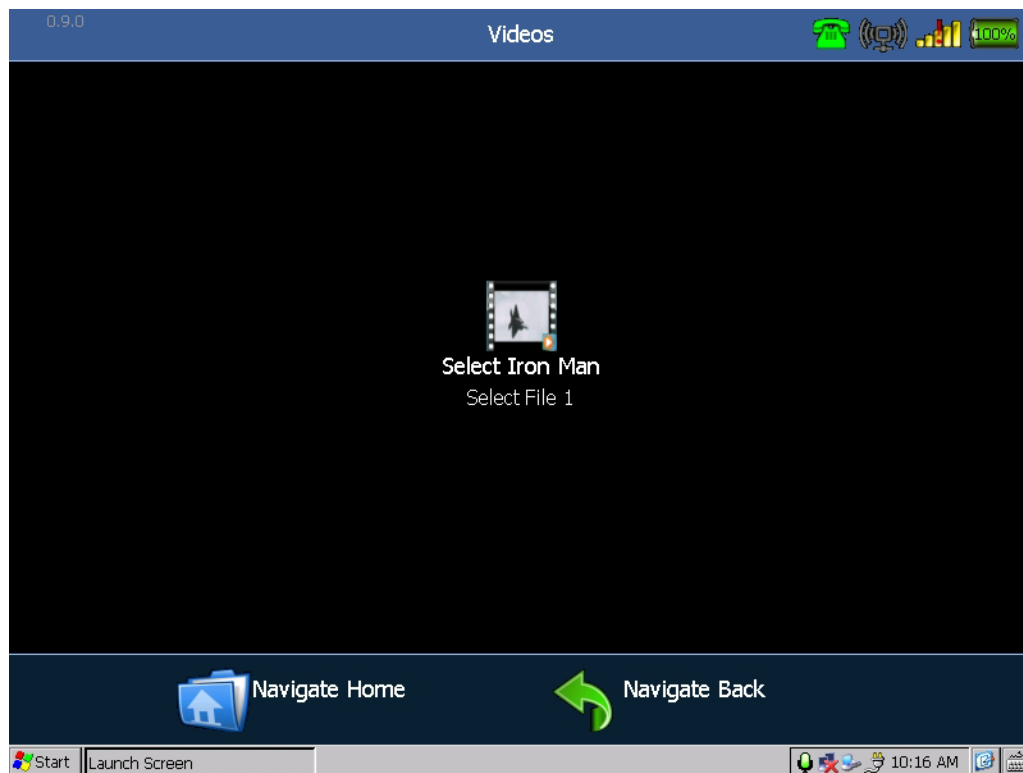


Figure 3-7 *Videos Window*

Each icon in the window represents a video on the HC1 internal memory. Under the icon is the filename prefixed by "Select." Under the filename is **Select File x**, where x is the number of the file.

To open the video say the filename or the file number. For example: say "Select Iron Man" or say "Select File 1."

The video opens in the movie viewer.

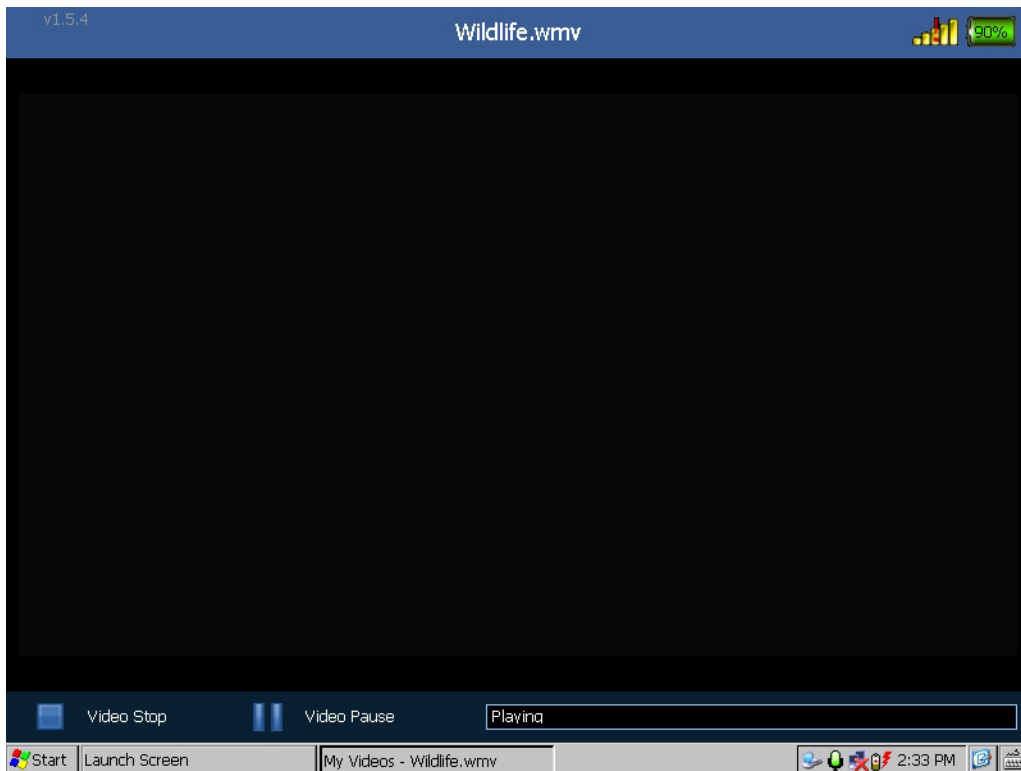


Figure 3-8 *Movie Viewer*

The video automatically plays when the viewer opens.

- Say "Video Pause" to stop the video.
- Say "Video Resume" to continue to play the video.
- Say "Video Stop" to stop playing the video. The viewer closes and the **Videos** window appears.

Storage Card

Use **Storage Card** to view files that are loaded on the optional microSD card. Files on the microSD card can be photos, documents or videos.

To view files on the microSD card:

1. Say "My Computer."
2. Say "Storage Card." The **Storage Card** window appears.

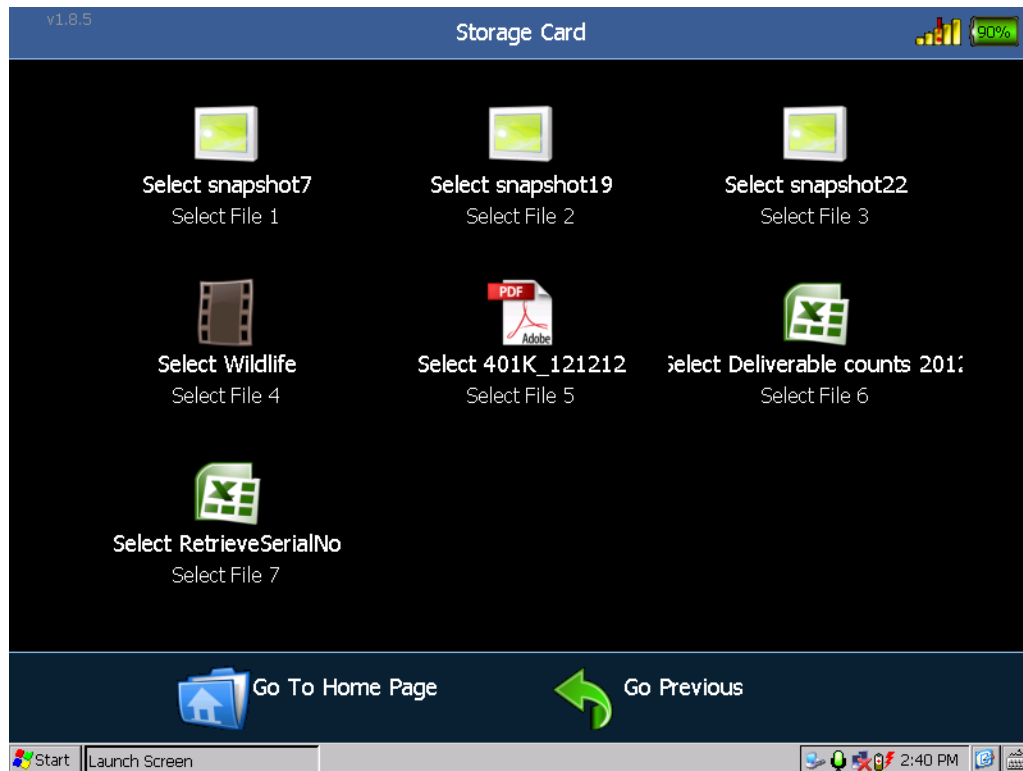


Figure 3-9 Storage Card Window

Each icon in the window represents a file on the microSD card. Under the icon is the filename prefixed by **Select**. Under the filename is **Select File x**, where x is the number of the file.

To open the file say the filename or the file number. For example: say “Select Wildlife” or say “Select File 4.”

Depending upon the file type, the corresponding viewer displays. See [My Photos on page 3-1](#) for information on the photo viewer, [My Videos on page 3-7](#) for information on the movie viewer or [My Documents on page 3-4](#) for information on the document viewer.

CHAPTER 4 MY CONTROLS

Introduction

Use **My Controls** to control how the HC1 works and affect its basic operation. All of the My Control modules are accessed from any screen by saying “My Computer” > “My Controls”.














Figure 4-1 *My Controls Window*

The **My Controls** window displays a number of icons. The icons extend past the sides of the window. Use head movement to scrolling the window left or right. To select a particular module within the **My Controls** window say the name of the module. The module does not need to be visible in the window in order to issue the command.

To close the **My Controls** window at any time, say “*Window Close.*”

[Table 4-1](#) list the modules available in the **My Controls** window:

Table 4-1 *My Controls Modules*

Icon	Name	Description
	System Version	Display the current system version numbers, including the base operating system version and the SDK versions.
	My Language	Switch to a different language.
	Head-Controlled Mouse	Controls mouse functionality when navigating non-voice enabled applications.
	Screen Brightness	Vary the brightness of the screen.
	Screen Rotation	Rotate the screen display 180 degrees to support left eye or right eye configuration.
	Speaker Volume	Control the speaker volume.
	Contrast Settings	Control the screen contrast.
	Date and Time	Set the date and time.
	Power Options	Set power saving options.
	Launch Mode	Set how the HC1 is configured upon boot up. Set to open with either the desktop or the My Computer window.
	Factory Settings	Reset the HC1 to factory My Controls default values.

System Version

Use the **System Version** module to display the current system version numbers, including the base operating system version and the SDK versions.

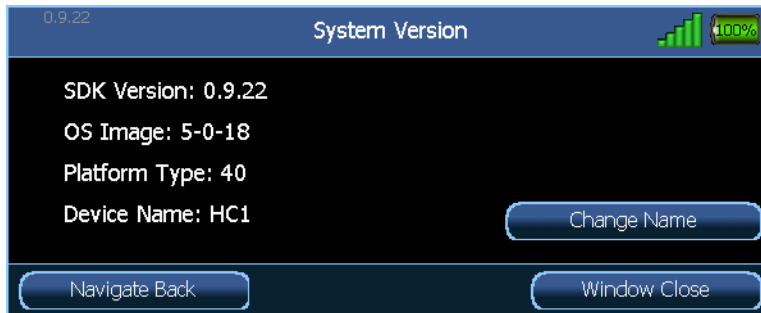


Figure 4-2 *System Version*

The **System Version** module also allows the user to set the name of the HC1. This name is visible to devices via Bluetooth or Wi-Fi. The default device name is **HC1**.

Changing the Device Name

To change the name:

1. Say "Change Name." The virtual keyboard displays.
2. Use the virtual keyboard to enter the device name. See [Keyboards on page 2-9](#) for information on using the virtual keyboards.
3. Say "Window OK." The **System Version** window displays with the new name.
4. Say "Window Close" or "Navigate Back."

My Language

Use the **My Language** module to switch to a different language. The available languages are shown in the window and are selected by saying the language name.

Once a new language has been selected, the on-screen labels switch to the new language, as well as the speech recognizer.

- English
- French
- German
- Italian
- Spanish.

To change the language:

1. Say "My Controls."
2. Say "My Languages."



Figure 4-3 *My Language Window*

3. Say the name of the language. The system language changes to the selected language.
4. In the new language, say “Window Close” or “Navigate Back.”

Head-Controlled Mouse

Use the **Head-Controlled Mouse** module to control the mouse movement on the screen.



Figure 4-4 *Head-Controlled Mouse Window*

Changing Mouse Speed

To change the speed of mouse movement:

1. Say “My Controls.”
2. Say “Head-Controlled Mouse.” The **Head-Controlled Mouse** window appears.
3. Say “Level x” where x represents the level number with 1 being the slowest and 5 being the fastest.

Change Horizontal Movement

By default, when the user moves head to the left, the mouse cursor on the screen moves to the right. To change the horizontal mouse movement so that when moving head to the left the mouse (cursor) moves to the left:

1. Say “My Controls.”
2. Say “Head-Controlled Mouse.” The **Head-Controlled Mouse** window appears.
3. Say “Flip Horizontal.” A check mark appears before the phrase.

Change Vertical Movement

By default, when the user moves head to the up, the mouse cursor on the screen moves to the down. To change the vertical mouse movement so that when moving head up the mouse (cursor) moves up:

1. Say "My Controls."
2. Say "Head-Controlled Mouse." The **Head-Controlled Mouse** window appears.
3. Say "Flip Vertical." A check mark appears before the phrase.

Screen Brightness

Use the **Screen Brightness** module to vary the brightness of the screen.

The brightness levels range from **Level 1** to **Level 5**, where **Level 1** is the darkest and **Level 5** is the brightest.

To change the screen brightness:

1. Say "My Controls."
2. Say "Screen Brightness." The **Screen Brightness** window appears.



Figure 4-5 *Screen Brightness*

3. Say a level number. The screen brightness changes to the selected level.
4. Say ""Window Close" or "Navigate Back."

Screen Rotation

Use the **Screen Rotation** module to rotate the screen display 180 degrees.

By default the screen displays in the orientation for a right-dominant eye system.

However, if the HC1 is converted to a left-dominant eye system, then the display appears upside down. If this is the case, use the **Screen Rotation** window to flip the display.

To rotate the screen:

1. Say "My Controls."
2. Say "Screen Rotation." The **Screen Rotation** window appears.



Figure 4-6 *Screen Rotation*

3. Say "Rotate Screen." The screen flips 180°.
4. Say ""Window Close" or "Navigate Back."

Speaker Volume

Use the **Speaker Volume** window to vary the audio output of the speaker.

The speaker volume levels range from **Level 1** to **Level 5**, where **Level 1** is the quietest and **Level 5** is the loudest.

To change the speaker volume:

1. Say "My Controls."
2. Say "Speaker Volume." The **Speaker Volume** window appears.

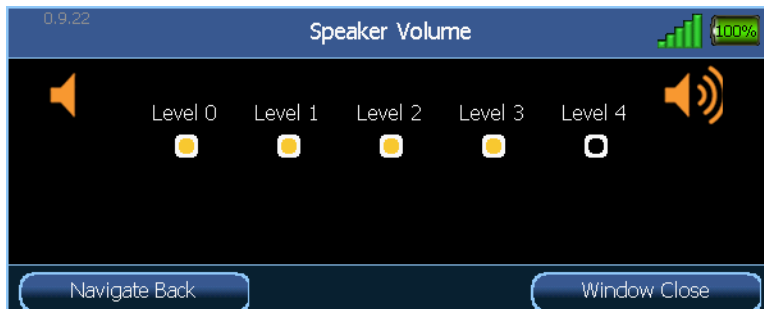


Figure 4-7 *Speaker Volume Window*

3. Say a level number. The speaker volume changes to the selected level.
4. Say ""Window Close" or "Navigate Back."

Contrast Settings

Use the **Contrast Settings** module allows to change the screen display based on current lighting conditions.

