# Programming reference guide

## HP Engage Imaging Barcode Scanner II

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# Chapter 1 Introduction

## About this Manual

This Product Reference Guide (PRG) is provided for users seeking advanced technical information, including connection, programming, maintenance and specifications.

Typically, units are factory-programmed for the most common terminal and communications settings. If you need to modify any programmable settings, custom configuration can be accomplished by scanning the programming bar codes within this guide.

Programming can alternatively be performed using the HP Barcode Scanner D-Series Configuration Utility. This multi-platform utility program allows device configuration using a PC. It communicates to the device using a serial or USB cable and can also create configuration bar codes to print.

## Overview

Chapter 1, Introduction provides a product overview, unpacking instructions, and cable connection information.

Chapter 2, Setup presents information about unpacking and setting up the scanner, and interface configuration bar codes and details.

Chapter 3, Configuration Using Bar Codes provides instructions and bar code labels for customizing your scanner. There are different sections for interface types, general features, data formatting, and symbology-specific features.

Chapter 4, References provides details concerning programmable features.

Appendix A, Technical Specifications lists physical and performance characteristics, as well as environmental and regulatory specifications. It also provides standard cable pin-outs and descriptions of the functions and behaviors of the scanner's LED and Speaker indicators.

Appendix B, references common factory default settings for scanner features and options.

Appendix C, Sample Bar Codes offers sample bar codes of several common symbologies.

Appendix D, Keypad includes numeric bar codes to be scanned for certain parameter settings.

Appendix E, Scancode Tables lists control character emulation information for Wedge and USB Keyboard interfaces.

## Manual Conventions

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

NOTE

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

CAUTION

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

# About the Scanner

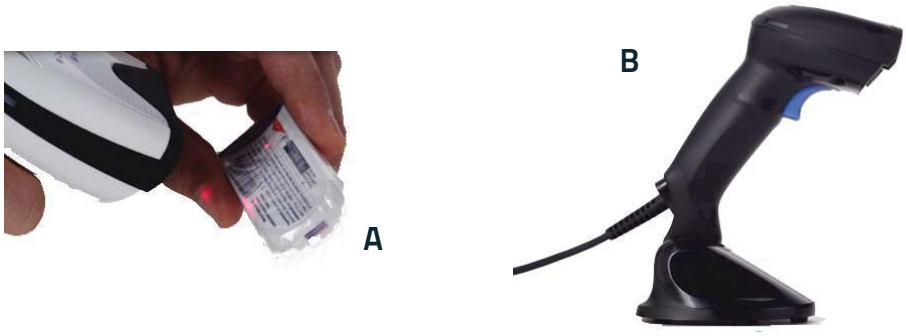
With rich feature sets and extensive model options, the HP Engage Imaging Barcode Scanner II represents the premium level of data collection equipment for general purpose applications. The reader has enhanced Megapixel optics with improved motion tolerance, allowing codes placed on fast-moving objects to be easily and quickly captured, creating the ideal reader for tasks requiring high throughput like those found in retail, light industrial environments and healthcare.

## Using the Reader

To read a symbol or capture an image, simply aim the reader and pull the trigger. The HP Engage Imaging Barcode Scanner II is a powerful omni-directional reader, so the orientation of the symbol is not important. 'Green Spot' for good-read feedback helps to improve productivity in noisy environments or in situations where silence is required. When positioning the product into the stand, the magnetic coupling will make the scanner automatically detect a bar code inside the field of view, and switch the reading system from trigger mode to autosense mode.

The HP Engage Imaging Barcode Scanner II reliably decodes all standard 1D (linear) and 2D bar codes, including GS1 DataBar™ linear codes, Postal Codes (China Post), Stacked Codes (such as GS1 DataBar Expanded Stacked, GS1 DataBar Stacked, GS1 DataBar, Stacked Omnidirectional). The data stream - acquired from decoding a symbol - is rapidly sent to the host. The reader is immediately available to read another symbol.

**Figure 1. Correct positioning of scanner**



# Programming the Reader

## Configuration Methods

### Programming Bar Codes

The reader is factory-configured with a standard set of default features. After scanning the interface bar code, you can select other options and customize your reader through use of the instructions and programming bar code labels available in the corresponding features section for your interface. Customizable settings for many features are found in Configuration Parameters.

Some programming labels require only the scan of the single label to enact the change. Most, however, require the reader to be placed in Programming Mode prior to scanning them. Scan an ENTER/EXIT bar code once to enter Programming Mode. Once the reader is in Programming Mode, scan a number of parameter settings before scanning the ENTER/EXIT bar code a second time, which will then accept your changes, exit Programming Mode and return the reader to normal operation.


**There are some exceptions to the typical programming sequence described above. Please read the description and setting instructions carefully when configuring each programmable feature.**

### HP configuration utilityy

HP Barcode Scanner D-Series Configuration Utility is a multi-platform utility program providing a quick and user-friendly configuration method via the RS-232/USB-COM interface. The utility is available from the HP website. The utility allows you to program the reader by selecting configuration commands through a user-friendly graphical interface running on a PC. These commands are sent to the reader over the selected communication interface, or they can be printed as bar codes to be scanned.

The utility also provides the ability to perform a software upgrade for the connected device.

# Chapter 2
# Setup

## Unpacking

Check carefully to ensure the scanner and any cables or accessories ordered are present and undamaged. If any damage occurred during shipment, contact Technical Support.

KEEP THE PACKAGING. Should the unit ever require service, it should be returned in its original shipping container.

## Setting Up the Scanner

Follow the steps provided in this section to connect and get your scanner up and communicating with its host:

1. Connect the Interface Cable to the scanner or to the Base Station as shown in Figure 2. To disconnect the cable, insert a paper clip or similar object into the opening shown.
2. Connect the other end to the Host (see the next section, Connect Host Interface and Figure 3).
3. Modify Customizing Configuration Settings (only if modifications are needed from factory settings).

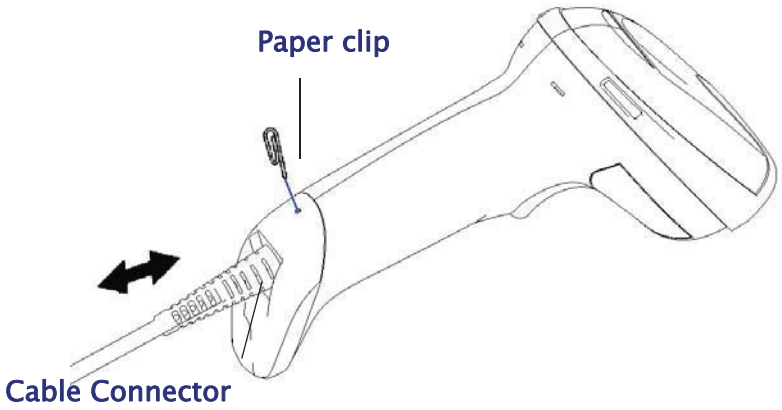
# Connect Host Interface

The scanner kit you ordered to match your interface should provide a compatible cable for your installation. If this is not so, contact Technical Support.

The scanner can communicate using the interfaces illustrated below.

For corded versions, connect the reader cable by inserting the cable into the handle as shown in the following Figure. To remove it, insert a paper clip into the release aperture, then unplug the cable.

**Figure 2. Cable Connection/Disconnection at the Scanner**




## RS-232 Serial Connection

Turn off power to the terminal/PC and connect the scanner to the terminal/PC serial port via the RS-232 cable as shown in Figure 3. If the terminal will not support POT (Power Off the Terminal) to supply scanner power, use the approved power supply (AC Adapter). Plug the AC Adapter barrel connector into the socket on the RS-232 cable connector and the AC Adapter plug into a standard power outlet.

**RS-232:** The scanner can communicate with a standard or Wincor-Nixdorf (W-N) RS-232 host.

**RS-232 OPOS:** This interface is used for OPOS/UPOS/JavaPOS systems.

## Keyboard Wedge Connection

The Keyboard Wedge cable has a 'Y' connection from the scanner. Connect the female to the male end from the keyboard and the remaining end at the keyboard port at the terminal/PC.

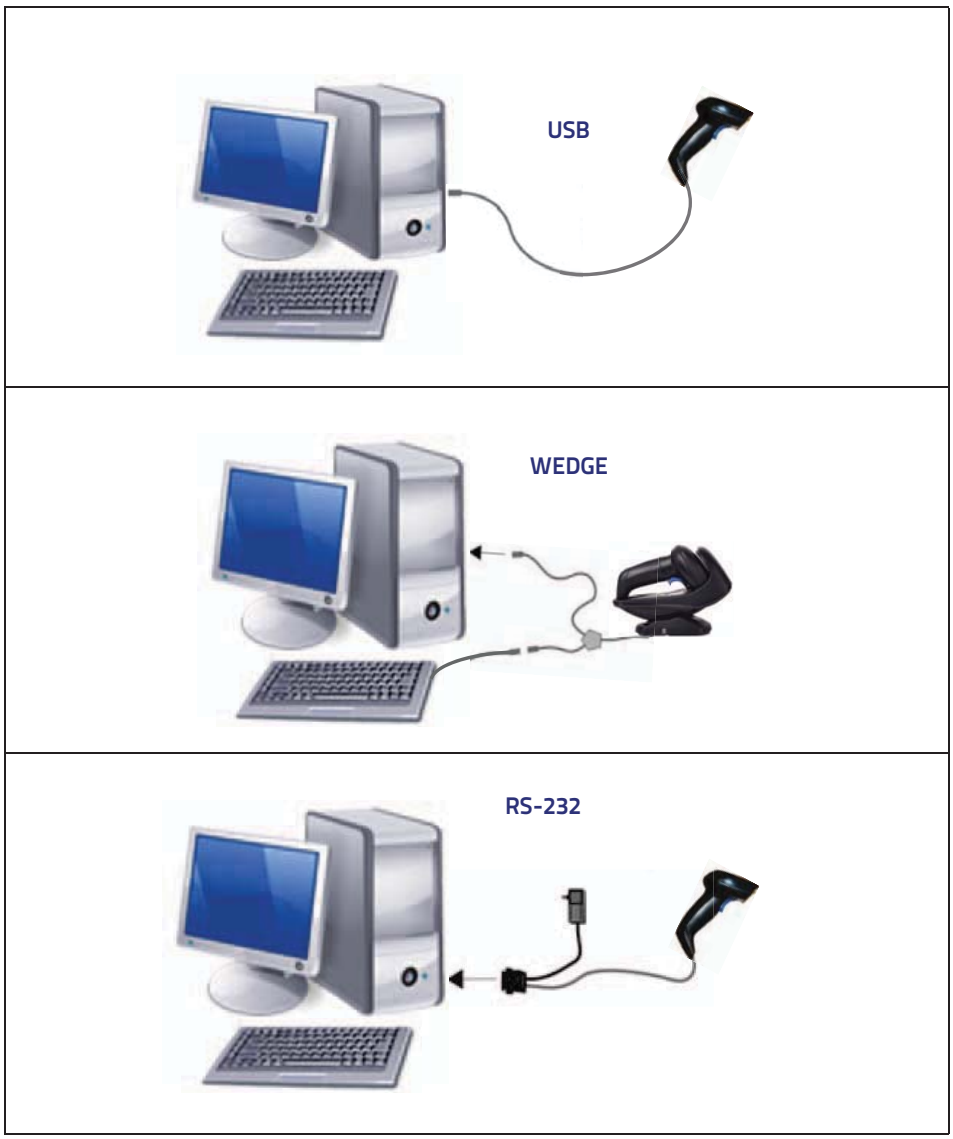
**Keyboard Wedge (KBW) :** When connected using this interface, the host interprets scanned data as keystrokes and supports several international keyboards (for the Windows® environment). See "Country Mode" for a full listing.

## USB Connection

Connect the scanner to a USB port on the terminal/PC using the correct USB cable for the interface type you ordered.

**USB :** Select to communicate either by USB COM STD or USB Keyboard interface types by scanning the appropriate interface type bar codes available in this manual. The default interface is USB-KBD, or RS-232-STD.

**Figure 3. Connection to the Host**



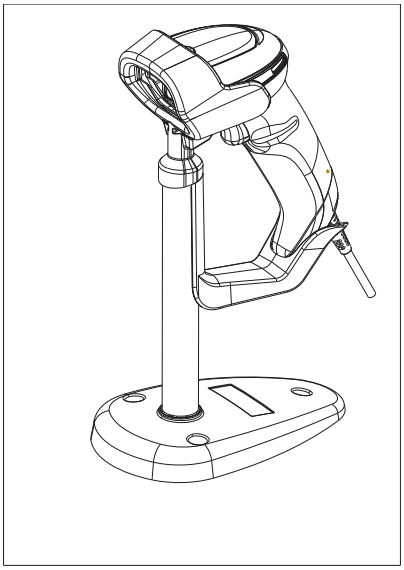

NOTE

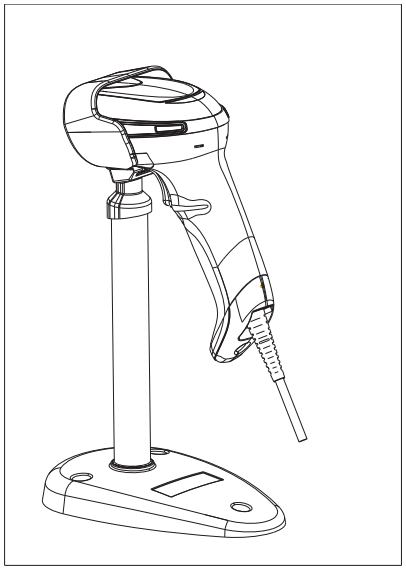
**Specific cables are required for connection to different hosts. The connections illustrated in Figure 3 are examples only. Actual connectors may vary from those illustrated, but the steps to connect the scanner remain the same.**

# Stand Installation

## Hands-Free Stand/Holder

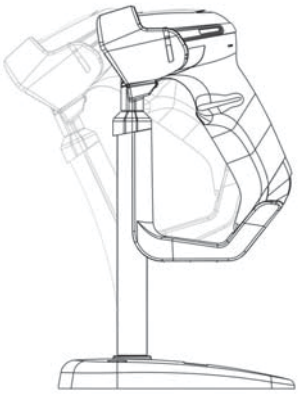
An accessory is available which holds the reader (except those with integrated stand) at a convenient angle, allowing hands free scanning of items.

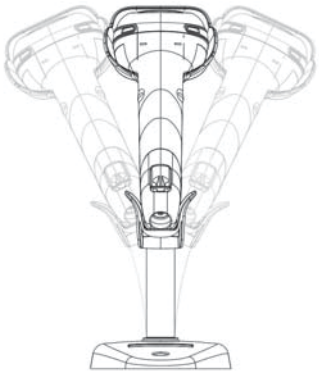




It can also be used as a holder. The holder “cup” can be positioned in any of the angles shown in the figure below. The Desk model automatically recognizes the insertion and changes its Scan Mode to allow the user to operate in hands-free mode.

**Figure 4. Adjusting the Stand Arm**



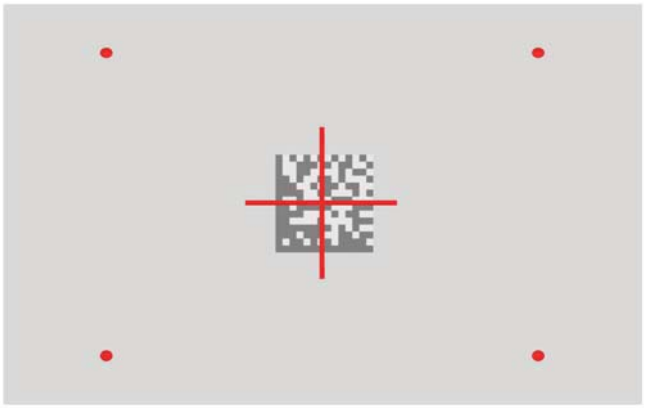


# Using the HP Engage Imaging Barcode Scanner II

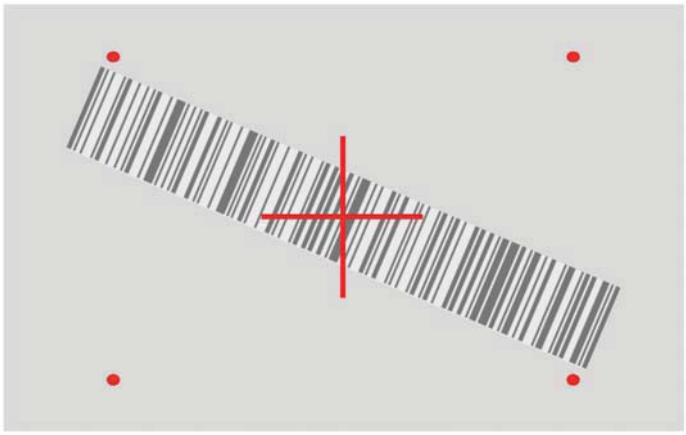
The HP Engage Imaging Barcode Scanner II normally functions by capturing and decoding codes. The aiming system is activated on trigger pull and indicates the center of the field of view which should be positioned over the bar code:

### Aiming System

### Relative Size and Location of Aiming System Pattern



**2D Matrix Symbol**



**Linear Bar**

A red beam illuminates the label. The field of view indicated by the aiming system will be smaller when the reader is closer to the bar code and larger when it is farther from the code. Symbologies with smaller bars or elements (mil size) should be read closer to the unit. Symbologies with larger bars or elements (mil size) should be read farther from the unit. If the aiming system is centered and the entire bar code is within the aiming field, you will get a good read. Successful reading is signaled by an audible tone plus a good-read green spot LED indicator.

**Relative Size and Location of Green Spot**

## Power Off

Scan the bar code below to shut off power to the handheld until the next trigger pull.

PowerOff

# Interface Selection

Upon completing the physical connection between the scanner and its host, proceed directly to "Configuring the Interface" for information and programming for the interface type the scanner is connected to (for example: RS-232, Keyboard Wedge, USB, etc.) and scan the appropriate bar code in that section to select your system's correct interface type.

The scanner, depending upon the model, will support one of the following sets of host interfaces:

- USB (Keyboard, COM)
- USB Composite (Keyboard + COM)
- USB HID POS
- USB Toshiba TEC
- RS-232 STD
- RS-232 WN
- RS232 OPOS
- Keyboard Wedge
- IBM46XX port 9b (a specific cable's required)
- Datalogic Magellan Scanners' specific interface

## Configuring the Interface

Scan the programming bar code from the following section which selects the appropriate interface type to match the system the scanner will be connected to. Next, proceed to the corresponding chapter in this manual (also listed in the table) to configure any desired settings and features associated with that interface.

NOTE

**Unlike some other programming features and options, interface selections require that you scan only one programming bar code label. DO NOT scan an ENTER/EXIT bar code prior to scanning an interface selection bar code. Some interfaces require the scanner to start in the disabled state when powered up. If additional scanner configuration is desired while in this state, pull the trigger and hold for 5 seconds. The scanner will change to a state that allows programming with bar codes.**

**Table 3. Available Interfaces**

| RS-232 | | FEATURES |
|---|---|---|
| RS-232 standard interface<br>**Not supported on USB only models* |  <br>Select RS232-STD | |
|  <br>Select RS232-WN | RS-232 Wincor-Nixdorf | |
| RS-232 for use with OPOS/UPOS/JavaPOS |  <br>Select RS-232 OPOS | |
|  <br>Select USB-COM-STD | USB COM to simulate RS-232 standard interface<br>**USB COM driver need to be installed for this interface to work.* | |

a. If erroneously read, it is required to press and hold the trigger to unlock the reader. Then read the correct interface bar code. This will work only at power-up. Please reconnect the scanner if the unlock is not successful.

| USB-COMPOSITE | | FEATURES |
|---|---|---|
| USB-Composite<br>(combines USB-KBD emulation and USB-COM)<br><br>**USB COM driver need to be installed for this interface to work.* |  <br>Select USB-Composite | |
| **OTHER INTERFACES** | | |
|  <br>Select IBM46xx Port 9b | IBM46xx Port 9b | |
| USB HID POS |  <br>Select USB HID POS | |
|  <br>Select USB Toshiba TEC | USB Toshiba TEC | |
| Datalogic Magellan Scanners' specific interface, USB AUX |  <br>Select Datalogic Magellan Scanners' specific interface, USB AUX | |
|  <br>Magellan RS232 AUX port | Datalogic Magellan RS232 AUX port | |

| KEYBOARD | | FEATURES |
|---|---|---|
| AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Standard Key Encoding |  Select KBD-AT | Set KEYBOARD WEDGE Interface Features |
|  Select KBD-AT-NK | Keyboard Wedge for IBM AT PS2 with standard key encoding but without external keyboard | |
| AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Alternate Key |  Select KBD-AT-ALT | |
|  Select KBD-AT-ALT-NK | Keyboard Wedge for IBM AT PS2 with alternate key encoding but without external keyboard | |
| USB Keyboard with standard key encoding |  Select USB Keyboard | |
|  Select USB Alternate Keyboard | USB Keyboard with alternate key encoding | |

# Customizing Configuration Settings

## Using the Programming Bar Codes

This manual contains feature descriptions and bar codes which allow you to reconfigure your scanner. Some programming bar code labels, like Resetting the Product Configuration to Defaults, require only the scan of that single label to enact the change. Most of the programming labels in this manual, how-ever, require the scanner to be placed in Programming Mode prior to scanning them. Scan an ENTER/EXIT bar code once to enter Programming Mode. Once the scanner is in Programming Mode, you can scan a number of parameter settings before scanning the ENTER/EXIT bar code a second time, which will then accept your changes, exit Programming Mode and return the scanner to normal operation.

NOTE

**There are some exceptions to the typical programming sequence described above. Please read the description and setting instructions carefully when configuring each given programmable feature.**

### HP configuration utility

Programming can alternatively be performed using the HP Barcode Scanner D-Series Configuration Utility which is available for free download from www.hp.com. This multi-platform utility program allows device configuration using a PC. It communicates to the device using a serial or USB cable and can also create configuration bar codes to print.

HP Barcode Scanner D-Series Configuration Utility is a multi-platform utility program providing a quick and user-friendly configuration method via the RS-232/USB-COM interface. The utility allows you to program the scanner by selecting configuration commands through a user-friendly graphical interface running on a PC. These commands are sent to the scanner over the selected communication interface, or they can be printed as bar codes to be scanned.

The utility also provides the ability to perform a software upgrade for the connected device.

## Interface Settings

The scanner is typically factory-configured with a set of default features standard to the interface type you ordered. See "Interface Selection".
Global Interface Features provides settings configurable by all interface types. If your installation requires you to further customize your scanner, you can select other options through use of the instructions and programming bar codes available in the appropriate section for your interface.

- **RS-232 INTERFACE**
- **RS-232/USB-COM INTERFACES**
- RS232 OPOS
- **USB Composite (COM + Keyboard)**
- **KEYBOARD INTERFACE**

## Configuring Other Features

If your installation requires different programming than the standard factory default settings, the following sections of this manual allow configuration of non-interface-specific settings you might require:

Configuration Using Bar Codes: General Features includes programming for scanning, speaker and LED indicators and other such universal settings.

Reading Parameters: Reading Parameters include programming for scanning, speaker and LED indicators and other universal settings.

1D Symbologies: Includes options concerning the bar code label types (symbologies). These settings allow you to enable/disable symbologies, set label lengths, require check digit, etc.

## Software Version Transmission

The software version of the device can be transmitted over the RS-232, Keyboard and USB interfaces by scanning the following label.

Transmit Software Version

### Resetting the Product Configuration to Defaults

If you aren't sure what programming options are in your scanner, or you've changed some options and want to restore the Custom Default Configuration that may have been saved in the scanner, scan the Restore Custom Default Configuration bar code below. This will restore the custom configuration for the currently active interface.

NOTE

**Custom defaults are based on the interface type. Configure the scanner for the correct interface before scanning this label.**

Restore Custom Default Configuration

# Chapter 3
# Configuration Using Bar Codes

This and following sections provide programming bar codes to configure your scanner by changing the default settings. For details about additional methods of programming, see "Customizing Configuration Settings".

NOTE

**You must first enable your scanner to read bar codes in order to use this section. If you have not done this go to Setuand complete the appropriate procedure.**

## Configuration Parameters

Once the scanner is set up, you can change the default parameters to meet your application needs. Refer to "Resetting the Product Configuration to Defaults" for initial configuration in order to set the default values and select the interface for your application.

The following configuration parameters are divided into logical groups, making it easy to find the desired function based on its reference group.

**Interface Configuration:**

- RS-232 Interface
- RS-232/USB-COM Interfaces
- Keyboard Interface

**Parameters common to all interface applications:**

- Global Prefix/Suffix
- Data Format offers advanced configuration options for customization of scanned data output.
- Reading Parameters control various operating modes and indicators status functioning.

**Symbology-specific parameters:**

1D Symbologies defines options for all symbologies and provides the programming bar codes necessary for configuring these features.

NOTE

**You must first enable your scanner to read bar codes in order to use this section. If you have not done this go to Setup and complete the appropriate procedure.**

**To program features:**

1. Scan the ENTER/EXIT PROGRAMMING bar code, available at the top of each programming page, when applicable.
2. Scan the bar code to set the desired programming feature. You may need to cover unused bar codes on the page, and possibly the facing page, to ensure that the scanner reads only the bar code you intend to scan.
3. If additional input parameters are needed, go to Appendix D, Keypad, and scan the appropriate characters from the keypad.

NOTE

**Additional information about many features can be found in the "References" chapter.**

**If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

4. Complete the programming sequence by scanning the ENTER/EXIT PROGRAMMING bar code to exit Programming Mode.

For more detailed descriptions, programming information and examples for setting selected configuration items, see References.

Enter/Exit Programming Mode

# Global Interface Features

The following interface features are configurable by all interface types. To set features specific to your interface, turn to that section of this manual.

| |
|---|
| **HOST COMMANDS — OBEY/IGNORE** |
| **USB SUSPEND MODE** |

## Host Commands — Obey/Ignore

This option specifies whether the scanner will obey or ignore host commands. When set to ignore, the scanner will ignore all host commands except for those necessary for:

- service mode
- flash programming mode
- keeping the interface active
- transmission of labels.

