



Phaser Series Scanner

About This Manual

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Product Reference Guide



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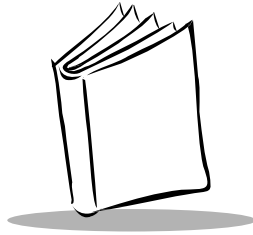
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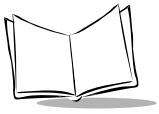
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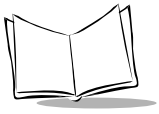
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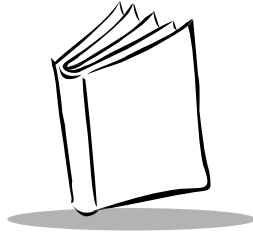
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About This Manual

Introduction

The Phaser P 460 Series Scanner Product Reference Guide provides general instructions for setup, operation, troubleshooting, maintenance, and programming the Phaser scanners.

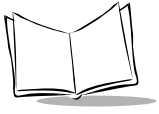
Chapter Descriptions

- ◆ **Chapter 1, *The Phaser P 460 Series Scanner***, describes the Phaser, the battery, and the Phaserlink Cradle.
- ◆ **Chapter 2, *Set Up***, explains how to set up the Phaser scanner.
- ◆ **Chapter 3, *Operation***, explains how to operate the Phaser scanner.
- ◆ **Chapter 4, *Maintenance And Specifications***, talks about the maintenance and the specifications of the Phaser scanner and the Phaserlink cradle.
- ◆ **Chapter 5, *Parameter Menus***, has all the optional parameter bar codes for personalizing your Phaser.
- ◆ **Appendix A, *Bar Code Information***, has information about bar codes.

Notational Conventions

The following conventions are used in this document:

- ◆ 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

- ◆ *P 360/460 Memory Scanner Quick Reference Guide*, p/n 70-33628-xx
- ◆ *PL 460 Cradle Quick Reference Guide*, p/n 70-33657-xx
- ◆ *MCL Designer for P 460 Series Scanners User's Guide*, p/n 70-35152-xx
- ◆ *MCL Link for P 460 Series Scanners User's Guide*, p/n 70-35153-xx

Service Information

If you have a problem with your equipment, contact the Symbol Support Center. Before calling, have the model number, serial number, and several of your bar code symbols at hand.

Call the Support Center from a phone near the scanning equipment so that the service person can try to talk you through your problem. If the equipment is found to be working properly and the problem is symbol readability, the Support Center will request samples of your bar codes for analysis at our plant.

If your problem cannot be solved over the phone, you may need to return your equipment for servicing. If that is necessary, you will be given specific 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 was not kept, contact Symbol to have another sent to you.*

Symbol Support Center

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

United States

Symbol Technologies, Inc.
One Symbol Plaza
Holtsville, NY 11742-1300
1-800-653-5350

Canada

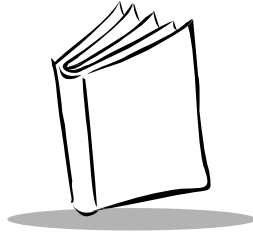
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Chapter 1

The Phaser Series Scanner

Introduction

The Phaser P 460 Memory Scanner brings new flexibility and economy to data capture and data management in retail operations. The Phaser Scanner has an integrated keypad and display, and is able to operate in both corded and battery-powered cordless modes. This provides advanced point-of-sale scanning and also allows the Phaser to be used for other in-store tasks such as delivery, inventory, pricing, and even gift registry. The Phaser is Year 2000 compliant. There are two versions available:

- ◆ P 460: the retail version
- ◆ P 360: the industrial version

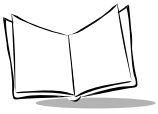
Unless otherwise noted, the term Phaser refers to both versions of the scanner.

The Phaser successfully reads most code symbologies, densities, and colors, produced by a wide range of printing techniques, and scans at the rate of 36 scans per second. Refer to the *Phaser Decode Zone* on page 3-11.

Rechargeable Battery

In the handle of the scanner, there is a rechargeable lithium-ion battery. This provides all power to the scanner during cordless operation. It provides 10 hours of use in a typical application.

When fully depleted, the battery can be recharged to full charge in about 4 hours.



The Cradle

The Phaserlink Cradle acts as a stand, host communication interface, and a charger for the Phaser Scanner. It can sit on a desktop or be wall-mounted - whichever is more convenient. It receives data from the scanner via connectors in the bottom of the scanner and the top of the cradle. It then transmits that data to the host device through an attached cable. It also acts as a holder for the scanner.

The cradle also provides power for charging the scanner's battery (in the scanner). The cradle has a charge status indicator light that shows the status of the battery charging (Refer to [Table 4-1 on page 4-3](#)).

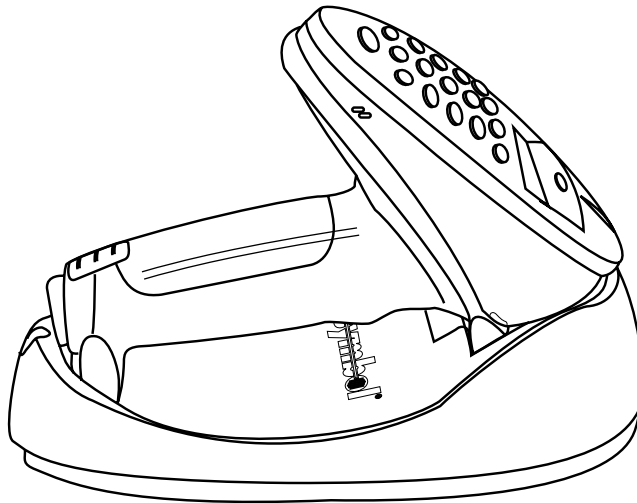


Figure 1-1. Scanner and Cradle

There are two versions of the Phaserlink Cradle:

- ◆ P 460 Cradle: batch retail version
- ◆ P 360 Cradle: batch industrial version.

Unless otherwise noted, the term Phaserlink Cradle refers to both versions of the cradle.



Chapter 2 Set Up

Introduction

This chapter covers the procedures for setting up the Phaser and its accessories.

Unpacking

Remove the scanner from its packing and inspect it for damage. If the scanner was damaged in transit, call one of the telephone numbers listed in the section *Symbol Support Center* on page vii. KEEP THE PACKING. It is the approved shipping container and should be used if you ever need to return your equipment for servicing.

Cables

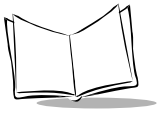
The following cables are used with the Phaser scanner:

- ◆ Charging Synapse (p/n 25-32944-01)
- ◆ Charging RS-232 (p/n 25-33359-01)
- ◆ Flash Download (p/n 25-33673-01)

Installing the Cable on the Scanner

Note: *The P 360 does not have a cable interface.*

1. Power down all devices that will be connected to the scanner.



2. Plug the modular connector on the cable into the receptacle in the bottom of the Phaser handle.

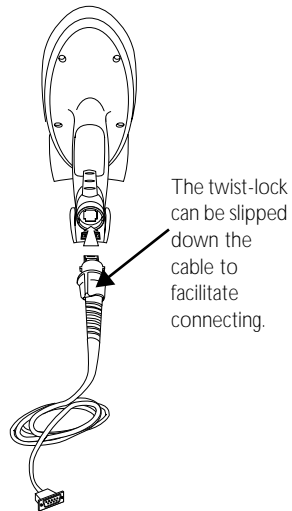


Figure 2-1. Connecting the Cable to the Phaser

3. Turn the cable twist-lock 1/8 turn clockwise to seat it.

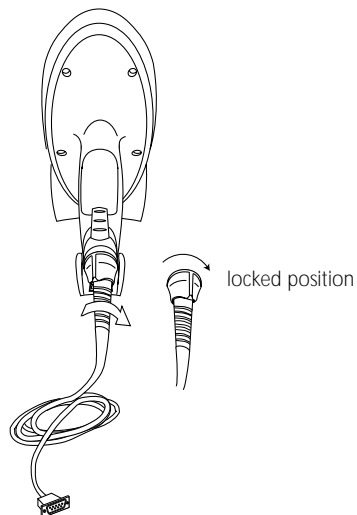


Figure 2-2. Locking the Cable to the Phaser

4. Gently pull the cable to make certain it is properly seated.

Disconnecting Cables

To disconnect the scanner cable:

1. Power down all the devices connected to the scanner.
2. Remove the cable by twisting the twist-lock 1/8 turn counter-clockwise and pulling the cable out.

Setting Up the Cradle

On the bottom of the cradle are three ports. COM1 connects to the host computer, COM2 is used for daisy-chaining multiple base stations together, and the Power port supplies power to the cradle.

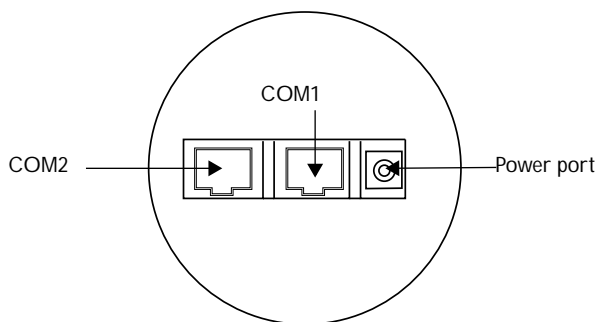


Figure 2-1. Ports on the Cradle

1. Connect an appropriate power supply to the Power port on the cradle. The indicator light on the cradle blinks, signifying successful power-up.

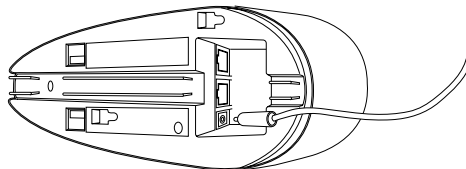
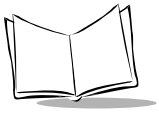


Figure 2-2. Power Supply Port

2. Insert the cable from the host computer into COM1 and the cable to the other base stations, if any, into COM2. Refer to *Connecting to a Host* on page 2-5.



Scanner Power Options

Two power options are available:

- ◆ Battery
- ◆ Power Supply (“Charging”) Cable

Charging the Battery

Before its first use, the Phaser battery must be charged.

Using the Cradle

1. Connect the power supply to the power input jack on the cradle.
2. Connect the power supply to a receptacle supplying AC power of the proper voltage level.
3. Insert the scanner into the cradle, so that the nose of the scanner and tip of the handle seat into the receptacles.

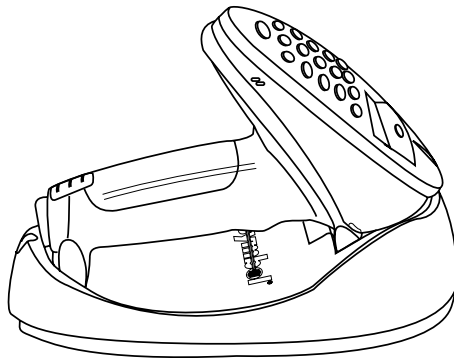


Figure 2-3. Placing the Scanner into the Cradle

4. Check the charge status indicator light. See [Table 4-1 on page 4-3](#).
5. The battery fully charges in up to 4 hours.

The cradle recharges batteries in the scanner only when the scanner is in the cradle. A scanner with a dead battery starts charging immediately upon insertion into the cradle, whereas a scanner with a partially charged battery begins charging after approximately 15 minutes. The status of the scanner battery module determines the charge rate. Note that the scanner can be removed from the cradle at any time.

Using the Charging Cable

Note: For charging, the cable may or may not be connected to the host.

1. Connect the cable to the scanner.
2. Connect the power supply to the power jack on the cable.
3. Connect the power supply to a receptacle supplying AC power of the proper voltage level.
4. The battery fully charges in about 4 hours.

Battery Life

When batteries begin to run down, the scanner emits 4 high tone beeps. You then have about 25 scans remaining. Although lithium-ion batteries are rechargeable, they do have a limited life. In typical applications, the batteries should last about two years. As they begin to age, batteries do not hold a charge as long as when they were fresh; you have to charge them more often. A new battery (p/n 50-14000-079) can be obtained from Symbol Technologies. See your Symbol representative for more information.

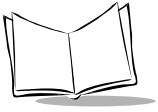
Connecting to a Host

With some host types, the Phaser is unable to answer host terminal polls if the appropriate host type is not selected. This may result in an error message generated by the host. To correct this situation, select the proper parameter set and initialize the host terminal. See [Chapter 5, *Parameter Menus*](#) for more information.

There are two basic host communications options available.

- ◆ When using as a batch device running on a battery, you can transmit stored data to a host either through an RS-232 or a Synapse cable connected directly to the scanner, or through the cradle, as described in [Setting Up the Cradle](#) on page 2-3.
- ◆ When using as a corded device, power and host communications takes place via RS-232 or Synapse cables.

Note: The P 360 does not have a cable interface.



RS-232 Power Supply Operation

1. Make sure all host devices are powered down.
2. Plug the connector at the end of the scanner's or cradle's cable into an appropriate RS-232 receiving port on the host device.
3. For the scanner cable, plug the power supply cable into the power supply port on the housing of the host connector. For the cradle cable, plug the power supply cable into the Power port on the bottom of the cradle.
4. Connect the power supply into an AC receptacle.

Using A Synapse Cable with the Cradle

1. Connect the Synapse Adapter cable to COM1 in the cradle.
2. Connect the Adapter cable to the Synapse Interface cable.
3. The Synapse Adapter cable has a flying power lead. Connect this lead to the receptacle in the Synapse Interface cable, as shown below. See the Synapse guide for details.

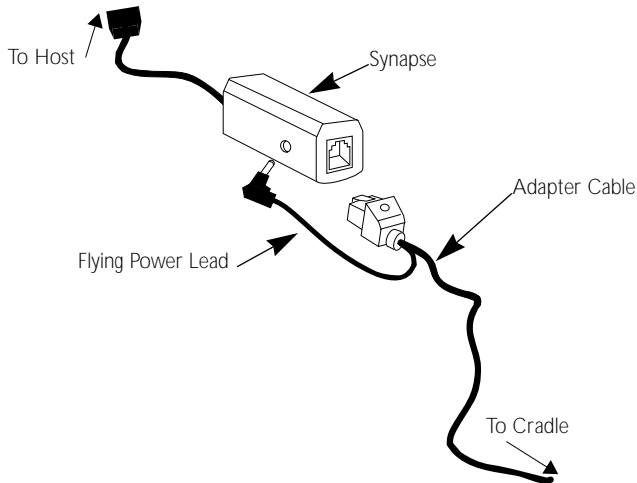


Figure 2-4. Synapse and Adapter Cable

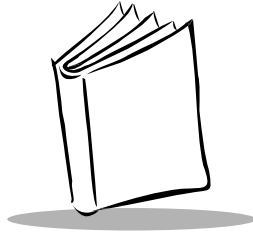
4. Connect the Synapse Interface cable to the host.
5. Connect an appropriate power supply to the power receptacle on the cradle. The indicator light on the cradle blinks, signifying successful power-up.

