

Owner's Manual

# X-Pad

## Handheld Data Terminal



6802974C15-O





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EPS – 34440- B

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Limited Warranty

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Product Accessories	One (1) Year

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  - the damage or defect is caused by charging or using the battery in equipment or service other than the Product for which it is specified.
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- K. Normal and customary wear and tear.

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# Grant of Equipment Authorization

## FCC Grant of Equipment Authorization

FCC ID: AZ489FT7010

## Canada Grant of Equipment Authorization

IC: 109U-89FT7010

Radio	Network	Freq Band	Rated Power
Wi-Fi 802.11b	W-LAN	2412 - 2462MHz	16 mW
Bluetooth	W-PAN	2402 - 2480MHz	1 mW
GPRS	W-WAN	824.2 - 848.8 MHz / 1850.2 - 1909.8 MHz	0.631 / 0.809 W

EPS – 48759 – O

# FCC INTERFERENCE

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

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

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

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

## **Simultaneous Radio Transmission**

- The GSM and Bluetooth transmitters may work simultaneously.
- The WLAN and Bluetooth transmitters may work simultaneously.
- The GSM and WLAN transmitters may NOT work simultaneously.

For detailed product safety and RF exposure refer to Safety and General Information leaflet, Motorola publication Number 6802974C16.

**Caution:** Changes or modifications made in the radio terminal, not expressly approved by Motorola, will void the user's authority to operate the equipment.

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# Contents

COMPUTER SOFTWARE COPYRIGHTS .....	i
<i>Document Copyrights</i> .....	<i>i</i>
<i>Disclaimer</i> .....	<i>i</i>
<i>Commercial Warranty</i> .....	<i>ii</i>
FCC INTERFERENCE .....	<i>iv</i>
Introduction.....	1
What is the X-Pad Terminal.....	2
Unpacking .....	3
X-Pad Parts.....	4
Charging the Battery.....	6
<i>Battery Installation and Removal</i> .....	<i>6</i>
<i>The Universal Office Dock (UOD) Unit</i> .....	<i>7</i>
<i>First Time Battery Charge</i> .....	<i>8</i>
<i>Routine Battery Charge</i> .....	<i>9</i>
<i>Battery Maintenance</i> .....	<i>9</i>
<i>Battery Storage</i> .....	<i>9</i>
<i>Extending Battery Life</i> .....	<i>10</i>
Using the X-Pad .....	11
<i>Turning On the X-Pad</i> .....	<i>11</i>
<i>Turning Off the X-Pad</i> .....	<i>11</i>
<i>Suspend Mode</i> .....	<i>11</i>
<i>LED Indicator Function</i> .....	<i>11</i>
<i>Using the Stylus Pen</i> .....	<i>12</i>
<i>Using the Keyboard</i> .....	<i>13</i>
<i>Key Assignment</i> .....	<i>13</i>
<i>Action Keys</i> .....	<i>14</i>

<i>Scanning with the X-Pad</i> .....	14
<i>Capturing Images</i> .....	15
<i>Resetting the X-Pad</i> .....	16
Maintaining the X-Pad .....	17
Accessories .....	17
Troubleshooting .....	18
Safety Instructions .....	21
<i>X-Pad On-board Aircraft</i> .....	21
<i>Battery Disposal</i> .....	21
<i>To Prevent Injury Or Burns</i> .....	21
<i>Laser Safety</i> .....	21
<i>Battery Warnings and Disposal</i> .....	21
SPECIFICATIONS .....	23

## **Introduction**

Motorola congratulates you on your purchase of the X-Pad Handheld Data Terminal! Its unique functionality and features make this state-of-the-art rugged Personal Digital Assistant (PDA) superior for use in a wide range of applications.

This manual covers the basic setup operations and use of the X-Pad terminal. Since your X-Pad applications are designed by your company or organization, this manual does not cover any of the software applications resident in your X-Pad. For software applications description, refer to the specific application manual or contact your company or organization representative for instructions.

The X-Pad uses a Universal Office Dock (UOD) unit for power charge and wire communication. Note that this manual briefly mentions the UOD. For detailed installation and operation of the UOD, refer to UOD User Manual, Motorola P.N. 98-08901C59.

## **What is the X-Pad Terminal**

The X-Pad handheld data terminal is a rugged device, designed for field applications where fast data acquisition is required.

