

QuickScan™ i

QD2100 General Purpose Corded Handheld
Linear Imager Bar Code Reader



Product Reference Guide

Datalogic ADC, Inc.

959 Terry Street
Eugene, OR 97402
USA
Telephone: (541) 683-5700
Fax: (541) 345-7140

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Additional patents pending.

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NOTES

Chapter 1

Introduction

About this Guide

This Product Reference Guide (PRG) is provided for users seeking advanced technical information, including connection, programming, maintenance and specifications. The Quick Reference Guide (QRG) and other publications associated with this product are downloadable free of charge from the website listed on the back cover of this manual.

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 Datalogic Aladdin™ Configuration application which is downloadable from the Datalogic website listed on the back cover of this manual. 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.

Manual Overview

[Chapter 1, Introduction](#) provides a product overview, unpacking instructions, and cable connection information.

[Chapter 2, Getting Started](#) presents information about unpacking and setting up the imager.

[Chapter 3, Interfaces](#) consists of interface configuration bar codes and details.

[Chapter 4, General Features](#) includes programming bar codes for selecting common features for the imager and general use bar codes to customize how the data is transmitted to the host device.

[Chapter 5, RS-232 ONLY Interface](#) supplies information about setting up the imager for RS-232 operation.

[Chapter 6, RS-232/USB-Com Interfaces](#) features information about options involving both the RS-232 and USB-Com interfaces.

[Chapter 7, Keyboard Interface](#) discusses how to set up the imager for Keyboard Wedge operation.

[Chapter 8, USB-OEM Interface](#) explains how to set the imager up for USB operation.

[Chapter 9, IBM 46XX Interface](#) is a resource for setting up an IBM interface.

[Chapter 11, Data Editing](#) offers advanced configuration options for customization of scanned data output.

[Chapter 12, Symbolologies](#) defines options for all symbolologies and provides the programming bar codes necessary for configuring these features.

[Appendix A, Technical Specifications](#) lists physical and performance characteristics, as well as environmental and regulatory specifications. It also provides standard cable pin-outs.

[Appendix B, Standard Defaults](#) references common factory default settings for imager features and options.

[Appendix C, LED and Beeper Indications](#) supplies tables containing descriptions of the functions and behaviors of the imager's LED and Beeper indicators.

[Appendix D, Sample bar codes](#) offers sample bar codes of several common symbolologies.

[Appendix E, Keypad](#) includes numeric bar codes to be scanned for certain parameter settings.

[Appendix F, Scancode Tables](#) lists control character emulation information for Wedge and USB Keyboard interfaces.

Manual Conventions

The following conventions are used in this document:

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



NOTE

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



CAUTION

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

References

Current versions of the Product Reference Guide (PRG), Quick Reference Guide (QRG), the Datalogic Aladdin™ Configuration application, software/firmware and any additional manuals, instruction sheets and utilities for this product can be downloaded from the website listed on the back cover of this manual. Alternatively, printed copies or product support CDs can be purchased through your Datalogic reseller.

Technical Support

Datalogic Website Support

The Datalogic website (www.datalogic.com) is the complete source for technical support and information for Datalogic products. The site offers product support, warranty information, product manuals, product tech notes, software updates, demos, and instructions for returning products for repair.

Reseller Technical Support

An excellent source for technical assistance and information is an authorized Datalogic reseller. A reseller is acquainted with specific types of businesses, application software, and computer systems and can provide individualized assistance.

Telephone Technical Support

If you do not have internet or email access, you may contact Datalogic technical support at (541) 349-8283 or check the back cover of your manual for more contact information.

NOTES

Chapter 2

Getting Started

About the Imager

Advancements in the LED technology used in this imager significantly improve the illumination of the target field of view, resulting in higher scan efficiency. Whether used in Single Trigger or Continuous Mode, the ergonomic design of the imager will help to promote comfortable handling during extended periods of use.

The imager can communicate using the following interfaces:

RS-232 — The imager 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 (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 on page 68](#) for a full listing.

USB — Select to communicate either by USB OEM, USB COM, USB Keyboard interface or USB POS types by scanning the appropriate interface type bar codes available in this manual. The default interface is USB-KBD for Wedge models (7230) and USB-OEM for IBM models (7210).

IBM — IBM Port 5B or Port 9B are selectable interface options.

Wand Emulation — This interface produces an electrical signal that represents the bars and spaces of a label.

Unpacking

Check carefully to ensure the imager and any accessories ordered are present and undamaged. If any damage occurred during shipment, contact [Technical Support on page 3](#). KEEP THE PACKAGING. Should the unit ever require service, it should be returned in its original shipping container.

