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Symbol Technologies, Inc. One Symbol Plaza Holtsville, N.Y. 11742-1300 http://www.symbol.com

Patents

This product is covered by one or more of the following U.S. and foreign Patents: U.S. Patent No.4,387,297; 4,460,120; 4,496,831; 4,593,186; 4,603,262; 4,607,156; 4,652,750; 4,673,805; 4,736,095; 4,758,717; 4,816,660; 4,845,350; 4,896,026; 4,897,532; 4,923,281; 4,933,538; 4,992,717,5,015,833; 5,017,765; 5,021,641; 5,029,183; 5,047,617; 5,103,461; 5,113,445; 5,130,520; 5,140,144; 5,142,550; 5,149,950; 5,157,687, 5,168,148; 5,168,149; 5,180,904; 5,216,232; 5,229,591; 5,230,088; 5,235,167; 5,243,655; 5,247,162; 5,250,791; 5,250,792; 5,260,553; 5,262,627; 5,262,628; 5,266,787; 5,278,398; 5,280,162; 5,280,163; 5,280,164; 5,280,498; 5,304,786; 5,304,788; 5,306,900; 5,321,246; 5,324,924; 5,337,361; 5.367.151; 5,\$73,148; 5,378,882; 5,396,053; 5,396,055; 5,399,846; 5,408,081; 5,410,139; 5,410,140; 5,4)2,198; 5,418,812; 5,420,411; 5,436,440; 5,444,231; 5,449,891; 5,449,893; 5,468,949; 5,471,042; 5,478,998; 5,479,000; 5,479,002; 5,479,441;)5,504,322, 5,519,577; 5,528,621; 5,532,469; 5,543,610; 5,545,889; 5,552,592,5,557,093; 5,578,810; 5,581,070; 5,589,679; 5,589,680; 5,608,202; 5,612,521; 5,619,028; 5,627,359; 5,637,852; 5,664,229; 5,668,803; 5,675,139; 5.693.929: 5.698.835: 5.705.800: 5.714.746: 5.723.851: 5.734.152: 5.734.153: 5,742,043,>5,745,794; 5,754,587; 5,762,516; 5,763,863; 5,767,500; 5,789,728; 5,789,731; 5,808,287; 5,811,785; 5,811,787; 5,815,811; 5,821,519; 5,821,520; 5,823,812; 5,828,050; 5,850,078; 5,861,615; 5,874,720; 5,875,415; 5,900,617; 5,902,989; 5,907,146; 5,912,450; 5,914,478; 5,917,173; 5,920,059; 5,923,025; 5,929,420; 5,945,658; 5,945,659; 5,946,194; 5,959,285; 6,002,918;D305,885; D341,584; D344,501; D359,483; D362,453; D363,700; D363,918; D370,478; D383,124; D391,250; D405,077; D406,581; D414,171; D414,172, D419,548. Invention No. 55,358; 62,539; 69,060; 69,187 (Taiwan); No. 1,601,796; 1,907,875; 1,955,269 (Japan). European Patent 367,299; 414,281; 367,300; 367,298; UK 2,072,832; France 81/ 03938; Italy 1,138,713.

rev. 03/00

Introduction

The PDT 7500 Series family of portable data terminals puts the processing power of a 486 PC in the user's hand. The terminal uses a rechargeable Lithium-Ion 1400 mAh smart battery, and incorporates pen technology and bar code scanning capability in a key-based terminal.

The PDT 7500 ruggedized hand-held terminal combines:

- PC-standard architecture (32-bit 486 DX2)
- Microsoft[®] MS-DOS 6.22 or Windows[®] CE ØS
- Wireless communication capability using Symbol's wireless
 LAN technology
- An optional integrated Wireless Wide Area Network
 (WWAN) cellular radio
- · Integrated laser scanning capability (1- and 2-Dimensional)
- 35-key keypad for key input
- Touch screen
- IrDA-compliant interface for printing and communications.