The X-Pad carries the functionality of a state-of-the-art Personal Digital Assistant (PDA) that enables portable access to mobile applications, such as mobile messaging, queries and Computer Aided Dispatch.

It contains a variety of options, including built-in CMOS imager for barcode labels and image capture, Bluetooth®, Wi-Fi® LAN (Local Area Network) and General Packet Radio Service (GPRS) wireless radios, all with internal antennas for increased ruggedization.

The 3.5" color touch screen with illumination enables easy access to various applications and signature capture in all light conditions. The IrDA port serves for data exchange between the X-Pad and data network using the Universal Office Dock (UOD) unit.

The PocketPC 2003®-based operating system supports multimedia and audio applications, using a built-in microphone, speaker and buzzer. A removable CompactFlash (accessed only by service) is used for memory expansion and operating system updates.

The X-Pad is powered by a 7.2V 1800 mAh Lithium-Ion battery pack that supports 12 hours of typical operation. The battery is fully recharged within three hours, using the UOD unit.

## Unpacking

The X-Pad package includes the following items:

- One X-Pad unit
- One 7.2V 1800 mAh Li-ion battery pack
- One Stylus pen
- This Owner's Manual
- EME Safety and General Information leaflet, Motorola P.N. 6802974C16

Carefully unpack each item from the shipping carton. Check all items for shipping damage, and check that you have received all items ordered. If there is damage or missing items, keep the shipping carton packaging for inspection.

**Note:** Retain the original carton packaging in the event that the X-Pad should need to be returned for service.

The battery is shipped from factory uncharged and not installed. Charge the battery fully for 24 hours before using the X-Pad for the first time (see "First Time Battery Charge" on page 8).

The X-Pad is shipped with a plastic film, protecting the screen. Before usage, remove the film and use a soft cloth to buff the display. This ensures smooth gliding of the Stylus pen over the surface.

# X-Pad Parts



Figure 1. X-Pad - Front View

Note that the gray and blue colors in picture are for illustration clarity purposes only and do not reflect the actual color of the unit.

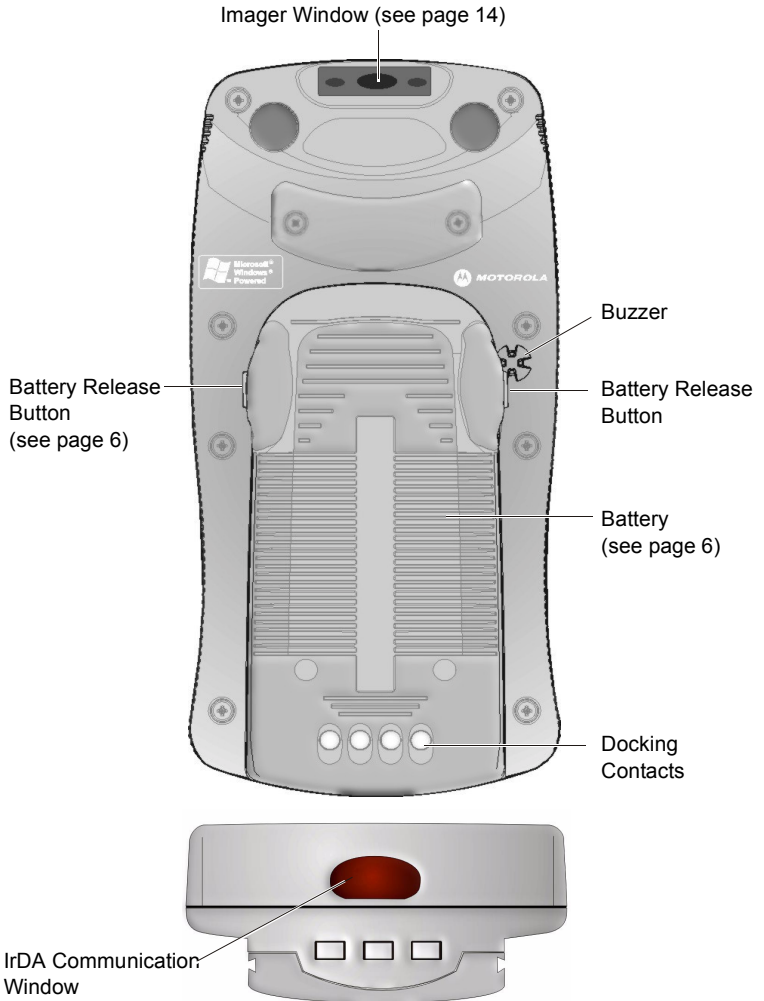


Figure 2. X-Pad - Back View

# Charging the Battery

The battery is shipped from the factory uncharged and not installed. Charge the battery before using the X-Pad for the first time.

