**Honeywell**

# Solaris 7980g/7990g

## Presentation Area Imager

# User Guide

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Web Address: sps.honeywell.com

# Patents

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

# TABLE OF CONTENTS

## Chapter 7 - EAS Settings

## Chapter 8 - Program an Auxiliary Scanner

# Customer Support

## Technical Assistance

Go to honeywell.com/PSStechnicalsupport to search our knowledge base for a solution or to log into the Technical Support portal.

## Product Service and Repair

Honeywell International Inc. provides service for all of its products through service centers throughout the world. Go to sps.honeywell.com and select Support to find a service center near you or to get a Return Material Authorization number (RMA #) before returning a product.

## Limited Warranty

For warranty information, go to sps.honeywell.com and select Support > Warranties.

# 1 GET STARTED

## About This Manual

This User's Guide provides installation and programming instructions for the Solaris 7980g/7990g area-imaging vertical slot scanners. Product specifications, dimensions, warranty, and customer support information are also included.

Honeywell barcode 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 barcodes 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.

## Connect the Device

### Connect with USB

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

1. Remove the back cover and feed the interface cable through to the device.
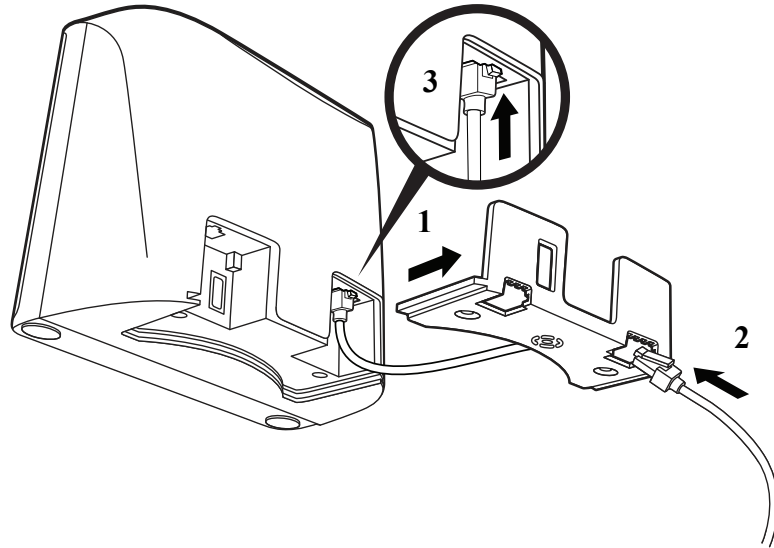


2. Slide the back cover on and screw the back cover to the device, and then connect the interface cable to the computer.

**USB Connection:**
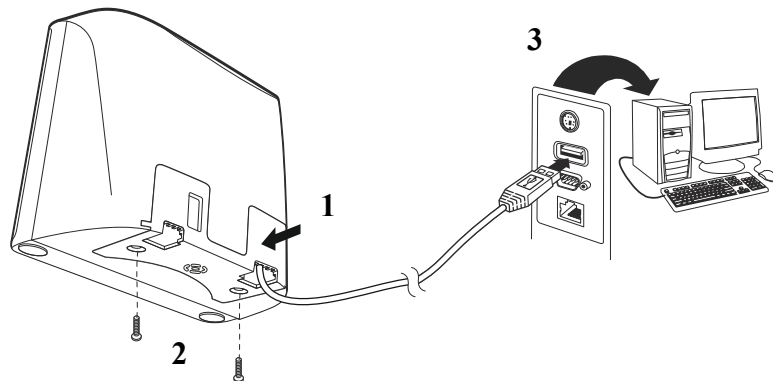


3. The scanner beeps.
4. Verify the scanner operation by scanning a barcode from the Sample Symbols on page 237.

The unit defaults to a USB PC Keyboard. Refer to page 16 for other USB terminal settings.

## 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. Remove the back cover and feed the interface cable through to the device.
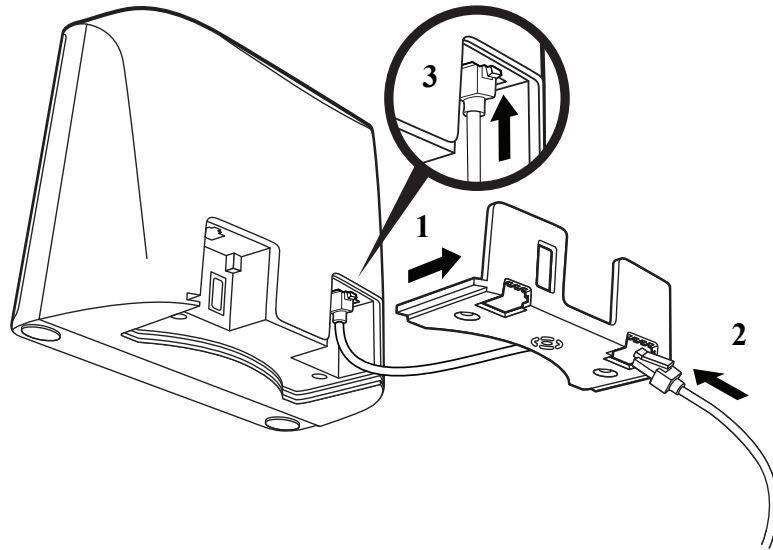


3. Feed the power supply cable through the back cover to the device. Make sure the power cable is completely inserted into the device.
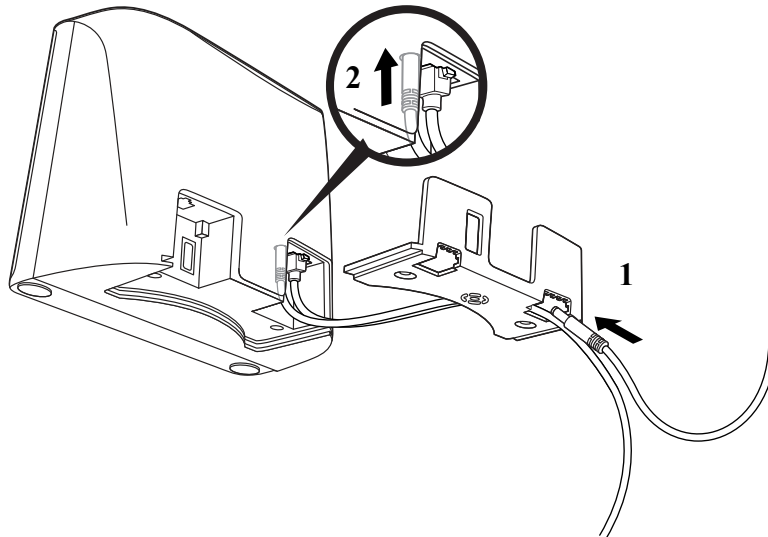


*Note:* *The power supply must be ordered separately.*

4.  Slide the back cover on and screw the back cover to the device. Connect the interface cable to the computer, and then plug the power supply into the outlet.

**Keyboard Wedge Connection:**
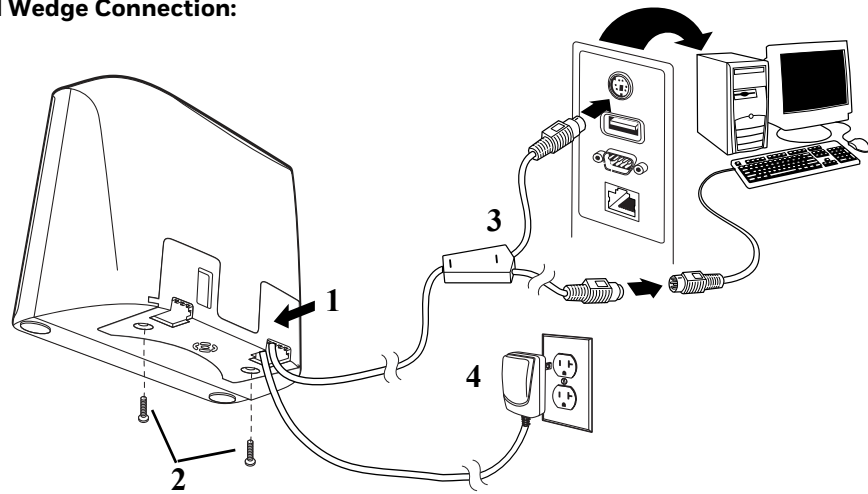


5.  Turn the terminal/computer power back On. The scanner beeps.

6.  Verify the scanner operation by scanning a barcode from the Sample Symbols on page 237. 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 barcode data.

# Connect with RS232 Serial Port

1. Turn Off power to the terminal/computer.
2. Remove the back cover and feed the interface cable through to the device.
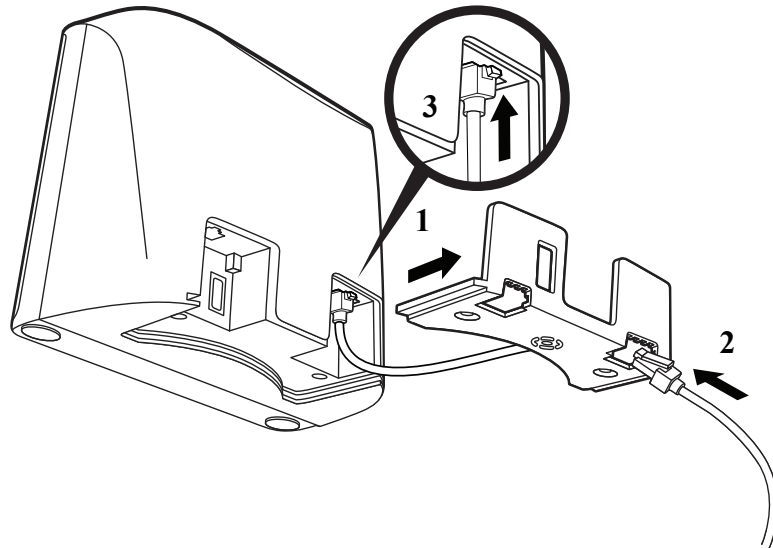


*Note:* *For the scanner to work properly, you must have the correct cable for your type of terminal/computer.*

3. Feed the power supply cable through the back cover to the device. Make sure the power cable is completely inserted into the device.
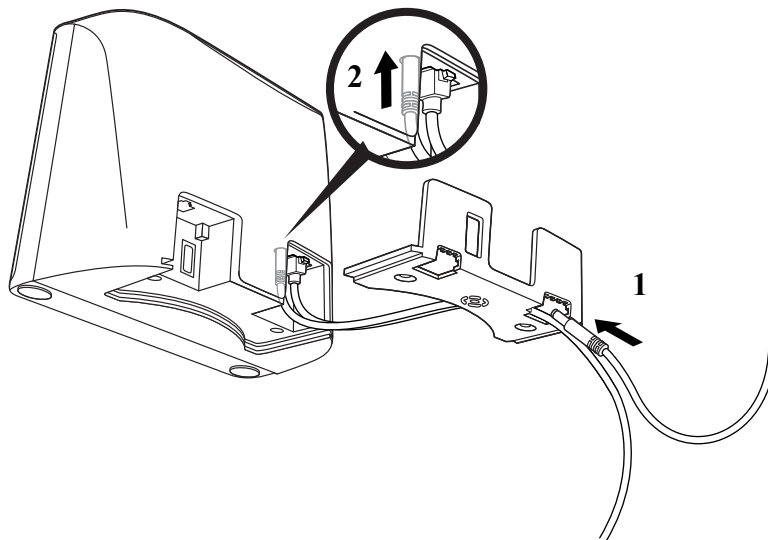


*Note:* *The power supply must be ordered separately.*

4. Slide the back cover on and screw the back cover to the device. Connect the interface cable to the computer and tighten the two screws to secure the connector to the port. Plug the power supply into the outlet.

**RS232 Serial Port Connection:**
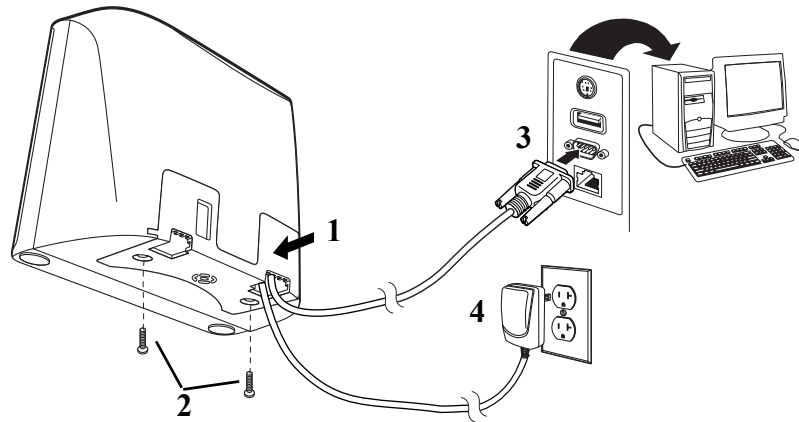


5. Once the scanner has been fully connected, power up the computer.

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. Remove the back cover and feed the interface cable through to the device.
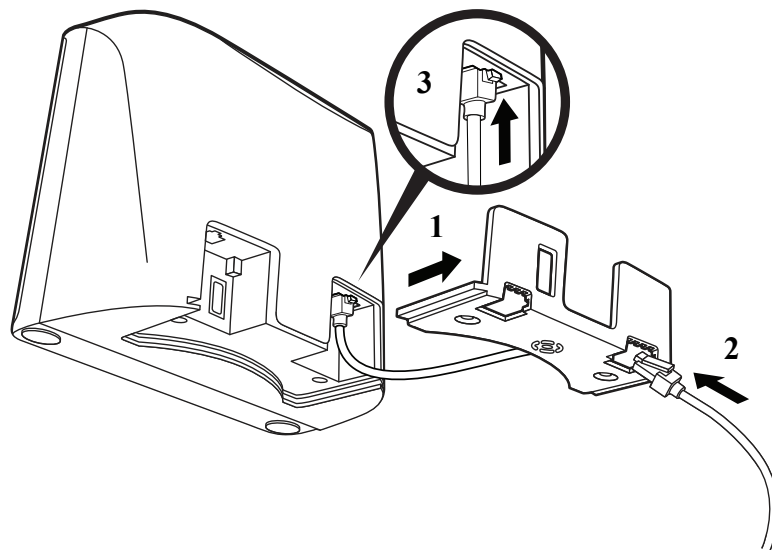
2. Slide the back cover on and screw the back cover to the device, and then connect the interface cable to the computer.

**RS485 Connection:**
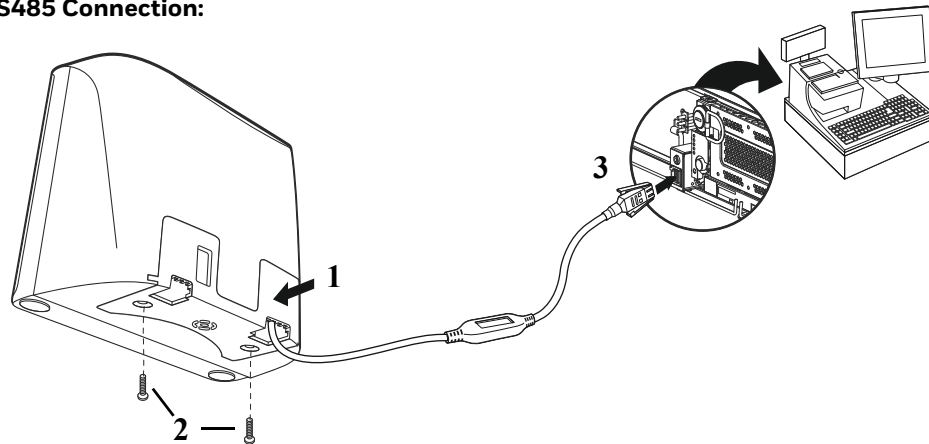


3. Turn the terminal/computer power back On. The scanner beeps.

4. Verify the scanner operation by scanning a barcode from the Sample Symbols on page 237. The scanner beeps once.

For further RS485 settings, refer to RS485 on page 14.

# Connect EAS

*Note:* *The 7980GEL and 7990GEL do not support the EAS interface.*

# Checkpoint®

When connecting to a Checkpoint EAS system, connect the Checkpoint EAS cable to the EAS port on the left side of the scanner. Refer to EAS Settings beginning on page 153 for configuration codes and further EAS programming information.
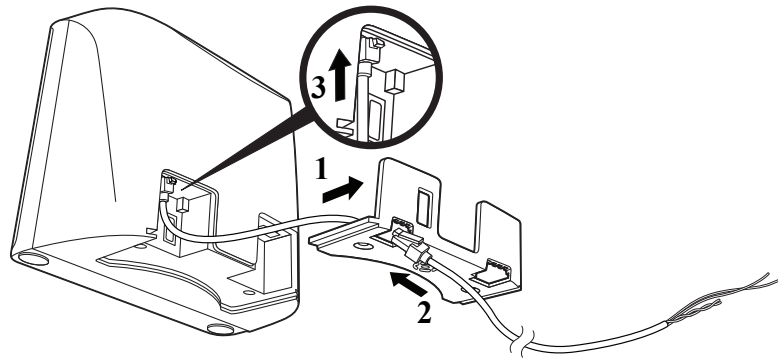
# Sensormatic®

When connecting to a Sensormatic EAS system, connect the Sensormatic EAS cable to the EAS port on the left side of the scanner. Contact Tyco for further information about Sensormatic installation and configuration. Refer to EAS Settings beginning on page 153 for configuration codes and further EAS programming information.
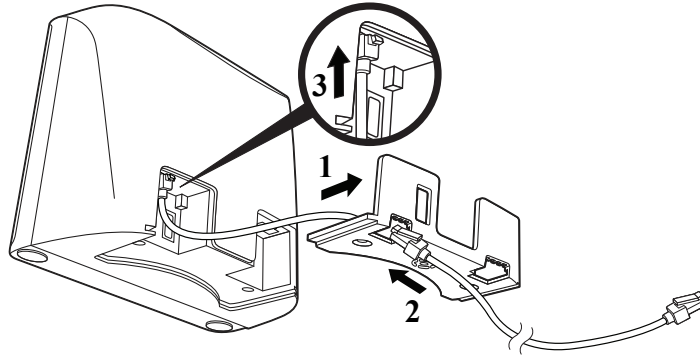


# Connect Auxiliary Scanner

*Note:* *The 7980GEL and 7990GEL do not support an Auxiliary Scanner.*

1. Connect the interface cable. See Connect the Device on page 1 for further information.

2. Remove the back cover and feed the power supply cable through to the device. Make sure the power cable is completely inserted into the device.
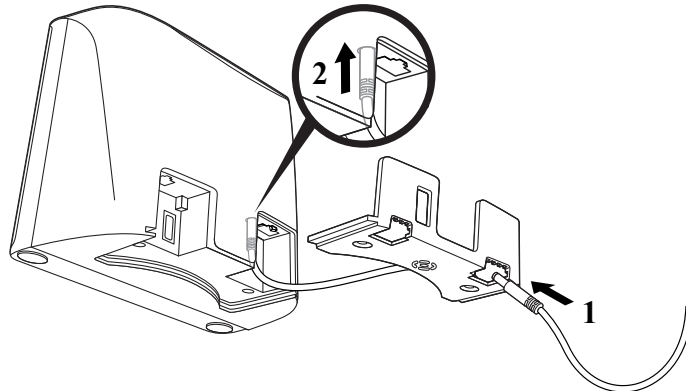
3.  Slide the back cover on and screw the back cover to the device. Plug the power supply into the outlet.
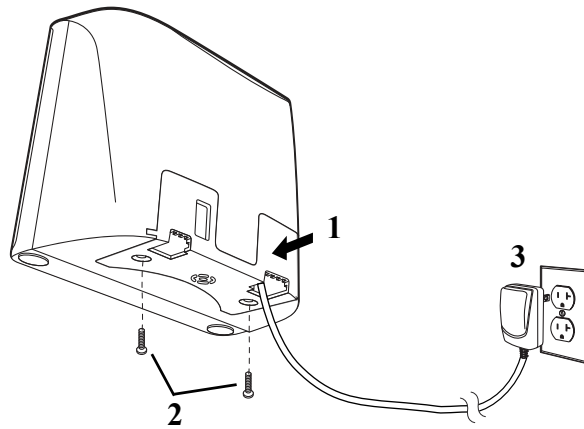
4.  Connect the USB cable to the USB port on the left side of the scanner, and then connect the interface cable to the auxiliary scanner.
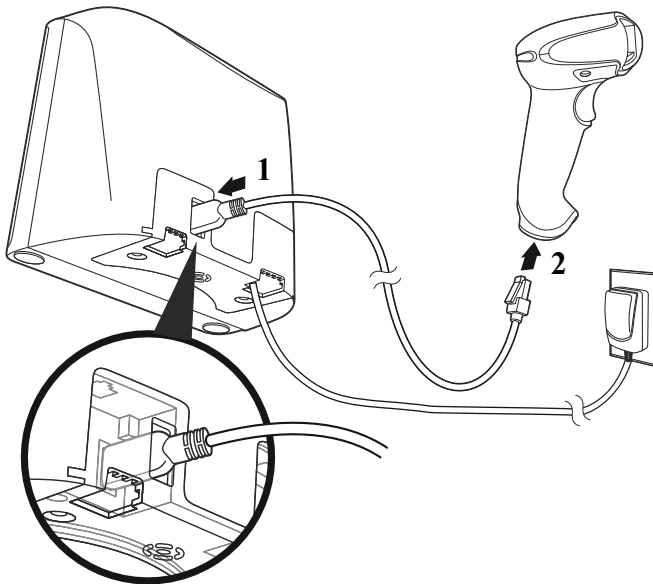
# Button Functionality

> **Note:** *The 7980GEL and 7990GEL do not support Button Functionality.*

There are two buttons on the front of the device. The following is a brief description of the settings for the buttons.

**Solaris 7980g Buttons**

Beeper Volume     Beeper Frequency

**Solaris 7990g Buttons**

Beeper Volume     Beeper Frequency

## Beeper Volume Adjustment

When Volume Adjustment is set to **On**, pressing the Sound button repeatedly scrolls through the volume settings for the scanner's beeper. When set to **Off**, the Sound button does not scroll through these settings. *Default = Volume Adjustment On.*

BTNVOL0.
**Volume Adjustment Off**

BTNVOL1.
**\* Volume Adjustment On**

## Beeper Frequency Adjustment

When Frequency Adjustment is set to **On**, holding the Sound button down for up to 3 seconds scrolls through the frequency (tone) settings for the scanner's beeper. When set to **Off**, the Sound button does not scroll through these settings. *Default = Frequency Adjustment On.*

BTNTON0.
**Frequency Adjustment Off**

BTNTON1.
**\* Frequency Adjustment On**

# Reading Techniques

Present the barcode to the scanner. 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 Barcode Security Settings

Honeywell scanners are programmed by scanning menu barcodes or by sending serial commands to the scanner. If you want to restrict the ability to scan menu codes, you can use the Menu Barcode Security settings. Please contact the nearest technical support office (see Technical Assistance on page xiii) 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** barcode 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 239, 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** barcode.



MNUCDP.
**Set Custom Defaults**



MNUCDS.
**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** barcode, 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** barcode below. This is the recommended default barcode 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.

DEFALT.

**Activate Custom Defaults**

# 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 barcodes 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 barcode below. Keyboard wedge is the default interface.

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



PAP_AT.

**IBM PC AT and Compatibles with
CR suffix**

# Laptop Direct Connect

For most laptops, scanning the **Laptop Direct Connect** barcode allows operation of the scanner in parallel with the integral keyboard. The following **Laptop Direct Connect** barcode also programs a carriage return (CR) suffix and turns On Emulate External Keyboard (see page 28).



PAPLTD.

