Honeywell

Orbit 7120plus/7190g

Hybrid Presentation Scanner

User Guide

Disclaimer

Honeywell International Inc. (“HII”) reserves the right to make changes in specifications and other information contained in this document without prior notice, and the reader should in all cases consult HII to determine whether any such changes have been made. The information in this publication does not represent a commitment on the part of HII.

HII shall not be liable for technical or editorial errors or omissions contained herein; nor for incidental or consequential damages resulting from the furnishing, performance, or use of this material. HII disclaims all responsibility for the selection and use of software and/or hardware to achieve intended results.

Web Address: www.honeywellaidc.com

For patent information, refer to www.hsmpats.com.

TABLE OF CONTENTS

Customer Support

Technical Assistance

To search our knowledge base for a solution or to log in to the Technical Support portal and report a problem, go to www.hsmcontactsupport.com.

Product Service and Repair

Honeywell International Inc. provides service for all of its products through service centers throughout the world. To obtain warranty or non-warranty service, you must first obtain a Return Material Authorization number (RMA #) and then return your product to Honeywell (postage paid) with a copy of the dated purchase record. To learn more, go to www.honeywellaidc.com and select Service & Repair at the bottom of the page.

Limited Warranty

For warranty information, go to www.honeywellaidc.com and click **Get Resources** > **Product Warranty**.

Send Feedback

Your feedback is crucial to the continual improvement of our documentation. To provide feedback about this manual, contact the Honeywell Technical Communications department at ACSHSMTechnicalCommunications@honeywell.com.

CHAPTER

1 GET STARTED

About This Manual

This User's Guide provides installation and programming instructions for the Orbit 7120plus and Orbit 7190g hybrid presentation scanners. Product specifications, dimensions, warranty, and customer support information are also included.

Honeywell bar code scanners are 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.

An asterisk (*) next to an option indicates the default setting.

Unpack Your Device

After you open the shipping carton containing the product, take the following steps:

- Check for damage during shipment. Report damage immediately to the carrier who delivered the carton.
- Make sure the items in the carton match your order.
- Save the shipping container for later storage or shipping.

Power Information

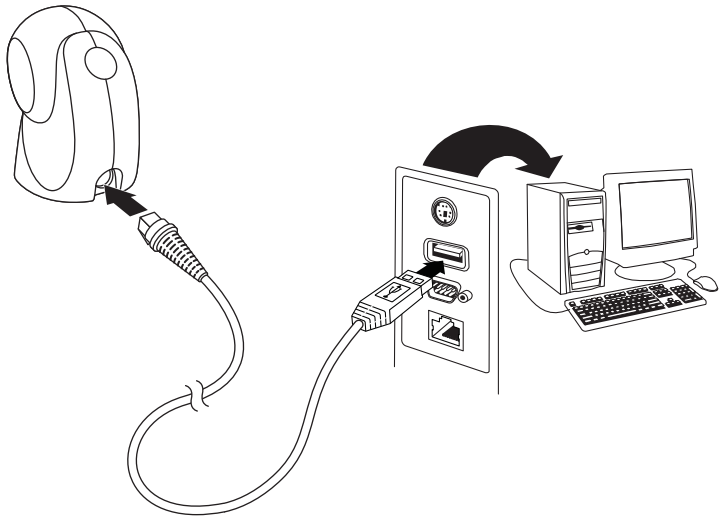
Use only a Listed Limited Power Source (LPS) or Class 2 type power supply with output rated 5 to 5.2Vdc, 1A.

Connect the Device

Connect with USB

The scanner can be connected to the USB port of a computer.

a. Connect the appropriate interface cable to the scanner first, then to the USB port on the computer.



b. The scanner beeps.

c. Verify the scanner operation by scanning a bar code from the Sample Symbols on page 223.

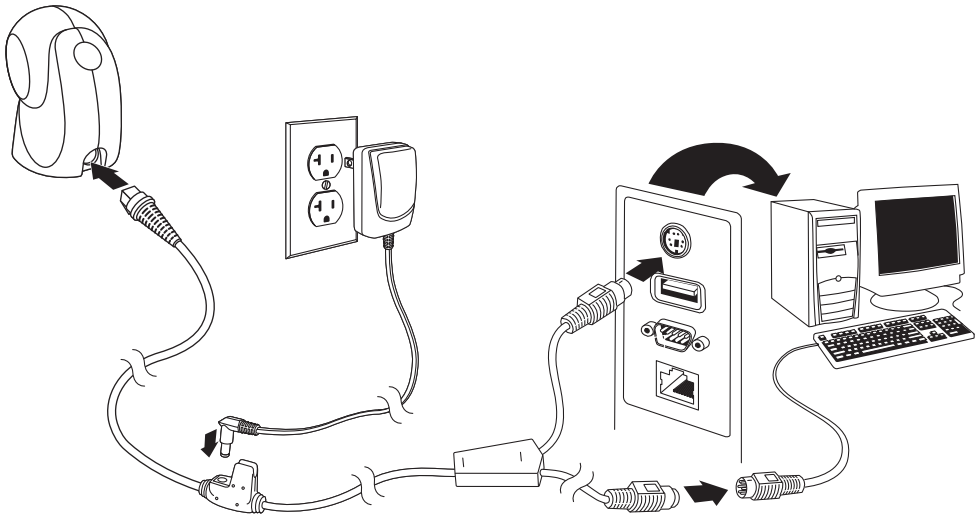
The unit defaults to a USB PC Keyboard. Refer to page 10 for other USB terminal settings.

For additional USB programming and technical information, refer to “USB Application Note,” available at www.honeywellaidc.com.

Connect with Keyboard Wedge

The scanner can be connected between the keyboard and PC as a “keyboard wedge,” where the scanner provides data output that is similar to keyboard entries. The following is an example of a keyboard wedge connection:

1. Turn off power and disconnect the keyboard cable from the back of the terminal/computer.
2. Connect the appropriate interface cable to the device and to the terminal/computer.



Note: *The power supply must be ordered separately, if needed.*

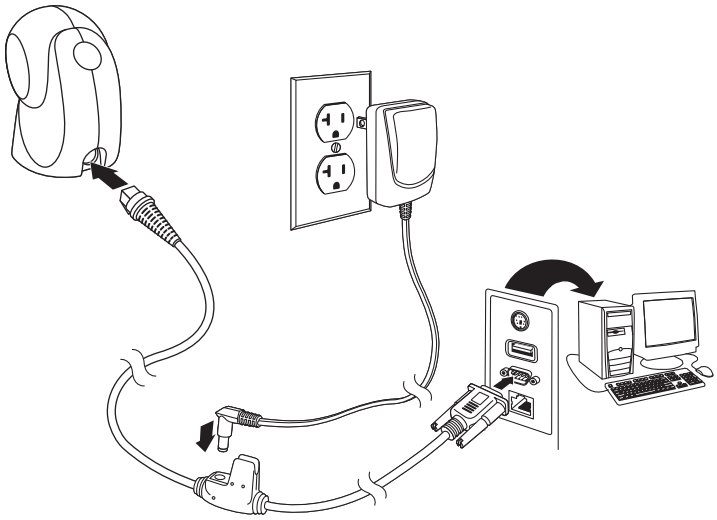
3. Turn the terminal/computer power back on. The scanner beeps.
4. Verify the scanner operation by scanning a bar code from the Sample Symbols on page 223. The scanner beeps once.

The unit defaults to an IBM PC AT and compatibles keyboard wedge interface with a USA keyboard. A carriage return (CR) suffix is added to bar code data.

Connect with RS232 Serial Port

1. Turn off power to the terminal/computer.
2. Connect the appropriate interface cable to the scanner.

Note: *For the scanner to work properly, you must have the correct cable for your type of terminal/computer.*



Note: *For RS232, you must use the power supply.*

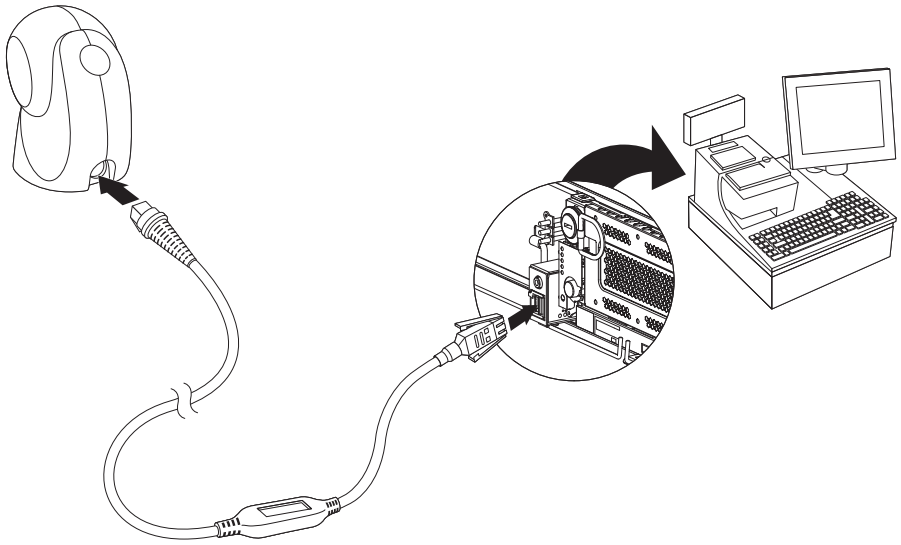
3. Plug the serial connector into the serial port on your computer. Tighten the two screws to secure the connector to the port.
4. Once the scanner has been fully connected, power up the computer.

This interface programs 115,200 baud, 8 data bits, no parity, and 1 stop bit.

Connect with RS485

The scanner can be connected for an IBM POS terminal interface.

1. Connect the appropriate interface cable to the device, then to the computer.



2. Turn the terminal/computer power back on. The scanner beeps.
3. Verify the scanner operation by scanning a bar code from the Sample Symbols on page 223. The scanner beeps once.

For further RS485 settings, refer to RS485, page 8.

Reading Techniques

Present the bar code to the scanner. When using an Orbit 7190g, the LEDs turn up to read the code. If the light level in the room is not high enough, the code may not be read.

Menu Bar Code Security Settings

Honeywell scanners are programmed by scanning menu bar codes or by sending serial commands to the scanner. If you want to restrict the ability to scan menu codes, you can use the Menu Bar Code Security settings. Contact the nearest technical support office (see Technical Assistance on page xi) for further information.

Set Custom Defaults

You have the ability to create a set of menu commands as your own, custom defaults. To do so, scan the **Set Custom Defaults** bar code below before scanning the menu commands for your custom defaults. If a menu command requires scanning numeric codes from the Programming Chart, beginning on page 225, then a **Save** code, that entire sequence will be saved to your custom defaults. When you have entered all the commands you want to save for your custom defaults, scan the **Save Custom Defaults** bar code.

Set Custom Defaults

Save Custom Defaults

You may have a series of custom settings and want to correct a single setting. To do so, just scan the new setting to overwrite the old one. For example, if you had previously saved the setting for Beeper Volume at Low to your custom defaults, and decide you want the beeper volume set to High, just scan the **Set Custom Defaults** bar code, then scan the **Beeper Volume High** menu code, and then **Save Custom Defaults**. The rest of the custom defaults will remain, but the beeper volume setting will be updated.

Reset the Custom Defaults

If you want the custom default settings restored to your scanner, scan the **Activate Custom Defaults** bar code below. This is the recommended default bar code for most users. It resets the scanner to the custom default settings. If there are no custom defaults, it will reset the scanner to the factory default settings. Any settings that have not been specified through the custom defaults will be defaulted to the factory default settings.

Activate Custom Defaults

CHAPTER

2 PROGRAM THE INTERFACE

Introduction

This chapter describes how to program your system for the desired interface.

Program the Interface – Plug and Play

Plug and Play bar codes provide instant scanner set up for commonly used interfaces.

Note: *After you scan one of the codes, power cycle the host terminal to have the interface in effect.*

Keyboard Wedge

If you want your system programmed for an IBM PC AT and compatibles keyboard wedge interface with a USA keyboard, scan the bar code below. Keyboard wedge is the default interface.

Note: *The following bar code also programs a carriage return (CR) suffix.*

IBM PC AT and Compatibles with CR suffix

Laptop Direct Connect

For most laptops, scanning the Laptop Direct Connect bar code allows operation of the scanner in parallel with the integral keyboard. The following **Laptop Direct Connect** bar code also programs a carriage return (CR) suffix and turns on Emulate External Keyboard (page 24).ppp

Laptop Direct Connect with CR suffix

RS232 Serial Port

The RS232 Interface bar code is used when connecting to the serial port of a PC or terminal. The following **RS232 Interface** bar code also programs a carriage return (CR) and a line feed (LF) suffix, baud rate, and data format as indicated below. It also changes the trigger mode to presentation.

Option	Setting
Baud Rate	115,200 bps
Data Format	8 data bits, no parity bit, 1 stop bit

RS232 Interface

RS485

Scan one of the following “Plug and Play” codes to program the scanner for an IBM POS terminal interface.

Note: *After scanning one of these codes, you must power cycle the cash register.*

IBM Port 5B Interface

IBM Port 9B HHBCR-1 Interface

IBM Port 17 Interface

IBM Port 9B HHBCR-2 Interface

Each bar code above also programs the following suffixes for each symbology:

Symbology	Suffix	Symbology	Suffix
EAN 8	0C	Code 39	00 0A 0B
EAN 13	16	Interleaved 2 of 5	00 0D 0B
UPC A	0D	Code 128 *	00 0A 0B
UPC E	0A	Code 128 **	00 18 0B
		MaxiCode	00 2F 0B

* Suffixes programmed for Code 128 with IBM 4683 Port 5B, IBM 4683 Port 9B HHBCR-1, and IBM 4683 Port 17 Interfaces

**Suffixes programmed for Code 128 with IBM 4683 Port 9 HHBCR-2 Interface

RS485 Packet Mode

The following selection allows you to break up large bar code data into smaller packets on an IBM POS terminal. To break up large bar codes into small packets, scan the **Packet Mode On** bar code below. Scan the **Packet Mode Off** bar code if you want large bar code data to be sent to the host in a single chunk. *Default = Packet Mode Off.*

*** Packet Mode Off**

Packet Mode On

RS485 Packet Length

If you are using Packet mode, you can specify the size of the data "packet" that is sent to the host. Scan the **Packet Length** bar code, then the packet size (from 20 - 256) from the Programming Chart, beginning on page 225 of this manual, then **Save**. *Default = 40.*

Packet Length

USB IBM SurePos

Scan one of the following “Plug and Play” codes to program the scanner for an IBM SurePos (USB handheld scanner) or IBM SurePos (USB tabletop scanner) interface.

Note: *After scanning one of these codes, you must power cycle the cash register.*

USB IBM SurePos (USB Handheld Scanner) Interface

USB IBM SurePos (USB Tabletop Scanner) Interface

Each bar code above also programs the following suffixes for each symbology:

Symbology	Suffix	Symbology	Suffix
EAN 8	0C	Code 39	00 0A 0B
EAN 13	16	Interleaved 2 of 5	00 0D 0B
UPC A	0D	Code 128	00 18 0B
UPC E	0A	Code 39	00 0A 0B

USB PC or Macintosh Keyboard

Scan one of the following codes to program the scanner for USB PC Keyboard or USB Macintosh Keyboard. Scanning these codes also adds a CR suffix.

USB Keyboard (PC)

USB Keyboard (Mac)

USB Japanese Keyboard (PC)

USB HID

Scan the following code to program the scanner for USB HID bar code scanners.

PAP131.

USB HID Bar Code Scanner

USB Serial

Scan the following code to program the scanner to emulate a regular RS232-based COM Port. If you are using a Microsoft® Windows® PC, you will need to download a driver from the Honeywell website (www.honeywellaidc.com) and go to **Get Resources - Downloads - Software**. The driver will use the next available COM Port number. Apple® Macintosh computers recognize the scanner as a USB CDC class device and automatically use a class driver.

TRMUSB130.

USB Serial

Note: *No extra configuration (e.g., baud rate) is necessary.*

CTS/RTS Emulation

USBCTS1.

CTS/RTS Emulation On

USBCTS0.

*** CTS/RTS Emulation Off**

ACK/NAK Mode

USBACK1.

ACK/NAK Mode On

*** ACK/NAK Mode Off**

Remote MasterMind™ for USB

When using a USB interface, you may wish to configure your scanner to communicate with Remote MasterMind Scanner Management Software (ReM). Scan the **ReM On** bar code to communicate with ReM. To disable this capability, scan **ReM Off**. *Default = ReM On.*

ReM Off

*** ReM On**

Verifone® Ruby Terminal

Scan the following Plug and Play code to program the scanner for a Verifone Ruby terminal. This bar code sets the baud rate to 1200 bps and the data format to 8 data bits, mark parity bit, 1 stop bit. It also adds a line feed (LF) suffix and programs the following prefixes for each symbology:

Symbology	Prefix
UPC-A	A
UPC-E	A
EAN-8	FF
EAN-13	F

Verifone Ruby Settings

Gilbarco® Terminal

Scan the following Plug and Play code to program the scanner for a Gilbarco terminal. This bar code sets the baud rate to 2400 bps and the data format to 7 data bits, even parity, 2 stop bits. It also adds a carriage return (CR) suffix and programs the following prefixes for each symbology:

Symbology	Prefix
UPC-A	A
UPC-E	E0
EAN-8	FF
EAN-13	F

Gilbarco Settings

Honeywell Bioptic Aux Port

Scan the following Plug and Play code to program the scanner for a Honeywell bioptic scanner auxiliary port configuration. This bar code sets the baud rate to 38400 bps and the data format to 8 data bits, no parity, 1 stop bit.

Honeywell Bioptic Settings

Datalogic™ Magellan® Aux Port

Scan the following Plug and Play code to program the scanner for a Datalogic Magellan auxiliary port configuration. This bar code sets the baud rate to 9600 bps and the data format to 8 data bits, no parity, 1 stop bit.

Datalogic Magellan Settings

NCR Bioptic Aux Port

Scan the following Plug and Play code to program the scanner for an NCR bioptic scanner auxiliary port configuration. The following prefixes are programmed for each symbology:

Symbology	Prefix	Symbology	Prefix
UPC-A	A	Interleaved 2 of 5	b
UPC-E	E0	Code 128	f
		Code 32 Pharmaceutical (PARAF)	a
EAN-8	FF	Code 39	a
EAN-13	F		

NCR Bioptic Settings

Wincor Nixdorf Terminal

Scan the following Plug and Play code to program the scanner for a Wincor Nixdorf terminal. This bar code sets the baud rate to 9600 bps and the data format to 8 data bits, no parity, 1 stop bit.

Wincor Nixdorf Terminal Settings

Wincor Nixdorf Beetle™ Terminal

Scan the following Plug and Play code to program the scanner for a Wincor Nixdorf Beetle terminal. The following prefixes are programmed for each symbology:

Symbology	Prefix	Symbology	Prefix
Aztec Code	V	Interleaved 2 of 5	I
Codabar	N	MaxiCode	T
Code 93	L	MicroPDF417	S
Code 128	K	PDF417	Q
Data Matrix	R	QR Code	U
EAN-8	B	Straight 2 of 5 IATA	H
EAN-13	A	UPC-A	A0
GS1 DataBar	E	UPC-E	C
GS1-128	P	All other bar codes	M

PAPBTL.

Wincor Nixdorf Beetle Settings

Wincor Nixdorf RS232 Mode A

Scan the following Plug and Play code to program the scanner for a Wincor Nixdorf RS232 Mode A terminal. This bar code sets the baud rate to 9600 bps and the data format to 8 data bits, odd parity, 1 stop bit. The following prefixes are programmed for each symbology:

Symbology	Prefix	Symbology	Prefix
Code 128	K	EAN-13	A
Code 93	L	GS1-128	K
Codabar	N	Interleaved 2 of 5	I
UPC-A	A0	Plessey	O
UPC-E	C	Straight 2 of 5 IATA	H
EAN-8	B	GS1 DataBar	E
All other bar codes	M		

PAPWMA.

Wincor Nixdorf RS232 Mode A Settings

Keyboard Country Layout

If your interface is USB Keyboard or Keyboard Wedge, your keyboard layout default is a US keyboard. To change this layout, scan the appropriate Keyboard Country bar code below. By default, national character replacements are used for the following characters: # $ @ [\ ] ^ ‘ { | } ~. Refer to the ISO 2022/ISO 646 Character Replacements on page 218 to view the character replacements for each country.

Keyboard Countries

KBDCTY0.

*** United States**

KBDCTY35.

Albania

Keyboard Countries (Continued)

Azeri (Cyrillic)

Azeri (Latin)

Belarus

Belgium

Bosnia

Brazil

Brazil (MS)

Bulgaria (Cyrillic)

Bulgaria (Latin)

Canada (French legacy)

Canada (French)

Keyboard Countries (Continued)

KBDCTY55.

Canada (Multilingual)

KBDCTY32.

Croatia

KBDCTY15.

Czech

KBDCTY40.

Czech (Programmers)

KBDCTY39.

Czech (QWERTY)

KBDCTY38.

Czech (QWERTZ)

KBDCTY8.

Denmark

KBDCTY1.

Dutch (Netherlands)

KBDCTY41.

Estonia

KBDCTY83.

Faroese

KBDCTY2.

Finland

Keyboard Countries (Continued)


KBDCTY3.

France


KBDCTY84.

Gaelic


KBDCTY4.

Germany


KBDCTY17.

Greek


KBDCTY64.

Greek (220 Latin)


KBDCTY61.

Greek (220)


KBDCTY65.

Greek (319 Latin)


KBDCTY62.

Greek (319)


KBDCTY63.

Greek (Latin)


KBDCTY66.

Greek (MS)


KBDCTY60.

Greek (Polytonic)

Keyboard Countries (Continued)

KBDCTY12.
Hebrew

KBDCTY50.
Hungarian (101 key)

KBDCTY19.
Hungary

KBDCTY75.
Iceland

KBDCTY73.
Irish

KBDCTY56.
Italian (142)

KBDCTY5.
Italy

KBDCTY28.
Japan ASCII

KBDCTY78.
Kazakh

KBDCTY79.
Kyrgyz (Cyrillic)

KBDCTY14.
Latin America

Keyboard Countries (Continued)


KBDCTY42.
Latvia


KBDCTY43.
Latvia (QWERTY)


KBDCTY44.
Lithuania


KBDCTY45.
Lithuania (IBM)


KBDCTY34.
Macedonia


KBDCTY74.
Malta


KBDCTY86.
Mongolian (Cyrillic)


KBDCTY9.
Norway


KBDCTY20.
Poland


KBDCTY57.
Polish (214)


KBDCTY58.
Polish (Programmers)


KBDCTY13.
Portugal

Keyboard Countries (Continued)


KBDCTY25.
Romania


KBDCTY26.
Russia


KBDCTY67.
Russian (MS)


KBDCTY68.
Russian (Typewriter)


KBDCTY21.
SCS


KBDCTY37.
Serbia (Cyrillic)


KBDCTY36.
Serbia (Latin)


KBDCTY22.
Slovakia


KBDCTY49.
Slovakia (QWERTY)


KBDCTY48.
Slovakia (QWERTZ)


KBDCTY31.
Slovenia


KBDCTY10.
Spain

Keyboard Countries (Continued)


KBDCTY51.
Spanish variation


KBDCTY23.
Sweden


KBDCTY29.
Switzerland (French)


KBDCTY6.
Switzerland (German)


KBDCTY85.
Tatar


KBDCTY27.
Turkey F


KBDCTY24.
Turkey Q


KBDCTY76.
Ukrainian


KBDCTY7.
United Kingdom


KBDCTY87.
United States (Dvorak)


KBDCTY88.
United States (Dvorak left)


KBDCTY89.
United Stated (Dvorak

Keyboard Countries (Continued)

KBDCTY30.
United States (International)

KBDCTY77.
Uzbek (Cyrillic)

Keyboard Wedge Modifiers

ALT Mode

If your bar code contains special characters from the extended ASCII chart, for example, an e with an accent grave (è), you will use ALT Mode. (See "Extended ASCII Characters" on page 4.)

Note: *Scan the ALT mode bar code after scanning the appropriate Keyboard Country code.*

If your keystrokes require the ALT key and 4 characters, scan the 4 Characters bar code. The data is then output with the special character(s). *Default = Off.*

KBDALT0.
*** Off**

KBDALT7.
4 Characters

Keyboard Style

This programs keyboard styles, such as Caps Lock and Shift Lock. If you have used Keyboard Conversion settings, they will override any of the following Keyboard Style settings. *Default = Regular.*

Regular is used when you normally have the Caps Lock key off.

KBDSTY0.
*** Regular**

Caps Lock is used when you normally have the Caps Lock key on.

Caps Lock

Shift Lock is used when you normally have the Shift Lock key on (not common to U.S. keyboards).

Shift Lock

Automatic Caps Lock is used if you change the Caps Lock key on and off. The software tracks and reflects if you have Caps Lock on or off . This selection can only be used with systems that have an LED that notes the Caps Lock status (AT keyboards).

Automatic Caps Lock

The **Autocaps via NumLock** bar code should be scanned in countries (e.g., Germany, France) where the Caps Lock key cannot be used to toggle Caps Lock. The NumLock option works similarly to the regular Autocaps, but uses the NumLock key to retrieve the current state of the Caps Lock.

Autocaps via NumLock

Emulate External Keyboard should be scanned if you do not have an external keyboard (IBM AT or equivalent).

Emulate External Keyboard

Note: *After scanning the Emulate External Keyboard bar code, you must power cycle your computer.*

Keyboard Conversion

Alphabetic keyboard characters can be forced to be all upper case or all lowercase. So if you have the following bar code: “abc569GK,” you can make the output “ABC569GK” by scanning **Convert All Characters to Upper Case**, or to “abc569gk” by scanning **Convert All Characters to Lower Case**.

These settings override Keyboard Style selections.

Note: *If your interface is a keyboard wedge, first scan the menu code for Automatic Caps Lock (page 24). Otherwise, your output may not be as expected.*

Default = Keyboard Conversion Off.

*** Keyboard Conversion Off**

Convert All Characters to Upper Case

Convert All Characters to Lower Case

Control Character Output

This selection sends a text string instead of a control character. For example, when the control character for a carriage return is expected, the output would display [CR] instead of the ASCII code of 0D. Refer to ASCII Conversion Chart (Code Page 1252) on page 214. Only codes 00 through 1F are converted (the first column of the chart). *Default = Off.*

Note: *Control + X (Control + ASCII) Mode overrides this mode.*

Control Character Output On

*** Control Character Output Off**

Keyboard Modifiers

This modifies special keyboard features, such as CTRL+ ASCII codes and Turbo Mode.

Control + X (Control + ASCII) Mode On: The scanner sends key combinations for ASCII control characters for values 00-1F. Windows is the preferred mode. All keyboard country codes are supported. DOS mode is a legacy mode, and it does not support all keyboard country codes. New users should use the Windows mode. Refer to ASCII Conversion Chart (Code Page 1252), page 214 for CTRL+ X Values.

Windows Mode Prefix/Suffix Off: The scanner sends key combinations for ASCII control characters for values 00-1F, but it does not translate prefix or suffix information.

Default = Control + X Mode Off.


KBDCAS2.
Windows Mode Control + X Mode On


KBDCAS0.
*** Control + X Mode Off**


KBDCAS1.
DOS Mode Control + X Mode On


KBDCAS3.
Windows Mode Prefix/Suffix

Turbo Mode: The scanner sends characters to a terminal faster. If the terminal drops characters, do not use Turbo Mode. *Default = Off.*


KBDTMD1.
Turbo Mode On


KBDTMD0.
*** Turbo Mode Off**

Numeric Keypad Mode: Sends numeric characters as if entered from a numeric keypad. *Default = Off.*


KBDNPS1.
Numeric Keypad Mode On

*** Numeric Keypad Mode Off**

Automatic Direct Connect Mode: This selection can be used if you have an IBM AT style terminal and the system is dropping characters. *Default = Off.*

Automatic Direct Connect Mode On

*** Automatic Direct Connect Mode Off**

RS232 Modifiers

RS232 Baud Rate

Baud Rate sends the data from the scanner to the terminal at the specified rate. The host terminal must be set for the same baud rate as the scanner. *Default = 115,200.*

300

600

1200

2400

4800

232BAD5.
9600

232BAD6.
19200

232BAD7.
38400

232BAD8.
57,600

232BAD9.
*** 115,200**

RS232 Word Length: Data Bits, Stop Bits, and Parity

Data Bits sets the word length at 7 or 8 bits of data per character. If an application requires only ASCII Hex characters 0 through 7F decimal (text, digits, and punctuation), select 7 data bits. For applications that require use of the full ASCII set, select 8 data bits per character. *Default = 8.*

Stop Bits sets the stop bits at 1 or 2. *Default = 1.*

Parity provides a means of checking character bit patterns for validity. *Default = None.*

232WRD3.
7 Data, 1 Stop, Parity Even

232WRD0.
7 Data, 1 Stop, Parity None

232WRD6.
7 Data, 1 Stop, Parity Odd

232WRD4.
7 Data, 2 Stop, Parity Even


232WRD1.
7 Data, 2 Stop Parity None


232WRD7.
7 Data, 2 Stop, Parity Odd


232WRD5.
8 Data, 1 Stop, Parity Even


232WRD2.
*** 8 Data, 1 Stop, Parity None**


232WRD8.
8 Data, 1 Stop, Parity Odd


232WRD14.
8 Data, 1 Stop, Parity Mark

RS232 Receiver Time-Out

The unit stays awake to receive data until the RS232 Receiver Time-Out expires. A manual or serial trigger resets the time-out. When an RS232 receiver is sleeping, a character may be sent to wake up the receiver and reset the time-out. A transaction on the CTS line will also wake up the receiver. The receiver takes 300 milliseconds to completely come up. Change the RS232 receiver time-out by scanning the bar code below, then scanning digits from the inside back cover of this manual, then scanning **Save**. The range is 0 to 300 seconds. *Default = 0 seconds (no time-out - always on).*


232LPT.
RS232 Receiver Time-Out

RS232 Handshaking

RS232 Handshaking allows control of data transmission from the scanner using software commands from the host device. When RTS/CTS is turned Off, no data flow control is used.

Flow Control, No Timeout: The scanner asserts RTS when it has data to send, and will wait indefinitely for CTS to be asserted by the host.

Two-Direction Flow Control: The scanner asserts RTS when it is OK for the host to transmit. The host asserts CTS when it is OK for the device to transmit.

Flow Control with Timeout: The scanner asserts RTS when it has data to send and waits for a delay (see RS232 Timeout on page 30) for CTS to be asserted by the host. If the delay time expires and CTS is not asserted, the device transmit buffer is cleared and scanning may resume. *Default = RTS/CTS Off.*

232CTS1.
Flow Control, No Timeout

232CTS2.
Two-Direction Flow Control

232CTS3.
Flow Control with Timeout

232CTS0.
*** RTS/CTS Off**

RS232 Timeout

When using **Flow Control with Timeout**, you must program the length of the delay you want to wait for CTS from the host. Set the length (in milliseconds) for a time-out by scanning the bar code below, then setting the timeout (from 1-5100 milli-seconds) by scanning digits from the inside back cover, then scanning **Save**.

