DATALOGIC™

PowerScan® 7000BT SRI
Linear Imager

Product Reference Guide

Datalogic Scanning, Inc.
959 Terry Street
Eugene, Oregon 97402
Telephone: (541) 683-5700
Fax: (541) 345-7140
An Unpublished Work - All rights reserved. No part of the contents of this documentation or the procedures described therein may be reproduced or transmitted in any form or by any means without prior written permission of Datalogic Scanning, Inc. or its subsidiaries or affiliates ("Datalogic" or "Datalogic Scanning"). Owners of Datalogic products are hereby granted a non-exclusive, revocable license to reproduce and transmit this documentation for the purchaser's own internal business purposes. Purchaser shall not remove or alter any proprietary notices, including copyright notices, contained in this documentation and shall ensure that all notices appear on any reproductions of the documentation.
Should future revisions of this manual be published, you can acquire printed versions by contacting your Datalogic representative. Electronic versions may either be downloadable from the Datalogic website (www.scanning.datalogic.com) or provided on appropriate media. If you visit our website and would like to make comments or suggestions about this or other Datalogic publications, please let us know via the "Contact Datalogic" page.

Disclaimer

Datalogic has taken reasonable measures to provide information in this manual that is complete and accurate, however, Datalogic reserves the right to change any specification at any time without prior notice.
Datalogic is a registered trademark of Datalogic S.p.A. and the Datalogic logo is a trademark of Datalogic S.p.A. all licensed to Datalogic Scanning, Inc. All other trademarks and trade names referred to herein are property of their respective owners.

Patents

This product may be covered by one or more of the following patents: 4603262 • 4639606 • 4652750 • 4672215 • 4699447 • 4709369 • 4749879 • 4786798 • 4792666 • 4794240 • 4798943 • 4799164 • 4820911 • 4845349 • 4861972 • 4861973 • 4866257 • 4868836 • 4879456 • 4939355 • 4939356 • 4943127 • 4963719 • 4971176 • 4971177 • 4991692 • 5001406 • 5015831 • 5019697 • 5019698 • 5086879 • 5115120 • 5144118 • 5146463 • 5179270 • 5198649 • 5200597 • 5202784 • 5208449 • 5210397 • 5212371 • 5212372 • 5214270 • 5229590 • 5231293 • 5232185 • 5233169 • 5235168 • 5237161 • 5237162 • 5239165 • 5247161 • 5256864 • 5258604 • 5258699 • 5260554 • 5274219 • 5296689 • 5298728 • 5311000 • 5327451 • 5329103 • 5330370 • 5347113 • 5347121 • 5371361 • 5382783 • 5386105 • 5389917 • 5410108 • 5420410 • 5422472 • 5426507 • 5438187 • 5440110 • 5440111 • 5446271 • 5446749 • 5448050 • 5463211 • 5475206 • 5475207 • 5479011 • 5481098 • 5491328 • 5493108 • 5504350 • 5508505 • 5512740 • 5541397 • 5552593 • 5557095 • 5563402 • 5565668 • 5576531 • 5581707 • 5594231 • 5594441 • 5598070 • 5602376 • 5608201 • 5608399 • 5612529 • 5629510 • 5635699 • 5641958 • 5646391 • 5661435 • 5664231 • 5666045 • 5671374 • 5675138 • 5682028 • 5686716 • 5696370 • 5703347 • 5705802 • 5714750 • 5717194 • 5723852 • 5750976 • 5767502 • 5770847 • 5786581 • 5786585 • 5787103 • 5789732 • 5796222 • 5804809 • 5814803 • 5814804 • 5821721 • 5822343 • 5825009 • 5834708 • 5834750 • 5837983 • 5837988 • 5852286 • 5864129 • 5869827 • 5874722 • 5883370 • 5905249 • 5907147 • 5923023 • 5925868 • 5929421 • 5945670 • 5959284 • 5962838 • 5979769 • 6000619 • 6006991 • 6012639 • 6016135 • 6024284 • 6041374 • 6042012 • 6045044 • 6047889 • 6047894 • 6056198 • 6065676 • 6069696 • 6073849 • 6073851 • 6094288 • 6112993 • 6129279 • 6129282 • 6134039 • 6142376 • 6152368 • 6152372 • 6155488 • 6166375 • 6169614 • 6173894 • 6176429 • 6188500 • 6189784 • 6213397 • 6223986 • 6230975 • 6230976 • 6237852 • 6244510 • 6259545 • 6260763 • 6266175 • 6273336 • 6276605 • 6279829 • 6290134 • 6290135 • 6293467 • 6303927 • 6311895 • 6318634 • 6328216 • 6332576 • 6332577 • 6343741 • 6454168 • 6478224 • 6568598 • 6578765 • 6705527 • 6974084 • 6991169 •7051940 • AU703547 • D312631 • D313590 • D320011 • D320012 • D323492 • D330707 • D330708 • D349109 • D350127 • D350735 • D351149 • D351150 • D352936 • D352937 • D352938 • D352939 • D358588 • D361565 • D372234 • D374630 • D374869 • D375493 • D376357 • D377345 • D377346 • D377347 • D377348 • D388075 • D446524 • EP0256296 • EP0260155 • EP0260156 • EP0295936 • EP0325469 • EP0349770 • EP0368254 • EP0442215 • EP0498366 • EP0531645 • EP0663643 • EP0698251 • GB2252333 • GB2284086 • GB2301691 • GB2304954 • GB2307093 • GB2308267 • GB2308678 • GB2319103 • GB2333163 • GB2343079 • GB2344486 • GB2345568 • GB2354340 • ISR107546 • ISR118507 • ISR118508 • JP1962823 • JP1971216 • JP2513442 • JP2732459 • JP2829331 • JP2953593 • JP2964278 • MEX185552 • MEX187245 • RE37166 • Other Patents Pending

Table of Contents

Chapter 1
Getting Started

The PowerScan® 7000BT SRI Linear Imager uses Bluetooth® wireless technology[1] for communications between the handheld scanner and Base Station (or PC). The scanner and Base station operate on a master/slave system, with the Base station acting as the master and the scanner as the slave.

The handheld itself marks a new performance level in bar code scanning. It delivers aggressive read rates and depths of field on 1D and stacked codes. This aggressiveness applies even in challenging reading environments where low lighting conditions and poor quality might make it difficult to read bar codes. You can rest assured your investment will continue to supply years of use by reading any bar codes you require, now or in the future.

Designed for today's demanding commercial and industrial environments, the scanner offers superior image quality, speed, durability, and the ability to read poor quality bar codes. The unit is comfortable to hold, easy to use, rugged, and excellent for the most demanding applications.

1. The Bluetooth® word mark and logos are owned by the Bluetooth SIG, Inc.

About This Manual

This Product Reference Guide (PRG) provides programming instructions for the scanner, plus product specifications and dimensions. For installation, maintenance, troubleshooting and warranty information, see the Quick Reference Guide (QRG). Copies of other publications for this product are downloadable free of charge from the website listed on the back cover of this manual.

The scanner is factory programmed for the most common terminal and communications settings. If you need to change these settings, programming is accomplished by scanning the bar codes in this guide.

Bold text and a yellow-highlighted background indicates the most common default setting for a feature/option.

Manual Conventions

The symbols listed below are used in this manual to notify the reader of key issues or procedures that must be observed when using the scanner:

NOTE

Notes contain information necessary for properly diagnosing, repairing and operating the scanner.

CAUTION

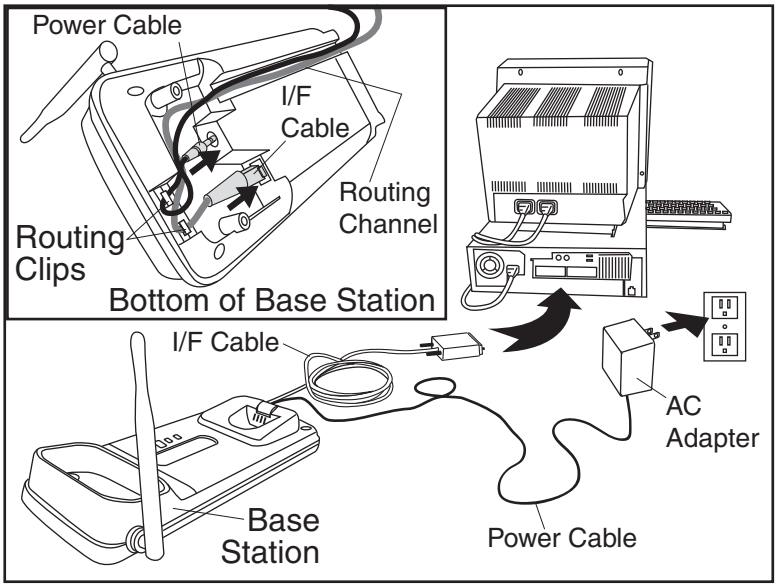
The CAUTION symbol advises you of actions that could damage equipment or property.

Connection

Figure 1-1 shows how to connect the Base Station to a terminal, PC or other host device. Turn off the host before connection and consult the manual for that equipment (if necessary) before proceeding.

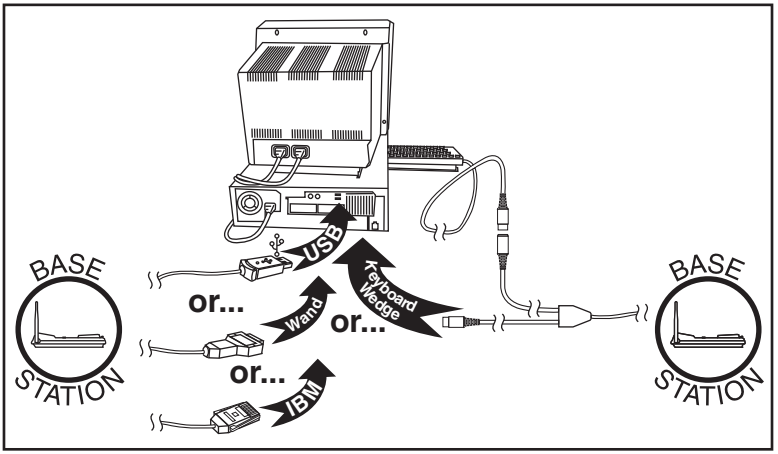
Base Station Connection and Routing — Fully insert the Power Cable and Interface (I/F) Cable connectors into their respective ports in the underside of the Base Station (see Figure 1-1). Alternatively, you can either loop the cables around the routing clips and back through the routing channel to the front of the Base Station as shown, or the cables can be fed directly out the back of the Base Station via the routing clips.

Figure 1-1. Connecting the Base Station



Host Connection — The interface type was specified at the time your scanner was ordered, however you should verify before connection that the scanner's cable type is compatible with your host equipment. Most connections plug directly into the host device as shown in Figure 1-2. Keyboard Wedge interface cables have a 'Y' connection where its female end mates with the male end of the cable from the keyboard and the remaining end at the keyboard port on the terminal/PC.

Figure 1-2. Connecting to the Host



Power Connection — Plug the AC Adapter in to an approved AC wall socket with the cable facing downwards (as shown in Figure 1-1) to prevent undue strain on the socket.

Linking the Scanner to a Base Station

To link a scanner to a Base Station, press the Link Button (see Figure 1-3) on the Base Station for at least one second to place the base in "Link Mode," then scan the bar code below or the Link bar code located on the Base Station using the scanner to be linked. The Link bar code on the Base Station contains an identifier that is unique to that Base Station. This enables the scanner to quickly find and link to that Base Station.

Linking the Scanner to a Base Station — cont.

When the generic Link to Base Station label (shown below) is used for linking, you will notice that linking is slower and a rescan of the label may be required before a successful link is made. If two Base Stations are in the linking mode at the same time, the generic label will not be able to initiate a successful link, since the scanner will not know which Base Station it is supposed to link to.

A successful link is indicated by three ascending tones from the scanner. A high-low-high-low tone indicates the link attempt was unsuccessful. A single green LED flash during this tone indicates no Base Station was discovered. Two green LED flashes during this tone indicates that more than one Base Station was discovered and the scanner did not link.

Link to Base Station

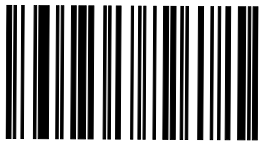
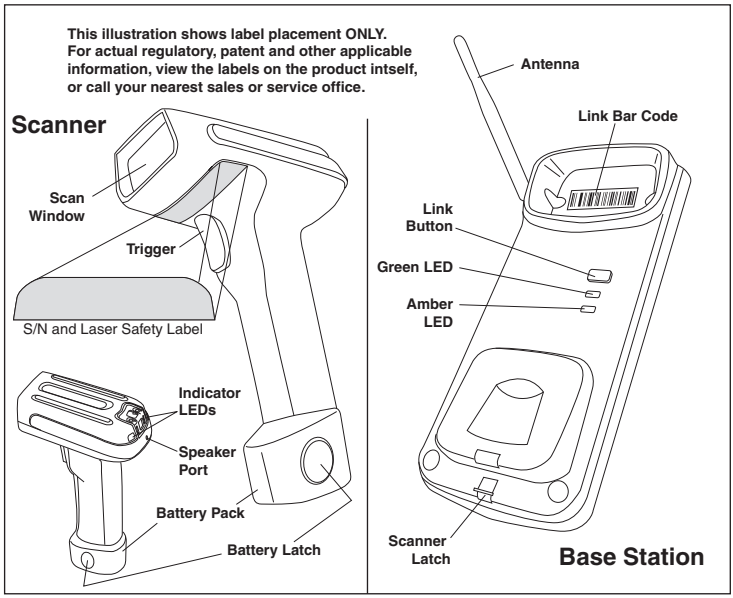


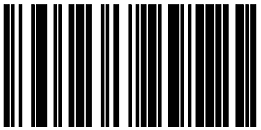
Figure 1-3. Labeling and Nomenclature



Optional: Linking the Scanner to a PC

A scanner can optionally be linked to a Bluetooth-enabled PC with the serial port profile. To do this, follow these steps:

1. Ensure the PC or terminal can network with Bluetooth devices and that it is powered on.
2. Scan the “Link to a PC” bar code below.



3. On the PC, scan for network devices.
4. Select the “Datalogic PS7000 Scanner[1].” Make sure “Secure Connection” is disabled.
5. Select “connect” on the PC to link the scanner to the PC.

Paging Feature

To help locate a missing scanner, press the Base Station Link Button momentarily (less than one second). This will cause the scanner to beep five times at its loudest volume setting.

1. Depending upon when your scanner was purchased, your selection may be ‘PSC PS7000 Scanner.”

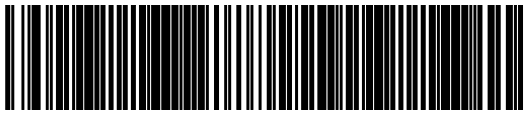
Programming

This manual contains feature descriptions and bar codes which allow you to reconfigure your scanner. Some programming bar code labels, like the label below for resetting defaults, require only the scan of that single label to enact the change. Most of the programming labels in this manual, however, require the scanner to be placed in Programming Mode prior to scanning them. Unless instructed otherwise for feature configuration, scan a START/END bar code once to enterProgramming Mode. Once the scanner is in Programming Mode, you can scan a number of parameter settings before scanning the START/END bar code a second time, which will then accept your changes, exit Programming Mode and return the scanner to normal operation.

The scanner is typically factory-configured with a set of default features standard to the interface type you ordered. After scanning the interface bar code from the Interface Related Features section, you can select other options and customize your scanner through use of the instructions and programming bar codes available in that section and also the Data Editing and Symbologies chapters of this manual.

Resetting the Standard Product Defaults

If you aren't sure what programming options are in your scanner, or you've changed some options and want the factory settings restored, scan the *Standard Product Default Settings* bar code below. This will copy the factory configuration for the currently active interface to the current configuration.



Standard Product Default Settings

The programming section lists the factory default settings for each of the menu commands (indicated by shaded blocks and bold text) on the following pages.

NOTES

Chapter 2
General Features

Double Read Timeout

The Double Read Timeout feature sets a time limit that determines how much time must pass before reading the same label again (e.g. two identical items in succession).

START/END	
DURATION	BAR CODE
0.1 Second	
0.2 Second	
0.3 Second	
0.4 Second	

Double Read Timeout — continued

START/END	
DURATION	BAR CODE
0.5 Second	
0.6 Second	
0.7 Second	
0.8 Second	
0.9 Second	
1 Second	

Powerdown Timeout

The Powerdown Timeout feature sets the time for automatically switching the scanner off when it is not in use.

START/END	
DURATION	BAR CODE
Disable	
15 Seconds	
30 Seconds	
5 Minutes	

START/END	
DURATION	BAR CODE
15 Minutes	
30 Minutes	
1 Hour	

LED and Beeper Indicators

The features provided in this section concern general system LED and Beeper indications. For indication features specific to radio frequency, see the Bluetooth Features section of this manual.

Power On Alert

Disables or enables the indication (from the Beeper) that the scanner is receiving power.

START/END	
STATE	BAR CODE
Disable	
Enable	

LED Idle State

Specifies state of scanner's LED when the scanner is ready to read a bar code.

START	
STATE	BAR CODE
Disable	
Enable	
END	

Good Read: When to Indicate

This feature specifies when the scanner will provide indication (beep and/or flash its green LED) upon successfully reading a bar code. Choices are:

- Good Read = Indicate after decode
- Good Read = Indicate after transmit
- Good Read = Indicate after CTS goes inactive, then active

NOTE **This option, which uses CTS, is only valid for RS-232 interfaces.**

START/END	
INDICATE	BAR CODE
After decode	
After transmit	
After CTS goes inactive, then active	

Good Read Beep Control

This feature enables/disables the scanner's ability to beep upon a successful decode of a bar code.

START/END	
STATE	BAR CODE
Disable	
Enable	

Good Read Beep Frequency

Adjusts the good read beep to sound at a selectable low, medium or high frequency, selectable from the list below. (Controls the beeper's pitch/tone.)