Using a Synapse Cable with the Scanner

1. Connect the Synapse Adapter cable into the bottom of the scanner.
2. Connect the Synapse Adapter cable to the Synapse Interface cable .
3. Connect the Synapse Adapter cable's flying power lead to the receptacle in the Synapse Interface cable (refer to **Figure 2-4**).
4. Plug the Synapse Interface cable into the host device.
5. Connect an appropriate power supply to the power receptacle in the Synapse Interface cable.

Wand Emulation, OCIA, OCR, Keyboard Wedges

See the instructions packed with the appropriate Synapse cable. An adapter cable is required. See **Figure 2-4** on page 2-6.



Chapter 3 *Operation*

Introduction

This chapter covers how to use the Phaser scanner. There are two ways to enter data into the scanner - scanning a bar code, or entering the numbers manually using the keypad.

Phaser Default MCL Application

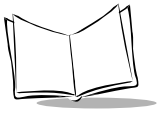
The Phaser is shipped from the factory with a default MCL application installed. This application demonstrates most of the operations of the Phaser, including uploading, downloading, scanning and keyboard entry in both batch and POS modes of operation.

Your MCL application may be different than what is described here. See your System Developer for more information.

When the unit is initially powered up (e.g., when a new battery is inserted), it displays the system start-up banner. Alternatively, the scanner can be reset manually using the <FN><*> key combination. The system banner appears as follows:

```
SYMBOL TECHNOLOGIES  
Phaser P460
```

Figure 3-1. Banner Screen



After 10 seconds, the System Banner is replaced by the system initialization screen:

```
SYMBOL TECHNOLOGIES  
INITIALIZING ...
```

Figure 3-2. Initialization Screen

and finally (after about 5 seconds of initialization), the scanner enters either the BATCH scanning screen or the POS scanning screen, depending on whether the unit is attached to a communications cable or not.

Batch Application

The default Batch application is a simple scan-and-store application which allows you to scan or key in a bar code. The screen appears as follows:

```
SCAN: _____  
_____
```

Figure 3-3. Batch Application Screen

Scanned bar codes are accepted automatically, and after a brief (3 second) delay, the screen clears to accept the next entry. (However, data entry may proceed before the 3 second pause.) Keyed bar codes must be completed with the <ENTER> key. After keying a bar code, the field clears immediately for the next entry. During key entry, the <BK> key will correct keying errors digit by digit, and the <FN><BK> combination will clear the field so you can start over.

If the data you are entering exceeds the visible length of the field (i.e., more than 34 characters), then characters scroll off the left end of the field, but are retained for storage.

If the scanner powers down at any time during the default application, pull the trigger or press the <ENTER> key to wake it up again.

Data Review

At any time during the Batch operation, you can review the stored data. Press the <*> key to show this screen:

```
CODE: xxxxx  
nnnn/nnnn
```

Figure 3-4. Data Review Screen

The screen displays the scanned code (up to 25 characters), the current record number and the maximum record number. The function initiates with the most recently scanned code, and pressing the up and down arrow keys move through the stored data. Press <ENTER> or <FN><BK> at any time exits the review mode and returns to the Batch application.

Data Upload

After scanning bar code records, press the <FN>1 key combination to upload these records to the host application. The scanner indicates that upload is in progress with the following screen:

```
Uploading data.
Please wait ...
```

Figure 3-5. Data Upload Screen

You have 30 seconds from the time that this screen appears to either insert the scanner into a cradle or attach a communications cable. If you fail to do so, or if the upload fails for any reason, the following screen appears:

```
Upload Failed! Retry?
<EN>=Y  <BK>=N
```

Figure 3-6. Data Upload Failed Screen

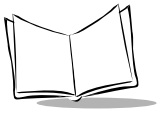
The upload may seem to pause before commencing. On a cable, this delay may be 3 to 4 seconds, while the scanner identifies which cable type has been connected. On a cradle, this delay may be indefinite, due to the daisy chaining of scanners on a single communication channel. If another scanner along the daisy chain is already communicating with the host when this scanner is placed in the cradle, this scanner pauses to allow the other scanner to complete its transaction before beginning. If the upload is successful, the user receives the following screen:

```
Success! Erase Data?
<EN>=Y  <BK>=N
```

Figure 3-7. Data Upload Success Screen

Pressing the <BK> key causes the bar code data to be retained in memory. Any subsequent bar codes are appended to the end of the file.

Pressing the <ENTER> key causes a confirmation screen to appear:



```
Confirm file erase
<EN>=Y <BK>=N
```

Figure 3-8. Data Erasure Confirmation

Press <ENTER> on this screen to erase the data; press <BK> to retain the data.

POS Application

Whenever the scanner detects that a communication cable has been inserted, it switches to the POS application. In POS mode, the scanner can transmit bar codes and optional quantities to the POS host. The POS screen appears as follows:

```
SCAN: _____
      _____
```

Figure 3-9. POS Application Screen

Scanned bar codes automatically transmit to the host. Keyed bar codes transmit once you press the <ENTER> key. To enter a quantity, press the * key prior to scanning or keying any bar code data. Once you press the * key, the following screen appears:

```
QTY: _____
```

Figure 3-10. POS Quantity Screen

Key in a quantity followed by the <ENTER> key. The SKU entry screen reappears. The scanner sends the SKU to the host the keyed-in amount of times. For instance, if you type in a quantity of 6, the scanner sends that SKU to the host six times as if the SKU were scanned six times.

System Menu

The system menu contains utilities to allow the user to set up the scanner. To access the System Menu, press the <FN>* key combination to reset the scanner, and then <FN><BK> within the first 10 seconds after the power up beep (while the *Banner Screen* on page 3-1 is still shown). The scanner displays:

```
Phaser P460 Scanner
0. System Setup
```

Figure 3-11. Setup Screen

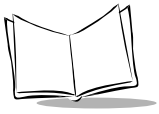
Pressing the Up and Down keys scrolls through the menu of available setup options:

0. System Setup
1. App. Control
2. Parameter Control
3. System Status
4. Erase File
5. Version
9. Return to App

Alternatively, press the associated numeric key to select the setup option directly (for advanced users who are already familiar with the options). Under each menu item is a sub-menu for more options:

0. System Setup
 0. Set Date
 1. Set Time
 2. Set Contrast
 9. Back To Main
1. App. Control
 0. Load New System
 1. Set Default App
 9. Back To Main
2. Parameter Control
 0. Scan Parameters
 1. Set Default Param
 9. Back To Main
3. System Status
 0. Battery Check
 9. Back To Main
4. Erase File
5. Version
9. Return to App

Each of these options is described in the following sections.



System Setup Options

This group of options perform basic system functions. Within this option are the Set Date, Set Time, Set Contrast and Back To Main functions.

Set Date

Sets the date of the internal clock of the scanner. The scanner displays its current date value, and provides a prompt for the user to enter the new date. If the current date is correct, press the <ENTER> key to return to the system menu.

Set Time

Sets the time of the internal clock of the scanner. The scanner displays its current time value, and provides a prompt for the user to enter the new time. If the current time is correct, press the <ENTER> key to confirm and exit back to the system menu.

Note: *If the battery is left out or uncharged for 24 hours, the user loses the real-time clock information. If the scanner is attached to a cable and there is no battery in the scanner, when the cable is removed from the scanner the real-time clock information is lost.*

Set Contrast

Sets the contrast of the display. The scanner displays its current contrast, and by using the up and down arrow keys the user can change the contrast. The default contrast is 4, and the range is from 0 to 7, with 0 being the lightest and 7 being the darkest. To cancel the change, press the <FN><BK> keys, and to accept the change, press the <ENTER> key.

Back To Main

Returns to the main menu, starting at 0. System Setup.

App. Control

The function under this option allow you to control your application. Specifically, the Load New System and Set Default App functions.

Load New System

Puts the scanner in download mode, and it is ready to receive a new application or an updated version of the system software from the host computer.

Set Default App

Restores the default application described above. The default application overwrites any downloaded application. (This option may be used to restore functionality to a scanner which has been loaded with a defective application.) Prior to resetting the default application, the user is prompted to confirm this operation:

```
Reset Default App?
<EN>=Y <BK>=N
```

Figure 3-12. Default Application Confirmation

Press the 1 key and then the <ENTER> key to confirm the choice (Yes). Press the 2 key and then the <ENTER> key or just the <BK> key to cancel the choice (No).

Parameter Control

These functions allow you to control the scanner parameters. Under this option are the Scan Params and Set Default Params functions.

Scan Params

Puts the scanner in a mode where parameter bar codes may be scanned. Parameter bar code scanning is disabled at all other times.

Set Default Params

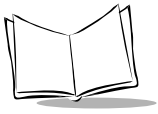
Restores the default parameters in the scanner. The default parameters overwrite any scanned parameters. Prior to resetting the default parameters, the user is prompted for confirmation with a screen similar to the Default Application Confirmation screen.

System Status

The function under this option allows you to perform some system checks. The specific function under this option is Battery Check.

Battery Check

Checks the battery status. The scanner responds with GOOD, LOW or DEAD! Low battery status indicates that the scanner will operate for another 25 scans before it must be recharged. Dead battery status indicates that the scanner will probably not be able to sustain another scan cycle, and should be recharged immediately.



Erase File

Allows you to erase the data. All data files must be uploaded from the scanner before erasing a file. A screen prompts you to indicate which file is to be erased:

```
Which File:  
A
```

Figure 3-13. File Erasure Input

Use the <UP> and <DN> keys to scroll through the available selections until the desired file is displayed. Press <ENTER> and a confirmation screen appears:

```
Erase File X?  
EN=Y  BK=N
```

Figure 3-14. File Erasure Confirmation

Press <EN> to erase the file, press <BK> to cancel the operation.

Version

Displays the current version of MCL the scanner is running and how much memory the scanner contains, either 1024K or 512K.

Return to App

Exits the system setup mode and returns to the application (either the default application described above, or any downloaded application).

Scanning

The scanner ships with the default application and default parameters that is ready-to-use right out of the box. If this is not what you need for your application, refer to the *MCL Designer Manual* for programming instructions and **Chapter 5, Parameter Menus** for scanning and communications parameters. If you need assistance, contact your local supplier or Symbol Support Center.

1. If you are using the scanner in corded mode, make sure all cable connections are secure. Otherwise, make sure the battery is sufficiently charged.
2. Make sure the bar code is in the correct scanning range. Aim and press the trigger. The scanner has read the symbol when:
 - ♦ You hear a beep.
 - ♦ The LED above the screen turns green.
 - ♦ The red laser turns off.

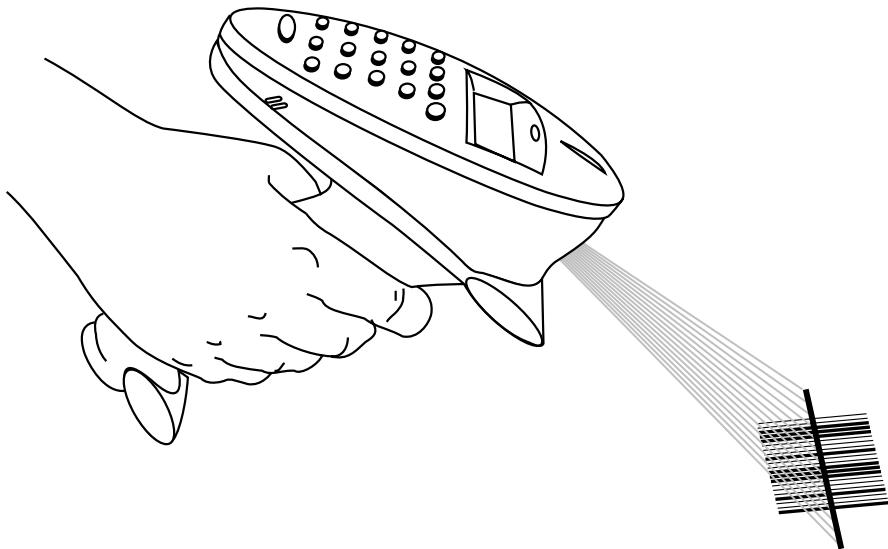
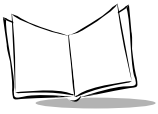


Figure 3-15. Scanning a Bar Code



Scan the Entire Symbol

- ◆ Your scan beam must cross every bar and space on the symbol.
- ◆ The larger the symbol, the farther away you should hold the scanner.
- ◆ Hold the scanner closer for symbols with bars that are close together.
- ◆ A short, high tone beep indicates a good decode.



Hold at an Angle

Do not hold the scanner directly over the bar code. Laser light reflecting *directly* back into the scanner from the bar code is known as specular reflection. This strong light can “blind” the scanner and make decoding difficult. The area where specular reflection occurs is known as a “dead zone.”

You can tilt the scanner up to 65° forward or back and still achieve a successful decode. Simple practice quickly shows what tolerances to work within.

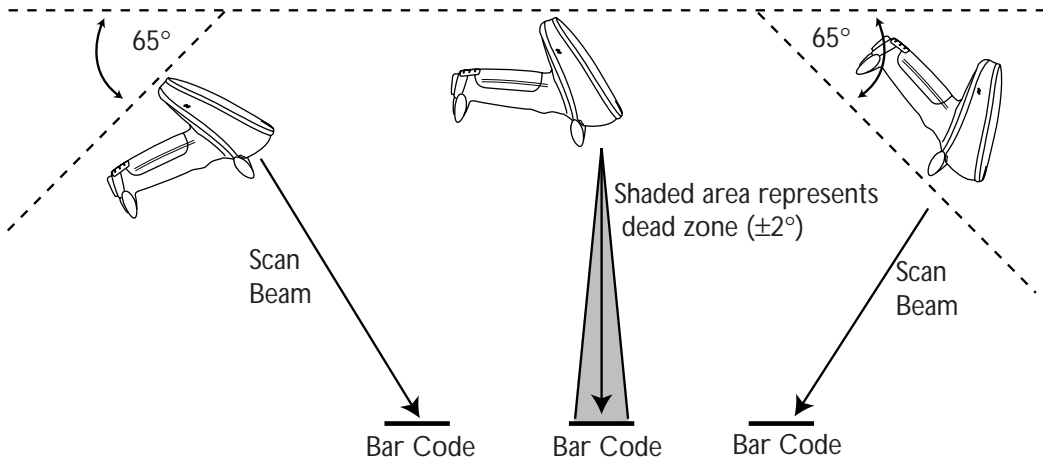


Figure 3-16. Maximum Tilt Angles and Dead Zone

Phaser Decode Zone

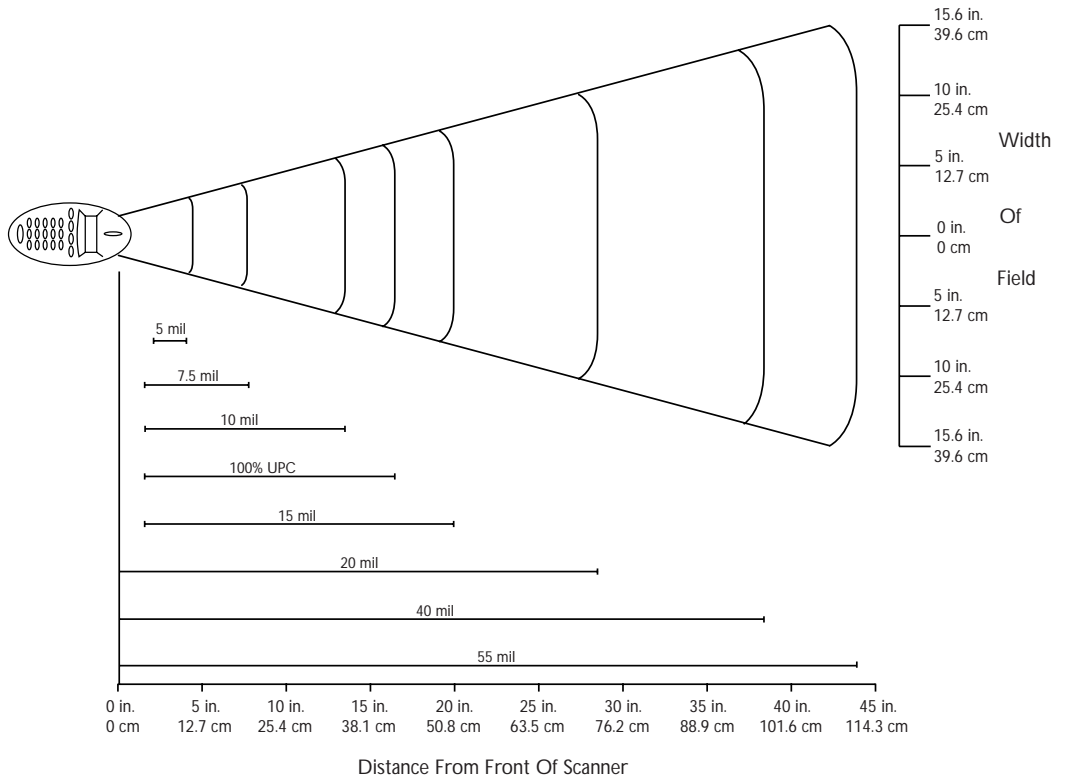
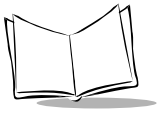


Figure 3-17. Phaser Decode Zone



Keypad Operation

Instead of scanning a bar code, you can enter the bar code's data using the keypad on the top of the scanner. To enter numeric characters, press the number key on the keypad. A high-pitched click lets you know that the entry was accepted. See [Figure 3-18 on page 3-13](#).

