PDT 7200 Series

Product Reference Guide for Windows CE 3.0

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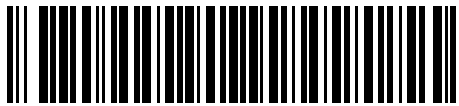

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Symbol Technologies, Inc. One Symbol Plaza, Holtsville N.Y. 11742-1300

PDT 7200 Series
Product Reference Guide for Windows® CE 3.0

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March 2002

symbol®

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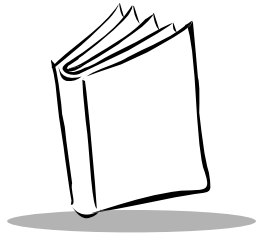

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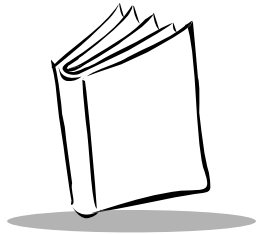

About This Guide

Introduction

The *PDT 7200 Series Product Reference Guide for Windows® CE* provides general instructions for the System Administrator for setting up, initializing, operating, troubleshooting, and maintaining the PDT 7200 Series Windows CE terminal.

Chapter Descriptions

Chapter 1, *Getting Started*, describes the procedures for setting up the terminal.

Chapter 2, *Software Installation on the Development PC*, provides instructions on the installation of the Software Developer's Kit.

Chapter 3, *Spectrum24 Network Configuration* describes the utilities that monitor and configure the Spectrum24 wireless connection.

Chapter 4, *Cradle Setup and Operation*, describes the procedures for setting up the cradle, and details the use of the cradle to charge the terminal's battery and perform host communication.

Chapter 5, *Operating the Terminal*, provides detailed instructions on the operation of the terminal.

Chapter 6, *Configuring the Terminal*, describes options for configuring the terminal to assist in planning your application development, details the use of the TCM (Terminal Configuration Manager) Utility and IPL (Initial Program Loader), which are used to build and send the hex image from the development PC to the terminal.

Chapter 7, *Communications* explains how to use ActiveSync for communications between the terminal and host PC.

Chapter 8, *Maintenance and Troubleshooting* provides information about possible problems with the terminal and cradle, and suggested solutions to these problems.

Appendix A, *Specifications*, details the technical specifications for the product.

Appendix B, *Demo Program* provides an overview of the PDT 7200 demo program applications, such as scanning, setup, diagnostic utilities, and file management.

Notational Conventions

The following conventions are used in this document:

- "Operator" and "User" refer to anyone using an application on a PDT 7200 terminal.
- "PC" refers to the IBM personal computer or compatible system that you are using to develop applications.
- "Terminal" refers to a PDT 7200 terminal.
- "You" refers to the administrator who is using this manual as a reference aid to install, configure, operate, maintain, and troubleshoot the PDT 7200 terminal.
- **<Bracketed Bold>** type indicates keystrokes on the terminal or PC. For example:
  Select the **<F1>** key on the PC to access on-line help.
- **Bold** type is used to identify menu items and input or text fields on a terminal screen.
- *Italics* are used:
  - for the names of parameters in function prototypes and variable names in usage and syntax descriptions
  - to highlight specific items in the general text
  - to identify chapters and sections in this and related documents.
- Square brackets [] in a command line enclose optional inline parameters.
- The piping symbol | has the effect of "or" when it is used to separate inline parameters on a command line; i.e., it separates alternative values for parameters.
- Bullets (•) indicate:
  - action items
  - lists of alternatives
  - lists of required steps that are not necessarily sequential.
- Sequential lists (e.g., those that describe step-by-step procedures) appear as numbered lists.

Related Publications

The following is a list of documents and publications that you may find useful if you want to know more about the PDT 7200 terminal itself or about the tools and utilities that are available for writing applications for the terminal.

- *PDT 7200 Series Quick Reference Guide*
  p/n 72-39640-XX
- *Windows CE Help File for Symbol Terminals*
  p/n 72E-38880-XX
- *CRD 7200 Cradle Quick Reference Guide*
  p/n 70-37590-XX
- *Spectrum 24 Access Point User's Guide*
  p/n 70-12057-XX

Service Information

If you have a problem with the PDT 7200 equipment, contact the Symbol Support Center. If your problem cannot be resolved over the phone, you may need to return your equipment for servicing. If that is necessary, you will be given special directions.

Note: *Symbol Technologies is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty. If the original shipping container has not been kept, contact Symbol to have another sent to you.*

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For service information, warranty information or technical assistance contact or call the Symbol Support Center in:

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Support E-Mail: Sweden.Support@se.symbol.com

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For the latest version of this guide go to:http://www.symbol.com/manuals.

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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 will 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.

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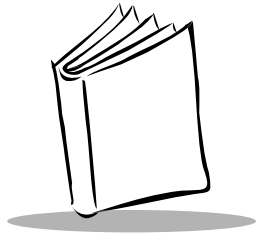
Seller's liability for damages to buyer or others resulting from the use of any product, shall in no way exceed the purchase price of said product, except in instances of injury to persons or property.

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.



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Getting Started

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Introduction

The PDT 7200 is an advanced portable terminal that puts the processing power of a 486 PC in the user's hand. The terminal incorporates touch screen technology, a graphical user interface (GUI) and bar code scanning capability. With a 1/4 VGA-sized screen, the PDT 7200 supports two different input methods: touch input and virtual keypad input. The integrated scanner adds bar code input capability, allowing one-dimensional and two-dimensional (with the 2D scan engine) bar code reading. PDT 7200 models are also available with Spectrum24® RF wireless LAN technology.

The PDT 7200 uses a standard Windows® CE operating environment. The recommended application development tool is Visual C++ with CE Toolkit.

Symbol provides extensions for non-PC peripherals (RF, scanning, power management, etc.) and C-language APIs. To assist in downloading files to the PDT 7200 terminal, Symbol provides the Windows-based Terminal Configuration Manager (TCM) that allows the user to create a script listing the files to include in a hex image, build the hex image, and transfer the hex image to the terminal.

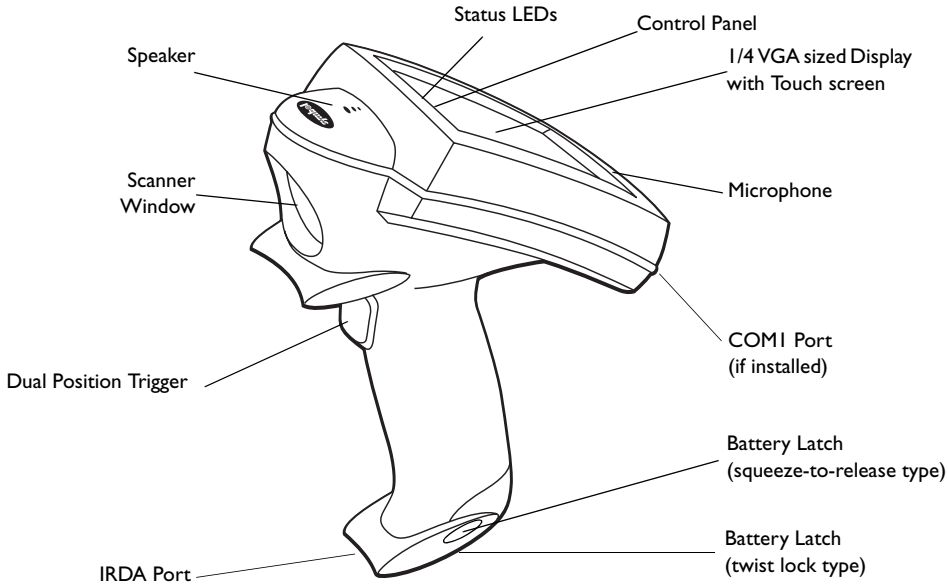
Unpacking the Terminal

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

Verify that you received all equipment listed on the packing slip and inspect the equipment for damage. If you find any damaged or missing items, contact the Symbol Support Center immediately.

Parts of the Terminal

The following illustration displays the basic parts of the PDT 7200 terminal. A brief description of each part follows.



- Beeper/Speaker - allows you to play back pre-recorded voice data; beeps.
- Scanner Window - shields the scan engine mechanism.
- Display - 240 X 320 pixel display with Touchscreen for virtual keypad usage.
- Dual Position Trigger - displays the virtual keypad, activates the scan function and performs other user-defined functions.
- Status LEDs - Scan/decode, battery voltage/charge, and RF communications indicators.
- Battery latch - secures the battery.
- Microphone - allows recording of voice data.

- Control Panel Buttons: allow you to control the terminal's:
  - Power
  - Contrast
  - Backlight Refer to Chapter 5, *Operating the Terminal* for information on adjusting the contrast and backlight.
  - User-programmable button

Accessories/Peripherals

Cradles

The cradle performs three functions:

- communication with the host or other devices
- battery charging with A/C power
- storage.

Symbol offers a single-slot cradle containing an RS-232C communication port. Each cradle is supplied with (and requires) its own international power supply with IEC connector.

The cradle provides terminal storage, in-terminal battery charging, spare battery pack charging, and RS-232 communications to a host computer or an external serial device such as a printer.

Battery Packs

Primary power for the PDT 7200 is provided by a rechargeable Lithium-Ion (Li-Ion) battery pack. For information on installing and charging the battery pack, refer to Chapter 4, *Cradle Setup and Operation*.

Cables

Cables for use with the PDT 7200 include:

- RS-232 printer/host communications cable: (p/n 25-37380-01, rev .5) a 3-foot cable which includes a null modem and attaches the terminal to a DTE device.
- RS-232 9-pin/9-pin null modem cable: (p/n 61383-00-00) connects the cradle to the host computer with a 25-pin to 9-pin adapter (p/n 50-12100-620).

Spectrum24 Radio Terminals

Spectrum24 terminals are equipped with a Spectrum24 adapter card (Type II PC card connected to an internally mounted antenna) that enables the terminal to operate in a Spectrum24 network.

The software required (interface, drivers, and configuration files) is described in the *Windows CE SDK Help File*. For information on configuration file edits to ensure proper operation of the terminal in a Spectrum24 environment, refer to the Spectrum24 NDK.

SDK

The PDT 7200 Series Software Development Kit (SDK) contains software and online documentation to assist you in developing applications to run on the PDT 7200.

You will need one or more application development environments (ADEs) from other vendors to develop applications for the PDT 7200, for example Microsoft Visual C++.

Before You Use the Terminal

Install and Charge Battery Pack

Prior to using the PDT 7200 for the first time, charge the Lithium-Ion battery pack. The battery pack can be charged while in the terminal or charged separately in the cradle's charging slot. See Chapter 4, *Cradle Setup and Operation*, for instructions on installing the cradle(s) and installing and charging the battery pack.

Configure the Terminal

Terminal configuration consists of loading the software and applications onto the terminal and setting the terminal's operating parameters. For more information on configuration refer to Chapter 6, *Configuring the Terminal*.

Starting the PDT 7200

After installing and charging the battery, start the terminal by pressing the ⏻ icon on the screen. If the terminal does not power on, perform a hard reset. See *Booting the Terminal* on page 5-3 for instructions.

As the terminal initializes its unique Flash File system, the Symbol splash screen displays for about a minute.

Calibrating the Screen

The first time you start your PDT 7200 (and whenever the terminal is cold-booted) the calibration screen appears. This section describes how to calibrate your PDT 7200 so the cursor on the touch screen aligns with the tip of your stylus.

To calibrate your PDT 7200:

1. Use your fingertip or a plastic stylus and tap the center of each target that appears on the screen.

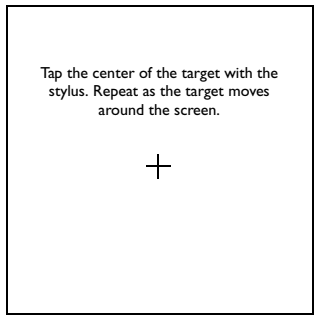
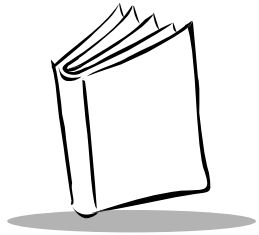


Figure 1-1. Tapping Target

2. Tap the screen to continue booting Windows® CE.
3. The Symbol Shell and Launcher programs are deployed.



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Software Installation on the Development PC

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Introduction

To develop applications to run on the PDT 7200, the *Symbol Technologies, Inc. Windows® CE Software Developer's Kit for Symbol Terminals* (SDK) is available. This SDK contains PDT 7200-specific software not available in the standard Microsoft Windows® CE SDK.

The minimum system configuration required to install the SDK is:

- A desktop computer with a Pentium-class processor. A Pentium 150-MHz or higher processor is recommended
- Microsoft Windows® 2000 Professional, Microsoft Windows NT® Workstation 4.0 with SP6a, or Microsoft Windows® 98 Second Edition. Microsoft Windows® 2000 Professional or Microsoft Windows NT Workstation 4.0 is the recommended debug host for your development environment
- 64 MB RAM minimum (128 MB recommended)
- CD-ROM drive compatible with multimedia desktop computer specification
- 100Mb hard disk space.

Also, be sure the drive you are installing to accepts long filenames (larger than the 8.3 filename convention).

Before You Install the SDK

Before you install the Symbol Windows® CE SDK, install the following tools:

- Visual Studio 6.0 (install the Professional Edition or Enterprise Edition of Visual C++)
- CE Tool Kit version 6.0 for Visual Studio.
- Windows® CE Services/ActiveSync v. 3.1. This can be downloaded from the www.microsoft.com website.

Symbol Windows® CE SDK

The SDK installation program loads the required Windows® CE components on the development PC used to create the image files (via Terminal Configuration Manager) for download to the terminal.

The Symbol Windows® CE SDK CD includes:

- Symbol-Platform SDK
- Default CE images
- Device drivers
- TCM tools
- Sample code
- This Product Reference Guide
- HTML Help files.

Installing the SDK on the Development PC

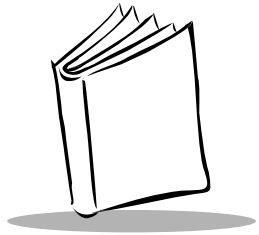
The Windows® CE SDK installs through Windows in the directory C:\SYMBOL WINDOWS CE SDK, and also installs files in the Windows® CE Tools directory (generated by the CE Tool Kit).

Installing the SDK

1. Insert the CD in the CD drive on the development PC (drive D: on most computers).
2. From the Start menu, choose **Run**.
3. In the open box, type: `<drive>:SETUP` and press **ENTER**.

Note: *To ensure the best operation of the SDK, do not change the base path set up in the installation.*

4. Follow the installation prompts.



Chapter 3
Spectrum24 Network Configuration

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Introduction

In order to use Symbol's Spectrum24 wireless LAN on the terminal, the terminal must be properly configured with the correct ESS ID and other network entries. This chapter covers the procedures for setting up your terminal on the network.

To configure the terminal for use on the Spectrum24 wireless network:

1. Press and hold the Power button for 16 seconds to cold boot the terminal. The Symbol splash screen displays.
2. The calibration screen displays. Calibrate the screen and accept the new calibration values when prompted. The Program Launcher screen displays.
3. Select the Control Panel option. The Control Panel Test Program screen displays.
4. Select the S24 Configuration option. The Spectrum24 Configuration screen displays.

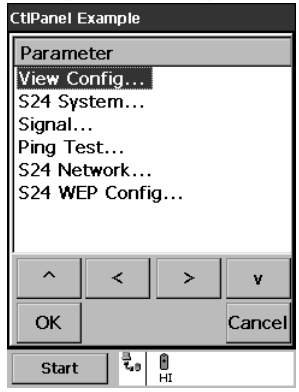


Figure 3-1. Spectrum24 Configuration screen

The Spectrum24 Configuration screen has the following options:

- View Config: Displays the current Spectrum24 system information and configuration
- S24 System: Enables you to set some commonly used Spectrum24 system parameters
- Signal: Displays the signal strength, roaming count and network status
- Ping Test: Provides both ICMP ping and WNMP ping test
- S24 Network: Allows you to define Spectrum24 network settings, such as enable DHCP or setting IP address, subnet mask, DNS, WINS, etc
- S24 WEP Config: Configure Wired Equivalency Protocol for Network Connection.