START/END	
FREQUENCY	BAR CODE
Low	
Medium	
High	

Good Read Beep Length

Specifies the duration of a good read beep.

START/END	
LENGTH	BAR CODE
60msec	
80msec	
100msec	
120msec	
140msec	
160msec	

Good Read Beep Length — continued

START/END	
LENGTH	BAR CODE
180msec	
200msec	

Good Read Beep Volume

Selects the beeper volume (loudness) upon a good read beep. There are three selectable volume levels.

START/END	
VOLUME	BAR CODE
Low	
Medium	
High	

Scanning Features

Scan Mode

Selects the scan operating mode for the scanner. Selections are:

- Single — When the trigger is pulled, scanning is activated until five seconds have elapsed or a bar code has been read or the trigger is released
- Triggerless — When the trigger is pulled, scanning is activated until any of the following occur:
  - Active Scanning Time has expired
  - a bar code has been read
  - the trigger is pulled a second time

  The Double Read Timeout feature gates double reads while in this mode.
- Stand — No trigger pull is required to read a bar code while in this mode. Scanning is turned on automatically (auto-sense) when an item is placed in the scanner's field of view and is turned off again when a bar code is read or Active Scanning Time has expired. The Double Read Timeout feature gates double reads while in this mode. If the trigger is pulled, the scanner acts as if it is in single read mode.

NOTE

Upon exiting Single Read mode while Stand Mode is enabled, the software will delay 2 seconds before beginning its auto-sense operation.

- Stand With Illumination — Same as the option above, except that illumination is on while in this mode.

Scan Mode — continued

START/END	
MODE	BAR CODE
Single	
Triggerless	
Stand	
Stand w/Illum	

Active Scanning Time

This setting determines the amount of time the scanner continues to scan in triggerless or stand mode (see Scan Mode) once scanning has been activated.

START/END	
DURATION	BAR CODE
1 Second	
2 Seconds	
5 Seconds	
15 Seconds	
30 Seconds	
1 Minute	

Active Scanning Time — continued

DURATION	BAR CODE
START/END	
2 Minutes	
3 Minutes	
4 Minutes	

Laser Pointer Control

NOTE

The Laser Pointer is a value-added option which might not have been included when your scanner was ordered.

When the trigger is pressed and Scan Mode is set to Single, the laser pointer will be activated for the time period configured by this feature. Immediately following this, the scanner will start scanning. Disabling this feature turns the pointer off.

Laser Pointer Control — continued

START/END	
DURATION	BAR CODE
Disable	
0.1 Seconds	
0.2 Seconds	
0.3 Seconds	
0.4 Seconds	
0.5 Seconds	

Laser Pointer Control — continued

START/END	
DURATION	BAR CODE
0.6 Seconds	
0.8 Seconds	
1 Second	
1.2 Seconds	
1.5 Seconds	
2 Seconds	
2.5 Seconds	

Chapter 3
Interface Related Features

At the time of this writing, the Scanner supports the interfaces listed in Table 3-1. Select the desired interface type from the table, then reference the page number given for the customizable features section associated with each interface. See Table 3-2 for a description of each Keyboard Wedge interface type (A through Z as listed).

Table 3-1. Interfaces Supported

a. Consult Table 3-2 for more information regarding keyboard wedge interface types.

NOTE

The correct interface cable is included for the scanner interface type you ordered.

Table 3-2. Keyboard Wedge Interface Reference

I/F Type	PCs Supported
A	PC/XT w/Alternate Key Encoding
B	AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Alternate Key Encoding
C	PS/2 25 and 30 w/Alternate Key Encoding
D	PC/XT w/Standard Key Encoding
E	AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Standard Key Encoding
F	PS/2 25 and 30 w/Standard Key Encoding
G	IBM 3xxx w/122 keyboard
H	IBM 3xxx w/102 keyboard
I	PS/55 5530T w/104 keyboard
J	NEC 9801
K	WYSE 30/30+ WY-30 Keyboard 83 Keys
L	WYSE 60/85/99 GT/150/160/285 Style IBM Enhanced PC, 520/520ES Style IBM Enhanced PC FR WYSE 55/65/65 ES/120/185/325 Style IBM Enhanced PC
M	WYSE 60/85/99 GT/150/160/285 ANSI Keyboard 105 Keys, 520/520 ES ANSI Keyboard 105 Keys WYSE 55/65/65 ES/120/185/325 ANSI Keyboard 105 Keys
N	WYSE 60/85/99 GT/150/160/285 ASCII Kbd, 520/520 ES ASCII Kbd WYSE 55/65/65 ES/120/185/325 ASCII Keyboard
O	WYSE 60/85/99 GT/150/160/285 ANSI W285 Keyboard 105 Keys, 520/520 ES ANSI W285 Keyboard 105 Keys WYSE 55/65/65 ES/120/185/325 ANSI W285 Keyboard 105 Keys
P	WYSE WINTERM 3320 SE
Q	IBM 3153 IBM 316X, 3179/3180/319X/3270
R	IBM 3151/3152-010, 347X/348X
S	DIGITAL VT 220/320/330/340/350/382
T	DIGITAL VT420
U	DIGITAL VT 510/520 IBM ANSI Style Keyboard
V	DIGITAL VT 510/520 IBM PC Style Keyboard
W	SUN SPARC 5/10
X	SUN 420/440, ITX
Y	WYSE 370/355 Style Enhanced IBM PC

NOTE

Reference Appendix E, Keyboard Function Key Mappings **for more information about keyboards.**

Interface Selection

START/END	
INTERFACE	BAR CODE
RS-232 Standard	
RS-232 Wincor-Nixdorf	
IBM 4683 Port 5B	
IBM 4683 Port 9B	
IBM 4683 Port 17	
IBM USB	
USB Keyboard	

Interface Selection — cont.

START/END	
INTERFACE	BAR CODE
Keyboard Wedge A	
Keyboard Wedge B	
Keyboard Wedge C	
Keyboard Wedge D	
Keyboard Wedge E	
Keyboard Wedge F	
Keyboard Wedge G	

Interface Selection — cont.

START/END	
INTERFACE	BAR CODE
Keyboard Wedge H	
Keyboard Wedge I	
Keyboard Wedge J	
Keyboard Wedge K	
Keyboard Wedge L	
Keyboard Wedge M	
Keyboard Wedge N	

Interface Selection — cont.

START/END	
INTERFACE	BAR CODE
Keyboard Wedge O	
Keyboard Wedge P	
Keyboard Wedge Q	
Keyboard Wedge R	
Keyboard Wedge S	
Keyboard Wedge T	

Interface Selection — cont.

START/END	
INTERFACE	BAR CODE
Keyboard Wedge U	
Keyboard Wedge V	
Keyboard Wedge W	
Keyboard Wedge X	
Keyboard Wedge Y	
Wand Emulation	

Interface Features

Global Interface Features

START/END	
STATE	BAR CODE
Obey Host Commands	
Ignore Host Commands	
Host Transmission Buffers = 1	
Host Transmission Buffers = 2	

RS-232 Interface Features

START/END	
BAUD RATE	BAR CODE
1200 Baud	
2400 Baud	
4800 Baud	
9600 Baud	
19200 Baud	
38400 Baud	

RS-232 Interface Features — cont.

START/END	
BAUD RATE	BAR CODE
57600 Baud	
115200 Baud	

RS-232 Interface Features — cont.

START/END	
STATE	BAR CODE
7 Data Bits	
8 Data Bits	
1 Stop Bit	
2 Stop Bits	
Parity = None	

RS-232 Interface Features — cont.

START/END	
STATE	BAR CODE
Parity = Even	
Parity = Odd	

RS-232 Interface Features — cont.

Hardware Flow Control

Disable Hardware Control — The scanner transmits to the host regardless of any activity on the CTS line.

Enable CTS Flow Control — The CTS signal controls transmission of data to the host.

Enable CTS Scan Control — The CTS line must be active for the scanner to read and transmit data. While the CTS line is inactive, the scanner remains in a host-disabled state; following a successful label transmission, the CTS signal must transition to inactive and then to active to enable scanning for the next label.

Intercharacter Delay

This delay is inserted after each data character transmitted. If the transmission speed is too high, the system may not be able to receive all characters. You may need to adjust the delay to make the system work properly.

Software Flow Control

Disables/Enables software control using XON/XOFF characters.

RS-232 Interface Features — cont.

START/END	
STATE	BAR CODE
Disable Hardware Control	
Enable CTS Flow Control	
Enable CTS Scan Control	
Inter-Char Delay = No Delay	
Interchar Delay = 10 msec	
Interchar Delay = 20 msec	

RS-232 Interface Features — cont.

START/END	
STATE	BAR CODE
Interchar Delay = 30 msec	
Interchar Delay = 40 msec	
Interchar Delay = 50 msec	
Interchar Delay = 60 msec	
Interchar Delay = 70 msec	
Interchar Delay = 80 msec	

RS-232 Interface Features — cont.

START/END	
STATE	BAR CODE
Interchar Delay = 90 msec	
Disable Software Flow Control	
Enable Software Flow Control	

RS-232 Interface Features — cont.

Host Echo

When enabled, this feature passes all data through the scanner to the host as it comes in. This feature is used for applications where "daisy chaining" of RS-232 devices onto the same cable is necessary. If, for example, one of the devices in the chain is a terminal where someone is entering data while another person is simultaneously scanning a bar code requiring transmission to the host, the scanner will wait for the RS-232 channel to be quiet for a specified period of time (set via *RS-232 Host Echo Quiet Interval*). The scanner can be set to observe this delay before sending its data in order to avoid RS-232 transmission conflicts.

Host Echo Quiet Interval

This setting specifies the time interval of RS-232 channel inactivity which must transpire before the scanner will break the host echo loop to transmit the bar code data that has just been scanned to the host.

Signal Voltage: Normal/TTL

Specifies whether the RS-232 interface provides TTL levels on the output pins TxD and RTS.

RS-232 Invert

Enables/disables inversion of RS-232 TXD and RXD signals.

RS-232 Interface Features — cont.

START/END	
STATE	BAR CODE
Disable Host Echo	
Enable Host Echo	
Host Echo Quiet Interval = 0msec	
Host Echo Quiet Interval = 10msec	
Host Echo Quiet Interval = 20msec	
Host Echo Quiet Interval = 30msec	

RS-232 Interface Features — cont.

START/END	
STATE	BAR CODE
Host Echo Quiet Interval = 40msec	
Host Echo Quiet Interval = 50msec	
Host Echo Quiet Interval = 60msec	
Host Echo Quiet Interval = 70msec	
Host Echo Quiet Interval =80msec	
Host Echo Quiet Interval = 90msec	
Host Echo Quiet Interval = 100msec	

RS-232 Interface Features — cont.

START/END	
STATE	BAR CODE
Signal Voltage: Normal RS-232	
Signal Voltage: TTL	
Disable RS-232 Invert	
Enable RS-232 Invert	

Beep on ASCII BEL

Enables/disables ability of scanner to beep (sound a good read tone) on receiving an ASCII BEL (07 hex).

Beep on Not on File

Enables/disables the ability of the scanner to beep upon receiving a Not-On-File (NOF) command from the host.

ACK NAK Options

This enables/disables the ability of the scanner to support the RS-232 ACK/NAK protocol. When configured, the scanner and/or host sends an “ACK” when it receives data properly, and sends “NAK” when the data is in error. Selections for this option are:

- Disable
- Enable for label transmission — the scanner expects an ACK/NAK response from the host when a label is sent
- Enable for host-command acknowledge — the scanner will respond with ACK/NAK when the host sends a command
- Enable for label transmission and host-command acknowledge

START/END	
STATE	BAR CODE
Disable Beep on ASCII BEL	
Enable Beep on ASCII BEL	
Disable Beep on Not On File	
Enable Beep on Not On File	

ACK NAK Options — cont.

START/END	
STATE	BAR CODE
Disable ACK NAK	
Enable ACK NAK for Transmission	
Enable ACK NAK for host-command acknowledge	
Enable ACK NAK for transmission and host-command	

RS-232 Interface Features — cont.

ACK Character

START/END	
MODE	BAR CODE
	Sets the ACK character from the set of ASCII characters or any decimal value from 000 to 255. Pad entries of less than three digits with zeros, as in "005". To configure this feature, scan the "START/END" bar code above to place the unit in Programming Mode, then the "Set ACK Character," followed by the three digits (zero padded) from the Alphanumeric table in Appendix C, Alpha-Numeric Pad representing your desired character. Exit programming mode by scanning the "START/END" bar code above. **DEFAULT SETTING FOR THIS FEATURE: 006 (ACK)**
Set ACK Character	

RS-232 Interface Features — cont.

NAK Character

START/END	
MODE	BAR CODE
	Sets the NAK character from the set of ASCII characters or any decimal value from 000 to 255. Pad entries of less than three digits with zeros, as in "005". To configure this feature, scan the "START/END" bar code above to place the unit in Programming Mode, then the "Set NAK Character," followed by the three digits (zero padded) from the Alphanumeric table in Appendix C, Alpha-Numeric Pad representing your desired character. Exit programming mode by scanning the "START/END" bar code above. **DEFAULT SETTING FOR THIS FEATURE: 021 (!)**
Set NAK Character	

RS-232 Interface Features — cont.

Retry on ACK NAK Timeout

Enables/disables retry after the configurable ACK NAK Timeout Value (set in the following feature) has expired.

STATE	BAR CODE
START/END	
Disable Retry on ACK NAK Timeout	
Enable Retry on ACK NAK Timeout	

RS-232 Interface Features — cont.

ACK NAK Timeout Value

START/END	
MODE	BAR CODE
	This item specifies the time the scanner will wait for an ACK character from the host following a label transmission. 000 = Infinite timeout 001 - 075 = Timeout in 200-millisecond increments To configure this feature, scan the “START/END” bar code above to place the unit in Programming Mode, then the “Set ACK NAK Timeout Value,” followed by the three digits (zero padded) from the Alphanumeric table in Appendix C, Alpha-Numeric Pad representing your desired value. Exit programming mode by scanning the “START/END” bar code above **DEFAULT SETTING FOR THIS FEATURE: 001**
Set ACK NAK Timeout Value	

RS-232 Interface Features — cont.

ACK NAK Retry Count

START/END	
MODE	BAR CODE
	This feature sets the number of times for the scanner to retry a label transmission under a retry condition. 000 = No retry 001 - 254 = Retry for the specified number of times 255 = Retry forever To configure this feature, scan the “START/END” bar code above to place the unit in Programming Mode, then the “Set ACK NAK Retry Count,” followed by the three digits (zero padded) from the Alphanumeric table in Appendix C, Alpha-Numeric Pad representing your desired retry count. Exit programming mode by scanning the “START/END” bar code above. **DEFAULT SETTING FOR THIS FEATURE: 003**
Set ACK Nak Retry Count	

RS-232 Interface Features — cont.

ACK NAK Error Handling

This item specifies the method the scanner will use to handle errors detected while waiting to receive the ACK character from the host. Errors include unrecognized host commands and communication errors such as parity or framing errors. Choices are:

00 = Ignore errors detected (recommended setting)

01 = Process error as valid ACK character (risk of lost label data)

02 = Process error as valid NAK character (risk of duplicate label data)

START/END	
STATE	BAR CODE
Ignore Errors Detected	
Process error as valid ACK character	
Process error as valid NAK character	

RS-232 Interface Features — cont.

Transmission Failure Indication

Enables/disables bad-label indication upon transmission failure.

START/END	
STATE	BAR CODE
Disable Transmission Error Indication	
Enable Transmission Error Indication	

IBM-USB Interface Features

IBM-USB Device usage

The IBM-USB protocol allows for the scanner to be identified as one of two different types of bar code scanners. Depending on what other scanners you may already have connected to a IBM-USB POS, you may need to change this setting to enable all devices to communicate. Options are:

- Table Top Scanner
- Handheld Scanner

START/END	
STATE	BAR CODE
Configure as Table Top Scanner	
Configure as Handheld Scanner	

IBM

IBM Transmit Labels in Code 39 Format

This feature enables/disables scanner's ability to set a symbology identifier for a specified label to Code 39 before transmitting that label data to an IBM host. This applies to: Code 128, Codabar and Code 93 for IBM USB; Code 128, Codabar and Code 93 for IBM Port 5B; and Codabar and Code 93 for IBM Port 9B.

START/END	
STATE	BAR CODE
Disable Convert to Code 39	
Enable Convert to Code 39	

Wand Emulation

Supported Symbologies

The Wand Emulation interface will transmit bar code data as a wand device would. This interface will transmit the following bar code symbologies:

- UPC/EAN
- UPC/EAN with addons
- Code 39
- Full ASCII Code 39
- Interleaved 2 of 5
- Codabar
- Code 128

Pharmacode 39 is transmitted as Code 39, all other bar code symbology types read by the scanner will be transmitted as Code 128.

Wand Emulation Bar Code Format

The following format settings are required for the wand emulation interface. These settings have been pre-configured at the factory for Wand Emulation scanners.

- UPC-A bar codes must include all 12 digits.
- UPC-E bar codes must contain 8 digits, including a system digit, 6 data digits, and the check digit.
- EAN-13 bar codes must have all 13 digits.
- EAN-8 bar codes must include all 8 digits.
- Code 39, Code 39 Full ASCII, and Pharmacode 39 bar codes must NOT contain start / stop characters.
- Codabar bar codes must include the start / stop characters, presented in the ABCD format.
- Interleaved 2 of 5 bar codes must have an even number of digits.

Wand Emulation — cont.

Bar/Space Polarity

Low/High — Black will be transmitted as a low voltage level (0 to +0.7V) and space as high level (+2.4 to +5.25V).

High/Low — Black will be transmitted as a high voltage level (+2.4 to +5.25V) and space as low level (0 to +0.7V).

Wand Idle State

This feature specifies the level of the wand output signal when idle. TTL logic levels:

High voltage level (+2.4 to +5.25V)

Low voltage level (0 to +0.7V).

START/END	
STATE	BAR CODE
Bar/Space = Low/High	
Bar/Space = High/Low	

Wand Emulation — cont.

