

# HX2 User's Guide

(Microsoft® Windows® CE 5.0 Equipped)

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**The user is strongly encouraged to read Appendix B - Regulatory Notices and Safety Information. Important safety cautions, warnings and worldwide regulatory agency information is contained in Appendix B.**

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## Introduction

### Overview

The LXE® HX2 is a small, lightweight mobile computer designed to be worn on a person's arm or waist. The HX2 is most useful for applications that require computational support while the user's hands are actively engaged with the physical environment, including piece picking to carts, containers or conveyers; case picking; parcel moves; and broken case activities.

The armbands that secure both the unit and its battery keeps the HX2 in the ready position at all times by preventing the unit from rotating around the wearer's arm. The adaptable armbands can be worn close to the elbow or near the wrist.

The primary data inputs are a keypad or a ring scanner. The HX2 is voice ready. Voice can also be used as an input with 3<sup>rd</sup> party software. Output is presented using the screen display or audio feedback generated by the mobile device and delivered through an internal speaker or audio headset.

The HX2 is powered by a tethered low profile, light and unobtrusive battery. The entire HX2 wearable computer system features breakaway connections at multiple points and a low-profile, smooth design to resist snagging on common warehouse fixtures and equipment.

The HX2 has a Microsoft® Windows® CE 5.0 operating system with an Intel® XScale® PXA255 CPU. The HX2 supports an 802.11b/g WLAN radio and Bluetooth® 2.0+EDR radio. Connectors are available which interface with peripherals such as a Ring Scanner (1D Laser and 2D Imager Ring Scanner), an audio headset, a docking/charging cradle and a tethered battery (see *Components* for port locations).

The QVGA color display with a touch panel has a diagonal viewing area of 2.5" (6.3 cm) in landscape orientation. The display backlight brightness can be adjusted using a series of keypresses. The keypad backlight can be either on or off. The 23 key keypad has a Power key, alphanumeric keys, function keys, cursor control keys, and Blue, Alpha, Enter, and Backspace keys.

The HX2 hip flip holster, voice case, rubber boot, powered cradle, touchscreen stylus and protective film for the screen are available from LXE as accessories (see *Accessories*).

*Note: Until the tethered battery and backup battery are completely depleted, the HX2 is always drawing power from the batteries (On).*

*Note: If the mobile device has AppLock installed, please refer to the [HX2 Reference Guide](#) for setup and processing information before continuing.*



### Related Manuals

This guide takes you through an introduction to and operation of the HX2.

**Ring Scanner Programming Guide** – contains programming barcodes used when setting up ring barcode reader engines.


**HX2 Reference Guide** – contains technical information and advanced instruction.

**HX2 Multi-Charger User's Guide** – contains user, technical and troubleshooting information for the HX2 battery multi-charger.

**HX2 Cradle Reference Guide** – contains user, technical and troubleshooting information for the HX2 cradle.

## Ring Scanner Warnings and Labels

- Do not look into the ring scanner/imager aperture.
- Do not stare directly into the ring scanner/imager laser beam.
- Do not remove the laser caution labels from the ring scanner/imager.
- Do not connect the ring scanner aperture to any other device.

<p><i>Caution:</i></p> 	<p><i>Laser radiation when open. Please read the caution labels.</i></p> <p><i>Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.</i></p>
--	--

Deletion and changes -- D. Postema



**Figure 1 Ring Scanner Caution Label – Class 2 Laser Scanner**



## Important Battery Information

**Backup Battery** -- If the HX2 has been without a power source (connected to a fully charged tethered battery or docked in a powered cradle) for an extended period of time or if HX2 external power sources become completely discharged or dead, a fully charged HX2 backup battery will last for up to 15 minutes. If the backup battery is fully discharged, the HX2 will reset as soon as it is docked in a powered cradle or connected to a fully charged tethered battery. A reset will cause loss of data and custom programs in RAM. Always store unused HX2s with a fully charged tethered battery. If possible, ensure the HX2 is periodically docked in a powered cradle to maintain an optimum backup battery charged status.

To check battery status tap  | **Settings** | **Control Panel** | **Battery** tab.

- Until the tethered battery and backup battery are completely depleted, the HX2 is always drawing power from the batteries (On).
- New Standard / Extended batteries must be fully charged prior to use.
- Whenever possible, place the HX2 in a powered cradle to conserve tethered battery power and recharge the backup battery.
- When a new battery is tethered to the HX2 for the first time (or after the backup battery has been fully depleted), the Time and Date reverts to factory default values.
- Backup battery replacement is performed by LXE.

The HX2 cradle can charge two standard batteries in less than four hours or two extended batteries in less than 8 hours in the battery wells behind the HX2 docking bay. The cradle requires an external power source before battery charging can commence.

The HX2 Multi-Charger can charge up to six batteries at the same time. Each charging bay can accept either battery. The Multi-Charger requires an external power source before charging/analyzing can occur.

### Li-Ion Battery

When disposing of the HX2 tethered batteries, the following precautions should be observed: The battery should be disposed of properly. The battery should not be disassembled or crushed. The battery should not be heated above 212°F (100°C) or incinerated.

#### Caution



**RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.**

**DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.**

#### Attention



**Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.**

**Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.**

## Environmental Specifications

### HX2







Operating Temperature	14°F to 122°F (-10°C to 50°C) [non-condensing]
Storage Temperature	-4°F to 158°F (-20°C to 60°C) [non-condensing]
Water and Dust	IEC 60529 compliant to IP54
Operating Humidity	5% to 90% non-condensing at 104°F (40°C)
Display Readability	Indoor readable
Wireless Compatibility	WiFi, CCX, LXE-delivered/certified access points
Bluetooth Range	32.8 feet (10 meters) Direct line of sight only.

### Lithium Ion Battery Pack

*Note: Battery packs can only be charged when their temperature is between 50°F (10°C) and 113°F (45°C).*

Operating Temperature	-4°F to 120°F (-20°C to 50°C) [non-condensing]
Storage Temperature	-4°F to 160°F (-20°C to 70°C) [non-condensing]
Water and Dust	IEC 60529 compliant to IP54
Operating Humidity	5% to 90% non-condensing at 104°F (40°C)
mAh	Standard battery pack: 2000 mAh Extended battery pack: 4000 mAh
Charge Time	Standard battery pack: 4 hours Extended battery pack: 8 hours
Discharge Time	Standard battery pack: 8 hours Extended battery pack: 16 hours
Dimensions	Standard battery pack: 1.7" Width x 0.6" Height x 4.9" Length Extended battery pack: 1.7" Width x 1.0" Height x 4.9" Length

## Document Conventions

ALL CAPS	All caps are used to represent disk directories, file names, and application names.
Menu   Choice	Rather than use the phrase “choose the Save command from the File menu”, this guide uses the convention “choose File   Save”.
<i>Italic Titles</i>	Indicates the title of a book, chapter or a section within a chapter ( <i>for example, <u>Document Conventions</u></i> ).
< >	Indicates a key on the keypad (for example, <Enter> ).
	Indicates a reference to other documentation.
<b>ATTENTION</b>	Keyword that indicates vital or pivotal information to follow.
	Attention symbol that indicates vital or pivotal information to follow. Also, when marked on product, means to refer to the user’s guide.
	International fuse replacement symbol. When marked on the product, the label includes fuse ratings in volts (v) and amperes (a) for the product.
<i>Note:</i>	Keyword that indicates immediately relevant information.
<i>Caution</i> 	Keyword that indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
<i>Warning</i> 	Keyword that indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
<i>Danger</i> 	Keyword that indicates a imminent hazardous situation which, if not avoided, will result in death or serious injury.

## Getting Help

All LXE user guides are now available on one CD and they can also be viewed/downloaded from the LXE ServicePass website. Contact your LXE representative to obtain the LXE Manuals CD.

You can also get help from LXE by calling the telephone numbers listed on the LXE Manuals CD, in the file titled *Contacting LXE*. This information is also available on the LXE website.

Explanations of terms and acronyms used in this guide are located in the file titled *LXE Technical Glossary* on the LXE Manuals CD and the LXE ServicePass website.

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## Manuals

- HX2 User's Guide - English
- HX2 User's Guide – German
- HX2 Cradle Reference Guide
- HX2 Reference Guide
- HX2 Multi-Charger / Analyzer User's Guide
- LXEbook – HX2 User's Guide (download to mobile device)
- RFTerm Reference Guide
- LXE Security Primer
- CE API Programmers Guide
- Ring Scanner Programming Guide

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## Accessories

*Note: Items with a Green letter R in the second column are ROHS-compliant. Please contact your LXE representative when ordering ROHS-compliant items as the part number may have changed. Items without the letter R may have received ROHS-compliance after this guide was published. E designator means the accessory is Exempt.*