## Battery Installation and Removal

**Important Note:** The X-Pad enables you to replace batteries without losing information stored in its memory. To avoid losing information stored in the memory, a charged battery must be installed within 4 hours after removing the empty battery.

**Do not remove battery while the LED indicator of the X-Pad shows red.**

### To install the battery:

1. Insert the battery, bottom end first, into the battery compartment (see Figure 3).
2. Carefully press the battery top downward until it clicks into place. When X-Pad is powered by battery installation for the first time, see note in “Turning On the X-Pad” on page 11.

### To remove the battery:

1. Turn the X-Pad off by holding the Power button pressed (see Figure 1), for at least four seconds.
2. Press the Release Buttons on the battery sides (see Figure 3) and pull away the battery from the X-Pad.

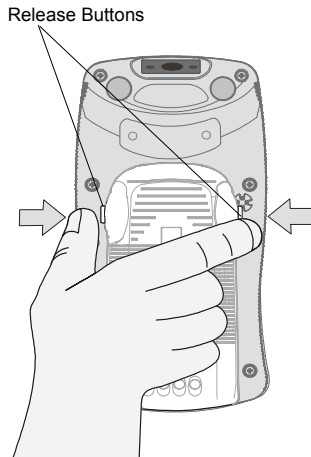
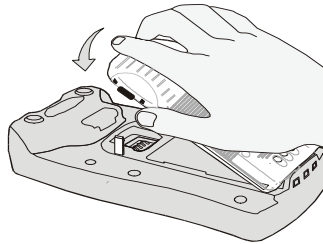


Figure 3. Battery Installation



## The Universal Office Dock (UOD) Unit

The UOD unit is used for charging the X-Pad battery and communicating with the X-Pad through an IrDA port. Each UOD unit has nine slots. Each slot may accommodate either a X-Pad with a battery attached, or a battery (stand-alone). Each of the nine slots has a status LED with an associated number. The LEDs are laid out in the same order as the slots. When a slot is empty, its corresponding LED is Off. When a battery or a X-Pad with a battery is inserted to a slot, the slot LED turns On, indicating the battery charge (see Table 1). The battery power can also be tested by pressing the battery power TEST button (see Figure 5).

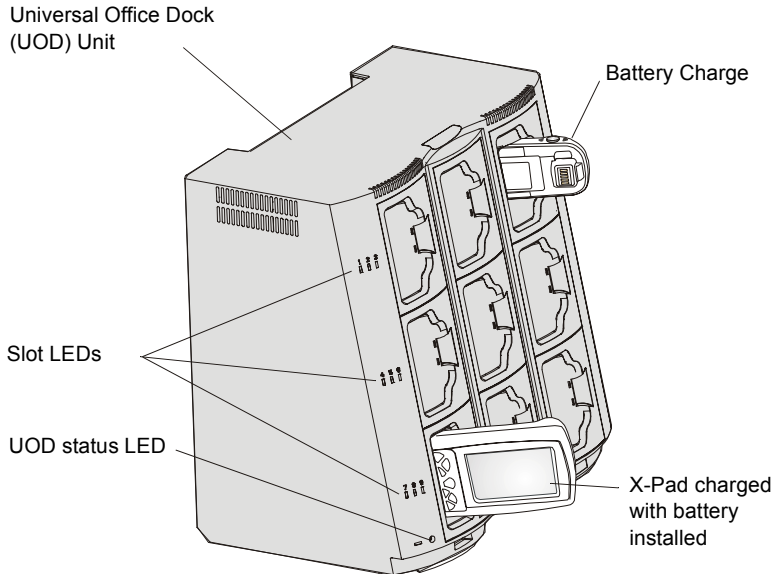


Figure 4. Universal Office Dock (UOD) Unit

Table 1: Status of a UOD Slot LED During Battery Charge

Slot LED Status	Indication
No Light	No device inserted.
Blinking Amber	Battery temperature out of tolerance and charging has been temporarily stopped.
Solid Amber	X-Pad Battery is being charged.
Solid Green	X-Pad Battery is at least 90% charged after 2.5 hours and fully charged after 3.
Solid Red	X-Pad Battery is not fully charged after 3 hours of charging, and is considered failed.