START/END	
STATE	BAR CODE
Wand Idle State = Low	
Wand Idle State = High	

Wand Emulation — cont.

Signal Speed

The speed of the transmission can be set. This selects the width of the minimum narrow bar.

330 microseconds

660 microseconds

STATE	BAR CODE
START/END	
Signal Speed = 330mS	
Signal Speed = 660mS	

Wand Emulation — cont.

Transmit Trailing Noise

Enables/disables the ability of the scanner to generate noise transitions after label transitions in the signal are transmitted to the host.

START/END	
STATE	BAR CODE
Disable Trailing Noise	
Enable Trailing Noise	

Wand Emulation — cont.

Transmit Leading Noise

Enables/disables ability of scanner to generate noise transitions before label transitions in signal transmitted to host.

START/END	
STATE	BAR CODE
Disable Leading Noise	
Enable Leading Noise	

Symbology Conversion

Wand Emulation can convert all bar codes to a single symbology. Choices are:

- No Conversion
- Convert to Code 39
- Convert to Code 128

START/END	
STATE	BAR CODE
No Symbology Conversion	
Convert to C39	
Convert to C128	

Keyboard Wedge/USB Keyboard

As a keyboard interface, the scanner supports most popular PCs and IBM terminals. The installation of the wedge is a fairly simple process that doesn't require any changes of software or hardware.

NOTE

All of the options in this section apply to the Keyboard Wedge, however, only Keyboard Layout, Caps Lock State and Control Characters apply to USB Keyboard.

Keyboard Layout

The Keyboard Layout option supports many countries. For details about Keyboard Layout, please refer to your operating system manual.

START/END	
STATE	BAR CODE
USA	
Belgium	
Britain	
Denmark	

Keyboard Wedge/USB Keyboard — cont.

START/END	
STATE	BAR CODE
France	
Germany	
Italy	
Norway	
Portugal	
Spain	
Sweden	

Keyboard Wedge/USB Keyboard — cont.

START/END	
STATE	BAR CODE
Switzerland	
Japan 106 Key	
Hungary	
Czech	
Slovakia	
Romania	

Keyboard Wedge/USB Keyboard — cont.

START/END	
STATE	BAR CODE
Croatia	
Poland	

Keyboard Wedge/USB Keyboard — cont.

Caps Lock State

Specifies which format the scanner sends character data.

START/END	
STATE	BAR CODE
Disable Caps Lock	
Caps Lock “ON”	
Shift Lock “ON”	

Keyboard Wedge/USB Keyboard — cont.

Keyboard Simulation

NOTE

This feature does not apply to the USB Keyboard interface.

All PCs check the keyboard status during the power-on Selftest. It is recommended that you enable this function if you are working without a keyboard installation. It simulates keyboard timing and passes the keyboard status to the PC during power-on.

Control Characters

Specifies how the scanner transmits ASCII control characters to the host. Choices are:

- Disable Control Characters
- Enable transmission of control characters to host
- Send characters between 00H and 1FH according to a special function-key mapping table. (This is used to send keys that are not in the normal ASCII set; a unique set is provided for each available scancode set. Reference Appendix E, Keyboard Function Key Mappings.)

Keyboard Wedge/USB Keyboard — cont.

START/END	
STATE	BAR CODE
Disable Keyboard Simulation	
Enable **Keyboard** Simulation	
Disable Control Characters	
Enable Transmission of Control Characters	
Enable Function Key Mapping	

Keyboard Wedge/USB Keyboard — cont.

Wedge Quiet Interval

NOTE

This feature does not apply to the USB Keyboard interface.

Quiet Interval is the amount of time to look for keyboard activity before the scanner breaks the keyboard connection in order to transmit data to the host..

START/END	
MODE	BAR CODE
	Selectable from 000 (no interval) to 255 in 10 msec increments to set the interval. To configure this feature, scan the “START/END” bar code above to place the unit in Programming Mode, then the Set Wedge Quiet Interval bar code followed by the three digits (zero padded) from the Alphanumeric table in Appendix C, Alpha-Numeric Pad representing your desired length. Exit programming mode by scanning the “START/END” bar code above. **DEFAULT SETTING FOR THIS FEATURE:** **010 (100 msec)**
Set Wedge Quiet Interval	

Keyboard Wedge/USB Keyboard — cont.

Intercharacter Delay

START/END	
MODE	BAR CODE
	One-half of the delay specified below is inserted between scancodes within each character. If the transmission speed is too high, the system may not be able to receive all characters. You may need to adjust the delay to make the system work properly. Selectable from 00 to 99 in 10msec increments to set the delay. To configure this feature, scan the “START/END” bar code above to place the unit in Programming Mode, then the “Set Intercharacter Delay,” followed by the two digits (zero padded) from the Alphanumeric table in Appendix C, Alpha-Numeric Pad representing your desired length. Exit programming mode by scanning the “START/END” bar code above. **DEFAULT SETTING FOR THIS FEATURE:** **01 (10mSec Delay)**
Set Intercharacter Delay	

Chapter 4
Data Editing

Data Editing Overview

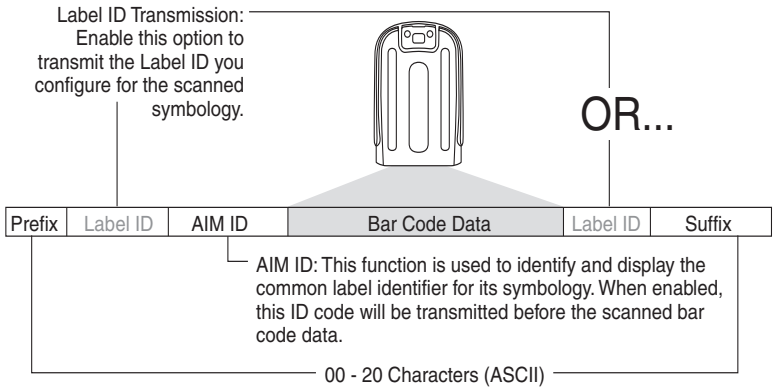
CAUTION

It is not recommended to use these features with IBM or Wand Emulation interfaces.

When a bar code is scanned, additional information can be sent to the host computer along with the bar code data. This combination of bar code data and supplementary user-defined data is called a "message string." The features in this chapter can be used to build specific user-defined data into a message string.

There are several types of selectable data characters that can be sent before and after scanned data. You can specify if they should be sent with all symbologies, or only with specific symbologies. Figure 4-1 shows the available elements you can add to a message string:

Figure 4-1. Breakdown of a Message String



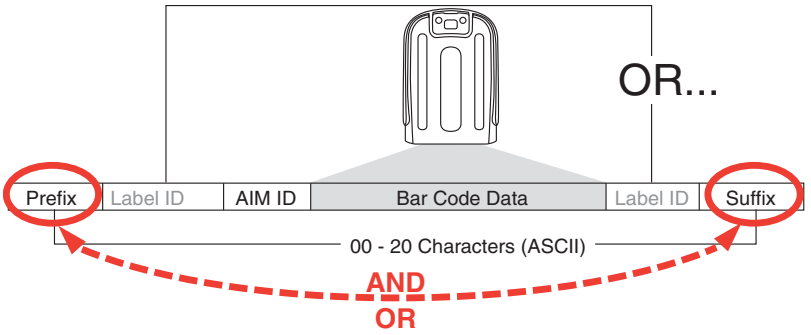
Please Keep In Mind...

- Modifying a message string is not a mandatory requirement. Data editing is a sophisticated feature allowing highly customizable output for advanced users. Factory default settings for data editing is typically set to NONE.
- A prefix or suffix may be applied (reference the Symbologies chapter for these settings) across all symbologies (set via the Global features in this chapter).
- You can add any character from the ASCII Chart (from 00-FF hex) on the inside back cover of this manual as a prefix, suffix or Label ID.
- Enter prefixes and suffixes in the order in which you want them to appear on the output.

Global Prefix/Suffix

Up to 20 ASCII characters may be added as a prefix (in a position before the bar code data) and/or as a suffix (in a position following the bar code data) as indicated in Figure 4-2.

Figure 4-2. Prefix and Suffix Positions



Global Prefix/Suffix — continued

Example: Setting a Prefix

In this example, we'll set a prefix for all symbologies.

1. Determine which ASCII character(s) are to be added to scanned bar code data. In this example, we'll add a dollar sign ('$') as a prefix.
2. Scan the START bar code.
3. Scan the SET PREFIX bar code.
4. Reference the ASCII Chart on the inside back cover of this manual, to find the hex value assigned to the desired character. The corresponding hex number for the '$' character is 24. To enter this selection code, scan the '2' and '4' bar codes from Appendix C, Alpha-Numeric Pad.
5. Scan the END bar code to exit Programming Mode.

NOTE

If less than the expected string of 20 characters are selected, scan the END bar code twice to accept the selections and exit Programming Mode.

6. The resulting message string would appear as follows:

   Scanned bar code data: 12345
   Resulting message string output: $12345

Global Prefix/Suffix — continued

START	
MODE	BAR CODE
	Sets up to 20 characters each from the set of ASCII characters or any hex value from 00 to FF. To configure this feature, scan the “START” bar code above to place the unit in Programming Mode, then the “Set Prefix” or “Set Suffix,” followed by the alpha-numeric characters from the Alphanumeric table in Appendix C, Alpha-Numeric Pad representing your desired character(s). Reference the section, Example: Setting a Prefix, for more information. Exit programming mode by scanning the “END” bar code below (scan “END” twice if less than 20 characters have been selected). **DEFAULT SETTING FOR THIS FEATURE:** **00 Hex (None)**
Set Prefix	
Set Suffix	
END	

AIM ID

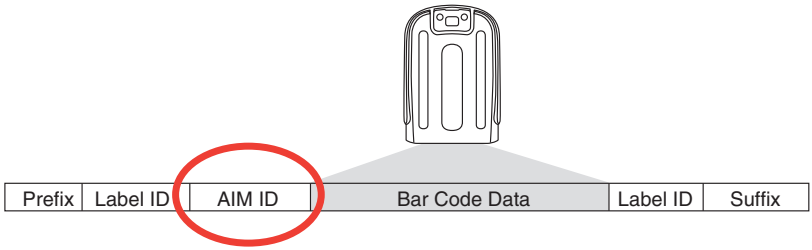
AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned bar code data. AIM label identifiers consist of three characters as follows:

- A close brace character (ASCII ‘]’), followed by...
- A code character (see the table below), followed by
- A modifier character (the modifier character is symbol dependent)

SYMBOLOGY	CHAR	SYMBOLOGY	CHAR
UPC/EAN	E	MSI/Plessey	M
Code 39	A	PDF 417 & Micro PDF 417	L
Codabar	F	RSS (RSS-14, RSS Expanded, RSS Limited)	e
Interleaved.2 of 5	I	Standard 2 of 5	S
Code 93	G	ISBN	X[a]
Code 128/EAN 128	C		

a. ISBN (X with a 0 modifier character)

Figure 4-3. AIM ID



AIM ID — continued

START	
STATE	BAR CODE
Disable AIM ID	
Enable AIM ID	
END	

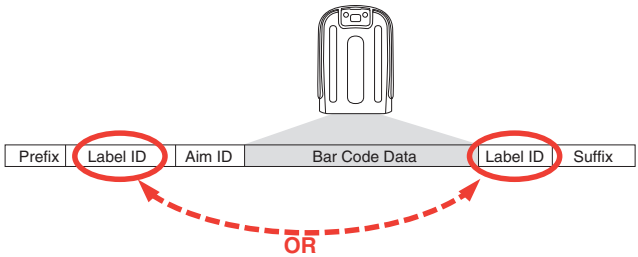
Label ID

A Label ID is a customizable code of up to two ASCII characters (00-FF), used to identify a bar code (symbology) type. It can be appended previous to or following the transmitted bar code data depending upon how this option is enabled. This feature provides options for configuring custom Label IDs individually per symbology. If you wish to program the scanner to always include an industry standard label identifier for ALL symbology types, see the previous feature, AIM ID.

To configure a Label ID:

1. Scan the START bar code.
2. Select Label ID position as either BEFORE or AFTER by scanning the appropriate bar code.
3. Scan a bar code to select the symbology for which you wish to configure a custom Label ID.
4. Determine the desired character(s) (you may choose either one or two) which will represent the Label ID for the selected symbology. Next, turn to the ASCII Chart on the inside back cover of this manual and find the equivalent hex digits associated with your choice of Label ID. For example, if you wish to select an equal sign (=) as a Label ID, the chart indicates its associated hex characters as 3D.
5. Turn to Appendix C, Alpha-Numeric Pad and scan the bar codes representing the hex characters determined in the previous step. For the example given, the characters '0', '0', '3' and 'D' would be scanned. The two zeros scanned ('0', '0') represent a selection of "no character," since this option allows for two Label ID characters. (Pad with zeros to enter four hex characters.)
6. Scan the END bar code to exit programming mode.

Figure 4-4. Label ID Position Options



Label ID — continued

START	
OPTION	BAR CODE
Label ID Transmission: Disable	
Label ID Position: Before Bar Code Data	
Label ID Position: After Bar Code Data	
Set UPC-A Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 41 Hex (A)**
Set UPC-A w/P2 Addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 41 Hex (A)**
Set UPC-A w/P5 Addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 41 Hex (A)**

Label ID — continued

START	
OPTION	BAR CODE
Set UPC-A w/C128 Addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 41 Hex (A)**
Set UPC-E Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 45 Hex (E)**
Set UPC-E w/P2 Addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 45 Hex (E)**
Set UPC-E w/P5 Addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 45 Hex (E)**
Set UPC-E w/C128 Addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 45 Hex (E)**
Set EAN-8 Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 4646 Hex (FF)**
Set EAN-8 w/P2 Addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 4646 Hex (FF)**

Label ID — continued

START	
OPTION	BAR CODE
Set EAN-8 w/P5 Addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 4646 Hex (FF)**
Set EAN-8 w/C128 Addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 4646 Hex (FF)**
Set EAN-13 Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 46 Hex (F)**
Set EAN-13 w/P2 Addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 46 Hex (F)**
Set EAN-13 w/P5 Addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 46 Hex (F)**
Set EAN-13 w/C128 Addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 46 Hex (F)**
Set ISBN Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 49 Hex (I)**

Label ID — continued

START	
OPTION	BAR CODE
Set GTIN Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE:47 Hex (G)**
Set GTIN w/P2 addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 4732 Hex (G2)**
Set GTIN w/P5 addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 4735 Hex (G5)**
Set GTIN w/C128 addon Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 4738 Hex (G8)**
Set RSS-14 Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 5234 Hex (R4)**
Set RSS-14 *Composite* Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 5234 Hex (R4)**

Label ID — continued

START	
OPTION	BAR CODE
Set RSS Expanded Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 5258 Hex (RX)**
Set RSS Expanded *Composite* Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 5258 Hex (RX)**
Set RSS Limited Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 524C Hex (RL)**
Set RSS Limited *Composite* Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 524C Hex (RL)**
Set Code 39 Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 2A Hex (*)**

Label ID — continued

START	
OPTION	BAR CODE
Set Pharmacode 39 Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 41 Hex (A)**
Set Code 128 Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 23 Hex (#)**
Set I 2 of 5 Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 69 Hex (i)**
Set Codabar Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE:25 Hex (%)**
Set Code 93 Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 26 Hex (&)**
Set Code 11 Label ID Character(s)	**DEFAULT SETTING FOR THIS FEATURE: 4345 Hex (CE)**

Label ID — continued

START	
OPTION	BAR CODE
Set MSI/Plessey Label ID Character(s)	 **DEFAULT SETTING FOR THIS FEATURE: 40 Hex (@)**
Set Std 2 of 5 Label ID Character(s)	 **DEFAULT SETTING FOR THIS FEATURE: 69 Hex (i)**
Set PDF 417 Label ID Character(s)	 **DEFAULT SETTING FOR THIS FEATURE: 50 Hex (P)**
Set Micro PDF 417 Label ID Character(s)	 **DEFAULT SETTING FOR THIS FEATURE: 6D50 Hex (mP)**
END	

Case Conversion

This feature can convert scanned bar code data to either all lower case or all upper case characters.

NOTE

Case conversion affects ONLY scanned bar code data, and does not affect Label ID, Prefix, Suffix, or other appended data.

START	
MODE	BAR CODE
Disable	
Convert to Upper Case	
Convert to Lower Case	
END	

Character Conversion

Character conversion is an eight byte configuration item. The eight bytes are 4 character pairs represented in hexadecimal ASCII values. The first character in the pair is the character that will be converted. The second character in the pair is the character to convert to. If the character to convert in a pair is **FF**, then no conversion is done.

For example, if you have the character conversion configuration item set to the following: **41423132FFFFFFFF**

The first pair is **4142** or AB (**41** hex is an ASCII capital A, **42** hex is an ASCII capital B) and the second pair is **3132** or 12 (**31** hex is an ASCII 1, **32** is an ASCII 2). The other two pairs are **FFFF** and **FFFF**.

With the label, AB12BA21, it would look as follows after the character conversion: BB22BB22.

The A characters were converted to B characters and the 1 characters were converted to 2 characters. Nothing is done with the last two character pairs, since they are all **FF**.

To set Character Conversion:

1. Scan the START bar code.
2. Scan the Character Conversion bar code.
3. Determine the desired string. Sixteen positions must be determined as in the above example. Next, turn to the ASCII Chart on the inside back cover of this manual and find the equivalent hex digits needed to fulfill the string.
4. Turn to Appendix C, Alpha-Numeric Pad and scan the bar codes representing the hex characters determined in the previous step.
5. Scan the END bar code to exit Programming Mode.

NOTE

If less than the expected string of 16 characters are selected, scan the END bar code twice to accept the selections and exit Programming Mode.

Scan the END bar code to exit programming mode.

Character Conversion — continued

START	
MODE	BAR CODE
Character Conversion	**DEFAULT SETTING FOR THIS FEATURE: FFFFFFFFFFFFFFFF Hex (no conversion)**
END	

NOTES

Chapter 5
Bluetooth Features

This section contains features which are specific to radio communications between the scanner and Base Station or PC. When linked with a Base Station or PC, the scanner will read and decode bar codes (labels) and transmit them to the selected device via a Bluetooth radio.