232DEL.
RS232 Timeout

XON/XOFF

Standard ASCII control characters can be used to tell the scanner to start sending data (XON/XOFF On) or to stop sending data (XON/XOFF Off). When the host sends the XOFF character (DC3, hex 13) to the scanner, data transmission stops. To resume transmission, the host sends the XON character (DC1, hex 11). Data transmission continues where it left off when XOFF was sent. *Default = XON/XOFF Off.*

232XON1.
XON/XOFF On


232XON0.
*** XON/XOFF Off**

ACK/NAK

After transmitting data, the scanner waits for an ACK character (hex 06) or a NAK character (hex 15) response from the host. If ACK is received, the communications cycle is completed and the scanner looks for more bar codes. If NAK is received, the last set of bar code data is retransmitted and the scanner waits for ACK/NAK again. Turn on the ACK/NAK protocol by scanning the **ACK/NAK On** bar code below. To turn off the protocol, scan **ACK/NAK Off**. *Default = ACK/NAK Off.*


232ACK1.
ACK/NAK On


232ACK0.
*** ACK/NAK Off**

Scanner to Bioptic Communication

The following settings are used to set up communication between Honeywell scanners and bioptic scanners.

Note: *The scanner's baud rate must be set to 38400 and the RS232 timeout must be set to 3000 in order to communicate with a bioptic scanner. See RS232 Modifiers on page 27, and RS232 Timeout on page 30 for further information.*

Scanner-Bioptic Packet Mode

Packet Mode On must be scanned to set the scanner's format so it is compatible with a bioptic scanner. *Default = Packet Mode Off.*


232PKT0.
*** Packet Mode Off**


232PKT2.
Packet Mode On

Scanner-Bioptic ACK/NAK Mode

Bioptic ACK/NAK On must be scanned so the scanner will wait for an ACK or NAK from a bioptic scanner after each packet is sent. The Scanner-Bioptic ACK/NAK Timeout (below) controls how long the scanner will wait for a response. *Default = Bioptic ACK/NAK Off.*

*** Bioptic ACK/NAK Off**

Bioptic ACK/NAK On

Scanner-Bioptic ACK/NAK Timeout

This allows you to set the length (in milliseconds) for a timeout for a bioptic scanner's ACK/NAK response. Scan the bar code below, then set the timeout (from 1-30,000 milliseconds) by scanning digits from the inside back cover, then scanning **Save**. *Default = 5100.*

ACK/NAK Timeout

CHAPTER

3 INPUT/OUTPUT SETTINGS

Power Up Beeper

The scanner can be programmed to beep when it's powered up. Scan the **Off** bar code(s) if you don't want a power up beep. *Default = Power Up Beeper On - Scanner.*

Power Up Beeper Off - Scanner

*** Power Up Beeper On - Scanner**

Power Up Beeper Off - Cordless Base

Power Up Beeper On - Cordless Base

Good Read and Error Indicators

Beeper – Good Read

The beeper may be programmed **On** or **Off** in response to a good read. Turning this option off only turns off the beeper response to a good read indication. All error and menu beeps are still audible. *Default = Beeper - Good Read On.*

Beeper – Good Read Off

*** Beeper – Good Read On**

Beeper Volume – Good Read

The beeper volume codes modify the volume of the beep the scanner emits on a good read. *Default = High.*

Low

Medium

*** High**

Off

Beeper Pitch – Good Read

The beeper pitch codes modify the pitch (frequency) of the beep the scanner emits on a good read. *Default = Medium.*

Low (1600 Hz)

*** Medium (2591 Hz)**

High (4200 Hz)

Beeper Pitch – Error

The beeper pitch codes modify the pitch (frequency) of the sound the scanner emits when there is a bad read or error. *Default = Razz.*


BEPFQ2250.
*** Razz (250 Hz)**


BEPFQ23250.
Medium (3250 Hz)


BEPFQ24200.
High (4200 Hz)

Beeper Duration – Good Read

The beeper duration codes modify the length of the beep the scanner emits on a good read. *Default = Normal.*


BEPBIP0.
*** Normal Beep**


BEPBIP1.
Short Beep

LED – Good Read

The LED indicator can be programmed **On** or **Off** in response to a good read. *Default = On.*


BEPLED1.
*** LED - Good Read On**


BEPLED0.
LED - Good Read Off

Number of Beeps – Good Read

The number of beeps of a good read can be programmed from 1 - 9. The same number of beeps will be applied to the beeper and LED in response to a good read. For example, if you program this option to have five beeps, there will be five beeps and five LED flashes in response to a good read. The beeps and LED flashes are in sync with one another. To change the number of beeps, scan the bar code below and then scan a digit (1-9) bar code and the **Save** bar code from the Programming Chart, beginning on page 225. *Default = 1.*

Number of Good Read Beeps/LED Flashes

Number of Beeps – Error

The number of beeps and LED flashes emitted by the scanner for a bad read or error can be programmed from 1 - 9. For example, if you program this option to have five error beeps, there will be five error beeps and five LED flashes in response to an error. To change the number of error beeps, scan the bar code below and then scan a digit (1-9) bar code and the **Save** bar code from the Programming Chart, beginning on page 225. *Default = 1.*

Number of Error Beeps/LED Flashes

Good Read Delay

This sets the minimum amount of time before the scanner can read another bar code. *Default = 0 ms (No Delay).*

*** No Delay**

Short Delay (500 ms)

Medium Delay (1,000 ms)

Long Delay (1,500 ms)

User-Specified Good Read Delay

If you want to set your own length for the good read delay, scan the bar code below, then set the delay (from 0 - 30,000 milliseconds) by scanning digits from the inside back cover, then scanning **Save**.

User-Specified Good Read Delay

Serial Trigger Mode

You can activate the scanner by using a serial trigger command (see Trigger Commands on page 178). When in serial mode, the scanner scans until a bar code has been read or until the deactivate command is sent. The scanner can also be set to turn itself off after a specified time has elapsed (see Read Time-Out, which follows).

Read Time-Out

Use this selection to set a time-out (in milliseconds) of the scanner's trigger when using serial commands to trigger the scanner. Once the scanner has timed out, you can activate the scanner by using a serial trigger command. After scanning the **Read Time-Out** bar code, set the time-out duration (from 0-300,000 milliseconds) by scanning digits from the Programming Chart, beginning on page 225, then scanning **Save**. *Default = 30,000 ms.*

Read Time-Out

Presentation Mode

Note: Presentation Mode is not supported by the Orbit 7120plus scanner.

Presentation Mode uses laser or scanner illumination to detect bar codes. When in Presentation Mode, the LEDs remain dim until a bar code is presented to the scanner, then the LEDs turn up to read the code. If the light level in the room is not high enough, Presentation Mode may not work properly.

Scan the following bar code to program your scanner for Presentation Mode.

Presentation Mode

Presentation Idle Mode

When Presentation Idle Mode is selected, when there is no activity, the scanner illumination turns off for a length of time. After scanning the **Presentation Idle Mode** bar code, set the idle time duration (from 0-300,000 milliseconds) by scanning digits from the Programming Chart, beginning on page 225, then scanning **Save**. *Default = 500 (0.5 seconds).*

When **Off** is selected, the scanner remains powered on.

Note: *This selection is unavailable when the Illumination Lights are set to off.*

Presentation Idle Mode

Off

Presentation LED Behavior after Decode

Note: This feature is not supported by the Orbit 7120plus scanner.

If you wish to turn off the LEDs immediately after a bar code is decoded, scan the **LEDs Off** bar code, below. *Default = LEDs Off.*

LEDs On

*** LEDs Off**

Presentation Sensitivity

Note: This feature is not supported by the Orbit 7120plus scanner.

Presentation Sensitivity is a numeric range that increases or decreases the scanner's reaction time to bar code presentation. To set the sensitivity, scan the **Sensitivity** bar code, then scan the degree of sensitivity (from 0-20) from the Programming Chart, beginning on page 225, and **Save**. 0 is the most sensitive setting, and 20 is the least sensitive. *Default = 5.*

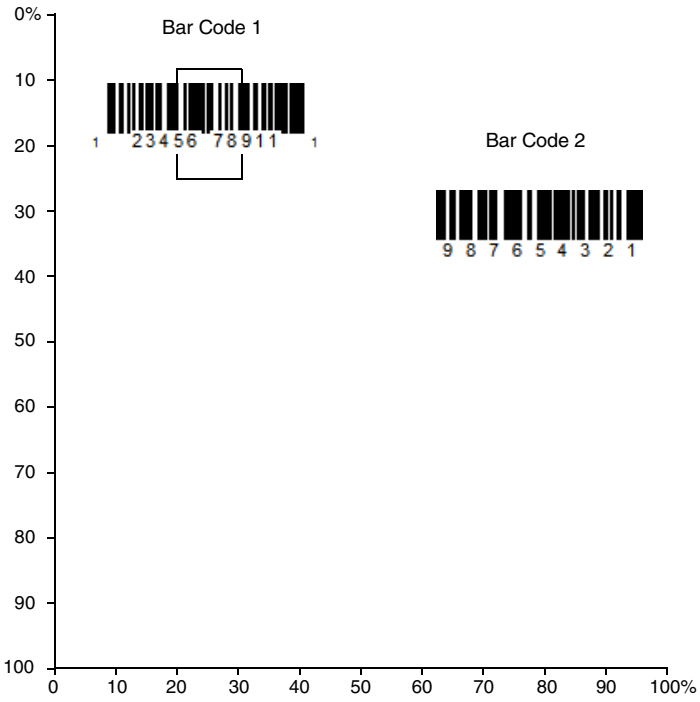
Sensitivity

Presentation Centering

Use Presentation Centering to narrow the imager's field of view to make sure the scanner reads only those bar codes intended by the user. For instance, if multiple codes are placed closely together, Presentation Centering will insure that only the desired codes are read.

If a bar code is not touched by a predefined window, it will not be decoded or output by the scanner. If Presentation Centering is turned on by scanning **Presentation Centering On**, the imager only reads codes that pass through the centering window you specify using the **Top of Presentation Centering Window**, **Bottom of Presentation Centering Window**, **Left**, and **Right of Presentation Centering Window** bar codes.

Example: In the example below, the white box is the centering window. The centering window has been set to 20% left, 30% right, 8% top, and 25% bottom. Since Bar Code 1 passes through the centering window, it will be read. Bar Code 2 does not pass through the centering window, so it will not be read.



Note: A bar code needs only to be touched by the centering window in order to be read. It does not need to pass completely through the centering window.

Scan **Presentation Centering On**, then scan one of the following bar codes to change the top, bottom, left, or right of the centering window. Then scan the percent you want to shift the centering window using digits from the Programming Chart, beginning on page 225, then scan **Save.** *Default Presentation Centering = 40% for Top and Left, 60% for Bottom and Right.*

PDCWIN1.
Presentation Centering On

PDCWIN0.
*** Presentation Centering Off**

PDCTOP.
Top of Presentation Centering Window

PDCBOT.
Bottom of Presentation Centering Window

Left of Presentation Centering Window

Right of Presentation Centering Window

Poor Quality Codes

Poor Quality 1D Codes

This setting improves the scanner's ability to read damaged or badly printed linear bar codes. When **Poor Quality 1D Reading On** is scanned, poor quality linear bar code reading is improved, but the scanner's snappiness is decreased, making it less aggressive when reading good quality bar codes. This setting does not affect 2D bar code reading. *Default = Poor Quality 1D Reading Off.*

Poor Quality 1D Reading On

*** Poor Quality 1D Reading Off**

Poor Quality PDF Codes

This setting improves the scanner's ability to read damaged or badly printed PDF codes by combining information from multiple images. When **Poor Quality PDF On** is scanned, poor quality PDF code reading is improved, but the scanner's snappiness is decreased, making it less aggressive when reading good quality bar codes. This setting does not affect 1D bar code reading. *Default = Poor Quality PDF Reading Off.*

Poor Quality PDF Reading On

*** Poor Quality PDF Reading Off**

Mobile Phone Read Mode

Note: This feature is the default for the Orbit 7120plus scanner and cannot be changed. It is only configurable for the Orbit 7190g scanner.

When this mode is selected, your scanner is optimized to read bar codes from a mobile phone or other LED displays. However, the speed of scanning printed bar codes may be slightly lower when this mode is enabled.

Presentation Scanning - Mobile Phone

Reread Delay

This sets the time period before the scanner can read the *same* 1D bar code a second time. Setting a reread delay protects against accidental rereads of the same 1D bar code. Longer delays are effective in minimizing accidental rereads. Use shorter delays in applications where repetitive 1D bar code scanning is required. Reread Delay only works when in a Presentation Mode (see page 37). *Default = Short.*

*** Short (500 ms)**

*** Medium (750 ms)**

Long (1000 ms)

Extra Long (2000 ms)

User-Specified Reread Delay

If you want to set your own length for the reread delay, scan the bar code below, then set the delay (from 0-30,000 milliseconds) by scanning digits from the Programming Chart, beginning on page 225, then scanning **Save**.

DLYRRD.

User-Specified Reread Delay

2D Reread Delay

Sometimes 2D bar codes can take longer to read than other bar codes. If you wish to set a separate Reread Delay for 2D bar codes, scan one of the programming codes that follows. **2D Reread Delay Off** indicates that the time set for Reread Delay is used for both 1D and 2D bar codes. *Default = 2D Reread Delay Off.*

DLY2RR500.

Short (500 ms)

DLY2RR750.

*** Medium (750ms)**

DLY2RR1000.

Long (1000ms)

DLY2RR2000.

Extra Long (2000ms)

DLY2RR0.

2D Reread Delay Off

Illumination Lights

Note: This feature is not supported by the Orbit 7120plus scanner.

If you want the illumination lights on while reading a bar code, scan the **Lights On** bar code, below. However, if you want to turn just the lights off, scan the **Lights Off** bar code. *Default = Lights On.*


SCNLED1.
*** Lights On**


SCNLED0.
Lights Off

Host Acknowledgment

Some applications require that the host terminal (or server) validate incoming bar code data (database look-up) and provide acknowledgment to the scanner whether or not to proceed. In Host ACK Mode, the scanner waits for this acknowledgment after each scan. Visual and audible acknowledgments provide valuable feedback to the scan operator. The Host ACK functionality is controlled via a number of pre-defined escape commands that are sent to the scanner to make it behave in different ways.

Note: System performance degrades when using Host ACK at rates lower than 9600 baud.

The following criteria must be met for the Host ACK to work correctly:

- The scanner must be configured for Host Port RS232 (terminal ID = 000) or USB COM Emulation (terminal ID = 130).
- RTS/CTS is defaulted off. You must enable it if the host system requires it.
- Host ACK must be set to On (page 45).
- A comma must be used as a terminator.
- The host terminal software must be capable of interpreting the bar code data, make decisions based on the data content, and send out appropriate escape commands to the scanner.

The commands to which the scanner responds are listed on page 45. The [ESC] is a 1B in hex. A typical command string is [ESC] x, where “[ESC] x” is the escape command and the comma is the terminator, which is required.

Example: Commands may be strung together to create custom response sequences. An example of a command string is listed below.

- [ESC]4,[ESC]5,[ESC]6,

The above example will make a scanner zero beep low, then medium, then high.

Example: A good read beep is required for any item on file, but a razz or error tone is required if the item is not on file. In this case,

- [ESC]7, is sent from the host to the scanner for an on-file product
- [ESC]8,[ESC]8, is sent from the host to the scanner for a not-on-file product

When a bar code is scanned, the scanner enters a timeout period until either the host ACK sequence is received, or the timeout expires (in 10 seconds, by default).

Once Host ACK is enabled, the system works as follows when a bar code is scanned:

- The scanner reads the code and sends data to the host system. No audible or visual indication is emitted until the scanner receives an escape command. The scanner read illumination goes out when there's a successful read.
- Scanner operation is suspended until 1) a valid escape string is received from the host system or 2) the scanner times out.
- Once condition 1 or 2 above has been met, the scanner is ready to scan again, and the process repeats.

A time-out occurs if the scanner does not receive a valid escape command within 10 seconds. A time-out is indicated by an error tone. If a time-out occurs, the operator should check the host system to understand why a response to the scanner was not received.

Host ACK On/Off

Host ACK On

*** Host ACK Off**

Host ACK Timeout

You can set a timeout for the length of time the scanner waits for a valid escape command when using Host Acknowledgment Mode. Set the length (in seconds) for a timeout by scanning the following bar code, then setting the timeout (from 1-90 seconds) by scanning digits from the Programming Chart, beginning on page 225, then scanning **Save**. *Default = 10.*

Host ACK Timeout

Host ACK Responses

Command	Action
[ESC] a,	Double beeps to indicate a successful menu change was made.

Command	Action
[ESC] b,	Razz or error tone to indicate a menu change was unsuccessful.
[ESC] 1,	The white LED illuminates for 135 milliseconds followed by a pause.
[ESC] 2,	The white LED illuminates for 2 seconds followed by a pause.
[ESC] 3,	The white LED illuminates for 5 seconds followed by a pause.
[ESC] 4,	Emits a beep at a low pitch.
[ESC] 5,	Emits a beep at a medium pitch.
[ESC] 6,	Emits a beep at a high pitch.
[ESC] 7,	Beeps to indicate a successful decode and communication to host.
[ESC] 8,[ESC] 8,	Razz or error tone to indicate a decode/communication to host was unsuccessful.

Character Activation Mode

Y2ou may use a character sent from the host to trigger the scanner to begin scanning. When the activation character is received, the scanner continues scanning until either the Character Activation Timeout (page 47), the deactivation character is received (see Deactivation Character on page 48), or a bar code is transmitted. Scan the following **On** bar code to use character activation, then use Activation Character (following) to select the character you will send from the host to start scanning. *Default = Off.*

*** Off**

On

Activation Character

This sets the character used to trigger scanning when using Character Activation Mode. On the ASCII Conversion Chart (Code Page 1252), page 214, find the hex value that represents the character you want to use to trigger scanning. Scan the

following bar code, then scan the alphanumeric combination that represents that ASCII character from the Programming Chart, beginning on page 225, then scan **Save**. *Default = 12 [DC2].*

HSTACH.
Activation Character

End Character Activation After Good Read

After a bar code is successfully detected and read from the scanner, the illumination can be programmed either to remain on and scanning, or to turn off. When **End Character Activation After Good Read** is enabled, the illumination turns off and stops scanning after a good read. If you scan **Do Not End Character Activation After Good Read**, the illumination remains on after a good read. *Default = End Character Activation After Good Read.*

HSTCGD0.
Do Not End Character Activation After Good Read

HSTCGD1.
*** End Character Activation After Good Read**

Character Activation Timeout

You can set a timeout for the length of time the illumination remains on and attempting to decode bar codes when using Character Activation Mode. Set the length (in milliseconds) for a timeout by scanning the following bar code, then setting the timeout (from 1-300,000 milliseconds) by scanning digits from the Programming Chart, beginning on page 225, then scanning Save. *Default = 30,000 ms.*

HSTCDT.
Character Activation Timeout

Character Deactivation Mode

If you have sent a character from the host to trigger the scanner to begin scanning, you can also send a deactivation character to stop scanning. Scan the following **On** bar code to use character deactivation, then use Deactivation Character (following) to select the character you will send from the host to terminate scanning. *Default = Off.*

*** Off**

On

Deactivation Character

This sets the character used to terminate scanning when using Character Deactivation Mode. On the ASCII Conversion Chart (Code Page 1252), page 214, find the hex value that represents the character you want to use to terminate scanning. Scan the following bar code, then scan the alphanumeric combination that represents that ASCII character from the Programming Chart, beginning on page 225. Scan **Save** to finish. *Default = 14 [DC4].*

Deactivation Character

D/E Character (Disable/Enable)

If you want to enable scanning by sending an **E** serial command, and disable scanning by sending a **D**, scan the **D/E Character On** bar code that follows. Scan the **D/E Character Off** bar code to turn this feature off. *Default = D/E Character Off.*

***D/E Character Off**

D/E Character On

Beep on BEL Character

You may wish to force the scanner to beep upon a command sent from the host. If you scan the **Beep on BEL On** bar code below, the scanner will beep every time a BEL character is received from the host. *Default = Beep on BEL Off.*

***Beep on BEL Off**

Beep on BEL On

Centering

Use Centering to narrow the scanner's field of view to make sure that when the scanner is hand-held, it reads only those bar codes intended by the user. For instance, if multiple codes are placed closely together, centering will insure that only the desired codes are read. Using the Centering features, the scanner can emulate the operation of older systems, such as linear laser bar code scanners.)

Note: To adjust centering when the scanner is in Presentation Mode, see Presentation Centering (page 39).

Single Code Centering

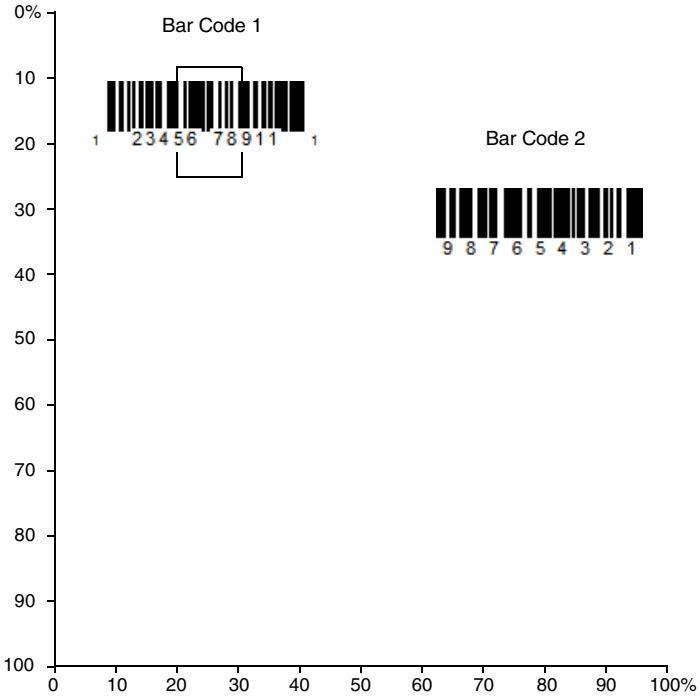
Scan Single Code Centering to target the bar code closest to the center of the image. Singling out a bar code in this manner increases scanning accuracy when there are multiple bar codes close together.

Single Code Centering

Custom Centering Settings

Use the following settings to customize your centering window. If a bar code is not touched by a predefined window, it will not be decoded or output by the scanner. If centering is turned on by scanning **Centering On**, the scanner only reads codes that pass through the centering window you specify using the **Top of Centering Window**, **Bottom of Centering Window**, **Left**, and **Right of Centering Window** bar codes.

In the example below, the white box is the centering window. The centering window has been set to 20% left, 30% right, 8% top, and 25% bottom. Since Bar Code 1 passes through the centering window, it will be read. Bar Code 2 does not pass through the centering window, so it will not be read.



Note: A bar code needs only to be touched by the centering window in order to be read. It does not need to pass completely through the centering window.

Scan **Centering On**, then scan one of the following bar codes to change the top, bottom, left, or right of the centering window. Then scan the percent you want to shift the centering window from the Programming Chart, beginning on page 225, then scan **Save**. *Default Centering = 40% for Top and Left, 60% for Bottom and Right.*

DECWIN1.
Centering On

DECWIN0.
*** Centering Off**

DECTOP.
Top of Centering Window

DECBOT.
Bottom of Centering Window

Left of Centering Window

Right of Centering Window

Preferred Symbology

The scanner can be programmed to specify one symbology as a higher priority over other symbologies in situations where both bar code symbologies appear on the same label, but the lower priority symbology cannot be disabled.

For example, you may be using the scanner in a retail setting to read U.P.C. symbols, but have occasional need to read a code on a drivers license. Since some licenses have a Code 39 symbol as well as the PDF417 symbol, you can use Preferred Symbology to specify that the PDF417 symbol be read instead of the Code 39.

Preferred Symbology classifies each symbology as high priority, low priority, or as an unspecified type. When a low priority symbology is presented, the scanner ignores it for a set period of time (see Preferred Symbology Time-out, beginning on page 52) while it searches for the high priority symbology. If a high priority symbology is located during this period, then that data is read immediately.

If the time-out period expires before a high priority symbology is read, the scanner will read any bar code in its view (low priority or unspecified). If there is no bar code in the scanner's view after the time-out period expires, then no data is reported.

Note: A low priority symbol must be centered on the aiming pattern to be read.

Scan a bar code below to enable or disable Preferred Symbology. *Default = Preferred Symbology Off.*

Preferred Symbology On

*** Preferred Symbology Off**

High Priority Symbology

To specify the high priority symbology, scan the **High Priority Symbology** bar code below. On the Symbology Charts, beginning on page 211, find the symbology you want to set as high priority. Locate the Hex value for that symbology and scan the 2 digit hex value from the Programming Chart, beginning on page 225. Scan **Save** to save your selection. *Default = None*

High Priority Symbology

Low Priority Symbology

To specify the low priority symbology, scan the **Low Priority Symbology** bar code below. On the Symbology Charts, beginning on page 211, find the symbology you want to set as low priority. Locate the Hex value for that symbology and scan the 2 digit hex value from the Programming Chart, beginning on page 225.

If you want to set additional low priority symbologies, scan **FF**, then scan the 2 digit hex value from the Programming Chart for the next symbology. You can program up to 5 low priority symbologies. Scan **Save** to save your selection. *Default = None*.

Low Priority Symbology

Preferred Symbology Time-out

Once you have enabled Preferred Symbology and entered the high and low priority symbologies, you must set the time-out period. This is the period of time the scanner will search for a high priority bar code after a low priority bar code has been encountered. Scan the bar code below, then set the delay (from 1-3,000 milliseconds) by scanning digits from the Programming Chart, beginning on page 225, then scanning **Save**. *Default = 500 ms.*

Preferred Symbology Time-out

Preferred Symbology Default

Scan the bar code below to set all Preferred Symbology entries to their default values.

Preferred Symbology Default

Output Sequence Overview

Output Sequence Editor

This programming selection allows you to program the scanner to output data (when scanning more than one symbol) in whatever order your application requires, regardless of the order in which the bar codes are scanned. Reading the **Default Sequence** symbol programs the scanner to the Universal values, shown below. These are the defaults. Be certain you want to delete or clear all formats before you read the **Default Sequence** symbol.

Note: To make Output Sequence Editor selections, you'll need to know the code I.D., code length, and character match(es) your application requires. Use the Alphanumeric symbols from the Programming Chart, beginning on page 225 to scan these options.

To Add an Output Sequence

1. Scan the **Enter Sequence** symbol (see Require Output Sequence, page 56).
2. **Code I.D.**
   On the Symbology Charts on page 211, find the symbology to which you want to apply the output sequence format. Locate the Hex value for that symbology and scan the 2 digit hex value from the Programming Chart, beginning on page 225.
3. **Length**
   Specify what length (up to 9999 characters) of data output will be acceptable for this symbology. Scan the four digit data length from the Programming Chart, beginning on page 225.

Note: 50 characters is entered as 0050. 9999 is a universal number, indicating all lengths. When calculating the length, you must count any programmed prefixes, suffixes, or formatted characters as part of the length (unless using 9999).

4. **Character Match Sequences**
   On the ASCII Conversion Chart (Code Page 1252), page 214, find the Hex value that represents the character(s) you want to match. Use the Programming Chart, beginning on page 225 to read the alphanumeric combination that

represents the ASCII characters. (99 is the Universal number, indicating all characters.)

5. **End Output Sequence Editor**
   Scan **F F** to enter an Output Sequence for an additional symbology, or **Save** to save your entries.

Other Programming Selections

Discard exits without saving any Output Sequence changes.

Output Sequence Example

In this example, you are scanning Code 93, Code 128, and Code 39 bar codes, but you want the scanner to output Code 39 1st, Code 128 2nd, and Code 93 3rd, as shown below.

Note: Code 93 must be enabled to use this example.


A - Code 39


B - Code 128


C - Code 93

You would set up the sequence editor with the following command line:

SEQBLK62999941FF6A999942FF69999943FF

The breakdown of the command line is shown below:

SEQBLK	sequence editor start command
62	code identifier for **Code 39**
9999	code length that must match for Code 39, 9999 = all lengths
41	start character match for Code 39, 41h = “A”
FF	termination string for first code
6A	code identifier for **Code 128**
9999	code length that must match for Code 128, 9999 = all lengths
42	start character match for Code 128, 42h = “B”
FF	termination string for second code
69	code identifier for **Code 93**

9999	code length that must match for Code 93, 9999 = all lengths
43	start character match for Code 93, 43h = “C”
FF	termination string for third code

To program the previous example using specific lengths, you would have to count any programmed prefixes, suffixes, or formatted characters as part of the length. If you use the example on page 54, but assume a <CR> suffix and specific code lengths, you would use the following command line:

SEQBLK62001241FF6A001342FF69001243FF

The breakdown of the command line is shown below:

SEQBLK	sequence editor start command
62	code identifier for **Code 39**
0012	A - Code 39 sample length (11) plus CR suffix (1) = 12
41	start character match for Code 39, 41h = “A”
FF	termination string for first code
6A	code identifier for **Code 128**
0013	B - Code 128 sample length (12) plus CR suffix (1) = 13
42	start character match for Code 128, 42h = “B”
FF	termination string for second code
69	code identifier for **Code 93**
0012	C - Code 93 sample length (11) plus CR suffix (1) = 12
43	start character match for Code 93, 43h = “C”
FF	termination string for third code

Output Sequence Editor

SEQBLK.
Enter Sequence

SEQDFT.
Default Sequence

Partial Sequence

If an output sequence operation is terminated before all your output sequence criteria are met, the bar code data acquired to that point is a “partial sequence.”

Scan **Discard Partial Sequence** to discard partial sequences when the output sequence operation is terminated before completion. Scan **Transmit Partial Sequence** to transmit partial sequences. (Any fields in the sequence where no data match occurred are skipped in the output.)

Transmit Partial Sequence

*** Discard Partial Sequence**

Require Output Sequence

When an output sequence is **Required,** all output data must conform to an edited sequence or the scanner will not transmit the output data to the host device. When it’s **On/Not Required**, the scanner will attempt to get the output data to conform to an edited sequence but, if it cannot, the scanner transmits all output data to the host device as is.

When the output sequence is **Off**, the bar code data is output to the host as the scanner decodes it. *Default = Off.*

Note: This selection is unavailable when the Multiple Symbols Selection is turned on.

Required

On/Not Required

***Off**

No Read

With No Read turned **On**, the scanner notifies you if a code cannot be read. If using an EZConfig Cloud for Scanning Tool Scan Data Window (see page 171), an “NR” appears when a code cannot be read. If No Read is turned **Off**, the “NR” will not appear. *Default = Off.*

On

*** Off**

If you want a different notation than “NR,” for example, “Error,” or “Bad Code,” you can edit the output message (see Data Format beginning on page 65). The hex code for the No Read symbol is **9C**.

Video Reverse

Note: This feature is not supported by the Orbit 7120plus scanner.

Video Reverse is used to allow the scanner to read bar codes that are inverted. The **Video Reverse Off** bar code below is an example of this type of bar code. Scan **Video Reverse Only** to read *only* inverted bar codes. Scan **Video Reverse and Standard Bar Codes** to read both types of codes.

*Note: After scanning **Video Reverse Only**, menu bar codes cannot be read. You must scan **Video Reverse Off** or **Video Reverse and Standard Bar Codes** in order to read menu bar codes.*

Note: Images downloaded from the unit are not reversed. This is a setting for decoding only.

Video Reverse Only

Video Reverse and Standard Bar Codes

VIDREV0.

*** Video Reverse Off**

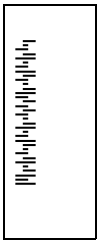
Working Orientation

Some bar codes are direction-sensitive. For example, KIX codes can misread when scanned sideways or upside down. Use the working orientation settings if your direction-sensitive codes will not usually be presented upright to the scanner. *Default = Upright.*

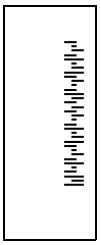
Upright:

Upside Down:

Vertical, Top to Bottom:
(Rotate CW 90°)



Vertical, Bottom to Top:
(Rotate CCW 90°)



ROTATN0.