## First Time Battery Charge

The first time battery charge ensures maximum start capacity for the battery. Charge your new battery for at least 24 continuous hours before using it or until the LED indicator of the UOD shows green.

**Note:** Out of box batteries are in sleep mode. Press the TEST pad, at the back side of the battery (see Figure 5) for at least two seconds before any attempt to charge or use. Pressing the TEST button awakes the battery gas-gauge.

The UOD charges your battery effectively when it is at room temperature [approx. 68°F (20° C)]. Battery charging temperature range is 32°F to 95°F (0°C to 35°C).

To test the power capacity of the battery; press the TEST pad on back side of the battery and view the power level indicator.

## Routine Battery Charge

A battery is charged to 90% of its full capacity after approximately two and a half hours, and is fully charged after three hours, excluding out-of-range periods.

**Note:** The power level indicator shows only an approximate level of the remaining battery life.

**Important:** The battery will not charge if the X-Pad or battery is not properly locked inside the UOD slot.

## Battery Maintenance

The performance of the rechargeable battery delivered with your X-Pad depends on the way the battery is treated. Therefore, to comply with the Motorola warranty for batteries and to assure high performance and a long life for your Motorola rechargeable battery, please read and follow the maintenance rules stated below.

## Battery Storage

Do not store your battery where the temperatures exceed 140°F (60°C) or fall below -4°F (-20°C).

New Lithium-Ion batteries (i.e. batteries that have never been charged before) may be stored for up to 3 months in well-ventilated, cool and dry areas without significant loss in lifespan.

Batteries which have already been charged and then stored for more than 2 months should be recharged before use.

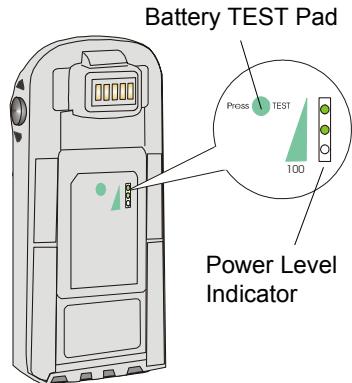


Figure 5. Battery Power Test

## **Extending Battery Life**

A battery is an expendable part and may need replacing during the life of the X-Pad. To ensure maximum service life of your X-Pad, always replace the battery with a genuine Motorola replacement.

Your UOD will charge your battery effectively when it is at room temperature [approx. 68°F (20° C)]. Battery charging temperature range is 32°F to 95°F (0°C to 35°C).

## **Using the X-Pad**

### **Turning On the X-Pad**

Press the Power button to turn On the X-Pad (see Figure 7) - when turned On, the last displayed screen will be shown again.

**Note:** The X-Pad powers On immediately when the battery is installed for the first time or after Cold Reset (see page 16) - the Motorola logo will show for about 30 seconds and you will be required to follow on-screen alignment (calibration) instructions.

### **Turning Off the X-Pad**

When the X-Pad is On, hold the Power button pressed (see Figure 7) for at least four seconds.

When the battery is removed (see "Battery Installation and Removal") from the X-Pad during operation, the X-Pad turns off automatically. To resume operation after re-installing the battery, press the Power button.

### **Suspend Mode**

When the X-Pad is On, press the Power button (see Figure 7) to enter Suspend mode. During Suspend mode the display turns off and the LED indicator slowly blinks green. To resume operation, press the Power button again.

In Suspend mode, battery power is saved by turning off the display and computer sections of the X-Pad. During Suspend mode, the GPRS and Bluetooth radios continue to operate. When the X-Pad resumes operation, it returns to the screen shown prior to Suspend mode.

Use Suspend mode as often as possible to save battery power.

### **LED Indicator Function**

LED shows red - do not remove battery.

LED slowly blinks green - X-Pad in Suspend mode.

LED quickly blinks green - X-Pad is charged in UOD unit.

## Using the Stylus Pen

The Stylus pen selects items and enters information. Use the pen as you use your PC mouse.