Setting Up the Imager

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

1. [Install the Interface Cable](#)
2. [Select the Interface Type](#)
3. [Configure Interface Settings](#) (only if not using factory settings for that interface)
4. [Configure Other Features](#) (if modifications are needed from factory settings)

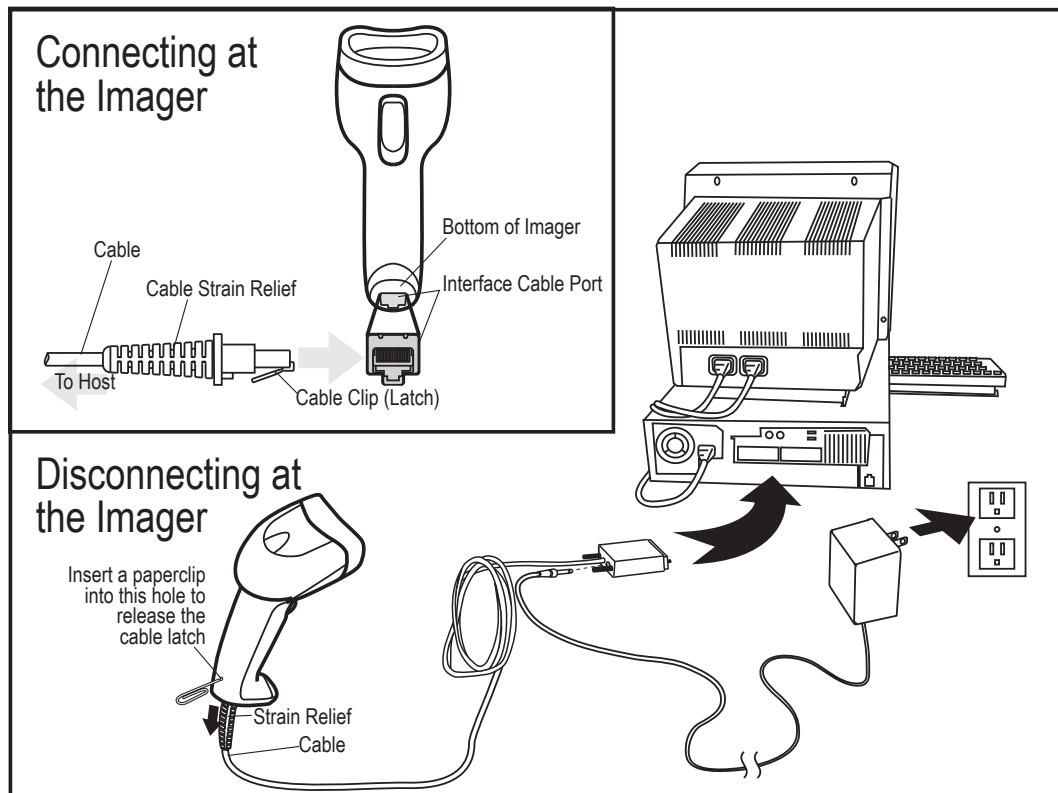
Install the Interface Cable

The imager kit you ordered to match your interface should provide a compatible cable for your installation. If not, contact [Technical Support](#).

Seat the cable assembly into the imager, aligning both the connector, aligning the cable clip with its opening as shown in the insert portion of [Figure 1](#).

RS-232 Serial Connection — Turn off power to the terminal/PC and connect the imager to the terminal/PC serial port via the RS-232 cable as shown in [Figure 1](#). If the terminal will not support POT (Power Off the Terminal) to supply imager 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.

Figure 1. Connecting the Interface Cable/RS-232 Connection



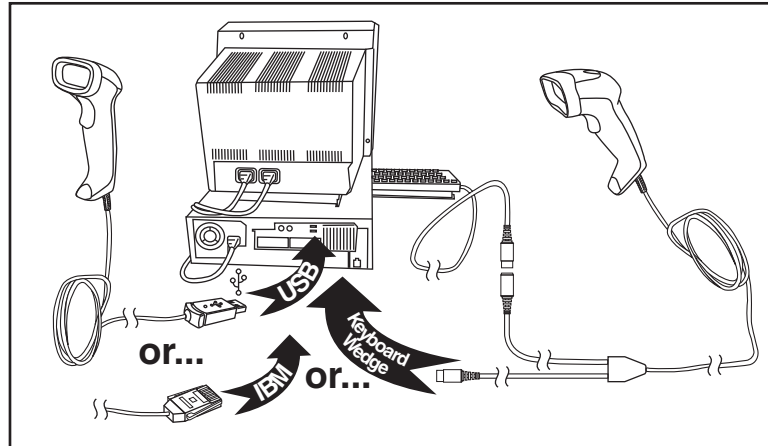
Other connection types are described below and illustrated in [Figure 2](#).

USB Connection — Connect the imager to a USB port on the terminal/PC using the correct USB cable for the interface type you ordered. Reference [Figure 2](#).

IBM Connection — Connect the imager to the IBM port on the terminal/PC using the correct IBM cable. Reference [Figure 2](#).

Keyboard Wedge Connection — The Keyboard Wedge cable has a 'Y' connection from the imager. Connect the female to the male end from the keyboard and the remaining end at the keyboard port at the terminal/PC. Reference [Figure 2](#).