DEFAULT

Host Commands = Obey

Host Commands = Ignore

## USB Suspend Mode

This setting enables/disables the ability of the USB interface to enter suspend mode.

USB Suspend Mode = Disable

USB Suspend Mode = Enable

DEFAULT

# RS-232 Interface

Use the programming bar codes in this chapter if modifications to the standard RS-232 interface settings are necessary to meet your system's requirements. Additional settings which apply to both the RS-232 and USB interfaces are available "RS-232/USB-COM Interfaces."

| | |
|---|---|
| BAUD RATE | PARITY |
| DATA BITS | HANDSHAKING CONTROL |

## RS-232 Standard Factory Settings

Reference Appendix B, for a listing of standard factory settings.

## Baud Rate

Baud rate is the number of bits of data transmitted per second. Set the scanner's baud rate to match the baud rate setting of the host device. With an improper baud rate setting, data may not reach the host correctly.


Baud Rate = 1200


Baud Rate = 2400


Baud Rate = 4800


Baud Rate = 9600

DEFAULT

**Baud Rate (continued)**


Baud Rate = 19,200


Baud Rate = 38,400


Baud Rate = 57,600


Baud Rate = 115,200

## Data Bits

This parameter allows the reader to interface with devices requiring a 7-bit or 8-bit ASCII protocol for sending and receiving data.

7 Data Bits

8 Data Bits

DEFAULT

NOTE

**Handheld and Cradle models support the 8-bit ASCII protocol. The 7-bit ASCII protocol support is subject to specific firmware release. If the setting is not supported, the scanner will emit three short beeps upon scanning the label.**

## Stop Bits

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

DEFAULT

1 Stop Bit

2 Stop Bits

# Parity

This feature specifies parity required for sending and receiving data. A parity check bit is the most significant bit of each ASCII coded character. Select the parity type according to host device requirements.

- Select None when no parity bit is required.
- Select Odd parity and the parity bit value is set to 0 or 1, based on data, to ensure that an odd number of 1 bits are contained in the coded character.
- Select Even parity and the parity bit value is set to 0 or 1, based on data, to ensure that an even number of 1 bits are contained in the coded character.

DEFAULT

Parity = None

Parity = Even

Parity = Odd

# Handshaking Control

The data interface consists of an RS-232 port designed to operate either with or without the hardware handshaking lines, Request to Send (RTS), and Clear to Send (CTS). Handshaking Control includes the following options:

- RTS — RTS is asserted during transmissions. CTS is ignored.
- RTS/CTS — RTS is asserted during transmissions. CTS gates transmissions.
- RTS/XON/XOFF — RTS is asserted during transmissions. CTS is ignored. XON and XOFF gate transmissions.
- RTS On/CTS — RTS is always asserted. CTS gates transmissions.
- RTS/CTS Scan Control — RTS is asserted during transmissions. CTS gates transmissions and controls enable and disable state of scanner.

DEFAULT

Handshaking Control = RTS

Handshaking Control = RTS/CTS

Handshaking Control = RTS/XON/XOFF

Handshaking Control = RTS On/CTS

Handshaking Control = RTS/CTS Scan Control

Handshaking Control = RTS Off

# RS-232/USB-COM Interfaces

The programming bar codes in this chapter allow modifications to the standard RS-232 and USB-Com interfaces.

| |
|---|
| STANDARD FACTORY SETTINGS |
| INTERCHARACTER DELAY |
| BEEP ON ASCII BEL |
| BEEP ON NOT ON FILE |
| ACK NAK OPTIONS |
| ACK CHARACTER |
| NAK CHARACTER |
| ACK NAK TIMEOUT VALUE |
| ACK NAK RETRY COUNT |
| ACK NAK ERROR HANDLING |
| INDICATE TRANSMISSION FAILURE |
| DISABLE CHARACTER |
| ENABLE CHARACTER |

## Standard Factory Settings

Reference Appendix B, for a listing of standard factory settings.

# Intercharacter Delay

This parameter specifies the intercharacter delay between the end of one character and the beginning of the next. The delay can be set within a range of zero (0) to 990 milliseconds in 10ms increments. A setting of zero specifies no delay. See "Label ID: Pre-loaded Sets" for more detailed programming instructions.

Intercharacter Delay = No Delay

Select Intercharacter Delay Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **00 = No Intercharacter Delay**

## Beep On ASCII BEL

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

Beep On ASCII BEL = Disable

DEFAULT

Beep On ASCII BEL = Enable

## Beep On Not on File

This option enables/disables the action of the scanner to sound a three beep sequence upon receiving a Not-On-File (NOF) host command.

Beep On Not On File = Disable

DEFAULT

Beep On Not On File = Enable

# ACK NAK Options

This enables/disables the ability of the scanner to support the RS-232 ACK/NAK protocol. When configured, the scanner and/or host sends an "ACK" when it receives data properly, and sends "NAK" when the data is in error.

Options are:

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

DEFAULT

ACK/NAK Protocol = Disable ACK/NAK

ACK/NAK Protocol = Enable for label transmission

ACK/NAK Protocol = Enable for host-command acknowledge

ACK/NAK Protocol = Enable for label transmission and host-command acknowledge

## ACK Character

This setting specifies an ASCII character or hex value to be used as the ACK character. ASCII characters or any hex value from 0 to 0xFF can be selected. See "ACK Character" for more detailed programming instructions.

**NOTE** **Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option Data Bits has been set as 7 Data Bits.**

Select ACK Character Setting

DEFAULT **0x06 'ACK' Character**

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

## NAK Character

This setting specifies an ASCII character or hex value to be used as the NAK character. ASCII characters or any hex value from 0 to 0xFF can be selected. See "NAK Character" for more detailed programming instructions.

**NOTE** **Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option Data Bits has been set as 7 Data Bits.**

Select NAK Character Setting

DEFAULT **0x15 'NAK' Character**

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

## ACK NAK Timeout Value

This option specifies the amount of time the scanner waits for an ACK character from the host following label transmission. The selectable timeout range is 200 milliseconds to 15,000ms (15 seconds) in 200ms increments. A selection of 0 disables the timeout. See "ACK NAK Timeout Value" for more detailed programming instructions.

Select ACK NAK Timeout Value Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **01 ACK NAK Timeout value is 200ms**

## ACK NAK Retry Count

This feature specifies the number of times the scanner retries a label transmis-sion due to a retry condition. The selectable range is from 1 to 254 retries. A selection of 0 disables the count, and a selection of 255 specifies unlimited retries. See "ACK NAK Retry Count" for more detailed program-ming instructions.

Select ACK NAK Retry Count Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key-pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **003 = 3 Retries**

## ACK NAK Error Handling

This feature specifies the method the scanner uses to handle receive errors detected while waiting for an ACK character from the host.

Options are:

- Ignore errors detected
- Process error as valid ACK character
- Process error as valid NAK character

DEFAULT

ACK NAK Error Handling = Ignore Errors Detected

ACK NAK Error Handling = Process Error as Valid ACK Character

ACK NAK Error Handling = Process Error as Valid NAK Character

## Indicate Transmission Failure

This option enables/disables the scanner's ability to sound an error beep to indicate a transmission failure while in ACK/NAK mode.

Indicate Transmission Failure = Disable Indication

Indicate Transmission Failure = Enable Indication

DEFAULT

## Disable Character

Specifies the value of the RS-232 host command used to disable the scanner. ASCII characters or any hex value from 0 to 0xFF can be selected. See "Disable Character" for more detailed programming instructions.

**NOTE**

**Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters.**

Select Disable Character Setting

DEFAULT

**0x44 = Disable Character is 'D'**

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

# Enable Character

Specifies the value of the RS–232 host command used to enable the scanner. ASCII characters or any hex value from 0 to 0xFF can be selected. See "Enable Character" for more detailed programming instructions.

**NOTE**

**Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters.**

Select Enable Character Setting

DEFAULT

**0x45 = Enable Character is 'E'**

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

# Keyboard Interface

Use the programming bar codes in this chapter to select options for USB Keyboard and Wedge Interfaces. Reference Appendix B, for a listing of standard factory settings. Information about control character emulation which applies to keyboard interfaces is listed in Appendix E, Scancode Tables.

| |
|---|
| COUNTRY MODE |
| CAPS LOCK STATE |
| NUMLOCK |
| KEYBOARD NUMERIC KEYPAD |
| KEYBOARD SEND CONTROL CHARACTERS |
| WEDGE QUIET INTERVAL |
| INTERCODE DELAY |
| USB KEYBOARD SPEED |

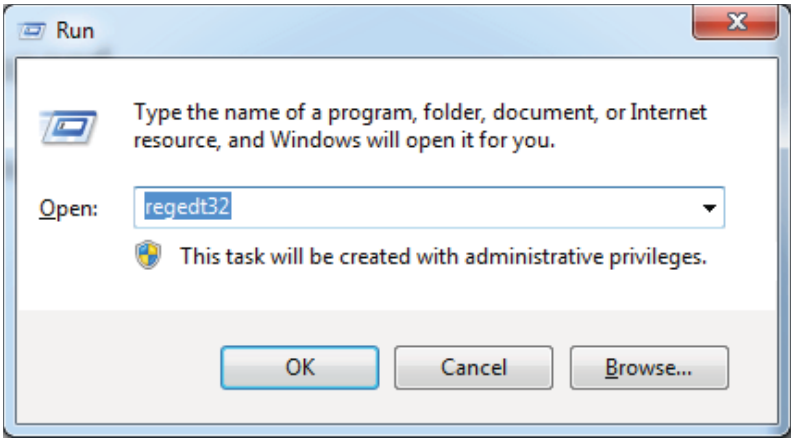
# Country Mode

This feature specifies the country/language supported by the keyboard.

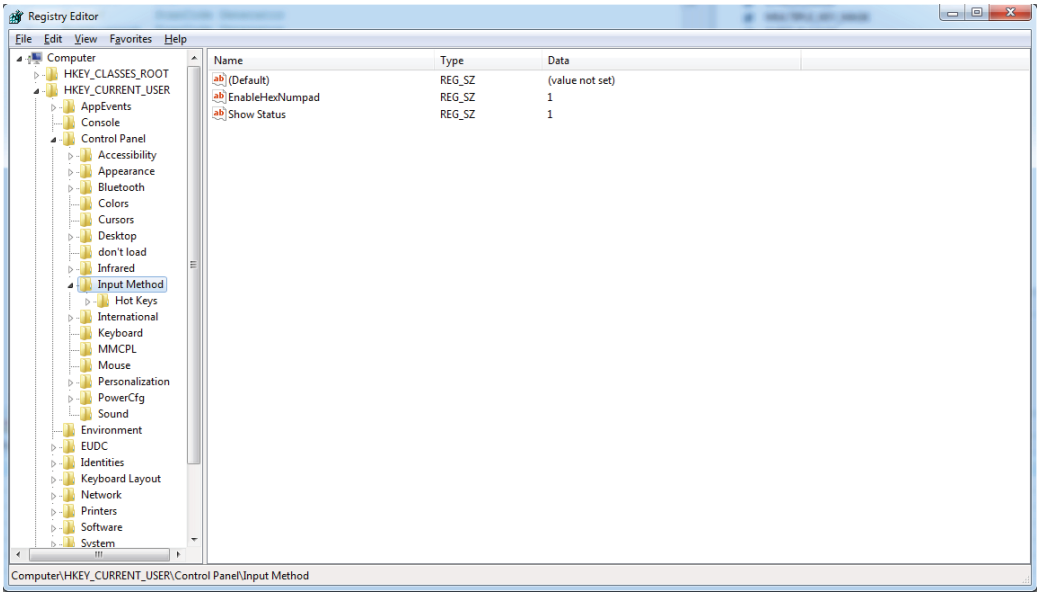
The Country Mode setting is ignored if the interface uses alternate key encoding.

## Setup on PC to use ALT Universal

1. Open Registry Edit




2. Set EnableHexNumpad to 1 as follows:




3. Reset the PC.

## Setting Country Mode

DEFAULT

United States

French International (Belgian French)

United Kingdom

Danish

French (France)

German

Italian

## Setting Country Mode (continued)


Norwegian


Portuguese Portugal


Spanish


Swedish


Swiss French


Japanese ASCII


Hungarian

## Setting Country Mode (continued)

Czech

SlovaK

Romanian

Croatian

Polish_214

Canadian French Win7

Lithuanian

## Setting Country Mode (continued)

Vietnamese

Russian

Arabic 101

Chinese ASCII

Thai-Kedmanee

Albanian

Arabic 102

## Setting Country Mode (continued)


Arabic 102 AZERTY


Azeri Cyrillic


Azeri Latin


Belarusian


Bosnian Cyrillic


Bosnian Latin


Bulgarian Cyrillic

## Setting Country Mode (continued)


Bulgarian Latin


Canadian French (Legacy)


Canadian Multilingual


Chinese (Simplified)


Chinese (Traditional)


Czech Programmers


Czech QWERTY

## Setting Country Mode (continued)

Dutch Netherland

Estonian

Faeroese

Finnish

French (Canada) 2000/XP

French (Canada) 95/98

Galician

## Setting Country Mode (continued)

Greek

Greek Latin

Greek Polytonic

Greek220

Greek220 Latin

Greek319

Greek319 Latin

## Setting Country Mode (continued)

Hebrew Israel

Hungarian_101KEY

Icelandic

Irish

Italian_142

Japanese (Shift-JIS)

Kazakh

## Setting Country Mode (continued)


Korean (Hangul)


Korean ASCII


Kyrgyz Cyrillic


Latin America


Latvian


Latvian QWERTY


Lithuanian_IBM

## Setting Country Mode (continued)

Macedonian -FYROM

Maltese_47KEY

Mongolian-Cyrillic

Polish Programmer

Portuguese Brazil

Portuguese Brazilian ABNT

Portuguese Brazilian ABNT2

## Setting Country Mode (continued)


Romanian Legacy


Romanian Programmer


Romanian Standard


Russian Typewriter


Serbian Cyrillic


Serbian Latin


Slovak QWERTY

## Setting Country Mode (continued)

Slovenian

Spanish Variation

Swiss German

Tatar

Turkish F

Turkish Q

Ukrainian

## Setting Country Mode (continued)

US Dvorak

US Dvorak Left Hand

US Dvorak Right Hand

US English (Mac)

US English (North American)

US International

Uzbek Cyrillic

## Setting Encoding Type

.

DEFAULT

Don't use encoding

UTF_8

Windows 874

Windows 932

Windows 936

Windows 949

Windows 950

## Setting Encoding Type (continued)

Windows 1250

Windows 1251

Windows 1252

Windows 1253

Windows 1254

Windows 1255

Windows 1256

## Setting Encoding Type (continued)

Windows 1257

Windows 1258

Windows 20866

0x31 = Windows 54936

ISO 8859-1

ISO 8859-2

## Setting Encoding Type (continued)

ISO 8859-3

ISO 8859-4

ISO 8859-5

ISO 8859-6

ISO 8859-7

ISO 8859-8

ISO 8859-9

## Setting Encoding Type (continued)

ISO 8859-10

ISO 8859-11

ISO 8859-13

ISO 8859-14

ISO 8859-15

ISO 8859-16

MS-DOS 437

## Setting Encoding Type (continued)

MS-DOS 737

MS-DOS 775

MS-DOS 850

MS-DOS 852

MS-DOS 855

MS-DOS 857

MS-DOS 860

## Setting Encoding Type (continued)

MS-DOS 861

MS-DOS 862

MS-DOS 863

MS-DOS 865

MS-DOS 866

MS-DOS 869

Mac CP10000

## Setting ALT output type

This option specifies the encode type of ALT Mode when the scanner sends Output Keyboard Data in Alt Mode. (Be aware that the scanner may switch automatically between ALT mode & Normal Keyboard Scancode, to correctly display some characters that are not present in the current Keyboard Country).

.

ALT Codepage: (use on non Unicode application: Notepad)

ALT Unicode: (use on Unicode application: Word)

DEFAULT

ALT Universal: (Use for all)

## Caps Lock State

This option specifies the format in which the scanner sends character data. This applies to Keyboard Wedge interfaces. This does not apply when an alternate key encoding keyboard is selected. This does not apply to USB Keyboard.

DEFAULT

Caps Lock State = Caps Lock OFF

Caps Lock State = Caps Lock ON

Caps Lock State = AUTO Caps Lock Enable

## Numlock

This option specifies the setting of the Numbers Lock (Numlock) key while in Keyboard Wedge interface. This only applies to alternate key encoding interfaces. It does not apply to USB Keyboard.

DEFAULT

Numlock = Numlock key unchanged

Numlock = Numlock key toggled

# Keyboard Numeric Keypad

This feature specifies if numeric characters will be sent using the standard keys or the numeric keypad.

DEFAULT

Keyboard Numeric Keypad = Standard Keys

Keyboard Numeric Keypad = Numeric Keypad

# Keyboard Send Control Characters

This feature is used by the Keyboard Wedge and USB Keyboard interfaces. It specifies how the scanner transmits ASCII control characters to the host. Reference Appendix E, Scancode Tables for more information about control characters.

Options are as follows:

**Send Ctrl+Key :** ASCII characters from 00H to 0x1FH inclusive are transmitted in the format Ctrl+Key. Special keys are available in the range from 81H to A1.

**Send Ctrl+Shift+Key :** The behavior is the same as above, but control keys are sent in the format Ctrl+Shift+Keys.

**Send Special Function Key :** Send characters between 00H and 1FH according to the special function key mapping table (see "Interface Type PC AT PS/2 Alt Mode or USB-Keyboard Alt Mode"). This is used to send keys that are not in the normal ASCII set. A unique set is provided for each available scancode set.

DEFAULT

Keyboard Send Control Characters = Send Ctrl+Key

Keyboard Send Control Characters = Send Ctrl+Shift+Key

Keyboard Send Control Characters = Send Special Function Key :

# Wedge Quiet Interval

This option specifies the amount of time to look for keyboard activity before the scanner breaks the keyboard connection in order to transmit data to host. The selectable range for this feature is from 0 to 990ms in 10ms increments. See "Wedge Quiet Interval" for more detailed programming instructions.

NOTE

**This feature applies ONLY to the Keyboard Wedge interface.**

Select Wedge Quiet Interval Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT

**10 = Quiet Interval of 100 ms**

# Intercharacter Delay

This parameter specifies the intercharacter delay between the end of one character and the beginning of the next. The delay can be set within a range of zero (0) to 990 milliseconds in 10ms increments. A setting of zero specifies no delay. See "Intercharacter Delay" for more detailed programming instructions.

Intercharacter Delay = No Delay

Select Intercharacter Delay Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **00 = No Intercharacter Delay**

# Intercode Delay

Specifies the delay between labels transmitted to the host for this interface. The selectable range for this feature is from 0 to 99 seconds. See "Intercode Delay" for more detailed programming instructions.

Set Intercode Delay

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT

**00 = No Wedge Intercode Delay**

# USB Keyboard Speed

This option specifies the USB poll rate for a USB Keyboard.

**NOTE** **This feature applies ONLY to the USB Keyboard interface.**

DEFAULT

USB Keyboard Speed = 1ms

USB Keyboard Speed = 2ms

USB Keyboard Speed = 3ms

USB Keyboard Speed = 5ms

USB Keyboard Speed = 7ms

USB Keyboard Speed = 10ms

# IBM 46XX Interface

Use the bar codes in this section to configure programmable features for available IBM 46XX interfaces.

Reference Appendix B, for a listing of standard factory settings..

## Interface Options

This feature provides for an interface-specific control mechanism.

Obey Scanner Configuration Host Commands

DEFAULT

Ignore Scanner Configuration Host Commands

# Data Format

| |
|---|
| **Global Prefix/Suffix** |
| **Global AIM ID** |
| **GS1-128 AIM ID** |
| **Label ID**<br>•Label ID: Pre-loaded Sets<br>•Label ID: Set Individually Per Symbology<br>•Label ID Control<br>•Label ID Symbology Selection |
| **Case Conversion** |
| **Character Conversion** |

The features in this chapter can be used to build specific user-defined data into a message string. See "References" for more detailed instructions on setting these features.

# Global Prefix/Suffix

Up to 20 ASCII characters may be added as a prefix (in a position before the bar code data) and/or as a suffix (in a position following the bar code data). See "Global Prefix/Suffix" for more detailed programming instructions.

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Set Global Prefix

Set Global Suffix

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT

**No Global Prefix**
**Global Suffix = 0x0D(CR)**

# Global AIM ID

**This feature enables/disables addition of AIM IDs for all symbology types.**

**NOTE**

AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned bar code data. See "Global AIM ID" for more detailed programming instructions.

DEFAULT

Global AIM ID = Disable

Global AIM ID = Enable

# GS1-128 AIM ID

If Global AIM ID is disabled, the AIM ID for GS1-128 can be enabled/disabled independently. The AIM ID for GS1-128 is a ]C1, ]C2.

AIM IDs for other symbologies can be enabled/disabled independently as well. Contact Customer Support for assistance.

GS1-128 AIM ID = Disable

GS1-128 AIM ID = Enable

DEFAULT

# Label ID

A Label ID is a customizable code of up to three ASCII characters (each can be one of hex 0x01–0xFF), used to identify a bar code (symbology) type. It can be appended previous to or following the transmitted bar code data depending upon how this option is enabled. This feature provides options for configuring custom Label IDs as a pre-loaded set (see "Label ID: Pre-loaded Sets") or individually per symbology (see "Label ID: Set Individually Per Sym-bology"). If you wish to program the scanner to always include an industry standard label identifier for ALL symbology types, see the previous feature "Global AIM ID".

## Label ID: Pre-loaded Sets

The scanner supports two pre-loaded sets of Label IDs, the USA set and the EU set. See "Label ID: Pre-loaded Sets" for more information concern-ing the pre-loaded sets that are provided.

**CAUTION**

**When changing from one Label ID set to another, all other scanner configuration settings, including the host interface type, will be erased and set to the factory defaults. Any custom configuration or custom defaults will be lost.**

DEFAULT

Label ID Pre-loaded Set = USA Set

Label ID Pre-loaded Set = EU Set

## Label ID: Set Individually Per Symbology

This feature configures a Label ID individually for a single symbology.

NOTE

**This setting requires the scanning of bar codes from multiple sections. See** "Label ID:Set Individually Per Symbology" **for more detailed programming instructions.**

## Label ID Control

This option controls whether a Label ID is disabled, or sent as a prefix or suffix for a given symbology type.

DEFAULT

Label ID Transmission = Disable

Label ID Transmission = Enable as Prefix

Label ID Transmission = Enable as Suffix

## Label ID Symbology Selection

This option selects the symbology for which a Label ID is to be configured. See "Label ID: Set Individually Per Symbology" for full instructions.

CANCEL

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

Set UPC-A Label ID Character(s)

Set UPC-A/P2 Label ID Character(s)

Set UPC-A/P5 Label ID Character(s)

Set UPC-E Label ID Character(s)

Set UPC-E/P2 Label ID Character(s)

Set UPC-E/P5 Label ID Character(s)

## Label ID Symbology Selection (continued)

Set EAN 13 Label ID Character(s)

Set EAN 13/P2 Label ID Character(s)

Set EAN 13/P5 Label ID Character(s)

Set EAN 8 Label ID Character(s)

Set EAN 8/P2 Label ID Character(s)

Set EAN 8/P5 Label ID Character(s)

## Label ID Symbology Selection (continued)

Set GS1 DataBar Omnidirectional Label ID Character(s)

Set GS1 DataBar Expanded Label ID Character(s)

Set GS1 DataBar Limited Label ID Character(s)

Set Code 39 Label ID Character(s)

Set Code 32 Label ID Character(s)

Set Code 39 CIP Label ID Character(s)

## Label ID Symbology Selection (continued)

Set Code 128 Label ID Character(s)

Set GS1-128 Label ID Character(s)

Set Interleaved 2 of 5 Label ID Character(s)

Set Interleaved 2 of 5 CIP HR Label ID Character(s)

Set Datalogic 2 of 5 CIP HR Label ID Character(s)

Set Codabar Label ID Character(s)

Set ABC Codabar Label ID Character(s)

## Label ID Symbology Selection (continued)

Set Code 11 Label ID Character(s)

Set Standard 2 of 5 Label ID Character(s)

Set Industrial 2 of 5 Label ID Character(s)

Set ISSN Label ID Character(s)

Set IATA Label ID Character(s)

Set Concatenated ISBT 128 Label ID Character(s)

Set MSI Label ID Character(s)

Set Matrix 2 of 5 Label ID Character(s)

### Label ID Symbology Selection (continued)

Set Plessey Label ID Character(s)

Set Concatenated ISBT Label ID Character(s)

Set Anker Plessey Label ID Characters

## Case Conversion

This feature allows conversion of the case of all alphabetic characters to upper or lower case.

**NOTE**

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

DEFAULT

Case Conversion = Disable (no case conversion)

Case Conversion = Convert to upper case

Case Conversion = Convert to lower case

# Character Conversion

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

Configure Character Conversion

DEFAULT

**0xFFFFFFFFFFFFFFFF**
**(No character conversion)**

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

# Reading Parameters

| | |
|---|---|
| Double Read Timeout | Good Read Speaker Volume/Vibration |
| Reading Performance | Good Read Beep Length |
| LED and Speaker Indicators | Good Read LED Duration |
| Good Read: When to Indicate | Scanning Features |
| Good Read Beep Type | Corded Only Features |
| Good Read Beep Frequency | Multiple Label Reading |

# Double Read Timeout

To prevent a double read of the same label, the Double Read Timeout sets the minimum time allowed between reads of labels of the same symbology and data. If the unit reads a label and sees the same label again within the Double Read Timeout, the second read of the label will be ignored. Double Read Timeout does not apply to scan modes that require a trigger pull for each label that is read.