Auto Configuration Update

When this feature is enabled, a scanner and its linked Base Station can automatically ensure they stay in sync with regard to configuration. This is accomplished by the linked scanner and Base Station comparing their configuration file check sum. If either is different, the Base Station will automatically update the scanner with its configuration. If the units are linked, any changes made to the Base Station configuration through the scan utility software will automatically be sent to the scanner at the completion of the programming session. By the same token, any changes made to the linked scanner's configuration will automatically be transmitted to the Base Station when the scanner exits Programming Mode.

START/END	
STATE	BAR CODE
Disable Auto Configuration	
Enable Auto Configuration	

Auto Flash Memory Update

Enable this feature to allow the Base Station to automatically update a linked scanner's flash memory to the version in the Base Station.

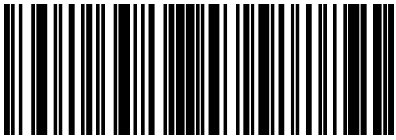
START/END	
STATE	BAR CODE
Disable Auto Flash Update	
Enable Auto Flash Update	

Non-Automatic Updates

Use the following special programming bar code labels to perform a manual, one-time update to devices as listed.

Flash Update to Scanner

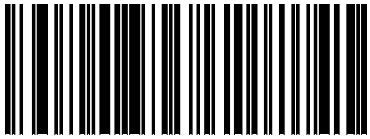
Scan this programming bar code to copy the Base Station's flash memory to the scanner. Use this method when the Auto Flash Memory Update feature is disabled and you want a one-time flash update to be performed.



Flash Update to Scanner

Copy Configuration to Scanner

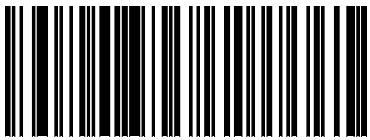
Scan the following label to copy the current Base Station configuration to the scanner. Use this method when the Auto Configuration Update feature is disabled and you want a one-time configuration update to be performed to the scanner.



Copy Configuration to Scanner

Copy Configuration to Base Station

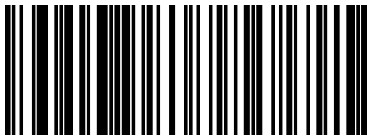
Scan the following label to copy the current scanner configuration to the Base Station. Use this method when the Auto Configuration Update feature is disabled and you want a one-time configuration update to be performed to the Base Station.



Copy Configuration to Base Station

Do Not Send Configuration to Scanner

In instances where you do not want the Base Station to automatically update the scanner's configuration (for example if your scanner contains a desired custom configuration but will temporarily be used with a Base Station containing an alternate configuration), scan the label below prior to linking the units to ensure the scanner configuration will not be over-written by the Base Station.



Do Not Send Configuration to Scanner

Battery Charge Mode

The Base Station's ability to charge a Battery Pack (while installed in a scanner seated in the Base Station) can be controlled using this feature.

START/END	
STATE	BAR CODE
Low Charge	
High Charge	
Charger Disabled	

ACK Timeout

ACK Timeout configures a duration, selectable in 200-millisecond increments, for the scanner to wait for the Base Station to accept the data and respond with an ACK (acknowledge) or NAK (when data is in error).

Upon expiration of the timeout, the scanner will emit a transmission error beep and return to its normal operating mode.

START/END	
MODE	BAR CODE
	Sets the ACK Timeout using a decimal value from 000 to 255. Settings are in 200 millisecond increments. A setting of 000 disables the timeout. To configure this feature, scan the "START/END" bar code above to place the unit in Programming Mode, then the "Set ACK Timeout," followed by the three digits (zero padded) from the Alphanumeric table in Appendix C, Alpha-Numeric Pad representing your setting. Exit programming mode by scanning the "START/END" bar code above. SETTINGS EXAMPLES: 000 = Wait Forever 007 = 1.4 seconds 158 = 31.6 seconds 255 = 51 seconds **DEFAULT SETTING FOR THIS FEATURE:** **000 (Disable)**
Set ACK Timeout	

Poll Rate Timeout

During normal operation, the Base Station regularly signals (polls) for a response from the scanner in order to ensure the linked scanner is still in communication. This rate is set in 10 millisecond increments between polls. A value of 000 selects the minimum timeout[1] of 1.25 milliseconds.

START/END	
MODE	BAR CODE
	Sets the Poll RateTimeout using a value from 000 to 100. Settings are in 10 millisecond increments. To configure this feature, scan the “START/END” bar code above to place the unit in Programming Mode, then the “Set Poll Rate Timeout,” followed by the three characters (zero padded) from the Alphanumeric table in Appendix C, Alpha-Numeric Pad representing your setting. Exit programming mode by scanning the “START/END” bar code above. SETTINGS EXAMPLES: 000 = 1.25 milliseconds 007 = 70 milliseconds 012 = 120 milliseconds 100 = 1 second **DEFAULT SETTING FOR THIS FEATURE: 002 (20 milliseconds)**
Set Poll Timeout	

1. Shortest time between polls. This is the fastest rate selectable.

Transmit HACK

This option allows you to choose when the HACK (Host Acknowledge) should be sent from the Base Station to the scanner.

Choices are:

- OPTION #1 — Send HACK as soon as the Base Station receives a label, or...
- OPTION #2 — Send HACK as soon as the Base Station completes transmission to the host.

START/END	
STATE	BAR CODE
HACK Option #1	
HACK Option #2	

Bluetooth (BT) Beeper Features

The settings in this section apply specifically to scanner beep indications associated with communications between the scanner and Base Station[1] or other device it is linked to.

BT Beep Volume

This option selects the volume (loudness/softness) of the Acknowledge (ACK) Label beep.

START/END	
STATE	BAR CODE
BT Beep Volume = LOW	
BT Beep Volume = MEDIUM	
BT Beep Volume = HIGH	

1. The Base Station does not include a beeper.

BT Beep Duration

Use this feature to set the duration of configurable BT-specific beeps. Settings are in increments of 10 milliseconds.

START/END	
MODE	BAR CODE
	Sets the BT Beep Duration using a value from 001 to 255. Settings are in 10 millisecond increments. To configure this feature, scan the “START/END” bar code above to place the unit in Programming Mode, then the “Set BT Beep Duration,” followed by the three characters (zero padded) from the Alphanumeric table in Appendix C, Alpha-Numeric Pad representing your setting. Exit programming mode by scanning the “START/END” bar code above. SETTINGS EXAMPLES: 007 = 70 milliseconds 042 = 420 milliseconds 158 = 1.58 seconds 255 = 2.55 seconds **DEFAULT SETTING FOR THIS FEATURE: 006 (80 milliseconds)**
Set BT Beep Duration	

BT Beep Frequency

This option selects the frequency (tone or pitch) of the Acknowledge (ACK) Label beep.

START/END	
STATE	BAR CODE
BT Beep Frequency = LOW	
BT Beep Frequency = MEDIUM	
BT Beep Frequency = HIGH	

BT Disconnect Beep

When enabled, this option allows the scanner to sound (beep) when the scanner disconnects from the Base Station due to out of range, low power, etc.

START/END	
STATE	BAR CODE
Disable Disconnect Beep	
Enable Disconnect Beep	

BT ACK Label Beep

This setting enables or disables the acknowledgement (ACK) beep that indicates a label has been sent to the Base Station, which has accepted the data and responded.

START/END	
STATE	BAR CODE
Disable ACK Label Beep	
Enable ACK Label Beep	

BT Transmission Error Beep

Enables or disables the transmission error Beep. This beep indicates a label has been sent to but not acknowledged by the Base Station (ACK Timeout occurred).

START/END	
STATE	BAR CODE
Disable Transmission Error Beep	
Enable Transmission Error Beep	

BT In Cradle Chirp

This feature enables or disables a “chirp” sound (a short, high-pitched beep) to indicate when the scanner is fully seated in position in the Base Station.

START/END	
STATE	BAR CODE
Disable In Cradle Chirp	
Enable In Cradle Chirp	

BT Leash Beep

This feature enables or disables the Leash Beep, which occurs upon disconnect. When enabled, the scanner will beep three times per second for the number of seconds defined in this setting to notify if a linked scanner is leaving the immediate vicinity of the Base Station[1]. This is especially useful in instances where a scanner might inadvertently have been placed in a bag or cart. A setting of 000 disables the Leash Beep.

START/END	
MODE	BAR CODE
	Sets the BT Leash Beep using a hex value from 000 to 255. Settings are in one second increments. To configure this feature, scan the “START/END” bar code above to place the unit in Programming Mode, then the “Set BT Leash Beep,” followed by the three characters (zero padded) from the Alphanumeric table in Appendix C, Alpha-Numeric Pad representing your setting. Exit programming mode by scanning the “START/END” bar code above. SETTINGS EXAMPLES: 000 = Disable Leash Beep 015 = 15 seconds 042 = 42 seconds 255 = 4 min 15 sec **DEFAULT SETTING FOR THIS FEATURE: 000 (Disabled)**
Set BT Leash Beep	

1. The Base Station does not include a beeper. Only the scanner will beep to indicate.

Chapter 6
Symbologies

The scanner supports the following symbologies (bar code types). Options for each symbology are included in this chapter.

- UPC-A
- UPC-E
- EAN-13
- EAN-8
- RSS-14
- RSS Expanded
- RSS Limited
- Code 39
- Pharmacode 39
- Code 128 and EAN 128
- Interleaved 2 of 5
- Codabar
- Code 93
- Code 11
- MSI/Plessey
- Standard 2 of 5

2D Symbologies

- PDF 417
- Micro PDF 417

Factory Defaults — are indicated in bold text and are highlighted with yellow throughout this section.

UPC-A

The following options apply to the UPC-A symbology.

Disable/Enable UPC-A

When disabled, the scanner will not read UPC-A bar codes.

Check Digit Transmission

Enable this option to transmit the check digit along with UPC-A bar code data.

Expand UPC-A to EAN-13

Expands UPC-A data to the EAN-13 data format. Selecting this feature also changes the symbology ID to match those required for EAN-13.

System Number Transmission

This feature enables/disables transmission of UPC-A System Number.

UPC-A — continued

START/END	
STATE	BAR CODE
Disable UPC-A	
Enable UPC-A	
Don't Send Check Digit	
Send Check Digit	
Don't Expand to EAN-13	
Expand to EAN-13	

UPC-A — continued

START/END	
STATE	BAR CODE
Disable System Number Transmission	
Enable System Number Transmission	

UPC-A — continued

UPC-A Minimum Reads

This feature specifies the minimum number of consecutive times a UPC-A label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

UPC-A — continued

In-store Minimum Reads

This feature specifies the minimum number of consecutive times an in-store printed label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

UPC-A — continued

Add-On Timer

This feature sets the period of time after a UPC-A label is decoded when optional add-on reading is enabled.

START/END	
STATE	BAR CODE
	This item is used to set the timer value when optional add-ons are enabled. The selectable range is from 010 to 300 mSec in 10 mSec increments. To configure this feature, scan the “START” bar code above to place the unit in Programming Mode, then the “Add-On Timer,” followed by the three digits (zero padded) from the Alphanumeric table in Appendix C, Alpha-Numeric Pad representing the disired timer setting. Exit programming mode by scanning the “END” bar code below.
Add-On Timer	 **DEFAULT SETTING FOR THIS FEATURE: 007 (70 milliseconds)**

UPC-E

The following options apply to the UPC-E symbology.

Disable/Enable UPC-E

When disabled, the scanner will not read UPC-E bar codes.

Check Digit Transmission

Enable this option to transmit the check digit along with UPC-E bar code data.

System Number

The System Number (SN) which is usually a zero (0) in the leading position can be optionally included (or not) with scanned bar code data.

Expand UPC-E to UPC-A

Enables/disables expansion of UPC-E labels to UPC-A.

Expand UPC-E to EAN13

Adds a leading zero to a UPC-E bar code which 'expands' the data to the EAN-13 data format. Selecting this feature also changes the symbology ID to match those required for EAN-13.

UPC-E — continued

START/END	
STATE	BAR CODE
Disable UPC-E	
Enable UPC-E	
Don't Send Check Digit	
Send Check Digit	
Exclude System Number	
Include System Number	

UPC-E — continued

START/END	
STATE	BAR CODE
Don't Expand UPC-E to UPC-A	
Expand UPC-E to UPC-A	
Don't Expand UPC-E to EAN-13	
Expand UPC-E to EAN-13	

UPC-E — continued

Minimum Reads

This feature specifies the minimum number of consecutive times a UPC-E label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

GTIN

The following options apply to the GTIN label data format.

Disable/Enable GTIN

When this feature is enabled, the scanner will translate UPC/EAN labels to the 14 digit GTIN format.

STATE	BAR CODE
START/END	
Disable GTIN	
Enable GTIN	

EAN-13

The following options apply to the EAN-13 symbology.

Disable/Enable EAN-13

When disabled, the scanner will not read EAN-13 bar codes.

Check Digit Transmission

Enable this option to transmit the check digit along with EAN-13 bar code data.

EAN-13 Flag 1 Character

Enables/disables transmission of an EAN/JAN13 Flag1 character.

ISBN

When enabled, this feature truncates the leading three digits from labels that contain ISBN (International Standard Book Number). These codes are used for books and magazines. Labels with ISBN codes start with "978".

Example:

Bar code data:	“9789572222720”
Output:	“9572222724”

EAN-13 — continued

STATE	BAR CODE
START/END	
Disable EAN-13	
Enable EAN-13	
Don't Send Check Digit	
Send Check Digit	
Don't Transmit EAN-13 Flag 1 Char	

EAN-13 — continued

START/END	
STATE	BAR CODE
Transmit EAN-13 Flag 1 Char	
Disable ISBN	
Enable ISBN	

EAN-13 — continued

Minimum Reads

This feature specifies the minimum number of consecutive times an EAN-13 label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

EAN-8

The following options apply to the EAN-8 symbology.

Disable/Enable EAN-8

When disabled, the scanner will not read EAN-8 bar codes.

Check Digit Transmission

Enable this option to transmit the check Digit along with EAN-8 bar code data.

START/END	
STATE	BAR CODE
Disable EAN-8	
Enable EAN-8	
Don't Send Check Digit	
Send Check Digit	

EAN-8 — continued

Expand EAN-8 to EAN-13 — Expands EAN-8 data to the EAN-13 data format. Selecting this feature also changes the symbology ID to match those required for EAN-13.

START/END	
STATE	BAR CODE
Don't Expand to EAN-13	
Expand to EAN-13	

EAN-8 — continued

Minimum Reads

This feature specifies the minimum number of consecutive times an EAN-8 label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

Add-ons

Add-ons (or supplemental characters) are commonly added to the end of UPC/EAN bar codes. The scanner will read the add-ons if they are enabled and in the field of view. Three add-on types are supported: 2-digit, 5-digit and Code 128 add-ons. Supported options are:

None — This option directs the scanner to ignore add-on portion of a UPC/EAN bar code but still read the main portion of the bar code.

2 Digits — The scanner will optionally read 2-digit add-ons with the UPC/EAN label.

5 Digits — The scanner will optionally read 5-digit add-ons with the UPC/EAN label.

Code 128 Add-on — The scanner will optionally read Code 128 add-ons with the UPC/EAN label.

NOTE **Contact Customer Support for advanced programming of optional and conditional add-ons.**

Add-ons — continued

START/END	
STATE	BAR CODE
Disable Optional 2-Digit Add-ons	
Enable Optional 2-Digit Add-ons	
Disable Optional 5-Digit Add-ons	
Enable Optional 5-Digit Add-ons	
Disable Optional Code 128 Add-ons	
Enable Optional Code 128 Add-ons	

RSS-14

The following options apply to the RSS-14 symbology.

Disable/Enable RSS-14

When this feature is disabled, the scanner will not read RSS-14 bar codes.

UCC/EAN 128 Emulation

When enabled, RSS-14 bar codes will be translated to the UCC/EAN 128 label data format.

RSS-14 — continued

START/END	
STATE	BAR CODE
Disable RSS-14	
Enable RSS-14	
Disable UCC/EAN 128 Emulation	
Enable UCC/EAN 128 Emulation	

RSS-14 — continued

Minimum Reads

This feature specifies the minimum number of consecutive times an RSS-14 label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

RSS-14 — continued

RSS-14 2D Component

This feature controls the requirement that a 2D label component be decoded when an RSS-14 base label is decoded.

- Enable — Requires that a 2D label component be decoded when an RSS-14 base label is decoded.
- Disable — Does NOT require a 2D label component to be decoded when an RSS-14 base label is decoded.

START/END	
STATE	BAR CODE
Disable RSS-14 2D Component	
Enable RSS-14 2D Component	

RSS Expanded

The following options apply to the RSS Expanded symbology.

Disable/Enable RSS Expanded

When this feature is disabled, the scanner will not read RSS Expanded bar codes.

UCC/EAN 128 Emulation

When enabled, RSS Expanded bar codes will be translated to the UCC/EAN 128 label data format.

START/END	
STATE	BAR CODE
Disable RSS Expanded	
Enable RSS Expanded	
Disable UCC/EAN 128 Emulation	
Enable UCC/EAN 128 Emulation	

RSS Expanded — continued

Length Control

Fixed Length Decoding — When fixed length decoding is enabled, the scanner will decode a bar code if the label length matches one of the configurable fixed lengths.

Variable Length Decoding — When variable length decoding is enabled, the scanner will decode a bar code if the label length falls in the range of the configurable minimum and maximum length.

Configuring Fixed Length Decoding:

1. Scan the START/END bar code.
2. Scan the Fixed Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the first fixed length by following the RSS Expanded Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the second fixed length (or to '000' if there is only one fixed length) by following the RSS Expanded Length 1, Length 2 Programming Instructions.

Configuring Variable Length Decoding:

1. Scan the START/END bar code.
2. Scan the Variable Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the minimum length by following the RSS Expanded Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the maximum length by following the RSS Expanded Length 1, Length 2 Programming Instructions.