Figure 2. Other Interface Connections



NOTE

Specific cables are required for connection to different hosts. The connectors illustrated above are examples only. Actual connectors may vary from those illustrated, but the steps to connect the imager remain the same.

Programming

The imager is typically factory-configured with a set of default features standard to the interface type you ordered. After scanning the interface bar code from the [Interfaces](#) section, you can select other options and customize your imager through use of the instructions and programming bar codes available in the corresponding features section for your interface and also the [Data Editing](#) and [Symbologies](#) chapters of this manual.

Using the Programming bar codes

This manual contains feature descriptions and bar codes which allow you to reconfigure your imager. Some programming bar code labels, like [Resetting the Product Configuration to Defaults on page 9](#), require only the scan of that single label to enact the change. Most of the programming labels in this manual, however, require the imager to be placed in Programming Mode prior to scanning them. Scan an ENTER/EXIT bar code once to enter Programming Mode. Once the imager 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 imager 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.

Select the Interface Type

Upon completing the physical connection between the imager and its host, proceed directly to [Interfaces on page 11](#) for information and programming for the interface type the imager 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.

Configure Interface Settings

The imager is typically factory-configured with a set of default features standard to the interface type you ordered. If after scanning the interface bar code from the [Interfaces](#) section, your installation requires you to select options to further customize your imager, turn to the appropriate section for your interface type as listed below:

- [RS-232 ONLY Interface, starting on page 41](#)
- [Keyboard Interface, starting on page 67](#)
- [USB-OEM Interface, starting on page 81](#)
- [IBM 46XX Interface, starting on page 85](#)
- [Wand Emulation Interface, starting on page 91](#)

Configure 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:

General Features — General Features includes programming for scanning, beeper and LED indicators and other such universal settings.

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 and Keyboard interfaces by scanning the following label.



Transmit Software Version

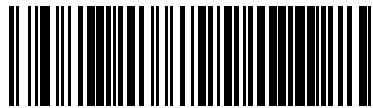
Resetting the Product Configuration to Defaults

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



NOTE

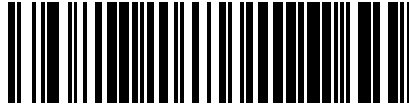
Custom defaults are based on the interface type. Configure the imager for the correct interface before scanning this label.



Restore Custom Default Configuration

Resetting the Product Configuration to Defaults — cont.

If you aren't sure what programming options are in your imager, or you've changed some options and want to restore the Factory Configuration, you have two options. You can scan the [Restore USA Factory Configuration](#) bar code or the [Restore EU Factory Configuration](#) bar code below. Both labels restore the imager configuration to the factory settings including the interface type. The USA label restores Label IDs to those historically used in the USA. The EU label restores Label IDs to those historically used in Europe. The Label ID sets for USA and EU are shown in the Label ID section of this manual.



Restore USA Factory Configuration



Restore EU Factory Configuration

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

Chapter 3

Interfaces

Interface Selection

Each reader model will support one of the following sets of host interfaces:

General Purpose Models (5 volt supply)

RS-232
RS-232 OPOS
USB
Keyboard Wedge
Wand Emulation

Retail Point of Sale Models (4 to 14 volt supply)

RS-232
RS-232 OPOS
USB
IBM 46XX

Configuring the Interface

Scan the programming bar code from this section which selects the appropriate interface type matching the system the reader will be connected to. Next, proceed to the corresponding chapter in this manual (also listed in [Table 1](#)) 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.

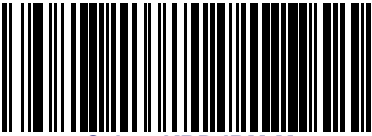






Some interfaces require the scanner to start in the disabled state when powered up. If additional scanner configuration is desired while in this state, pull the trigger and hold it for five seconds. The scanner will change to a state that allows programming with bar codes.

Table 1. Available Interfaces

| RS-232 | | FEATURES |
|---|--|--|
| RS-232 standard interface |  Select RS232-STD | Set RS-232 Interface Features starting on page 41 |
|  Select RS232-WN | RS-232 Wincor-Nixdorf | |
| RS-232 for use with OPOS/UPOS/JavaPOS |  Select RS-232 OPOS | |
|  Select USB-COM-STD ^a | USB Com to simulate RS-232 standard interface | |
| IBM | | FEATURES |
|  Select IBM-P5B | IBM-46xx Port 5B reader interface | Set IBM Interface Features starting on page 85 |
| IBM-46xx Port 9B reader interface |  Select IBM-P9B | |
| USB-OEM | | FEATURES |
|  Select USB-OEM | USB-OEM (can be used for OPOS/UPOS/JavaPOS) | Set USB-OEM Interface Features starting on page 81 |