Double Read Timeout = 0.1 Second


Double Read Timeout = 0.2 Second


Double Read Timeout = 0.3 Second


Double Read Timeout = 0.4 Second

## Double Read Timeout (continued)


Double Read Timeout = 0.5 Second


Double Read Timeout = 0.6 Second

DEFAULT


Double Read Timeout = 0.7 Second


Double Read Timeout = 0.8 Second


Double Read Timeout = 0.9 Second


Double Read Timeout = 1 Second

# Reading Performance

When the barcode scanner's Scan Mode is set to triggerless modes (e.g. Flashing, Always On, Stand Mode/Object Detection, etc.) the reading capabilities can be modified according to two main goals:

- Motion tolerance: increased performance for rapidly moving barcodes.
- Depth of field: increased performance for distant barcodes.

Depending on specific environmental conditions or user's circumstances or expected performances, one may decide to assign a higher priority to one or the other.

Depth of field

Motion tolerance

DEFAULT

# LED and Speaker Indicators

## Power On Alert

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

Power On Alert = Disable (No Audible Indication)

Power On Alert = Power-up Beep

DEFAULT

## Good Read: When to Indicate

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

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

NOTE

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

DEFAULT

Indicate Good Read = After Decode

Indicate Good Read = After Transmit

Indicate Good Read = After CTS Goes Inactive, Then Active

## Good Read Beep Type

Specifies whether the good read beep has a mono or bitonal beep sound.

DEFAULT

Good Read Beep Type = Mono

Good Read Beep Type = Bitonal

## Good Read Beep Frequency

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

Good Read Beep Frequency = Low

Good Read Beep Frequency = Medium

DEFAULT

Good Read Beep Frequency = High

## Good Read Speaker Volume / Vibration

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

In addition to three selectable volume levels, the user can also activate a vibration feedback for good read.

Good Read Speaker Volume = Speaker Off

Good Read Speaker Volume = Low

Good Read Speaker Volume = Medium

Good Read Speaker Volume = High

DEFAULT

### Vibration Feedback for Good Read

Enable Vibration

Enable Vibration = Disable

## Silent Mode

If needed, audible indications can be disabled by scanning the labels below.

Please note that some important audible notifications are not muted in silent mode and other notifications are replaced by vibration or visual indications.

All changes in audible notifications are summarized here:

- Good Read beep is replaced with vibration
- Power on beep is replaced with vibration
- Connection / Disconnection / out of radio range beeps are replaced with blue LED and vibration
- Error beep, RF Error/timeout beeps, chirp beeps are replaced with red 3GL and vibration

Silent Mode Enable

Silent Mode OFF

## Good Read Beep Length

Specifies the duration of a good read beep.

Good Read Beep Length = 60 msec

Good Read Beep Length = 80 msec

DEFAULT

Good Read Beep Length = 100 msec

Good Read Beep Length = 120 msec

Good Read Beep Length = 140 msec

Good Read Beep Length = 160 msec

## Good Read Beep Length (continued)

Good Read Beep Length = 180 msec

Good Read Beep Length = 200 msec

## Enable/Disable Good Read Indicator

Enable/Disable the good read indicator.

Good Read Indicator = Disable

DEFAULT

Good Read Indicator = Enable

## Good Read LED Duration

This feature specifies the amount of time that the Good Read LED remains on following a good read. The good read LED on time can be set within a range of 100 milliseconds to 25,500 milliseconds (0.1 to 25.5 seconds) in 100ms increments. A setting of 00 keeps the LED on until the next trigger pull.

See Chapter 4, References for detailed instructions and examples for setting this feature.

Good Read LED Duration Setting = Keep LED on until next trigger pull

Select Good Read LED Duration Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT

**003 = Good Read LED stays on for 300 ms.**

**NOTE**

**Indicators are dimmed during sleep.**

# Scanning Features

## Scan Mode

See "Scan Mode" for more detailed programming instructions.


Scan Mode = Trigger Single

DEFAULT


Scan Mode = Trigger Hold Multiple


Scan Mode = Trigger Pulse Multiple


Scan Mode = Flashing


Scan Mode = Always On


Scan Mode = Object Detection


Scan Mode = Trigger Object Sense

## Flash On Time

This feature specifies the ON time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments. See "Flash On Time" for more detailed pro-gramming instructions.

Select Flash ON Time Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **10 = Flash is ON for 1 Second**

# Flash Off Time

This feature specifies the OFF time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments. See "Flash Off Time" for more detailed pro-gramming instructions.

Select Flash OFF Time Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT

**06 = Flash is OFF for 600ms**

## Object Detection Indication

Enables/disables the LED flash when the reader is in Object Detection.

DEFAULT

Object Detection Flash = Disable

Object Detection Flash = Enable

## Stand Operation

Specifies the behavior of the reader when stationary in a stand. There are two conditions which cause the reader to switch to Stand Mode/Object Detection:

1. The reader is configured to switch to Stand Mode/Object Detection when stationary.
2. The reader is placed into the cradle of the base station.

Below are further options concerning Stand Operation.

**Ignore Autorecognition.** Disables mode switching when the reader is placed in a stand.

**Switch to Stand Mode/Object Detection.** Automatically switches the reader to Stand Mode/Object Detection when the reader is placed in the stand.

**Switch to Flashing.** Automatically switches the reader to Flash Mode when the reader is placed in the stand.

**Switch to Always On.** Automatically switches the reader to Always On mode when the reader is placed in the stand.


Do not change mode


Stand Mode / Object Detection

DEFAULT


Change to Always On


Change to Flashing

## Stand Mode/Object Detection Sensitivity

Sets the sensitivity level for stand mode/object detection wakeup. Choices are low, medium and high.

Stand Mode/Object Detection Sensitivity = Low

Stand Mode/Object Detection Sensitivity = Medium

DEFAULT

Stand Mode/Object Detection Sensitivity = High

## Stand Mode/Object Detection Illumination Off Time

Specifies the amount of time reader illumination stays off after pulling the trigger when in Stand Mode/Object Detection. The configurable range is 01 to 32 by 01 in increments of 500ms (500ms to 16 seconds).

Select Stand Mode Time Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

DEFAULT

**04 = 2 Seconds**

## Illumination Intensity and Frequency

With the following settings the illumination intensity can be reduced if needed. Not all hardware versions support this function. Please contact Technical Support for more information.

DEFAULT

Full Intensity

Reduced Intensity

## Illuminator Refresh Frequency

Illuminator refresh frequency can be increased if needed. In some conditions this can contribute to eye relaxation.

DEFAULT

Normal Refresh Frequency

Increased Refresh Frequency

## Scanning Active Time

This setting specifies the amount of time that the reader stays in scan ON state once the state is entered. The range for this setting is from 1 to 255 seconds in 1–second increments. See “References” for further description of this feature.

Scanning Active Time = 3 seconds

Scanning Active Time = 5 seconds

DEFAULT

Scanning Active Time = 8 seconds

## Motion Still Timeout

Motion Still Timeout specifies the waiting time after which no motions is detected. When no motion is detected for period of time longer than the set Motion Still Timeout period, the scanner assumes it is in a motionless condition. The selectable setting are from 500 to 25,500 milliseconds in 100 millisecond increments. The default is 2 seconds. This option relates to such features and the Aimer On timing and Stand Mode / Object Detection scanning with respect to motion.

Select Motion Still Timeout Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT

**14 = Motion Still Timeout for 2 seconds**

## Pick Mode

Specifies the ability of the reader to decode labels only when they are close to the center of the aiming pattern. This allows the reader to accurately target labels when they are placed close together, such as on a pick sheet.

The Pick Mode can be enabled only in Trigger Single Scan Mode.

NOTE

**This feature is not compatible with Multiple Labels Reading in a Volume.**

DEFAULT

Pick Mode = Disable

Pick Mode = Enable

## Aiming Pointer

Enables/disables the aiming pointer for all symbologies.

Aiming Pointer = Disable

Aiming Pointer = Enable

DEFAULT

Use Green Spot as Aiming Pointer

## Aiming Duration Timer

Specifies the frame of time the aiming pointer remains on after decoding a label, when in trigger single mode.The range for this setting is from 1 to 255 seconds in 1–second increments. See “References” for a description of this feature.

DEFAULT

Set Aiming Duration Timer

Aiming Off After Decoding

To configure, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

## Green Spot Duration

Specifies the duration of the good read pointer beam after a good read.

Green Spot Duration = Disable (Green Spot is Off)

Green Spot Duration = Short (300 msec)

DEFAULT

Green Spot Duration = Medium (500 msec)

Green Spot Duration = Long (800 msec)

## Mobile Phone Mode

This mode is useful for scanning bar codes displayed on a mobile phone. Other options for this feature can be configured using the HP Barcode Scanner D-Series Configuration Utility.

Mobile Phone Mode = Disable

Mobile Phone Mode = Enable

DEFAULT

Mobile Phone Mode = Enhanced

## Mobile Phone Saturation Rate

This specifies the minimum number of saturated pixels (every 1000 pixels) in the image in order to activate the Mobile Phone mode.

DEFAULT

Mobile Phone Saturation Rate = 00

Mobile Phone Saturation Rate = 01

Mobile Phone Saturation Rate = 02

## Decode Negative Image

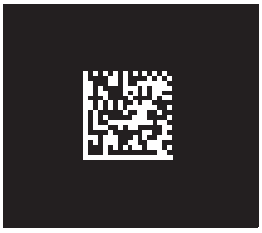
Enable/Disable the ability to decode a negative image for all symbologies. When this feature is enabled, you will be unable to read normally-printed labels or programming labels in this manual. Scan the “Disable” bar code below to return the scanner to its default for this feature. To set decoding for only 2D codes, go to "2D Normal/Inverse Symbol Control". For additional options, see the HP Barcode Scanner D-Series Configuration Utility.

NOTE

**Unlike some programming features and options, Decode Negative Image selections require that you scan only one programming bar code label. DO NOT scan an ENTER/EXIT bar code prior to scanning a Decode Negative Image bar code.**

CAUTION

**When this feature is enabled, you will be unable to read other programming labels in this manual.**



Decode Negative Image = Disable

DEFAULT

Decode Negative Image = Enable

## Image Capture

For information and a list of options for Image Capture, use the HP Barcode Scanner D-Series Configuration Utility, available for free download from the HP website.

# CORDED ONLY FEATURES

## Corded Stand Mode

Sets the Stand Mode Operation for Corded models

NOTE

**This feature is available starting with firmware release 610001013.**

DEFAULT

Corded Stand Mode = Disable

Corded Stand Mode = Generic Stand

Corded Stand Mode = for All-in-one and Base

Corded Stand Mode = Precise Stand

## Dock Detection Beep

If enabled, when the Handheld reader is placed in a dock (cradle or corded stand), it will beep.

Dock Detection Beep = Disable

Dock Detection Beep = Enable

## Corded Stand Beep

Enables/Disables the beep that indicates when Corded Stand position is detected.

**NOTE** **This feature is available starting on firmware release 610001013.**

DEFAULT

Corded Stand Beep = Disable

Corded Stand Beep = Enable

# MULTIPLE LABEL READING

In standard (default) mode, when the reader's aiming system is activated (by a trigger pull, motion or other method depending on the mode), it then acquires and processes each image in the area in front of it (the Volume). In this case, the scanner stops processing the image once it decodes a label. If several labels are present in the volume, only the first label encountered is decoded and sent.

When Multiple Reading Mode is enabled, the scanner keeps on processing the image until all the labels present are decoded. The reader then sorts the data from all the bar codes (if configured to do so) before transmitting it.

## Multiple Labels per Frame

Specifies the ability of the reader to decode and transmit a set of code labels in a specific volume and in a single frame of time. When in Multiple Labels per Frame the reader beeps and turns on the good read LED indication for each code read in a frame.

When Multiple Labels Mode is enabled, ISBT pairing, ABC Codabar pairing, and composites are not allowed.

DEFAULT

Multiple Labels per Frame = Disable

Multiple Labels per Frame = Enable

## Multiple Labels Ordering by Code Symbology

This feature allows you to specify the order multiple labels are transmitted by symbology type, when Multiple Labels per Frame is enabled.

Select Symbologies for Multiple Labels Ordering

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits From the alphanumeric characters In Appendix d, keypad representing your desired Character(s). end by scanning the enter/exit bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT

**000000000000 = Random order**

## Multiple Labels Ordering by Code Length

Specifies the transmission ordering by code length, when Multiple Labels per Frame is enabled.

DEFAULT

Multiple Labels Ordering = Disable

Transmit Increasing Length Order

Transmit Decreasing Length Order

# NOTES

# 1D Symbologies

## Introduction

The scanner supports the following 1D symbologies (bar code types). Symbology-dependent options for each symbology are included in this chapter. See "2D Symbologies" for configuration of 2D bar codes.

| | |
|---|---|
| UPC-A | Interleaved 2 of 5 (I 2 of 5) |
| UPC-E | Interleaved 2 of 5 CIP HR |
| EAN 13 | Datalogic 2 of 5 |
| EAN 13 | Codabar |
| EAN 8 | ABC Codabar |
| Add-Ons | Code 11 |
| GS1 DataBar™ Omnidirectional | Standard 2 of 5 |
| GS1 DataBar™ Expanded | Industrial 2 of 5 |
| GS1 DataBar™ Limited | IATA |
| Code 39 | ISBT 128 |
| Code 32 (Italian Pharmaceutical) | MSI |
| Code 39 CIP (French Pharmaceutical) | Code 93 |
| Code 128 | Follett 2 of 5 |
| GS1-128 | BC412 |

## Standard Factory Settings for Symbologies

Default settings are indicated at each feature/option with a green arrow. Also reference Appendix B, for a listing of the most widely used set of standard factory settings. That section also provides space to record any custom settings needed or implemented for your system.

# Disable All Symbologies

Scan this label to disable all symbologies.

Disable all symbologies

# Coupon Control

This feature is used to control the method of processing coupon labels.

Options are:

- Allow all — allow all coupon bar codes to be decoded
- Enable only UPC/EAN — enables only UPC/EAN coupon decoding
- Enable only GS1 DataBar — enables only GS1 DataBar coupon decoding

To set this feature:

1. Scan the Enter/Exit bar code.
2. Scan either the enable or disable bar code below. You'll need to cover any unused bar codes on this and the facing page to ensure that the scanner sees only the bar code you intend to scan.
3. Complete the programming sequence by scanning the Enter/Exit bar code.

Coupon Control = Allow all

Coupon Control = Enable only UPC/EAN

DEFAULT

Coupon Control = Enable only GS1 DataBar

# UPC-A

The following options apply to the UPC–A symbology.

## UPC-A Enable/Disable

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

UPC-A = Disable

UPC-A = Enable

DEFAULT

## UPC-A Check Character Transmission

Enable this option to transmit the check character along with UPC–A bar code data.

UPC-A Check Character Transmission = Don't Send

UPC-A Check Character Transmission = Send

DEFAULT

## Expand UPC-A to EAN-13

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

DEFAULT

UPC-A to EAN-13 = Don't Expand

UPC-A to EAN-13 = Expand

## UPC-A Number System Character Transmission

This feature enables/disables transmission of the UPC-A number system character.

UPC-A Number System Character = Do not transmit

UPC-A Number System Character = Transmit

DEFAULT

## UPC-A 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label of this symbology is decoded.

DEFAULT

UPC-A 2D Component =
Disable (2D component not required)

UPC-A 2D Component =
Enabled (2D component must be decoded)

# UPC-E

The following options apply to the UPC-E symbology.

## UPC-E Enable/Disable

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

UPC-E = Disable

UPC-E = Enable

DEFAULT

## UPC-E Check Character Transmission

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

UPC-E Check Character Transmission = Don't Send

UPC-E Check Character Transmission = Send

DEFAULT

## UPC-E 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label for this symbology is decoded.

DEFAULT

UPC-E 2D Component =
Disable (2D component not required)

UPC-E 2D Component =
2D component must be decoded

## Expand UPC-E to EAN-13

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

DEFAULT

UPC-E to EAN-13 = Don't Expand

UPC-E to EAN-13 = Expand

## Expand UPC-E to UPC-A

Expands UPC–E data to the UPC–A data format.

DEFAULT

UPC-E to UPC-A = Don't Expand

UPC-E to UPC-A = Expand

## UPC-E Number System Character Transmission

This feature enables/disables transmission of the UPC–E system number character.

UPC-E Number System Character = Do not transmit

UPC-E Number System Character = Transmit

DEFAULT

## GTIN Formatting

This feature enables/disables the ability to convert UPC–E, UPC–A, EAN 8, and EAN 13 labels into the GTIN 14–character format.

**If add-on information is present on the base label prior to the conversion taking place, the add-on information will be appended to the converted GTIN label.**

**NOTE**

DEFAULT

GTIN Formatting = Disable

GTIN Formatting = Enable

# EAN 13

The following options apply to the EAN 13 (Jan 13) symbology.

## EAN 13 Enable/Disable

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

EAN 13 = Disable

EAN 13 = Enable

DEFAULT

## EAN 13 Check Character Transmission

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

EAN 13 Check Character Transmission = Don't Send

EAN 13 Check Character Transmission = Send

DEFAULT

## EAN-13 Flag 1 Character

Enables/disables transmission of an EAN/JAN13 Flag1 character. The Flag 1 character is the first character of the label.

EAN-13 Flag 1 Char= Don't transmit

EAN-13 Flag 1 Char= Transmit

DEFAULT

## EAN-13 ISBN Conversion

This option enables/disables conversion of EAN 13/JAN 13 Bookland labels starting with 978 to ISBN labels.

DEFAULT

EAN-13 ISBN Conversion = Disable

EAN-13 ISBN Conversion = Convert to ISBN

## EAN-13 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label of this symbology is decoded.

DEFAULT

EAN-13 2D Component =
Disable (2D component not required)

EAN-13 2D Component =
2D component must be decoded

## ISSN Enable/Disable

Enables/disables conversion of EAN/JAN13 Bookland labels starting with 977 to ISSN labels.

DEFAULT

ISSN = Disable

ISSN = Enable

# EAN 8

The following options apply to the EAN 8 (Jan 8) symbology.

## EAN 8 Enable/Disable

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

EAN 8 = Disable

EAN 8 = Enable

DEFAULT

## EAN 8 Check Character Transmission

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

EAN 8 Check Character Transmission = Don't Send

EAN 8 Check Character Transmission = Send

DEFAULT

## Expand EAN 8 to EAN 13

Enable this option to expand EAN 8/JAN 8 labels to EAN 13/JAN 13.

DEFAULT

Expand EAN 8 to EAN 13 = Disable

Expand EAN 8 to EAN 13 = Enable

## EAN 8 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label for this symbology is decoded.

DEFAULT

EAN 8 2D Component =
Disable (2D component not required)

EAN 8 2D Component =
2D component must be decoded

# UPC/EAN Global Settings

This section provides configuration settings for UPC–A, UPC–E, EAN 13 and EAN 8 symbologies, and affects all of these unless otherwise marked for each feature description.

## UPC/EAN Price Weight Check

This feature enables/disables calculation and verification of price/weight check digits.

Options are

- Disabled
- Enable 4–digit price–weight check–digit calculation
- Enable 5–digit price–weight check–digit calculation
- Enable European 4–digit price–weight check–digit calculation
- Enable European 5–digit price–weight check–digit calculation

DEFAULT

Price Weight Check = Disabled

Price Weight Check = 4-digit price-weight check

Price Weight Check = 5-digit price-weight check

Price Weight Check = European 4-digit price-weight check

Price Weight Check = European 5-digit price-weight check

## UPC/EAN Quiet Zones

This feature specifies the number of quiet zones for UPC/EAN labels. Quiet zones are blank areas at the ends of a bar code, typically 10 times the width of the narrowest bar or space in the label. The property applies to all EAN-UPC symbologies globally and to the ADD-ONs.

DEFAULT

UPC/EAN Quiet Zones = Two Modules

UPC/EAN Quiet Zones = Three Modules

## Add-Ons

The following features apply to optional add-ons.

NOTE

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

## Optional Add-ons

The scanner can be enabled to optionally read the following add–ons (supple–mentals):

- P2
- P5

NOTE

**If a UPC/EAN base label and a an add-on are both decoded, the scanner will transmit the base label and add-on. If a UPC/EAN base label is decoded without an add-on, the base label will be transmitted without an add-on.**

**Conditional add-on settings (if enabled) are considered by the scanner before optional add-on settings.**

DEFAULT

Optional Add-Ons = Disable P2

Optional Add-Ons = Enable P2

DEFAULT

Optional Add-Ons = Disable P5

Optional Add-Ons = Enable P5

## Optional Add-On Timer

This option sets the time the scanner will look for an add-on when an add-on fragment has been seen and optional add-ons are enabled.

Optional Add-on Timer = 10ms

Optional Add-on Timer = 20ms

Optional Add-on Timer = 30ms

Optional Add-on Timer = 50ms

Optional Add-on Timer = 70ms

DEFAULT

Optional Add-on Timer = 100ms

Optional Add-on Timer = 160ms

## Optional GS1-128 Add-On timer

This option sets the timer expiration value to read the added part after reading the linear EAN/UPC part. For UPC/EAN add-ons other than those of that type, see "Optional Add-On Timer".

DEFAULT

Optional GS1-128 Add-On Timer = Disable

Optional GS1-128 Add-On Timer = 10 ms

Optional GS1-128 Add-On Timer = 20 ms

Optional GS1-128 Add-On Timer = 30 ms

Optional GS1-128 Add-On Timer = 40 ms

Optional GS1-128 Add-On Timer = 50 ms

Optional GS1-128 Add-On Timer = 60 ms

Optional GS1-128 Add-On Timer = 70 ms

Optional GS1-128 Add-On Timer = 100 ms

Optional GS1-128 Add-On Timer = 120 ms

Optional GS1-128 Add-On Timer = 140 ms

Optional GS1-128 Add-On Timer = 160 ms

Optional GS1-128 Add-On Timer = 180 ms

Optional GS1-128 Add-On Timer = 200 ms

Optional GS1-128 Add-On Timer = 220 ms

Optional GS1-128 Add-On Timer = 240 ms

Optional GS1-128 Add-On Timer = 260 ms

Optional GS1-128 Add-On Timer = 280 ms

Optional GS1-128 Add-On Timer = 300 ms

# GS1 DataBar™ Omnidirectional

The following options apply to the GS1 DataBar Omnidirectional (formerly RSS-14) symbology.

## GS1 DataBar Omnidirectional Enable/Disable

When disabled, the scanner will not read GS1 DataBar Omnidirectional bar codes.

DEFAULT

GS1 DataBar Omnidirectional = Disable

GS1 DataBar Omnidirectional = Enable

## GS1 DataBar Omnidirectional GS1-128 Emulation

When enabled, GS1 DataBar Omnidirectional bar codes will be translated to the GS1–128 label data format.

DEFAULT

GS1 DataBar Omnidirectional GS1-128 Emulation = Disable

GS1 DataBar Omnidirectional GS1-128 Emulation = Enable

## GS1 DataBar™ Omnidirectional 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label for this symbology is decoded.

DEFAULT

GS1 DataBar™ Omnidirectional 2D Component = Disable (2D component not required)

GS1 DataBar™ Omnidirectional 2D Component = 2D component must be decoded

# GS1 DataBar™ Expanded

The following options apply to the GS1 DataBar Expanded (formerly RSS Expanded) symbology.

## GS1 DataBar Expanded Enable/Disable

When disabled, the scanner will not read GS1 DataBar Expanded bar codes.

DEFAULT

GS1 DataBar Expanded = Disable

GS1 DataBar Expanded = Enable

## GS1 DataBar Expanded GS1-128 Emulation

When enabled, GS1 DataBar Expanded bar codes will be translated to the GS1-128 label data format.

DEFAULT

GS1 DataBar Expanded GS1-128 Emulation = Disable

GS1 DataBar Expanded GS1-128 Emulation = Enable

## GS1 DataBar Expaded 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label of this symbology is decoded.

DEFAULT

GS1 DataBar Expanded 2D Component = Disable

GS1 DataBar Expanded 2D Component = Enable

## GS1 DataBar Expanded Length Control

This feature specifies either variable length decoding or fixed length decoding for the GS1 DataBar Expanded symbology.

**Variable Length:** For variable-length decoding, a minimum length may be set.

**Fixed Length:** For fixed-length decoding, two different lengths may be set.

DEFAULT

GS1 DataBar Expanded Length Control = Variable Length

GS1 DataBar Expanded Length Control = Fixed Length

## GS1 DataBar Expanded Set Length 1

This feature specifies one of the bar code lengths for GS1 DataBar Expanded Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's data characters only.

The length can be set from 1 to 74 characters. See "Set Length 1" for more detailed programming instructions.

Select GS1 DataBar Expanded Set Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key-pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **01 = Length 1 is 1 Character**

# GS1 DataBar Expanded Set Length 2

This feature specifies one of the bar code lengths for GS1 DataBar Expanded Length Control. Length 2 is the maximum label length if in Vari–able Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's data characters only.

The length can be set from 1 to 74 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" for more detailed programming instructions.

Select GS1 DataBar Expanded Set Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **74 = Length 2 is 74 Characters**

# GS1 DataBar™ Limited

The following options apply to the GS1 DataBar Limited (formerly RSS Limited) symbology.

## GS1 DataBar Limited Enable/Disable

When disabled, the scanner will not read GS1 DataBar Limited bar codes.

DEFAULT

GS1 DataBar Limited = Disable

GS1 DataBar Limited = Enable

## GS1 DataBar Limited GS1-128 Emulation

When enabled, GS1 DataBar Limited bar codes will be translated to the GS1-128 label data format.

DEFAULT

GS1 DataBar Limited GS1-128 Emulation = Disable

GS1 DataBar Limited GS1-128 Emulation = Enable

## GS1 DataBar Limited 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label of this symbology is decoded..

DEFAULT

GS1 DataBar Limited 2D Component = Disable (2D component non required)

GS1 DataBar Limited 2D Component = 2D component must be decoded

# Code 39

The following options apply to the Code 39 symbology.

## Code 39 Enable/Disable

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

Code 39 = Disable

Code 39 = Enable

DEFAULT

## Code 39 Check Character Calculation

Enable this option to enable/disable calculation and verification of an optional Code 39 check character. When disabled, any check character in the label is treated as a data character.

