MX6 Reference Guide

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Chapter 1   Introduction

Overview

The LXE® MX6 is a lightweight hand-held computer that uses Microsoft® Windows® for Pocket PC 2002 software and a powerful, battery-saving Xscale™ processor. The MX6 can transmit information using a 802.11b 2.4 GHz radio (with an internally mounted antenna) and it can store information for later transmission through an RS-232, InfraRed or communication port.

The computer is vertically oriented and features backlighting for the display and the keypad. The touch-screen display supports graphic features and icons that the Pocket PC operating system supports. The MX6 is powered by a 2000 mAh Lithium-Ion main battery pack and an internal backup battery.

An MX6 with a 35-key keypad is slightly different from the MX6 with a 56-key keypad creating differences in keymapping. Portions of this guide will be split between the the 35-key device and the 56-key device. Sections that do not differentiate between one or the other contain instructions or information that is applicable to both devices.

A stylus is attached to the MX6 to assist in entering data and configuring the unit.

Components

1. Scan LED
2. Decode LED
3. Touchscreen Display
4. Power key
5. Scan key
6. Cursor keys
7. Backlight Toggle key on the 56-key keypad.
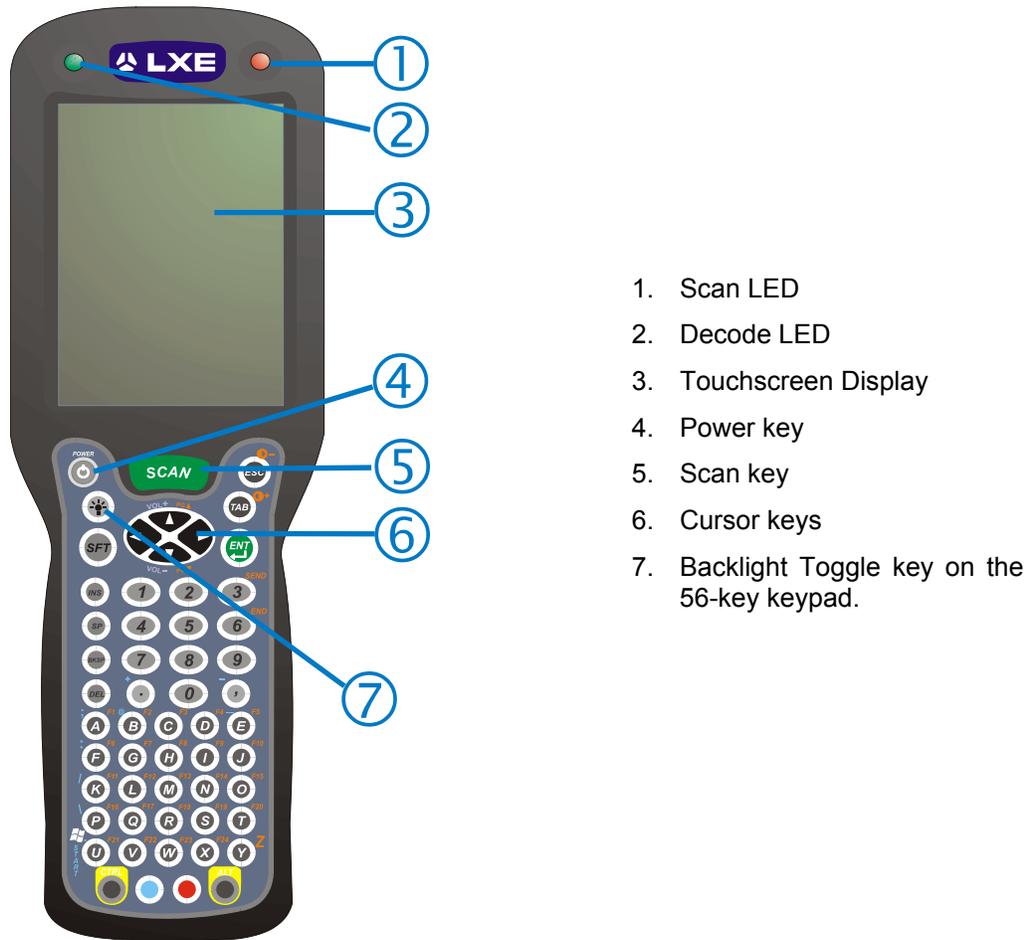
Figure 1-1 Front of 56-key MX6

1. Image Aperture

2. Speaker

3. Handstrap Connector

4. Stylus (No Trigger Handle)

5. Microphone

6. Battery Well

7. Battery
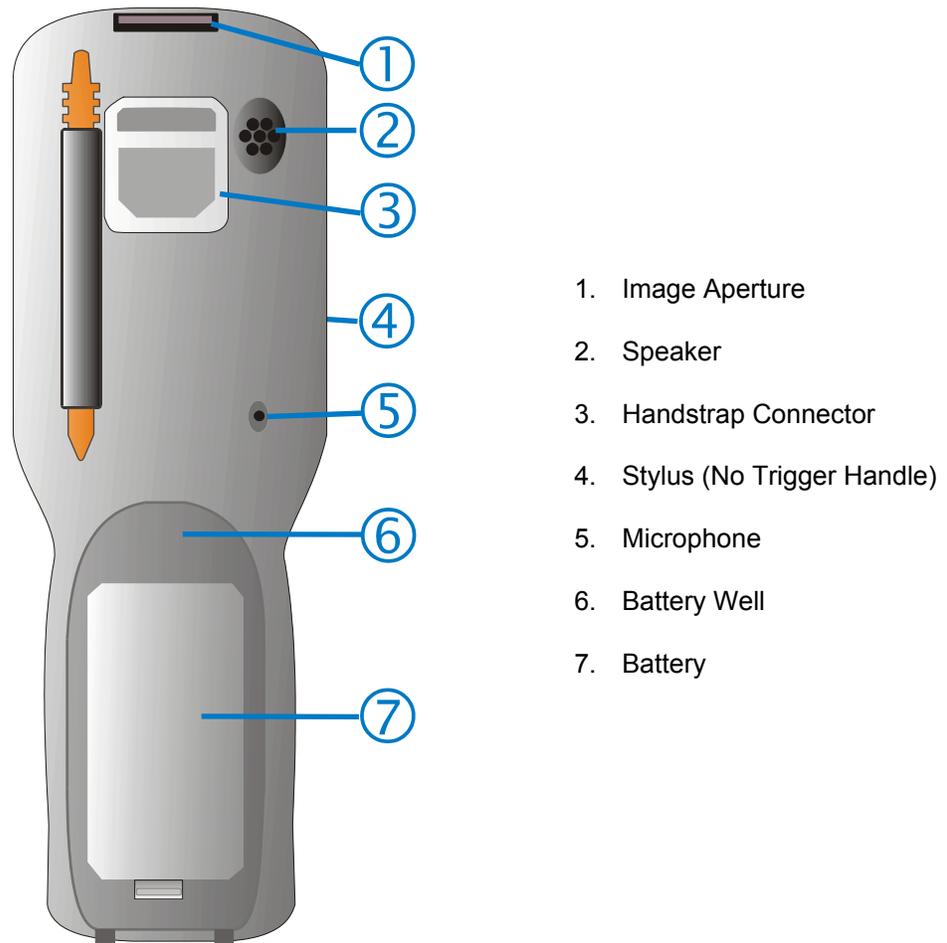
Figure 1-2 Back of MX6
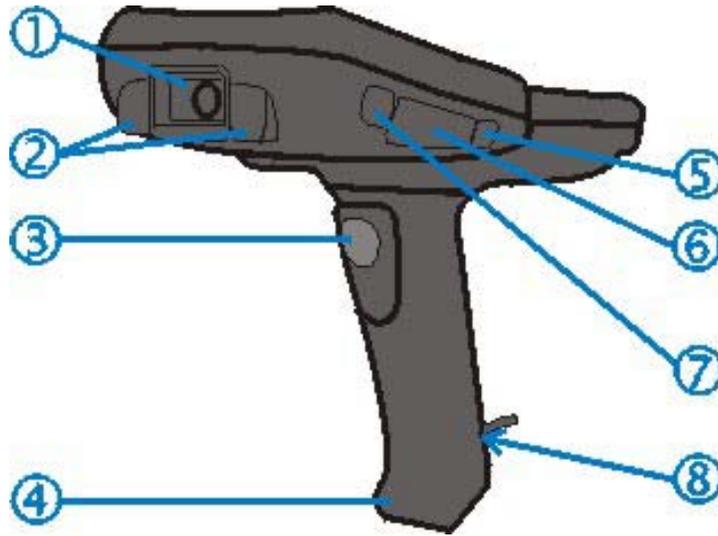
Figure 1-3 With Trigger Handle Installed

1. Imager Aperture
2. Rubber Nose Bumpers
3. Scan Trigger
4. Rubber Bumper
5. Headphone Jack
6. Secure Digital Access Door
7. IrDA Port
8. Stylus and Tether (storage inside base of handle)
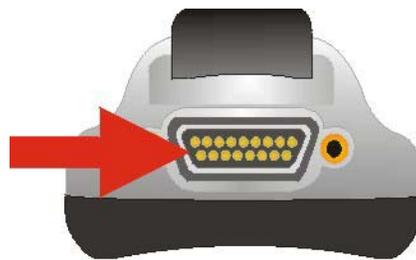
Figure 1-4 RS-232/USB Communications and Charging Port

Related Manuals

The "MX6 User's Guide" contains MX6 user instructions. Refer to the "MX6 Cradle Reference Guide" for technical information relating to the MX6 Vehicle Mount docking cradle.

Important Battery Information

- Until the Main Battery and Backup Battery are completely depleted, the MX6 is always drawing power from the batteries (On).

- New batteries must be fully charged prior to use.

- When a new battery is installed in the MX6 for the first time (or when the Backup battery is completely depleted), the Time and Date must be re-set.

Li-Ion Battery

When disposing of the MX6 Main Battery, 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.

When to Use This Guide

As the reference for the MX6 computer, this guide provides detailed information on its features and functionality. Use this reference guide as you would any other source book -- reading portions to learn about the MX6, and then referring to it when you need more information about a particular subject. This guide takes you through all aspects of installation and configuration.

Operating and safety instructions for the general user are contained in the "MX6 User's Guide."

This chapter, **"Introduction",** describes this reference guide's structure, a list of reference guides and MX6 accessories, and explains how to get help.

Chapter 2, "Getting Started", contains initial setup instruction and briefly describes general use and data entry processes.

Chapter 3 "Physical Description and Layout", describes the function and layout of the MX6, controls and connectors. Also describes the power supplies and docking cradle options for the MX6.

Chapter 4 "System Configuration" takes you through the Pocket PC operating system setup and the MX6 file structure.

Appendix A "Key Maps" describes the keypress sequences for the keypads.

Appendix B "Technical Specifications" lists MX6 technical specifications.

Appendix C "MX6 Multicharger" describes the function, controls and connectors of the MX6 four bay charger/analyzer for MX6 Main Battery packs.

Document Conventions

Convention	Meaning
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".
"Quotes"	Indicates the title of a book, chapter or a section within a chapter (for example, "Document Conventions").
📖	Indicates a reference to other documentation.
ATTENTION	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.
Note:	Keyword that indicates immediately relevant information.
CAUTION ⚠	Keyword that indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
WARNING ⚠	Keyword that indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
DANGER ⚠	Keyword that indicates a imminent hazardous situation which, if not avoided, will result in death or serious injury.

Using the Stylus

> *Note:*   *Always use the point of the stylus for tapping or making strokes on the display. Never use an actual pen, pencil or sharp object to write on the touch screen. Use only the supplied stylus or plastic-tipped pens intended for use with a touchscreen display.*

The stylus is located on the back of an MX6 without a handle, and in the back of the handle of an MX6 with a handle. A tether is connected to the stylus in the handle.
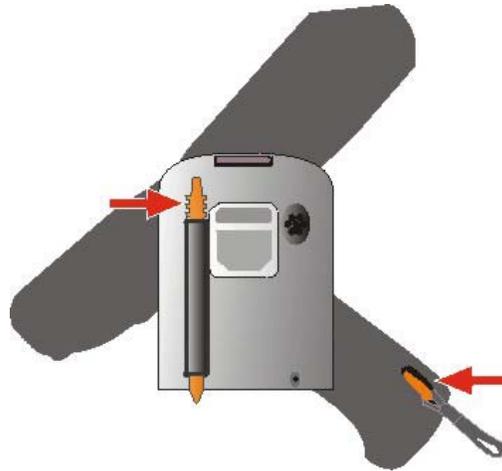
Figure 1-5 Stylus Storage Locations

Pull the stylus straight out of the Stylus holder and 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. Slide the stylus into the stylus holder on the MX6 when the stylus is not in use.

Like using a mouse to left-click icons on a desktop computer screen, using the stylus to tap icons on the MX6 display is the basic action that can:

- Open applications
- Choose menu commands
- Select characters in the Soft Input Panel
- 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 integrated barcode scanner or an input/output device connected to the serial port.

An extra or replacement stylus can be ordered from LXE. See the section titled "Accessories" for the stylus part number.

Figure 1-6 Tapping with the Stylus

System Tray Icons

	Turns all system sounds on and off and adjusts volume.		Connection is active.
	Backup battery is low.		Synchronization is beginning or ending.
	Main batteries are charging.		Synchronization is occuring.
	Main batteries are low.		One or more instant messages are waiting acknowledgment.
	Main batteries very low.		One or more e-mail messages are waiting acknowledgment.
	Main batteries are full.		Soft Input Panel. Tap to show the Panel.

Figure 1-7 System Tray Icons

Soft Input Panel

The Soft Input Panel (SIP) is always available by tapping the SIP icon in the system tray when the MX6 is powered On. It is always available with one exception – when the Today screen is displayed.

To show or hide the input panel, tap the Input Panel button (the icon looks like a keyboard and is shown in the System tray). Tap the arrow next to the SIP icon to see the soft input panel Choices menu.

When you use the input panel, the word completion program anticipates the word you are typing or writing and displays it above the input panel. When you tap the displayed word, it is inserted into your text at the insertion point.

To change word suggestion options, such as the number of words suggested at one time, tap **Start | Settings | Personal | Input | Word Completion** tab.

Use the input panel to enter information in any program. You can either type on the soft keyboard or write on the touch screen using Letter Recognizer or Block Recognizer. In either case, the characters appear as typed text on the screen.

Figure 1-8 Soft Input Panel

- Tap the 123 key to display either an alphanumeric keyboard or a numeric keyboard with characters usually accessed by capitalizing alphanumeric keys on a physical keyboard.

- Tap the Shift key to type one capital letter.

- Tap the CAP key to type all capital letters.

- Tap the au key to access symbols.

Repeating Keystrokes

The Soft Input Panel does not support repeating keystrokes. The MX6 keypads allow repeating keystrokes.

International Characters

Use the Soft Input Panel and the stylus to add International Characters to data entries. Open the Soft Input Panel by tapping the Input Panel icon in the system tray.

Tap the **áü** key on the Soft Input Panel to enable international characters.

General Windows Keyboard Shortcuts

Use the keyboard shortcuts in the chart below to navigate the 35 and 56-key keypads. These are standard keyboard shortcuts for WIndows applications.

Press these keys …	To …
CTRL + C	Copy
CTRL + X	Cut
CTRL + V	Paste
CTRL + Z	Undo
DELETE	Delete
SHIFT with any of the arrow keys	Select more than one item in a window or on the desktop, or select text within a document.
CTRL+A	Select all.
ALT+ESC	Cycle through items in the order they were opened.
CTRL+ESC [1]	Display the Start menu.
ALT+Underlined letter in a menu name	Display the corresponding menu.
Underlined letter in a command name on an open menu	Carry out the corresponding command.
ESC	Cancel the current task.

[1]   Holding this key sequence down longer than needed to display the Start menu will cause a Hard Reset.

Getting Help

LXE user guides are now available on CD and they can also be viewed/downloaded from the LXE 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 www.lxe.com.

Explanations of terms and acronyms used in this manual are located in the file titled "Glossary" on the LXE Manuals CD and on the LXE website.