About This Guide

This guide provides information on the operation of the PDT 7500 Series terminal. Specifically, the following topics are discussed.

- Parts of the PDT 7500 on page 3
- Installing New or Recharged Batteries on page 5 χ
- Operating the PDT 7500 on page 8
- Using the PDT 7500 Keypad on page 11
- Using the Integrated Laser Scanner on page 12
- Host Communications on page 15
- Using the Touch Screen on page $\sqrt{6}$
- Troubleshooting on page 16.

Accessories

Each PDT 7500 requires one 1400 mAhLi-Ion battery (p/n 21-38602-06). The following optional accessories are available from Symbol Technologies:

- Additional Li-Ion battery
- Stylus for performing pen functions
- Single slot cradle
- Four-slot cradle
- Vehicle cradle
- IrDA compliant printer
 - UBC 2000 charging adapter
 - Null modem cable
 - Holster.





Installing New or Recharged Batteries

Caution: To ensure proper terminal operation, use ONLY the Symbol Li-Ion battery in the PDT 7500.

To install a new or recharged Li-Ion battery:

1. Hook the base of the new battery in the top of the battery compartment, then press the into place.

2. Slide the battery latch to secure the battery.

If the battery latch is not closed, do not operate the terminal, otherwise data may be lost.

Caution: Do not expose the battery to temperatures in excess of 140°F (60°C). Do not disassemble, incinerate, or short circuit the battery.

Removing the Battery from the Terminal

To remove the Li-Ion battery from the terminal:

- 1. Suspend the terminal's power.
- 2. Slide the battery release switch towards the top of the terminal until the lock releases.



3. Lift the battery up and out of the battery compartment.



Charging the Battery in the Terminal

To charge the terminal's battery, place the PDT 7500 in the cradle or connect the synchronization/charging cable.

The terminal's charging LED $\begin{bmatrix} 1 \\ 2 \end{bmatrix}$ turns yellow while charging, then turns green when the battery is fully charged, which takes 2-3 hours. A flashing yellow LED indicates there may be a problem with the battery.

For instructions on setting up the cradle, refer to the *Quick Reference Guide* that shipped with your cradle or to the *PDT 7300 Series Product Reference Guide* (72-39225-xx for DOS terminals, or 72-41235-xx for Windows CE Terminals).

Charging the Spare Battery

The cradle also has a spare battery charging slot. To charge the spare Li-Ion battery in the CRD 7500 cradle, place the battery into the charging slot in the cradle. Charging begins automatically and the charge LED on the cradle turns yellow. The charge LED turns green upon successful completion of the charge cycle, which takes approximately 4 hours. If the LED does not light, no battery is present. If the LED blinks yellow, the battery is faulty.

You may also charge the battery in the UBC 2000 Battery Charger. See the *Quick Reference Guide* which came with the UBC 2000 for more information.

LED Indication

For all charging methods, the terminal's battery charging LED indicates the battery charging status, as follows:

	Battery Charge State	Charge LED Indication	
_	Battery absent no charge power	Off	
	Battery charging	Yellow	
/	Battery fully charged	Green	
	Abnormal battery	Flashing Yellow	

Operating the PDT 7500 Powering the Terminal On/Off

Note: Before the terminal can be powered on, it must be initialized and the battery must be fully charged. Refer to the *PDT 7500 Series Product Reference Guide* for your terminal for information on initializing the terminal.

To power on the terminal:

- 1. Make sure the terminal's battery is fully charged.
- 2. Press the PWR key.

To suspend the terminal's operation, press the PWR key.

Turning the Backlight On/Øff

To turn the backlight on or off, press the blue FUNC key, then the LAMP key.

Controlling the Screen Contrast

To lighten the screen contrast, press the blue FUNC key, then the LIGHT key. To darken the screen contrast, press the FUNC key, then the DARK Key.

Resetting the PDT 7500

If your PDT 7500 Series terminal stops responding to input from buttons on the screen, you must reset it.