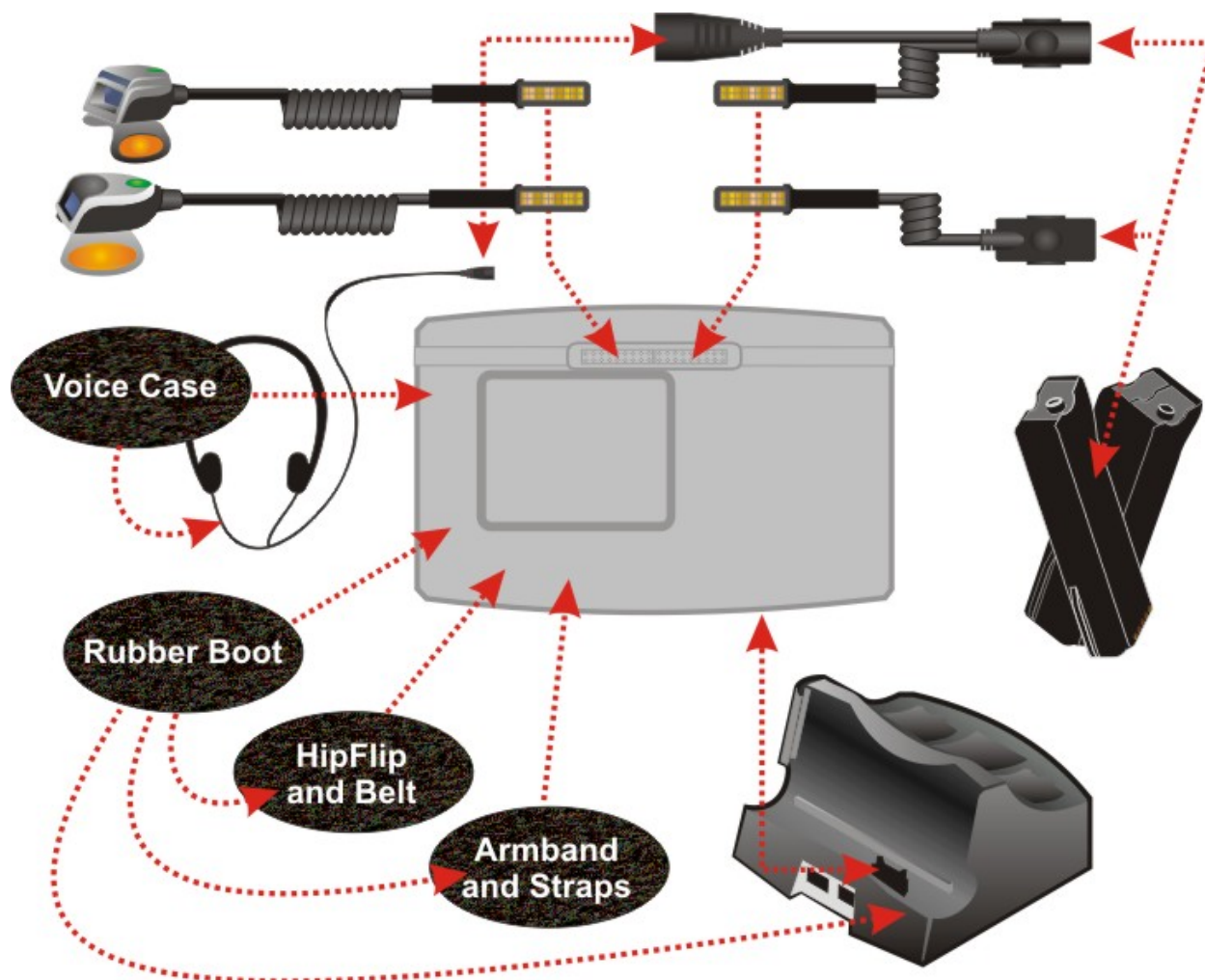
<b>Power</b>		
HX2 Standard Battery, Lithium Ion	E	HX2A301BATTSTD
HX2 Extended Battery, Lithium Ion	E	HX2A302BATTEXT
6 slot battery charger with universal power supply. Includes analyzing capabilities on one slot. US power cord included.	R	HX2A310CHRG6US
6 slot battery charger with universal power supply. Includes analyzing capabilities on one slot. Power cord not included.	R	HX2A311CHRG6WW
<b>Cradle</b>		
HX2 Desk cradle with spare charging slot. Includes universal power supply. US power cord included.	R	HX2A312DESKCRADLEUS
HX2 Desk cradle with spare charging slot. Includes universal power supply. Power cord not included.	R	HX2A313DESKCRADLEWW

<b>Mobility</b>		
Armband with standard wrist straps	R	HX2A201ARMBAND
Replacement wrist straps (standard) for armband	R	HX2A202WRISTSTD
Replacement wrist straps (extended) for armband	R	HX2A203WRISTEXT
Hip Flip (for belt mounting)	R	HX2A221HIPFLIP
Voice case (for belt mounting)	R	HX2A222VOICECASE
Belt for hip flip or voice case	R	9200L67
<b>Barcode Readers</b>		
SR laser for armband (short cable)	R	HX2A101SRSLASER
SR laser for hip flip or voice case (long cable)	R	HX2A102LRSLASER
RS-409 SR laser for armband (short cable)	R	HX2A120SRS409
2D Imager for armband (short cable)	R	HX2A110SRSIMAGER
2D imager for hip flip or voice case (long cable)	R	HX2A111LRSIMAGER
<b>Cables</b>		
USB ActiveSync Cable (Type A to HX2 cradle connector)	R	HX2A001CBLACTVSYNC
Battery Cable	R	HX2A002CBLBATT
Battery Cable with Audio	R	HX2A003CBLBATTAUDIO
Battery Extension Cable	R	HX2A004CBLBATTEXT
<b>Miscellaneous</b>		
Rubber protective boot, gray	R	HX2A232BOOTGRAY
Replacement Stylus , 10-pack	R	9000A507STYLUS
CD with CE 5.0 API's and LXE API's with documentation for custom application development	R	HX2A501CE50SDK
Touchscreen anti-glare anti-reflective protective film, 10 pack	R	HX2A502PROTFILM

<b>Audio</b>		
Single ear, single headband, headset with noise canceling microphone, includes 5 replacement windscreens	R	HX1A501SNGBHEADSET
Single ear, dual headband, headset with noise canceling microphone, includes 5 replacement windscreens	R	HX1A502DUALBHEADSET
Dual ear, behind the head, headset with noise canceling microphone, includes 5 replacement windscreens	R	HX1A503BTHHEADSET
Replacement foam block for 502 dual band headsets, qty 1	R	HX1A504AHSBLOCKFOAM
Replacement head yoke for dual band 502 headset, qty 1	R	HX1A505DUALYOKE
Replacement head yoke for single band 501 headset, qty 1	R	HX1A506SINGLEYOKE
Replacement windscreen for all headset microphones, 10 Pack	R	HX1A508WINDSCREEN10
Replacement windscreen for all headset microphones, 50 Pack	R	HX1A509WINDSCREEN50
Replacement foam ear piece cover for 501 and 502 headsets, 10 pack	R	HX1A510FOAMEAR10
Replacement foam ear piece cover for 501 and 502 headsets, 50 pack	R	HX1A511FOAMEAR50

## Components

*Note: The figures on the next few pages assume a fully charged tethered battery is in the battery sleeve (on an armband or hip flip) and positioned at the top of the figure.*



Please contact your System Administrator for assistance with HX2 accessories.

*Note: New batteries must be charged prior to use. The backup battery is continually recharged by the tethered battery.*

## Front

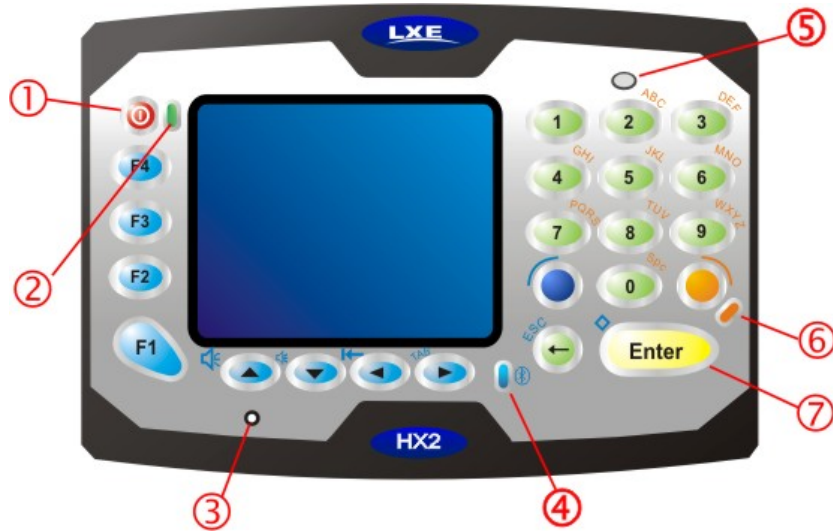


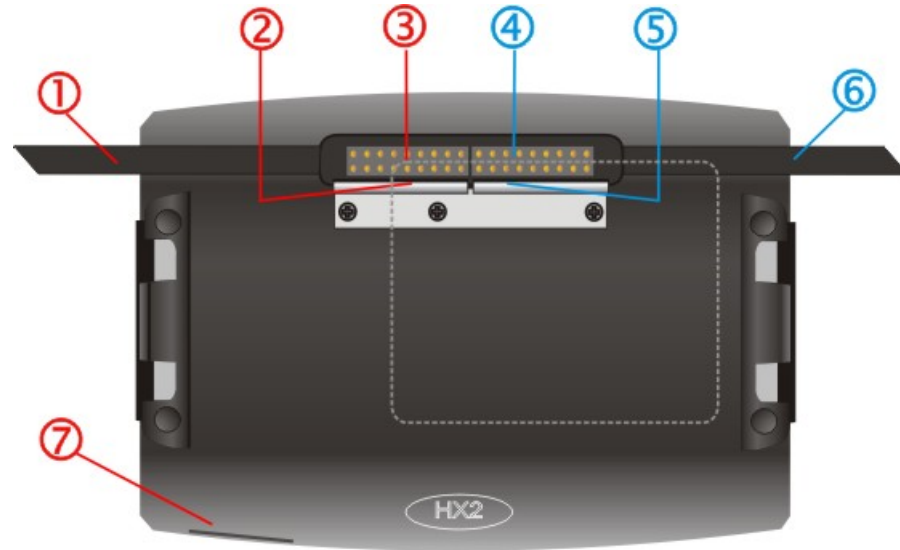
Figure 2 Front

1	On / Off Button
2	System Status LED
3	Microphone
4	Bluetooth LED
5	Speaker
6	Alpha Mode LED
7	Enter Button



## Back

*Note: Before connecting cables to the back, make sure the battery sleeve on the armband is uppermost or the left arm / right arm directions won't work.*



**Figure 3 Back**

## Left Arm Use

1	Ring Scanner Tether cable channel
2	Retaining Clip for Ring Scanner Tether Connector
3	Ring Scanner cable connector
4	Battery Cable connector
5	Retaining Clip for Tethered Battery Connector
6	Tethered Battery Cable channel
7	Cradle Connector

## Right Arm Use

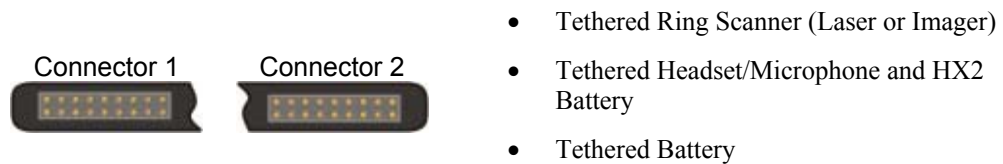
1	Tethered Battery Cable channel
2	Retaining Clip for Tethered Battery Connector
3	Battery Cable connector
4	Ring Scanner cable connector
5	Retaining Clip for Ring Scanner Tether Connector
6	Ring Scanner Tether Cable channel
7	Cradle Connector

## Connectors

### Ring Scanner / Audio / Battery Connection



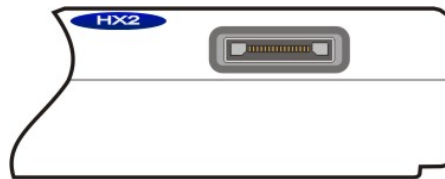
**Figure 4 Scanner / Audio / Battery Ports – Connector 1 and 2**



- Tethered Ring Scanner (Laser or Imager)
- Tethered Headset/Microphone and HX2 Battery
- Tethered Battery

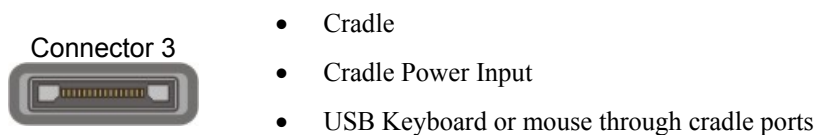
See Cables.