User Guides

The following guides are available on the LXE Manuals CD:

- MX6 User's Guide
- MX6 Reference Guide
- MX6 Cradle Reference Guide
- RFTerm Reference Guide

Accessories

Batteries and Battery Charger/Analyzers	
Main Battery, Lithium Ion	MX6A380BATT
4 Unit Main Battery Charger (US power cord), Includes analyzing capabilities	MX6A383CHGR4US
4 Unit Main Battery Charger (no power cord), Includes analyzing capabilities	MX6A384CHGR4WW
Carrying Cases, Holsters, Hand Straps	
Replacement MX6 Hand Strap	MX6A411HANDSTRP
Holster for MX6 without handle	MX6A409HOLSTER
Holster for MX6 with handle	MX6A410HOLSTERHAND
Case for MX6 without handle, Includes a protective plastic covering over keyboard	MX6A407CASE1
Case for MX6 without handle, No protective plastic covering	MX6A408CASE2
Case for MX6 with handle	MX6A409CASEHANDLE
Wrist Strap/lanyard for MX6 with handle	MX6A412WRISTSTP
Holster belt	9200L67
Vehicle Mount Cradles	
MX6 Vehicle Cradle, For use with a Standard MX6	MX6A007VMCRADLE
MX6 Vehicle Cradle, For use with Handle	MX6A008WHVMCRADLE
12V Vehicle Cradle Power Supply, Cig Lighter Adapter	MX6A382PSVEHMT12V
24-48V Vehicle Cradle Power Supply	MX6A383PSVEHMT24V

Desktop Cradles	
MX6 Single Unit Desktop Cradle, USB/RS232, Includes a single unit battery charging slot, US	MX6A005DESKCRADLEUS
MX6 Single Unit Desktop Cradle, USB/RS232 Includes a single unit battery charging slot, WW (No Power Cable)	MX6A006DESKCRADLEWW
MX6 4-Bay Docking Cradle, US (Power Cord Included)	MX6A012MULTIDOCKUS
MX6 4-Bay Docking Cradle, WW (No Power Cable)	MX6A013MULTIDOCKWW
MX6 4-Bay Comms Docking Cradle, US (Power Cord Included), Includes Ethernet capabilities	MX6A010NETCRADLEUS
MX6 4-Bay Comms Docking Cradle, WW (No Power Cable), Includes Ethernet Capabilities	MX6A011NETCRADLEWW
USB Cradle to PC Interface Cable, 6ft	MX6A057CBL6USB
RS-232 Cradle to PC Interface Cable, 6ft	MX6A059CBL6RS232
Interface Cables	
MX6 Charge/Comm Interface Cable, RS232	MX6A054CBLD17RS232
MX6 Charge/Comm Interface Cable, USB	MX6A055CBLD17USB
Charge/Comm Cable Power Supply, Includes US Power Cable	MX6A307PSACUS
Charge/Comm Cable Power Supply, No Power Cable Included	MX6A308PSACWW
Miscellaneous Accessories	
Replacement Stylus Kit, 3-pack	MX6A510STYLUS
Replacement Stylus Kit, w/ Tether, 3-Pack, For with MX6 w/ Handle	MX6A511STYLUS
Universal Vehicle Docking Cradle Mounting Bracket – Clamp Style	MX6A015MTGBRCKT
MX6 Desk Top Cradle Replacement Power Supply (No Power Cord)	MX6A310PSACWW
Replacement US Power Cord	MX6A067CBLPWRAC
MX6 Software Development Kit (HHP Branded)	P9500049-01

Chapter 2   Getting Started

First . . .

Charge the Main Battery pack and the internal backup battery completely. A main battery pack charge takes *four hours* and the backup battery charge takes *8 hours (new batteries only)*.

The main battery can be charged in one of three ways –

- either while in the MX6 in a powered docking cradle, or

- by placing the main battery in a powered MX6 battery charger.

- in-unit battery charging using the Communications cable with power supply.

In Brief

The sequence of events for a new MX6 is:

1. Insert a fully charged battery. (Always put a fully charged battery in the MX6 at the beginning of the shift or work day.)

2. Turn the MX6 on by pressing the Power key.

3. Align (calibrate) the touchscreen.

4. Complete the simple exercise showing how to use the stylus and pop-up menus.

5. Set the time zone for your location. Please wait while programs install.

6. When the Today screen is displayed, tap the Clock icon and set the correct date and time.

7. Set the wireless radio parameters, if necessary. Refer to Chapter 4 "System Configuration".

8. Edit the terminal emulation parameters, if necessary. Refer to the RFTerm Reference Guide.

9. Tap **Start | HHP Utils | RegBackup** to permanently save your settings.

If you remove the battery or the battery fails, there is a 30 minute window in which to insert a charged main battery before the backup battery fails and the contents of the Flash memory are lost.

Note: *The sequence of steps in "Getting Started" must be also be completed when the MX6 returns from a Cold Boot and when a new OS version is loaded. The radio, flash card, virtual keyboard and scanner parameters may also need to be reset after a cold boot.*

Insert Fully Charged Battery

Note: *The unit will not function unless the battery compartment cover is in place and securely latched. Be sure to place the unit in suspend before removing the battery. If you don't, you may lose all unsaved data.*

The main battery is located in a compartment on the back of the unit. To insert or replace the battery, complete the following steps:

1. Turn the MX6 off.

2. Detach the bottom hook of the elastic handstrap (if installed).

3. Press the battery locking tab up to release the Main Battery pack. The battery case serves as the back cover for the battery well for the MX6.

4. Pull the battery up and out of the battery well with a hinge motion. Place the discharged battery pack in a powered charging cradle or charger.

5. Tilt the end (without the latch) of the fully charged battery pack into the upper end of the battery compartment, and firmly press the other end (with the latch) until it is fully inserted into the battery compartment.

6. Push down on the battery pack until it clicks into place.

7. Replace the handstrap hook in its holder.

Note: *The battery should not be replaced in a dirty or harsh environment. When the battery is out of the MX6, any dust or moisture that enters the battery compartment can get into the main unit, potentially causing damage.*

Low Battery Condition

When the Main Battery is low, a dialog box pops up with an Alert to charge the battery. The window can be closed, but the dialog box will continue to pop up before the battery reaches the Battery Dead/Off condition.

Main Low

Icons are visible in the taskbar indicating battery strength.

Main Very Low

When the battery reaches the Battery Dead condition, the battery sensor initiates a shutdown of all applications and closes the RF network connection. When the main battery is replaced with a fully charged main battery, the MX6 will resume as before.

Power Key

The Power key is located in the top left corner of the keypad. Press the Power key to turn the MX6 on, place it into Suspend or to wake it from Suspend modes.

You can also use the Scan key (or trigger if installed) to wake the MX6 from Suspend.

Connect External Power Supply (Optional)

The MX6 DC power jack is located at the base of the MX6. The Main Battery recharges when the MX6 is connected to an external power source and the "Main Batteries are Charging" icon is displayed in the toolbar.

Figure 2-1 AC/DC 12V External Power Supply

Push the 17-pin power cable connector into the MX6 serial port. When the connector is seated over the pins, twist the cable fasteners to the right to secure the cable to the MX6. Twist to the left to loosen and remove the cable. Insert the barrel end of the AC/DC Power adapter into the short cable end on the power cord connected to the MX6.

Align the Touchscreen

Access: **Start | Settings | System tab | Screen | Align Screen**
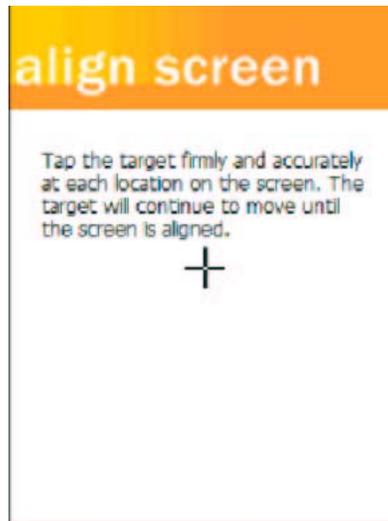
Figure 2-2 Align the Touchscreen

To start, tap the target (+) with the stylus.

Follow the instructions on the screen. Carefully press and briefly hold the stylus on the center of the target (+) as the target moves around the screen.

When alignment is complete, press the Enter key (or tap the OK icon) to save the new alignment settings. You can also press the Esc key sequence to cancel or quit.

Set the Date and Time

Access: **Start | Settings | Systems tab | Clock**
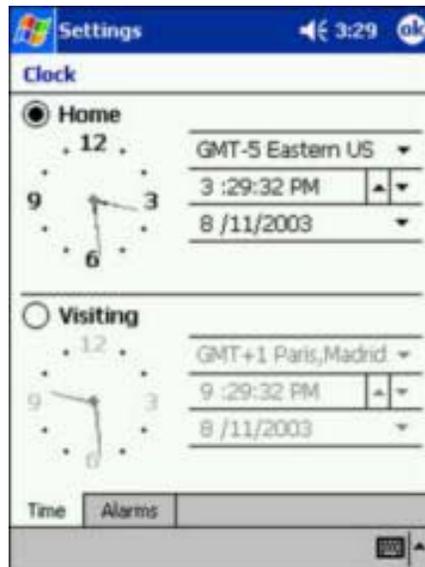
Figure 2-3 Set the Date and Time

1. Select your correct time zone from the pull-down list.

2. To change the *time,* select the hour, minute, seconds, or AM/PM and select the up arrow to increase the value; select/tap the down arrow to decrease the value. Or you can type a new time value in the field.

3. To change the *month*, tap the month to open a calendar. Tap the month again and choose from the drop down list. Or select the left and right arrows to select the month and year. Or you can type a new month value in the field.

4. To change the *year*, tap the year to open a calendar. Tap the year again and select the up arrow to increase the value; select/tap the down arrow to decrease the value. Or select the left and right arrows to select the month and year. Or you can type a new year value in the field.

    • Select OK and select Yes to save your changes or select No to exit without saving your changes and exit Clock.

    • Select Cancel to return to Clock Properties.

Setting Display Backlight Action

Access: **Start | Settings | System | Backlight tab**

Note: Refer to the section titled "Power Modes" later in this guide for information relating to the power states of the MX6.

The parameter settings in **Start | Settings | System | Backlight** tab establish when the display backlight is turned on and off. The Keypad Backlight key (located at the lower right of the 35-key keypad and below the Power key on the 56 key keypad) has no effect on display backlight settings. The display backlight settings have no effect on the keypad Backlight setting.

Exit and save any changes by tapping OK on the command bar, or pressing Enter on the keypad.

When the MX6 is not in the Suspend state, and the display backlight is off, the display backlight is toggled on when any key, including the keypad backlight key, is tapped (if "Turn on backlight when a button is pressed or the screen is tapped" is checked).

If the MX6 is in Suspend, pressing the keypad backlight key has no effect – the MX6 remains in the Suspend state.

Dim Backlight if device is not used for:

When "Dim Backlight if device is not used for:" is checked and a time delay is set, the backlight on the display dims to the minimum value in Backlight Intensity when the timer expires.

- Tapping the screen after the time delay timer expires, undims the screen backlight.
- Tapping any key after the time delay timer expires, turns the screen backlight on if "Turn on backlight when a button is pressed or the screen is tapped" is checked.

When unchecked, the display backlight does not dim to the minimum level.

If the unit is in the Suspend state, pressing any key (other than the Power key) or tapping the screen have no effect. Wake the MX6 from Suspend by tapping the Power key, pressing the trigger on the handle or by pressing the Scan button.

Turn off backlight if device is not used for:

When "Turn off backlight if device is not used for:" is checked and a time delay is set, the display backlight turns off when the timer expires.

- Tapping the screen after the time delay timer expires, turns the screen backlight on.
- Tapping any key after the time delay timer expires, turns the screen backlight on if "Turn on backlight when a button is pressed or the screen is tapped" is checked..

When unchecked, the display backlight does not turn off.

If the unit is in the Suspend state, pressing any key (other than the Power key) or tapping the screen have no effect. Wake the MX6 from Suspend by tapping the Power key, pressing the trigger on the handle or by pressing the Scan button.

Turn on backlight when a button is pressed or the screen is tapped

When this option is unchecked, the MX6 backlight utility ignores key taps and screen taps. If the backlight is allowed to go off, the backlight remains off until the unit returns from the Suspend state. If the backlight is not allowed to go off, the backlight remains on.

Backlight Intensity

You can set a different level for the intensity of the display backlight when the MX6 is running on battery power and a different level to use when the MX6 is running on external power.

Backlight intensity has no effect on the keypad backlight.

Set the Power Off Timer

Note: Refer to the section titled "Power Modes" later in this guide for information relating to the power states of the MX6.

Tap the Start | **Settings** | **System** | **Power** icon.

On battery power:

Turn off device if not used for

Change the parameter value and tap OK to save the change.

The default is 3 minutes. Selections are 1, 2, 3, 4, or 5 minutes.

On external power:

Turn off device if not used for

Change the parameter value and tap OK to save the change.

The default is 5 minutes. Selections are 1, 2, 5, 10, 15, or 30 minutes.

Note: When the Power Off timer expires, the computer enters Suspend Mode.

Accessing Files in Flash Memory

My Documents Folder

Access: **Start | Programs | File Explorer | My Device | My Documents**

Programs and files located in this folder are saved through a hard and soft reset if they had been "saved" prior to resetting.

The IPSM Folder

Access: **Start | Programs | File Explorer | My Device | IPSM**

Programs and files located in the IPSM folder are saved through a hard reset. Backed up registry settings are automatically restored after a hard reset.

- When adding a new CAB file to the IPSM/AutoInstall folder, first delete the RegBackup file in the IPSM folder. Add the new CAB file, then press ESC + CTRL to perform a hard reset. Reconfigure all settings, including the setting for the newly loaded CAB file. Then tap **Start | HHP Utils | RegBackup** to save all settings.

CAB files stored in the AutoInstall folder within the IPSM folder are automatically unpacked following a hard reset.

Restore default registry settings by deleting the RegBackup file in the IPSM folder and then perform a hard reset.

Connect the Audio Jack (Optional)

The MX6 audio jack is located on the side of the unit next to the scan aperture and the SDA door (Secure Digital Access). The internal speaker is disabled when the audio jack is connected.

Figure 2-4 Audio Jack Location

Lift up the protective audio jack cover and insert the barrel end of the connector into the MX6 audio jack and push in firmly.

Note: The audio option draws power from the Main Battery Pack.

Set 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 audio volume can be adjusted to a comfortable level for the user. The MX6 has an internal speaker and a jack for an external headset.

The volume is adjusted using **Start | Settings | Personal tab | Sounds & Notifications** icon then select the Notifications tab.

Change the 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.

Sounds specific to primary events are selected using the options on the Sounds tab.

Reminder/Notifications tones are selected using the options on the Reminders/Notifications tab.

As the volume scrollbar is moved between Loud and Silent, the computer beeps each time the volume increases or decreases in decibel range.

Tap the Volume icon in the navigation bar to adjust system sound volume.

Adjust the Handstrap

Figure 2-5 Handstrap

The MX6 has an integrated elastic handstrap that provides a comfortable, secure grip on the unit. It is attached to the MX6 with a clip on the bottom panel. The handstrap should be disconnected from the bottom clip when the Main Battery is to be removed or replaced. The handstrap can be removed from the MX6 if desired.

Prior to adjusting the handstrap, pull down on the handstrap and insert the bottom assembly into the slot at the bottom of the MX6. Insure that both ends of the bottom assembly are secure.

Open the closed loop fastener tabs and adjust the handstrap for a comfortable, secure fit. Press the closed loop fastener ends together.

Enter Data

You can enter data into the MX6 through several different methods. The Scanner aperture provides barcode data entry, the RS-232 or the IR port are used to input/output data, and the keypad provides manual entry.

MX6's with a touch screen and Microsoft Pocket PC software can use a stylus to input data, the COM ports and/or the keypad. A virtual keyboard is available in applications that expect keyed input.

Keypad Entry

The keypad is used to manually input data that is not collected otherwise. Almost any function that a full sized computer keyboard can provide is duplicated on the keypad but it may take a few more keystrokes to accomplish a keyed task.

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

The Red or Blue keys are pressed when you want to use a 2nd key function. For example, when you press a Blue or Red key (the 2nd key), then press the key that has the desired second-function key. The specific 2nd character is printed above the corresponding key in either Red or Blue.

Please refer to "Appendix A - Key Maps" for instruction on the specific keypresses to access all keypad functions.

Stylus Data Entry

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

The stylus performs the same function as the mouse that is used to point to and click elements on a desk top 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 touch screen responds to an actuation force (touch) of 4 oz. (or greater) of pressure.

The stylus can be used in conjunction with the keyboard, integrated imager and an input/output device connected to one of the MX5's serial ports.

- 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 integrated imager.

The Integrated Imager

Use the MX6 imager to scan, decode, and store information from barcodes. The barcoded data must be "read" into an application or field or the imaged data will be lost.

Do not pour, spray, or spill any liquid on the imager. The Integrated Imager contains the circuitry, scanning motor and imager. Handle with appropriate care.