To enter alpha characters, press the Mode key once to put the scanner in Alpha Mode. Press the numeric key with the letter you want above it - once for the first letter, quickly twice for the second letter, or quickly three times for the third letter. Every time you press the key, you hear a low-pitched click to let you know that the entry was registered but not accepted yet, and a high-pitched key click after a second or so to let you know that the entry was accepted. You can go from one key to another before hearing the high key click (i.e., from the "a" to the "d"), but you must first hear the high click to go to a different letter on the same key (i.e., the "a" to the "c").

To return to numeric mode, press the Mode key again.

To put a decimal point into numeric data, type in the numbers before the decimal point. Then press the mode key, press the decimal, and press the mode key again. Now resume typing in the numeric entry.

The * key and the "Function+Number" key combination are special keys that can be programmed for custom operations. To use the "Function+Number" key combination, press the Function key, release it, and then press the number key associated with the operation to perform. For more information on how to program these keys and what they mean, refer to the *MCL Designer User's Guide*.

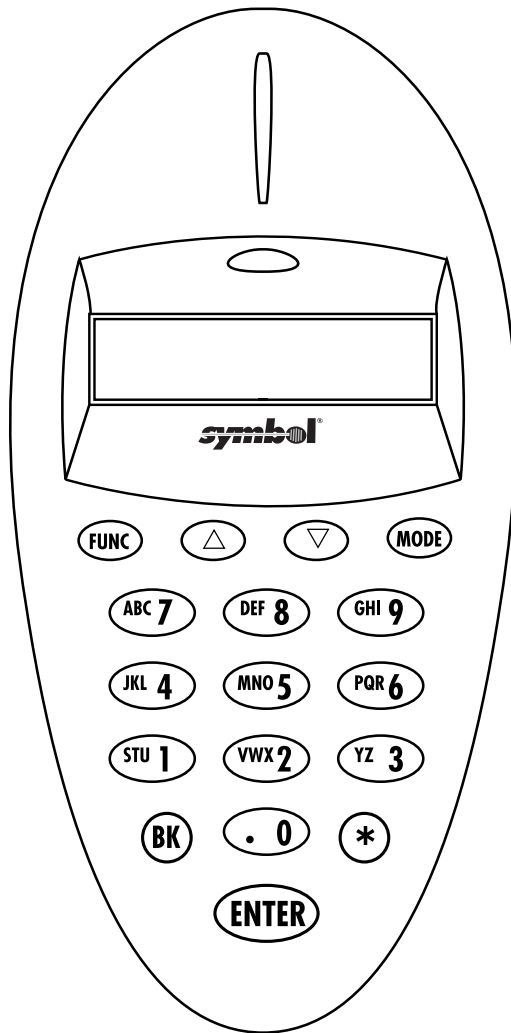
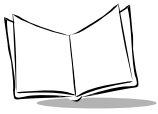


Figure 3-18. Phaser Keypad



Troubleshooting

Nothing happens when you follow the operating instructions?

You Should

- ◆ Check that the power supply is attached to the cradle or to the cable.
- ◆ Check for loose cable connections at the scanner, cradle, AC power supply, or host device.
- ◆ Check the scanner's battery.
- ◆ Make sure the device is programmed to read the type of bar code you want to scan.
- ◆ Check the symbol to make sure it is not defaced.
- ◆ Try scanning similar symbols of the same code type.
- ◆ Be sure you're within the proper scanning range.
- ◆ Reboot the scanner (hold down the ENTER key for about 10-20 seconds) and try scanning again.

The scanner emits transmit errors (error beeps after decode)?

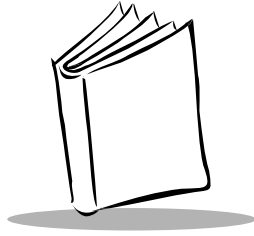
You Should

- ◆ Check that the scanner is powered up and that its cable connections are secure.
- ◆ Be sure the cable connection to the host is secure.
- ◆ Check that the appropriate host type is selected.

Note: *If after performing these checks the symbol still does not scan, contact your distributor or call the Symbol Support Center. See [page vii](#) for the telephone number.*

Programming the System

The Phaser memory scanner is programmed by MCL and by scanning sequences of bar codes; see the *MCL Designer for P460 Scanners User's Guide* and [Chapter 5, Parameter Menus](#).



Chapter 4

Maintenance And Specifications

Introduction

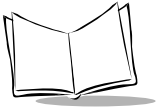
This chapter explains how to maintain your scanner and the specifications for it.

Maintenance

- ◆ Do not allow any abrasive material to touch the scanner window.
- ◆ Remove any dirt particles with a damp cloth.
- ◆ Wipe the scanner window using a damp cloth, and if necessary, a non-ammonia based detergent.
- ◆ Do not spray water or other cleaning liquids directly into the scanner window.
- ◆ If the contacts between the scanner and cradle become dirty, clean them with either a pencil eraser or a cotton swab dampened with alcohol.
- ◆ Change the battery when the batteries no longer provide 8 hours of scanning in typical usage. This should occur after 2 years or more, depending on your daily use.

Changing the Battery

Once a battery is fully charged, it will generally last up to 10 hours without being returned to the cradle. By returning it to the cradle during the day, you extend this time.



Removing the Battery

1. Slide the battery compartment release switch down.
2. Remove the battery compartment cover.

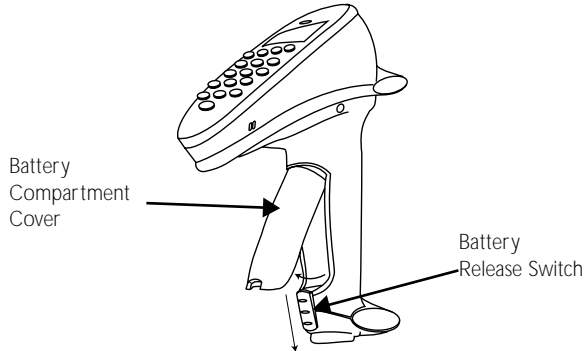


Figure 4-1. Removing the Battery Compartment Cover

3. Slide the battery towards the bottom of the scanner.
4. Pull the bottom of the battery out and away from the scanner.

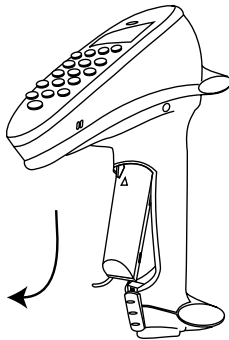


Figure 4-2. Pulling the Battery Out

Replacing the Battery

1. Seat the battery fully in the scanner.
2. Slide it up in the handle.
3. Replace the battery compartment cover.
4. Slide the release latch up to secure the cover in place.

Charge Status LED Indications

The LED indicator on the cradle uses flashing patterns to display the charger status, as shown in the table below.

Table 4-1. Cradle LED Indications

LED	Status
Off	The scanner is not in the cradle.
Blinking Slowly	The scanner is properly seated in the cradle, but charging has not begun.
Blinking Rapidly	The battery is actively charging.
On	Battery charging is complete.

Accessories

Required Accessories

Phaser scanners are sent as a package with required accessories. Optional accessories are available at extra cost.

Optional Accessories

Optional accessories include various stands and holders, which are supplied at extra cost. Additional units of standard accessories may also be purchased at extra cost.

One such optional accessory is the IntelliStand, which permits hands-free operation of the Phaser scanner. It permits the Phaser to scan continuously and automatically read a bar code when one is presented in front of the scanner. The Phaser must be operating from a cable with an external power supply to work with the IntelliStand, as it cannot work with battery power under these conditions. For more information about the IntelliStand, refer to the *IntelliStand Quick Reference Guide*, p/n 70-11567-xx.

Table 4-2. Technical Specifications (Cont'd)

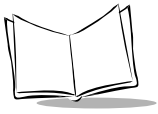
Item	Description
Dimensions	
Height	7.0 in. (17.8 cm)
Width	9.2 in. (13.5 cm)
Depth	3.5 in. (9.8 cm)
Laser Classifications	CDRH Class II IEC Class 1 IEC 825 Class 2

Cradle Pin-outs

The following table shows the pin-outs for both COM1 and COM2 on the cradle.

Table 4-3. Pin-outs

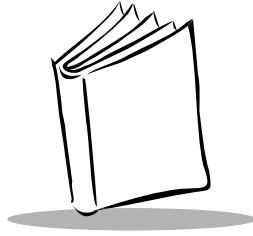
Pin	Phaserlink Cradle
1	BREQ
2	VCC (Out)
3	Ground
4	Synapse Data
5	Synapse Clock
6	RXD
7	TXD
8	BACK
9	CTS
10	RTS



Beeper Indications

Table 4-4. Beeper Indications

Beeper Sequence	Indication
Standard Use	
Short high tone	A bar code symbol was decoded (if decode beeper is enabled).
4 Beeps - long low tone	A transmission error has been detected in a scanned symbol. The data is ignored. This occurs if a unit is not properly configured. Check option settings.
5 Beeps - low tone	Convert or format error.
Hi/hi/hi/lo tone	RS-232 receive error.
4 Beeps - short hi	Low battery.
Parameter Menu Scanning	
Short high tone	Correct entry scanned or correct menu sequence performed.
Lo/hi tone	Input error, incorrect bar code or "Cancel" scanned, wrong entry, incorrect bar code programming sequence; remain in program mode.
Hi/lo tone	Keyboard parameter selected. Enter value using bar code keypad.
Hi/lo/hi/lo tone	Successful program exit with change in the parameter setting.



Chapter 5

Parameter Menus

Introduction

This chapter has the optional parameter bar codes necessary to program the Phaser scanner.

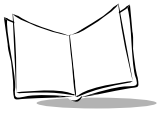
Operational Parameters

The Phaser is shipped with the settings shown in [Table 5-1](#). These default values are stored in non-volatile memory and are preserved even when the scanner is powered down. You can change these default values by scanning the appropriate bar codes included in this manual. These new values replace the standard default values in memory. The default parameter values can be recalled by scanning the bar code in the section [Set Default Parameter on page 5-7](#).

The scanner automatically detects which cable it is attached to, either an RS-232 or a Synapse cable. If it is attached to an RS-232 cable and has either an ICL, Nixdorf, or Fujitsu host interface, then scan the appropriate bar code from [page 5-10](#) after power up. Any other host interface works with the default setting.

If it is attached to a Synapse cable, plug everything together as described on [page 2-6](#) and then follow the directions that come with the Synapse cable for setting up the host interface.

Note: *Parameter bar codes can only be scanned when the scanner is in the “system menu”. Refer to [System Menu on page 3-4](#) for more information.*



The following table lists the defaults for all parameters. If you wish to change any option, scan the appropriate bar code(s).

Table 5-1. Default Table

Parameter	Default	Page Number
Set Default Parameter	All Defaults	5-7
RS-232 Host Type	Standard	5-8
Sleep Time	10 seconds	5-11
Date Separator	Forward Slash (/)	5-12
Hour Type	12 Hour	5-13
Decimal Separator	Decimal Point (.)	5-14
Date Format	MM/DD/YYYY	5-15
Key Click	Enable	5-16
Beeper Tone	High Frequency	5-17
Beeper Volume	High	5-18
Laser On Time	3.0 seconds	5-19
Beep After Good Decode	Enable	5-20
Transmit "No Read" Message	Disable	5-21
Linear Code Type Security Levels	1	5-22
Bi-directional Redundancy	Disable	5-24

Table 5-1. Default Table (Cont'd)

Parameter	Default	Page Number
UPC/EAN		
UPC-A	Enable	5-25
UPC-E	Enable	5-25
UPC-E1	Disable	5-25
EAN-8	Enable	5-26
EAN-13	Enable	5-26
Bookland EAN	Disable	5-27
Decode UPC/EAN Supplementals	Ignore	5-28
Decode UPC/EAN Supplemental Redundancy	7	5-29
Transmit UPC-A Check Digit	Enable	5-30
Transmit UPC-E Check Digit	Enable	5-30
Transmit UPC-E1 Check Digit	Enable	5-30
UPC-A Preamble	System Character	5-31
UPC-E Preamble	System Character	5-32
UPC-E1 Preamble	System Character	5-33
Convert UPC-E to A	Disable	5-34
Convert UPC-E1 to A	Disable	5-35
EAN-8 Zero Extend	Disable	5-36
Convert EAN-8 to EAN-13 Type	Type is EAN-13	5-37
UPC/EAN Security Levels	0	5-38
UPC/EAN Coupon Code	Disable	5-40

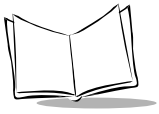


Table 5-1. Default Table (Cont'd)

Parameter	Default	Page Number
Code 128		
Code 128	Enable	5-41
UCC/EAN-128	Enable	5-42
Code 39		
Code 39	Enable	5-43
Trioptic Code 39	Disable	5-44
Set Length(s) for Code 39	2 to 55	5-46
Code 39 Check Digit Verification	Disable	5-47
Transmit Code 39 Check Digit	Disable	5-48
Code 39 Full ASCII Conversion	Disable	5-49
Convert Code 39 to Code 32	Disable	5-50
Code 93		
Code 93	Disable	5-51
Set Length(s) for Code 93	4-55	5-52
Interleaved 2 of 5		
Interleaved 2 of 5	Enable	5-54
Set Length(s) for I 2 of 5	14	5-55
I 2 of 5 Check Digit Verification	Disable	5-57
Transmit I 2 of 5 Check Digit	Disable	5-58
Convert I 2 of 5 to EAN 13	Disable	5-59

Table 5-1. Default Table (Cont'd)

Parameter	Default	Page Number
Discrete 2 of 5		
Discrete 2 of 5	Disable	5-60
Set Length(s) for D 2 of 5	12	5-61
Codabar		
Codabar	Disable	5-63
Set Lengths for Codabar	5-55	5-65
CLSI Editing	Disable	5-66
NOTIS Editing	Disable	5-67
MSI Plessey		
MSI Plessey	Disable	5-68
Set Length(s) for MSI Plessey	Any Length	5-70
MSI Plessey Check Digits	One	5-71
Transmit MSI Plessey Check Digit	Disable	5-72
MSI Plessey Check Digit Algorithm	Mod 10/Mod 10	5-73
Data Options		
Transmit Code ID Character	None	5-75

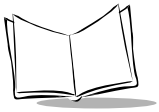
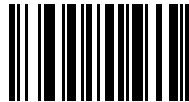


Table 5-1. Default Table (Cont'd)

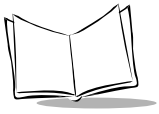
Parameter	Default	Page Number
RS-232C		
RS-232 Host Type	Standard	5-10
Baud Rate	9600	5-78
Parity	None	5-79
Check Receive Errors	Disable	5-81
Hardware Handshaking	None	5-83
Software Handshaking	None	5-84
Host Serial Response Time-out	2 Sec.	5-86
RTS Line State (cable use only)	Low	5-87
Stop Bit Select	1	5-88
ASCII Format	8-Bit	5-88
Beep on <BEL>	Disable	5-89
Intercharacter Delay	0	5-89

Set Default Parameter

Scanning this bar code returns all parameters to the values listed in [Table 5-1](#).