View Configuration

1. Select the View Config option. The View Config screen displays.

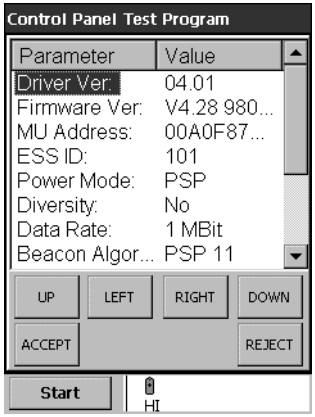


Figure 3-2. Spectrum24 View Configuration screen

The View Configuration screen displays a variety of Spectrum24 details. Specifically:

- S24 Driver Version
- S24 Firmware Version
- MU's IEEE Address
- Current ESSID
- Power Mode (PSP or CAM) (or Diversity for Spectrum24 high rate radios)
- Antenna Diversity (Yes or No) (or Long Preamble for Spectrum24 high rate radios)
- Supported Data Rate (1Mbit, 2Mbit, 1 and 2Mbit)
  (5.5 Mbit and 11Mbit available on Spectrum24 high rate radios)
- Beacon Algorithm (PSP xx) (or Performance Index for Spectrum24 high rate radios)
- Functional Mode (MU or MicroAP)
- Country Text
- Adapter Type (PCMCIA or ISA)
- Firmware Type (Spring or 802.11)
- Association Status (Yes or No)
- Link Speed (if associated)
- Quality (if associated).

2. Press the OK or Cancel button to display the Spectrum24 Configuration screen.

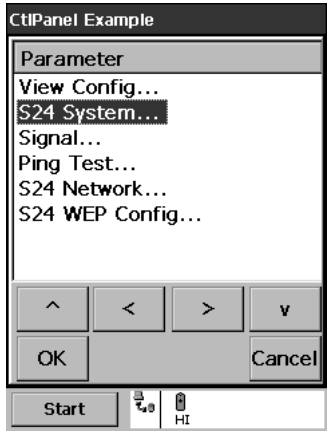


Figure 3-3. Spectrum24 Configuration screen

Spectrum24 System Configuration

1. Select the S24 System option to view the S24 System screen.

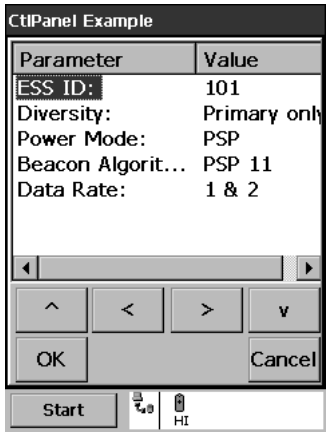


Figure 3-4. Spectrum24 System Configuration screen

The Spectrum24 System screen allows you to define the following Spectrum24 settings:

- ESS ID
- Antenna Diversity: (Yes or No)
- Power Mode: (PSP or CAM)
- Beacon Algorithm: (PSP1 to PSP12)
- Data Rate (1Mbit, 2Mbit, 1 and 2 Mbit).

To change any of the values in these fields, use your left and right buttons to scroll through the values for each field or tap the option on the left-hand side of the screen, and the value on the right-hand side of the screen will change.

Note: If Permanent Persistence is selected via the Control Panel Options, a unique registry file is created for each parameter.

2. When the values on this screen are set as required, press the OK button. The Spectrum24 Configuration screen re-displays.

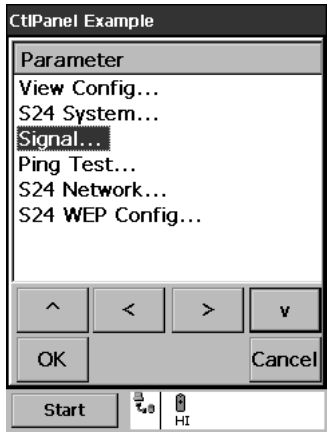


Figure 3-5. Spectrum24 Configuration screen

Signal Strength

1. Select the Signal option. The Signal screen displays.

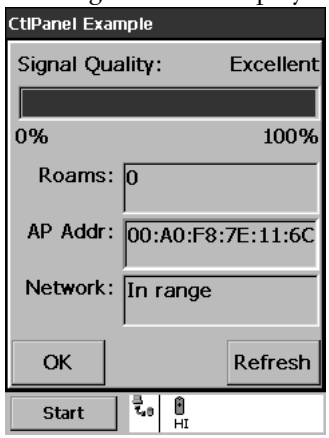


Figure 3-6. Spectrum24 Signal Strength screen

The Signal screen displays the Spectrum24 signal quality (signal strength in 0% to 100%), the Roaming Count (number of changes from one AP to another), the AP address, and the Network status (In Range or Out of Range).

2. Press the OK button to display the Spectrum24 Configuration screen.

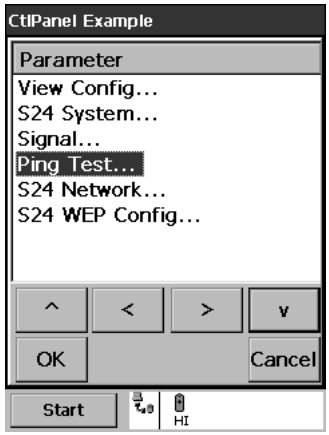


Figure 3-7. Spectrum24 Configuration screen

Ping Test

1. Select the Ping Test option. The Ping Test screen displays.

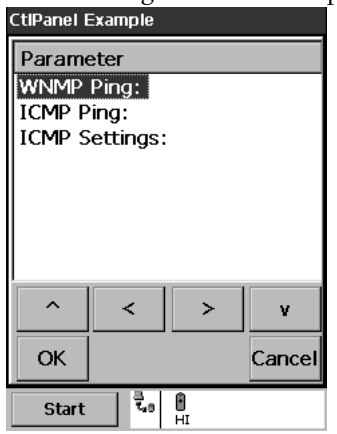


Figure 3-8. Spectrum24 Ping Test screen

This screen allows you to perform a WNMP Ping test, a ICMP Ping Test, or change the ICMP settings to be used in the ICMP Ping Test.

2. Select the WNMP Ping option. The WNMP Ping test screen displays.

Figure 3-9. Spectrum24 WNMP Ping Test screen

This function sends a WNMP ping packet to the associated AP adapter or to the local adapter (if not associated).

3. Press the OK button to display the Ping Test screen.

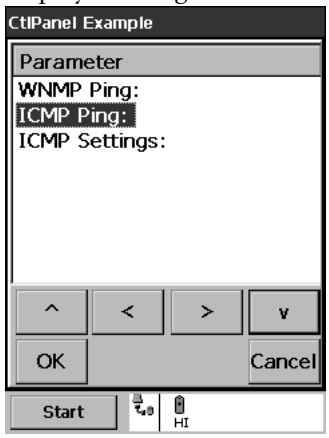


Figure 3-10. Spectrum24 Ping Test screen

4. Select the ICMP Ping option. The ICMP Ping screen displays.

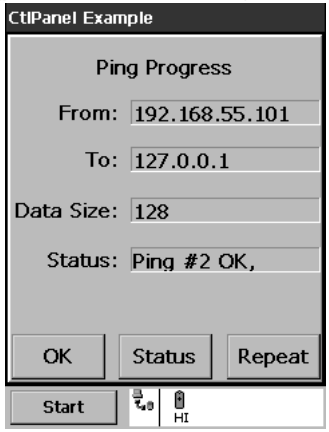


Figure 3-11. Spectrum24 ICMP Ping Test screen

The ICMP Ping test sends an ICMP ping packet to the IP address specified on the ICMP setting screen. By default, it sends three pings to the local IP address (127.0.0.1) with the size of 128 bytes.

5. Press the OK button to return to the Ping Test screen.

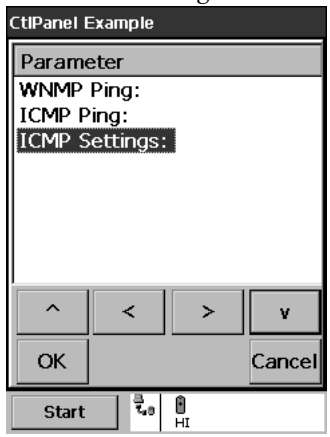


Figure 3-12. Spectrum24 Ping Test screen

6. Select the ICMP Setting option. The ICMP Setting screen displays.

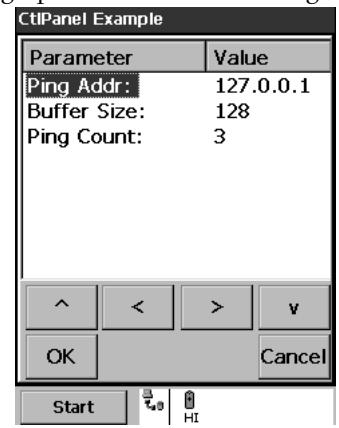


Figure 3-13. Spectrum24 ICMP Setting screen

The ICMP Setting screen allows you to set the ping IP address, ping buffer size, and ping count to be used in an ICMP Ping test.

7. To change the data on this screen, use your left and right buttons or tap the option on the left-hand side of the screen to scroll through the available values for the field. Selecting the Ping Address option displays an entry screen which allows you to use the keypad to enter the correct data. When the data on the screen is set as required, press the Accept button. The Ping Test screen redisplays.

Select the OK button to return to the Spectrum24 Configuration screen.

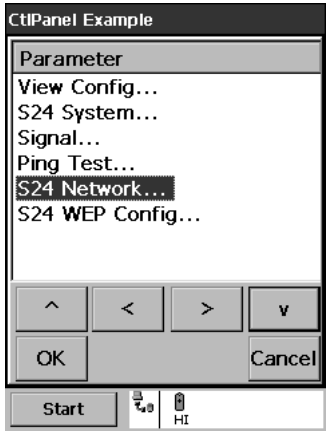


Figure 3-14. Spectrum24 Configuration screen

S24 Network Settings

1. Select the S24 Network option. The S24 Network screen displays.

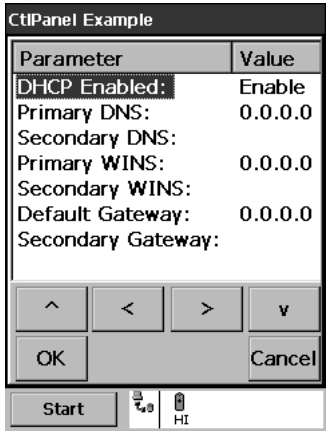


Figure 3-15. Spectrum24 Network screen

This screen allows you to define many of the Spectrum 24 network settings. Specifically, you may define:

- DHCP Enabled (Enable or Disable)
- IP Address (if DHCP is disabled)
- Subnet Mask (if DHCP is disabled)
- Primary DNS
- Secondary DNS
- Primary WINS
- Secondary WINS
- Default Gateway
- Secondary Gateway.

To modify the values in any of the fields, tap the field on the left-hand side of the screen. Depending on the parameter, the system either scrolls through the list of valid values for the field, or an entry screen displays, enabling you to enter the correct data via the keypad. When the values in these fields are set as required, press the Accept button.

Note: *If Permanent Persistence is selected via the Control Panel options, a unique registry file is created for each parameter.*

S24 WEP (Wired Equivalent Privacy) Configuration

Note: *Refer to the Access Point Product Reference Guide for additional steps that may be required to complete the WEP configuration.*

1. Select the S24 WEP Config option to display the S24 WEP Config screen.

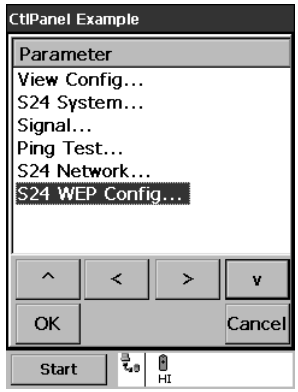


Figure 3-16. Spectrum24 WEP Configuration Selection screen

This screen allows you to set the parameters for WEP.

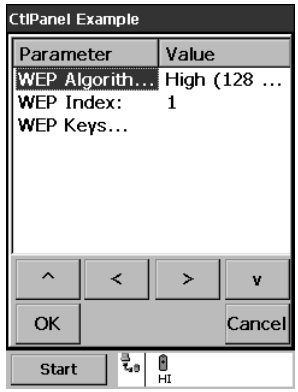


Figure 3-17. Spectrum24 WEP Configuration screen

- WEP Algorithm - Select None (Clear), Low (40 bit), or High (128 bit)
- WEP Index - Select 1, 2, 3, or 4

- WEP Keys - If WEP Algorithm is not set to None, it allows selection of the 4 keys associated with the index. By selecting any of the 4 keys and pressing Enter, a data entry dialog pops up that can be used to modify the data.

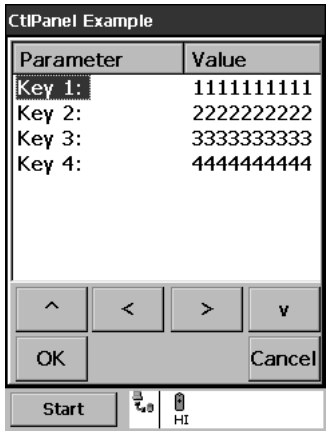
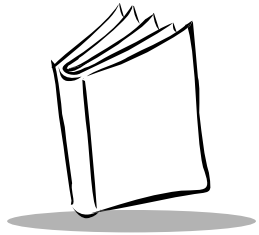


Figure 3-18. Spectrum24 WEP Data Entry Dialog screen

When all the values are set as required, suspend/resume or warm boot the operating system for the changes to take effect.

Note: If Permanent Persistence is selected via the Control Panel options, a unique registry file is created for each parameter.



Chapter 4
Cradle Setup and Operation

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- Installing a New or Recharged Battery 4-9
- Removing the Battery 4-10
- Replacing the Battery in an Active Terminal 4-10
- Re-initializing the Battery Pack 4-11

Introduction

The CRD 7200 single-slot cradle is used for battery charging, host communication, and terminal storage. This chapter covers setting up the cradle, using the cradle to charge the terminal's battery and performing host communication with the cradle.

Setting Up the Cradle

Setting up the cradle involves connecting power to the cradle and connecting it to the host PC.

Connecting Power

1. Connect the power supply cable to the power port on the back of the cradle.
2. Connect the power supply cable's AC connector to a standard electrical outlet.

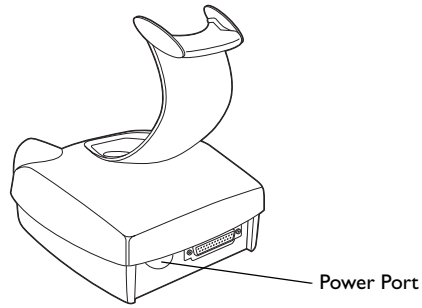


Figure 4-1. Power Connection

3. At power-up, the communications LED lights yellow for 3 seconds, then blinks seven times.

Connecting the RS-232 Cable to a Host Computer

1. Plug the RS-232 serial cable into the RS-232 port located on the back of cradle.

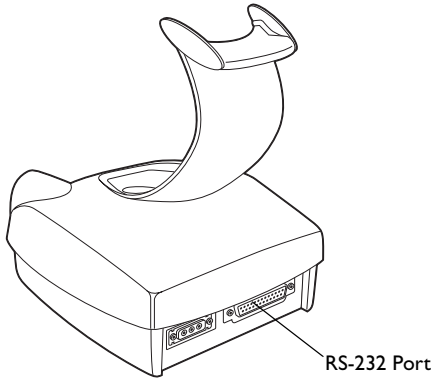


Figure 4-2. RS-232 Communication Port

2. Connect the other end of the cable to the serial (COM) port of the host computer or printer. Refer to *Cables* on page 1-5 for more information.

Using the Cradle

Charging the Terminal's Battery

The Li-Ion battery is automatically recharged whenever the terminal is properly inserted in the cradle. The terminal may be on or off.

Note: *If the PDT 7200 battery pack is fully discharged and untouched for approximately one week (depending on temperature), the battery pack must be re-initialized. Place the battery pack in the terminal and place the terminal in the cradle to re-initialize the battery pack.*

To insert the terminal in the cradle, engage the terminal's scan bumper on the cradle rest, then gently rotate the terminal into the cradle. Make sure the scan bumper is supported by the cradle rest, as shown in Figure 4-3.

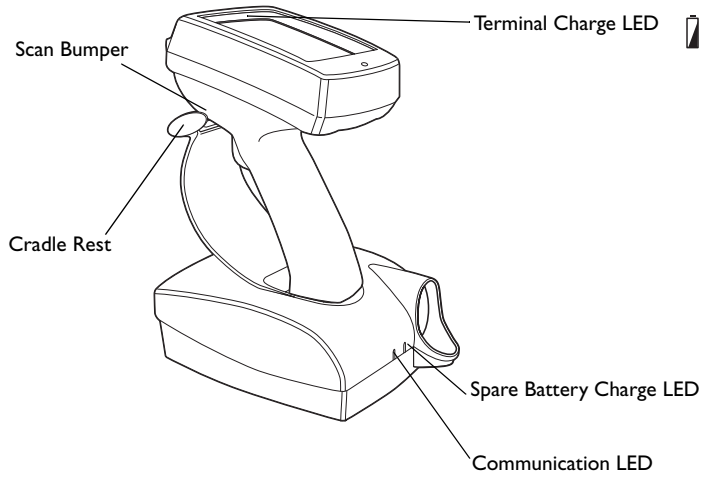


Figure 4-3. PDT 7200 Seated in Cradle

The terminal charge LED turns yellow when a terminal is placed in the cradle, and the battery begins to charge. The terminal must be left in the cradle 2 hours to recharge a fully discharged battery pack. Once charging is complete, the terminal charge LED turns green. If

the LED is off, either the terminal is not properly seated in the cradle, or a faulty battery pack is installed in the terminal.