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

Preparation

*Note: If you are **NOT** using LXE's RFTerm application to manage barcode scanning, select **Start | Programs | HHP Utils | ScanWedge** before scanning a barcode.*

When the barcode reader program is active, an icon resembling a barcode is located in the Toolbar.

Using the Imager
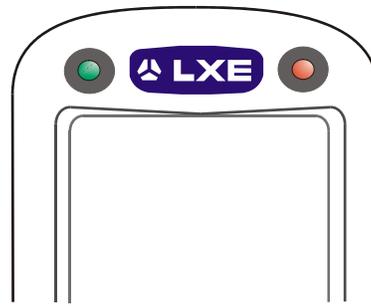
Figure 2-6 Scan and Decode LEDs

To use the imager, aim the top of the MX6 at a barcode and press the Scan key or press the trigger on the handle. The imager scans as long as the key or the trigger is held down before the 10 second timeout occurs.

- Scan LED is on the right. When illuminated red, the MX6 is scanning a barcode.
- Decode LED is on the left When illuminated green, the MX6 scan algorithm accepts the barcode as a "good scan".

The imager turns off automatically when a barcode is read successfully.

Distance from Label

Large barcodes can be scanned at the maximum distance. Hold the imager closer to small barcodes (or with bars that are very close together).

Successful Scan

When the scan is successful, the Scan LED turns green, then switches off, and the currently running application may produce a distinctive audible tone.

Unsuccessful Scan

When the scan is unsuccessful, the Scan LED remains red until the 10 second timeout occurs or the Scan key/trigger is released. The currently running application may produce distinctive audible tones. Check the following:

- Check the barcode for marks or physical damage e.g. ripped label, missing section, etc.
- Try scanning test symbols of the same code type at different distances and angles.
- Is the imager aperture unscratched and unsoiled?

Aiming the Barcode Imager

Aim the imager away from you, direct it at the barcode and press the trigger or button (as applicable) to scan. The Scan LED (scan indicators are located above the display) turns red to indicate the imager is on.

Adjust the aim so that the green aiming beam is centered on the barcode.

The red light emitted from the imager must cover every bar and space on the barcode.

When scanning a 2D Matrix barcode, the scan beam must cover the entire barcode.
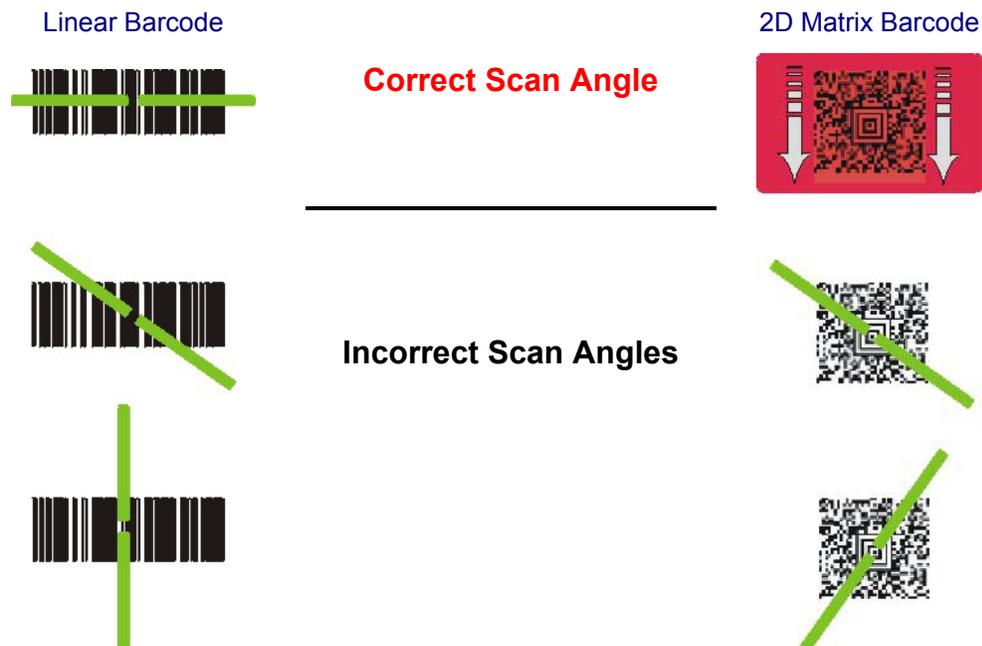
Figure 2-7 Scan Beam

Make sure the barcode is within the scanning range.

The range of a imager is dependent upon many outside influences including size of the barcode, quality of the barcode printing, material the barcode is printed on, and angle of the imager beam relative to the barcode label. Any of these factors may result in having to re-scan the label from a different distance or angle.

Chapter 3   Physical Description and Layout

Hardware Configuration

System Hardware

The MX6 hardware configuration is shown in the following figure.
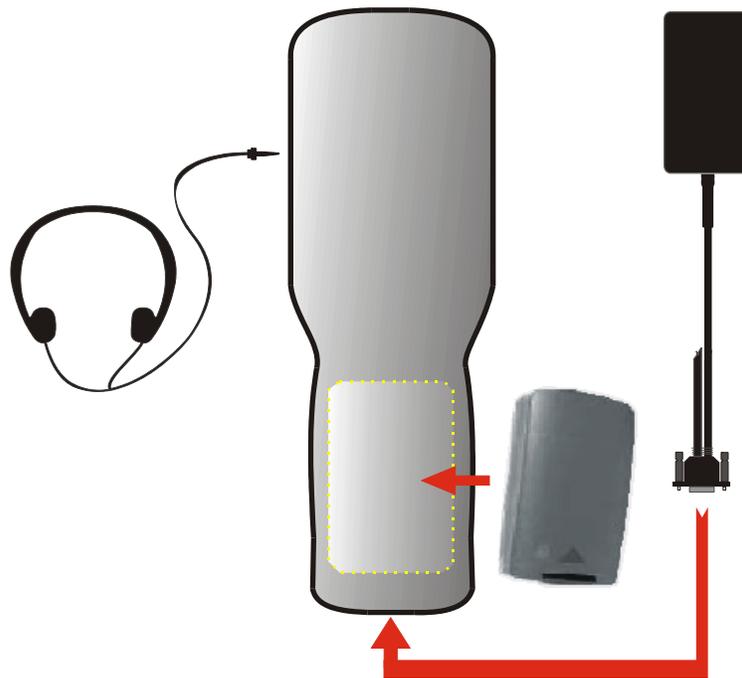
Figure 3-1 System Hardware

Central Processing Unit

The LXE MX6 CPU is a Intel Xscale PXA255 Processor running at 400 MHz. The operating system is Microsoft Pocket PC 2002 resident in flash memory.

Core Logic

The MX6 supports the following I/O components of the core logic:

- One user accessible Secure Digital (SD) memory expansion card slot.
- One InfraRed port.
- One serial/USB port.
- One Digitizer Input port (Touch screen).

System Memory

On-board 64 MB RAM and 32MB non-volatile Flash contain the Pocket PC operating system, hardware-specific OEM Adaptation Layer, device drivers, standard Pocket PC applications and utilities. The operating system supports MFC, ATL and Visual Basic programming languages, TCP/IP and PPP network protocols. The Flash is configured as the primary boot device.

The computer has one Secure Digital card (SD) slot. The MX6 supports and auto detects up to 256MB of memory. SD cards are neither installed nor supported by LXE.

Video Subsystem

The touch screen is a 3/8" (9.65cm) ¼ VGA 320 by 240 pixel TFT Reflective Active Color LCD or greyscale monochrome. Backlighting is available for the display (and keypad), and can be turned on and off with a keypress. The turn-off timing is configured through **Start | Settings | System | Backlight** icon. The display controller supports Microsoft Pocket PC graphics modes.

The touch screen allows mouse functions (pointing and tapping on the display or Signature Capture) using an LXE approved stylus.

The color display is optimized for outdoor use but may also be used indoors. The color display has a CCFL (Cold-Cathode Fluorescent Lighting) frontlight.

The transflective color display appears to have a greenish hue when the unit is in Suspend.

Power Supply

The LXE MX6 uses two batteries for operation.

- A replaceable Lithium-Ion (Li-Ion) 2000mAh battery pack. The battery pack recharges while in the MX6 with the computer in a powered docking cradle. The main battery pack can be removed from the MX6 and inserted in a single charger or four-bay multi-charger.
- An internal 450 mAh Lithium (Li) backup battery. The backup battery is recharged directly by the main battery when it is installed. Full charging of the backup battery will take seven hours. The recharging of the backup battery is automatically controlled by the MX6. The backup battery must be replaced by qualified service personnel.

Audio Interface

An interface is available for headset/microphone operation. When the headset is plugged into the port, the main speaker is disabled.

Secure Digital Cards

Note: *When removing or installing Secure Digital (SD) cards, protect the MX6 internal components from electrostatic discharge.*

SD memory interface cards are used for expanded data storage. SD cards are neither installed nor supported by LXE.

Note: *LXE recommends purchasing preformatted SD cards.*

SD Installation / Removal

Figure 3-2 Secure Digital Memory Interface Card Location

Equipment required: A phillips screwdriver (not supplied by LXE)

- LXE recommends that installation/removal of cards be performed on a clean, well-lit surface.

- Anti-static protection is required when installing/removing cards. (Not supplied by LXE)

- If you anticipate keeping a card out of the MX6 for a long period of time place it in a static-free storage container. Store in an area that is protected from dirt, moisture, and electrostatic contact.

Important   **The SD card is approximately the size of a postage stamp (32mm x 24mm). Make sure the work area is clean and uncluttered before removing the card from it's packaging.**

Installation

1. Turn the MX6 off and remove the Main Battery pack.

2. Using a screwdriver, loosen the SD Access Door on the left side of the MX6.

3. Remove the rectangular rubber protective seal over the SD card opening.

4. Set the door, protective seal and the screws aside.

5. Slide the Card, connector side first, into the slot until it seats. Use caution not to pull or snag any cables that may be in the vicinity of the card.

6. If the card is difficult to seat in the slot, remove the card, turn it around and re-install.

7. Place the access door back in the opening and secure with the screws.

8. Replace the Main Battery pack and perform a Warm Reset.

Removal

Grasp the top of the Card and pull it straight upward to remove.

Use caution not to pull or snag any cables that may be in the vicinity of the card.

COM Ports

The MX6 supports two COM port options.

RS-232 Port, USB
and Power Connection

(COM 1)

IR Port (COM 3)
IrDA Port (COM 6)
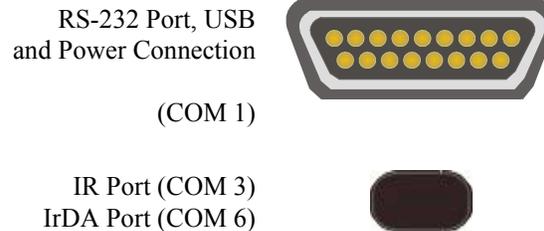
Figure 3-3 COM Ports

COM 1 port is always the 17-pin port on the base of the MX6. COM 1 port accepts RS-232, USB and AC power connectors.

The RS-232 port on the docking cradle is "connected' to the MX6 when the MX6 is in the docking cradle. The docking cradle must be powered by an alternate AC or DC power source to enable communication.

The **COM 3 / 6** port is always the IR port on the left side of the MX6. It is accessed as COM3 for Raw Infrared communication and as COM 6 for Infrared communication using IrDA protocol.

To use COM 3 for Raw IR communication, select **Start | Settings | Connections | Beam** and uncheck "Receive all incoming beams …". This action disables IrDA protocol.

RS-232 Serial Port

Serial connection is made through an RS-232 Port designated as COM port 1. The connector is a custom, industrial 17-pin male connector.

When seated in powered docking cradles, the MX6 receives power through this connection and the main battery is charged. If the docking cradle is connected to a desktop / laptop computer, this connector also transmits data.

The connection to the peripheral can be RS-232 or USB. The maximum RS-232 speed is 115kbps with seven baud rate settings. USB communication runs at 12 Mbps. This port also provides power out (to peripheral devices with special cable) at 500mA at 5V.
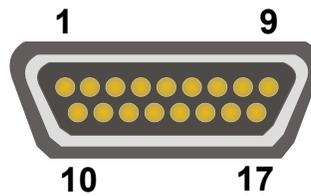
Figure 3-4 MX6 RS-232 Port

PIN	SIGNAL	PIN	SIGNAL
1	+ USB	10	- USB
2	PWR	11	USB DET
3	N / C	12	RI
4	N / C	13	DSR
5	N / C	14	RXD
6	N / C	15	RTS
7	GND	16	TXD
8	5V OUT	17	CTS
9	DTR		

Integrated Imaging Port

The MX6 Imager can be used to collect barcode data from any nearby compatible barcode label. Depending on the size of the barcode, size of bars and spacing and quality of the barcode, the imager reads barcodes between 3" and 30".

The imager reads UPC/EAN, Code 39, Code 93, I 2 of 5, Code 128, Codabar, Aztec, Code 11, Code 49, Data Matrix, MaxiCode, MicroPDF, PDF417, QR Code and RSS Code symbologies. *Please contact your LXE representative for availability of barcode symbologies **not** included in the previous list.*

The integrated imager scans only when the Scan button is pressed or the scan trigger is pressed, if installed. The Scan LED illuminates during any integrated imager activation.

A tethered scanner connected to the MX6 is not supported by LXE.

Look on the label on the back of MX6. The type of installed scan engine should be clearly labeled and may be one of the following:

- LR
- ALR
- 2D, Integrated Area Imaging

Tethered Scanners

LXE does not support tethered scanners connected to the MX6 RS-232 port.

IR Port

Figure 3-5 IR Port Location

The InfraRed (IR) port provides a means of transferring information to a device with a similar port and the proper software. The IR port can be used to communicate with printers or a host computer with the use of an adapter.

The IR Port is specified as COM 3 and as COM 6 (depending on the type of IrDA communication) and is a bi-directional half-duplex infrared port. It supports the Slow IrDA (Infrared Data Access) PHY Layer standard that allows communication speeds up to 115k baud.

To use COM 3 for Raw IR communication, select **Start | Settings | Connections | Beam** and uncheck "Receive all incoming beams …". This action disables IrDA protocol.

When sending data through the IR port to another MX6's IR port, make sure both units are in close proximity to each other. The IR operating envelope has a distance range of 2 cm (.79 inches) to 15 centimeters (6 inches) with a viewing angle of 30 degrees.

Reset or Reboot

CAUTION   LXE recommends that you always attempt a Soft Reset before initiating a Hard Reset. Once you initiate a hard reset, all applications are forcibly closed and working RAM and files are cleared. It is a good idea to store important data in the MX6's Flash memory for this reason.

Soft Reset

A warm (soft) reset closes all applications, clears the working RAM, and preserves the file system.

To initialize a soft reset press and hold the Control CTRL and Shift SFT keys for approximately 10 seconds.

Release the keys and the MX6 resets. The red and green LEDs blink for approximately three seconds.

After a Warm Reset

The Today screen appears. The custom settings in the registry are persistent. An installed RF Network program connects to the wired/wireless network system.

Hard Reset

A hard reset is a complete reset in which all applications are forcibly closed and working RAM and files are cleared.

To perform a hard reset, press and hold the CTRL key and the ESC key for approximately 10 seconds.

Note: The Start Menu will repeatedly appear and disappear and the keys will click repeatedly. This is intended to alert the user that a drastic action is about to occur.

Release the keys and the MX6 resets. The red and green LEDs blink for approximately three seconds.

When the Power key is pressed, to turn the unit on, it will need to be configured once again. See the section titled "Quick Start".

Caution: A hard reset erases all the data stored in RAM memory and all RAM installed applications.

See the section titled "The IPSM Folder"for a list of files that are saved over a hard reset.