SET ALL DEFAULTS



Host Type

RS-232C Host Types

Most RS-232C hosts work fine with the default settings, however, three RS-232C hosts are set up with their own parameter default settings. Selecting the ICL, Fujitsu or Nixdorf RS-232C host interface sets the defaults listed below. These defaults take precedence over Standard RS-232 defaults. So, if you select the Fujitsu RS-232C first, and then select the Standard RS-232 defaults, the Fujitsu defaults still take precedence. To return to the factory set defaults, scan the **SET ALL DEFAULTS** bar code on page 5-7.

Table 5-2. Terminal Specific RS-232C

Parameter	Standard	ICL	FUJITSU	NIXDORF Mode A/ Mode B
Transmit Code ID	No	Yes	Yes	Yes
Data Transmission Format	Data as is	Data/Suffix	Data/Suffix	Data/Suffix
Suffix	CR/LF	CR	CR	CR
Baud Rate	9600	9600	9600	9600
Parity	None	Even	None	Odd
Hardware Handshaking	None	RTS/CTS Option 3	None	RTS/CTS Option 3
Software Handshaking	None	None	None	None
Serial Response Time-out	2 Sec.	9.9 Sec.	2 Sec.	9.9 Sec.
Stop Bit Select	One	One	One	One
ASCII Format	8-Bit	8-Bit	8-Bit	8-Bit
Beep On <BEL>	Disabled	Disabled	Disabled	Disabled
RTS Line State	Low	High	Low	*Low = No data to send

*In the Nixdorf Mode B, if CTS is Low, transmission of scan data is disabled. When CTS is High, bar code data is transmitted to the host.

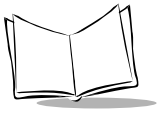
Host Type

RS-232C Host Types

Selecting the ICL, Fujitsu, or Nixdorf RS-232C host interface enables the transmission of Code ID Characters as listed below. These Code ID Characters are not programmable and are separate from the Transmit Code ID feature. The Transmit Code ID feature should not be enabled for these hosts.

Table 5-3. Terminal Specific Code ID Characters

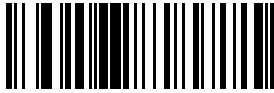
	ICL	FUJITSU	NIXDORF
UPC-A	"A"	"A"	"A"
UPC-E	"E"	"E"	"C0"
EAN-8	"FF"	"FF"	"B"
EAN-13	"F"	"F"	"A"
Code 39	"C" <len>	None	"M"
Codabar	"N" <len>	None	"N"
Code 128	"L" <len>	None	"K"
I 2 of 5	"I" <len>	None	"I"
Code 93	None	None	"L"
D 2 of 5	"H" <len>	None	"H"
UCC/EAN 128	"L" <len>	None	"P"
MSI/Plessey	None	None	"O"
Bookland EAN	"F"	"F"	"A"
Trioptic	None	None	None



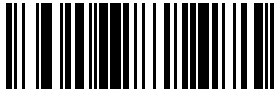
Host Type

RS-232C Host Types

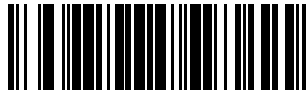
Scan the appropriate bar code below to select an RS-232C Host Interface.



STANDARD RS-232C



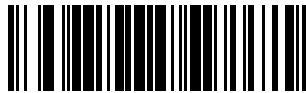
ICL RS-232C



NIXDORF RS-232C Mode A



NIXDORF RS-232C Mode B



FUJITSU RS-232C

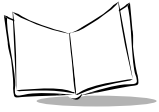
Sleep Time

Scan the bar code below to select how long the scanner will “stay awake” (not power down) in seconds after a trigger pull or a key press. First scan this bar code, then enter a range from 05 to 32, using the numeric bar codes on page 5-90. It can stay awake from 5 seconds to 32 seconds.

Note: *Allowing the scanner to stay awake longer than originally programmed may effect the battery life time for that session before needing a charge.*

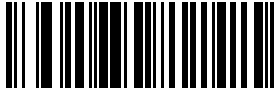


SLEEP TIME (RANGE OF 5 TO 32 SECONDS)



Date Separator

Scan the appropriate bar code below to select which separator to use when displaying the date. Choose FORWARD SLASH, DASH, COLON or NONE.



FORWARD SLASH (/)



DASH (-)



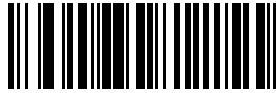
COLON (:)



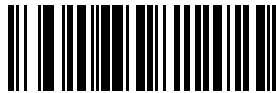
NONE

Hour Type

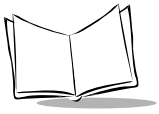
Scan the appropriate bar code below to select how to display the hour and transmit it to the host device. Choose 12 HOUR (6:00 pm) or 24 HOUR (18:00).



24 HOUR

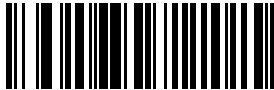


12 HOUR



Decimal Separator

Scan the appropriate bar code below to select what separator to display when you hit the decimal point key on the keypad. Choose DECIMAL POINT (.) or COMMA (,).



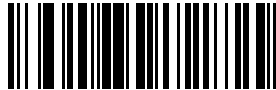
DECIMAL POINT (.)



COMMA (,)

Date Format

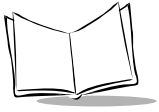
Scan the appropriate bar code below to select how to format the date when it is displayed and transmitted to the host device. Choose MM/DD/YYYY or DD/MM/YYYY.



MM/DD/YYYY

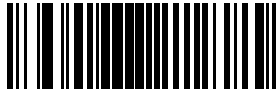


DD/MM/YYYY

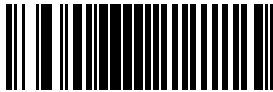


Key Click

Scan the appropriate bar code below to select whether the keypad click is enabled or not. Choose ENABLE or DISABLE.



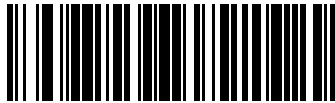
ENABLE



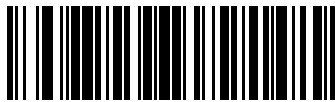
DISABLE

Beeper Tone

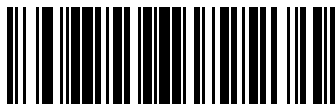
Scan the appropriate bar code below to select a decode beep frequency (tone). Choose LOW FREQUENCY, MEDIUM FREQUENCY, or HIGH FREQUENCY.



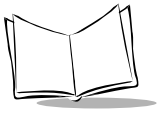
LOW FREQUENCY



MEDIUM FREQUENCY

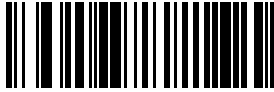


HIGH FREQUENCY

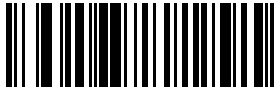


Beeper Volume

Scan the appropriate bar code below to select a beeper volume. Choose **LOW VOLUME**, **MEDIUM VOLUME**, or **HIGH VOLUME**.



LOW VOLUME



MEDIUM VOLUME



HIGH VOLUME

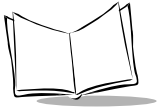
Laser On Time

This parameter sets the maximum time decode processing continues during a scan attempt. It is programmable in 0.1 second increments from 0.5 to 9.9 seconds.

Scan the bar code below to set a Laser On Time. Next scan two numeric bar codes beginning on page 5-90 that correspond to the desired time. Time less than 1.0 second must have a leading zero. For example, to set a Time On of .5 seconds, scan the bar code below, then scan the “0” and “5” bar codes. If you make an error, or wish to change your selection, scan **CANCEL** on page 5-92.

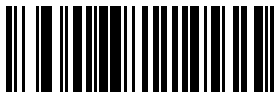


LASER ON TIME

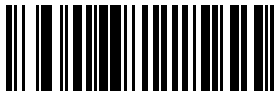


Beep After Good Decode

Scan the appropriate bar code below to select whether or not the scanner beeps after a good decode. If DO NOT BEEP is selected, the beeper still operates during parameter menu scanning and indicates error conditions.



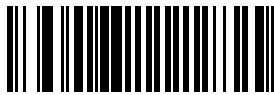
BEEP AFTER GOOD DECODE



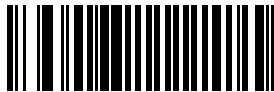
DO NOT BEEP AFTER GOOD DECODE

Transmit “No Read” Message

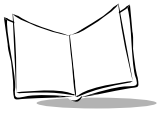
Scan the appropriate bar code below to select whether or not a “No Read” message is transmitted. When enabled, if a symbol does not decode, “NR” is transmitted. When disabled, if a symbol does not read, nothing is sent to the host.



ENABLE NO READ



DISABLE NO READ



Linear Code Type Security Level

The Phaser offers four levels of decode security for linear code types (e.g., Code 39, Interleaved 2 of 5). Higher security levels are selected for decreasing levels of bar code quality. As security levels increase, the scanner's aggressiveness decreases.

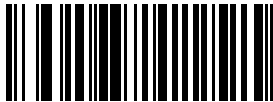
Select the security level appropriate for your bar code quality.

Note: Does not apply to Code 128.

Linear Security Level 1

The following code types must be successfully read twice before being decoded:

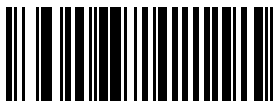
Code Type	Length
Codabar	All
MSI Plessey	4 or less
D 2 of 5	8 or less
I 2 of 5	8 or less



LINEAR SECURITY LEVEL 1

Linear Security Level 2

All code types must be successfully read twice before being decoded.



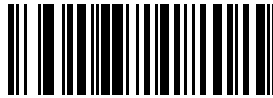
LINEAR SECURITY LEVEL 2

Linear Code Type Security Level (Cont'd)

Linear Security Level 3

Code types other than the following must be successfully read twice before being decoded. The following codes must be read three times:

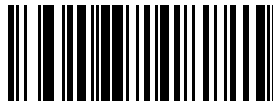
Code Type	Length
MSI Plessey	4 or less
D 2 of 5	8 or less
I 2 of 5	8 or less



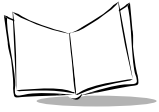
LINEAR SECURITY LEVEL 3

Linear Security Level 4

All code types must be successfully read three times before being decoded.

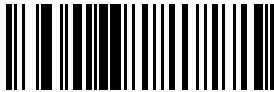


LINEAR SECURITY LEVEL 4

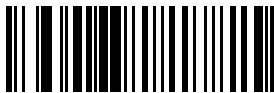


Bi-directional Redundancy

This parameter is only valid when a **Linear Code Type Security Level** (see page 5-22) is enabled. When this parameter is enabled, a bar code must be successfully scanned in both directions (forward and reverse) before being decoded.



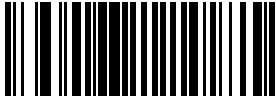
ENABLE BI-DIRECTIONAL REDUNDANCY



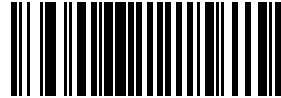
DISABLE BI-DIRECTIONAL REDUNDANCY

Enable/Disable UPC-E/UPC-A/UPC-E1

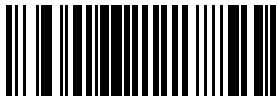
Scan the appropriate bar code below to enable or disable UPC-E or UPC-A.



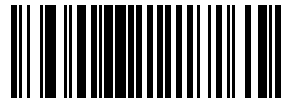
ENABLE UPC-E



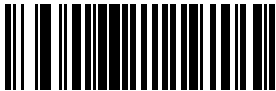
DISABLE UPC-E



ENABLE UPC-A



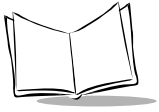
DISABLE UPC-A



ENABLE UPC-E1

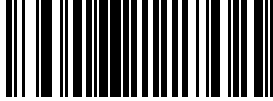


DISABLE UPC-E1

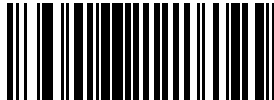


Enable/Disable EAN-8/EAN-13

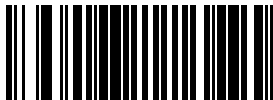
Scan the appropriate bar code below to enable or disable EAN-8 or EAN-13.



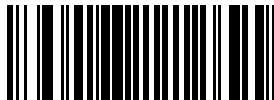
ENABLE EAN-8



DISABLE EAN-8



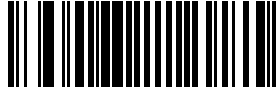
ENABLE EAN-13



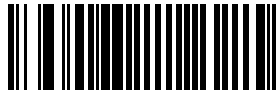
DISABLE EAN-13

Enable/Disable Bookland EAN

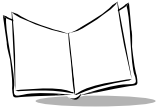
Scan the appropriate bar code below to enable or disable Bookland EAN.



ENABLE BOOKLAND EAN



DISABLE BOOKLAND EAN



Decode UPC/EAN Supplementals

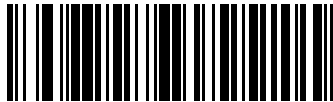
Supplementals are characters (either 2 or 5) that are added on according to specific code format conventions (e.g., UPC A+2, UPC E+2, EAN 8+2). Three options are available.