- To open and select screen items, tap on the item with the pen.
- To drag text or image items, hold the pen on the item and drag across the screen.
- To see a list of actions available for a specific item, tap-and-hold the pen on an item. When the pop-up menu appears, tap the action you want to perform.



Figure 6. Using the Stylus Pen

# Using the Keyboard

## Key Assignment

Figure 7 describes the X-Pad keyboard.

**Note:** Key assignment may vary by application. Therefore, your keyboard may not function as described.

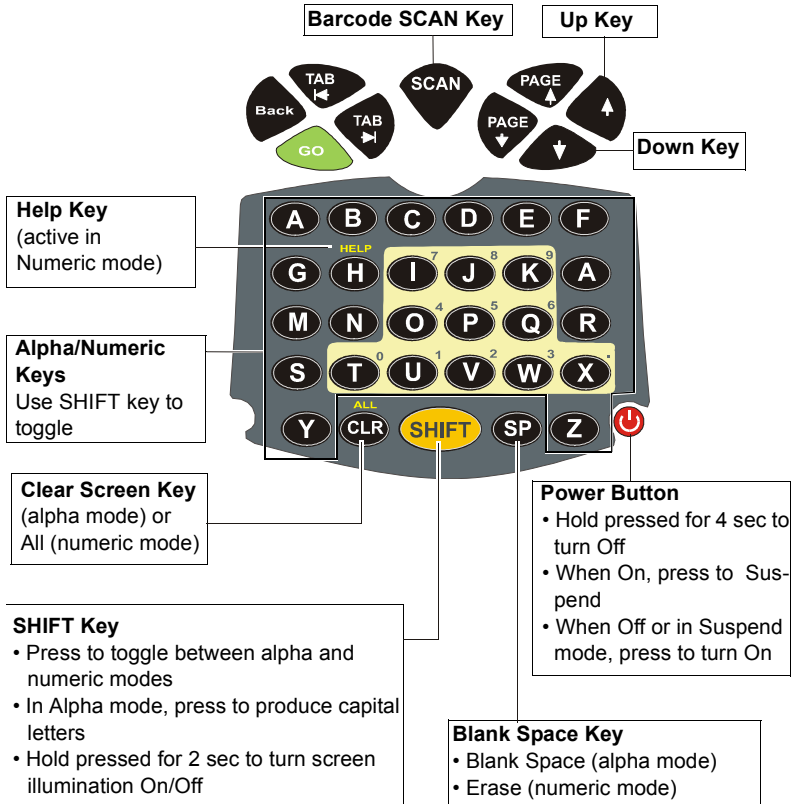


Figure 7. X-Pad - Key Function

## Action Keys

Table 2 describes the action keys combinations.

Table 2: Action Keys Combinations

Action	Key Combination
Warm Reset (see also "Resetting the X-Pad")	H + CLR + GO
Lower Case to Upper Case Letters (default is lower case)	SHIFT + any alphabet key
Audio Recording	SHIFT + SP + R
Audio Volume	Increase: SHIFT + SP + UP Decrease: SHIFT + SP + DOWN
Touch Screen Calibration	SHIFT + SP + C
Display Illumination Intensity	Increase: SHIFT + UP Decrease: SHIFT + DOWN
Keyboard Back light Intensity	Increase: SHIFT + PAGE UP Decrease: SHIFT + PAGE DOWN
Virtual Keyboard	Open/Close: SHIFT + SCAN + SP
PocketPC 2003 Menu	SP + SCAN

## Scanning with the X-Pad

The X-Pad hand held terminal enables to decode many barcode symbologies and capture images in dim lighting conditions.

The terminal features a high-resolution digital imager for omni-directional and auto-discrimination reading and decoding of linear barcodes, stacked linear (PDF417) and 2D matrix codes. The imager functions like a digital camera for either greyscale or black and white pictures.



The X-Pad is equipped with a SCAN trigger button, designed for both left-handed and right-handed users (see Figure 8). The button is located at the center of the terminal navigation key panel.

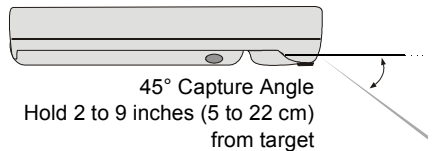
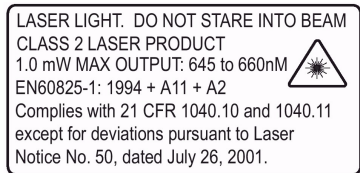
Images taken by the X-Pad are stored in the terminal memory. Images can be downloaded via IrDA communication to the cradle or transmitted via one of the wireless radio options.