When using the HC1 indoors or in dark conditions it is usually preferable to select the **Low Light** option. This is effectively a low-contrast mode, where all icons appear on a black background.

However, if using the HC1 outdoors or in bright conditions, the contrast mode should be switched to **Bright Light**. In this mode the icons appear on a white background and are easier to read in the bright conditions.

To change the contrast setting:

1. Say "My Controls."
2. Say "Contrast Settings." The **Contrast Settings** window appears.

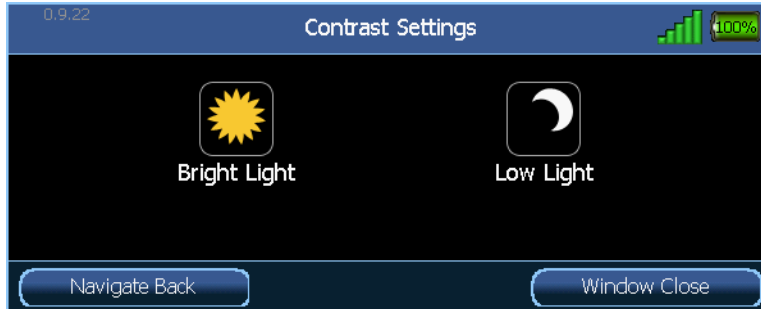


Figure 4-8 Contrast Mode – Dark Conditions

3. Say "Bright Light" or "Low Light." The **Bright Light** option set the background of the windows to white for better viewing in sunlight. The **Low Light** option set the windows background to black for better viewing indoors.
4. Say ""Window Close" or "Navigate Back."

Date and Time

Use the **Date and Time** module to set the date and time on the HC1.

To change the date and time:

1. Say "My Controls."
2. Say "Date and Time." The **Date and Time** window appears.

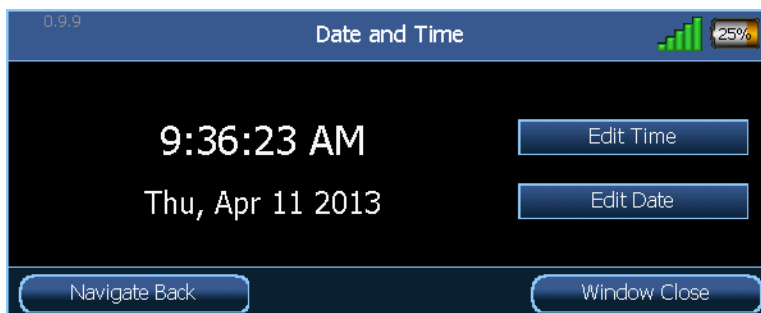


Figure 4-9 Date and Time Window

3. Say "Edit Time." A virtual keyboard appears.

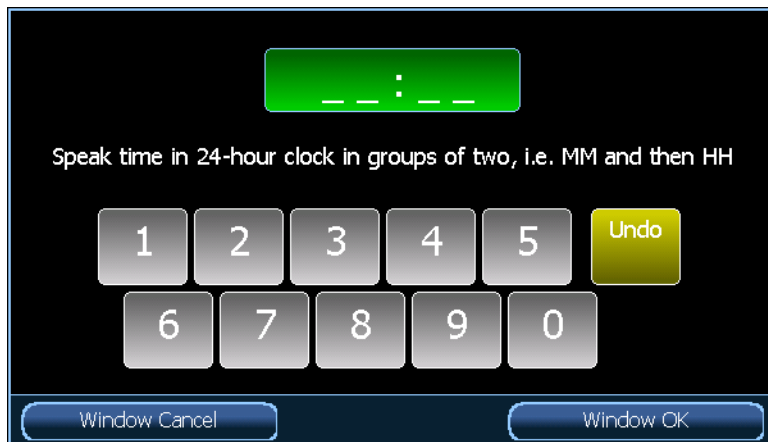


Figure 4-10 *Time Keyboard*

4. Say the number to set the time.
5. Say “Window OK.”
6. Say “Edit Date.” A virtual keyboard appears.

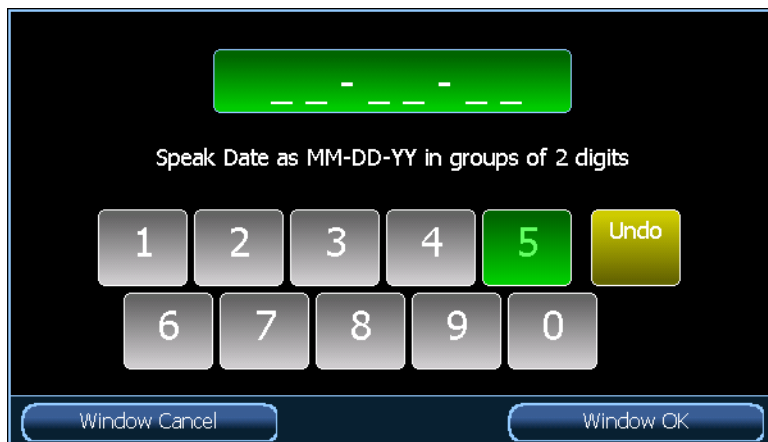


Figure 4-11 *Date Keyboard*

7. Say the number to set the time.
8. Say “Window OK.”
9. Say “Window Close” or “Navigate Back.”

Power Options

Use the **Power Options** module to set the power conditions for the HC1.

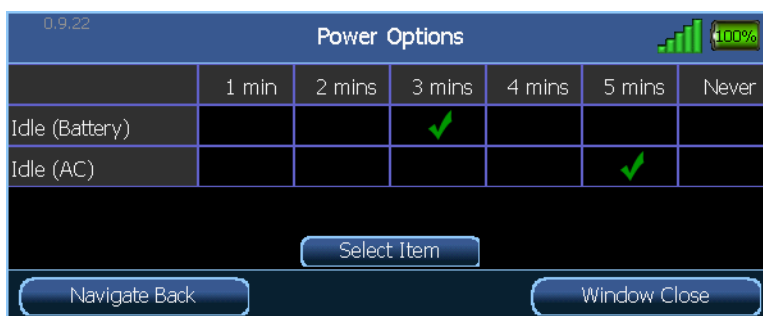


Figure 4-12 Battery Life Window

The power conditions consist of:

- **Idle (battery)** - determines the amount of time before the HC1 becomes idle (no activity). When the HC1 becomes idle the backlight dims.
- **Idle (AC)** - determines the amount of time before the HC1 becomes idle (no activity). When the HC1 becomes idle the backlight dims.

Each condition can be set to one minute, two minutes, three minutes, four minutes, five minutes or Never.

Setting Power Options

To set the power options:

1. Say "My Computer."
2. Say "My control."
3. Say "Power Options." The **Power Options** window appears.
4. Move head until the specific cell is filed with blue color.
5. Say "Select Item." A check appears in the cell.
6. Repeat for each power option.
7. Say "Window Close."

Waking the HC1

To wake the HC1 from idle or suspend press the Power button, connect the HC1 to AC power.

Launch Mode

Use the Launch Mode module to set the way the HC1 displays upon boot up. The HC1 can display either the Windows CE desktop or the My Computer screen.

To set the launch mode:

1. Say "My Computer."
2. Say "My Control."
3. Say "Launch Mode." The **Launch Mode** window appears.



Figure 4-13 *Launch Mode Window*

4. Say "Boot to Windows" to set the HC1 to display the Windows CE desktop after boot up. or say "Boot to Golden-i" to set the HC1 to display the **My Computer** screen.
5. Perform a reset for the change to take effect.

Factory Settings

Use the **Factory Settings** module to reset all **My Controls** adjustments back to factory defaults.

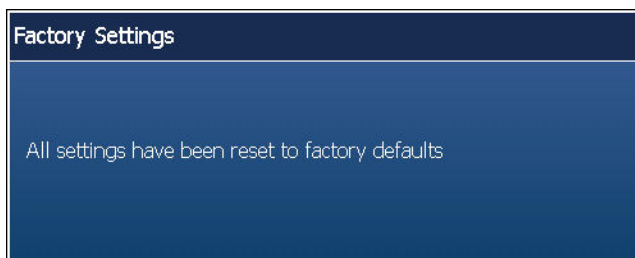
To revert to factory default settings:

1. Say "My Controls."
2. Say "Factory Settings." The **Factory Settings** window appears.



Figure 4-14 *Factory Settings Window*

3. Say "Reset Device Now."



4. Factory Reset Confirmation Window
5. After the confirmation window disappears, say "Window Close."

CHAPTER 5 MY NETWORK CONTROLS

Introduction

Use the **My Network Controls** window to control how the HC1 connects with external devices using the built-in Wi-Fi radio.



Figure 5-1 *My Network Controls Window*









The **My Network Controls** window contains the following modules:

- Preferred Networks - displays icons representing previously configured networks.
- Add Networks - displays icons representing all networks that the HC1 detects.
- IP Configuration - provides for manual configuration for an IP address.

The icons indicate the following:

- **Signal Strength** - The strength of the network is indicated by the number of green bars in the icon. The more brightly lit green bars, the stronger the Wi-Fi signal.
- **Network Type** - Either Infrastructure Mode networks typically hosted by a router, or they are Ad-Hoc Mode networks formed by other nearby computers.
- **Network Encryption** - Networks can be open (non-encrypted) or encrypted using WPA or WEP standards. An encrypted network is indicated with an additional lock icon.

Table 5-1 *Network Chooser Icons*

Icon	Name
	Poor network signal.
	Fair network signal.
	Good network signal.
	Very Good network signal.
	Excellent network signal.
	Open network signal.
	Encrypted network.
	Ad-hoc network.

The list of networks in the **Network Chooser** window updates every 20 seconds. If a network is connected successfully at boot up, the HC1 attempts to automatically reconnect to this network on the next reboot.

Selecting a Network

The HC1 allows the user to search for a list of available Wi-Fi networks and to join one of these networks.

This is a multi-step process that always starts with the Network Chooser. The Network Chooser simply lists the networks that are currently visible to the HC1.

To connect to a network:

1. Say "My Computer."
2. Say "My Network Controls."
3. Say "Add Networks." The Add **Networks** window appears. Under each icon is "**Add** followed by a number and the ESSID name of the network.

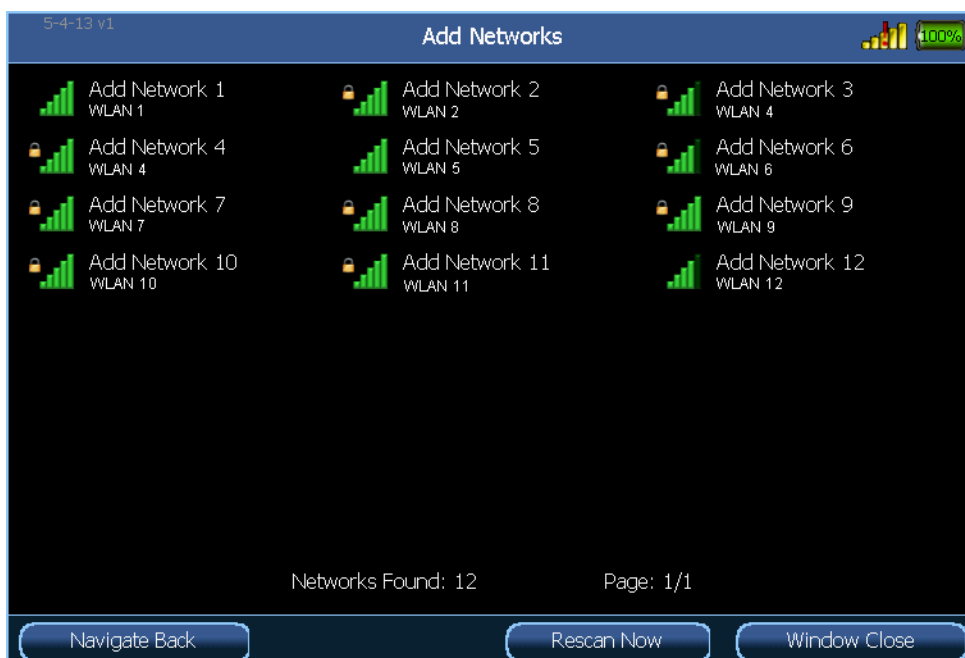


Figure 5-2 *Add Networks Window*

✓ **NOTE** If there are more than one page of network icons, say “Next Page” to view the additional icons.

4. Say “Add Network x.” The network configuration window appears.

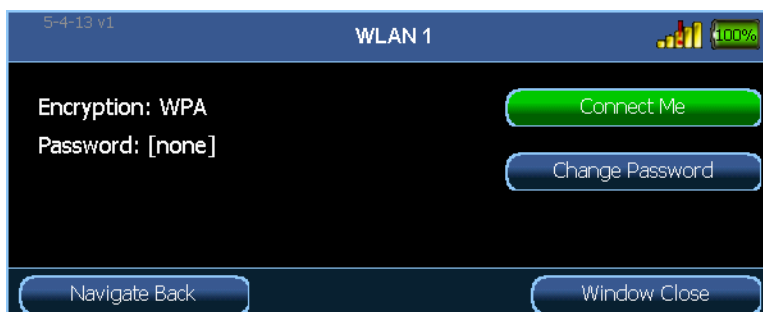


Figure 5-3 *Encrypted Network Configuration Window*

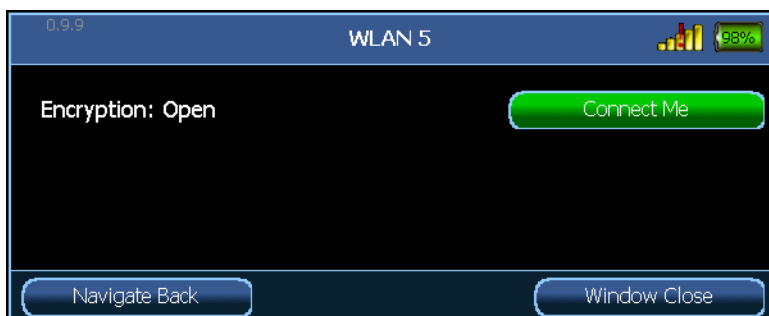


Figure 5-4 *Open Network Configuration Window*

The window displays the following information:

- **Status** - Whether the HC1 is successfully connected to this network or not.
- **Encryption Type** - The type of encryption used by the network.
- **Password** - If the network is encrypted, asterisks are shown in place of the password. For open networks Password field is hidden.
- **IP Address** - The current IP Address of the HC1. An IP Address of 0.0.0.0 indicates that the HC1 is not yet connected.