*** Upright**

ROTATN1.

Vertical, Bottom to Top

ROTATN2.

Upside Down

ROTATN3.

Vertical, Top to Bottom

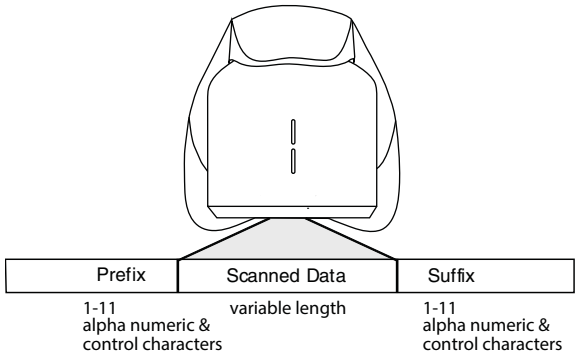
CHAPTER

4 DATA EDIT

Prefix/Suffix Overview

When a bar code is scanned, additional information is sent to the host computer along with the bar code data. This group of bar code data and additional, user-defined data is called a “message string.” The selections in this section are used to build the user-defined data into the message string.

Prefix and Suffix characters are 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. The following illustration shows the breakdown of a message string:



Points to Keep In Mind

- It is not necessary to build a message string. The selections in this chapter are only used if you wish to alter the default settings. *Default prefix = None. Default suffix = None.*
- A prefix or suffix may be added or cleared from one symbology or all symbologies.
- You can add any prefix or suffix from the ASCII Conversion Chart (Code Page 1252), beginning on page 214, plus Code I.D. and AIM I.D.
- You can string together several entries for several symbologies at one time.

- Enter prefixes and suffixes in the order in which you want them to appear on the output.
- When setting up for specific symbologies (as opposed to all symbologies), the specific symbology ID value counts as an added prefix or suffix character.
- The maximum size of a prefix or suffix configuration is 200 characters, which includes header information.

Add a Prefix or Suffix

1. Scan the **Add Prefix** or **Add Suffix** symbol (page 62).
2. Determine the 2 digit hex value from the Symbology Charts, beginning on page 211 for the symbology to which you want to apply the prefix or suffix. For example, for Code 128, Code ID is “j” and Hex ID is “6A”.
3. Scan the 2 hex digits from the Programming Chart, beginning on page 225, or scan **9, 9** for all symbologies.
   a. To add the Code I.D., scan **5, C, 8, 0**.
   b. To add the AIM I.D., scan **5, C, 8, 1**.
   c. To add the serial number, scan **5, C, 8, 8**.
   d. To add a backslash (\), scan **5, C, 5, C**.

Note: *When adding a backslash (\), you must scan 5C twice – once to create the leading backslash and then to create the backslash itself.*

5. Repeat Steps 2 and 3 for every prefix or suffix character.
6. Scan **Save** to exit and save, or scan **Discard** to exit without saving.

Repeat the steps above to add a prefix or suffix for another symbology.

Add a Tab Suffix to All Symbologies

1. Scan **Add Suffix**.
2. Scan **9, 9** from the Programming Chart, beginning on page 225 to apply this suffix to all symbologies.
3. Scan **0, 9** from the Programming Chart, beginning on page 225. This corresponds with the hex value for a horizontal tab, shown in the ASCII Conversion Chart (Code Page 1252), beginning on page 214.
4. Scan **Save**, or scan **Discard** to exit without saving.

Clear One or All Prefixes or Suffixes

You can clear a single prefix or suffix, or clear all prefixes/suffixes for a symbology. If you have been entering prefixes and suffixes for single symbologies, you can use Clear One Prefix (Suffix) to delete a specific character from a symbology. When you Clear All Prefixes (Suffixes), all the prefixes or suffixes for a symbology are deleted.

1. Scan the **Clear One Prefix** or **Clear One Suffix** symbol.
2. Determine the 2 digit Hex value from the Symbology Chart (included in the Symbology Charts, beginning on page 211) for the symbology from which you want to clear the prefix or suffix.
3. Scan the 2 digit hex value from the Programming Chart, beginning on page 225, or scan **9, 9** for all symbologies.

Your change is automatically saved.

To Add a Line Feed/Carriage Return Suffix to All Symbologies

Scan the following bar code if you wish to add a line feed and carriage return suffix to all symbologies at once. This action first clears all current suffixes, then programs a line feed and carriage return suffix for all symbologies.

SUFBK2990D0A.

Add LF/CR Suffix to All Symbologies

Add an ETX Suffix to All Symbologies

To add an ETX suffix to all symbologies, scan the bar code that follows.

KBDCAS2;SUFBK29903.

Add ETX Suffix to All Symbologies

Add an STX Prefix to All Symbologies

To add an STX prefix to all symbologies, scan the bar code that follows.

KBDCAS2;PREBK29902.

Add STX Prefix to All Symbologies

Prefix Selections


PREBK2.
Add Prefix


PRECL2.
Clear One Prefix


PRECA2.
Clear All Prefixes

Suffix Selections


SUFBK2.
Add Suffix


SUFCL2.
Clear One Suffix


SUFCA2.
Clear All Suffixes

Function Code Transmit

When this selection is enabled and function codes are contained within the scanned data, the scanner transmits the function code to the terminal. Charts of these function codes are provided in ASCII Conversion Chart (Code Page 1252), beginning on page 214. When the scanner is in keyboard wedge mode, the scan code is converted to a key code before it is transmitted. *Default = Enable.*


RMVFNC0.
*** Enable**

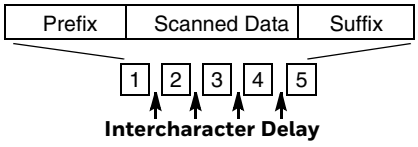

RMVFNC1.
Disable

Intercharacter, Interfunction, and Intermessage Delays

Some terminals drop information (characters) if data comes through too quickly. Intercharacter, interfunction, and intermessage delays slow the transmission of data, increasing data integrity.

Intercharacter Delay

An intercharacter delay of up to 5000 milliseconds (in 5ms increments) may be placed between the transmission of each character of scanned data. Scan the **Intercharacter Delay** bar code below, then scan the number of 5ms delays, and the **Save** bar code from the Programming Chart, beginning on page 225.



Intercharacter Delay

To remove this delay, scan the **Intercharacter Delay** bar code, then set the number of delays to **0**. Scan the **Save** bar code from the Programming Chart, beginning on page 225.

Note: *Intercharacter delays are not supported in USB serial emulation.*

User Specified Intercharacter Delay

An intercharacter delay of up to 5000 milliseconds (in 5ms increments) may be placed after the transmission of a particular character of scanned data. Scan the **Delay Length** bar code below, then scan the number of 5ms delays, and the **Save** bar code from the Programming Chart, beginning on page 225. Next, scan the **Character to Trigger Delay** bar code, then the 2-digit hex value for a printable character to trigger the delay (see Lower ASCII Reference Table on page 215.)

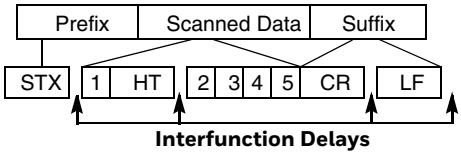
Delay Length

Character to Trigger Delay

To remove this delay, scan the **Delay Length** bar code, and set the number of delays to **0**. Scan the **Save** bar code from the Programming Chart, beginning on page 225.

Interfunction Delay

An interfunction delay of up to 5000 milliseconds (in 5ms increments) may be placed between the transmission of each control character in the message string. Scan the **Interfunction Delay** bar code below, then scan the number of 5ms delays, and the **Save** bar code from the Programming Chart, beginning on page 225.

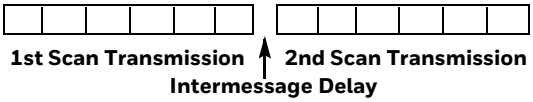


Interfunction Delay

To remove this delay, scan the **Interfunction Delay** bar code, then set the number of delays to **0**. Scan the **Save** bar code from the Programming Chart, beginning on page 225.

Intermessage Delay

An intermessage delay of up to 5000 milliseconds (in 5ms increments) may be placed between each scan transmission. Scan the **Intermessage Delay** bar code below, then scan the number of 5ms delays, and the **Save** bar code from the Programming Chart, beginning on page 225.



Intermessage Delay

To remove this delay, scan the **Intermessage Delay** bar code, then set the number of delays to **0**. Scan the **Save** bar code from the Programming Chart, beginning on page 225.

CHAPTER

5 DATA FORMAT

Data Format Editor Introduction

You may use the Data Format Editor to change the scanner's output. For example, you can use the Data Format Editor to insert characters at certain points in bar code data as it is scanned. The selections in the following pages are used only if you wish to alter the output. *Default Data Format setting = None.*

Normally, when you scan a bar code, it is output automatically. However, when you create a format, you must use a "send" command (see Send Commands on page 68) within the format program to output data.

Multiple formats may be programmed into the scanner. They are stacked in the order in which they are entered. However, the following list presents the order in which formats are applied:

1. Specific Terminal ID, Actual Code ID, Actual Length
2. Specific Terminal ID, Actual Code ID, Universal Length
3. Specific Terminal ID, Universal Code ID, Actual Length
4. Specific Terminal ID, Universal Code ID, Universal Length
5. Universal Terminal ID, Actual Code ID, Actual Length
6. Universal Terminal ID, Actual Code ID, Universal Length
7. Universal Terminal ID, Universal Code ID, Actual Length
8. Universal Terminal ID, Universal Code ID, Universal Length

The maximum size of a data format configuration is 2000 bytes, which includes header information.

If a bar code is read that fails the first data format, the next data format, if there is one, will be used on the bar code data. If there is no other data format, the raw data is output.

If you have changed data format settings, and wish to clear all formats and return to the factory defaults, scan the Default Data Format code below.

*** Default Data Format**

Add a Data Format

Step 1. Scan the **Enter Data Format** symbol (page 67).

Step 2. Select **Primary/Alternate Format**
Determine if this will be your primary data format, or one of 3 alternate formats. This allows you to save a total of 4 different data formats. To program your primary format, scan **0** from the Programming Chart, beginning on page 225. If you are programming an alternate format, scan **1, 2**, or **3**, depending on which alternate format you are programming. (See Primary/Alternate Data Formats on page 82 for further information.)

Step 3. **Terminal Type**
Refer to Terminal ID Table (page 68) and locate the Terminal ID number for your PC. Scan three numeric bar codes from the Programming Chart, beginning on page 225, to program the scanner for your terminal ID (you must enter 3 digits). For example, scan **0 0 3** for an AT wedge.

Note: ***099*** *indicates all terminal types.*

Step 4. **Code I.D.**
In the Symbology Charts, beginning on page 211, find the symbology to which you want to apply the data format. Locate the Hex value for that symbology and scan the 2 digit hex value from the Programming Chart, beginning on page 225.

If you wish to create a data format for all symbologies, with the exception of some specific symbologies, refer to B8 (page 80).

If you are creating a data format for Batch Mode Quantity, use 35 for the Code I.D.

Note: ***99*** *indicates all symbologies.*

Step 5. **Length**
Specify what length (up to 9999 characters) of data will be acceptable for this symbology. Scan the four digit data length from the Programming Chart, beginning on page 225. For example, 50 characters is entered as **0050**.

Note: ***9999*** *indicates all lengths.*

Step 6. **Editor Commands**
Refer to Data Format Editor Commands (page 68). Scan the symbols that represent the command you want to enter.

Step 7. Scan **Save** to save your data format, or **Discard** to exit without saving your changes.

Enter Data Format

Save

Discard

Other Programming Selections

- **Clear One Data Format**
  This deletes one data format for one symbology. If you are clearing the primary format, scan **0** from the Programming Chart, beginning on page 225. If you are clearing an alternate format, scan **1**, **2**, or **3**, depending on the format you are clearing. Scan the Terminal Type and Code I.D. (see Symbology Charts on page 211), and the bar code data length for the specific data format that you want to delete. All other formats remain unaffected.
- **Clear all Data Formats**
  This clears all data formats.
- **Save**
  Exit and save your data format changes.
- **Discard**
  Exit without saving any data format changes.

Clear One Data Format

Clear All Data Formats

Save

Discard

Terminal ID Table

Terminal	Model(s)	Terminal ID
USB	PC keyboard (HID)	124
	Mac Keyboard	125
	PC Keyboard (Japanese)	134
	Serial (COM driver required)	130
	HID POS	131
	USB SurePOS Handheld	128
	USB SurePOS Tabletop	129
Serial	RS232 TTL	000
	RS232 True	000
	RS485 (IBM-HHBCR 1+2, 46xx)	051
Keyboard	PS2 compatibles	003
	AT compatibles	002

Data Format Editor Commands

When working with the Data Format Editor, a virtual cursor is moved along your input data string. The following commands are used to both move this cursor to different positions, and to select, replace, and insert data into the final output.

Send Commands

Send all characters

F1 Include in the output message all of the characters from the input message, starting from current cursor position, followed by an insert character. *Syntax = F1xx* where xx stands for the insert character's hex value for its ASCII code. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

Send a number of characters

F2 Include in the output message a number of characters followed by an insert character. Start from the current cursor position and continue for "nn" characters or through the last character in the input message, followed by character "xx." *Syntax = F2nnxx* where nn stands for the numeric value (00-99) for the number of characters, and xx stands for the insert character's hex value for its ASCII code. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

F2 Example: Send a number of characters

Send the first 10 characters from the bar code above, followed by a carriage return.
Command string: F2100D

F2 is the “Send a number of characters” command

10 is the number of characters to send

0D is the hex value for a CR

The data is output as: **1234567890**

F2 and F1 Example: Split characters into 2 lines

Send the first 10 characters from the bar code above, followed by a carriage return, followed by the rest of the characters.

Command string: **F2100DF10D**

F2 is the “Send a number of characters” command

10 is the number of characters to send for the first line

0D is the hex value for a CR

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as:
1234567890
ABCDEFGHIJ
<CR>

Send all characters up to a particular character

F3 Include in the output message all characters from the input message, starting with the character at the current cursor position and continuing to, but not including, the search character “ss,” followed by an insert character. The cursor is moved forward to the “ss” character. *Syntax = F3ssxx* where ss stands for the search character’s hex value for its ASCII code, and xx stands for the insert character’s hex value for its ASCII code.
Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

F3 Example: Send all characters up to a particular character

Using the bar code above, send all characters up to but not including “D,” followed by a carriage return.

Command string: **F3440D**

F3 is the “Send all characters up to a particular character” command

44 is the hex value for a 'D”

0D is the hex value for a CR

The data is output as:
1234567890ABC
<CR>

Send all characters up to a string

B9 Include in the output message all characters from the input message, starting with the character at the current cursor position and continuing to, but not including, the search string “s...s.” The cursor is moved forward to the beginning of the “s...s” string. *Syntax = B9nnnns...s* where nnnn stands for the length of the string, and s...s stands for the string to be matched. The string is made up of hex values for the characters in the string. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

B9 Example: Send all characters up to a defined string

Using the bar code above, send all characters up to but not including “AB.”

Command string: **B900024142**

B9 is the “Send all characters up to a string” command

0002 is the length of the string (2 characters)

41 is the hex value for A

42 is the hex value for B

The data is output as: **1234567890**

Send all but the last characters

E9 Include in the output message all but the last “nn” characters, starting from the current cursor position. The cursor is moved forward to one position past the last input message character included. *Syntax = E9nn* where nn stands for the numeric value (00-99) for the number of characters that will not be sent at the end of the message.

Insert a character multiple times

F4 Send “xx” character “nn” times in the output message, leaving the cursor in the current position. *Syntax = F4xxnn* where xx stands for the insert character’s hex value for its ASCII code, and nn is the numeric value (00-99) for the number of times it should be sent. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

E9 and F4 Example: Send all but the last characters, followed by 2 tabs

Send all characters except for the last 8 from the bar code above, followed by 2 tabs.

Command string: **E908F40902**

E9 is the “Send all but the last characters” command

08 is the number of characters at the end to ignore

F4 is the “Insert a character multiple times” command

09 is the hex value for a horizontal tab

02 is the number of times the tab character is sent

The data is output as: **1234567890AB <tab><tab>**

Insert a string

BA Send “ss” string of “nn” length in the output message, leaving the cursor in the current position. *Syntax = BAnnnns...s* where nnnn stands for the length of the string, and s...s stands for the string. The string is made up of hex values for the characters in the string. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

B9 and BA Example: Look for the string “AB” and insert 2 asterisks (**)

Using the bar code above, send all characters up to but not including “AB.” Insert 2 asterisks at that point, and send the rest of the data with a carriage return after.

Command string: **B900024142BA00022A2AF10D**

B9 is the “Send all characters up to a string” command

0002 is the length of the string (2 characters)

41 is the hex value for A

42 is the hex value for B

BA is the “Insert a string” command

0002 is the length of the string to be added (2 characters)

2A is the hex value for an asterisk (*)

2A is the hex value for an asterisk (*)

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as:
1234567890ABCDEFGHIJ**
<CR>

Insert symbology name

B3 Insert the name of the bar code's symbology in the output message, without moving the cursor. Only symbologies with a Honeywell ID are included (see Symbology Charts on page 211). Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

Insert bar code length

B4 Insert the bar code's length in the output message, without moving the cursor. The length is expressed as a numeric string and does not include leading zeros.

B3 and B4 Example: Insert the symbology name and length

Send the symbology name and length before the bar code data from the bar code above. Break up these insertions with spaces. End with a carriage return.

Command string: **B3F42001B4F42001F10D**

B3 is the "Insert symbology name" command

F4 is the "Insert a character multiple times" command

20 is the hex value for a space

01 is the number of times the space character is sent

B4 is the "Insert bar code length" command

F4 is the "Insert a character multiple times" command

20 is the hex value for a space

01 is the number of times the space character is sent

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as:
Code128 20 1234567890ABCDEFGHIJ
<CR>

Insert key strokes

B5 Insert a key stroke or combination of key strokes. Key strokes are dependent on your keyboard (see Keyboard Key References on page 221). Any key can be inserted, including arrows and functions. *Syntax = 5CB5xxssnn* where xx is the number of keys pressed (without key modifiers), ss is the key modifier from the table below, and nn is the key number from the Keyboard Key References, page 221.

Key Modifiers	Hex
No Key Modifier	00
Shift Left	01
Shift Right	02
Alt Left	04
Alt Right	08
Control Left	10
Control Right	20

- For example, B501021F inserts an “A” on a 104 key, U.S. style keyboard. B5 = the command, 01 = number of key press events (without the key modifier), 02 is the key modifier for Shift Right, and 1F is the “a” key. If a lower case “a” were to be inserted, B501001F would be entered.

If there are three keystrokes, the syntax would change from B5xxssnn for one key-stroke to B5xxssnnssnnssnn. An example that would insert "abc" is as follows: B503001F00320030F833.

Note: *Key modifiers can be added together when needed. The sum is converted to hexadecimals.*

Example: Control Left+Shift Left = 17, converted to hexadecimal = 11.

Move Commands

Move the cursor forward a number of characters

F5 Move the cursor ahead “nn” characters from current cursor position.
Syntax = F5nn where nn is the numeric value (00-99) for the number of characters the cursor should be moved ahead.

F5 Example: Move the cursor forward and send the data

1234567890ABCDEFGHIJ

Move the cursor forward 3 characters, then send the rest of the bar code data from the bar code above. End with a carriage return.

Command string: **F503F10D**

F5 is the “Move the cursor forward a number of characters” command

03 is the number of characters to move the cursor

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as:
4567890ABCDEFGHIJ
<CR>

Move the cursor backward a number of characters

F6 Move the cursor back “nn” characters from current cursor position. *Syntax = F6nn* where nn is the numeric value (00-99) for the number of characters the cursor should be moved back.

Move the cursor to the beginning

F7 Move the cursor to the first character in the input message. *Syntax = F7.*

FE and F7 Example: Manipulate bar codes that begin with a 1

Search for bar codes that begin with a 1. If a bar code matches, move the cursor back to the beginning of the data and send 6 characters followed by a carriage return. Using the bar code above:

Command string: **FE31F7F2060D**

FE is the “Compare characters” command

31 is the hex value for 1

F7 is the “Move the cursor to the beginning” command

F2 is the “Send a number of characters” command

06 is the number of characters to send

0D is the hex value for a CR

The data is output as:
123456
<CR>

Move the cursor to the end

EA Move the cursor to the last character in the input message. *Syntax = EA.*

Search Commands

Search forward for a character

F8 Search the input message forward for “xx” character from the current cursor position, leaving the cursor pointing to the “xx” character. *Syntax = F8xx* where xx stands for the search character’s hex value for its ASCII code.
Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

F8 Example: Send bar code data that starts after a particular character

Search for the letter “D” in bar codes and send all the data that follows, including the “D.” Using the bar code above:

Command string: **F844F10D**

F8 is the “Search forward for a character” command

44 is the hex value for “D”

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as:
DEFGHIJ
<CR>

Search backward for a character

F9 Search the input message backward for “xx” character from the current cursor position, leaving the cursor pointing to the “xx” character. *Syntax = F9xx* where xx stands for the search character’s hex value for its ASCII code.
Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

Search forward for a string

B0 Search forward for “s” string from the current cursor position, leaving cursor pointing to “s” string. Syntax = B0nnnnS where nnnn is the string length (up to 9999), and S consists of the ASCII hex value of each character in the match string. For example, B0000454657374 will search forward for the first occurrence of the 4 character string “Test.”
Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

B0 Example: Send bar code data that starts after a string of characters

Search for the letters “FGH” in bar codes and send all the data that follows, including “FGH.” Using the bar code above:

Command string: **B00003464748F10D**

B0 is the “Search forward for a string” command

0003 is the string length (3 characters)

46 is the hex value for “F”

47 is the hex value for “G”

48 is the hex value for “H”

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as:
FGHIJ
<CR>

Search backward for a string

B1 Search backward for “s” string from the current cursor position, leaving cursor pointing to “s” string. Syntax = B1nnnnS where nnnn is the string length (up to 9999), and S consists of the ASCII hex value of each character in the match string. For example, B1000454657374 will search backward for the first occurrence of the 4 character string “Test.”
Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

Search forward for a non-matching character

E6 Search the input message forward for the first non-“xx” character from the current cursor position, leaving the cursor pointing to the non-“xx” character. *Syntax = E6xx* where xx stands for the search character’s hex value for its ASCII code. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

E6 Example: Remove zeros at the beginning of bar code data

This example shows a bar code that has been zero filled. You may want to ignore the zeros and send all the data that follows. E6 searches forward for the first character that is not zero, then sends all the data after, followed by a carriage return. Using the bar code above:

Command string: **E630F10D**

E6 is the “Search forward for a non-matching character” command

30 is the hex value for 0

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as:
37692
<CR>

Search backward for a non-matching character

E7 Search the input message backward for the first non-“xx” character from the current cursor position, leaving the cursor pointing to the non-“xx” character. *Syntax = E7xx* where xx stands for the search character’s hex value for its ASCII code. Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

Miscellaneous Commands

Suppress characters

FB Suppress all occurrences of up to 15 different characters, starting at the current cursor position, as the cursor is advanced by other commands. When the FC command is encountered, the suppress function is terminated. The cursor is not moved by the FB command.
Syntax = FBnnxxyy . .zz where nn is a count of the number of suppressed characters in the list, and xxyy .. zz is the list of characters to be suppressed.

FB Example: Remove spaces in bar code data

This example shows a bar code that has spaces in the data. You may want to remove the spaces before sending the data. Using the bar code above:

Command string: **FB0120F10D**

FB is the “Suppress characters” command

01 is the number of character types to be suppressed

20 is the hex value for a space

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as:
34567890
<CR>

Stop suppressing characters

FC Disables suppress filter and clear all suppressed characters. *Syntax = FC.*

Replace characters

E4 Replaces up to 15 characters in the output message, without moving the cursor. Replacement continues until the E5 command is encountered. *Syntax = E4nnxx$_1$xx$_2$yy$_1$yy$_2$...zz$_1$zz$_2$* where nn is the total count of the number of characters in the list (characters to be replaced plus replacement characters); xx$_1$ defines characters to be replaced and xx$_2$ defines replacement characters, continuing through zz$_1$ and zz$_2$.

E4 Example: Replace zeros with CRs in bar code data

If the bar code has characters that the host application does not want included, you can use the E4 command to replace those characters with something else. In this example, you will replace the zeros in the bar code above with carriage returns.

Command string: **E402300DF10D**

E4 is the “Replace characters” command

02 is the total count of characters to be replaced, plus the replacement characters (0 is replaced by CR, so total characters = 2)

30 is the hex value for 0

0D is the hex value for a CR (the character that will replace the 0)

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as:
1234
5678
ABC
<CR>

Stop replacing characters

E5 Terminates character replacement. *Syntax = E5*.

Compare characters

FE Compare the character in the current cursor position to the character “xx.” If characters are equal, move the cursor forward one position. *Syntax = FExx* where xx stands for the comparison character’s hex value for its ASCII code.
Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

Compare string

B2 Compare the string in the input message to the string “s.” If the strings are equal, move the cursor forward past the end of the string. Syntax = B2nnnnS where nnnn is the string length (up to 9999), and S consists of the ASCII hex value of each character in the match string. For example, B2000454657374 will compare the string at the current cursor position with the 4 character string “Test.”
Refer to the ASCII Conversion Chart (Code Page 1252), beginning on page 214 for decimal, hex and character codes.

Check for a number

EC Check to make sure there is an ASCII number at the current cursor position. The format is aborted if the character is not numeric.

EC Example: Only output the data if the bar code begins with a number

If you want only data from bar codes that begin with a number, you can use EC to check for the number.

Command string: **ECF10D**

EC is the “Check for a number” command

F1 is the “Send all characters” command

0D is the hex value for a CR

If this bar code is read, 

the next data format, if there is one, will be used on the data. If there is no other format, the format fails and the raw data is output as **AB1234.**

If this bar code is read: 

the data is output as:

1234AB
<CR>

Check for non-numeric character

ED Check to make sure there is a non-numeric ASCII character at the current cursor position. The format is aborted if the character is numeric.

ED Example: Only output the data if the bar code begins with a letter

If you want only data from bar codes that begin with a letter, you can use ED to check for the letter.

Command string: **EDF10D**

ED is the “Check for a non-numeric character” command

F1 is the “Send all characters” command

0D is the hex value for a CR

If this bar code is read, 

the next data format, if there is one, will be used on this data. If there is no other format, the format fails and the raw data is output as **1234AB**.

If this bar code is read: 

the data is output as:

AB1234
<CR>

Insert a delay

EF Inserts a delay of up to 49,995 milliseconds (in multiples of 5), starting from the current cursor position. Syntax = EFnnnn where nnnn stands for the delay in 5ms increments, up to 9999. This command can only be used with keyboard emulation.a

Discard Data

B8 Discards types of data. For example, you may want to discard Code 128 bar codes that begin with the letter A. In step 4 (page 66), select 6A (for Code 128), and in step 5, select 9999 (for all lengths). Enter FE41B8 to compare and discard Code 128 bar codes that begin with the letter A. *Syntax = B8.*

Note: *The B8 command must be entered after all other commands.*
*The Data Format must be **Required** (see page 81) in order for the B8 command to work.*
*If Data Format is **On, but Not Required** (page 81), bar code data that meets the B8 format is scanned and output as usual.*
*Because the data format needs to be **On** and **Required** (page 81) for the B8 command, you must input data formats for all bar codes you wish to discard as well as all bar codes you wish to output.*

Data Formatter

When Data Formatter is turned Off, the bar code data is output to the host as read, including prefixes and suffixes.

Data Formatter Off

You may wish to require the data to conform to a data format you have created and saved. The following settings can be applied to your data format:

- **Data Formatter On, Not Required, Keep Prefix/Suffix**
  Scanned data is modified according to your data format, and prefixes and suffixes are transmitted.
- **Data Formatter On, Not Required, Drop Prefix/Suffix**
  Scanned data is modified according to your data format. If a data format is found for a particular symbol, those prefixes and suffixes are not transmitted. If a data format is *not* found for that symbol, the prefixes and suffixes *are* transmitted.
- **Data Format Required, Keep Prefix/Suffix**
  Scanned data is modified according to your data format, and prefixes and suffixes are transmitted. Any data that does not match your data format requirements generates an error tone and the data in that bar code is not transmitted.
- **Data Format Required, Drop Prefix/Suffix**
  Scanned data is modified according to your data format. If a data format is found for a particular symbol, those prefixes and suffixes are not transmitted. Any data that does not match your data format requirements generates an error tone.

Choose one of the following options. *Default = Data Formatter On, Not Required, Keep Prefix/Suffix.*

*** Data Formatter On, Not Required, Keep Prefix/Suffix**

Data Formatter On, Not Required, Drop Prefix/Suffix

Data Format Required, Keep Prefix/Suffix

Data Format Required, Drop Prefix/Suffix

Primary/Alternate Data Formats

You can save up to four data formats, and switch between these formats. Your primary data format is saved under **0**. Your other three formats are saved under **1**, **2**, and **3**. To set your device to use one of these formats, scan one of the bar codes below.

Primary Data Format

Data Format 1

Data Format 2

Data Format 3

Single Scan Data Format Change

You can also switch between data formats for a single scan. The next bar code is scanned using an alternate data format, then reverts to the format you have selected above (either Primary, 1, 2, or 3).

For example, you may have set your device to the data format you saved as Data Format 3. You can switch to Data Format 1 for a single scan by scanning the **Single Scan-Data Format 1** bar code below. The next bar code that is scanned uses Data Format 1, then reverts back to Data Format 3.

Single Scan-Primary Data Format

Single Scan-Data Format 1

Single Scan-Data Format 2

Single Scan-Data Format 3

CHAPTER 6

SYMBOLOGIES

This programming section contains the following menu selections. Refer to Chapter 9 for settings and defaults.

- All Symbologies
- Aztec Code
- China Post (Hong Kong 2 of 5)
- Chinese Sensible (Han Xin) Code
- Codabar
- Codablock A
- Codablock F
- Code 11
- Code 128
- Code 32 Pharmaceutical (PARAF)
- Code 39
- Code 93
- Data Matrix
- EAN/JAN-13
- EAN/JAN-8
- GS1 Composite Codes
- GS1 DataBar Expanded
- GS1 DataBar Limited
- GS1 DataBar Omnidirectional
- GS1 Emulation
- GS1-128
- Interleaved 2 of 5
- Korea Post
- Label Code
- Matrix 2 of 5
- MaxiCode
- MicroPDF417
- MSI
- NEC 2 of 5
- Plessey Code
- Postal Codes - 2D
- Postal Codes - Linear
- PDF417
- GS1 DataBar Omnidirectional
- QR Code
- Straight 2 of 5 IATA (two-bar start/stop)
- Straight 2 of 5 Industrial (three-bar start/stop)
- TCIF Linked Code 39 (TLC39)
- Telepen
- Trioptic Code
- UPC-A
- UPC-A/EAN-13 with Extended Coupon Code
- UPC-E0
- UPC-E1

All Symbologies

If you want to decode all the symbologies allowable for your scanner, scan the **All Symbologies On** code. If on the other hand, you want to decode only a particular symbology, scan **All Symbologies Off** followed by the On symbol for that particular symbology.

Note: *Scanner performance may reduce by scanning **All Symbologies On**. Only scan **All Symbologies On** when needed.*

All Symbologies On

All Symbologies Off

Note: *When **All Symbologies On** is scanned, 2D Postal Codes are not enabled. 2D Postal Codes must be enabled separately.*

Message Length Description

You are able to set the valid reading length of some of the bar code symbologies. You may wish to set the same value for minimum and maximum length to force the scanner to read fixed length bar code data. This helps reduce the chances of a mis-read.