Performing a Warm Boot (DOS and Windows CE Terminals)

A warm boot restarts the terminal and saves all stored records and entries.

Note: Files that remain open during a warm boot may not be retained.

To perform a warm boot, press and hold down the PWR key for 6 seconds, then release.

Performing a Cold Boot (DOS and Windows CE Terminals)

A cold boot restarts the terminal. In the Windows CE environment, the registry and objects stored are reset to original settings

To perform a cold boot, press and hold the PWR key for 15 seconds, then release. On the DOS terminal, this value can be reconfigured in Setup (see the *Product Reference Guide* for more information).

Performing a Hard Reset (Windows CE Terminals Only)

A hard reset also restarts the PDT 7500 Series terminal, but erases all stored records and entries. Therefore, never perform a hard reset unless a warm/cold boot does not solve your problem.

Note: On the Windows CE terminal, you can restore any data previously synchronized with your computer during the next ActiveSync operation. See the Quick Reference Guide which came with your cradle, or the PDT 7500 Product Reference Guide for Windows CE for more information.

To perform a hard reset:

- 1. Remove the battery for 20 minutes or longer.
- 2. Replace the battery in the terminal.
- 3. The calibration screen displays.
 - Note: With a hard reset, formats preferences and other settings are restored to their original factory defaults.

Calibrating the Screen (Windows CE Terminals Only)

The first time you start your PDT 7500 terminal (and whenever the sterminal is cold-booted), the calibration screen displays. This section describes how to calibrate your terminal so the cursor on the touch screen aligns with the tip of your stylus.

Note: If your terminal came loaded with another software application, the calibration screen may not display.

To calibrate your PDT 7500 terminal:

- If necessary, adjust the contrast on the PDT 7500 so the screen is clear and readable. See "Controlling the Screen Contrast" on page 8 for instructions.
- 2. As the screen instructs, carefully press and briefly hold the stylus on the center of each target. Repeat as the target moves around the screen.



3. Tap the screen when prompted to accept new calibration.

Using the PDT 7500 Keypad

The PDT 7500 uses an alphanumeric keypad that produces the 26character alphabet (A-Z), numbers (0-9), and assorted characters. The keypad is color-coded to indicate which modifier key (ALPHA CTRL, FUNC, and SHIFT) to press to produce a particular character or action.



- The default numeric keypad produces the numbers 0-9.
- Press ALPHA and the appropriate key to produce the alpha characters A-Z.
- Press FUNC (blue) and the corresponding numeric key to produce the function keys F1-F10.
- Press the cursor keys (◀, ▶, ▲, ▼) to move the cursor left, right, up and down on the screen.
- Press **BKSP** to erase information entered on the display, one character at a time.
- Press SPACE to enter a blank space.
- Press **CLEAR** to partially or completely escape from an application level or screen. **CLEAR** also erases all entered data from the screen.

- Press ENTER after entering data or a command.
- Press **CTRL** to perform the control function. This key is under application control.
- Press SHIFT and a key to produce various character keys; refer to the PDT 7500 Series Product Reference Guide for your terminal or your application guide for the keypad mapping.
- **Note:** Key function can be changed by an application. Your keypad may not function exactly as described above.

Using the Integrated Laser Scanner

To use the laser scanner:

- 1. Verify the system is on. The KED lights vellow if scanning is enabled and the laser is on.
- 2. Aim the PDT 7500 scan window at the bar code and press the scan button.

Do not hold the PDT 7500 at a right angle to the bar code. You can tilt the 7500 up to 65° forward or backward and achieve a successful decode.

3. Ensure that the scan beam crosses all bars and spaces on the symbol, as shown below.



Hold the scanner farther away for larger symbols, and closer for symbols with bars that are close together.