DEFAULT

Code 39 Check Character Calculation = Don't Calculate

Code 39 Check Character Calculation = Calculate Std Check

Code 39 Check Character Calculation = Calculate Mod 7 Check

## Code 39 Check Character Calculation (continued)

Code 39 Check Character Calculation = Enable Italian Post Check

Code 39 Check Character Calculation = Enable Daimler Chrysler Check

## Code 39 Check Character Transmission

Enable this option to transmit the check character along with Code 39 bar code data.

Code 39 Check Character Transmission = Don't Send

Code 39 Check Character Transmission = Send

DEFAULT

## Code 39 Start/Stop Character Transmission

Enable this option to enable/disable transmission of Code 39 start and stop characters.

DEFAULT

Code 39 Start/Stop Character Transmission = Don't Transmit

Code 39 Start/Stop Character Transmission = Transmit

## Code 39 Full ASCII

In Code 39 decoding, this enables/disables the translation of Code 39 characters to Code 39 full-ASCII characters.

DEFAULT

Code 39 Full ASCII = Disable

Code 39 Full ASCII = Enable

## Code 39 Quiet Zones

This feature specifies the number of quiet zones for Code 39 labels. Quiet zones are blank areas at the ends of a bar code and are typically 10 times the width of the narrowest bar or space in the label.

Code 39 Quiet Zones = Small Quiet Zones on two sides

Code 39 Quiet Zones = Quiet Zones on two sides

Code 39 Quiet Zones = Small Quiet Zones on two sides

Code 39 Quiet Zones = Small Quiet Zones on two sides

Code 39 Quiet Zones = Small Quiet Zones on two sides

## Code 39 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 39 symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Code 39 Length Control = Variable Length

Code 39 Length Control = Fixed Length

# Code 39 Set Length 1

This feature specifies one of the bar code lengths for Code 39 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's check, data, and full–ASCII shift characters. The length does not include start/stop characters.

The length can be set from 0 to 50 characters. See "Set Length 1" for more detailed programming instructions.

Select Code 39 Set Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **02 = Length 1 is 2 Characters**

# Code 39 Set Length 2

This feature specifies one of the bar code lengths for Code 39 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's check, data, and full–ASCII shift characters. The length does not include start/stop characters.

The length can be set from 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" for more detailed programming instructions.

Select Code 39 Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **50 = Length 2 is 50 Characters**

## TRIOPTIC CODE

The following options apply to the Trioptic symbology.

### Trioptic Code Enable/Disable

DEFAULT

Trioptic Code = Disable

Trioptic Code = Enable

## CODE 39 DANISH PPT

The following options apply to the Code 39 Danish PPT symbology.

### Code 39 Danish PPT Enable/Disable

Enables/Disables AIM ID for Code 39 Danish PPT Codes.

DEFAULT

Code 39 Danish PPT = Disable

Code 39 Danish PPT = Enable

# CODE 39 PZN

The following options apply to the Code 39 PZN symbology.

## Code 39 PZN Enable/Disable

Enables/Disables the ability of the scanner to decode Code 39 PZN labels.

DEFAULT

Code 39 PZN = Disable

Code 39 PZN = Enable

# CODE 39 LAPOSTE

The following options apply to the Code 39 LaPoste symbology.

## Code 39 LaPoste Enable/Disable

Enables/Disables the ability of the scanner to decode Code 39 LaPoste labels.

DEFAULT

Code 39 LaPoste = Disable

Code 39 LaPoste = Enable

# Code 32 (Italian Pharmaceutical)

The following options apply to the Code 32 symbology.

## Code 32 Enable/Disable

When disabled, the scanner will not read Code 32 bar codes.

DEFAULT

Code 32 = Disable

Code 32 = Enable

## Code 32 Feature Setting Exceptions

NOTE

**The following features are set for Code 32 by using these Code 39 settings:**

"Code 39 Quiet Zones"

"Code 39 Length Control"

## Code 32 Check Character Transmission

Enable this option to transmit the check character along with Code 32 bar code data.

DEFAULT

Code 32 Check Character Transmission = Don't Send

Code 32 Check Character Transmission = Send

## Code 32 Start/Stop Character Transmission

This option enables/disable transmission of Code 32 start and stop characters.

DEFAULT

Code 32 Start/Stop Character Transmission = Don't Transmit

Code 32 Start/Stop Character Transmission = Transmit

# Code 39 CIP (French Pharmaceutical)

The following options apply to the Code 39 CIP symbology.

## Code 39 CIP Enable/Disable

Enables/Disables ability of the scanner to decode Code 39 CIP labels.

DEFAULT

Code 39 CIP = Disable

Code 39 CIP = Enable

# Code 128

The following options apply to the Code 128 symbology.

## Code 128 Enable/Disable

When disabled, the scanner will not read Code 128 bar codes.

Code 128 = Disable

Code 128 = Enable

DEFAULT

## Expand Code 128 to Code 39

This feature enables/disables expansion of Code 128 labels to Code 39 labels. When enabled, the label identifier for a Code 128 label shall be set to Code 39 and all Code 39 formatting control shall be applied to the label.

DEFAULT

Code 128 to Code 39 = Don't Expand

Code 128 to Code 39 = Expand

## Code 128 Check Character Transmission

Enable this option to transmit the check character along with Code 128 bar code data.

DEFAULT

Code 128 Check Character Transmission = Don't Send

Code 128 Check Character Transmission = Send

## Code 128 Function Character Transmission

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

DEFAULT

Code 128 Function Character Transmission = Don't Send

Code 128 Function Character Transmission = Send

## Code 128 Quiet Zones

This feature specifies the number of quiet zones for Code 128 labels. Quiet zones are blank areas at the ends of a bar code and are typically 10 times the width of the narrowest bar or space in the label.

Code 128 Quiet Zones = No Quiet Zones

Code 128 Quiet Zones = Quiet Zone on one side

Code 128 Quiet Zones = Quiet Zones on two sides

Code 128 Quiet Zones = Auto

DEFAULT

Code 128 Quiet Zones = Virtual Quiet Zones on two sides

## Code 128 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 128 symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Code 128 Length Control = Variable Length

Code 128 Length Control = Fixed Length

## Code 128 Set Length 1

This feature specifies one of the bar code lengths for Code 128 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's data characters only.

The length can be set from 1 to 80 characters. See "Set Length 1" for more detailed programming instructions.

Select Code 128 Set Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

DEFAULT

**01 = Length 1 is 1 Character**

# Code 128 Set Length 2

This feature specifies one of the bar code lengths for Code 128 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's data characters only.

The length can be set from 1 to 80 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" for more detailed programming instructions.

Select Code 128 Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **80 = Length 2 is 80 Characters**

# GS1-128

The following options apply to the GS1-128 symbology. (Also known as USS-128, GTIN-128, UCC-128.)

## GS1-128 Enable

This option enables/disables the ability of the scanner to translate GS1-128 labels to the GS1-128 data format. Options are:

- Transmit GS1-128 labels in Code 128 data format.
- Transmit GS1-128 labels in GS1-128 data format.
- Do not transmit GS1-128 labels.

GS1-128 = Transmit in Code 128 data format

GS1-128 = Transmit in GS1-128 data format

DEFAULT

GS1-128 = Do not transmit GS1-128 labels

### GS1-128 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label of this symbology is decoded.

DEFAULT

GS1-128 2D Component = Disable

GS1-128 2D Component = Enable

# Interleaved 2 of 5 (I 2 of 5)

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

CAUTION

**When reading this symbology, the settings for** I 2 of 5 Length Control **AND** I 2 of 5 Check Character Calculation **MUST be enabled to increase decoding safety.**

## I 2 of 5 Enable/Disable

When disabled, the scanner will not read I 2 of 5 bar codes.

DEFAULT

I 2 of 5 = Disable

I 2 of 5 = Enable

## I 2 of 5 Check Character Calculation

This option enables/disables calculation and verification of an optional I 2 of 5 check character.

DEFAULT

I 2 of 5 Check Char Calc = Disable

I 2 of 5 Check Char Calc = Check Standard (Modulo 10)

I 2 of 5 Check Char Calc = Check German Parcel

I 2 of 5 Check Char Calc = Check DHL

I 2 of 5 Check Char Calc = Check Daimler Chrysler

I 2 of 5 Check Char Calc = Check Bosch

I 2 of 5 Check Character Calculation = Check Italian Post

When disabled, any check character in label is treated as a data character.

## I 2 of 5 Check Character Transmission

Enable this option to transmit the check character along with I 2 of 5 bar code data.

NOTE

**This feature is valid only when I 2 of 5 Check Character Calculation is enabled.**

I 2 of 5 Check Character Transmission = Don't Send

I 2 of 5 Check Character Transmission = Send

DEFAULT

## I 2 of 5 Length Control

This feature specifies either variable length decoding or fixed length decoding for the I 2 of 5 symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

I 2 of 5 Length Control = Variable Length

I 2 of 5 Length Control = Fixed Length

# I 2 of 5 Set Length 1

This feature specifies one of the bar code lengths for I 2 of 5 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. The length includes the bar code's check and data characters.

The length can be set from 2 to 50 characters in increments of two. See "Set Length 1" for more detailed programming instructions.

Select I 2 of 5 Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **06 = Length 1 is 6 Characters**

## I 2 of 5 Set Length 2

This feature specifies one of the bar code lengths for I 2 of 5 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. The length includes the bar code's check and data characters.

The length can be set from 2 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length). See "Set Length 2" for more detailed programming instructions.

Select I 2 of 5 Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **50 = Length 2 is 50 Characters**

# Interleaved 2 of 5 CIP HR

The following options apply to the Interleaved 2 of 5 CIP HR symbology.

## Interleaved 2 of 5 CIP HR Enable/Disable

Enables/Disables ability of scanner to decode Interleaved 2 of 5 CIP HR labels.

DEFAULT

Interleaved 2 of 5 CIP HR = Disable

Interleaved 2 of 5 CIP HR = Enable

# Matrix 2 of 5

## Matrix 2 of 5 Enable/Disable

Enables/Disables ability of scanner to decode Matrix 2 of 5 labels.

DEFAULT

Matrix 2 of 5 = Disable

Matrix 2 of 5 = Enable

## Matrix 2 of 5 Check Character Calculation

Enables/Disables calculation and verification of Matrix 2 of 5 check character.

Matrix 2 of 5 Check Character Calculation = Disable

Matrix 2 of 5 Check Character Calculation = Enable

DEFAULT

## Matrix 2 of 5 Check Character Transmission

Enables/Disables transmission of Matrix 2 of 5 check character.

DEFAULT

Matrix 2 of 5 Check Character Transmission = Disable

Matrix 2 of 5 Check Character Transmission = Enable

## Matrix 2 of 5 Length Control

This feature specifies variable length decoding or fixed length decoding for the Matrix 2 of 5 symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Matrix 2 of 5 Length Control = Variable length

Matrix 2 of 5 Length Control = Fixed length

# Matrix 2 of 5 Set Length 1

This feature specifies one of the bar code lengths for Matrix 2 of 5 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's data characters only. Length can be set from 01 to 50 characters.

Table 4 provides some examples for setting Length 1.

**Table 4. Matrix 2 of 5 Length 1 Setting Example**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired Setting** | 01 Character | 07 Characters | 15 Characters | 50 Characters |
| 2 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 3 | **Scan SELECT Matrix 2 of 5 LENGTH 1SETTING** | | | | |
| 4 | **Scan Two Characters From** Appendix D, Keypad | '0' and '1' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

Matrix 2 of 5 Set Length 1 Setting

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **01 = Length 1 is 1 Character**

# Matrix 2 of 5 Set Length 2

This feature specifies one of the bar code lengths for Matrix 2 of 5 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's check, data, and full-ASCII shift characters. Length does not include start/stop characters. Length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Table 5 provides some examples for setting Length 2.

**Table 5. Matrix 2 of 5 Length 2 Setting Example**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired Setting** | 00 (Ignore This Length) | 07 Characters | 15 Characters | 50 Characters |
| 2 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 3 | **Scan SELECT Matrix 2 of 5 LENGTH 1SETTING** | | | | |
| 4 | **Scan Two Characters From** Appendix D, Keypad | '0' and '0' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

Matrix 2 of 5 Set Length 2 Setting

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **01 = Length 1 is 1 Character**

# Datalogic 2 of 5

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

## Datalogic 2 of 5 Enable/Disable

When disabled, the scanner will not read Datalogic 2 of 5 bar codes.

DEFAULT

Datalogic 2 of 5 = Disable

Datalogic 2 of 5 = Enable

## Datalogic 2 of 5 Check Character Calculation

This option enables/disables calculation and verification of an optional Datalogic 2 of 5 check character.

DEFAULT

Datalogic 2 of 5 Check Character Calculation = Disable

Datalogic 2 of 5 Check Character Calculation = Enable

## Datalogic 2 of 5 Check Character Transmission

This option enables/disables transmission of an optional Datalogic 2 of 5 character.

Datalogic 2 of 5 Check Character Transmission = Don't Send

DEFAULT

Datalogic 2 of 5 Check Character Transmission = Send

## Datalogic 2 of 5 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Datalogic 2 of 5 symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Datalogic 2 of 5 Length Control = Variable Length

Datalogic 2 of 5 Length Control = Fixed Length

## Datalogic 2 of 5 Set Length 1

This feature specifies one of the bar code lengths for Datalogic 2 of 5 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. The length includes the bar code's data characters only.

The length can be set from 2 to 50 characters in increments of two. See "Set Length 1" for more detailed programming instructions.

Select Datalogic 2 of 5 Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT

**06 = Length 1 is 6 Characters**

## Datalogic 2 of 5 Set Length 2

This feature specifies one of the bar code lengths for Datalogic 2 of 5 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. The length includes the bar code's data characters only.

The length can be set from 2 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" for more detailed programming instructions.

Select Datalogic 2 of 5 Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **50 = Length 2 is 50 Characters**

# Compressed 2 of 5

## Compressed 2 of 5 Enable/Disable

Enables/Disables ability of scanner to decode Compressed 2 of 5 labels.

DEFAULT

Compressed 2 of 5 = Disable

Compressed 2 of 5 = Enable

## Compressed 2 of 5 Check Character Calculation

Enables/Disables calculation and verification of Compressed 2 of 5 check character.

DEFAULT

Compressed 2 of 5 Check Character Calculation = Disable

Compressed 2 of 5 Check Character Calculation = Enable

## Compressed 2 of 5 Check Character Transmission

Enables/disables transmission of optional Compressed 2 of 5 check character.

DEFAULT

Compressed 2 of 5 Check Character Transmission = Disable

Compressed 2 of 5 Check Character Transmission = Enable

## Compressed 2 of 5 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Compressed 2 of 5 symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Compressed 2 of 5 Length Control = Variable Length

Compressed 2 of 5 Length Control = Fixed Length

# Compressed 2 of 5 Set Length 1

This feature specifies one of the bar code lengths for Compressed 2 of 5 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's data characters only. The length can be set from 01 to 50 characters.

Table 6 provides some examples for setting Length 1.

**Table 6. Compressed 2 of 5 Length 1 Setting Example**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired Setting** | 01 Character | 07 Characters | 15 Characters | 50 Characters |
| 2 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 3 | **Scan SELECT Compressed 2 of 5 LENGTH 1SETTING** | | | | |
| 4 | **Scan Two Characters From** Appendix D, Keypad | '0' and '1' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

Select Compressed 2 of 5 Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

# Compressed 2 of 5 Set Length 2

This feature specifies one of the bar code lengths for Compressed 2 of 5 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's check, data, and full–ASCII shift characters. The length does not include start/stop characters.The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Table 7 provides some examples for setting Length 1.

**Table 7. Compressed 2 of 5 Length 1 Setting Example**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired Setting** | 01 Character | 07 Characters | 15 Characters | 50 Characters |
| 2 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 3 | **Scan SELECT Compressed 2 of 5 LENGTH 1SETTING** | | | | |
| 4 | **Scan Two Characters From** Appendix D, Keypad | '0' and '1' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

Select Compressed 2 of 5 Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

# Codabar

The following options apply to the Codabar symbology.

## Codabar Enable/Disable

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

DEFAULT

Codabar = Disable

Codabar = Enable

## Codabar Check Character Calculation

Enable this option to enable/disable calculation and verification of an optional Codabar check character. When disabled, any check characters in the label are treated as data characters.

DEFAULT

Codabar Check Character Calculation = Don't Calculate

Codabar Check Character Calculation = Enable AIM standard check char.

Codabar Check Character Calculation = Enable Modulo 10 check char.

Codabar Check Character Calculation = Enable NW-7

## Codabar Check Character Transmission

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

**NOTE** **This feature is valid only when Codabar Check Character Calculation is enabled.**

Codabar Check Character Transmission = Don't Send

Codabar Check Character Transmission = Send

DEFAULT

## Codabar Start/Stop Character Transmission

Enable this option to enable/disable transmission of Codabar start and stop characters.

Codabar Start/Stop Character Transmission = Don't Transmit

DEFAULT

Codabar Start/Stop Character Transmission = Transmit

## Codabar Start/Stop Character Set

This option specifies the format of transmitted Codabar start/stop characters.

Codabar Check Character Set = ABCD/TN*E

Codabar Check Character Set = ABCD/ABCD

Codabar Check Character Set = abcd/tn*e

Codabar Check Character Set = abcd/abcd

DEFAULT

## Codabar Start/Stop Character Match

When enabled, this option requires that start and stop characters match.

DEFAULT

Codabar Start/Stop Character Match = Don't Require Match

Codabar Start/Stop Character Match = Require Match

## Codabar Quiet Zones

This feature specifies the number of quiet zones for Codabar labels. Quiet zones are blank areas at the ends of a bar code and are typically 10 times the width of the narrowest bar or space in the label.

Codabar Quiet Zones = Quiet Zone on one side

DEFAULT

Codabar Quiet Zones = Quiet Zones on two sides

Codabar Quiet Zones = Auto

Codabar Quiet Zones = Virtual Quiet Zone on two sides

Codabar Quiet Zones = Small Quiet Zone on two sides

## Codabar Length Control

This feature specifies either variable length decoding or fixed length decoding for the Codabar symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Codabar Length Control = Variable Length

Codabar Length Control = Fixed Length

## Codabar Set Length 1

This feature specifies one of the bar code lengths for Codabar Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's start, stop, check and data characters. The length must include at least one data character.

The length can be set from 3 to 50 characters. See "Set Length 1" for more detailed programming instructions.

Select Codabar Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT

**03 = Length 1 is 3 Characters**

## Codabar Set Length 2

This feature specifies one of the bar code lengths for Codabar Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. The length includes the bar code's start, stop, check and data characters. The length must include at least one data character.

The length can be set from 3 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" for more detailed programming instructions.

Select Codabar Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **50 = Length 2 is 50 Characters**

# ABC Codabar

The following options apply to the ABC Codabar symbology.

## ABC Codabar Enable/Disable

Enables/Disables ability of scanner to decode ABC Codabar labels.

DEFAULT


ABC Codabar = Disable


ABC Codabar = Enable

## ABC Codabar Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.

DEFAULT


ABC Codabar Concatenation Mode = Static


ABC Codabar Concatenation Mode = Dynamic

## ABC Codabar Dynamic Concatenation Timeout

This parameter specifies the timeout in 10-millisecond ticks used by the ABC Codabar Dynamic Concatenation Mode. The timeout can be set within a range of 05 to 255 in 10ms increments. A setting of zero specifies no delay.

Select ABC Codabar Dynamic Concatenation Timeout Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **Default Quiet Interval = 20 ms**

## ABC Codabar Force Concatenation

When ABC Codabar Concatenation is enabled and Force Concatenation is disabled, both Codabar stand alone labels and ABC Codabar concatenated labels are transmitted. When ABC Codabar Concatenation is enabled and Force Concatenation is enabled only ABC Codabar concatenated labels are transmitted while Codabar stand alone labels are not transmitted.

Force Concatenation has no effect if the ABC Codabar Concatenation is disabled. The Force Concatenation mode has effect both in Static and Dynamic Concatenation Modes.

DEFAULT

ABC Codabar Force Concatenation = Disable

ABC Codabar Force Concatenation = Enable

# Code 11

The following options apply to the Code 11 symbology.

## Code 11 Enable/Disable

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

DEFAULT

Code 11 = Disable

Code 11 = Enable

## Code 11 Check Character Calculation

This option enables/disables calculation and verification of optional Code 11 check character.

Code 11 Check Character Calculation = Disable

Code 11 Check Character Calculation = Check C

Code 11 Check Character Calculation = Check K

Code 11 Check Character Calculation = Check C and K

DEFAULT

## Code 11 Check Character Transmission

This feature enables/disables transmission of an optional Code 11 check character.

Code 11 Check Character Transmission = Don't Send

Code 11 Check Character Transmission = Send

DEFAULT

## Code 11 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 11 symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Code 11 Length Control = Variable Length

Code 11 Length Control = Fixed Length

# Code 11 Set Length 1

This feature specifies one of the bar code lengths for Code 11 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's check and data characters.

The length can be set from 2 to 50 characters. See "Set Length 1" for more detailed programming instructions.

Select Code 11 Set Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **04 = Length 1 is 4 Characters**

## Code 11 Set Length 2

This feature specifies one of the bar code lengths for Code 11 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's check and data characters.

The length can be set from 2 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" for more detailed programming instructions.

Select Code 11 Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **50 = Length 2 is 50 Characters**

# Standard 2 of 5

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

## Standard 2 of 5 Enable/Disable

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

DEFAULT

Standard 2 of 5 = Disable

Standard 2 of 5 = Enable

## Standard 2 of 5 Check Character Calculation

This option enables/disables calculation and verification of an optional Standard 2 of 5 check character.

DEFAULT

Standard 2 of 5 Check Character Calculation = Disable

Standard 2 of 5 Check Character Calculation = Enable

## Standard 2 of 5 Check Character Transmission

This feature enables/disables transmission of an optional Standard 2 of 5 check character.

Standard 2 of 5 Check Character Transmission = Don't Send

Standard 2 of 5 Check Character Transmission = Send

DEFAULT

## Standard 2 of 5 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Standard 2 of 5 symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Standard 2 of 5 Length Control = Variable Length

Standard 2 of 5 Length Control = Fixed Length

# Standard 2 of 5 Set Length 1

This feature specifies one of the bar code lengths for Standard 2 of 5 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's check and data characters.

The length can be set from 1 to 50 characters. See "Set Length 1" for more detailed programming instructions.

Select Standard 2 of 5 Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **08 = Length 1 is 8 Characters**

# Standard 2 of 5 Set Length 2

This feature specifies one of the bar code lengths for Standard 2 of 5 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's check and data characters.

The length can be set from 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" for more detailed programming instructions.

Select Standard 2 of 5 Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **50 = Length 2 is 50 Characters**

# Industrial 2 of 5

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

## Industrial 2 of 5 Enable/Disable

Enables/Disables ability of scanner to decode Industrial 2 of 5 labels.

DEFAULT

Industrial 2 of 5 = Disable

Industrial 2 of 5 = Enable

## Industrial 2 of 5 Check Character Calculation

Enables/Disables calculation and verification of an optional Industrial 2 of 5 check character.

DEFAULT

Industrial 2 of 5 Check Character Calculation = Disable

Industrial 2 of 5 Check Character Calculation = Enable

## Industrial 2 of 5 Check Character Transmission

Enables/disables transmission of an Industrial 2 of 5 check character.

Industrial 2 of 5 Check Character Transmission = Disable

DEFAULT

Industrial 2 of 5 Check Character Transmission = Enable

## Industrial 2 of 5 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Industrial 2 of 5 symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Industrial 2 of 5 Length Control = Variable Length

Industrial 2 of 5 = Fixed Length

# Industrial 2 of 5 Set Length 1

This feature specifies one of the bar code lengths for Industrial 2 of 5 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's data characters only.

The length can be set from 1 to 50 characters. See "Set Length 1" for more detailed programming instructions.

Select Industrial 2 of 5 Set Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **Default value is 6**

# Industrial 2 of 5 Set Length 2

This feature specifies one of the bar code lengths for Industrial 2 of 5 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's check, data, and full–ASCII shift characters. The length does not include start/stop characters.

The length can be set from 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" for more detailed programming instructions.

Select Industrial 2 of 5 Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **50 = Length 2 is 50 Characters**

# IATA

The following options apply to the IATA symbology.

## IATA Enable/Disable

Enables/Disables the ability of the scanner to decode IATA labels.

DEFAULT

IATA = Disable

IATA = Enable

## IATA Check Character Transmission

Enables/Disables calculation and verification of an optional Industrial 2 of 5 check character.

IATA Check Character Transmission = Disable

DEFAULT

IATA Check Character Transmission = Enable

# ISBT 128

The following options apply to the ISBT 128 symbology.

## ISBT 128 Concatenation

Enables/disables ISBT128 concatenation of 2 labels.

DEFAULT

ISBT 128 Concatenation = Disable

ISBT 128 Concatenation = Enable

## ISBT 128 Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.

NOTE

**This option is only valid when ISBT 128 Concatenation is enabled.**

DEFAULT

ISBT 128 Concatenation Mode = Static

ISBT 128 Concatenation Mode = Dynamic

## ISBT 128 Dynamic Concatenation Timeout

Specifies the timeout used by the ISBT 128 Dynamic Concatenation Mode.

ISBT 128 Dynamic Concatenation Timeout = 50 msec

ISBT 128 Dynamic Concatenation Timeout = 100 msec

DEFAULT

ISBT 128 Dynamic Concatenation Timeout = 200 msec

ISBT 128 Dynamic Concatenation Timeout = 500 msec

ISBT 128 Dynamic Concatenation Timeout = 750 msec

ISBT 128 Dynamic Concatenation Timeout = 1 second

## ISBT 128 Force Concatenation

When enabled, this feature forces all ISBT 128 labels to be concatenated.

NOTE

**This option is only valid when ISBT 128 Concatenation is enabled.**

DEFAULT

ISBT 128 Force Concatenation = Disable

ISBT 128 Force Concatenation = Enable

## ISBT 128 Advanced Concatenation Options

NOTE

**Contact Customer Support to set up pairs of label types for concatenation.**

# MSI

The following options apply to the MSI symbology.