Example: Decode only those bar codes with a count of 9-20 characters.
Min. length = 09
Max. length = 20

Example: Decode only those bar codes with a count of 15 characters.
Min. length = 15
Max. length = 15

For a value other than the minimum and maximum message length defaults, scan the bar codes included in the explanation of the symbology, then scan the digit value of the message length and **Save** bar codes from the Programming Chart, beginning on page 225. The minimum and maximum lengths and the defaults are included with the respective symbologies.

Codabar

<Default All Codabar Settings>

Codabar On/Off

*** On**

Off

Codabar Start / Stop Characters

Start/Stop characters identify the leading and trailing ends of the bar code. You may either transmit, or not transmit Start/Stop characters. *Default = Don't Transmit*.

Transmit

*** Don't Transmit**

Codabar Check Character

Codabar check characters are created using different "modulos." You can program the scanner to read only Codabar bar codes with Modulo 16 check characters. *Default = No Check Character.*

No Check Character indicates that the scanner reads and transmits bar code data with or without a check character.

When Check Character is set to **Validate and Transmit**, the scanner will only read Codabar bar codes printed with a check character, and will transmit this character at the end of the scanned data.

When Check Character is set to **Validate, but Don't Transmit**, the unit will only read Codabar bar codes printed *with* a check character, but will not transmit the check character with the scanned data.


CBRCK20.
*** No Check Character**


CBRCK21.
Validate Modulo 16, but Don't Transmit


CBRCK22.
Validate Modulo 16 and Transmit

Codabar Concatenation

Codabar supports symbol concatenation. When you enable concatenation, the scanner looks for a Codabar symbol having a "D" start character, adjacent to a symbol having a "D" stop character. In this case the two messages are concatenated into one with the "D" characters omitted.

Select **Require** to prevent the scanner from decoding a single "D" Codabar symbol without its companion. This selection has no effect on Codabar symbols without Stop/Start D characters.


CBRCCT1.
On


CBRCCT0.
*** Off**


CBRCCT2.
Require

Codabar Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 2-60. Minimum Default = 4, Maximum Default = 60.

CBRMIN.
Minimum Message Length

CBRMAX.
Maximum Message Length

Code 39

< Default All Code 39 Settings >

C39DFT.

Code 39 On/Off

C39ENA1.
*** On**

C39ENA0.
Off

If you are reading Code 39 bar codes, Codablock A should remain disabled. If you are enabling Codablock A (see Codablock A on page 128), you should disable Code 39.

Code 39 Start / Stop Characters

Start/Stop characters identify the leading and trailing ends of the bar code. You may either transmit, or not transmit Start/Stop characters. *Default = Don't Transmit.*

C39SSX1.
Transmit

C39SSX0.
*** Don't Transmit**

Code 39 Check Character

No Check Character indicates that the scanner reads and transmits bar code data with or without a check character.

When Check Character is set to **Validate, but Don't Transmit**, the unit only reads Code 39 bar codes printed with a check character, but will not transmit the check character with the scanned data.

When Check Character is set to **Validate and Transmit**, the scanner only reads Code 39 bar codes printed with a check character, and will transmit this character at the end of the scanned data. *Default = No Check Character.*

C39CK20.
*** No Check Character**

C39CK21.
Validate, but Don't Transmit

C39CK22.
Validate and Transmit

Code 39 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 0-48. Minimum Default = 0, Maximum Default = 48.

C39MIN.
Minimum Message Length

C39MAX.
Maximum Message Length

Code 39 Append

This function allows the scanner to append the data from several Code 39 bar codes together before transmitting them to the host computer. When the scanner encounters a Code 39 bar code with the append trigger character(s), it buffers Code 39 bar codes until it reads a Code 39 bar code that does not have the append trigger. The data is then transmitted in the order in which the bar codes were read (FIFO). *Default = Off.*


C39APP1.
On


C39APP0.
*** Off**

Code 32 Pharmaceutical (PARAF)

Code 32 Pharmaceutical is a form of the Code 39 symbology used by Italian pharmacies. This symbology is also known as PARAF.

Note: *Trioptic Code (page 127) must be turned off while scanning Code 32 Pharmaceutical codes.*


C39B321.
On


C39B320.
*** Off**

Full ASCII

If Full ASCII Code 39 decoding is enabled, certain character pairs within the bar code symbol will be interpreted as a single character. For example: $V will be decoded as the ASCII character SYN, and /C will be decoded as the ASCII character #. *Default = Off.*

Full ASCII Table

NUL	%U	DLE	$P	SP	SPACE	0	0	@	%V	P	P	‘	%W	p	+P
SOH	$A	DC1	$Q	!	/A	1	1	A	A	Q	Q	a	+A	q	+Q
STX	$B	DC2	$R	“	/B	2	2	B	B	R	R	b	+B	r	+R
ETX	$C	DC3	$S	#	/C	3	3	C	C	S	S	c	+C	s	+S
EOT	$D	DC4	$T	$	/D	4	4	D	D	T	T	d	+D	t	+T
ENQ	$E	NAK	$U	%	/E	5	5	E	E	U	U	e	+E	u	+U
ACK	$F	SYN	$V	&	/F	6	6	F	F	V	V	f	+F	v	+V

Full ASCII Table (Continued)																							
BEL	$G	ETB	$W	‘	/G	7	7	G	G	W	W	g	+G	w	+W
BS	$H	CAN	$X	(	/H	8	8	H	H	X	X	h	+H	x	+X
HT	$I	EM	$Y	)	/I	9	9	I	I	Y	Y	i	+I	y	+Y
LF	$J	SUB	$Z	*	/J	:	/Z	J	J	Z	Z	j	+J	z	+Z
VT	$K	ESC	%A	+	/K	;	%F	K	K	[	%K	k	+K	{	%P
FF	$L	FS	%B	,	/L	<	%G	L	L	\	%L	l	+L	|	%Q
CR	$M	GS	%C	-	-	=	%H	M	M	]	%M	m	+M	}	%R
SO	$N	RS	%D	.	.	>	%I	N	N	^	%N	n	+N	~	%S
SI	$O	US	%E	/	/O	?	%J	O	O	_	%O	o	+O	DEL	%T

Character pairs /M and /N decode as a minus sign and period respectively. Character pairs /P through /Y decode as 0 through 9.

C39ASC1.
Full ASCII On

C39ASC0.
*** Full ASCII Off**

Code 39 Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see ISO 2022/ISO 646 Character Replacements on page 218), and scan the value and the **Save** bar code from the Programming Chart, beginning on page 225. The data characters should then appear properly.

C39DCP.
Code 39 Code Page

Interleaved 2 of 5

< Default All Interleaved 2 of 5 Settings >

I25DFT.

Interleaved 2 of 5 On/Off

I25ENA1.
*** On**

I25ENA0.
Off

Check Digit

No Check Digit indicates that the scanner reads and transmits bar code data with or without a check digit.

When Check Digit is set to **Validate, but Don't Transmit**, the unit only reads Interleaved 2 of 5 bar codes printed with a check digit, but will not transmit the check digit with the scanned data.

When Check Digit is set to **Validate and Transmit**, the scanner only reads Interleaved 2 of 5 bar codes printed with a check digit, and will transmit this digit at the end of the scanned data. *Default* = **No Check Digit**.

I25CK20.
*** No Check Digit**

I25CK21.
Validate, but Don't Transmit

I25CK22.
Validate and Transmit

Interleaved 2 of 5 Length Lock 1

Use a Length Lock code to set a specific length for Interleaved 2 of 5 bar codes. Interleaved 2 of 5 codes that do not conform to this length are discarded. To set the number for Length Lock 1, scan the bar code below and then scan the digits for the length from the Programming Chart, beginning on page 225. Scan **Save** to save this setting. *Default = 0.*

Length Lock 1

Note: *This command can be used together with Length Lock 2 to set a range of allowable lengths.*

Interleaved 2 of 5 Length Lock 2

Use a Length Lock code to set a specific length for Interleaved 2 of 5 bar codes. Interleaved 2 of 5 codes that do not conform to this length are discarded. To set the number for Length Lock 2, scan the bar code below and then scan the digits for the length from the Programming Chart, beginning on page 225. Scan **Save** to save this setting. *Default = 0.*

Length Lock 2

Note: *This command can be used together with Length Lock 1 to set a range of allowable lengths.*

Interleaved 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 6, Maximum Default = 80.

Minimum Message Length

Maximum Message Length

Double Border Required

When **Double Border Required** is scanned, your scanner will only be able to read bar codes with double borders. Single border bar codes will be discarded. *Default = Double Borders Not Required.*

LSRDBB1.

Double Border Required

LSRDBB0.

*** Double Border Not Required**

NEC 2 of 5

< Default All NEC 2 of 5 Settings >

N25DFT.

NEC 2 of 5 On/Off

N25ENA1.

*** On**

N25ENA0.

Off

Check Digit

No Check Digit indicates that the scanner reads and transmits bar code data with or without a check digit.

When Check Digit is set to **Validate, but Don't Transmit**, the unit only reads NEC 2 of 5 bar codes printed with a check digit, but will not transmit the check digit with the scanned data.

When Check Digit is set to **Validate and Transmit**, the scanner only reads NEC 2 of 5 bar codes printed with a check digit, and will transmit this digit at the end of the scanned data. *Default* = **No Check Digit**.

N25CK20.
*** No Check Digit**

N25CK21.
Validate, but Don't Transmit

N25CK22.
Validate and Transmit

NEC 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 80.

N25MIN.
Minimum Message Length

N25MAX.
Maximum Message Length

Code 93

< Default All Code 93 Settings >

C93DFT.

Code 93 On/Off

C93ENA1.
*** On**

C93ENA0.
Off

Code 93 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 0-80. Minimum Default = 0, Maximum Default = 80.

C93MIN.
Minimum Message Length

C93MAX.
Maximum Message Length

Code 93 Append

This function allows the scanner to append the data from several Code 93 bar codes together before transmitting them to the host computer. When this function is enabled, the scanner stores those Code 93 bar codes that start with a space (excluding the start and stop symbols), and does not immediately transmit the data. The scanner stores the data in the order in which the bar codes are read, deleting the first space from each. The scanner transmits the appended data when it reads a Code 93 bar code that starts with a character other than a space. *Default = Off.*

C93APP1.
On

C93APP0.
*** Off**

Code 93 Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see ISO 2022/ISO 646

Character Replacements on page 218), and scan the value and the **Save** bar code from the Programming Chart, beginning on page 225. The data characters should then appear properly.

C93DCP.
Code 93 Code Page

Straight 2 of 5 Industrial (three-bar start/stop)

<Default All Straight 2 of 5 Industrial Settings>

R25DFT.

Straight 2 of 5 Industrial On/Off

R25ENA1.
On

R25ENA0.
*** Off**

Straight 2 of 5 Industrial Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-48. Minimum Default = 4, Maximum Default = 48.

R25MIN.
Minimum Message Length

R25MAX.
Maximum Message Length

Straight 2 of 5 IATA (two-bar start/stop)

<Default All Straight 2 of 5 IATA Settings>

A25DFT.

Straight 2 of 5 IATA On/Off

A25ENA1.
On

A25ENA0.
*** Off**

Straight 2 of 5 IATA Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-48. Minimum Default = 4, Maximum Default = 48.

A25MIN.
Minimum Message Length

A25MAX.
Maximum Message Length

Matrix 2 of 5

<Default All Matrix 2 of 5 Settings>

X25DFT.

Matrix 2 of 5 On/Off

X25ENA1.
On

X25ENA0.
*** Off**

Matrix 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 4, Maximum Default = 80.

X25MIN.
Minimum Message Length

X25MAX.
Maximum Message Length

Code 11

<Default All Code 11 Settings>

C11DFT.

Code 11 On/Off

C11ENA1.
On

C11ENA0.
*** Off**

Check Digits Required

This option sets whether 1 or 2 check digits are required with Code 11 bar codes. *Default = Two Check Digits.*

C11CK20.
One Check Digit

C11CK21.
*** Two Check Digits**

Code 11 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 4, Maximum Default = 80.

C11MIN.
Minimum Message Length

C11MAX.
Maximum Message Length

Code 128

<Default All Code 128 Settings>

Code 128 On/Off

*** On**

Off

If you are reading Code 128 bar codes, Codablock F should remain disabled. If you are enabling Codablock F (see Codablock F on page 129), you should disable Code 128.

ISBT 128 Concatenation

In 1994 the International Society of Blood Transfusion (ISBT) ratified a standard for communicating critical blood information in a uniform manner. The use of ISBT formats requires a paid license. The ISBT 128 Application Specification describes 1) the critical data elements for labeling blood products, 2) the current recommendation to use Code 128 due to its high degree of security and its space-efficient design, 3) a variation of Code 128 that supports concatenation of neighboring symbols, and 4) the standard layout for bar codes on a blood product label. Use the bar codes below to turn concatenation on or off. *Default =Off.*

On

*** Off**

Code 128 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 0-80. Minimum Default = 0, Maximum Default = 80.

Minimum Message Length

Maximum Message Length

Code 128 Append

This function allows the scanner to append the data from several Code 128 bar codes together before transmitting them to the host computer. When the scanner encounters a Code 128 bar code with the append trigger character(s), it buffers Code 128 bar codes until it reads a Code 128 bar code that does not have the append trigger. The data is then transmitted in the order in which the bar codes were read (FIFO). *Default = Off.*

On

*** Off**

Code 128 Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see ISO 2022/ISO 646 Character Replacements on page 218), and scan the value and the **Save** bar code from the Programming Chart, beginning on page 225. The data characters should then appear properly.

Code 128 Code Page

GS1-128

<Default All GS1-128 Settings>

GS1DFT.

GS1-128 On/Off

GS1ENA1.
*** On**

GS1ENA0.
Off

GS1-128 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 1, Maximum Default = 80.

GS1MIN.
Minimum Message Length

GS1MAX.
Maximum Message Length

Telepen

<Default All Telepen Settings>

TELDFT.

Telepen On/Off

TELENA1.
On

TELENA0.
*** Off**

Telepen Output

Using **AIM Telepen Output**, the scanner reads symbols with start/stop pattern 1 and decodes them as standard full ASCII (start/stop pattern 1). When **Original Telepen Output** is selected, the scanner reads symbols with start/stop pattern 1 and decodes them as compressed numeric with optional full ASCII (start/stop pattern 2). *Default = AIM Telepen Output.*

TELOLD0.
*** AIM Telepen Output**

TELOLD1.
Original Telepen Output

Telepen Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-60. Minimum Default = 1, Maximum Default = 60.

TELMIN.
Minimum Message Length

TELMAX.
Maximum Message Length

UPC-A

<Default All UPC-A Settings>

UPADFT.

UPC-A On/Off

UPBENA1.
*** On**

UPBENA0.
Off

Note: *To convert UPC-A bar codes to EAN-13, see* *Convert UPC-A to EAN-13 on page 113*.

UPC-A Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not. *Default = On*.

UPACKX1.
*** On**

UPACKX0.
Off

UPC-A Number System

The numeric system digit of a U.P.C. symbol is normally transmitted at the beginning of the scanned data, but the unit can be programmed so it will not transmit it (**Off**). *Default = On.*

UPANSX1.
*** On**

UPANSX0.
Off

UPC-A Addenda

This selection adds 2 or 5 digits to the end of all scanned UPC-A data.
Default = Off for both 2 Digit and 5 Digit Addenda.

UPAAD21.
2 Digit Addenda On

UPAAD20.
*** 2 Digit Addenda Off**

UPAAD51.
5 Digit Addenda On

UPAAD50.
*** 5 Digit Addenda Off**

UPC-A Addenda Required

When **Required** is scanned, the scanner will only read UPC-A bar codes that have addenda. You must then turn on a 2 or 5 digit addenda listed on page 107.
Default = Not Required.

UPAARQ1.
Required

*** Not Required**

Addenda Timeout

You can set a time during which the scanner looks for an addenda. If an addenda is not found within this time period, the data can be either transmitted or discarded, based on the setting you are using for UPC-A Addenda Required. Set the length (in milliseconds) for this timeout by scanning the bar code below, then setting the timeout by scanning digits from the Programming Chart, beginning on page 225 of this manual, then **Save**. *Default = 300.*

Note: *The Addenda Timeout maximum length is determined by the Reread Delay setting. See Reread Delay (page 42). The Addenda Timeout setting is applied to all addenda and coupon code searches.*

Addenda Timeout

UPC-A Addenda Separator

When this feature is **On**, there is a space between the data from the bar code and the data from the addenda. When turned **Off**, there is no space. *Default = On.*

*** On**

Off

UPC-A/EAN-13 with Extended Coupon Code

Use the following codes to enable or disable UPC-A and EAN-13 with Extended Coupon Code. When left on the default setting (**Off**), the scanner treats Coupon Codes and Extended Coupon Codes as single bar codes.

If you scan the **Allow Concatenation** code, when the scanner sees the coupon code and the extended coupon code in a single scan, it transmits both as one symbologies. Otherwise, it transmits the first coupon code it reads.

If you scan the **Require Concatenation** code, the scanner must see and read the coupon code and extended coupon code in a single read to transmit the data. No data is output unless both codes are read. *Default = Off.*


CPNENA0.
*** Off**


CPNENA1.
Allow Concatenation


CPNENA2.
Require Concatenation

Addenda Timeout

You can set a time during which the scanner looks for an addenda. If an addenda is not found within this time period, the data can be either transmitted or discarded, based on the setting you are using for UPC-A/EAN-13 with Extended Coupon Code. Set the length (in milliseconds) for this timeout by scanning the bar code below, then setting the timeout (from 0-65535 milliseconds) by scanning digits from the Programming Chart, beginning on page 225 of this manual, then **Save**. *Default = 100.*

Note: *The Addenda Timeout setting is applied to all addenda and coupon code searches.*


DLYADD.
Addenda Timeout

Coupon GS1 DataBar Output

If you scan coupons that have both UPC and GS1 DataBar codes, you may wish to scan and output only the data from the GS1 DataBar code. Scan the **GS1 Output On** code below to scan and output only the GS1 DataBar code data. *Default = GS1 Output Off.*


CPNGS10.
*** GS1 Output Off**


CPNGS11.
GS1 Output On

UPC-E0

<Default All UPC-E Settings>


UPEDFT.

UPC-E0 On/Off

Most U.P.C. bar codes lead with the 0 number system. To read these codes, use the **UPC-E0 On** selection. If you need to read codes that lead with the 1 number system, use UPC-E1 (page 112). *Default = On.*


UPEEN01.
*** UPC-E0 On**


UPEEN00.
UPC-E0 Off

UPC-E0 Expand

UPC-E Expand expands the UPC-E code to the 12 digit, UPC-A format. *Default = Off.*


UPEEXP1.
On


UPEEXP0.
*** Off**

UPC-E0 Addenda Required

When **Required** is scanned, the scanner will only read UPC-E bar codes that have addenda. *Default = Not Required.*


UPEARQ1.
Required


UPEARQ0.
*** Not Required**

Addenda Timeout

You can set a time during which the scanner looks for an addenda. If an addenda is not found within this time period, the data can be either transmitted or discarded, based on the setting you are using for UPC-E0 Addenda Required. Set the length (in milliseconds) for this timeout by scanning the bar code below, then setting the timeout (from 0-65535 milliseconds) by scanning digits from the Programming Chart, beginning on page 225 of this manual, then **Save**. *Default = 100.*

Note: *The Addenda Timeout setting is applied to all addenda and coupon code searches.*

Addenda Timeout

UPC-E0 Addenda Separator

When this feature is **On**, there is a space between the data from the bar code and the data from the addenda. When turned **Off**, there is no space. *Default = On.*

*** On**

Off

UPC-E0 Check Digit

Check Digit specifies whether the check digit should be transmitted at the end of the scanned data or not. *Default = On.*

*** On**

Off

UPC-E0 Leading Zero

This feature allows the transmission of a leading zero (0) at the beginning of scanned data. To prevent transmission, scan **Off**. *Default = On.*

UPENSX1.
*** On**

UPENSX0.
Off

UPC-E0 Addenda

This selection adds 2 or 5 digits to the end of all scanned UPC-E data. *Default = Off for both 2 Digit and 5 Digit Addenda.*

UPEAD21.
2 Digit Addenda On

UPEAD20.
*** 2 Digit Addenda Off**

UPEAD51.
5 Digit Addenda On

UPEAD50.
*** 5 Digit Addenda Off**

UPC-E1

Most U.P.C. bar codes lead with the 0 number system. For these codes, use UPC-E0 (page 110). If you need to read codes that lead with the 1 number system, use the **UPC-E1 On** selection. *Default = Off.*

UPEEN11.
UPC-E1 On

*** UPC-E1 Off**

EAN/JAN-13

<Default All EAN/JAN Settings>

EAN/JAN-13 On/Off

*** On**

Off

Convert UPC-A to EAN-13

When **UPC-A Converted to EAN-13** is selected, UPC-A bar codes are converted to 13 digit EAN-13 codes by adding a zero to the front. When **Do not Convert UPC-A** is selected, UPC-A codes are read as UPC-A.

UPC-A Converted to EAN-13

*** Do not Convert UPC-A**

EAN/JAN-13 Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not. *Default = On.*

E13CKX1.
*** On**

E13CKX0.
Off

EAN/JAN-13 Addenda

This selection adds 2 or 5 digits to the end of all scanned EAN/JAN-13 data. *Default = Off for both 2 Digit and 5 Digit Addenda.*

E13AD21.
2 Digit Addenda On

E13AD20.
*** 2 Digit Addenda Off**

E13AD51.
5 Digit Addenda On

E13AD50.
*** 5 Digit Addenda Off**

EAN/JAN-13 Addenda Required

When **Required** is scanned, the scanner will only read EAN/JAN-13 bar codes that have addenda. *Default = Not Required.*

E13ARQ1.
Required

E13ARQ0.
*** Not Required**

EAN-13 Beginning with 290 Addenda Required

This setting programs the scanner to require a 5 digit addenda only on EAN-13 bar codes that begin with “290.” The following settings can be programmed:

Require 5 Digit Addenda: All EAN-13 bar codes that begin with “290” must have a 5 digit addendum. The EAN-13 bar code with the 5 digit addendum is then transmitted as a single, concatenated bar code. If a 5 digit addendum is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don’t Require 5 Digit Addenda: If you have selected **Require 5 Digit Addenda**, and you want to disable this feature, scan **Don’t Require 5 Digit Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don’t Require 5 Digit Addenda.

*** Don’t Require 5 Digit Addenda**

Require 5 Digit Addenda

EAN-13 Beginning with 378/379 Addenda Required

This setting programs the scanner to require any combination of a 2 digit addenda or a 5 digit addenda on EAN-13 bar codes that begin with a “378” or “379.” The following settings can be programmed:

Require Addenda: All EAN-13 bar codes that begin with a “378” or “379” must have a 2 digit addenda, a 5 digit addenda, or a combination of these addenda. The EAN-13 bar code with the addenda is then transmitted as a single, concatenated bar code. If the required addenda is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don’t Require Addenda: If you have selected **Require Addenda**, and you want to disable this feature, scan **Don’t Require Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don’t Require Addenda.

*** Don’t Require Addenda**

Require 2 Digit Addenda

Require 5 Digit Addenda

Require 2 or 5 Digit Addenda

EAN-13 Beginning with 414/419 Addenda Required

This setting programs the scanner to require any combination of a 2 digit addenda or a 5 digit addenda on EAN-13 bar codes that begin with a “414” or “419.” The following settings can be programmed:

Require Addenda: All EAN-13 bar codes that begin with a “414” or “419” must have a 2 digit addenda, a 5 digit addenda, or a combination of these addenda. The EAN-13 bar code with the addenda is then transmitted as a single, concatenated bar code. If the required addenda is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don’t Require Addenda: If you have selected **Require Addenda**, and you want to disable this feature, scan **Don’t Require Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don’t Require Addenda.

*** Don’t Require Addenda**

Require 2 Digit Addenda

Require 5 Digit Addenda

Require 2 or 5 Digit Addenda

EAN-13 Beginning with 434/439 Addenda Required

This setting programs the scanner to require any combination of a 2 digit addenda or a 5 digit addenda on EAN-13 bar codes that begin with a “434” or “439.” The following settings can be programmed:

Require Addenda: All EAN-13 bar codes that begin with a “434” or “439” must have a 2 digit addenda, a 5 digit addenda, or a combination of these addenda. The EAN-13 bar code with the addenda is then transmitted as a single, concatenated bar code. If the required addenda is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don’t Require Addenda: If you have selected **Require Addenda**, and you want to disable this feature, scan **Don’t Require Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don’t Require Addenda.

*** Don’t Require Addenda**

Require 2 Digit Addenda

Require 5 Digit Addenda

Require 2 or 5 Digit Addenda

EAN-13 Beginning with 977 Addenda Required

This setting programs the scanner to require a 2 digit addenda only on EAN-13 bar codes that begin with “977.” The following settings can be programmed:

Require 2 Digit Addenda: All EAN-13 bar codes that begin with “977” must have a 2 digit addendum. The EAN-13 bar code with the 2 digit addendum is then transmitted as a single, concatenated bar code. If a 2 digit addendum is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don’t Require 2 Digit Addenda: If you have selected **Require 2 Digit Addenda**, and you want to disable this feature, scan **Don’t Require 2 Digit Addenda.** EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don't Require 2 Digit Addenda.

*** Don't Require 2 Digit Addenda**

Require 2 Digit Addenda

EAN-13 Beginning with 978 Addenda Required

These settings program the scanner to require a 5 digit addenda only on EAN-13 bar codes that begin with "978." The following settings can be programmed:

Require 5 Digit Addenda: All EAN-13 bar codes that begin with "978" must have a 5 digit addendum. The EAN-13 bar code with the 5 digit addendum is then transmitted as a single, concatenated bar code. If a 5 digit addendum is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don't Require 5 Digit Addenda: If you have selected **Require 5 Digit Addenda**, and you want to disable this feature, scan **Don't Require 5 Digit Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don't Require 5 Digit Addenda.

*** Don't Require 5 Digit Addenda**

Require 5 Digit Addenda

EAN-13 Beginning with 979 Addenda Required

These settings program the scanner to require a 5 digit addenda only on EAN-13 bar codes that begin with "979." The following settings can be programmed:

Require 5 Digit Addenda: All EAN-13 bar codes that begin with "979" must have a 5 digit addendum. The EAN-13 bar code with the 5 digit addendum is then transmitted as a single, concatenated bar code. If a 5 digit addendum is not found within the Addenda Timeout period, the EAN-13 bar code is discarded.

Don't Require 5 Digit Addenda: If you have selected **Require 5 Digit Addenda**, and you want to disable this feature, scan **Don't Require 5 Digit Addenda**. EAN-13 bar codes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

Default = Don't Require 5 Digit Addenda.

*** Don't Require 5 Digit Addenda**

Require 5 Digit Addenda

Addenda Timeout

You can set a time during which the scanner looks for an addenda. If an addenda is not found within this time period, the data can be either transmitted or discarded, based on the setting you are using for EAN/JAN-13 Addenda Required. Set the length (in milliseconds) for this timeout by scanning the bar code below, then setting the timeout (from 0-65535 milliseconds) by scanning digits from the Programming Chart, beginning on page 225 of this manual, then **Save**. *Default = 100.*

Note: *The Addenda Timeout setting is applied to all addenda and coupon code searches.*

Addenda Timeout

EAN/JAN-13 Addenda Separator

When this feature is **On**, there is a space between the data from the bar code and the data from the addenda. When turned **Off**, there is no space. *Default = On.*

*** On**

Off

Note: *If you want to enable or disable EAN13 with Extended Coupon Code, refer to UPC-A/EAN-13 with Extended Coupon Code (page 108).*

ISBN Translate

When **On** is scanned, EAN-13 Bookland symbols are translated into their equivalent ISBN number format. *Default = Off.*

E13ISB1.
On

E13ISB0.
*** Off**

EAN/JAN-8

<Default All EAN/JAN-8 Settings>

EA8DFT.

EAN/JAN-8 On/Off

EA8ENA1.
*** On**

EA8ENA0.
Off

EAN/JAN-8 Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not. *Default = On.*

EA8CKX1.
*** On**

EA8CKX0.
Off

EAN/JAN-8 Addenda

This selection adds 2 or 5 digits to the end of all scanned EAN/JAN-8 data. *Default = Off for both 2 Digit and 5 Digit Addenda.*


EA8AD21.
2 Digit Addenda On


EA8AD20.
*** 2 Digit Addenda Off**


EA8AD51.
5 Digit Addenda On


EA8AD50.
*** 5 Digit Addenda Off**

EAN/JAN-8 Addenda Required

When **Required** is scanned, the scanner will only read EAN/JAN-8 bar codes that have addenda. *Default = Not Required.*


EA8ARQ1.
Required


EA8ARQ0.
*** Not Required**

Addenda Timeout

You can set a time during which the scanner looks for an addenda. If an addenda is not found within this time period, the data can be either transmitted or discarded, based on the setting you are using for EAN/JAN-8 Addenda Required. Set the length (in milliseconds) for this timeout by scanning the bar code below, then set-

ting the timeout (from 0-65535 milliseconds) by scanning digits from the Programming Chart, beginning on page 225 of this manual, then **Save**. *Default = 100.*

Note: *The Addenda Timeout setting is applied to all addenda and coupon code searches.*


DLYADD.
Addenda Timeout

EAN/JAN-8 Addenda Separator

When this feature is On, there is a space between the data from the bar code and the data from the addenda. When turned Off, there is no space. *Default = On.*


EA8ADS1.
*** On**


EA8ADS0.
Off

MSI

<Default All MSI Settings>


MSIDFT.

MSI On/Off


MSIENA1.
On


MSIENA0.
*** Off**

MSI Check Character

Different types of check characters are used with MSI bar codes. You can program the scanner to read MSI bar codes with Type 10 check characters.
Default = Validate Type 10, but Don't Transmit.

When Check Character is set to **Validate Type 10/11 and Transmit**, the scanner will only read MSI bar codes printed with the specified type check character(s), and will transmit the character(s) at the end of the scanned data.

When Check Character is set to **Validate Type 10/11, but Don't Transmit,** the unit will only read MSI bar codes printed with the specified type check character(s), but will not transmit the check character(s) with the scanned data.

*** Validate Type 10, but Don't Transmit**

Validate Type 10 and Transmit

Validate 2 Type 10 Characters, but Don't Transmit

Validate 2 Type 10 Characters and Transmit

Validate Type 11 then Type 10 Character, but Don't Transmit

Validate Type 11 then Type 10 Character and Transmit

Disable MSI Check Characters

MSI Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 4-48. Minimum Default = 4, Maximum Default = 48.

MSIMIN.
Minimum Message Length

MSIMAX.
Maximum Message Length

Plessey Code

< Default All Plessey Code Settings >

PLSDFT.

Plessey Code On/Off

PLSENA1.
On

PLSENA0.
*** Off**

Plessey Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 3, Maximum Default = 80.

PLSMIN.
Minimum Message Length

PLSMAX.
Maximum Message Length

Plessey Check Character

No Check Character indicates that the scanner reads and transmits bar code data with or without a check character.

When Check Character is set to **Validate, but Don't Transmit**, the unit only reads Plessey bar codes printed with a check character, but will not transmit the check character with the scanned data.

When Check Character is set to **Validate and Transmit**, the scanner only reads Plessey bar codes printed with a check character, and will transmit this character at the end of the scanned data. *Default = No Check Character.*


PLSCHK0.
*** No Check Character**


PLSCHK1.
Validate, but Don't Transmit


PLSCHK2.
Validate and Transmit

Plessey A to X Conversion

When scanning Plessey bar codes, you can convert all "A" characters to "X." This conversion applies to the data and the check characters. *Default = A to X Conversion Off*.