### Cradle Connection



**Figure 5 Cradle/Power Port – Connector 3 (Base)**

Connector 3 is at the base of the HX2. It connects to the Cradle. When the HX2 is in a powered cradle, the HX2 receives external power through the Cradle connector. USB Keyboard or USB Mouse input is received through the Cradle connector when the HX2 is in a cradle.



- Cradle
- Cradle Power Input
- USB Keyboard or mouse through cradle ports

See the *HX2 Cradle Reference Guide* for instruction.

**Tethered Ring Scanner / Imager**



**Figure 6 Laser Ring Scanner**

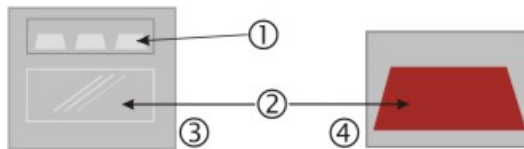


**Figure 7 Imager Ring Scanner**

1	Laser /Imager Scan Aperture
2	Scan-in-Progress LED
3	HX2 Connector
4	Scan button (Trigger)



**Figure 8 Concept - Ring Scanner Hook and Loop Strap**



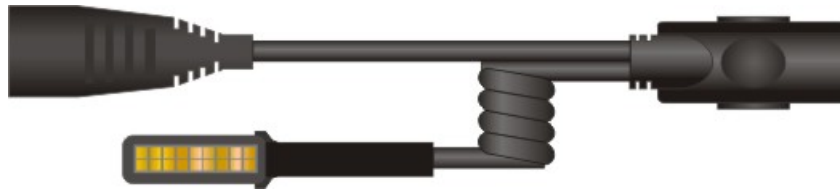
**Figure 9 Ring Scanner/Imager Apertures**

1	Imager – Illumination LEDs
2	Beam Aperture
3	Imager – Clear Glass Lens
4	Laser Scanner – Red Glass Lens

## Cables



**Figure 10 Cable – Battery and HX2 Connectors**



**Figure 11 Cable – Audio, Battery and HX2 Connectors**



**Figure 12 Cable – Laser Ring Scanner and HX2 Connectors**



**Figure 13 Cable – Imager Ring Scanner and HX2 Connectors**

## Li-Ion Battery

Main battery charging is handled exclusively by the HX2 Multi-Charger/analyzer and the battery charger integrated into a powered HX2 cradle.

The Standard battery is much thinner than the Extended battery.

Each battery will fit in the battery sleeve on an armband, hip flip and the voice case.

*Note: Do not allow water or chemical cleaning agents of any kind to come in contact with the battery charging contacts or the battery cable connector; they may be damaged. If necessary, clean them with a soft-bristle, dry brush or compressed air.*

---

## Standard Battery




---

## Extended Battery



**Figure 14 HX2 Standard and HX2 Extended Battery**



Battery Charge/Connect  
Terminals



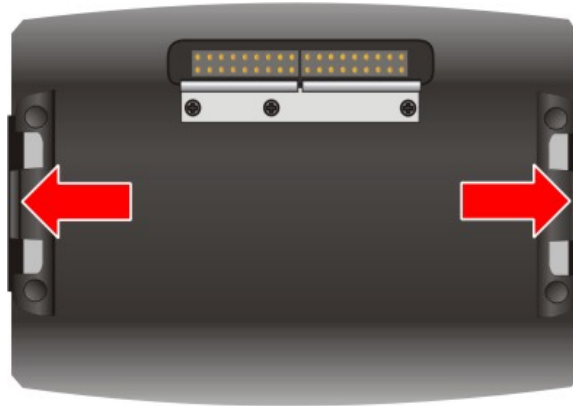
HX2 Battery Cable  
Connector

*Note: When placing the tethered battery in an armband or hip flip battery sleeve, ensure the Battery Charge/Connect terminals are protected from accidental damage by keeping them covered by the sleeve fabric at all times.*

*Note: New batteries must be charged prior to use. The backup battery is continually recharged by the tethered battery.*

## Mounting Bracket Clips

Mounting brackets are pre-installed to the back of the HX2. The brackets (one on each side) secure the HX2 to the mounting bracket clips on a hip flip or the armband.



**Figure 15 Mounting Brackets**

The HX2 mount assembly is pre-installed to a hip flip or armband.



**Figure 16 Armband and Hip Flip Mount Assembly and Clips**

### Connect

Center the HX2 over the mount assembly and gently push down until both bracket clips (indicated by the arrows shown above) snap over the brackets on the HX2. Carefully test the connection to make sure the HX2 is secured to the armband or hip flip.

Reset the connection by pressing down on either mounting clip to release the HX2 and try again.

### Disconnect

Remove the HX2 from the mount assembly by pushing down on either mounting clip, or both, until the HX2 mounting bracket disconnects.

Or you can disconnect one side, then lift the HX2 up at a 45 degree angle until the other side disconnects. Lift the HX2 up and away from the mount assembly.

**Mounting Devices**

**Armband**



**Armband – Top View**

- 1 HX2 Mounting Bracket
- 2 Bracket Clips
- 3 Battery Sleeve
- 4 Stylus Holder
- 5 Arm Strap Brackets



**Armband – Bottom View**

- 1 Removable Mesh Arm Cover
- 2 Arm Strap Brackets
- 3 Adjustable Arm Straps

**Figure 17 Armband / Top and Bottom**

**Straps**



**Figure 18 Armband Straps**

1	Hook Fabric
2	Loop Fabric
3	Connection tabs. Slide through Arm Strap Brackets and press hook and loop fabric together to secure strap to arm band.
4	Put this side of the strap on the inside, against the arm
5	Put this side of the strap on the outside

---

## Hip Flip



**Figure 19 Hip Flip and Belt**

1	HX2 Mounting Bracket on Hip Flip
2	Mounting Bracket Clips
3	A Belt inside the Belt Loop
4	Brace (Adjustable)



# Quick Start


## Getting Started

*Note: The sequence of steps in [Getting Started/Pre-requisites](#) must also be completed when the HX2 returns from a Cold Boot and when a new OS version is loaded. The wireless client, flash card, virtual keyboard and scanner parameters may also need to be reset after a cold reset.*

This section's instructions are based on the assumption that your new device is pre-configured and requires only accessory installation (e.g. stylus, headset, ring scanner, etc.) and a battery. LXE recommends that installation or removal of accessories be performed on a clean, well-lit surface. When necessary, protect the work surface, the mobile device, and components from electrostatic discharge.

---

## Pre-requisites

- A fully charged battery is available.
- Optional add-on devices are available (e.g. stylus, headset, ring scanner, hip flip, voice case, armband).
- Wireless Client configuration has been completed by the System Administrator.
- Required configured (mappable) keys have been assigned by the System Administrator. For example, the default keypad configuration does not have a , Control, Shift, Alt or Del key (or the equivalent). Key mapping can be changed to map those specific keys if needed.
- Optional software and LXE applications have been installed and setup by the System Administrator.

---

## HX2 Quick Start

<b>First</b>	Connect cabled devices to the HX2	See <i>Connecting the Battery and Ring Scanner</i> . See <i>Connecting the Audio Cable and a Headset</i> .
<b>Next</b>	Power up the HX2 and set up personal preferences	See <i>Tapping the Power Key</i> . Locate the stylus. Calibrate the touchscreen, if necessary. See <i>Tapping the Touchscreen with a Stylus</i> and <i>Calibrating the Touchscreen</i> .  A white screen will appear during the bootup process until all drivers and applications are loaded and installed. Setup screens may appear and disappear while files are loading. After all files are loaded and the Desktop is displayed, adjust audio volume and other parameters if desired.
<b>Then</b>	Setup wearable accessories	See <i>Wearable Device Assembly</i> and <i>Optional Equipment</i> .

### HX2 Mobile Device - Quick Start Troubleshooting

Can't calibrate the touchscreen, change the date/time or adjust the volume.	AppLock is installed and running on the mobile device. AppLock restricts User access to running programs. Changes or modifications require Administrator access.  Refer to <i>HX2 Reference Guide</i> for setup and processing information.
RFterm® opens and runs upon each cold reset and warm reset.	Tap File   Exit to close the RFTerm application. By default RFTerm runs upon each cold reset and warm reset.
HX2 seems to lockup as soon as it is warm booted.	There may be slight delays while the wireless client connects to the network, authorization for voice-enabled applications complete, Wavelink Avalanche management of the HX2 startup completes, and Bluetooth relationships establish or re-establish. When the desktop appears or an application begins, the HX2 is ready for use.

## Wearable Device Assembly

### Armband



**Figure 20 HX2 Armband, Left Arm Orientation, Ring Scanner, Audio**

**Prerequisite:** Optional add-on devices are available.

- Fasten the armband to your left or right arm before continuing with these directions. See *Connecting the Battery and Ring Scanner*.
- Slide the battery into the battery sleeve on the armband.
- Snap all tethered devices to the connectors at the back of the HX2. See *Connecting the Battery and Ring Scanner* and *Connecting the Audio Cable and a Headset*.
- Snap the HX2 into the armband mounting bracket. See *Mounting Bracket Clips*.
- Attach the battery cable to the battery.
- Connect audio devices (see *Connecting the Audio Cable and a Headset*), if included.
- Slip the ring scanner (if included) over one of your fingers, making sure your thumb or trigger finger can easily reach the Scan button. See *Ring Scanner Strap*.
- Adjust the HX2 arm assembly for comfort. Occasionally check all connectors for stability.

The wearable computer is ready for use.

---

## Hip Flip

**Prerequisite:** Optional add-on devices are available.



- Unpack the Hip Flip. Slide the belt through the loops on the Hip Flip. Do not put the hip flip on yet.
- Slide the battery into the battery sleeve on the hip flip.
- Snap all tethered devices to the connectors at the back of the HX2. See *Connecting the Battery and Ring Scanner* and *Connecting the Audio Cable and a Headset*.
- Snap the HX2 into the hip flip mounting bracket. See *Mounting Bracket Clips*.
- Attach the battery cable to the battery.
- Put the hip flip on.
- Slip the ring scanner (if included) over one of your fingers, making sure your thumb or trigger finger can easily reach the scan button. See *Ring Scanner Strap*.
- Adjust the HX2 hip assembly for comfort. Occasionally check all connectors for stability.

**Figure 21 HX2 Hip Flip, Audio**

The wearable computer is ready for use.

---

## Ring Scanner Strap

The **ring scanner finger loop** is located under the ring scanner.

Pull gently on the end of the finger loop strap to separate the hook and loop fabric.

Slide your finger into the opened loop under the ring scanner.

Grasp the end of the finger loop strap and loosen then tighten the finger strap until the ring scanner is comfortably snug and the scan aperture is secured in the desired location.