Caution

The temperature range for charging the battery pack is 5°C- 45°C. Do not use the cradle outside these temperatures.

To remove the terminal from the charging slot, pull and lift out of the cradle.

Caution

Removing the terminal while the cradle's COM LED is blinking red disrupts communication between the host and the terminal.

Charging A Spare Battery

To recharge a spare battery, insert the battery in the spare battery charging slot, as shown in Figure 4-4.

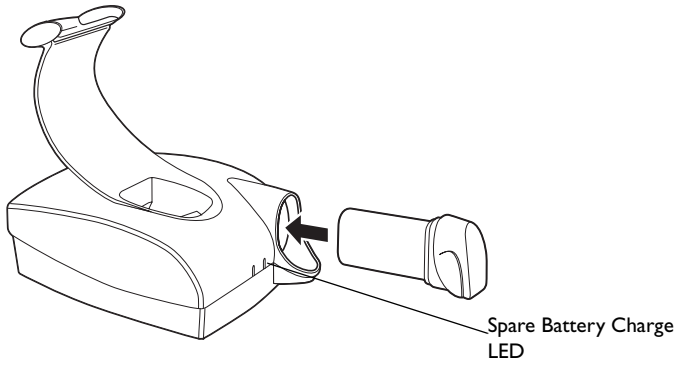


Figure 4-4. Inserting Spare Battery in Cradle

If a spare battery pack is present in the spare battery charge slot, the spare battery charge LED turns yellow. Once charging is complete, the spare battery charge LED turns green. If the LED is off, either no battery pack is present or a faulty battery pack is present in the slot. The

battery must be left in the spare battery charging slot for approximately 4 hours to recharge a fully discharged battery.

Host Communication

The cradle can be used to communicate with a host, printer or modem. The data is transferred via the IrDA port on the terminal to the IrDA port on the cradle, then transferred serially from the cradle to the host.

Sending Data

1. Make sure the cradle is receiving power.
2. Make sure the cradle is connected to the host, printer or modem.
3. Insert the terminal in the cradle.
4. Press the appropriate key on the terminal as required by your application program.

The cradle's COM LED blinks when communication begins.

Caution

Removing the terminal while the cradle's COM LED is blinking disrupts communication between the host and the terminal.

Cradle LED Indications

The following table describes the LED indicators.

Table 4-1. Cradle LED Indications

Condition	Spare Battery Charge LED	Terminal Charge LED	COM LED
ON	Yellow: spare battery is inserted in the cradle and the spare battery is charging; Green: spare battery is fully charged.	Yellow: terminal is inserted in the cradle and the battery is charging; Green: terminal's battery is fully charged.	
OFF	No spare battery (battery not inserted into spare battery slot)	Terminal is not properly inserted in the cradle.	Terminal is not communicating with the host.

Table 4-1. Cradle LED Indications

Condition	Spare Battery Charge LED	Terminal Charge LED	COM LED
BLINKING	Faulty battery.	Faulty battery.	Terminal is able to send and receive data.

Cradle Self Test

On power up, the cradles perform a self-test which checks the RAM and ROM. The Communications LED flashes during the self-test. The Communications LED on the cradle reveals the status as follows:

Table 4-2. Cradle Power LED

Communications LED Condition	Status
Power up/Self-Test (7 flashes -> off)	No error in RAM or ROM
LED flashing (8 flashes/second)	RAM test failure
LED flashing slowly (4 flashes/second)	ROM (CRC on flash) failure

If the cradle fails self-test (RAM or ROM failure), power the cradle down and back up. If the self-test fails again, call the Symbol Support Center for assistance.

Batteries

Primary power for the PDT 7200 is provided by a Lithium-Ion battery. The batteries operate for 8 hours in typical operating environments, although battery life between charges varies drastically depending on conditions, equipment options, and power demands.

If the battery is fully discharged and untouched for approximately one week, re-initialize the battery. Refer to *Re-initializing the Battery Pack* on page 4-11.

Battery Life

To increase the Lithium battery life, use software controls to decrease power demands:

- Turn off communication ports not used
- Turn off the backlight.

Backup Battery

Backup power is provided by supercaps. The backup batteries maintain RAM contents for a maximum of 5 minutes while the Lithium-Ion battery is replaced.

Installing a New or Recharged Battery

Caution

To ensure proper terminal operation, use ONLY the Symbol Li-Ion battery in the PDT 7200.

Note: *Before replacing the battery, always power down the terminal first by pressing the power icon* ⏻ .

To install a new or recharged Li-Ion battery:

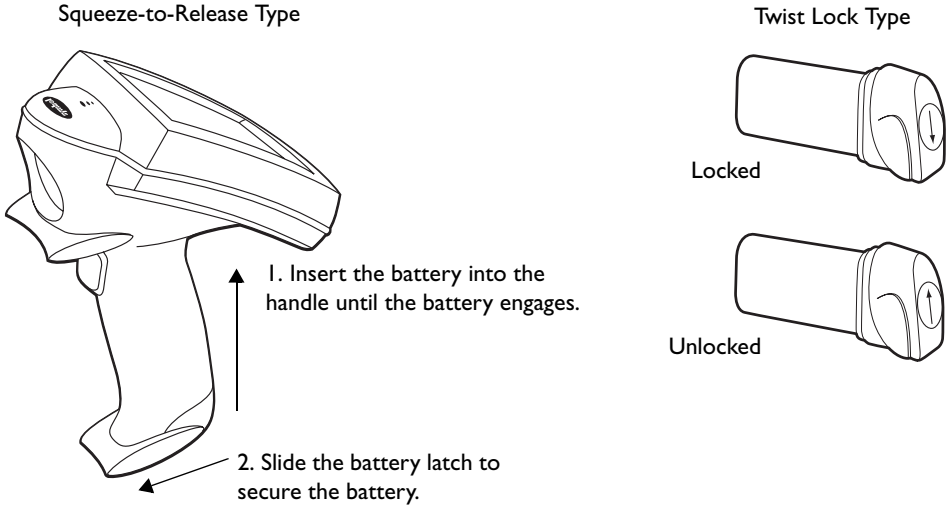


Figure 4-5. Inserting the Battery

If the battery latch is not closed or locked, 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

Suspend the terminal by pressing the PWR key.

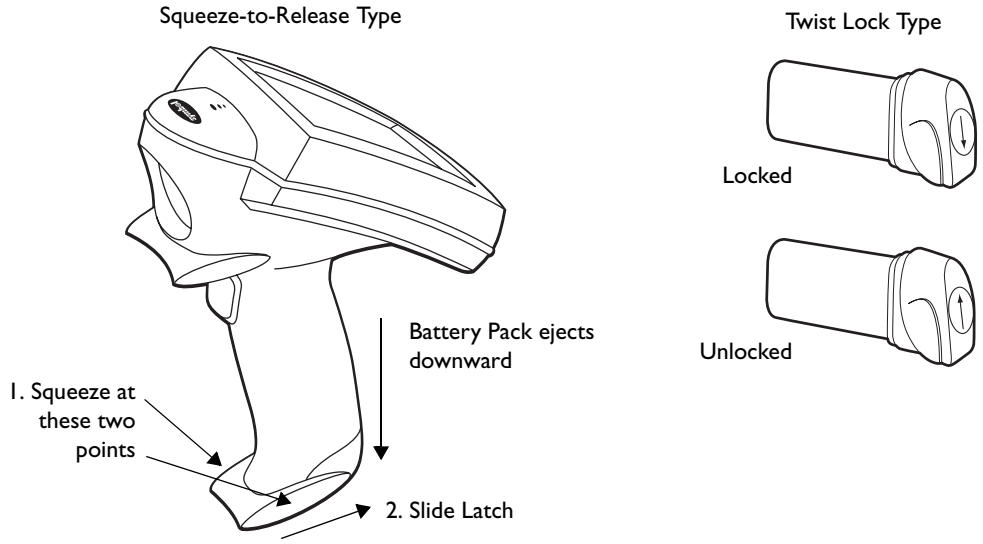


Figure 4-6. Removing the Battery

Replacing the Battery in an Active Terminal

If the terminal is running from battery power *only*, unlatching and/or removing the battery causes the terminal to shut off power to the LCD display and to any PCMCIA cards that were powered (i.e., modem or radio cards). The terminal may lose the program state and any data stored in on-board RAM.

To avoid these problems, replace the battery in an *active* terminal running on battery power:

1. Suspend the PDT 7200 by pressing the Power key.

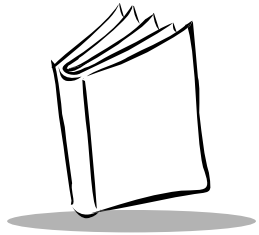
To ensure that the terminal is fully suspended and not timed out, press the Power key again, wait for the display to come on, then press the Power key again to fully suspend the terminal.

2. Remove the battery.
3. Insert a fully charged battery and relatch.

Re-initializing the Battery Pack

You must re-initialize the battery pack if it is fully discharged and untouched for approximately one week.

1. Install the battery pack in the terminal. Refer to *Installing a New or Recharged Battery* on page 4-9.
2. Place the terminal in the cradle to re-initialize and charge the battery pack. Refer to *Charging the Terminal's Battery* on page 4-5.



Chapter 5
Operating the Terminal

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Introduction

This chapter describes how to perform basic tasks with a terminal that has been configured and charged. For information on configuring the terminal, see Chapter 6, *Configuring the Terminal*.

Powering the PDT 7200

Power for the PDT 7200 is provided by a Li-Ion rechargeable battery pack. Before powering on the terminal, initialize it and install a new or fully-charged battery pack. Refer to Chapter 4, *Cradle Setup and Operation* for more information on battery packs. Refer to Chapter 6, *Configuring the Terminal* for information on initializing the terminal.

To power the PDT 7200 on or off, press the ⏻ icon on the display in the upper left-hand corner.

Booting the Terminal

Warm booting the terminal is similar to performing a **CTRL+ALT+DEL** on a PC. To warm boot the terminal, press and hold the ⏻ icon for at least 6 seconds, but less than the cold boot timeout value of 16 seconds.

Cold booting the terminal generates a system reset, the same as a power-on boot on a standard PC. To cold boot the terminal, press and hold the ⏻ icon for 16 seconds until the terminal reboots.

Suspending and Resuming Operation

To suspend or resume operation, press the PWR key ⏻ on the PDT 7200. The terminal can also resume operation from various wakeup sources (if enabled through the application). The wakeup sources available on the PDT 7200 are listed in Table 5-1.

Note: *The default for enabling/disabling these wakeup sources depends on how the terminal is suspended (**manual** suspend using the PWR key vs. **automatic** suspend via timeout). An application can also control the source of a terminal wakeup, overriding the defaults.*

Table 5-1. PDT 7200 Wakeup Sources

Source	Automatic Default (Inactivity timeout)
PWR key	enabled
AC adapter connect	enabled
Cradle insert/remove	enabled
Battery insert	disabled
Scan trigger(s)	enabled
keyboard (any key)	enabled
Touch panel	enabled
Alarm timer	enabled
PCMCIA Slot	enabled ‡
COM*x* ring (*x*=1, 4, 5)	enabled
COM*x* Rx Data (serial) (*x*=1, 4, 5)	enabled
‡ Some cards are designed to wake up the terminal (e.g., radio or modem cards). Be sure to use wakeup ONLY on cards that are designed for it and that you want to wake up.	

Terminal operation can be suspended in four ways:

- Manual suspension
  - the operator presses the PWR key. Refer to Table 5-1 for the default values.
- Automatic suspension
  - the terminal times out because of no operator activity. Refer to Table 5-1 for the default values.
- Program dependent suspension
  - the application requests a suspend via an API call
  - the application sets a wakeup source to resume.
- Critical suspension
  - the battery pack is removed or is very low
  - PWR key is required to resume.

Using the Touchscreen

The PDT 7200 is equipped with a touchscreen, which allows you to use your finger to select items on the screen as you would with a mouse. The full range of touchscreen uses depends on the application running on the terminal.

Using the Touchscreen Keypad

The PDT 7200 is equipped with virtual keypad capability. Sample code is provided for use in designing custom keyboard layouts.

User Button

Press the user button on the top right-hand side of the screen to output a special key-code, used by the programs, for customizing the terminal. The pop-up keyboard program uses this button to enable or disable the virtual keyboard in the out-of-box demo program. Refer to the *Software Developer's Kit (SDK)* for examples on how to use this button.

Adjusting the Display and Backlight

To adjust the display contrast:

- Press and hold the ◐ Contrast icon located at the top of the display to cycle through the contrast levels. To lower the contrast level, repeatedly tap the contrast icon until you reach the desired setting.

To adjust the backlight:

- Tap the Backlight icon to toggle the backlight on/off.

Scanning

The PDT 7200 gains scanning capability through separate scanning modules supporting:

- 1-Dimensional standard scanning elements
- 1-Dimensional long range scanning elements
- PDF417 2-Dimensional symbology (with 2D scan engine).

Note: *The scanning application and scanner driver must be loaded on the terminal to perform scanning.*

Using the Dual-Position Trigger

The PDT 7200 has a dual-position scan trigger, which serves two functions. These functions are programmable and may be changed for your application. The two positions of the trigger are activated as follows:

- The first trigger position is accessed by pulling the trigger to the first click and releasing. This activates the keypad
- The second position is accessed by pulling the trigger past the first click, the remaining distance to the handle. This activates the scanner
- Activation of the virtual keypad via the trigger can be disabled by pressing the "on screen" user icon when the keypad is not visible, and re-enabled by pressing the icon again. An audio sound is played upon activation and deactivation.

Using the Scanner

1. Verify that the terminal is on (the display is active).
2. Ensure that a scanning-capable application is loaded and prepared to allow scanning.
3. Point the scanner at the bar code and pull the trigger to the handle.
4. Ensure that the scan beam crosses all bars and spaces on the symbol, as shown:

   Optimal scanning distance varies with bar code density and scanner optics, but most combinations work within 4 to 10 inches. Generally:

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

5. If the decode is successful, the LED turns from yellow to green. The terminal may also beep.

Note: *The procedure for your scanner may differ from the one listed above. Scanner operation depends on the application.*

Scanning Considerations

Usually, scanning is a simple matter of aim, scan, and decode, and a few quick trial efforts master it. However, two important considerations can optimize any scanning technique — range and angle.

Range

Any scanning device decodes well over a particular working range — minimum and maximum distances from the bar code. This range varies according to bar code density and scanning device optics.

Scanning within range brings quick and constant decodes; scanning too close or too far away prevents decodes. So you need to find the right working range for the bar codes you are scanning. However, the situation is complicated by the availability of multiple integrated scanning modules, some with specialized capabilities such as long range and 2-D decode capability. The best way to specify appropriate working range per bar code density is through a chart called a decode zone for each scan module. A decode zone simply plots working range as a function of minimum element widths of bar code symbols. See Appendix A, *Specifications* for more information about the decode zone for the PDT 7200 terminal.

Angle

Scanning angle is important for promoting quick decodes. When laser beams reflect directly back into the scanner from the bar code, this specular reflection can “blind” the scanner.

To avoid this, scan the bar code so that the beam does not bounce directly back. But don’t scan at too sharp an angle; the scanner needs to collect scattered reflections from the scan to make a successful decode. Practice quickly shows what tolerances to work within.

Note: *Contact the Symbol Support Center if you have difficulties scanning. Decoding properly printed bar codes should be quick and effortless.*

Scanning Options

Smart Raster Capability

All integrated 2D scan engines may be programmed for "Smart Raster" capability, which causes the scanner to emit a raster pattern dynamically optimized to the particular PDF417 bar code's shape. To increase scanning efficiency and optimize decode time, the scanner determines the geometry of the bar code and opens at a rate and size optimal for decoding that bar code.

In normal "Smart Raster" operation, a trigger pull causes a slab raster pattern to appear. If the target is a 1-D bar code, the pattern never gets beyond a slab raster. But if the target bar code is PDF417, the scanning patterns open up to a full, optimized raster pattern as soon as the scanner is properly aligned over the bar code (Figure 5-1).