- ◆ If **Decode UPC/EAN with supplementals** is selected, UPC/EAN symbols without supplemental characters are not decoded.
- ◆ If **Ignore UPC/EAN with supplementals** is selected, UPC/EAN symbols with supplemental characters are decoded and the supplemental characters are ignored.
- ◆ If **Autodiscriminate UPC/EAN supplementals** is selected, UPC/EAN symbols, either with or without supplementals, are decoded. If selected, choose an appropriate *Decode UPC/EAN Supplemental Redundancy* value from the next page.

Note: *To minimize the risk of invalid data transmission, select whether to read or ignore supplemental characters.*



DECODE UPC/EAN WITH SUPPLEMENTALS



IGNORE UPC/EAN WITH SUPPLEMENTALS

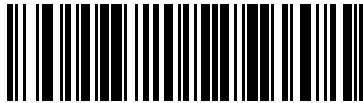


AUTODISCRIMINATE UPC/EAN SUPPLEMENTALS

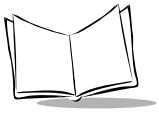
Decode UPC/EAN Supplemental Redundancy

With Autodiscriminate UPC/EAN Supplementals selected, this option adjusts the number of times a symbol without supplementals is decoded before transmission. The range is from two to 20 times. Five or above is recommended when decoding a mix of UPC/EAN symbols with and without supplementals, and the autodiscriminate option is selected.

Scan the bar code below to select a decode redundancy value. Next scan two numeric bar codes beginning on page **5-90**. Single digit numbers must have a leading zero. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.

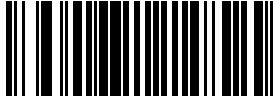


DECODE UPC/EAN
SUPPLEMENTAL REDUNDANCY

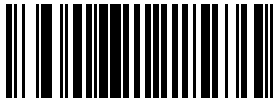


Transmit UPC-A/UPC-E/UPC-E1 Check Digit

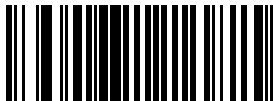
Scan the appropriate bar code below to transmit the symbol with or without the UPC-A, UPC-E, or UPC-E1 check digit.



TRANSMIT UPC-A CHECK DIGIT



DO NOT TRANSMIT UPC-A CHECK DIGIT



TRANSMIT UPC-E CHECK DIGIT



DO NOT TRANSMIT UPC-E CHECK DIGIT



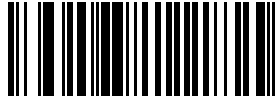
TRANSMIT UPC-E1 CHECK DIGIT



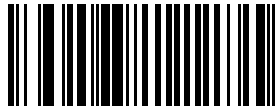
DO NOT TRANSMIT UPC-E1 CHECK DIGIT

UPC-A Preamble

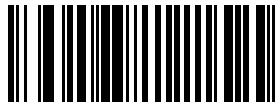
Three options are given for lead-in characters for UPC-A symbols transmitted to the host device: transmit system character only, transmit system character and country code ("0" for USA), and no preamble transmitted. The lead-in characters are considered part of the symbol.



NO PREAMBLE
(<DATA>)



SYSTEM CHARACTER
(<SYSTEM CHARACTER> <DATA>)

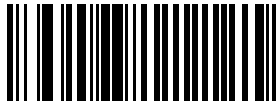


SYSTEM CHARACTER & COUNTRY CODE
(< COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)

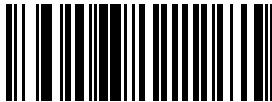


UPC-E Preamble

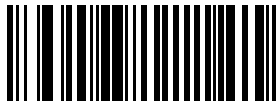
Three options are given for lead-in characters for UPC-E symbols transmitted to the host device: transmit system character only, transmit system character and country code (“0” for USA), and no preamble transmitted. The lead-in characters are considered part of the symbol.



NO PREAMBLE
(<DATA>)



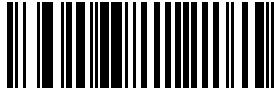
SYSTEM CHARACTER
(<SYSTEM CHARACTER> <DATA>)



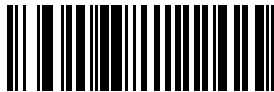
SYSTEM CHARACTER & COUNTRY CODE
(< COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)

UPC-E1 Preamble

Three options are given for lead-in characters for UPC-E1 symbols transmitted to the host device: transmit system character only, transmit system character and country code ("0" for USA), and no preamble transmitted. The lead-in characters are considered part of the symbol.



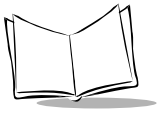
NO PREAMBLE
(<DATA>)



SYSTEM CHARACTER
(<SYSTEM CHARACTER> <DATA>)



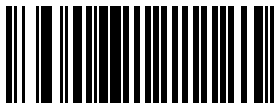
SYSTEM CHARACTER & COUNTRY CODE
(< COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)



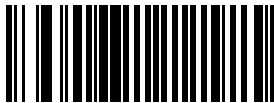
Convert UPC-E to UPC-A

This parameter converts UPC-E (zero suppressed) decoded data to UPC-A format before transmission. After conversion, data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit).

Scanning **DO NOT CONVERT UPC-E TO UPC-A** allows you to transmit UPC-E (zero suppressed) decoded data.



**CONVERT UPC-E TO UPC-A
(ENABLE)**

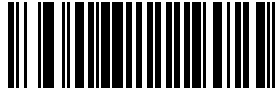


**DO NOT CONVERT UPC-E TO UPC-A
(DISABLE)**

Convert UPC-E1 to UPC-A

This parameter converts UPC-E1 decoded data to UPC-A format before transmission. After conversion, data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit).

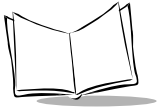
Scanning **DO NOT CONVERT UPC-E1 TO UPC-A** allows you to transmit UPC-E1 decoded data.



CONVERT UPC-E1 TO UPC-A
(ENABLE)



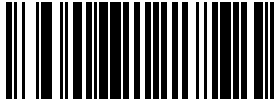
DO NOT CONVERT UPC-E1 TO UPC-A
(DISABLE)



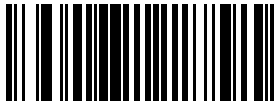
EAN Zero Extend

If this parameter is enabled, five leading zeros are added to decoded EAN-8 symbols to make them compatible in format to EAN-13 symbols.

Disabling this parameter returns EAN-8 symbols to their normal format.



ENABLE EAN ZERO EXTEND

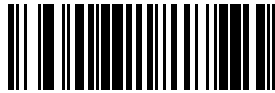


DISABLE EAN ZERO EXTEND

Convert EAN-8 to EAN-13 Type

When EAN Zero Extend is enabled, this parameter gives you the option of labeling the extended symbol as either an EAN-13 bar code, or an EAN-8 bar code.

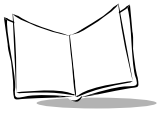
When EAN Zero Extend is disabled, this parameter has no effect on bar code data.



TYPE IS EAN-13



TYPE IS EAN-8

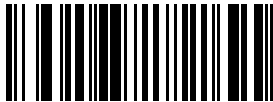


UPC/EAN Security Level

The Phaser offers four levels of decode security for UPC/EAN bar codes. Increasing levels of security are provided for decreasing levels of bar code quality. There is an inverse relationship between security and scanner aggressiveness, so be sure to choose only that level of security necessary for any given application.

UPC/EAN Security Level 0

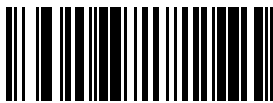
This is the default setting which allows the scanner to operate in its most aggressive state, while providing sufficient security in decoding “in-spec” UPC/EAN bar codes.



UPC/EAN SECURITY LEVEL 0

UPC/EAN Security Level 1

As bar code quality levels diminish, certain characters become prone to mis-decodes before others (i.e., 1, 2, 7, 8). If you are experiencing mis-decodes of poorly printed bar codes, and the mis-decodes are limited to these characters, select this security level.

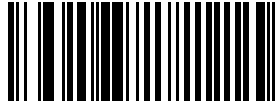


UPC/EAN SECURITY LEVEL 1

UPC/EAN Security Level (Cont'd)

UPC/EAN Security Level 2

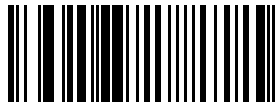
If you are experiencing mis-decodes of poorly printed bar codes, and the mis-decodes are not limited to characters 1, 2, 7, and 8, select this security level.



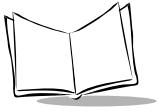
UPC/EAN SECURITY LEVEL 2

UPC/EAN Security Level 3

If you have tried Security Level 2, and are still experiencing misdecodes, select this security level. Be advised that selecting this option is an extreme measure against mis-decoding severely out of spec bar codes. Selection of this level of security significantly impairs the decoding ability of the scanner. If this level of security is necessary, you should try to improve the quality of your bar codes.

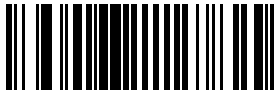


UPC/EAN SECURITY LEVEL 3

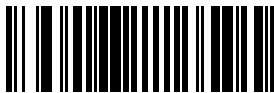


UPC/EAN Coupon Code

When this parameter is enabled, the Phaser decodes UPC-A, UPC-A with 2 supplemental characters, UPC-A with 5 supplemental characters, and UPC-A/EAN128 bar codes. UPC-A with supplemental characters need not be enabled.



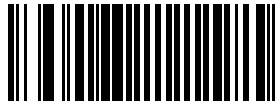
ENABLE UPC/EAN COUPON CODE



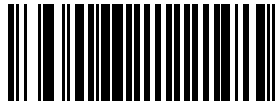
DISABLE UPC/EAN COUPON CODE

Enable/Disable Code 128

Scan the appropriate bar code below to enable or disable Code 128.

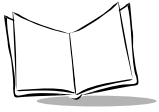


ENABLE CODE 128



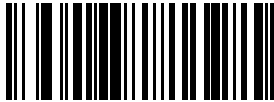
DISABLE CODE 128

Note: *The “/” character and the NULL character cannot be embedded in the barcode to be scanned when using Code 128.*



Enable/Disable UCC/EAN-128

Scan the appropriate bar code below to enable or disable UCC/EAN-128. (See *Appendix A* for details on UCC/EAN-128.)



ENABLE UCC/EAN-128



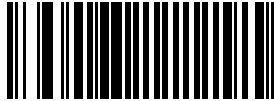
DISABLE UCC/EAN-128

Lengths for Code 128

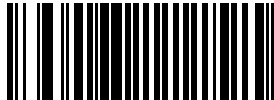
No length setting is required for Code 128. The default setting is Any Length.

Enable/Disable Code 39

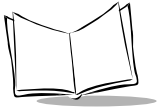
Scan the appropriate bar code below to enable or disable Code 39.



ENABLE CODE 39

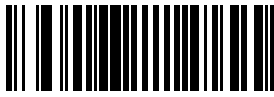


DISABLE CODE 39

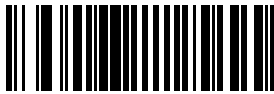


Enable/Disable Trioptic Code 39

Trioptic Code 39 symbols always contain six characters. Trioptic Code 39 and Code 39 Full ASCII cannot be enabled simultaneously. If you get an error beep when enabling Trioptic Code 39, disable Code 39 Full ASCII and try again. To enable or disable Trioptic Code 39, scan the appropriate bar code below.



ENABLE TRIOPTIC CODE 39



DISABLE TRIOPTIC CODE 39

Set Lengths for Code 39

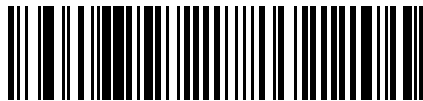
Lengths for Code 39 may be set for any length, one or two discrete lengths, or lengths within a specific range. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. If Code 39 Full ASCII is enabled, **Length Within a Range** or **Any Length** are the preferred options.

One Discrete Length - This option allows you to decode only those codes containing a selected length. For example, if you select **Code 39 One Discrete Length**, then scan **1, 4**, only Code 39 symbols containing 14 characters are decoded. Numeric bar codes begin on page [5-90](#). If you make an error, or wish to change your selection, scan **CANCEL** on page [5-92](#).

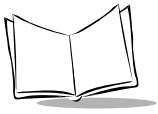


CODE 39 - ONE DISCRETE LENGTH

Two Discrete Lengths - This option allows you to decode only those codes containing two selected lengths. For example, if you select **Code 39 Two Discrete Lengths**, then scan **0, 2, 1, 4**, only Code 39 symbols containing 2 or 14 characters are decoded. Numeric bar codes begin on page [5-90](#). If you make an error, or wish to change your selection, scan **CANCEL** on page [5-92](#).



CODE 39 - TWO DISCRETE LENGTHS



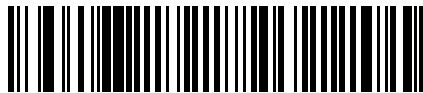
Set Lengths for Code 39 (Cont'd)

Length Within Range - This option allows you to decode a code type within a specified range. For example to decode Code 39 symbols containing between 4 and 12 characters, first scan **Code 39 Length Within Range**. Then scan **0, 4, 1** and **2** (single digit numbers must always be preceded by a leading zero). Numeric bar codes begin on page **5-90**. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.



CODE 39 - LENGTH WITHIN RANGE

Any Length - Scanning this option allows you to decode Code 39 symbols containing any number of characters.

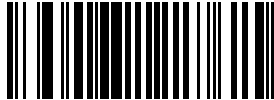


CODE 39 - ANY LENGTH

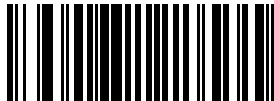
Code 39 Check Digit Verification

When enabled, this parameter checks the integrity of a Code 39 symbol to ensure it complies with specified algorithms.

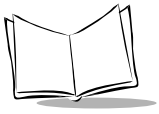
Only those Code 39 symbols which include a modulo 43 check digit are decoded when this parameter is enabled.



ENABLE CODE 39 CHECK DIGIT

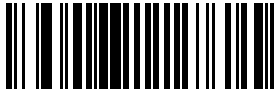


DISABLE CODE 39 CHECK DIGIT

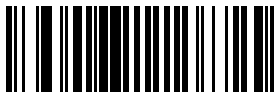


Transmit Code 39 Check Digit

Scan the appropriate bar code below to transmit the data with or without the check digit.



**TRANSMIT CODE 39 CHECK DIGIT
(ENABLE)**



**DO NOT TRANSMIT CODE 39 CHECK DIGIT
(DISABLE)**

Enable/Disable Code 39 Full ASCII

Scan the appropriate bar code below to enable or disable Code 39 Full ASCII.

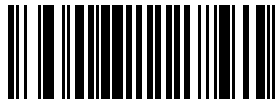
When enabled, the ASCII character set assigns a code to letters, punctuation marks, numerals, and most control keystrokes on the keyboard.

The first 32 codes are non-printable and are assigned to keyboard control characters such as BACKSPACE and RETURN. The other 96 are called printable codes because all but SPACE and DELETE produce visible characters.