## MSI Enable/Disable

Enables/Disables ability of scanner to decode MSI labels.

DEFAULT

MSI = Disable

MSI = Enable

## MSI Check Character Calculation

Enables/Disables calculation and verification of an optional MSI check character.

MSI Check Character Calculation = Disable

MSI Check Character Calculation = Enable Mod10

DEFAULT

MSI Check Character Calculation = Enable Mod11/10

MSI Check Character Calculation = Enable Mod10/10

## MSI Check Character Transmission

Enables/disables transmission of an MSI check character.

MSI Check Character Transmission = Disable

DEFAULT

MSI Check Character Transmission = Enable

## MSI Length Control

This feature specifies either variable length decoding or fixed length decoding for the MSI symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

MSI Length Control = Variable Length

MSI = Fixed Length

# MSI Set Length 1

This feature specifies one of the bar code lengths for MSI Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's data characters only.

The length can be set from 01 to 50 characters. See "Set Length 1" for more detailed programming instructions.

Select MSI Set Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **01 = Length 1 is 1 Character**

# MSI Set Length 2

This feature specifies one of the bar code lengths for MSI Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's check, data, and full–ASCII shift characters. The length does not include start/stop characters.

The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length). See "Set Length 2" for more detailed programming instructions.

Select MSI Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **50 = Length 2 is 50 Characters**

# PLESSEY

The following options apply to the Plessey symbology.

## Plessey Enable/Disable

Enables/Disables ability of scanner to decode Plessey labels.

DEFAULT

Plessey = Disable

Plessey = Enable

## Plessey Check Character Calculation

Enables/Disables calculation and verification of Plessey check character.

Plessey Check Character Calculation = Disable

DEFAULT

Plessey Check Character Calculation =
Enable Plessey std. check char. verification

Plessey Check Character Calculation =
Enable Anker check char. verification

Plessey Check Character Calculation =
Enable Plessey std. and Anker check char. verification

## Plessey Check Character Transmission

Enables/Disables transmission of a Plessey check character.

Plessey Check Character Transmission = Disable

DEFAULT

Plessey Check Character Transmission = Enable

## Plessey Length Control

This feature specifies variable length decoding or fixed length decoding for the Plessey symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Plessey Length Control = Variable length

Plessey Length Control = Fixed length

## Plessey Set Length 1

This feature specifies one of the bar code lengths for Plessey Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's data characters only. Length can be set from 01 to 50 characters.

Table 8 provides some examples for setting Length 1.

**Table 8. Plessey Length 1 Setting Example**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired Setting** | 01 Character | 07 Characters | 15 Characters | 50 Characters |
| 2 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 3 | **Scan SELECT Plessey LENGTH 1SETTING** | | | | |
| 4 | **Scan Two Characters From** Appendix D, Keypad | '0' and '1' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

Plessey Set Length 1 Setting

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **01 = Length 1 is 1 Character**

# Plessey Set Length 2

This feature specifies one of the bar code lengths for Plessey Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's check, data, and full–ASCII shift characters. Length does not include start/stop characters. Length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Table 9 provides some examples for setting Length 2.

**Table 9. Plessey Length 2 Setting Example**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired Setting** | 00 (Ignore This Length) | 07 Characters | 15 Characters | 50 Characters |
| 2 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 3 | **Scan SELECT Plessey LENGTH 1SETTING** | | | | |
| 4 | **Scan Two Characters From** Appendix D, Keypad | '0' and '0' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

Plessey Set Length 2 Setting

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT

**50 = Length 2 is 50 Characters**

# Code 93

The following options apply to the Code 93 symbology.

## Code 93 Enable/Disable

Enables/Disables ability of scanner to decode Code 93 labels.

DEFAULT

Code 93 = Disable

Code 93 = Enable

## Code 93 Check Character Calculation

Enables/disables calculation and verification of an optional Code 93 check character.

Code 93 Check Character Calculation = Disable

Code 93 Check Character Calculation = Enable Check C

Code 93 Check Character Calculation = Enable Check K

Code 93 Check Character Calculation = Enable Check C and K

DEFAULT

## Code 93 Check Character Transmission

Enables/disables transmission of an optional Code 93 check character.

DEFAULT

Code 93 Check Character Transmission = Disable

Code 93 Check Character Transmission = Enable

## Code 93 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 93 symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Code 93 Length Control = Variable Length

Code 93 = Fixed Length

# Code 93 Set Length 1

This feature specifies one of the bar code lengths for Code 93 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length. Length includes the bar code's data characters only.

The length can be set from 01 to 50 characters. See "Set Length 1" for more detailed programming instructions.

Select Code 93 Set Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **01 = Length 1 is 1 Character**

## Code 93 Set Length 2

This feature specifies one of the bar code lengths for Code 93 Length Control Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's check, data, and full–ASCII shift characters. The length does not include start/stop characters.

The length can be set from 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" for more detailed programming instructions.

Select Code 93 Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **50 = Length 2 is 50 Characters**

## Code 93 Quiet Zones

Enables/disables fixed length stitching for Code 93.

**NOTE** **This feature is available only on the TD1130 model.**

Code 93 Quiet Zones = No Quiet Zones

Code 93 Quiet Zones = Quiet Zone on one side

Code 93 Quiet Zones = Quiet Zones on two sides

Code 93 Quiet Zones = Auto

DEFAULT

Code 93 Quiet Zones = Virtual Quiet Zones on two sides

# Follett 2 of 5

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

## Follett 2 of 5 Enable/Disable

Enables/Disables ability of scanner to decode Follett 2 of 5 labels.

DEFAULT

Follett 2 of 5 = Disable

Follett 2 of 5 = Enable

# BC412

The following options apply to the BC412 symbology.

## BC412 Enable/Disable

Enables/Disables ability of scanner to decode BC412 labels.

DEFAULT

BC412 = Disable

BC412 = Enable

## BC412 Check Character Calculation

Enable this option to enable/disable calculation and verification of an optional BC412 check character. When disabled, any check character in the label is treated as a data character.

BC412 Check Character Calculation = Don't Calculate

BC412 Check Character Calculation = Calculate Check Character

DEFAULT

## BC412 Check Character Transmission

Enables/disables transmission of an optional BC412 check character..

BC412 Check Character Transmission = Disable

BC412 Check Character Transmission = Enable

DEFAULT

## BC412 Length Control

This feature specifies either variable length decoding or fixed length decoding for the BC412 symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

BC412 Length Control = Variable Length

BC412 Length Control = Fixed Length

# BC412 Set Length 1

This feature specifies one of the bar code lengths for BC412 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's data characters only.

The length can be set from 01 to 50 characters. See "Set Length 1" for more detailed programming instructions.

Select BC412 Set Length 1 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **01 = Length 1 is 1 Character**

# BC412 Set Length 2

This feature specifies one of the bar code lengths for BC412 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's check, data, and full–ASCII shift characters. The length does not include start/stop characters.

The length can be set from 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" for more detailed programming instructions.

Select BC412 Length 2 Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in Appendix D, Key–pad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **50 = Length 2 is 50 Characters**

# NOTES

# 2D Symbologies

| 2D Global Features | |
|---|---|
| ▪ 2D MAXIMUM DECODING TIME | ▪ 2D NORMAL/INVERSE SYMBOL CONTROL |
| ▪ 2D STRUCTURED APPEND | |

The reader supports the following 2D symbologies (bar code types). Symbology-dependent options for each symbology are included in this chapter. See "1D Symbologies" for configuration of 1D bar codes.

| 2D Symbologies | |
|---|---|
| ▪ AZTEC CODE | ▪ MICRO PDF417 |
| ▪ CHINA SENSIBLE CODE | ▪ QR CODE |
| ▪ DATA MATRIX | ▪ MICRO QR CODE |
| ▪ GS1 DOTCODE | ▪ UCC COMPOSITE |
| ▪ PDF417 | ▪ POSTAL CODE SELECTION |

## 2D Global Features

The following features are common to all, or in some cases, most of the available 2D symbologies. Default settings are indicated at each feature/option with a green arrow. Also reference Appendix B, Standard Defaults for a listing of the most widely used set of standard factory settings. That section also provides space to record any custom settings needed or implemented for your system.

To set most features:

1. Scan the ENTER/EXIT PROGRAMMING bar code at the top of applicable programming pages.
2. Scan the correct bar code to set the desired programming feature or parameter. You may need to cover unused bar codes on the page, and possibly the facing page, to ensure that the reader reads only the bar code you intend to scan.
3. If additional input parameters are needed, go to Appendix D, Keypad, and scan the appropriate characters from the keypad.


NOTE

**Additional information about many features can be found in the "References" chapter.**

**If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

Complete the programming sequence by scanning the ENTER/EXIT PROGRAMMING bar code to exit Programming Mode.

## 2D Maximum Decoding Time

This feature specifies the maximum amount of time the software will spend attempting to decode a 2D label. The selectable range is 10 milliseconds to 2.55 milliseconds.

2D Maximum Decoding Time = 100 msec

2D Maximum Decoding Time = 200 msec

2D Maximum Decoding Time = 350 msec

DEFAULT

2D Maximum Decoding Time = 500 msec

2D Maximum Decoding Time = 1 Second

2D Maximum Decoding Time = 2 Seconds

2D Maximum Decoding Time = 2.55 Seconds

## 2D Structured Append

Enables/disables ability of reader to append multiple 2D Codes labels in a structured format. The structured append property is globally applied to the following symbologies, if these are enabled:

- Data Matrix
- QR Code
- Aztec
- PDF 417

DEFAULT

Structured Append = Disable

Structured Append = Enable

## 2D Normal/Inverse Symbol Control

Specifies the options available for decoding normal/negative printed 2D symbols. This configuration item applies globally to all the 2D symbologies that support that feature according to Standard AIM Specification: Data Matrix, QR, MicroQR, Aztec and Chinese Sensible Code.

DEFAULT

Normal/Inverse Symbol Control = Normal

Normal/Inverse Symbol Control = Inverse

Normal/Inverse Symbol Control = Both Normal and Inverse

# Symbology Selection

## Aztec Code

### Aztec Code Enable / Disable

Enables/disables the ability of the reader to decode Aztec Code labels.

Aztec Code = Disable

DEFAULT

Aztec Code = Enable

### Aztec Code Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Aztec Code Length Control = Variable Length

Aztec Code Length Control = Fixed Length

## Aztec Code Set Length 1

Specifies one of the bar code lengths for Aztec Code Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Characters can be set from 0001 to 3,832 characters in increments of 0001 (pad with zeroes).

Select Aztec Code Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **0001 = Length 1 is 1 Character**

## Aztec Code Set Length 2

This feature specifies one of the bar code lengths for Aztec Code Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Characters can be set from 0001 to 3,832 characters in increments of 0001 (pad with zeroes).

Select Aztec Code Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **Length 2 is 3,832 Characters**

# China Sensible Code

## China Sensible Code Enable / Disable

Enables/disables the ability of the reader to decode China Sensible Code labels.

DEFAULT

China Sensible Code = Disable

China Sensible Code = Enable

## China Sensible Code Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

China Sensible Code Length Control = Variable Length

China Sensible Code Length Control = Fixed Length

## China Sensible Code Set Length 1

Specifies one of the bar code lengths for China Sensible Code Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Characters can be set from 0001 to 7,827 characters in increments of 0001 (pad with zeroes).

Select China Sensible Code Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **0001 = Length 1 is 1 Character**

## China Sensible Code Set Length 2

This feature specifies one of the bar code lengths for China Sensible Code Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Characters can be set from 0001 to 7,827 characters in increments of 0001 (pad with zeroes).

Select China Sensible Code Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **Length 2 is 7,827 Characters**

# Data Matrix

## Data Matrix Enable / Disable

Enables/disables ability of reader to decode Data Matrix labels.

Data Matrix = Disable

Data Matrix = Enable

DEFAULT

## Data Matrix Square/Rectangular Style

Specifies the options available when reading Data Matrix with different form factors. Choices are:

- Square Style
- Rectangular Style
- Both Square and Rectangular Style

The configuration item can also be configured as a bit mask to filter one or more Data Matrix labels with different symbol size AND shape styles.

Data Matrix Dimensions Mask = Square Style

Data Matrix Dimensions Mask = Rectangular Style

DEFAULT

Data Matrix Dimensions Mask =
Both Square and Rectangular Style

# Data Matrix Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Data Matrix Length Control = Variable Length

Data Matrix Length Control = Fixed Length

## Data Matrix Set Length 1

Specifies one of the bar code lengths for Data Matrix Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Characters can be set from 0001 to 3,116 characters in increments of 0001 (pad with zeroes).

Select Data Matrix Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **0001 = Length 1 is 1 Character**

## Data Matrix Set Length 2

This feature specifies one of the bar code lengths for Data Matrix Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Characters can be set from 0001 to 3,116 characters in increments of 0001 (pad with zeroes).

Select Data Matrix Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **Length 2 is 3,116 Characters**

# GS1 DotCode

The following options apply for the DotCode barcode decoding.

## DotCode Enable

This options enables/disables the ability of the scanner to decode DotCode barcodes.

DotCode = Enable

DEFAULT

DotCode = Disable

## DotCode High Resolution Enable

This options improves the decoding performance for very small module size barcodes, e.g. tobacco products..

DEFAULT

DotCode High Resolution= Enable

DotCode High Resolution = Disable

## DotCode Position-based Decoding

This option can improve the decoding performance when the next barcode to be decoded is approximately shown in the same position as the previous one.

DotCode Position-based Decoding = Enable

DotCode Position-based Decoding = Disable

DEFAULT

## Additional Options

To improve performances the following additional settings are available using the configuration utility.

- Dot Size
- Fixed Length or Variable Length
- Min and Max barcode size

# Maxicode

## Maxicode Enable / Disable

Enables/disables ability of reader to decode Maxicode labels.

DEFAULT

Maxicode = Disable

Maxicode = Enable

## Maxicode Primary Message Transmission

Enables/disables the transmission of only the Primary Message when the Secondary Message is not readable.

DEFAULT

Maxicode Primary Message Transmission = Disable

Maxicode Primary Message Transmission = Enable

## Maxicode Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Maxicode Length Control = Variable Length

Maxicode Length Control = Fixed Length

### Maxicode Set Length 1

Specifies one of the bar code lengths for Maxicode Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Characters can be set from 0001 to 0145 characters in increments of 0001 (pad with zeroes).

Select Maxicode Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **0001 = Length 1 is 1 Character**

## Maxicode Set Length 2

This feature specifies one of the bar code lengths for Maxicode Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Characters can be set from 0001 to 0145 characters in increments of 0001 (pad with zeroes).

Select Maxicode Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **Length 2 is 0145 Characters**

# PDF417

## PDF417 Enable / Disable

Enables/disables the ability of the reader to decode PDF417 labels.

PDF417 = Disable

PDF417 = Enable

DEFAULT

## PDF417 Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

PDF417 Length Control = Variable Length

PDF417 Length Control = Fixed Length

## PDF417 Set Length 1

Specifies one of the bar code lengths for PDF417 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's data characters only. Characters can be set from 0001 to 2,710 characters (pad with zeroes) in increments of 01. Any value greater than 2,710 will be considered to be 2,710.

Select PDF417 Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **0001 = Length 1 is 1 Character**

## PDF417 Set Length 2

This feature specifies one of the bar code lengths for PDF417 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code's check, data, and full–ASCII shift characters. The length does not include start/stop characters. Characters can be set from 01 to 2,710 characters (pad with zeroes) in increments of 01. Any value greater than 2,710 will be considered to be 2,710.

Select PDF417 Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **Length 2 is 2,710 Characters**

# Micro PDF417

## Micro PDF417 Enable / Disable

Enables/disables the ability of the reader to decode Micro PDF417 labels.

DEFAULT

Micro PDF417 = Disable

Micro PDF417 = Enable

## Micro PDF417 Code 128 GS1-128 Emulation

Specifies which AIM ID to use for MicroPDF labels when doing Code 128 or GS1-128 emulation.

Emulation choices are:

- Micro PDF AIM ID and label type
- Code 128 / EAN128 AIM Id and label type

DEFAULT

Micro PDF417 Code 128 GS1-128 Emulation = Micro PDF AIM ID and label type

Micro PDF417 Code 128 GS1-128 Emulation = Code 128 / EAN128 AIM ID and label type

## Micro PDF417 Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Micro PDF417 Length Control = Variable Length

Micro PDF417 Length Control = Fixed Length

### Micro PDF417 Set Length 1

Specifies one of the bar code lengths for Micro PDF417 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the bar code's data characters only. Characters can be set from 0001 to 0366 characters (pad with zeroes) in increments of 01. Any value greater than 0366 will be considered to be 0366.

Select Micro PDF417 Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **0001 = Length 1 is 1 Character**

## Micro PDF417 Set Length 2

This feature specifies one of the bar code lengths for Micro PDF417 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length includes the bar code's data characters only. Characters can be set from 0001 to 0366 characters (pad with zeroes) in increments of 01. Any value greater than 0366 will be considered to be 0366.

Select Micro PDF417 Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **Length 2 is 0366 Characters**

# QR Code

## QR Code Enable / Disable

Enables/disables the ability of the reader to decode QR Code labels.

QR Code = Disable

DEFAULT

QR Code = Enable

## QR Code Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

QR Code Length Control = Variable Length

QR Code Length Control = Fixed Length

## QR Code Set Length 1

Specifies one of the bar code lengths for QR Code Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Characters can be set from 0001 to 7,089 characters in increments of 0001 (pad with zeroes).

Select QR Code Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT

**0001 = Length 1 is 1 Character**

## QR Code Set Length 2

This feature specifies one of the bar code lengths for QR Code Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Characters can be set from 0001 to 7,089 characters in increments of 0001 (pad with zeroes).

Select QR Code Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **Length 2 is 7,089 Characters**

# Micro QR Code

## Micro QR Code Enable/Disable

Enables/disables the ability of the reader to decode Micro QR Code labels.

DEFAULT

Micro QR Code = Disable

Micro QR Code = Enable

## Micro QR Code Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

DEFAULT

Micro QR Code Length Control = Variable Length

Micro QR Code Length Control = Fixed Length

## Micro QR Code Set Length 1

Specifies one of the bar code lengths for Micro QR Code Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Characters can be set from 0001 to 0035 characters in increments of 0001 (pad with zeroes).

Select Micro QR Code Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **0001 = Length 1 is 1 Character**

## Micro QR Code Set Length 2

This feature specifies one of the bar code lengths for Micro QR Code Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Characters can be set from 0001 to 0035 characters in increments of 0001 (pad with zeroes).

Select Micro QR Code Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT **Length 2 is 0035 Characters**

# UCC Composite

## UCC Optional Composite Timer

Specifies the amount of time the system will wait for the stacked part of a UCC Composite label before transmitting the linear label without an add-on.

UCC Optional Composite Timer = Timer Disabled

UCC Optional Composite Timer = 70msec

UCC Optional Composite Timer = 100msec

UCC Optional Composite Timer = 200msec

UCC Optional Composite Timer = 300msec

# Postal Code Selection

Enables/disables the ability of the scanner to decode labels of a specific postal symbology.

- Disable All Postal Codes
- Postnet
- Planet
- Royal Mail
- Kix
- Australia Post
- Japan Post
- IMB
- Sweden Post
- Portugal Post

DEFAULT

Postal Code Selection = Disable All Postal Codes

Postal Code Selection = Enable Postnet

Postal Code Selection = Enable Planet

Postal Code Selection = Enable Royal Mail

Postal Code Selection = Enable Kix

Postal Code Selection = Enable Australia Post

## Postal Code Selection (continued)

Postal Code Selection = Enable Japan Post

Postal Code Selection = Enable IMB

Postal Code Selection = Enable Sweden Post

Postal Code Selection = Enable Portugal Post

## Postnet BB Control

Controls the ability of the scanner to decode B and B' fields of Postnet labels.

DEFAULT

Postnet BB Control = Disable

Postnet BB Control = Enable

# OCR Decoding

The scanner family is equipped with an Optical Character Recognition feature.

This section describes how to configure the barcode scanner to enable OCR decoding.

The scanner supports the following OCR font types:

- OCR-A
- OCR-B
- MICR E13B
- US Currency Serial Number.

In most OCR applications a suitable usage of check digits and the addition of constraints on sub-strings types (e.g. digits-only or letter-only) reduces mis-decoding probabilities.

The user can choose between a set of predefined templates (already optimized for decoding) and customizable free templates.

For free templates, as OCR decoding is less reliable than traditional barcode decoding, the scanner provides tools to minimize misdecoded labels. As a result, particular care shall be dedicated to the setup of free custom templates to reduce incorrect output.

For more information on how to customize the user templates for your needs, please contact Technical Support.

Use one of the following labels to enable one of the predefined templates for OCR decoding.

## OCR predefined template: EU ID Card OCR Format

EU Identity Card OCR

## OCR predefined template: IATA Passport

IATA Passport OCR

## OCR predefined template: Italian Post payment form

Italian Post OCR Payment

## OCR predefined template: Italian Bank payment form

Enable Italian Bank Freccia Bank Payment form

## OCR predefined template: Swiss Driving License

Enable Swiss Driving License OCR

## OCR Decoding Disable

Use the following label to turn off the OCR decoding feature:

Disable OCR function

DEFAULT

# NOTES

# Motion Features

| |
|---|
| MOTION AIMING CONTROL |
| MOTION SENSITIVITY |
| MOTIONLESS TIMEOUT |

Use this chapter to configure motion settings for the handheld.

Reference Appendix B, for a listing of standard factory settings.

## Motion Aiming Control

Configures the ability of the scanner to Enable/Disable the Aiming system when motion is detected.

Motion Aiming Control = Disable

DEFAULT

Motion Aiming Control = Enable

## Motion Sensitivity

Defines discrete set of levels for scanner motion sensitivity when in handheld use.

Motion Sensitivity = Low

DEFAULT

Motion Sensitivity = Medium

Motion Sensitivity = High

## Motionless Timeout

Specifies the waiting time in 100 millisecond ticks to assume that the reader is in a motionless condition. The selectable range is 500 msec to 25.5 Seconds. When no motion event is detected for a period of time longer than this timeout, the software assumes the reader is in a motionless condition. This normally results in returning the scanner to Stand Mode. This option relates to such features as Aimer On and Stand Mode/Object Detection scanning with respect to motion.

Select Motionless Timeout Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by three digits from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

CANCEL

DEFAULT

**020 = Motionless Timeout = 2 seconds**

# Chapter 4
# References

This section contains explanations and examples of selected bar code features. See "Configuration Using Bar Codes" for the actual bar code labels used to configure the scanner.

| |
|---|
| **RS-232 PARAMETERS**<br>▪ RS-232 Only<br>▪ RS-232/USB COM Parameters |
| **KEYBOARD INTERFACE**<br>▪ Wedge Quiet Interval<br>▪ Intercharacter Delay<br>▪ Intercode Delay |
| **DATA FORMAT**<br>▪ Data Editing<br>▪ Global Prefix/Suffix<br>▪ Global AIM ID<br>▪ Label ID<br>▪ Character Conversion |
| **SCANNING FEATURES**<br>▪ Scanning Features |
| **SCANNING FEATURES**<br>▪ Scan Mode<br>▪ Scanning Active Time<br>▪ Flash On Time<br>▪ Flash Off Time |
| **SYMBOLOGIES**<br>▪ Set Length<br>▪ Set Length |

# RS-232 Parameters

## RS-232 Only

### Baud Rate

Baud rate is the number of bits of data transmitted per second. Set the scanner's baud rate to match the baud rate setting of the host device. With an improper baud rate setting, data may not reach the host correctly.

### Data Bits

This parameter allows the reader to interface with devices requiring a 7-bit or 8-bit ASCII protocol for sending and receiving data.

### Stop Bits

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

### Parity

This feature specifies parity required for sending and receiving data. A parity check bit is the most significant bit of each ASCII coded character. Select the parity type according to host device requirements.

- Select None when no parity bit is required.
- Select Odd parity and the parity bit value is set to 0 or 1, based on data, to ensure that an odd number of 1 bits are contained in the coded character.
- Select Even parity and the parity bit value is set to 0 or 1, based on data, to ensure that an even number of 1 bits are contained in the coded character.

### Handshaking Control

The data interface consists of an RS-232 port designed to operate either with or without the hardware handshaking lines, Request to Send (RTS), and Clear to Send (CTS). Handshaking Control includes the following options:

- RTS — RTS is asserted during transmissions. CTS is ignored.
- RTS/CTS — RTS is asserted during transmissions. CTS gates transmissions.
- RTS/XON/XOFF — RTS is asserted during transmissions. CTS is ignored. XON and XOFF gate transmissions.
- RTS On/CTS — RTS is always asserted. CTS gates transmissions.
- RTS/CTS Scan Control — RTS is asserted during transmissions. CTS gates transmissions and controls enable and disable state of scanner.

# RS-232/USB COM Parameters

## Intercharacter Delay

This parameter specifies the intercharacter delay between the end of one character and the beginning of the next. The delay can be set within a range of zero (0) to 990 milliseconds in 10ms increments. A setting of zero specifies no delay.

To set the delay:

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 10 (setting is in 10ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT INTERCHARACTER DELAY SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

**If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit.

This completes the procedure. See the following table for examples of how to set this feature.

**Table 11. Intercharacter Delay Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | Desired Setting | 50ms | 150ms | 600ms | 850ms |
| 2 | Divide by 10 (pad with leading zeroes to yield two-digits) | 05 | 15 | 60 | 85 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT INTERCHARACTER DELAY SETTING | | | | |
| 5 | Scan Two Characters From Appendix D, Keypad | '0' and '5' | '1' and 5' | '6' and '0' | '8' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

## ACK NAK Options

This enables/disables the ability of the scanner to support the RS-232 ACK/NAK protocol. When configured, the scanner and/or host sends an "ACK" when it receives data properly, and sends "NAK" when the data is in error.

Options are:

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

## ACK Character

This setting specifies an ASCII character or hex value to be used as the ACK character. ASCII characters or any hex value from 0 to 0xFF can be selected.