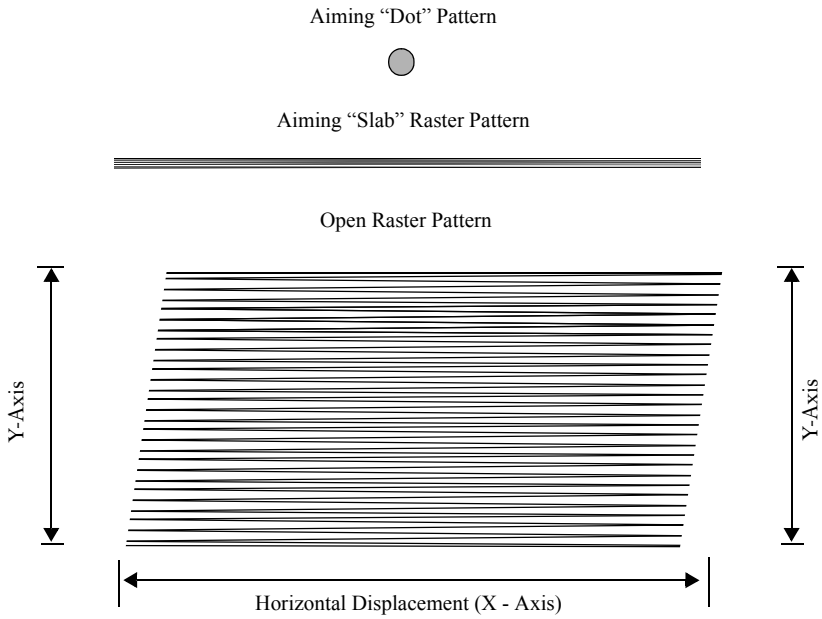


Figure 5-1. 1-D/PDF417 Scan Element Aiming and Scanning Patterns

For best operation in smart raster mode, keep the scan pattern as parallel to the symbol's rows as possible, keep the scanner as still as possible, and hold the scanner at an angle which does

not give specular reflection (refer to the section *Angle* on page 5-7). Likewise, the symbol should be in good condition.

1-D/PDF417 Scanning Mode Options

There are three scanning options: aiming with a dot pattern, scanning with a slab raster pattern, or always raster.

- *Aiming Dot Option*

  A trigger pull creates the single dot aiming pattern, which lasts for a fixed interval. This dot easily can be seen in outdoor or high ambient light environments. A slab raster pattern or an open raster pattern appears next, depending on the programmed scanning option. There are two programmable timeout periods for this option — normal and extended.

- *Slab Raster Option*

  A trigger pull creates the slab raster pattern. If the target is a 1-D bar code, the pattern never gets beyond a slab raster. But if the target bar code is PDF417, the pattern opens up to an optimized raster pattern as soon as the scanner is properly aligned over the bar code.

- *Always Raster*

  When programmed to this option, the PDF417 scan element directly opens to a full raster pattern whenever the trigger is pulled.

Scanning PDF417 Bar Codes

Make sure the terminal is programmed for a slab raster aiming pattern and smart raster mode.

1. Aim the scanner at the symbol. Try to keep the nose of the scanner parallel with the symbol's rows.
2. Make sure the symbol you want to scan is within the scanning range; refer to the 1-D/PDF417 decode zones. Then pull the trigger to scan.

   The scan pattern first covers the symbol horizontally (Figure 5-2).

Figure 5-2. Slab Raster Pattern on a PDF417 Bar Code

Make sure the scan pattern extends at least three-quarters of an inch beyond the edges of the bar code.

If the pattern is parallel to the symbol's rows, the pattern spreads vertically to cover the symbol (Figure 5-3). If the pattern does not cover the top and bottom of the symbol, pull the scanner back until it does.

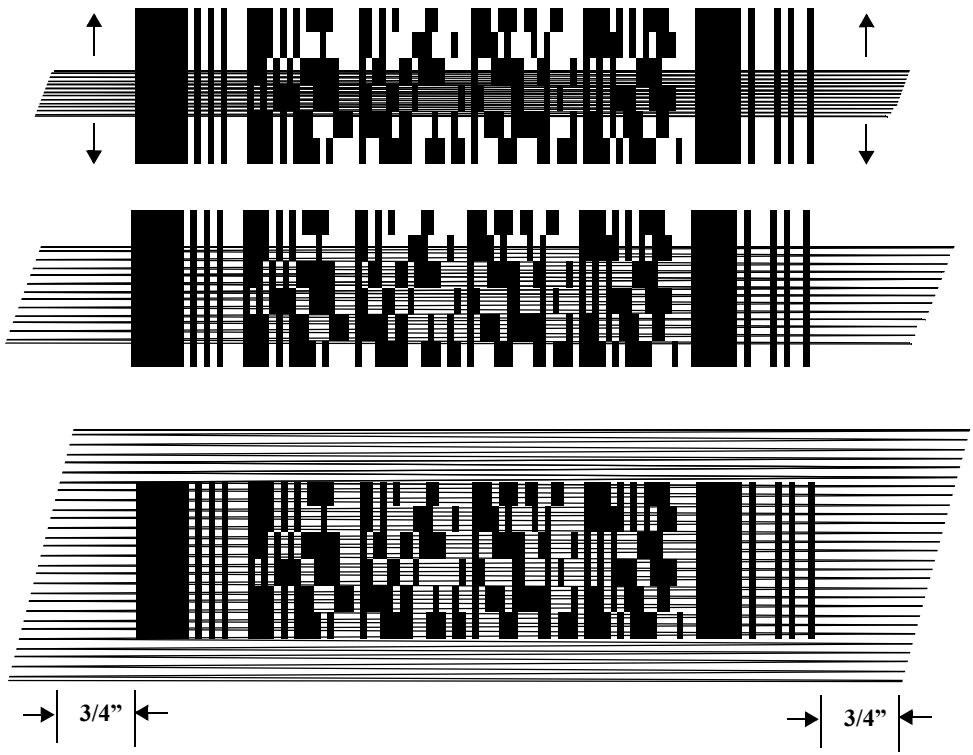


Figure 5-3. Scanning Pattern Spreading Over PDF417 Bar Code

The scanner has successfully decoded the symbol when:

- The green LED lights
- You hear a short, high tone beep.

Scan the Entire Bar Code Symbol

- The larger the symbol, the farther away you should hold the scanner to permit the raster pattern to cover the symbol (but not more than 8 inches). See Appendix A, *Specifications* for more details on the 1-D/PDF417 Scan Element Decode Zones.
- Hold the scanner close for denser symbols (not less than 2 inches).
- In all cases, make sure the scan pattern extends *at least 3/4 inch* beyond each edge of the bar code (Figure 5-4).
- The PDF417 bar code symbol has multiple rows, but the raster pattern also has multiple scanning rows. For this reason, as you scan:
  - Center the aiming pattern on the bar code, as illustrated in Figure 5-3.
  - Keep the pattern in the same horizontal plane as the bar code.

Figure 5-4. Orienting Scanning Pattern On PDF417 Bar Code

- If the vertical scan pattern is not high enough to cover a “tall” PDF417 symbol, 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 (Figure 5-5).

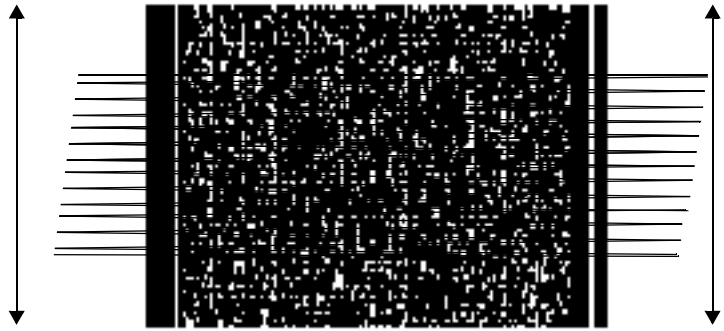
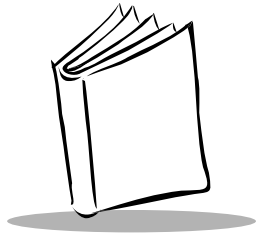


Figure 5-5. Moving Scan Pattern Upward and Downward on "Tall" PDF Symbol



Chapter 6
Configuring the Terminal

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Introduction

This chapter describes the Terminal Configuration Manager (TCM), and how it is used to specify and load files into the flash memory of the PDT 7200 using the terminal's Initial Program Loader (IPL).

TCM creates a table which lists the type of information, or "partitions", to download to the terminal. Partitions may be updated as new files or software upgrades are available. Use caution updating mandatory partitions, as updating these improperly may cause the terminal to function incorrectly.

Flash Partitions

In addition to the RAM-based storage standard on Windows® CE terminals, the PDT 7200 is also equipped with a non-volatile Flash-based storage area which can store data (partitions) that can not be corrupted by a cold boot. This Flash area is divided into two categories: Flash File System (FFS) Partitions and Non-FFS Partitions.

FFS Partitions

The PDT 7200 terminal includes up to three FFS partitions. These partitions appear to the terminal as a hard drive that the OS file system can write files to and read files from. Data is retained even if power is removed.

The three FFS Partitions are as follows:

- The Platform FFS Partition contains system and Symbol-supplied programs and Dynamic Link Libraries (DLLs). This FFS is configured to include DLLs that control system operation. Since these drivers are required for basic terminal operation, only experienced users should modify the content of this partition.
- The Application FFS Partition is used to store application programs needed to operate the terminal. This partition includes the Symbol demo program, which can be overwritten with your own program.
- The Data FFS Partition is available for user data files generated by your custom programs.

Non-FFS Partitions

Non-FFS Partitions include software and data pre-loaded on your terminal. Unlike FFS Partitions, these partitions are not visible when the operating system is running. They also contain system information. Non-FFS Partitions include the following:

- Windows® CE: the complete Windows® CE operating system is stored on Flash devices. If necessary, the entire OS image may be downloaded to the terminal using files provided by Symbol. The current OS partition on the terminal is included as part of the TCM installation package. Any upgrades must be obtained from Symbol. This partition is mandatory for the PDT 7200.
- Splash screen: a .BMP file smaller than 16 Kb, displayed as the terminal cold-boots. You may download a customized screen to display. See *Initial Program Loader (IPL)* on page 6-15.
- IPL: Initial Program Loader, a small utility program built into each terminal; provides a simple method of updating the flash contents via a serial port or cradle.
- Boot Loader: initializes the CE operating system prior to starting CE.

Downloading Partitions to the Terminal

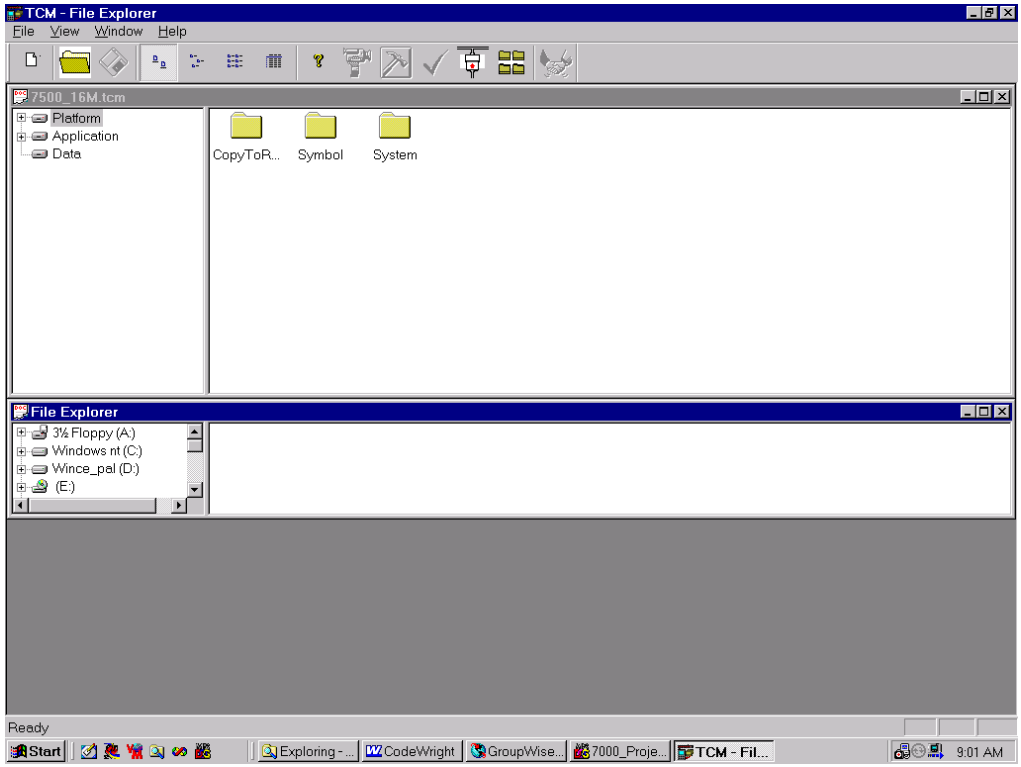
TCM is used to specify a hex destination file for each partition and download each file to the terminal. This download requires a program loader stored on the terminal. The terminal comes with a program loading utility, Initial Program Loader (IPL), stored in the terminal's write-protected flash.

The terminal must be inserted in a cradle or connected to a host PC by direct serial connection for downloading to occur. Following is an overview of the steps needed to allocate partition contents and download the hex files to the terminal.

1. On your host PC, use Windows® Explorer to assemble folders and files destined for partitions to create Source Root Directories. Application and Data Partitions may be modified to include your own software and data files. The Platform Partition may also be modified, but with extreme caution.
2. Set TCM to point to a specific Source Root Directory tree (assembled in Step 1) as the source for each partition. TCM converts each Source Root Directory tree, its files, its child directories, and all their files to a Source Image File in binary format.
3. Specify a hex destination filename. TCM converts each binary Image File to a hex Destination Image File.
4. Download all or selected hex destination files to the terminal.

Starting Terminal Configuration Manager

To start TCM, double click on the TCM icon in the SYMSDK group. The following screen appears, displaying two directory windows; Script1 and File Explorer. Each directory window is split; the left half (or *pane*) of the window displays the directory tree for the current drive, and the right half displays the directory contents for the current drive.



The following table lists the components of the TCM start-up screen.

TCM Screen Components

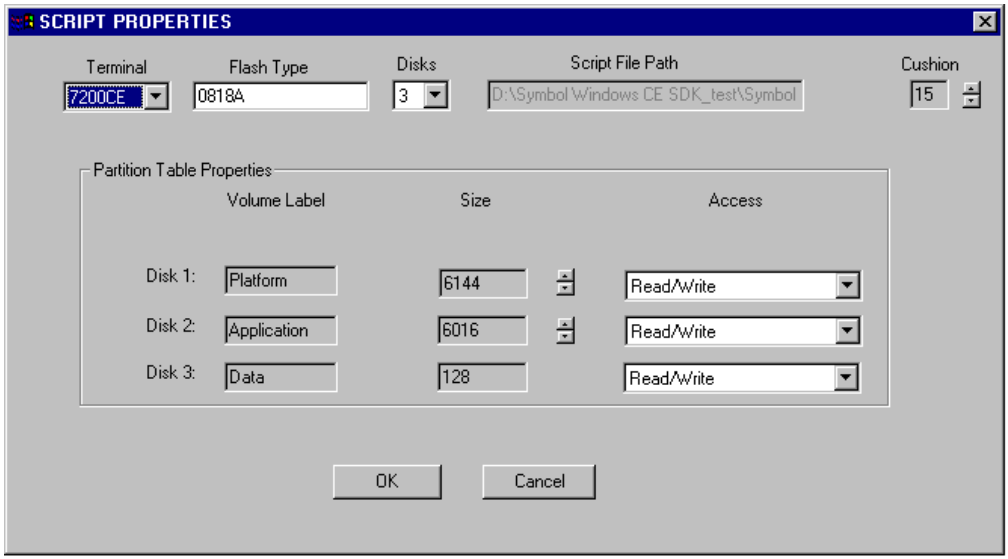
Component	Description			
Script Window	Associated with a script file containing the information to create a Flash Disk image. This window is the *target* window, or the primary TCM window in which you can create a script or change a script file's contents by copying, deleting, and renaming files and directories. More than one script window can be open at a time. The Script Window consists of two panes, the Directory Tree Pane on the left and the Directory Contents Pane on the right. Subordinate directories and files of each volume are listed in the Directory Contents Pane.			
File Explorer	A *read-only source* window for files and/or directories to include in the script being built.			
Tool Bar	Contains the tools, illustrated below, for taking action on a script.			
		Create a new script file.		Check script for existing files.
		Open a script file.		Select the hex image to load.
		Save a script file.		Tile windows.
		View script properties.		Build and send the hex image to the terminal.
		Build a script.		

Defining Script Properties

Before a script is created, the script properties must be defined. This defines the type of terminal, type of flash type, number of disks being created, the memory configuration of each disk volume.

To define the script properties:

1. With TCM open, click on the Script Window to make it the active window.
2. Under the script menu, select the Properties option.
   OR
   Click on from the tool bar. The Script Properties window displays.