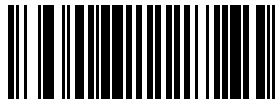
Code 39 Full ASCII interprets the bar code special character (\$ + % /) preceding a Code 39 character and assigns an ASCII character value to the pair. For example, when Code 39 Full ASCII is enabled and a +B is scanned, it is interpreted as **b**, %J as **?**, and \$H emulates the keystroke **BACKSPACE**. Scanning **ABC\$M** will output the keystroke equivalent of **ABC ENTER**. Refer to the ASCII table in *Appendix A*.

Code 39 Full ASCII and Trioptic Code 39 cannot be enabled simultaneously. If you get an error beep when enabling Code 39 Full ASCII, disable Trioptic Code 39 and try again.

The scanner does not autodiscriminate between Code 39 and Code 39 Full ASCII.

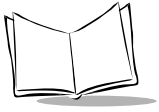


ENABLE CODE 39 FULL ASCII



DISABLE CODE 39 FULL ASCII

Note: The “/” character and the NULL character cannot be embedded in the barcode to be scanned when using Code 39 Full ASCII.



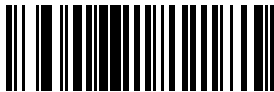
Convert Code 39 to Code 32

Scan the appropriate bar code below to enable or disable converting Code 39 to Code 32.

Note: *Code 39 must be enabled in order for this parameter to function.*



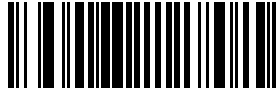
CONVERT CODE 39 TO CODE 32
(ENABLE)



DO NOT CONVERT CODE 39 TO CODE 32
(DISABLE)

Enable/Disable Code 93

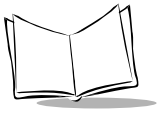
Scan the appropriate bar code below to enable or disable Code 93.



ENABLE CODE 93



DISABLE CODE 93



Set Lengths for Code 93

Lengths for Code 93 may be set for any length, one or two discrete lengths, or lengths within a specific range. The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains.

One Discrete Length - This option allows you to decode only those codes containing a selected length. For example, if you select **Code 93 One Discrete Length**, then scan **1, 4**, only Code 93 symbols containing 14 characters are decoded. Numeric bar codes begin on page **5-90**. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.



CODE 93 - ONE DISCRETE LENGTH

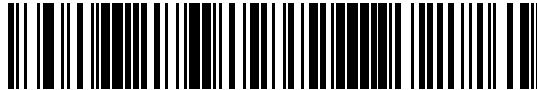
Two Discrete Lengths - This option allows you to decode only those codes containing two selected lengths. For example, if you select **Code 93 Two Discrete Lengths**, then scan **0, 2, 1, 4**, only Code 93 symbols containing 2 or 14 characters are decoded. Numeric bar codes begin on page **5-90**. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.



CODE 93 - TWO DISCRETE LENGTHS

Set Lengths for Code 93 (Cont'd)

Length Within Range - This option allows you to decode a code type within a specified range. For example to decode Code 93 symbols containing between 4 and 12 characters, first scan **Code 93 Length Within Range**. Then scan **0, 4, 1** and **2** (single digit numbers must always be preceded by a leading zero). Numeric bar codes begin on page **5-90**. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.

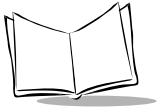


CODE 93 - LENGTH WITHIN RANGE

Any Length - Scanning this option allows you to decode Code 93 symbols containing any number of characters.

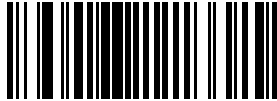


CODE 93 - ANY LENGTH

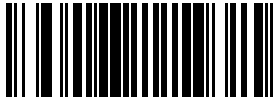


Enable/Disable Interleaved 2 of 5

Scan the appropriate bar code below to enable or disable Interleaved 2 of 5.



ENABLE INTERLEAVED 2 OF 5

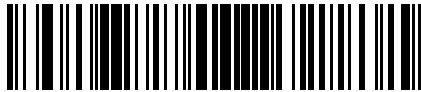


DISABLE INTERLEAVED 2 OF 5

Set Lengths for Interleaved 2 of 5

Lengths for I 2 of 5 may be set for any length, one or two discrete lengths, or lengths within a specific range. The length of a code refers to the number of characters (i.e., human readable characters) the code contains and includes check digits.

One Discrete Length - This option allows you to decode only those codes containing a selected length. For example, if you select **I 2 of 5 One Discrete Length**, then scan **1, 4**, the only I 2 of 5 symbols decoded are those containing 14 characters. Numeric bar codes begin on page [5-90](#). If you make an error, or wish to change your selection, scan **CANCEL** on page [5-92](#).

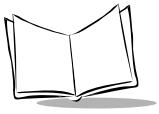


I 2 of 5 - ONE DISCRETE LENGTH

Two Discrete Lengths - This option allows you to decode only those codes containing two selected lengths. For example, if you select **I 2 of 5 Two Discrete Lengths**, then scan **0, 2, 1, 4**, the only I 2 of 5 symbols decoded are those containing 2 or 14 characters. Numeric bar codes begin on page [5-90](#). If you make an error, or wish to change your selection, scan **CANCEL** on page [5-92](#).

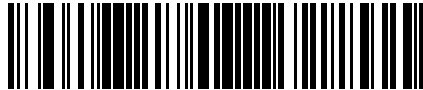


I 2 of 5 - TWO DISCRETE LENGTHS



Set Lengths for Interleaved 2 of 5 (Cont'd)

Length Within Range - This option allows you to decode a code type within a specified range. For example to decode I 2 of 5 symbols containing between 4 and 12 characters, first scan **I 2 of 5 Length Within Range**. Then scan **0, 4, 1 and 2** (single digit numbers must always be preceded by a leading zero). Numeric bar codes begin on page **5-90**. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.



I 2 of 5 - LENGTH WITHIN RANGE

Any Length - Scanning this option allows you to decode I 2 of 5 symbols containing any number of characters.

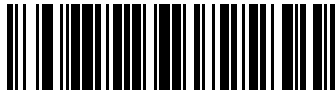
Note: *Selecting this option may lead to mis-decodes for I 2 of 5 codes.*



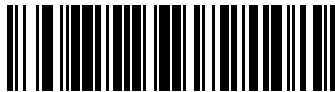
I 2 of 5 - ANY LENGTH

I 2 of 5 Check Digit Verification

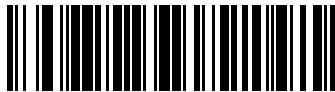
When enabled, this parameter checks the integrity of an I 2 of 5 symbol to ensure it complies with a specified algorithm, either USS (Uniform Symbology Specification), or OPCC (Optical Product Code Council).



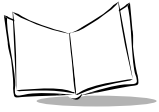
DISABLE



USS CHECK DIGIT

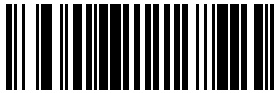


OPCC CHECK DIGIT

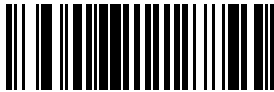


Transmit I 2 of 5 Check Digit

Scan the appropriate bar code below to transmit the data with or without the check digit.



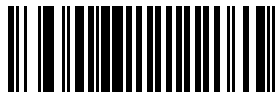
**TRANSMIT I 2 of 5 CHECK DIGIT
(ENABLE)**



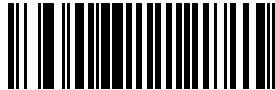
**DO NOT TRANSMIT I 2 of 5 CHECK DIGIT
(DISABLE)**

Convert I 2 of 5 to EAN-13

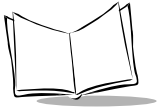
This parameter converts a 14 character I 2 of 5 code into EAN-13, and transmits to the host as EAN-13. In order to accomplish this, the I 2 of 5 code must be enabled, one length must be set to 14, and the code must have a leading zero and a valid EAN-13 check digit.



**CONVERT I 2 of 5 to EAN-13
(ENABLE)**



**DO NOT CONVERT I 2 of 5 to EAN-13
(DISABLE)**



Enable/Disable Discrete 2 of 5

Scan the appropriate bar code below to enable or disable Discrete 2 of 5.



ENABLE DISCRETE 2 OF 5

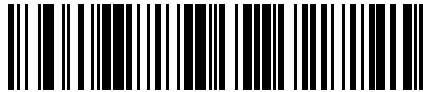


DISABLE DISCRETE 2 OF 5

Set Lengths for Discrete 2 of 5

Lengths for D 2 of 5 may be set for any length, one or two discrete lengths, or lengths within a specific range. The length of a code refers to the number of characters (i.e., human readable characters) the code contains, and includes check digits.

One Discrete Length - This option allows you to decode only those codes containing a selected length. For example, if you select **D 2 of 5 One Discrete Length**, then scan **1, 4**, the only D 2 of 5 symbols decoded are those containing 14 characters. Numeric bar codes begin on page [5-90](#). If you make an error, or wish to change your selection, scan **CANCEL** on page [5-92](#).

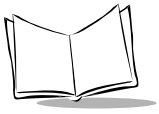


D 2 of 5 - ONE DISCRETE LENGTH

Two Discrete Lengths - This option allows you to decode only those codes containing two selected lengths. For example, if you select **D 2 of 5 Two Discrete Lengths**, then scan **0, 2, 1, 4**, the only D 2 of 5 symbols decoded are those containing 2 or 14 characters. Numeric bar codes begin on page [5-90](#). If you make an error, or wish to change your selection, scan **CANCEL** on page [5-92](#).

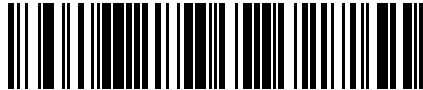


D 2 of 5 - TWO DISCRETE LENGTHS



Set Lengths for Discrete 2 of 5 (Cont'd)

Length Within Range - This option allows you to decode a code type within a specified range. For example to decode D 2 of 5 symbols containing between 4 and 12 characters, first scan **D 2 of 5 Length Within Range**. Then scan **0, 4, 1** and **2** (single digit numbers must always be preceded by a leading zero). Numeric bar codes begin on page **5-90**. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.



D 2 of 5 - LENGTH WITHIN RANGE

Any Length - Scanning this option allows you to decode D 2 of 5 symbols containing any number of characters.

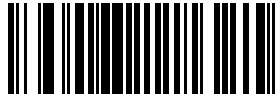
Note: *Selecting this option may lead to mis-decodes for D 2 of 5 codes.*



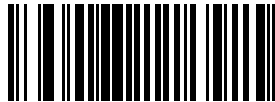
D 2 of 5 - ANY LENGTH

Enable/Disable Codabar

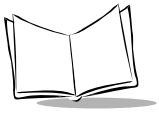
Scan the appropriate bar code below to enable or disable Codabar.



ENABLE CODABAR



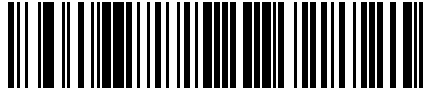
DISABLE CODABAR



Set Lengths for Codabar

Lengths for Codabar may be set for any length, one or two discrete lengths, or lengths within a specific range. The length of a code refers to the number of characters (i.e., human readable characters) the code contains. It also includes any start or stop characters.

One Discrete Length - This option allows you to decode only those codes containing a selected length. For example, if you select **Codabar One Discrete Length**, then scan **1, 4**, the only Codabar symbols decoded are those containing 14 characters. Numeric bar codes begin on page **5-90**. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.



CODABAR - ONE DISCRETE LENGTH

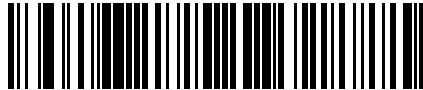
Two Discrete Lengths - This option allows you to decode only those codes containing two selected lengths. For example, if you select **Codabar Two Discrete Lengths**, then scan **0, 2, 1, 4**, the only Codabar symbols decoded are those containing 2 or 14 characters. Numeric bar codes begin on page **5-90**. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.



CODABAR - TWO DISCRETE LENGTHS

Set Lengths for Codabar (Cont'd)

Length Within Range - This option allows you to decode a code type within a specified range. For example to decode Codabar symbols containing between 4 and 12 characters, first scan **Codabar Length Within Range**. Then scan **0, 4, 1** and **2** (single digit numbers must always be preceded by a leading zero). Numeric bar codes begin on page **5-90**. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.

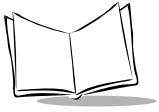


CODABAR - LENGTH WITHIN RANGE

Any Length - Scanning this option allows you to decode Codabar symbols containing any number of characters.



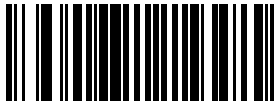
CODABAR - ANY LENGTH



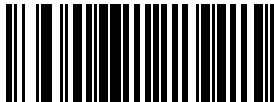
CLSI Editing

If enabled, this parameter strips the start and stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar symbol.

Note: *Symbol length does not include start and stop characters.*



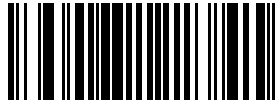
ENABLE CLSI EDITING



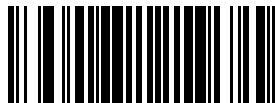
DISABLE CLSI EDITING

NOTIS Editing

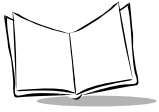
If enabled, this parameter strips the start and stop characters from a decoded Codabar symbol.



ENABLE NOTIS EDITING

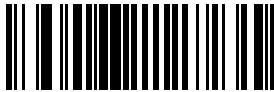


DISABLE NOTIS EDITING

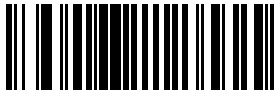


Enable/Disable MSI Plessey

Scan the appropriate bar code below to enable or disable MSI Plessey.



ENABLE MSI PLESSEY

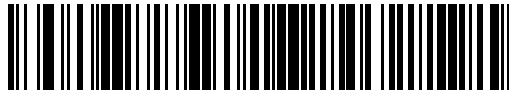


DISABLE MSI PLESSEY

Set Lengths for MSI Plessey

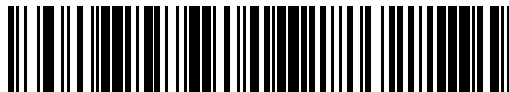
Lengths for MSI Plessey may be set for any length, one or two discrete lengths, or lengths within a specific range. The length of a code refers to the number of characters (i.e., human readable characters) the code contains, and includes check digits.

One Discrete Length - This option allows you to decode only those codes containing a selected length. For example, if you select **MSI Plessey One Discrete Length**, then scan **1, 4**, the only MSI Plessey symbols decoded are those containing 14 characters. Numeric bar codes begin on page **5-90**. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.

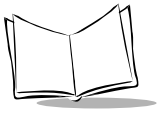


MSI PLESSEY - ONE DISCRETE LENGTH

Two Discrete Lengths - This option allows you to decode only those codes containing two selected lengths. For example, if you select **MSI Plessey Two Discrete Lengths**, then scan **0, 2, 1, 4**, the only MSI Plessey symbols decoded are those containing 2 or 14 characters. Numeric bar codes begin on page **5-90**. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.