Power Modes

1. **On**

2. Tap Power key or the power has failed

3. Power key, connect to AC power supply, put into powered docking cradle, Scan key tap or trigger press.

4. **Suspend**

5. Backup battery and main battery depleted

6. **Off**

7. Power On
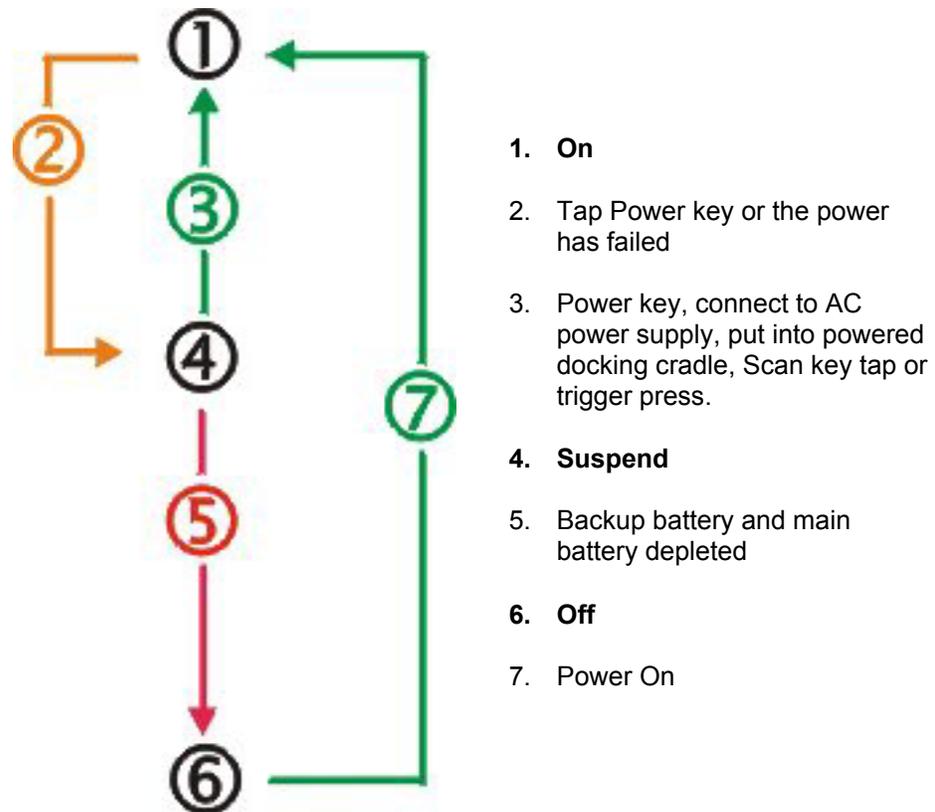
Figure 3-6 Power Modes – On, Suspend and Off

On Mode

The Display

When the display is On:

- the keyboard, touchscreen and all peripherals function normally
- the display backlight is on until the Backlight timer expires
- when the Main Battery is hot-swapped, the display is turned Off.

The MX6

New Unit

After a new MX6 has been received, a charged Main Battery inserted, and the Power key tapped, the MX6 is always On until both batteries are drained completely of power.

Both Batteries Dead

When the Main Battery and Backup Battery are drained completely, the unit is in the Off mode. The unit transitions from the Off mode to the On mode when a charged Main Battery is inserted, the MX6 is placed in a powered docking cradle, or external power is applied to the MX6. The unit performs a Hard Reset upon receiving power from a charged Main Battery pack.

Main Battery Hot-swapped

The MX6 automatically enters Suspend mode when the Main Battery is removed while the backup battery has adequate power to maintain the MX6 operating system. To wake the unit after the Main Battery has been replaced, press the Power key or the Scan key.

Suspend Mode

The Suspend mode is entered when the unit is inactive for a predetermined period of time or the user taps the Power key. The MX6 does not enter Suspend when it is connected to AC power or when it is connected via ActiveSync unless it has been configured to do so. When connected to ActiveSync, the unit will enter Suspend if the Power key is tapped.

MX6 Suspend timers are set using **Start** | **Settings** | **System** | **Power tab**.

A Power key tap wakes the unit and resets the display backlight timers.

A touch screen tap or any key tap wakes the unit and resets the display backlight timers.

Placing the MX6 in a powered dock wakes the unit and resets the display backlight timers.

When the unit wakes up, the Display Backlight and the Power Off timers begin the countdown again. When any one of the above events occurs prior to the Power Off timer expiring, the timer starts the countdown again.

Off Mode

The unit is in Off Mode when the Main Battery and the Backup Battery are depleted. Insert a fully charged Main Battery and press the Power key to turn the MX6 On. The unit performs a Hard Reset upon receiving power from a charged Main Battery pack.

The Keypads
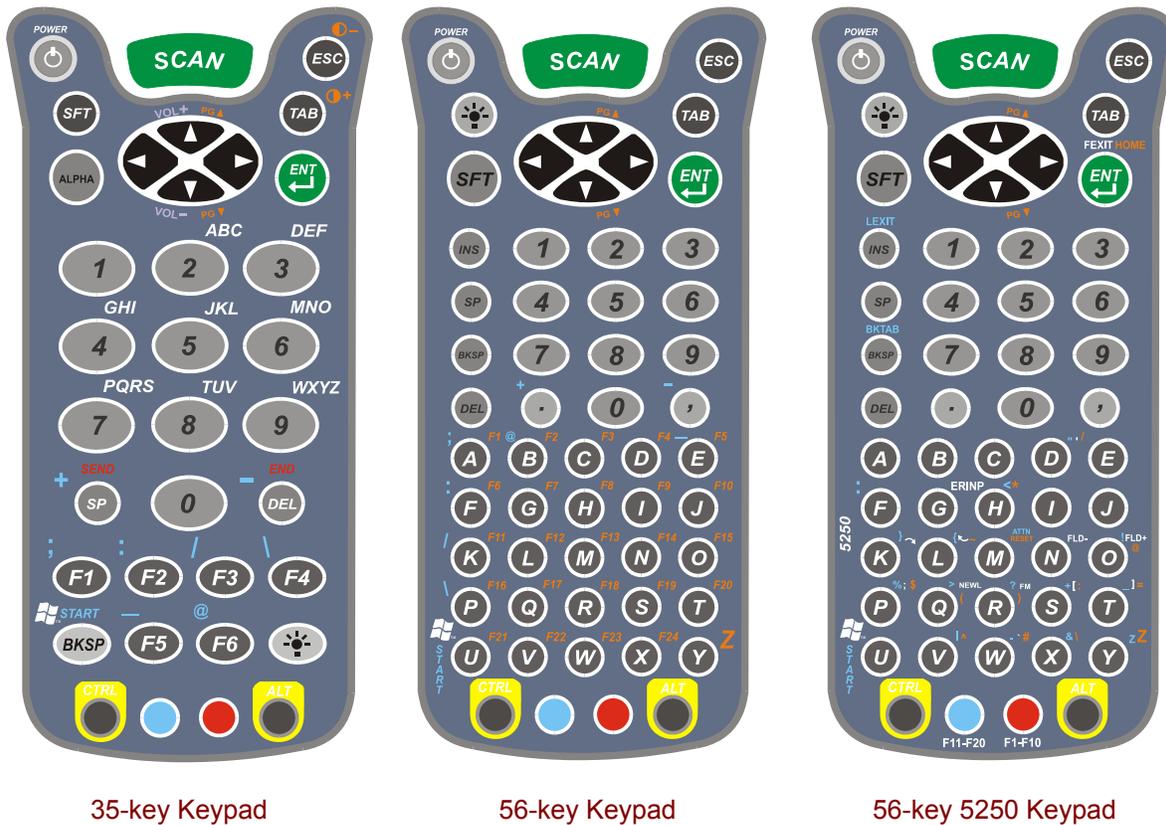
| 35-key Keypad | 56-key Keypad | 56-key 5250 Keypad |

Figure 3-7 The 35-key and 56-key Keypads

See also: Appendix A Key Maps.

Keys shown on the 35-key keypad that are inactive:

Contrast Up	◐+
Contrast Down	◐−
Volume Up	VOL+
Volume Down	VOL−
Send and End	

Special Keys

SCAN Key

The SCAN key activates the image-taking and/or barcode decoding scan engine. It also "wakes" the MX6 from sleep mode.

Power Key

The Power key puts the MX6 into and wakes the MX6 from Suspend mode.

Shift (SFT)

The Shift key toggles the keypad from upper case alphabet mode to lower case alphabet mode and back. Caps Lock may also be toggled by pressing the red modifier key followed by the Shift key or by double-tapping the Shift key. When Caps Lock is toggled on, the Shift key makes characters upper case; when it is toggled off, the Shift key makes keys lower case.

Enter (ENT)

The Enter key confirms data entry.

Escape (ESC)

The Escape key performs a cancel action.

Tab

The Tab key moves the cursor to the next tab stop or the next control on a form.

Backlight

 The Keypad Backlight key turns the keypad backlight on and off. The keypad backlight turns off after 5 seconds if there is no keypad or touch screen activity. The Backlight key is located at the lower right of the 35-key keypad. It is located below the Power key on the 56 key keypad. The keypad backlight key is the only keypress used to turn the keypad backlight on and off.

Alpha Lock (ALPHA)

This key is included only on the 35-key keypad. Alpha defaults to numeric mode. The Alpha key toggles between the numeric and alphabetic modes.

Backspace (BKSP)

The Backspace key moves the cursor back one space for each time the key is pressed. To delete a single character, press Red key + SP. To delete multiple characters, press Red key + SP and hold down the SP key.

Delete (DEL)

The Delete key deletes one character for each time the key is pressed.

Arrow Keys

Press the arrow (or cursor key) to move the cursor or highlighted text entry during a menu/list selection. In Normal mode:

• The Up arrow moves the cursor up one row or line.
• The Right arrow moves the cursor to the right one character.
• The Down arrow moves the cursor down one line or row.
• The Left arrow moves the cursor to the left one character.

Modifier Keys

Figure 3-8 Modifier Keys

The Ctrl and Alt keys are located on the bottom row of the keypad. Functions of the Ctrl and Alt keys depend on the software application in use.

The blue and red keys (blue is to the left and red is to the right) are used in conjunction with other keys to type the corresponding color-coded characters and functions. The Red and Blue keys modify only the next key pressed; these keys must be pressed and released before each key to be modified to the Blue or Red case.

Keypress Sequences

See Appendix A for key maps for all keypads.

Touch Screen

The MX6 Touch Screen Display is a color LCD unit capable of supporting VGA graphics modes. Display size is 320 x 240 pixels in portrait orientation. The display covering is designed to resist stains. The touch screen allows signature capture and touch input. A pen stylus is included. The touch screen responds to an actuation force (touch) of 4 oz. of pressure (or greater).

When the color LCD unit is in Suspend mode, the reflective 256 color display appears to have a greenish hue.

The display is automatically turned off when the MX6 enters the Suspend state.

Display Backlight Timer

When the Backlight timer expires the display backlight is turned off. The default value for the battery power and AC timer is 30 seconds.

When the display wakes up, the Backlight timers begin the countdown again.

Cleaning the Glass Display and Imager Aperture

Keep fingers and rough or sharp objects away from the scan aperture and display. If the glass becomes soiled or smudged, clean only with a standard household cleaner such as Windex(R) 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.

Speaker

The speaker is located on the back of the MX6. The speaker has a loudness of at least 87 dB (1500 Hz) at 10 cm measured from the back of the unit. The Speaker volume is adjustable via the keypad or the Settings or by an application through the use of an API call. There are 5 distinct volume levels. The minimum volume level is 0 (no sound) with a default setting of 3. The volume sticks at maximum and minimum levels.

The speaker is disabled when a headset is plugged into the Audio Jack. The audio volume can be adjusted to a comfortable level for the user. The volume is increased or decreased one step each time the volume key sequence is pressed.

Speaker volume is first enabled and adjusted using the "Sounds & Reminders" icon. The default value for Sounds and Reminders is midrange Volume and all sounds enabled. When volume and sounds are enabled, speaker volume can be adjusted using the volume key sequence, if desired.

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

The volume is adjusted using **Start | Settings | Personal tab | Sounds & Notifications** icon then select the Notifications 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.

> **Sounds** specific to primary events are selected using the options on the Sounds tab.
> **Reminder/Notification** tones are selected using the options on the Reminders/Notifications tab.

As the volume scrollbar is moved between Loud and Silent, the computer will emit a beep each time the volume increases or decreases in decibel range. The Volume icon in the system bar can also be used to adjust the system sound volume.

Battery

Figure 3-9 Main Battery Pack

The MX6 computer is designed to work with a rechargeable Lithium-Ion (Li-ion) battery from LXE. Under normal conditions it should last approximately eight to ten hours before requiring a recharge. The more you use the scanner or the RF transmitter, the shorter the time required between battery recharges. The MX6 keeps date and time valid for a minimum of four days using a fully charged Backup Battery and a Main Battery that has reached the Low Warning point.

When the main battery has lost most of its charge, an icon of an "empty" or "half-empty" battery appears.

The MX6 maintains the date and time for a minimum of two days using a Main Battery that has reached the Low Warning point and a fully charged Backup Battery. The MX6 retains data, during a Main Battery hot swap, for at least 5 minutes.

Note: ***New Main Battery packs must be charged prior to use****. This process takes up to four hours in an LXE Multicharger and three hours when the MX6 is connected to external power through it's power jack.*

See Also: Appendix C "MX6 Multicharger".

Checking Battery Status

Tap the **Start | Settings | System | Power** icon. Main and backup battery level, status and timeout setting options are displayed.

Handling Batteries Safely

- Never dispose of a battery in a fire. This may cause an explosion.
- Do not replace individual cells in a battery pack.
- Do not attempt to pry open the battery pack shell.
- Be careful when handling any battery. If a battery is broken or shows signs of leakage do not attempt to charge it. Dispose of it using proper procedures.

Caution ⚠️	Battery cells contain a chemical solution which burns skin, eyes, etc. Leakage from cells is the only possible way for such exposure to occur. In this event, rinse the affected area thoroughly with water. If the solution contacts the eyes, get immediate medical attention.

> **Caution** Lithium and Li-Ion batteries are capable of delivering high currents when accidentally shorted. Accidental shorting can occur when contact is made with jewelry, metal surfaces, conductive tools, etc., making the objects very hot. Never place a battery in a pocket or case with keys, coins, or other metal objects.

Main Battery Pack

The main battery pack has a rugged plastic enclosure that is designed to withstand the ordinary rigors of an industrial environment. The Main Battery pack is a modular device and is the battery pack cover/case as well. It should never be disassembled. Exercise care when transporting the battery pack making sure it does not come in contact with excessive heat or any power source other than the LXE battery chargers, powered docking cradles or the MX6 unit.

When the Main Battery Pack is properly installed in the unit it provides up to eight hours of operation depending upon operation and accessories installed. The battery pack is resistant to impact damage and falls of up to four feet to a concrete surface.

Under normal conditions it should last approximately eight hours before requiring a recharge. The more you use the scanner or the transmitter, the shorter the time required between battery recharges.

Battery Hot-Swapping

When the main battery power level is low, the MX6 will signal the user with a warning dialog box on the display, a specific toolbar icon and a warning tone. The low battery warning notice and tones continue until the main battery is replaced, the battery completely depletes, or the MX6 is placed in a powered docking cradle.

You can replace the main battery by simply removing the discharged battery and installing a charged battery within a five minute time limit (or before the backup battery depletes).

When the Main Battery is removed, the MX6 automatically suspends, the display is turned off and the backup battery will continue to power the unit for at least five minutes. Though data is retained, the MX6 cannot be used until a new main battery pack is installed. After installing the new battery, the MX6 automatically transitions to the On state. Full operational recovery from Suspend can take several seconds while the radio (if installed) is reestablishing an RF link.

If the backup battery depletes before a fully charged main battery can be inserted, the MX6 performs a hard reset. Programs and data in RAM is lost. Press the Power key to turn the MX6 On after the hard reset.

Low Battery Warning

It is recommended that the Main Battery Pack be removed and replaced when it's energy depletes. When the Low Battery Warning appears do an orderly shut down, minimizing the operation of any installed devices and insuring any information is saved that should be.

When the unit is in an ON state, a low battery warning dialog box appears on the display and a warning tone is emitted.

Note: Once you receive the Low Battery Warning, you have approximately 5 minutes to perform an orderly shutdown and replace the main battery pack before the unit powers off. The Low Battery Warning will transition to Suspend before the computer powers off.

Backup Battery

The MX6 has a backup battery that is designed to provide limited-duration electrical power in the event of Main Battery Pack failure. The Backup Battery is a 450 mAh Lithium (Li) battery that is factory installed in the unit. The need for recharging of the backup battery is automatically detected and controlled by the MX6. The energy needed to charge the backup battery comes from the Main Battery.

It takes several hours of operation before the Backup Battery is capable of supporting the operation of the computer. The duration of Backup Battery life is dependent upon operation of the MX6, it's features and any operating applications.

The backup battery should be discharged completely once or twice a year. LXE recommends the user save all programs and data in RAM to IPSM folder before completely discharging the backup battery. The Main Battery Pack will fully charge the backup battery. This process will allow longer life for the Backup Battery. The backup battery is replaced by LXE.

Battery Maintenance Publication

The LXE publication "Getting the Most from Your Batteries" is available on the LXE Manuals CD and is a single-source guide to battery management. The publication contains information about battery recharging, conditioning, and other pertinent issues. It is also available on the LXE website.