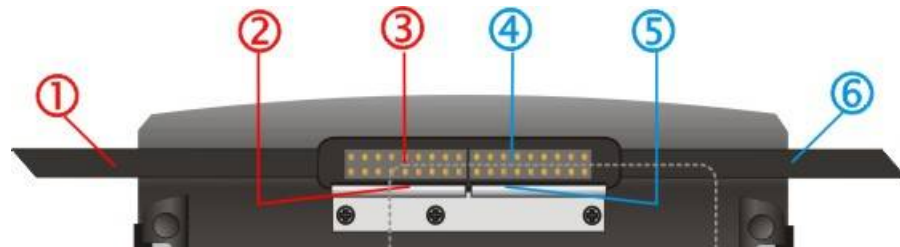
## Connecting the Battery and Ring Scanner

*Note: The unit will not function unless a battery is securely tethered. Be sure to place the mobile device in Suspend mode before disconnecting a battery, or all unsaved data may be lost.*

The battery and ring scanner cables should not be exchanged or replaced in a dirty, harsh or hazardous environment. When the tethers are disconnected, any dust or moisture that adheres to the tether connector can potentially cause damage upon cable connection.

Follow the numbers in the following tables to connect the battery and ring scanner to the HX2.

*Note: Before connecting cables to the back, make sure the battery sleeve on the armband is uppermost or the following left/right directions won't work.*



**Figure 22 Tether the Battery and Ring Scanner – Left / Right**

When you want to switch connectors from left to right, or vice versa, first gently press downward on the Retaining Clip, then pinch and pull the cable connector (not the cable!) straight up and away from the HX2. Do not use a metal object, or extreme force, to remove the cable connector from the HX2. Re-connect cables and reassemble the HX2 body-worn components.

---

### Ring Scanner on the Left Hand

1	Ring Scanner Tether cable
2	Retaining Clip for Ring Scanner Tether Connector
3	Ring Scanner cable connector
4	Battery Cable connector
5	Retaining Clip for Tethered Battery Connector
6	Tethered Battery Cable

---

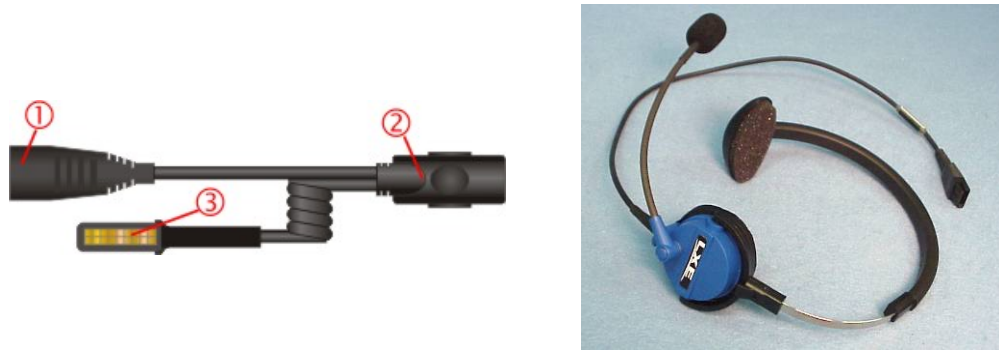
### Ring Scanner on the Right Hand

1	Tethered Battery Cable
2	Retaining Clip for Tethered Battery Connector
3	Battery Cable connector
4	Ring Scanner cable connector
5	Retaining Clip for Ring Scanner Tether Connector
6	Ring Scanner Tether Cable

## Connecting the Audio Cable and a Headset

*Note: The audio option draws power from the tethered battery. The mobile device internal speaker and internal microphone are disabled when a headset and microphone is connected.*

The headset consists of an earpiece, a microphone and an attached cable. The headset attaches to the audio cable which attaches to the HX2.



**Figure 23 Audio Cable and Headset**

- 1 Align the audio connector and the headset quick connect cable end. Firmly push the cable ends together until they click and lock in place.
- 2 Snap the battery plug into the battery cable connector at the top of the battery.
- 3 Press the battery/audio connector into either left or right connector on the back of the HX2. The retaining clip will snap into place and secure the cable connection. Place the cable in the cable groove.

See section titled Set the Audio Speaker Volume.

---

## Adjust Microphone and Secure the Cable

Do not twist the microphone boom when adjusting the microphone.

The microphone should be adjusted to be about two finger widths from your mouth.

Make sure the microphone is pointed at your mouth. Note the small “Talk” label near the mouthpiece. Make sure the Talk label is in front of your mouth.

The microphone cable can be routed over or under clothing.

### Under Clothing

- Leave the cable exposed only at the top of the collar.
- Be sure to leave a small loop of cable to allow movement of your head.

### Over Clothing

- Use clothing clips to hold the cable close to your body.
- Tuck the cable under the belt, but leave a small loop where it goes under the belt.
- Do not wear the cable on the front of your body. It may get in your way or get caught on protruding objects.

## Tapping the Power Key



The **Power** key is a round button located above the F4 key.

When a battery is connected to the HX2 for the first time press the Power key. The mobile device begins the startup process. Wait until the Windows CE desktop appears.

**Suspend/Resume Mode** -- At other times, tapping the Power key places the HX2 immediately in Suspend Mode. Tapping the Power key again immediately returns the HX2 from Suspend.

## Tapping the Touchscreen with a Stylus

*Note: Always use the point of the stylus for tapping or making strokes on the touchscreen. Never use an actual pen, pencil, or sharp/abrasive object to write on the touchscreen.*

Hold the stylus as if it were a pen or pencil. Touch an element on the screen with the tip of the stylus then remove the stylus from the screen. Firmly press the stylus into the stylus holder when the stylus is not in use.

Similar to using a mouse to left-click icons on a desktop computer screen, using the stylus to tap icons on the touchscreen is the basic action that can:

- Open applications
- Choose menu commands
- Select options in dialog boxes or drop-down boxes
- Drag the slider in a scroll bar
- Select text by dragging the stylus across the text


Place the cursor in a text box prior to typing in data or retrieving data using the ring scanner or an input/output device connected to a serial port.

A stylus can be ordered from LXE. See the section titled *Accessories*.

*Note: A “right mouse click” function must be programmed into the customer application to accept a constant stream of left mouse click messages. An application can choose to interpret this stream of messages as a right mouse click. LXE does not support non-LXE application programming.*

## Calibrating the Touchscreen

If the touchscreen is not responding properly to stylus taps, you may need to recalibrate the touchscreen. Recalibration involves tapping the center of a target. If you miss the center, keep the stylus on the screen, slide it over the target's center, and then lift the stylus.

To recalibrate the screen, select  | Settings | Control Panel | Stylus | Calibration tab.

To begin, tap the Recalibrate button on the screen with the stylus.

Follow the instructions on the screen and press the Enter key to save the new calibration settings or press Esc to cancel or quit.

---

## Power Key Functions

See Also: Sections titled *LED Indicators* and *System Status LED* later in this guide.

- If installed, RFTerm runs automatically at the conclusion of each reboot.
- If installed and enabled, AppLock runs automatically at the conclusion of each reboot.
- The wireless client connects automatically during each reboot.
- Bluetooth re-connects to paired devices automatically at the conclusion of each reboot.
- If installed and pre-configured, Wavelink Avalanche connects remotely and downloads updates automatically during each reboot.


---

## Hardware Reset

Press and hold the **Power** key for approximately 15 seconds until the display blanks, then release the key. If user data was not saved before the Hardware Reset function started, data loss occurs and unsaved registry settings are lost. User data is saved whenever a Suspend/Resume function is complete.


---

## Warm Boot

Tap  | **Run** and type **warmboot**. Tap the **OK** button. A warm boot does not affect the operating system, but programs and data in RAM are cleared, and registry changes, if any, are saved. Network and Bluetooth connections will need to be re-established. There may be slight delays while the wireless client connects to the network, re-authorization for voice-enabled applications completes, Wavelink Avalanche management of the HX2 startup completes, or Bluetooth relationships establish or re-establish.


---

## Cold Boot

Tap  | **Run** and type **coldboot**. Tap the **OK** button. Factory default settings overwrite all previously saved user settings.

Calibrating the touchscreen will need to be performed when the cold boot process is complete.

Wireless Client configuration will need to be completed by the System Administrator.

Required mappable keys will need to be configured. For example, there is no , Control, Shift, Alt or Del key (or their equivalent) available using the HX2 default keypad setting.

Optional software <sup>1</sup> and LXE application <sup>2</sup> parameters will need to be set up by the System Administrator.

**Important** -- Because of the extreme nature of the Cold Boot, LXE recommends that the Cold Boot process be used only as an emergency procedure and Warm Boot or Suspend/Resume be used whenever necessary.

*Note:* Refer to the section titled *Power Modes* in the *HX2 Reference Guide* for more information relating to the power states of the HX2.

---

<sup>1</sup> Optional software setup may include Summit Wireless Client communication setup, Voice-Enabled software connection to wireless link, Wavelink Avalanche management of the HX2 file structure at startup, and Bluetooth device-pairing and re-connect.

<sup>2</sup> LXE application software setup may include Summit Wireless Client communication setup, RFTerm terminal emulation configuration, and AppLock application-locking configuration.

## Using the 23 Key Keypad



**Figure 24 The 23 Key Keypad**

- When using a sequence of keys that require an alphabet key, first press the Alpha key to force Alpha mode on the numeric keys. See *Alpha Modifier Key* in the *HX2 Reference Guide*.
- Double tap the Alpha key for upper case alphabetic characters (similar to *CapsLock*. Single tap the Alpha key to exit *CapsLock* mode).
- Single tap the Alpha key to enter and exit Alpha mode.
- Default Alpha mode produces lower case alphabetic characters when numeric keys are pressed.
- Pressing the Alpha key forces “Alpha” mode for all keys.
- To create a combination of numbers and letters before pressing Enter, remember to tap the Alpha key to toggle between Alpha and Numeric mode.
- Use the Input Panel to enter characters that are not available using the 23-key keypad.
- When using a sequence of keys that do not include the Alpha key (Orange) but does include a sticky key (Blue), press the Blue key in sequence.

## Inserting Characters Using the Input Panel

You can use the Input Panel to insert the following characters:

< >	{ }	[ ]	( )	_	+
: ;	“ ’	? /	~ `	!	@
#	\$	%	^	&	

See *Input Panel* later in this guide.

See *Appendix A Key Maps* for instruction on the specific keypresses to access all allowed keypad functions.



## System Status LEDS



**Figure 25 System Status LEDs**

LED	Color	Indicates . . .
1 System Status	Green - Blinking	Display turned off when timer expired. This will help to conserve battery power. Tap the screen or press any key (except the Power button) to turn the display on again. The HX2 is not in Suspend Mode.
	Red - Steady	Main Battery Low. If the main battery is not replaced with a fully charged battery before the main battery fails, the HX2 is turned Off.
	Red - Blinking	Main Battery Power Fail
2 Bluetooth	Blue - Blinking Slowly	Idle
	Blue - Blinking Fast	Bluetooth is discovering Bluetooth devices
	Off	Bluetooth hardware has been turned off or does not exist in the HX2
3 Alpha	Amber - Steady	Alpha Mode enabled.