^a. Download the correct USB Com driver from www.datalogic.com

| KEYBOARD | FEATURES |
|---|--|
| <p>AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Standard Key Encoding</p>  <p>Select KBD-AT</p> | |
|  <p>Select KBD-AT-NK</p> <p>Keyboard Wedge for IBM AT PS2 with standard key encoding but without external keyboard</p> | |
| <p>AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Alternate Key</p>  <p>Select KBD-AT-ALT</p> | |
|  <p>Select KBD-AT-ALT-NK</p> <p>Keyboard Wedge for IBM AT PS2 with alternate key encoding but without external keyboard</p> | |
| <p>PC/XT w/Standard Key Encoding</p>  <p>Select KBD-XT</p> | |
|  <p>Select KBD-IBM-3153</p> <p>Keyboard Wedge for IBM Terminal 3153</p> | <p>Set KEYBOARD WEDGE Interface Features starting on page 67</p> |

| KEYBOARD — cont. | | FEATURES |
|---|---|---|
| Keyboard Wedge for IBM Terminals 31xx, 32xx, 34xx, 37xx make only keyboard |  Select KBD-IBM-M | Set KEYBOARD WEDGE Interface Features starting on page 67 |
|  Select KBD-IBM-MB | Keyboard Wedge for IBM Terminals 31xx, 32xx, 34xx, 37xx make break keyboard | |
| Keyboard Wedge for DIGITAL Terminals VT2xx, VT3xx, VT4xx |  Select KBD-DIG-VT | |
|  Select USB Keyboard | USB Keyboard with standard key encoding | |
| USB Keyboard with alternate key encoding |  Select USB Alternate Keyboard | |
|  Select USB-KBD-APPLE | USB Keyboard for Apple computers | |
| WAND EMULATION | | FEATURES |
| Wand Emulation |  Select WAND | Set WAND Interface Features starting on page 91 |

Global Interface Features

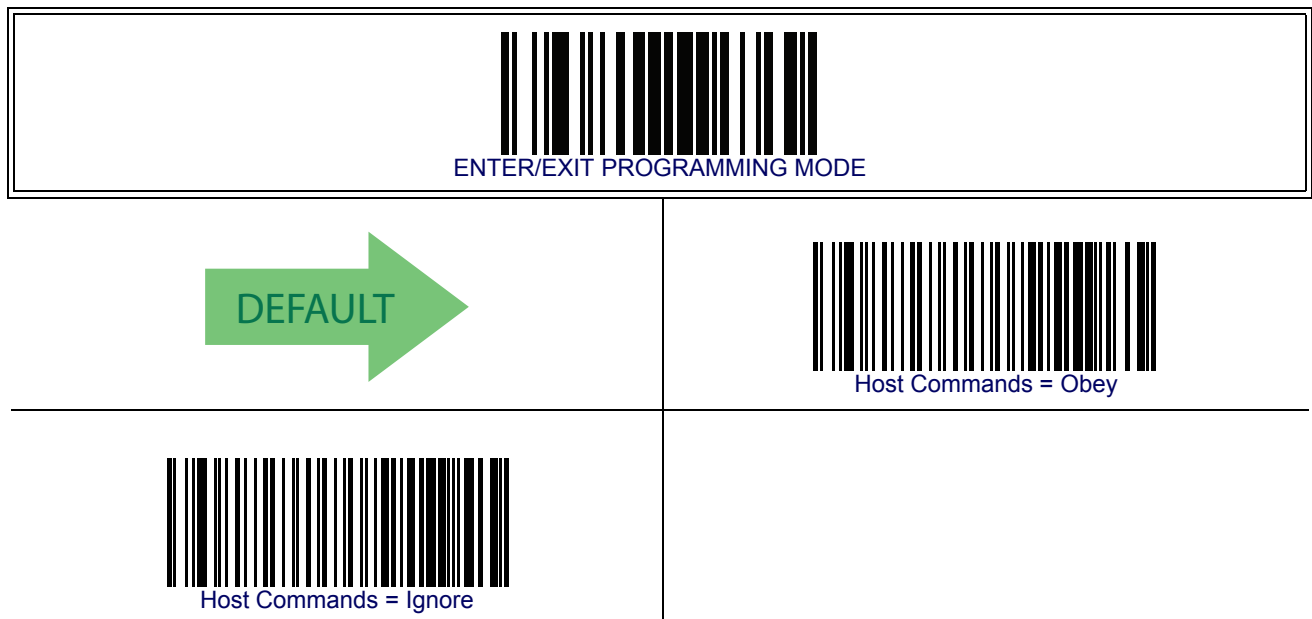
The following interface features are configurable by all interface types. To set features specific to your interface, turn to that section of this manual:

- [RS-232 ONLY Interface on page 41](#)
- [Keyboard Interface on page 67](#)
- [USB-OEM Interface on page 81](#)
- [IBM 46XX Interface on page 85](#)