3. Under the Terminal pull-down menu, select 7200CE .
4. In the Flash Type field, enter the type of flash chip installed in your unit, as indicated by booting into IPL. Refer to *Invoking IPL* on page 6-16.
5. Under the Disks pull-down menu, select the number of disk volumes to be created.

Note: *The options available under the disks pull-down menu changes depending on the flash type. Some flash types only have one option for the number of disk volumes, others have two options.*

6. If you have selected three volumes under the disk pull-down menu, you have the option to change the memory configuration of the second and third volumes. To do so, click on the up or down arrow for either of the volumes, until the size of each is set to the desired value. You will notice that as you change the values for one of the volumes, the other volume is automatically changed accordingly.
7. For each disk volume, determine the Read/Write access option.
8. The current path for your operating system source displays in the System File Path field. If this is not the correct path, click on the Browse button and navigate to the correct directory.
9. The Script File Path displays the path of the selected script file.
10. Select a Cushion percentage from the Cushion pull-down menu to specify the percent of flash reserved for cushion. Choosing a higher number reduces disk storage space, but also increases write performance on fragmented disks or disks becoming full. To speed the writing process, select as high a number as your storage needs permit (up to 25%).

Creating the Script for the Hex Image

On start-up, TCM displays the screen shown on page 5, with the Script1 window and File Explorer window pointing to your system drives. The Script1 Window directory pane displays three volumes: Volume1, Volume2, and Volume3. Depending on the type of flash chip you have, the number of volumes may change. Files can be added to each of the volumes.

- Create a new script file or open an existing script
- Drag and drop existing files and directories to that script
- Set the script parameters
- Save the script
- Review and modify the script.

Each process is described in the sections that follow.

Open a New or Existing Script

Scripts are created in the Script Window.

To open a new script:

- Choose New from the File Menu, OR
- Click on from the tool bar.

To open an existing script (e.g., a standard script provided in the SDK):

- Choose Open from the File Menu and select the script file name, OR
- Click on from the toolbar and select the script file name, OR
- Double click on an existing script in the Script Browser window.

Note: *If you open and make changes to an existing script, saving the changes writes over the existing script. If you wish to use an original or Symbol-supplied standard script as a base and save the changes in a new script, use Save As instead of Save after making the changes.*

Copy Components to the Script

Copy files from the File Explorer Window to the Script Window using the drag and drop method with the mouse or the Copy command.

To copy *files or directories* to the script being generated:

1. Click on the File Explorer Window to make it the active window.
2. Click on the source directory in the Directory Tree Pane. TCM displays the directory contents in the Contents Pane.
3. Click on the file(s) and/or directory in File Explorer.

Note: *Optionally, use the standard Windows® Shift+Left-click and Control+Left-click features to select multiple files and directories.*

---

4. Drag and drop the selected file(s) and/or directory from File Explorer to the target directory in the Script Window.

   OR

   Click on the target directory and select the File Explorer Copy icon from the toolbar.

Save the Script

To save the changes to a new script:

1. From the File menu, choose Save As.

   OR

   On the toolbar, click on .
2. Enter the path and filename. TCM appends a .TCM extension to the script.
3. Choose the OK button.

Note: *If you save an untitled script, TCM by default saves the script to the directory that the Script Browser is pointing to.*

To save changes to an existing script:

- From the File menu, choose Save, OR
- On the toolbar, click .

Note: *If you open and make changes to an existing script, saving the changes writes over the existing script.*

If you wish to use an original or Symbol-supplied standard script as a base and save the changes in a new script, use Save As instead of Save after making the changes.

Building the Image

As part of the build, TCM performs a check on the script which verifies that all files referenced in the script exist. If the image is bootable, TCM verifies that the boot files are available.

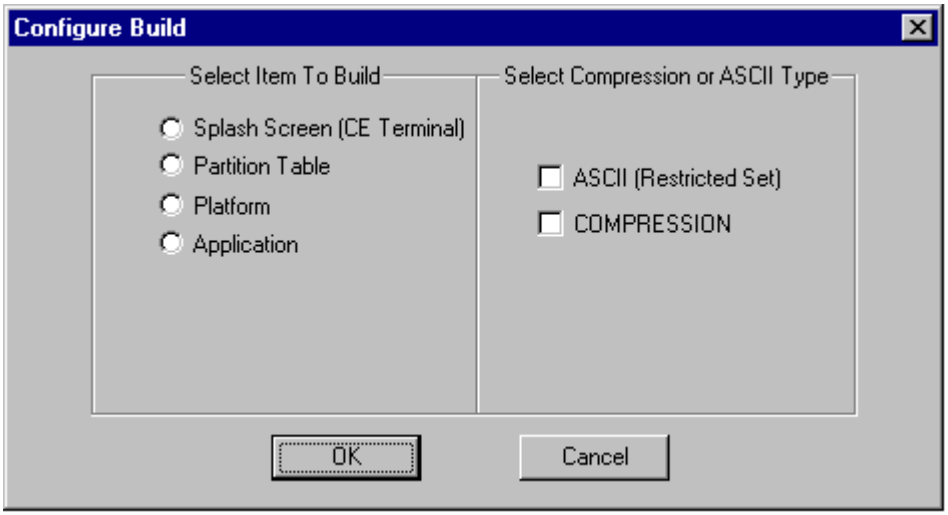
Note: *Performing a check is more important for previously existing scripts to ensure that files referenced in the script are still in the designated locations.*

To check a script:

1. In the Script Window, select the script.
2. Save the script, if not already saved.
3. From the Script Menu, choose Check.
   OR
   On the toolbar, choose .
4. TCM verifies that files referenced in the script exist on available drives and lists an error message in the Errors found box for any missing files.
5. Choose the OK button to exit.

To build a script:

1. In the Script Window, select the script to be built.
2. From the Script menu, select Build.
   OR
   On the toolbar, choose . The Configure Build window appears.



3. Select whether to build the partition table, or one volume.
4. Select ASCII format for your hex image, or Compression, which reduces the size of most hex images in order to speed downloading. Click OK.
5. TCM performs a check. If the script is has no errors, TCM proceeds with the build.

If the Build Fails

If the build fails, TCM displays a message indicating which file(s) are missing.

If the total amount of flash required by the script exceeds the image size, a TCM error results and the build fails. To correct this, reduce the number of files in the volume, or make the disk non-bootable. Refer to *Defining Script Properties* on page 6-7 for more information on setting the image size appropriately.

Creating a Splash Screen

To generate a custom splash screen, use a bitmap editor, such as Paintbrush. To create the screen:

1. Create a 16-color bitmap with dimensions of BX x BY where:
   - BX is less than or equal to 240 pixels
   - BY is less than or equal to 160 pixels.

Note: *The splash screen is rotated 90° counterclockwise by the terminal prior to display. Therefore, after you create the splash screen, rotate it 90° clockwise.*

---

2. Be sure to create the file with 16 colors, where 4 bits are used for each pixel of data in the file. IPL will not load if the number of bits of data for each pixel (bpp) does not equal 4.
3. After creating the bitmap the .bmp file should be run through a utility "bmptool.bat", included in the SDK under the SPLASHSCREEN folder.

Sending the Hex Image

Once the hex file is built, you are ready to download it to the terminal. A Hex image download requires both TCM and a program loader stored on the terminal. The terminal comes with a program loading utility, Initial Program Loader (IPL), stored in the terminal's write-protected flash. To run IPL, the terminal must be inserted in a cradle or connected to a host PC by direct serial connection. Refer to *Invoking IPL* on page 6-16.

Saving the Script

If you made changes to the script since last saving it, save the script again.

Connect The Terminal and Development PC

To send the hex file to the terminal, first link the terminal and development PC by one of the following devices:

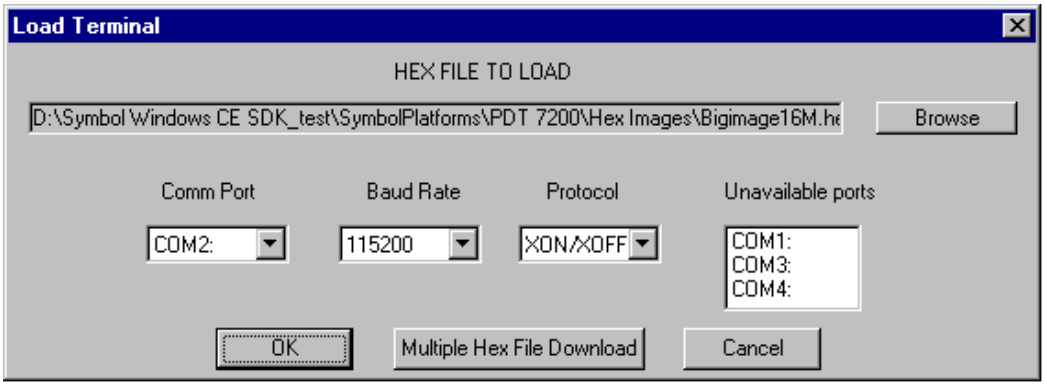
- Direct serial link
- Cradle (refer to Chapter 4, *Cradle Setup and Operation* for more information on setting up the cradle).

Begin the Send in TCM

In TCM on the PC:

Note: *IPL must be invoked before sending the image.*

1. Select the script.
2. From the file menu, choose Load Terminal.
   OR
   On the toolbar, choose . The Load Terminal screen displays.



3. If the correct hex file is not displayed in the Hex File to field, click on the browse button and navigate to the correct hex file to be downloaded.
4. Click on the Comm Port pull-down menu and select the COM port being used. Ports already in use display in the Unavailable Ports field.
5. Click on the Baud Rate pull-down menu and select the appropriate baud rate. Your options are 2400, 4800, 9600, 19200, 38400, 57600, 115200.
6. Click on the Protocol pull-down menu and select the XON/XOFF protocol.

Initial Program Loader (IPL)

Initial Program Loader (IPL) is a small utility program that is built into each terminal. The purpose of IPL is to provide a simple method of updating the flash contents via the serial port or cradle. The images that IPL can accept are in the form of "hex" files that contain not only the data to be downloaded to the terminal, but also sufficient extra information to ensure that each hex file contains an image for a single partition. Hex files for standard system components such as the boot loader and Windows® CE Core are provided by Symbol. Hex files for custom components, such as disk images or custom partition maps are built on a PC using the TCM program. IPL is only capable of loading whole partitions (it cannot update individual files in a disk image).

Using the Keyboard

Operation of the IPL is controlled by the touchscreen. IPL recognizes the following controls:

- Cursor Up arrow
- Cursor Down arrow
- Enter or Trigger
- Backlight icon
- Contrast icon (lighter/darker).

The effects of these keys are as follows:

Cursor Up/Down	Touching the screen on the up/down arrows causes the previous/next item in the menu to be highlighted. Moving off the end of a menu causes a wrap to the other end of the menu list. If the menu is longer than the screen is deep, then screen will automatically scroll up or down to keep the highlighted item visible on the screen.
Enter or Trigger	Touching the screen or pressing the trigger causes the currently highlighted item to be selected, and IPL advances to the next screen.
Backlight	Pressing this icon toggles the backlight (if present) between on and off. This icon is always active (even if IPL is not in a menu screen).
Lighter/Darker	Each press of this icon adjusts the screen contrast up. Holding this icon down adjusts the screen contrast down. The keys are always active (even if IPL is not in a menu screen).

Invoking IPL

To deliberately invoke the IPL, hold the trigger while performing a cold boot by pressing and holding the Power Key for the required amount of time. If the trigger is pressed when the terminal is reset, then control is passed to IPL instead of to the Boot Loader. If the trigger is not pressed, then IPL verifies all mandatory partitions to ensure that they are present, and verifies the checksum on all checksummed partitions (IPL, Partition Map, Boot Loader, Splash Screen, and Windows® CE). If any of these partitions is missing or corrupted, then control is automatically passed to IPL instead of the Boot Loader, so that the corrupted data can be reloaded before it causes any problems. If IPL is invoked accidentally, then either reset the terminal again without holding the trigger, or select Run System option in the baud rate menu.

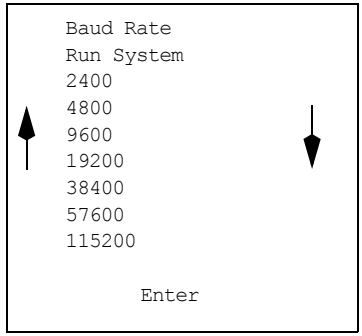
When IPL is invoked (by cold booting while pressing the trigger, or by detecting a corrupt flash partition), IPL sounds the beeper to indicate that IPL has been invoked, and displays the Copyright Screen.

The terminal displays the copyright screen for three seconds. During this time, IPL is verifying the Partition Map and the mandatory and checksummed partitions.

```
Elan IPL                          Ver. x.xx

                Copyright 2000
                 Symbol Tech.
               Flash Type 0818a
```

The version number on the top of the screen identifies the version of IPL you are using. The flash type at the bottom of the screen identifies the size and type of flash chip installed in the terminal, which you need for your TCM script generation. See *Defining Script Properties* on page 6-7.

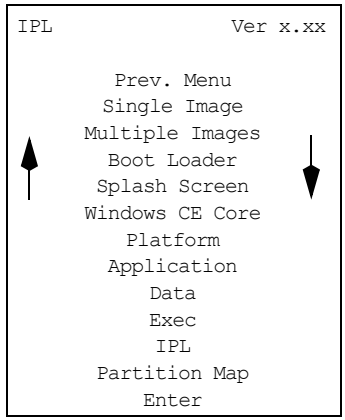
Pressing Enter while the copyright screen is displayed advances the program to the Baud Rate Menu.



1. Tap the arrows on the touch screen to scroll to the appropriate baud rate. IPL supports baud rates from 2400 to 115200 baud. (default is 115200 baud)
2. Press **Enter** or the **Scan** trigger to accept the selected baud rate.

Note: *If IPL is selected accidentally, or the IPL session is complete, you may select "Run System" from this menu to exit IPL an boot the system. The only other way to exit IPL manually is to hold the Power Icon for 16 seconds. Both methods have the same effect, but selecting "Run System" is faster.*

Once the selection is made, IPL proceeds to the Area Selection Menu.



3. Use the up and down arrows on the touch screen to select the area to be received. You have the following options on this screen:

Prev. Menu	Returns you to the Baud Rate menu to modify the baud rate.
Single Image	Indicates that a single image is to be received, without specifying the area to be received.
Multiple Images (default selection)	Indicates that more than one area is to be received contiguously.
Boot Loader	Indicates that a new Boot Loader is to be received.
Splash Screen	Indicates that a new splash screen is to be received.
Windows CE Core	Indicates that a CE Core is to be received.
Platform Application Data	Indicates the specific disk volume(s) to be received.
Exec	For factory diagnostic use only.
IPL	For service use only.
Partition Map	Indicates that the partition map is to be received.

4. After selecting the area, press Enter. IPL checks for the presence of external power. If the system is running off battery power, IPL displays the Connect to Power Screen:

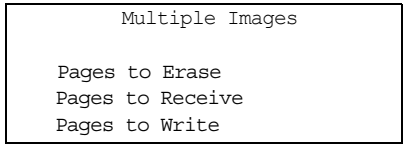
```
Insert in Cradle
Or
Connect Power Supply
```

5. Place the terminal in the cradle or connect the external power supply and serial connection. IPL waits at this screen until external power is supplied. If the terminal is already running from external power, this screen does not display. While this screen is displayed, pressing Enter or the Cursor Up/Down returns IPL to the Area Selection screen.
6. After the power and serial connections are made, the following screen displays:

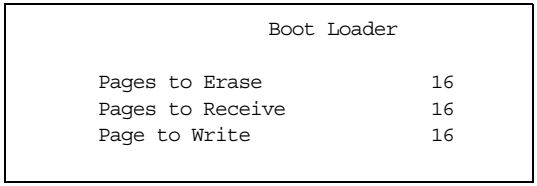
```
Waiting for data
Multiple Images

115200
```

The second and fourth lines of this screen reflect the selections made on the Area Selection and Baud Rate menus, respectively. This screen continues to display until the first character of the image to be downloaded is received from the host. While this screen is displayed, pressing the Enter or Cursor Up/Down keys on the keyboard returns IPL to the Area Selection screen.