NOTE

**Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option Data Bits has been set as 7 Data Bits.**

1. Determine the desired character or value.
2. Use the ASCII Chart at the back of this manual to find the hex equivalent for the desired character/value.
3. Scan ENTER/EXIT PROGRAMMING MODE to enter Programming Mode.
4. Scan the bar code: SELECT ACK CHARACTER SETTING.
5. Scan the appropriate two alphanumeric characters from the keypad in Appendix D, Keypad, that represent the desired character/value determined above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit.

See the table below for examples of how to set this feature.

**Table 12. ACK Character Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired Character/Value** | ACK | $ | @ | > |
| 2 | **Hex equivalent from** ASCII Chart | 0x06 | 0x24 | 0x40 | 0x3E |
| 3 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 4 | **Scan SELECT ACK CHARACTER SETTING** | | | | |
| 5 | **Scan Two Characters from** Appendix D, Keypad | '0' and '6' | '2' and '4' | '4' and '0' | '3' AND 'E' |
| 6 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

## NAK Character

This setting specifies an ASCII character or hex value to be used as the NAK character. ASCII characters or any hex value from 0 to 0xFF can be selected.

NOTE

**Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option** Data Bits **on has been set as 7 Data Bits.**

To set this feature:

1. Determine the desired character or value.
2. Use the ASCII Chart on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT NAK CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in Appendix D, Keypad, that represent the desired character/value determined above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the table below for examples of how to set this feature.

**Table 13. NAK Character Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | Desired Character/Value | NAK | $ | @ | > |
| 2 | Hex equivalent | 0x15 | 0x24 | 0x40 | 0x3E |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT NAK CHARACTER SETTING | | | | |
| 5 | Scan Two Characters From Appendix D, Keypad | '1' and '5' | '2' and '4' | '4' and '0' | '3' AND 'E' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

## ACK NAK Timeout Value

This option specifies the amount of time the scanner waits for an ACK character from the host following label transmission. The selectable timeout range is 200 milliseconds to 15,000ms (15 seconds) in 200ms increments. A selection of 0 disables the timeout.

To set this value:

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 200 (setting is in 200ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT ACK NAK TIMEOUT VALUE SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

**NOTE**

**If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the table below for examples of how to set this feature.

**Table 14. ACK NAK Timeout Value Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | Desired Setting | 200ms | 1,000ms (1 sec.) | 5200ms (5.2 sec.) | 15,000ms (15 sec.) |
| 2 | Divide by 200 | 01 | 05 | 26 | 75 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT ACK NAK TIMEOUT VALUE SETTING | | | | |
| 5 | Scan Two Characters From Appendix D, Keypad | '0' and '1' | '0' and '5' | '2' and '6' | '7' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

## ACK NAK Retry Count

This feature specifies the number of times the scanner retries a label transmission due to a retry condition. The selectable range is from 1 to 254 retries. A selection of 0 disables the count, and a selection of 255 specifies unlimited retries.

To set this feature:

1. Determine the desired setting.
2. Pad the number with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT ACK NAK RETRY COUNT SETTING.
5. Scan the appropriate three digits from the keypad in Appendix D, Keypad, that represent the number which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

**If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the table below for examples of how to set this feature.

**Table 15. ACK NAK Retry Count Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | Desired Setting | Disable Retry Count | 3 Retries | 54 Retries | Unlimited Retries |
| 2 | Pad with leading zero(es) | 000 | 003 | 054 | 255 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT ACK NAK RETRY COUNT SETTING | | | | |
| 5 | Scan Three Characters From Appendix D, Keypad | '0', '0' and '0' | '0', '0' and '3' | '0', '5' and '4' | '2', '5' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

## Disable Character

Specifies the value of the RS-232 host command used to disable the scanner. ASCII characters or any hex value from 0 to 0xFF can be selected.

NOTE

**Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option** Data Bits **has been set as 7 Data Bits.**

To set the value:

1. Determine the desired character or value. A setting of 0xFF indicates the Disable Character is not used (not available).
2. Use the ASCII Chart on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT DISABLE CHARACTER SETTING.
5. Scan the appropriate two alphanumeric characters from the keypad in Appendix D, Keypad, that represent the desired character/value determined above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the table below for examples of how to set this feature.

**Table 16. Disable Character Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired character/value** | 'd' | '}' | 'D' | Disable Command Not Used |
| 2 | **Hex equivalent from** ASCII Chart | 0x64 | 0x7D | 0x44 | 0xFF |
| 3 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 4 | **Scan SELECT DISABLE CHARACTER VALUE SETTING** | | | | |
| 5 | **Scan Two Characters From** Appendix D, Keypad | '6' and '4' | '7' and 'D' | '4' and '4' | 'F' and 'F' |
| 6 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

## Enable Character

Specifies the value of the RS-232 host command used to enable the scanner. ASCII characters or any hex value from 0 to 0xFF can be selected.

NOTE

**Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option** Data Bits **has been set as 7 Data Bits.**

To set this feature:

Determine the desired character or value. A setting of 0xFF indicates the Enable Character is not used (not available).

1. Determine the desired character or value.
2. Use the ASCII Chart on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT ENABLE CHARACTER SETTING.
5. Scan the appropriate two alphanumeric characters from the keypad in Appendix D, Keypad, that represent the desired character/value determined above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the table below for examples of how to set this feature.

**Table 17. Enable Character Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired character/value** | 'e' | '}' | 'E' | Enable Command Not Used |
| 2 | **Hex equivalent from** ASCII Chart | 0x65 | 0x7D | 0x45 | 0xFF |
| 3 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 4 | **Scan SELECT ENABLE CHARACTER SETTING** | | | | |
| 5 | **Scan Two Characters From** Appendix D, Keypad | '6' and '5' | '7' and 'D' | '4' and '5' | 'F' and 'F' |
| 6 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

# Keyboard Interface

## Wedge Quiet Interval

Specifies the amount of time the scanner looks for keyboard activity before it breaks the keyboard connection in order to transmit data to host. The range is from 0 to 990ms in 10ms increments.

NOTE This feature applies ONLY to the Keyboard Wedge interface.

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 10 (setting is in 10ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Prog. Mode.
4. Scan the bar code: SELECT WEDGE QUIET INTERVAL SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit.

This completes the procedure to set the Wedge Quiet Interval. See the table below for examples of how to set this feature.

**Table 18. Wedge Quiet Interval Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | Desired Setting | 10ms | 150ms | 600ms | 850ms |
| 2 | Divide by 10 (and pad with leading zeroes) | 01 | 15 | 60 | 85 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT WEDGE QUIET INTERVAL SETTING | | | | |
| 5 | Scan Two Characters From Appendix D, Keypad | '0' and '1' | '1' and '5' | '6' and '0' | '8' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

## Intercharacter Delay

This parameter specifies the intercharacter delay between the end of one character and the beginning of the next. The delay can be set within a range of zero (0) to 990 milliseconds in 10ms increments. A setting of zero specifies no delay.

NOTE

**This feature applies ONLY to the Keyboard Wedge interface.**

To set the delay:

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 10 (setting is in 10ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT INTERCHARACTER DELAY SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

**If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the table below for examples of how to set this feature.

**Table 19. Intercharacter Delay Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | Desired Setting | 50ms | 150ms | 600ms | 850ms |
| 2 | Divide by 10 (and pad with leading zeroes to yield two-digits) | 05 | 15 | 60 | 85 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT INTERCHARACTER DELAY SETTING | | | | |
| 5 | Scan Two Characters From Appendix D, Keypad | '0' and '5' | '1' and '5' | '6' and '0' | '8' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

## Intercode Delay

Specifies the delay between labels transmitted to the host for this interface. The selectable range for this feature is from 0 to 99 seconds.

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT INTERCODE DELAY SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

**NOTE** **If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the table below for examples of how to set this feature.

**Table 20. Wedge Intercode Delay Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | Desired Setting | No Delay | 5 Seconds | 60 Seconds | 99 Seconds |
| 2 | Pad with leading zero(es) | 00 | 05 | 60 | 99 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT INTERCODE DELAY SETTING | | | | |
| 5 | Scan Two Characters From Appendix D, Keypad | '0' and '0' | '0' and '5' | '6' and '0' | '9' and '9' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

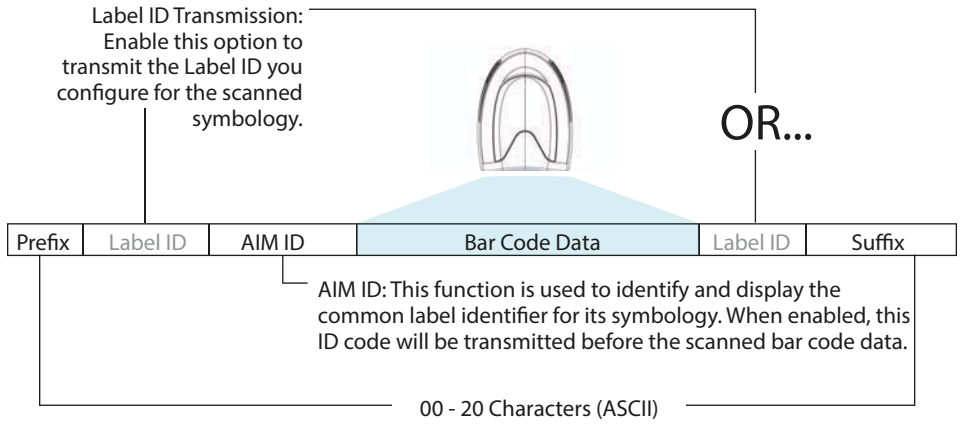
# Data Format

## Data Editing

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

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

**Figure 17. Breakdown of a Message String**




**NOTE** **Additional advanced editing is available. Contact Technical Support for more information.**

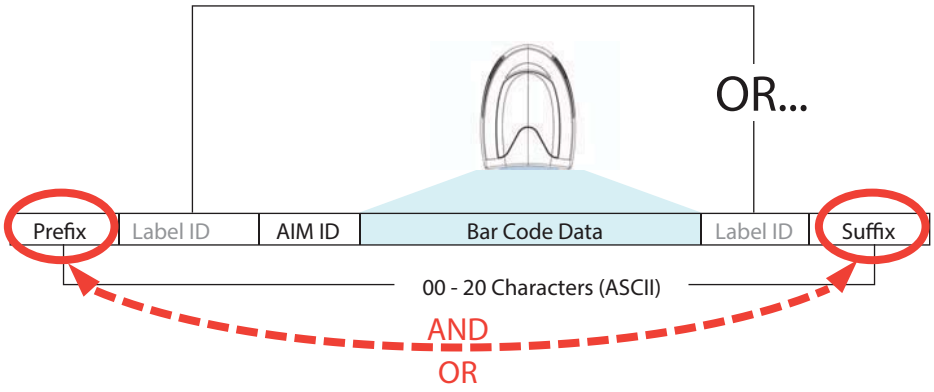
### Please Keep In Mind...

- Modifying a message string is not a mandatory requirement. Data editing is a sophisticated feature allowing highly customizable output for advanced users. Factory default settings for data editing is typically set to NONE.
- A prefix or suffix may be applied only to a specified symbology (reference 1D Symbologies) or across all symbologies (set via the Global features in Configuration Using Bar Codes).
- You can add any character from the ASCII Chart (from 00-FF) on the inside back cover of this manual as a prefix, suffix or Label ID.
- Enter prefixes and suffixes in the order in which you want them to appear on the output.

# Global Prefix/Suffix

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

Figure 18. Prefix and Suffix Positions




## Example: Setting a Prefix

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

1. Determine which ASCII character(s) are to be added to scanned bar code data. In this example, we'll add a dollar sign ('$') as a prefix.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code, then scan the SET GLOBAL PREFIX bar code.
3. Reference the ASCII Chart on the inside back cover of this man-ual to find the hex value assigned to the desired character. The corresponding hex number for the '$' character is 24. To enter this selection code, scan the '2' and '4' bar codes from Appendix D, Keypad.

NOTE **If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

4. If less than the expected string of 20 characters are selected, scan the ENTER/EXIT bar code to terminate the string.
5. Scan the ENTER/EXIT bar code once again to exit Programming Mode.
6. The resulting message string would appear as follows:
   Scanned bar code data: **12345**
   Resulting message string output: **$12345**

# Global AIM ID

NOTE

**This feature enables/disables addition of AIM IDs for all symbology types.**

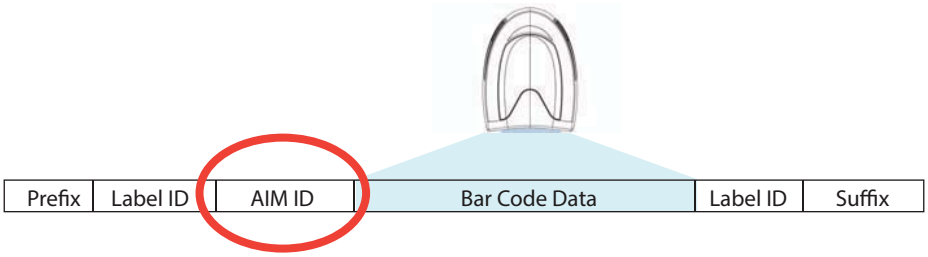
AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned bar code data. AIM label identifiers consist of three characters as follows:

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

| SYMBOLOGY | CHAR | SYMBOLOGY | CHAR |
|---|---|---|---|
| UPC/EAN | E[a] | Code 128/GS1-128 | C |
| Code 39 and Code 32 | A | DataBar Omnidirectional, DataBar Expanded | e |
| Codabar | F | Standard 2 of 5 | S |
| Interleaved 2 of 5 | I | ISBN | X[b] |
| Code 93 | G | Code 11 | H |

a. UPC-A and UPC-E labels are converted to EAN 13 when adding AIM IDs.
b. ISBN (X with a 0 modifier character)

**Figure 19. AIM ID**



# Label ID

A Label ID is a customizable code of up to three ASCII characters (each can be one of hex 0x01–0xFF), used to identify a bar code (symbology) type. It can be appended previous to or following the transmitted bar code data depending upon how this option is enabled. This feature provides options for configuring custom Label IDs as a pre-loaded set or individually per symbology (see "Label ID: Set Individually Per Symbology"). If you wish to program the scanner to always include an industry standard label identifier for ALL symbology types, see "Global AIM ID".

## Label ID: Pre-loaded Sets

The following table lists the pre-loaded label ID sets for the USA and Europe.

**Table 21. Label ID Pre-loaded Sets**

| Symbology | USA Label ID set | | EU Label ID set | |
|---|---|---|---|---|
| | ASCII character | Hex value | ASCII character | Hexadecimal value |
| ABC Codabar | S | 530000 | S | 530000 |
| CODABAR | % | 250000 | R | 520000 |
| Code 39 CIP | Y | 590000 | Y | 590000 |
| Code 93 | & | 260000 | U | 550000 |
| CODE11 | CE | 434500 | b | 620000 |
| CODE128 | # | 230000 | T | 540000 |
| CODE32 | A | 410000 | X | 580000 |
| CODE39 | * | 2A0000 | V | 560000 |
| CODE93 | & | 260000 | U | 550000 |
| DATALOGIC 2OF5 | s | 730000 | s | 730000 |
| EAN13 | F | 460000 | B | 420000 |
| EAN13 P2 | F | 460000 | L | 4C0000 |
| EAN13 P5 | F | 460000 | M | 4D0000 |
| EAN8 | FF | 464600 | A | 410000 |
| EAN8 P2 | FF | 464600 | J | 4A0000 |
| EAN8 P5 | FF | 464600 | K | 4B0000 |
| FOLLETT 2OF5 | O | 4F0000 | O | 4F0000 |
| GS1 DATABAR EXPANDED | RX | 525800 | t | 740000 |
| GS1 DATABAR LIMITED | RL | 524C00 | v | 760000 |
| GS1 DATABAR OMNIDIRECTIONAL | R4 | 523400 | u | 750000 |
| GS1-128 | | 000000 | k | 6B0000 |

| Symbology | USA Label ID set | | EU Label ID set | |
|---|---|---|---|---|
| I2OF5 | i | 690000 | N | 4E0000 |
| IATA | IA | 494100 | & | 260000 |
| Industrial 2 of 5 | W | 570000 | W | 570000 |
| Interleaved 2 of 5 | e | 650000 | e | 650000 |
| ISBN | I | 490000 | @ | 400000 |
| ISBT128 | f | 660000 | f | 660000 |
| ISSN | n | 6E0000 | n | 6E0000 |
| MSI | @ | 400000 | Z | 5A0000 |
| S25 | s | 730000 | P | 500000 |
| UPCA | A | 410000 | C | 430000 |
| UPCA P2 | A | 410000 | F | 460000 |
| UPCA P5 | A | 410000 | G | 470000 |
| UPCE | E | 450000 | D | 440000 |
| UPCE P2 | E | 450000 | H | 480000 |
| UPCE P5 | E | 450000 | I | 490000 |
| OCR-A | o | 6F0000 | $o | 246F00 |
| OCR-B | o | 6F0000 | $p | 247000 |
| MICR | o | 6F0000 | $m | 246D00 |

## Label ID: Set Individually Per Symbology

To configure a Label ID individually for a single symbology:

1. Scan the ENTER/EXIT bar code.
2. Select Label ID position as either BEFORE (Enable as Prefix) or AFTER (Enable as suffix) by scanning the appropriate bar code in the section "Label ID Control". Reference Figure 20 for Label ID positioning options if multiple identification features are enabled.
3. Scan a bar code to select the symbology for which you wish to configure a custom Label ID from the section Label ID Symbology Selection.
4. Determine the desired character(s) (you may choose up to three) which will represent the Label ID for the selected symbology.
5. Turn to the ASCII Chart on the inside back cover of this manual and find the equivalent hex digits associated with your choice of Label ID. For example, if you wish to select an equal sign (=) as a Label ID, the chart indicates its associated hex characters as 3D. Turn to Keypad and scan the bar codes representing the hex characters deter-mined. For the example given, the characters '3' and 'D' would be scanned. More examples of Label ID settings are provided in Table 22.

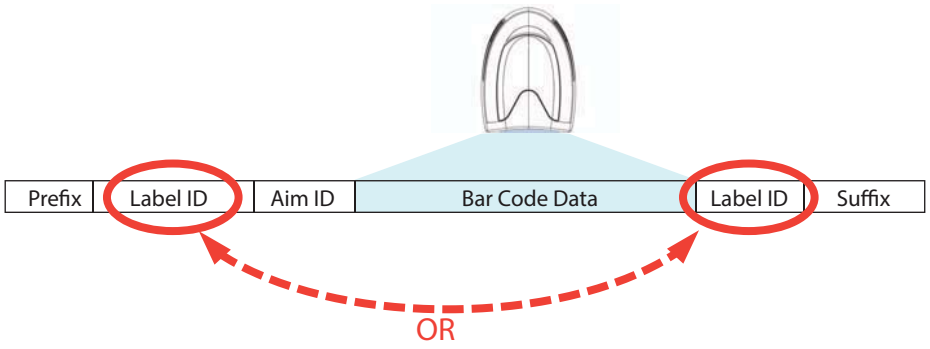
**NOTE**

**If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

6. Scan the ENTER/EXIT bar code to exit Label ID entry.
7. Scan the ENTER/EXIT bar code once again to exit Programming Mode.

This completes the steps to configure a Label ID for a given symbology.

**Figure 20. Label ID Position Options**



### Label ID: Set Individually Per Symbology — continued

**Table 22. Label ID Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1. | **Scan the ENTER/EXIT bar code** | (Scanner enters Programming Mode) | | | |
| 2. | **Determine placement of the Label ID characters BEFORE or AFTER with regard to scanned data using** "Label ID Control" | Enable as Prefix | Enable as Suffix | Enable as Prefix | Enable as Suffix |
| 3. | **Scan the bar code selecting the symbology type you wish to designate label ID characters for using** Label ID Symbology Selection | GS1 DataBar Omnidirectional | Code 39 | Interleaved 2 of 5 | Code 32 |
| 4. | **Custom Label ID example (desired characters):** | D B * | = C 3 | + | P H |
| 5. | **Find hex equivalents from the ASCII table (inside back cover), then scan in these digits/characters using the bar codes in the section:** Keypad**. If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.** | 44 42 2A | 3D 43 33 | 2B | 50 48 |
| 6. | **Scan the ENTER/EXIT bar code** | (Scanner exits Label ID entry) | | | |
| 7. | **Scan the ENTER/EXIT bar code once again** | (Scanner exits Programming Mode) | | | |
| | | | | | |
| **Result:** | | DB*[bar code data] | [bar code data]=C3 | +[bar code data] | [bar code data]PH |

## Character Conversion

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

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

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

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

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

To set Character Conversion:

1. Scan the ENTER/EXIT bar code.
2. Scan the bar code for "Character Conversion"
3. Determine the desired string. Sixteen positions must be determined as in the above example. Next, turn to the ASCII Chart on the inside back cover of this manual and find the equivalent hex digits needed to ful-fill the string.
4. Turn to Appendix D, Keypad and scan the bar codes representing the hex characters determined in the previous step.
5. Scan the ENTER/EXIT bar code to exit Programming Mode.

NOTE

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

# Scanning Features

## Good Read LED Duration

This feature specifies the amount of time that the Good Read LED remains on following a good read. The good read LED on time can be set within a range of 10 milliseconds to 2,550 milliseconds (0.001 to 2.55 seconds) in 100ms increments.

Follow these instructions to set this feature:

1. Determine the desired setting in milliseconds. A setting of 0 means that the good read LED stays on until the next time the trigger is pulled.
2. Divide the desired setting by 10 (setting is in 100ms increments). Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 000, 20 = 020, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT GOOD READ LED DURATION SETTING.
5. Scan the appropriate three digits from the keypad in Appendix D, Keypad representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

**NOTE** **If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the following table for some examples of how to set this feature.

**Table 23 - Good Read LED Duration Setting Example**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | Desired Setting | Good Read LED stays on until next trigger pull (00) | 20ms | 150ms | 2550ms (2.55 sec.) |
| 2 | Divide by 10 (and pad with leading zeroes) | 000 | 002 | 015 | 255 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT GOOD READ LED DURATION SETTING | | | | |
| 5 | Scan Three Characters From Appendix D, Keypad | '0', '0' and '0' | '0', '0' and '2' | '0', '1' and '5' | '2', '5' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

## RGB Good Read Color

Set the Good Read LED color.

RGB Good Read Color = RED

RGB Good Read Color = GREEN

DEFAULT

RGB Good Read Color = BLUE

## Scan Mode

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

**Trigger Single:** When the trigger is pulled, scanning is activated until one of the following occurs:

- Stand Mode/Object Detection has elapsed
- a label has been read
- the trigger is released

This mode is associated with typical handheld reader operation: when the trigger is pulled, scanning starts and the product scans until the trigger is released, or a label is read, or the maximum Stand Mode/Object Detection has elapsed.

**Trigger Hold Multiple :** When the trigger is pulled, scanning starts and the product scans until the trigger is released or Stand Mode/Object Detection has elapsed. Reading a label does not disable scanning. Double Read Timeout prevents undesired multiple reads of the same label while in this mode.

**Trigger Pulse Multiple:** When the trigger is pulled, continuous scanning is activated until Stand Mode/Object Detection has elapsed or the trigger has been released and pulled again. Double Read Timeout prevents undesired multiple reads of the same label while in this mode.

**Flashing:** The reader flashes[1] on and off regardless of the trigger status. Flash rate is controlled by Flash On Time and Flash Off Time. When Flash is ON the reader reads continuously. When Flash is OFF scanning is deactivated.

**Always On:** No trigger pull is required to read a bar code. Scanning is continually on. Double Read Timeout prevents undesired multiple reads of the same label while in this mode.

**Stand Mode/Object Detection:** No trigger pull is required to read a bar code. Scanning turns on automatically when an item is placed in reader's field of view. While in a stand watch state, the reader illumination LED goes from dim to maximum bright.

[1]Controlled by Flash On Time.

## Scanning Active Time

This setting specifies the amount of time that the reader stays in scan ON state once the state is entered. The range for this setting is from 1 to 255 seconds in 1-second increments.

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT SCANNING ACTIVE TIME SETTING.
5. Scan the appropriate three digits from the keypad in Appendix D, Keypad that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

**NOTE** **If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the table below for examples of how to set this feature.

**Table 24. Scanning Active Time Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired Setting** | 1 Second | 90 Sec. (1.5 min.) | 180 Sec. (3 min.) | 255 Seconds (4.25 min.) |
| 2 | **Pad leading zero(es)** | 001 | 090 | 180 | 255 |
| 3 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 4 | **Scan SELECT SCANNING ACTIVE TIME SETTING** | | | | |
| 5 | **Scan Three Characters From** Appendix D, Keypad | '0', '0' and '1' | '0', '9' and '0' | '1', '8' and '0' | '2', '5' and '5' |
| 6 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

# Aiming Duration Time

Specifies the frame of time the aiming pointer remains on after decoding a label, when in trigger single mode. The range for this setting is from 1 to 255 seconds in 1-second increments.

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT AIMING DURATION TIME SETTING.
5. Scan the appropriate three digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

**If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See Table 25 for some examples of how to set this feature.

**Table 25. Aiming Duration Time Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | Desired Setting | 1 Second | 90 Sec. (1.5 min.) | 180 Sec. (3 min.) | 255 Seconds (4.25 min.) |
| 2 | Pad leading zero(es) | 001 | 090 | 180 | 255 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT AIMING DURATION TIME SETTING | | | | |
| 5 | Scan Three Characters From Appendix D, Keypad | '0', '0' and '1' | '0', '9' and '0' | '1', '8' and '0' | '2', '5' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

## Flash On Time

This feature specifies the ON time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments.

Follow these instructions to set this feature.

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 100 (setting is in 100ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT FLASH ON TIME SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

**If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the table below for examples of how to set this feature.

**Table 26. Flash On Time Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | Desired Setting | 500ms | 1,000ms (1 sec.) | 5200ms (5.2 sec.) | 9,900ms (9.9 sec.) |
| 2 | Divide by 100 (and pad with leading zeroes to yield two digits) | 05 | 10 | 52 | 99 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT FLASH ON TIME SETTING | | | | |
| 5 | Scan Two Characters From Appendix D, Keypad | '0' and '5' | '1' and '0' | '5' and '2' | '9' and '9' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

# Flash Off Time

This feature specifies the OFF time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments.