Host Commands — Obey/Ignore

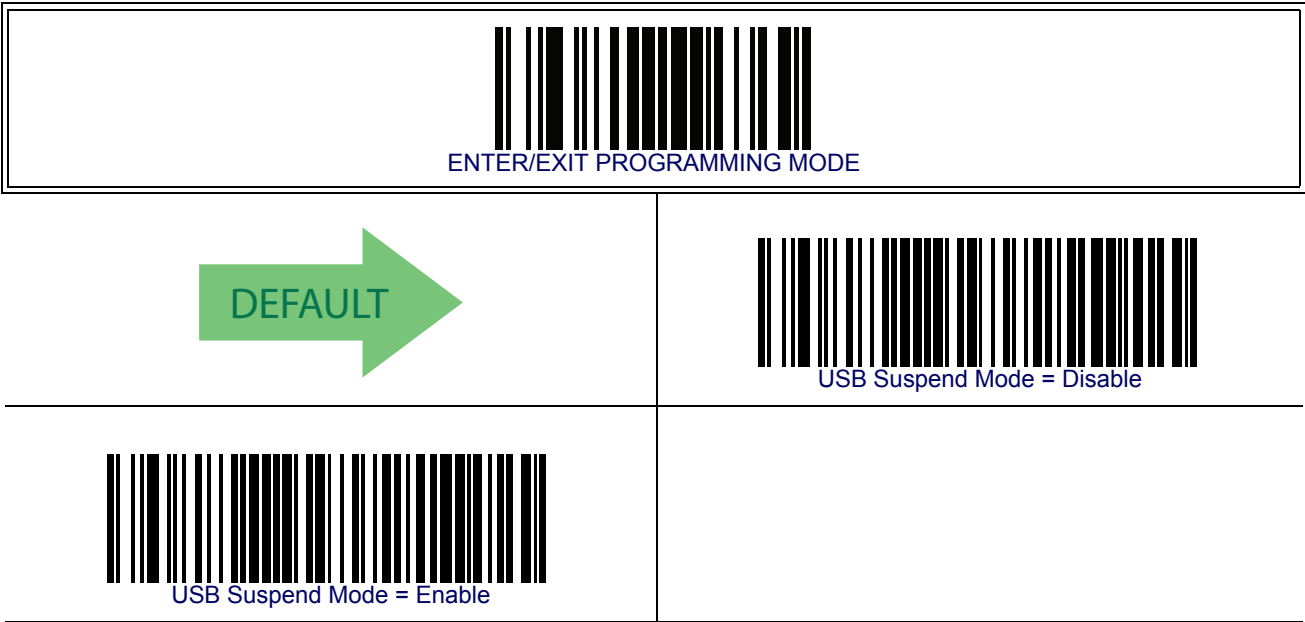
This option specifies whether the reader will obey or ignore host commands. When set to ignore, the reader will ignore all host commands except for those necessary for:

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



USB Suspend Mode

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



Chapter 4

General Features

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.

| | |
|---|--|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  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

| | |
|---|--|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>Double Read Timeout = 0.5 Second</p></div> |
| <div><p>Double Read Timeout = 0.6 Second</p></div> | |
| | <div><p>Double Read Timeout = 0.7 Second</p></div> |
| <div><p>Double Read Timeout = 0.8 Second</p></div> | |
| | <div><p>Double Read Timeout = 0.9 Second</p></div> |
| <div><p>Double Read Timeout = 1 Second</p></div> | |

Label Gone Timeout

This feature sets the time after the last label segment is seen before the reader prepares for a new label. The timeout can be set within a range of 10 milliseconds to 2,550 milliseconds (2.55 seconds) in 10ms increments. Label Gone Timeout does not apply to scan modes that require a trigger pull for each label that is read.

Follow these instructions to set this feature:

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 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 LABEL GONE TIMEOUT SETTING.
5. Scan the appropriate three alpha-numeric characters from the keypad in [Appendix E, Keypad](#) representing the duration which was 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

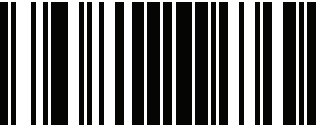

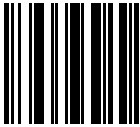
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

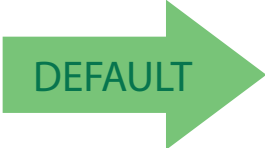
This completes the procedure. See [Table 2](#) for some examples of how to set this feature.