Charging the Main Battery Pack

Using the Four Bay Charger/Analyzer (Optional)

Note: The Multicharger must be connected to an AC/DC power source before battery charging can occur.

Figure 3-10 MX6 Multicharger

See Also: Appendix C "MX6 Multicharger".

The four bay Multicharger has four slots that fully charge a Main Battery in four hours. The charging slots work independently to control the charging of individual battery packs.

The last slot on the right also functions as a battery analyzer/charger. It resets and re-calibrates a battery, then displays it's resulting capacity. The process monitors changes in temperature, current, and voltage. The slot senses when a battery pack is fully charged and automatically switches to maintain the battery at full capacity indefinitely.

How To Charge a Spare Battery Pack

1.   Insert the end of the battery without the locking tab into the charging slot.

2.   Snap the battery into place with a hinging motion.

3.   Once the battery is inserted, observe the Status LED to monitor the charging process.

The Status LED is orange while the battery is charging, and green when the charge cycle is complete.

How To Charge/Analyze a Spare Battery Pack

1.   Insert the end of the battery without the locking tab into the right hand charge/analyze slot.

2.   Snap the battery into place with a hinging motion.

3.   Once the battery is inserted, press the Analyze button. Observe the Indicator LEDs to monitor the charge/analyze process.

The Status LED flashes orange during the analyze phase, illuminates solid green when the analyze cycle has completed. When the cycle is complete, the Indicator LEDs display the current battery capacity of the battery in the charge/analyze slot.

Charging a Battery Using the Desktop Docking Cradle

Note: The cradle must be connected to an AC/DC power source before battery charging can occur.

The Desktop Cradle has an Auxiliary Battery Well that is used to charge a single Li-Ion battery in the charged desk mount docking cradle while at the same time the cradle can charge the battery in an MX6 in the charging/communication slot .

The MX6 unit does not have to be in the main charging well because each charger operates independently of the other. The spare battery will charge in four hours.

The cradle senses when a battery pack is fully charged and automatically switches to maintain the battery at full capacity indefinitely.

How To Charge a Spare Battery Pack

1. Insert the end of the battery without the locking tab into the bottom of the auxiliary well opening.

2. Snap the battery into place with a hinging motion.

3. Once the battery is inserted, observe the Aux Battery LED to monitor the charging process.

See the "MX6 Cradle Reference Guide" for further information.

Docking Cradles

Note: The "MX6 Cradle Reference Guide" contains docking cradle installation and further information.

The docking cradles give the MX6 the ability to communicate with a host computer and other equipment. The MX6 can be either On or in Suspend mode while in the cradles.

Using wall AC adapters or DC/DC converters, the docking cradle transfers power to the internal charging circuitry of the MX6 and, in turn, the MX6 recharges the Main Battery. The desktop docking cradle recharges both the MX6 Main Battery and an Auxiliary Battery at the same time.

The vehicle docking cradle uses a 12V cigarette lighter adapter or a bare wire 12-48V power supply to transfer power to the internal charging circuitry of the MX6 and, in turn, the MX6 recharges the Main Battery. A powered docking cradle gives the MX6 the ability to communicate with a host computer and other equipment.

A complete battery charge of the Main Battery pack and an extra battery pack using the desktop docking cradle takes less than four hours. The vehicle cradle completely charges the Main Battery in the MX6 is less than four hours.

The cradles require an external power source, before communications or battery charging is available.

When the desktop and vehicle cradles are receiving external power and the MX6 is properly seated in the charging bay, the DOCK LED is green. When the battery in the MX6 is charging the DOCK LED is green.

Indicators and LEDs

Powered Desktop Cradle

Label	Color	Explanation
DOCK	**Solid Green**	MX6 is properly seated in the charging bay and the Main Battery in the MX6 is charging.
AUX Battery	**Orange** **Green**	The spare battery is charging. The spare battery has completed charging and is ready for use.
COMM w/serial port	**Red** **Green** **Orange**	Serial data is being sent to the MX6 from the host. Serial data is being sent from the MX6 to the host. Serial data is being sent at high data rates.
COMM w/USB port	**Green**	USB connection is established with the host.

Powered Vehicle Cradle

Label	Color	Explanation
DOCK	**Solid Green**	MX6 is properly seated in the charging bay and the Main Battery in the MX6 is charging.
COMM w/serial port	**Red** **Green** **Orange**	Serial data is being sent to the MX6 from the host. Serial data is being sent from the MX6 to the host. Serial data is being sent at high data rates.

Note: IrDA transmission from a handheld MX6 to or from a docked MX6 does not require a powered cradle.

See Also: Chapter 4 – System Configuration, Sections titled "ActiveSync", "Infrared Receive" and "Beam".

See Also: Chapter 4 – System Configuration, Section titled "Accessories" for LXE certified cables.

Chapter 4   System Configuration

Introduction

There are several different aspects to the setup and configuration of the MX6. Many of the setup and configuration settings are dependent upon the optional features such as hardware and software installed on the unit. The examples found in this chapter are to be used *as examples only*, the configuration of your specific MX6 computer may vary. The following sections provide a general reference for the configuration of the MX6 and some of it's optional features.

Note: When a new battery is installed in the MX6 for the first time (and when both batteries Backup battery have been completely depleted), the Time and Date must be re-set.

Windows for Pocket PC

Access: Start | Settings | System tab | About

For general use instruction, please refer to commercially availableWindows for Pocket PC 2002 user's guides or the Windows for Pocket PC on-line Help application installed with the MX6.

This chapter's contents assumes the system administrator is familiar with Microsoft Windows options and capabilities loaded on most standard Pocket PC devices and/or desktop computers.

Therefore, the sections that follow describe only those Windows capabilities that are unique to the LXE MX6 and it's Pocket PC environment.

Installed Software

Note: Some standard Pocket PC options require an internal or external modem connection. Modems are not available from LXE nor supported by LXE.

When you order an MX6 you receive the software files required by the separate programs needed for operation and wireless communication. The files are loaded by LXE and stored in subdirectories in flash memory.

This section lists the contents of the subdirectories and the general function of the files. Files installed in each MX6 are specific to the intended function of the MX6.

Software Load

The software loaded on the MX6 computer consists of Windows for Pocket PC 2002, hardware-specific OEM Adaptation Layer, device drivers, MS Pocket Internet Explorer browser and utilities.

The wireless drivers are stored in flash memory. During the cold boot process, the wireless drivers are loaded as well as any saved parameters.

The software supported by the MX6 is summarized below:

Operating System

- Windows Pocket PC 2002 Professional.

Terminal Emulation

- RFTerm (VT220, TN5250, TN3270)

802.11 SyChip radio

Integrated Imager Driver

The Start Menu

For general use instruction, please refer to commercially available Pocket PC user's guides or the on-line Help application installed with the MX6.

The **Start** menu appearance is similar to that of a hand held Palm organizer. The default bootup screen is **Today**.

Tap Start to display the Start menu. The Start menu is separated into sections:

- **Start menu** displaying Quick Start Applications

- **Programs**, which are Application specific e.g. Word, Inbox, etc.

- **Settings** which are split into Personal, System and Connection segments.

- **Find** capability

- **Help**

Factory Default Settings		
Option	*Active*	*Same as Desktop*
Today	Yes	Yes
Calendar	Yes	Yes
Contacts	Yes	Yes
Inbox	Yes	Yes
Internet Explorer	Yes	Yes
Notes	Yes	Yes
Tasks	Yes	Yes

Edit Start Menu Item List

Access: Start | Settings | Personal | Menus

Select the applications to be displayed as Quick Start Applications in the Start Menu.

Create a new Menu by tapping the **New Menu** tab. Check the "Turn on New button menu" checkbox. Make your selections from the list and tap OK or press Enter.

The new menu options appear when the **New** tab in the Taskbar is tapped.

Inbox

This start menu option requires a connection to a mail server. There are few changes in the Pocket PC version of Inbox as it relates to the general desktop Windows PC Microsoft Outlook Inbox options. Tap **Start | Help** to access Inbox Help. ActiveSync® can be used to transfer messages between the MX6 inbox and a desktop PC inbox.

Programs Options

Access: **Start | Programs**

Help is always available at any stage – tap **Start | Help** for context-sensitive help. Tap OK to close Help and return to the program or application.

HHP Demos

Access: **Start | Programs | HHP Demos**

Demo Setup	Use this option to enable a specific IP Address, Decode Port and Imaging Port for the Image Demo, IQImage Demo and Scan Demo.
Image Demo	Scan an image.
IQImage Demo	Review an image.
Scan Demo	Scan an image or barcode.
Signature Capture	Establish signature patterns for handwriting data entry using the stylus.

HHP Utils

Access: **Start | Programs | HHP Utils**

IPConfig

Access: **Start | Programs | HHP Utils | IPConfig**

Factory Default Settings	
Input	
Adapter	02 Pegas1
Output	
Display	Blank
About	
Ipconfig	Copyright

Online help is not available for this menu option. Tap X to close this window.

Release the IP address button

Pressing this button changes the MAC address, sets the IP address to 0.0.0.0 and sets the Subnet mask to 0.0.0.0 as well as clearing out the Gateway data.

Renew the IP address button

Pressing this button renews the MAC address, IP address, Subnet Mask and Gateway data.

Display full configuration button

Pressing this button displays the Windows IP configuration for the 802.11 card and adapter.

Ping

Access: **Start | Programs | HHP Utils | Ping**

Factory Default Settings	
Input	
Destination	Blank
Timeout (ms)	1000
Send buffer size	32
Send count	4
Infinite	Disabled
TTL	Blank
TOS	Blank
Rec. route for count hops	Blank
Timestamp route	Blank
Don't fragment	Disabled
DNS address required	Disabled
Output	
Display	Blank
About	
Ping	Copyright

Tap X to close this menu option. Help is not available for this option.

Tap Execute on the Input tab to execute the IP address ping. Tap the Stop button to end the Ping activity.

Route

Access: **Start | Programs | HHP Utils | Route**

Tap X to close this menu option. Help is not available for this option.

Command   Action

Print   Execute the Print command to print the network routing tables. The result is displayed in the Output tab file.

Add   Enter the following data and then tap Execute to add to the routing table: Destination, Netmask, Gateway, Metric and Interface.

Delete   Enter a destination and tap Execute to delete routes with a given destination.

Clear   Use this command to clear the routing table of all gateway entries.

RASMan

Access: **Start | Programs | HHP Utils | RASMan**

Help is not available for this option.

Reboot

Access: **Start | Programs | HHP Utils | Reboot**

Tap this icon to initiate a Warm or Cold Boot. Tap X to close the decision box.

Warm Boot	**(Soft Reset)** A warm boot closes all applications, clears the working RAM and preserves the file system.
	Press the CTRL and SFT keys at the same time for approximately 10 seconds.
Cold Boot	**(Hard Reset)** A cold boot forcibly closes all applications, working RAM and files are cleared and the device's parameters are reset to factory defaults (or the last saved registry settings).
	Press the CTRL and ESC keys at the same time for approximately three seconds.

RegBackup

Access: **Start | Programs | HHP Utils | RegBackup**

Tap this icon to save the current registry settings to a file.

RegRestore

Access: **Start | Programs | HHP Utils | RegRestore**

Tap this icon to restore last saved registry settings to the in-use registry.

ScanWedge

Access: **Start | Programs | HHP Utils | ScanWedge**

*Note: If you are **NOT** using LXE's RFTerm application to manage barcode scanning, select **Start | Programs | HHP Utils | ScanWedge** before scanning a barcode.*

Tap this icon before scanning a barcode. When the barcode reader program is active, an icon resembling a barcode is located in the Toolbar.

Suspend

Access: **Start | Programs | HHP Utils | Suspend**

Tapping this icon places the device in Suspend mode. Tap the Power key to wake the device.

SysInfo

Access: Start | Programs | HHP Utils | SysInfo

Tapping this icon displays a text file containing the current settings for the MX6, e.g. hardware/software version numbers, etc.

Tap File | Save to File to create a separate file copy of the SysInfo listing.

Games

Access: Start | Programs | Games

Tap the game name icon to start a game. Tap X then tap OK to close the Games window and return to the Programs window.

Calculator

Access: Start | Programs | Calculator

Exit the Calculator program by tapping the X at the top of the screen until the Today screen is displayed.

ActiveSync

Access: Start | ActiveSync

Requirement: ActiveSync version 3.7 (or higher) must be on both the host (desktop/laptop) computer and the MX6 (client).

Using Microsoft ActiveSync version 3.7 or higher, you can synchronize information on your desktop computer with the MX6 and vice versa. Synchronization compares the data on your MX6 with your desktop computer and updates both with the most recent data.

For example, you can:

- Update the information in Pocket Outlook on your device by synchronizing it with Microsoft Outlook on your desktop computer.

- Synchronize Microsoft Word and Microsoft Excel files between your device and desktop computer. Your files are automatically converted to the correct format.

- Back up and restore your device data.

- Copy (rather than synchronize) files between your device and desktop computer.

- Control when synchronization occurs by selecting a synchronization mode. For example, you can synchronize continually while connected to your desktop computer or only when you choose the synchronize command.

- Select which information types are synchronized and control how much data is synchronized. For example, you can choose how many weeks of past appointments you want synchronized.

If the MX6 is already in a docking cradle connected to a PC, remove and reinsert the MX6 into the cradle.

If the MX6 is connected to a PC by RS-232/USB cable, disconnect the cable from the MX6 and reconnect.

Check that **Start | ActiveSync | Tools | Option** has the correct connection selected (Serial or USB).

Note: By default, ActiveSync does not automatically synchronize all types of information. Use ActiveSync Options to specify the types of information you want to synchronize. The synchronization process makes the data (in the information types you select) identical on both your desktop computer and your device.

When installation of ActiveSync is complete on your desktop computer, the ActiveSync Setup Wizard begins and starts the following processes:

- connect your device to your desktop computer,

- set up a partnership so you can synchronize information between your device and your desktop computer, and

- customize your synchronization settings.

Because ActiveSync is already installed on your device, your first synchronization process begins automatically when you finish setting up your desktop computer in the ActiveSync wizard.

After your first synchronization, look at Calendar, Contacts, and Tasks on your device. Notice that the same information from Microsoft Outlook on your desktop computer is now on your device, and you didn't have to type a word. Simply disconnect your device from your computer and you're ready to go!

For more information about using ActiveSync on your desktop computer, open ActiveSync, then open ActiveSync Help .

Synchronizing from the MX6

You must have set up ActiveSync on your desktop computer and completed the first synchronization process before you initiate synchronization from your device.

To initiate synchronization from your device, tap **Start**, then **ActiveSync** to begin the process.

Note: If you have a wireless LAN card, you can synchronize remotely from your device.

Tap to connect and synchronize.

View synchronization status.

Tap to synchronize via IR or change synchronization settings.

View connection status.

Tap to stop synchronization.

Tap **Start | Help** for context-sensitive help.

Tools

Use this option to select IR connection or configure the PC, Server and Schedule settings. Tap **Start | Help** for context-sensitive help. Tap X to close.

File Explorer

Access: **Start | Programs | File Explorer**

Factory Default Settings	
Business Folder	Yes
Personal Folder	Yes
Templates	Yes

There are few changes in the Pocket PC version of File Explorer as it relates to the general desktop PC Windows File Explorer options. Tap **Start | Help** to access File Explorer Help. To exit, press the X in the upper right hand corner until the Start screen is displayed.

Infrared Receive

Access: **Start | Programs | Infrared Receive**

Tapping this menu icon begins a connection to a sending device. If no connection is made, the program waits for a tap on the "Cancel" button.

Note: *The IR Port is specified as COM 3 and as COM 6 (depending on the type of IrDA communication) and is a bi-directional half-duplex infrared port. To use COM 3 for Raw IR communication, select **Start | Settings | Connections | Beam** and uncheck "Receive all incoming beams ...". This action disables IrDA protocol.*

Internet Explorer

Access: **Start | Programs | Internet Explorer**

This option requires an active wireless connection and an Internet Service Provider. There are few changes in the Pocket PC version of Internet Explorer as it relates to the general desktop Windows PC Internet Explorer options. Tap **Start | Help** for context-sensitive help..

Pocket Excel

Access: **Start | Programs | Pocket Excel**

There are few changes in the version of Pocket Excel as it relates to the general desktop PC Windows Microsoft Excel application. Tap **Start | Help** for context-sensitive help.

Pocket Word

Access: Start | Programs | Pocket Word

There are a few changes in the version of Microsoft Word as it relates to the general desktop Windows PC Microsoft Word options.

PocketWord documents are saved with a .PWD extension instead of .DOC extension although they can be saved as .RTF or .DOC files on the MX6.