When multiple system status conditions are present, the most urgent condition is indicated. The conditions listed above are in increasing order of urgency by LED type.

## Entering Data

You can enter data into the HX2 through several different methods. The Ring Scanner aperture provides barcode data entry, the Input/Output (I/O) ports, the built-in microphone and speaker are used to input/output data, and the physical and virtual keypads provide text entry.

Mobile devices with a touchscreen use a stylus to input data, devices connected to the I/O ports and/or the keypad. An input panel (virtual keyboard) is available for applications that expect keyed input.

---

## Keypad Entry

The keypad is used to manually input data that is not collected otherwise. A subset of desktop PC full keyboard functions are provided. Other key functions can be obtained using the programmable key (Blue+Enter), configurable 0 and 1 keys, or by remapping one of the mappable keys.

Please refer to *Appendix A – Key Maps* for instruction on the unique keypresses to access the available keyboard functions.

Almost every key on the keypad has two or three different functions. The primary function or numeric character is printed on the key.

The *Alpha* or *Blue* keys are pressed when you want to use a second key function. For example, when you press the Blue key (the sticky key), then press the key that has the desired second-function key, the second-function key is the “active” key. The specific sticky character is printed above the corresponding key in Blue.

---

## Stylus Data Entry

*Note: This section is directed to the HX2 daily user. The assumption is that the mobile device has been configured and the touch screen calibrated by the System Administrator prior to releasing the HX2 for daily use. The touch screen should be calibrated before initial use.*

The stylus performs the same function as the mouse that is used to point to and click elements on a desktop computer. The stylus is used in the same manner as a mouse – single tap or double tap to select menu options, drag the stylus across text to select, hold the stylus down to activate slider bars, etcetera.

Hold the stylus as if it were a pen or pencil. Touch an element on the screen with the tip of the stylus then remove the stylus from the screen. The touchscreen responds to an actuation force (touch) of 4 oz. (or greater) of pressure.

The stylus can be used in conjunction with the keyboard and scanner and an input/output device connected to a serial port.

Touch the stylus to the field of the data entry form to receive the next data feed.

The cursor begins to flash in the field.

The unit is ready to accept data from either the physical keypad, virtual keyboard, or the ring scanner.

*Note: Always use the point of the stylus for tapping or making strokes on the display. Never use an actual pen, pencil or sharp/abrasive object to write on the touchscreen.*

Place the stylus in the stylus holder when not in use. There is a built in stylus holder on the hip flip and the armband.

---

## Ring Scanner Data Entry

Read all cautions, warnings and labels **before** using the ring scanner.

Do not look into the ring scanner/imager lens.

Do not stare directly into any beam emitted from the scanner/imager lens.

---

### Laser Scanner

To scan with the laser barcode scanner, point the ring scanner laser aperture towards a barcode and press the Scan button. You will see a red laser beam strike the barcode. Align the red beam so that the barcode is centered within the beam. The laser beam must cross the entire barcode. Move the ring scanner towards or away from the barcode so that the barcode takes up approximately two-thirds the width of the beam.

There may be an audible response combined with the Scan function.



**Figure 26 Laser Scan Beam on Linear Barcode**

See section titled *Scan Status LED*.

---

### 2D Imager



**Figure 27 Imager Bracketed Crosshair Target on 2D Barcode**

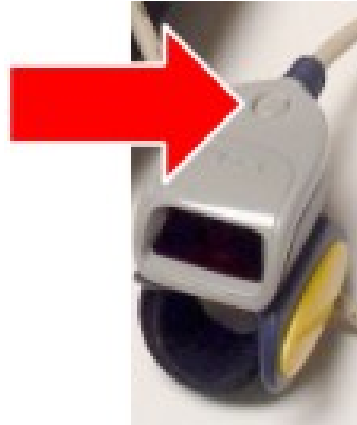
To scan with the Imager Ring Scanner, point the scan aperture towards a 2D barcode and press the Scan button. You will see a bracketed crosshair strike the barcode. Align the brackets so that the center of the barcode is covered by the crosshair.

Move the ring scanner towards or away from the barcode until a response is emitted by the HX2 (1 beep, 2 beeps, a WAV file, etc) or the bracketed crosshair times out and disappears.

The Imager LED may illuminate when the Scan button is pressed. There are three options that can be set by the System Administrator using the Scanner control panel applet: Internal illumination, External illumination, or Both. If external illumination is chosen, there are three white LEDs located above the imager aperture that will illuminate for the duration of the scan then turn off.

See the previous section titled Tethered Ring Scanner / Imager figure titled Ring Scanner/Imager Apertures.

### Scan Status LED



**Figure 28 Concept - Scan Status LED**

The Scan Status LED (oval shaped LED on the top of the ring scanner) turns red when the laser beam is on. Following a barcode scan and read the Scan Status LED turns green for two seconds and the HX2 may beep, indicating a successful scan. If the scan was unsuccessful, the Scan Status LED turns off and a different beep sequence is heard.

The ring scanner engine and Scan Status LED automatically turn off after a successful or unsuccessful read. The ring scanner is ready to scan again after the Scan button is released, or after the Scan Status LED turns off following a successful scan.

---

### Voice Data

Data is entered into the HX2 by speaking into the headset's microphone (or the internal microphone located below the Up Arrow) when prompted.

Please contact your System Administrator if assistance is needed with the voice software installed on your HX2.

---

## Input Panel / Virtual Keyboard

The virtual keyboard or input panel is always available when needed e.g. text field input. Tap the **Keyboard** icon in the Taskbar to put the virtual keyboard on the display. Using the stylus:

- Tap the Shift key to type one capital letter.
- Tap the CAPS key to type all capital letters.
- Tap the au key to access symbols.



**Figure 29** Input Panel / Virtual Keyboard

Some applications do not automatically display the Input Panel. In this case, do the following to use the Input Panel:

1. Tap the Input Panel/Virtual Keyboard icon in the taskbar.
2. Select **Keyboard** from the menu.
3. Tap the data entry area on the display when you want to enter data using the Input Panel.

When finished entering data, tap the **Keyboard** icon in the Taskbar. Select **Hide Input Panel**.

## Bluetooth Devices

**Assumption:** The System Administrator has Discovered and Paired targeted Bluetooth devices for each HX2. The System Administrator has also enabled / disabled Bluetooth settings and assigned a Computer Friendly Name for each HX2. See the *HX2 Reference Guide* for information and instruction on the HX2, Bluetooth control panel applet and supported Bluetooth printers and scanners.

The Bluetooth taskbar Icon state and Bluetooth LED states change as Bluetooth devices are discovered, pair, connect, and disconnect. The Bluetooth LED is located next to the Right Arrow key on the keypad.

The Bluetooth LED blinks slowly when it is idle. Blinks quickly when the HX2 is discovering other Bluetooth devices. And blinks normally when it is connected. There may be audible or visual signals from paired devices as they re-connect with the HX2. Non-LXE Bluetooth devices may be discovered but are inaccessible as they are filtered out on the Bluetooth Devices panel and are not displayed (see HX2 Reference Guide for details).

### Taskbar Icon Legend



Bluetooth module is connected to one or more of the targeted Bluetooth device(s).



HX2 is not connected to any Bluetooth device.

HX2 is ready to connect with any Bluetooth device.

HX2 is out of range of all paired Bluetooth device(s). Connection is inactive.

Bluetooth LED	Blue - Blinking Slowly	Idle.
	Blue - Blinking Fast	Bluetooth discovering other Bluetooth devices.
	Off	Bluetooth hardware has been turned off or does not exist in the HX2.


*Note:* When an active paired device, not the HX2, enters Suspend Mode, is turned Off or leaves the HX2 Bluetooth scan range, the Bluetooth connection between the linked device and the HX2 is lost. There may be audible or visual signals as paired devices disconnect from the HX2. The Bluetooth remote device should be as close as possible, in direct line of sight, with the HX2 during the pairing process.

See *Accessories* for supported Bluetooth printers and scanners.

AppLock, if installed, does not stop the end-user from using Bluetooth application, nor does it stop authorized Bluetooth-enabled devices from pairing with the HX2 while AppLock is in control. See *HX2 Reference Guide* for more Bluetooth information.

## Checking Battery Status

**Important:** Until the tethered battery and backup battery are completely depleted, the HX2 is always drawing power from the batteries (On).

Tap the  | **Settings** | **Control Panel** | **Battery** icon. Main battery level, backup battery level, status and other details are displayed.

---

## Entering the Multi AppLock Activation Key

*Note: The mobile device must have the touch screen enabled.*

Tap the taskbar icon to place the AppLock popup menu on screen. Tap Keyboard if a hotkey sequence will require Input Panel access.

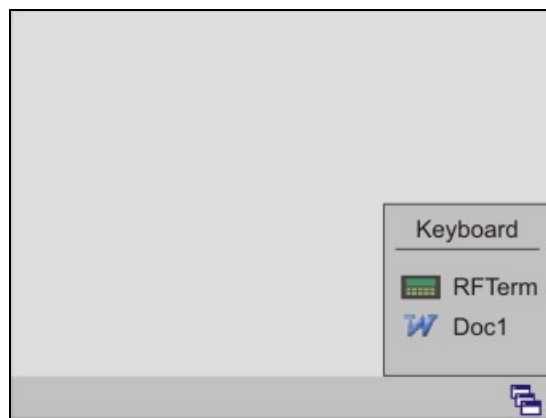
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## Application Switching Activation Key

If the mobile device uses LXE's Multi AppLock to allow the user to switch between two applications, the Activation key sequence is **assigned by the AppLock Administrator**. The key sequence switches the focus between one application and another. User data is entered using the application running in the foreground only.

---

## Touch




**Figure 30 AppLock – How to Switch Applications**

Tap the taskbar icon to place the popup menu on screen. Tap one of the application icons in the popup menu. Tap Keyboard if a hotkey sequence will require Input Panel access.

The selected application is brought to the foreground while the other application continues to run in the background. Stylus taps affect the application running in the foreground only.

## Setting the Power Schemes Timers

*Note:* Refer to the section titled *Power Modes* in the *HX2 Reference Guide* for information relating to the power states of the mobile device.

Select  | **Settings** | **Control Panel** | **Power** | **Schemes** tab. Change the parameter values and tap OK to save the changes.



**Figure 31 Power Properties – Schemes Tab**

### Battery Power Scheme

Use this option when the mobile device will be running on battery power only.

Switch state to User Idle:	Default is After 3 seconds
Switch state to System Idle:	Default is After 15 seconds
Switch state to Suspend:	Default is After 5 minutes

### AC Power Scheme

Use this option when the mobile device will be running on external power (e.g. docked in a powered cradle).