**Laptop Direct Connect
with CR suffix**

# RS232 Serial Port

The RS232 Interface barcode is used when connecting to the serial port of a PC or terminal. The following **RS232 Interface** barcode 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 manual.

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



PAP232.

**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.*



PAPP5B.

**IBM Port 5B Interface**



PAP9B1.

**IBM Port 9B
HHBCR-1 Interface**



PAPP17.

**IBM Port 17 Interface**

**IBM Port 5B Interface**

PAPP5B.


PAP9B2.
**IBM Port 9B**
**HHBCR–2 Interface**

Each barcode 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 |
| | | Aztec | 00  34  0B |
| | | PDF417 | 00  2E  0B |
| | | Data Matrix | 00  32  0B |
| | | QR | 00  33  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 barcode data into smaller packets on an IBM POS terminal. To break up large barcodes into small packets, scan the **Packet Mode On** barcode below. Scan the **Packet Mode Off** barcode if you want large barcode data to be sent to the host in a single chunk. *Default = Packet Mode Off.*


RTLPDF0.
**\* Packet Mode Off**


RTLPDF1.
**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** barcode, then the packet size (from 20 – 256) from the Programming Chart, beginning on page 239, and 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 barcode 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)**

```
||||| |||| ||||||| || ||||| |||| |||
            PAP125.
```
**USB Keyboard (Mac)**

```
|||||| ||| |||| || ||||||| ||| ||||| |||
           TRMUSB134.
```
**USB Japanese Keyboard (PC)**

# USB HID

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

```
||| |||||| ||||||| ||||| ||| ||||
            PAP131.
```
**USB HID Barcode 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 (sps.honeywell.com). 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



**ACK/NAK Mode On**



**\* ACK/NAK Mode Off**

# Verifone® Ruby Terminal Default Settings

Scan the following Plug and Play code to program the scanner for a Verifone Ruby terminal. This barcode sets the baud rate to 1200 bps and the data format to 8 data bits, no 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 Default Settings

Scan the following Plug and Play code to program the scanner for a Gilbarco terminal. This barcode sets the baud rate to 2400 bps and the data format to 7 data bits, even parity, 2 stop bits. It 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**

# Wincor Nixdorf Terminal Default Settings

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



PAPWNX.

**Wincor Nixdorf Terminal Settings**

# Wincor Nixdorf Beetle™ Terminal Default Settings

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 |
|-----------|--------|-----------|--------|
| Code 128 | K | EAN-13 | A |
| Code 93 | L | GS1-128 | P |
| Codabar | N | Interleaved 2 of 5 | I |
| UPC-A | A0 | Plessey | O |
| UPC-E | C | Straight 2 of 5 IATA | H |
| EAN-8 | B | All other barcodes | 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 barcode 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 barcodes | M | | |

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
PAPWMA.

**Wincor Nixdorf RS232 Mode A
Settings**

# Keyboard Country Layout

If your interface is USB Keyboard or Keyboard Wedge, your device default layout is a US keyboard. To change this layout, scan the appropriate Keyboard Country barcode below. By default, national character replacements are used for the following characters: # $ @ [ \ ] ^ ' { | } ~. Refer to the ISO 2022/ISO 646 Character Replacements on page 232 to view the character replacements for each country.

## Keyboard Countries

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY0.
**\* United States**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY35.
**Albania**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY81.
**Azeri (Cyrillic)**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY80.
**Azeri (Latin)**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY82.
**Belarus**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY1.
**Belgium**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY33.
**Bosnia**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY16.
**Brazil**

# Keyboard Countries (Continued)

**KBDCTY59.**
**Brazil (MS)**

**KBDCTY52.**
**Bulgaria (Cyrillic)**

**KBDCTY53.**
**Bulgaria (Latin)**

**KBDCTY54.**
**Canada (French legacy)**

**KBDCTY18.**
**Canada (French)**

**KBDCTY55.**
**Canada (Multilingual)**

**KBDCTY32.**
**Croatia**

**KBDCTY15.**
**Czech**

**KBDCTY40.**
**Czech (Programmers)**

**KBDCTY39.**
**Czech (QWERTY)**

**KBDCTY38.**
**Czech (QWERTZ)**

**KBDCTY8.**
**Denmark**

## Keyboard Countries (Continued)

```
KBDCTY11.
```
**Dutch (Netherlands)**

```
KBDCTY41.
```
**Estonia**

```
KBDCTY83.
```
**Faroese**

```
KBDCTY2.
```
**Finland**

```
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)**

**KBDCTY12.**
**Hebrew**

**KBDCTY50.**
**Hungarian (101 key)**

**KBDCTY19.**
**Hungary**

**KBDCTY75.**
**Iceland**

**KBDCTY73.**
**Irish**

**KBDCTY56.**
**Italian (142)**

**KBDCTY5.**
**Italy**

**KBDCTY28.**
**Japan ASCII**

**KBDCTY78.**
**Kazakh**

## Keyboard Countries (Continued)

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY79.
**Kyrgyz (Cyrillic)**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY14.
**Latin America**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY42.
**Latvia**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY43.
**Latvia (QWERTY)**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY44.
**Lithuania**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY45.
**Lithuania (IBM)**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY34.
**Macedonia**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY74.
**Malta**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY86.
**Mongolian (Cyrillic)**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY9.
**Norway**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY20.
**Poland**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
KBDCTY57.
**Polish (214)**

# Keyboard Countries (Continued)

‖|‖||‖|‖|‖|‖‖|‖|‖|‖‖|‖
KBDCTY58.
**Polish (Programmers)**

‖|‖||‖|‖|‖|‖‖|‖|‖|‖‖|‖
KBDCTY13.
**Portugal**

‖|‖||‖|‖|‖|‖‖|‖|‖|‖‖|‖
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)**

# Keyboard Countries (Continued)

```
KBDCTY31.
```
**Slovenia**

```
KBDCTY10.
```
**Spain**

```
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**

||||||||||||||||||||||||||
KBDCTY30.
**United States (International)**

||||||||||||||||||||||||||
KBDCTY77.
**Uzbek (Cyrillic)**

# 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.

||||||||||||||||||||||||||
KBDSTY1.
**Caps Lock**

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

||||||||||||||||||||||||||
KBDSTY2.
**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).



KBDSTY6.
**Automatic Caps Lock**

**Autocaps via NumLock** barcode 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.



KBDSTY7.
**Autocaps via NumLock**

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



KBDSTY5.
**Emulate External Keyboard**

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

# Keyboard Conversion

Alphabetic keyboard characters can be forced to be all upper case or all lower case. So if you have the following barcode: "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 on page 28. Otherwise, your output may not be as expected.*

*Default = Keyboard Conversion Off.*



KBDCNV0.
**\* Keyboard Conversion Off**

**Convert All Characters
to Upper Case**

KBDCNV2.

**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 228. Only codes 00 through 1F are converted (the first column of the chart). *Default = Off.*

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

KBDNPE1.

**Control Character Output On**

KBDNPE0.

**\* 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) on page 228 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**

```
KBDNPS0.
```
**\* 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.*

*Note:* *Not supported on the Solaris 7990g.*

||||||||||||||||||||||||||
KBDADC1.
**Automatic Direct Connect
Mode On**

||||||||||||||||||||||||||
KBDADC0.
**\* 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.*

||||||||||||||||||||||||||
232BAD0.
**300**

||||||||||||||||||||||||||
232BAD1.
**600**

||||||||||||||||||||||||||
232BAD2.
**1200**

||||||||||||||||||||||||||
232BAD3.
**2400**

||||||||||||||||||||||||||
232BAD4.
**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 barcode below, then scanning digits from the Programming Chart, beginning on page 239, and 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 34) 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 timeout by scanning the barcode below, then setting the timeout (from 1-5100 milliseconds) by scanning digits from the Programming Chart, beginning on page 239, and 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 barcodes. If NAK is received, the last set of barcode data is retransmitted and the scanner waits for ACK/NAK again. Turn On the ACK/NAK protocol by scanning the ACK/NAK On barcode below. To turn Off the protocol, scan ACK/NAK Off. *Default = ACK/NAK Off*.



232ACK1.

**ACK/NAK On**



232ACK0.

**\* ACK/NAK Off**

# 3

# INPUT/OUTPUT SETTINGS

## Power Up Beeper

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

![BEPPWR0. barcode]

**Power Up Beeper Off**

![BEPPWR1. barcode]

**\* Power Up Beeper 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** barcode below, the scanner will beep every time a BEL character is received from the host. *Default = Beep on BEL Off.*

![BELBEP0. barcode]

**\*Beep on BEL Off**

![BELBEP1. barcode]

**Beep on BEL On**

# 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.*

BEPBEP0.
**Beeper – Good Read Off**

BEPBEP1.
**\* 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.*

BEPLVL1.
**Low**

BEPLVL2.
**Medium**

BEPLVL3.
**\* High**

BEPLVL0.
**Off**

## Beeper Pitch – Good Read

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

**BEPFQ1870.**
**\* Low (870 Hz)**

**BEPFQ11140.**
**Medium (1140 Hz)**

**BEPRQ11800.**
**High (1800 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 barcode below and then scan a digit (1-9) barcode and the **Save** barcode on the Programming Chart, beginning on page 239. *Default = 1.*

BEPRPT.

**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 barcode below and then scan a digit (1–9) barcode and the **Save** barcode on the Programming Chart, beginning on page 239. *Default = 5.*

BEPERR.

**Number of Error Beeps/LED Flashes**

# Good Read Delay

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

```
||||| |||| ||||| ||||| ||||| ||| |||
DLYGRD0.
```
**\* No Delay**

```
||| ||||| ||||| ||| ||||| ||||| |||
DLYGRD500.
```
**Short Delay (500 ms)**

```
||||| ||||| ||||| ||||| ||||| |||
DLYGRD1000.
```
**Medium Delay (1,000 ms)**

```
||| ||||| ||||| ||| ||||| ||||| |||
DLYGRD1500.
```
**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 barcode below, then set the delay (from 0 – 30,000 milliseconds) by scanning digits from the Programming Chart, beginning on page 239, and then scanning **Save**.

```
||| ||||| ||| ||||| ||||| ||| |||
DLYGRD.
```
**User-Specified Good Read Delay**

# Serial Trigger Mode

You can activate the scanner by using a serial trigger command (see Trigger Commands on page 188). When in serial mode, the scanner scans until a barcode 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 either by pressing the trigger or using a serial trigger

command. After scanning the **Read Time-Out** barcode, set the time-out duration (from 0-300,000 milliseconds) by scanning digits on the Programming Chart, beginning on page 239, and then scanning **Save**. *Default = 30,000 ms.*

```
TRGSTO.
```
**Read Time-Out**

# Presentation Mode

Presentation Mode uses ambient light and scanner illumination to detect barcodes. When in Presentation Mode, the LEDs remain dim until a barcode is presented to the scanner, then the LEDs turn up to read the code. Scan the following barcode to program your device for Presentation Mode. *Default = Presentation Mode.*

```
TRGMOD3.
```
**\* Presentation Mode**

# Presentation Idle Mode

When **Presentation Idle Mode** is selected, the scanner goes into idle mode (illumination dims) after the time interval set, during which there is no activity. Change the Presentation Idle mode by scanning the barcode below, and then scanning digits from the Programming Chart, beginning on page 239, and then scanning **Save**. The range is 0 to 3000000. The scanner will wake when an object is presented to the window or the pitch or volume button is pressed. *Default = 10000 (10s).*

When **Off** is selected, no power saving is used and the scanner remains powered On.

*Note:* *In some conditions the scanner will switch between Presentation Idle Mode and Presentation Sleep Mode according to ambient light level. This allows the scanner to wake up in very dark conditions.*

*Note:* *This selection is unavailable when the Illumination Lights or LED Illumination - Presentation Mode are set to Off.*

```
TRGPMT.
```
**Presentation Idle Mode**

```
║█║║█║║║║█║║║║█║║█║║║█║║█║█║
TRGPMT0.
```
**Off**

# Presentation Sleep Mode

When **Presentation Sleep Mode On** is selected, the scanner goes into sleep mode (illumination is Off and the LED will slowly blink On and Off) after the time interval set using Presentation Sleep Mode Timeout, during which there is not activity. The scanner will wake when an object is presented to the window or the pitch or volume button is pressed. *Default = Presentation Sleep Mode On.*

*Note:* *In some conditions, the scanner will switch between Presentation Idle Mode and Presentation Sleep Mode according to ambient light level. This allows the scanner to wake up in very dark conditions.*

*Note:* *This selection is unavailable when the Illumination Lights or LED Illumination – Presentation Mode are set to Off.*

```
║█║║█║║║║█║║║║█║║█║║║█║║█║█║
TRGTSI1.
```
**\* On**

```
║█║║█║║║║█║║║║█║║█║║║█║║█║█║
TRGTSI0.
```
**Off**

## Presentation Sleep Mode Timeout

Use this selection to set a timeout (in seconds) for the scanner when using Presentation Sleep Mode. When this time has elapses with no activity, the scanner will enter the Presentation Sleep Mode timeout selected.  After scanning the **Presentation Sleep Mode Timeout** barcode, set the timeout duration (from 0–3600000) by scanning digits on the Programming Chart, beginning on page 239, and then scanning **Save**. *Default = 300000 (300s).*

```
║█║║█║║║║█║║║║█║║█║║║█║║█║█║
TRGTST.
```
**Presentation Sleep Mode
Timeout**

# LED Illumination - Presentation Mode

If you wish to set the illumination LED brightness, scan one of the barcodes below. This sets the LED illumination for the scanner when it is in Presentation Mode. (If the scanner is triggered manually, the LED illumination will switch to the setting for a manual trigger. See Serial Trigger Mode on page 41.) *Default = High.*

*Note:*  *The LEDs are like a flash on a camera. The lower the ambient light in the room, the brighter the LEDs need to be so the scanner can "see" the barcodes.*

*Note:*  *The LEDs may turn Off for a short time when the scanner detects low power.*

*Note:*  *The Solaris 7980g and Solaris 7990g use separate barcodes to set the LED illumination for Presentation Mode.*

**Solaris 7980g Settings**

PWRLDC0.
**Off**

PWRLDC100.
**Low**

PWRLDC150.
**\* High**

**Solaris 7990g Settings**

PWRNOL0.
**Off**

PWRNOL100.
**Low**

PWRNOL150.
**\* High**

# Presentation LED Behavior after Decode

If you wish to dim the LEDs immediately after a barcode is decoded, scan the **LEDs Off** barcode, below. *Default = LEDs On.*

```
║║║ ║║║║ ║║║ ║║║ ║║║║ ║║║ ║║║
           TRGPCK1.
          * LEDs On
```

```
                              ║║║ ║║║║ ║║║ ║║║║ ║║║ ║║║
                                        TRGPCK0.
                                        LEDs Off
```

# Presentation Sensitivity

Presentation Sensitivity is a numeric range that increases or decreases the scanner's reaction time to barcode presentation. To set the sensitivity, scan the **Sensitivity** barcode, then scan the degree of sensitivity (from 0-20) from the and then scan **Save**. 0 is the most sensitive setting, and 20 is the least sensitive. *Default = 1.*

```
        ║║║ ║║║║ ║║║ ║║║ ║║║║ ║║║
              TRGPMS.
             Sensitivity
```

# Presentation Centering

Use Presentation Centering to narrow the scanner's field of view when it is in Presentation Mode to make sure the scanner reads only those barcodes 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 barcode 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 scanner only reads codes that pass through the centering window you specify by using the **Top of Presentation Centering Window**, **Bottom of Presentation Centering Window**, **Left**, and **Right of Presentation Centering Window** barcodes.

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 Barcode 1 passes through the centering window, it will be read. Barcode 2 does not pass through the centering window, so it will not be read.
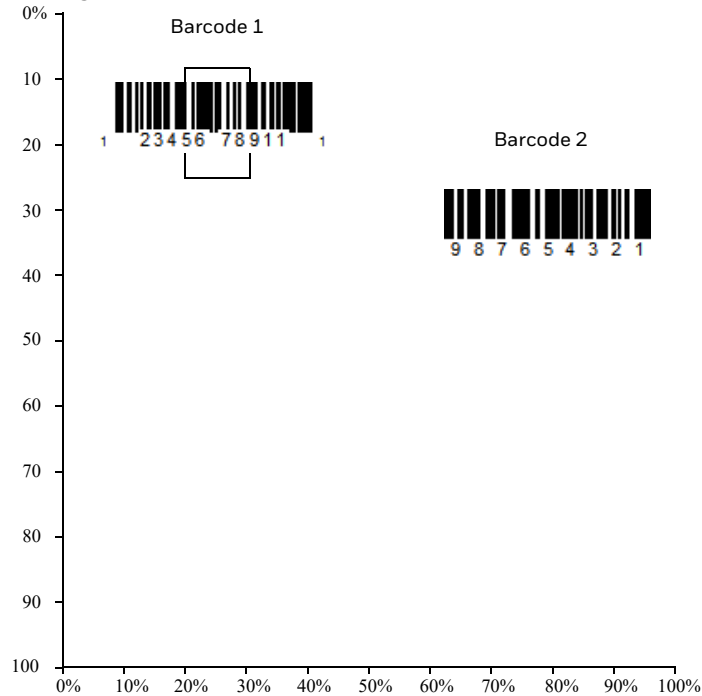


*Note:* *A barcode needs only to be touched by the centering window in order to be read. It does not need to pass completely through the centering window.*

Scan **Presentation Centering On**, then scan one of the following barcodes 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 on the Programming Chart, beginning on page 239. 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**

```
|||||||||||||||||||||
PDCLFT.
```
**Left of
Presentation Centering
Window**

```
|||||||||||||||||||||
PDCRGT.
```
**Right of Presentation
Centering Window**

# Streaming Presentation™ Mode

When in Streaming Presentation mode, the scan illumination remains On all the time to continuously search for barcodes. Two modes are available, Normal and Enhanced. Normal mode offers good scan speed and the longest working ranges (depth of field). Enhanced mode will give you the highest possible scan speed but slightly less range than Normal mode. Enhanced mode is best used when you require a very fast scan speed and don't require a long working range.

```
|||||||||||||||||||||
PAPSPN.
```
**Streaming Presentation
Mode – Normal**

```
|||||||||||||||||||||
PAPSPE.
```
**Streaming Presentation
Mode – Enhanced**

When using Preferred Symbology (see page 51), a lower priority symbol must be centered on the aiming pattern to be read in Streaming Presentation Mode.

# Mobile Phone Read Mode

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

```
|||||||||||||||||||||
PAPPSC.
```
**Presentation – Mobile Phone**

# 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 barcodes. This setting does not affect 1D barcode reading. *Default = Poor Quality PDF Reading Off.*



**Poor Quality PDF Reading On**



**\* Poor Quality PDF Reading**

# Poor Quality Code Enhanced Mode

If you are having a difficulty reading poor quality barcodes, you may wish to scan the **Poor Quality Code Enhanced Mode** barcode below to improve the read rate.



**Poor Quality Code Enhanced Mode**

# Reread Delay

This sets the time period before the scanner can read the *same* barcode a second time. Setting a reread delay protects against accidental rereads of the same barcode. Longer delays are effective in minimizing accidental rereads. Use shorter delays in applications where repetitive barcode scanning is required. Reread Delay only works when in a . *Default = Short.*



**\* Short (500 ms)**



**Medium (750 ms)**

```
DLYRRD1000.
```
**Long (1000 ms)**

```
DLYRRD2000.
```
**Extra Long (2000 ms)**

# User-Specified Reread Delay

If you want to set your own length for the reread delay, scan the barcode below, then set the delay (from 0-30,000 milliseconds) by scanning digits from the Programming Chart, beginning on page 239, and then scanning **Save**.

```
DLYRRD.
```
**User-Specified Reread Delay**

# Illumination Lights

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

```
SCNLED1.
```
**\* Lights On**

```
SCNLED0.
```
**Lights Off**

# 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 barcodes intended by the user. For instance, if multiple codes are placed closely together, centering will insure that only the desired codes are read. (Centering can be used in conjunction with Centering, page 49, for the most error-free operation in applications where multiple codes are spaced closely together.)

*Note:* *To adjust centering when the scanner is in Presentation Mode, see Presentation Centering (page 45).*

If a barcode 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 by using the **Top of Centering Window**, **Bottom of Centering Window**, **Left**, and **Right of Centering Window** barcodes.

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 Barcode 1 passes through the centering window, it will be read. Barcode 2 does not pass through the centering window, so it will not be read.
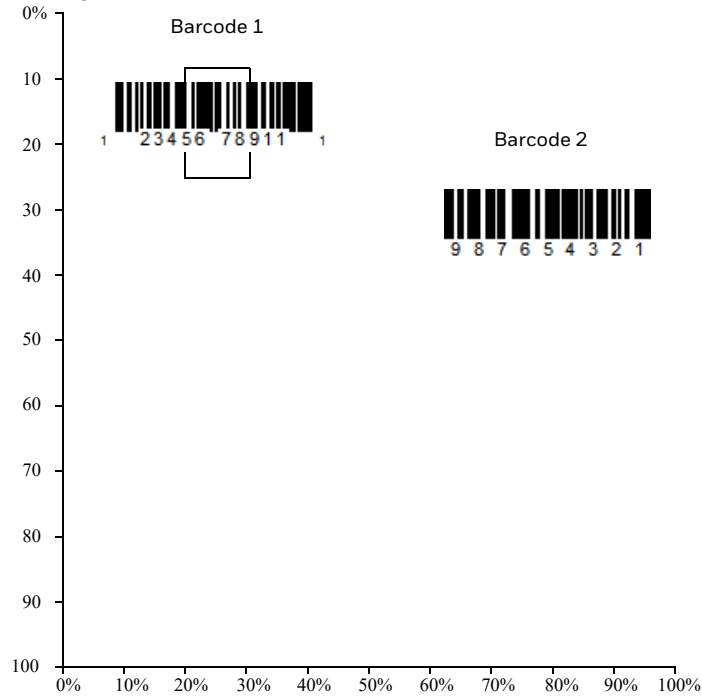


*Note:* *A barcode needs only to be touched by the centering window in order to be read. It does not need to pass completely through the centering window.*

Scan **Centering On**, then scan one of the following barcodes 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 on the Programming Chart, beginning on page 239. 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**

```
|||| ||| | ||| ||| || || | ||| ||||
DECLFT.
```
**Left of Centering Window**

```
||| |||| | || ||| | || ||| || ||||
DECRGT.
```
**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 barcode 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 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 barcode in its view (low priority or unspecified). If there is no barcode 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 barcode below to enable or disable Preferred Symbology. *Default = Preferred Symbology Off.*

```
|||| ||| | || ||| ||| | ||| | ||||
PRFENA1.
```
**Preferred Symbology On**

# High Priority Symbology

To specify the high priority symbology, scan the High Priority Symbology barcode below. On the Symbology Charts on page 225, 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 239. Scan **Save** to save your selection. *Default = None*

||| |||||| ||| ||| |||| ||||
PRFCOD.

**High Priority Symbology**

# Low Priority Symbology

To specify the low priority symbology, scan the Low Priority Symbology barcode below. On the Symbology Charts on page 225, 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 239.

If you want to set additional low priority symbologies, scan **FF**, then scan the 2 digit hex value from the Programming Chart, beginning on page 239, for the next symbology. You can program up to 5 low priority symbologies. Scan **Save** to save your selection. *Default = None*

||| |||||| ||| |||| |||| || |
PRFBLK.

**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 barcode after a low priority barcode has been encountered. Scan the barcode below, then set the delay (from 1-3,000 milliseconds) by scanning digits from the Programming Chart, beginning on page 239, and then scanning **Save**. *Default = 500 ms.*

||| |||| ||| |||| |||| ||||
PRFPTO.