## Capturing Images

To capture an image:

1. Activate your scanning application.
2. Aim and hold the X-Pad at a 45° angle approximately 2 to 9 inches (5 to 22 cm) away from the target.
3. Press the SCAN button and use the red rectangle light, emitted towards the target, to adjust your position - a successful scan will be followed by sound indication.

**Note:** When adjusting your position, you may move back and forth from the target. When scanning, the emitted rectangle light can be positioned at any angle to the barcode symbol.



SCAN Trigger Button

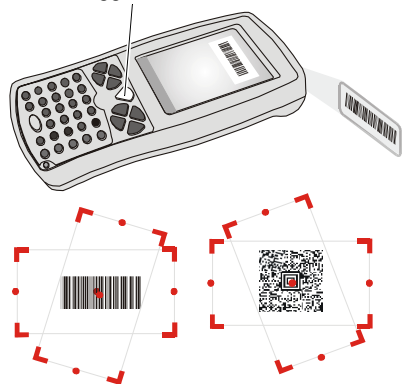


Figure 8. Capturing with the X-Pad Imager

## Resetting the X-Pad

In normal use, you should never need to reset the X-Pad.

You may need to reset your X-Pad; for example, you may reset due to communication cut-off, or if the operating system stops responding.

If your X-Pad stops responding, do the following actions:

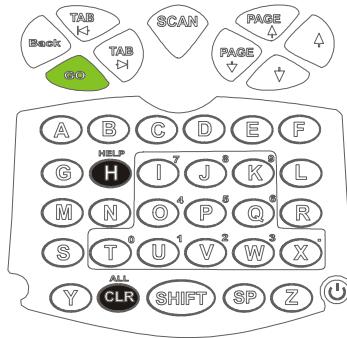


Figure 9. Warm Reset

### Warm Reset

**Important Note:** When the X-Pad is warm reset, all recorded information remains stored in memory.

Simultaneously, press keys **H + CLR + GO** (see Figure 9); the X-Pad will function again.

*If your X-Pad still does not respond, perform “Cold Reset”:*

### Cold Reset

Cold reset restarts the X-Pad by erasing all stored records and entries.

Do Not perform Cold reset unless Warm reset fails to solve your problem.

Cold reset is performed by removing the battery and inserting the Stylus tip into the hole located on the back side of the X-Pad (see Figure 10).

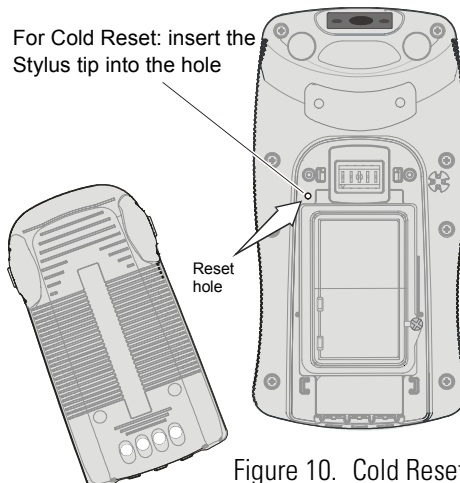


Figure 10. Cold Reset

## Maintaining the X-Pad

In order to maintain your X-Pad in good working order:

- Do not scratch the screen. Use only Motorola supplied stylus pen with the touch screen.
- Never use a pen or pencil or any sharp object on the screen.
- Although your X-Pad is water and dust resistant, do not expose it to rain or moisture for long periods of time.
- Protect your X-Pad from temperature extremes. Do not leave the X-Pad on the dashboard of a car on a hot day, and keep the X-Pad away from hot places.
- Do not drop your X-Pad or subject it to strong impact.
- Do not store or use your X-Pad in any location that is extremely dusty, damp or wet.
- If the battery contacts, screen or surface of the X-Pad become dirty, use a soft lint free cloth moistened with diluted Isopropyl Alcohol (IPA) solution to remove dirt. The Isopropyl Alcohol (IPA) can be diluted with water up to 20%.

## Accessories

The following Motorola approved accessories are for use with your terminal.