RSS Expanded — continued

START/END	
MODE	BAR CODE
Variable Length Decoding	
Fixed Length Decoding	

RSS Expanded — continued

RSS Expanded Length 1, Length 2 Programming Instructions

1. Scan the START/END bar code.
2. Scan either the Set Length 1 or Set Length 2 bar code.
3. Turn to Appendix C, Alpha-Numeric Pad and scan the three digits (zero padded) representing the length in decimal notation.

NOTE

For RSS Expanded bar codes, only the data characters are included in the length calculations.

4. Scan the START/END bar code.

START/END	
SETTING	BAR CODE
Set Length 1	DEFAULT SETTING FOR THIS FEATURE: 001
Set Length 2	DEFAULT SETTING FOR THIS FEATURE: 074 decimal

RSS Expanded — continued

Minimum Reads

This feature specifies the minimum number of consecutive times an RSS Expanded label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

RSS Expanded — continued

RSS Expanded 2D Component

This feature controls the requirement that a 2D label component be decoded when an RSS Expanded base label is decoded.

- Enable — Requires that a 2D label component be decoded when an RSS Expanded base label is decoded.
- Disable — Does NOT require a 2D label component to be decoded when an RSS Expanded base label is decoded.

START/END	
STATE	BAR CODE
Disable RSS Expanded 2D Component	
Enable RSS Expanded 2D Component	

RSS Limited

The following options apply to the RSS Limited symbology.

Disable/Enable RSS Limited

When this feature is disabled, the scanner will not read RSS Limited bar codes.

UCC/EAN 128 Emulation

When enabled, RSS Limited bar codes will be translated to the UCC/EAN 128 label data format.

START/END	
STATE	BAR CODE
Disable RSS Limited	
Enable RSS Limited	
Disable UCC/EAN 128 Emulation	
Enable UCC/EAN 128 Emulation	

RSS Limited — continued

Minimum Reads

This feature specifies the minimum number of consecutive times an RSS Limited label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

RSS Limited — continued

RSS Limited 2D Component

This feature controls the requirement that a 2D label component be decoded when an RSS Limited base label is decoded.

- Enable — Requires that a 2D label component be decoded when an RSS Limited base label is decoded.
- Disable — Does NOT require a 2D label component to be decoded when an RSS Limited base label is decoded.

START/END	
STATE	BAR CODE
Disable RSS Limited 2D Component	
Enable RSS Limited 2D Component	

Code 39

The following options apply to the Code 39 symbology.

Disable/Enable Code 39

When this feature is disabled, the scanner will not read Code 39 bar codes.

Check Character Calculation

When enabled, the scanner will calculate the check character of the labels and verify it against the check character in the label. If the check characters do not match, the label is not decoded. Turn this option on only when a checksum is present in the Code 39 labels.

Check Character Transmit

Enable this option to transmit the check character with scanned bar code data.

Start/Stop Characters

Enables/disables transmission of Code39 start and stop characters.

Code 39 Full ASCII

Enables/disables the translation of Code 39 characters to Code 39 full-ASCII characters

Code 39 — continued

START/END	
STATE	BAR CODE
Disable Code 39	
Enable Code 39	
Disable Check Char Calculation	
Enable Check Char Calculation	
Disable Check Char Transmission	
Enable Check Char Transmission	

Code 39 — continued

START/END	
STATE	BAR CODE
Don't Transmit Start/Stop Characters	
Transmit Start/Stop Characters	
Disable Code 39 Full ASCII	
Enable Code 39 Full ASCII	

Code 39 — continued

Length Control

Fixed Length Decoding — When fixed length decoding is enabled, the scanner will decode a bar code if the label length matches one of the configurable fixed lengths.

Variable Length Decoding — When variable length decoding is enabled, the scanner will decode a bar code if the label length falls in the range of the configurable minimum and maximum length.

Configuring Fixed Length Decoding:

1. Scan the START/END bar code.
2. Scan the Fixed Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the first fixed length by following the Code 39 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the second fixed length (or to '000' if there is only one fixed length) by following the Code 39 Length 1, Length 2 Programming Instructions.

Configuring Variable Length Decoding:

1. Scan the START/END bar code.
2. Scan the Variable Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the minimum length by following the Code 39 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the maximum length by following the Code 39 Length 1, Length 2 Programming Instructions.

Code 39 — continued

START/END	
MODE	BAR CODE
Variable Length Decoding	
Fixed Length Decoding	

Code 39 Length 1, Length 2 Programming Instructions

1. Scan the START/END bar code.
2. Scan either the Set Length 1 or Set Length 2 bar code.
3. Turn to Appendix C, Alpha-Numeric Pad and scan the three digits (zero padded) representing the length in decimal notation.

NOTE

For Code 39 bar codes, all check, data and full ASCII shift characters are included in the length calculations. Start/Stop characters are not included.

4. Scan the START/END bar code.

SETTING	BAR CODE
START/END	
Set Length 1	 DEFAULT SETTING FOR THIS FEATURE: 003
Set Length 2	 DEFAULT SETTING FOR THIS FEATURE: 050 decimal

Code 39 — continued

Quiet Zones

This feature enables/disables the requirement that quiet zones must be present for Code 39 bar codes.

START/END	
STATE	BAR CODE
Don't require Quiet Zones	
Require Quiet Zones	

Code 39 — continued

Code 39 Stitching

Enables/disables stitching for Code 39 labels. When parts of a Code 39 bar code are presented to the scanner with this feature enabled, the bar code parts will be assembled by the scanner's software, and the data will be decoded if all bar code proofing requirements are met.

START/END	
STATE	BAR CODE
Disable Code 39 Stitching	
Enable Code 39 Stitching	

Code 39 — continued

Minimum Reads

This feature specifies the minimum number of consecutive times an Code 39 label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

Pharmacode 39

The following options apply to the Pharmacode 39 symbology.

Disable/Enable Pharmacode 39

When this feature is disabled, the scanner will not read Pharmacode 39 bar codes.

START/END	
STATE	BAR CODE
Disable Pharmacode 39	
Enable Pharmacode 39	

Pharmacode 39 — continued

Start/Stop Characters

Enables or disables transmission of Pharmacode 39 start/stop characters.

Check Character Transmit

Enable this option to transmit the check character with scanned bar code data.

START/END	
STATE	BAR CODE
Don't Transmit Start/Stop Characters	
Transmit Start/Stop Characters	
Disable Check Char Transmission	
Enable Check Char Transmission	

Code 128 and EAN 128

Enable/Disable Code 128 — When this feature is disabled, the scanner will not read Cod 128 bar codes.

Enable/Disable EAN 128 — Enables/disables the ability of the scanner to decode EAN-128 labels. When disabled, EAN128 labels are transmitted in Code128 data format. When enabled, EAN128 labels are transmitted in EAN128 data format

START	
STATE	BAR CODE
Disable Code 128	
Enable Code 128	
Disable EAN 128	
Enable EAN 128	
END	

Code 128 and EAN 128 — continued

Transmit Function Characters

Enables/disables transmission of Code128 function characters 1, 2, 3, and 4.

Function codes are transmitted as follows:

- FNC1 = 80 hex
- FNC2 = 81 hex
- FNC3 = 82 hex
- FNC4 = 83 hex

START/END	
STATE	BAR CODE
Don't Transmit Function Characters	
Transmit Function Characters	

Code 128 and EAN 128 — continued

Length Control

Fixed Length Decoding — When fixed length decoding is enabled, the scanner will decode a bar code if the label length matches one of the configurable fixed lengths.

Variable Length Decoding — When variable length decoding is enabled, the scanner will decode a bar code if the label length falls in the range of the configurable minimum and maximum length.

Configuring Fixed Length Decoding:

1. Scan the START/END bar code.
2. Scan the Fixed Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the first fixed length by following the Code 128 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the second fixed length (or to '000' if there is only one fixed length) by following the Code 128 Length 1, Length 2 Programming Instructions.

Configuring Variable Length Decoding:

1. Scan the START/END bar code.
2. Scan the Variable Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the minimum length by following the Code 128 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the maximum length by following the Code 128 Length 1, Length 2 Programming Instructions.

Code 128 and EAN 128 — continued

START/END	
MODE	BAR CODE
Variable Length Decoding	
Fixed Length Decoding	

Code 128 and EAN 128 — continued

Code 128 Length 1, Length 2 Programming Instructions

1. Scan the START/END bar code.
2. Scan either the Set Length 1 or Set Length 2 bar code.
3. Turn to Appendix C, Alpha-Numeric Pad and scan the three digits (zero padded) representing the length in decimal notation.

NOTE

For Code 128 bar codes, only the data characters are included in the length calculations.

4. Scan the START/END bar code.

START/END	
SETTING	BAR CODE
Set Length 1	DEFAULT SETTING FOR THIS FEATURE: 001
Set Length 2	DEFAULT SETTING FOR THIS FEATURE: 080 decimal

Code 128 and EAN 128 — continued

Code 128 Stitching

Enables/disables stitching for Code 128 labels. When parts of a Code 128 bar code are presented to the scanner with this feature enabled, the bar code parts will be assembled by the scanner's software, and the data will be decoded if all bar code proofing requirements are met.

START/END	
STATE	BAR CODE
Disable Code 128 Stitching	
Enable Code 128 Stitching	

Code 128 and EAN 128 — continued

Minimum Reads

This feature specifies the minimum number of consecutive times an Code 128 label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

Interleaved 2 of 5

The following options apply to the Interleaved 2 of 5 (I 2 of 5) symbology.

Disable/Enable Interleaved 2 of 5

When this feature is disabled, the scanner will not read Interleaved 2 of 5 bar codes.

Check Digit Calculation

When enabled, the scanner will calculate the check digit of the labels.

Check Digit Transmit

Enable this option to transmit the check digit with scanned bar code data.

Interleaved 2 of 5 — continued

START/END	
STATE	BAR CODE
Disable Interleaved 2 of 5	
Enable Interleaved 2 of 5	
Disable Check Digit Calculation	
Enable Check Digit Calculation	
Disable Check Digit Transmission	
Enable Check Digit Transmission	

Interleaved 2 of 5 — continued

Length Control

Fixed Length Decoding — When fixed length decoding is enabled, the scanner will decode a bar code if the label length matches one of the configurable fixed lengths.

Variable Length Decoding — When variable length decoding is enabled, the scanner will decode a bar code if the label length falls in the range of the configurable minimum and maximum length.

Configuring Fixed Length Decoding:

1. Scan the START/END bar code.
2. Scan the Fixed Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the first fixed length by following the Interleaved 2 of 5 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the second fixed length (or to '000' if there is only one fixed length) by following the Interleaved 2 of 5 Length 1, Length 2 Programming Instructions.

Configuring Variable Length Decoding:

1. Scan the START/END bar code.
2. Scan the Variable Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the minimum length by following the Interleaved 2 of 5 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the maximum length by following the Interleaved 2 of 5 Length 1, Length 2 Programming Instructions.

Interleaved 2 of 5 — continued

START/END	
MODE	BAR CODE
Variable Length Decoding	
Fixed Length Decoding	

Interleaved 2 of 5 — continued

Interleaved 2 of 5 Length 1, Length 2 Programming Instructions

1. Scan the START/END bar code.
2. Scan either the Set Length 1 or Set Length 2 bar code.
3. Turn to Appendix C, Alpha-Numeric Pad and scan the three digits (zero padded) representing the length in decimal notation.

NOTE

For Interleaved 2 of 5 bar codes, lengths must be an even number. Additionally, all check and data characters are included in the length calculations.

4. Scan the START/END bar code.

START/END	
SETTING	BAR CODE
Set Length 1	DEFAULT SETTING FOR THIS FEATURE: 006
Set Length 2	DEFAULT SETTING FOR THIS FEATURE: 050 decimal

Interleaved 2 of 5 — continued

Interleaved 2 of 5 Stitching

Enables/disables stitching for Interleaved 2 of 5 labels. When parts of an Interleaved 2 of 5 bar code are presented to the scanner with this feature enabled, the bar code parts will be assembled by the scanner's software, and the data will be decoded if all bar code proofing requirements are met.

START/END	
STATE	BAR CODE
Disable Interleaved 2 of 5 Stitching	
Enable Interleaved 2 of 5 Stitching	

Interleaved 2 of 5 — continued

Minimum Reads

This feature specifies the minimum number of consecutive times an Interleaved 2 of 5 label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

Codabar

The following options apply to the Codabar symbology.

Disable/Enable Codabar

When this feature is disabled, the scanner will not read Codabar bar codes.

Check Character Verification

When enabled, the scanner will verify the check character of the labels.

Check Character Transmit

Enable this option to transmit the check character with scanned bar code data.

Codabar — continued

START/END	
STATE	BAR CODE
Disable Codabar	
Enable Codabar	
Disable Check Char Verification	
Enable Check Char Verification	
Disable Check Char Transmission	
Enable Check Char Transmission	

Codabar — continued

Length Control

Fixed Length Decoding — When fixed length decoding is enabled, the scanner will decode a bar code if the label length matches one of the configurable fixed lengths.

Variable Length Decoding — When variable length decoding is enabled, the scanner will decode a bar code if the label length falls in the range of the configurable minimum and maximum length.

Configuring Fixed Length Decoding:

1. Scan the START/END bar code.
2. Scan the Fixed Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the first fixed length by following the Codabar Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the second fixed length (or to '000' if there is only one fixed length) by following the Codabar Length 1, Length 2 Programming Instructions.

Configuring Variable Length Decoding:

1. Scan the START/END bar code.
2. Scan the Variable Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the minimum length by following the Codabar Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the maximum length by following the Codabar Length 1, Length 2 Programming Instructions.

Codabar — continued

START/END	
MODE	BAR CODE
Variable Length Decoding	
Fixed Length Decoding	

Codabar — continued

Codabar Length 1, Length 2 Programming Instructions

1. Scan the START/END bar code.
2. Scan either the Set Length 1 or Set Length 2 bar code.
3. Turn to Appendix C, Alpha-Numeric Pad and scan the three digits (zero padded) representing the length in decimal notation.

NOTE

For Codabar bar codes, all start, stop, check and data characters are included in the length calculations.

4. Scan the START/END bar code.

SETTING	BAR CODE
START/END	
Set Length 1	DEFAULT SETTING FOR THIS FEATURE: 003
Set Length 2	DEFAULT SETTING FOR THIS FEATURE: 050 decimal

Codabar — continued

Quiet Zones

This feature enable/disables the requirement that quiet zones must be present for Codabar bar codes.

START/END	
STATE	BAR CODE
Don't require Quiet Zones	
Require Quiet Zones	

Codabar — continued

Start/Stop Character Type

Codabar has four pairs of Start/Stop patterns. Select one pair to match your application.

Start/Stop Character Transmission

The transmission of start and end characters of Codabar is selected below.

Start/Stop Character Match

This feature enables/disables the requirement that start and stop characters match.

Codabar — continued

START/END	
STATE	BAR CODE
Start/Stop Type: ABCD/ TN*E	
Start/Stop Type: ABCD/ ABCD	
Start/Stop Type: abcd/tn*e	
Start/Stop Type: abcd/ abcd	
Disable Start/Stop Char Transmission	
Enable Start/Stop Char Transmission	

Codabar — continued

START/END	
STATE	BAR CODE
Disable Start/Stop Char Match	
Enable Start/Stop Char Match	

Codabar — continued

Codabar Stitching

Enables/disables stitching for Codabar labels. When parts of a Codabar label are presented to the scanner with this feature enabled, the bar code parts will be assembled by the scanner's software, and the data will be decoded if all bar code proofing requirements are met.

START/END	
STATE	BAR CODE
Disable Codabar Stitching	
Enable Codabar Stitching	

Codabar — continued

Minimum Reads

This feature specifies the minimum number of consecutive times an Codabar label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

Code 93

The following options apply to the Code 93 symbology.

Disable/Enable Code 93

When this feature is disabled, the scanner will not read Code 93 bar codes.

START/END	
STATE	BAR CODE
Disable Code 93	
Enable Code 93	

Code 93 — continued

Length Control

Fixed Length Decoding — When fixed length decoding is enabled, the scanner will decode a bar code if the label length matches one of the configurable fixed lengths.

Variable Length Decoding — When variable length decoding is enabled, the scanner will decode a bar code if the label length falls in the range of the configurable minimum and maximum length.

Configuring Fixed Length Decoding:

1. Scan the START/END bar code.
2. Scan the Fixed Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the first fixed length by following the Code 93 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the second fixed length (or to '000' if there is only one fixed length) by following the Code 93 Length 1, Length 2 Programming Instructions.

Configuring Variable Length Decoding:

1. Scan the START/END bar code.
2. Scan the Variable Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the minimum length by following the Code 93 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the maximum length by following the Code 93 Length 1, Length 2 Programming Instructions.

Code 93 — continued

START/END	
MODE	BAR CODE
Variable Length Decoding	
Fixed Length Decoding	

Code 93 — continued

Code 93 Length 1, Length 2 Programming Instructions

1. Scan the START/END bar code.
2. Scan either the Set Length 1 or Set Length 2 bar code.
3. Turn to Appendix C, Alpha-Numeric Pad and scan the three digits (zero padded) representing the length in decimal notation.

NOTE

For Code 93 bar codes, only the data characters are included in the length calculations.

4. Scan the START/END bar code.

START/END	
SETTING	BAR CODE
Set Length 1	DEFAULT SETTING FOR THIS FEATURE: 001
Set Length 2	DEFAULT SETTING FOR THIS FEATURE: 050 decimal

Code 93 — continued

Code 93 Stitching

Enables/disables stitching for Code 93 bar codes. When parts of a Code 93 label are presented to the scanner with this feature enabled, the bar code parts will be assembled by the scanner's software, and the data will be decoded if all bar code proofing requirements are met.

START/END	
STATE	BAR CODE
Disable Code 93 Stitching	
Enable Code 93 Stitching	

Code 93 — continued

Minimum Reads

This feature specifies the minimum number of consecutive times an Code 93 label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

Code 11

The following options apply to the Code 11 symbology.