Follow these instructions to set this feature.

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 100 (setting is in 100ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT FLASH OFF TIME SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

**NOTE** **If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the table below for examples of how to set this feature.

**Table 27. Flash Off Time Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired Setting** | 500ms | 1,000ms (1 sec.) | 5200ms (5.2 sec.) | 9,900ms (9.9 sec.) |
| 2 | **Divide by 100 (and pad with leading zeroes to yield two digits)** | 05 | 10 | 52 | 99 |
| 3 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 4 | **Scan SELECT FLASH OFF TIME SETTING** | | | | |
| 5 | **Scan Two Characters From** Appendix D, Keypad | '0' and '5' | '1' and '0' | '5' and '2' | '9' and '9' |
| 6 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

# RF Features

## Automatic Configuration Update

When this feature is enabled, the base station and reader will keep their configurations synchronized. If a reader's configuration is altered by reading programming labels, this change is automatically transferred and updated in a linked base station. Likewise, if the base station's configuration is changed using the configuration utility or by host commands, then the reader's configuration will auto-matically be updated if this feature is enabled.

## RF Address Stamping

### Source Radio Address Delimiter Character

This option specifies the delimiter character to be placed between the label data and radio address when address stamping is enabled.

**This feature only applies if "Source Radio Address Transmission" is enabled.**

NOTE

Follow these instructions to select the delimiter character:

1. Determine the desired character, then find its hexadecimal equivalent on the ASCII Chart on the inside back cover. A setting of 00 specifies no delimiter character.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the bar code: SET SOURCE RADIO ADDRESS DELIMITER CHARACTER.
4. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the hexadecimal characters which were determined in the steps above. You will hear a two-beep indication after the last character.

**If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

NOTE

5. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit.

**Table 28. Source Radio Address Delimiter Character Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | Desired Setting | No delimiter character | , (comma) | - (dash) | / (slash) |
| 2 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 3 | Scan SET SOURCE RADIO ADDRESS DELIMiTER CHARACTER | | | | |
| 4 | Scan Two Characters From Appendix D, Keypad | '0' and '0' | '2' and 'C' | '2' and 'D' | '2' AND 'F' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

# Symbologies

## Set Length

Length Control allows you to select either variable length decoding or fixed length decoding for the specified symbology.

**Variable Length:** For variable length decoding, a minimum and maximum length may be set.

**Fixed Length:** For fixed length decoding, two different lengths may be set.

### Set Length 1

This feature specifies one of the bar code lengths for a given symbology. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode.

Reference the 1D Symbologies section to view the selectable range (number of characters) for the symbology being set.

Follow these instructions to set this feature:

1. Determine the desired character length. Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the "Select Length 1 Setting" for the symbology being set.
4. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

**NOTE** **If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

5. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the table below for examples of how to set this feature.

**Table 30. Length 1 Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired Setting** | 01 Character | 07 Characters | 52 Characters | 74 Characters |
| 2 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 3 | **Scan SELECT LENGTH 1SETTING for the desired symbology** | | | | |
| 4 | **Scan Two Characters From** Appendix D, Keypad | '0' and '1' | '0' and '7' | '5' and '2' | '7' AND '4' |
| 5 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

## Set Length 2

This feature specifies one of the bar code lengths for a given symbology. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode.

Reference the 1D Symbologies section to view the selectable range (number of characters) for the symbology being set. A setting of 00 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

1. Determine the desired character length. Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the "Select Length 2 Setting" for the symbology being set.
4. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

**If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.**

5. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See the table below for examples of how to set this feature.

**Table 31. Length 2 Setting Examples**

| STEP | ACTION | EXAMPLES | | | |
|---|---|---|---|---|---|
| 1 | **Desired Setting** | 00 (ignore second length) | 07 Characters | 52 Characters | 74 Characters |
| 2 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |
| 3 | **Scan SELECT LENGTH 2 SETTING** | | | | |
| 4 | **Scan Two Characters From** Appendix D, Keypad | '0' and '0' | '0' and '7' | '5' and '2' | '7' and '4' |
| 5 | **Scan ENTER/EXIT PROGRAMMING MODE** | | | | |

# Appendix A
# Technical Specifications

The table below contains Physical and Performance Characteristics, User Environment and Regulatory information. Table 34 provides Standard Cable Pinouts.

**Table 32. Technical Specifications**

| Electrical Features | |
|---|---|
| Power Supply | 5 VDC<br>4.5 - 14.0 VDCGBT/GM4500:<br>5V to 14V +/-5% in the Communication Port<br>5V to 14V +/-5% in the Aux Power Port<br>**NOTE**: Aux Power Port is recommended when long cables are connected to Communication Port |
| Consumption (Typical) | Operating: <400 mA @ 5V<br><200 mA @ 12V<br>Standby/Idle: <90 mA @ 5V<br><br>475 mA (PC host USB)<br>1150 mA (5V on Aux Power Port)<br>520 mA (12V on Aux Power Port)<br>Gun Charging via micro USB:<br>480 mA (PC host port, no scan)<br>900 mA (wall adapter, no scan)<br>1160 mA (wall adapter, scan while charging) |
| Max. Scan Rate | 50 frames/sec |

| Optical Features | |
|---|---|
| Optical Format | 1/4" |
| Active Imager Size | 3896 um (H) x 2453 um (V) |
| Active Pixels | 1280 H x 800 V |
| Illumination System | LED source<br>Warm White Emission (wavelength = 350 - 770 nm)<br>Hyper Red Emission (wavelength = 660 nm, DGM model only)<br>IEC 62471 Exempt Risk Group |
| Aiming System | RED laser source<br>IEC 60825-1 Class 2<br>Radiation 1 mW Avg., Emitted wavelength 650 nm, 10ms pulse |
| Ambient Light | Up to 100,000 lux |
| Tilt Tolerance | 0° - 360° |
| Pitch Tolerance | ± 65° |
| **Optical Features (continued)** | |
| Skew Tolerance | ± 65 |
| Field of View | 36° H x 23° V |
| PCS | minimum 15% |

| DOF - Depth of Field (Typical)[a] | | |
|---|---|---|
| **Symbology** | **SR** | **HD** |
| Code 39 | 5 mil: 7.0 - 38.0 cm (2.7" - 14.9")<br>10 mil: 2.2 - 58.0 cm (0.8" - 22.8")<br>20 mil: FOV lim. - 110 cm (up to 43.3") | 3 mil: 5.0 - 15.0 cm (2.0" - 5.9")<br>5 mil: 0.5 - 25.0 cm (0.2" - 9.8")<br>10 mil: 0.5 - 45.0 cm (0.2" - 17.7") |
| EAN13 | 7.5 mil: 9.0 - 30.0 cm (3.5" - 11.8")<br>13 mil: 1.0 - 71.0 cm (0.4" - 27.9") | 7.5 mil: 2.0 - 23.5 cm (0.8" - 9.2")<br>13 mil: 1.0 - 40.0 cm (0.4" - 15.7") |
| PDF417 | 6.6 mil: 6.5 - 24.0 cm (2.6" - 9.4")<br>10 mil: 2.5 - 41.0 cm (1.0" - 16.1")<br>15 mil: 2.3 - 65.0 cm (0.9" - 25.6") | 4 mil: 3.0 - 12.0 cm (1.2" - 4.7")<br>6.6 mil: 0.5 - 23.5 cm (0.2" - 9.2")<br>10 mil: 0.5 - 31.0 cm (0.2" - 12.2") |
| Datamatrix | 10 mil: 5.5- 27.0 cm (2.2" - 10.6")<br>15 mil: 2.8 - 41.0 cm (1.1" - 16.1") | 5 mil: 5.5 - 9.0 cm (2.2" - 3.5")<br>10 mil: 0.2 - 27.0 cm (0.1" - 10.6") |
| Max Resolution | 1D Min = 4 mils<br>PDF417 Min = 5 mils<br>Datamatrix Min = 7.5 mils | 1D Min = 3 mils<br>PDF417 Min = 3 mils<br>Datamatrix Min = 4 mils |

a. 13 mils DOF based on EAN. All other 1D codes are Code 39. All labels grade A, typical environmental light, 20° C, label inclination 10°

| Environmental Features | |
|---|---|
| Operating Temperature | 0 °C to + 50 °C (+32° F to +122 °F) |
| Storage Temperature | -40 °C to + 70 °C (-40 ° F to +158 °F) |
| Humidity | 95% non condensing |
| Drop Resistance | IEC 68-2-32 Tested<br>1.8 m (6 ft) |
| ESD Protection | 16 KV |
| Protection Class | IP52 |
| Weight<br>(without cable) | 161 g (5.7 oz.)<br>With integrated stand approx. 374 g (13.2 oz.) |

| Decode Capability |
|---|
| **1D Bar Codes**<br>UPC/EAN/JAN (A, E, 13, 8); UPC/EAN/JAN (including P2 /P5); UPC/EAN/JAN (including; ISBN / Bookland & ISSN); UPC/EAN Coupons; Code 39 (including full ASCII); Code 39 Trioptic; Code39 CIP (French Pharmaceutical); LOGMARS (Code 39 w/ standard check digit enabled); Danish PPT; Code 32 (Italian Pharmacode 39); Code 128; Code 128 ISBT; Interleaved 2 of 5; Standard 2 of 5; Interleaved 2 of 5 CIP (HR); Industrial 2 of 5; Discrete 2 of 5; Matrix 2 of 5; IATA 2of5 Air cargo code; Code 11; Codabar; Codabar (NW7); ABC Codabar; EAN 128; Code 93 ; MSI; PZN; Plessey; Anker Plessey; GS1 DataBar Omnidirectional; GS1 DataBar Limited; GS1 DataBar Expanded; GS1 DataBar Truncated; DATABAR Expanded Coupon. |
| **2D / Stacked Codes**<br>The scanner is capable of decoding the following symbologies using multiple frames (i.e. Multi-Frame Decoding):<br>Datamatrix; Inverse Datamatrix; Datamatrix is configurable for the following parameters:; Normal or Inverted; Square or Rectangular Style; Data length (1 - 3600 characters); Maxicode; QR Codes (QR, Micro QR and Multiple QR Codes); Aztec; Postal Codes - (Australian Post; Japanese Post; KIX Post; Planet Code; Postnet; Royal Mail Code (RM45CC); Intelligent Mail Barcode (IMB); Sweden Post; Portugal Post); LaPoste A/R 39; PDF-417; MacroPDF; Micro PDF417; GS1 Composites (1 - 12); French CIP13[a]; GS1 DataBar Stacked; GS1 DataBar Stacked Omnidirectional; GS1 DataBar Expanded Stacked; GS1 Databar Composites; GS1 DotCode; Chinese Sensible Code; Inverted 2D codes[b].<br>[a]It is acceptable to handle this with ULE<br>[b]The SW can apply the Normal/Reverse Decoding Control to the following symbologies: Datamatrix, QR, Micro QR, Aztec and Chinese Sensible Code. |

# LED and Beeper Indications

The imager's beeper sounds and its illumination flashes or changes color to indicate various functions or errors on the reader. A "Green Spot" also lights to indicate a good read. The tables below list these indications.

**Table 33. LED and Speaker Indications**

| Indication | LED | Beeper |
|---|---|---|
| Power-up | Upper LED flashes/blinks on power-up, however, this may be too rapid to view. With a USB interface, the LED blinks until enumeration with the host is completed. | Imager beeps four times at highest frequency and volume upon power-up. |
| Good Read | Upper green LED comes on for programmed time (default).<br>LED behavior for this indication is configurable using **configuration** utility. | One beep at current frequency, volume, mono/bi-tonal setting upon a successful label scan. |
| ROM Failure | 200ms on / 200ms off | Imager sounds one error beep at highest volume for 200 mS. |
| Limited Scanning Label Read | N/A | Imager 'chirps' six times at the highest frequency and current volume. |
| Imager Disabled | The LED blinks continuously 100mS on / 900 mS off | N/A |

# User Indications

| Indication | 3GL & Good Read LEDs | Buzzer |
|---|---|---|
| Power-up | OFF | Rising Beeps' Sequence |
| USB Enumeration Phase | 250 ms[a] ON ↔ 250 ms OFF | OFF |
| USB Suspend | Depends on Power Cable and specific configurations | OFF |
| Idle | OFF | OFF |
| While Reading | OFF | OFF |
| Decode Done | Solid ON<br>Programmable duration (1 s default) | Single Beep |
| Reader Disabled (POS)<br>Communication with host not established | 100 ms ON ↔ 900 ms OFF | OFF |
| Firmware Upgrade | 250 ms ON ↔ 250 ms OFF | OFF |
| Host Download | 250 ms ON ↔ 250 ms OFF | OFF |
| Enter Service Mode | No Effect | Beeps' Sequence |
| Label Programming | No Effect | Beep |

a. 'ms" stands for milliseconds, equivalent to 1/1000$^{th}$ of a second

## Programming Mode

The following indications ONLY occur when the scanner is in Programming Mode.

| INDICATION | DESCRIPTION | LED | SPEAKER |
|---|---|---|---|
| Label Programming Mode Entry | A valid programming label has been scanned. | LED blinks continuously | Scanner sounds four low frequency beeps. |
| Label Programming Mode Rejection of Label | A label has been rejected. | N/A | Scanner sounds three times at lowest frequency & current volume. |
| Label Programming Mode Acceptance of Partial Label | In cases where multiple labels must be scanned to program one feature, this indication acknowledges each portion as it is successfully scanned. | N/A | Scanner sounds one short beep at highest frequency & current volume. |
| Label Programming Mode Acceptance of Programming | Configuration option(s) have been successfully programmed via labels and the scanner has exited Programming Mode. | N/A | Scanner sounds one high frequency beep and 4 low frequency beeps followed by reset beeps. |
| Label Programming Mode Cancel Item Entry | Cancel label has been scanned. | N/A | Scanner sounds two times at low frequency and current volume. |

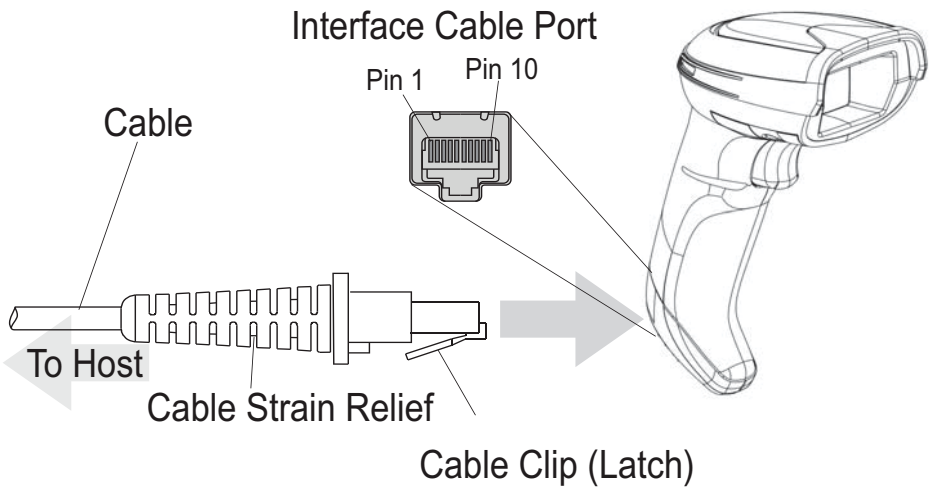
## Troubleshooting

| Problem | Possible Cause | Possible Solutions |
|---|---|---|
| Nothing happens when the scan button is pulled. | No power to the imager. | Check system power. Ensure power supply is connected. |
| | Interface or power cables are loose. | Ensure all cable connections are secure. |
| LED comes on, but bar code does not decode. | Imager not programmed for correct bar code type. | Ensure imager is programmed to read the type of bar code scanned. Refer to the PRG for more information. |
| | Bar code label is unreadable. | Check the label to ensure it is not defaced. Try scanning another bar code type. |
| | Distance between imager and bar code is incorrect. | Move imager closer to or further from the bar code. |
| Bar code is decoded but not transmitted to the host. | Imager not programmed for the correct host type. | Scan the appropriate host type bar code. Refer to the PRG for more information. |

# Standard Cable Pinouts

Figure 21 and Table 34 provide standard pinout information for the scanner's cable.

**Figure 21. Standard Cable Pinouts**




The signal descriptions in Table 34 apply to the connector on the scanner and are for reference only.

**Table 34. Standard Cable Pinouts — Scanner Side**

| Pin | RS-232 | USB | Keyboard Wedge |
|---|---|---|---|
| 1 | RTS (out) | | |
| 2 | | D+ | CLKIN (KBD side) |
| 3 | | D- | DATAIN (KBD side) |
| 4 | GND | GND | GND |
| 5 | RX | | |
| 6 | TX | | |
| 7 | VCC | VCC | VCC |
| 8 | | | CLKOUT (PC side) |
| 9 | | | DATAOUT (PC side) |
| 10 | CTS (in) | | |

# NOTES

# Appendix B
# Standard Defaults

The most common configuration settings are listed in the “Default” column of the table below. Programming bar codes are provided for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features.

**Table 35. Standard Defaults**

| Parameter | Default | Your Setting | |
|---|---|---|---|
| **GLOBAL INTERFACE FEATURES** | | | |
| Host Commands — Obey/Ignore | Obey | | |
| USB Suspend Mode | Enable | | |
| **RS-232 ONLY** | | | |
| Baud Rate | 9600 | | |
| Data Bits | 8 Data Bits | | |
| Stop Bits | 1 Stop Bit | | |
| Parity | None | | |
| Handshaking Control | RTS | | |
| **RS-232/USB-COM** | | | |
| Intercharacter Delay | No Delay | | |
| Beep On ASCII BEL | Disable | | |
| Beep On Not on File | Enable | | |
| ACK NAK Options | Disable | | |
| ACK Character | ‘ACK’ | | |
| NAK Character | ‘NAK’ | | |
| ACK NAK Timeout Value | 200 ms | | |
| ACK NAK Retry Count | 3 Retries | | |
| ACK NAK Error Handling | Ignore Errors Detected | | |
| Indicate Transmission Failure | Enable | | |

| Parameter | Default | Your Setting | |
|---|---|---|---|
| Disable Character | 'D' | | |
| Enable Character | 'E' | | |
| **KEYBOARD WEDGE** | | | |
| Country Mode | U.S. Keyboard | | |
| Keyboard Send Control Characters | 00 | | |
| Wedge Quiet Interval | 100 ms | | |
| Intercode Delay | No Delay | | |
| Caps Lock State | Caps Lock OFF | | |
| Numlock | NumLock Key Unchanged | | |
| USB Keyboard Speed | 1 ms | | |
| Keyboard Numeric Keypad | Standard Keys | | |
| | | | |
| **DATA FORMAT** | | | |
| Global Prefix/Suffix | No Global Prefix<br>Global Suffix = 0x0D (CR) | | |
| Global AIM ID | Disable | | |
| GS1-128 AIM ID | Enable | | |
| Label ID: Pre-loaded Sets | EU Set | | |
| Label ID: Pre-loaded Sets | Disable | | |
| Case Conversion | Disable | | |
| Character Conversion | No Char Conversion | | |
| **READING PARAMETERS** | | | |
| Double Read Timeout | 0.6 Second | | |
| Power On Alert | Power-up Beep | | |
| Good Read: When to Indicate | After Decode | | |
| Good Read Beep Type | Mono | | |
| Good Read Beep Frequency | High | | |

| Parameter | Default | Your Setting | |
|---|---|---|---|
| Good Read Beep Length | 80 ms | | |
| Good Read Speaker Volume / Vibration | High | | |
| Enable/Disable Good Read Indicator | 300 ms | | |
| **SCANNING FEATURES** | | | |
| Scan Mode | Trigger Single | | |
| Stand Mode/Object Detection Sensitivity | Medium | | |
| Stand Mode Indication | 5 Seconds | | |
| Flash On Time | OFF | | |
| Flash On Time | 10 = Flash is ON for 1 Second | | |
| Flash Off Time | 06 = Flash is OFF for 600ms | | |
| **CODE SELECTION - 1D SYMBOLOGIES** | | | |
| **Code EAN/UPC** | | | |
| Coupon Control | Enable only UPCA coupon decoding | | |
| **UPC-A** | | | |
| UPC-A Enable/Disable | Enable | | |
| UPC-A Check Character Transmission | Send | | |
| Expand UPC-A to EAN-13 | Don't Expand | | |
| UPC-A Number System Character Transmission | Transmit | | |
| **UPC-E** | | | |
| UPC-E Enable/Disable | Enable | | |
| UPC-E Check Character Transmission | Send | | |
| Expand UPC-E to EAN-13 | Don't Expand | | |
| Expand UPC-E to UPC-A | Don't Expand | | |
| UPC-E Number System Character Transmission | Transmit | | |
| **GTIN** | | | |
| EAN 13 | Disable | | |

| Parameter | Default | Your Setting | |
|---|---|---|---|
| **EAN 13 (Jan 13)** | | | |
| EAN 13 Enable/Disable | Enable | | |
| EAN 13 Check Character Transmission | Send | | |
| EAN–13 Flag 1 Character | Transmit | | |
| EAN–13 ISBN Conversion | Disable | | |
| **ISSN** | Disable | | |
| **EAN 8** | | | |
| EAN 8 Enable/Disable | Enable | | |
| EAN 8 Check Character Transmission | Send | | |
| Expand EAN 8 to EAN 13 | Disable | | |
| **UPC/EAN Global Settings** | | | |
| UPC/EAN Price Weight Check | Disable | | |
| **Add-Ons** | | | |
| Optional Add–ons | Disable P2, P5 and P8 | | |
| Optional Add–On Timer | 70 ms | | |
| **Code 39** | | | |
| Code 39 Enable/Disable | Enable | | |
| Code 39 Check Character Calculation | Disable | | |
| Code 39 Check Character Transmission | Send | | |
| Code 39 Start/Stop Character Trans–mission | Don't Transmit | | |
| Code 39 Full ASCII | Disable | | |
| Code 39 Quiet Zones | Small Quiet Zones on two sides | | |
| Code 39 Length Control | Variable | | |
| Code 39 Set Length 1 | 2 | | |
| Code 39 Set Length 2 | 50 | | |
| **Code 32 (Italian Pharmaceutical Code)** | | | |
| Code 32 Enable/Disable | Disable | | |
| Code 32 Check Character Transmission | Don't Send | | |
| Code 32 Start/Stop Character Trans–mission | Don't Transmit | | |

| Parameter | Default | Your Setting | |
|---|---|---|---|
| **Code 39 CIP (French Pharmaceutical Code)** | | | |
| Code 39 CIP Enable/Disable | Disable | | |
| **Special Codes** | | | |
| **Code 128** | | | |
| Code 128 Enable/Disable | Enable | | |
| Expand Code 128 to Code 39 | Don't Expand | | |
| Code 128 Check Character Transmission | Don't Send | | |
| Code 128 Function Character Transmission | Don't Send | | |
| Code 128 Quiet Zones | Small Quiet Zones on two sides | | |
| Code 128 Length Control | Variable | | |
| Code 128 Set Length 1 | 1 | | |
| Code 128 Set Length 2 | 80 | | |
| **GS1-128** | | | |
| GS1–128 Enable | Transmit in Code 128 Data Format | | |
| **ISBT 128** | | | |
| ISBT 128 Concatenation | Disable | | |
| ISBT 128 Force Concatenation | Disable | | |
| ISBT 128 Concatenation Mode | Static | | |
| ISBT 128 Dynamic Concatenation Timeout | 200 msec | | |
| **Interleaved 2 of 5** | | | |
| I 2 of 5 Enable/Disable | Disable | | |
| I 2 of 5 Check Character Calculation | Disable | | |
| I 2 of 5 Check Character Transmission | Send | | |
| I 2 of 5 Length Control | Variable | | |
| I 2 of 5 Set Length 1 | 6 | | |
| I 2 of 5 Set Length 2 | 50 | | |
| **Interleaved 2 of 5 CIP HR** | | | |
| Interleaved 2 of 5 CIP HR Enable/Disable | Disable | | |

| Parameter | Default | Your Setting | |
|---|---|---|---|
| **Follett 2 of 5** | | | |
| Follett 2 of 5 Enable/Disable | Disable | | |
| **Standard 2 of 5** | | | |
| Standard 2 of 5 Enable/Disable | Disable | | |
| Standard 2 of 5 Check Character Calculation | Disable | | |
| Standard 2 of 5 Check Character Transmission | Send | | |
| Standard 2 of 5 Length Control | Variable | | |
| Standard 2 of 5 Length Control | 8 | | |
| Standard 2 of 5 Set Length 2 | 50 | | |
| **Industrial 2 of 5** | | | |
| Industrial 2 of 5 Enable/Disable | Disable | | |
| Industrial 2 of 5 Check Character Calculation | Disable | | |
| Industrial 2 of 5 Check Character Transmission | Enable | | |
| Industrial 2 of 5 Length Control | Variable | | |
| Industrial 2 of 5 Set Length 1 | 1 | | |
| Industrial 2 of 5 Set Length 2 | 50 | | |
| **Code IATA** | | | |
| IATA Enable/Disable | Disable | | |
| IATA Check Character Transmission | Enable | | |

| Parameter | Default | Your Setting | |
|---|---|---|---|
| **Codabar** | | | |
| Codabar Enable/Disable | Disable | | |
| Codabar Check Character Calculation | Don't Calculate | | |
| Codabar Check Character Transmission | Send | | |
| Codabar Start/Stop Character Transmission | Transmit | | |
| Codabar Start/Stop Character Set | abcd/abcd | | |
| Codabar Start/Stop Character Match | Don't Require Match | | |
| Codabar Quiet Zones | Small Quiet Zones on two sides | | |
| Codabar Length Control | Variable | | |
| Codabar Set Length 1 | 3 | | |
| Codabar Set Length 2 | 50 | | |
| **ABC Codabar** | | | |
| ABC Codabar Enable/Disable | Disable | | |
| ABC Codabar Concatenation Mode | Static | | |
| ABC Codabar Dynamic Concatenation Timeout | 200 msec | | |
| ABC Codabar Force Concatenation | Disable | | |
| **Code 11** | | | |
| Code 11 Enable/Disable | Disable | | |
| Code 11 Check Character Calculation | Check C and K | | |
| Code 11 Check Character Transmission | Send | | |
| Code 11 Length Control | Variable | | |
| Code 11 Set Length 1 | 4 | | |
| Code 11 Set Length 2 | 50 | | |
| **GS1 DataBar Omnidirectional** | | | |
| GS1 DataBar Omnidirectional Enable/Disable | Disable | | |
| GS1 DataBar Omnidirectional GS1-128 Emulation | Disable | | |

| Parameter | Default | Your Setting | |
|---|---|---|---|
| **GS1 DataBar™ Expanded** | | | |
| GS1 DataBar Expanded Enable/Disable | Disable | | |
| GS1 DataBar Expanded GS1-128 Emulation | Disable | | |
| | 2D component not required | | |
| GS1 DataBar Expanded Length Control | Variable | | |
| GS1 DataBar Expanded Set Length 1 | 1 | | |
| GS1 DataBar Expanded Set Length 2 | 74 | | |
| **GS1 DataBar™ Limited** | | | |
| GS1 DataBar Limited Enable/Disable | Disable | | |
| GS1 DataBar Limited GS1-128 Emulation | Disable | | |
| **Code 93** | | | |
| Code 93 Enable/Disable | Disable | | |
| Code 93 Check Character Calculation | Enable Check C and K | | |
| Code 93 Check Character Transmission | Disable | | |
| Code 93 Length Control | Variable | | |
| Code 93 Set Length 1 | 1 | | |
| Code 93 Set Length 2 | 50 | | |
| Code 93 Quiet Zones | Small Quiet Zones on two sides | | |
| **MSI** | | | |
| MSI Enable/Disable | Disable | | |
| MSI Check Character Calculation | Enable Mod10 | | |
| MSI Check Character Transmission | Enable | | |
| MSI Length Control | Variable | | |
| MSI Set Length 1 | 1 | | |
| MSI Set Length 2 | 50 | | |
| **MOTION FEATURES** | | | |
| Motion Aiming Control | Enable | | |
| Motion Sensitivity | Medium | | |
| Motionless Timeout | 2 seconds | | |