UKPCAX0.
*** A to X Conversion Off**


UKPCAX1.
A to X Conversion On

GS1 DataBar Omnidirectional

< Default All GS1 DataBar Omnidirectional Settings >

RSSDFT.

GS1 DataBar Omnidirectional On/Off

RSSENA1.
*** On**

RSSENA0.
Off

GS1 DataBar Limited

< Default All GS1 DataBar Limited Settings >

RSLDFT.

GS1 DataBar Limited On/Off

RSLENA1.
*** On**

RSLENA0.
Off

GS1 DataBar Expanded

< Default All GS1 DataBar Expanded Settings >

RSEDFT.

GS1 DataBar Expanded On/Off

RSEENA1.
*** On**

RSEENA0.
Off

GS1 DataBar Expanded Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 4-74. Minimum Default = 4, Maximum Default = 74.

RSEMIN.
Minimum Message Length

RSEMAX.
Maximum Message Length

Trioptic Code

Note: *If you are going to scan Code 32 Pharmaceutical codes (page 91), Trioptic Code must be off.*

Trioptic Code is used for labeling magnetic storage media.

TRIENA1.
On

TRIENA0.
*** Off**

Codablock A

<Default All Codablock A Settings>

CBADFT.

Codablock A On/Off

CBAENA1.
On

CBAENA0.
*** Off**

If you are reading Code 39 bar codes, Codablock A should remain disabled. If you are enabling Codablock A, you should disable Code 39 (see Code 39 on page 89).

Codablock A Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-600. Minimum Default = 1, Maximum Default = 600.

CBAMIN.
Minimum Message Length

CBAMAX.
Maximum Message Length

Codablock F

<Default All Codablock F Settings>

CBFDFT.

Codablock F On/Off

CBFENA1.
On

CBFENA0.
*** Off**

If you are reading Code 128 bar codes, Codablock F should remain disabled. If you are enabling Codablock F, you should disable Code 128 (see Code 128 on page 102).

Codablock F Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-2048. Minimum Default = 1, Maximum Default = 2048.

CBFMIN.
Minimum Message Length

CBFMAX.
Maximum Message Length

Label Code

The standard Label Code is used in libraries. *Default = Off.*

LBLENA1.
On

LBLENA0.

***Off**

PDF417

< Default All PDF417 Settings >

PDFDFT.

PDF417 On/Off

PDFENA1.

*** On**

PDFENA0.

Off

PDF417 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-2750. Minimum Default = 1, Maximum Default = 2750.

PDFMIN.

Minimum Message Length

PDFMAX.

Maximum Message Length

MacroPDF417

MacroPDF417 is an implementation of PDF417 capable of encoding very large amounts of data into multiple PDF417 bar codes. When this selection is enabled, these multiple bar codes are assembled into a single data string. *Default = On.*


PDFMAC1.
*** On**


PDFMAC0.
Off

MicroPDF417

< Default All MicroPDF417 Settings >


MPDDFT.

MicroPDF417 On/Off


MPDENA1.
On


MPDENA0.
*** Off**

MicroPDF417 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-366. Minimum Default = 1, Maximum Default = 366.


MPDMIN.
Minimum Message Length

MPDMAX.
Maximum Message Length

GS1 Composite Codes

Linear codes are combined with a unique 2D composite component to form a new class called GS1 Composite symbology. GS1 Composite symbologies allow for the co-existence of symbologies already in use. *Default = Off.*

COMENA1.
On

COMENA0.
*** Off**

UPC/EAN Version

Scan the **UPC/EAN Version On** bar code to decode GS1 Composite symbols that have a U.P.C. or an EAN linear component. (This does not affect GS1 Composite symbols with a GS1-128 or GS1 linear component.) *Default = UPC/EAN Version Off.*

COMUPC1.
UPC/EAN Version On

COMUPC0.
*** UPC/EAN Version Off**

Note: *If you scan coupons that have both UPC and GS1 DataBar codes, you may wish to scan and output only the data from the GS1 DataBar code. See Coupon GS1 DataBar Output (page 109) for further information.*

GS1 Composite Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-2435. Minimum Default = 1, Maximum Default = 2435.

COMMIN.
Minimum Message Length


COMMAX.
Maximum Message Length

GS1 Emulation

The scanner can automatically format the output from any GS1 data carrier to emulate what would be encoded in an equivalent GS1-128 or GS1 DataBar symbol. GS1 data carriers include UPC-A and UPC-E, EAN-13 and EAN-8, ITF-14, GS1-128, and GS1-128 DataBar and GS1 Composites. (Any application that accepts GS1 data can be simplified since it only needs to recognize one data carrier type.)

If **GS1-128 Emulation** is scanned, all retail codes (U.P.C., UPC-E, EAN8, EAN13) are expanded out to 16 digits. If the **AIM ID** is enabled, the value will be the GS1-128 AIM ID,]C1 (see Symbology Charts on page 211).

If **GS1 DataBar Emulation** is scanned, all retail codes (U.P.C., UPC-E, EAN8, EAN13) are expanded out to 16 digits. If the AIM ID is enabled, the value will be the GS1-DataBar AIM ID,]e*m* (see Symbology Charts on page 211).

If **GS1 Code Expansion Off** is scanned, retail code expansion is disabled, and UPC-E expansion is controlled by the UPC-E0 Expand (page 110) setting. If the AIM ID is enabled, the value will be the GS1-128 AIM ID,]C1 (see Symbology Charts on page 211).

If **EAN8 to EAN13 Conversion** is scanned, all EAN8 bar codes are converted to EAN13 format.

Default = GS1 Emulation Off.


EANEMU1.
GS1-128 Emulation


EANEMU2.
GS1 DataBar Emulation


EANEMU3.
GS1 Code Expansion Off


EANEMU4.
EAN8 to EAN13 Conversion


EANEMU0.
*** GS1 Emulation Off**

TCIF Linked Code 39 (TLC39)

This code is a composite code since it has a Code 39 linear component and a MicroPDF417 stacked code component. All bar code readers are capable of reading the Code 39 linear component. The MicroPDF417 component can only be decoded if TLC39 **On** is selected. The linear component may be decoded as Code 39 even if TLC39 is off. *Default = Off.*

T39ENA1.
On

T39ENA0.
*** Off**

QR Code

< Default All QR Code Settings >

QRCDFT.

QR Code On/Off

This selection applies to both QR Code and Micro QR Code.

QRCENA1.
*** On**

QRCENA0.
Off

QR Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-7089. Minimum Default = 1, Maximum Default = 7089.

QRCMIN.
Minimum Message Length

Maximum Message Length

QR Code Append

This function allows the scanner to append the data from several QR Code bar codes together before transmitting them to the host computer. When the scanner encounters an QR Code bar code with the append trigger character(s), it buffers the number of QR Code bar codes determined by information encoded in those bar codes. Once the proper number of codes is reached, the data is output in the order specified in the bar codes. *Default = On.*

*** On**

Off

QR Code Page

QR Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see ISO 2022/ISO 646 Character Replacements on page 218), and scan the value and the **Save** bar code from the Programming Chart, beginning on page 225. The data characters should then appear properly.

QR Code Page

Data Matrix

< Default All Data Matrix Settings >


IDMDFT.

Data Matrix On/Off


IDMENA1.
*** On**


IDMENA0.
Off

Data Matrix Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-3116. Minimum Default = 1, Maximum Default = 3116.


IDMMIN.
Minimum Message Length


IDMMAX.
Maximum Message Length

Data Matrix Append

This function allows the scanner to append the data from several Data Matrix bar codes together before transmitting them to the host computer. When the scanner encounters an Data Matrix bar code with the append trigger character(s), it buffers the number of Data Matrix bar codes determined by information encoded in those bar codes. Once the proper number of codes is reached, the data is output in the order specified in the bar codes. *Default = On.*


IDMAPP1.
*** On**

Off

Data Matrix Code Page

Data Matrix Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see ISO 2022/ISO 646 Character Replacements on page 218), and scan the value and the **Save** bar code from the Programming Chart, beginning on page 225. The data characters should then appear properly.

Data Matrix Code Page

MaxiCode

< Default All MaxiCode Settings >

MaxiCode On/Off

On

*** Off**

MaxiCode Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-150. Minimum Default = 1, Maximum Default = 150.

MAXMIN.
Minimum Message Length

MAXMAX.
Maximum Message Length

Aztec Code

< Default All Aztec Code Settings >

AZTDFT.

Aztec Code On/Off

AZTENA1.
*** On**

AZTENA0.
Off

Aztec Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-3832. Minimum Default = 1, Maximum Default = 3832.

AZTMIN.
Minimum Message Length

AZTMAX.
Maximum Message Length

Aztec Append

This function allows the scanner to append the data from several Aztec bar codes together before transmitting them to the host computer. When the scanner encounters an Aztec bar code with the append trigger character(s), it buffers the number of Aztec bar codes determined by information encoded in those bar codes. Once the proper number of codes is reached, the data is output in the order specified in the bar codes. *Default = On.*


AZTAPP1.
*** On**


AZTAPP0.
Off

Aztec Code Page

Aztec Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see ISO 2022/ISO 646 Character Replacements on page 218), and scan the value and the **Save** bar code from the Programming Chart, beginning on page 225. The data characters should then appear properly.


AZTDCP.
Aztec Code Page

Chinese Sensible (Han Xin) Code

< Default All Han Xin Settings >


HX_DFT.

Han Xin Code On/Off


HX_ENA1.
On

HX_ENA0.
*** Off**

Han Xin Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 1-7833. Minimum Default = 1, Maximum Default = 7833.

HX_MIN.
Minimum Message Length

HX_MAX.
Maximum Message Length

Postal Codes - 2D

The following lists the possible 2D postal codes, and 2D postal code combinations that are allowed. Only one 2D postal code selection can be active at a time. If you scan a second 2D postal code selection, the first selection is overwritten.
Default = 2D Postal Codes Off.

POSTAL0.
*** 2D Postal Codes Off**

Single 2D Postal Codes:

POSTAL1.
Australian Post On

POSTAL7.
British Post On

POSTAL30.
Canadian Post On

Intelligent Mail Bar Code On

Japanese Post On

KIX Post On

Planet Code On

Also see Planet Code Check Digit, page 144.

Postal-4i On

Postnet On

Also see Postnet Check Digit, page 144.

Postnet with B and B' Fields On

InfoMail On

Combination 2D Postal Codes:

InfoMail and British Post On


POSTAL14.

Postnet and Postal-4i On


POSTAL17.

Postal-4i and Intelligent Mail Bar Code On


POSTAL12.

Planet Code and Postnet On


POSTAL13.

Planet Code and Postal-4i On


POSTAL21.

Planet Code, Postnet, and Postal-4i On


POSTAL20.

Intelligent Mail Bar Code and Postnet with B and B' Fields On


POSTAL16.

Postnet and Intelligent Mail Bar Code On


POSTAL19.

Postal-4i and Postnet with B and B' Fields On


POSTAL18.

Planet Code and Postnet with B and B' Fields On


POSTAL15.

Planet Code and Intelligent Mail Bar Code


POSTAL22.

**Planet Code,
Postnet, and
Intelligent Mail Bar Code On**


POSTAL23.

**Planet Code,
Postal-4i, and
Intelligent Mail Bar Code On**


POSTAL24.

**Postnet,
Postal-4i, and
Intelligent Mail Bar Code On**


POSTAL25.

**Planet Code,
Postal-4i, and
Postnet with B and B' Fields On**


POSTAL26.

**Planet Code,
Intelligent Mail Bar Code, and
Postnet with B and B' Fields On**


POSTAL27.

**Postal-4i,
Intelligent Mail Bar Code, and
Postnet with B and B' Fields On**


POSTAL28.

**Planet Code,
Postal-4i,
Intelligent Mail Bar Code, and
Postnet On**


POSTAL29.

**Planet Code,
Postal-4i,
Intelligent Mail Bar Code, and
Postnet with B and B' Fields On**

Planet Code Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of Planet Code data. *Default = Don't Transmit.*

Transmit Check Digit

*** Don't Transmit Check Digit**

Postnet Check Digit

This selection allows you to specify whether the check digit should be transmitted at the end of Postnet data. *Default = Don't Transmit.*

Transmit Check Digit

*** Don't Transmit Check Digit**

Australian Post Interpretation

This option controls what interpretation is applied to customer fields in Australian 4-State symbols.

Bar Output lists the bar patterns in "0123" format.

Numeric N Table causes that field to be interpreted as numeric data using the N Table.

Alphanumeric C Table causes the field to be interpreted as alphanumeric data using the C Table. Refer to the Australian Post Specification Tables.

Combination C and N Tables causes the field to be interpreted using either the C or N Tables.

*** Bar Output**

AUSINT1.
Numeric N Table

AUSINT2.
Alphanumeric C Table

AUSINT3.
Combination C and N Tables

Postal Codes – Linear

The following lists linear postal codes. Any combination of linear postal code selections can be active at a time.

China Post (Hong Kong 2 of 5)

<Default All China Post (Hong Kong 2 of 5) Settings>

CPCDFT.

China Post (Hong Kong 2 of 5) On/Off

CPCENA1.
On

CPCENA0.
*** Off**

China Post (Hong Kong 2 of 5) Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 80.

CPCMIN.
Minimum Message Length

CPCMAX.
Maximum Message Length

Korea Post

<Default All Korea Post Settings>

KPCDFT.

Korea Post

KPCENA1.
On

KPCENA0.
*** Off**

Korea Post Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description (page 86) for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 48.

KPCMIN.
Minimum Message Length

KPCMAX.
Maximum Message Length

Korea Post Check Digit

This selection allows you to specify whether the check digit should be transmitted or not. *Default = Don't Transmit.*

KPCCHK1.
Transmit Check Digit

*** Don’t Transmit Check Digit**

CHAPTER

7 IMAGING COMMANDS

The Orbit 7120plus/7190g scanner has a laser system and an imaging system. The imaging system is like a digital camera in the way it captures, manipulates, and transfers images. The following commands allow you to alter the way the scanner performs these functions.

Single-Use Basis

Imaging Commands with their modifiers send instructions to the scanner on a single-use basis, and take effect for a single image capture. Once that capture is complete, the scanner reverts to its imaging default settings. If you want to permanently change a setting, you must use the serial default commands (see Chapter 9). When the serial default command is used, that selection becomes the new, permanent setting for the scanner.

Command Syntax

Multiple modifiers and commands can be issued within one sequence. If additional modifiers are to be applied to the same command, just add the modifiers to that command. For example, to add 2 modifiers to the Image Snap command, such as setting the Imaging Style to 1P and the Wait for Trigger to 1T, you would enter IMGSNP1P1T.

Note: *After processing an image capture command (IMGSNP), you must follow it with an IMGSHP command if you want to see it on your terminal.*

To add a command to a sequence, each new command is separated with a semicolon. For example, to add the Image Ship command to the above sequence, you would enter IMGSNP1P1T;IMGSHP.

The imaging commands are:

Image Snap - IMGSNP (page 150)

Image Ship - IMGSHP (page 153)

The modifiers for each of these commands follow the command description.

Note: *The images included with each command description are examples only. The results you achieve may be different from those included in this manual. The quality of the output you receive will vary depending on lighting, quality of the initial image/object being captured, and distance of the scanner from the image/object. To achieve a high quality image, it is recommended that you position your scanner 4-6" (10.2-15.2 cm) away from the image/object you are capturing.*

Step 1 – Take a Picture Using IMGSNP

Image Snap – IMGSNP

An image is taken whenever the Image Snap (IMGSNP) command is processed.

The image snap command has many different modifiers that can be used to change the look of the image in memory. Any number of modifiers may be appended to the IMGSNP command.

Example: You can use the following command to snap an image, increase the gain, and have the beeper sound once the snap is complete: **IMGSNP2G1B**

IMGSNP Modifiers

P - Imaging Style

This sets the Image Snap style.

0P **Decoding Style.** This processing allows a few frames to be taken until the exposure parameters are met. The last frame is then available for further use.

1P **Photo Style *(default)***. This mimics a simple digital camera, and results in a visually optimized image.

2P **Manual Style**. This is an advanced style that should only be used by an experienced user. It allows you the most freedom to set up the scanner, and has no auto-exposure.

B - Beeper

Causes a beep to sound after an image is snapped.

0B No beep *(default)*

1B Sounds a beep when the image is captured.

T - Wait for Trigger

Waits for a serial trigger command before taking the image. This is only available when using Photo Style (1P).

0T Takes image immediately *(default)*

1T Waits for a button push, then takes the image

L - LED State

Determines if the LEDs should be on or off, and when. Ambient illumination (0L) is preferred for taking pictures of color documents, such as ID cards, especially when the scanner is in a stand. LED illumination (1L) is preferred when the scanner is handheld. LED State is not available when using Decoding Style (0P).

0L LEDs off *(default)*

1L LEDs on

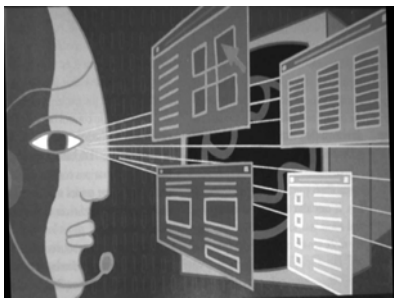
E - Exposure

Exposure is used in Manual Style only (2P), and allows you to set the exposure time. This is similar to setting a shutter speed on a camera. The exposure time determines how long the scanner takes to record an image. On a bright day, exposure times can be very short because plenty of light is available to help record an image. At nighttime, exposure time can increase dramatically due to the near absence of light. Units are 127 microseconds. *(Default = 7874)*

*n*E Range: 1 - 7874

Example:

Exposure at 7874E with fluorescent lighting:



Exposure at 100E with fluorescent lighting:

G - Gain

Gain is used in Manual Style only (2P). Like a volume control, the gain modifier boosts the signal and multiplies the pixel value. As you increase the gain, the noise in an image is also amplified.

1G No gain *(default)*

2G Medium gain

4G Heavy gain

8G Maximum gain

Example:

Gain at 1G:

Gain at 4G:

Gain at 8G:

W - Target White Value

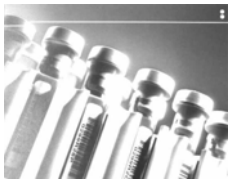
Sets the target for the median grayscale value in the captured image. For capturing close-up images of high contrast documents, a lower setting, such as 75, is recommended. Higher settings result in longer exposure times and brighter images, but if the setting is too high, the image may be overexposed. Target White Value is only available when using Photo Style (1P). *(Default = 125)*

*n*W Range: 0 - 255

Example:

White Value at 75W:

White Value at 125W:



White Value at 200W:

D - Delta for Acceptance

This sets the allowable range for the white value setting (see W - Target White Value). Delta is only available when using Photo Style (1P). *(Default = 25)*

*n*D Range: 0 - 255

U - Update Tries

This sets the maximum number of frames the scanner should take to reach the D - Delta for Acceptance. Update Tries is only available when using Photo Style (1P). *(Default = 6)*

*n*U Range: 0 - 10

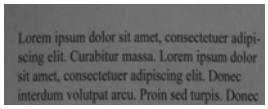
% - Target Set Point Percentage

Sets the target point for the light and dark values in the captured image. A setting of 75% means 75% of the pixels are at or below the target white value, and 25% of the pixels are above the target white value. Altering this setting from the default is not recommended under normal circumstances. To alter grayscale values, W - Target White Value should be used. *(Default = 50)*

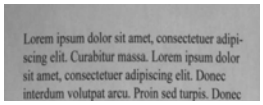
n% Range: 1 - 99

Example:

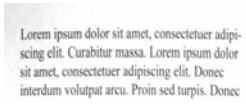
Target Set Point Percentage at 97%:



Target Set Point Percentage at 50%:



Target Set Point Percentage at 40%:



Step 2 – Ship a Picture Using IMGSHP

Image Ship – IMGSHP

An image is taken whenever the Image Snap (IMGSNP) command is processed. The last image is always stored in memory. You can “ship” the image by using the IMGSHP command.

The image ship commands have many different modifiers that can be used to change the look of the image output. Modifiers affect the image that is transmitted, but do not affect the image in memory. Any number of modifiers may be appended to the IMGSHP command.

Example: You can use the following command to snap and ship a bitmap image with gamma correction and document image filtering: IMGSNP;IMGSHP8F75K26U

IMGSHP Modifiers

A - Infinity Filter

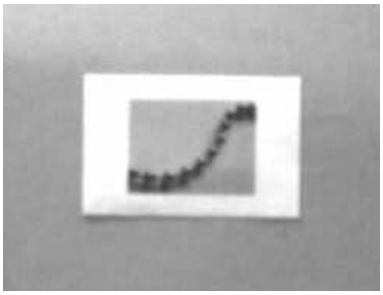
Enhances pictures taken from very long distances (greater than 10 feet or 3m). The Infinity Filter should not be used with IMGSNP Modifiers (page 150).

0A Infinity filter off *(default)*

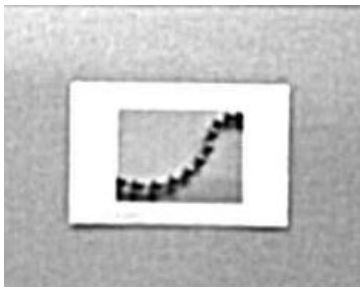
1A Infinity filter on

Example:

Infinity Filter off (0A) from approximately 12 feet (3.66m) away:



nfinity Filter on (1A) from approximately 12 feet (3.66m) away:



C - Compensation

Flattens the image to account for variations in illumination across the image.

0C Compensation disabled *(default)*

1C Compensation enabled

Example:

Compensation at 0C:

Compensation at 1C:

D - Pixel Depth

Indicates the number of bits per pixel in the transmitted image (KIM or BMP format only).

8D 8 bits per pixel, grayscale image *(default)*

1D 1 bit per pixel, black and white image

E - Edge Sharpen

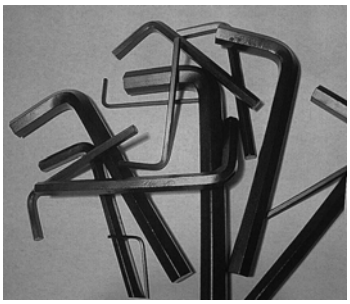
An edge sharpen filter cleans up the edges of an image, making it look cleaner and sharper. While edge sharpening does make the image look cleaner, it also removes some fine detail from the original image. The strength of the edge sharpen filter can be entered from 1 to 24. Entering a **23E** gives the sharpest edges, but also increases noise in the image.

0E	Don't sharpen image *(default)*
14E	Apply edge sharpen for typical image
*n*e	Apply edge sharpen using strength *n* (*n* = 1-24)

Example:

Edge Sharpen at 0E:

Edge Sharpen at 24E:



F - File Format

Indicates the desired format for the image.

0F	KIM format
1F	TIFF binary
2F	TIFF binary group 4, compressed
3F	TIFF grayscale
4F	Uncompressed binary (upper left to lower right, 1 pixel/bit, 0 padded end of line)
5F	Uncompressed grayscale (upper left to lower right, bitmap format)
6F	JPEG image *(default)*
8F	BMP format (lower right to upper left, uncompressed)
10F	TIFF color compressed image
11F	TIFF color uncompressed image
12F	JPEG color image
14F	BMP color format
15F	BMP Uncompressed raw image

H - Histogram Stretch

Increases the contrast of the transmitted image. Not available with some image formats.

0H	No stretch *(default)*
1H	Histogram stretch

Example:

Histogram Stretch at 0H:

Histogram Stretch at 1H:

I - Invert Image

Invert image is used to rotate the image around the X or Y axis.

1ix Invert around the X axis (flips picture upside down)

1iy Invert around the Y axis (flips picture left to right)

Example:

Image not inverted:

Image with Invert Image set to 1ix:

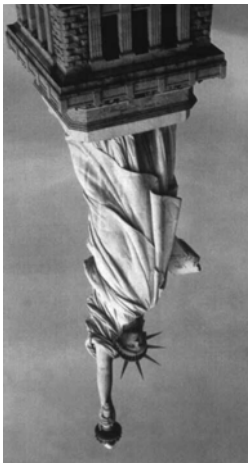


Image with Invert Image set to 1iy:

IF- Noise Reduction

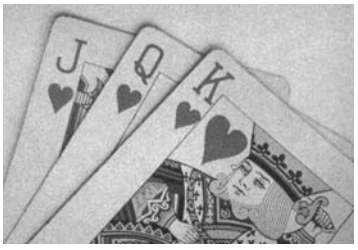
Used to reduce the salt and pepper noise in an image.

0if No salt and pepper noise reduction (default)

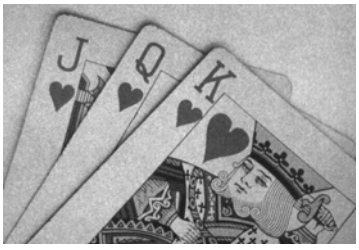
1if Salt and pepper noise reduction

Example:

Noise Reduction Off (0if):



Noise Reduction On (1if):



IR - Image Rotate

0ir	Image as snapped (rightside up) (default)
1ir	Rotate image 90 degrees to the right
2ir	Rotate image 180 degrees (upside down)
3ir	Rotate image 90 degrees to the left

Example:

Image Rotate set to 0ir:

Image Rotate set to 2ir:

Image Rotate set to 1ir:

Image Rotate set to 3ir:

J - JPEG Image Quality

Sets the desired quality when the JPEG image format is selected. Higher numbers result in higher quality, but larger files. Smaller numbers result in greater amounts of lossy compression, faster transmission times, lower quality, but smaller files. *(Default = 50)*

*n*J	Image is compressed as much as possible while preserving quality factor of *n* (*n* = 0 - 100)
0J	worst quality (smallest file)
100J	best quality (largest file)

K - Gamma Correction

Gamma measures the brightness of midtone values produced by the image. You can brighten or darken an image using gamma correction. A higher gamma correction yields an overall brighter image. The lower the setting, the darker the image. The optimal setting for text images is 50K.

0K Gamma correction off *(default)*

50K Apply gamma correction for brightening typical document image

*n*K Apply gamma correction factor *n* (*n* = 0-1,000)

Example:

Gamma Correction set to 0K:

Gamma Correction set to 50K:

Gamma Correction set to 255K:

L, R, T, B, M - Image Cropping

Ships a window of the image by specifying the left, right, top, and bottom pixel coordinates. Device columns are numbered 0 through 1279, and device rows are numbered 0 through 959.

*n*L The left edge of the shipped image corresponds to column *n* of the image in memory. Range: 000 - 843. *(Default = 0)*

*n*R The right edge of the shipped image corresponds to column *n* - 1 of the image in memory. Range: 000 - 843. *(Default = all columns)*

*n*T The top edge of the shipped image corresponds to row *n* of the image in memory. Range: 000 - 639. *(Default = 0)*

*n*B The bottom edge of the shipped image corresponds to row *n* - 1 of the image in memory. Range: 000 - 639. *(Default = all rows)*

Example:

Uncropped Image:

Image Crop set to 300R:

Image Crop set to 300L:

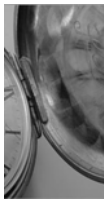


Image Crop set to 200B:

Image Crop set to 200T:

Alternately, specify the number of pixels to cut from the outside margin of the image; thus only the center pixels are transmitted.

*n*M Margin: cut *n* columns from the left, *n* + 1 columns from the right, *n* rows from the top, and *n* + 1 rows from the bottom of the image. Ship the remaining center pixels. Range: 0 - 238.
(Default = 0, or full image)

Example:

Image Crop set to 238M:

P - Protocol

Used for shipping an image. Protocol covers two features of the image data being sent to the host. It addresses the protocol used to send the data (Hmodem, which is an Xmodem 1K variant that has additional header information), and the format of the image data that is sent.

0P None (raw data)

2P None *(default for USB)*

3P Hmodem compressed *(default for RS232)*

4P Hmodem

S - Pixel Ship

Pixel Ship sizes an image in proportion to its original size. It decimates the image by shipping only certain, regularly spaced pixels.

Example: 4S would transmit every fourth pixel from every fourth line.

The smaller number of pixels shipped, the smaller the image, however, after a certain point the image becomes unusable.

1S ship every pixel *(default)*

2S ship every 2nd pixel, both horizontally and vertically

3S ship every 3rd pixel, both horizontally and vertically

Example:

Pixel Ship set to 1S:

Pixel Ship set to 2S:

Pixel Ship set to 3S:

Pixel Ship set to 4S:

U - Document Image Filter

Allows you to input parameters to sharpen the edges and smooth the area between the edges of text in an image. This filter should be used with gamma correction (see page 159), with the scanner in a stand, and the image captured using the command:

IMGSNP1P0L168W90%32D

This filter typically provides better JPEG compression than the standard E - Edge Sharpen command (see page 162). This filter also works well when shipping pure black and white images (1 bit per pixel). The optimal setting is 26U.

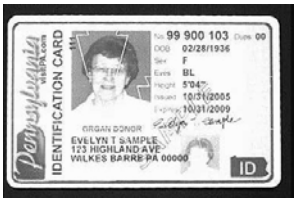
0U Document image filter off *(default)*

26U Apply document image filter for typical document image

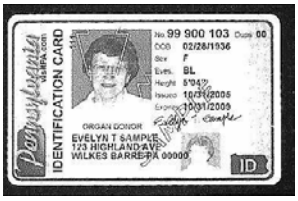
*n*U Apply document image filter using grayscale threshold n. Use lower numbers when the image contrast is lower. 1U will have a similar effect to setting E - Edge Sharpen (page 155) to 22e. Range: 0-255.

Example:

Document Image Filter set to 0U:



Document Image Filter set to 26U:



V - Blur Image

Smooths transitions by averaging the pixels next to the hard edges of defined lines and shaded areas in an image.

0V Don't blur *(default)*

1V Blur

Example:

Blur Image Off (0V):

Blur Image On (1V):

W - Histogram Ship

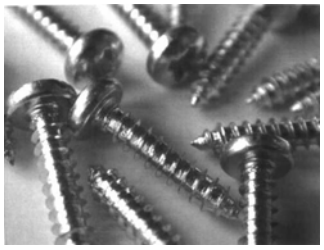
A histogram gives a quick picture of the tonal range of an image, or key type. A low-key image has detail concentrated in the shadows; a high-key image has detail concentrated in the highlights; and an average-key image has detail concentrated in the midtones. This modifier ships the histogram for an image.

0W Don't ship histogram *(default)*

1W Ship histogram

Example:

Image used for histogram:



Histogram of image:

Image Size Compatibility

If you have applications that expect an image ship to return exactly 640x480 pixels, scan the Force VGA Resolution bar code. *Default = Native Resolution.*

IMGVGA1.

Force VGA Resolution

*** Native Resolution**

Intelligent Signature Capture – IMGBOX

Note: *Intelligent Signature Capture (IMGBOX) is not supported by the Orbit 7120plus scanner.*

IMGBOX allows you to configure the size and location of a signature capture area relative to its proximity to a bar code. This allows you to tailor a signature capture area to a specific form. In order to use IMGBOX, you need a set form where the signature box location is in a known location relative to a bar code. You can input the overall size of the signature area, as well as specify how far the signature area is from the bar code, vertically and horizontally. You can also set the resolution and file format for the final output of the signature capture image.