Switch state to User Idle:	Default is After 2 minute
Switch state to System Idle:	Default is After 2 minutes
Switch state to Suspend:	Default is After 5 minutes

The mode timers are cumulative. The System Idle timer begins the countdown after the User Idle timer has expired and the Suspend timer begins the countdown after the System Idle timer has expired. When the User Idle timer is set to “Never”, the power scheme timers never place the device in User Idle, System Idle or Suspend modes (even when the device is idle).

Because of the cumulative effect, and using the Battery Power Scheme Defaults listed above:

- The backlight turns off after 3 seconds of no activity,
- The display turns off after 18 seconds of no activity (15seconds + 3seconds),
- And the device enters Suspend after 5 minutes and 18 seconds of no activity.



## Setting The Audio Speaker Volume

*Note:* An application may override the control of the speaker volume. Turning off sounds saves power and prolongs battery life.

The internal speaker is located on the front of the device above the “2” key. The audio volume can be adjusted to a comfortable level for the listener. Operational “beeps” are emitted from the speaker. A Battery/Audio cable is available for headsets, see *Accessories* and *Cables*.

---

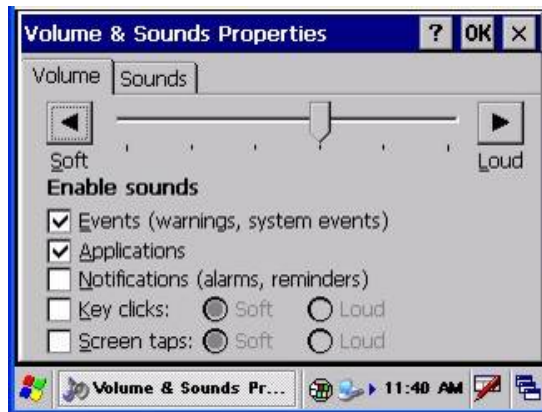
### Using the Keypad

*Note:* *Volume & Sounds (in Settings | Control Panel)* must be enabled before the following default key sequences will adjust the volume.


The volume is increased or decreased one step each time the volume key sequence is pressed. To adjust speaker volume use the **Blue+Up Arrow** and **Blue+Down Arrow** keys to adjust volume until the speaker volume is satisfactory.

---

### Using the Touchscreen



**Figure 32 Volume & Sounds Properties**

Tap  | **Settings** | **Control Panel** | **Volume & Sounds** | **Volume** tab. Change the volume setting and tap OK to save the change. You can also select / deselect sounds for key clicks and screen taps and whether each is loud or soft.

As the volume scrollbar is moved between Loud and Soft, the computer will emit a tone each time the volume increases or decreases in decibel range.

## Adjusting the Display Backlight Timer

Select  | **Settings** | **Control Panel** | **Display** | **Backlight** tab. Change the parameter values and tap OK to save the changes.



**Figure 33 Setting the Display Backlight Timer**

The first option affects the display when the HX2 is running on battery power only. The second option affects the display when the HX2 is running on external power (e.g. docked in a powered cradle).

The default value for the battery power timer is 3 seconds.

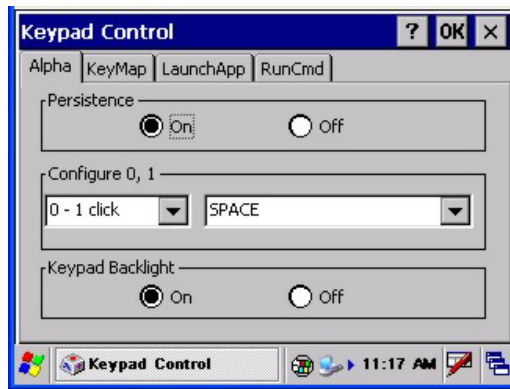
The default value for the external power timer is 2 minutes. **The display backlight will remain on all the time when both checkboxes are blank.**

The display backlight timer *dims the backlight* at the end of the specified time.

When the Keypad Backlight is On, it responds to the settings of the Display Backlight Timer. See next segment titled *Turning the Keypad Backlight On or Off*.

## Turning the Keypad Backlight On or Off

Select  | **Settings** | **Control Panel** | **Display** | **Keypad** | **Alpha** tab.



**Figure 34** Turning the Keypad Backlight On or Off

Tap the Off radio button when the keypad backlight is to remain Off regardless of the OS event in process. The default is On. When On the keypad backlight responds to OS events as designed.

When On, the keypad backlight responds to the settings of the Display Backlight Timer. See previous segment titled *Adjusting the Display Backlight Timer*.

## Cleaning the Glass Display/Ring Scanner Aperture

*Note: These instructions are for components made of glass. If there is a removable protective film sheet on the display screen, remove the film sheet before cleaning the screen.*

Keep fingers and rough or sharp objects away from the ring scanner aperture and the mobile device display. If the glass becomes soiled or smudged, clean only with a standard household cleaner such as Windex® without vinegar or use Isopropyl Alcohol. Do not use paper towels or harsh-chemical-based cleaning fluids since they may result in damage to the glass surface. Use a clean, damp, lint-free cloth. Do not scrub optical surfaces. If possible, clean only those areas which are soiled. Lint/particulates can be removed with clean, filtered canned air.



## Optional Equipment

### HX2 Rubber Boot Assembly

The rubber boot is a lightweight, flexible covering for the HX2 housing. The rubber boot cannot protect the HX2 from destructive, excessive force. It is designed to protect the HX2 housing from minor, trivial bumps or jostling. The rubber boot does not inhibit tethered devices, cradle docking, Hip Flip assembly or Armband assembly.

*Note: Remove the rubber boot when placing the HX2 in a voice case.*

The rubber boot slips over the front and halfway down the sides of the HX2, leaving the touch screen, keypad, LXE logo and the HX2 logo visible.



**Figure 35 HX2 Rubber Boot**

Gently stretch the rubber boot over each corner of the front housing until the rubber boot fits snugly. It can be removed for cleaning, if necessary.

Smaller openings are available in the rubber boot to

- allow access to the cradle connector on the bottom of the HX2
- allow audible signals from the internal speaker to be heard
- and allow audible signals to be sent through the internal microphone.

### Protective Film for the Screen Display

First, clean the display of fingerprints, lint particles, dust and smudges.

Remove the protective film from its container. Remove any protective backing from the film sheet by lifting the backing from a corner of the film. Discard the backing.

Apply the film to the screen starting at one side and smoothing it across the display. If air bubbles appear, raise the film slightly and continue smoothing the film across the display until it covers the glass surface of the display.

If dust, lint or smudges are trapped between the protective film and the glass display, remove the protective film, clean the display and apply the protective film again.

## HX2 Voice Case Assembly

The voice case is a sturdy, lightweight covering for the HX2, tethered battery, and voice accessories. The voice case cannot protect the HX2 from destructive, excessive force or a harsh or wet environment. It is designed to protect the HX2 from dirt, dampness, and minor, trivial bumps or jostling.



**Figure 36 HX2 Voice Case**

1. Slide the belt through the belt loop on the voice case. Do not put the belt on yet.
2. Attach the battery cable, ring scanner and audio device to the HX2.
3. Slip the HX2 into the voice case. Be sure the screen and keypad are visible through the clear window of the voice case.
4. Slide the battery cable through the protective loop at the bottom of the voice case. Make sure the tethered cable for the ring accessory is on the outside of the voice case.
5. Slip the battery into the battery sleeve and connect the battery to the battery cable. The battery charge terminals (small metallic circles) should always be covered by the sleeve.
6. Press the hook and loop fabric at the top of the device together.
7. The HX2 in the Voice Case is ready for use.
8. Put the belt on. Adjust the belt and voice case for comfort.

Examine the tethers and the hook and loop fabric fastening periodically. If any are loose or unfastened, tighten the tethers and the top fastener before placing the voice case back into service. If the voice case is damaged, it should be removed from service.

*Note:* The HX2 with a voice case does not fit in the HX2 cradle. Remove the voice case before placing the HX2 in a charged cradle.

## Removing/Replacing the Armband Straps

*Note:* Remove the HX2 and any of its tethered devices from the Armband before removing and replacing the armband straps.

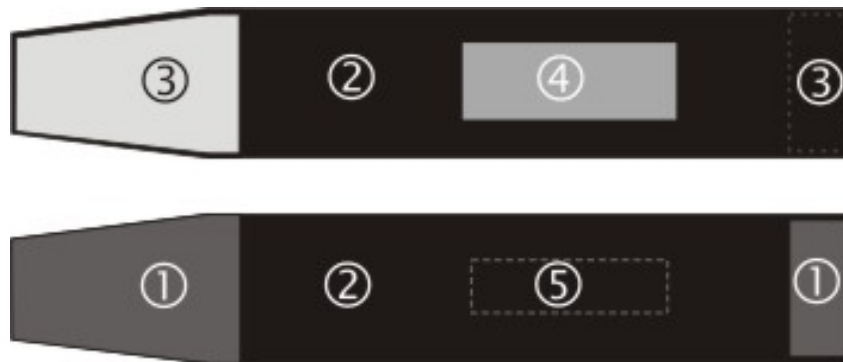
The armband is a lightweight, sturdy mounting platform for the HX2. There are two armband straps. The shorter strap is used at the end-user wrist area and the longer strap is used at the end-user forearm area. See *Accessories* for replacement or different lengths of LXE HX2 armband straps.



**Armband – Bottom View**

- 1 Removable Mesh Arm Cover
- 2 Arm Strap Brackets
- 3 Adjustable Arm Straps

**Figure 37 Removing/Replacing the Armband Straps**



**Figure 38 Armband Straps**

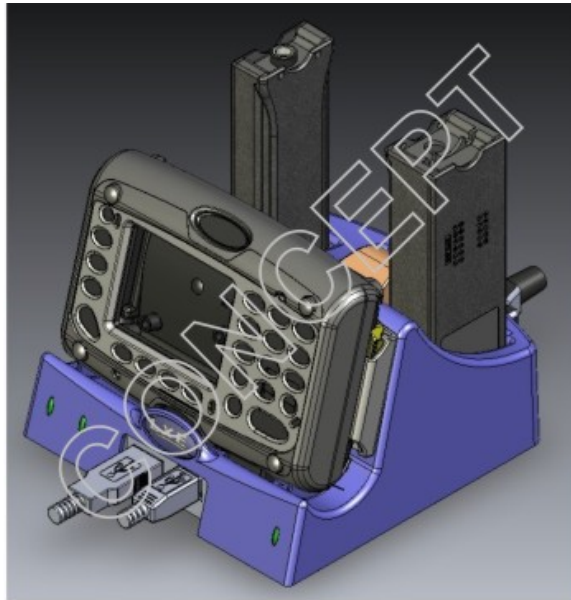
1	Hook Fabric
2	Loop Fabric
3	Connection tabs.
4	Strap side for inside.
5	Strap side for outside.