**Preferred Symbology Time-out**

# Preferred Symbology Default

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



**Preferred Symbology Default**

# Character Activation Mode

You 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 LED Timeout (page 54) is reached, the deactivation character is received (see Deactivation Character on page 55), or a barcode is transmitted. Scan the **On** barcode to use character activation, then use Activation Character (page 53) 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 228, find the hex value that represents the character you want to use to trigger scanning. Scan the following barcode, then use the Programming Chart, beginning on page 239, to read the alphanumeric combination that represents that ASCII character. Scan **Save** to finish.



**Activation Character**

# End Character Activation After Good Read

After a barcode is successfully detected and read from the scanner, the LED can be programmed either to remain On and scanning, or to turn Off. When **End Character Activation After Good Read** is enabled, the LED turns Off and stops

scanning after a good read. If you scan **Do Not End Character Activation After Good Read**, the LED 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 LED Timeout

You can set a timeout for the length of time the LED remains On and attempting to decode barcodes when using Character Activation Mode. Set the length (in milliseconds) for a timeout by scanning the following barcode, then setting the timeout (from 1–65535 milliseconds) by scanning digits from the Programming Chart, beginning on page 239, and then scanning **Save**. *Default = 5000 ms.*

**HSTCDT.**

**Character Activation LED
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** barcode to use character deactivation, then use Deactivation Character to select the character you will send from the host to terminate scanning. *Default = Off.*

**HSTDEN0.**

**\* Off**

**HSTDEN1.**

**On**

# Deactivation Character

This sets the character used to terminate scanning when using Character Deactivation Mode. On the ASCII Conversion Chart (Code Page 1252) on page 228, find the hex value that represents the character you want to use to terminate scanning. Scan the following barcode, then use the Programming Chart, beginning on page 239, to read the alphanumeric combination that represents that ASCII character. Scan **Save** to finish.

HSTDCH.

**Deactivation Character**

# 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 barcodes are scanned. You can define up to 15 barcodes in an output sequence.

*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 239.*

## To Add an Output Sequence

An output sequence is created using a string of serial commands that is sent to the scanner. This string is most easily sent to the scanner using the EZConfig software tool (see EZConfig for Scanning Introduction on page 182). You can also accomplish this by scanning alphanumeric barcodes (see the Programming Chart, beginning on page 239).

1. If you are using barcodes to create your output sequence, scan Enter Output Sequence on page 59.

2. **Code I.D.**
   On the Symbology Charts on page 225, find the symbology to which you want to apply the output sequence format. Make a note of the hex value for that symbology. If you are using barcodes to create your output sequence, scan the 2 digit hex value from the Programming Chart, beginning on page 239.

3. **Length**
   Specify what length (up to 9999 characters) of data output will be acceptable for this symbology. Make a note of the length. If you are using barcodes to create your output sequence, scan the 4 digit data length Programming Chart,

beginning on page 239. (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) on page 228, find the hex value that represents the character(s) you want to match. Make a note of the hex value for the character(s). If you are using barcodes to create your output sequence, use the Programming Chart, beginning on page 239, to read the alphanumeric combination that represents the ASCII characters. (99 is the universal number, indicating all characters.)

5.  **End Output Sequence Editor**
    Use **FF** to terminate this string or to begin another output sequence. If you are using barcodes, scan **FF**. Scan **Save** to save your entries.

## Other Programming Selections

If you are creating an output sequence using barcodes, scan Discard (see page 240) to exit without saving any output sequence changes.

# Output Sequence Editor Commands

| | |
|---|---|
| **SEQBLK** | Sequence editor start command. |
| **SEQPRE** | Add prefix to complete output sequences. |
| **SEQSUF** | Add suffix to complete output sequences. |
| **SEQSEP** | Add separators to complete output sequences. |
| **SEQTTS1** | Transmit partial sequence. |
| **SEQIPR** | Add prefix to partial output sequences. |
| **SEQISU** | Add suffix to partial output sequences. |
| **SEQISE** | Add separators to partial output sequences. |
| **TRGSTO** | Timeout for partial output sequences. |
| **FF** | Termination string. |

Examples outlining how to use these commands are shown in the following sections.

## Output Sequence Example 1 - Three Symbologies


MSGPDF417


CODE39SMPL


TSTMSGCODE128

In this example, you are scanning PDF417, Code 128, and Code 39 barcodes, but you want the scanner to output Code 39 first, Code 128 second, and PDF417 third.

Set up the sequence editor with the following command line:

| | |
|---|---|
| **SEQBLK** | sequence editor start command |
| **62** | code identifier for Code 39 |
| **9999** | code length that must match for Code 39, 9999 = all lengths |
| **43** | start character match for Code 39, 43h = "C" |
| **FF** | termination string for first code |
| **6A** | code identifier for Code 128 |
| **9999** | code length that must match for Code 128, 9999 = all lengths |
| **54** | start character match for Code 128, 54h = "T" |
| **FF** | termination string for first code |
| **72** | code identifier for PDF417 |
| **9999** | code length that must match for PDF417, 9999 = all lengths |
| **4D** | start character match for PDF417, 4Dh = "M" |
| **FF** | termination string for third code |

The whole command line would look like this:

**SEQBLK62999943FF6A999954FF7299994DFF**

The data is output as:

**CODE39SMPLTSTMSGCODE128MSGPDF417**

See the next example to further refine this output.

# Output Sequence Example 2 - Three Symbologies with <> Separators

In this example, you are scanning the same three barcodes, but you want <> brackets and a carriage return and line feed to separate your output.

MSGPDF417

TSTMSGCODE128

CODE39SMPL

The sequence editor would use the same command line as shown in Output Sequence Example 1 - Three Symbologies (page 57):

| | |
|---|---|
| **SEQBLK** | sequence editor start command |
| **62** | code identifier for Code 39 |
| **9999** | code length that must match for Code 39, 9999 = all lengths |
| **43** | start character match for Code 39, 43h = "C" |
| **FF** | termination string for first code |
| **6A** | code identifier for Code 128 |
| **9999** | code length that must match for Code 128, 9999 = all lengths |
| **54** | start character match for Code 128, 54h = "T" |
| **FF** | termination string for first code |
| **72** | code identifier for PDF417 |
| **9999** | code length that must match for PDF417, 9999 = all lengths |
| **4D** | start character match for PDF417, 4Dh = "M" |
| **FF** | termination string for third code |

But you would add your <> separators for each sequence:

| | |
|---|---|
| **SEQSEP99** | separator for each sequence, 99 = all symbologies |
| **3C** | left bracket (<) |
| **3E** | right bracket (>) |

And add the carriage return and line feed as a suffix:

| | |
|---|---|
| **SEQSUF99** | separator for suffixes, 99 = all symbologies |
| **0D** | carriage return |

| **0A** | line feed |

The whole command line would look like this:

**SEQBLK62999943FF6A999954FF7299994DFFSEQSEP993C3ESEQSUF990D0A**

The data is output as:

**<CODE39SMPL>**

**<TSTMSGCODE128>**

**<MSGPDF417>**

# Enter Output Sequence

If you are using barcodes to create your output sequence, scan **Enter Output Sequence** to begin scanning your string.



**Enter Output Sequence**

# Partial Sequence

If an output sequence operation is terminated before all your output sequence criteria are met, the barcode data acquired to that point is a "partial sequence." You can define how partial sequences are output using the same types of command strings you used to create output sequences.

### Partial Sequence Example – Three Symbologies with <> Separators, but with a Damaged Code

In this example, you are scanning PDF417, Code 128, and Code 39 barcodes, and you want the scanner to output Code 39 first, Code 128 second, and PDF417 third, in brackets, as shown below, but the Code 39 barcode has been damaged and cannot be output.



MSGPDF417



TSTMSGCODE128



CODE39SMPL

You would use the same command line as shown in Output Sequence Example 2 – Three Symbologies with <> Separators (page 58):

| | |
|---|---|
| **SEQBLK** | sequence editor start command |
| **62** | code identifier for Code 39 |
| **9999** | code length that must match for Code 39, 9999 = all lengths |
| **43** | start character match for Code 39, 43h = "C" |
| **FF** | termination string for first code |
| **6A** | code identifier for Code 128 |
| **9999** | code length that must match for Code 128, 9999 = all lengths |
| **54** | start character match for Code 128, 54h = "T" |
| **FF** | termination string for first code |
| **72** | code identifier for PDF417 |
| **9999** | code length that must match for PDF417, 9999 = all lengths |
| **4D** | start character match for PDF417, 4Dh = "M" |
| **FF** | termination string for third code |
| **SEQSEP99** | separator for each sequence, 99 = all symbologies |
| **3C** | left bracket (<) |
| **3E** | right bracket (>) |
| **SEQSUF99** | separator for suffixes, 99 = all symbologies |
| **0D** | carriage return |
| **0A** | line feed |

And you would add **>PARTIAL<** as the prefix to note the partial sequence:

| | |
|---|---|
| **SEQTTS1** | transmit partial sequence |
| **SEQISU99** | add partial sequence prefix, 99 = all symbologies |
| **3E** | right bracket (>) |
| **50** | P |
| **41** | A |
| **52** | R |
| **54** | T |
| **49** | I |
| **41** | A |

| | |
|---|---|
| **4C** | L |
| **3C** | left bracket (<) |

The whole command line would look like this:

**SEQBLK62999943FF6A999954FF7299994DFFSEQSEP993C3ESEQSUF990D0
ASEQTTS1SEQISU993E5041525449414C3C**

The data is output as:

**>PARTIAL<**

**<TSTMSGCODE128>**

**<MSGPDF417>**

## Discard Partial Output Sequence

If you want to discard partial sequences when the output sequence operation is terminated before completion, scan **Discard Partial Sequence**.



SEQTTS0.

**\* Discard Partial Sequence**

## Default Output Sequence

**Default Sequence** programs the scanner to all universal values. Be certain you want to delete or clear all formats before you read the **Default Sequence** symbol.



SEQDFT.

**Default 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, or formatted according to the partial sequence output format (see ).

When the output sequence is **Off**, the barcode 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.*



SEQ_EN2.

**Required**

```
SEQ_EN0.
```
**\*Off**

# No Read

With No Read turned **On**, the scanner notifies you if a code cannot be read. If using an EZConfig-Scanning Tool Scan Data Window (see page 182), an "NR" appears when a code cannot be read. If No Read is turned **Off**, the "NR" will not appear. *Default = Off.*

```
SHWNRD1.
```
**On**

```
SHWNRD0.
```
**\* 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 71). The hex code for the No Read symbol is 9C.

# Video Reverse

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

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

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

```
VIDREV1.
```
**Video Reverse Only**

**VIDREV2**

**Video Reverse and Standard Barcodes**


VIDREV0.

**\* Video Reverse Off**

# Working Orientation

Some barcodes are direction-sensitive. For example, KIX codes and OCR 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:
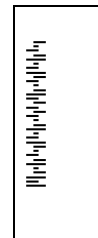


Upside Down:



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



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




ROTATN0.

**\* Upright**


ROTATN1.

**Vertical, Bottom to Top**


ROTATN2.

**Upside Down**

# DATA EDIT

## Prefix/Suffix Overview

When a barcode is scanned, additional information is sent to the host computer along with the barcode data. This group of barcode 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:

| Prefix | Scanned Data | Suffix |
|---|---|---|
| 1-11 alphanumeric & control characters | variable length | 1-11 alphanumeric & control characters |
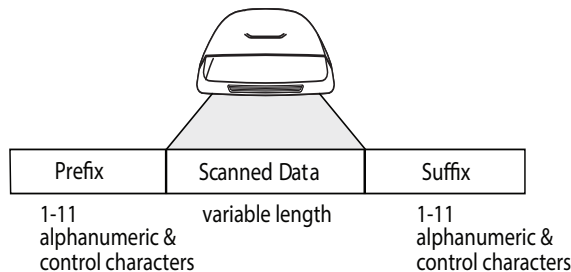
## Points to Keep In Mind

• 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) on page 228, 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.

## To Add a Prefix or Suffix:

Step 1.     Scan the **Add Prefix** or **Add Suffix** symbol (see page 67).

Step 2.     Determine the 2 digit Hex value from the Symbology Charts on page 225 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".

Step 3.     Scan the 2 hex digits from the Programming Chart, beginning on page 239, or scan **9**, **9** for all symbologies.

To add the Code I.D., scan **5, C, 8, 0**.
To add the AIM I.D., scan **5, C, 8, 1**.
To add the serial number, scan **5, C, 8, 8**.
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.*

Step 4.     Repeat Steps 2 and 3 for every prefix or suffix character.

Step 5.     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.

# Example: Add a Tab Suffix to All Symbologies

Step 1.     Scan Add Suffix.

Step 2.     Scan **9**, **9** from the Programming Chart, beginning on page 239, to apply this suffix to all symbologies.

Step 3.     Scan **0**, **9** from the Programming Chart, beginning on page 239. This corresponds with the hex value for a horizontal tab, shown in the ASCII Conversion Chart (Code Page 1252) on page 228.

Step 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.

Step 1.    Scan the **Clear One Prefix** or **Clear One Suffix** symbol.

Step 2.    Determine the 2 digit Hex value from the Symbology Chart (included in the Symbology Charts on page 225) for the symbology from which you want to clear the prefix or suffix.

Step 3.    Scan the 2 digit hex value from the Programming Chart, beginning on page 239, or scan **9**, **9** for all symbologies.

Your change is automatically saved.

## Add a Carriage Return Suffix to All Symbologies

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

VSUFCR.
**Add CR Suffix**
**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

By default, all ASCII control characters are transmitted with barcode data. These non-printable characters are translated into predefined key strokes, or CTRL+X functions (see ASCII Conversion Chart (Code Page 1252) on page 228). If these key strokes interfere with your host's software application, scan **Disable** to keep these ASCII control characters from being transmitted. *Default = Enable.*


RMVFNC0.
**\* Enable**


RMVFNC1.
**Disable**

*Note:* *You can also use a custom data format (see Data Format, beginning on page 71) to translate these characters into a more meaningful output.*

# 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** barcode below, then scan the number of 5ms delays, and scan the **Save** barcode using the Programming Chart, beginning on page 239.

| Prefix | Scanned Data | Suffix |
|--------|--------------|--------|

1  2  3  4  5

**Intercharacter Delay**


DLYCHR.
**Intercharacter Delay**
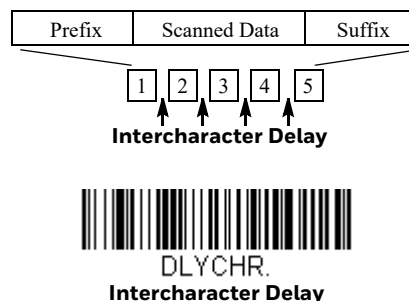
To remove this delay, scan the **Intercharacter Delay** barcode, then set the number of delays to **0**. Scan the **Save** barcode using the Programming Chart, beginning on page 239.

*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** barcode below, then scan the number of 5ms delays, and the **Save** barcode using the Programming Chart, beginning on page 239.

Next, scan the **Character to Trigger Delay** barcode, then the 2-digit hex value for a printable character to trigger the delay (see Lower ASCII Reference Table, beginning on page 229).



DLYCRX.
**Delay Length**



DLY_XX.
**Character to Trigger Delay**

To remove this delay, scan the **Delay Length** barcode, and set the number of delays to **0**. Scan the **Save** barcode using the Programming Chart, beginning on page 239.

## 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** barcode below, then scan the number of 5ms delays, and scan the **Save** barcode using the Programming Chart, beginning on page 239.



**Interfunction Delays**



DLYFNC.
**Interfunction Delay**
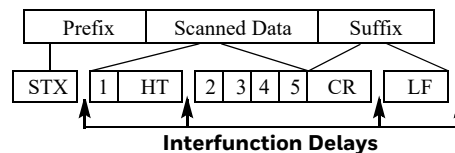
To remove this delay, scan the **Interfunction Delay** barcode, then set the number of delays to **0**. Scan the **Save** barcode using the Programming Chart, beginning on page 239.

# Intermessage Delay

An intermessage delay of up to 5000 milliseconds (in 5ms increments) may be placed between each scan transmission. Scan the **Intermessage Delay** barcode below, then scan the number of 5ms delays, and scan the **Save** barcode using the Programming Chart, beginning on page 239.



**1st Scan Transmission        2nd Scan Transmission**
**Intermessage Delay**



DLYMSG.
**Intermessage Delay**
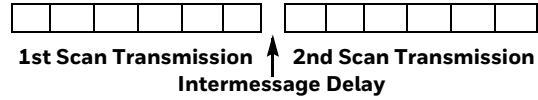
To remove this delay, scan the **Intermessage Delay** barcode, then set the number of delays to **0**. Scan the **Save** barcode using the Programming Chart, beginning on page 239.

# 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 barcode 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 barcode, it is output automatically. However, when you create a format, you must use a "send" command (see Send Commands on page 74) 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 barcode is read that fails the first data format, the next data format, if there is one, will be used on the barcode 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.



DFMDF3.
**\* Default Data Format**

# Show Data Format

Scan the barcode below to show current data format settings.



DFMBK3?.
**Data Format Settings**

# Add a Data Format

Step 1.     Scan the **Enter Data Format** symbol (see page 73).

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** using the Programming Chart, beginning on page 239. 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 88 for further information.)

Step 3.     **Terminal Type**
Refer to Terminal ID Table on page 74 and locate the Terminal ID number for your PC. Scan three numeric barcodes from the Programming Chart, beginning on page 239, 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 on page 225, 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 239.

If you wish to create a data format for all symbologies, with the exception of some specific symbologies, refer to B8 (see page 86).

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

beginning on page 239. For example, 50 characters is entered as 0050.

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

Step 6.　**Editor Commands**
Refer to Data Format Editor Commands on page 74. 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.



DFMBK3.
**Enter Data Format**



MNUSAV.
**Save**



MNUABT.
**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 239. 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 225) and the barcode 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** to exit and save your data format changes.

- **Discard** to exit without saving any data format changes.



DFMCL3.
**Clear One Data Format**



DFMCA3.
**Clear All Data Formats**



MNUSAV.
**Save**

## 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 |

# 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) on page 228 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) on page 228 for decimal, hex, and character codes.

**F2 Example: Send a number of characters**


1234567890ABCDEFGHIJ

Send the first 10 characters from the barcode 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 barcode 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) on page 228 for decimal, hex, and character codes.

**F3 Example: Send all characters up to a particular character**



1234056780ABC

Using the barcode 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) on page 228 for decimal, hex, and character codes.

**B9 Example: Send all characters up to a defined string**



1234567890ABCDEFGHIJ

Using the barcode 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) on page 228 for decimal, hex and, character codes.

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


1234567890ABCDEFGHIJ

Send all characters except for the last 8 from the barcode 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) on page 228 for decimal, hex, and character codes.

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


1234567890ABCDEFGHIJ

Using the barcode 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: **1234567890**ABCDEFGHIJ
**<CR>**

## Insert symbology name

**B3** Insert the name of the barcode's symbology in the output message, without moving the cursor. Only symbologies with a Honeywell ID are included (see Symbology Charts on page 225). Refer to the ASCII Conversion Chart (Code Page 1252) on page 228 for decimal, hex, and character codes.

## Insert barcode length

**B4** Insert the barcode'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**


1234567890ABCDEFGHIJ

Send the symbology name and length before the barcode data from the barcode 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 barcode 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 235). Any key can be inserted, including arrows and functions. *Syntax = B5xxssnn*, 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 on page 235.

| Key Modifiers | |
|---|---|
| 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 keys pressed (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 keystroke to B5xxssnnssnnssnn. An example that would insert "abc" is as follows: B503001F00320030F833.

*Note:* *Key modifiers can be added together when needed. Example: Control Left+Shift Left = 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 barcode data from the barcode 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 barcodes that begin with a 1**

1234567890ABCDEFGHIJ

Search for barcodes that begin with a 1. If a barcode matches, move the cursor back to the beginning of the data and send 6 characters followed by a carriage return. Using the barcode 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) on page 228 for decimal, hex, and character codes.

**F8 Example: Send barcode data that starts after a particular character**


1234567890ABCDEFGHIJ

Search for the letter "D" in barcodes and send all the data that follows, including the "D." Using the barcode 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) on page 228 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, B00000454657374 will search forward for the first occurrence of the 4 character string "Test." Refer to the ASCII Conversion Chart (Code Page 1252) on page 228 for decimal, hex, and character codes.

### B0 Example: Send barcode data that starts after a string of characters



1234567890ABCDEFGHIJ

Search for the letters "FGH" in barcodes and send all the data that follows, including "FGH." Using the barcode 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, B10000454657374 will search backward for the first occurrence of the 4 character string "Test." Refer to the ASCII Conversion Chart (Code Page 1252) on page 228 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 228, for decimal, hex, and character codes.

**E6 Example: Remove zeros at the beginning of barcode data**



This example shows a barcode 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 barcode 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) on page 228 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 barcode data**


345 678 90

This example shows a barcode that has spaces in the data. You may want to remove the spaces before sending the data. Using the barcode 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 barcode data**


1234056780ABC

If the barcode 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 barcode 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) on page 228 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) on page 228 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 barcode begins with a number**

If you will only accept data from barcodes 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 barcode is read,  the format fails.

If this barcode is read: ▌▌▌▌▌▌▌▌▌▌▌▌▌▌   the data is output as: **1234AB**

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 barcode begins with a letter**

If you will only accept data from barcodes that begin with a letter, you can use ED to check for the number.

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 barcode is read, ▌▌▌▌▌▌▌▌▌▌▌▌▌▌   the format fails.

1234AB

If this barcode is read: ▌▌▌▌▌▌▌▌▌▌▌▌▌▌   the data is output as: **AB1234**

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.

## Discard Data

**B8** Discards types of data. For example, you may want to discard Code 128 barcodes that begin with the letter A. In step 4 (see page 72), select 6A (for Code 128), and in step 5, select 9999 (for all lengths). Enter FE41B8 to compare and discard Code 128 barcodes 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 87) in order for the B8 command to work. If Data Format is **On**, but **Not Required** (see page 87), barcode data that meets the B8 format is scanned and output as usual.
Other data format settings impact the B8 command. If Data Format Non-Match Error Tone is **On** (see page 88), the scanner emits an error tone. If Data format Non-Match Error Tone is **Off**, the code is disabled for reading and no tone is sounded.

# Data Formatter

When Data Formatter is turned Off, the barcode 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 barcode is not transmitted. If you wish to process this type of barcode without generating an error tone, see Data Format Non-Match Error Tone on page 88.

- **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. If you wish to process this type of barcode without generating an error tone, see Data Format Non-Match Error Tone on page 88.

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**

```
|||||||||||||||||||||||||||||||||
DFM_EN2.
```
**Data Format Required,**
**Keep Prefix/Suffix**

```
|||||||||||||||||||||||||||||||||
DFM_EN4.
```
**Data Format Required,**
**Drop Prefix/Suffix**

## Data Format Non-Match Error Tone

When a barcode is encountered that doesn't match your required data format, the scanner normally generates an error tone. However, you may want to continue scanning barcodes without hearing the error tone. If you scan the **Data Format Non-Match Error Tone Off** barcode, data that doesn't conform to your data format is not transmitted, and no error tone will sound. If you wish to hear the error tone when a non-matching barcode is found, scan the **Data Format Non-Match Error Tone On** barcode. *Default = Data Format Non-Match Error Tone On.*

```
|||||||||||||||||||||||||||||||||
DFMDEC0.
```
**\* Data Format Non-Match Error**
**Tone On**

```
|||||||||||||||||||||||||||||||||
DFMDEC1.
```
**Data Format Non-Match**
**Error Tone Off**

## 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 barcodes below.

```
|||||||||||||||||||||||||||||||||
ALTFNM0.
```
**Primary Data Format**

```
|||||||||||||||||||||||||||||||||
ALTFNM1.
```
**Data Format 1**

ALTFNM2.

**Data Format 2**

ALTFNM3.