Configuring a Network

If connecting to an encrypted network a password is required. To configure the HC1 to connect to a network:

1. Say “Change Password.” The virtual keyboard appears.

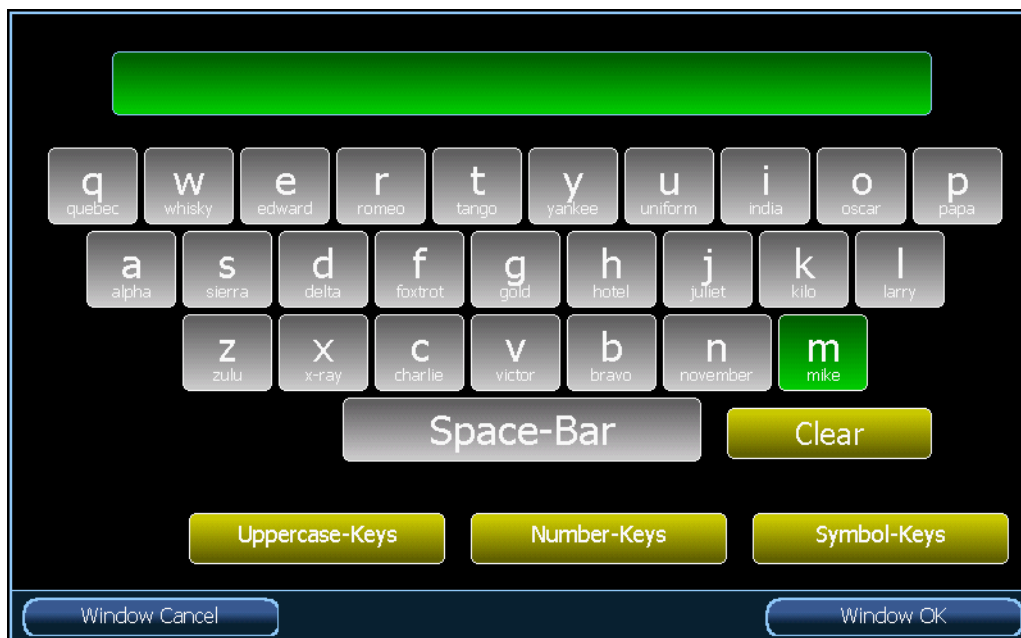


Figure 5-5 *Virtual Keyboard Window*

2. Say the password (see [Keyboards on page 2-9](#) for information on entering data on a virtual keyboard) or use the head-tracker place the mouse over a key and say “Mouse-click” to select the key.
3. Say “Window OK.”
4. Say “Continue.”
5. Say “Window Close.”

Configuring Static IP Address

By default, the HC1 is configured to use DHCP, where the network automatically assigns an IP address. It can be configured with a static IP address and associated Subnet, DNS and Gateway addresses.

To assign a static address to the HC1:

1. Say “My Computer.”

2. Say "My Network Controls."
3. Say "IP Configuration." The **IP Configuration** window appears.



Figure 5-6 IP Configuration Window

4. Say "DHCP Disable." IP address buttons appear in the window.



Figure 5-7 IP Configuration Window - DHCP Disabled

5. Say "Edit IP Address." A virtual keyboard appears.
6. Say the IP address. See [Keyboards on page 2-9](#) for information on entering data on a virtual keyboard.
7. Say "Window OK."
8. Say "Edit Subnet." A virtual keyboard appears.
9. Say the subnet address. See for [Keyboards on page 2-9](#) information on entering data on a virtual keyboard.
10. Say "Window OK."
11. Say "Edit Gateway." A virtual keyboard appears.
12. Say the gateway address. See [Keyboards on page 2-9](#) for information on entering data on a virtual keyboard.

13. Say "Window OK."
14. Say "Edit DNS." A virtual keyboard appears.
15. Say the DNS address. See [Keyboards on page 2-9](#) for information on entering data on a virtual keyboard.
16. Say "Refresh Now."
17. Say "Window OK."
18. Say "Navigate Back."

Connecting to a Network

To connect to a configured network:

1. Say "My Computer."
2. Say "My Network Controls."
3. Say "Preferred Networks." The Preferred **Networks** window appears. Next to each icon is "**Connect Network** followed by a number and the ESSID name of the network.

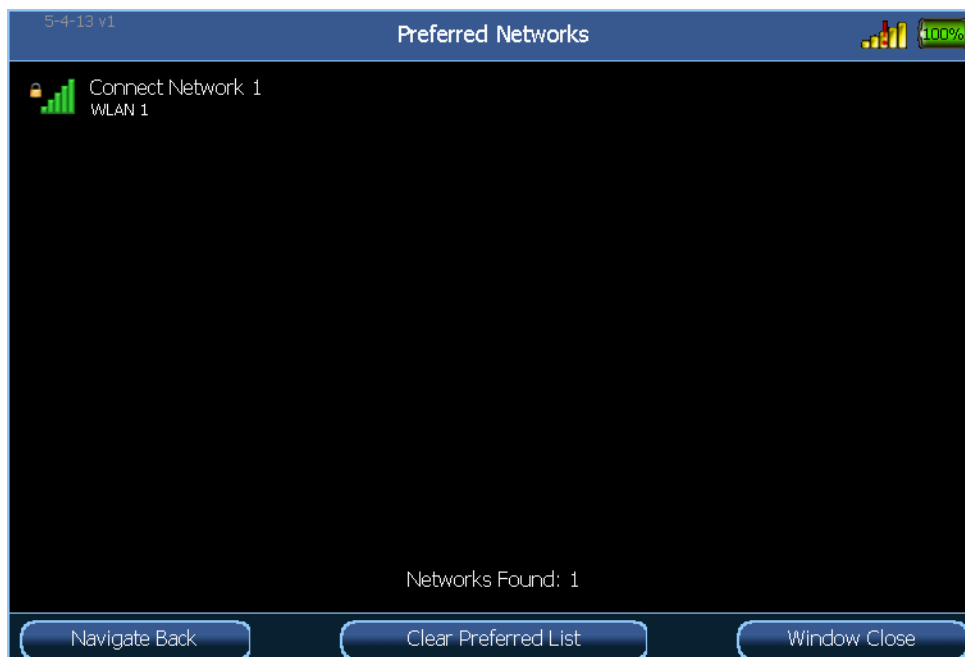
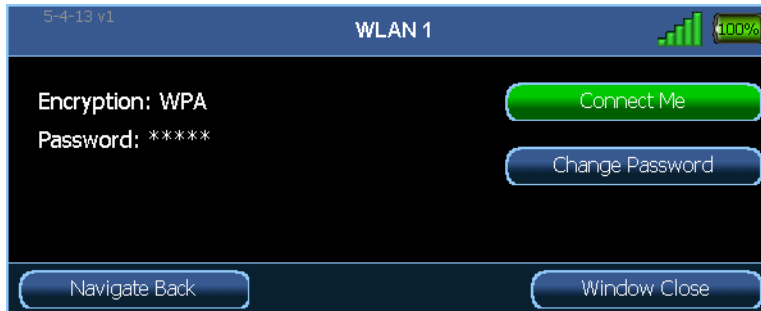


Figure 5-8 Preferred Networks Window

4. Say "Connect Network x." The network configuration window appears.

5. Say "Connect Me." The HC1 connects to the network. The Wi-Fi Signal Strength icon changes to show signal strength.

Figure 5-9 *Connected to Network*



Clearing the Preferred Network List

1. Say "My Computer."
2. Say "My Network Controls."
3. Say "Preferred Networks." The **Preferred Networks** window appears.
4. Say "Clear Preferred List." All networks are removed from the window.

CHAPTER 6 MY BLUETOOTH CONTROLS

Introduction

Use the **My Bluetooth Controls** module to control how the HC1 connects with external devices using the built in Bluetooth functionality, to discover, add and use other Bluetooth devices.



Figure 6-1 *My Bluetooth Controls Window*

The current status of the Bluetooth radio is also shown on the main window. The Bluetooth radio is always on but not Discoverable. (Other devices can connect to the HC1 if they already have permission to do so, but the HC1 is not advertising itself to other Bluetooth devices).

The HC1 supports the following Bluetooth profiles:

- HID Profile
 - connect to Bluetooth mice, keyboards and scanners (CS3070 and RS507).
- Hands-Free Profile
 - connect to mobile device and cell phones as a headset for audio control.
- Bluetooth PAN Profile
 - connect with remote computers and smart phones to utilize their Internet connections.
- Serial Port Profile (SPP)
 - Provide a simple substitute for existing RS-232, including the familiar control signals. It is the basis for DUN, FAX, HSP and AVRCP.

- OBEX File Transfer
 - facilitates the exchange of binary objects between devices.



NOTE If a HID device is connected when the HC1 is shut off, the HC1 automatically tries to reconnect to the Bluetooth device the next time it boots up.

Bluetooth SPP Devices

Bluetooth SPP devices are those that sets up a high-speed data link with the HC1 for application specific roles using a Serial Port Profile.

Connecting to an SPP Device routes all data communication to a virtual COM port, typically COM6. Application developers can then select COM6 as the data pipe to communicate with the remove device, using standard Serial Port programming controls.

Discovering Bluetooth Devices

To discover Bluetooth devices in the area:

1. Ensure that the other Bluetooth device is in discoverable mode and that it is within 10 m (32 ft.) of the HC1. Refer to the Bluetooth device's documentation for placing the device into discoverable mode.
2. Say "My Computer."
3. Say "My Bluetooth Controls." The **My Bluetooth Controls** window appears.



Figure 6-2 *Bluetooth Device Discovery*

4. Say "Add Devices." The HC1 begins searching for discoverable Bluetooth devices.

While the **Add Devices** window is visible, the HC1 repeatedly scans for available Bluetooth devices. Any devices that are found display with an icon on the screen. Initially a device might be represented by its Bluetooth address, but shortly after appearing the address is replaced by the name of the device.

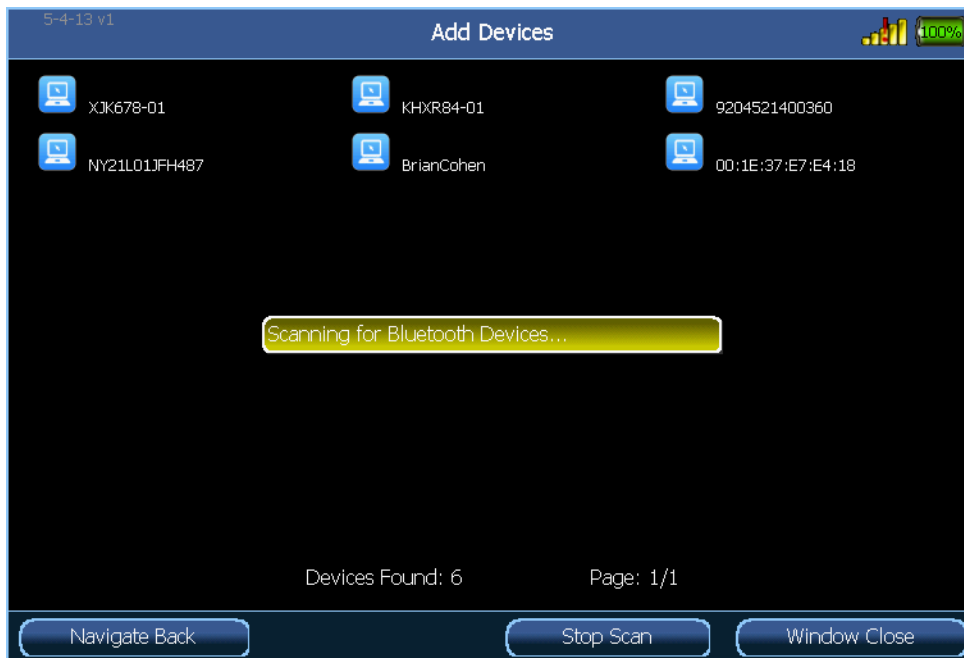


Figure 6-3 *Searching for Services*

- Say "Stop Scan" to stop the HC1 from searching for Bluetooth devices.



Figure 6-4 *Found Bluetooth Devices*

- Say "Add Device x" where x represents the device number listed in the window. The HC1 searches for services provided by the Bluetooth device.

The window displays the services available for the Bluetooth device.



Figure 6-5 *Connected Device Services*

7. Repeat the steps for additional Bluetooth devices.

At this point the device is still not connected; its name and address have been added to the list of preferred Bluetooth devices that HC1 can manage.

8. Say “Window Close” to close the **My Bluetooth Controls** window.

Pairing to a Bluetooth Device

To pair to a Bluetooth device:

1. Say “My Controls.”
2. Say “My Bluetooth Controls.”
3. Say the name of the service to pair to. For example, say “Telephone 2.”

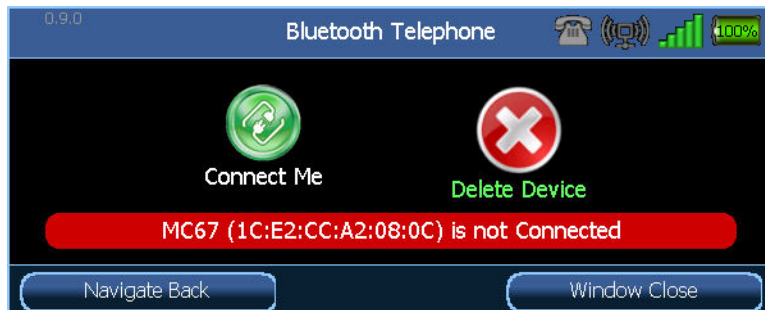


Figure 6-6 *Connect to Service*

4. Say “Connect Me.”
5. Say “Preset x” or the numbers that match the PIN entered on the other Bluetooth device.
6. On the other Bluetooth device, enter a PIN if required. Refer to the device documentation for information on connecting to a Bluetooth device. The **Bluetooth PIN** window appears on the HC1.



NOTE For ease of entering a PIN on the HC1, the HC1 has four preset PIN settings: “0000”, “1234.”, “00000” or “12345.” Enter either of these PINs on the other Bluetooth device.