As soon as the first character of data is received, IPL displays the receiving screen:

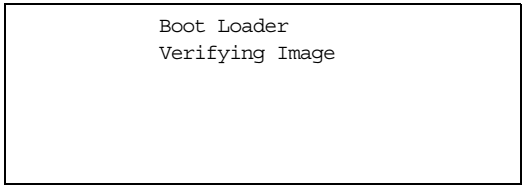


The top line of this screen identifies the area selected in the Area Selection screen. Once a character has been received, IPL stays in this screen until an entire image has been received, or until an error is detected. The only other way to exit from this screen is to reset the terminal by holding the power switch down for 16 seconds. As more data is received, the Receiving Screen is updated to reflect the current status. The first record in the image identifies the area to be processed. When IPL receives the record, it verifies that the area is valid, and updates the Receiving screen as follows:

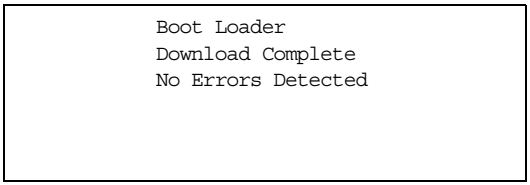


The top line of the display identifies the actual area being processed. The remainder of the display identifies the number of 8Kbyte pages to erase, receive and write. To process the data, IPL must receive, erase, and write the entire image. With the exception of the disk images, IPL receives the entire image before starting the erase, and completes the erase before starting to write. With disk images, IPL multiplexes all three operations as data is received. Eventually, (assuming no errors), all three counts reduce to 0.

When the entire image is received, and the flash is updated, IPL displays the Verify screen:



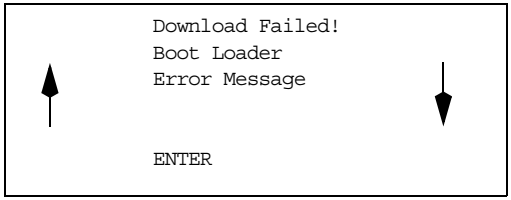
This screen continues to display while the image is being verified. Once the image is verified, IPL displays the Success screen:



If the Multiple Images option was selected on the Area Selection screen, IPL then immediately returns to the Waiting for Data screen to wait for the next image. If any other selection was made on the Area Selection screen, then IPL stays at the success screen until the operator acknowledges the message by pressing Enter (or the trigger, or taps Enter on the touchscreen). Once the screen has been acknowledged, IPL returns to the Area Selection screen to wait for a new selection.

IPL Error Detection

While receiving data, IPL performs many checks on the data to ensure that the data is received correctly. If any error is detected, IPL immediately aborts the download, and reports the error on an error screen:



This screen is displayed until the operator acknowledges the error by pressing Enter (or trigger, or Enter on the touch screen). Once the screen has been acknowledged, IPL returns to the Area Selection screen to wait for a new selection.

The second line of the displays the area that was being processed when the error was detected. The third line of the screen identifies the cause of the error. The errors that can be reported, and the probable cause of the error, are as follows:

Table 6-1. IPL Errors

Error	Explanation
Erase Error	Either the flash is faulty, and the terminal needs to be returned for service, or an attempt was made to erase IPL. (IPL is write-protected, and cannot be erased or programmed without special hardware.)
Line Stat Err	A framing error was detected in the incoming data. The most probable cause of this is a parameter mismatch between the terminal and the device used to transmit the data. The baud rate on both devices must be set to the same value, and the transmitting device must be set to 8 data bits, no parity, and at least one stop bit.
Baud too High	This error could be caused by transmitting large compressed images at a high baud rate, or by faulty flash.
Image Corrupt	This error indicates that the image received by the terminal is corrupt. The most probable cause of this error is inserting an IPL-enabled terminal into a cradle while the host is transmitting an image.
Wrong Area	This error indicates that the image being received has an incorrect area number. This could be caused by specifically selecting an area, and loading an image intended for another area, or by receiving an image for an area that is not defined in the partition map.
Not Hex File	This error is caused by transmitting the wrong file format to IPL. IPL can only receive Hex files supplied by Symbol, or generated by TCM.
Write Error	This error is caused by a failure of the flash device used to hold the image. If this error is seen, then the terminal requires maintenance.

Table 6-1. IPL Errors (Continued)

Error	Explanation
Checksum Err	This error is occurs when one of the critical partitions (Windows® CE Core or Partition Map) has been received with no apparent errors, but the received image does not pass the checksum check. The most probable cause of this error is a failure of the tool used to generate the image. If this error is displayed, then the original contents of the partition will not have been changed as the error is detected before any flash is updated.
Verify Failed:	This error is caused when the image has been written to flash, but cannot be read back correctly. It only applies to critical sections of the flash, and will prevent an exit from IPL as a critical section of the flash is damaged. If this error occurs, the terminal needs maintenance. Contact Symbol Support for help.
Lost Connection	This error displays when the terminal is removed from the cradle during an IPL session. The terminal should be replaced in the cradle when the host is no longer transmitting an image, and the image should be resent to the terminal that lost the connection. Disconnecting the serial cable does not generate this error, and attempting to reconnect the cable will result in an Image Corrupt error.
Cradle Error	This error indicates that corrupted data is being continually received from the cradle. The most probable cause of the error is an obstruction on the IrDA window on the terminal or the cradle. If cleaning the windows fails to correct the problem, then the terminal requires service. Contact Symbol Support for help.

To exit and restart IPL, hold the PWR key for 16 seconds.

Restarting after Download Fails

If the download fails, exit IPL by rebooting the terminal.

If possible, determine what caused the download to fail. If a communications failure occurred, check all the cables between the terminal and the host to ensure they are secure. If the hex file is too large to fit in the terminal's Flash disk, reset the hex file's size (refer to *Defining Script Properties* on page 6-7) and rebuild the image.

Exiting IPL

To exit IPL, cold boot the terminal by holding the PWR icon for 16 seconds. The terminal boots to an application or to a login screen.

Exiting TCM

To exit TCM on the development PC:

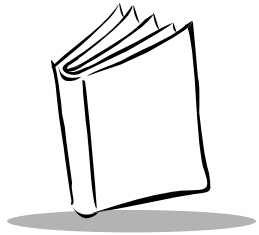
Choose Exit from the File Menu.

OR

Press **Alt+F4**.

OR

Double-click the close box.



Chapter 7
Communications

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Performing ActiveSync using the Cradle 7-3
Performing ActiveSync using the Optional Serial Cable 7-4

Introduction

The CRD 7200 Cradle serves as an essential data communications device, enabling you to synchronize the information on your PDT 7200 terminal and the Windows® CE Services/ ActiveSync® software. With customized or third party software, it can also be used to synchronize your PDT 7200 terminal with corporate databases and other host computers. Setting up the CRD 7200 cradle involves installing the Windows® CE Services/ActiveSync software to enable synchronization and connecting your cradle to your computer.

Performing ActiveSync using the Cradle

To perform an ActiveSync operation for the first time using the cradle:

1. After installing the Windows® CE Services/ActiveSync software, restart your desktop computer.
2. Connect your CRD 7200 cradle to your computer by plugging the cable from the cradle into the serial communications port on your computer.

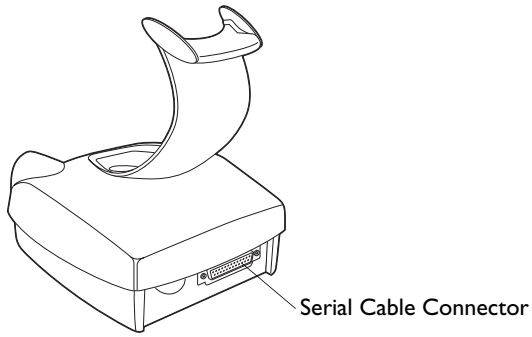


Figure 7-1. Connecting Cradle to Computer

Note: *The CRD 7200 cradle requires a dedicated port. It cannot share a port with an internal modem or other device. If you are unsure about the exact location of the serial port on your computer, refer to the user's manual supplied with the computer.*

3. Turn on the PDT 7200 terminal and slide it into the cradle.

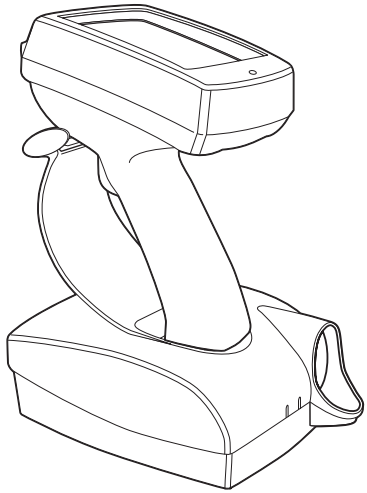


Figure 7-2. Inserting Terminal in Cradle

4. Using the Control Panel, as described in Appendix B, *Demo Program*, or an equivalent application, set the Communications Settings to *COM6Cradle*.
5. Using the Launcher, as described in Appendix B, *Demo Program*, or an equivalent application, initiate "PC Link" to connect to the host.

Performing ActiveSync using the Optional Serial Cable

Note: *You must perform your first ActiveSync operation with a local, direct connection, rather than using a modem.*
If a Serial Cable Connector is installed, connect the cable directly to the terminal. Otherwise, connect the cable to the cradle. Refer to *Performing ActiveSync using the Cradle on page 7-3*.

To perform an ActiveSync operation for the first time using the serial cable:

1. After installing the Windows® CE Services/ActiveSync software, restart your desktop computer.

2. Insert the cable into the connector at the bottom of the display.

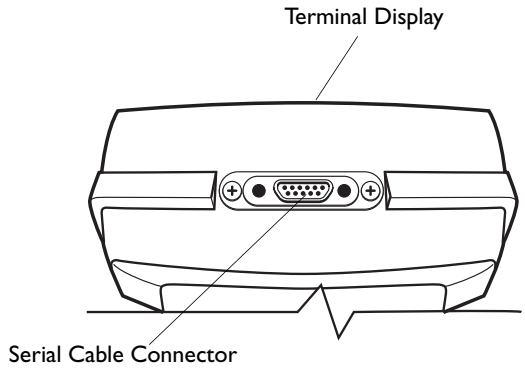


Figure 7-3. Optional Serial Cable Connector on Terminal

3. Connect the other end of the cable to the serial communications port on your computer.

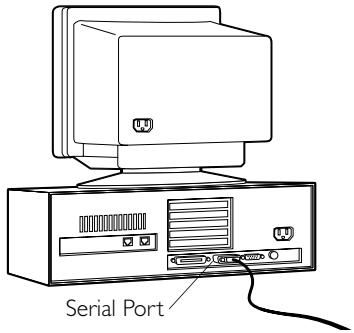
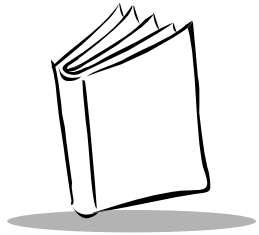


Figure 7-4. Connecting Serial Cable to Computer

4. Using the Control Panel, as described in Appendix B, *Demo Program*, or an equivalent application, set the Communications Settings to *COM1@115200*.
5. Using the Launcher, as described in Appendix B, *Demo Program*, or an equivalent application, initiate "PC Link" to connect to the host.

   ActiveSync automatically detects the baud rate of the terminal. It is not unusual for several "PC Link" attempts to occur before the correct baud rate is detected. After the initial connection all successive connections should happen with just one "PC Link" attempt.



Chapter 8
Maintenance and Troubleshooting

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Storage 8-3
Troubleshooting 8-4
    Terminal Problems 8-4
    Cradle Problems 8-5

Cleaning the Terminal

The PDT 7200 requires a minimal amount of maintenance. To prolong its life and avoid problems, keep the terminal clean. Use a clean, soft cloth dampened with a mild cleanser such as soap and water to clean the terminal. Do NOT use abrasive paper/cloth or abrasive/corrosive cleaners.

Wipe the entire terminal, except for the scanner window. Wipe the scanner window periodically with a lens tissue or other material suitable for cleaning optical material such as eyeglasses.

Storage

If the terminal will not be used for longer than a week, store it in a cool, dry place away from dust. Remove the battery and repackage the terminal in its original shipping container.

To store the terminal for a shorter period of time (a few days), leave the battery in the terminal. Note that if the battery is left in the terminal for an extended amount of time, any data stored on the terminal may be lost. The Lithium-Ion battery pack must be kept charged to avoid loss of data.

Note: *If you leave the terminal without a main battery for longer than 20 minutes, reboot the terminal and run the Setup Utility to reset the date and time. See Chapter 5, Operating the Terminal for more information.*

Troubleshooting

Terminal Problems

Table 8-1 covers some common terminal problems and what actions to take.

Table 8-1. Terminal Problems

Symptom	Possible Cause	Action
Terminal does not power up	Battery not installed or fully charged.	Verify that the battery is installed in the terminal. Charge the battery, either in the terminal or separately for a full 2 hours.
	Power supply is not plugged in.	Verify that the power supply is connected properly to the terminal and plugged in the wall socket.
	Battery is not secured.	Fully engage the battery latch.
Cannot see screen	Terminal not powered on.	Press the Power icon on the top of the screen.
	Contrast not adjusted properly.	Press and hold the contrast icon to increase, tap to decrease.
Touch screen not working	Display not properly calibrated.	Recalibrate the screen through the control panel program.
Scanner does not come on when trigger pressed	Scanner driver is not loaded.	Verify that scanner driver is loaded on the terminal. Check application software to ensure that scanner driver is properly referenced.
Scanner does not decode a bar code	Bar code is unreadable.	Verify that the bar code is not defective, i.e., smudged or broken.
	Symbology not enabled.	Verify with the programmer that the application is designed to perform scanning.

Table 8-1. Terminal Problems (Continued)

Symptom	Possible Cause	Action
Battery life is inadequate	Battery is not fully charged.	Charge the battery, either in the terminal or separately for a full 2 hours.
	Battery is old.	Replace with a fresh, fully charged battery.
	Terminal being used in low-temperature conditions.	Battery life is shortened if used in extremely cold conditions.
	Unnecessary peripherals draining power.	Disconnect any peripherals not being used to reduce the drain on the battery pack.
	The application is not designed for efficient power use.	Consider using power management services provided in the 7200 SDK to reduce drain on battery pack.
Cannot access flash drive	Drive not formatted.	Format the drive or download a new disk image using TCM and IPL.

Cradle Problems

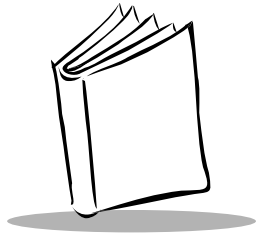
Table 8-2 lists some common cradle problems and actions to take to resolve them.

Table 8-2. Cradle Troubleshooting

Symptom	Probable Cause	Action
No communication between terminal and cradle	Cradle in use.	Wait until available.
	Optical window obstructed or dirty.	Remove obstruction or clean the optical window.
	Terminal not seated properly in cradle.	Reseat the terminal in cradle.

Table 8-2. Cradle Troubleshooting (Continued)

Symptom	Probable Cause	Action
Rechargeable battery in terminal or spare battery did not charge	Battery failed.	Replace battery.
	Terminal or battery was removed from cradle too soon OR Battery or terminal is improperly installed in cradle.	Replace terminal and/or spare battery in cradle and begin charging over. Battery requires 2 hours to recharge fully.



Appendix A
Specifications

Environment

The PDT 7200 is designed to operate in harsh environments. Table A-1 below summarizes the PDT 7200's intended operating environment.

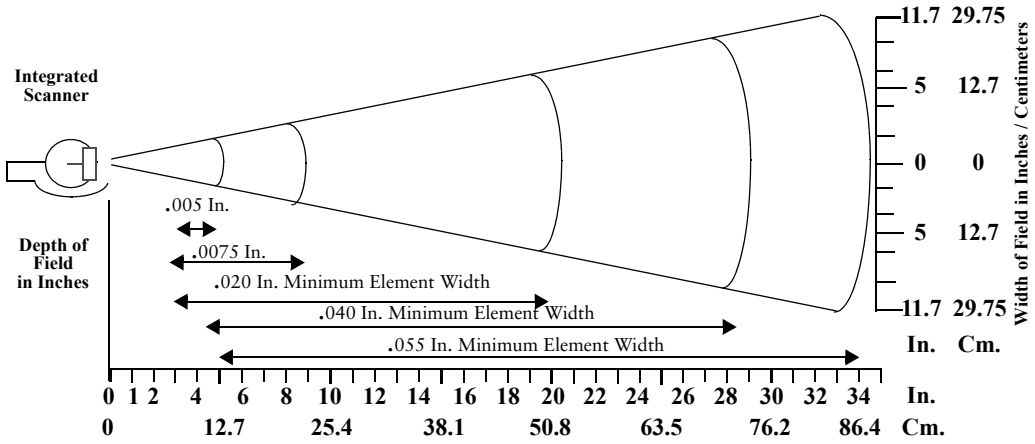
Table A-1. PDT 7200 Operating Environment

Operating Temperature	-20° C to 50° C (-4° F to 122° F)
Humidity	0% to 95% non-condensing
Shipping and Storage Temperature	-30° C to 60° C (-22° F to 140° F)
Electrostatic Discharge	±15 kv
Drop to Concrete	1.4 meters (4 ft.) 1.8 meters (6 ft.) with optional rubber boot
Sealing	IP 54 and IPC 529 (splashing water and dust)

Decode Zones

Standard Range

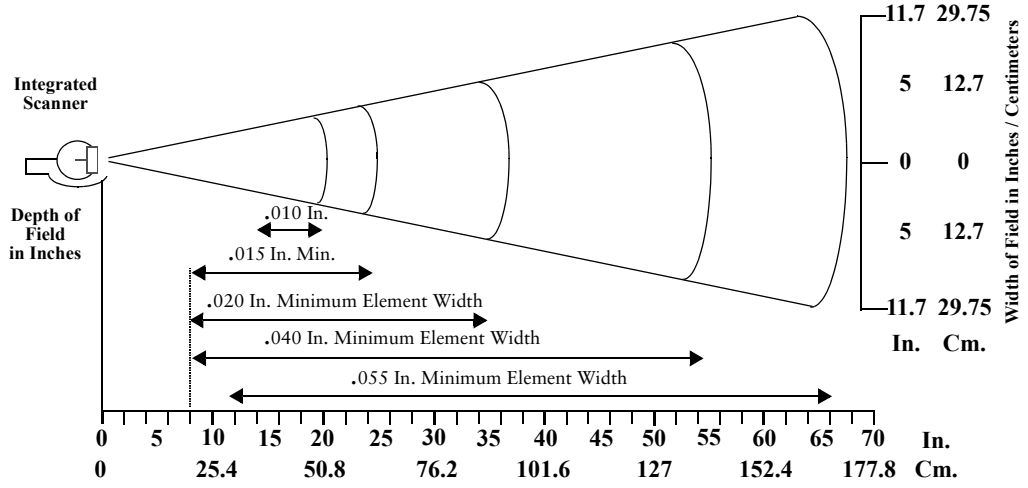
NOTE: Typical performance at 68° F (20° C) on high quality symbols.