Disable/Enable Code 11

When this feature is disabled, the scanner will not read Code 11 bar codes.

START/END	
STATE	BAR CODE
Disable Code 11	
Enable Code 11	

Code 11 — continued

Number of Check Characters

Specifies the number of Code 11 check characters (one or two) to be calculated and verified.

Check Character Transmit

Enables/disables transmission of Code 11 check characters.

START/END	
STATE	BAR CODE
One Check Character	
Two Check Characters	
Disable Check Char Transmission	
Enable Check Char Transmission	

Code 11 — continued

Length Control

Fixed Length Decoding — When fixed length decoding is enabled, the scanner will decode a bar code if the label length matches one of the configurable fixed lengths.

Variable Length Decoding — When variable length decoding is enabled, the scanner will decode a bar code if the label length falls in the range of the configurable minimum and maximum length.

Configuring Fixed Length Decoding:

1. Scan the START/END bar code.
2. Scan the Fixed Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the first fixed length by following the Code 11 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the second fixed length (or to '000' if there is only one fixed length) by following the Code 11 Length 1, Length 2 Programming Instructions.

Configuring Variable Length Decoding:

1. Scan the START/END bar code.
2. Scan the Variable Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the minimum length by following the Code 11 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the maximum length by following the Code 11 Length 1, Length 2 Programming Instructions.

Code 11 — continued

START/END	
MODE	BAR CODE
Variable Length Decoding	
Fixed Length Decoding	

Code 11 — continued

Code 11 Length 1, Length 2 Programming Instructions

1. Scan the START/END bar code.
2. Scan either the Set Length 1 or Set Length 2 bar code.
3. Turn to Appendix C, Alpha-Numeric Pad and scan the three digits (zero padded) representing the length in decimal notation.

NOTE

For Code 11 bar codes, only the data characters are included in the length calculations.

4. Scan the START/END bar code.

SETTING	BAR CODE
START/END	
Set Length 1	DEFAULT SETTING FOR THIS FEATURE: 004
Set Length 2	DEFAULT SETTING FOR THIS FEATURE: 050 decimal

Code 11 — continued

Minimum Reads

This feature specifies the minimum number of consecutive times an Code 11 label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

MSI/Plessey

The following options apply to the MSI/Plessey symbology.

Disable/Enable MSI/Plessey

When this feature is disabled, the scanner will not read MSI/Plessey bar codes.

Check Digit Verification

This feature specifies whether one or two check digits are to be calculated and verified.

Check Digit Transmit

When this option is enabled, the scanner will transmit one-digit or two-digit check digits, depending upon the setting for check digit verification.

MSI/Plessey — continued

START/END	
STATE	BAR CODE
Disable MSI/Plessey	
Enable MSI/Plessey	
Disable Check Digit Verification	
Enable Check Digit Verification	
1-Digit Check Digit Verification	

MSI/Plessey — continued

STATE	BAR CODE
START/END	
2-Digit Check Digit Verification	
Disable Check Digit Transmission	
Enable Check Digit Transmission	

MSI/Plessey — continued

Length Control

Fixed Length Decoding — When fixed length decoding is enabled, the scanner will decode a bar code if the label length matches one of the configurable fixed lengths.

Variable Length Decoding — When variable length decoding is enabled, the scanner will decode a bar code if the label length falls in the range of the configurable minimum and maximum length.

Configuring Fixed Length Decoding:

1. Scan the START/END bar code.
2. Scan the Fixed Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the first fixed length by following the MSI/Plessey Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the second fixed length (or to '000' if there is only one fixed length) by following the MSI/Plessey Length 1, Length 2 Programming Instructions.

Configuring Variable Length Decoding:

1. Scan the START/END bar code.
2. Scan the Variable Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the minimum length by following the MSI/Plessey Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the maximum length by following the MSI/Plessey Length 1, Length 2 Programming Instructions.

MSI/Plessey — continued

START/END	
MODE	BAR CODE
Variable Length Decoding	
Fixed Length Decoding	

MSI/Plessey — continued

MSI/Plessey Length 1, Length 2 Programming Instructions

1. Scan the START/END bar code.
2. Scan either the Set Length 1 or Set Length 2 bar code.
3. Turn to Appendix C, Alpha-Numeric Pad and scan the three digits (zero padded) representing the length in decimal notation.

NOTE

For MSI/Plessey bar codes, all check and data characters are included in the length calculations.

Scan the START/END bar code.

START/END	
SETTING	BAR CODE
Set Length 1	DEFAULT SETTING FOR THIS FEATURE: 004
Set Length 2	DEFAULT SETTING FOR THIS FEATURE: 016 decimal

MSI/Plessey — continued

MSI/Plessey Stitching

Enables/disables stitching for MSI/Plessey bar codes. When parts of an MSI/Plessey label are presented to the scanner with this feature enabled, the bar code parts will be assembled by the scanner's software, and the data will be decoded if all bar code proofing requirements are met.

START/END	
STATE	BAR CODE
Disable MSI/Plessey Stitching	
Enable MSI/Plessey Stitching	

MSI/Plessey — continued

Minimum Reads

This feature specifies the minimum number of consecutive times an MSI/Plessey label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

Standard 2 of 5

The following options apply to the Standard 2 of 5 symbology.

Disable/Enable Standard 2 of 5

When this feature is disabled, the scanner will not read Standard 2 of 5 bar codes.

Check Digit Verification

When enabled, the scanner will verify the check digit of the labels.

Check Digit Transmit

When this option is enabled, the scanner will transmit the check digit.

Standard 2 of 5 — continued

START/END	
STATE	BAR CODE
Disable Std 2 of 5	
Enable Std 2 of 5	
Disable Check Digit Verification	
Enable Check Digit Verification	
Disable Check Digit Transmission	
Enable Check Digit Transmission	

Standard 2 of 5 — continued

Length Control

Fixed Length Decoding — When fixed length decoding is enabled, the scanner will decode a bar code if the label length matches one of the configurable fixed lengths.

Variable Length Decoding — When variable length decoding is enabled, the scanner will decode a bar code if the label length falls in the range of the configurable minimum and maximum length.

Configuring Fixed Length Decoding:

1. Scan the START/END bar code.
2. Scan the Fixed Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the first fixed length by following the Standard 2 of 5 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the second fixed length (or to '000' if there is only one fixed length) by following the Standard 2 of 5 Length 1, Length 2 Programming Instructions.

Configuring Variable Length Decoding:

1. Scan the START/END bar code.
2. Scan the Variable Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the minimum length by following the Standard 2 of 5 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the maximum length by following the Standard 2 of 5 Length 1, Length 2 Programming Instructions.

Standard 2 of 5 — continued

START/END	
MODE	BAR CODE
Variable Length Decoding	
Fixed Length Decoding	

Standard 2 of 5 — continued

Standard 2 of 5 Length 1, Length 2 Programming Instructions

1. Scan the START/END bar code.
2. Scan either the Set Length 1 or Set Length 2 bar code.
3. Turn to Appendix C, Alpha-Numeric Pad and scan the three digits (zero padded) representing the length in decimal notation.

NOTE

For Standard 2 of 5 bar codes, all check and data characters are included in the length calculations.

4. Scan the START/END bar code.

START/END	
SETTING	BAR CODE
Set Length 1	DEFAULT SETTING FOR THIS FEATURE: 008
Set Length 2	DEFAULT SETTING FOR THIS FEATURE: 050 decimal

Standard 2 of 5 — continued

Standard 2 of 5 Stitching

Enables/disables stitching for Standard 2 of 5 bar codes. When parts of a Standard 2 of 5 label are presented to the scanner with this feature enabled, the bar code parts will be assembled by the scanner's software, and the data will be decoded if all bar code proofing requirements are met.

START/END	
STATE	BAR CODE
Disable Std 2 of 5 Stitching	
Enable Std 2 of 5 Stitching	

Standard 2 of 5 — continued

Minimum Reads

This feature specifies the minimum number of consecutive times a Standard 2 of 5 label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

PDF 417

The following options apply to the PDF 417 symbology.

Disable/Enable PDF 417

When this feature is disabled, the scanner will not read PDF 417 bar codes.

START/END	
STATE	BAR CODE
Disable PDF417	
Enable PDF 417	

PDF 417 — continued

Length Control

Fixed Length Decoding — When fixed length decoding is enabled, the scanner will decode a bar code if the label length matches one of the configurable fixed lengths.

Variable Length Decoding — When variable length decoding is enabled, the scanner will decode a bar code if the label length falls in the range of the configurable minimum and maximum length.

Configuring Fixed Length Decoding:

1. Scan the START/END bar code.
2. Scan the Fixed Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the first fixed length by following the PDF 417 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the second fixed length (or to '000' if there is only one fixed length) by following the PDF 417 Length 1, Length 2 Programming Instructions.

Configuring Variable Length Decoding:

1. Scan the START/END bar code.
2. Scan the Variable Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the minimum length by following the PDF 417 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the maximum length by following the PDF 417 Length 1, Length 2 Programming Instructions.

PDF 417 — continued

START/END	
MODE	BAR CODE
Variable Length Decoding	
Fixed Length Decoding	

PDF 417 — continued

PDF 417 Length 1, Length 2 Programming Instructions

1. Scan the START/END bar code.
2. Scan either the Set Length 1 or Set Length 2 bar code.
3. Turn to Appendix C, Alpha-Numeric Pad and scan the three digits (zero padded) representing the length in decimal notation.

NOTE

For PDF 417 bar codes, only the data characters are included in the length calculations.

Scan the START/END bar code.

START/END	
SETTING	BAR CODE
Set Length 1	DEFAULT SETTING FOR THIS FEATURE: 001
Set Length 2	DEFAULT SETTING FOR THIS FEATURE: 600 decimal

PDF 417 — continued

Minimum Reads

This feature specifies the minimum number of consecutive times a PDF 417 label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

Micro PDF 417

The following options apply to the Micro PDF 417 symbology.

Disable/Enable Micro PDF 417

When this feature is disabled, the scanner will not read Micro PDF 417 bar codes.

START/END	
STATE	BAR CODE
Disable Micro PDF417	
Enable Micro PDF 417	

Micro PDF 417 — continued

PDF 128 Emulation

Depending upon the other configuration features listed below, this feature specifies which AIM ID to use for Micro PDF 417 labels when performing EAN 128 or Code 128 emulation.

- If this feature (PDF 128 Emulation) is enabled, and the feature AIM ID is enabled while the scanner is performing EAN 128 or Code 128 emulation for a Micro PDF 417 label, the appropriate EAN 128 or Code 128 AIM ID is appended to the label data.
- If this feature (PDF 128 Emulation) is disabled, and the feature AIM ID is enabled while the scanner is performing EAN 128 or Code 128 emulation for a Micro PDF 417 label, the Micro PDF 417 AIM ID is appended to the label data.
- If this feature (PDF 128 Emulation) is enabled, and the feature AIM ID is disabled while the scanner is performing EAN 128 or Code 128 emulation for a Micro PDF 417 label, the label type is changed to either EAN 128 or Code 128 as applicable.
- If this feature (PDF 128 Emulation) is disabled, and the feature AIM ID is disabled while the scanner is performing EAN 128 or Code 128 emulation for a Micro PDF 417 label, the label type remains Micro PDF 417.

START/END	
STATE	BAR CODE
Disable PDF 128 Emulation	
Enable PDF 128 Emulation	

Micro PDF 417 — continued

Length Control

Fixed Length Decoding — When fixed length decoding is enabled, the scanner will decode a bar code if the label length matches one of the configurable fixed lengths.

Variable Length Decoding — When variable length decoding is enabled, the scanner will decode a bar code if the label length falls in the range of the configurable minimum and maximum length.

Configuring Fixed Length Decoding:

1. Scan the START/END bar code.
2. Scan the Fixed Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the first fixed length by following the Micro PDF 417 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the second fixed length (or to '000' if there is only one fixed length) by following the Micro PDF 417 Length 1, Length 2 Programming Instructions.

Configuring Variable Length Decoding:

1. Scan the START/END bar code.
2. Scan the Variable Length Decoding bar code.
3. Scan the START/END bar code.
4. Set Length 1 to the minimum length by following the Micro PDF 417 Length 1, Length 2 Programming Instructions.
5. Set Length 2 to the maximum length by following the Micro PDF 417 Length 1, Length 2 Programming Instructions.

Micro PDF 417 — continued

START/END	
MODE	BAR CODE
Variable Length Decoding	
Fixed Length Decoding	

Micro PDF 417 — continued

Micro PDF 417 Length 1, Length 2 Programming Instructions

1. Scan the START/END bar code.
2. Scan either the Set Length 1 or Set Length 2 bar code.
3. Turn to Appendix C, Alpha-Numeric Pad and scan the three digits (zero padded) representing the length in decimal notation.

NOTE

For Micro PDF 417 bar codes, only the data characters are included in the length calculations.

Scan the START/END bar code.

START/END	
SETTING	BAR CODE
Set Length 1	DEFAULT SETTING FOR THIS FEATURE: 001
Set Length 2	DEFAULT SETTING FOR THIS FEATURE: 366 decimal

Micro PDF 417 — continued

Minimum Reads

This feature specifies the minimum number of consecutive times a Micro PDF 417 label must be decoded before it is accepted as good read.

START/END	
READS	BAR CODE
Minimum = 1 Read	
Minimum = 2 Reads	
Minimum = 3 Reads	
Minimum = 4 Reads	

Appendix A
Product Specifications

Optical and Read Performance Parameters

Parameter	Specification
Scanning Width	2” wide at 1” from scanner 6” wide at 7” from scanner
Minimum Resolution	4mil minimum element size (at some distance, no implied DOF)
Depth of Field (75% read rate; 90% PCS; Code 39 with 2.5:1 W/N ratio except for 13 mils)	5 mil — 3 to 6”/7.6 to 15.2 cm 7.5 mil — 2 to 16”/5.1 to 40.6 cm 10 mil — 1.5 to 22”/3.8 to 55.9 cm 13 mil — 1 to 30”/2.5 to 76.2 cm 20 mil — 1 to 42”/2.5 to 106.7 cm 55 mil — 2 to 80”/5.1 to 203.2 cm Minimum distance determined by symbol length and scan angle. Printing resolution, contrast and ambient light dependent. 13 mil DOF based on UPC. All others are Code 39. All labels grade A, minimum illumination: 300 Lux, 20° C, label perpendicular to the optical axis.
Minimum Print Contrast Ratio	20%
Skew[a] (Yaw)	± 60°
Pitch[a.]	± 65°
Roll[a.]	± 40°

a. DOF will be reduced whenever the label is not perpendicular to the optical axis.

Physical Properties: Scanner

Parameter	Specification
Dimensions (Typical):	
Height	7.5”/190 mm
Length	4.5”/115 mm
Width	3.0”/75 mm
Weight	13.4 ounces/380 g (battery included)

Physical Properties: Base Station

Parameter	Specification
Dimensions (Typical):	
Height	1.8” (46 mm) — 5.45” (13.84cm) w/antenna
Length	9.5” (24.13cm)
Width	4.0” (10.16cm) — 4.75” (12.07cm) w/antenna
Weight	11.5 ounces/326 g

Electrical Parameters: Base Station

Parameter	Specification
Input Voltage	+4 to 14 VDC
Input Power	
Maximum Operating Power	7.5 W (while charging)
Typical Operating Power	1.4 W
Typical Standby Power	1 W
Input Current	
Maximum Operating Current	1500 mA @ 5VDC
Typical Operating Current	280 mA @ 5VDC
Typical Standby Current	210 mA @ 5VDC
Sleep Mode Current	Less than 1 mA

Environmental Parameters: Scanner

Parameter	Specification
Mechanical Shock	50 drops from 6.5 feet (2 meters) to concrete -4° F to 122° F (-20° C to +50° C)
Contaminants Spray/rain Dust/particulate	Scanners: Spray/rain — IEC 529-IPX5 Dust/particulate — IEC 529-IP6X Base Stations and Charger: Spray/rain — IEC 529-IPX4 Dust/particulate — IEC 529-IP5X
Temperature Ranges: Operating Storage	 -4° F to +122° F (-20° C to +50° C) -40° F to +140° F (-40° C to + 60°C)
Humidity	0 to 95% non-condensing
Beeper/Speaker	87 dBA for operator at a distance of 19” (50cm)
Vibration	Meets MIL-STD-810F

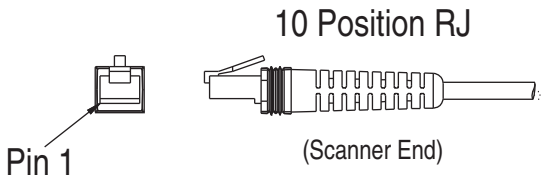
NOTES

Appendix B
Cable Pinouts

Standard Cable Pinouts (Primary Interface Cables)

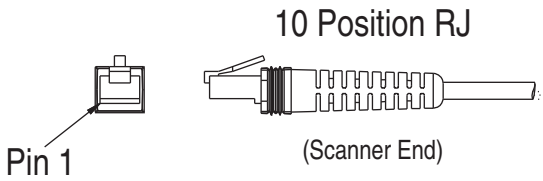
RS-232

1	
2	CTS
3	
4	RTS
5	RXD
6	TXD
7	
8	VCC IN
9	GND
10	



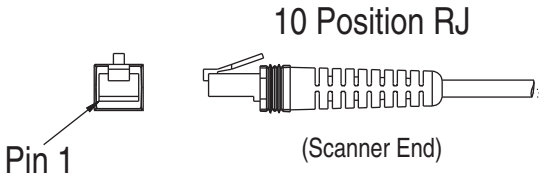
IBM Port 5B/9B/17

1	
2	
3	
4	DATA -
5	
6	DATA +
7	
8	VCC_IN
9	GND
10	



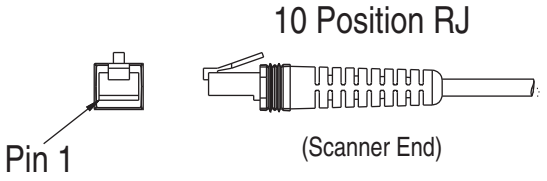
IBM USB

1	
2	
3	
4	D -
5	
6	D +
7	
8	VIN
9	GND
10	



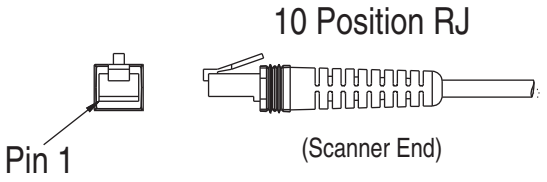
USB & USB Keyboard

1	
2	
3	
4	D -
5	
6	D +
7	
8	VBUS_VIN
9	GND
10	



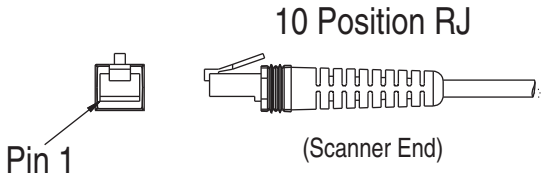
Wand Emulation

1	
2	
3	WAND~
4	
5	
6	
7	
8	VCC_IN
9	GND
10	



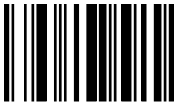
Keyboard Wedge

1	
2	KB_DATA
3	AT_CLK
4	KB_CLK
5	
6	AT_DATA
7	
8	VCC_IN
9	GND
10	



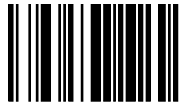
NOTES

Appendix C
Alpha-Numeric Pad


A


B


C


D


E


F

Alpha-Numeric Pad

1

2

3

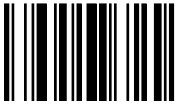
4

5

6

7

8



9

0

Appendix D
Default Settings

Standard Feature Defaults

The table immediately below lists the default settings for the standard RS-232 interface.