**Data Format 3**

# Single Scan Data Format Change

You can also switch between data formats for a single scan. The next barcode 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 read by scanning the **Single Scan-Data Format 1** barcode below. The next barcode that is scanned uses Data Format 1, then reverts back to Data Format 3.

VSAF_0.

**Single Scan–Primary
Data Format**

VSAF_1.

**Single Scan–Data Format 1**

VSAF_2.

**Single Scan–Data Format 2**

VSAF_3.

**Single Scan–Data Format 3**

# 6 SYMBOLOGIES

This programming section contains the following menu selections. Refer to Chapter 11 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 39
- Code 39 Redundancy
- Code 93
- Code 128
- Coupon GS1 DataBar Output
- Data Matrix
- EAN/JAN-8
- EAN/JAN-13
- GS1 Composite Codes
- GS1 DataBar Expanded
- GS1 DataBar Limited
- GS1 DataBar Omnidirectional
- GS1 Emulation
- GS1-128
- Interleaved 2 of 5

- Korea Post
- Label Code
- MacroPDF417
- Matrix 2 of 5
- MaxiCode
- MicroPDF417
- MSI
- NEC 2 of 5
- PDF417
- Postal Codes - 2D
- Postal Codes - Linear
- 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

For best scanner performance, you should only enable the symbologies that you need. Scan **All Symbologies Off** to disable all symbologies, then enable the symbologies you need by scanning the **On** barcode for each symbology.



ALLENA0.

**All Symbologies Off**

# Message Length Description

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

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

**Example:** Decode only those barcodes 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 barcodes included in the explanation of the symbology, then scan the digit value of the message length, and the **Save** barcodes on the Programming Chart, beginning on page 239. The minimum and maximum lengths and the defaults are included with the respective symbologies.

# Codabar

*<Default All Codabar Settings>*



CBRDFT.

# Codabar On/Off



CBRENA1.

**\* On**

CBRENA0.
**Off**

# Codabar Start / Stop Characters

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


CBRSSX1.
**Transmit**


CBRSSX0.
**\* Don't Transmit**

# Codabar Check Character

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

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

When Check Character is set to **Validate and Transmit**, the scanner will only read Codabar barcodes 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 barcodes 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**

**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.



A 1 2 3 4 D  D 5 6 7 8 A

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.

**On**



**\* Off**



**Require**

# Codabar Redundancy

If you are encountering errors when reading Codabar barcodes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a barcode is decoded before transmission, which may reduce the number of errors. Note that the higher the redundancy count, the longer it will take to decode the barcode. To adjust the redundancy, scan the following **Codabar Redundancy** barcode, then scan a redundancy count between 0 and 10 on the Programming Chart, beginning on page 239. Scan **Save**. *Default = 0.*



**Codabar Redundancy**

# Codabar Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 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.

## Suppress Code 39

*Note:* *It is recommended if you are reading Code 39 barcodes, Codablock A should remain disabled.*

The Do Not Suppress Code 39 setting allows you to scan a mix of Code 39 and Codablock A barcodes. Once Codablock A is enabled, scan the **Do Not Suppress Code 39** barcode. *Default = Suppress Code 39*.


C39SCC1.
**\* Suppress Code 39**


C39SCC0.
**Do Not Suppress Code 39**

# Code 39 On/Off


C39ENA1.
**\* On**

```
|||||||||||||||||||||||||
C39ENA0.
```
**Off**

# Code 39 Start/Stop Characters

Start/Stop characters identify the leading and trailing ends of the barcode. 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 barcode data with or without a check character.

When Check Character is set to **Validate, but Don't Transmit**, the unit only reads Code 39 barcodes 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 barcodes 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 barcodes below to change the message length. Refer to Message Length Description on page 92 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 barcodes together before transmitting them to the host computer. When the scanner encounters a Code 39 barcode with the append trigger character(s), it buffers Code 39 barcodes until it reads a Code 39 barcode that does not have the append trigger. The data is then transmitted in the order in which the barcodes were read (FIFO). *Default = Off.*


C39APP1.
**On**


C39APP0.
**\* Off**

# Code 39 Redundancy

If you are encountering errors when reading Code 39 barcodes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a barcode is decoded before transmission, which may reduce the number of errors. Note that the higher the redundancy count, the longer it will take to decode the barcode. To adjust the redundancy, scan the **Code 39 Redundancy** barcode below, then scan a redundancy count between 0 and 10 on the Programming Chart, beginning on page 239. Scan **Save**. *Default = 0.*


C39VOT.
**Code 39 Redundancy**

# 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 (see page 131) 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 barcode 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 |
| 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 barcode 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 barcode below, select the code page with which the barcodes were created (see ISO 2022/ISO 646 Character Replacements on page 232), and scan the value and the **Save** barcode from the Programming Chart, beginning on page 239. 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 barcode 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 barcodes 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 barcodes 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 Redundancy

If you are encountering errors when reading Interleaved 2 of 5 barcodes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a barcode is decoded before transmission, which may reduce the number of errors. Note that the higher the redundancy count, the longer it will take to decode the barcode. To adjust the redundancy, scan the **Interleaved 2 of 5 Redundancy** barcode below, then scan a redundancy count between 0 and 10 on the Programming Chart, beginning on page 239. Scan **Save**. *Default = 0.*

I25VOT.
**Interleaved 2 of 5 Redundancy**

# Interleaved 2 of 5 Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 for additional information. Minimum and Maximum lengths = 2–80. Minimum Default = 4, Maximum Default = 80.

I25MIN.
**Minimum Message Length**

# 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 barcode 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 barcodes 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 barcodes 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 barcodes below to change the message length. Refer to Message Length Description on page 92 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 barcodes below to change the message length. Refer to Message Length Description on page 92 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 barcodes together before transmitting them to the host computer. When this function is enabled, the scanner stores those Code 93 barcodes 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 barcodes are read, deleting the first space from each. The scanner transmits the appended data when it reads a Code 93 barcode 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 barcode 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 barcode below, select the code page with which the barcodes were created (see ISO 2022/ISO 646 Character Replacements on page 232), and scan the value and the **Save** barcode from the Programming Chart, beginning on page 239. 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 barcodes below to change the message length. Refer to Message Length Description on page 92 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 Redundancy

If you are encountering errors when reading Straight 2 of 5 IATA barcodes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a barcode is decoded before transmission, which may reduce the number of errors. Note that the higher the redundancy count, the longer it will take to decode the barcode. To adjust the redundancy, scan the Straight 2 of 5 IATA Redundancy barcode below, then scan a redundancy count between 0 and 10 on the Programming Chart, beginning on page 239. Then scan the **Save** barcode. *Default = 0.*

||||||||||||||||||||||||||||
A25VOT.
**Straight 2 of 5 IATA Redundancy**

# Straight 2 of 5 IATA Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 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 barcodes below to change the message length. Refer to Message Length Description on page 92 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 barcodes. *Default = Two Check Digits.*

**|||| C11CK20. ||||**
**One Check Digit**

**|||| C11CK21. ||||**
**\* Two Check Digits**

# Code 11 Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 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>*

**|||| 128DFT. ||||**

# Code 128 On/Off

||| ||||||||| ||| ||||| ||||||
128ENA1.
**\* On**

||| ||||||||| ||| ||||| ||||||
128ENA0.
**Off**

If you are reading Code 128 barcodes, Codablock F should remain disabled. If you are enabling Codablock F (see Codablock F on page 132), 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 barcodes on a blood product label. Use the barcodes below to turn concatenation On or Off. *Default =Off.*

||| ||||||||| ||| ||||| ||||||
ISBENA1.
**On**

||| ||||||||| ||| ||||| ||||||
ISBENA0.
**\* Off**

# Code 128 Redundancy

If you are encountering errors when reading Code 128 barcodes, you may want to adjust the redundancy count. Redundancy adjusts the number of times a barcode is decoded before transmission, which may reduce the number of errors. Note that the higher the redundancy count, the longer it will take to decode the barcode. To

adjust the redundancy, scan the Code 128 Redundancy barcode below, then scan a redundancy count between 0 and 10 on the Programming Chart, beginning on page 239. Then scan the **Save** barcode. *Default = 0.*



**Code 128 Redundancy**

# Code 128 Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 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 barcodes together before transmitting them to the host computer. When the scanner encounters a Code 128 barcode with the append trigger character(s), it buffers Code 128 barcodes until it reads a Code 128 barcode that does not have the append trigger. The data is then transmitted in the order in which the barcodes 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 barcode 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 barcode below, select the code page with which the barcodes were created (see ISO 2022/ISO 646

Character Replacements on page 232), and scan the value and the **Save** barcode from the Programming Chart, beginning on page 239. The data characters should then appear properly.


**Code 128 Code Page**

# GS1-128

*<Default All GS1-128 Settings>*



# GS1-128 On/Off


**\* On**


**Off**

# GS1-128 Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 for additional information. Minimum and Maximum lengths = 1–80. Minimum Default = 1, Maximum Default = 80.


**Minimum Message Length**


**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 barcodes below to change the message length. Refer to Message Length Description on page 92 for additional information. Minimum and Maximum lengths = 1–60. Minimum Default = 1, Maximum Default = 60.

‖‖‖‖‖‖‖‖‖‖‖‖
TELMIN.
**Minimum Message Length**

## UPC-A

*<Default All UPC-A Settings>*

||||||||||||||||||||||||

UPADFT.

## UPC-A On/Off

||||||||||||||||||||||||

UPBENA1.
**\* On**

||||||||||||||||||||||||

UPBENA0.
**Off**

**Note:** To convert UPC-A barcodes to EAN-13, see *Convert UPC-A to EAN-13 on page 119.*

## 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 can be programmed so it is not transmitted (**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 barcodes that have addenda. You must then turn On a 2 or 5 digit addenda listed on page 113. *Default = Not Required.*


UPAARQ1.
**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 barcode below, then setting the timeout (from 0-500 milliseconds) by scanning digits from the Programming Chart, beginning on page 239, and then **Save**. *Default = 120.*

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

DLYADD.

**Addenda Timeout**

# UPC-A Addenda Separator

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

UPAADS1.

\* **On**

UPAADS0.

**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 barcodes.

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**

# Coupon GS1 DataBar Output

If you scan coupons that have both UPC and GS1 DataBarcodes, you may wish to scan and output only the data from the GS1 DataBarcode. Scan the **GS1 Output On** code below to scan and output only the GS1 DataBarcode 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. barcodes 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 (see page 118). *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 barcodes 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 barcode below, then setting the timeout (from 0-500 milliseconds) by scanning digits from the Programming Chart, beginning on page 239, and then **Save**. *Default = 120.*

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


DLYADD.
**Addenda Timeout**

# UPC-E0 Addenda Separator

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


UPEADS1.
**\* On**


UPEADS0.
**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.*


UPECKX1.
**\* On**


UPECKX0.
**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. barcodes lead with the 0 number system. For these codes, use UPC-E0 (see page 115). 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**

||||||||||||||||||||
UPEEN10.
**\* UPC-E1 Off**

# EAN/JAN-13

*<Default All EAN/JAN Settings>*

||||||||||||||||||||
E13DFT.

# EAN/JAN-13 On/Off

||||||||||||||||||||
E13ENA1.
**\* On**

||||||||||||||||||||
E13ENA0.
**Off**

# Convert UPC-A to EAN-13

When **UPC-A Converted to EAN-13** is selected, UPC-A barcodes 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.

||||||||||||||||||||
UPAENA0.
**UPC-A Converted to EAN-13**

||||||||||||||||||||
UPAENA1.
**\* 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 barcodes 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 on EAN-13 barcodes that begin with "290." The following settings can be programmed:

**Require 5 Digit Addenda**: All EAN-13 barcodes that begin with a "290" must have a 5 digit addendum. The EAN-13 barcode with the 5 digit addendum is then transmitted as a single, concatenated barcode. If a 5 digit addendum is not found within the Addenda Timeout period, the EAN-13 barcode 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 barcodes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

*Default = Don't Require 5 Digit Addenda.*


**\* Don't Require5 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 barcodes that begin with a "378" or "379." The following settings can be programmed:

**Require Addenda**: All EAN-13 barcodes 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 barcode with the addenda is then transmitted as a single, concatenated barcode. If the required addenda is not found within the Addenda Timeout period, the EAN-13 barcode 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 barcodes are transmitted depending on the setting you are using for EAN/JAN-13 Addenda Required.

*Default = Don't Require Addenda.*


**\* Don't Require Addenda**

||||| ||| ||||||||||||||||||||||||

ARQ3781.

**Require 2 Digit Addenda**

||||| ||| ||||||||||||||||||||||||

ARQ3782.

**Require 5 Digit Addenda**

||||| ||| ||||||||||||||||||||||||

ARQ3783.

**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 barcodes that begin with a "414" or "419." The following settings can be programmed:

**Require Addenda**: All EAN-13 barcodes 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 barcode with the addenda is then transmitted as a single, concatenated barcode. If the required addenda is not found within the Addenda Timeout period, the EAN-13 barcode 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 barcodes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

*Default = Don't Require Addenda.*

||||| ||| ||||||||||||||||||||||||

ARQ4140.

**\* Don't Require Addenda**

||||| ||| ||||||||||||||||||||||||

ARQ4141.

**Require 2 Digit Addenda**

||||| ||| ||||||||||||||||||||||||

ARQ4142.

**Require 5 Digit Addenda**

||||| ||| ||||||||||||||||||||||||

ARQ4143.

**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 barcodes that begin with "977." The following settings can be programmed:

**Require 2 Digit Addenda**: All EAN-13 barcodes that begin with "977" must have a 2 digit addendum. The EAN-13 barcode with the 2 digit addendum is then transmitted as a single, concatenated barcode. If a 2 digit addendum is not found within the Addenda Timeout period, the EAN-13 barcode 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 barcodes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

*Default = Don't Require 2 Digit Addenda.*



ARQ9770.

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



ARQ9771.

**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 barcodes that begin with "978." The following settings can be programmed:

**Require 5 Digit Addenda**: All EAN-13 barcodes that begin with "978" must have a 5 digit addendum. The EAN-13 barcode with the 5 digit addendum is then transmitted as a single, concatenated barcode. If a 5 digit addendum is not found within the Addenda Timeout period, the EAN-13 barcode 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 barcodes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

*Default = Don't Require 5 Digit Addenda.*



ARQ9780.

 **\* Don't 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 barcodes that begin with "979." The following settings can be programmed:

**Require 5 Digit Addenda**: All EAN-13 barcodes that begin with "979" must have a 5 digit addendum. The EAN-13 barcode with the 5 digit addendum is then transmitted as a single, concatenated barcode. If a 5 digit addendum is not found within the Addenda Timeout period, the EAN-13 barcode 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 barcodes are transmitted, depending on the setting you are using for EAN/JAN-13 Addenda Required.

*Default = Don't Require 5 Digit Addenda.*

||||||||||||||||||||||||
ARQ9790.

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

||||||||||||||||||||||||
ARQ9791.

**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 barcode below, then setting the timeout (from 0-500 milliseconds) by scanning digits from the Programming Chart, beginning on page 239, and then **Save**. *Default = 120.*

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

||||||||||||||||||||||||
DLYADD.

**Addenda Timeout**

# EAN/JAN-13 Addenda Separator

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

||||||||||||||||||||||||
E13ADS1.
**\* On**

||||||||||||||||||||||||
E13ADS0.
**Off**

Note: *If you want to enable or disable EAN13 with Extended Coupon Code, refer to UPC-A/ EAN-13 with Extended Coupon Code on page 114.*

## 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**

# 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 barcodes 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 barcode below, then setting the timeout (from 0-500 milliseconds) by scanning digits from the Programming Chart, beginning on page 239, and then **Save**. *Default = 120.*

*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 barcode 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 barcodes. You can program the scanner to read MSI barcodes 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 barcodes 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 barcodes printed with the specified type check character(s), but will not transmit the check character(s) with the scanned data.

```
MSICHK0.
```
**\*  Validate Type 10, but Don't Transmit**

```
MSICHK1.
```
**Validate Type 10 and Transmit**

```
MSICHK2.
```
**Validate 2 Type 10 Characters, but Don't Transmit**

||||||| MSICHK3.
**Validate 2 Type 10 Characters and Transmit**

||||||| MSICHK4.
**Validate Type 11 then Type 10 Character, but Don't Transmit**

||||||| MSICHK5.
**Validate Type 11 then Type 10 Character and Transmit**

||||||| MSICHK6.
**Disable MSI Check Characters**

# MSI Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 for additional information. Minimum and Maximum lengths = 4–48. Minimum Default = 4, Maximum Default = 48.

||||||| MSIMIN.
**Minimum Message Length**

||||||| MSIMAX.
**Maximum Message Length**

# 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 barcodes below to change the message length. Refer to Message Length Description on page 92 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 (see page 97), 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 barcodes, Codablock A should remain disabled. If you are enabling Codablock A, you should disable Code 39 (see Code 39 on page 95).

# Codablock A Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 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**

# Codablock F Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 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 barcodes below to change the message length. Refer to Message Length Description on page 92 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 barcodes. When this selection is enabled, these multiple barcodes are assembled into a single data string. *Default = On.*


PDFMAC1.
**\* On**


PDFMAC0.
**Off**

# MicroPDF417

*< Default All MicroPDF417 Settings >*


MPDDFT.

# MicroPDF417 On/Off

![barcode MPDENA1.]

**On**

![barcode MPDENA0.]

**\* Off**

# MicroPDF417 Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 for additional information. Minimum and Maximum lengths = 1-366. Minimum Default = 1, Maximum Default = 366.

![barcode MPDMIN.]

**Minimum Message Length**

![barcode 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.*

![barcode COMENA1.]

**On**

![barcode COMENA0.]

**\* Off**

# UPC/EAN Version

Scan the **UPC/EAN Version On** barcode 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.*



**UPC/EAN Version On**



**\* UPC/EAN Version Off**

*Note:* *If you scan coupons that have both UPC and GS1 Data Barcodes, you may wish to scan and output only the data from the GS1 Data Barcode. See* Coupon GS1 DataBar Output *(see page 115) for further information.*

# GS1 Composite Code Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 for additional information. Minimum and Maximum lengths = 1-2435. Minimum Default = 1, Maximum Default = 2435.



**Minimum Message Length**



**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 225).

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 225).

If **GS1 Code Expansion Off** is scanned, retail code expansion is disabled, and UPC-E expansion is controlled by the UPC-E0 Expand (see page 116) setting. If the AIM ID is enabled, the value will be the GS1-128 AIM ID, ]C1 (see Symbology Charts on page 225).

If **EAN8 to EAN13 Conversion** is scanned, all EAN8 barcodes 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 barcode 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

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 barcodes below to change the message length. Refer to Message Length Description on page 92 for additional information. Minimum and Maximum lengths = 1-7089. Minimum Default = 1, Maximum Default = 7089.

QRCMIN.
**Minimum Message Length**

QRCMAX.
**Maximum  Message Length**

## QR Code Append

This function allows the scanner to append the data from several QR Code barcodes together before transmitting them to the host computer. When the scanner encounters a QR Code barcode with the append trigger character(s), it buffers the number of QR Code barcodes determined by information encoded in those barcodes. Once the proper number of codes is reached, the data is output in the order specified in the barcodes. There are 3 ways to scan appended QR Code:

**One Scan**: Pull the trigger one time and all appended QR Codes in the same image are decoded

**Swipe**: Pull and hold down the trigger and scan all appended QR Codes while keeping the trigger pressed. The scanner emits short beeps for each partial QR Code that is scanned and buffered. One long beep is emitted after the last QR Code is scanned and the data is complete. Not compatible with Presentation mode.

**Point and Shoot**: Pull the trigger one time for each image. The scanner emits a short beep for each partial QR Code that is scanned and buffered. One long beep is emitted after the last QR Code is scanned and the data is complete. Not compatible with Presentation mode.

*Default = One Scan.*


QRCAPP1.
**\* One Scan**


QRCAPP2.
**Swipe**


QRCAPP3.
**Point and Shoot**


QRCAPP0.
**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 barcode 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 barcode below, select the code page with which the barcodes were created (see ISO 2022/ISO 646 Character Replacements on page 232), and scan the value and the **Save** barcode from the Programming Chart, beginning on page 239. The data characters should then appear properly.


QRCDCP.
**QR Code Page**

# Data Matrix

IDMDFT.

# Data Matrix On/Off

IDMENA1.
**\* On**

IDMENA0.
**Off**

# Data Matrix Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 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 barcodes together before transmitting them to the host computer. When the scanner encounters an Data Matrix barcode with the append trigger character(s), it buffers the number of Data Matrix barcodes determined by information encoded in those barcodes. Once the proper number of codes is reached, the data is output in the order specified in the barcodes. *Default = On.*

IDMAPP1.
**\* On**

||||||||||||||||||||||||||
IDMAPP0.
**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 barcode 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 barcode below, select the code page with which the barcodes were created (see ISO 2022/ISO 646 Character Replacements on page 232), and scan the value and the **Save** barcode from the Programming Chart, beginning on page 239. The data characters should then appear properly.

||||||||||||||||||||||||||
IDMDCP.
**Data Matrix Code Page**

# MaxiCode

*< Default All MaxiCode Settings >*

||||||||||||||||||||||||||
MAXDFT.

# MaxiCode On/Off

||||||||||||||||||||||||||
MAXENA1.
**On**

||||||||||||||||||||||||||
MAXENA0.
**\* Off**

# MaxiCode Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 for additional information. Minimum and Maximum lengths = 1-150. Minimum Default = 1, Maximum Default = 150.



**Minimum Message Length**



**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 barcodes below to change the message length. Refer to Message Length Description on page 92 for additional information. Minimum and Maximum lengths = 1-3832. Minimum Default = 1, Maximum Default = 3832.



AZTMIN.
**Minimum Message Length**

# Aztec Append

This function allows the scanner to append the data from several Aztec barcodes together before transmitting them to the host computer. When the scanner encounters an Aztec barcode with the append trigger character(s), it buffers the number of Aztec barcodes determined by information encoded in those barcodes. Once the proper number of codes is reached, the data is output in the order specified in the barcodes. *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 barcode 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 barcode below, select the code page with which the barcodes were created (see ISO 2022/ISO 646 Character Replacements on page 232), and scan the value and the **Save** barcode from the Programming Chart, beginning on page 239. 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

[barcode]
HX_ENA1.
**On**

[barcode]
HX_ENA0.
**\* Off**

# Han Xin Code Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 for additional information. Minimum and Maximum lengths = 1-7833. Minimum Default = 1, Maximum Default = 7833.