# Default Exceptions

**Table 36. Default Exceptions by Interface Type**

| Parameter | Default Exception |
|---|---|
| **Interfaces: All Keyboard Wedge, USB Keyboard** | |
| No unique settings | |
| **Interface: RS232-WN** | |
| Expand UPC-A to EAN-13 | Enable |
| UPC-E Check Character Transmission | Disable |
| Parity | Odd Parity |
| Handshaking Control | RTS/CTS |
| Transmission Label ID Code | Prefix |
| GS1-128 AIM ID | Disable |
| UPCE Label ID Character(s) | C |
| EAN 8 Label ID Character(s) | B |
| EAN 13 Label ID Character(s) | A |
| Code ISBN Label ID Character(s) | A |
| Code 39 Label ID Character(s) | M |
| Interleaved 2of5 Label ID Character(s) | I |
| Code Standard 2/5 Label ID Character(s) | H |
| Codabar Label ID Character(s) | N |
| Code 128 Label ID Character(s) | K |
| GS1-128 Label ID Character(s) | P |
| Datalogic 2 of 5 Label ID Character(s) | H |
| ISBT 128 Label ID Character(s) | K |
| UPCE P2 Label ID Character(s) | C |
| UPCE/P5 Label ID Character(s) | C |
| UPCE/GS1-128 Label ID Character(s) | C |

| Parameter | Default Exception |
|---|---|
| EAN8/P2 Label ID Character(s) | B |
| EAN8/P5 Label ID Character(s) | B |
| EAN8/GS1-128 Label ID Character(s) | B |
| EAN13/P2 Label ID Character(s) | A |
| EAN13/P5 Label ID Character(s) | A |
| EAN13/GS1-128 Label ID Character(s) | A |
| GS1 DataBar 14 (Omnidirectional) Label ID Character(s) | E |
| GS1 DataBar Expanded Label ID Character(s) | E |
| GS1 DataBar Limited Label ID Character(s) | E |
| Character Conversion | CR to ` |
| **Interface: RS232-OPOS** | |
| Baud Rate | 115200 Baud |
| Transmission Label ID Code | Prefix |
| GS1-128 AIM ID | Disable |
| UPCA Label ID Character(s) | C |
| UPCE Label ID Character(s) | D |
| EAN 8 Label ID Character(s) | A |
| EAN 13 Label ID Character(s) | B |
| Code ISBN Label ID Character(s) | @ |
| Code 39 Label ID Character(s) | V |
| Code 32 Label ID Character(s) | X |
| Interleaved 2of5 Label ID Character(s) | N |
| Code Standard 2/5 Label ID Character(s) | P |
| Codabar Label ID Character(s) | R |
| Code 11 Label ID Character(s) | b |
| Code 128 Label ID Character(s) | T |
| GS1-128 Label ID Character(s) | k |
| UPCA/P2 Label ID Character(s) | F |
| UPCA/P5 Label ID Character(s) | G |

| Parameter | Default Exception |
|---|---|
| UPCA/GS1-128 Label ID Character(s) | Q |
| UPCE P2 Label ID Character(s) | H |
| UPCE/P5 Label ID Character(s) | I |
| EAN8/P2 Label ID Character(s) | J |
| EAN8/P5 Label ID Character(s) | K |
| EAN8/GS1-128 Label ID Character(s) | * |
| EAN13/P2 Label ID Character(s) | L |
| EAN13/P5 Label ID Character(s) | M |
| EAN13/GS1-128 Label ID Character(s) | # |
| GS1 DataBar 14 (Omnidirectional) Label ID Character(s) | u |
| GS1 DataBar Expanded Label ID Character(s) | t |
| GS1 DataBar Limited Label ID Character(s) | v |

# NOTES

# Appendix C
# Sample Bar Codes

The sample bar codes in this appendix are typical representations for their symbology types.

## 1D Bar Codes

UPC-A


EAN-13


Code 39


Code 128

Code 128

Interleaved 2 of 5

# Sample Bar Codes (continued)

Code 32

345678902

Codabar

13579

Code 93

ABCDEF

Code 11

12345

# GS1 DataBar™ (RSS)

NOTE

**GS1 DataBar™ variants must be enabled to read the bar codes below (see "GS1 DataBar™ Omnidirectional").**

**GS1 DataBar™ Expanded Stacked**

10293847560192837465019283746029478450366523

**GS1 DataBar™ Expanded**

1234890hjio9900mnb

**GS1 DataBar™ Limited**

08672345650916

# GS1 DataBar™-14

**GS1 DataBar™ Omnidirectional Truncated**

55432198673467

**GS1 DataBar™ Omnidirectional Stacked**

90876523412674

**GS1 DataBar™ Omnidirectional Stacked**

78123465709811

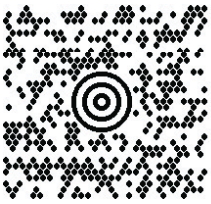
# 2D Bar Codes

**Aztec**

**Datamatrix**

**China Sensible Code**

**MaxiCode**



*Test Message*

**PDF 417**

ABCabc

**Micro PDF 417**

BV17453

**QR Code**

35900G9

**Micro QR Code**

123456

**UCC Composite**

(17) 050923 (10) ABC123

(01) 0 4012345 67890 1 1

# Appendix D
# Keypad

Use the bar codes in this appendix to enter numbers as you would select digits/characters from a keypad.

0

1

2

3

4

5

6

7

8

9

A

B

C

D

E

F

# Appendix E
# Scancode Tables

## Control Character Emulation

Control character emulation selects from different scancode tables as listed in this appendix. Each of the control character sets below are detailed by interface type in the tables. These apply to Wedge and USB Keyboard platforms.

**Control Character 00 :** Characters from 00 to 0x1F are sent as control character Ctrl+Keys, special keys are located from 0x80 to 0xA1.

**Control Character 01 :** Characters from 00 to 0x1F are sent as control character Ctrl+Capital Key, special keys are located from 0x80 to 0xA1.

**Control Character 02 :** Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (Microsoft Windows Codepage 1252).

## Single Press and Release Keys

In the following tables, Ar↓ means Alt right pressed and Ar↑ means Alt right released and so on. Definitions for other keys are Al (Alt left ), Cr (Control Right ) Cl (Control Left ) Sh (shift). This method can be used for combining Alt, Control or Shift with other keys.

Example: Consider a Control character set to 00. If AltRight+A is required before sending a label to the host, it could be done by setting three Prefix keys in this way: 0x99 0x41 0x9A.

# Interface Type PC AT PS/2 or USB-Keyboard

**Table 37. Scancode Set When Control Character is 00 or 01**

| | x0 | x1 | x2 | x3 | x4 | x5 | X6 | x7 | x8 | x9 | xA | xB | xC | xD | xE | xF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0x | NULL C+@ | SOH C(S)+A | STX C(S)+B | ETX C(S)+C | EOT C(S)+D | ENQ C(S)+E | ACK C(S)+F | BEL C(S)+G | BS | HT TAB | LF C(S)+J | VT C(S)+K | FF C(S)+L | CR Enter | SO C(S)+N | SI C(S)+O |
| 1x | DLE C(S)+P | DC1 C(S)+Q | DC2 C(S)+R | DC3 C(S)+S | DC4 C(S)+T | NAK C(S)+U | SYN C(S)+V | ETB C(S)+W | CAN C(S)+X | EM C(S)+Y | SUB C(S)+Z | ESC Esc | FS C+\ | GS C+] | RS C+^ | US C(S)+_ |
| 2x | SP | ! | " | # | $ | % | & | ' | ( | ) | * | + | , | - | . | / |
| 3x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 4x | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 5x | P | Q | R | S | T | U | V | W | X | Y | Z | [ | \ | ] | ^ | _ |
| 6x | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 7x | p | q | r | s | t | u | v | w | x | y | z | { | \| | } | ~ | Del |
| 8x | € | Sh↓ | Sh↑ | Ins | Ent (keyp) | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 |
| 9x | F12 | Home | End | Pg Up | Pg Dwn | ↑ | ↓ | ← | → | Ar↓ | Ar↑ | Al↓ | Al↑ | Cl ↓ | Cl ↑ | Cr ↓ |
| Ax | Cr ↑ | | ‘ | *f* | „ | … | † | ‡ | ˆ | ‰ | Š | ‹ | Ś | ‹ | Œ | |
| Bx | ° | ± | ² | ³ | ´ | µ | ¶ | · | ¸ | ¹ | º | » | ¼ | ½ | ¾ | ¿ |
| Cx | À | Á | Â | Ã | Ä | Å | Æ | Ç | È | É | Ê | Ë | Ì | Í | Î | Ï |
| Dx | Ð | | Ò | Ó | Ô | Õ | Ö | × | Ø | Ù | Ú | Û | Ü | Ý | Þ | ß |
| Ex | à | á | â | ã | ä | å | æ | ç | è | é | ê | ë | ì | í | î | ï |
| Fx | ð | ñ | ò | ó | ô | õ | ö | ÷ | ø | ù | ú | û | ü | ý | þ | ÿ |

Extended characters (sky blue) are sent through dedicated keys (when available in the selected country mode) or by using an Alt Mode sequence.

# Interface Type PC AT PS/2 or USB-Keyboard (continued)

### Table 38. Scancode Set When Control Character is 02

| | x0 | x1 | x2 | x3 | x4 | x5 | X6 | x7 | x8 | x9 | xA | xB | xC | xD | xE | xF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0x | Ar↓ | Ar↑ | Al↓ | Al ↑ | Cl ↓ | Cl ↑ | Cr ↓ | Cr ↑ | BS | Tab | → | S+ Tab | Enter Keypd | Enter | Ins | Pg Up |
| 1x | Pg Dwn | Home | ← | ↓ | ↑ | F6 | F1 | F2 | F3 | F4 | F5 | ESC | F7 | F8 | F9 | F10 |
| 2x | Space | ! | “ | # | $ | % | & | ‘ | ( | ) | * | + | , | - | . | / |
| 3x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 4x | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 5x | P | Q | R | S | T | U | V | W | X | Y | Z | [ | \ | ] | ^ | _ |
| 6x | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 7x | p | q | r | s | t | u | v | w | x | y | z | { | \| | } | ~ | Del |
| 8x | € | | ‘ | *f* | „ | … | † | ‡ | ˆ | ‰ | Š | ‹ | Ś | ‹ | Œ | |
| 9x | | ‘ | ’ | “ | ” | • | – | — | ˜ | ™ | š | › | œ | | ž | Ÿ |
| Ax | NBSP | ¡ | ¢ | £ | ¤ | ¥ | ¦ | § | ¨ | © | ª | « | ¬ | - | ® | ¯ |
| Bx | ° | ± | ² | ³ | ´ | µ | ¶ | · | ¸ | ¹ | º | » | ¼ | ½ | ¾ | ¿ |
| Cx | À | Á | Â | Ã | Ä | Å | Æ | Ç | È | É | Ê | Ë | Ì | Í | Î | Ï |
| Dx | Ð | | Ò | Ó | Ô | Õ | Ö | × | Ø | Ù | Ú | Û | Ü | Ý | Þ | ß |
| Ex | à | á | â | ã | ä | å | æ | ç | è | é | ê | ë | ì | í | î | ï |
| Fx | ð | ñ | ò | ó | ô | õ | ö | ÷ | ø | ù | ú | û | ü | ý | þ | ÿ |

# Interface Type PC AT PS/2 Alt Mode or USB-Keyboard Alt Mode

Table 39. Scancode Set When Control Character is 00 or 01

| | x0 | x1 | x2 | x3 | x4 | x5 | X6 | x7 | x8 | x9 | xA | xB | xC | xD | xE | Xf |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0x | Alt+000 | Alt+001 | Alt+002 | Alt+003 | Alt+004 | Alt+005 | Alt+006 | Alt+007 | BS | HT TAB | Alt+010 | Alt+011 | Alt+012 | CR Enter | Alt+014 | Alt+015 |
| 1x | Alt+016 | Alt+017 | Alt+018 | Alt+019 | Alt+020 | Alt+021 | Alt+022 | Alt+023 | Alt+024 | Alt+025 | Alt+026 | ESC Esc | Alt+028 | Alt+029 | Alt+030 | Alt+031 |
| 2x | A+032 | A+033 | A+034 | A+035 | A+036 | A+037 | A+038 | A+039 | A+040 | A+041 | A+042 | A+043 | A+044 | A+045 | A+046 | A+047 |
| 3x | A+048 | A+049 | A+050 | A+051 | A+052 | A+053 | A+054 | A+055 | A+056 | A+057 | A+058 | A+059 | A+060 | A+061 | A+062 | A+063 |
| 4x | A+064 | A+065 | A+066 | A+067 | A+068 | A+069 | A+070 | A+071 | A+072 | A+073 | A+074 | A+075 | A+076 | A+077 | A+078 | A+079 |
| 5x | A+080 | A+081 | A+082 | A+083 | A+084 | A+085 | A+086 | A+087 | A+088 | A+089 | A+090 | A+091 | A+092 | A+093 | A+094 | A+095 |
| 6x | A+096 | A+097 | A+098 | A+099 | A+100 | A+101 | A+102 | A+103 | A+104 | A+105 | A+106 | A+107 | A+108 | A+109 | A+110 | A+111 |
| 7x | A+112 | A+113 | A+114 | A+115 | A+116 | A+117 | A+118 | A+119 | A+120 | A+121 | A+122 | A+123 | A+124 | A+125 | A+126 | A+127 |
| 8x | € | Sh↓ | Sh↑ | Ins | Ent (keyp) | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 |
| 9x | F12 | Home | End | Pg Up | Pg Dwn | ↑ | ↓ | ← | → | Ar↓ | Ar↑ | Al↓ | Al ↑ | Cl ↓ | Cl ↑ | Cr ↓ |
| Ax | Cr ↑ | A+0161 | A+0162 | A+0163 | A+0164 | A+0165 | A+0166 | A+0167 | A+0168 | A+0169 | A+0170 | A+0171 | A+0172 | A+0173 | A+0174 | A+0175 |
| Bx | A+0176 | A+0177 | A+0178 | A+0179 | A+0180 | A+0181 | A+0182 | A+0183 | A+0184 | A+0185 | A+0186 | A+0187 | A+0188 | A+0189 | A+0190 | A+0191 |
| Cx | A+0192 | A+0193 | A+0194 | A+0195 | A+0196 | A+0197 | A+0198 | A+0199 | A+0200 | A+0201 | A+0202 | A+0203 | A+0204 | A+0205 | A+0206 | A+0207 |
| Dx | A+0208 | A+0209 | A+0210 | A+0211 | A+0212 | A+0213 | A+0214 | A+0215 | A+0216 | A+0217 | A+0218 | A+0219 | A+0220 | A+0221 | A+0222 | A+0223 |
| Ex | A+0224 | A+0225 | A+0226 | A+0227 | A+0228 | A+0229 | A+0230 | A+0231 | A+0232 | A+0233 | A+0234 | A+0235 | A+0236 | A+0237 | A+0238 | A+0239 |
| Fx | A+0240 | A+0241 | A+0242 | A+0243 | A+0244 | A+0245 | A+0246 | A+0247 | A+0248 | A+0249 | A+0250 | A+0251 | A+052 | A+0253 | A+0254 | A+0255 |

# Interface Type PC AT PS/2 Alt Mode or USB-Keyboard Alt Mode (continued)

**Table 40. Scancode Set When Control Character is 02**

| | x0 | x1 | x2 | x3 | x4 | x5 | X6 | x7 | x8 | x9 | xA | xB | xC | xD | xE | xF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0x | Ar↓ | Ar↑ | Al↓ | Al ↑ | Cl ↓ | Cl ↑ | Cr ↓ | Cr ↑ | BS | Tab | → | S+ Tab | Enter Keypd | Enter | Ins | Pg Up |
| 1x | Pg Dwn | Home | ← | ↓ | ↑ | F6 | F1 | F2 | F3 | F4 | F5 | ESC | F7 | F8 | F9 | F10 |
| 2x | A+032 | A+033 | A+034 | A+035 | A+036 | A+037 | A+038 | A+039 | A+040 | A+041 | A+042 | A+043 | A+044 | A+045 | A+046 | A+047 |
| 3x | A+048 | A+049 | A+050 | A+051 | A+052 | A+053 | A+054 | A+055 | A+056 | A+057 | A+058 | A+059 | A+060 | A+061 | A+062 | A+063 |
| 4x | A+064 | A+065 | A+066 | A+067 | A+068 | A+069 | A+070 | A+071 | A+072 | A+073 | A+074 | A+075 | A+076 | A+077 | A+078 | A+079 |
| 5x | A+080 | A+081 | A+082 | A+083 | A+084 | A+085 | A+086 | A+087 | A+088 | A+089 | A+090 | A+091 | A+092 | A+093 | A+094 | A+095 |
| 6x | A+096 | A+097 | A+098 | A+099 | A+100 | A+101 | A+102 | A+103 | A+104 | A+105 | A+106 | A+107 | A+108 | A+109 | A+110 | A+111 |
| 7x | A+112 | A+113 | A+114 | A+115 | A+116 | A+117 | A+118 | A+119 | A+120 | A+121 | A+122 | A+123 | A+124 | A+125 | A+126 | A+127 |
| 8x | A+0128 | A+0129 | A+0130 | A+0131 | A+0132 | A+0133 | A+0134 | A+0135 | A+0136 | A+0137 | A+0138 | A+0139 | A+0140 | A+0141 | A+0142 | A+0143 |
| 9x | A+0144 | A+0145 | A+0146 | A+0147 | A+0148 | A+0149 | A+0150 | A+0151 | A+0152 | A+0153 | A+0154 | A+0155 | A+0156 | A+0157 | A+0158 | A+0159 |
| Ax | A+0160 | A+0161 | A+0162 | A+0163 | A+0164 | A+0165 | A+0166 | A+0167 | A+0168 | A+0169 | A+0170 | A+0171 | A+0172 | A+0173 | A+0174 | A+0175 |
| Bx | A+0176 | A+0177 | A+0178 | A+0179 | A+0180 | A+0181 | A+0182 | A+0183 | A+0184 | A+0185 | A+0186 | A+0187 | A+0188 | A+0189 | A+0190 | A+0191 |
| Cx | A+0192 | A+0193 | A+0194 | A+0195 | A+0196 | A+0197 | A+0198 | A+0199 | A+0200 | A+0201 | A+0202 | A+0203 | A+0204 | A+0205 | A+0206 | A+0207 |
| Dx | A+0208 | A+0209 | A+0210 | A+0211 | A+0212 | A+0213 | A+0214 | A+0215 | A+0216 | A+0217 | A+0218 | A+0219 | A+0220 | A+0221 | A+0222 | A+0223 |
| Ex | A+0224 | A+0225 | A+0226 | A+0227 | A+0228 | A+0229 | A+0230 | A+0231 | A+0232 | A+0233 | A+0234 | A+0235 | A+0236 | A+0237 | A+0238 | A+0239 |
| Fx | A+0240 | A+0241 | A+0242 | A+0243 | A+0244 | A+0245 | A+0246 | A+0247 | A+0248 | A+0249 | A+0250 | A+0251 | A+052 | A+0253 | A+0254 | A+0255 |

# Microsoft Windows Codepage 1252

Windows-1252 is a character encoding of the Latin alphabet, used by default in the legacy components of Microsoft Windows in English and some other Western languages.

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | NUL 0000 | STX 0001 | SOT 0002 | ETX 0003 | EOT 0004 | ENQ 0005 | ACK 0006 | BEL 0007 | BS 0008 | HT 0009 | LF 000A | VT 000B | FF 000C | CR 000D | SO 000E | SI 000F |
| 10 | DLE 0010 | DC1 0011 | DC2 0012 | DC3 0013 | DC4 0014 | NAK 0015 | SYN 0016 | ETB 0017 | CAN 0018 | EM 0019 | SUB 001A | ESC 001B | FS 001C | GS 001D | RS 001E | US 001F |
| 20 | SP 0020 | ! 0021 | " 0022 | # 0023 | $ 0024 | % 0025 | & 0026 | ' 0027 | ( 0028 | ) 0029 | * 002A | + 002B | , 002C | - 002D | . 002E | / 002F |
| 30 | 0 0030 | 1 0031 | 2 0032 | 3 0033 | 4 0034 | 5 0035 | 6 0036 | 7 0037 | 8 0038 | 9 0039 | : 003A | ; 003B | < 003C | = 003D | > 003E | ? 003F |
| 40 | @ 0040 | A 0041 | B 0042 | C 0043 | D 0044 | E 0045 | F 0046 | G 0047 | H 0048 | I 0049 | J 004A | K 004B | L 004C | M 004D | N 004E | O 004F |
| 50 | P 0050 | Q 0051 | R 0052 | S 0053 | T 0054 | U 0055 | V 0056 | W 0057 | X 0058 | Y 0059 | Z 005A | [ 005B | \ 005C | ] 005D | ^ 005E | _ 005F |
| 60 | ` 0060 | a 0061 | b 0062 | c 0063 | d 0064 | e 0065 | f 0066 | g 0067 | h 0068 | i 0069 | j 006A | k 006B | l 006C | m 006D | n 006E | o 006F |
| 70 | p 0070 | q 0071 | r 0072 | s 0073 | t 0074 | u 0075 | v 0076 | w 0077 | x 0078 | y 0079 | z 007A | { 007B | \| 007C | } 007D | ~ 007E | DEL 007F |
| 80 | € 20AC | | ‚ 201A | ƒ 0192 | „ 201E | … 2026 | † 2020 | ‡ 2021 | ˆ 02C6 | ‰ 2030 | Š 0160 | ‹ 2039 | Œ 0152 | | Ž 017D | |
| 90 | | ' 2018 | ' 2019 | " 201C | " 201D | • 2022 | – 2013 | — 2014 | ˜ 02DC | ™ 2122 | š 0161 | › 203A | œ 0153 | | ž 017E | Ÿ 0178 |
| A0 | NBSP 00A0 | ¡ 00A1 | ¢ 00A2 | £ 00A3 | ¤ 00A4 | ¥ 00A5 | ¦ 00A6 | § 00A7 | ¨ 00A8 | © 00A9 | ª 00AA | « 00AB | ¬ 00AC | - 00AD | ® 00AE | ¯ 00AF |
| B0 | ° 00B0 | ± 00B1 | ² 00B2 | ³ 00B3 | ´ 00B4 | µ 00B5 | ¶ 00B6 | · 00B7 | ¸ 00B8 | ¹ 00B9 | º 00BA | » 00BB | ¼ 00BC | ½ 00BD | ¾ 00BE | ¿ 00BF |
| C0 | À 00C0 | Á 00C1 | Â 00C2 | Ã 00C3 | Ä 00C4 | Å 00C5 | Æ 00C6 | Ç 00C7 | È 00C8 | É 00C9 | Ê 00CA | Ë 00CB | Ì 00CC | Í 00CD | Î 00CE | Ï 00CF |
| D0 | Ð 00D0 | Ñ 00D1 | Ò 00D2 | Ó 00D3 | Ô 00D4 | Õ 00D5 | Ö 00D6 | × 00D7 | Ø 00D8 | Ù 00D9 | Ú 00DA | Û 00DB | Ü 00DC | Ý 00DD | Þ 00DE | ß 00DF |
| E0 | à 00E0 | á 00E1 | â 00E2 | ã 00E3 | ä 00E4 | å 00E5 | æ 00E6 | ç 00E7 | è 00E8 | é 00E9 | ê 00EA | ë 00EB | ì 00EC | í 00ED | î 00EE | ï 00EF |
| F0 | ð 00F0 | ñ 00F1 | ò 00F2 | ó 00F3 | ô 00F4 | õ 00F5 | ö 00F6 | ÷ 00F7 | ø 00F8 | ù 00F9 | ú 00FA | û 00FB | ü 00FC | ý 00FD | þ 00FE | ÿ 00FF |

# ASCII Chart

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