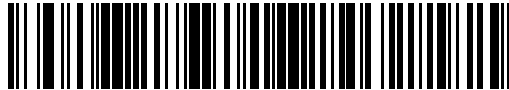


MSI PLESSEY - TWO DISCRETE LENGTHS



Set Lengths for MSI Plessey (Cont'd)

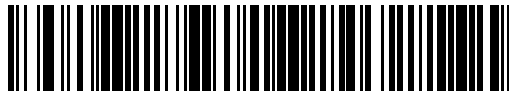
Length Within Range - This option allows you to decode a code type within a specified range. For example to decode MSI Plessey symbols containing between 4 and 12 characters, first scan **MSI Plessey Length Within Range**. Then scan **0, 4, 1** and **2** (single digit numbers must always be preceded by a leading zero). Numeric bar codes begin on page **5-90**. If you make an error, or wish to change your selection, scan **CANCEL** on page **5-92**.



MSI PLESSEY - LENGTH WITHIN RANGE

Any Length - Scanning this option allows you to decode MSI Plessey symbols containing any number of characters.

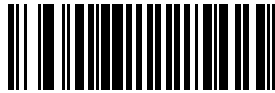
Note: *Selecting this option may lead to mis-decodes for MSI Plessey codes.*



MSI PLESSEY - ANY LENGTH

MSI Plessey Check Digits

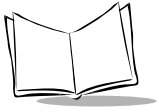
These check digits at the end of the bar code verify the integrity of the data. At least one check digit is always required. Check digits are not automatically transmitted with the data.



ONE MSI PLESSEY CHECK DIGIT

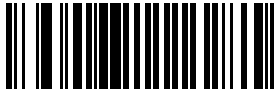


TWO MSI PLESSEY CHECK DIGITS

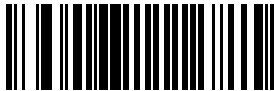


Transmit MSI Plessey Check Digit

Scan the appropriate bar code below to transmit the data with or without the check digit.



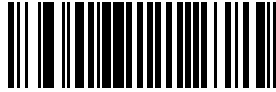
**TRANSMIT MSI PLESSEY CHECK DIGIT
(ENABLE)**



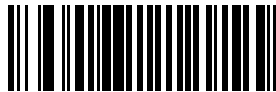
**DO NOT TRANSMIT MSI PLESSEY CHECK DIGIT
(DISABLE)**

MSI Plessey Check Digit Algorithm

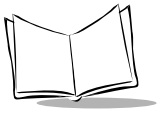
When the two MSI Plessey check digits option is selected, an additional verification is required to ensure integrity. Either of the two following algorithms may be selected.



MOD 10/MOD 11



MOD 10/MOD 10



Transmit Code ID Character

A code ID character identifies the code type of a scanned bar code. This may be useful when the scanner is decoding more than one code type. The code ID character precedes the decoded symbol.

The user may select no code ID character, a Symbol Code ID character, or an AIM Code ID character. The Symbol Code ID characters are listed below; see *Appendix A* for AIM Identifiers.

Symbol Code ID Characters

A = UPC-A, UPC-E, EAN-8, EAN-13

B = Code 39

C = Codabar

D = Code 128

E = Code 93

F = Interleaved 2 of 5

G = Discrete 2 of 5, or Discrete 2 of 5 IATA

J = MSI Plessey

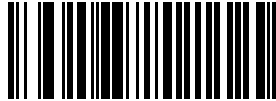
K = UCC/EAN-128

L = Bookland EAN

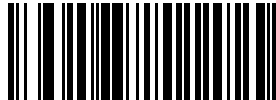
M = Trioptic Code 39

N = Coupon Code

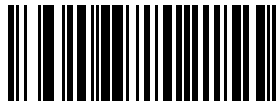
Transmit Code ID Character (Cont'd)



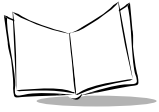
SYMBOL CODE ID CHARACTER



AIM CODE ID CHARACTER

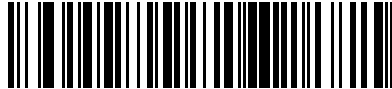


NONE



Pause Duration

This parameter allows a pause to be inserted at any point in the data transmission. Pauses are set by scanning the bar code below followed by a two digit number (i.e. two bar codes), and are measured in 1/10 second intervals. For example, scanning bar codes “0” and “1” inserts a 1/10 second pause; “0” and “5” gives you a 1/2 second delay. Numeric bar codes begin on page [5-90](#). If you make an error, or wish to change your selection, scan **CANCEL** on page [5-92](#).

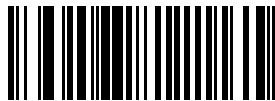


PAUSE DURATION

RS-232C Parameters

Baud Rate

Baud rate is the number of bits of data transmitted per second. The scanner's baud rate setting should match the data rate setting of the host device. If not, data may not reach the host device or may reach it in distorted form.



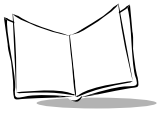
BAUD RATE 600



BAUD RATE 1200



BAUD RATE 2400



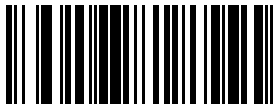
Baud Rate (Cont'd)



BAUD RATE 4800



BAUD RATE 9600



BAUD RATE 19,200

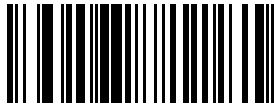


BAUD RATE 38,400

Parity

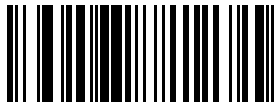
A parity check bit is the most significant bit of each ASCII coded character. Select the parity type according to host device requirements.

If you select **ODD** parity, the parity bit has a value 0 or 1, based on data, to ensure that an odd number of 1 bits are contained in the coded character.

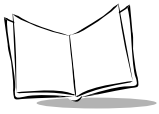


ODD

If you select **EVEN** parity, the parity bit has a value 0 or 1, based on data, to ensure that an even number of 1 bits are contained in the coded character.

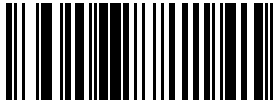


EVEN



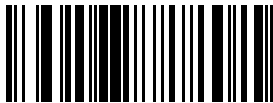
Parity (Cont'd)

Select **MARK** parity and the parity bit is always 1.



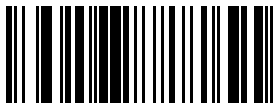
MARK

Select **SPACE** parity and the parity bit is always 0.



SPACE

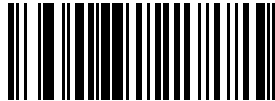
If no parity is required, select **NONE**.



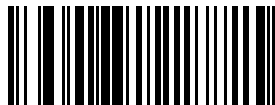
NONE

Check Receive Errors

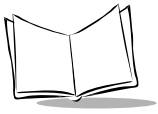
Select whether or not the parity, framing, and overrun of received characters are checked. The type of parity used is selectable through the **PARITY** parameter.



CHECK FOR RECEIVED ERRORS



DO NOT CHECK FOR RECEIVED ERRORS



Hardware Handshaking

The data interface consists of an RS-232C port. The port has been designed to operate either with or without the hardware handshaking lines, RTS, *Request to Send*, and CTS, *Clear to Send*.

If Standard RTS/CTS handshaking is selected, scan data is transmitted according to the following sequence:

- ◆ The scanner reads the CTS line for activity. If CTS is asserted, the scanner waits up to two seconds for the host to negate the CTS line. If, after two seconds (default), the CTS line is still asserted, the scanner sounds a transmit error and any scanned data is lost.
- ◆ When the CTS line is negated, the scanner asserts the RTS line and waits up to two seconds for the host to assert CTS. When the host asserts CTS, data is transmitted. If, after two seconds (default), the CTS line is not asserted, the scanner sounds a transmit error and discards the data.
- ◆ When data transmission is complete, the scanner negates RTS 10 msec after sending the last character.
- ◆ The host should respond by negating CTS. The scanner checks for a negated CTS upon the next transmission of data.

During the transmission of data, the CTS line should be asserted. If CTS is deasserted for more than 50 ms between characters, the transmission is aborted, the scanner sounds a transmission error, and the data is discarded.

If the above communications sequence fails, the scanner issues an error indication. In this case, the data is lost and must be rescanned.

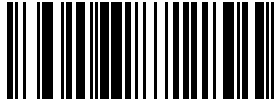
If Hardware Handshaking and Software Handshaking are both enabled, Hardware Handshaking will take precedence.

Note: *The DTR signal is jumpered active.*

Note: *When using RTS/CTS handshaking and a PL460 PhaserLink cradle, there is a 4 ms delay for the information to travel between the host and the scanner. If this setup is necessary, scan the **Intercharacter Delay** bar code on page 5-89 and set the delay for 5 ms or more.*

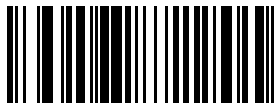
Hardware Handshaking (Cont'd)

Scan the bar code below if no Hardware Handshaking is desired.



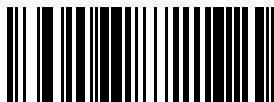
NONE

Scan the bar code below to select Standard RTS/CTS Hardware Handshaking.

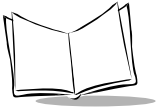


STANDARD RTS/CTS

When RTS/CTS Option 1 is selected, the cradle asserts RTS before transmitting and ignores the state of CTS. The scanner deasserts RTS when the transmission is complete.

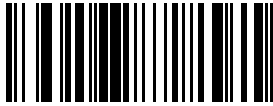


RTS/CTS OPTION 1



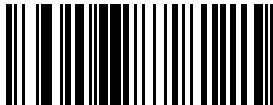
Hardware Handshaking (Cont'd)

When Option 2 is selected, RTS is always high or low (user-programmed logic level). However, the scanner waits for CTS to be asserted before transmitting data. If CTS is not asserted within two seconds (default), the scanner issues an error indication and discards the data.



RTS/CTS OPTION 2

When Option 3 is selected, the scanner asserts RTS prior to any data transmission, regardless of the state of CTS. The scanner waits up to two seconds (default) for CTS to be asserted. If CTS is not asserted during this time, the scanner issues an error indication and discards the data. The scanner deasserts RTS when transmission is complete.



RTS/CTS OPTION 3

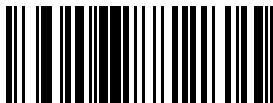
Software Handshaking

This parameter offers control of the data transmission process in addition to, or instead of, that offered by hardware handshaking. There are five options.

If Software Handshaking and Hardware Handshaking are both enabled, Hardware Handshaking takes precedence.

None

When this option is selected, data is transmitted immediately.



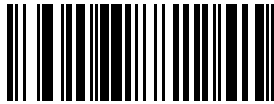
NONE

Software Handshaking (Cont'd)

ACK/NAK

When this option is selected, after transmitting data, the cradle expects either an ACK, *Acknowledge*, or NAK, *Negative Acknowledge*, response from the host. Whenever a NAK is received, the cradle transmits the same data again and waits for either an ACK or NAK. After three unsuccessful attempts to send data when NAKs are received, the cradle issues an error indication and discards the data.

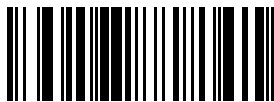
The cradle waits up to the programmable Host Serial Response Time-out to receive an ACK or NAK. If the cradle does not get a response in this time, it issues an error indication and discards the data. There are no retries when a time-out occurs.



ACK/NAK

ENQ

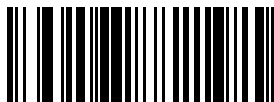
When this option is selected, the cradle waits for an ENQ, *Enquiry*, character from the host before transmitting data. If an ENQ is not received within two seconds, the cradle issues an error indication and discards the data. The host must transmit an ENQ character at least every two seconds to prevent transmission errors.



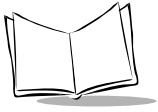
ENQ

ACK/NAK with ENQ

This combines the two previous options.



ACK/NAK with ENQ

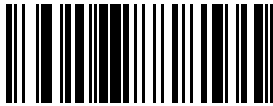


Software Handshaking (Cont'd)

XON/XOFF

An XOFF, *Transmit Off*, character turns the scanner transmission off until the scanner receives an XON, *Transmit On*, character. There are two situations for XON/XOFF:

- ◆ XOFF is received before the scanner has data to send. When the scanner has data to send, it then waits for an XON character before transmission. The scanner waits up to two seconds to receive the XON. If the XON is not received within this time, the scanner issues an error indication and discards the data.
- ◆ XOFF is received during a transmission. Data transmission then stops after sending the current byte. When the scanner receives an XON character, it sends the rest of the data message. The scanner waits indefinitely for the XON.



XON/XOFF

Host Serial Response Time-out

This parameter specifies how long the scanner waits for an ACK, NAK or CTS before determining that a transmission error has occurred. This only applies when in one of the ACK/NAK Software Handshaking modes, or RTS/CTS Hardware Handshaking option.

The delay period can range from 0.0 to 9.9 seconds in .1 second increments. After scanning the bar code below, scan two numeric bar codes beginning on page 5-90. If you make an error, or wish to change your selection, scan **CANCEL** on page 5-92.

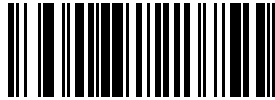


HOST SERIAL RESPONSE TIME-OUT

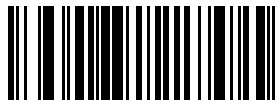
RTS Line State

Note: *This only applies to the scanner in corded mode. It has no affect when uploading data through the cradle.*

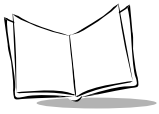
Scan the appropriate bar code below to set the idle state of the Serial Host RTS line. Choose LOW RTS line state or HIGH RTS line state.



HOST: LOW RTS

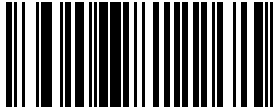


HOST: HIGH RTS

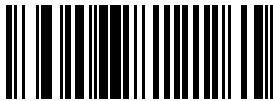


Stop Bit Select

The stop bit(s) at the end of each transmitted character marks the end of transmission of one character and prepares the receiving device for the next character in the serial data stream. The number of stop bits (one or two) selected depends on the number the receiving terminal is programmed to accommodate. Set the number of stop bits to match host device requirements.



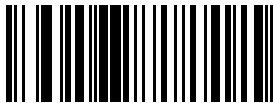
1 STOP BIT



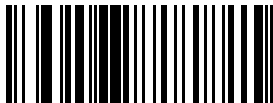
2 STOP BITS

ASCII Format

This parameter allows the cradle to interface with devices requiring a 7-bit or 8-bit ASCII protocol.



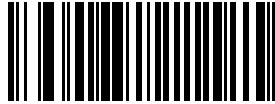
7-BIT



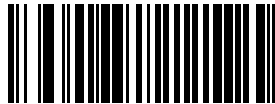
8-BIT

Beep on <BEL>

When this parameter is enabled, the scanner beeps when a <BEL> character is detected on the RS-232C serial line. <BEL> is issued to gain a user's attention to indicate an illegal entry or other important event.



**BEEP ON <BEL> CHARACTER
(ENABLE)**



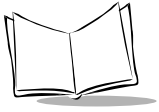
**DO NOT BEEP ON <BEL> CHARACTER
(DISABLE)**

Intercharacter Delay

Select the intercharacter delay option matching host requirements. The intercharacter delay gives the host system time to service its receiver and perform other tasks between characters. The delay period can range from no delay to 99 ms in 1 ms increments (if you are using a cradle and RTS/CTS handshaking, the delay period can range from 5 ms to 99 ms). After scanning the bar code below, scan two bar codes beginning on page [5-90](#) to set the desired time-out. If you make an error, or wish to change your selection, scan **CANCEL** on page [5-92](#).