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
Double Read Timeout	.4 Second		2-1
Powerdown Timeout	1 Hour		2-3
Power On Alert	Enable		2-5
LED Idle State	Enable		2-6
Good Read: When to Indicate	After Decode		2-7
Good Read Beep Control	Enable		2-8
Good Read Beep Frequency	Medium		2-9
Good Read Beep Length	80 msec		2-10
Good Read Beep Volume	High		2-12
Scan Mode	Single		2-13
Active Scanning Time	5 Seconds		2-15
Laser Pointer Control	Disable		2-16

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
Interface Selection	RS-232 Std.	Interface as required IBM Default: IBM Port 9B Wincor/Nixdorf Default: RS-232-WN Keyboard Wedge Default: USB Keyboard	3-4
Host Commands	Obey Host Commands		3-9
Host Transmission Buffers	Buffers=2	IBM: Buffers=1 Wincor/Nixdorf: Buffers=1	3-9
Baud Rate	9600 Baud		3-10
Data Bits	8 Data Bits		3-12
Stop Bits	1 Stop Bit		3-12
Parity	Parity=None	Wincor/Nixdorf: Parity=Odd	3-12
Hardware Flow Control	Disable	Wincor/Nixdorf: CTS Flow Control	3-14
Intercharacter Delay	No Delay		3-14
Software Flow Control	Disable		3-14
Host Echo	Disable		3-18
Host Echo Quiet Interval	10 msec		3-18
Signal Voltage: Normal/TTL	Normal RS-232		3-18

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
RS-232 Invert	Disable		3-18
Beep on ASCII BEL	Enable		3-21
Beep on Not on File	Enable		3-21
ACK NAK Options	Disable		3-22
ACK Character	ACK		3-24
NAK Character	!		3-25
Retry on ACK NAK Timeout	Enable		3-26
ACK NAK Timeout Value	200 msec		3-27
ACK NAK Retry Count	3		3-28
ACK NAK Error Handling	Ignore Errors Detected		3-29
Transmission Failure Indication	Enable		3-30
IBM-USB Device usage	—	IBM-USB: Configure as Handheld Scanner	3-31
IBM Transmit Labels in Code 39 Format	—	IBM: Disable	3-32
Wand Emulation: Bar/Space Polarity	—	Wand Emulation: Bar/Space = High/Low	3-34
Wand Emulation: Wand Idle State	—	Wand Emulation: Low	3-34
Wand Emulation: Signal Speed	—	Wand Emulation: 660 msec	3-36
Wand Emulation: Transmit Leading Noise	—	Wand Emulation: Enable	3-38

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
Wand Emulation: Transmit Trailing Noise	—	Wand Emulation: Enable	3-37
Wand Emulation: Symbology Conversion	—	Wand Emulation: No Conversion	3-39
Keyboard Wedge/ USB Keyboard: Keyboard Layout	—	KBW/USB KB: USA	3-40
Keyboard Wedge/ USB Keyboard: Caps Lock State	—	KBW/USB KB: Disable	3-44
Keyboard Wedge/ USB Keyboard: Keyboard Simulation	—	KBW/USB KB: Disable	3-45
Keyboard Wedge/ USB Keyboard: Control Characters	—	KBW/USB KB: Disable	3-45
Keyboard Wedge/ USB Keyboard: Wedge Quiet Interval	—	KBW/USB KB: 100 msec	3-47
Keyboard Wedge/ USB Keyboard: Intercharacter Delay	—	KBW/USB KB: 10 msec	3-48
Global Prefix	None		4-2
Global Suffix	CR	IBM: No Suffix	4-2
AIM ID	Disable		4-5
Label ID	Label ID Position: Before Bar Code Data	IBM: Disable Keyboard Wedge: Disable	4-7
UPC-A Label ID	A		4-8

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
UPC-A w/P2 Addon Label ID	A		4-8
UPC-A w/P5 Addon Label ID	A		4-8
UPC-A w/C128 Addon Label ID	A		4-9
UPC-E Label ID	E	Wincor/Nixdorf: 'C'	4-9
UPC-E w/P2 Addon Label ID	E		4-9
UPC-E w/P5 Addon Label ID	E		4-9
UPC-E w/C128 Addon Label ID	E		4-9
EAN-8 Label ID	FF	Wincor/Nixdorf: 'B'	4-9
EAN-8 w/P2 Addon Label ID	FF		4-9
EAN-8 w/P5 Addon Label ID	FF		4-10
EAN-8 w/C128 Addon Label ID	FF		4-10
EAN-13 Label ID	F	Wincor/Nixdorf: 'F'	4-10
EAN-13 w/P2 Addon Label ID	F		4-10
EAN-13 w/P5 Addon Label ID	F		4-10
EAN-13 w/C128 Addon Label ID	F		4-10

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
ISBN Label ID	I	Wincor/Nixdorf: 'A'	4-10
GTIN Label ID	G		4-11
GTIN w/P2 addon Label ID	G2		4-11
GTIN w/P5 addon Label ID	G5		4-11
GTIN w/C128 addon Label ID	G6		4-11
RSS-14 Label ID	R4	Wincor/Nixdorf: 'E'	4-11
RSS-14 Composite Label ID	R4	Wincor/Nixdorf: 'E'	4-11
RSS Expanded Label ID	RX	Wincor/Nixdorf: 'E'	4-12
RSS Expanded Composite Label ID	RX	Wincor/Nixdorf: 'E'	4-12
RSS Limited Label ID	RL	Wincor/Nixdorf: 'E'	4-12
RSS Limited Composite Label ID	RL	Wincor/Nixdorf: 'E'	4-12
Code 39 Label ID	*		4-12
Pharmacode 39 Label ID	A		4-13
Code 128 Label ID	#	Wincor/Nixdorf: 'K'	4-13
I 2 of 5 Label ID	i	Wincor/Nixdorf: 'I'	4-13
Codabar Label ID	%	Wincor/Nixdorf: 'N'	4-13

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
Code 93 Label ID	&	Wincor/Nixdorf: “L’	4-13
Code 11 Label ID	CE		4-13
MSI/Plessey Label ID	@	Wincor/Nixdorf: ‘O’	4-14
Std 2 of 5 Label ID	i	Wincor/Nixdorf: ‘H’	4-14
PDF 417 Label ID	P	Wincor/Nixdorf: ‘Q’	4-14
Micro PDF 417 Label ID	mP		4-14
Case Conversion	Disable		4-15
Character Conversion	No Conversion		4-16
Auto Configuration Update	Enable		5-2
Auto Flash Memory Update	Disable		5-3
BT Battery Charge Mode	High Charge		5-5
ACK Timeout	Disable		5-6
Poll Rate Timeout	20 msec		5-7
Transmit HACK	Send HACK as soon as Base Station receives a label		5-8
BT Beep Volume	High		5-9
BT Beep Duration	60 msec		5-10
BT Beep Frequency	Low		5-11

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
BT Disconnect Beep	Enable		5-12
BT ACK Label Beep	Enable		5-13
BT Transmission Error Beep	Enable		5-14
BT In Cradle Chirp	Enable		5-15
BT Leash Beep	Disable		5-16
Disable/Enable UPC-A	Enable		6-2
UPC-A Check Digit Transmission	Send Check Digit		6-2
Expand UPC-A to EAN-13	Don't Expand to EAN-13		6-2
System Number Transmission	Enable		6-2
UPC-A Minimum Reads	1		6-5
In-store Minimum Reads	1		6-6
Add-On Timer	70 msec		6-7
Disable/Enable UPC-E	Enable		6-8
Check Digit Transmission	Send Check Digit		6-8
System Number	Exclude System Number		6-8
Expand to UPC-E to UPC-A	Don't Expand		6-8
Expand UPC-E to EAN13	Don't Expand		6-8

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
UPC-E Minimum Reads	2		6-11
Disable/Enable GTIN	Disable		6-12
Disable/Enable EAN-13	Enable		6-13
EAN-13 Check Digit Transmission	Send Check Digit		6-13
EAN-13 Flag 1 Character	Transmit		6-13
ISBN	Disable		6-13
EAN-13 Minimum Reads	1		6-16
Disable/Enable EAN-8	Enable		6-17
EAN-8 Check Digit Transmission	Send Check Digit		6-17
Expand EAN-8 to EAN-13	Don't Expand		6-18
EAN-8 Minimum Reads	1		6-19
Optional 2-Digit Addons	Disable		6-20
Optional 5-Digit Addons	Disable		6-20
Optional Code 128 Add-ons	Disable		6-20
Disable/Enable RSS-14	Disable		6-22
UCC/EAN 128 Emulation	Disable		6-22
RSS-14 Minimum Reads	1		6-24

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
RSS-14 2D Component	Disable		6-25
Disable/Enable RSS Expanded	Disable		6-26
UCC/EAN 128 Emulation	Disable		6-26
RSS Expanded Length Control	Variable Length		6-27
RSS Expanded Length 1	1		6-29
RSS Expanded Length 2	74		6-29
RSS Expanded Minimum Reads	1		6-30
RSS Expanded 2D Component	Disable		6-31
Disable/Enable RSS Limited	Disable		6-32
RSS Limited UCC/ EAN 128 Emulation	Disable		6-32
RSS Limited Minimum Reads	1		6-33
RSS Limited 2D Component	Disable		6-34
Disable/Enable Code 39	Enable		6-35
Code 39 Check Character Calculation	Disable		6-35
Code 39 Check Character Transmit	Enable		6-35

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
Code 39 Start/Stop Characters	Don't Transmit		6-35
Code 39 Full ASCII	Disable		6-35
Code 39 Length Control	Variable Length		6-38
Code 39 Length 1	3		6-40
Code 39 Length 2	50		6-40
Code 39 Quiet Zones	Don't Require		6-41
Code 39 Stitching	Disable		6-42
Code 39 Minimum Reads	1		6-43
Disable/Enable Pharmacode 39	Disable		6-44
Pharmacode 39 Start/ Stop Characters	Don't Transmit		6-45
Pharmacode 39 Check Character Transmit	Enable		6-45
Disable/Enable Code 128	Enable		6-46
Disable/Enable EAN 128	Disable		6-46
Code 128 Transmit Function Characters	Don't Transmit		6-47
Code 128 Length Control	Variable Length		6-48
Code 128 Length 1	1		6-50
Code 128 Length 2	80		6-50
Code 128 Stitching	Disable		6-51

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
Code 128 Minimum Reads	1		6-52
Disable/Enable Interleaved 2 of 5	Disable		6-53
I 2 of 5 Check Digit Calculation	Disable		6-53
I 2 of 5 Check Digit Transmit	Enable		6-53
I 2 of 5 Length Control	Variable Length		6-55
I 2 of 5 Length 1	6		6-57
I 2 of 5 Length 2	50		6-57
Interleaved 2 of 5 Stitching	Disable		6-58
I 2 of 5 Minimum Reads	1		6-59
Disable/Enable Codabar	Disable		6-60
Codabar Check Character Verification	Disable		6-60
Codabar Check Character Transmit	Enable		6-60
Codabar Length Control	Variable Length		6-62
Codabar Length 1	3		6-64
Codabar Length 2	50		6-64
Codabar Quiet Zones	Don't Require		6-65
Codabar Start/Stop Character Type	Start/Stop Type: abcd/abcd		6-66

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
Codabar Start/Stop Char. Transmission	Enable		6-66
Codabar Start/Stop Character Match	Disable		6-66
Codabar Stitching	Disable		6-69
Codabar Minimum Reads	1		6-70
Disable/Enable Code 93	Disable		6-71
Code 93 Length Control	Variable Length		6-72
Code 93 Length 1	1		6-74
Code 93 Length 2	50		6-74
Code 93 Stitching	Disable		6-75
Code 93 Minimum Reads	1		6-76
Disable/Enable Code 11	Disable		6-77
Code 11 Number of Check Characters	1		6-78
Code 11 Check Character Transmission	Enable		6-78
Code 11 Length Control	Variable Length		6-79
Code 11 Length 1	4		6-81
Code 11 Length 2	50		6-81
Code 11 Minimum Reads	1		6-82

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
Disable/Enable MSI/Plessey	Disable		6-83
MSI/Plessey Check Digit Verification	Disable		6-83
MSI/Plessey Check Digit Transmit	1-Digit		6-83
MSI/Plessey Length Control	Variable Length		6-86
MSI/Plessey Length 1	4		6-88
MSI/Plessey Length 2	16		6-88
MSI/Plessey Stitching	Disable		6-89
MSI/Plessey Minimum Reads	1		6-90
Disable/Enable Standard 2 of 5	Disable		6-91
Std 2 of 5 Check Digit Verification	Disable		6-91
Std 2 of 5 Check Digit Transmit	Enable		6-91
Std 2 of 5 Length Control	Variable Length		6-93
Std 2 of 5 Length 1	8		6-95
Std 2 of 5 Length 2	50		6-95
Standard 2 of 5 Stitching	Disable		6-96
Std 2 of 5 Minimum Reads	1		6-97
Disable/Enable PDF 417	Disable		6-98

Feature	Std. RS-232 Setting	Interface-Specific Exceptions	Page #
PDF 417 Length Control	Variable Length		6-99
PDF 417 Length 1	1		6-101
PDF 417 Length 2	600		6-101
PDF 417 Minimum Reads	1		6-102
Disable/Enable Micro PDF 417	Disable		6-103
Micro PDF 128 Emulation	Disable		6-104
Micro PDF 417 Length Control	Variable Length		6-105
Micro PDF 417 Length 1	1		6-107
Micro PDF 417 Length 2	366		6-107
Micro PDF 417 Minimum Reads	1		6-108

NOTES

Appendix E
Keyboard Function Key Mappings

Keyboard Model Cross Reference

Table E-2 summarizes the keyboard models, their defined protocol, scancode set, and some unique features. The remaining tables in this chapter provide the function key maps associated with each of the scan-code sets.