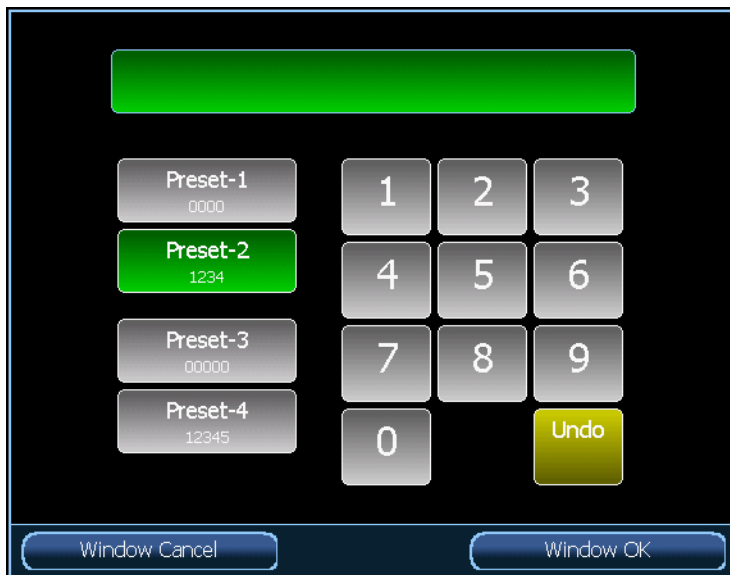


Figure 6-7 *Bluetooth PIN*

7. The HC1 pairs to the device and the services icon displays a green dot.

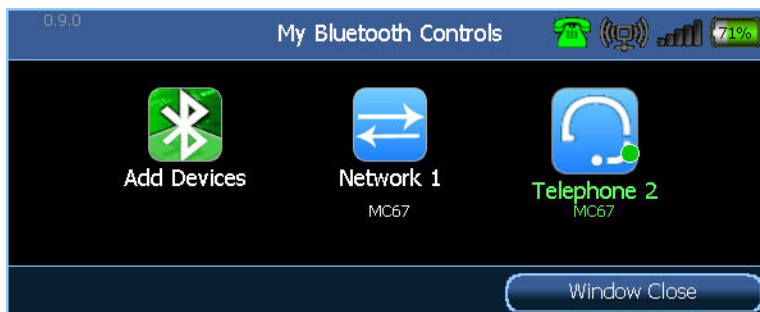


Figure 6-8 *Connected to Bluetooth Service*

Connecting to a Bluetooth Device

To connect to a Bluetooth device that on and has already been paired to the HC1:

1. Say "My Controls."
2. Say "My Bluetooth Controls." The **My Bluetooth Controls** window appears.

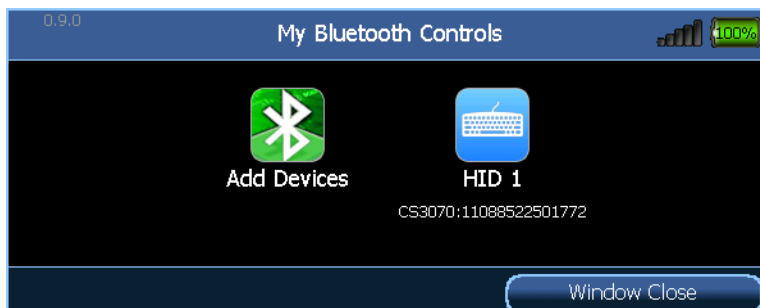


Figure 6-9 *My Bluetooth Controls Window*

3. Say the name of the service to connect to. For example, say "HID1."
4. Say "Connect Me."

Unpair a Bluetooth Device

To unpair a Bluetooth device from the HC1:

1. Say "My Controls."
2. Say "My Bluetooth Controls."
3. Say the name of the service to connect to. For example, say "Telephone 2."

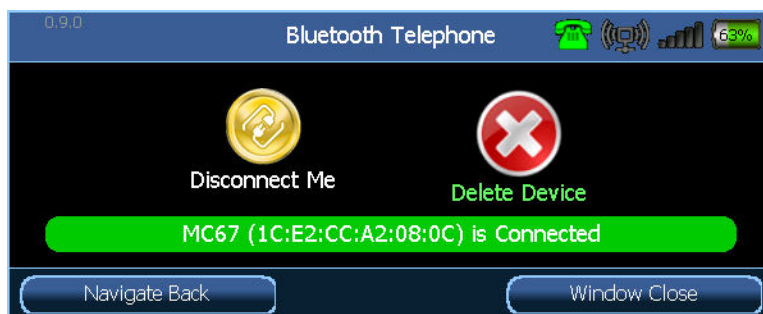


Figure 6-10 *Disconnect a Bluetooth Service*

4. Say "Disconnect Me."
5. Say "Window Close."

Removing a Bluetooth Device

To remove a Bluetooth device from the **My Bluetooth Controls** window:

1. Say "My Controls."
2. Say "My Bluetooth Controls."
3. Say the Name of the device to disconnect.
4. Say "Delete Device." The device and/or services are removed from the **My Bluetooth Controls** window.
5. Say "Window Close."

CHAPTER 7 MY TELEPHONE CONTROLS

Introduction

The HC1 supports the standard Hands-Free Bluetooth profile for connecting to mobile phones. When the HC1 is connected using Hands-Free profile to a mobile phone it becomes a headset. The incoming audio from a phone call can be heard through the HC1 speaker or optional Ear Buds, and speaking into the HC1 causes the spoken audio to be injected into the phone call conversation. While the Bluetooth connection is active, all other features of the HC1 are still active, including the speech recognizer. The HC1 can be used to field a mobile phone call, while at the same time navigating through documents on the HC1 using the standard speech commands.



Figure 7-1 *My Telephone Controls Window*

In order to make a new call, the HC1 must be paired with a hand-free mobile phone. See [Pairing to a Bluetooth Device on page 6-4](#) for more information.

Making a Call from the HC1

To make a telephone call using a Bluetooth connected mobile device:

1. Say "My Computer."
2. Say "My Telephone Controls." The My Telephone Controls window appears.



Figure 7-2 *My Telephone Controls Window - Paired with Hands-free Device*

3. Say “New Call.” The **New Call** window appears.
4. Say “Dial x” where x is 1, 2 or 3. To edit the preset phone number, see [Editing the Phone Book on page 7-3](#). The Call In Progress window appears.

While a call is in progress, the HC1 user hears the caller through the HC1 speaker or optional Ear Buds. Similarly the HC1 user can communicate with the caller using the HC1 microphones.

Say “Window Close” to close the **Call In Progress** window and access other applications while on the call. At any time say “My Telephone Controls” to bring the **Call In Progress** window back and to terminate the call or change the volume.

5. Say “Terminate Call” to end the call.

Answering a Call

Once connected, the mobile device can accept incoming calls and route the audio directly to the HC1. If the mobile device receives an incoming call, the following screen displays and a ringing tone is heard by the HC1 user.

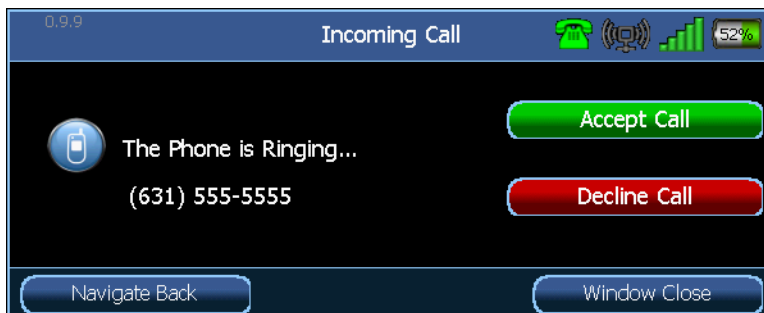


Figure 7-3 *Incoming Call Window*

To answer an incoming call:

1. Say “Decline Call” immediately to terminate the call. On many mobile phones the call is sent to the users voice mail.
2. Say “Accept Call” to answer the incoming phone call. The **Call In Progress** window appears.



Figure 7-4 *Call in Progress Window*

While a call is in progress, the HC1 user hears the caller through the HC1 speaker or optional Ear Buds. Similarly the HC1 user can communicate with the caller using the HC1 microphones.

Say “Window Close” to close the **Call In Progress** window and access other applications while on the call. At any time say “*My Telephone Controls*” to bring the **Call In Progress** window back and to terminate the call or change the volume.

3. Say “Terminate Call” to end the call.

Editing the Phone Book

The **New Call** window provides a rudimentary example of an address book and outgoing-call making mechanism. The New Call window allows for up to three phone numbers to be defined. Each is defined by selecting “Edit x.”

To create or edit a preset phone number:

1. Say “My Computer.”
2. Say “My Telephone Controls.”
3. Say “New Call.” The New Call window appears.



Figure 7-5 *New Call Window*

4. Say “Edit x.” The virtual keyboard window appears.

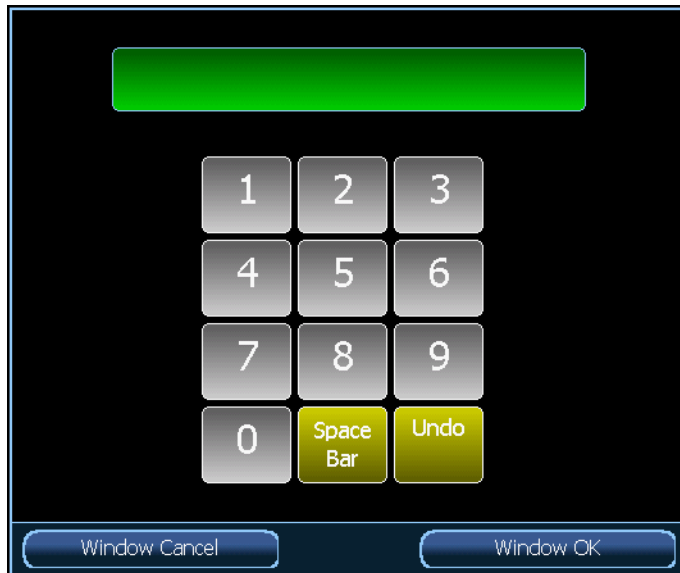


Figure 7-6 *Virtual Telephone Keyboard*

5. Say the phone number.
6. Say "Window OK."
7. Say "Window Close."

CHAPTER 8 DATA CAPTURE

Introduction

The HC1 offers the following data capture options:

- optional CS3070 Bluetooth laser scanner.
- optional RS507 Hands-free scanner.

CS3070 Bluetooth Laser Scanner

The CS3070 Bluetooth laser scanner captures bar code data, and transmits it to the HC1 via Bluetooth. The scanner supports Bluetooth human interface device (HID) connection to the HC1 where the scanner emulates a keyboard, as well as Serial Port Profile (SPP) connection where the scanner behaves as if there is a serial connection.

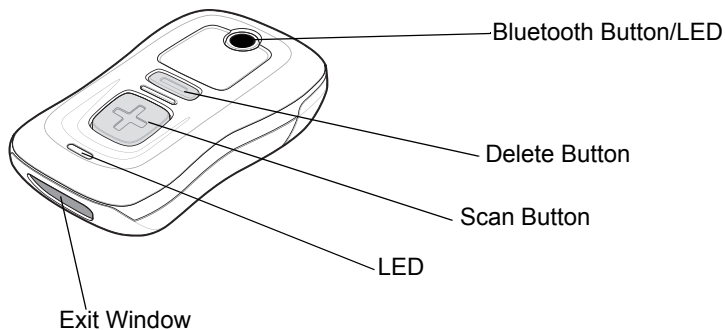


Figure 8-1 CS3070 Bluetooth Scanner

Pairing with the HC1

To pair the CS3070 and the HC1:

✓ **NOTE** HID is the default profile for the CS3070. If this was changed, scan the Bluetooth HID Bar Code.

1. Ensure that the CS3070 is in HID mode. Scan the bar code below to place the CS3070 in HID mode.



Figure 8-2 *Bluetooth HID Bar Code*

2. Press the scan button (+) to wake the scanner.
3. Press and hold the Bluetooth button (round button with Zebra logo) for five seconds. The scanner beeps and the Bluetooth button starts blinking quickly to indicate that the scanner is discoverable by the host.
4. On the HC1, say "My Computer."
5. Say "My Controls."
6. Say "My Bluetooth Controls."
7. Say "Add Devices." The HC1 searches for Bluetooth devices in the area and displays the CS3070 in the window.
8. Say "Add Devices x." An HID icon appears in the window.
9. Say "HID x."
10. Say "Connect Me." The HC1 connects to the CS3070.
11. Say "Navigate Back." A green dot appears on the HID icon indicating a connection.

Bar Code Capture with CS3070 Bluetooth Scanner

To capture bar code data:

1. Ensure that an application is open on the HC1 and a text field is in focus (text cursor in text field).
2. Aim the scanner at the bar code.
3. Press the scan (+) button.

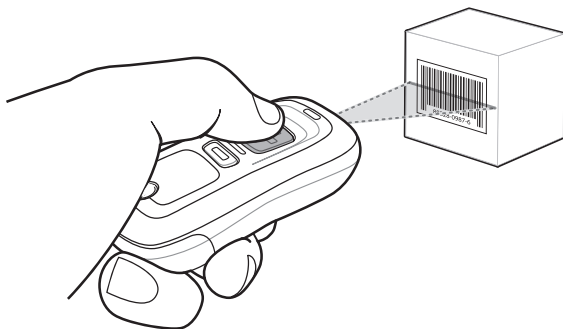


Figure 8-3 *CS3070 Scanning*

4. Ensure the scan line crosses every bar and space of the symbol.

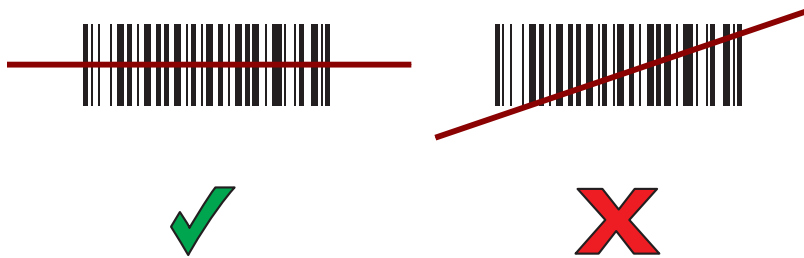


Figure 8-4 *Linear Scanner Aiming Pattern*

5. The scanner beeps and the LED turns green to indicate a successful decode.
6. The captured data appears in the text field.

RS507 Hands-free Imager

The RS507 Hands-free Imager is a wearable bar code scan solution for both 1D and 2D bar code symbologies. The Imager is also compatible with a wide range of mobile computers communicating over Bluetooth.

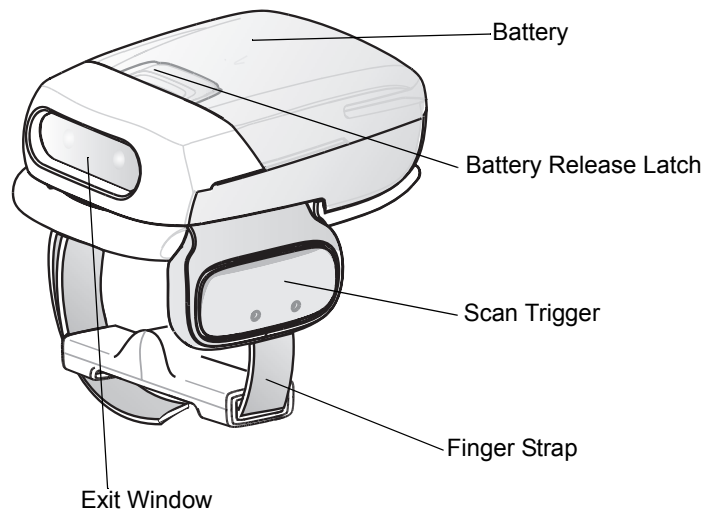


Figure 8-5 CS3070 Bluetooth Scanner

Refer to the *RS507 Hands-free Imager Product Reference Guide* for more information.

Pairing with the HC1

To pair the RS507 and the HC1:

1. Place the RS507 in HID mode. If the RS507 is already in HID mode, skip to step 2.
 - a. Remove the battery from the RS507.
 - b. Press and hold the Restore key.
 - c. Install the battery onto the RS507.
 - d. Keep holding the Restore key for about five seconds until a chirp is heard and the Scan LEDs flash green.
 - e. Scan the bar code below to place the RS507 in HID mode.