Table 2. Timeout Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|------------------|------------------|-------------------|--------------------|
| 1 | Desired Setting | 50ms | 150ms | 1800ms (1.8 sec.) | 2550ms (2.55 sec.) |
| 2 | Divide by 10 (and pad with leading zeroes) | 005 | 015 | 180 | 255 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT LABEL GONE TIMEOUT SETTING | | | | |
| 5 | Scan Three Characters From Appendix E, Keypad | '0', '0' and '5' | '0', '1' and '5' | '1', '8' and '0' | "2", '5' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Label Gone Timeout — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Label Gone Timeout Setting</div> | |
| <p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p> | <div> CANCEL</div> |

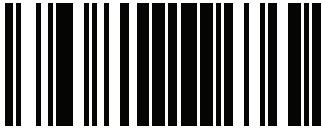
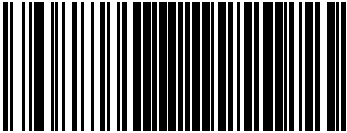
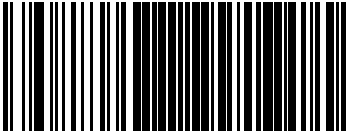

 DEFAULT

016 = Timeout of 160 ms

LED and Beeper Indicators

Power On Alert

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

| | |
|--|--|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>Power On Alert = Disable (No Audible Indication)</p></div> |
| <div><p>Power On Alert = Four Beeps</p></div> | <div><p>DEFAULT</p></div> |

Good Read: When to Indicate

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

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



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

NOTE

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div></div> | <div><div></div><div>Indicate Good Read = After Decode</div></div> |
| <div><div></div><div>Indicate Good Read = After Transmit</div></div> | |
| | <div><div></div><div>Indicate Good Read = After CTS Goes Inactive, Then Active</div></div> |

Good Read Beep Type

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



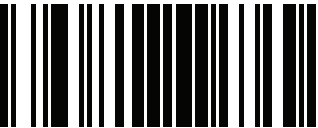
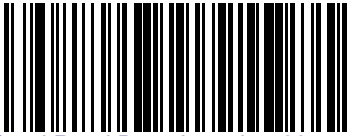
Good Read Beep Frequency

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

| | |
|--|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> Good Read Beep Frequency = Low</div> |
| <div> Good Read Beep Frequency = Medium</div> | |
| <div></div> | <div> Good Read Beep Frequency = High</div> |

Good Read Beep Length

Specifies the duration of a good read beep.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> Good Read Beep Length = 60 msec</div> |

Good Read Beep Length — continued

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Good Read Beep Length = 80 msec</div></div> | <div></div> |
| | <div><div></div><div>Good Read Beep Length = 100 msec</div></div> |
| <div><div></div><div>Good Read Beep Length = 120 msec</div></div> | |
| | <div><div></div><div>Good Read Beep Length = 140 msec</div></div> |
| <div><div></div><div>Good Read Beep Length = 160 msec</div></div> | |
| | <div><div></div><div>Good Read Beep Length = 180 msec</div></div> |
| <div><div></div><div>Good Read Beep Length = 200 msec</div></div> | |

Good Read Beep Volume

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

| | |
|---|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Good Read Beep Volume = Beeper Off</div></div> |
| <div><div></div><div>Good Read Beep Volume = Low</div></div> | |
| | <div><div></div><div>Good Read Beep Volume = Medium</div></div> |
| <div><div></div><div>Good Read Beep Volume = High</div></div> | <div><div>←</div><div>DEFAULT</div></div> |

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 0.1 to 25.5 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 100 (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 E, Keypad](#) representing the duration which was 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

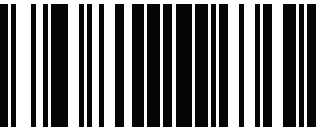
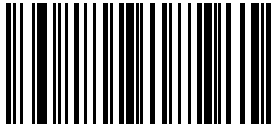

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

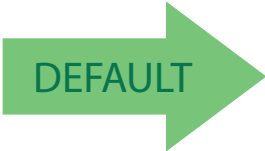
This completes the procedure. See [Table 3](#) for some examples of how to set this feature.

Table 3. Good Read LED Duration Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|---|------------------|-------------------|-------------------|
| 1 | Desired Setting | Good Read LED stays on until next trigger pull (00) | 200ms | 1500ms (1.5 sec.) | 2500ms (2.5 sec.) |
| 2 | Divide by 10 (and pad with leading zeroes) | 000 | 002 | 015 | 025 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT LABEL GONE TIMEOUT SETTING | | | | |
| 5 | Scan Three Characters From Appendix E, Keypad | '0', '0' and '0' | '0', '0' and '2' | '0', '1' and '5' | '0', '2' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Good Read LED Duration — cont.

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Select Good Read LED Duration Setting</div></div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div><div></div><div>CANCEL</div></div> |



020 = Good Read LED stays on for 2 seconds.



NOTE

Indicators are dimmed during sleep.

Scanning Features

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:

- **Scanning Active Time** 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 **Scanning Active Time** has elapsed.

Trigger Hold Multiple — When the trigger is pulled, scanning starts and the product scans until the trigger is released or **Scanning Active Time** 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 **Scanning Active Time** has elapsed or the trigger has been released and pulled again. **Double Read Timeout**¹ prevents undesired multiple reads of the same label while in this mode.

Flashing — The reader flashes¹ 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 imager 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. If the trigger is pulled, the reader acts as if it is in **Trigger Single** Mode. **Double Read Timeout**¹ prevents undesired multiple reads of the same label while in this mode.