Table 3: Accessories

<b>Motorola Approved Accessory</b>	<b>Part Number</b>
Battery	FTN6032
Stylus	FLN9805

It is the responsibility of the user to use only the approved accessories supplied for this product, as detailed in Table 3 . Motorola is not responsible for the use of accessories not approved for this product.

For more information on the availability of these accessories, please call your company supplier.

## Troubleshooting

Table 4: Troubleshooting the X-Pad

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
X-Pad does not turn On	Battery is not installed properly or not charged	Ensure proper battery installation in X-Pad. Charge or replace the battery
	X-Pad in Suspend mode	Press the Power Button
Battery does not charge in UOD	X-Pad is not locked in UOD	Reinstall X-Pad in UOD. Lock the X-Pad properly in UOD. (See that the UOD LED is On and charge for three hours)
	X-Pad or UOD Dock contacts are not clean	Clean contacts and remove dust and objects from within the UOD
	Battery temperature is out of range	Ensure that the battery temperature range is 32°F to 95°F (0°C to 35°C)
	Bad battery	Replace battery

Table 4: Troubleshooting the X-Pad

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
X-Pad does not decode the SCAN input	The capture frame does not cover the entire barcode symbol	Capture again and make sure that the entire barcode symbol is covered
	The Imager window is blocked	Clean the window with a lint free, soft dry cloth. If the Imager window is badly scratched, send for service Make sure that the correct barcode symbology is being used
	Unreadable barcode	Be sure the barcode symbol is not covered or damaged
X-Pad does not respond	Problem in X-Pad operating system or communication network	Execute Warm reset by simultaneously pressing soft keys H+CLR+GO for at least one second; the X-Pad should function again  If X-Pad still does not respond, perform Cold rest (see “Resetting the X-Pad” on page 16). The operation system will reboot after about 30 seconds

Table 4: Troubleshooting the X-Pad

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Incomplete or no data transmission between X-Pad and UOD	Communication software was incorrectly installed or configured	Refer to the UOD user manual or see your system administrator
	IrDA communication window is obscured	Make sure that the IrDA window of the X-Pad is clean and has a clear line of sight with the IrDA window of the UOD

# Safety Instructions



## Laser Safety

**Caution** – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.



## Battery Warnings and Disposal

### X-Pad On-board Aircraft

Always remove the battery from the X-Pad when shipped via air. Any use of the X-Pad must be in accordance with applicable regulations per airline crew instructions.

### Battery Disposal

Batteries must be recycled or disposed of properly in accordance with local requirements. Recycling facilities may not exist in all areas. Please contact your local environmental agency for more information regarding proper disposal.

### To Prevent Injury Or Burns

- USE ONLY SPECIFIED BATTERIES AND CHARGERS
- DO NOT DISPOSE OF ANY BATTERIES IN FIRE, AS THEY MAY EXPLODE!
- DO NOT PUNCTURE OR ALLOW METAL TO CONTACT THE BATTERY TERMINALS
- DO NOT DISPOSE OF IN WATER
- DO NOT DISASSEMBLE
- DO NOT STORE ABOVE 140°F (60°C) OR BELOW - 4°F (-20°C)





## SPECIFICATIONS

PHYSICAL SPECIFICATIONS	
<b>Weight</b>	23.7 ± 0.3oz (672 ±10g)
<b>Dimensions</b>	Width x Length x Depth: 4.1 x 8 x 1.9" (104 x 202 x 48 mm)
ENVIRONMENTAL	
<b>Operating Temperature</b>	Ambient temperature range of shall be 0°C to +60°C
<b>Storage Temperature</b>	Terminal: -20°C to +70°C Battery: -20°C to +60°C
<b>Humidity</b>	8 hours exposure to 90-95% non condensing relative humidity at 50°C.
ELECTRICAL SPECIFICATIONS	
<b>Processor type</b>	INTEL PXA270 Xscale running at 416MHz
<b>Memory</b>	Flash: 64 MB, 32-bit data bus, SDRAM: 64 MB, 32-bit data bus
<b>Non-Volatile Memory</b>	Compact Flash 128 MB
<b>Display</b>	3.5" color, transfective, native portrait LCD with illumination. Resolution: 240 x 320 pixels (1/4 VGA) Viewing angle ± 35° in both X and Y axis. Viewing area smaller by about 2 mm all around
<b>Touch Screen</b>	65,000 signatures (<1% linearity change) 65,000 to 85,000 signatures (<4% linearity change) Operating force < 100 grams with stylus