4. The LED turns from yellow to green for successful decodes. The PDT 7500 may also beep on successful decode.

Scanning PDF417 Bar Codes

The PDF417 bar code symbol has multiple rows, but the raster pattern also has multiple scanning rows. Two basic steps are required as you scan:

1. Point the scanner at the bar code and press the scan button.



2. As the raster pattern spreads, keep the pattern in the same horizontal plane as the bar code.



3. The terminal indicates a successful scan by changing the LED from yellow to green, beeping one or more times, and/or displaying the decoded bar code on the screen.

"Tall" PDF Bar Codes

If the PDF417 symbol is "tall," the vertical scan pattern may not be high enough to cover it.

In this case, try a slow "up and down" scanning motion. With the raster pattern open, try to move the scanner slowly down toward the bottom of the symbol, keeping the beam horizontal to the rows, and then slowly back upward toward the top.





The scan beam does not have to be perfectly parallel with the top and bottom of the symbol (up to a 4° tilt will work).

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Host Communications

The PDT 7500 Series terminal can communicate with a host PC either directly through its communications port using an RS-232 serial cable or the cradle, or wirelessly via the Spectrum24[®] wireless LANs. For more information on setting up and performing wireless communications with your PDT 7540 terminal, refer to the PDT 7500 Series Product Reference Guide.

Using the RS-232 Serial Cable

To connect the RS-232 serial cable for host communication:

- 1. Connect the RS-232 serial communication cable's connector to the adapter cable's connector.
- 2. Plug the adapter cable's subminiature connector into the serial communication port on the bottom of the terminal.
- 3. Plug the other end of the RS-232 serial communication cable into the host PC.
- 4. Begin host communication as specified by your application.

Using the Cradle

To communicate through the cradle:

- 1. Make sure all connections between the cradle and the host computer are secure. See the *Quick Reference Guide* that shipped with your cradle for instructions on setting up the cradle.
 - Rever on the host computer, the cradle, and the terminal.
- 3. Insert the terminal into the cradle.
- 4. Begin host communications as specified by your application.

Communicating with Printers

The PDT 7500 communicates with IrDA-compliant peripherals through the IrDA interface in the base of the terminal. To print, point the PDT 7500's IrDA port at the IrDA port on the IrDAcompliant printer from a maximum distance of 39 inches (1-meter) and run the application's print function. Printer communication can also be established through an RS-232 cable connected directly to the printer.

Using the Touch Screen

Some PDT 7500 terminals are equipped with a Touch Screen, which has software that allows the stylus to function as a mouse. An optional stylus is available from Symbol for use with the terminal. Further use of the stylus function is application-dependent. Refer to application documentation for more information.

Problem	Cause	Solution	
PDT 7500 does not power on. Rechargeable Li-Ion battery did not charge.	Li lon battery not charged.	Charge or replace the Li-Ion battery in the PDT 7500.	
	System crash.	Hold PWR key for 15 seconds. DOS terminal users may change this value in Setup.	
	Battery failed.	Replace battery.	
	PDT 7500 re- moved from cra- dle while battery was charging.	Insert PDT 7500 in cradle and begin charging. The Li-Ion bat- tery requires 2-3 hours to re- charge fully.	

Troubleshooting

Problem	Cause	Solution
Cannot see characters on display	PDT 7500 not powered on.	Press the PWR key.
uspiaj.	Contrast not ad- justed properly.	Press the blue FUNC key and then the Dark or Light keys to adjust contrast.
Scanner does not power on when the scan button is pressed.	Scanner is not enabled.	See your System Administrator.
Scanner does not decode a bar code.	Bar code is un- readable.	Verify that the bar code is not defective, i.e., smudged or bro- ken.
	Scan window is dirty.	Clean scan window with a lens tissue. Tissues for eyeglasses work well. Do not use tissues coated with lotion.
$\sum^{}$	Scan code not enabled.	See your System Administrator.