Stand Mode — No trigger pull is required to read a bar code. Scanning is turned on automatically when an item is placed in reader's field of view. If the trigger is pulled, the reader acts as if it in single read mode. **Double Read Timeout**¹ prevents undesired multiple reads of the same label while in this mode.

Trigger Object Sense — This mode is similar to Stand Mode, except that a trigger pull is required to activate the decoder.

Scan Mode — continued

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Scan Mode = Trigger Single</div></div> | <div></div> |
| | <div><div></div><div>Scan Mode = Trigger Hold Multiple</div></div> |
| <div><div></div><div>Scan Mode = Trigger Pulse Multiple</div></div> | |
| | <div><div></div><div>Scan Mode = Flashing</div></div> |
| <div><div></div><div>Scan Mode = Always On</div></div> | |
| | <div><div></div><div>Scan Mode = Stand Mode</div></div> |
| <div><div></div><div>Scan Mode = Trigger Object Sense</div></div> | |

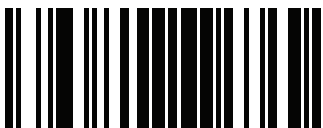

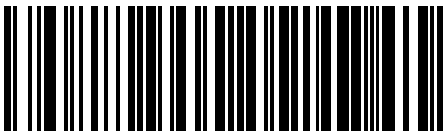
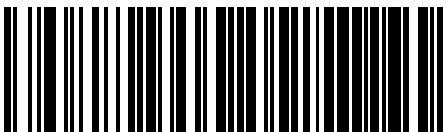

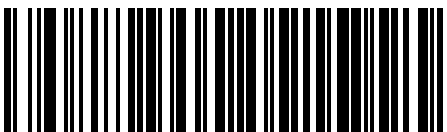

Stand Mode Triggered Timeout

This feature specifies the time to remain in **Trigger Single** mode after the trigger is pulled while in **Stand Mode**.



NOTE

This timeout is only used when the Scan Mode is configured as **Stand Mode**.

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Stand Mode Triggered Timeout = 0.5 Seconds | |
| |  Stand Mode Triggered Timeout = 1.5 Seconds |
|  Stand Mode Triggered Timeout = 2 Seconds | |
|  DEFAULT |  Stand Mode Triggered Timeout = 3 Seconds |
|  Stand Mode Triggered Timeout = 4 Seconds | |

Stand Mode Triggered Timeout — continued

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Stand Mode Triggered Timeout = 6 Seconds</div></div> |
| <div><div></div><div>Stand Mode Triggered Timeout = 8 Seconds</div></div> | |
| | <div><div></div><div>Stand Mode Triggered Timeout = Switch to Continuous Trigger Single Mode</div></div> |

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 E, Keypad](#), that represent the duration which was 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

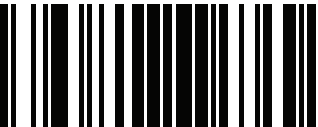


6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

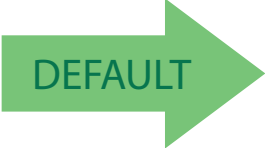
This completes the procedure. See [Table 4](#) for some examples of how to set this feature.

Table 4. 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 E, Keypad | '0', '0' and '1' | '0', '9' and '0' | '1', '8' and '0' | '2', '5' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Scanning Active Time — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Scanning Active Time Setting</div> | |
| <p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p> | <div> CANCEL</div> |

DEFAULT

005 = Scanning is active for 5 Seconds

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 E, Keypad](#) representing the duration which was 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

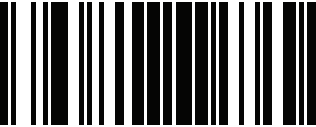

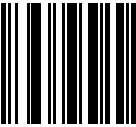
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

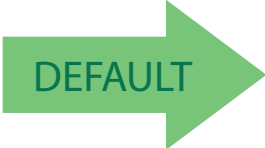
This completes the procedure. See [Table 5](#) for some examples of how to set this feature.

Table 5. 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 OFF TIME SETTING | | | | |
| 5 | Scan Two Characters From Appendix E, Keypad | '0' and '5' | '1' and '0' | '5' and '2' | '9' and '9' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Flash On Time — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Flash ON Time Setting</div> | |
| <p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p> | <div> CANCEL</div> |

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.

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 E, Keypad](#), that represent the duration which was 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

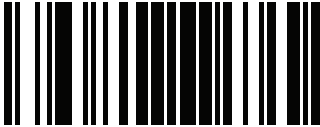
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See [Table 6](#) for some examples of how to set this feature.


Table 6. 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 E, Keypad | '0' and '5' | '1' and '0' | '5' and '2' | '9' and '9' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Flash Off Time — cont.