[barcode]
HX_MIN.
**Minimum Message Length**

[barcode]
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.*

[barcode]
POSTAL0.
**\* 2D Postal Codes Off**

# Single 2D Postal Codes:

[barcode]
POSTAL1.
**Australian Post On**

```
POSTAL7.
```
**British Post On**

```
POSTAL30.
```
**Canadian Post On**

```
POSTAL10.
```
**Intelligent Mail Barcode On**

```
POSTAL3.
```
**Japanese Post On**

```
POSTAL4.
```
**KIX Post On**

```
POSTAL5.
```
**Planet Code On**

Also see Planet

```
POSTAL9.
```
**Postal-4i On**

```
POSTAL6.
```
**Postnet On**

Also see Postnet

```
POSTAL11.
```
**Postnet with B and B' Fields On**

```
POSTAL2.
```
**InfoMail On**

# Combination 2D Postal Codes:

```
|||||||||||||||||||||||||||||||
POSTAL8.
```
**InfoMail and British
Post On**

```
|||||||||||||||||||||||||||||||
POSTAL20.
```
**Intelligent Mail Barcode and
Postnet with B and B' Fields On**

```
|||||||||||||||||||||||||||||||
POSTAL14.
```
**Postnet and
Postal-4i On**

```
|||||||||||||||||||||||||||||||
POSTAL16.
```
**Postnet and
Intelligent Mail Barcode On**

```
|||||||||||||||||||||||||||||||
POSTAL17.
```
**Postal-4i and
Intelligent Mail Barcode On**

```
|||||||||||||||||||||||||||||||
POSTAL19.
```
**Postal-4i and
Postnet with B and B' Fields On**

```
|||||||||||||||||||||||||||||||
POSTAL12.
```
**Planet Code and
Postnet On**

```
|||||||||||||||||||||||||||||||
POSTAL18.
```
**Planet Code and
Postnet with B and B' Fields On**

```
|||||||||||||||||||||||||||||||
POSTAL13.
```
**Planet Code and
Postal-4i On**

```
|||||||||||||||||||||||||||||||
POSTAL15.
```
**Planet Code and
Intelligent Mail Barcode**

**POSTAL21.**
**Planet Code,**
**Postnet, and**
**Postal-4i On**

**POSTAL22.**
**Planet Code,**
**Postnet, and**
**Intelligent Mail Barcode On**

**POSTAL23.**
**Planet Code,**
**Postal-4i, and**
**Intelligent Mail Barcode On**

**POSTAL24.**
**Postnet,**
**Postal-4i, and**
**Intelligent Mail Barcode On**

**POSTAL25.**
**Planet Code,**
**Postal-4i, and**
**Postnet with B and B' Fields On**

**POSTAL26.**
**Planet Code,**
**Intelligent Mail Barcode, and**
**Postnet with B and B' Fields On**

**POSTAL27.**
**Postal-4i,**
**Intelligent Mail Barcode, and**
**Postnet with B and B' Fields On**

**POSTAL28.**
**Planet Code,**
**Postal-4i,**
**Intelligent Mail Barcode, and**
**Postnet  On**

**POSTAL29.**
**Planet Code,**
**Postal-4i,**
**Intelligent Mail Barcode, 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.*

PLNCKX1.
**Transmit Check Digit**

PLNCKX0.
**\* 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.*

NETCKX1.
**Transmit Check Digit**

NETCKX0.
**\* 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.

AUSINT0.
**\* 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 barcodes below to change the message length. Refer to Message Length Description on page 92 for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 80.

||||||||||||||||||||
CPCMIN.
**Minimum Message Length**

**Maximum Message Length**

# Korea Post

*<Default All Korea Post Settings>*


KPCDFT.

## Korea Post


KPCENA1.
**On**


KPCENA0.
**\* Off**

## Korea Post Message Length

Scan the barcodes below to change the message length. Refer to Message Length Description on page 92 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. *Default = Don't Transmit.*


KPCCHK1.
**Transmit Check Digit**

```
||| |||| | ||| || | ||||| || ||| || |||
KPCCHK0.
```
* Don't Transmit Check Digit

# EAS SETTINGS

## EAS Considerations

Do not install any large iron fixtures, such as steel support poles, near the Solaris 7980g/7990g. Doing so may re-shape the EAS tag deactivation field.

*Note:* *The 7890GEL and 7990GEL do not support the EAS interface.*

## EAS Deactivation

The Solaris 7980g/7990g supports deactivation of Checkpoint and Sensormatic/ Tyco EAS tags. The following illustration shows the location of the EAS deactivation area. It is important to pass the entire tag through this area to deactivate the security tag.

*Note:* *Do not store tags within 18.0 in (45.7cm) of the Solaris 7980g/7990g. Tags stored closer than 18.0 in (45.7cm) may be unintentionally deactivated. This area also includes storage areas located under the Solaris 7980g/7990g.*

# EAS Deactivation Zone

**The entire tag must pass through the EAS deactivation area.**
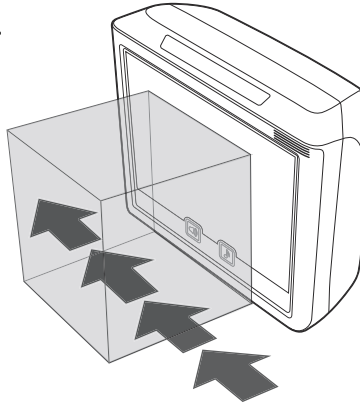
# EAS Deactivation Range

Scan the barcode below to set the 1D barcode depth of field within the EAS Deactivation range.

*Note:* *The minimum element width changes to 6.8 mil when in EAS Deactivation Range mode.*

PDCPP123.

**EAS Deactivation Range**

# Sensormatic

Contact Tyco for further information about Sensormatic installation and configuration.

# Checkpoint

## EAS Controller Settings

The following switch settings for a Checkpoint Counterpoint IX controller can be used as a starting point, however, these settings should be tuned according to your particular installation.

SW2

| On | | | | | | |
|----|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |

SW1

| On | | | | | | |
|----|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
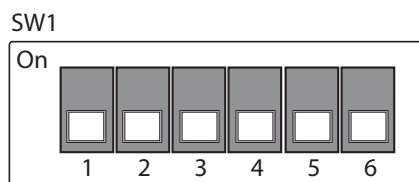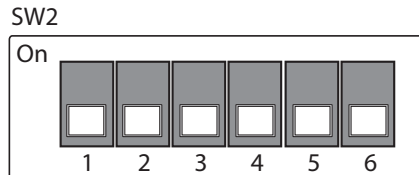
# EAS Controller

Scan one of the following barcodes to select the EAS system that is attached to the scanner. *Default = Off.*

EASTYP0.

**\* Off**

EASTYP1.

**Checkpoint Systems**

EASTYP2.

**Sensormatic**

# EAS Mode of Operation

Scan one of the following barcodes to select the EAS mode you wish to use.

When **Interlocked** is selected, EAS tag deactivation is interlocked with barcode scanning and transmission. When using Interlocked, you must set the timeout (see below).

When **Continuous on Enable** is selected, EAS tag deactivation is On all the time.

*Default = Interlocked.*


EASMOD0.
**\* Interlocked**


EASMOD1.
**Continuous on Enable**

## EAS Interlocked Duration Timeout

When using the Interlocked EAS Mode of Operation, you must set the lag time between when a barcode is read and when the EAS tag is deactivated. Use this selection to set this timeout (in milliseconds). After scanning the **EAS Interlocked Duration Timeout** barcode, set the timeout duration (from 1-5000 milliseconds) by scanning digits on the Programming Chart, beginning on page 239, then scanning **Save**. *Default = 100 ms, which is 0.1 second.*


EASTIM.
**EAS Interlocked Duration Timeout**

PROGRAM AN AUXILIARY
SCANNER

## Introduction

This chapter describes how to program auxiliary scanners that will be connected to the Solaris scanner.

**Note:** *We recommend using Honeywell hand-held scanners. Non-Honeywell, or third party, scanners may not work with the Solaris 7980g or Solaris 7990g.*

**Note:** *The 7980GEL and 7990GEL do not support an Auxiliary Scanner.*

## Connect by USB Serial

The Solaris 7980g/7990g auxiliary port supports Honeywell hand-held scanners with a menu system. Scan the following code to configure the Honeywell hand-held scanner for the auxiliary port:


TRMUSB130.
**USB Serial**

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

**Note:** *Once the auxiliary scanner is configured for USB Serial, do not scan any configuration codes with the auxiliary scanner.*

## Connect by USB Keyboard

The Solaris 7980g auxiliary port supports Honeywell or third party hand-held scanners that support a USB Keyboard interface.

**Note:** *A USB keyboard interface in not supported on the Solaris 7990g.*

Follow the steps below to configure the auxiliary scanner. Contact the nearest technical support office (see Technical Assistance on page xiii) for further informa-tion.

1. Configure the scanner to USB Keyboard interface.

2. Configure the scanner to output AIM I.D.

3. Configure the scanner to output CR Suffix.

4. Set the Keyboard Country Layout to U.S.A.

*Note:* *Once the auxiliary scanner is configured for USB Keyboard, do not scan any configuration codes with the auxiliary scanner.*

# IMAGING COMMANDS

The scanner 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.

*Note:* *You must set the scanner a* Serial Trigger Mode *(see page 41) in order to take images.*

## 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 Serial Programming Commands, beginning on page 185). 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 or IMGBOX), 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 160)

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 hardware trigger is pressed, or when 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 hardware trigger press before taking the image. This is only available when using Photo Style (1P).

    0T      Takes image immediately *(default)*

    1T      Waits for a trigger press, 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.

| Solaris 7980g | Units are 127 microseconds. *(Default = 7874)* <br> *n*E   Range: 1 – 7874 |
|---------------|---------------------------------------------------------------------------|
| Solaris 7990g | Units are microseconds. *(Default = 17000)* <br> *n*E   Range: 1 – 17000 |

**Example:**   **Exposure at 7874E with fluorescent lighting:**       **Exposure at 100E with fluorescent lighting:**
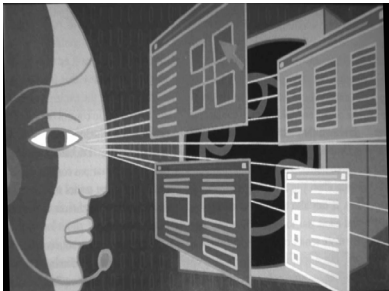


## G - Gain

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 *(Solaris 7980g default)*

2G     Medium gain *(Solaris 7990g default)*

4G     Heavy gain

8G     Maximum gain
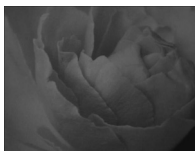
**Example:**   **Gain at 1G:**          **Gain at 4G:**          **Gain at 8G:**
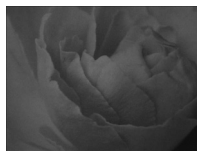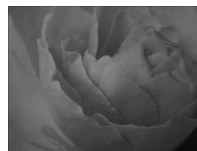
## W - Target White Value

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 trigger is pressed or when 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 (see page 160).

    0A      Infinity filter Off *(default)*

    1A      Infinity filter On

**Example:**

**Infinity Filter off (0A) from approximately 12 feet (3.66m) away:**
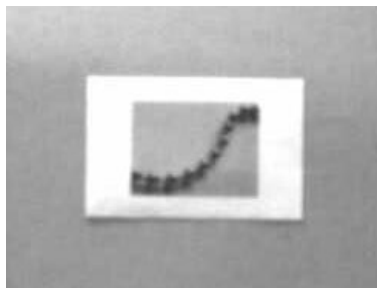
**Infinity Filter on (1A) from approximately 12 feet (3.66m) away:**
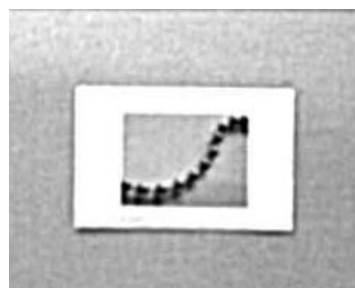
## C - Compensation

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:**
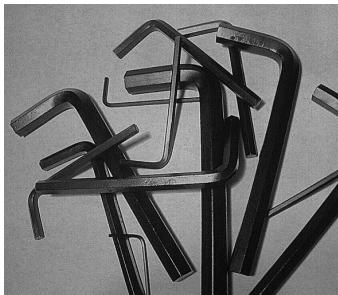
## F - File Format

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:**
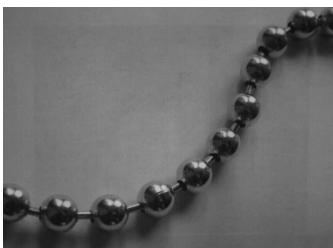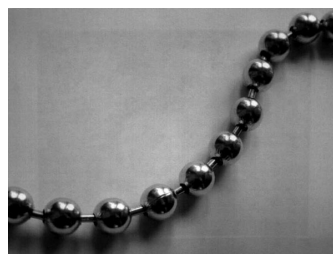
## I - Invert Image

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):**
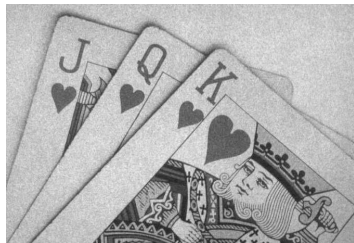
## IR – Image Rotate

> 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.

OK      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:**
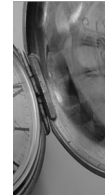


**Image Crop set to 200B:**        **Image Crop set to 200T:**



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:**
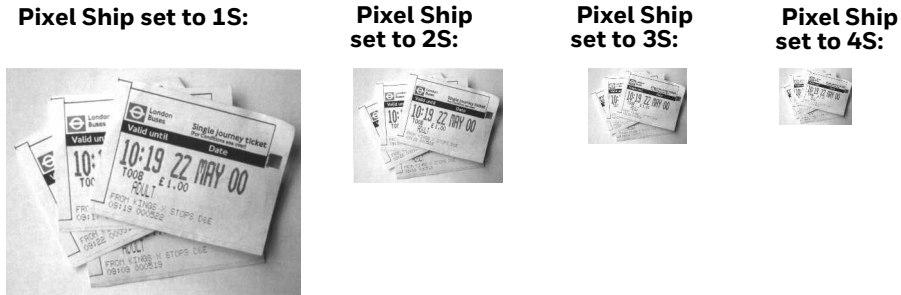


## U – Document Image Filter

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 169), 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 172). 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 (see page 165) to 22e. Range: 0–255.

**Example:**    **Document Image Filter set to 0U:**    **Document Image Filter set to 26U:**
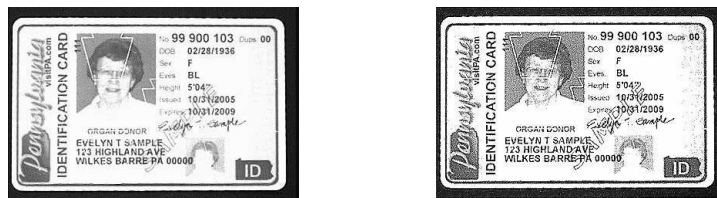
## V - Blur Image

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:**
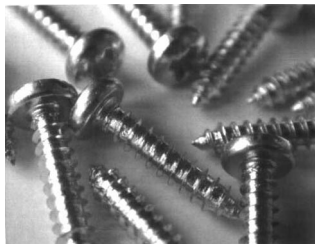


# Image Size Compatibility

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



IMGVGA1.
**Force VGA Resolution**

# Intelligent Signature Capture - IMGBOX

IMGBOX allows you to configure the size and location of a signature capture area relative to its proximity to a barcode. 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 barcode. You can input the overall size of the signature area, as well as specify how far the signature area is from the barcode, vertically and horizontally. You can also set the resolution and file format for the final output of the signature capture image.

## 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 barcodes may be slowed when this mode is enabled. *Default = Off.*

```
DECBND1.
```
**Optimize On**

```
DECBND0.
```
**\* Optimize  Off**

Below is an example of a signature capture application. In this example, the aimer is centered over the signature capture area and the trigger is pressed. A single beep is emitted, indicating that the scanner has read a Code 128 barcode and the data has been transferred to the host. If using a Granit scanner, the scanner also vibrates. 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 aimer with the signature area (not with the barcode), then press the trigger.





Send the following IMGBOX command string after the trigger press:

**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 176) and W – Width of Signature Capture Area (page 177).*

# 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:**
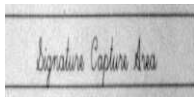


**Image Width set to 600A:**
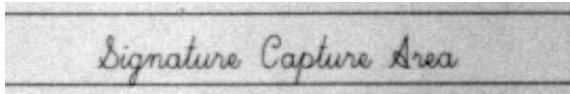
## B - Output Image Height

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:**
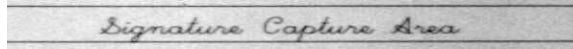


**Image Height set to 100B:**
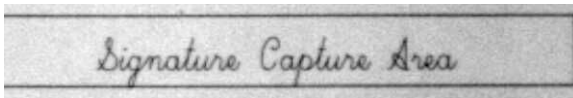


## D - Pixel Depth

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:**
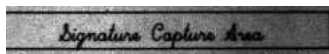


## R - Resolution of Signature Capture Area

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 175).

**Example:**     **Resolution set to 0R:**
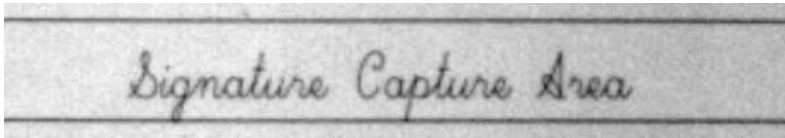


**Resolution set to 1000R:**



**Resolution set to 2000R:**
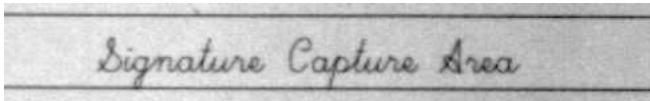


## S – Barcode Aspect Ratio

All dimensions used in IMGBOX are measured as multiples of the minimum element size of the barcode. The barcode aspect ratio allows you to set the ratio of the barcode height to the narrow element width. In the example, the narrow element width is .010 inches and the barcode 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 Barcode Offset

The horizontal barcode 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:**
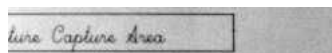


**Horizontal Offset set to –75X:**
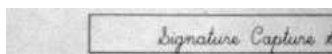
## Y - Vertical Barcode Offset

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

**Vertical Offset set to -7Y:**



**Vertical Offset set to 65Y:**

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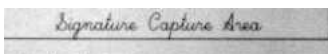
## Add a Test Code I.D. Prefix to All Symbologies

This selection allows you to turn On transmission of a Code I.D. before the decoded symbology. (See the Symbology Charts, beginning on page 225) 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 will be removed when the unit is power cycled.



PRECA2,BK2995C80!

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

## Show Decoder Revision

Scan the barcode below to output the decoder revision.

**Note:**  *Not supported on the Solaris 7990g.*



REV_DR.

**Show Decoder Revision**

# Show Scan Driver Revision

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

*Note:* *Not supported on the Solaris 7990g.*

**Show Scan Driver Revision**

# Show Software Revision

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

**Show Revision**

# Show Data Format

Scan the barcode below to show current data format settings.

**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.*

**On**

# 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 sps.honeywell.com.

# Application Plug-Ins (Apps)

Any apps that you are using can be turned Off or On by scanning the following barcodes. 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** barcode below. You can also scan the **List Apps** barcode 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 for Scanning Introduction

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

# Configure with EZConfig for Scanning

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

1. Access the Honeywell Technical Support Downloads Portal at honeywell.com/
   PSSsoftware-downloads.

2. Go to **Software** > **Barcode Scanners** > **Software** > **Tools and Utilities** >
   **EZConfig for Scanning** > **Current**.
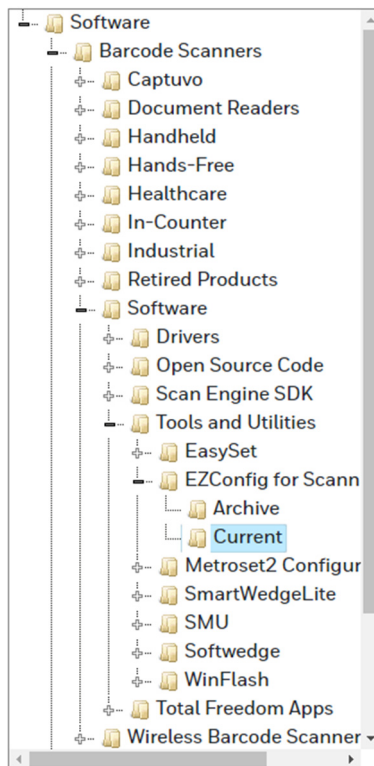


3. Download the **Setup** version of EZConfig for Scanning.

4. Open EZConfig to configure your scanner.

# 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** barcode, then scan **Activate Defaults**. This resets the scanner to the factory default settings.



DEFOVR.
**Remove Custom Defaults**



DEFALT.
**Activate Defaults**

The Menu Commands, beginning on page 189, list the factory default settings for each of the commands (indicated by an asterisk (*) on the programming pages).

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

The device must be set to an RS232 interface (see page 14). 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 [:Name:] Tag SubTag {Data} [, SubTag {Data}] [; Tag SubTag {Data}] [...] Storage*

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

:Name:          To send information to the scanner (with the base connected to host), use :Solaris:. The default factory setting for a Solaris scanner is Solaris scanner. This setting is changed by using the BT_NAM command, which accepts alphanumeric values. If the name is not known, a wildcard (*) can be used :*

| 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, the scanner must be put in Manual Trigger Mode by scanning a Manual Trigger Mode barcode (see page 41), or by sending a serial menu command for triggering (see page 41). 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 barcode has been read, until the deactivate command is sent, or until the serial time-out has been reached (see Read Time-Out on page 41 for a description, and the serial command on page 194).

# Resetting the Custom Defaults

If you want the custom default settings restored to your scanner, scan the **Activate Custom Defaults** barcode 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.

DEFALT.