Microsoft Word templates (.DOT files) are converted to Pocket Word templates (.PWT).

Tap **Start** | **Help** for context-sensitive help.

When ActiveSync transfers .PWD files to the desktop from the MX6, the file is converted to .DOC files by ActiveSync.

Terminal Services Client

Terminal Services Client is available for download from a Microsoft web site:

http://www.microsoft.com/windowsmobile/resources/downloads/pocketpc/tsc.mspx

Settings Options

Access: Start | Settings

The following options represent the factory default Pocket PC installation. Your system may be different based on the software and hardware options purchased.

Personal Tab

Help is always available at any stage – tap Start, tap Help and context-sensitive online help is displayed. Tap OK to close Help and return to the program or application.

Buttons

Access: Start | Settings | Personal tab | Buttons

Up/Down Control

Set Delay before the first repeat and the repeat rate for the screen up / down arrow keys.

Screen Up	Red plus Up Arrow key
Screen Down	Red plus Down Arrow key

Input

Access: Start | Settings | Personal tab | Input

Factory Default Settings	
Input Method	Keyboard
Keys	Small keys
Word Completion	Suggest
Add Space after	Yes
Voice Recording	8,000 Hz
Capitalize	Yes
Scroll	Yes

Use this option to select Character Recognition or the keypad (including the virtual keyboard) when entering data.

Menus

Access: Start | Settings | Personal tab | Menu

Factory Default Settings	
ActiveSync	Yes
Calendar	Yes
Contacts	Yes
Inbox	Yes
Internet Explorer	Yes
Notes	Yes
Tasks	Yes

Edit the default Start menu or create a new one.

Owner Information

Access: Start | Settings | Personal tab | Owner Information

Factory Default Settings	
Identification	Blank
Notes	Blank

There is no change from general desktop PC Owner Properties display. Enter the information and Tap the OK box to save the changes. The changes take effect immediately.

Password

Access: Start | Settings | Personal tab | Password

Factory Default Settings	
No password	Default
Prompt timer	1 hour

Simple 4 Digit Password   When selected, an online numeric only keypad is displayed. Create a numeric password and follow the instructions on the screen to save or discard the 4 digit password.

Strong alphanumeric Password   Enabling this option opens the soft input panel. Enter the password using the SIP or the keypad. Follow the instructions on the screen to create, save and/or discard an alphanumeric password.

Prompt timer   Select how long the MX6 must be in Suspend before the password must be entered to continue using the MX6.

Once a password is assigned, and the timer set in "Prompt if device unused for …" expires, when the MX6 wakes from Suspend the user will need to enter the password before using the MX6. If you forget the password, it cannot be restored without performing a cold boot on the unit (which erases all memory).

There is no change from general desktop PC Password Properties options. Enter the password, then type it again to confirm it and Tap the OK box to save the changes. The password is immediately in effect.

Sounds and Notifications

Access: Start | Settings | Personal tab | Sounds & Notifications.

Factory Default Settings	
Volume	
Events	Enabled
Programs	Enabled
Notifications	Enabled
Volume	Middle of Bar
Screen Tap	Loud
Hardware Buttons	Loud
Reminders	
Display Message	Enabled
Play Sound	Enabled
Flash	No limit

Make changes and tap OK. The changes take effect immediately. There is no change from general desktop PC Sounds and Notifications Properties options.

Today

Access: Start | Settings | Personal tab | Today

Checked items appearing on the Today screen:

- Date
- Today title bar
- Owner info
- Calendar
- Inbox
- Tasks

The Move Up, Move Down and Options.. buttons are greyed out for those items that cannot be edited.

Set the timer for displaying the Today screen when the device is idle. The default is 4 hours. Tap the OK button when finished. Changes take effect immediately.

Themes may or may not be loaded on your device.

System Tab

Help is always available at any stage – tap Start, tap Help and context-sensitive online help is displayed. Tap OK to close Help and return to the program or application.

About

Displays important device information. There are three tabs:

Version	Displays the Pocket PC version installed and the build number. Also the type of processor, memory installed, whether the expansion slot is in use and the current MX6 owner name.
Device ID	The default device name used to identify the MX6 to other computers is "Pocket_PC". The description is blank. You can make changes and tap the OK button. The changes take effect immediately.
Copyrights	This information may be changed when a newer version of Pocket PC is loaded.

Tap OK to close this menu option.

Backlight

Factory Default Settings	
Battery Power	
Dim Backlight	Enabled / 20 seconds
Turn off Backlight	Enabled / 1 minute
Turn on Backlight on button / key	Enabled
Backlight Intensity	Light
External Power	
Dim Backlight	Disabled
Turn off Backlight	Disabled
Turn on Backlight on button / key	Enabled
Backlight Intensity	Light

Using the backlight while on battery power substantially reduces battery power.

You can check the battery status by selecting **Start | Settings | System tab | Power**. On this screen, the timeout for *turning off the device if not used for* 3 minutes (default value) while on battery power, can be adjusted. The factory default setting for this parameter is Enabled.

Clock

Access: **Start | Settings | System tab | Clock**

Factory Default Settings	
Time	
Where	Home
Visiting Time Zone	GMT+1 Paris, Madrid
Home Time Zone	GMT-5 Eastern US
Time	Current
Date	Current
Alarms	
Four alarm settings	Disabled

CPU Speed

Access: **Start | Settings | System tab | CPU Speed**

The default CPU speed is 400 MHz.

You can select the desired CPU speed by selecting either Low Speed (200 MHz) or High Speed (400 MHz).

The CPU speed is immediately changed.

Note: Help is not available for this option.

802.11b WLAN Settings

Access: **Start | Settings | System tab | WLAN Settings**

Prerequisites for a new system setup:

- Network SSID number of the Access Point for the MX6

- WEP or LEAP Authentication Protocol Keys (LEAP requires Meetinghouse Software described later in this chapter.)

Status Tab

Access: **Start | Settings | System tab | WLAN Settings | Status tab**
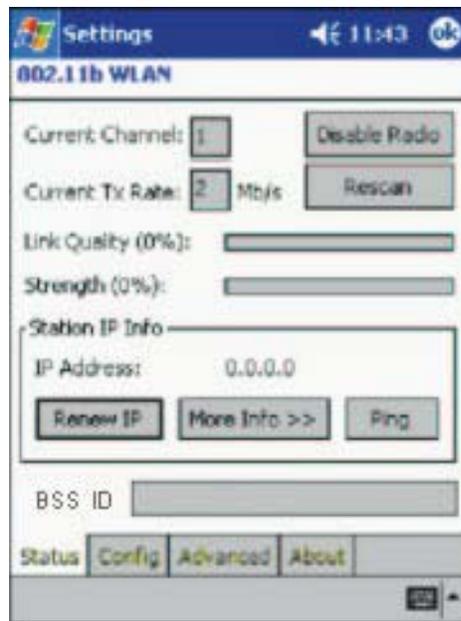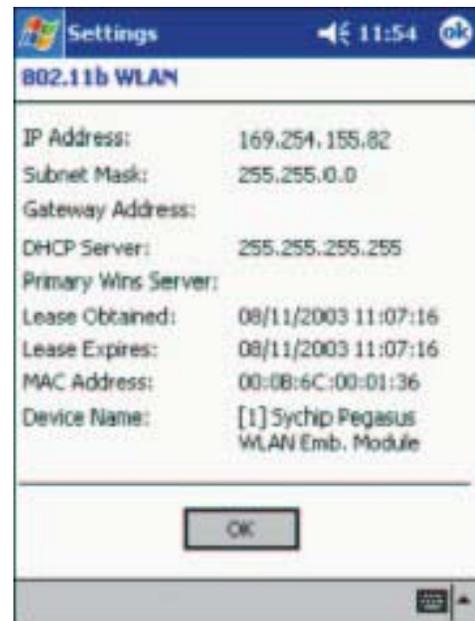
Status Screen   **More Info Screen**

Figure 4-1 WLAN Settings – Status Screen

Note: These parameters cannot be changed on the Status screen.

Disable Radio	Click this button to enable or disable the radio link from the 802.11 radio card. The radio is set to Enable by default.
Current Channel	Shows the current RF channel being used by the radio for this session.
Current TX Rate	This parameter displays the current transmit rate.
Link Quality	Displays signal to noise ratio in both percentage and graphical display. This value will fluctuate. The graphical display is refreshed every few seconds.

Strength	Displays signal strength of the receiver (radio) in both percentage and graphical display. This value will fluctuate. The graphical display is refreshed every few seconds.
Station IP Info	Displays the current IP address of the radio link to the network.
Renew IP	Click this button to reapply the IP address from the DHCP server when DHCP is enabled.
More Info >>>	Click this button to view detailed TCP/IP information as shown in the "More Info Screen" in the above figure.
Ping	Click this button to open the Ping Utility for WLAN.
BSS ID	Shows the network name and the MAC address of the access point the radio card is associated with in the AP mode. This value cannot be changed by the user.

Ping Utility

Figure 4-2 Ping Utility

IP Address	Displays the current IP Address of the device that will be pinged. The user can change the IP Address text to ping a different IP address or device.
Ping	Click this button to ping the IP address entered in the IP Address field.
Size (Bytes)	Displays the current byte size: 32 is the default. The user can select up to 8192 from the drop down box.
Timeout (ms)	Displays the current timeout in milliseconds: 500 is the default. The user can increase or decrease the timeout value by tapping the spin buttons.
Routing Table	Click this button to view the contents of the routing table in ASCII format.
Ping Statistics field:	Shows the pinging IP address and the pinging results.
Clear	Click this button to clear IP Address input and the ping statistics field.

Config Tab

Access: Start | Settings | System tab | WLAN Settings | Config tab

Note: See the following section titled "Creating and Modifying Profiles" for instruction.
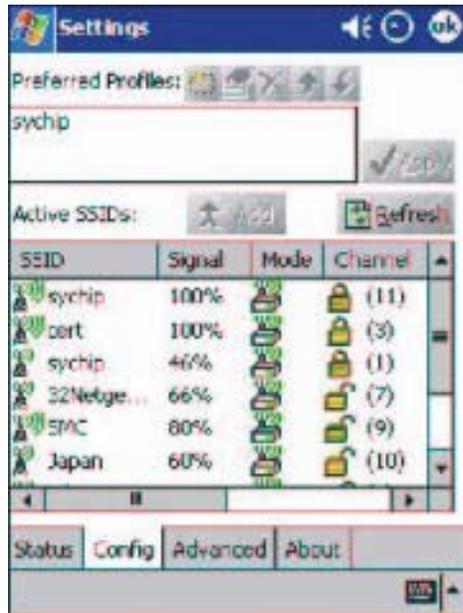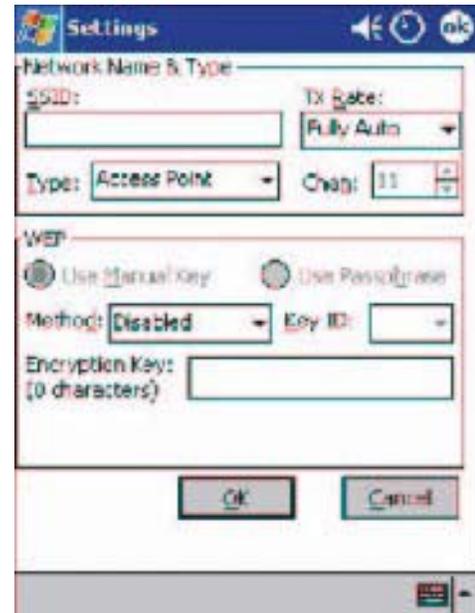
Config Screen   **Create a Profile Screen**

Figure 4-3 WLAN Settings – Config Screen

The Config tab provides a list of all access points and peer stations in range of the MX6 radio. This configuration tool is used to create and edit SSID profiles for access points that the user wants their station to associate with.

Preferred Profiles

A list of preferred profiles for access points (AP) in the network created by the user, or added from the Active SSIDs table is located at the top of the Config window.

When the radio is turned on, it searches for the APs with which to associate in the order of the listed profiles. For each profile in the table, the user can make changes by using the icon tools at the top of the table. Tap an icon (New, Edit, Delete, Up, Down) to create a new profile, edit an existing profile, delete a profile and move the profiles in the Active SSID listing up and down to adjust the automatic association priority for each profile.

Note: This table is blank after an initial MX6 software installation. It can be kept blank with no automatic association preference.

Active SSIDs

The Active SSIDs table lists all access points or peer stations (creator of IBSS) in the vicinity of the host. It displays only those SSIDs that accept broadcast associations. Each record displays information for the following six fields (The table may not display all the fields on the screen. Use the horizontal scroll bar to check all the fields.).

SSID	Network Name of the access point or peer station. A link icon with signal strength is also shown.
Signal	Strength in percentage for that SSID.
Mode	An icon shows whether it is an access point, or a peer station.
Channel	The channel it uses and the WEP method it applies if any. The icon stands for WEP Key-On, and for WEP Key-Off.
SupRate	Supported data rate of the access point or the peer station.
BSSID	BSSID or MAC Address of the access point or the peer station.

Operation Buttons

Apply   Click the Apply button to associate a station with the selected SSID. This SSID can be either from the Preferred Profile table or from the Active SSID's list.

When applied, the Status tab window displays the status of the wireless connection. If the association failed, a search for another AP in the Preferred Profile list automatically takes place and the radio attempts to associate with the station, in order of preference.

Refresh   Click the Refresh button to start a new search for all available access points or peer stations in the vicinity.

Add   Add an Active SSID profile to the Preferred Profile table.

1. Select and highlight an SSID in the Active SSID list.

2. Click Add. If the SSID has WEP Key-On, the Settings window displays and prompts the user to enter the WEP Method, Encryption Key, and Key ID.

3. Click OK in the Settings window after finishing the configuration. The SSID and its profile are added into the Preferred Profiles window.

If adding an SSID with WEP Key Off, the Settings window does not display and the SSID is added directly to the Preferred Profile table when the Add button is clicked.

Note: See the following section titled "Creating and Modifying Profiles" for instruction.

Advanced Tab

The default values are:

Power Save Mode	Always Enable
Preamble Mode	Auto TX Preamble
Authentic Algorithm	Automatic based on WEP setting.
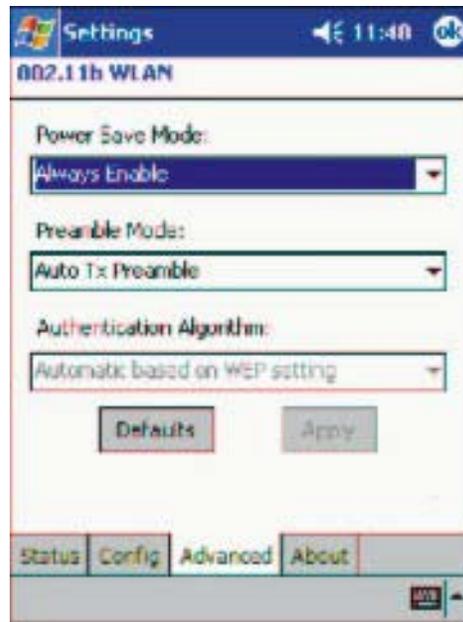
Figure 4-4 WLAN Settings – Advanced Screen

Power Save Mode

Disable	Choosing this option will disable the power save mode.
Always Enable	Choosing this option will have the power save mode always enabled. This is the default setting.
Auto Enable	When internal battery is being used it will be in Power Save mode; when external power supply is being used the Power Save mode will be disabled automatically.

Preamble Mode

A preamble consists of a Synchronization (Sync) field and a 16-bit Start Frame Delimiter (SFD) field.

There are three options for this parameter. The default parameter is Auto Tx Preamble.

Long Tx Preamble	Sync field consists of 128 bits.
Short Tx Preamble	Sync field consists of 56 bits.
Auto Tx Preamble	Automatically changes between long and short preamble mode transmission based on the access point configuration.

Authentication Algorithm

> *Note:*   *Only configurable when the WEP Key is enabled for the SSID profile. See the following section titled "Creating and Modifying Profiles" for WEP key instruction.*

WECA Compliant (always use Open)   Not available in this release.

Must use Shared with WEP   AP must use WEP method.

Automatic based on WEP setting   Default setting.

Operation Buttons

Defaults   Returns all the settings to default values.

Apply   Applies the change to the new card setting.