Note: *IMGBOX commands can only be triggered by one of the following types of bar codes: PDF417, Code 39, Code 128, Aztec, Codabar, and Interleaved 2 of 5. Once one of these symbologies has been read, the image is retained for a possible IMGBOX command.*

Signature Capture Optimize

If you will be using your scanner to capture signatures frequently, you should optimize it for this purpose. However, the speed of scanning bar codes may be slowed when this mode is enabled. *Default = Off.*

Optimize On

*** Optimize Off**

Below is an example of a signature capture application. In this example, the scanner is centered over the signature capture area and the signature is scanned. A single beep is emitted, indicating that the scanner has read a Code 128 bar code and the data has been transferred to the host. An IMGBOX command may now be sent from the host to specify the coordinates of the signature capture area below that code, and indicating that only that area containing the signature should be transferred as an image to the host.

To see this example, align the scanner with the signature area (not with the bar code).

Send the following IMGBOX command string after the button push:

Example: IMGBOX245w37h55y.

Note: *Case is not important in the command string. It is used here only for clarity.*

The following image is captured:

The IMGBOX commands have many different modifiers that can be used to change the size and appearance of the signature image output by the scanner. Modifiers affect the image that is transmitted, but do not affect the image in memory. Any number of modifiers may be appended to the IMGBOX command.

Note: *The IMGBOX command will return a NAK unless a window size (width and height) are specified. See H - Height of Signature Capture Area (page 166) and W - Width of Signature Capture Area (page 167).*

IMGBOX Modifiers

A - Output Image Width

This option is used to size the image horizontally. If using this option, set the resolution (R) to zero.

Example:

Image Width set to 200A:

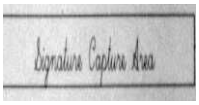
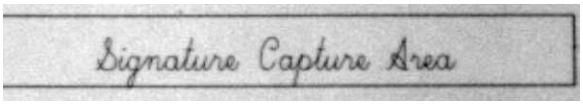


Image Width set to 600A:



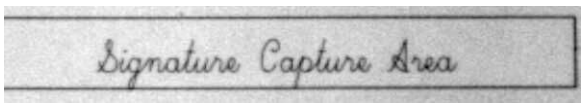
B - Output Image Height

This option is used to size the image vertically. If using this option, set the resolution (R) to zero.

Example:

Image Height set to 50B:

Image Height set to 100B:



D - Pixel Depth

This indicates the number of bits per pixel in the transmitted image, which defines whether it will be grayscale or black and white.

8D	8 bits per pixel, grayscale image *(default)*
1D	1 bit per pixel, black and white image

F - File Format

This option indicates the type of file format in which to save the image.

0F	KIM format
1F	TIFF binary
2F	TIFF binary group 4, compressed
3F	TIFF grayscale
4F	Uncompressed Binary
5F	Uncompressed grayscale
6F	JPEG image *(default)*
7F	Outlined image
8F	BMP format

H - Height of Signature Capture Area

The height of the signature capture area must be measured in inches divided by .01. In the example, the height of the area to be captured is 3/8 inch, resulting in a value of H = .375/0.01 = 37.5.

Example: ***IMGBOX245w37h55y.***

K - Gamma Correction

Gamma measures the brightness of midtone values produced by the image. You can brighten or darken an image using gamma correction. A higher gamma correction yields an overall brighter image. The lower the setting, the darker the image. The optimal setting for text images is 50K.

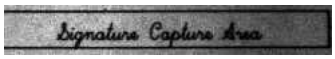
0K	Gamma correction off *(default)*
50K	Apply gamma correction for brightening typical document image
*n*K	Apply gamma correction factor *n* (*n* = 1-255)

Example:

Gamma Correction set to 0K:

Gamma Correction set to 50K:

Gamma Correction set to 255K:



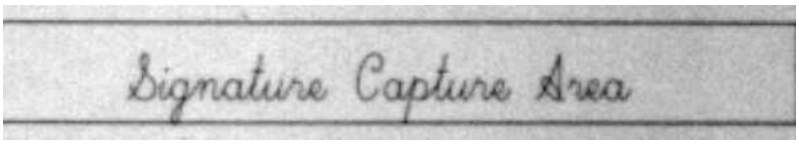
R - Resolution of Signature Capture Area

The resolution is the number of pixels that the scanner outputs per each minimum bar width. The higher the value for R, the higher the quality of the image, but also the larger the file size. Values begin at 1000. The scanner automatically inserts a

decimal point between the first and second digit. For example, use 2500 to specify a resolution of 2.5. Set to zero when using the A and B modifiers (see A - Output Image Width and B - Output Image Height on page 165).

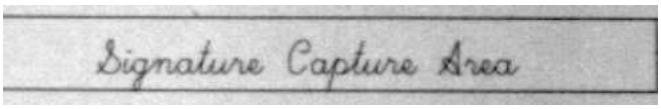
Example:

Resolution set to 0R:



Resolution set to 1000R:

Resolution set to 2000R:



S - Bar Code Aspect Ratio

All dimensions used in IMGBOX are measured as multiples of the minimum element size of the bar code. The bar code aspect ratio allows you to set the ratio of the bar code height to the narrow element width. In the example, the narrow element width is .010 inches and the bar code height is 0.400 inches, resulting in a value of S = 0.4/0.01 = 40.

W - Width of Signature Capture Area

The width of the signature capture area must be measured in inches divided by .01. In the example, the width of the area to be captured is 2.4 inches, resulting in a value of W = 2.4/0.01 = 240. (A value of 245 was used in the example to accommodate a slightly wider image area.)

Example: ***IMGBOX245w37h55y.***

X - Horizontal Bar Code Offset

The horizontal bar code offset allows you to offset the horizontal center of the signature capture area. Positive values move the horizontal center to the right and negative values to the left. Measurements are in multiples of the minimum bar width.

Example:

Horizontal Offset set to 75X:

Horizontal Offset set to -75X:

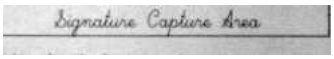
Y - Vertical Bar Code Offset

The vertical bar code offset allows you to offset the vertical center of the signature capture area. Negative numbers indicate that the signature capture is above the bar code, and positive numbers indicate that the area is below the bar code. Measurements are in multiples of the minimum bar width

Example:

Vertical Offset set to -7Y:

Vertical Offset set to 65Y:



CHAPTER

8 UTILITIES

Add a Test Code I.D. Prefix to All Symbologies

This selection allows you to turn on transmission of a Code I.D. before the decoded symbology. (See the Symbology Charts, beginning on page 211 for the single character code that identifies each symbology.) This action first clears all current prefixes, then programs a Code I.D. prefix for all symbologies. This is a temporary setting that is removed when the unit is power cycled.

Add Code I.D. Prefix to All Symbologies (Temporary)

Show Decoder Revision

Scan the bar code below to output the decoder revision.

Show Decoder Revision

Show Scan Driver Revision

Scan the bar code below to output the scan driver revision. The scan driver controls image capture.

Show Scan Driver Revision

Show Software Revision

Scan the bar code below to output the current software revision, unit serial number, and other product information for both the scanner and base.

REVINF.
Show Software Revision

Show Data Format

Scan the bar code below to show current data format settings.

DFMBK3?.
Data Format Settings

Test Menu

When you scan the **Test Menu On** code, then scan a programming code in this manual, the scanner displays the content of a programming code. The programming function will still occur, but in addition, the content of that programming code is output to the terminal.

Note: *This feature should not be used during normal scanner operation.*

TSTMNU1.
On

TSTMNU0.
*** Off**

TotalFreedom

TotalFreedom is an open system architecture that makes it possible for you create applications that reside on your scanner. Decoding apps and Data Formatting apps can be created using TotalFreedom. For further information about TotalFreedom, go to our website at www.honeywellaidc.com.

Application Plug-Ins (Apps)

Any apps that you are using can be turned off or on by scanning the following bar codes. Apps are stored in groups: Decoding, and Formatting. You can enable and disable these groups of apps by scanning that group's **On** or **Off** bar code below. You can also scan the **List Apps** bar code to output a list of all your apps.


PLGDCE1.
*** Decoding Apps On**


PLGDCE0.
Decoding Apps Off


PLGFOE1.
*** Formatting Apps On**


PLGFOE0.
Formatting Apps Off


PLGINF.
List Apps

Note: *You must reset your device in order for the apps setting to take effect.*

EZConfig Cloud for Scanning Introduction

EZConfig Cloud for Scanning provides a wide range of PC-based programming functions that can be performed on a scanner connected to your PC. EZConfig Cloud for Scanning allows you to download upgrades to the scanner's firmware, change programmed parameters, and create and print programming bar codes. Using EZConfig Cloud for Scanning, you can even save/open the programming parameters for a scanner. This saved file can be e-mailed or, if required, you can create a single bar code that contains all the customized programming parameters and mail or fax that bar code to any location. Users in other locations can scan the bar code to load in the customized programming.

EZConfig Cloud for Scanning Operations

The EZConfig Cloud for Scanning software performs the following operations:

Scan Data

Scan Data allows you to scan bar codes and display the bar code data in a window. Scan Data lets you send serial commands to the scanner and receive scanner response that can be seen in the Scan Data window. The data displayed in the Scan Data window can either be saved in a file or printed.

Configure

Configure displays the programming and configuration data of the scanner. The scanner's programming and configuration data is grouped into different categories. Each category is displayed as a tree item under the "Configure" tree node in the application explorer. When one of these tree nodes is clicked, the right-hand side is loaded with the parameters' form belonging to that particular category. The "Configure" tree option has all the programming and configuration parameters specified for a scanner. You can set or modify these parameters as required. You can later write the modified settings to the scanner, or save them to a dcf file.

Imaging

Imaging provides all the image-related functions that a 2D Scanner can perform. You can capture an image using the current settings, and the image will be displayed in an image window. Images captured from the scanner can be saved to files in different image formats. You can modify the image settings and save the image settings to an INI file, which can be loaded later to capture new images. Imaging also lets you preview the images continuously captured by the scanner.

Install EZConfig Cloud for Scanning

Use the EZConfig Cloud for Scanning tool to configure your scanner online:

1. Access the Honeywell web site at www.honeywellaidc.com
2. Click on the **Browse Products** tab. Under **Software**, select **Device Management**.
3. Click on **EZConfig Cloud for Scanning**.
4. Scroll to the bottom of the page and click on **Register for free access now** to sign up.

Reset the Factory Defaults

Caution: *This selection erases all your settings and resets the scanner to the original factory defaults. It also disables all plugins.*

If you aren't sure what programming options are in your scanner, or you've changed some options and want to restore the scanner to factory default settings, first scan the **Remove Custom Defaults** bar code, then scan **Activate Defaults**. This resets the scanner to the factory default settings.

Remove Custom Defaults

Activate Defaults

The Menu Commands, beginning on page 180 list the factory default settings for each of the commands (indicated by an asterisk (*) on the programming pages).

CHAPTER

9 SERIAL PROGRAMMING COMMANDS

The serial programming commands can be used in place of the programming bar codes. Both the serial commands and the programming bar codes will program the scanner. For complete descriptions and examples of each serial programming command, refer to the corresponding programming bar code in this manual.

The device must be set to an RS232 interface (see page 8). The following commands can be sent via a PC COM port using terminal emulation software.

Conventions

The following conventions are used for menu and query command descriptions:

parameter	A label representing the actual value you should send as part of a command.
[*option*]	An optional part of a command.
{Data}	Alternatives in a command.
bold	Names of menus, menu commands, buttons, dialog boxes, and windows that appear on the screen.

Menu Command Syntax

Menu commands have the following syntax (spaces have been used for clarity only):

Prefix Tag SubTag {Data} [, SubTag {Data}] [; Tag SubTag {Data}] [...] Storage

Prefix	Three ASCII characters: SYN M CR (ASCII 22,77,13).

Note: *Since the base stores all work group settings and transfers to them to scanner once they are linked, changes are typically done to the base and not to the scanner.*

Tag	A 3 character case-insensitive field that identifies the desired menu command group. For example, all RS232 configuration settings are identified with a Tag of **232**.

SubTag — A 3 character case-insensitive field that identifies the desired menu command within the tag group. For example, the SubTag for the RS232 baud rate is **BAD**.

Data — The new value for a menu setting, identified by the Tag and SubTag.

Storage — A single character that specifies the storage table to which the command is applied. An exclamation point (!) performs the command's operation on the device's volatile menu configuration table. A period (.) performs the command's operation on the device's non-volatile menu configuration table. Use the non-volatile table only for semi-permanent changes you want saved through a power cycle.

Query Commands

Several special characters can be used to query the device about its settings.

^ — What is the default value for the setting(s).

? — What is the device's current value for the setting(s).

***** — What is the range of possible values for the setting(s). (The device's response uses a dash (-) to indicate a continuous range of values. A pipe (|) separates items in a list of non-continuous values.)

:Name: Field Usage (Optional)

This command returns the query information from the scanner.

Tag Field Usage

When a query is used in place of a Tag field, the query applies to the *entire* set of commands available for the particular storage table indicated by the Storage field of the command. In this case, the SubTag and Data fields should not be used because they are ignored by the device.

SubTag Field Usage

When a query is used in place of a SubTag field, the query applies only to the subset of commands available that match the Tag field. In this case, the Data field should not be used because it is ignored by the device.

Data Field Usage

When a query is used in place of the Data field, the query applies only to the specific command identified by the Tag and SubTag fields.

Concatenation of Multiple Commands

Multiple commands can be issued within one Prefix/Storage sequence. Only the Tag, SubTag, and Data fields must be repeated for each command in the sequence. If additional commands are to be applied to the same Tag, then the new command sequence is separated with a comma (,) and only the SubTag and Data fields of the additional command are issued. If the additional command requires a different Tag field, the command is separated from previous commands by a semicolon (;).

Responses

The device responds to serial commands with one of three responses:

ACK Indicates a good command which has been processed.

ENQ Indicates an invalid Tag or SubTag command.

NAK Indicates the command was good, but the Data field entry was out of the allowable range for this Tag and SubTag combination, e.g., an entry for a minimum message length of 100 when the field will only accept 2 characters.

When responding, the device echoes back the command sequence with the status character inserted directly before each of the punctuation marks (the period, exclamation point, comma, or semicolon) in the command.

Examples of Query Commands

In the following examples, a bracketed notation [ ] depicts a non-displayable response.

Example: What is the range of possible values for Codabar Coding Enable?

Enter: **cbrena*.**

Response: **CBRENA0-1[ACK]**

This response indicates that Codabar Coding Enable (CBRENA) has a range of values from 0 to 1 (off and on).

Example: What is the default value for Codabar Coding Enable?

Enter: **cbrena^.**

Response: **CBRENA1[ACK]**

This response indicates that the default setting for Codabar Coding Enable (CBRENA) is 1, or on.

Example: What is the device's current setting for Codabar Coding Enable?

Enter: **cbrena?.**

Response: **CBRENA1[ACK]**

This response indicates that the device's Codabar Coding Enable (CBRENA) is set to 1, or on.

Example: What are the device's settings for all Codabar selections?

Enter: **cbr?.**

Response: **CBRENA1[ACK],**
SSX0[ACK],
CK20[ACK],
CCT1[ACK],
MIN2[ACK],
MAX60[ACK],
DFT[ACK].

This response indicates that the device's Codabar Coding Enable (CBRENA) is set to 1, or on;
the Start/Stop Character (SSX) is set to 0, or Don't Transmit;
the Check Character (CK2) is set to 0, or Not Required;
concatenation (CCT) is set to 1, or Enabled;
the Minimum Message Length (MIN) is set to 2 characters;
the Maximum Message Length (MAX) is set to 60 characters;
and the Default setting (DFT) has no value.

Trigger Commands

You can activate and deactivate the scanner with serial trigger commands. First, you must send a serial menu command for triggering (page 37). Once the scanner is in serial trigger mode, the trigger is activated and deactivated by sending the following commands:

Activate: **SYN T CR**

Deactivate: **SYN U CR**

The scanner scans until a bar code has been read, until the deactivate command is sent, or until the serial time-out has been reached (see Read Time-Out on page 37 for a description, and the serial command on page 185).

Reset the Custom Defaults

If you want the custom default settings restored to your scanner, scan the **Activate Custom Defaults** bar code below. This resets the scanner to the custom default settings. If there are no custom defaults, it will reset the scanner to the factory default settings. Any settings that have not been specified through the custom defaults will be defaulted to the factory default settings.

Activate Custom Defaults

The charts on the following pages list the factory default settings for each of the commands (indicated by an asterisk (*) on the programming pages).

Menu Commands

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Product Default Settings			
Set Custom Defaults	Set Custom Defaults	MNUCDP	6
	Save Custom Defaults	MNUCDS	6
Reset the Custom Defaults	Activate Custom Defaults	DEFALT	6
Program the Interface			
Plug and Play Codes	Keyboard Wedge: IBM PC AT and Compatibles with CR suffix	PAP_AT	7
	Laptop Direct Connect with CR suffix	PAPLTD	8
	RS232 Serial Port	PAP232	8
Plug and Play Codes: RS485	IBM Port 5B Interface	PAPP5B	8
	IBM Port 9B HHBCR-1 Interface	PAP9B1	8
	IBM Port 17 Interface	PAPP17	9
	IBM Port 9B HHBCR-2 Interface	PAP9B2	9
	RS485 Packet Mode On	RTLPDF1	9
	RS485 Packet Mode Off	RTLPDF0	9
	RS485 Packet Length (20-256)	RTLMPS	9
Plug and Play Codes: IBM SurePos	USB IBM SurePos Handheld	PAPSPH	10
	USB IBM SurePos Tabletop	PAPSPT	10
Plug and Play Codes: USB	USB Keyboard (PC)	PAP124	10
	USB Keyboard (Mac)	PAP125	10
	USB Japanese Keyboard (PC)	TRMUSB134	10
	USB HID	PAP131	11
	USB Serial	TRMUSB130	11
	CTS/RTS Emulation On	USBCTS1	11
	CTS/RTS Emulation Off*	USBCTS0	11
	ACK/NAK Mode On	USBACK1	11
	ACK/NAK Mode Off*	USBACK0	12
Remote MasterMind for USB	ReM Off	REMIFC0	12
	*ReM On	REMIFC1	12
Plug and Play Codes	Verifone Ruby Terminal	PAPRBY	12
	Gilbarco Terminal	PAPGLB	13
	Honeywell Bioptic Aux Port	PAPBIO	13
	Datalogic Magellan Aux Port	PAPMAG	13
	NCR Bioptic Aux Port	PAPNCR	14
	Wincor Nixdorf Terminal	PAPWNX	14
	Wincor Nixdorf Beetle	PAPBTL	14
	Wincor Nixdorf RS232 Mode A	PAPWMA	15
Program Keyboard Country	*U.S.A.	KBDCTY0	15

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
	Albania	KBDCTY35	15
	Azeri (Cyrillic)	KBDCTY81	16
	Azeri (Latin)	KBDCTY80	16
	Belarus	KBDCTY82	16
	Belgium	KBDCTY1	16
	Bosnia	KBDCTY33	16
	Brazil	KBDCTY16	16
	Brazil (MS)	KBDCTY59	16
	Bulgaria (Cyrillic)	KBDCTY52	16
	Bulgaria (Latin)	KBDCTY53	16
	Canada (French legacy)	KBDCTY54	16
	Canada (French)	KBDCTY18	16
	Canada (Multilingual)	KBDCTY55	17
	Croatia	KBDCTY32	17
	Czech	KBDCTY15	17
	Czech (Programmers)	KBDCTY40	17
	Czech (QWERTY)	KBDCTY39	17
	Czech (QWERTZ)	KBDCTY38	17
	Denmark	KBDCTY8	17
	Dutch (Netherlands)	KBDCTY11	17
	Estonia	KBDCTY41	17
	Faroese	KBDCTY83	17
	Finland	KBDCTY2	17
	France	KBDCTY3	18
	Gaelic	KBDCTY84	18
	Germany	KBDCTY4	18
	Greek	KBDCTY17	18
	Greek (220 Latin)	KBDCTY64	18
	Greek (220)	KBDCTY61	18
	Greek (319 Latin)	KBDCTY65	18
	Greek (319)	KBDCTY62	18
	Greek (Latin)	KBDCTY63	18
	Greek (MS)	KBDCTY66	18
	Greek (Polytonic)	KBDCTY60	18
	Hebrew	KBDCTY12	19
	Hungarian (101 key)	KBDCTY50	19
	Hungary	KBDCTY19	19
	Iceland	KBDCTY75	19
	Irish	KBDCTY73	19
	Italian (142)	KBDCTY56	19
	Italy	KBDCTY5	19
	Japan ASCII	KBDCTY28	19
	Kazakh	KBDCTY78	19

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
	Kyrgyz (Cyrillic)	KBDCTY79	19
	Latin America	KBDCTY14	19
	Latvia	KBDCTY42	20
	Latvia (QWERTY)	KBDCTY43	20
	Lithuania	KBDCTY44	20
	Lithuania (IBM)	KBDCTY45	20
	Macedonia	KBDCTY34	20
	Malta	KBDCTY74	20
	Mongolian (Cyrillic)	KBDCTY86	20
	Norway	KBDCTY9	20
	Poland	KBDCTY20	20
	Polish (214)	KBDCTY57	20
	Polish (Programmers)	KBDCTY58	20
	Portugal	KBDCTY13	20
	Romania	KBDCTY25	21
	Russia	KBDCTY26	21
	Russian (MS)	KBDCTY67	21
	Russian (Typewriter)	KBDCTY68	21
	SCS	KBDCTY21	21
	Serbia (Cyrillic)	KBDCTY37	21
	Serbia (Latin)	KBDCTY36	21
	Slovakia	KBDCTY22	21
	Slovakia (QWERTY)	KBDCTY49	21
	Slovakia (QWERTZ)	KBDCTY48	21
	Slovenia	KBDCTY31	21
	Spain	KBDCTY10	21
	Spanish variation	KBDCTY51	22
	Sweden	KBDCTY23	22
	Switzerland (French)	KBDCTY29	22
	Switzerland (German)	KBDCTY6	22
	Tatar	KBDCTY85	22
	Turkey F	KBDCTY27	22
	Turkey Q	KBDCTY24	22
	Ukrainian	KBDCTY76	22
	United Kingdom	KBDCTY7	22
	United Stated (Dvorak right)	KBDCTY89	22
	United States (Dvorak left)	KBDCTY88	22
	United States (Dvorak)	KBDCTY87	22
	United States (International)	KBDCTY30	23
	Uzbek (Cyrillic)	KBDCTY77	23
Keyboard Wedge Modifiers			
ALT Mode	*Off	KBDALT0	23
	4 Chracters	KBDALT7	23

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Keyboard Style	*Regular	KBDSTY0	23
	Caps Lock	KBDSTY1	24
	Shift Lock	KBDSTY2	24
	Automatic Caps Lock	KBDSTY6	24
	Emulate External Keyboard	KBDSTY5	24
Keyboard Conversion	*Keyboard Conversion Off	KBDCNV0	25
	Convert all Characters to Upper Case	KBDCNV1	25
	Convert all Characters to Lower Case	KBDCNV2	25
Control Character Output	*Control Character Output Off	KBDNPE0	25
	*Control Character Output On	KBDNPE1	25
Keyboard Modifiers	*Control + X Off	KBDCAS0	26
	DOS Mode Control + X	KBDCAS1	26
	Windows Mode Control + X	KBDCAS2	26
	Windows Mode Prefix/Suffix Off	KBDCAS3	26
	*Turbo Mode Off	KBDTMD0	26
	Turbo Mode On	KBDTMD1	26
	Numeric Keypad On	KBDNPS1	26
	*Numeric Keypad Off	KBDNPS0	27
	*Auto Direct Connect Off	KBDADC0	27
	Auto Direct Connect On	KBDADC1	27
Baud Rate	300 BPS	232BAD0	27
	600 BPS	232BAD1	27
	1200 BPS	232BAD2	27
	2400 BPS	232BAD3	27
	4800 BPS	232BAD4	27
	9600 BPS	232BAD5	28
	19200 BPS	232BAD6	28
	38400 BPS	232BAD7	28
	57600 BPS	232BAD8	28
	*115200 BPS	232BAD9	28
Word Length: Data Bits, Stop Bits, and Parity	7 Data, 1 Stop, Parity Even	232WRD3	28
	7 Data, 1 Stop, Parity None	232WRD0	28
	7 Data, 1 Stop, Parity Odd	232WRD6	28
	7 Data, 2 Stop, Parity Even	232WRD4	28
	7 Data, 2 Stop, Parity None	232WRD1	29
	7 Data, 2 Stop, Parity Odd	232WRD7	29
	8 Data, 1 Stop, Parity Even	232WRD5	29
	*8 Data, 1 Stop, Parity None	232WRD2	29
	8 Data, 1 Stop, Parity Odd	232WRD8	29
	8 Data, 1 Stop, Parity Mark	232WRD14	29

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
RS232 Receiver Time-out	Range 0 - 300 seconds	232LPT###	29
RS232 Handshaking	*RTS/CTS Off	232CTS0	30
	Flow Control, No Timeout	232CTS1	30
	Two-Direction Flow Control	232CTS2	30
	Flow Control with Timeout	232CTS3	30
	RS232 Timeout	232DEL####	30
	*XON/XOFF Off	232XON0	31
	XON/XOFF On	232XON1	30
	*ACK/NAK Off	232ACK0	31
	ACK/NAK On	232ACK1	31
Scanner-Bioptic Packet Mode	*Packet Mode Off	232PKT0	31
	Packet Mode On	232PKT2	31
Scanner-Bioptic ACK/NAK Mode	*Bioptic ACK/NAK Off	232NAK0	32
	Bioptic ACK/NAK On	232NAK1	32
Scanner-Bioptic ACK/NAK Timeout	ACK/NAK Timeout *5100	232DLK#####	32
Input/Output Selections			
Power Up Beeper	Power Up Beeper Off - Scanner	BEPPWR0	33
	*Power Up Beeper On - Scanner	BEPPWR1	33
	Power Up Beeper Off - Cordless Base	BASPWR0	33
	Power Up Beeper On - Cordless Base	BASPWR1	33
Beeper - Good Read	Off	BEPBEP0	33
	*On	BEPBEP1	33
Beeper Volume - Good Read	Off	BEPLVL0	34
	Low	BEPLVL1	34
	Medium	BEPLVL2	34
	*High	BEPLVL3	34
Beeper Pitch - Good Read (Frequency)	Low (1600) (min 400Hz)	BEPFQ11600	34
	*Medium (2591)	BEPFQ12591	34
	High (4200) (max 9000Hz)	BEPFQ14200	34
Beeper Pitch - Error (Frequency)	*Razz (250) (min 200Hz)	BEPFQ2800	35
	Medium (3250)	BEPFQ23250	35
	High (4200) (max 9000Hz)	BEPFQ24200	35
Beeper Duration - Good Read	*Normal Beep	BEPBIP0	35
	Short Beep	BEPBIP1	35
LED - Good Read	Off	BEPLED0	35
	*On	BEPLED1	35
Number of Beeps - Error	*1	BEPERR3	36
	Range 1 - 9	BEPERR#	36
Number of Beeps - Good Read	*1	BEPRPT1	36
	Range 1 - 9	BEPRPT#	36

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Beeper Volume Max	Beeper Volume Max	PAPBLM	36
Good Read Delay	*No Delay	DLYGRD0	36
	Short Delay (500 ms)	DLYGRD500	36
	Medium Delay (1000 ms)	DLYGRD1000	36
	Long Delay (1500 ms)	DLYGRD1500	36
User-Specified Good Read Delay	Range 0 - 30,000 ms	DLYGRD#####	37
Serial Trigger Mode	Read Time-Out (0 - 300,000 ms) *30,000	TRGSTO####	37
Presentation Mode	Presentation Mode	PAPPST	37
Presentation Idle Mode	Presentation Idle Mode (0-3,000,000) *500 (0.5s)	TRGPMT#######	38
	Off	TRGPMT0	38
Presentation LED Behavior After Decode	LEDs On	TRGPCK1	38
	*LEDs Off	TRGPCK0	38
Presentation Sensitivity	Range 0-20 (*5)	TRGPMS##	39
Presentation Centering Window	Presentation Centering On	PDCWIN1	40
	*Presentation Centering Off	PDCWIN0	40
	Left of Presentation Centering Window (*40%)	PDCLFT###	41
	Right of Presentation Centering Window (*60%)	PDCRGT###	41
	Top of Presentation Centering Window (*40%)	PDCTOP###	40
	Bottom of Presentation Centering Window (*60%)	PDCBOT###	40
Poor Quality Codes	Poor Quality 1D Reading On	DECLDI1	41
	*Poor Quality 1D Reading Off	DECLDI0	41
	Poor Quality PDF Reading On	PDFXPR1	41
	*Poor Quality PDF Reading Off	PDFXPR0	42
Mobile Phone Read Mode	Presentation Scanning - Mobile Phone	PAPPSC	42
Reread Delay	*Short (500 ms)	DLYRRD500	42
	Medium (750 ms)	DLYRRD750	42
	Long (1000 ms)	DLYRRD1000	42
	Extra Long (2000 ms)	DLYRRD2000	42
User-Specified	Range 0 - 30,000 ms	DLYRRD#####	43
2D Reread Delay	2D Reread Delay Off	DLY2RR0	43
	Short (500ms)	DLY2RR500	43
	*Medium (750ms)	DLY2RR750	43
	Long (1000ms)	DLY2RR1000	42
	Extra Long (2000ms)	DLY2RR2000	42
Illumination Lights	*Lights On	SCNLED1	44
	Lights Off	SCNLED0	44

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Host Command Acknowledgment	Host ACK On	HSTACK1	45
	*Host ACK Off	HSTACK0	45
	Host ACK Timeout	HSTATO##	45
Character Activation Mode	*Off	HSTCEN0	46
	On	HSTCEN1	46
	Activation Character (Range 0-255) *12 [DC2]	HSTACH###	47
	Do Not End Character Activation After Good Read	HSTCGD0	47
	*End Character Activation After Good Read	HSTCGD1	47
	Character Activation Timeout (Range 1 - 300,000) *30,000 ms	HSTCDT######	47
Character Deactivation Mode	*Off	HSTDEN0	48
	On	HSTDEN1	48
	Deactivation Character (Range 0-255) *14 [DC4]	HSTDCH###	48
D/E Character (Disable/Enable)	*D/E Character Off	METDES0	48
	D/E Character On	METDES1	48
Beep on BEL Character	Beep on BEL On	BELBEP1	49
	*Beep on BEL Off	BELBEP0	49
Single Code Centering	Single Code Centering	DECWIN1;DECTOP49;DECBOT51;DECRGT51;DECLFT49	49
Centering Window	Centering On	DECWIN1	50
	*Centering Off	DECWIN0	50
	Left of Centering Window (*40%)	DECLFT###	51
	Right of Centering Window (*60%)	DECRGT###	51
	Top of Centering Window (*40%)	DECTOP###	50
	Bottom of Centering Window (*60%)	DECBOT###	50
Preferred Symbology	On	PRFENA1	51
	*Off	PRFENA0	51
	High Priority Symbology	PRFCOD##	52
	Low Priority Symbology	PRFBLK##	52
	Preferred Symbology Timeout (*500) Range 100-3000	PRFPTO####	52
	Preferred Symbology Default	PRFDFT	53
Output Sequence Editor	Enter Sequence	SEQBLK	55
	Default Sequence	SEQDFT	55
Partial Sequence	Transmit Partial Sequence	SEQTTS1	56
	*Discard Partial Sequence	SEQTTS0	56
Require Output Sequence	Required	SEQ_EN2	56
	On/Not Required	SEQ_EN1	56
	*Off	SEQ_EN0	56