Decode Zone: Depth of field as a function of minimum element width.

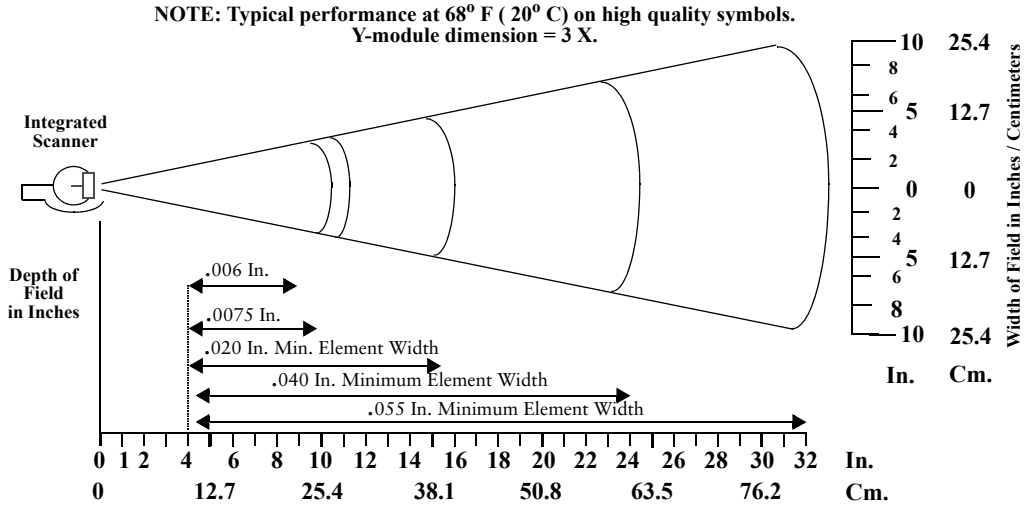
Long Range

NOTE: Typical performance at 68° F (20° C) on high quality symbols.



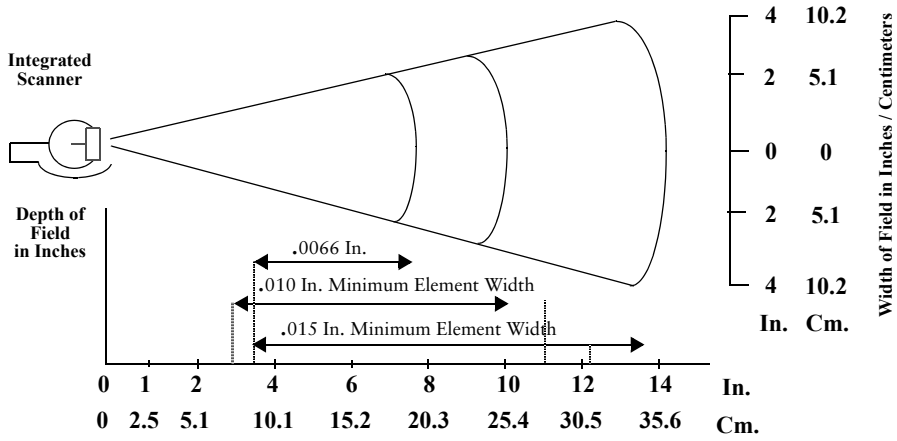
Long Range Decode Zone: Depth of field as a function of minimum element width.

SE 2000 1-D Decode Zone



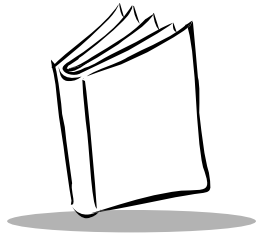
SE 2000 Decode Zone: Depth of field as a function of minimum element width.

SE 2000 2-D Decode Zone (PDF417)



Pin-Outs

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



Appendix B
Demo Program

Introduction

The PDT 7200 Terminal is shipped with an icon-view Launcher demo program (OTL.exe) which illustrates how to use some of the terminal's many applications. Although this application is displayed on the terminal as icons, this section describes the launcher in terms of a list-view presentation. The following choices are available on the Launcher List, and are described in this chapter.

- InkWiz: a file management utility, similar to File Explorer.
- Control Panel: allows you to view and set many terminal settings, such as date and time, Spectrum24 settings, etc.
- Scan Sample: a sample scanning application.
- PC Link: provides connectivity to the host running ActiveSync.
- Symbol Apps: provides access to more Symbol-provided demo programs.
- About Otl: displays the version and copyright information for Otl.exe.

Note: *The source code for all applications in this appendix is in the SDK (Software Developer's Kit).*

The List-Launcher program is automatically started every time the terminal is cold or warm booted.

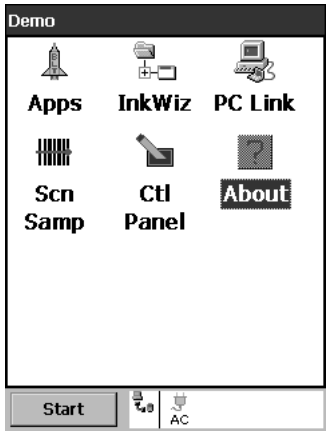


Figure B-1. List Launcher Main Menu

InkWiz

File Browser (Inkwiz.exe) is a file management utility that provides functionality similar to that of Windows® Explorer on Symbol CE terminals. File Browser allows you to browse, cut, copy, paste and delete files, execute programs, and provides file transfer capability. To execute the file browser, select InkWiz icon on the Main Menu, as shown in Figure B-1. The File Browser main menu screen is shown in Figure B-2.

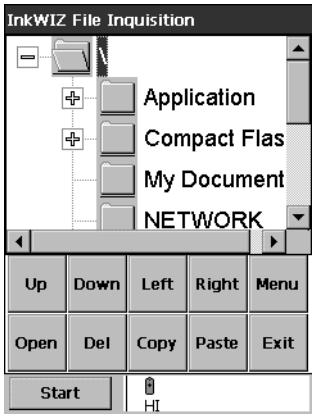


Figure B-2. File Browser Main Menu

This screen illustrates the file structure on the terminal. Press Menu. The File Browser Menu displays.

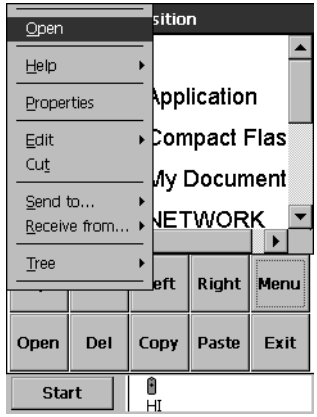


Figure B-3. File Browser Menu

Navigating in File Browser

To navigate the menu options in the File Browser, use your up and down arrow keys to scroll up and down through a menu, and use your right arrow keys to view the next level of menu items. For example, in Figure B-3, to get to the sub-menu under the Help option, use the down arrow key until the Help option is highlighted, then use the right arrow key to view the options under the help menu. To go back to the previous menu, use the left arrow key or the Clear Key.

File Browser "WhoAmI" Function

The File Browser contains an option to identify the type of terminal and the IP address of the terminal on the network.

To use this option:

1. Select the File Browser option on the List Launcher screen.
2. Press Menu to invoke the File Browser menu.
3. Select the Help option.
4. Select the WhoAmI? option under the Help Menu.

The File Browser WhoAmI? screen displays.

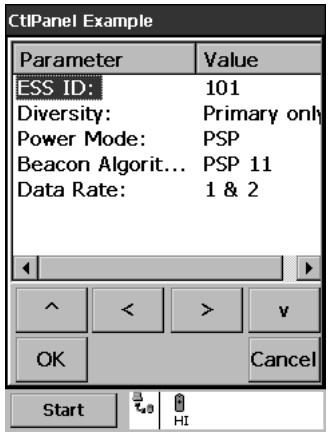


Figure B-4. File Browser WhoAmI? Screen

Control Panel

The Control Panel Test Program (CtlPanel.exe) allows you to view and set terminal settings, including scanner parameters, screen calibration, date and time, display parameters, audio parameters, printer parameters, power management parameters, communication parameters, Spectrum24 parameters, etc.

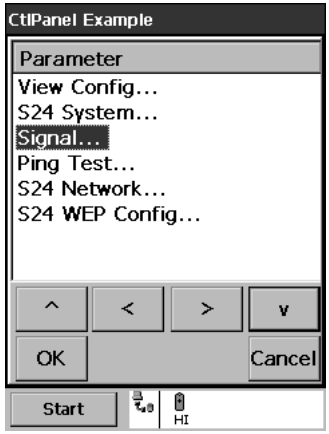


Figure B-5. Control Panel Main Screen

Navigation Buttons

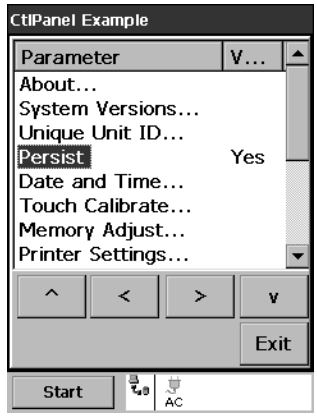


Figure B-6. Control Panel Pop-up Menu

Arrow buttons (Up ^, Down V, Left <, Right >): navigates through lists and directory structures

OK or Cancel button: accepts or rejects modifications

Control Panel Options

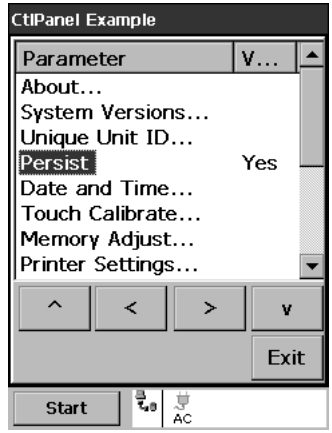


Figure B-7. Control Panel Options Screen

Persistence

Select *YES* for the persist item to retain all changes after a cold boot.

Note: *Not all options support Permanent Persistence.*

Choose *No* to retain the change for the current session, until the terminal is cold-booted.

About CtlPanel

This option displays the current version of the Control Panel program on the terminal. Tap the *OK* box, or press the Enter key on the terminal to return to the Control Panel Options screen

Scanner Parameters

This option allows the user to view and set several scanner-related parameters.

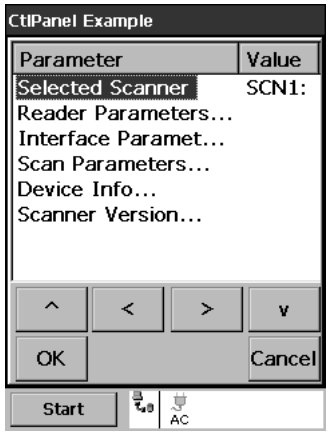


Figure B-8. Control Panel Scanner Parameters Screen

Scanner Parameter Options

Refer to the Help file on the SDK for details on the available scanner parameter options.

Scanner Version

This option displays the version numbers for the following:

- Hardware Version

- Decoder Version
- PDD Version
- MDD Version
- API Version.

Touch Calibration

This option allows you to re-calibrate the terminal touch panel's digitizer.

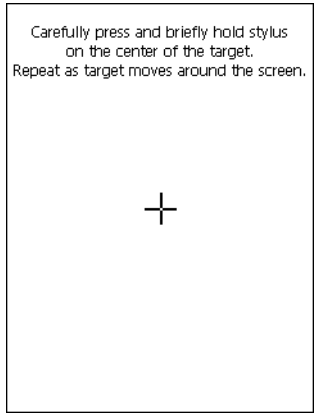


Figure B-9. Control Panel Calibration Screen

Date and Time

This option allows you to set the time zone and the system date and time.

On the first screen, select the correct time zone, then tap the Set Date Time option.

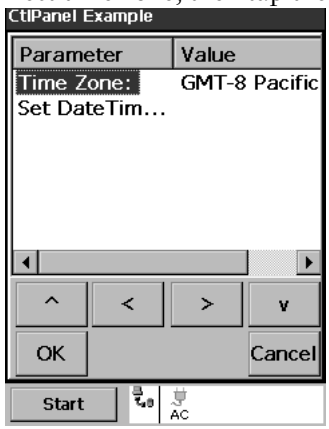


Figure B-10. Control Panel Set Date and Time Screen

To change the time zone, highlight Time Zone. Then, with the time zone highlighted, use your left and right arrows to scroll through the time zone options, until the correct time zone for your area appears in this field. Tapping on Time Zone field has the same effect. To change the Date and Time, highlight the Set Date Time field. A screen displays the current Date and Time. To move between the fields, use your left and right arrows. Then, with the field to be updated highlighted, use your up and down arrow keys to modify the field's value. When the system date is set as desired, press Enter once to display the pop-up menu, then highlight Advance. This moves the cursor to the Time field. Modify the time fields just as you did the date, then press the Enter key to display the pop-up menu. Select Accept, then press Enter again to accept the updated system date and time

Display Parameters

This option allows you to customize the Display Contrast and the Backlight. Also displayed on this screen is the API version number.

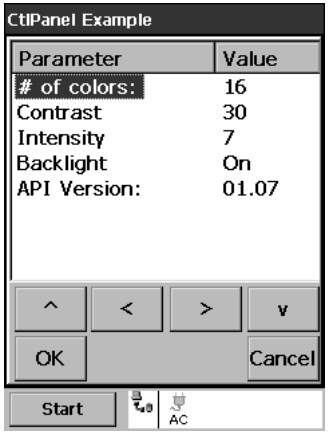


Figure B-11. Control Panel Display Parameters Screen

Display Contrast

To change the terminal's display contrast, tap on Display Contrast, and the contrast value increments. The terminal's display changes as you change the value, to give you a sense of how the contrast looks at each value. Alternately, change the contrast using your keypad by using the up and down arrow keys to highlight the Display Contrast field, then use your left and right arrows to increase or decrease the contrast.

Intensity

The PDT 7200 provides 16 levels of backlight intensity. To change the terminal's backlight intensity, tap on *Intensity* and the intensity increases.

Backlight

To turn the terminal's backlight on or off, tap the Backlight field. The value toggles On and Off as you tap the field. Alternately, use your up and down arrow keys to highlight the Backlight option, then use your left and right arrows to turn the backlight on of off. As you change the value, the terminal's backlight turns on or off to demonstrate how the screen looks with the backlight on or off.

API Version

This option displays the current version of the Display API.

Audio Parameters

This option allows you to change the terminal's beeper volume, and displays the version numbers for the Audio and Notify APIs.

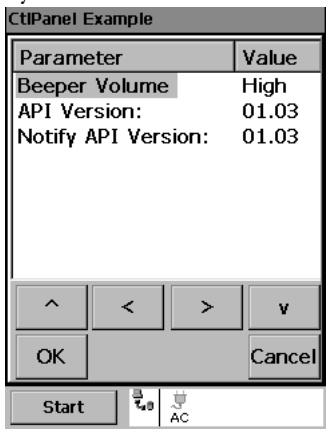


Figure B-12. Control Panel Audio Parameters Screen

Beeper Volume

To change the beeper volume, tap the Beeper Volume field, and the value toggles between Low and High. As the value changes, an example of each level of beeper sounds as a demonstration. Alternately, use your up and down arrow keys to highlight the Beeper Volume field, then use your left and right arrow keys to change the value.