Figure 8-6 RS507 Bluetooth HID Bar Code

2. On the HC1, say "My Computer."
3. Say "My Controls."
4. Say "My Bluetooth Controls."
5. Say "Add Devices." The HC1 searches for Bluetooth devices in the area and displays the RS507 in the window.

6. Say "Add Devices x." An HID icon appears in the window.
7. Say "HID x."
8. Say "Connect Me." The HC1 connects to the RS507.
9. Say "Navigate Back." A green dot appears on the HID icon indicating a connection.

Bar Code Capture with RS507 Imager

To capture bar code data:

1. Ensure that an application is open on the HC1 and a text field is in focus (text cursor in text field).
2. Aim the scanner at the bar code.
3. Press the Scan trigger. The aiming pattern illuminates red indicating that the laser is on.
4. Ensure the scan line crosses every bar and space of the symbol.

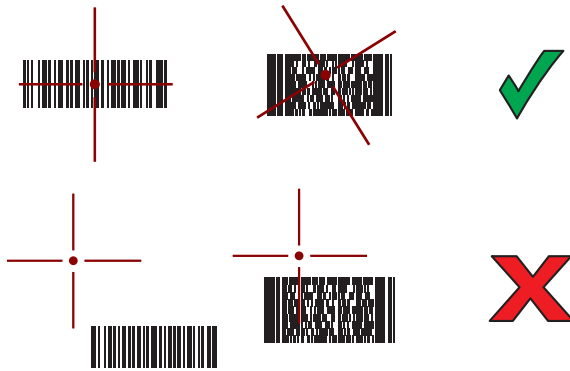


Figure 8-7 *Linear Scanner Aiming Pattern*

5. The scanner beeps and the LED turns green to indicate a successful decode.
6. The captured data appears in the text field.

Chapter 9 Accessories

Introduction

The HC1 accessories provide a variety of product support capabilities. Accessories include cradles, cables and spare battery chargers. [Table 9-1](#) lists the HC1 accessories.

Table 9-1 HC1 Accessories

Accessory	Part Number	Description
Camera	KT-HC1X-STCAM-01R	Record photos and videos.
Charging Adapter	CRDHC1X-1000CR	Provides power for charging the HC1 battery.
Ear Buds	21-HC1X-EARBD-01R	Provides audio to the user.
Power Supply	PWRS-14000-249R	Charges the HC1 battery using the Power Module.
Four Slot Battery Charger	SAC7X00-4000CR	Charges up to four spare batteries.
1950 mAh Battery	BTRY-MC7XEAB0E	HC1 standard battery.
1950 mAh Battery Door	BD-HC1X-BTRYD-01R	HC1 standard battery door.
4800 mAh Battery	BTRY-MC7XEAB0H	HC1 extended battery.
4800 mAh Battery Door	BD-HC1X-BTRYD-03R	HC1 extended battery door.
Firm Goods Assembly	KT-HC1X-FGASY-01R	Firm Goods Assembly.
Neck Pad	SG-HC1X-NPADS-01R	Neck pad.
Head Strap	SG-HC1X-HSTRP-01R	Headstrap.
Carry Case	SG-HC1X-HLSTR-01R	Case for storing the HC1 and accessories while traveling.
USB Cable	CBL-UNIV-USB01-01	Use to connect the HC1 to a host computer.
Speaker Module	SM-HC1X-SPKRM-01R	Speaker module.

Table 9-1 *HC1 Accessories (Continued)*

Accessory	Part Number	Description
Vehicle Charging Cable	VCC0000-01R	Power power to the HC1 while in a vehicle.
Wall Charging Kit	KT-CRDHC1X-01R	Contains the Charging Adapter and the power supply (PWRS-14000-249R).
Vehicle Charging Kit	KT-VCDHC1X-01R	Contains Charging Adapter and Vehicle Charging Cable.

Camera

✓ **NOTE** A camera application running on the HC1 is required to use the camera.

The camera mounts on either arm of the Firm Goods Assembly. Use the camera to record video and take pictures. An optional microSD card can be installed in the camera to store videos and pictures.

The camera is turned on and off through the camera application.

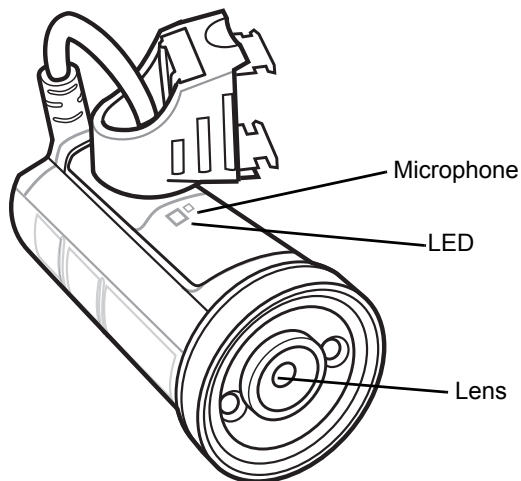


Figure 9-1 Camera Front View

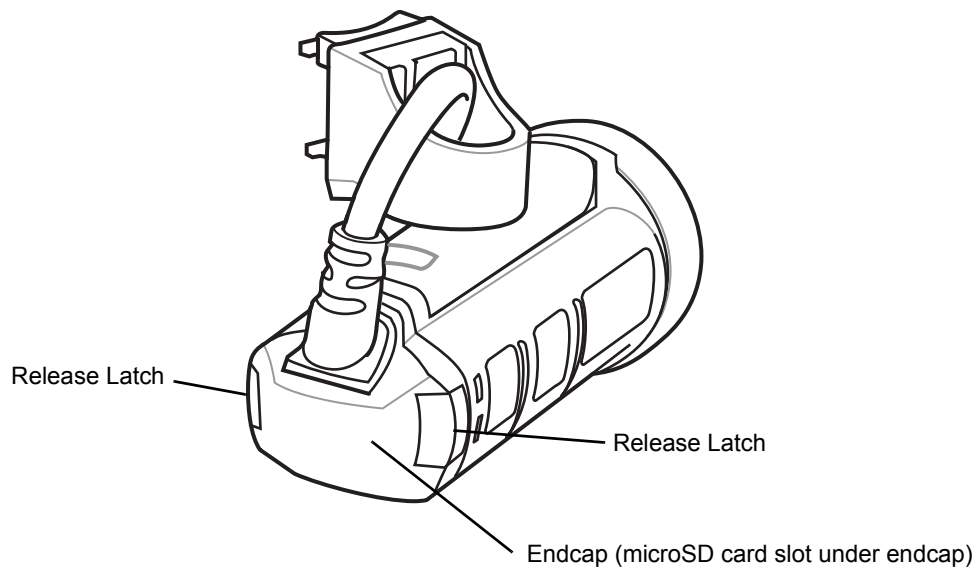


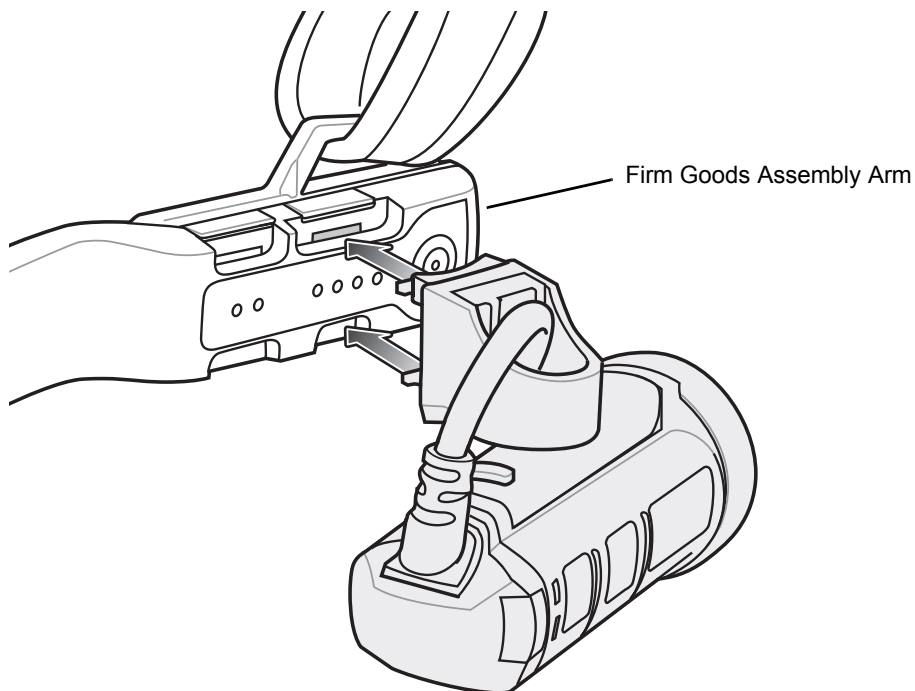
Figure 9-2 Camera Rear View

Table 9-2 LED Indications

LED	Description
Blinking amber	Camera is booting.
Blinking green	Standby mode. HC1 battery is good.
Fast blinking green	HC1 battery is low.
Blinking red	Recording high definition (HD) video.
Blinking orange	Recording standard definition (SD) video

Installation

1. Align the camera mounting tabs with the slots of the front connector (four round contacts).
2. Push in until the tabs snaps into place.

**Figure 9-3** Camera Installation

3. Move camera to position for best viewing.

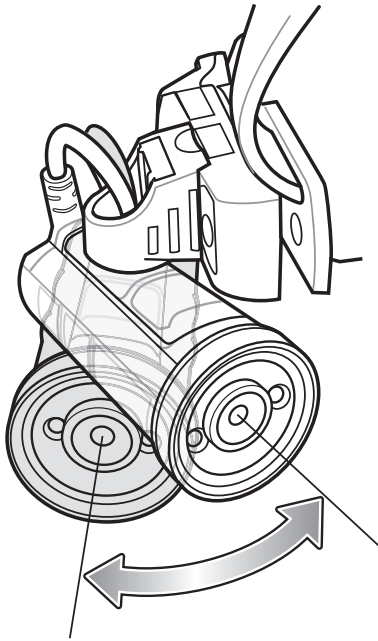


Figure 9-4 *Position Camera*

Removal

To remove the camera from the Firm Goods Assembly:

1. Press the release latch on the Firm Goods Assembly down.
2. Remove the camera from the Firm Goods Assembly.

Installing a microSD Card

To install an optional microSD card:

1. If installed, remove the camera from the HC1.
2. Press the two release latches on each side of the endcap.

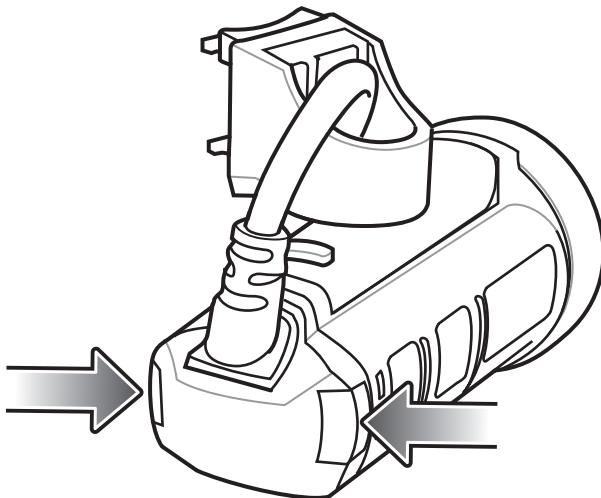


Figure 9-5 *Camera Rear View*

3. Remove the endcap from the camera.
4. Insert the microSD card into the card slot with the card contacts facing down.

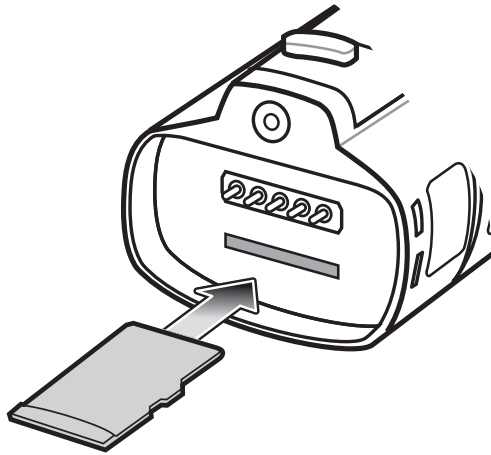


Figure 9-6 *Insert microSD Card*

5. Press the card in until it locks into place.
6. Align the endcap with the camera and push into the camera. The endcap snaps into place.

microSD Card

The microSD card provides additional storage for data. To install a microSD card:

1. Press the Power button for one second to place the HC1 into suspend mode.
2. Using a #1 Phillips screwdriver, remove the screw securing the card cover.