Table E-1. Keyboard Model Cross Reference

Model Type	I/F ID	Trans-mission Protocol	Scancode Set	Func. Key Map Support	Use Country Mode
PC/XT Foreign ALT Mode	Wedge A	PC/XT	Scan Set 1	No	No
AT; PS/2 25-286; PS/2 30-286; PS/2 50, 50Z; PS/2 60,70,80,90,95 Foreign ALT Mode	Wedge B	AT/PS2	Scan Set 2	No	No
PS/2 25 and 30 Foreign ALT Mode	Wedge C	AT/PS2	Scan Set 1	No	No
PC/XT U.S. Mode	Wedge D	PC/XT	Scan Set 1	Yes	No
AT; PS/2 25-286; PS/2 30-286; PS/2 50, 50Z; PS/2 60,70,80,90,95 U.S. Mode + specific country support	Wedge E	AT/PS2	Scan Set 2	Yes	Yes
PS/2 25 and 30 U.S. Mode	Wedge F	AT/PS2	Scan Set 1	Yes	No
IBM 3xxx Terminals (122-key keyboard)	Wedge G	AT/PS2	Scan Set 3	Yes	No
IBM 3xxx Terminals (102-key keyboard)	Wedge H	AT/PS2	Scan Set 3	Yes	No
PS55 5530T with JAPANESE DOS (TDOS)	Wedge I	AT/PS2	Japanese DOS	Yes	No
NEC 9801	Wedge J	NEC 9801	NEC 9801	Yes	No

Table E-2. Scanset 1 Function Key Map

ASCII (hex)	ASCII code	Key	Scancode
00	NUL	ALT right Make	E0h 38h
01	SOH	ALT right Break	E0h B8h
02	STX	ALT left Make	38h
03	ETX	ALT left Break	B8h
04	EOT	CTRL left Make	1Dh
05	ENQ	CTRL left Break	9Dh
06	ACK	CTRL right Make	E0h 1Dh
07	BEL	CTRL right Break	E0h 9Dh
08	BS	BS	0Eh
09	HT	TAB right	0Fh
0A	LF	RIGHT arrow (inner keypad)	4Dh + E0
0B	VT	TAB left	0Fh + S
0C	FF	Enter (inner keypad)	1Ch + E0
0D	CR	CR	1Ch
0E	SO	INSERT (inner keypad)	52h + E0
0F	SI	PAGE UP (inner keypad)	49h + E0
10	DLE	PAGE DOWN (inner keypad)	51h + E0
11	DC1	HOME (inner keypad)	47h + E0
12	DC2	LEFT arrow (inner keypad)	4Bh + E0
13	DC3	DOWN arrow (inner keypad)	50h + E0
14	DC4	UP arrow (inner keypad)	48h + E0

Table E-3. Scanset 2 Function Key Map

ASCII (hex)	ASCII code	Key	Scancode
00	NUL	ALT right Make	E0h 11h
01	SOH	ALT right Break	E0h F0h 11h
02	STX	ALT left Make	11h
03	ETX	ALT left Break	F0h 11h
04	EOT	CTRL left Make	14h
05	ENQ	CTRL left Break	F0h 14h
06	ACK	CTRL right Make	E0h 14h
07	BEL	CTRL right Break	E0h F0h 14h
08	BS	BS	66h
09	HT	TAB right	0Dh
0A	LF	RIGHT arrow (inner keypad)	74h + E0
0B	VT	TAB left	0Dh + S
0C	FF	Enter (right keypad)	5Ah + E0
0D	CR	CR	5Ah
0E	SO	INSERT (inner keypad)	70h + E0
0F	SI	PAGE UP (inner keypad)	7Dh + E0
10	DLE	PAGE DOWN (inner keypad)	7Ah + E0
11	DC1	HOME (inner keypad)	6Ch + E0
12	DC2	LEFT arrow (inner keypad)	6Bh + E0
13	DC3	DOWN arrow (inner keypad)	72h + E0
14	DC4	UP arrow (inner keypad)	75h + E0
15	NAK	F6	0Bh
16	SYN	F1	05h
17	ETB	F2	06h
18	CAN	F3	04h
19	EM	F4	0Ch
1A	SUB	F5	03h
1B	ESC	ESC	76h
1C	FS	F7	83h
1D	GS	F8	0Ah
1E	RS	F9	01h
1F	US	F10	09h

Table E-4. Scanset 3, 102-Key Function Key Map

ASCII (hex)	ASCII code	Key	Scancode
00	NUL	ALT right Make	39h
01	SOH	ALT right Break	F0h 39h
02	STX	ALT left Make	19h
03	ETX	ALT left Break	F0h 19h
04	EOT	CTRL left Make	11h
05	ENQ	CTRL left Break	F0h 11h
06	ACK	CTRL right Make	58h
07	BEL	CTRL right Break	F0h 58h
08	BS	BS	66h
09	HT	TAB right	0Dh
0A	LF	RIGHT arrow (inner keypad)	6Ah
0B	VT	TAB left	0Dh + S
0C	FF	Enter (inner keypad)	79h
0D	CR	CR	5Ah
0E	SO	INSERT (inner keypad)	67h
0F	SI	PAGE UP (inner keypad)	6Fh
10	DLE	PAGE DOWN (inner keypad)	6Dh
11	DC1	HOME (inner keypad)	6Eh
12	DC2	LEFT arrow (inner keypad)	61h
13	DC3	DOWN arrow (inner keypad)	60h
14	DC4	UP arrow (inner keypad)	63h
15	NAK	F6	2Fh
16	SYN	F1	07h
17	ETB	F2	0Fh
18	CAN	F3	17h
19	EM	F4	1Fh
1A	SUB	F5	27h
1B	ESC	ESC	08h
1C	FS	F7	37h
1D	GS	F8	3Fh
1E	RS	F9	47h
1F	US	F10	4Fh

Table E-5. Scanset 3 122-Key Function Key Map

ASCII (hex)	ASCII code	Key	Scancode
00	NUL	ALT Right Make	39h
01	SOH	ALT Right Break	F0h 39h
02	STX	ALT left Make	19h
03	ETX	ALT left Break	F0h 19h
04	EOT	CTRL left (RESET) Make only	11h
05	ENQ	CTRL left (RESET) Make/Break	11h F0h 11h
06	ACK	ONLINE Enter Make only	58h
07	BEL	ONLINE Enter Make/Break	58h F0h 58h
08	BS	BS	66h
09	HT	TAB right	0Dh
0A	LF	RIGHT arrow (inner keypad)	6Ah
0B	VT	TAB left	0Dh + S
0C	FF	CR (FIELD EXIT) Make only	5Ah F0h 5Ah
0D	CR	CR (FIELD EXIT) Make/Break	5Ah
0E	SO	INSERT (inner keypad)	65h
0F	SI	FIELD +	79h
10	DLE	FIELD -	7Ch
11	DC1	HOME (inner keypad)	62h
12	DC2	LEFT arrow (inner keypad)	61h
13	DC3	DOWN arrow (inner keypad)	60h
14	DC4	UP arrow (inner keypad)	63h
15	NAK	F6	2Fh
16	SYN	F1	07h
17	ETB	F2	0Fh
18	CAN	F3	17h
19	EM	F4	1Fh
1A	SUB	F5	27h
1B	ESC	ESC	08h
1C	FS	F7	37h
1D	GS	F8	3Fh
1E	RS	F9	47h
1F	US	F10	4Fh

Table E-6. Japanese DOS Function Key Map

ASCII value	ASCII code	Key	Scancode
00h	NUL	ALT right Make	31h
01h	SOH	ALT right Break	B1h
02h	STX	ALT left Make	31h
03h	ETX	ALT left Break	B1h
04h	EOT	CTRL left Make	41h
05h	ENQ	CTRL left Break	C1h
06h	ACK	CTRL right Make	41h
07h	BEL	CTRL right Break	C1h
08h	BS	BS	3Eh
09h	HT	TAB right	3Ch
0Ah	LF	RIGHT arrow (inner keypad)	4Dh
0Bh	VT	TAB left	3Ch + S
0Ch	FF	Enter (right keypad)	60h
0Dh	CR	CR	3Bh
0Eh	SO	INSERT (inner keypad)	52h
0Fh	SI	PAGE UP (inner keypad)	49h
10h	DLE	PAGE DOWN (inner keypad)	51h
11h	DC1	HOME (inner keypad)	4Ch
12h	DC2	LEFT arrow (inner keypad)	4Bh
13h	DC3	DOWN arrow (inner keypad)	4Ah
14h	DC4	UP arrow (inner keypad)	4Eh
15h	NAK	F6	6Dh
16h	SYN	F1	68h
17h	ETB	F2	69h
18h	CAN	F3	6Ah
19h	EM	F4	6Bh
1Ah	SUB	F5	6Ch
1Bh	ESC	ESC	3Dh
1Ch	FS	F7	6Eh
1Dh	GS	F8	6Fh
1Eh	RS	F9	70h
1Fh	US	F10	71h

Table E-7. NEC 9801-Key Function Key Map

ASCII value	ASCII code	Key	Scancode
00h	NUL	unused	n/a
01h	SOH	CR	1Ch
02h	STX	CAPS LOCK ON (make)	71h
03h	ETX	CAPS LOCK OFF (break)	F1h
04h	EOT	CTRL left Make	74h
05h	ENQ	CTRL left Break	F4h
06h	ACK	CTRL-C	60h
07h	BEL	n/a	n/a
08h	BS	BS	0Eh
09h	HT	TAB right	0Fh
0Ah	LF	RIGHT arrow (inner keypad)	3Ch
0Bh	VT	TAB left	0Fh + S
0Ch	FF	DELETE	39h
0Dh	CR	CR	1Ch
0Eh	SO	INSERT (inner keypad)	38h
0Fh	SI	KATAKANA LOCK ON (Make)	72h
10h	DLE	KATAKANA LOCK OFF (Break)	F2h
11h	DC1	HOME (inner keypad)	3Eh
12h	DC2	LEFT arrow (inner keypad)	3Bh
13h	DC3	DOWN arrow (inner keypad)	3Dh
14h	DC4	UP arrow (inner keypad)	3Ah
15h	NAK	F6	67h
16h	SYN	F1	62h
17h	ETB	F2	63h
18h	CAN	F3	64h
19h	EM	F4	65h
1Ah	SUB	F5	66h
1Bh	ESC	ESC	00h
1Ch	FS	F7	68h
1Dh	GS	F8	69h
1Eh	RS	F9	6Ah
1Fh	US	F10	6Bh

Table E-8. USB Keyboard Function Key Usage Map

ASCII	Key Value	Usage Name
00	NUL	ALT right Make
01	SOH	ALT right Break
02	STX	F11
03	ETX	F12
04	EOT	GUI right Make
05	ENQ	GUI right Break
06	ACK	CTRL right Make
07	BEL	CTRL right Break
08	BS	BS
09	HT	TAB right
0A	LF	RIGHT arrow (inner keypad)
0B	VT	TAB left
0C	FF	Enter (right keypad)
0D	CR	CR
0E	SO	INSERT (inner keypad)
0F	SI	PAGE UP (inner keypad)
10	DLE	PAGE DOWN (inner keypad)
11	DC1	HOME (inner keypad)
12	DC2	LEFT arrow (inner keypad)
13	DC3	DOWN arrow (inner keypad)
14	DC4	UP arrow (inner keypad)
15	NAK	F6
16	SYN	F1
17	ETB	F2
18	CAN	F3
19	EM	F4
1A	SUB	F5
1B	ESC	ESC
1C	FS	F7
1D	GS	F8
1E	RS	F9
1F	US	F10

NOTES

Appendix F
Host Commands

Accepting RS-232 Commands

The scanner responds to the following RS-232 commands:

COMMAND	ASCII	HEX	COMMENT
Enable Scanner	E	0x45	
Disable Scanner	D	0x44	
Reset Scanner	R	0x52	
Not On File Indication	F	0x46	Long series of beeps
Beep Good Read Tone	B	0x42	Beeps if Good Read Beep is enabled
Force Good Read Tone		0x01	Beeps regardless of beep setting
Bel		0x07	Force Good Read Tone
Identification request	i	0x69	Returns long response[a]
Health request	h	0x68	Returns long response[a]
Status request	s	0x73	Returns long response[a]

a. Call Tech Support for information.

If one of the above commands is received, the scanner will perform the steps indicated for the command. Host commands for other interfaces are also available. Contact Tech Support for more details.

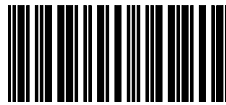
NOTES

Appendix G
Sample Symbols

UPC-A

0 123456 7890

Interleaved 2 of 5

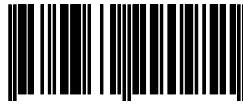


1234567890

Code 128

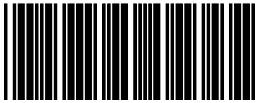
Code 128

EAN-13



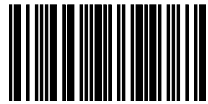
9 780330 290951

Code 39



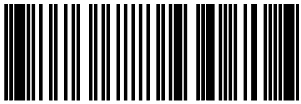
BC321

Codabar



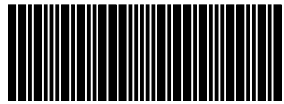
A13579B

Code 93



123456-9$

Code 2 of 5



123456

Sample Symbols

PDF417

Car Registration

RSS-14

(01)00123456789012

RSS Expanded

0100123456789050

Appendix H
Beeper/LED Indications

Beep Indications

Beep Type	Description	Behavior
Acknowledge (ACK) Label	A label has been sent to the Base Station, which has accepted the data and responded. Control via ACK NAK Options.	1 beep. Duration, frequency and volume vary, since these are all configurable for this feature.
Label Rejected	Label data sent is rejected by the Base Station (responds with NAK). Control via ACK NAK Options.	2 beeps at low frequency.
Transmission Error	A label has been sent to but not received by the Base Station (ACK timeout occurred). Control via Transmission Failure Indication.	Beep will sound High-low-high-low.
Link Successful	The Linking process has completed successfully between a scanner and Base Station (or PC).	Beep will sound Low-med-high.
Link Unsuccessful	The Linking process has completed (timed out) without connecting to a Base (or PC).	Beep will sound High-low-high-low.

Beep Type	Description	Behavior
Unlink	The scanner has unlinked from the Base Station.	Beep will sound High-medium-low.
Paging	Base Station is paging the scanner.	5 beeps at high volume and current Good Read Beep Frequency setting.
BT Scanner FRU	The scanner will sound this upon detecting aField Replaceable Unit (FRU) error at startup.	1 long error tone[a].
Disconnect	Sounds when the scanner disconnects from the Base Station due to out of range, low power, etc. Control via "BT Disconnect Beep" on page 5-12	Beep will sound High-medium-low. (Same as Unlink)
Good Read Disconnected	A label is read while disconnected, and ACK Timeout is disabled.	1 long beep at low frequency.
Good Read Unlinked	A label is read while unlinked.	Beep will sound High-low-high-low.
Leash mode	The Handheld has disconnected, and BT Leash Beep is enabled.	Beep will sound at high volume, low frequency for the count specified in BT Leash Beep

a. Upon hearing a long error tone at startup, press the trigger to hear the FRU error beep sequence described in Error Codes.

LED Indications

LED Indication	Behavior	Applies to:	
		Base Station	Scanner
Linking in progress	Yellow LED blinks at 2 Hz	YES	YES
Low battery	Yellow LED blinks as long as the trigger is pulled while scanner is enabled. Exceptions are: -If scanner is disabled, the low battery LED will not occur because the trigger is also disabled. -The BT transmit indication will override this indication, i.e., when a decode occurs while battery is low, the BT transmit LED will interrupt (stop) the low battery LED.	NO	YES
Disconnected	LEDs off	YES	YES
Unlinked	LEDs off	YES	YES
BT transmission in progress	Flash yellow LED at 50 Hz while transmitting.	YES	YES
Paging	Yellow LED blinks at the same rate as the paging beep (1 hz)	YES	YES
BT Scanner FRU indication	See the topic Error Codes.	NO	YES
BT Base Station FRU indication	See the topic Error Codes.	YES	NO
Disabled indication	Green LED blinks once a second while disabled	NO	YES
Battery charge in progress	Green LED blinks once a second while charging	YES	NO

LED Indication	Behavior	Applies to:	
		Base Station	Scanner
Battery charge complete	Green LED stays ON when charge is complete and scanner is seated in the Base Station.	YES	NO
Battery charge error	Yellow LED blinks 550mS on/ 1500mS off when there is a charge error and scanner is seated in the Base Station.	YES	NO

Error Codes

Upon startup, if the scanner sounds a long tone, this means the scanner has not passed its automatic Selftest and has entered FRU[1] isolation mode. If the scanner is reset, the sequence will be repeated. The following table describes the LED flashes/beep codes associated with an error found.

NUMBER OF LED FLASHES/BEEPS	ERROR	CORRECTIVE ACTION
1	Configuration	Contact Helpdesk for assistance
2	Interface PCB	
4	Imager Module	
5	Laser Pointer (if so equipped)	
6	Digital PCB	
14	CPLD/Code Mismatch	
6[a]	Base Station	

a. Base Station LED only - Repeats after 3 seconds

1. Field Replaceable Unit (FRU)

NOTES

NOTES

ASCII Chart

ASCII Char.	Hex No.	ASCII Char.	Hex No.	ASCII Char.	Hex No.	ASCII Char.	Hex No.
NUL	00	SP	20	@	40	‘	60
SOH	01	!	21	A	41	a	61
STX	02	“	22	B	42	b	62
ETX	03	#	23	C	43	c	63
EOT	04	$	24	D	44	d	64
ENQ	05	%	25	E	45	e	65
ACK	06	&	26	F	46	f	66
BEL	07	’	27	G	47	g	67
BS	08	(	28	H	48	h	68
HT	09	)	29	I	49	i	69
LF	0A	*	2A	J	4A	j	6A
VT	0B	+	2B	K	4B	k	6B
FF	0C	,	2C	L	4C	l	6C
CR	0D	-	2D	M	4D	m	6D
SO	0E	.	2E	N	4E	n	6E
SI	0F	/	2F	O	4F	o	6F
DLE	10	0	30	P	50	p	70
DC1	11	1	31	Q	51	q	71
DC2	12	2	32	R	52	r	72
DC3	13	3	33	S	53	s	73
DC4	14	4	34	T	54	t	74
NAK	15	5	35	U	55	u	75
SYN	16	6	36	V	56	v	76
ETB	17	7	37	W	57	w	77
CAN	18	8	38	X	58	x	78
EM	19	9	39	Y	59	y	79
SUB	1A	:	3A	Z	5A	z	7A
ESC	1B	;	3B	[	5B	{	7B
FS	1C	<	3C	\	5C	|	7C
GS	1D	=	3D	]	5D	}	7D
RS	1E	>	3E	^	5E	~	7E
US	1F	?	3F	_	5F	DEL	7F

Australia
Datalogic Scanning Pty Ltd
North Ryde, Australia
Telephone: [61] (2) 9870 3200
Fax: [61] (2) 9878 8688

France and Benelux
Datalogic Scanning Sarl
LES ULIS Cedex, France
Telephone: [33].01.64.86.71.00
Fax: [33].01.64 46.72.44

Germany
Datalogic Scanning GmbH
Darmstadt, Germany
Telephone: 49 (0) 61 51/93 58-0
Fax: 49 (0) 61 51/93 58 58

Italy
Datalogic Scanning SpA
Vimercate (MI), Italy
Telephone: [39] (0) 39/62903.1
Fax: [39] (0) 39/6859496

Japan
Datalogic Scanning KK
Shinagawa, Tokyo, Japan
Telephone: 81 (0)3 3491 6761
Fax: 81 (0)3 3491 6656

Latin America
Datalogic Scanning, Inc
Miami, Florida, USA
Telephone: (305) 591-3222
Fax: (305) 591-3007

Spain and Portugal
Datalogic Scanning Sarl Sucursal en España
Madrid, Spain
Telephone: 34 91 746 28 60
Fax: 34 91 742 35 33

United Kingdom
Datalogic Scanning LTD
Watford, England
Telephone: 44 (0) 1923 809500
Fax: 44 (0) 1923 809 505

DATALOGIC™

www.scanning.datalogic.com

Datalogic Scanning, Inc.
959 Terry Street
Eugene, OR 97402
Telephone: (541) 683-5700
Fax: (541) 345-7140

©2006-2007 Datalogic Scanning, Inc. R44-2710 (Rev. A) 4/07