API Version

This field displays the version number of the Audio API.

Notify API Version

This field displays the version number of the Notify API.

Printer Setup

This option allows you to customize the terminal's printer settings.

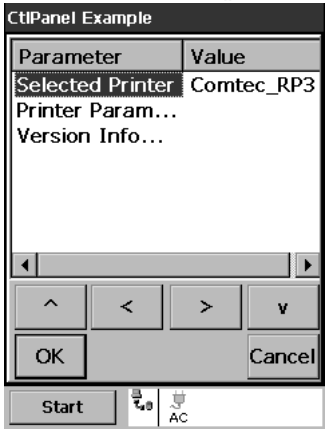


Figure B-13. Control Panel Printer Setup Screen

Selected Printer

This option allows you to select the printer to be used. To change the printer, tap the Selected Printer field to scroll through the available printers. Alternately, use your up and down arrow keys to highlight the Selected Printer field, then use your left and right arrows to scroll through the list of available printers.

Printer Parameter

This option allows you to set the communication parameter associated with the selected printer. To change the communication parameter, tap the Printer Parameter field, and select the appropriate communication parameter for your printer. Alternately, use your up and down arrow keys to highlight the Printer Parameter field, and then use the left and right arrow keys to select the appropriate communication parameter for your printer.

Version Info

This option displays the Printer API version number.

Communication Settings

This option allows you to select the communication settings used by the PC Link.

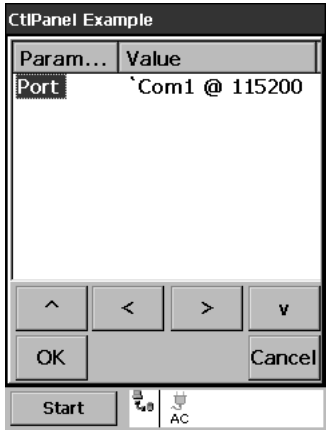


Figure B-14. Control Panel Communication Setup Screen

Comm Settings

This option allows you to select the appropriate communication settings to be used by the PC Link. To select the correct settings, tap the Comm Settings field, and scroll through the communication settings to select the appropriate value. Alternately, use the up and down arrow keys to highlight the Comm Settings field, then use the left and right arrow keys to scroll through the values until the appropriate value is selected.

Unique Unit ID

This option displays the terminal's unique unit ID (a 16byte hex number identifier), and the version numbers for the RCM (Resource Coordinator Manager) API, Rescoord (Resource Coordinator) DLL, UUID DLL, and Temperature DLL.

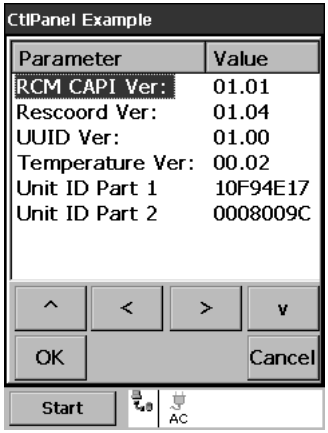


Figure B-15. Control Panel Unique Unit ID Screen

Power Management

This option displays the version number of the Power API and allows you to set system and backlight parameters.

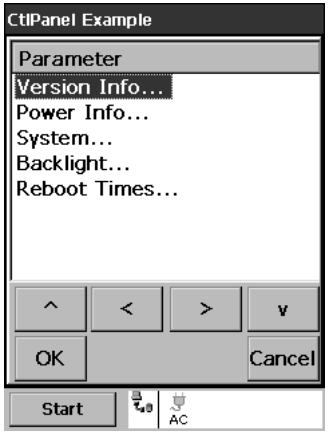


Figure B-16. Control Panel Power Management Screen

Version Info

This option displays the Power API versions.

Power Info

This option displays the battery type, the battery power status, and the power source.

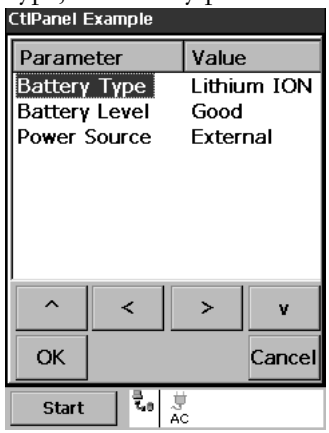


Figure B-17. Control Panel Power Info Screen

System

This option allows you to view and set the device state, activity mask, wakeup source, and device time-outs. To navigate through the options, either tap the option, or use the up and down arrow keys to highlight the option, then use the left and right arrows to select the correct value.

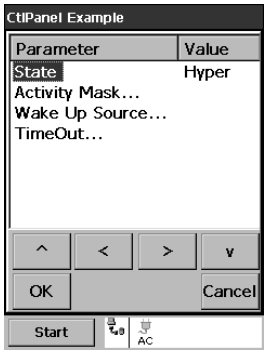


Figure B-18. Control Panel Power Management System Screen

Backlight

This option allows you to view and set the backlight parameters, including the device state, the activity mask, and the backlight timeout.To navigate through the options, either tap the option, or use the up and down arrow keys to highlight the option, then use the left and right arrows to select the correct value.

Spectrum24 Configuration

Refer to Chapter 3, *Spectrum24 Network Configuration*, for details on this option.

Memory Adjustment

This option allows you to adjust the use of the available memory, dividing it between storage memory and program memory.

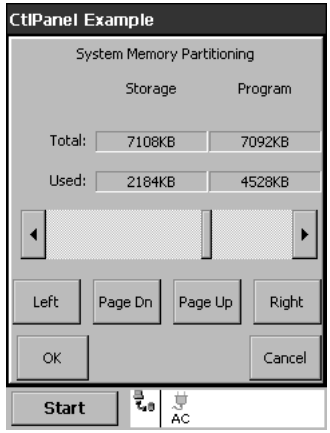
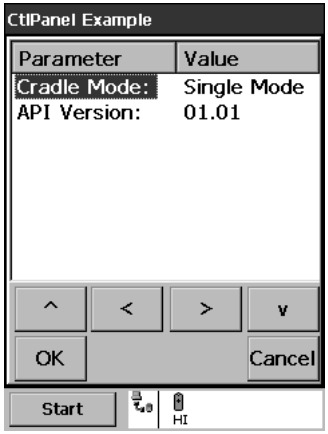


Figure B-19. Control Panel Memory Adjustment Screen

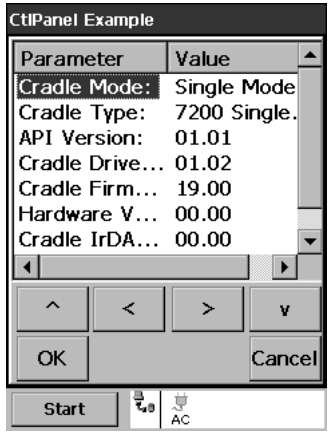
To adjust the memory usage, tap the arrow keys on the screen, or use the up and down arrow buttons on the screen, until the memory is allotted as needed for storage and program space.

Cradle Settings

This option allows you to configure the cradle access mode and provides type and revision information.



Terminal out of cradle



Terminal in cradle

Figure B-20. Control Panel Cradle Access Mode Screens

If you insert the terminal in the cradle, the cradle settings option reports the cradle firmware revisions.

Cradle Mode: reports Single Mode, Multi Mode, or Manual Mode
Cradle Type: reports the type of cradle where the terminal is currently inserted

System Version

The System Version provides the Windows CE operating system version and the build numbers.

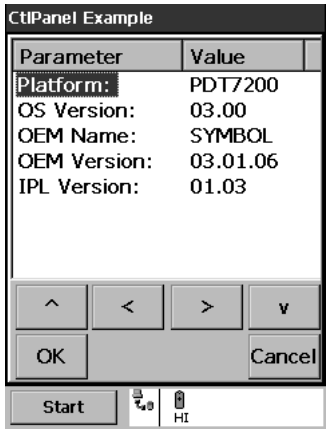


Figure B-21. Control Panel System Version Screen

Scan Sample

This option provides a sample scanning application (ScanSamp2.exe), which allows you to change scanner parameters, perform scanning, and display scanned data.

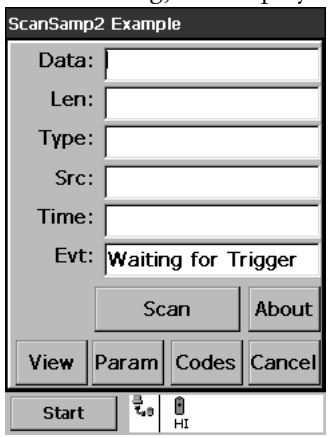


Figure B-22. Scan Sample Screen

Scanning Data Fields

Once you scan a bar code, the following fields display:

Data

Displays the decoded data.

Type

Displays the label type in hex format.

Src

Displays the scanner used, and the bar code type in ASCII format.

Scan Params

This menu option allows you to change scanning parameter options, such as:

- Beep Time: the length of the good decode beep, in ms.
- Beeper Frequency: the beeper tone, in Hz.
- LED On Time: the length of time the LED remains on upon successful decode.
- Code ID: Bar Code Identifier character.
- Wav File: the sound of the decode beep, can be customized.

Code Types

This menu option sets the code types the terminal can decode, and sets the options for each code type.

ViewData

This menu option displays the decoded data on a separate screen.

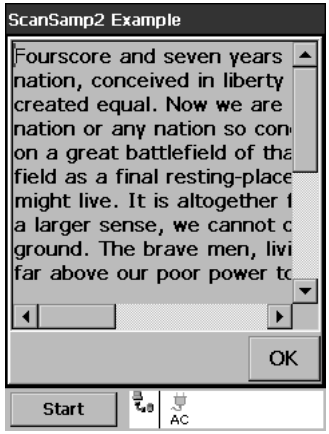


Figure B-23. ViewData Screen

About

This menu option displays the scan sample application version string.

Exit

This menu option exits the scan sample application.

PC Link

PC Link (Repllog.exe) is a connectivity program. It communicates with ActiveSync running on the Host PC.

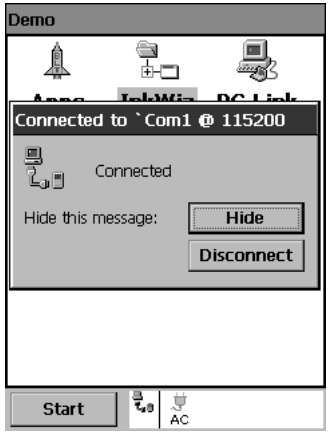


Figure B-24. PC Link Screen

Symbol Test Applications

This option provides additional demo applications, including Notify Test, Calculator, Display Test, and Button Launcher. Described below are other programs that are not displayed in the out of box menu program, but are loaded on the terminal and included in the SDK.

Notify Test

This application (Notify.exe) tests the Notification Objects (LEDs and Beeper) to ensure they are functioning properly. You can use this program to turn on/off or cycle the LEDs, Beeper, and vibrator. You can also view the state of the selected notification object.

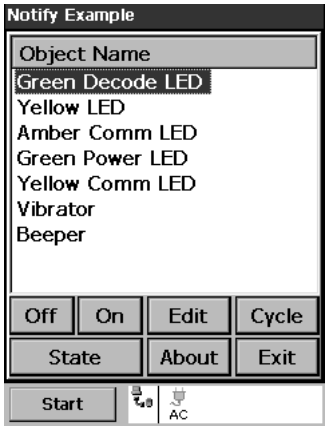


Figure B-25. Notify Test Screen

To view and set the notify object's state, press the appropriate button.

Key Check

This application (KeyCheck.exe) identifies each key stroke on the terminal (except the scan button) when the key is pressed. This serves as a test of the terminal's keypad. This program is not included in the out of box menu program, but is loaded on the terminal.

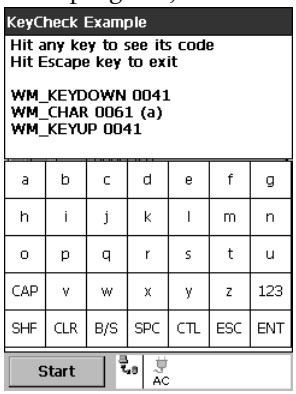


Figure B-26. Key Check Application Screen

Display Test

This application (DisplayTest.exe) tests the gray scale pixels on the screen.

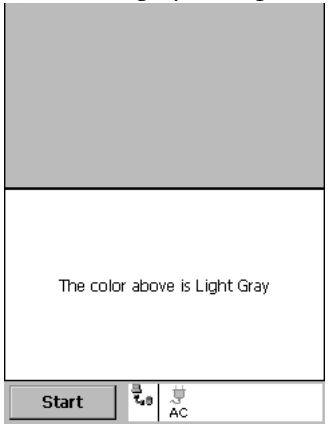


Figure B-27. Display Test Application Screen

When this application is launched, the terminal cycles through the different gray scale levels, to test the display color.

Out To Launch

This application (otl.exe) is another form of the program launcher utility for Symbol's CE terminals. It demonstrates a different user interface to launch the programs described in this appendix.

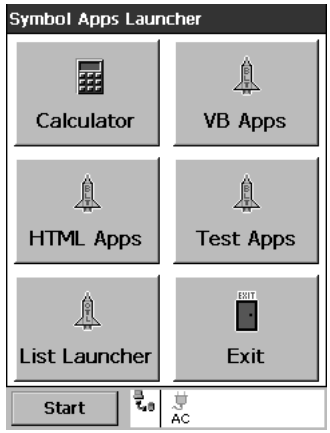


Figure B-28. List View Launcher Screen

Calculator

This application (Calc.exe) provides a simple calculator application.

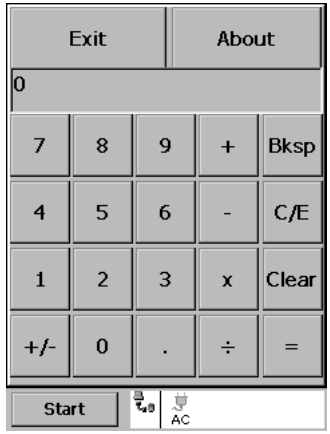


Figure B-29. Calculator Application Screen

About OTL

This application displays the version and copyright strings for the blt.exe program.

Figure B-30. About BLT Application Screen

Virtual Keyboard

This application provides a two state virtual keyboard (alpha or numeric). The keyboard is displayed or hidden by single clicking the two stage trigger. The keyboard is enabled or disabled by pressing the user programmable icon on the display and listening for the audio indication.

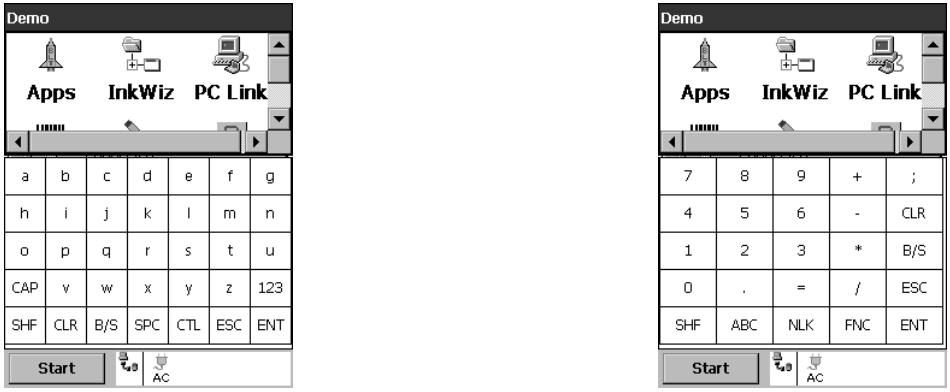
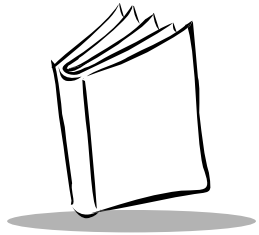


Figure B-31. Alpha and Numeric Virtual Keyboards



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Tell Us What You Think...

We'd like to know what you think about this Manual. Please take a moment to fill out this questionnaire and fax this form to: (631) 738-3318, or mail to:

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One Symbol Plaza M/S B-4
Holtsville, NY 11742-1300
Attn: Technical Publications Manager

IMPORTANT: If you need product support, please call the appropriate customer support number provided. Unfortunately, we cannot provide customer support at the fax number above.

User's Manual Title: _____
(please include revision level)

How familiar were you with this product before using this manual?

☐ Very familiar ☐ Slightly familiar ☐ Not at all familiar

Did this manual meet your needs? If not, please explain. _____
_____

What topics need to be added to the index, if applicable? _____
_____

What topics do you feel need to be better discussed? Please be specific.
_____

What can we do to further improve our manuals?_____
_____
_____

Thank you for your input—We value your comments.