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
No Read	On	SHWNRD1	57
	*Off	SHWNRD0	57
Video Reverse	Video Reverse Only	VIDREV1	57
	Video Reverse and Standard Bar Codes	VIDREV2	57
	*Video Reverse Off	VIDREV0	58
Working Orientation	*Upright	ROTATN0	58
	Vertical, Bottom to Top (Rotate CCW 90°)	ROTATN1	58
	Upside Down	ROTATN2	58
	Vertical, Top to Bottom (Rotate CW 90°)	ROTATN3	58
Prefix/Suffix Selections			
Add a Line Feed/Carriage Return Suffix to All Symbologies	Add LF/CR Suffix to All Symbologies	SUFBK2990D0A	61
Add an ETX Suffix to All Symbologies	Add ETX Suffix to All Symbologies	KBDCAS2;SUFBK29903.	61
Add an STX Prefix to All Symbologies	Add STX Prefix to All Symbologies	KBDCAS2;PREBK29902.	61
Prefix	Add Prefix	PREBK2##	62
	Clear One Prefix	PRECL2	62
	Clear All Prefixes	PRECA2	62
Suffix	Add Suffix	SUFBK2##	62
	Clear One Suffix	SUFCL2	62
	Clear All Suffixes	SUFCA2	62
Function Code Transmit	*Enable	RMVFNC0	62
	Disable	RMVFNC1	62
Intercharacter Delay	Range 0 - 1000 (5ms increments)	DLYCHR##	63
User Specified Intercharacter Delay	Delay Length 0 - 1000 (5ms increments)	DLYCRX##	63
	Character to Trigger Delay	DLY_XX##	63
Interfunction Delay	Range 0 - 1000 (5ms increments)	DLYFNC##	64
Intermessage Delay	Range 0 - 1000 (5ms increments)	DLYMSG##	64
Data Formatter Selections			
Data Format Editor	*Default Data Format (None)	DFMDF3	66
	Enter Data Format	DFMBK3##	67
	Clear One Data Format	DFMCL3	67
	Clear All Data Formats	DFMCA3	67

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Data Formatter	Data Formatter Off	DFM_EN0	81
	*Data Formatter On, Not Required, Keep Prefix/Suffix	DFM_EN1	81
	Data Format Required, Keep Prefix/Suffix	DFM_EN2	81
	Data Formatter On, Not Required, Drop Prefix/Suffix	DFM_EN3	81
	Data Format Required, Drop Prefix/Suffix	DFM_EN4	82
Primary/Alternate Data Formats	Primary Data Format	ALTFNM0	82
	Data Format 1	ALTFNM1	82
	Data Format 2	ALTFNM2	82
	Data Format 3	ALTFNM3	82
Single Scan Data Format Change	Single Scan-Primary Data Format	VSAF_0	82
	Single Scan-Data Format 1	VSAF_1	83
	Single Scan-Data Format 2	VSAF_2	83
	Single Scan-Data Format 3	VSAF_3	83
Symbologies			
All Symbologies	All Symbologies Off	ALLENA0	86
	All Symbologies On	ALLENA1	86
Codabar	Default All Codabar Settings	CBRDFT	87
	Off	CBRENA0	87
	*****On	CBRENA1	87
Codabar Start/Stop Char.	*****Don't Transmit	CBRSSX0	87
	Transmit	CBRSSX1	87
Codabar Check Char.	*****No Check Char.	CBRCK20	87
	Validate, But Don't Transmit	CBRCK21	87
	Validate, and Transmit	CBRCK22	87
Codabar Concatenation	*Off	CBRCCT0	88
	On	CBRCCT1	88
	Require	CBRCCT2	88
Codabar Message Length	Minimum (2 - 60) *4	CBRMIN##	89
	Maximum (2 - 60) *60	CBRMAX##	89
Code 39	Default All Code 39 Settings	C39DFT	89
	Off	C39ENA0	89
	*On	C39ENA1	89
Code 39 Start/Stop Char.	*****Don't Transmit	C39SSX0	89
	Transmit	C39SSX1	89

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Code 39 Check Char.	*No Check Char.	C39CK20	90
	Validate, But Don't Transmit	C39CK21	90
	Validate, and Transmit	C39CK22	90
Code 39 Message Length	Minimum (0 - 48) *0	C39MIN##	90
	Maximum (0 - 48) *48	C39MAX##	90
Code 39 Append	*Off	C39APP0	91
	On	C39APP1	91
Code 32 Pharmaceutical (PARAF)	*Off	C39B320	91
	On	C39B321	91
Code 39 Full ASCII	*Off	C39ASC0	91
	On	C39ASC1	91
	Code 39 Code Page	C39DCP	91
Interleaved 2 of 5	Default All Interleaved 2 of 5 Settings	I25DFT	93
	Off	I25ENA0	93
	*On	I25ENA1	93
Interleaved 2 of 5 Check Digit	*No Check Char.	I25CK20	93
	Validate, But Don't Transmit	I25CK21	93
	Validate, and Transmit	I25CK22	93
Interleaved 2 of 5 Length Lock	Length Lock 1	I25LK1###	94
	Length Lock 2	I25LK2###	94
Interleaved 2 of 5 Message Length	Minimum (2 - 80) *6	I25MIN##	94
	Maximum (2 - 80) *80	I25MAX##	94
NEC 2 of 5	Default All NEC 2 of 5 Settings	N25DFT	95
	Off	N25ENA0	95
	*On	N25ENA1	95
NEC 2 of 5 Check Digit	*No Check Char.	N25CK20	95
	Validate, But Don't Transmit	N25CK21	95
	Validate, and Transmit	N25CK22	95
NEC 2 of 5 Message Length	Minimum (2 - 80) *4	N25MIN##	96
	Maximum (2 - 80) *80	N25MAX##	96
Code 93	Default All Code 93 Settings	C93DFT	96
	Off	C93ENA0	96
	*On	C93ENA1	96
Code 93 Message Length	Minimum (0 - 80) *0	C93MIN##	97
	Maximum (0 - 80) *80	C93MAX##	97
Code 93 Append	On	C93APP1	97
	*Off	C93APP0	97

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Code 93 Code Page	Code 93 Code Page	C93DCP	97
Straight 2 of 5 Industrial	Default All Straight 2 of 5 Industrial Settings	R25DFT	98
	*Off	R25ENA0	98
	On	R25ENA1	98
Straight 2 of 5 Industrial Message Length	Minimum (1 - 48) *4	R25MIN##	98
	Maximum (1 - 48) *48	R25MAX##	98
Straight 2 of 5 IATA	Default All Straight 2 of 5 IATA Settings	A25DFT	99
Straight 2 of 5 IATA	*Off	A25ENA0	99
	On	A25ENA1	99
Straight 2 of 5 IATA Message Length	Minimum (1 - 48) *4	A25MIN##	99
	Maximum (1 - 48) *48	A25MAX##	99
Matrix 2 of 5	Default All Matrix 2 of 5 Settings	X25DFT	100
	*Off	X25ENA0	100
	On	X25ENA1	100
Matrix 2 of 5 Message Length	Minimum (1 - 80) *4	X25MIN##	100
	Maximum (1 - 80) *80	X25MAX##	100
Code 11	Default All Code 11 Settings	C11DFT	101
	*Off	C11ENA0	101
	On	C11ENA1	101
Code 11 Check Digits Required	1 Check Digit	C11CK20	101
	*2 Check Digits	C11CK21	101
Code 11 Message Length	Minimum (1 - 80) *4	C11MIN##	101
	Maximum (1 - 80) *80	C11MAX##	101
Code 128	Default All Code 128 Settings	128DFT	102
	Off	128ENA0	102
	*On	128ENA1	102
ISBT Concatenation	*Off	ISBENA0	102
	On	ISBENA1	102
Code 128 Message Length	Minimum (0 - 80) *0	128MIN##	103
	Maximum (0 - 80) *80	128MAX##	103
Code 128 Append	On	128APP1	103
	*Off	128APP0	103
Code 128 Code Page	Code 128 Code Page (*2)	128DCP##	103
GS1-128	Default All GS1-128 Settings	GS1DFT	104
	*On	GS1ENA1	104
	Off	GS1ENA0	104
GS1-128 Message Length	Minimum (1 - 80) *1	GS1MIN##	104
	Maximum (0 - 80) *80	GS1MAX##	104

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Telepen	Default All Telepen Settings	TELDFT	105
	*Off	TELENA0	105
	On	TELENA1	105
Telepen Output	*AIM Telepen Output	TELOLD0	105
	Original Telepen Output	TELOLD1	105
Telepen Message Length	Minimum (1 - 60) *1	TELMIN##	105
	Maximum (1 - 60) *60	TELMAX##	105
UPC-A	Default All UPC-A Settings	UPADFT	106
	Off	UPBENA0	106
	*On	UPBENA1	106
UPC-A Check Digit	Off	UPACKX0	106
	*On	UPACKX1	106
UPC-A Number System	Off	UPANSX0	107
	*On	UPANSX1	107
UPC-A 2 Digit Addenda	*Off	UPAAD20	107
	On	UPAAD21	107
UPC-A 5 Digit Addenda	*Off	UPAAD50	107
	On	UPAAD51	107
UPC-A Addenda Required	*Not Required	UPAARQ0	107
	Required	UPAARQ1	107
Addenda Timeout	Range (0 - 65535) *300	DLYADD#####	108
UPC-A Addenda Separator	Off	UPAADS0	108
	*On	UPAADS1	108
UPC-A/EAN-13 with Extended Coupon Code	*Off	CPNENA0	108
	Allow Concatenation	CPNENA1	108
	Require Concatenation	CPNENA2	108
Addenda Timeout	Range (0 - 65535) *100	DLYADD#####	109
Coupon GS1 DataBar Output	GS1 Output Off	CPNGS10	109
	GS1 Output On	CPNGS11	109
UPC-E0	Default All UPC-E Settings	UPEDFT	110
	Off	UPEEN00	110
	*On	UPEEN01	110
UPC-E0 Expand	*Off	UPEEXP0	110
	On	UPEEXP1	110
UPC-E0 Addenda Required	Required	UPEARQ1	110
	*Not Required	UPEARQ0	110
Addenda Timeout	Range (0 - 65535) *100	DLYADD#####	111
UPC-E0 Addenda Separator	*On	UPEADS1	111
	Off	UPEADS0	111

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
UPC-E0 Check Digit	Off	UPECKX0	111
	*On	UPECKX1	111
UPC-E0 Leading Zero	Off	UPENSX0	112
	*On	UPENSX1	112
UPC-E0 Addenda	2 Digit Addenda On	UPEAD21	112
	*2 Digit Addenda Off	UPEAD20	112
	5 Digit Addenda On	UPEAD51	112
	*5 Digit Addenda Off	UPEAD50	112
UPC-E1	*Off	UPEEN10	112
	On	UPEEN11	112
EAN/JAN-13	Default All EAN/ JAN Settings	E13DFT	113
	Off	E13ENA0	113
	*On	E13ENA1	113
Convert UPC-A to EAN-13	UPC-A Converted to EAN-13	UPAENA0	113
	Do not Convert UPC-A	UPAENA1	113
EAN/JAN-13 Check Digit	Off	E13CKX0	114
	*On	E13CKX1	114
EAN/JAN-13 2 Digit Addenda	2 Digit Addenda On	E13AD21	114
	*2 Digit Addenda Off	E13AD20	114
	5 Digit Addenda On	E13AD51	114
	*5 Digit Addenda Off	E13AD50	114
EAN/JAN-13 Addenda Required	*Not Required	E13ARQ0	114
	Required	E13ARQ1	114
EAN-13 Beginning with 290 Addenda Required	* Don't Require 5 Digit Addenda	ARQ2900	115
	Require 5 Digit Addenda	ARQ2901	115
EAN-13 Beginning with 378/379 Addenda Required	* Don't Require Addenda	ARQ3780	115
	Require 2 Digit Addenda	ARQ3781	116
	Require 5 Digit Addenda	ARQ3782	116
	Require 2 or 5 Digit Addenda	ARQ3783	116
EAN-13 Beginning with 414/419 Addenda Required	* Don't Require Addenda	ARQ4140	116
	Require 2 Digit Addenda	ARQ4141	116
	Require 5 Digit Addenda	ARQ4142	116
	Require 2 or 5 Digit Addenda	ARQ4143	116
EAN-13 Beginning with 434/439 Addenda Required	* Don't Require Addenda	ARQ4340	117
	Require 2 Digit Addenda	ARQ4341	117
	Require 5 Digit Addenda	ARQ4342	117
	Require 2 or 5 Digit Addenda	ARQ4343	117
EAN-13 Beginning with 977 Addenda Required	* Don't Require 2 Digit Addenda	ARQ9770	118
	Require 2 Digit Addenda	ARQ9771	118

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
EAN-13 Beginning with 978 Addenda Required	* Don't Require 5 Digit Addenda	ARQ9780	118
	Require 5 Digit Addenda	ARQ9781	118
EAN-13 Beginning with 979 Addenda Required	* Don't Require 5 Digit Addenda	ARQ9790	119
	Require 5 Digit Addenda	ARQ9791	119
Addenda Timeout	Range (0 - 65535) *100	DLYADD#####	119
EAN/JAN-13 Addenda Separator	Off	E13ADS0	119
	*On	E13ADS1	119
ISBN Translate	*Off	E13ISB0	120
	On	E13ISB1	120
EAN/JAN-8	Default All EAN/ JAN 8 Settings	EA8DFT	120
	Off	EA8ENA0	120
	*On	EA8ENA1	120
EAN/JAN-8 Check Digit	Off	EA8CKX0	120
	*On	EA8CKX1	120
EAN/JAN-8 Addenda	*2 Digit Addenda Off	EA8AD20	121
	2 Digit Addenda On	EA8AD21	121
	*5 Digit Addenda Off	EA8AD50	121
	5 Digit Addenda On	EA8AD51	121
EAN/JAN-8 Addenda Required	*Not Required	EA8ARQ0	121
	Required	EA8ARQ1	121
Addenda Timeout	Range (0 - 65535) *100	DLYADD#####	121
EAN/JAN-8 Addenda Separator	Off	EA8ADS0	122
	*On	EA8ADS1	122
MSI	Default All MSI Settings	MSIDFT	122
	*Off	MSIENA0	122
	On	MSIENA1	122
MSI Check Character	*Validate Type 10, but Don't Transmit	MSICHK0	123
	Validate Type 10 and Transmit	MSICHK1	123
	Validate 2 Type 10 Chars, but Don't Transmit	MSICHK2	123
	Validate 2 Type 10 Chars and Transmit	MSICHK3	123
	Validate Type 11 then Type 10 Char, but Don't Transmit	MSICHK4	123
	Validate Type 11 then Type 10 Char and Transmit	MSICHK5	123
	Disable MSI Check Characters	MSICHK6	123
MSI Message Length	Minimum (4 - 48) *4	MSIMIN##	124
	Maximum (4 - 48) *48	MSIMAX##	124

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Plessey Code	Default All Plessey Code Settings	PLSDFT	124
	Off	PLSENA0	124
	*On	PLSENA1	124
Plessey Check Char.	*No Check Char.	PLSCHK0	125
	Validate, But Don't Transmit	PLSCHK1	125
	Validate, and Transmit	PLSCHK2	125
Plessey Message Length	Minimum (1 - 80) *3	PLSMIN##	124
	Maximum (1 - 80) *80	PLSMAX##	124
Plessey A to X Conversion	*A to X Conversion Off	UKPCAX0	125
	A to X Conversion On	UKPCAX1	125
GS1 DataBar Omnidirectional	Default All GS1 DataBar Omnidirectional Settings	RSSDFT	126
	Off	RSSENA0	126
	*On	RSSENA1	126
GS1 DataBar Limited	Default All GS1 DataBar Limited Settings	RSLDFT	126
	Off	RSLENA0	126
	*On	RSLENA1	126
GS1 DataBar Expanded	Default All GS1 DataBar Expanded Settings	RSEDFT	127
	Off	RSEENA0	127
	*On	RSEENA1	127
GS1 DataBar Expanded Msg. Length	Minimum (4 - 74) *4	RSEMIN##	127
	Maximum (4 - 74) *74	RSEMAX##	127
Trioptic Code	*Off	TRIENA0	127
	On	TRIENA1	127
Codablock A	Default All Codablock A Settings	CBADFT	128
	*Off	CBAENA0	128
	On	CBAENA1	128
Codablock A Msg. Length	Minimum (1 - 600) *1	CBAMIN###	128
	Maximum (1 - 600) *600	CBAMAX###	128
Codablock F	Default All Codablock F Settings	CBFDFT	129
	*Off	CBFENA0	129
	On	CBFENA1	129
Codablock F Msg. Length	Minimum (1 - 2048) *1	CBFMIN####	129
	Maximum (1 - 2048) *2048	CBFMAX####	129
Label Code	On	LBLENA1	129
	* Off	LBLENA0	129

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
PDF417	Default All PDF417 Settings	PDFDFT	130
	*On	PDFENA1	130
	Off	PDFENA0	130
PDF417 Msg. Length	Minimum (1-2750) *1	PDFMIN####	130
	Maximum (1-2750) *2750	PDFMAX####	130
MacroPDF417	*On	PDFMAC1	131
	Off	PDFMAC0	131
MicroPDF417	Default All Micro PDF417 Settings	MPDDFT	131
	On	MPDENA1	131
	*Off	MPDENA0	131
MicroPDF417 Msg. Length	Minimum (1-366) *1	MPDMIN###	131
	Maximum (1-366) *366	MPDMAX###	131
GS1 Composite Codes	On	COMENA1	132
	*Off	COMENA0	132
UPC/EAN Version	On	COMUPC1	132
	*Off	COMUPC0	132
GS1 Composite Codes Msg. Length	Minimum (1-2435) *1	COMMIN####	132
	Maximum (1-2435) *2435	COMMAX####	132
GS1 Emulation	GS1-128 Emulation	EANEMU1	133
	GS1 DataBar Emulation	EANEMU2	132
	GS1 Code Expansion Off	EANEMU3	133
	EAN8 to EAN13 Conversion	EANEMU4	133
	*GS1 Emulation Off	EANEMU0	133
Double Border Required	Double Border Required	LSRDBB1	95
	*Double Border Not Required	LSRDBB0	95
TCIF Linked Code 39	On	T39ENA1	134
	*Off	T39ENA0	134
QR Code	Default All QR Code Settings	QRCDFT	134
	*On	QRCENA1	134
	Off	QRCENA0	134
QR Code Msg. Length	Minimum (1-7089) *1	QRCMIN####	134
	Maximum (1-7089) *7089	QRCMAX####	134
QR Code Append	*On	QRCAPP1	135
	Off	QRCAPP0	135
QR Code Page	QR Code Page (*3)	QRCDCP##	135
Data Matrix	Default All Data Matrix Settings	IDMDFT	136
	*On	IDMENA1	136
	Off	IDMENA0	136
Data Matrix Msg. Length	Minimum (1-3116) *1	IDMMIN####	136
	Maximum (1-3116) *3116	IDMMAX####	136
Data Matrix Append	*On	IDMAPP1	136
	Off	IDMAPP0	136
Data Matrix Code Page	Data Matrix Code Page (*51)	IDMDCP##	137

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
MaxiCode	Default All MaxiCode Settings	MAXDFT	137
	On	MAXENA1	137
	*Off	MAXENA0	137
MaxiCode Msg. Length	Minimum (1-150) *1	MAXMIN###	138
	Maximum (1-150) *150	MAXMAX###	138
Aztec Code	Default All Aztec Code Settings	AZTDFT	138
	*On	AZTENA1	138
	Off	AZTENA0	138
Aztec Code Msg. Length	Minimum (1-3832) *1	AZTMIN####	138
	Maximum (1-3832) *3832	AZTMAX####	138
Aztec Append	*On	AZTAPP1	139
	Off	AZTAPP0	139
Aztec Code Page	Aztec Code Page (*51)	AZTDCP##	139
Chinese Sensible (Han Xin) Code	Default All Han Xin Code Settings	HX_DFT	139
	On	HX_ENA1	139
	*Off	HX_ENA0	139
Chinese Sensible (Han Xin) Code Msg. Length	Minimum (1-7833) *1	HX_MIN####	140
	Maximum (1-7833) *7833	HX_MAX####	140
EAS Settings			
EAS Controller	*Off	EASTYP0	153
	On	EASTYP1	153
EAS Mode of Operation	*Interlocked	EASMOD0	154
	Continuous on Enable	EASMOD1	154
EAS Interlocked Duration Timeout	EASTIM (0-5000) *100ms	EASTIM#####	154
Imaging Default Commands			
Image Snap			
	Default all Imaging Commands	IMGDFT	149
P - Imaging Style	Imaging Style - Decoding	SNPSTY0	150
	*Imaging Style - Photo	SNPSTY1	150
	Imaging Style - Manual	SNPSTY2	150
B - Beeper	Beeper On	SNPBEP1	150
	*Beeper Off	SNPBEP0	150
T - Wait for Trigger	*Wait for Trigger Off	SNPTRG0	151
	Wait for Trigger On	SNPTRG1	151
L - LED State	*LED State - Off	SNPLED0	151
	LED State - On	SNPLED1	151
E - Exposure	Exposure (1-7874 microseconds)	SNPEXP	151
G - Gain	*Gain - None	SNPGAN1	152
	Gain - Medium	SNPGAN2	152
	Gain - Heavy	SNPGAN4	152
	Gain - Maximum	SNPGAN8	152
W - Target White Value	Target White Value (0-255) *125	SNPWHT###	152

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
D - Delta for Acceptance	Delta for Acceptance (0-255) *25	SNPDEL###	152
U - Update Tries	Update Tries (0-10) *6	SNPTRY##	153
% - Target Set Point Percentage	Target Set Point Percentage (1-99) *50	SNPPCT##	153
Image Ship			
A - Infinity Filter	*Infinity Filter - Off	IMGINF0	154
	Infinity Filter - On	IMGINF1	154
C - Compensation	*Compensation Off	IMGCOR0	154
	Compensation On	IMGCOR1	154
D - Pixel Depth	*Pixel Depth - 8 bits/pixel (grayscale)	IMGBPP8	154
	Pixel Depth - 1 bit/pixel (B&W)	IMGBPP1	154
E - Edge Sharpen	*Don't Sharpen Edges	IMGEDG0	155
	Sharpen Edges (0-23)	IMGEDG##	155
F - File Format	*File Format - JPEG	IMGFMT6	156
	File Format - KIM	IMGFMT0	156
	File Format - TIFF binary	IMGFMT1	156
	File Format - TIFF binary group 4, compressed	IMGFMT2	156
	File Format - TIFF grayscale	IMGFMT3	156
	File Format - Uncompressed binary	IMGFMT4	156
	File Format - Uncompressed grayscale	IMGFMT5	156
	File Format - BMP	IMGFMT8	156
H - Histogram Stretch	*Histogram Stretch Off	IMGHIS0	156
	Histogram Stretch On	IMGHIS1	156
IF- Noise Reduction	*Noise Reduction Off	IMGFSP0	157
	Noise Reduction On	IMGFSP1	157
I - Invert Image	Invert Image around X axis	IMGNVX1	157
	Invert Image around Y axis	IMGNVY1	157
IR - Image Rotate	Rotate Image none	IMGROT0	158
	Rotate Image 90° right	IMGROT1	158
	Rotate Image 180° right	IMGROT2	158
	Rotate Image 90° left	IMGROT3	158
J - JPEG Image Quality	JPEG Image Quality (0-100) *50	IMGJQF###	158
K - Gamma Correction	*Gamma Correction Off	IMGGAM0	159
	Gamma Correction On (0-1000)	IMGGAM###	159
L, R, T, B, M - Image Cropping	Image Crop - Left (0-843) *0	IMGWNL###	159
	Image Crop - Right (0-843) *843	IMGWNR###	159
	Image Crop - Top (0-639) *0	IMGWNT###	159
	Image Crop - Bottom (0-639) *639	IMGWNB###	160
	Image Crop - Margin (1-238) *0	IMGMAR###	160
P - Protocol	Protocol - None (raw)	IMGXFR0	160

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
	Protocol - None (default USB)	IMGXFR2	160
	Protocol - Hmodem Compressed	IMGXFR3	160
	Protocol - Hmodem	IMGXFR4	160
S - Pixel Ship	Ship Every Pixel	IMGSUB1	161
	Ship Every 2nd Pixel	IMGSUB2	161
	Ship Every 3rd Pixel	IMGSUB3	161
U - Document Image Filter	*Document Image Filter Off	IMGUSH0	161
	Document Image Filter On (0-255)	IMGUSH###	161
W - Histogram Ship	*Don't Ship Histogram	IMGHST0	162
	Ship Histogram	IMGHST1	162
Image Size Compatibility	Force VGA Resolution	IMGVGA1	162
	*Native Resolution	IMGVGA0	163
Intelligent Signature Capture	Optimize On	DECBND1	163
	*Optimize Off	DECBND0	163
Postal Codes - 2D			
2D Postal Codes	*Off	POSTAL0	140
Single 2D Postal Codes	Australian Post On	POSTAL1	140
	British Post On	POSTAL7	140
	Canadian Post On	POSTAL30	140
	Intelligent Mail Bar Code On	POSTAL10	141
	Japanese Post On	POSTAL3	141
	KIX Post On	POSTAL4	141
	Planet Code On	POSTAL5	141
	Postal-4i On	POSTAL9	141
	Postnet On	POSTAL6	141
	Postnet with B and B' Fields On	POSTAL11	141
	InfoMail On	POSTAL2	141

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Combination 2D Postal Codes	InfoMail and British Post On	POSTAL8	141
	Intelligent Mail Bar Code and Postnet with B and B' Fields On	POSTAL20	142
	Postnet and Postal-4i On	POSTAL14	142
	Postnet and Intelligent Mail Bar Code On	POSTAL16	142
	Postal-4i and Intelligent Mail Bar Code On	POSTAL17	142
	Postal-4i and Postnet with B and B' Fields On	POSTAL19	142
	Planet and Postnet On	POSTAL12	142
	Planet and Postnet with B and B' Fields On	POSTAL18	142
	Planet and Postal-4i On	POSTAL13	142
	Planet and Intelligent Mail Bar Code On	POSTAL15	142
	Planet, Postnet, and Postal-4i On	POSTAL21	142
	Planet, Postnet, and Intelligent Mail Bar Code On	POSTAL22	143
	Planet, Postal-4i, and Intelligent Mail Bar Code On	POSTAL23	143
Combination 2D Postal Codes (continued)	Postnet, Postal-4i, and Intelligent Mail Bar Code On	POSTAL24	143
	Planet, Postal-4i, and Postnet with B and B' Fields On	POSTAL25	143
	Planet, Intelligent Mail Bar Code, and Postnet with B and B' Fields On	POSTAL26	143
	Postal-4i, Intelligent Mail Bar Code, and Postnet with B and B' Fields On	POSTAL27	143
	Planet, Postal-4i, Intelligent Mail Bar Code, and Postnet On	POSTAL28	143
	Planet, Postal-4i, Intelligent Mail Bar Code, and Postnet with B and B' Fields On	POSTAL29	143
Planet Code Check Digit	Transmit	PLNCKX1	144
	*Don't Transmit	PLNCKX0	144
Postnet Check Digit	Transmit	NETCKX1	144
	*Don't Transmit	NETCKX0	144
Australian Post Interpretation	Bar Output	AUSINT0	144
	Numeric N Table	AUSINT1	145
	Alphanumeric C Table	AUSINT2	145
	Combination N and C Tables	AUSINT3	145

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Page
Postal Codes - Linear			
China Post (Hong Kong 2 of 5)	Default All China Post (Hong Kong 2 of 5) Settings	CPCDFT	145
	*Off	CPCENA0	145
	On	CPCENA1	145
China Post (Hong Kong 2 of 5) Msg. Length	Minimum (2 - 80) *4	CPCMIN##	145
	Maximum (2 - 80) *80	CPCMAX##	145
Korea Post	Default All Korea Post Settings	KPCDFT	146
	*Off	KPCENA0	146
	On	KPCENA1	146
Korea Post Msg. Length	Minimum (2 - 80) *4	KPCMIN##	146
	Maximum (2 - 80) *48	KPCMAX##	146
Korea Post Check Digit	Transmit Check Digit	KPCCHK1	146
	*Don't Transmit Check Digit	KPCCHK0	146
Utilities			
Add Code I.D. Prefix to All Symbologies (Temporary)		PRECA2,BK2995C80!	169
Show Decoder Revision		REV_DR	169
Show Scan Driver Revision		REV_SD	169
Show Software Revision		REVINF	170
Show Data Format		DFMBK3?	170
Test Menu	On	TSTMNU1	170
	*Off	TSTMNU0	170
Application Plug-Ins (Apps)	*Decoding Apps On	PLGDCE1	171
	Decoding Apps Off	PLGDCE0	171
	*Formatting Apps On	PLGFOE1	171
	Formatting Apps Off	PLGFOE0	171
	List Apps	PLGINF	171
Resetting the Factory Defaults	Remove Custom Defaults	DEFOVR	173
	Activate Defaults	DEFALT	173

CHAPTER

10 PRODUCT SPECIFICATIONS

Orbit 7120plus Product Specifications

Parameter	Specification
Mechanical	
Height Length Width Weight	5.8 inches (148mm) 4.3 inches (108mm) 4.1 inches (103mm) 13.9 ounces (395g)
Electrical	
Input Voltage	5 VDC ± 0.25V
Operating Power	240mA @5V
Standby Power	240mA @5V
Light Source (Laser)	VLD @650Nm
Laser Power	0.6 - 0.7MV@10cm
Environmental	
Operating Temperature	+32°F to +104°F (0°C to 40°C)
Storage Temperature	-40°F to +140°F (-40°C to 60°C)
Humidity	5% to 95% non-condensing
Drop	Operational after 2 drops from 4 feet (1.2m) to concrete
Vibration	Withstands 10G peak from 10 to 500Hz
ESD Tolerance	Up to 15kV direct air Up to 8 kV indirect coupling plane
Image	
Image Size	640 x 480 pixels
Scan Performance	
Skew Angle	Laser: ±60° Imager: ±70°
Pitch Angle	±60°
Symbol Contrast	35% minimum reflectance difference
Scan Pattern	Omnidirectional laser (5 fields of 4 parallel lines)
Scan Speed	1120 scan lines per second

Parameter (Continued)	Specification
Depth of Field	
Typical Performance – Laser (1D Resolution = 5 mil)	
5 mil Code 39	0 - 50mm (0 - 2 in.)
7.5 mil Code 39	0 - 150mm (0 - 5.9 in.)
10mil Code 39	0 - 220mm (0 - 8.7 in.)
13 mil UPC	0 - 275mm (0 - 10.8 in.)
26 mil UPC-E	0 - 300mm (0 - 11.8 in.)
Typical Performance – Imager (1D Resolution = 4mil, 2D Resolution = 6.7 mil)	
5 mil Code 39	0 - 70mm (0 - 2.8 in.)
13 mil UPC	0 - 245mm (0 - 9.6 in.)
6.7 mil PDF417	0 - 70mm (0 - 2.8 in.)
10 mil DataMatrix	0 - 75mm (0 - 3 in.)
20 mil QR Code	0 - 200mm (0 - 7.9 in.)
Typical Performance – Laser (1D Resolution = 5 mil)	
5 mil Code 39	0 - 45mm (0 - 1.8 in.)
7.5 mil Code 39	0 - 140mm (0 - 5.5 in.)
10mil Code 39	0 - 205mm (0 - 8 in.)
13 mil UPC	0 - 255mm (0 - 10 in.)
26 mil UPC-E	0 - 275mm (0 - 10.8 in.)
Typical Performance – Imager (1D Resolution = 4mil, 2D Resolution = 6.7 mil)	
5 mil Code 39	0 - 50mm (0 - 2 in.)
13 mil UPC	0 - 230mm (0 - 9.1 in.)
6.7 mil PDF417	0 - 60mm (0 - 2.4 in.)
10 mil DataMatrix	0 - 60mm (0 - 2.4 in.)
20 mil QR Code	0 - 175mm (0 - 6.9 in.)