**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<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| **Product Default Settings** | | | |
| Beeper Volume Adjustment | Volume Adjustment Off | BTNVOL0 | 10 |
| | *Volume Adjustment On | BTNVOL1 | 10 |
| Beeper Frequency Adjustment | Frequency Adjustment Off | BTNTON0 | 10 |
| | *Frequency Adjustment On | BTNTON1 | 10 |
| Setting Custom Defaults | Set Custom Defaults | MNUCDP | 11 |
| | Save Custom Defaults | MNUCDS | 11 |
| Resetting the Custom Defaults | Activate Custom Defaults | DEFALT | 12 |
| **Program the Interface** | | | |
| Plug and Play Codes | Keyboard Wedge:<br>IBM PC AT and Compatibles with CR suffix | PAP_AT | 13 |
| | Laptop Direct Connect with CR suffix | PAPLTD | 14 |
| | RS232 Serial Port | PAP232 | 14 |
| Plug and Play Codes:<br>RS485 | IBM Port 5B Interface | PAPP5B | 14 |
| | IBM Port 9B HHBCR-1 Interface | PAP9B1 | 14 |
| | IBM Port 17 Interface | PAPP17 | 14 |
| | IBM Port 9B HHBCR-2 Interface | PAP9B2 | 15 |
| | RS485 Packet Mode On | RTLPDF1 | 15 |
| | RS485 Packet Mode Off | RTLPDF0 | 15 |
| | RS485 Packet Length (20-256) | RTLMPS | 16 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| Plug and Play Codes: IBM SurePos | USB IBM SurePos Handheld | PAPSPH | 16 |
| | USB IBM SurePos Tabletop | PAPSPT | 16 |
| Plug and Play Codes: USB | USB Keyboard (PC) | PAP124 | 16 |
| | USB Keyboard (Mac) | PAP125 | 17 |
| | USB Japanese Keyboard (PC) | TRMUSB134 | 17 |
| | USB HID | PAP131 | 17 |
| | USB Serial | TRMUSB130 | 17 |
| | CTS/RTS Emulation On | USBCTS1 | 17 |
| | CTS/RTS Emulation Off* | USBCTS0 | 17 |
| | ACK/NAK Mode On | USBACK1 | 18 |
| | ACK/NAK Mode Off* | USBACK0 | 18 |
| Plug and Play Codes | Verifone Ruby Terminal | PAPRBY | 18 |
| | Gilbarco Terminal | PAPGLB | 18 |
| | Wincor Nixdorf Terminal | PAPWNX | 19 |
| | Wincor Nixdorf Beetle | PAPBTL | 19 |
| | Wincor Nixdorf RS232 Mode A | PAPWMA | |
| Program Keyboard Country | *U.S.A. | KBDCTY0 | 20 |
| | Albania | KBDCTY35 | 20 |
| | Azeri (Cyrillic) | KBDCTY81 | 20 |
| | Azeri (Latin) | KBDCTY80 | 20 |
| | Belarus | KBDCTY82 | 20 |
| | Belgium | KBDCTY1 | 20 |
| | Bosnia | KBDCTY33 | 20 |
| | Brazil | KBDCTY16 | 20 |
| | Brazil (MS) | KBDCTY59 | 21 |
| | Bulgaria (Cyrillic) | KBDCTY52 | 21 |
| | Bulgaria (Latin) | KBDCTY53 | 21 |
| | Canada (French legacy) | KBDCTY54 | 21 |
| | Canada (French) | KBDCTY18 | 21 |
| | Canada (Multilingual) | KBDCTY55 | 21 |
| | Croatia | KBDCTY32 | 21 |
| | Czech | KBDCTY15 | 21 |
| | Czech (Programmers) | KBDCTY40 | 21 |
| | Czech (QWERTY) | KBDCTY39 | 21 |
| | Czech (QWERTZ) | KBDCTY38 | 21 |
| | Denmark | KBDCTY8 | 21 |
| | Dutch (Netherlands) | KBDCTY11 | 22 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric<br>entry | Page |
|---|---|---|---|
| | Estonia | KBDCTY41 | 22 |
| | Faroese | KBDCTY83 | 22 |
| | Finland | KBDCTY2 | 22 |
| | France | KBDCTY3 | 22 |
| | Gaelic | KBDCTY84 | 22 |
| | Germany | KBDCTY4 | 22 |
| | Greek | KBDCTY17 | 22 |
| | Greek (220 Latin) | KBDCTY64 | 22 |
| | Greek (220) | KBDCTY61 | 22 |
| | Greek (319 Latin) | KBDCTY65 | 22 |
| | Greek (319) | KBDCTY62 | 22 |
| | Greek (Latin) | KBDCTY63 | 23 |
| | Greek (MS) | KBDCTY66 | 23 |
| | Greek (Polytonic) | KBDCTY60 | 23 |
| | Hebrew | KBDCTY12 | 23 |
| | Hungarian (101 key) | KBDCTY50 | 23 |
| | Hungary | KBDCTY19 | 23 |
| | Iceland | KBDCTY75 | 23 |
| | Irish | KBDCTY73 | 23 |
| | Italian (142) | KBDCTY56 | 23 |
| | Italy | KBDCTY5 | 23 |
| | Japan ASCII | KBDCTY28 | 23 |
| | Kazakh | KBDCTY78 | 23 |
| | Kyrgyz (Cyrillic) | KBDCTY79 | 24 |
| | Latin America | KBDCTY14 | 24 |
| | Latvia | KBDCTY42 | 24 |
| | Latvia (QWERTY) | KBDCTY43 | 24 |
| | Lithuania | KBDCTY44 | 24 |
| | Lithuania (IBM) | KBDCTY45 | 24 |
| | Macedonia | KBDCTY34 | 24 |
| | Malta | KBDCTY74 | 24 |
| | Mongolian (Cyrillic) | KBDCTY86 | 24 |
| | Norway | KBDCTY9 | 24 |
| | Poland | KBDCTY20 | 24 |
| | Polish (214) | KBDCTY57 | 24 |
| | Polish (Programmers) | KBDCTY58 | 25 |
| | Portugal | KBDCTY13 | 25 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| | Romania | KBDCTY25 | 25 |
| | Russia | KBDCTY26 | 25 |
| | Russian (MS) | KBDCTY67 | 25 |
| | Russian (Typewriter) | KBDCTY68 | 25 |
| | SCS | KBDCTY21 | 25 |
| | Serbia (Cyrillic) | KBDCTY37 | 25 |
| | Serbia (Latin) | KBDCTY36 | 25 |
| | Slovakia | KBDCTY22 | 25 |
| | Slovakia (QWERTY) | KBDCTY49 | 25 |
| | Slovakia (QWERTZ) | KBDCTY48 | 25 |
| | Slovenia | KBDCTY31 | 26 |
| | Spain | KBDCTY10 | 26 |
| | Spanish variation | KBDCTY51 | 26 |
| | Sweden | KBDCTY23 | 26 |
| | Switzerland (French) | KBDCTY29 | 26 |
| | Switzerland (German) | KBDCTY6 | 26 |
| | Tatar | KBDCTY85 | 26 |
| | Turkey F | KBDCTY27 | 26 |
| | Turkey Q | KBDCTY24 | 26 |
| | Ukrainian | KBDCTY76 | 26 |
| | United Kingdom | KBDCTY7 | 26 |
| | United Stated (Dvorak right) | KBDCTY89 | 27 |
| | United States (Dvorak left) | KBDCTY88 | 27 |
| | United States (Dvorak) | KBDCTY87 | 26 |
| | United States (International) | KBDCTY30 | 27 |
| | Uzbek (Cyrillic) | KBDCTY77 | 27 |
| Keyboard Conversion | *Keyboard Conversion Off | KBDCNV0 | 28 |
| | Convert all Characters to Upper Case | KBDCNV1 | 29 |
| | Convert all Characters to Lower Case | KBDCNV2 | 29 |
| Keyboard Style | *Regular | KBDSTY0 | 27 |
| | Caps Lock | KBDSTY1 | 27 |
| | Shift Lock | KBDSTY2 | 27 |
| | Automatic Caps Lock | KBDSTY6 | 28 |
| | Emulate External Keyboard | KBDSTY5 | 28 |
| Control Character Output | *Control Character Output Off | KBDNPE0 | 29 |
| | *Control Character Output On | KBDNPE1 | 29 |
| Keyboard Modifiers | *Control + X Off | KBDCAS0 | 30 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| | DOS Mode Control + X | KBDCAS1 | 30 |
| | Windows Mode Control + X | KBDCAS2 | 30 |
| | Windows Mode Prefix/Suffix Off | KBDCAS3 | 30 |
| | *Turbo Mode Off | KBDTMD0 | 30 |
| | Turbo Mode On | KBDTMD1 | 30 |
| | *Numeric Keypad Off | KBDNPS0 | 30 |
| | Numeric Keypad On | KBDNPS1 | 30 |
| | *Auto Direct Connect Off<br>(Not supported on the Solaris 7990g) | KBDADC0 | 31 |
| | Auto Direct Connect On<br>(Not supported on the Solaris 7990g) | KBDADC1 | 31 |
| Baud Rate | 300 BPS | 232BAD0 | 31 |
| | 600 BPS | 232BAD1 | 31 |
| | 1200 BPS | 232BAD2 | 31 |
| | 2400 BPS | 232BAD3 | 31 |
| | 4800 BPS | 232BAD4 | 31 |
| | 9600 BPS | 232BAD5 | 32 |
| | 19200 BPS | 232BAD6 | 31 |
| | 38400 BPS | 232BAD7 | 32 |
| | 57600 BPS | 232BAD8 | 32 |
| | *115200 BPS | 232BAD9 | 32 |
| Word Length: Data Bits, Stop Bits, and Parity | 7 Data, 1 Stop, Parity Even | 232WRD3 | 32 |
| | 7 Data, 1 Stop, Parity None | 232WRD0 | 32 |
| | 7 Data, 1 Stop, Parity Odd | 232WRD6 | 32 |
| | 7 Data, 2 Stop, Parity Even | 232WRD4 | 32 |
| | 7 Data, 2 Stop, Parity None | 232WRD1 | 32 |
| | 7 Data, 2 Stop, Parity Odd | 232WRD7 | 32 |
| | 8 Data, 1 Stop, Parity Even | 232WRD5 | 33 |
| | *8 Data, 1 Stop, Parity None | 232WRD2 | 33 |
| | 8 Data, 1 Stop, Parity Odd | 232WRD8 | 33 |
| | 8 Data, 1 Stop, Parity Mark | 232WRD14 | 33 |
| RS232 Receiver Time-out | Range 0 - 300 seconds | 232LPT### | 33 |
| RS232 Handshaking | *RTS/CTS Off | 232CTS0 | 34 |
| | Flow Control, No Timeout | 232CTS1 | 34 |
| | Two-Direction Flow Control | 232CTS2 | 34 |
| | Flow Control with Timeout | 232CTS3 | 34 |
| | RS232 Timeout | 232DEL#### | 34 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| | *XON/XOFF Off | 232XON0 | 34 |
| | XON/XOFF On | 232XON1 | 34 |
| | *ACK/NAK Off | 232ACK0 | 35 |
| | ACK/NAK On | 232ACK1 | 35 |
| **Input/Output Selections** | | | |
| Power Up Beeper | Power Up Beeper Off - Scanner | BEPPWR0 | 37 |
| | *Power Up Beeper On - Scanner | BEPPWR1 | 37 |
| Beep on BEL Character | Beep on BEL On | BELBEP1 | 37 |
| | *Beep on BEL Off | BELBEP0 | 37 |
| Beeper - Good Read | Off | BEPBEP0 | 38 |
| | *On | BEPBEP1 | 38 |
| Beeper Volume - Good Read | Off | BEPLVL0 | 38 |
| | Low | BEPLVL1 | 38 |
| | Medium | BEPLVL2 | 38 |
| | *High | BEPLVL3 | 38 |
| Beeper Pitch - Good Read (Frequency) | *Low (870) (min 400Hz) | BEPFQ1870 | 38 |
| | Medium (1140 Hz) | BEPFQ11140 | 38 |
| | High (1800) (max 9000Hz) | BEPFQ11800 | 38 |
| Beeper Pitch - Error (Frequency) | *Razz (250) (min 200Hz) | BEPFQ2800 | 39 |
| | Medium (3250) | BEPFQ23250 | 39 |
| | High (4200) (max 9000Hz) | BEPFQ24200 | 39 |
| Beeper Duration - Good Read | *Normal Beep | BEPBIP0 | 39 |
| | Short Beep | BEPBIP1 | 39 |
| LED - Good Read | Off | BEPLED0 | 40 |
| | *On | BEPLED1 | 40 |
| Number of Beeps - Error | *5 | BEPERR3 | 40 |
| | Range 1 - 9 | BEPERR# | 40 |
| Number of Beeps - Good Read | *1 | BEPRPT1 | 40 |
| | Range 1 - 9 | BEPRPT# | 40 |
| Beeper Volume Max | Beeper Volume Max | PAPBLM | 40 |
| Good Read Delay | *No Delay | DLYGRD0 | 41 |
| | Short Delay (500 ms) | DLYGRD500 | 41 |
| | Medium Delay (1000 ms) | DLYGRD1000 | 41 |
| | Long Delay (1500 ms) | DLYGRD1500 | 41 |
| User-Specified Good Read Delay | Range 0 - 30,000 ms | DLYGRD##### | 41 |
| Serial Trigger Mode | Read Time-Out<br>(0 - 300,000 ms) *30,000 | TRGSTO#### | 41 |
| Presentation Mode | *Presentation Mode | TRGMOD3 | 42 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| Presentation Idle Mode | Presentation Idle Mode (0-3,000,000) *10,000 (10s) | TRGPMT### | 42 |
| | Off | TRGPMT0 | 42 |
| Presentation Sleep Mode | *On | TRGTSI1 | 43 |
| | Off | TRGTSI0 | 43 |
| | Timeout (0-3,600,000) *300,000 (300s) | TRGTST | 43 |
| LED Illumination - Presentation Mode (Solaris 7980g only) | Off | PWRLDC0 | 44 |
| | Low | PWRLDC100 | 44 |
| | *High | PWRLDC150 | 44 |
| LED Illumination - Presentation Mode (Solaris 7990g only) | Off | PWRNOL0 | 44 |
| | Low | PWRNOL100 | 44 |
| | *High | PWRNOL150 | 44 |
| Presentation LED Behavior After Decode | *LEDs On | TRGPCK1 | 45 |
| | LEDs Off | TRGPCK0 | 45 |
| Presentation Sensitivity | Range 0-20 (*1) | TRGPMS## | 45 |
| Presentation Centering Window | Presentation Centering On | PDCWIN1 | 46 |
| | *Presentation Centering Off | PDCWIN0 | 46 |
| | Left of Presentation Centering Window (*40%) | PDCLFT### | 47 |
| | Right of Presentation Centering Window (*60%) | PDCRGT### | 47 |
| | Top of Presentation Centering Window (*40%) | PDCTOP### | 46 |
| | Bottom of Presentation Centering Window (*60%) | PDCBOT### | 47 |
| Streaming Presentation | Streaming Presentation Mode - Normal | PAPSPN | 47 |
| | Streaming Presentation Mode - Enhanced | PAPSPE | 47 |
| Mobile Phone Read Mode | Presentation - Mobile Phone | PAPPSC | 47 |
| Poor Quality PDF Codes | Poor Quality PDF Reading On | PDFXPR1 | 48 |
| | *Poor Quality PDF Reading Off | PDFXPR0 | 48 |
| Poor Quality Code Enhanced Mode | Poor Quality Code Enhanced Mode | PAPPSP | 48 |
| Reread Delay | *Short (500 ms) | DLYRRD500 | 48 |
| | Medium (750 ms) | DLYRRD750 | 48 |
| | Long (1000 ms) | DLYRRD1000 | 49 |
| | Extra Long (2000 ms) | DLYRRD2000 | 48 |
| User-Specified | Range 0 - 30,000 ms | DLYRRD##### | 49 |
| Illumination Lights | *Lights On | SCNLED1 | 49 |
| | Lights Off | SCNLED0 | 49 |
| Centering Window | Centering On | DECWIN1 | 50 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| | *Centering Off | DECWIN0 | 50 |
| | Left of Centering Window (*40%) | DECLFT### | 51 |
| | Right of Centering Window (*60%) | DECRGT### | 51 |
| | Top of Centering Window (*40%) | DECTOP### | 51 |
| | Bottom of Centering Window (*60%) | DECBOT### | 51 |
| Preferred Symbology | On | PRFENA1 | 51 |
| | *Off | PRFENA0 | 52 |
| | High Priority Symbology | PRFCOD## | 52 |
| | Low Priority Symbology | PRFBLK## | 52 |
| | Preferred Symbology Timeout (*500) Range 100-3000 | PRFPTO#### | 52 |
| | Preferred Symbology Default | PRFDFT | 53 |
| Character Activation Mode | *Off | HSTCEN0 | 53 |
| | On | HSTCEN1 | 53 |
| | Activation Character | HSTACH## | 53 |
| | Do Not End Character Activation After Good Read | HSTCGD0 | 53 |
| | End Character Activation After Good Read | HSTCGD1 | 53 |
| | Character Activation Led Timeout (Range 1 - 65535) *5000 ms | HSTCDT##### | 54 |
| Character Deactivation Mode | *Off | HSTDEN0 | 54 |
| | On | HSTDEN1 | 54 |
| | Deactivation Character | HSTDCH## | 54 |
| Output Sequence Editor | Enter Sequence | SEQBLK | 59 |
| | *Discard Partial Sequence | SEQTTS0 | 61 |
| | Default Sequence | SEQDFT | 61 |
| Require Output Sequence | Required | SEQ_EN2 | 61 |
| | On/Not Required | SEQ_EN1 | 62 |
| | *Off | SEQ_EN0 | 62 |
| No Read | On | SHWNRD1 | 62 |
| | *Off | SHWNRD0 | 62 |
| Video Reverse | Video Reverse Only | VIDREV1 | 62 |
| | Video Reverse and Standard Barcodes | VIDREV2 | 63 |
| | *Video Reverse Off | VIDREV0 | 63 |
| Working Orientation | *Upright | ROTATN0 | 63 |
| | Vertical, Bottom to Top (Rotate CCW 90°) | ROTATN1 | 63 |
| | Upside Down | ROTATN2 | 63 |
| | Vertical, Top to Bottom (Rotate CW 90°) | ROTATN3 | 64 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| **Prefix/Suffix Selections** | | | |
| Add CR Suffix to All Symbologies | | VSUFCR | 67 |
| Prefix | Add Prefix | PREBK2## | 67 |
| | Clear One Prefix | PRECL2 | 67 |
| | Clear All Prefixes | PRECA2 | 67 |
| Suffix | Add Suffix | SUFBK2## | 67 |
| | Clear One Suffix | SUFCL2 | 67 |
| | Clear All Suffixes | SUFCA2 | 67 |
| Function Code Transmit | *Enable | RMVFNC0 | 68 |
| | Disable | RMVFNC1 | 68 |
| Intercharacter Delay | Range 0 - 1000 (5ms increments) | DLYCHR## | 68 |
| User Specified<br>Intercharacter Delay | Delay Length<br>0 - 1000 (5ms increments) | DLYCRX## | 69 |
| | Character to Trigger Delay | DLY_XX## | 69 |
| Interfunction Delay | Range 0 - 1000 (5ms increments) | DLYFNC## | 69 |
| Intermessage Delay | Range 0 - 1000 (5ms increments) | DLYMSG## | 70 |
| **Data Format Selections** | | | |
| Data Format Editor | *Default Data Format (None) | DFMDF3 | 72 |
| | Enter Data Format | DFMBK3## | 73 |
| | Clear One Data Format | DFMCL3 | 73 |
| | Clear All Data Formats | DFMCA3 | 73 |
| Data Formatter | Data Formatter Off | DFM_EN0 | 87 |
| | *Data Formatter On,<br>Not Required,<br>Keep Prefix/Suffix | DFM_EN1 | 87 |
| | Data Format Required,<br>Keep Prefix/Suffix | DFM_EN2 | 88 |
| | Data Formatter On,<br>Not Required,<br>Drop Prefix/Suffix | DFM_EN3 | 87 |
| | Data Format Required,<br>Drop Prefix/Suffix | DFM_EN4 | 88 |
| Data Format Non-Match Error Tone | *Data Format Non-Match Error Tone On | DFMDEC0 | 88 |
| | Data Format Non-Match Error Tone Off | DFMDEC1 | 88 |
| Primary/Alternate Data Formats | Primary Data Format | ALTFNM0 | 88 |
| | Data Format 1 | ALTFNM1 | 88 |
| | Data Format 2 | ALTFNM2 | 89 |
| | Data Format 3 | ALTFNM3 | 89 |
| Single Scan Data Format Change | Single Scan-Primary Data Format | VSAF_0 | 89 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| | Single Scan-Data Format 1 | VSAF_1 | 89 |
| | Single Scan-Data Format 2 | VSAF_2 | 89 |
| | Single Scan-Data Format 3 | VSAF_3 | 89 |
| **Symbologies** | | | |
| All Symbologies | All Symbologies Off | ALLENA0 | 92 |
| Codabar | Default All Codabar Settings | CBRDFT | 92 |
| | **\***On | CBRENA1 | 92 |
| | Off | CBRENA0 | 93 |
| Codabar Start/Stop Char. | **\***Don't Transmit | CBRSSX0 | 93 |
| | Transmit | CBRSSX1 | 93 |
| Codabar Check Char. | **\***No Check Char. | CBRCK20 | 93 |
| | Validate, But Don't Transmit | CBRCK21 | 93 |
| | Validate, and Transmit | CBRCK22 | 94 |
| Codabar Concatenation | *Off | CBRCCT0 | 94 |
| | On | CBRCCT1 | 94 |
| | Require | CBRCCT2 | 94 |
| Codabar Redundancy | Range (0 - 10) *0 | CBRVOT## | 94 |
| Codabar Message Length | Minimum (2 - 60)  *4 | CBRMIN## | 95 |
| | Maximum (2 - 60)  *60 | CBRMAX## | 95 |
| Code 39 | Default All Code 39 Settings | C39DFT | 95 |
| | Off | C39ENA0 | 96 |
| | *On | C39ENA1 | 95 |
| Suppress Code 39 | Suppress Code 39 | C39SCC1 | 95 |
| | Do Not Suppress Code 39 | C39SCC0 | 95 |
| Code 39 Start/Stop Char. | **\***Don't Transmit | C39SSX0 | 96 |
| | Transmit | C39SSX1 | 96 |
| Code 39 Check Char. | **\***No Check Char. | C39CK20 | 96 |
| | Validate, But Don't Transmit | C39CK21 | 96 |
| | Validate, and Transmit | C39CK22 | 96 |
| Code 39 Message Length | Minimum (0 - 48)  *0 | C39MIN## | 97 |
| | Maximum (0 - 48) *48 | C39MAX## | 97 |
| Code 39 Append | *Off | C39APP0 | 97 |
| | On | C39APP1 | 97 |
| Code 39 Redundancy | Range (0 - 10) *0 | C39VOT## | 97 |
| Code 32 Pharmaceutical (PARAF) | *Off | C39B320 | 98 |
| | On | C39B321 | 98 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric<br>entry | Page |
|---|---|---|---|
| Code 39 Full ASCII | *Off | C39ASC0 | 99 |
| | On | C39ASC1 | 99 |
| | Code 39 Code Page | C39DCP | 99 |
| Interleaved 2 of 5 | Default All Interleaved 2 of 5 Settings | I25DFT | 99 |
| | Off | I25ENA0 | 99 |
| | *On | I25ENA1 | 99 |
| Interleaved 2 of 5 Check Digit | **No Check Char. | I25CK20 | 100 |
| | Validate, But Don't Transmit | I25CK21 | 100 |
| | Validate, and Transmit | I25CK22 | 100 |
| Interleaved 2 of 5 Redundancy | Range (0 – 10) *0 | I25VOT## | 100 |
| Interleaved 2 of 5 Message Length | Minimum (2 – 80) *4 | I25MIN## | 100 |
| | Maximum (2 – 80) *80 | I25MAX## | 101 |
| NEC 2 of 5 | Default All NEC 2 of 5 Settings | N25DFT | 101 |
| | Off | N25ENA0 | 101 |
| | *On | N25ENA1 | 101 |
| NEC 2 of 5 Check Digit | **No Check Char. | N25CK20 | 101 |
| | Validate, But Don't Transmit | N25CK21 | 101 |
| | Validate, and Transmit | N25CK22 | 102 |
| NEC 2 of 5 Message Length | Minimum (2 – 80) *4 | N25MIN## | 102 |
| | Maximum (2 – 80) *80 | N25MAX## | 102 |
| Code 93 | Default All Code 93<br>Settings | C93DFT | 102 |
| | Off | C93ENA0 | 102 |
| | *On | C93ENA1 | 104 |
| Code 93 Message Length | Minimum (0 – 80) *0 | C93MIN## | 103 |
| | Maximum (0 – 80) *80 | C93MAX## | 103 |
| Code 93 Append | On | C93APP1 | 103 |
| | *Off | C93APP0 | 103 |
| Code 93 Code Page | Code 93 Code Page | C93DCP | 103 |
| Straight 2 of 5 Industrial | Default All Straight 2 of 5 Industrial<br>Settings | R25DFT | 104 |
| | *Off | R25ENA0 | 104 |
| | On | R25ENA1 | 104 |
| Straight 2 of 5 Industrial Message<br>Length | Minimum (1 – 48) *4 | R25MIN## | 104 |
| | Maximum (1 – 48) *48 | R25MAX## | 104 |
| Straight 2 of 5 IATA | Default All Straight 2 of 5 IATA Settings | A25DFT | 104 |
| | *Off | A25ENA0 | 105 |
| | On | A25ENA1 | 105 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| Straight 2 of 5 IATA Redundancy | Range (0 – 10) *0 | A25VOT## | 105 |
| Straight 2 of 5 IATA Message Length | Minimum (1 – 48) *4 | A25MIN## | 105 |
| | Maximum (1 – 48) *48 | A25MAX## | 105 |
| Matrix 2 of 5 | Default All Matrix 2 of 5 Settings | X25DFT | 106 |
| | *Off | X25ENA0 | 106 |
| | On | X25ENA1 | 106 |
| Matrix 2 of 5 Message Length | Minimum (1 – 80) *4 | X25MIN## | 106 |
| | Maximum (1 – 80) *80 | X25MAX## | 106 |
| Code 11 | Default All Code 11 Settings | C11DFT | 106 |
| | *Off | C11ENA0 | 107 |
| | On | C11ENA1 | 107 |
| Code 11 Check Digits Required | 1 Check Digit | C11CK20 | 107 |
| | *2 Check Digits | C11CK21 | 107 |
| Code 11 Message Length | Minimum (1 – 80) *4 | C11MIN## | 107 |
| | Maximum (1 – 80) *80 | C11MAX## | 107 |
| Code 128 | Default All Code 128 Settings | 128DFT | 107 |
| | Off | 128ENA0 | 108 |
| | *On | 128ENA1 | 108 |
| ISBT 128 Concatenation | *Off | ISBENA0 | 108 |
| | On | ISBENA1 | 108 |
| Code 128 Redundancy | Range (0 – 10) *0 | 128VOT## | 109 |
| Code 128 Message Length | Minimum (0 – 80) *0 | 128MIN## | 109 |
| | Maximum (0 – 80) *80 | 128MAX## | 109 |
| Code 128 Append | *On | 128APP1 | 108 |
| | Off | 128APP0 | 109 |
| Code 128 Code Page | Code 128 Code Page (*2) | 128DCP## | 110 |
| GS1-128 | Default All GS1-128 Settings | GS1DFT | 110 |
| | *On | GS1ENA1 | 110 |
| | Off | GS1ENA0 | 110 |
| GS1-128 Message Length | Minimum (1 – 80) *1 | GS1MIN## | 110 |
| | Maximum (0 – 80) *80 | GS1MAX## | 110 |
| Telepen | Default All Telepen Settings | TELDFT | 111 |
| | *Off | TELENA0 | 111 |
| | On | TELENA1 | 111 |
| Telepen Output | *AIM Telepen Output | TELOLD0 | 111 |
| | Original Telepen Output | TELOLD1 | 111 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| Telepen Message Length | Minimum (1 – 60)  *1 | TELMIN## | 111 |
| | Maximum (1 – 60)  *60 | TELMAX## | 112 |
| UPC-A | Default All UPC–A Settings | UPADFT | 112 |
| | Off | UPBENA0 | 112 |
| | *On | UPBENA1 | 112 |
| UPC–A Check Digit | Off | UPACKX0 | 112 |
| | *On | UPACKX1 | 112 |
| UPC–A Number System | Off | UPANSX0 | 113 |
| | *On | UPANSX1 | 113 |
| UPC–A 2 Digit Addenda | *Off | UPAAD20 | 113 |
| | On | UPAAD21 | 113 |
| UPC–A 5 Digit Addenda | *Off | UPAAD50 | 113 |
| | On | UPAAD51 | 113 |
| UPC–A Addenda Required | *Not Required | UPAARQ0 | 114 |
| | Required | UPAARQ1 | 113 |
| Addenda Timeout | Range (0 – 500) *120 | DLYADD### | 114 |
| UPC–A Addenda Separator | Off | UPAADS0 | 114 |
| | *On | UPAADS1 | 114 |
| UPC–A/EAN–13 with Extended Coupon Code | *Off | CPNENA0 | 115 |
| | Allow Concatenation | CPNENA1 | 115 |
| | Require Concatenation | CPNENA2 | 115 |
| Coupon GS1 DataBar Output | GS1 Output Off | CPNGS10 | 115 |
| | GS1 Output On | CPNGS11 | 115 |
| UPC-E0 | Default All UPC–E Settings | UPEDFT | 115 |
| | Off | UPEEN00 | 116 |
| | *On | UPEEN01 | 116 |
| UPC-E0 Expand | *Off | UPEEXP0 | 116 |
| | On | UPEEXP1 | 116 |
| UPC-E0 Addenda Required | Required | UPEARQ1 | 116 |
| | *Not Required | UPEARQ0 | 116 |
| Addenda Timeout | Range (0 – 500) *120 | DLYADD### | 117 |
| UPC-E0 Addenda Separator | *On | UPEADS1 | 117 |
| | Off | UPEADS0 | 117 |
| UPC-E0 Check Digit | Off | UPECKX0 | 117 |
| | *On | UPECKX1 | 117 |
| UPC-E0 Leading Zero | Off | UPENSX0 | 118 |
| | *On | UPENSX1 | 118 |