IIINTERCHARACTER DELAY

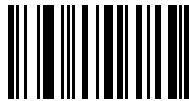


Numeric Bar Codes

For parameters requiring specific numeric values, scan the appropriately numbered bar code(s).



0



1



2



3

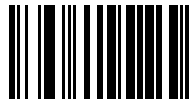


4

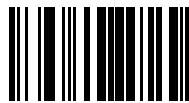
Numeric Bar Codes (Cont'd)



5



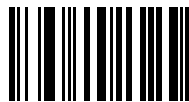
6



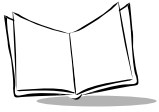
7



8



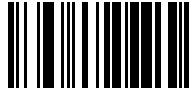
9



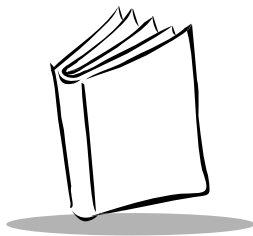
Numeric Bar Codes (Cont'd)

Cancel

If you make an error, or wish to change your selection, scan the bar code below.



CANCEL



Appendix A

Bar Code Information

UCC/EAN-128

UCC/EAN-128 is a convention for printing data fields with standard Code 128 bar code symbols. UCC/EAN-128 symbols are distinguished by a leading FNC 1 character as the first or second character in the symbol. Other FNC 1 characters are used to delineate fields.

When EAN-128 symbols are read, they are transmitted after special formatting strips off the leading FNC 1 character and replaces other FNC 1 characters with the ASCII 29 GS control character.

When AIM symbology identifiers are transmitted, the modifier character indicates the position of the leading FNC 1 character according to AIM guidelines. For example, **jc1** indicates a UCC/EAN-128 symbol with a leading FNC1 character.

Standard Code 128 bar codes which do not have a leading FNC 1 may still be used, but are not encoded according to the EAN-128 convention. Standard Code 128 and UCC/EAN-128 may be mixed in an application. The Phaser autodiscriminates between these symbols and can enable or disable one or both code types via bar code menus. The following table indicates the behavior of the Phaser in each of the four possible parameter settings.

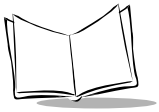


Table A-1. Reading Standard Code128 & UCC/EAN 128

Standard Code 128	UCC/EAN-128	Effect and Example
Disable	Disable	No Code 128 symbols can be read.
Disable	Enable	<p>Read only symbols with leading FNC 1.</p> <p>Examples: $FNC1 ABCD^{FNC1} E$ will be read as $ABCD^{29} E$ $A^{FNC1} BCD^{FNC1} E$ will be read as $ABCD^{29} E$ $FNC1 FNC1 ABCD^{FNC1} E$ will be read as $ABCD^{29} E$ $ABCD^{FNC1} E$ can not be read $ABCDE$ can not be read</p>
Enable	Disable	<p>Read only symbols without leading FNC 1.</p> <p>Examples: $FNC1 ABCD^{FNC1} E$ can not be read $A^{FNC1} BCD^{FNC1} E$ can not be read $FNC1 FNC1 ABCD^{FNC1} E$ can not be read $ABCD^{FNC1} E$ will be read as $ABCD^{29} E$ $ABCDE$ will be read as $ABCDE$</p>
Enable	Enable	<p>Read both types of symbols.</p> <p>Examples: $FNC1 ABCD^{FNC1} E$ will be read as $ABCD^{29} E$ $A^{FNC1} BCD^{FNC1} E$ will be read as $ABCD^{29} E$ $FNC1 FNC1 ABCD^{FNC1} E$ will be read as $ABCD^{29} E$ $ABCD^{FNC1} E$ will be read as $ABCD^{29} E$ $ABCDE$ will be read as $ABCDE$</p>

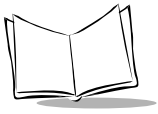
AIM Code Identifiers

Each AIM Code Identifier contains the three-character string **jcm** where:

- j** = Flag Character (ASCII 93)
- c** = Code Character (see [Table A-2](#))
- m** = Modifier Character (see [Table A-3](#))

Table A-2. Code Characters

Code Character	Code Type
A	Code 39
C	Code 128/EAN-128
E	UPC/EAN
F	Codabar
G	Code 93
H	Code 11
I	Interleaved 2 of 5
M	MSI Plessey
S	D2 of 5, IATA 2 of 5
X	Bookland EAN, Code 39 Trioptic, Coupon Code



The modifier character is the sum of the applicable option values based on the following table.

Table A-3. Modifier Characters

Code Type	Option Value	Option
Code 39	0	No check character or Full ASCII processing.
	1	Reader has checked one check character.
	3	Reader has checked and stripped check character.
	4	Reader has performed Full ASCII character conversion.
	5	Reader has performed Full ASCII character conversion and checked one check character.
	7	Reader has performed Full ASCII character conversion and checked and stripped check character.
	Example: A Full ASCII bar code with check character W, A+I+MI+DW , is transmitted as J A7AimId where 7 = (3+4).	
Trioptic Code 39	0	No option specified at this time. Always transmit 0.
	Example: A Trioptic bar code 412356 is transmitted as JX0 412356	
Code 128	0	Standard data packet, no Function code 1 in first symbol position.
	1	Function code 1 in first symbol character position.
	2	Function code 1 in second symbol character position.
	Example: A Code (EAN) 128 bar code with Function 1 character in the first position, FNC1 Aim Id is transmitted as J C1AimId	
I 2 of 5	0	No check digit processing.
	1	Reader has validated check digit.
	3	Reader has validated and stripped check digit.
	Example: An I 2 of 5 bar code without check digit, 4123, is transmitted as J I04123	

Table A-3. Modifier Characters (Cont'd)

Code Type	Option Value	Option
Codabar	0	No check digit processing.
	1	Reader has checked check digit.
	3	Reader has stripped check digit before transmission.
	Example: A Codabar bar code without check digit, 4123, is transmitted as JF04123	
Code 93		
	0	No options specified at this time. Always transmit 0.
	Example: A Code 93 bar code 012345678905 is transmitted as JG0012345678905	
MSI Plessey	0	Single check digit checked.
	1	Two check digits checked.
	2	Single check digit verified and stripped before transmission.
	3	Two check digits verified and stripped before transmission.
	Example: An MSI Plessey bar code 4123, with a single check digit checked, is transmitted as JM04123	
D 2 of 5	0	No options specified at this time. Always transmit 0.
	Example: A D 2 of 5 bar code 4123, is transmitted as JS04123	
UPC/EAN	0	Standard packet in full EAN country code format, which is 13 digits for UPC-A and UPC-E (not including supplemental data).
	1	Two-digit supplement data only.
	2	Five-digit supplement data only.
	4	EAN-8 data packet.
	Example: A UPC-A bar code 012345678905 is transmitted as JE00012345678905	

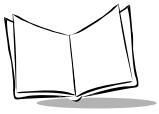


Table A-3. Modifier Characters (Cont'd)

Code Type	Option Value	Option
Bookland EAN	0	No options specified at this time. Always transmit 0.
		Example: A Bookland EAN bar code 123456789X is transmitted as IX0123456789X

According to AIM standards, a UPC with supplemental bar code is transmitted in one of the following formats:

IE0 (UPC chars) (terminator) **IE2** (supplemental) (terminator) or

IE2 (supplemental) (terminator) **IE0** (UPC chars) (terminator)

In the Phaser, however, the format is changed to:

IE0 (UPC chars) **IE2** (supplemental)

Therefore, a UPC with two supplemental characters, 01234567890510, is transmitted to the host as a 21-character string, **IE00012345678905IE110**.

Table A-4. ASCII Character Set

ASCII Value	Full ASCII Code 39 Encode Char.	Keystroke	ASCII Value	Full ASCII Code 39 Encode Char	Keystroke
1000	%U	CTRL 2	1024	SX	CTRL X
1001	SA	CTRL A	1025	SY	CTRL Y
1002	SB	CTRL B	1026	SZ	CTRL Z
1003	SC	CTRL C	1027	%A	CTRL [
1004	SD	CTRL D	1028	%B	CTRL \
1005	SE	CTRL E	1029	%C	CTRL]
1006	SF	CTRL F	1030	%D	CTRL 6
1007	SG	CTRL G	1031	%E	CTRL -
1008	SH	CTRL H	1032	Space	Space
1009	SI	CTRL I	1033	/A	!
1010	SJ	CTRL J	1034	/B	'
1011	SK	CTRL K	1035	/C	#
1012	SL	CTRL L	1036	/D	\$
1013	SM	CTRL M	1037	/E	%
1014	SN	CTRL N	1038	/F	&
1015	SO	CTRL O	1039	/G	'
1016	SP	CTRL P	1040	/H	(
1017	SQ	CTRL Q	1041	/I)
1018	SR	CTRL R	1042	/J	*
1019	SS	CTRL S	1043	/K	+
1020	ST	CTRL T	1044	/L	,
1021	SU	CTRL U	1045	-	-
1022	SV	CTRL V	1046	.	.
1023	SW	CTRL W	1047	/	/

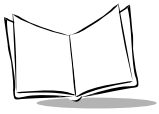


Table A-4. ASCII Character Set (Cont'd)

ASCII Value	Full ASCII Code 39 Encode Char.	Keystroke	ASCII Value	Full ASCII Code 39 Encode Char	Keystroke
1048	0	0	1073	I	I
1049	1	1	1074	J	J
1050	2	2	1075	K	K
1051	3	3	1076	L	L
1052	4	4	1077	M	M
1053	5	5	1078	N	N
1054	6	6	1079	O	O
1055	7	7	1080	P	P
1056	8	8	1081	Q	Q
1057	9	9	1082	R	R
1058	/Z	:	1083	S	S
1059	%F	;	1084	T	T
1060	%G	<	1085	U	U
1061	%H	=	1086	V	V
1062	%I	>	1087	W	W
1063	%J	?	1088	X	X
1064	%V	@	1089	Y	Y
1065	A	A	1090	Z	Z
1066	B	B	1091	%K	[
1067	C	C	1092	%L	\
1068	D	D	1093	%M]
1069	E	E	1094	%N	^
1070	F	F	1095	%O	_
1071	G	G	1096	%W	'
1072	H	H	1097	+A	a

Table A-4. ASCII Character Set (Cont'd)

ASCII Value	Full ASCII Code 39 Encode Char.	Keystroke	ASCII Value	Full ASCII Code 39 Encode Char	Keystroke
1098	+B	b	1113	+Q	q
1099	+C	c	1114	+R	r
1100	+D	d	1115	+S	s
1101	+E	e	1116	+T	t
1102	+F	f	1117	+U	u
1103	+G	g	1118	+V	v
1104	+H	h	1119	+W	w
1105	+I	i	1120	+X	x
1106	+J	j	1121	+Y	y
1107	+K	k	1122	+Z	z
1108	+L	l	1123	%P	{
1109	+M	m	1124	%Q	
1110	+N	n	1125	%R	}
1111	+O	o	1126	%S	~
1112	+P	p	1127		Undefined

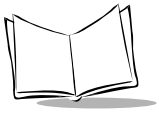


Table A-4. ASCII Character Set (Cont'd)

ALT Keys	Keystroke	ALT Keys	Keystroke	ALT Keys	Keystroke
2064	ALT 2	2075	ALT K	2086	ALT V
2065	ALT A	2076	ALT L	2087	ALT W
2066	ALT B	2077	ALT M	2088	ALT X
2067	ALT C	2078	ALT N	2089	ALT Y
2068	ALT D	2079	ALT O	2090	ALT Z
2069	ALT E	2080	ALT P	2091	ALT [
2070	ALT F	2081	ALT Q	2092	ALT \
2071	ALT G	2082	ALT R	2093	ALT]
2072	ALT H	2083	ALT S	2094	ALT 6
2073	ALT I	2084	ALT T	2095	ALT -
2074	ALT J	2085	ALT U		
Misc. Key	Keystroke	Misc. Key	Keystroke	Misc. Key	Keystroke
3001	PA 1	3009	CMD 7	3017	°
3002	PA 2	3010	CMD 8	3018	1/2
3003	CMD 1	3011	CMD 9	3019	¶
3004	CMD 2	3012	CMD 10	3020	§
3005	CMD 3	3013	¥	3021	
3006	CMD 4	3014	£	3022	0/00
3007	CMD 5	3015	¤		
3008	CMD 6	3016	¬		

Table A-4. ASCII Character Set (Cont'd)

PF Keys	Keystroke	PF Keys	Keystroke	PF Keys	Keystroke
4001	PF 1	4009	PF 9	4017	PF 17
4002	PF 2	4010	PF 10	4018	PF 18
4003	PF 3	4011	PF 11	4019	PF 19
4004	PF 4	4012	PF 12	4020	PF 20
4005	PF 5	4013	PF 13	4021	PF 21
4006	PF 6	4014	PF 14	4022	PF 22
4007	PF 7	4015	PF 15	4023	PF 23
4008	PF 8	4016	PF 16	4024	PF 24
F Keys	Keystroke	F Keys	Keystroke	F Keys	Keystroke
5001	F 1	5014	F 14	5027	F 27
5002	F 2	5015	F 15	5028	F 28
5003	F 3	5016	F 16	5029	F 29
5004	F 4	5017	F 17	5030	F 30
5005	F 5	5018	F 18	5031	F 31
5006	F 6	5019	F 19	5032	F 32
5007	F 7	5020	F 20	5033	F 33
5008	F 8	5021	F 21	5034	F 34
5009	F 9	5022	F 22	5035	F 35
5010	F 10	5023	F 23	5036	F 36
5011	F 11	5024	F 24	5037	F 37
5012	F 12	5025	F 25	5038	F 38
5013	F 13	5026	F 26	5039	F 39

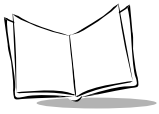
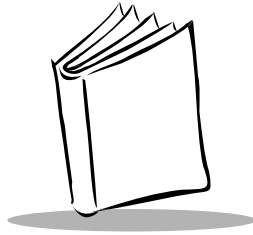


Table A-4. ASCII Character Set (Cont'd)

Numeric Keypad	Keystroke	Numeric Keypad	Keystroke	Numeric Keypad	Keystroke
6042	*	6049	1	6056	8
6043	+	6050	2	6057	9
6044	Undefined	6051	3	6058	Enter
6045	-	6062	4	6059	Num Lock
6046	.	6063	5	6060	00
6047	/	6064	6		
6048	0	6065	7		
Extended Keypad	Keystroke	Extended Keypad	Keystroke	Extended Keypad	Keystroke
7001	Break	7008	Backspace	7015	Up Arrow
7002	Delete	7009	Tab	7016	Dn Arrow
7003	Pg Up	7010	Print Screen	7017	Left Arrow
7004	End	7011	Insert	7018	Right Arrow
7005	Pg Dn	7012	Home	7019	Back Tab
7006	Pause	7013	Enter		
7007	Scroll Lock	7014	Escape		



Index

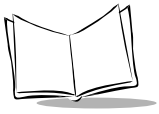
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