Problem	Cause	Solution
Fail to commu- nicate with IrDA printer.	Distance from printer is more than 1 meter (3.28 feet).	Bring the terminal closer to the printer and attempt communi- cations again.
	Obstruction in- terfered with communication.	Check the path to ensure no objects were in the way.
	Application is not enabled to run IrDA print- ing.	Printer support must be includ- ed with the application to run hDA printing on the terminal. See your System Administrator.

Pin-Outs

Pin	Description
1	GND
2	DSR
3	RXD
4	CTS
5	DCD
6	GND
7	PWRQUT (+5V)
8	PWRIN(+15V)
9	DTR
10	Ring
11	TXD .
12	RIS
13	Reserved
4	GND
15	PWRIN(+15V)

Regulatory Information Radio Frequency Interference Requirements

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

However, there is no guarantee that interference will not occur in a particular installation. If the 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:

- Re-orient 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 which the receiver is connected.
- · Consult the dealer or an experienced radio/TV technician for help.

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



Important Note: To comply with FCC and Industry Canada FF exposure requirements, this hand-held device is approved for operation in a user's hand when there is 20 cm or more between the antenna and the user's body.

Radio Frequency Interference Requirements - Canada

This device complies with RSS 210 or Industry & Science Canada. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus complies with Industry Canada Standard ICES-003. Cet appareil numérique de la classe B est conform à la norme NMB-003 d'Industrie Canada.

CE Marking and European Union Compliance

Products intended for sale within the European Union are marked with the CE Mark which indicates compliance to applicable Directives and European Normes (EN), as follows. Amendments to these Directives or ENs are included:

Applicable Directives

- Electromagnetic Compatibility Directive 89/336/EEC
- Low Voltage Directive 73/23/EEC

Applicable Standards

- EN 55 022 Limits and Methods of Measurement of Radio Interference Characteristics of Information technology Equipment
- EN 55024:1998; Information technology equipment-Immunity characteristics Limits and methods of measurement.
- EN 50 082-1:1997 Electromagnetic Compatibility Generic Immunity Standard, Part 1: Residential, commercial, Light Industry
- IEC 1000-4-2(1995-01) Electromagnetic compatibility (EMC) Part 4:Testing and measurement techniques - Section 2: Electrostatic discharge immunity test.
- IEC 1000-4-3(1995-03) Electromagnetic compatibility (EMČ) Part 4: Testing and measurement techniques - Section 3: Radiated, radio frequency, electromagnetic field immunity test.
- IEC 1000-4-4(1995-01) Electromagnetic compatibility (EMC) Part 4:Testing and measurement techniques - Section 4: Electrical fast transien/burst immunity test.
- EN 60 950 + Amd 1 + Amd 2 Safety of Information Technology Equipment
 Including Electrical Business Equipment
- EN 60 825-1 (EN 60 825) Safety of Devices Containing Lasers.

Laser Devices

Symbol products using lasers comply with US 21 CFR1040.10, Subchapter J and IEC825/EN 60 825 (or IEC825-17EN 60.825-1, depending on the date of manufacture). The laser dassification is marked on one of the labels on the product.

Class 1 Laser devices are not considered to be hazardous when used for their intended purpose. The following statement is required to comply with US and international regulations:

Caution: Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

Class 2 (aset scanners use a low power, visible light diode. As with any very bright light source, such as the sun, the user should avoid staring directly into the light beam. Momentary expessive to a Class 2 laser is not known to be harmful.

RF Devices

Symbol's RF products are designed to be compliant with the rules and regulations in the locations into which they are sold and will be labeled as required. The majority of Symbol's RF devices are type approved and do not require the user to obtain license or authorization before using the equipment. Any changes or modifications to Symbol Technologies equipment not expressly approved by Symbol Technologies could void 'the user's authority to operate the equipment.

Scanner Labeling



In accordance with Clause 5, IEC 0825 and EN60825, the following information is provided to the user: \checkmark



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Service Information

Before you use the unit, it must be configured to operate in your facility's network and run your applications.