| Selection | Setting * Indicates default | Serial Command # Indicates a numeric entry | Page |
|---|---|---|---|
| UPC-E0 Addenda | 2 Digit Addenda On | UPEAD21 | 118 |
| | *2 Digit Addenda Off | UPEAD20 | 118 |
| | 5 Digit Addenda On | UPEAD51 | 118 |
| | *5 Digit Addenda Off | UPEAD50 | 118 |
| UPC-E1 | *Off | UPEEN10 | 119 |
| | On | UPEEN11 | 118 |
| EAN/JAN-13 | Default All EAN/JAN Settings | E13DFT | 119 |
| | Off | E13ENA0 | 119 |
| | *On | E13ENA1 | 119 |
| Convert UPC-A to EAN-13 | UPC-A Converted to EAN-13 | UPAENA0 | 119 |
| | Do not Convert UPC-A | UPAENA1 | 119 |
| EAN/JAN-13 Check Digit | Off | E13CKX0 | 120 |
| | *On | E13CKX1 | 119 |
| EAN/JAN-13 2 Digit Addenda | 2 Digit Addenda On | E13AD21 | 120 |
| | *2 Digit Addenda Off | E13AD20 | 120 |
| | 5 Digit Addenda On | E13AD51 | 120 |
| | *5 Digit Addenda Off | E13AD50 | 120 |
| EAN/JAN-13 Addenda Required | *Not Required | E13ARQ0 | 120 |
| | Required | E13ARQ1 | 120 |
| EAN-13 Beginning with 290 Addenda Required | * Don't Require 5 Digit Addenda | ARQ2900 | 121 |
| | Require 5 Digit Addenda | ARQ2901 | 121 |
| EAN-13 Beginning with 378/379 Addenda Required | *Don't Require Addenda | ARQ3780 | 121 |
| | Require 2 Digit Addenda | ARQ3781 | 121 |
| | Require 5 Digit Addenda | ARQ3782 | 121 |
| | Require 2 or 5 Digit Addenda | ARQ3783 | 121 |
| EAN-13 Beginning with 414/419 Addenda Required | *Don't Require Addenda | ARQ4140 | 122 |
| | Require 2 Digit Addenda | ARQ4141 | 122 |
| | Require 5 Digit Addenda | ARQ4142 | 122 |
| | Require 2 or 5 Digit Addenda | ARQ4143 | 122 |
| EAN-13 Beginning with 977 Addenda Required | *Don't Require 2 Digit Addenda | ARQ9770 | 123 |
| | Require 2 Digit Addenda | ARQ9771 | 122 |
| EAN-13 Beginning with 978 Addenda Required | *Don't Require 5 Digit Addenda | ARQ9780 | 123 |
| | Require 5 Digit Addenda | ARQ9781 | 124 |
| EAN-13 Beginning with 979 Addenda Required | *Don't Require 5 Digit Addenda | ARQ9790 | 124 |
| | Require 5 Digit Addenda | ARQ9791 | 124 |
| Addenda Timeout | Range (0 - 500) *120 | DLYADD### | 124 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| EAN/JAN-13 Addenda Separator | Off | E13ADS0 | 125 |
| | *On | E13ADS1 | 125 |
| ISBN Translate | *Off | E13ISB0 | 125 |
| | On | E13ISB1 | 125 |
| EAN/JAN-8 | Default All EAN/JAN 8 Settings | EA8DFT | 125 |
| | Off | EA8ENA0 | 126 |
| | *On | EA8ENA1 | 125 |
| EAN/JAN-8 Check Digit | Off | EA8CKX0 | 126 |
| | *On | EA8CKX1 | 125 |
| EAN/JAN-8 Addenda | *2 Digit Addenda Off | EA8AD20 | 126 |
| | 2 Digit Addenda On | EA8AD21 | 126 |
| | *5 Digit Addenda Off | EA8AD50 | 126 |
| | 5 Digit Addenda On | EA8AD51 | 126 |
| EAN/JAN-8 Addenda Required | *Not Required | EA8ARQ0 | 127 |
| | Required | EA8ARQ1 | 127 |
| Addenda Timeout | Range (0 - 500) *120 | DLYADD### | 127 |
| EAN/JAN-8 Addenda Separator | Off | EA8ADS0 | 127 |
| | *On | EA8ADS1 | 127 |
| MSI | Default All MSI Settings | MSIDFT | 128 |
| | *Off | MSIENA0 | 128 |
| | On | MSIENA1 | 128 |
| MSI Check Character | *Validate Type 10, but Don't Transmit | MSICHK0 | 128 |
| | Validate Type 10 and Transmit | MSICHK1 | 128 |
| | Validate 2 Type 10 Chars, but Don't Transmit | MSICHK2 | 128 |
| | Validate 2 Type 10 Chars and Transmit | MSICHK3 | 129 |
| | Validate Type 11 then Type 10 Char, but Don't Transmit | MSICHK4 | 129 |
| | Validate Type 11 then Type 10 Char and Transmit | MSICHK5 | 129 |
| | Disable MSI Check Characters | MSICHK6 | 129 |
| MSI Message Length | Minimum (4 - 48) *4 | MSIMIN## | 129 |
| | Maximum (4 - 48) *48 | MSIMAX## | 129 |
| GS1 DataBar Omnidirectional | Default All GS1 DataBar Omnidirectional Settings | RSSDFT | 129 |
| | Off | RSSENA0 | 129 |
| | *On | RSSENA1 | 129 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| GS1 DataBar Limited | Default All GS1 DataBar Limited Settings | RSLDFT | 130 |
| | Off | RSLENA0 | 130 |
| | *On | RSLENA1 | 130 |
| GS1 DataBar Expanded | Default All GS1 DataBar Expanded Settings | RSEDFT | 130 |
| | Off | RSEENA0 | 130 |
| | *On | RSEENA1 | 130 |
| GS1 DataBar Expanded Msg. Length | Minimum (4 – 74) *4 | RSEMIN## | 131 |
| | Maximum (4 – 74) *74 | RSEMAX## | 131 |
| Trioptic Code | *Off | TRIENA0 | 131 |
| | On | TRIENA1 | 131 |
| Codablock A | Default All Codablock A Settings | CBADFT | 131 |
| | *Off | CBAENA0 | 132 |
| | On | CBAENA1 | 131 |
| Codablock A Msg. Length | Minimum (1 – 600) *1 | CBAMIN### | 132 |
| | Maximum (1 – 600) *600 | CBAMAX### | 132 |
| Codablock F | Default All Codablock F Settings | CBFDFT | 131 |
| | *Off | CBFENA0 | 132 |
| | On | CBFENA1 | 132 |
| Codablock F Msg. Length | Minimum (1 – 2048) *1 | CBFMIN#### | 133 |
| | Maximum (1 – 2048) *2048 | CBFMAX#### | 133 |
| Label Code | On | LBLENA1 | 133 |
| | * Off | LBLENA0 | 133 |
| PDF417 | Default All PDF417 Settings | PDFDFT | 133 |
| | *On | PDFENA1 | 133 |
| | Off | PDFENA0 | 133 |
| PDF417 Msg. Length | Minimum (1–2750) *1 | PDFMIN#### | 134 |
| | Maximum (1–2750) *2750 | PDFMAX#### | 134 |
| MacroPDF417 | *On | PDFMAC1 | 134 |
| | Off | PDFMAC0 | 134 |
| MicroPDF417 | Default All Micro PDF417 Settings | MPDDFT | 134 |
| | On | MPDENA1 | 135 |
| | *Off | MPDENA0 | 135 |
| MicroPDF417 Msg. Length | Minimum (1–366) *1 | MPDMIN### | 135 |
| | Maximum (1–366) *366 | MPDMAX### | 135 |
| GS1 Composite Codes | On | COMENA1 | 135 |
| | *Off | COMENA0 | 135 |

| Selection | Setting * Indicates default | Serial Command # Indicates a numeric entry | Page |
|---|---|---|---|
| UPC/EAN Version | On | COMUPC1 | 136 |
| | *Off | COMUPC0 | 136 |
| GS1 Composite Codes Msg. Length | Minimum (1-2435) *1 | COMMIN#### | 136 |
| | Maximum (1-2435) *2435 | COMMAX#### | 136 |
| GS1 Emulation | GS1-128 Emulation | EANEMU1 | 137 |
| | GS1 DataBar Emulation | EANEMU2 | 137 |
| | GS1 Code Expansion Off | EANEMU3 | 137 |
| | EAN8 to EAN13 Conversion | EANEMU4 | 137 |
| | *GS1 Emulation Off | EANEMU0 | 137 |
| TCIF Linked Code 39 | On | T39ENA1 | 137 |
| | *Off | T39ENA0 | 137 |
| QR Code | Default All QR Code Settings | QRCDFT | 143 |
| | *On | QRCENA1 | 138 |
| | Off | QRCENA0 | 138 |
| QR Code Msg. Length | Minimum (1-7089) *1 | QRCMIN#### | 138 |
| | Maximum (1-7089) *7089 | QRCMAX#### | 138 |
| QR Code Append | *One Scan | QRCAPP1 | 138 |
| | Swipe | QRCAPP2 | 138 |
| | Point and Shoot | QRCAPP3 | 138 |
| | Off | QRCAPP0 | 138 |
| QR Code Page | QR Code Page (*3) | QRCDCP## | 139 |
| Data Matrix | Default All Data Matrix Settings | IDMDFT | 140 |
| | *On | IDMENA1 | 140 |
| | Off | IDMENA0 | 140 |
| Data Matrix Msg. Length | Minimum (1-3116) *1 | IDMMIN#### | 140 |
| | Maximum (1-3116) *3116 | IDMMAX#### | 140 |
| Data Matrix Append | *On | IDMAPP1 | 140 |
| | Off | IDMAPP0 | 141 |
| Data Matrix Code Page | Data Matrix Code Page (*51) | IDMDCP## | 141 |
| MaxiCode | Default All MaxiCode Settings | MAXDFT | 141 |
| | On | MAXENA1 | 141 |
| | *Off | MAXENA0 | 141 |
| MaxiCode Msg. Length | Minimum (1-150) *1 | MAXMIN### | 142 |
| | Maximum (1-150) *150 | MAXMAX### | 142 |
| Aztec Code | Default All Aztec Code Settings | AZTDFT | 142 |
| | *On | AZTENA1 | 142 |
| | Off | AZTENA0 | 142 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| Aztec Code Msg. Length | Minimum (1-3832) *1 | AZTMIN#### | 142 |
| | Maximum (1-3832) *3832 | AZTMAX#### | 143 |
| Aztec Append | *On | AZTAPP1 | 143 |
| | Off | AZTAPP0 | 143 |
| Aztec Code Page | Aztec Code Page (*51) | AZTDCP## | 143 |
| Chinese Sensible (Han Xin) Code | Default All Han Xin Code Settings | HX_DFT | 143 |
| | On | HX_ENA1 | 144 |
| | *Off | HX_ENA0 | 144 |
| Chinese Sensible (Han Xin) Code Msg. Length | Minimum (1-7833) *1 | HX_MIN#### | 144 |
| | Maximum (1-7833) *7833 | HX_MAX#### | 144 |
| **Postal Codes – 2D** | | | |
| 2D Postal Codes | *Off | POSTAL0 | 144 |
| Single 2D Postal Codes | Australian Post On | POSTAL1 | 144 |
| | British Post On | POSTAL7 | 145 |
| | Canadian Post On | POSTAL30 | 145 |
| | Intelligent Mail Barcode On | POSTAL10 | 145 |
| | Japanese Post On | POSTAL3 | 145 |
| | KIX Post On | POSTAL4 | 145 |
| | Planet Code On | POSTAL5 | 145 |
| | Postal-4i On | POSTAL9 | 145 |
| | Postnet On | POSTAL6 | 145 |
| | Postnet with B and B' Fields On | POSTAL11 | 145 |
| | InfoMail On | POSTAL2 | 145 |
| Combination 2D Postal Codes | InfoMail and British Post On | POSTAL8 | 146 |
| | Intelligent Mail Barcode and Postnet with B and B' Fields On | POSTAL20 | 146 |
| | Postnet and Postal-4i On | POSTAL14 | 146 |
| | Postnet and Intelligent Mail Barcode On | POSTAL16 | 146 |
| | Postal-4i and Intelligent Mail Barcode On | POSTAL17 | 146 |
| | Postal-4i and Postnet with B and B' Fields On | POSTAL19 | 146 |
| | Planet and Postnet On | POSTAL12 | 146 |
| | Planet and Postnet with B and B' Fields On | POSTAL18 | 146 |
| | Planet and Postal-4i On | POSTAL13 | 146 |
| | Planet and Intelligent Mail Barcode On | POSTAL15 | 146 |
| | Planet, Postnet, and Postal-4i On | POSTAL21 | 147 |
| | Planet, Postnet, and Intelligent Mail Barcode On | POSTAL22 | 147 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| | Planet, Postal-4i, and Intelligent Mail Barcode On | POSTAL23 | 147 |
| | Postnet, Postal-4i, and Intelligent Mail Barcode On | POSTAL24 | 147 |
| | Planet, Postal-4i, and Postnet with B and B' Fields On | POSTAL25 | 147 |
| | Planet, Intelligent Mail Barcode, and Postnet with B and B' Fields On | POSTAL26 | 147 |
| | Postal-4i, Intelligent Mail Barcode, and Postnet with B and B' Fields On | POSTAL27 | 147 |
| | Planet, Postal-4i, Intelligent Mail Barcode, and Postnet On | POSTAL28 | 147 |
| | Planet, Postal-4i, Intelligent Mail Barcode, and Postnet with B and B' Fields On | POSTAL29 | 147 |
| Planet Code Check Digit | Transmit | PLNCKX1 | 148 |
| | *Don't Transmit | PLNCKX0 | 148 |
| Postnet Check Digit | Transmit | NETCKX1 | 148 |
| | *Don't Transmit | NETCKX0 | 148 |
| Australian Post Interpretation | Bar Output | AUSINT0 | 148 |
| | Numeric N Table | AUSINT1 | 149 |
| | Alphanumeric C Table | AUSINT2 | 149 |
| | Combination N and C Tables | AUSINT3 | 149 |
| **Postal Codes – Linear** | | | |
| China Post (Hong Kong 2 of 5) | Default All China Post (Hong Kong 2 of 5) Settings | CPCDFT | 149 |
| | *Off | CPCENA0 | 149 |
| | On | CPCENA1 | 149 |
| China Post (Hong Kong 2 of 5) Msg. Length | Minimum (2 - 80) *4 | CPCMIN## | 149 |
| | Maximum (2 - 80) *80 | CPCMAX## | 150 |
| Korea Post | Default All Korea Post Settings | KPCDFT | 150 |
| | *Off | KPCENA0 | 150 |
| | On | KPCENA1 | 150 |
| Korea Post Msg. Length | Minimum (2 - 80) *4 | KPCMIN## | 150 |
| | Maximum (2 - 80) *48 | KPCMAX## | 150 |
| Korea Post Check Digit | Transmit Check Digit | KPCCHK1 | 150 |
| | *Don't Transmit Check Digit | KPCCHK0 | 151 |
| **EAS Settings** | | | |
| EAS Deactivation Range | On | PDCPP123 | 153 |
| EAS Controller | *Off | EASTYP0 | 155 |
| | On | EASTYP1 | 155 |

| Selection | Setting * Indicates default | Serial Command # Indicates a numeric entry | Page |
|---|---|---|---|
| EAS Mode of Operation | *Interlocked | EASMOD0 | 155 |
| | Continuous on Enable | EASMOD1 | 156 |
| EAS Interlocked Duration Timeout | EASTIM (1-5000) *100ms | EASTIM##### | 156 |
| **Imaging Default Commands** | | | |
| Image Snap | Default all Imaging Commands | IMGDFT | 159 |
| | Imaging Style - Decoding | SNPSTY0 | 160 |
| | *Imaging Style - Photo | SNPSTY1 | 160 |
| | Imaging Style - Manual | SNPSTY2 | 160 |
| | Beeper On | SNPBEP1 | 160 |
| | *Beeper Off | SNPBEP0 | 160 |
| | *LED State - Off | SNPLED0 | 161 |
| | LED State - On | SNPLED1 | 161 |
| | Exposure (1-7874 microseconds) | SNPEXP | 161 |
| | *Gain - None | SNPGAN1 | 162 |
| | Gain - Medium | SNPGAN2 | 162 |
| | Gain - Heavy | SNPGAN4 | 162 |
| | Gain - Maximum | SNPGAN8 | 162 |
| | Target White Value (0-255) *125 | SNPWHT### | 163 |
| | Delta for Acceptance (0-255) *25 | SNPDEL### | 163 |
| | Update Tries (0-10) *6 | SNPTRY## | 163 |
| | Target Set Point Percentage (1-99) *50 | SNPPCT## | 163 |
| Image Ship | *Infinity Filter - Off | IMGINF0 | 164 |
| | Infinity Filter - On | IMGINF1 | 164 |
| | *Compensation Off | IMGCOR0 | 165 |
| | Compensation On | IMGCOR1 | 165 |
| | *Pixel Depth - 8 bits/pixel (grayscale) | IMGBPP8 | 165 |
| | Pixel Depth - 1 bit/pixel (B&W) | IMGBPP1 | 165 |
| | *Don't Sharpen Edges | IMGEDG0 | 165 |
| | Sharpen Edges (0-23) | IMGEDG## | 165 |
| | *File Format - JPEG | IMGFMT6 | 166 |
| | File Format - KIM | IMGFMT0 | 166 |
| | File Format - TIFF binary | IMGFMT1 | 166 |
| | File Format - TIFF binary group 4, compressed | IMGFMT2 | 166 |
| | File Format - TIFF grayscale | IMGFMT3 | 166 |
| | File Format - Uncompressed binary | IMGFMT4 | 166 |
| | File Format - Uncompressed grayscale | IMGFMT5 | 166 |
| | File Format - BMP | IMGFMT8 | 166 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric entry | Page |
|---|---|---|---|
| | *Histogram Stretch Off | IMGHIS0 | 166 |
| | Histogram Stretch On | IMGHIS1 | 166 |
| | *Noise Reduction Off | IMGFSP0 | 167 |
| | Noise Reduction On | IMGFSP1 | 167 |
| | Invert Image around X axis | IMGNVX1 | 167 |
| | Invert Image around Y axis | IMGNVY1 | 167 |
| | Rotate Image none | IMGROT0 | 168 |
| | Rotate Image 90° right | IMGROT1 | 168 |
| | Rotate Image 180° right | IMGROT2 | 168 |
| | Rotate Image 90° left | IMGROT3 | 168 |
| | JPEG Image Quality (0-100) *50 | IMGJQF### | 168 |
| | *Gamma Correction Off | IMGGAM0 | 169 |
| | Gamma Correction On (0-1000) | IMGGAM### | 169 |
| | Image Crop - Left (0-843) *0 | IMGWNL### | 169 |
| | Image Crop - Right (0-843) *843 | IMGWNR### | 169 |
| | Image Crop - Top (0-639) *0 | IMGWNT### | 169 |
| | Image Crop - Bottom (0-639) *639 | IMGWNB### | 170 |
| | Image Crop - Margin (1-238) *0 | IMGMAR### | 170 |
| | Protocol - None (raw) | IMGXFR0 | 170 |
| | Protocol - None (default USB) | IMGXFR2 | 170 |
| | Protocol - Hmodem Compressed | IMGXFR3 | 170 |
| | Protocol - Hmodem | IMGXFR4 | 170 |
| | Ship Every Pixel | IMGSUB1 | 171 |
| | Ship Every 2nd Pixel | IMGSUB2 | 171 |
| | Ship Every 3rd Pixel | IMGSUB3 | 171 |
| | *Document Image Filter Off | IMGUSH0 | 171 |
| | Document Image Filter On (0-255) | IMGUSH### | 171 |
| | *Don't Ship Histogram | IMGHST0 | 172 |
| | Ship Histogram | IMGHST1 | 172 |
| Image Size Compatibility | Force VGA Resolution | IMGVGA1 | 172 |
| | *Native Resolution | IMGVGA0 | 173 |
| Intelligent Signature Capture | Optimize On | DECBND1 | 173 |
| | *Optimize Off | DECBND0 | 173 |
| **Utilities** | | | |
| Add Code I.D. Prefix to All Symbologies (Temporary) | | PRECA2,BK2995C80! | 179 |
| Show Decoder Revision (Not supported on the Solaris 7990g.) | | REV_DR | 179 |
| Show Scan Driver Revision (Not supported on the Solaris 7990g.) | | REV_SD | 180 |

| Selection | Setting<br>* Indicates default | Serial Command<br># Indicates a numeric<br>entry | Page |
|---|---|---|---|
| Show Software Revision | | REVINF | 180 |
| Show Data Format | | DFMBK3? | 180 |
| Test Menu | On | TSTMNU1 | 180 |
| | *Off | TSTMNU0 | 180 |
| Application Plug-Ins (Apps) | *Decoding Apps On | PLGDCE1 | 181 |
| | Decoding Apps Off | PLGDCE0 | 181 |
| | *Formatting Apps On | PLGFOE1 | 181 |
| | Formatting Apps Off | PLGFOE0 | 181 |
| | List Apps | PLGINF | 181 |
| Resetting the Factory Defaults | Remove Custom Defaults | DEFOVR | 183 |
| | Activate Defaults | DEFALT | 183 |