1. Slip each end of the arm strap through the arm strap brackets ensuring the hook and loop fastening sections are on the outside of the armband.
2. Press the hook end against the loop fastener, located just below the loop fastener, to secure each end of the strap to the armband. After both straps are loosely fastened in this manner, snap the HX2 onto the armband bracket.
3. Slip your hand through the armband straps until the armband is in the desired location. Grasp the tab at one end of the strap to loosen and then tighten each strap until the armband is comfortably snug.
4. Ensure the HX2 on the armband is stable and does not slide or slip around your arm.
5. Periodically check the straps, strap brackets and hook and loop fabric areas for damage. The damaged parts should be replaced before the straps or strap brackets are used on an armband again.

*Note: The armband is washable, but only the mesh arm cover and straps are machine washable.*



## HX2 Docking/Charging Cradle



**Figure 39 Concept – An HX2, Two Batteries and 1 Ring Scanner in Cradle**

The HX2 USB desktop cradle secures the HX2 with or without a rubber boot, recharges the tethered HX2 battery and a spare battery (Standard and Extended), has a protected storage bay for the tethered Ring Scanner when the HX2 is docked, and enables serial communication with USB devices (host, client, and other USB cabled devices).

HX2 keypad data entries can be mixed with ring scanner barcode data entries while the HX2 is docked in a cradle.

Using an external power supply the HX2 cradle recharges Standard batteries in approximately 4 hours (8 hours for the Extended battery). The HX2 does not need to be docked during a spare battery charging process. See *Accessories*.

Remove the voice case before placing the HX2 in the cradle.

## Cradle LEDs



Figure 40 Concept - Powered Cradle LEDs

- |   |  |   |
|---|--|---|
| 1 | LED - Left battery charging bay        | <b>Normal State – Off.</b> With battery and power, normal state may be any state listed in <i>Cradle LEDs</i> . |
| 2 | LED - HX2 Docked / Receiving Power bay | <b>Normal State – Off.</b> With HX2 and power, normal state is On.  |
| 3 | LED - Right battery charging bay       | <b>Normal State – Off.</b> With battery and power, normal state may be any state listed in <i>Cradle LEDs</i> . |

### HX2 Docked/Receiving Power LED

When LED is ...	It means ....
Off	No AC/DC power supplied to the cradle and/or No HX2 or HX2 is not properly seated in charging bay.
<b>Green</b>	HX2 properly seated in charging bay and is receiving power through the cradle.

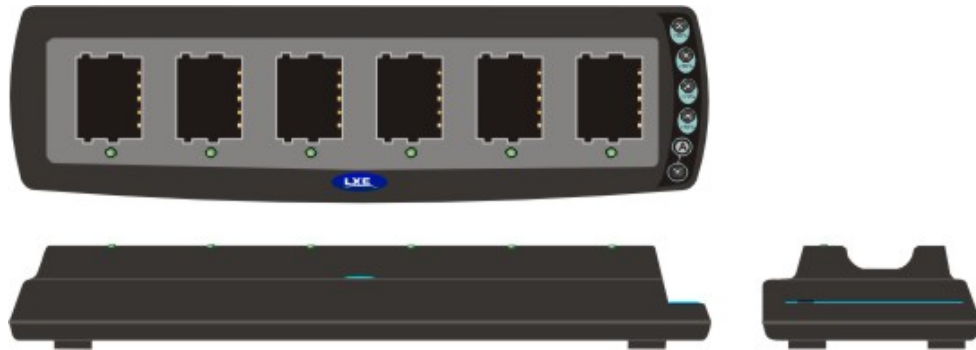
### Left and Right Battery Charging LED

When LED is ...	It means ....
Off	No battery or no AC power No spare battery in the battery bay(s) or no AC/DC power is being applied to the cradle.
<b>Green</b>	<b>Charged</b> Spare battery pack fully charged.
<b>Red</b>	<b>Charging</b> Spare battery pack charging.
<b>Amber</b>	<b>Standby</b> Spare battery pack temperature out of range.
<b>Flashing Red</b>	<b>Fault</b> Spare battery pack fault or failure.

Refer to the *HX2 Cradle Reference Guide* for instruction in setting up the cradle, inserting the battery packs, interpreting the LEDs, connecting cables and using the cradle for powering the HX2 and communication.


## HX2 Multi-Charger

The LXE HX2 Multi-Charger is designed to simultaneously charge up to six HX2 Rechargeable Lithium Ion Batteries at a time, in any combination of Standard or Extended batteries. The Standard batteries require less than four hours and the Extended batteries require less than 8 hours. Total charging time required depends upon battery pack temperature and conditions. There is one bay that is used for Charging only when the Analyze button is not pressed.




**Figure 41 HX2 Multi-Charger**

## Charging Pocket LED

LED 	Indication	Description
Off	No Battery/power	Battery pack not plugged in or no power applied.
Green	Charged	Battery pack fully charged.
Red	Charging	Battery pack charging.
Yellow	Standby	Battery pack temperature out of range.
Flashing Red on any station	Fault	Battery pack fault or failure.
Flashing Red on any station	Timeout	Battery analyzer's 4.5 hour timeout period expired.
Flashing Red on all stations.	Charger/Analyzer Failure	Battery analyzer fault or failure.

## Charger/Analyzer LEDs

Percentage of Battery Capacity		Between 90% and 100%	Between 80% and 90 %	Between 70% and 80%	Between 50% and 70%
Analyze Progress LED Status		● On	● Off	● Off	● Off
		● On	● On	● Off	● Off
		● On	● On	● On	● Off
		● On	● On	● On	● On
		When all LEDs are off, the battery capacity is less than 50%.			

**Figure 42 Multi-Charger Control Panel**



Refer to the *HX2 Multi-Charger User's Guide* for instruction in setting up the charger, inserting the battery packs into the charging bays, interpreting the LEDs and using the Charge/Analyze Pocket.

## Appendix A Key Maps

### 23 Key Keypad

#### Hints

- When using a sequence of keys that require an alpha key, first press the Alpha key.
- Double tap the Alpha key for upper case alphabetic characters.
- Single tap the Alpha key to enter and exit Alpha mode.
- Default Alpha mode produces lower case alphabetic characters when numeric keys are pressed.
- Pressing the Alpha key forces “Alpha” mode for all keys.
- To create a combination of numbers and letters before pressing Enter, remember to tap the Alpha key to toggle between Alpha and Numeric mode.
- Use the Input Panel to enter characters that are not available using the 23-key keypad.
- When using a sequence of keys that do not include the Alpha key (Orange) but does include a sticky key (Blue), press the Blue key first then the rest of the key sequence.

To Get This Key / Function	First Press This Key		Then Press This Key
	Blue	Alpha	
Power / Suspend			Power
Volume Up	Blue		Up Arrow
Volume Down	Blue		Down Arrow
Blue Mode (Toggle)			Blue
Alpha Mode (Toggle)			Alpha
Diamond Key	Blue		Enter
 (Start Button)			Only Available when Mapped <sup>3</sup>
Uppercase Alpha (Toggle) <sup>4</sup>		Alpha	Doubleclick
Alpha key <sup>4</sup>			
Lowercase Alpha <sup>4</sup>			N/A (default)
Space		Alpha	0
Enter			Enter
CapsLock Mode <sup>4</sup>		Alpha times 2	Alpha
Back Space			Backspace
Escape	Blue		Backspace
Tab	Blue		Right Arrow
BackTab	Blue		Left Arrow
Up Arrow (Cursor Up)			Up Arrow

<sup>3</sup> Please contact your System Administrator for assistance with User Configured (Mapped) Keys.

<sup>4</sup> See *Using the 23 Key Keypad* for explanation.

To Get This Key / Function	First Press This Key		Then Press This Key
	Blue	Alpha	
Down Arrow (Cursor Down)			Down Arrow
Right Arrow (Cursor Right)			Right Arrow
Left Arrow (Cursor Left)			Left Arrow
F1			F1
F2			F2
F3			F3
F4			F4
F5	Blue		F1
F6	Blue		F2
F7	Blue		F3
F8	Blue		F4
F9			Only Available when Mapped <sup>3</sup>
F10	Blue		0
F11	Blue		1
F12	Blue		2
F13	Blue		3
F14	Blue		4
F15	Blue		5
F16	Blue		6
F17	Blue		7
F18	Blue		8
F19	Blue		9
F20			Only Available When Mapped <sup>3</sup>
a		Alpha	2
b		Alpha	22
c		Alpha	222
d		Alpha	3
e		Alpha	33
f		Alpha	333
g		Alpha	4
h		Alpha	44
i		Alpha	444
j		Alpha	5
k		Alpha	55
l		Alpha	555
m		Alpha	6
n		Alpha	66

To Get This Key / Function	First Press This Key		Then Press This Key
	Blue	Alpha	
o		Alpha	666
p		Alpha	7
q		Alpha	77
r		Alpha	777
s		Alpha	7777
t		Alpha	8
u		Alpha	88
v		Alpha	888
w		Alpha	9
x		Alpha	99
y		Alpha	999
z		Alpha	9999
A		Alpha times 2	2
B		Alpha times 2	22
C		Alpha times 2	222
D		Alpha times 2	3
E		Alpha times 2	33
F		Alpha times 2	333
G		Alpha times 2	4
H		Alpha times 2	44
I		Alpha times 2	444
J		Alpha times 2	5
K		Alpha times 2	55
L		Alpha times 2	555
M		Alpha times 2	6
N		Alpha times 2	66
O		Alpha times 2	666
P		Alpha times 2	7
Q		Alpha times 2	77
R		Alpha times 2	777
S		Alpha times 2	7777
T		Alpha times 2	8
U		Alpha times 2	88
V		Alpha times 2	888
W		Alpha times 2	9
X		Alpha times 2	99
Y		Alpha times 2	999
Z		Alpha times 2	9999

To Get This Key / Function	First Press This Key		Then Press This Key
	Blue	Alpha	
1			1 and 11111 (Alpha Mode)
2			2 and 2222 (Alpha Mode)
3			3 and 3333 (Alpha Mode)
4			4 and 4444 (Alpha Mode)
5			5 and 5555 (Alpha Mode)
6			6 and 6666 (Alpha Mode)
7			7 and 77777 (Alpha Mode)
8			8 and 8888 (Alpha Mode)
9			9 and 99999 (Alpha Mode)
0			0 and 00 (Alpha Mode)
. (period)		Alpha	1
\		Alpha	11
* (asterisk)		Alpha	111
- (dash or minus sign)		Alpha	1111
< >			Use Input Panel
[ ]			Use Input Panel
{ }			Use Input Panel
( )			Use Input Panel
_ (underscore)			Use Input Panel
+ (plus sign)			Use Input Panel
: ;			Use Input Panel
“ ’			Use Input Panel
? /			Use Input Panel
‘ ’			Use Input Panel
!			Use Input Panel
@			Use Input Panel
#			Use Input Panel
\$			Use Input Panel
%			Use Input Panel
^			Use Input Panel
&			Use Input Panel
			Use Input Panel



## Appendix B Regulatory Notices and Safety Information

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### FCC Information:

This device complies with FCC Rules, part 15. Operation is subject to the following two conditions:

1. This device may not cause harmful interference,  
and
2. This device must accept any interference received, including interference that may cause undesired operation.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**Warning:** Changes or modifications to this device not expressly approved by LXE, Inc., could void the user's authority to operate this equipment.