About Tab

Access: Start | Settings | System tab | WLAN Settings | About tab

This menu option displays the Version Number and time of build for the Network Driver, Configuration Utility, and NIC Firmware. The information on this screen cannot be changed by the user.
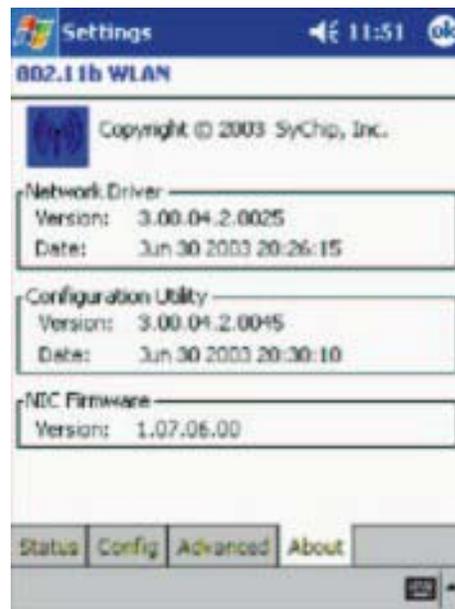
Figure 4-5 WLAN Settings – About Screen

Creating and Modifying Profiles

Access: **Start | Settings | System tab | WLAN Settings | Config tab**

Prerequisites:

- Network SSID number of the Access Point for the MX6

- WEP or LEAP Authentication Protocol Keys (LEAP requires Meetinghouse software described later in this chapter.)

Check with your network administrator for the security WEP Key and the Key ID you need to use.

	New. Create a profile.
	Edit. Modify a profile.
	Delete. Delete a selected profile.
	Move the highlighted profile up to increase the automatic association priority.
	Move the highlighted profile down to decrease the automatic association priority.

Create a New Profile

Click the New icon. The following screen is displayed:

Figure 4-6 Add / Edit Network Profiles Display

Enter the values for the new profile .

Click Cancel to ignore all changes made on this screen. Click OK to make the changes, close this screen and save the changes.

Modify an Existing Profile

When you need to modify an existing profile, select the profile to be modified from the Preferred Profiles List on the Config tab screen. Click the Edit button.

Note: The SSID, Type, TX Rate, and Channel fields are unchangeable in AP mode, whereas TX Rate and Channel fields can be changed in Peer-to-Peer mode.

Network Name and Type

SSID	Enter an SSID, which is the Network Name. Check with your network administrator for Network Name (SSID).
Type	Choose from Peer-to-Peer or Access Point in the pull down menu. Access Point mode is also called "Infrastructure" mode. Peer-to-Peer mode is used for communication between two (or more) radios (cards) without an access point.
TX Rate	Choose 1Mb, 2 Mb, Auto 1/2 Mb, 5.5 Mb, 11 Mb, or Fully Auto from the menu. The transmit rate is Fully Automatic by default.
Chan	Channel. Scroll to select a channel for communication.

WEP

Configure the WEP Key for secure wireless communication.

Use Manual Key	Manually input the encryption code for the WEP Key. This is the default setting.
Use Passphrase	Generates an encryption code based on the phrase entered in the window. Not available in this release.
Method	Select one of the five options from the pull down list: Disabled — WEP Key Off 64 bit (HEX) — up to 10 characters configurable in Hexadecimal for Encryption Key 64 bit (ASCII) — up to 5 characters configurable in ASCII for Encryption Key 128 bit (HEX) — up to 26 characters configurable in Hexadecimal for Encryption Key 128 bit (ASCII) — up to 13 characters configurable in ASCII for Encryption Key *Note: HEX, Hexadecimal number set of 16 digits from 0-9 and from A(a)-F(f). ASCII: Any printable ASCII character.*
Encryption Key	Different character set depending on different WEP method and key format.
Key ID	Choose from the available options: Key 1 (Default) Key 2 Key 3 Key 4

Click OK to make the changes, close this screen and save the changes. Click Cancel to ignore all changes made on this screen.

Deleting a Profile

Access: **Start | Settings | System tab | WLAN Settings | Config tab | Delete icon**

Profiles may be deleted either from the Preferred List or from the Preferred List and Registry. To delete a profile, select (highlight) a profile and click the Delete button and the following screen displays:

Figure 4-7 Delete a Profile

From the pop-up window select the option of your choice and click Yes to confirm or No to cancel.

Wireless Status Icon in Toolbar

Access this configuration utility by tapping and holding the stylus on the Status icon in the toolbar. The following menu displays:

Wireless Radio On Wireless Radio Off
Remove Status Icon . . .
Wireless Network Status . . . Configuration . . . Advanced Configuration . . . Version Information . . .

Figure 4-8 WLAN Status Icon

The four menu entries at the bottom correspond to the four configuration settings tabs: the Status, Config, Advanced, and About respectively. This side menu provides a shortcut to the configuration settings.

Wireless Radio On	Turns on the radio. LED is on and the Link Icon displays with signal strength.
Wireless Radio Off	Turns off the radio. A pop-up window will ask for your confirmation. If confirmed, the LED will be off and the Link Icon will change color from green to red on the top without signal strength displayed. The WLAN card/module will stop functioning.
Remove Status Icon	Removes the Status Icon from the Windows Status Tray. A pop-up window will ask for your confirmation. If confirmed, the Status Icon will not display in the Windows Status Tray. By checking "Remove Status Icon Permanently" at the bottom of the window you will not see the Status Icon even after your system has been restarted. Otherwise it will re-appear next time you turn on the system.
Wireless Network Status	Opens the Status tab of the configuration utility. If the Status Icon changes to a crossed lock , it warns you that you may have entered a wrong key (WEP Key mismatch) for the WEP-On AP or a station.

Note: You can also go to Start | Programs | WLAN Settings.

Meetinghouse AEGIS Client

Access: Start | Programs | Meetinghouse AEGIS Client icon

Note: When the Client is running, tap the Meetinghouse icon in the toolbar to make changes.

Use this menu option to set LEAP parameters for the 802.11 radio connection.

There are three menu options in the toolbar: Client, View and Help.

Select **Client | Configure** to make changes to the client configuration.

When configuration changes have been made, a message "Please restart client in order for configuration changes to take effect" is displayed on the screen. Click OK to restart the client.

Getting Started

The AEGIS client is initially started from the start menu. Initially it will open on the Main screen. When closed, the client runs in the background and it's icon is present in the system tray. The color of the icon indicates the state of the client authentication.

To use the client, a port must be configured and enabled. A protocol must be configured and started. These are separate operations. Please see your network system administrator to obtain the information necessary to configure the AEGIS client in order to provide network access.

Main Screen

The Client's Main screen contains a list of controlled ports (NICs). The colored port icon on the left indicates the authentication state.

The Main screen contains menu bar buttons or tabs labeled Client, View,and Help. Selecting each button will bring up a small menu. The Client button controls the run state and access to protocol configuration. View controls the appearance of the main screen and access to the event log. Help allows access to the registration dialog, help, and version information.

Selecting the port(interface) brings up a menu which allows the port to be controlled and configured. The port can be enabled or disabled, and must be enabled to work. Port configuration is covered in **Port Configuration.** Delete removes a port from the list.

Client Button Menu

Close	Close the Client interface.
Start/Stop	Start or Stop the configured authentication protocol on the selected port.
Restart	Same as stop, then start.
Configure	Brings up the Protocol Configuration Dialog, which contains the identity and protocol values which apply to all the adapters used by the authentication engine.
Install Protocol	Bind the 802.1X protocol to any port (adapter) currently active.
Exit	Exit the Client and terminates the authentication engine.

Protocol Configuration

User tab

Allowsprotocol selection and setting user credentials.

Identity	The device ID supplied to the authenticator. It can be up to 63 characters long and is case sensitive.	
Authentication	Select the protocol to be used from the drop down box: MD5-Challenge, TLS/Smart Card, LEAP, TTLS, PEAP.	
Password	The password for MD5, Phase 1 TTLS, PEAP and LEAP.	
Certificate	Use certificate	When checked, it enables the use of the optional user certificates in TTLS and PEAP. Default is unchecked.
	Change button	Press to bring up certificate change dialog.
	Display field	Shows the familiar name of the certificate selected in the certification dialog.
Tunneled authentication	Identity	Identity for TTLS and PEAP phase 2. Default is Not Used.
	Password	Password for TTLS and PEAP phase 2.
	Protocol	Protocol to be used in the secure tunnel, selected from the drop down box.

System tab

Contains parameters to set system level fields.

Log Level	The level of detail in the log messages. Errors has the least detail, debugging the most. Default is "Information". The log file "log8021X.TXT" is written to the Windows directory by default.
	Clicking "View" on the AEGIS Client – Running screen opens a menu where selecting "Event Log" opens the log file for viewing.
Port Manager Timeout	The time for the radio to wait without activity before entering an inactive state which will require a restart of the connection. Default is 10 seconds.
	When the Port Manager timeout has expired, a message is displayed on the screen. Click OK to restart.

Server tab

Information used to verify a server certificate in TOS, TTLS or PEAP. The default is "Not Used".

Use the parameters on this screen when debugging or assigning server certificates.

Do not validate server certificate chain	If enabled, the server certificate will not be validated. For debugging only.
Certificate issuer must be	Select the CA which signed the server certificate, or "Any Trusted CA".
Allow intermediate certificates	Allow unspecified certificates to be in the server certificate chain between the server certificate and the specified "Certificate issuer".

Server name must be	The server name, or a domain to which the server belongs, depending on which of the two fields below has been checked. This will be compared to the server certificate's Subject: CN field.
Server name must match exactly	When selected, the server name entered must match exactly the server name found on the certificate.
Domain name must end in specified name	When selected, the server name field identifies a domain and the certificate must have a server name belonging to this domain or to one of its sub-domains

Port Configuration

The main menu contains the list of ports. Click a port to enable, disable, configure the parameters or delete the port.

The parameters apply to all ports.

Configure

The Port Settings Dialog is displayed.

Protocol Options

Authentication Timeout	The period the radio will wait to receive a response from the access point. The default is 30 seconds.
Held timeout	The length of time the client will remain in the held state after failing authentication. The default is 60 seconds.
Start timeout	The period of time the client will remain in the connecting state before restarting from lack of response. The default is 30 seconds.
Number of start attempts	Before the client gives up. It defaults to the authenticated state although there is no network connectivity. The default is 3 tries.

Interface Options

Display EAP Notifications	Enabled. This option allows informational messages from the access point to be displayed on the screen.
Renew IP Address	Enabled. DHCP is used to obtain an IP address immediately after authentication.

Status Displays

Authentication status is indicated by the color of the tray and port icons.

Yellow	Authentication has started.
Green	Success.
Orange	Associated but no response to radio packets.
Red	Failure.
Blue	No radio activity.
Gray	Port is disabled.

Logging

The log is an ASCII text file named LOG8021X.TXT in the Windows directory. Selecting View and then Log will open the log in the system text editor. The detail recorded in the log is set from the System Settings dialog. Severity of each entry is indicated by the number of asterisks preceeding the message:

- 1 = debugging
- 2 = information
- 3 = warning
- 4 = error

Registration

The Registration dialog is reached from the Main screen by selecting Help | Register. If a client is not registered, it will typically expire in 2 weeks after which time it will not authenticate. After Registration, the Client will again authenticate, and has an unlimited lifetime. This dialog is not available if the client has been registered. There are two fields:

License ID	A case sensitive field which contains a unique ID. Generally the "Personal License ID" presented in the text of the Register dialog is entered into this field.
License Key	A case sensitive field obtained by registering the client.

When both fields contain proper values, selecting "OK" completes the licensing process.

Memory

Access: Start | Settings | System tab | Memory

Tap **Start** | **Help** at any time for context-sensitive help.

Factory Default Settings	
Main	
Total main memory	61.77 MB
Storage setting	25% of available memory
Program setting	75% of available memory
Storage Card	
Total Memory	14.40 MB / IPSM directory
Running Program List	
File Explorer	Enabled

If a program becomes unstable or stops running, use the Running Program List to highlight the program name, the select Activate, Stop or Stop All programs.

Tap OK to close the menu.

Power

Access: Start | Settings | System tab | Power

Use this screen to determine the strength of the Main Battery and the backup battery as well as setting the time delay for turning the device off if it is not being used.

Tap **Start** | **Help** at any time for context-sensitive help.

Factory Default Settings	
Battery Power	
Turn off device if not used for	Enabled / 3 minutes
External Power	
Turn off device if not used for	Disabled / 5 minutes

Radio Manager

Access: Start | Settings | System tab | Radio Manager

Use this screen to determine the status of Radio Modes or select a mode and tap the Apply button on the screen. Tap OK when changes have been made or to close the window with no changes made.

Context sensitive Help is not available for this option.

Regional Settings

Access: Start | Settings | System tab | Regional Settings

No change from general desktop PC Regional Settings Properties options. Adjust the settings and tap the OK box to save the changes. The changes take effect immediately.

Factory Default Settings	
Regional Setting	English (United States)
Number	123,456,789.00 / -123,456,789.00 neg
Currency	$123,456,789.00 pos / ($123,456,789.00) neg
Time	h:mm:ss tt (tt=AM or PM)
Date	M/d/yy short / dddd,MMMM,dd,yyyy long

Remove Programs

Access: Start | Settings | System tab | Remove Programs

Tap the name of the program in storage memory, then tap Remove. Tap OK to close this option. Changes take place immediately.

User installed device drivers, when removed, require a cold boot to completely remove the program.

You can also adjust memory allocated for programs by tapping the "Adjust memory allocation" link at the bottom of the screen.

Screen

Access: Start | Settings | System tab | Screen

The screen can be aligned at any time. To start, tap the "Align Screen" button with the stylus.

Follow the instructions on the screen and press the Enter key (or tap the OK icon) to save the new calibration settings. You can also press the Esc key sequence to cancel or quit.

Select "Enable ClearType" to smooth the edges of screen fonts displayed.

Select "Adjust input options … " link to improve speed and accuracy when using the stylus.

Connections Tab

Help is always available at any stage – tap Start, tap Help and context-sensitive online help is displayed. Tap OK to close Help and return to the program or application.

AvantGo Connect

Access: **Start | Settings | Connections tab | AvantGo Connect**

Factory Default Settings	
Server AvantGo.com (sync.avantgo.com:80)	
Hostname	Sync.avantgo.com
Port	80
Username	Blank
Password	Blank
Connection Options	
Connect to this server	Enabled
Refresh all content at next sync	Enabled
Connect securely	Disabled

Use this option to assign server settings and synchronize with all servers using AvantGo. Tap OK to close this menu option. Any changes made are in effect immediately.

Beam

Access: **Start | Settings | Connections tab | Beam**

Factory Default Settings	
Receiving All	Enabled

If the option to "Receive all incoming beams and select discoverable mode" is checked, the MX6 will automatically receive all incoming InfraRed transmissions. InfraRed Receive must be enabled on the receiving device, if sending IR from the MX6 to another device.

To send a file using IR, first locate the file you want to send. Tap and hold the file, then tap Beam Item on the pop-up menu. Individual files can be sent, but not folders.

Items are automatically received through IR as soon as the IR ports (and comm settings) match up.

See the section titled "Infrared Receive" for more information.

Connections

Access: **Start | Settings | Connections tab | Connections tab**

Factory Default Settings	
Automatically Connect to Internet	
Internet Settings	Default (Persistent)
Automatically Connect to Work	
Internet Settings	Default (Persistent)
My Network Card Connects to	
Work	Default (Persistent)

Tap OK to close this menu option. Any changes made are in effect immediately.

Dialing Locations

Access: **Start | Settings | Connections tab | Dialing Locations tab**

Factory Default Settings	
Location	Work
Local Settings	
Area Code	425
Country code	1
Dialing Patterns	
Local calls	9,G
Long distance	9,1FG
International	9,011,EFG

Tap OK to close this menu option. Any changes made are in effect immediately.

Network Adapters

Access: Start | Settings | Connections tab | Network Adapters.

Tap an adapter to view or change the properties.

Factory Default Settings	
NE2000 Compatible Ethernet Driver	
Properties button	
Use server-assigned IP address	Enabled
Use specific IP address	Disabled

Tap the OK button to close this menu option. Any changes made are in effect immediately.

Tap the Properties button.

Access: Start | Settings | Connections tab | Network Adapters | Properties

Factory Default Settings	
IP Address	
Use server-assigned IP address	Default
Use specific IP address	
IP Address	Blank
Subnet Mask	Blank
Default Gateway	Blank
Name Servers	
DNS	Blank
Alt DNS	Blank
WINS	Blank
Alt WINS	Blank

Tap OK to close this menu option. Any changes made are in effect the next time the adapter is used.

Find

Access: **Start | Find**

There are few changes in the Pocket PC version of the Windows Find program as it relates to the general desktop PC Windows Find function. Tap **Start | Help** to access context-specific help.

Help

Access: **Start | Help**

There are few changes in the Pocket PC version of the Windows Help program as it relates to the general desktop PC Windows Help program. Tap OK to close Help.