# 12 PRODUCT SPECIFICATIONS

## Solaris 7980g Scanner Product Specifications

| Parameter | Specification |
|---|---|
| Dimensions (Typical): | |
| Height | 5.83 inches (148mm) |
| Width | 5.98 inches (152mm) |
| Depth | 3.34 inches (85mm) |
| Weight | 19 ounces (539g) |
| Illumination LED: | |
| Peak Wavelength | 2700K CCT (warm white LED) |
| Image Size | 1280 x 960 pixels |
| Skew Angle | ±75° |
| Pitch Angle | ±65° |
| Motion Tolerance: Presentation Mode | up to 118 inches per second (3.0 m/s) for 13 mil UPC |
| Symbol Contrast | Grade 1.0 (25% or greater) |
| Voltage Requirements | 5.2 ± 5% VDC at input connector |
| Current Draw: | |
| Operation | 400mA |
| Idle | 270mA |
| Sleep | 210mA |
| Power Supply Noise Rejection | Maximum 100mV peak to peak, 10 to 100 kHz |
| Temperature Ranges: | |
| Operating | +32°F to +104°F (0°C to 40°C) |
| Storage | -4°F to +140°F (-20°C to 60°C) |
| Humidity | 5 to 95% non-condensing |
| Mechanical Drop | Operational after 30 drops from 5 feet (1.5m) to concrete at 23°C |

| (Continued)Parameter | Specification |
| --- | --- |
| Side Impact | 5.8J energy after 18 hits |
| Vibration | Withstands 10G peak from 10 to 500Hz |
| IP Rating | IP 5X |
| ESD Tolerance | Up to 15kV direct air<br>Up to 8 kV indirect |

# Solaris 7990g Scanner Product Specifications

| Parameter | Specification |
| --- | --- |
| Dimensions (Typical): | |
|     Height | 5.83 inches (148mm) |
|     Width | 5.98 inches (152mm) |
|     Depth | 3.34 inches (85mm) |
|     Weight | 18.6 ounces (527g) |
| Illumination LED: | |
|     Peak Wavelength | 2700K CCT (warm white LED) |
| Image Size | 1280 x 800 pixels |
| Skew Angle | ±75° |
| Pitch Angle | ±65° |
| Motion Tolerance:<br>    Presentation Mode | up to 157 inches per second (4.0 m/s) for 13 mil UPC |
| Symbol Contrast | Grade 1.0 (20% or greater) |
| Voltage Requirements | 5.2 ± 5% VDC at input connector |
| Current Draw: | |
|     Operation | 400mA |
|     Idle | 275mA |
|     Sleep | 210mA |
| Power Supply Noise Rejection | Maximum 100mV peak to peak, 10 to 100 kHz |
| Temperature Ranges: | |
|     Operating | +32°F to +104°F (0°C to 40°C) |
|     Storage | –4°F to +140°F (–20°C to 60°C) |
| Humidity | 5 to 95% non-condensing |
| Side Impact | 5.8J energy after 18 hits |
| Vibration | Withstands 10G peak from 10 to 500Hz |
| IP Rating | IP 5X |
| ESD Tolerance | Up to 15kV direct air<br>Up to 8 kV indirect |

# Solaris 7980g Depth of Field Charts

## Typical Performance

| Focus | | Standard Range (SR) | |
|---|---|---|---|
| **Symbology** | | **Near Distance** | **Far Distance** |
| 5 mil Code 39 | in. | 0.4 | 5.5 |
| | mm | 10 | 140 |
| 6.7 mil PDF417 | in. | 0.8 | 5.5 |
| | mm | 20 | 140 |
| 13 mil UPC-A | in. | 0.0 | 10.6 |
| | mm | 0.0 | 270 |
| 20 mil Code 39 | in. | 0.0 | 11.8 |
| | mm | 0.0 | 300 |
| 20 mil Data Matrix | in. | 0.6 | 7.5 |
| | mm | 15 | 190 |
| 20 mil QR | in. | 0 | 7.5 |
| | mm | 0 | 190 |
| Resolution (1D Code 39) | | 3 mil (.076mm) | |
| Resolution (2D Data Matrix) | | 8.3 mil (.211mm) | |

## Guaranteed Performance

| Focus | | Standard Range (SR) | |
|---|---|---|---|
| **Symbology** | | **Near Distance** | **Far Distance** |
| 5 mil Code 39 | in. | 0.6 | 4.7 |
| | mm | 15 | 120 |
| 6.7 mil PDF417 | in. | 1.5 | 5.1 |
| | mm | 38 | 130 |
| 13 mil UPC-A | in. | 0.0 | 9.6 |
| | mm | 0.0 | 245 |
| 20 mil Code 39 | in. | 0.0 | 10.2 |
| | mm | 0.0 | 260 |
| 20 mil Data Matrix | in. | 1.1 | 6.3 |
| | mm | 27 | 160 |
| 20 mil QR | in. | 0.4 | 6.7 |
| | mm | 10 | 170 |

| Resolution (1D Code 39) | 3 mil (.076mm) |
|---|---|
| Resolution (2D Data Matrix) | 8.3 mil (.211mm) |

# Solaris 7990g Depth of Field Charts

## Typical Performance

| Focus | | Standard Range (SR) | |
|---|---|---|---|
| **Symbology** | | **Near Distance** | **Far Distance** |
| 5 mil Code 39 | in. | 0.4 | 5.5 |
| | mm | 10 | 140 |
| 6.7 mil PDF417 | in. | 0.0 | 5.1 |
| | mm | 0.0 | 130 |
| 13 mil UPC-A | in. | 0.0 | 10.6 |
| | mm | 0.0 | 270 |
| 20 mil Code 39 | in. | 0.0 | 11.8 |
| | mm | 0.0 | 300 |
| 20 mil Data Matrix | in. | 0.6 | 7.5 |
| | mm | 15 | 190 |
| 20 mil QR | in. | 0 | 7.5 |
| | mm | 0 | 190 |
| Resolution (1D Code 39) | | 3 mil (.076mm) | |
| Resolution (2D Data Matrix) | | 6.7 mil (.170mm) | |

# Guaranteed Performance

| Focus | | Standard Range (SR) | |
|---|---|---|---|
| **Symbology** | | **Near Distance** | **Far Distance** |
| 5 mil Code 39 | in. | 0.6 | 4.7 |
| | mm | 15 | 120 |
| 6.7 mil PDF417 | in. | 0.0 | 4.3 |
| | mm | 0.0 | 110 |
| 13 mil UPC-A | in. | 0.0 | 9.6 |
| | mm | 0.0 | 245 |
| 20 mil Code 39 | in. | 0.0 | 10.2 |
| | mm | 0.0 | 260 |
| 20 mil Data Matrix | in. | 1.1 | 6.3 |
| | mm | 27 | 160 |
| 20 mil QR | in. | 0.4 | 6.7 |
| | mm | 10 | 170 |
| Resolution (1D Code 39) | | 3 mil (.076mm) | |
| Resolution (2D Data Matrix) | | 6.7 mil (.170mm) | |

# 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

| | |
|---|---|
| **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** | |
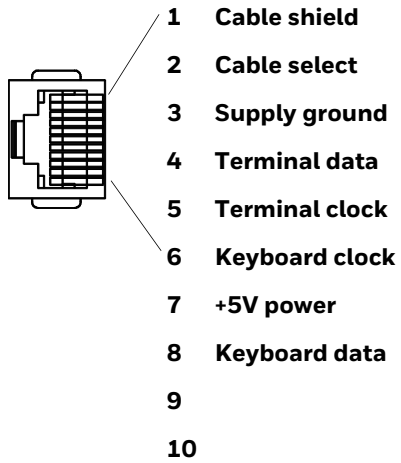
# Serial Output

10 Pin RJ41 Modular Plug

| | |
|---|---|
| **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** | |
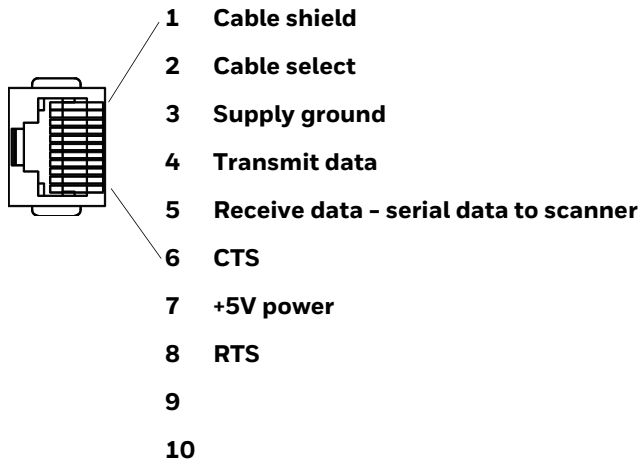
# RS485 Output

10 Pin RJ41 Modular Plug

**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

| 1 | Cable shield |
|---|---|
| 2 | Cable select |
| 3 | Supply ground |
| 4 | |
| 5 | |
| 6 | |
| 7 | +5V power |
| 8 | |
| 9 | Data + |
| 10 | Data – |

# EAS

6 Pin Modular Plug

| 1 | Supply ground |
|---|---|
| 2 | Antenna + |
| 3 | Antenna – |
| 4 | EAS GPIO out |
| 5 | EAS GPIO in |
| 6 | Cable Shield |
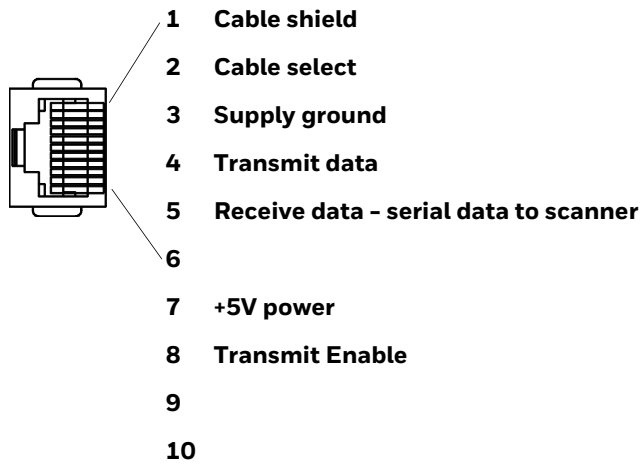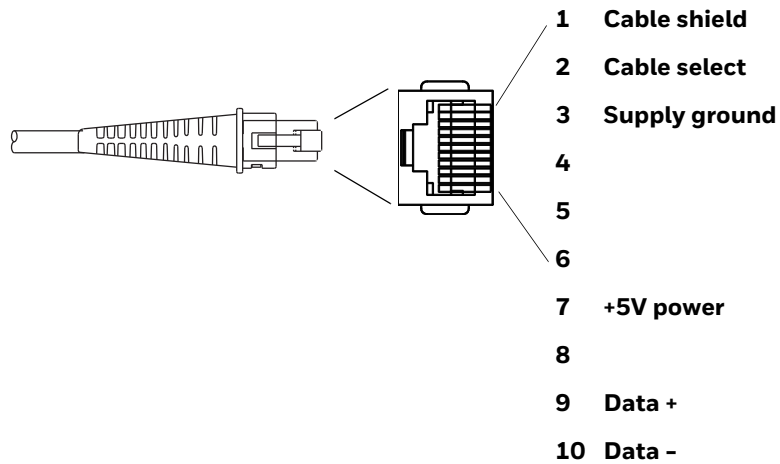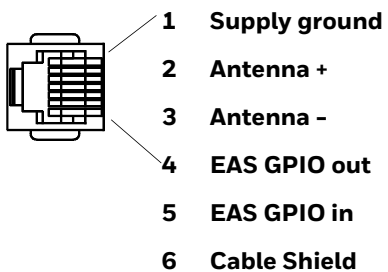
## USB Auxiliary Scanner – Solaris end

USB Type A Plug



1    VBUS

2    D–

3    D+

4    Ground

# Required Safety Labels



Illumination output

Part Number, Serial
Number Revision
Information, and
Compliance Label location
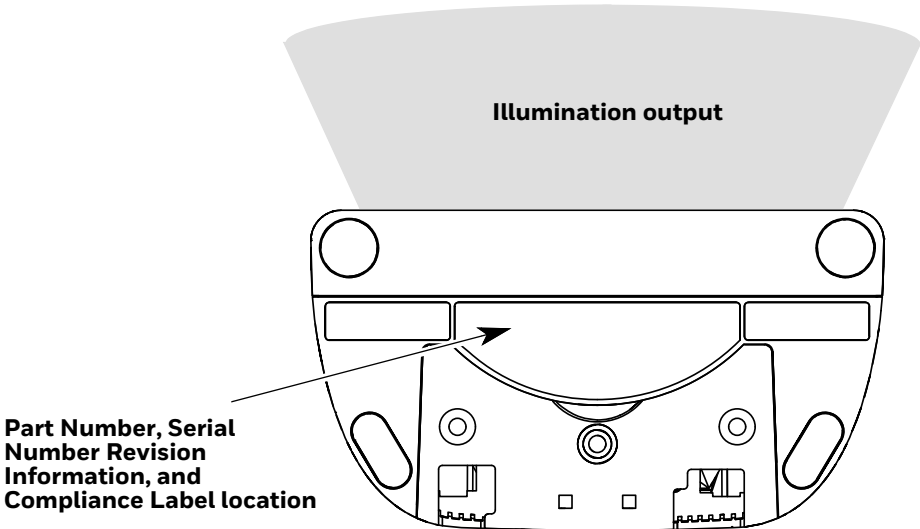
# MAINTENANCE AND TROUBLESHOOTING

## 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 Technical Assistance on page xiii).

## 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:

## Cleaning the Scanner

The scanner'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.**

## Cleaning the Window

Reading performance may degrade if the scanner's window is not clean. If the window is visibly dirty, or if the scanner isn't operating well, clean the window with one of the cleaning solutions listed below.

- Sani-Cloth® HB wipes

- Sani-Cloth® Plus wipes

- Super Sani-Cloth® wipes

- Isopropyl Alcohol wipes (70%)

- CaviWipes™

- Virex® 256

- 409® Glass and Surface Cleaner

- Windex® Blue

- Clorox® Bleach – 10%

- Gentle dish soap and water

# Inspecting 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 220.

# Replacing 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 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.

# Replacing the Interface Cable

1. Turn Off the host system power.

2. Disconnect the scanner's cable from the terminal or computer.

3. Remove the scanner's back cover.
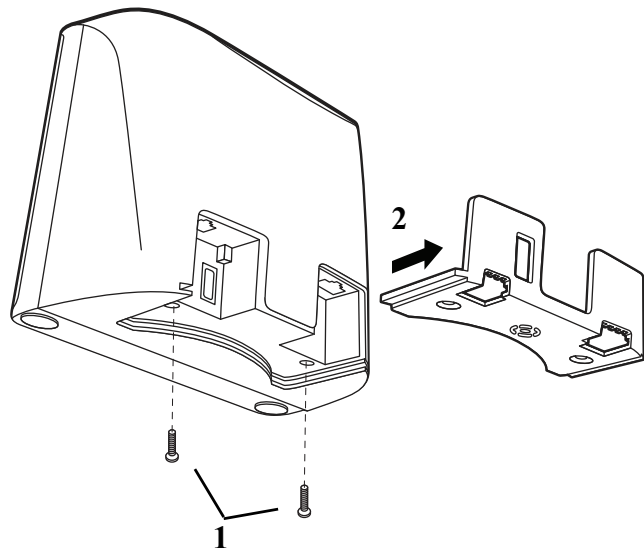
4. Pinch the interface cable jack and gently pull cable from the port. Pull the cable through the back cover.

5. Replace with the new cable.

## Replacing an EAS Cable

1. Turn Off the host system power.

2. Disconnect the scanner's cable from the terminal or computer.

3. Remove the scanner's back cover.
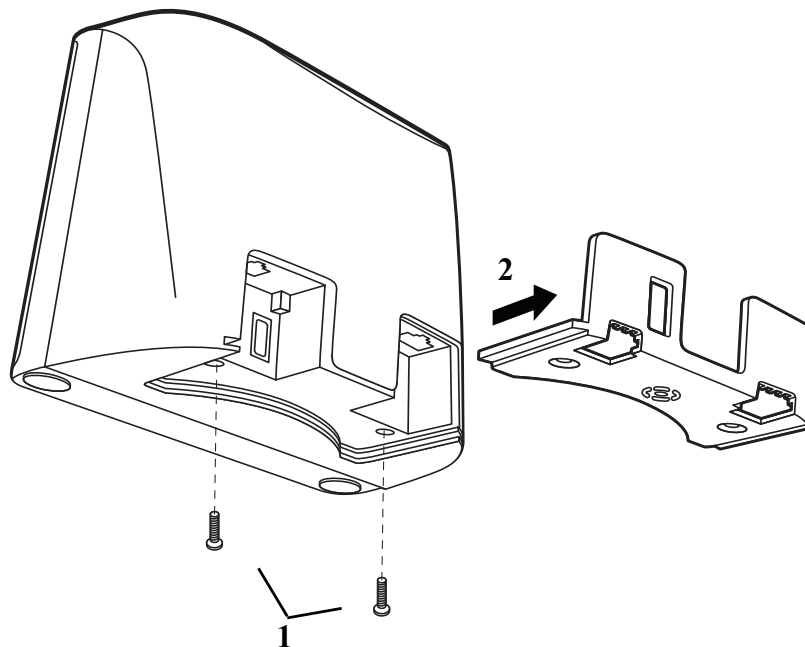
4.  Pinch the EAS cable jack and gently pull cable from the port. Pull the cable through the back cover.

5.  Follow the steps from Replacing the Interface Cable (see page 220) to remove the interface cable.

6.  Replace with the new EAS cable. Insert the connector into the opening and it will click into place.

# Troubleshooting

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.

*Note:* *Visit the Services and Support section of our website (honeywell.com/PSStechnicalsupport) to check for the latest scanner software.*

***Is the power On?***

If the LED isn'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 barcode displayed but not entered?***

The barcode 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 barcode data plus the key you need (such as "CR") to enter the data into your application. Refer to Prefix/Suffix Overview on page 65 for further information.

***Does the scanner read the barcode incorrectly?***

If the scanner reads a barcode, but the data is not displayed correctly on the host screen:

•   The scanner may not be programmed for the appropriate terminal interface. For example, you scan "12345" and the host displays "@es%."

Reprogram the scanner with the correct Plug and Play barcode. See Program the Interface, beginning on page 13.

- The scanner may not be programmed to output your barcode data properly. For example, you scan "12345" and the host displays "A12345B."

Reprogram the scanner with the proper symbology selections. See Symbologies, beginning on page 91.

### The scanner won't read your barcode at all.

- Scan the sample barcodes in the back of this manual. If the scanner reads the sample barcodes, check that your barcode is readable.

- Verify that your barcode symbology is enabled (see Symbologies, beginning on page 91).

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 183.

# 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 65 and Data Format beginning on page 71 for information about using Code ID and AIM ID.

## Linear Symbologies

|  | AIM | | Honeywell | |
|---|---|---|---|---|
| **Linear 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 |

| Linear Symbology | AIM ID | Possible modifiers (m) | Honeywell ID | 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

| 2D Symbology | AIM ID | Possible modifiers (m) | Honeywell ID | Hex |
|---|---|---|---|---|
| *All Symbologies* | | | | 99 |
| Aztec Code | ]z*m* | 0-9, A-C | z | 7A |

| 2D 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

| Postal 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 Barcode | ]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 differ-ent 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 control characters | ASCII | | 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 | í | | |
| 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 barcode 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 barcodes 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
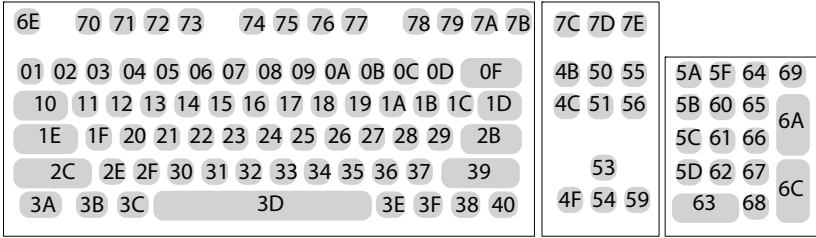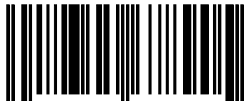


**104 Key U.S. Style Keyboard**
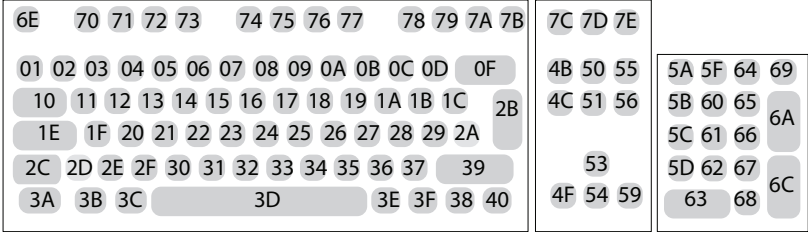


**105 Key European Style Keyboard**

# Sample Symbols

**UPC-A**

0 123456 7890
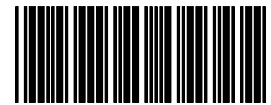
**Interleaved 2 of 5**

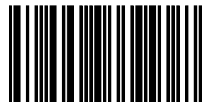01234567890

**EAN-13**

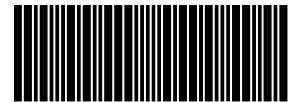9 780330 290951

**Code 128**

Code 128

**Code 39**

BC321

**Codabar**

A13579B

**Code 93**

123456-9$

**Straight 2 of 5 Industrial**

123456

**Matrix 2 of 5**

6543210

**RSS-14**

(01) 00123456789012

**PDF417**

Car Registration

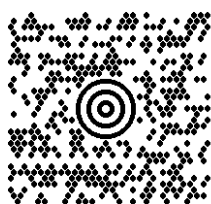**Code 49**

1234567890

# Sample Symbols (Continued)

**Postnet**



**Zip Code**

**Data Matrix**



**Test Symbol**

**QR Code**



**Numbers**

**MaxiCode**



**Test Message**

**Micro PDF417**



**Test Message**

# Programming Chart

```
K0K
```
0

```
K1K
```
1

```
K2K
```
2

```
K3K
```
3

```
K4K
```
4

```
K5K
```
5

```
K6K
```
6

```
K7K
```
7

```
K8K
```
8

```
K9K
```
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.

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