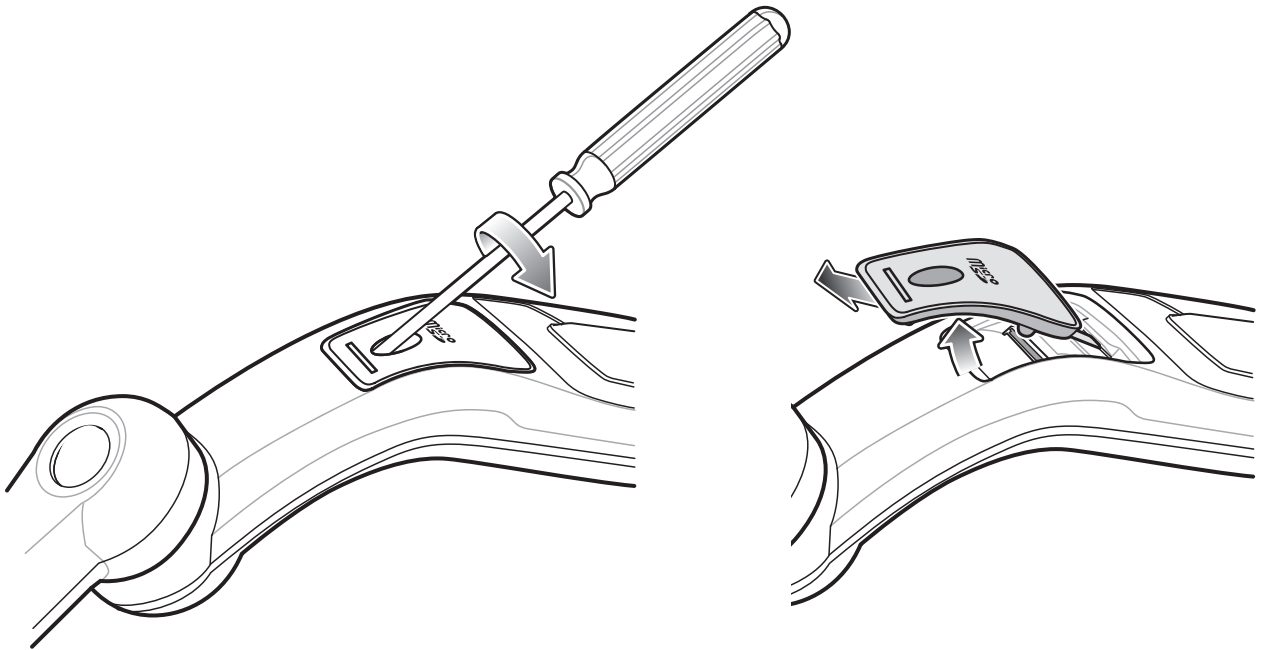


Figure 9-7 Remove SD Card Cover

3. Lift the card cover.
4. Insert the microSD card into the card slot with the contacts facing down.

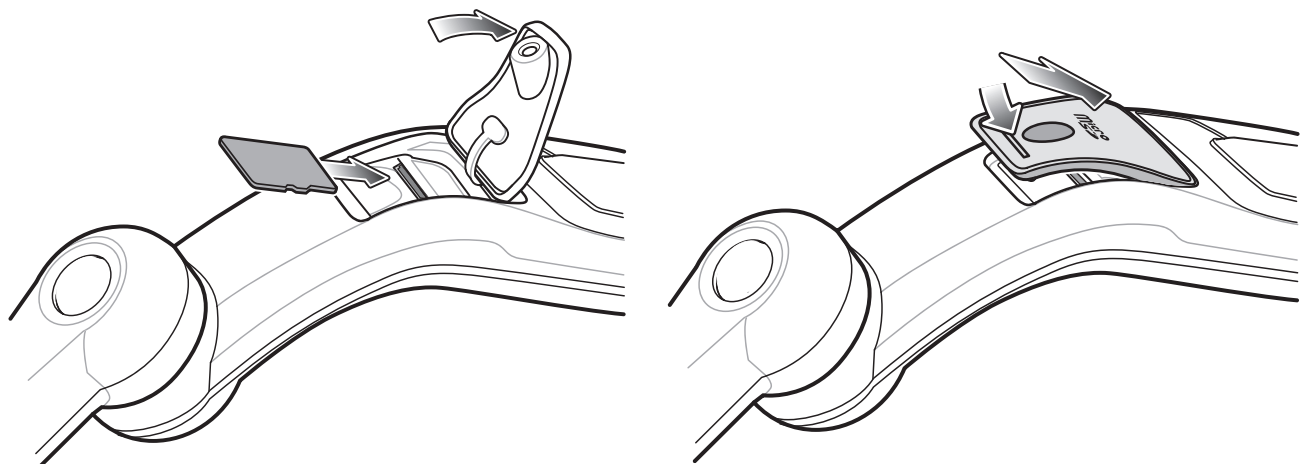


Figure 9-8 Insert microSD Card

5. Close the card cover.
6. Secure the card cover using a #1 Phillips screwdriver.
7. Press the Power button to turn on the HC1.

Ear Buds

Ear Buds provide an optional solution for the user to hear audio from the HC1.

To install the Ear Buds:

1. Remove the Speaker Module from the arm.
2. Attach the connector of the Ear Buds to Audio port on the arm.

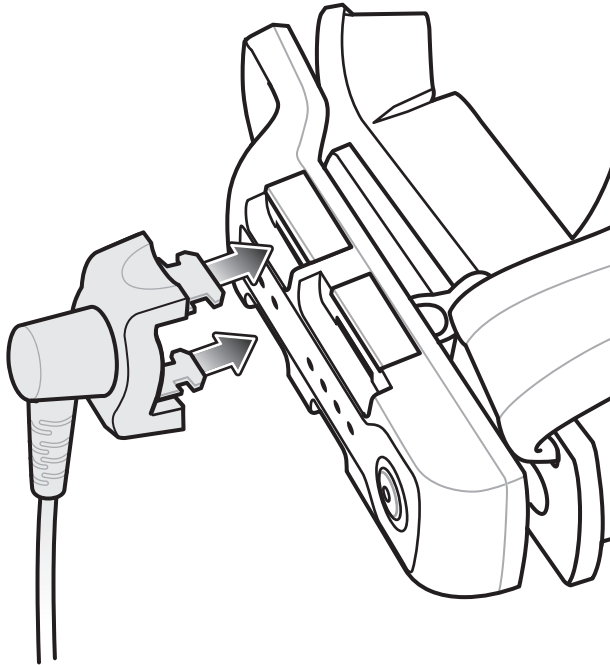


Figure 9-9 *Insert Ear Bud Connector*

3. Place ear buds into ears.

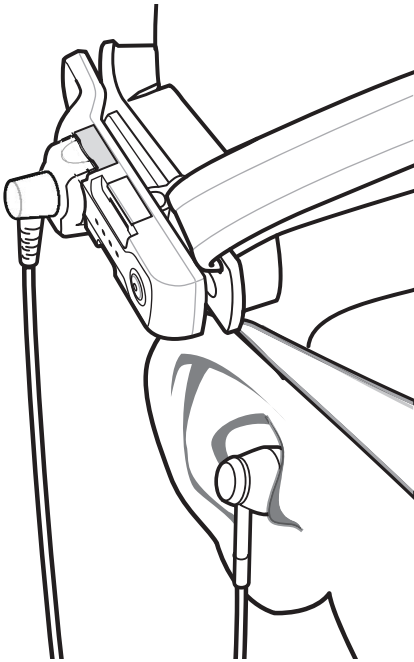


Figure 9-10 *Ear Bud Inserted into Ear*

4. Route the Ear Bud wire so that it does not interfere with movement.

Four Slot Battery Charger

This section describes how to use the Four Slot Battery Charger to charge up to four spare batteries.

Battery Shim Installation

Before charging a spare battery, snap the shim into the battery slot as shown in [Figure 9-11](#).

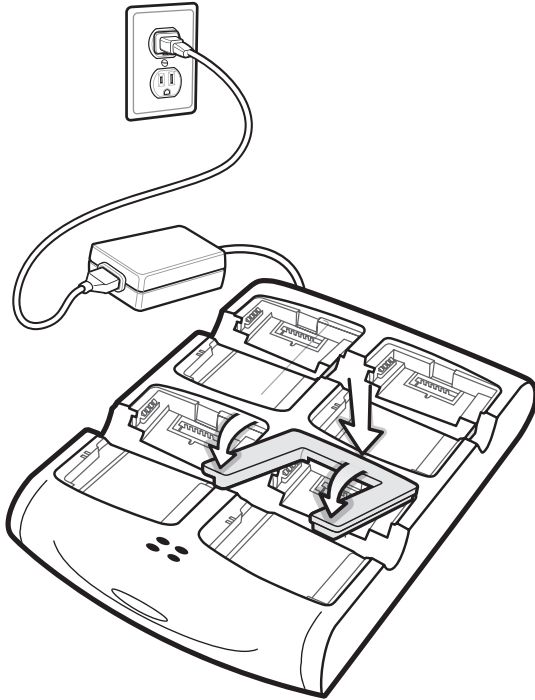


Figure 9-11 Spare Battery Shim Installation



NOTE To purchase additional shims, contact your local account manager or Zebra. Part number: KT-76490-01R.

Spare Battery Charging

1. Connect the charger to a power source.
2. Insert the spare battery into a spare battery charging well and gently press down on the battery to ensure proper contact.

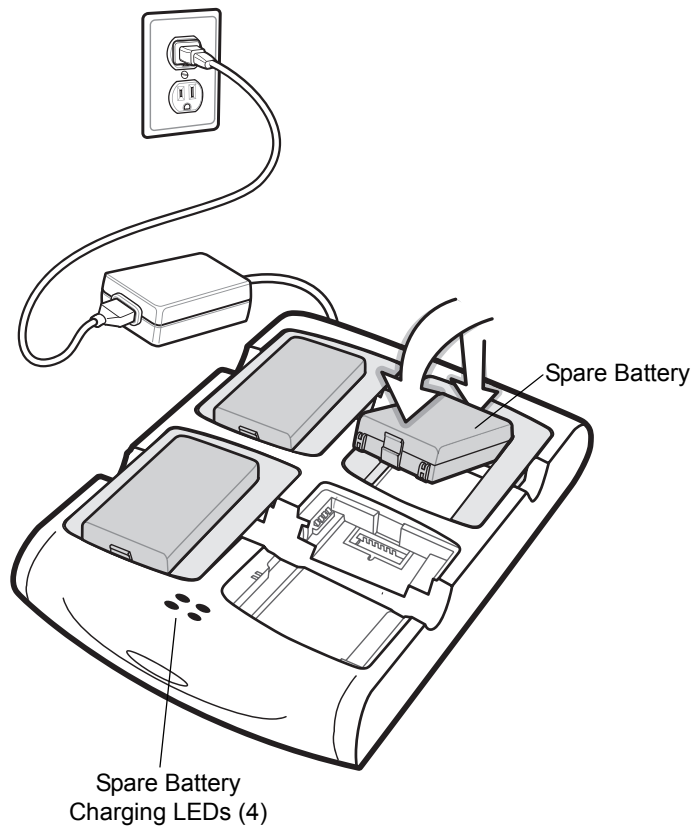


Figure 9-12 Four Slot Spare Battery Charger

Battery Charging Indicators

An amber LED is provided for each battery charging well. See [Table 9-3](#) for charging status indications. The 1950 mAh battery fully charges in less than four hours and the 4800 mAh battery fully charges in less than ten hours.

Charging Temperature

Charge batteries in temperatures from 0 °C to 40 °C (32 °F to 104 °F). Charging is intelligently controlled by the charger in order to ensure safe operation and optimize long-term battery life.

To accomplish this, for small periods of time, the charger alternately enables and disables battery charging to keep the battery at acceptable temperatures. The charger indicates when charging is disabled due to abnormal temperatures via its LED. See [Table 9-3](#).

Table 9-3 Spare Battery LED Charging Indicators

LED	Indication
Off	No spare battery in slot; spare battery not placed correctly; cradle is not powered.
Fast Blinking Amber	Error in charging; check placement of spare battery.
Slow Blinking Amber	Spare battery is charging.
Solid Amber	Charging complete.

Headstrap

To replace the headstrap:

1. Press the release latches to remove the Firm Goods Assembly from the Computer/Optical Pod Assembly.

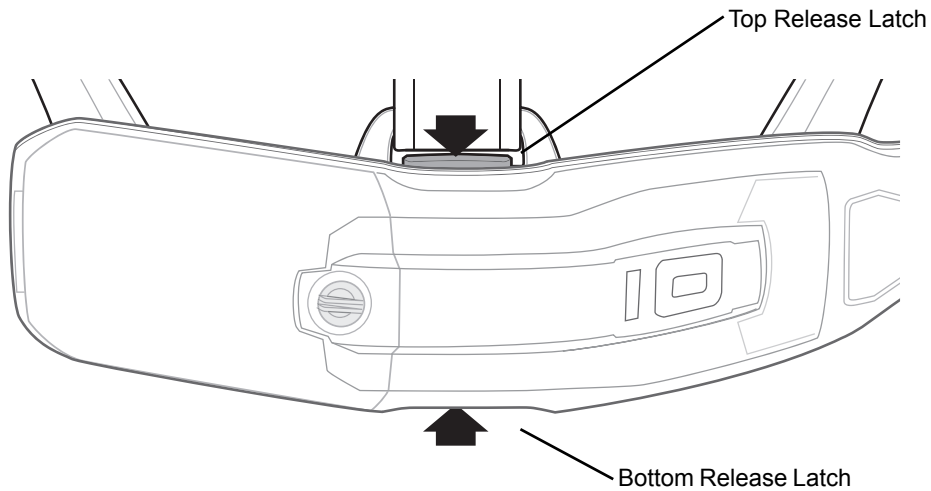


Figure 9-13 *Press Release Latches*

2. Remove the Firm Goods Assembly.

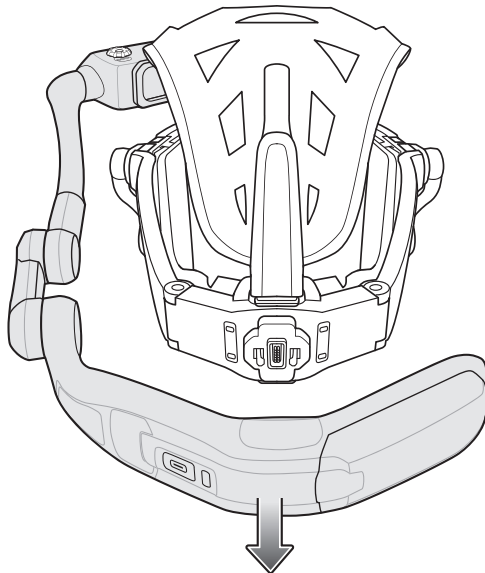


Figure 9-14 *Remove Firm Goods Assembly*

3. Lift the headset tab off the headstrap.
4. Pull headstrap so that the tab come through the three tab mounting slots.

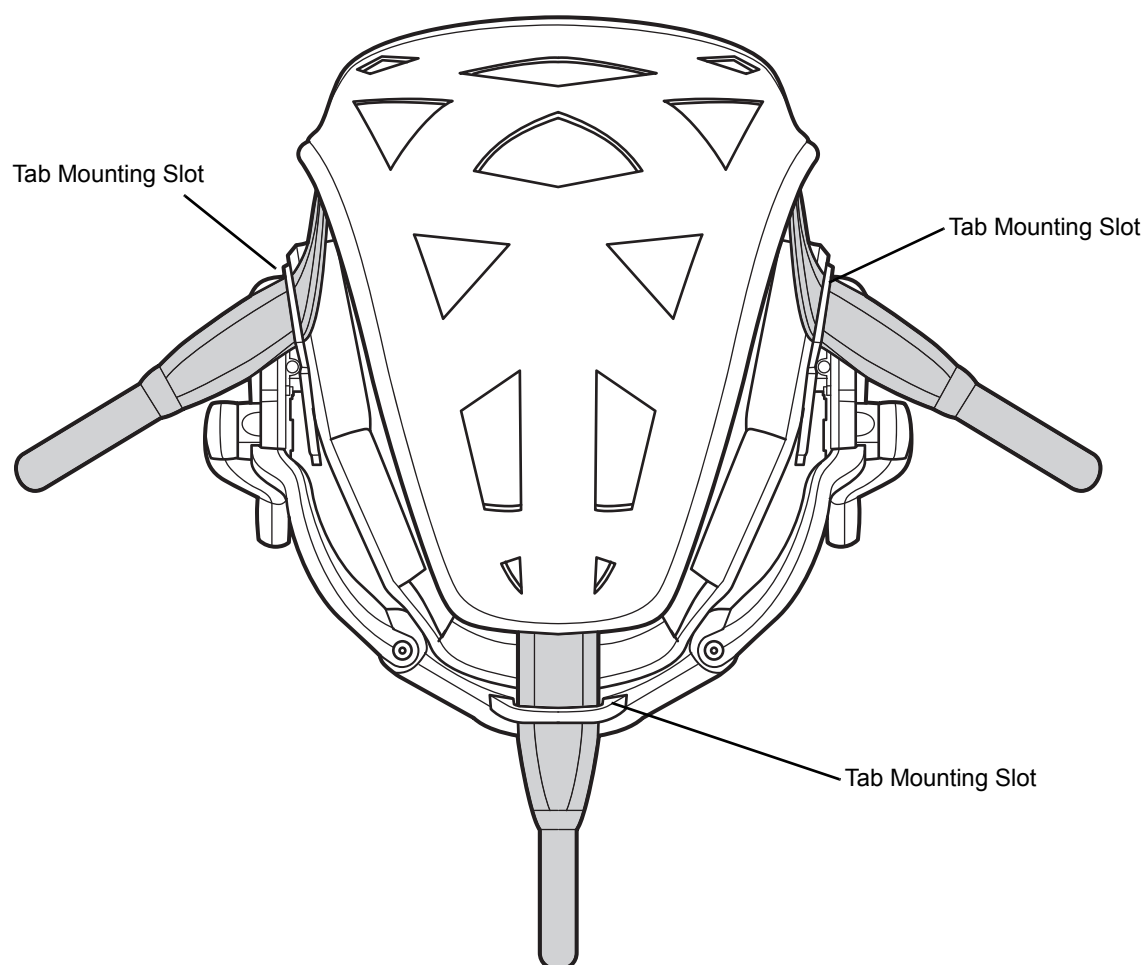


Figure 9-15 *Pull Headstrap Through Mounting Slots*

5. Align the tabs of the new headstrap with the tab mounting slots.

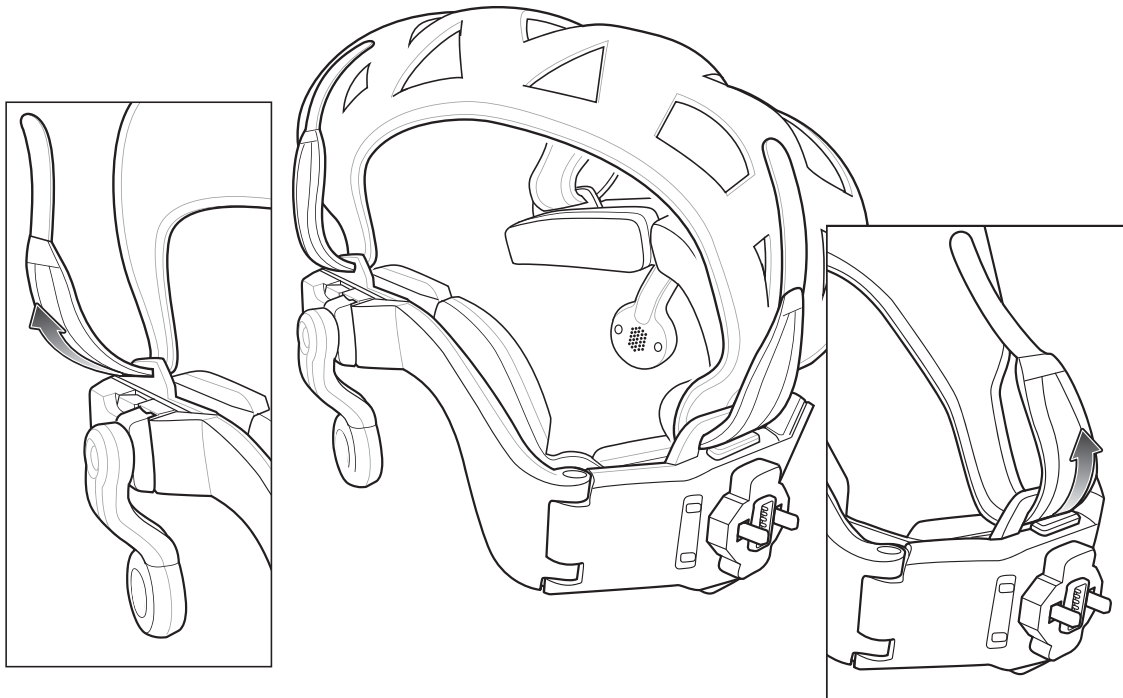


Figure 9-16 *Feed New Headstrap Through Mounting Tabs*

6. Press the tabs down onto the headstrap and ensure that the hook and loop material is secure. See [Placing the HC1 on Head on page 1-10](#) for information on positioning the HC1 properly on the head.

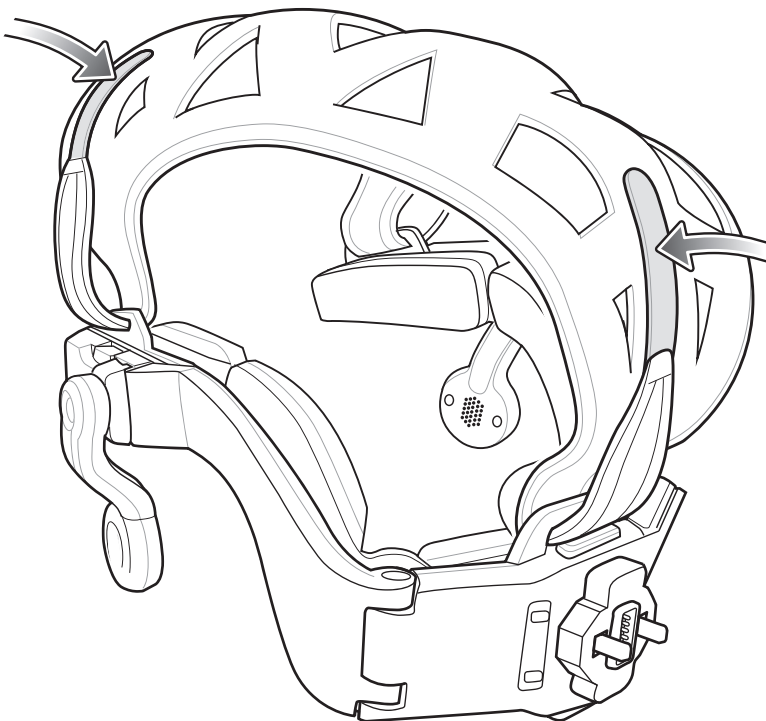


Figure 9-17 *Press Headstrap Tab against Headstrap*

7. Reconnect the Firm Goods Assembly to the Computer/Optical Pod Assembly.

Neck Pad

Use a replacement neck pad when the existing neck pad becomes soiled. To replace the neck pad:

1. Starting on one side, pull the existing neck pad away from the Firm Goods Assembly arm.
2. Continue peeling the neck pad from the back and other arm.

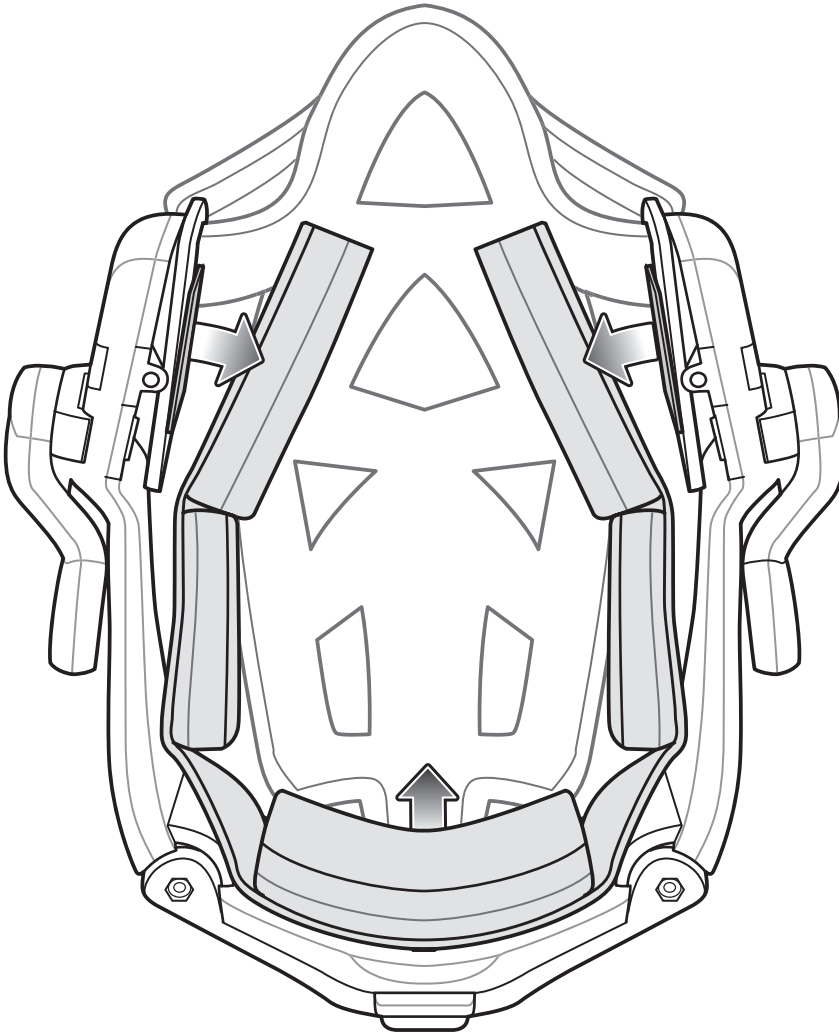


Figure 9-18 *Remove Existing Neck Pad*

3. Remove neck pad and discard or clean.
4. Align the center section of the new neck pad with the back of the Firm Goods Assembly.

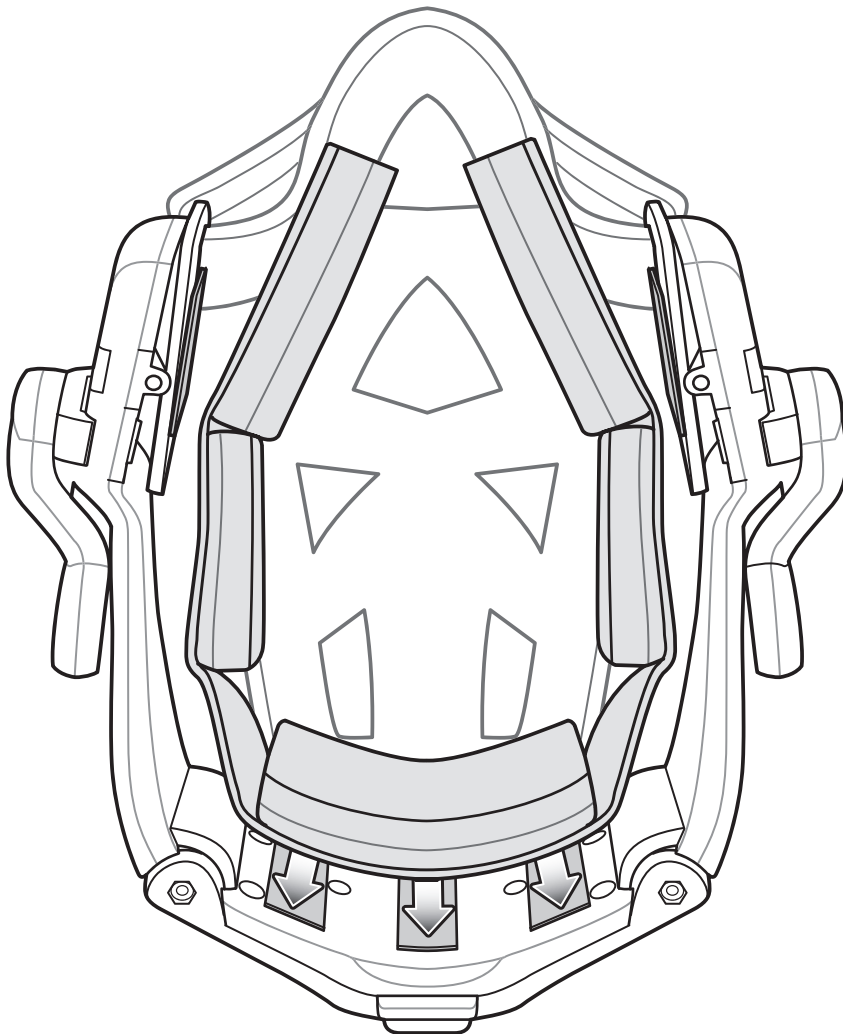


Figure 9-19 *Install Replacement Neck Pad*

5. Press the center section down and ensure that the hook and loop material secure to each other.
6. Press the left and right sides of the neck pads to the arms of the Firm Goods Assembly and ensure that the hook and loop material secure to each other.

Chapter 10 Maintenance & Troubleshooting

Introduction

This chapter includes instructions on cleaning and storing the HC1, and provides troubleshooting solutions for potential problems during HC1 operation.

Maintaining the HC1

For trouble-free service, observe the following tips when using the HC1:

- Although the HC1 is water and dust resistant, do not expose it to rain or moisture for an extended period of time.
- Protect the HC1 from temperature extremes. Do not leave it on the dashboard of a car on a hot day, and keep it away from heat sources.
- Use a soft lens cloth to clean the HC1. If the surface of the HC1 screen becomes soiled, clean it with a soft cloth moistened with a diluted window-cleaning solution.
- Periodically replace the rechargeable battery to ensure maximum battery life and product performance. Battery life depends on individual usage patterns.

Battery Safety Guidelines



WARNING! Failure to follow these guidelines may result in fire, explosion, or other hazard.

- The area in which the units are charged should be clear of debris and combustible materials or chemicals. Particular care should be taken where the device is charged in a non commercial environment.
- Follow battery usage, storage, and charging guidelines found in this user guide.
- Improper battery use may result in a fire, explosion, or other hazard.

- To charge the mobile device battery, the battery and charger temperatures must be between +32 °F and +104 °F (0 °C and +40 °C)
- Do not use incompatible batteries and chargers. Use of an incompatible battery or charger may present a risk of fire, explosion, leakage, or other hazard. If you have any questions about the compatibility of a battery or a charger, contact Zebra support.
- Do not disassemble or open, crush, bend or deform, puncture, or shred.
- Severe impact from dropping any battery-operated device on a hard surface could cause the battery to overheat.
- Do not short circuit a battery or allow metallic or conductive objects to contact the battery terminals.
- Do not modify or remanufacture, attempt to insert foreign objects into the battery, immerse or expose to water or other liquids, or expose to fire, explosion, or other hazard.
- Do not leave or store the equipment in or near areas that might get very hot, such as in a parked vehicle or near a radiator or other heat source. Do not place battery into a microwave oven or dryer.
- Battery usage by children should be supervised.
- Please follow local regulations to properly dispose of used re-chargeable batteries.
- Do not dispose of batteries in fire.
- In the event of a battery leak, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with large amounts of water and seek medical advice.
- If you suspect damage to your equipment or battery, contact Zebra support to arrange for inspection.

Cleaning



CAUTION Always wear eye protection.

Read warning label on compressed air and alcohol product before using.

If you have to use any other solution for medical reasons please contact Zebra for more information.



WARNING! Avoid exposing this product to contact with hot oil or other flammable liquids. If such exposure occurs, unplug the device and clean the product immediately in accordance with these guidelines.

Approved Cleanser Active Ingredients

100% of the active ingredients in any cleaner must consist of one or some combination of the following: isopropyl alcohol, bleach/sodium hypochlorite, hydrogen peroxide or mild dish soap.

Harmful Ingredients

The following chemicals are known to damage the plastics on the HC1 and should not come in contact with the device: ammonia solutions, compounds of amines or ammonia; acetone; ketones; ethers; aromatic and chlorinated hydrocarbons; aqueous or alcoholic alkaline solutions; ethanalamine; toluene; trichloroethylene; benzene; carboic acid and TB-lysoform.

Cleaning Instructions

Do not apply liquid directly to the HC1. Dampen a soft cloth or use pre-moistened wipes. Do not wrap the device in the cloth or wipe, but gently wipe the unit. Be careful not to let liquid pool around the display window or other places. Allow the unit to air dry before use.