Appendix A Key Maps

35-Key Numeric-Alpha Keypad

Use the soft keypad to enter characters that are not available using the 35-key keypad.

To Get This Key / Function	Press These Keys and Then …						Press This Key
	Blue	**Red**	**Ctrl**	**Alpha**	**Sft**	**Caps Lock**	
Power / Suspend							Power
Windows Start Menu	x						Bksp
Keypad Backlight Toggle							Backlight
Blue Mode							Blue
Red Mode							Red
Shift							Sft
Alt							Alt
Ctrl							Ctrl
Scan							Scan
Esc							Esc
Space							Space
Enter							Ent
CapsLock (Toggle)		x			x		*OR* double-tap the Sft key
Back Space							Bksp
Tab							Tab
BackTab							N/A
Break							N/A
Pause							N/A
Up Arrow							Up Arrow
Down Arrow							Down Arrow
Right Arrow							Right Arrow
Left Arrow							Left Arrow
Insert							N/A
Delete							Del
Home							N/A
Page Up		x					Up Arrow

To Get This Key / Function	Press These Keys and Then …						Press This Key
	Blue	Red	Ctrl	Alpha	Sft	Caps Lock	
Page Down		x					Down Arrow
F1							F1
F2							F2
F3							F3
F4							F4
F5							F5
F6							F6
a				x			2
b				x			2,2
c				x			2,2,2
d				x			3
e				x			3,3
f				x			3,3,3
g				x			4
h				x			4,4
i				x			4,4,4
j				x			5
k				x			5,5
l				x			5,5,5
m				x			6
n				x			6,6
o				x			6,6,6
p				x			7
q				x			7,7
r				x			7,7,7
s				x			7,7,7,7
t				x			8
u				x			8,8
v				x			8,8,8
w				x			9
x				x			9,9
y				x			9,9,9
z				x			9,9,9,9

To Get This Key / Function	Press These Keys and Then …						Press This Key
	Blue	**Red**	**Ctrl**	**Alpha**	**Sft**	**Caps Lock**	
A					x ²	x	2
B					x	x	2,2
C					x	x	2,2,2
D					x	x	3
E					x	x	3,3
F					x	x	3,3,3
G					x	x	4
H					x	x	4,4
I					x	x	4,4,4
J					x	x	5
K					x	x	5,5
L					x	x	5,5,5
M					x	x	6
N					x	x	6,6
O					x	x	6,6,6
P					x	x	7
Q					x	x	7,7
R					x	x	7,7,7
S					x	x	7,7,7,7
T					x	x	8
U					x	x	8,8
V					x	x	8,8,8
W					x	x	9
X					x	x	9,9
Y					x	x	9,9,9
Z					x	x	9,9,9,9
1							1
2							2
3							3
4							4
5							5
6							6
7							7

---

² Either press SFT or activate CapsLock when capital letters are needed.

To Get This Key / Function	Press These Keys and Then …						Press This Key
	Blue	**Red**	**Ctrl**	**Alpha**	**Sft**	**Caps Lock**	
8							8
9							9
0							0
<							Use Soft Keypad
[							Use Soft Keypad
]							Use Soft Keypad
>							Use Soft Keypad
=							Use Soft Keypad
{							Use Soft Keypad
}							Use Soft Keypad
/	x						F3
-	x						Del
+	x						Space
: (colon)	x						F2
; (semicolon)	x						F1
. (period)							Use Soft Keypad
?							Use Soft Keypad
`							Use Soft Keypad
_ (underscore)	x						F5
, (comma)							Use Soft Keypad
' (apostrophe)							Use Soft Keypad
~ (tilde)							Use Soft Keypad
\	x						F4
|							Use Soft Keypad
"							Use Soft Keypad
!						x	1
@						x	2 or Blue+F6
#						x	3
$						x	4
%						x	5
^						x	6
&						x	7
*						x	8
(							Use Soft Keypad

To Get This Key / Function	Press These Keys and Then …						Press This Key
	Blue	Red	Ctrl	Alpha	Sft	Caps Lock	
)							Use Soft Keypad

Inactive Keys on the 35-key Keypad

Contrast Up	◑+
Contrast Down	◑−
Volume Up	VOL+
Volume Down	VOL−
Send and End	

56-Key Full Alpha Numeric Keypad

Use the soft keypad to enter characters that are not available using the 56-key keypad. Keypress Sequences for Batch Units

To Get This Key / Function	Press These Keys and Then …						Press This Key
	Blue	Red	Ctrl	Alt	Shift	Caps Lock	
Power / Suspend							Power
Windows Start Menu	x						U
Keypad Backlight (Toggle)							Backlight
Blue Mode							Blue
Red Mode							Red
CapsLock (Toggle)		x					Sft
Shift							Sft
Alt							Alt
Ctrl							Ctrl
Scan							Scan
Esc							Esc
Space							Sp
Enter							Ent
Back Space							Bksp
Tab							Tab
BackTab							N/A
Break							N/A
Pause							N/A
Print Screen							N/A
Scroll Lock							N/A
Up Arrow							Up Arrow
Down Arrow							Down Arrow
Right Arrow							Right Arrow
Left Arrow							Left Arrow
Insert							Ins
Delete							Del
Home							N/A
Page Up		x					Up Arrow
Page Down		x					Down Arrow
F1		x					A

To Get This Key / Function	Press These Keys and Then …						Press This Key
	Blue	Red	Ctrl	Alt	Shift	Caps Lock	
F2		x					B
F3		x					C
F4		x					D
F5		x					E
F6		x					F
F7		x					G
F8		x					H
F9		x					I
F10		x					J
F11		x					K
F12		x					L
F13		x					M
F14		x					N
F15		x					O
F16		x					P
F17		x					Q
F18		x					R
F19		x					S
F20		x					T
F21		x					U
F22		x					V
F23		x					W
F24		x					X
a							A
b							B
c							C
d							D
e							E
f							F
g							G
h							H
i							I
j							J
k							K

To Get This Key / Function	Press These Keys and Then …						Press This Key
	Blue	Red	Ctrl	Alt	Shift	Caps Lock	
l							L
m							M
n							N
o							O
p							P
q							Q
r							R
s							S
t							T
u							U
v							V
w							W
x							X
y							Y
z [3]		x			x		Y
A					x		A
B					x		B
C					x		C
D					x		D
E					x		E
F					x		F
G					x		G
H					x		H
I					x		I
J					x		J
K					x		K
L					x		L
M					x		M
N					x		N
O					x		O
P					x		P
Q					x		Q
R					x		R

---

[3] Press Sft, then Red, then "y"

To Get This Key / Function	Press These Keys and Then …						Press This Key
	Blue	Red	Ctrl	Alt	Shift	Caps Lock	
S					x		S
T					x		T
U					x		U
V					x		V
W					x		W
X					x		X
Y					x		Y
Z [4]		x					Y
1							1
2							2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
0							0
. (DOT)							DOT
<							Use Soft Keypad
[							Use Soft Keypad
]							Use Soft Keypad
>							Use Soft Keypad
=							Use Soft Keypad
{							Use Soft Keypad
}							Use Soft Keypad
/							Use Soft Keypad
-	x						, (comma)
+	x						. (DOT)
*					x		8
: (colon)	x						F
; (semicolon)	x						A
. (period)							. (DOT)

---

[4] Caps Lock must be On.

To Get This Key / Function	Press These Keys and Then …						Press This Key
	Blue	Red	Ctrl	Alt	Shift	Caps Lock	
?							Use Soft Keypad
`							Use Soft Keypad
_ (underscore)	x						E
, (comma)							Comma key
' (apostrophe)							Alt+39 [5]
~ (tilde)							Use Soft Keypad
\							Use Soft Keypad
|							Use Soft Keypad
"							Alt+34 [6]
!					x		1
@	x						B or Sft + 2
#					x		3
$					x		4
%					x		5
^					x		6
&					x		7
(					x		9
)					x		0

---

[5] Hold down the Alt key while typing 39
[6] Hold down the Alt key while typing 34

Appendix B Technical Specifications

Physical Specifications

Features		Specifications	Comments	
CPU		Intel Xscale PXA255 Processor	400 MHz	
Memory	ROM	32 MB Flash	Non-Volatile	
	RAM	64 MB of SDRAM	System Memory	
Display	LCD	TFT Color or Monochrome	Transflective LCD with touchscreen. Customer Configurable Backlighting	
Mass Storage		Secure Digital memory slot	Optional – 64m, 128m, 256m SD cards	
WLAN Interface			IEEE 802.11b DSSS WLAN radio WiFi Compliant	
Weights		Unit with WLAN radio, battery and scanner endcap	20.2 oz	573 g
		Batch Unit	19.7 oz	558 g
External Connectors/Interface		IrDA Connector (COM 3 / COM 6) bi-directional half-duplex	Supports 115k baud	
		USB and Serial	17-pin COM 1 USB communication at 12Mbps RS-232 speed 115kbps Power out at 500mA at 5V	
Audio/Microphone Connector			Audio Jack	
Dimensions		Length	9.6"	24.53 cm
		Width	3.4"	8.76 cm
		Depth	1.6"	4.29 cm
Imager		Proprietary scan engine/algorithm	1D and 2D barcodes	
Batteries	Main	Li-Ion battery pack 7.4V 14.8Ah	In-Unit Chargeable or Externally Chargeable	
	Backup (CMOS)	Lithium (Li) 5.7V max.	Automatically charges from Main Battery during normal operation Memory operational for 48 hours when Main Battery is depleted	

Display Specifications

Type	Color TFT or Monochrome LCD
Resolution	320 x 240 pixels
Size	1/4 VGA portrait
Diagonal Viewing Area	3.8 in (150.4mm)
Dot Pitch	0.22mm
Dot Size	0.20mm x 0.20mm
Color Scale	Reflective – 256 colors

Environmental Specifications

MX6

Operating Temperature	14°F to 122°F (-10°C to 55°C)
Storage Temperature	-22°F to 176°F (-30°C to 80°C)
Water and Dust	IP64
Operating Humidity	Up to 90% non-condensing at 104°F (40°C)
Approvals / Standards	See "MX6 User's Guide", Appendix B.
Contamination	Resistant to exposure to skin oil and other lubricants.
Vibration	Based on MIL Std 810D
ESD	15kV direct contact
Shock	Multiple 1.5m (5') drops to concrete.

AC Wall Adapter

Input Power Switch	None
Power "ON" Indicator	LED
Input Fusing	Thermal Fuse
Input Voltage	100VAC min – 240 VAC max
Input Frequency	50 - 60 Hz
Input Connector	North American wall plug, no ground
Output Connector	26 position D serial interface
Output Voltage	+12VDC, unregulated
Output Current	0 Amps min, 3.75 A max
Operating Temperature	32° F to 104° F / 0° C to 40° C
Storage Temperature	-13° F to 158° F / -25° C to 70° C
Humidity	Operates in a relative humidity of 5 – 95% (non-condensing)

Appendix C MX6 Multicharger

Introduction

The Multicharger has four slots that fully charge a Main Battery in four hours. The charging slots work independently to control the charging of individual battery packs. Status LEDs at each charging slot indicate battery charge process.

The right-most slot can be used for charging or charging/analyzing a battery. The charge/analyze slot has a Status LED that indicates charge status and a Battery Capacity Indicator LED that indicates analyze status. The analyze slot begins the analyze process on the battery if the Analyze button is pressed once the battery has been seated in the slot.

The multicharger must be connected to an AC power source and the power switch turned on before charging/analyzing can occur.

The multicharger should be located in an area where it:

- Is not in high traffic areas.
- Has enough clearance to allow easy access to the power and ports on the back of the device.
- Is protected from rain, dust or inclement weather. This device is intended for indoor use only.

Using the Multicharger

> *Note:* *For best results, battery packs should be at room temperature before recharging them; temperature has a marked effect on charging. The recommended temperature range is 50° to 95° F (10 °to 35 °C).*
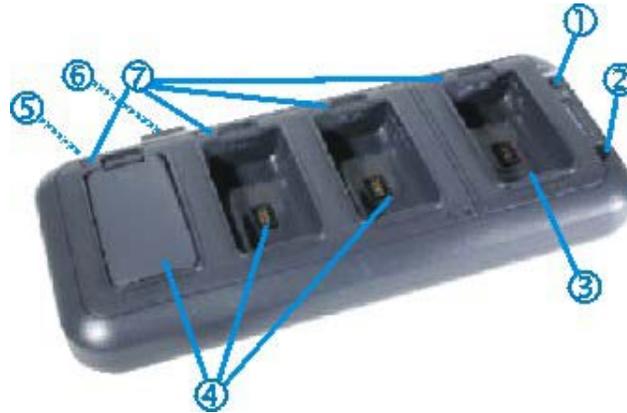
1   Battery Capacity Indicator LED - Analyze
2   Analyze Button
3   Charge/Analyze Slot
4   Charging Slots
5   AC Power Jack (not seen)
6   Power Switch (not seen)
7   Charge Status LEDs

- Push the barrel connector into the power jack at the back of the multicharger.

- Plug the three prong connector end of the AC power supply into an AC wall outlet.

- Toggle the Power switch to On.

- The green power LED illuminates and the charger performs a self-diagnostic test that lasts approximately 5 seconds.

The multicharger is ready for use.

Inserting/Removing a Battery Pack

Do not "slam" or drop the battery into the slot. Failure to follow this instruction can result in damage to the battery or the multichargercharger.

Place the end of the battery pack without the locking tab into the bottom of the charging slot and snap the battery into place with a hinging motion. The status LED for that slot illuminates orange when the battery has been properly inserted.

Remove the battery pack by pushing the locking tab down and then pulling the battery out of the slot with a hinging motion.

Charging

As soon as a battery pack is placed in any slot, charging begins and the Status LED illuminates.

Green Charge cycle completed and battery is ready for use.

Orange Charge cycle is progressing.

Red Battery or charge slot encountered an error during the recent charge cycle.

Analyzing

Note: *Because the multicharger is accumulating battery pack information during the entire Analyze cycle, it is important not to remove the battery until the cycle has been completed.*

Insert a battery into the right-most slot (the slot next to the Analyze button).

Press the Analyze button.

The Analyze cycle begins. Only the battery in the Charge/Analyze slot is analyzed.

In an Analyze cycle, batteries are completely discharged and then recharged to capacity. The indicator LEDs display just what that capacity is at the end of the cycle. The battery is completely reset and re-calibrated. Resetting and calibrating batteries on a regular basis can provide longer and more consistent performance from those batteries.

The length of time it takes for a battery to run through the complete Analyze cycle varies depends on initial state of the battery.

Minimum time is 8 hours, maximum time is 12 hours.

The Charge/Analyze slot also contains a Status LED in the upper, left corner of the slot. When this slot is used for regular charging, this LED operates in the usual manner.

Battery Capacity Indicator LEDs

The Battery Capacity Indicator LEDs are located along the right side of the Charge/Analyze slot. The LEDs illuminate after the completion of the Analyze cycle. Upon the completion of the final charge, the LEDs display the measured capacity of the battery. Battery capacity is displayed as a percentage of measured capacity/rated capacity. Each LED equates to 10% battery capacity.

Analyzer Slot Status LED

When this slot is being used to analyze a battery, the Status LED functions as follows:

Solid Green Has completed the Analyze cycle.

Flashing Orange Is being analyzed.

Solid Red Encountered an error during the Analyze cycle.

Technical Specifications

Operating Temperature	14°F to 122°F (-10°C to 50°C)
Storage Temperature	-4°F to 158°F (-20°C to 70°C)
Charging Temperature	32°F to 113°F (0°C to 45°C)
Weight	18 oz (510 g)
Dimensions	Length 11.7 in x Width 5.2 in x Height 1.5 in Length 29.7 cm x Width 13.2 cm x Height 3.8 cm
Capacity	1 to 4 battery packs
Power Supply Input	90-265V, 47-63Hz
Power Supply Output	12VDC, 3A
Input Connection	2 postion IEC 320-C8
Charging Mode: Standard	100% charge in 4 hours
Charging Mode: Analysis	Charges/discharges/resets/calibrates battery in 14 hours

Troubleshooting

Problem	Issue
The Charging LED does not come on when a battery pack is locked into a slot.	Check the AC power connection; make sure the power switch is ON and the battery pack is properly seated.
The red status LED comes on during charging.	Try to charge the battery in one of the other charging slots. If the red Status LED comes on again, then the problem is associated with the battery pack. If the red status stays with the charging slot, the problem is associated with the charging circuity.
The red status LED remains on without a battery in the charging slot.	An error occurred during the self-diagnostic test for that particular charging slot. Contact LXE Technical Services.

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