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### Industry Canada:

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouiller du Canada. Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe B prescrites dans le Règlement sur le brouillage radioélectrique édictés par le ministère des Communications du Canada.

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### Notice:

The long term characteristics or the possible physiological effects of radio frequency electromagnetic fields have not been investigated by UL.

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### Li-Ion Battery

When disposing of the HX2 main battery, the following precautions should be observed: The battery should be disposed of promptly. The battery should not be disassembled or crushed. The battery should not be heated above 212°F (100°C) or incinerated.

## R&TTE Directive Requirements (Applies only to equipment operated within the EU/EFTA)



### Information to User

A label on the exterior of the device should resemble one of the labels shown below (the label contains the LXE part number of the installed radio card). The labels shown below and affixed to the device, identify where the device may be used and where its use is restricted. Use of a device is prohibited in countries not listed below or otherwise identified by the label. (May or may not include the 0560 Notified Body No. Substitute 4 digit Notified Body No. may also be applied.)



*Permitted for use in: Austria, Belgium, Denmark, Finland, Germany, Greece, Hungary, Iceland, Italy, Ireland, Liechtenstein, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom*



*Permitted for use in France.*

## WEEE Statement



**Important:** This symbol is placed on the product to remind users to dispose of Waste Electrical and Electronic Equipment (WEEE) appropriately, per Directive 2002-96-EC. In most areas, this product can be recycled, reclaimed and re-used when properly discarded. Do not discard labeled units with trash. For information about proper disposal, contact LXE through your local sales representative, or visit [www.lxe.com](http://www.lxe.com).

## HX2 Approvals/Standards

Product	EMI / EMC Standards	Safety Standards
HX2	FCC Part 15 Subpart B, Class B EN 55022 Class B (CISPR 22)  EN 55024:1998 AS/NZS 3548, Class B (CISPR 22)	UL 60950 / CSA C22.2 No. 60950 IEC/EN 60950-1  CDRH: 21 CFR 1040.10 IEC/EN 60825-1

### Transceiver:

Transceiver	RF (2.4 GHz) standards	RF Safety Standards
HX2 with 802.11b/g [Summit Client]	FCC Part 15.247, Subpart C FCC Bulletin OET-65 EN 300 328 IC-RSS 210 IC-RSS 102	Unlicensed Operation  Unlicensed Operation  Requires License for Outdoor Use

**This device contains transmitter Module FCC ID: KDZLXE4830P**

## RF Safety Notice (Summit Client)


### Caution



This portable device with its antenna complies with FCC's and Industry Canada's RF exposure limits set for an uncontrolled environment. This equipment has shown compliance with FCC and Industry Canada Specific Absorption Rate (SAR) limits. Highest reported SAR for the HX2 is .641W/kg on body. Any accessories not provided by LXE should not be used with this device. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

## LXE 802.11b/g WLAN Declaration of Conformity (Summit Client)



<b>DECLARATION OF CONFORMITY</b> according to Directives:									
1999/5/EC 93/68/EEC	Radio Equipment and Telecommunications Terminal Equipment and the mutual recognition of their conformity <b>CE Marking Directive</b>								
Type of Equipment: Brand Name or Trademark: Type Designation: Manufacturer: Address: Year of Manufacturer:	Direct Sequence 2.4 GHz Wireless LAN Card LXE LXE 4830 LXE Inc. 125 Technology Parkway Norcross, GA 30092-2993 USA 2006								
<p>The following harmonized European Standards, technical specifications, or other normative documents have been applied:</p> <p><b>EMC:</b></p> <table style="width: 100%;"> <tr> <td style="width: 30%;">EN 301 489-1: 07-2000</td> <td>Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements</td> </tr> <tr> <td>EN 301-489-17 07-2000</td> <td>Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Wideband data and HIPERLAN equipment</td> </tr> </table> <p><b>Radio:</b></p> <table style="width: 100%;"> <tr> <td style="width: 30%;">EN 300 328-1 and -2: 2000-7</td> <td>Radio Equipment and Systems (RES); Wideband transmission systems; Technical characteristics and test conditions for data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques</td> </tr> </table> <p><b>Safety:</b></p> <table style="width: 100%;"> <tr> <td style="width: 30%;">EN 60950-2: 1992 + A1..A4</td> <td>Safety of information technology equipment, including electrical business equipment</td> </tr> </table>		EN 301 489-1: 07-2000	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements	EN 301-489-17 07-2000	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Wideband data and HIPERLAN equipment	EN 300 328-1 and -2: 2000-7	Radio Equipment and Systems (RES); Wideband transmission systems; Technical characteristics and test conditions for data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques	EN 60950-2: 1992 + A1..A4	Safety of information technology equipment, including electrical business equipment
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EN 300 328-1 and -2: 2000-7	Radio Equipment and Systems (RES); Wideband transmission systems; Technical characteristics and test conditions for data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques								
EN 60950-2: 1992 + A1..A4	Safety of information technology equipment, including electrical business equipment								
<p><b>We, LXE Inc., declare that the equipment specified above complies with all Essential Health and Safety Requirements of the above Directives and Standards, as amended.</b></p>									
Place: LXE Inc., Norcross GA USA  Date of issue: 26 March 2007	 C. Binnom Jr. RF Approvals Engineer								

LXE Inc. 125 Technology Parkway Norcross, GA 30092-2993 USA  
ph. 770/447-4224 fax 770/447-6928

**Annex to DoC for LXE 4830**  
With regard to the use of external antennas

The LXE 4830 can be equipped with external antennas. The antennas listed have been evaluated with the LXE 4830 pursuant to EN 300 328, and therefore meet the definition of 'dedicated antenna' per ERC/REC 70-03 Appendix 1 Table 3; thus the requirement set forth in ERC/REC 70-03 , Annex 3 are met by the LXE model 4830 transceiver.

**Dedicated Antennas for use with LXE 4830**

<u>LXE P/N</u>	<u>Antenna Gain</u>	<u>Radio Power Level</u>	<u>Antenna Description</u>
153180-0001	2.2 dBi	15.8 dBm	Omni, for LXE VX-series computers
160952-0001	0 dBi	15.8 dBm	Omni, for LXE MX3-series computers
158399-0001	0 dBi	15.8 dBm	Omni, for LXE MX5-series computers
159900-0001	0 dBi	15.8 dBm	Omni, for LXE MX7-series computers
160019-0001	0 dBi	15.8 dBm	Omni, for LXE VX-series computers
160501-0001	0 dBi	15.8 dBm	Omni, for LXE HX1-series computers
160260-0001	0 dBi	15.8 dBm	Omni, for LXE HX2-series computers



C. Binnom Jr.  
RF Approvals Engineer  
26 March 2007

LXE Inc. 125 Technology Parkway Norcross, GA 30092-2993 USA  
ph. 770/447-4224 fax 770/447-6928



## Laser Light Safety Statement



### Warning:

This product uses laser light. One of the following labels is provided on the scanner. Please read the Caution statement. (US)

### Mise en garde:

Ce produit utilise un rayon laser. L'une des étiquettes suivantes est apposée sur le scanner. Veuillez lire l'avertissement qu'elle contient. (FR)

### Advertência:

Este produto usa luz de laser. O scanner contém um dos seguintes avisos. Favor ler o Aviso. (PT)

### Varning:

Denna produkt använder laserljus. En av de nedanstående etiketterna sitter på scannern. Var god läs varningstexten. (SE)

### Advarsel:

Denne produkt anvender laserlys. En af følgende mærkater anvendes på scanneren. Læs venligst sikkerhedsforanstaltningen. (DK)

### Varoitus:

Tämä tuote käyttää laservaloa. Skannerissa on jokin seuraavista tarroista. Lue Huomio-kohta. (FI)

### Warnung:

Dieses Produkt verwendet Laserlicht. Eines der folgenden Etiketten befindet sich auf dem Scanner. Bitte lesen Sie den Gefahrenhinweis. (DE)

### Attenzione:

Questo prodotto utilizza luce laser. Una delle etichette seguenti c'è ubicata sullo scanner. Si raccomanda di leggere con attenzione le avvertenze riportate. (IT)

### Advarsel:

Denne utstyret bruker laserlys. En av følgende etiketter er plassert på scanneren. Les advarselen på etiketten. (NO)

### Advertencia:

Este producto usa luz de láser. Las etiquetas se proveen en la máquina exploradora. Por favor, lea detenidamente la explicación para las precauciones. (ES)

### Waarschuwing:

Dit product gebruikt laserlicht. Een van de volgende labels is op de scanner aangebracht. Lees a.u.b. de waarschuwing onder Oppassen. (NL)

<p><b>Uyarı:</b> Bu ürün lazer ışığı kullanır. Απαδύdaki etiketlerden bir tanesi tarayıcının üstünde sağlanıyor. Lütfen Dikkat ifadesini okuyun. (TR)</p>	<p><b>Προειδοποίηση:</b> Αυτό το προϊόν χρησιμοποιεί λέιζερ φως. Υπάρχει μία από τις ακόλουθες ετικέτες στο σαρωτή. Παρακαλούμε διαβάστε τη δήλωση με τίτλο Προσοχή. (GR)</p>
<p><b>경고:</b> 본 제품은 레이저 광선을 사용합니다. 다음 라벨 중 하나가 스캐너에 제공됩니다. 주의 사항을 읽어 주십시오. (KR)</p>	<p><b>警告:</b> この製品はレーザー光線を使用します。次のラベルのうち1つがスキャナーに貼られています。 注意事項をお読みください。 (JP)</p>
<p><b>警告:</b> 本产品使用激光。 下列一个标签将随扫描仪一道提供。 请阅读“当心”一栏的内容。 (CN)</p>	<p><b>Legend:</b> Chinese-CN; Danish-DK; Dutch-NL; English-US; Finnish-FI; French-FR; German-DE; Greek-GR; Italian-IT; Japanese-JP; Korean-KR; Norwegian-NO; Portuguese-PT; Spanish-ES; Swedish-SE; Turkish-TR</p>

## **Laser Light Class 2 Labels – Ring Scanners**

*Waiting for JPG file of labels*

## **Laser Light Class 2 Labels – Bluetooth Scanners**

*Waiting for JPG file of labels*

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