Special Cleaning Notes

Many vinyl gloves contain phthalate additives, which are often not recommended for medical use and are known to be harmful to the housing of the HC1. The HC1 should not be handled while wearing vinyl gloves containing phthalates, or before hands are washed to remove contaminant residue after gloves are removed. If products containing any of the harmful ingredients listed above are used prior to handling the HC1, such as hand sanitizer that contain ethanalamine, hands must be completely dry before handling the HC1 to prevent damage to the plastics.

Materials Required

- Alcohol wipes
- Lens tissue
- Cotton tipped applicators
- Isopropyl alcohol
- Can of compressed air with a tube.

Cleaning the HC1

Housing

Using the alcohol wipes, wipe the housing including keys and in-between keys.

Display

The display can be wiped down with the alcohol wipes, but care should be taken not to allow any pooling of liquid around the edges of the display. Immediately dry the display with a soft, non-abrasive cloth to prevent streaking.

Connector

1. Remove the main battery from HC1. See [Replacing the Battery on page 1-17](#).
2. Dip the cotton portion of the cotton tipped applicator in isopropyl alcohol.
3. Rub the cotton portion of the cotton tipped applicator back-and-forth across the connector on the bottom of the HC1. Do not leave any cotton residue on the connector.
4. Repeat at least three times.
5. Use the cotton tipped applicator dipped in alcohol to remove any grease and dirt near the connector area.
6. Use a dry cotton tipped applicator and repeat steps 4 through 6.



CAUTION Do not point nozzle at yourself and others, ensure the nozzle or tube is away from your face.

7. Spray compressed air on the connector area by pointing the tube/nozzle about ½ inch away from the surface.
8. Inspect the area for any grease or dirt, repeat if required.

Headstrap and Pads

It may be necessary to wash the headstrap and replaceable pads when they become soiled.

Remove the headstrap and pads from the HC1. Hand wash in cold water with a mild detergent (such as Woolite®). Do not use bleach. Air dry. Do not use a dryer.

Cleaning Frequency

The cleaning frequency is up to the customer's discretion due to the varied environments in which the mobile devices are used. They may be cleaned as frequently as required. However when used in dirty environments it may be advisable to periodically clean the scanner exit window to ensure optimum scanning performance.

Troubleshooting

HC1

Table 10-1 *Troubleshooting the HC1*

Problem	Cause	Solution
HC1 does not turn on.	Battery not charged.	Charge or replace the battery.
	Battery not installed properly.	Ensure the battery is installed properly. See Installing the Battery on page 1-3 .
	System crash.	Perform a reboot. Remove and replace the battery.
Battery did not charge.	Battery failed.	Replace battery. If the HC1 still does not operate, reboot the HC1. See Resetting the HC1 on page 2-5 .
	HC1 removed from power source while battery was charging.	Connect power source and begin charging. The 1950 mAh battery fully charges in less than four hours and the 4800 mAh battery fully charges in less than ten hours.
	Extreme battery temperature.	Battery does not charge if ambient temperature is below 32 °F (0 °C) or above 104 °F (40 °C).
Cannot see characters on screen.	HC1 in suspend mode.	Press the Power button.
Cannot see display properly.	Not using dominate eye.	Use dominate eye. See Determining Dominant Eye on page 1-7 for more information.
During data communication, no data was transmitted, or transmitted data was incomplete.	HC1 unplugged from host computer during communication.	Reattach the cable and re-transmit.
	Incorrect cable configuration.	See the system administrator or refer to the <i>HC1 Series HC1 Integrator Guide</i> .
	Communication software was incorrectly installed or configured.	See the system administrator or refer to the <i>HC1 Series HC1 Integrator Guide</i> .
HC1 does not emit sound.	Volume setting is low or turned off.	Increase the volume. See Speaker Volume on page 4-6 for more information.
	Speaker module not installed or not installed properly.	Remove and replace speaker module. See Re-positioning Speaker Module on page 1-10 for more information.
	Optional Ear Bud not installed or not installed properly.	Remove and replace Ear Buds. See Ear Buds on page 9-8 for more information.

Table 10-1 *Troubleshooting the HC1 (Continued)*

Problem	Cause	Solution
HC1 goes into suspend mode.	HC1 is inactive.	The HC1 turns off after a period of inactivity. Press the Power button to resume.
	Battery is depleted.	Recharge or replace the battery.
	Overvoltage or overcurrent condition.	Replace battery. See system administrator.
	SD Card Cover not closed properly.	Remove and properly install the SD Card Cover.
	Battery Door not closed properly.	Remove and properly install the battery door.
HC1 does not respond to voice commands.	Noisy environment.	Ensure that Optical Pods is positioned properly. Ensure that dirt is not covering microphone holes.
	Microphone holes clogged.	Ensure that dirt is not covering microphone holes.
	Voice control is disabled.	Press the programmable user button on the Firm Goods Assembly to enable voice control.
HC1 cannot connect to Bluetooth mobile device.	Out of range.	Ensure that Bluetooth device is closer than 32 feet from HC1.
	Bluetooth device not in discoverable mode.	Ensure that the Bluetooth device is in discoverable mode. Refer to the device user documentation.
	Does not have supported profiles.	Ensure that the Bluetooth device supports the profiles supported by the HC1. See Chapter 6, My Bluetooth Controls for more information. Refer to the device user documentation.
	Not paired with Bluetooth device.	Ensure that the Bluetooth device is paired with the HC1. See Pairing to a Bluetooth Device on page 6-4 .

Four-slot Spare Battery Charger

Table 10-2 *Troubleshooting the Four-slot Spare Battery Charger*

Symptom	Possible Cause	Solution
Spare battery is not charging (Spare Battery Charging LED does not light).	Charger is not receiving power.	Ensure the power cable is connected securely to both the charger and to AC power.
	Spare battery is not correctly seated.	Remove and re-insert the battery into the charger, ensuring it is correctly seated.
	Spare battery was removed from charger or charger was unplugged from AC power too soon.	Ensure charger is receiving power. Ensure the spare battery is seated correctly. If a battery is fully depleted, it can take up to five hours to fully recharge a battery.
	Spare battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.

Appendix A Specifications

HC1 and Accessory Technical Specifications

Table A-1 summarizes the HC1 technical specifications and intended operating environments.

Table A-1 *HC1 Technical Specifications*

Item	Description
Physical Characteristics	
Dimensions	Designed to fit a wide range of users from 5th percentile female to a 95th percentile male head size
Weight (including battery)	23.6 oz/670 g with standard battery (Camera Module not included) 25.7 oz/730 g with extended life battery (Camera Module not included) Camera Module: (4.4 oz/125 g)
Display	Full Color, SVGA, Transmissive TFT (800 x 600) Micro-Display with an Adjustable Backlight; anti-scratch / anti-glare coated Field of View: 32 degrees (diagonal) Virtual image size: 15 inch
Voice Recognition	98-99% accuracy, natural language software (No learning required), supports 5 languages (English, French, Italian, German and Spanish)
Noise Cancellation	Active, ambient noise-cancellation (Dual Microphones)
Gesture Control	9-axis tracking and gesture module (accelerometer, gyroscope, and digital compass)
Communication Interface	Mini-USB Connector – USB OTG host (100mA)/client Accessory Interface Connectors – Two USB 2.0 EHCI High Speed (400mA) (cannot be used simultaneously)

Table A-1 HC1 Technical Specifications (Continued)

Item	Description
User Programmable Buttons:	Two buttons; single function
Battery	Rechargeable Lithium-ion 1950 or 4800 mAh minimum (3.7V)
Expansion Slot	User accessible microSD slot; up to 32 GB.
Network Connections	Full-speed USB (host or client)* Bluetooth WLAN
Notification	LED
Audio	User Removable Near-Ear Loudspeaker Module Built-in Dual Microphones; optional noise isolation ear-buds.
Performance Characteristics	
CPU	Texas Instruments OMAP 3730 Series Processor, 800 MHz, 3D Graphic Accelerator
Operating System	Microsoft Windows CE 6.0 Professional
Memory	512 MB RAM/512 MB Flash
User Environment	
Operating Temperature	-10 °C to 50 °C (-14 °F to 122 °F)
Storage Temperature	-40 °C to 70 °C (-40 °F to 158 °F) without battery
Charging Temperature	0° C to 40° C (32°F to 104°F)
Humidity	5 to 95% non-condensing
Drop Specification	4ft./1.2m to concrete across operating temperature per MIL-STD-810.
Tumble	500 0.5 m (1.6 ft.) tumbles (1000 hits).
Electrostatic Discharge (ESD)	+/-15 kV air discharge, +/- 8 kV direct discharge (Relative Humidity 50%)
Sealing	IP65.
Wireless LAN Data and Voice Communications	
Wireless Local Area Network (WLAN) radio	IEEE® 802.11b/g
Security	WPA, WPA2 and WEP
Antenna	Internal
Wireless PAN	
Bluetooth	v2.1 with Enhanced Data Rate (EDR)

Table A-1 HC1 Technical Specifications (Continued)

Item	Description
Supported Profiles	Discovery & Connect, HID, COM (SPP), BT PAN-Ad-hoc, BT PAN-AP, Hands-free, OBEX FTP
Accessories	
Camera	2MP, Wide Angle Fixed Focus, Configurable Video from 1080p (@30 fps)

GLOSSARY

Numeric

802.11/802.11bg. A radio protocol that may be used by the wireless radio card.

A

Access Point. Access Point (AP) refers to Zebra's Ethernet Access Point. It is a piece of communications equipment that manages communications between the host computer system and one or more wireless terminals. An AP connects to a wired Ethernet LAN and acts as a bridge between the Ethernet wired network and IEEE 802.11 interoperable radio-equipped mobile units, such as a HC1. The AP allows a mobile user to roam freely through a facility while maintaining a seamless connection to the wired network.

B

Bar Code. A pattern of variable-width bars and spaces which represents numeric or alphanumeric data in machine-readable form. The general format of a bar code symbol consists of a leading margin, start character, data or message character, check character (if any), stop character, and trailing margin. Within this framework, each recognizable symbology uses its own unique format. See **Symbology**.

Bit. Binary digit. One bit is the basic unit of binary information. Generally, eight consecutive bits compose one byte of data. The pattern of 0 and 1 values within the byte determines its meaning.

Bits per Second (bps). Bits transmitted or received.

bps. See **Bits Per Second**.

Byte. On an addressable boundary, eight adjacent binary digits (0 and 1) combined in a pattern to represent a specific character or numeric value. Bits are numbered from the right, 0 through 7, with bit 0 the low-order bit. One byte in memory is used to store one ASCII character.

boot or boot-up. The process a computer goes through when it starts. During boot-up, the computer can run self-diagnostic tests and configure hardware and software.

C

Character. A pattern of bars and spaces which either directly represents data or indicates a control function, such as a number, letter, punctuation mark, or communications control contained in a message.

Character Set. Those characters available for encoding in a particular bar code symbology.

Cold Boot. A cold boot restarts the HC1 and erases all user stored records and entries.

COM port. Communication port; ports are identified by number, e.g., COM1, COM2.

Cradle. A cradle is used for charging the terminal battery and for communicating with a host computer, and provides a storage place for the terminal when not in use.

D

Decode. To recognize a bar code symbology (e.g., UPC/EAN) and then analyze the content of the specific bar code scanned.

E

ESD. Electro-Static Discharge

F

Flash Memory. Flash memory is responsible for storing the system firmware and is non-volatile. If the system power is interrupted the data is not be lost.

G

Gateway Address. An IP address for a network gateway or router. A HC1 may be part of a subnet as specified by its IP address and Netmask. It can send packets directly to any node on the same subnet. If the destination node is on a different subnet, then the terminal sends the packet to the gateway first. The gateway determines how to route the packet to the destination subnet. This field is an option used by networks that require gateways.

H

Hard Reset. See **Cold Boot**.

Hz. Hertz; A unit of frequency equal to one cycle per second.

Host Computer. A computer that serves other terminals in a network, providing such services as computation, database access, supervisory programs and network control.

I

Internet Protocol Address. See **IP**.

IP. Internet Protocol. The IP part of the TCP/IP communications protocol. IP implements the network layer (layer 3) of the protocol, which contains a network address and is used to route a message to a different network or subnetwork. IP accepts "packets" from the layer 4 transport protocol (TCP or UDP), adds its own header to it and delivers a "datagram" to the layer 2 data link protocol. It may also break the packet into fragments to support the maximum transmission unit (MTU) of the network.

IP Address. (Internet Protocol address) The address of a computer attached to an IP network. Every client and server station must have a unique IP address. A 32-bit address used by a computer on a IP network. Client workstations have either a permanent address or one that is dynamically assigned to them each session. IP addresses are written as four sets of numbers separated by periods; for example, 204.171.64.2.

L

LAN. Local area network. A radio network that supports data communication within a local area, such as within a warehouse of building.

laser scanner. A type of bar code reader that uses a beam of laser light.

LASER. Light Amplification by Stimulated Emission of Radiation. The laser is an intense light source. Light from a laser is all the same frequency, unlike the output of an incandescent bulb. Laser light is typically coherent and has a high energy density.

Laser Diode. A gallium-arsenide semiconductor type of laser connected to a power source to generate a laser beam. This laser type is a compact source of coherent light.

LED Indicator. A semiconductor diode (LED - Light Emitting Diode) used as an indicator, often in digital displays. The semiconductor uses applied voltage to produce light of a certain frequency determined by the semiconductor's particular chemical composition.

M

HC1. In this text, HC1 refers to the Zebra headset computer. It can be set up to run as a stand-alone device, or it can be set up to communicate with a network, using wireless radio technology.

N

Nominal. The exact (or ideal) intended value for a specified parameter. Tolerances are specified as positive and negative deviations from this value.

Nominal Size. Standard size for a bar code symbol. Most UPC/EAN codes are used over a range of magnifications (e.g., from 0.80 to 2.00 of nominal).

NVM. Non-Volatile Memory.

R

RAM. Random Access Memory. Data in RAM can be accessed in random order, and quickly written and read.

RF. Radio Frequency.

Router. A device that connects networks and supports the required protocols for packet filtering. Routers are typically used to extend the range of cabling and to organize the topology of a network into subnets. See **Subnet**.

S

Scanner. An electronic device used to scan bar code symbols and produce a digitized pattern that corresponds to the bars and spaces of the symbol. Its three main components are:

1. Light source (laser or photoelectric cell) - illuminates a bar code.
2. Photodetector - registers the difference in reflected light (more light reflected from spaces).
3. Signal conditioning circuit - transforms optical detector output into a digitized bar pattern.

Scanning Mode. The scanner is energized, programmed and ready to read a bar code.

Subnet. A subset of nodes on a network that are serviced by the same router. See **Router**.

Subnet Mask. A 32-bit number used to separate the network and host sections of an IP address. A custom subnet mask subdivides an IP network into smaller subsections. The mask is a binary pattern that is matched up with the IP address to turn part of the host ID address field into a field for subnets. Default is often 255.255.255.0.

Symbology. The structural rules and conventions for representing data within a particular bar code type (e.g. UPC/EAN, Code 39, PDF417, etc.).

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