<b>Keyboard</b>	39 keys: 8 Navigation keys, Scan key, 28 alphanumeric keys and Power On/Off key. Software controlled backlighting (On/Off only)
<b>Status Indicator</b>	Tricolor LED, Software controlled
<b>Audio</b>	Microphone: For Mono sound recording  Speaker: Mono  (Bluetooth audio support as a remote microphone and speaker)  Beeper: Piezo buzzer with adjustable tones, maximum sound level is 85 db for audio notification of proper scans
<b>Imager</b>	2D high-speed LASER (manual scan) support for common barcode symbologies including PDF417
<b>Main Battery</b>	Two rechargeable Lithium-Ion cells, Nominal 7.2V, 1800 mAh supporting Gas gauging for power monitoring Visible 3 LED bar-graph, switch activated 12 hours typical operation. Fully recharged within 3 hours in UOD. Minimum of 300 full discharge/charge cycles Built-in safety circuitry.

<b>Backup Battery</b>	Rechargeable 90 mAh Lithium coin cell (not user replaceable) 4 hour preservation of RTC and memory Minimum 1000+ 10% discharge/charge cycles Minimum 40+ 100% discharge/charge cycles
<b>Software</b>	
<b>Operating System</b>	PocketPC 2003
<b>Power Management</b>	As supported by PocketPC 2003: Run, Idle, Stand By, Docked.
<b>Communication</b>	
	Personal Area Network (PAN): Bluetooth RF communication (IEEE 802.15.1), 2.4 GHz ISM band, 1mW
	Wireless Local Area Network (WLAN): Wi-Fi (IEEE 802.11b), 2.4 GHz ISM band, 50mW
	Wireless Wide Area Network (WWAN): Data-only GPRS compatible dual-band for USA, 850/1900 MHz, 0.6W/1W
	Infra-red (IrDA): supports SIR 9.6K/bits to 115.2 Kbps and FIR 4 Mbps data rates. All PocketPC 2003 IR layers
<b>Wire Interface</b>	An Auxiliary Connector support connection to: USB device, External 12 V DC input, headset and RS232 Serial interface (RxD, TxD, CTS, RTS)



# Index

## **A**

Accessories 17  
Action Keys 14  
Aircraft 21  
Alphabet Keys 4  
Audio Recording 14  
Audio Volume 14

## **B**

Back light Intensity 14  
Barcode Scan Key 13  
Battery Charge 8  
Battery charging temperature 8  
battery contacts 17  
Battery Maintenance 9  
Battery Power Test 9  
Battery Storage 9  
Battery Warnings 21  
Blank Space Key 13  
Blinking Amber 8

## **C**

Charging 6  
Clean 17  
Clear Screen Key 13  
Cold Rese 16  
cool and dry areas 9

## **D**

Disposal 21  
Down Key 13

## **E**

Extending Battery Life 10

## **H**

Help Key 13

## **I**

Illumination Intensity 14  
Injury 21  
Install Battery 6

Isopropyl Alcohol 17

## **K**

Keys Assignment 13

## **L**

Laser Warning 15  
LED Indicator 11  
LED shows red 11  
Lithium-Ion 2

## **M**

Maintaining 17  
Microphone 4

## **N**

Navigation Key Panel 4

## **P**

PocketPC 2003 Menu 14  
Power Button 13  
Power Level Indicator 9  
PowerPad Parts 4

## **R**

Remove Battery 6  
Reset hole 16

Resetting 16  
resume operation 11  
room temperature 8

## **S**

Safety 3  
Safety Instructions 21  
Scan Angle 15  
Scanning 16  
Screen Calibration 14  
SHIFT Key 13  
Slot LEDs 7  
Solid Amber 8  
Solid Green 8  
Solid Red 8  
Speaker 4  
storage temperatures 9  
store 17  
Suspend Mode 11

## **T**

TEST pad 9  
Touch Sensitive Screen 4  
Troubleshooting 18  
Turning Off 11  
Turning On 11

## **U**

Universal Office Docking 7  
Unpacking 3  
UOD User Manual 1  
Up Key 13

## **V**

Virtual Keyboard 14

## **W**

Warm Reset 16

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