Orbit 7190g Product Specifications

Parameter	Specification
Mechanical	
Height	5.8 inches (148mm)
Length	4.3 inches (108mm)
Width	4.1 inches (103mm)
Weight	14.5 ounces (410g)
Electrical	
Input Voltage	5 VDC ± 0.25V
Operating Power	472mA @5V
Standby Power	255mA @5V
Peak Wavelength	625nm
Light Source (Laser)	VLD @650Nm
Laser Power	0.6 - 0.7MV@10cm

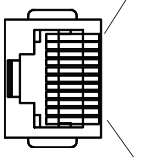
Parameter (Continued)	Specification
Environmental	
Operating Temperature	+32°F to +104°F (0°C to 40°C)
Storage Temperature	-40°F to +140°F (-40°C to 60°C)
Humidity	5% to 95% non-condensing
Drop	Operational after 2 drops from 4 feet (1.2m) to concrete
Vibration	Withstands 10G peak from 10 to 500Hz
ESD Tolerance	Up to 15kV direct air Up to 8 kV indirect coupling plane
Image	
Image Size	640 x 480 pixels
Scan Performance	
Skew Angle	Laser: ±60° Imager: ±70°
Pitch Angle	±60°
Symbol Contrast	35% minimum reflectance difference
Scan Pattern	Omnidirectional laser (5 fields of 4 parallel lines)
Scan Speed	1120 scan lines per second
Depth of Field	
Typical Performance - Laser (1D Resolution = 5 mil)	
5 mil Code 39	0 - 50mm (0 - 2 in.)
7.5 mil Code 39	0 - 150mm (0 - 5.9 in.)
10mil Code 39	0 - 220mm (0 - 8.7 in.)
13 mil UPC	0 - 275mm (0 - 10.8 in.)
26 mil UPC-E	0 - 300mm (0 - 11.8 in.)
Typical Performance - Imager (1D Resolution = 4mil, 2D Resolution = 6.7 mil)	
5 mil Code 39	0 - 70mm (0 - 2.8 in.)
13 mil UPC	0 - 245mm (0 - 9.6 in.)
6.7 mil PDF417	0 - 70mm (0 - 2.8 in.)
10 mil DataMatrix	0 - 75mm (0 - 3 in.)
20 mil QR Code	0 - 200mm (0 - 7.9 in.)
Guaranteed Performance - Laser (1D Resolution = 5 mil)	
5 mil Code 39	0 - 45mm (0 - 1.8 in.)
7.5 mil Code 39	0 - 140mm (0 - 5.5 in.)
10mil Code 39	0 - 205mm (0 - 8 in.)
13 mil UPC	0 - 255mm (0 - 10 in.)
26 mil UPC-E	0 - 275mm (0 - 10.8 in.)
Guaranteed Performance - Imager (1D Resolution = 4mil, 2D Resolution = 6.7 mil)	
5 mil Code 39	0 - 50mm (0 - 2 in.)
13 mil UPC	0 - 230mm (0 - 9.1 in.)
6.7 mil PDF417	0 - 60mm (0 - 2.4 in.)
10 mil DataMatrix	0 - 60mm (0 - 2.4 in.)
20 mil QR Code	0 - 175mm (0 - 6.9 in.)

Standard Connector Pinouts

Note: *The following pin assignments are not compatible with Honeywell legacy products. Use of a cable with improper pin assignments may lead to damage to the unit. Use of any cables not provided by the manufacturer may result in damage not covered by your warranty.*

Keyboard Wedge

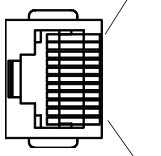
10 Pin RJ41 Modular Plug - connects to the base



1	**Cable shield**
2	**Cable select**
3	**Supply ground**
4	**Terminal data**
5	**Terminal clock**
6	**Keyboard clock**
7	**+5V power**
8	**Keyboard data**
9	
10	

Serial Output

10 Pin RJ41 Modular Plug - connects to the base

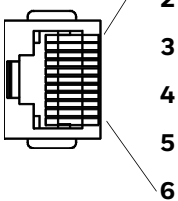


1	**Cable shield**
2	**Cable select**
3	**Supply ground**
4	**Transmit data**
5	**Receive data - serial data to scanner**
6	**CTS**
7	**+5V power**
8	**RTS**
9	
10	

RS485 Output

10 Pin RJ41 Modular Plug - connects to the base

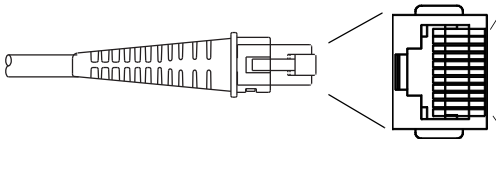
Note: *RS485 signal conversion is performed in the cable.*



1 Cable shield
2 Cable select
3 Supply ground
4 Transmit data
5 Receive data - serial data to scanner
6
7 +5V power
8 Transmit Enable
9
10

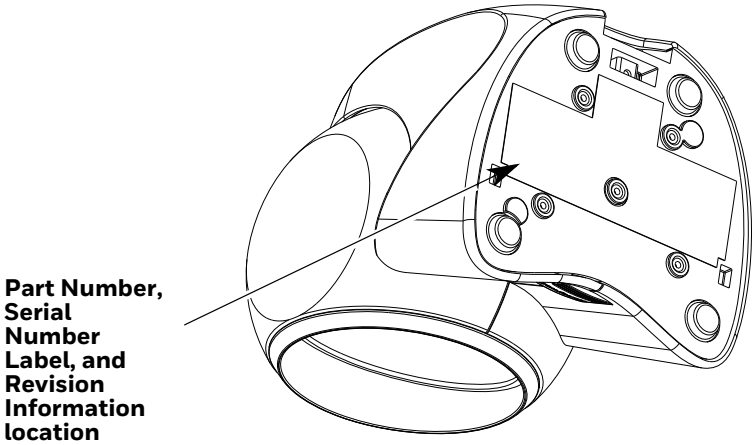
USB

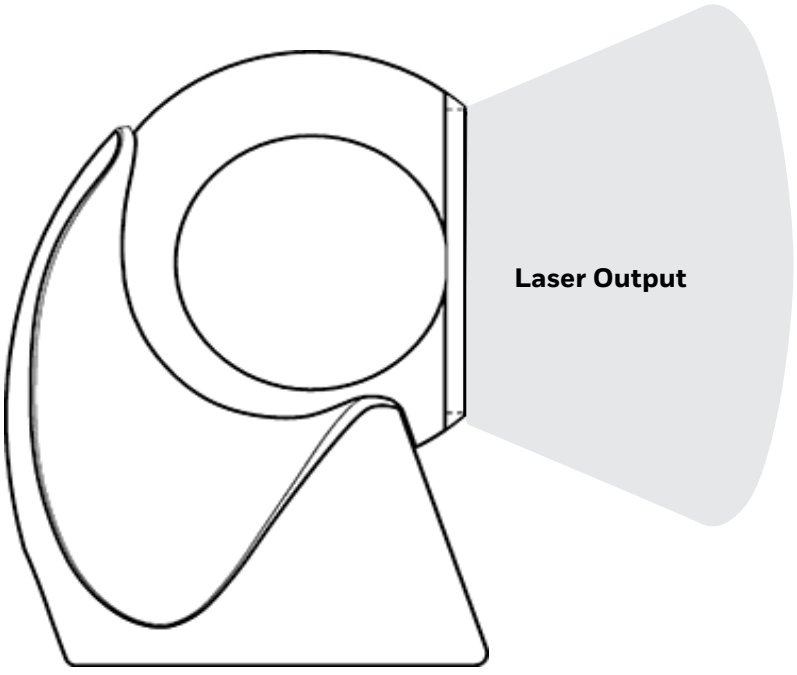
10 Pin Modular Plug - connects to the base



1 Cable shield
2 Cable select
3 Supply ground
4
5
6
7 USB_VBUS
8
9 Data +
10 Data -

Required Safety Labels





CHAPTER

11 MAINTENANCE AND TROUBLESHOOTING

Repairs

Repairs and/or upgrades are not to be performed on this product. These services are to be performed only by an authorized service center. See Customer Support on page xi.

Maintenance

Your device provides reliable and efficient operation with a minimum of care. Although specific maintenance is not required, the following periodic checks ensure dependable operation:

Clean the Scanner

The scanner or base's housing may be cleaned with a soft cloth or tissue dampened with water (or a mild detergent-water solution.) If a detergent solution is used, rinse with a clean tissue dampened with water only.

Caution: Do not submerge the scanner in water. The scanner's housing is not watertight. Do not use abrasive wipes or tissues on the scanner's window. Abrasive wipes may scratch the window. Never use solvents (e.g., acetone) on the housing or window. Solvents may damage the finish or the window.

Inspect Cords and Connectors

Inspect the interface cable and connector for wear or other signs of damage. A badly worn cable or damaged connector may interfere with scanner operation. Contact your distributor for information about cable replacement. Cable replacement instructions are on page 208.

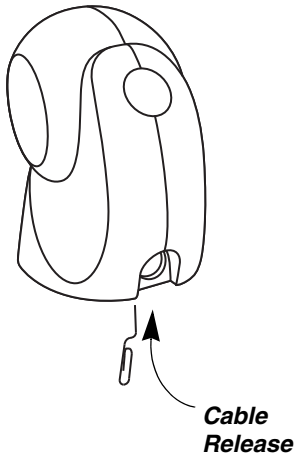
Replace Cables

The standard interface cable is attached to the scanner with an 10-pin modular connector. When properly seated, the connector is held in the scanner's base by a flexible retention tab. The interface cable is designed to be field replaceable.

- Order replacement cables from Honeywell or from an authorized distributor.
- When ordering a replacement cable, specify the cable part number of the original interface cable.

Replace an Interface Cable

1. Turn off the power to the host system.
2. Disconnect the scanner's cable from the terminal or computer.
3. Locate the small hole underneath the base. This is the cable release.
4. Straighten one end of a paper clip.
5. Insert the end of the paper clip into the small hole and press in. This depresses the retention tab, releasing the connector. Pull the connector out while maintaining pressure on the paper clip, then remove the paper clip.
6. Replace with the new cable.
   Insert the connector into the opening and press firmly.
   The connector is keyed to go in only one way, and will click into place.



Troubleshoot the Scanner

The scanner automatically performs self-tests whenever you turn it on. If your scanner is not functioning properly, review the following Troubleshooting Guide to try to isolate the problem.

Is the power on?

If the LEDs aren't illuminated, check that:

- The cable is connected properly.
- The host system power is on (if external power isn't used).

Is the scanner having trouble reading your symbols?

If the scanner isn't reading symbols well, check that the symbols:

- Aren't smeared, rough, scratched, or exhibiting voids.
- Aren't coated with frost or water droplets on the surface.
- Are enabled in the scanner or in the decoder to which the scanner connects.

Is the bar code displayed but not entered?

The bar code is displayed on the host device correctly, but you still have to press a key to enter it (the Enter/Return key or the Tab key, for example).

- You need to program a suffix. Programming a suffix enables the scanner to output the bar code data plus the key you need (such as “CR”) to enter the data into your application. Refer to Prefix/Suffix Overview on page 59 for further information.

The scanner won’t read your bar code at all.

1. Scan the sample bar codes in the back of this manual. If the scanner reads the sample bar codes, check that your bar code is readable.
   Verify that your bar code symbology is enabled (see Chapter 6).
2. If the scanner still can’t read the sample bar codes, scan All Symbologies On, page 86.

If you aren’t sure what programming options have been set in the scanner, or if you want the factory default settings restored, refer to Reset the Factory Defaults on page 173.

APPENDIX

A REFERENCE CHARTS

Symbology Charts

Note: *"m" represents the AIM modifier character. Refer to International Technical Specification, Symbology Identifiers, for AIM modifier character details.*

Prefix / Suffix entries for specific symbologies override the universal (All Symbologies, 99) entry.

Refer to Data Edit beginning on page 59 and Data Format beginning on page 65 for information about using Code ID and AIM ID.

Linear Symbologies

	AIM		Honeywell	
Symbology	**ID**	**Possible modifiers (m)**	**ID**	**Hex**
All Symbologies				99
Codabar	]F*m*	0-1	a	61
Code 11	]H3		h	68
Code 128	]C*m*	0, 1, 2, 4	j	6A
Code 32 Pharmaceutical (PARAF)	]X0		<	3C
Code 39 (supports Full ASCII mode)	]A*m*	0, 1, 3, 4, 5, 7	b	62
TCIF Linked Code 39 (TLC39)	]L2		T	54
Code 93 and 93i	]G*m*	0-9, A-Z, a-m	i	69
EAN	]E*m*	0, 1, 3, 4	d	64
EAN-13 (including Bookland EAN)	]E0		d	64
EAN-13 with Add-On	]E3		d	64
EAN-13 with Extended Coupon Code	]E3		d	64
EAN-8	]E4		D	44

Symbology	AIM ID	AIM Possible modifiers (m)	Honeywell ID	Honeywell Hex
EAN-8 with Add-On	]E3		D	44
GS1				
GS1 DataBar	]e*m*	0	y	79
GS1 DataBar Limited	]e*m*		{	7B
GS1 DataBar Expanded	]e*m*		}	7D
GS1-128	]C1		I	49
2 of 5				
China Post (Hong Kong 2 of 5)	]X0		Q	51
Interleaved 2 of 5	]I*m*	0, 1, 3	e	65
Matrix 2 of 5	]X0		m	6D
NEC 2 of 5	]X0		Y	59
Straight 2 of 5 IATA	]R*m*	0, 1, 3	f	66
Straight 2 of 5 Industrial	]S0		f	66
MSI	]M*m*	0, 1	g	67
Telepen	]B*m*		t	74
UPC		0, 1, 2, 3, 8, 9, A, B, C		
UPC-A	]E0		c	63
UPC-A with Add-On	]E3		c	63
UPC-A with Extended Coupon Code	]E3		c	63
UPC-E	]E0		E	45
UPC-E with Add-On	]E3		E	45
UPC-E1	]X0		E	45

Add Honeywell Code ID				5C80
Add AIM Code ID				5C81
Add Backslash				5C5C
Batch mode quantity			5	35

2D Symbologies

Symbology	AIM ID	AIM Possible modifiers (m)	Honeywell ID	Honeywell Hex
All Symbologies				99
Aztec Code	]z*m*	0-9, A-C	z	7A

Symbology	AIM		Honeywell	
	ID	Possible modifiers (m)	ID	Hex
Chinese Sensible Code (Han Xin Code)	]X0		H	48
Codablock A	]O6	0, 1, 4, 5, 6	V	56
Codablock F	]O*m*	0, 1, 4, 5, 6	q	71
Code 49	]T*m*	0, 1, 2, 4	l	6C
Data Matrix	]d*m*	0-6	w	77
GS1	]e*m*	0-3	y	79
GS1 Composite	]e*m*	0-3	y	79
GS1 DataBar Omnidirectional	]e*m*	0-3	y	79
MaxiCode	]U*m*	0-3	x	78
PDF417	]L*m*	0-2	r	72
MicroPDF417	]L*m*	0-5	R	52
QR Code	]Q*m*	0-6	s	73
Micro QR Code	]Q*m*		s	73

Postal Symbologies

Symbology	AIM		Honeywell	
	ID	Possible modifiers (m)	ID	Hex
All Symbologies				99
Australian Post	]X0		A	41
British Post	]X0		B	42
Canadian Post	]X0		C	43
China Post	]X0		Q	51
InfoMail	]X0		,	2c
Intelligent Mail Bar Code	]X0		M	4D
Japanese Post	]X0		J	4A
KIX (Netherlands) Post	]X0		K	4B
Korea Post	]X0		?	3F
Planet Code	]X0		L	4C
Postal-4i	]X0		N	4E
Postnet	]X0		P	50

ASCII Conversion Chart (Code Page 1252)

In keyboard applications, ASCII Control Characters can be represented in 3 different ways, as shown below. The CTRL+X function is OS and application dependent. The following table lists some commonly used Microsoft functionality. This table applies to U.S. style keyboards. Certain characters may differ depending on your Country Code/PC regional settings.

Non-printable ASCII control characters			**Keyboard Control + ASCII (CTRL+X) Mode**		
			Control + X Mode Off (KBDCAS0)	**Windows Mode Control + X Mode On (KBDCAS2)**	
DEC	**HEX**	**Char**		**CTRL + X**	**CTRL + X function**
0	00	NUL	Reserved	CTRL+ @	
1	01	SOH	NP Enter	CTRL+ A	Select all
2	02	STX	Caps Lock	CTRL+ B	Bold
3	03	ETX	ALT Make	CTRL+ C	Copy
4	04	EOT	ALT Break	CTRL+ D	Bookmark
5	05	ENQ	CTRL Make	CTRL+ E	Center
6	06	ACK	CTRL Break	CTRL+ F	Find
7	07	BEL	Enter / Ret	CTRL+ G	
8	08	BS	*(Apple Make)*	CTRL+ H	History
9	09	HT	Tab	CTRL+ I	Italic
10	0A	LF	*(Apple Break)*	CTRL+ J	Justify
11	0B	VT	Tab	CTRL+ K	hyperlink
12	0C	FF	Delete	CTRL+ L	list, left align
13	0D	CR	Enter / Ret	CTRL+ M	
14	0E	SO	Insert	CTRL+ N	New
15	0F	SI	ESC	CTRL+ O	Open
16	10	DLE	F11	CTRL+ P	Print
17	11	DC1	Home	CTRL+ Q	Quit
18	12	DC2	PrtScn	CTRL+ R	
19	13	DC3	Backspace	CTRL+ S	Save
20	14	DC4	Back Tab	CTRL+ T	
21	15	NAK	F12	CTRL+ U	
22	16	SYN	F1	CTRL+ V	Paste
23	17	ETB	F2	CTRL+ W	
24	18	CAN	F3	CTRL+ X	
25	19	EM	F4	CTRL+ Y	?
26	1A	SUB	F5	CTRL+ Z	?
27	1B	ESC	F6	CTRL+ [	?
28	1C	FS	F7	CTRL+ \	?
29	1D	GS	F8	CTRL+]	?
30	1E	RS	F9	CTRL+ ^	?
31	1F	US	F10	CTRL+ -	?
127	7F	⌂	NP Enter		?

Lower ASCII Reference Table

Note: *Windows Code page 1252 and lower ASCII use the same characters.*

Printable Characters								
DEC	**HEX**	**Character**	**DEC**	**HEX**	**Character**	**DEC**	**HEX**	**Character**
32	20	<SPACE>	64	40	@	96	60	`
33	21	!	65	41	A	97	61	a
34	22	"	66	42	B	98	62	b
35	23	#	67	43	C	99	63	c
36	24	$	68	44	D	100	64	d
37	25	%	69	45	E	101	65	e
38	26	&	70	46	F	102	66	f
39	27	'	71	47	G	103	67	g
40	28	(	72	48	H	104	68	h
41	29	)	73	49	I	105	69	i
42	2A	*	74	4A	J	106	6A	j
43	2B	+	75	4B	K	107	6B	k
44	2C	,	76	4C	L	108	6C	l
45	2D	-	77	4D	M	109	6D	m
46	2E	.	78	4E	N	110	6E	n
47	2F	/	79	4F	O	111	6F	o
48	30	0	80	50	P	112	70	p
49	31	1	81	51	Q	113	71	q
50	32	2	82	52	R	114	72	r
51	33	3	83	53	S	115	73	s
52	34	4	84	54	T	116	74	t
53	35	5	85	55	U	117	75	u
54	36	6	86	56	V	118	76	v
55	37	7	87	57	W	119	77	w
56	38	8	88	58	X	120	78	x
57	39	9	89	59	Y	121	79	y
58	3A	:	90	5A	Z	122	7A	z
59	3B	;	91	5B	[	123	7B	{
60	3C	<	92	5C	\	124	7C	|
61	3D	=	93	5D	]	125	7D	}
62	3E	>	94	5E	^	126	7E	~
63	3F	?	95	5F	_	127	7F	⌂

Extended ASCII Characters					
DEC	**HEX**	**CP 1252**	**ASCII**	**Alternate Extended**	**PS2 Scan Code**
128	80	€	Ç	up arrow ↑	0x48
129	81		ü	down arrow ↓	0x50
130	82	‚	é	right arrow →	0x4B
131	83	*ƒ*	â	left arrow ←	0x4D
132	84	„	ä	Insert	0x52
133	85	…	à	Delete	0x53
134	86	†	å	Home	0x47
135	87	‡	ç	End	0x4F
136	88	ˆ	ê	Page Up	0x49
137	89	‰	ë	Page Down	0x51
138	8A	Š	è	Right ALT	0x38
139	8B	‹	ï	Right CTRL	0x1D

Extended ASCII Characters (Continued)					
DEC	**HEX**	**CP 1252**	**ASCII**	**Alternate Extended**	**PS2 Scan Code**
140	8C	Œ	î	Reserved	n/a
141	8D		ì	Reserved	n/a
142	8E	Ž	Ä	Numeric Keypad Enter	0x1C
143	8F		Å	Numeric Keypad /	0x35
144	90		É	F1	0x3B
145	91	‘	æ	F2	0x3C
146	92	’	Æ	F3	0x3D
147	93	“	ô	F4	0x3E
148	94	”	ö	F5	0x3F
149	95	•	ò	F6	0x40
150	96	–	û	F7	0x41
151	97	—	ù	F8	0x42
152	98	˜	ÿ	F9	0x43
153	99	™	Ö	F10	0x44
154	9A	š	Ü	F11	0x57
155	9B	›	¢	F12	0x58
156	9C	œ	£	Numeric Keypad +	0x4E
157	9D		¥	Numeric Keypad -	0x4A
158	9E	ž	Pts	Numeric Keypad *	0x37
159	9F	Ÿ	ƒ	Caps Lock	0x3A
160	A0		á	Num Lock	0x45
161	A1	¡	í	Left Alt	0x38
162	A2	¢	ó	Left Ctrl	0x1D
163	A3	£	ú	Left Shift	0x2A
164	A4	¤	ñ	Right Shift	0x36
165	A5	¥	Ñ	Print Screen	n/a
166	A6	¦	ª	Tab	0x0F
167	A7	§	º	Shift Tab	0x8F
168	A8	¨	¿	Enter	0x1C
169	A9	©	⌐	Esc	0x01
170	AA	ª	¬	Alt Make	0x36
171	AB	«	½	Alt Break	0xB6
172	AC	¬	¼	Control Make	0x1D
173	AD		¡	Control Break	0x9D
174	AE	®	«	Alt Sequence with 1 Character	0x36
175	AF	¯	»	Ctrl Sequence with 1 Character	0x1D
176	B0	°	░		
177	B1	±	▒		
178	B2	²	▓		
179	B3	³	│		
180	B4	´	┤		
181	B5	µ	╡		
182	B6	¶	╢		
183	B7	·	╖		
184	B8	¸	╕		
185	B9	¹	╣		
186	BA	º	║		
187	BB	»	╗		
188	BC	¼	╝		
189	BD	½	╜		
190	BE	¾	╛		
191	BF	¿	┐		
192	C0	À	└		
193	C1	Á	┴		

Extended ASCII Characters (Continued)					
DEC	**HEX**	**CP 1252**	**ASCII**	**Alternate Extended**	**PS2 Scan Code**
194	C2	Â	┬		
195	C3	Ã	├		
196	C4	Ä	─		
197	C5	Å	┼		
198	C6	Æ	╞		
199	C7	Ç	╟		
200	C8	È	╚		
201	C9	É	╔		
202	CA	Ê	╩		
203	CB	Ë	╦		
204	CC	Ì	╠		
205	CD	Í	═		
206	CE	Î	╬		
207	CF	Ï	╧		
208	D0	Ð	╨		
209	D1	Ñ	╤		
210	D2	Ò	╥		
211	D3	Ó	╙		
212	D4	Ô	╘		
213	D5	Õ	╒		
214	D6	Ö	╓		
215	D7	×	╫		
216	D8	Ø	╪		
217	D9	Ù	┘		
218	DA	Ú	┌		
219	DB	Û			
220	DC	Ü			
221	DD	Ý			
222	DE	Þ			
223	DF	ß			
224	E0	à	α		
225	E1	á	ß		
226	E2	â	Γ		
227	E3	ã	π		
228	E4	ä	Σ		
229	E5	å	σ		
230	E6	æ	µ		
231	E7	ç	τ		
232	E8	è	Φ		
233	E9	é	Θ		
234	EA	ê	Ω		
235	EB	ë	δ		
236	EC	ì	∞		
237	ED	í	φ		
238	EE	î	ε		
239	EF	ï	∩		
240	F0	ð	≡		
241	F1	ñ	±		
242	F2	ò	≥		
243	F3	ó	≤		
244	F4	ô	⌠		
245	F5	õ	⌡		
246	F6	ö	÷		
247	F7	÷	≈		

Extended ASCII Characters (Continued)					
DEC	**HEX**	**CP 1252**	**ASCII**	**Alternate Extended**	**PS2 Scan Code**
248	F8	ø	°		
249	F9	ù	·		
250	FA	ú	·		
251	FB	û	√		
252	FC	ü	ⁿ		
253	FD	ý	²		
254	FE	þ	■		
255	FF	ÿ			

ISO 2022/ISO 646 Character Replacements

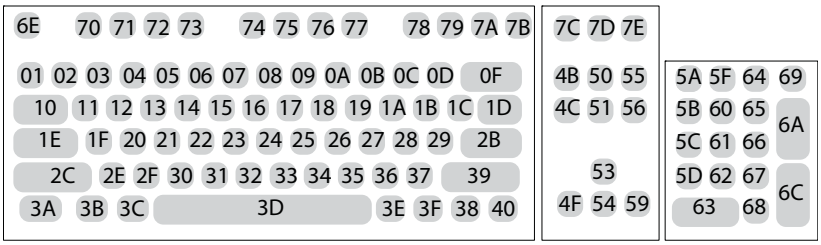
Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, select the code page with which the bar codes were created. The data characters should then appear properly.

Code Page Selection Method/ Country	**Standard**	**Keyboard Country**	**Honeywell Code Page Option**
United States (standard ASCII)	ISO/IEC 646-IRV	n/a	1
Automatic National Character Replacement	ISO/IEC 2022	n/a	2 (default)
Binary Code page	n/a	n/a	3
Default "Automatic National Character replacement" will select the below Honeywell Code Page options for Code128, Code 39 and Code 93.			
United States	ISO/IEC 646-06	0	1
Canada	ISO /IEC 646-121	54	95
Canada	ISO /IEC 646-122	18	96
Japan	ISO/IEC 646-14	28	98
China	ISO/IEC 646-57	92	99
Great Britain (UK)	ISO /IEC 646-04	7	87
France	ISO /IEC 646-69	3	83
Germany	ISO/IEC646-21	4	84
Switzerland	ISO /IEC 646-CH	6	86
Sweden / Finland (extended Annex C)	ISO/IEC 646-11	2	82
Ireland	ISO /IEC 646-207	73	97
Denmark	ISO/IEC 646-08	8	88
Norway	ISO/IEC 646-60	9	94
Italy	ISO/IEC 646-15	5	85
Portugal	ISO/IEC 646-16	13	92

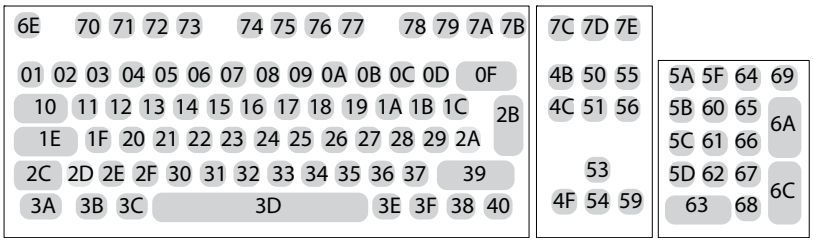
Code Page Selection Method/ Country	Standard	Keyboard Country	Honeywell Code Page Option
Spain	ISO/IEC 646-17	10	90
Spain	ISO/IEC 646-85	51	91

Dec			35	36	64	91	92	93	94	96	123	124	125	126
Hex			23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
US	0	1	#	$	@	[	\	]	^	`	{	|	}	~
CA	54	95	#	$	à	â	ç	ê	î	ô	é	ù	è	û
CA	18	96	#	$	à	â	ç	ê	É	ô	é	ù	è	û
JP	28	98	#	$	@	[	¥	]	^	`	{	|	}	¯
CN	92	99	#	¥	@	[	\	]	^	`	{	|	}	¯
GB	7	87	£	$	@	[	\	]	^	`	{	|	}	~
FR	3	83	£	$	à	°	ç	§	^	µ	é	ù	è	¨
DE	4	84	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
CH	6	86	ù	$	à	é	ç	ê	î	ô	ä	ö	ü	û
SE/FI	2	82	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
DK	8	88	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
NO	9	94	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	¯
IE	73	97	£	$	Ó	É	Í	Ú	Á	ó	é	í	ú	á
IT	5	85	£	$	§	°	ç	é	^	ù	à	ò	è	ì
PT	13	92	#	$	§	Ã	Ç	Õ	^	`	ã	ç	õ	°
ES	10	90	#	$	§	¡	Ñ	¿	^	`	°	ñ	ç	~
ES	51	91	#	$	·	¡	Ñ	Ç	¿	`	´	ñ	ç	¨
COUNTRY	Country Keyboard	Honeywell CodePage	ISO / IEC 646 National Character Replacements											

Keyboard Key References



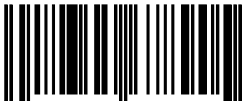
104 Key U.S. Style Keyboard



105 Key European Style Keyboard

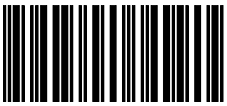
Sample Symbols

UPC-A



0 123456 7890

Interleaved 2 of 5



01234567890

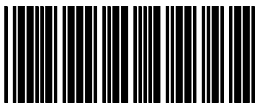
EAN-13

9 780330 290951

Code 128

Code 128

Code 39

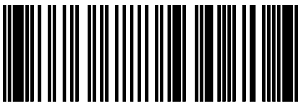


BC321

Codabar

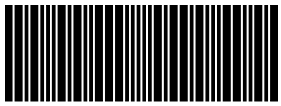
A13579B

Code 93



123456-9$

Code 2 of 5



123456

Matrix 2 of 5

6543210

RSS-14

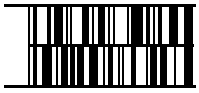
(01) 00123456789012

PDF417

Car Registration

Sample Symbols (Continued)

Code 49



1234567890

Postnet

Zip Code

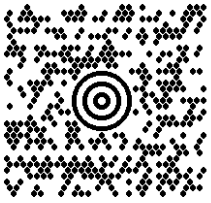
Data Matrix

Test Symbol

QR Code

Numbers

MaxiCode



Test Message

Micro PDF417

Test Message

Programming Chart

0

1

2

3

4

5

6

7

8

9

Programming Chart (Continued)


KAK
A


KBK
B


KCK
C


KDK
D


KEK
E


KFK
F


MNUSAV.
Save


MNUABT.
Discard


RESET_.
Reset

Note: *If you make an error while scanning the letters or digits (before scanning **Save**), scan **Discard**, scan the correct letters or digits, and **Save** again.*

Honeywell
9680 Old Bailes Road
Fort Mill, SC 29707

www.honeywellaidc.com

7190-EN-UG Rev A
2/17