If you have a problem running your unit or using your equipment, contact your facility's Technical or Systems Support. If there is a problem with the equipment, they will contact the Symbol Support Center.

United States	1-800-653-5350	Canada
United Kingdom	0800 328 2424	Asia/Pacific
Australia	1-800-672-906	Austria
Denmark	7020-1718	Finland
France	01-40-96-52-21	Germany
Italy	2-484441	Mexico
Netherlands	315-271700	Norway 🗸
South Africa	11-4405668	Spain
Sweden	84452900	$\langle \nu / / \rangle$
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337-6588 Austria -505-5794 Finland 9 5407 580 Germany 6074-49020 5-520-1885 Mexico Norway 66810600 9-1-320-39-09 Spain

905-629-7226

Latin America Sales Support

1-800-347-0178 Inside US 1-561-483-1275 Outside US

Europe/Mid-East Distributor Operations Sopract local distributor or call 44 208 945 7360

Warranty

Symbol Technologies, Inc. ("Symbol") manufactures its hardware products in accordance with industry-standard practices. Symbol warrants that for a period of twelve (12) months from date of shipment, products will be free from defects in materials and workmanship.

This warranty is provided to the original owner only and is not transferable to any third party. It shall not apply to any product (i) which has been repaired or altered unless done or approved by Symbol, (ii) which has not been maintained in accordance with any operating or handling instructions supplied by Symbol, (iii) which has been subjected to unusual physical or electrical stress, misuse, abuse, power shortage, \vec{p} egligence or accident or (iv) which has been used other than in accordance with the product operating and handling instructions. Preventive maintenance is the responsibility of customer and is not covered under this warranty.

Wear items and accessories having a Symbol serial number, will carry a 90-day limited warranty. Non-serialized items will carry a 30-day limited warranty.

Warranty Coverage and Procedure

During the warranty period. Symbol will repair or replace defective products returned to Symbol's manufacturing plant in the US. For warranty service in North America, call the Symbol Support Center at 1-800-653-5350. International customers should contact the local Symbol office or support center. If warranty service is required, Symbol with issue a Return Material Authorization Number. Products must be shipped in the original or comparable packaging, shipping and insurance charges prepaid. Symbol will ship the repaired or replacement product freight and insurance prepaid in North America. Shipments from the US or other locations will be made F.O.B. Symbol's manufacturing plant.

Symbol will use new or refurbished parts at its discretion and will own-all parts removed from repaired products. Customer will pay for the replacement product in case it does not return the replaced product to Symbol within 3 days of receipt of the replacement product. The process for return and customer's charges will be in accordance with Symbol's Exchange Policy in effect at the time of the exchange.

Customer accepts full responsibility for its software and data including the appropriate backup thereof.

Repair or replacement of a product during warranty will not extend the original warranty term.

Symbol's Customer Service organization offers an array of service plans, such as on-site, depot, or phone support, that can be implemented to meet customer's special operational requirements and are available at a substantial discount during warranty period.

General

Except for the warranties stated above, Symbol disclaims all warranties, express or implied, on products furnished hereunder, including without limitation implied warranties of prerchantability and fitness for a particular purpose. The stated express warranties are in lieu of all obligations or liabilities on part of Symbol for damages, including without limitation, special, indirect, or consequential damages arising out of or in connection with the use or performance of the product.

Seller's liability for damages to buyer or others resulting from the use of any product, shall in no way exceed the purchase price of said product, except in instances of injury to persons or property.

Some states (or jurisdictions) do not allow the exclusion or limitation of incidental or consequential damages, so the proceeding exclusion or limitation may not apply to you.

This product is marked with CE0168 in accordance with the Class II product requirements specified in the R&TTE Directive, 1999/5/EC.

The equipment is intended for use throughout the European Community, but it's authorization for use in France is restricted as follows:

- PAN European Frequency Range: 2.402 2.480 GHz
- Restricted Frequency Range for use in France: 2.448 2.480 GHz



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