ENTER/EXIT PROGRAMMING MODE

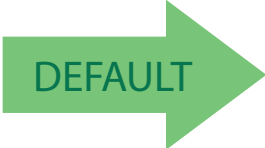


Select Flash OFF Time Setting

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

06 = Flash is OFF for 600ms

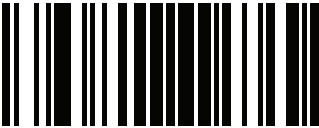
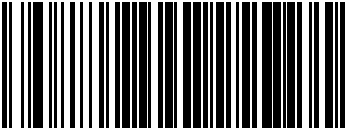


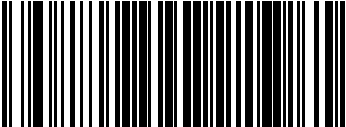
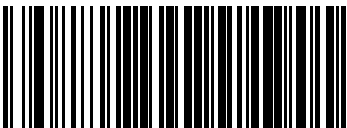
Stand Mode Sensitivity

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

| | |
|---|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Stand Mode Sensitivity = Low</div></div> |
| <div><div></div><div>Stand Mode Sensitivity = Medium</div></div> | <div></div> |
| | <div><div></div><div>Stand Mode Sensitivity = High</div></div> |

Green Spot Duration

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

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Green Spot Duration = Disable (Green Spot is Off)</div></div> |
| <div><div></div><div>Green Spot Duration = Short (300 msec)</div></div> | <div></div> |
| | <div><div></div><div>Green Spot Duration = Medium (500 msec)</div></div> |
| <div><div></div><div>Green Spot Duration = Long (800 msec)</div></div> | |

Chapter 5

RS-232 ONLY Interface

Introduction

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 in [Chapter 6, RS-232/USB-Com Interfaces](#).

RS-232 Standard Factory Settings

Reference [Appendix B, Standard Defaults](#) for a listing of standard factory settings.

Baud Rate

Baud rate is the number of bits of data transmitted per second. Set the reader'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.

| | |
|--|--|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  Baud Rate = 1200 |
|  Baud Rate = 2400 | |
| |  Baud Rate = 4800 |

Baud Rate — continued

| | |
|---|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Baud Rate = 9600</div></div> | <div></div> |
| | <div><div></div><div>Baud Rate = 19,200</div></div> |
| <div><div></div><div>Baud Rate = 38,400</div></div> | |
| | <div><div></div><div>Baud Rate = 57,600</div></div> |
| <div><div></div><div>Baud Rate = 115,200</div></div> | |

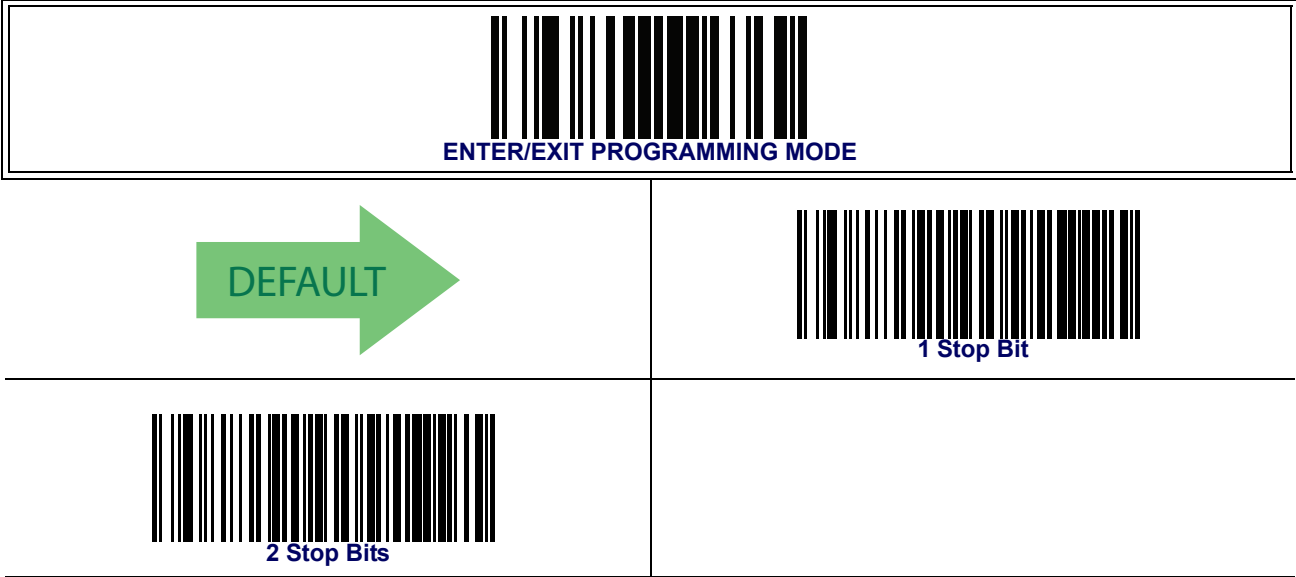
Data Bits

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

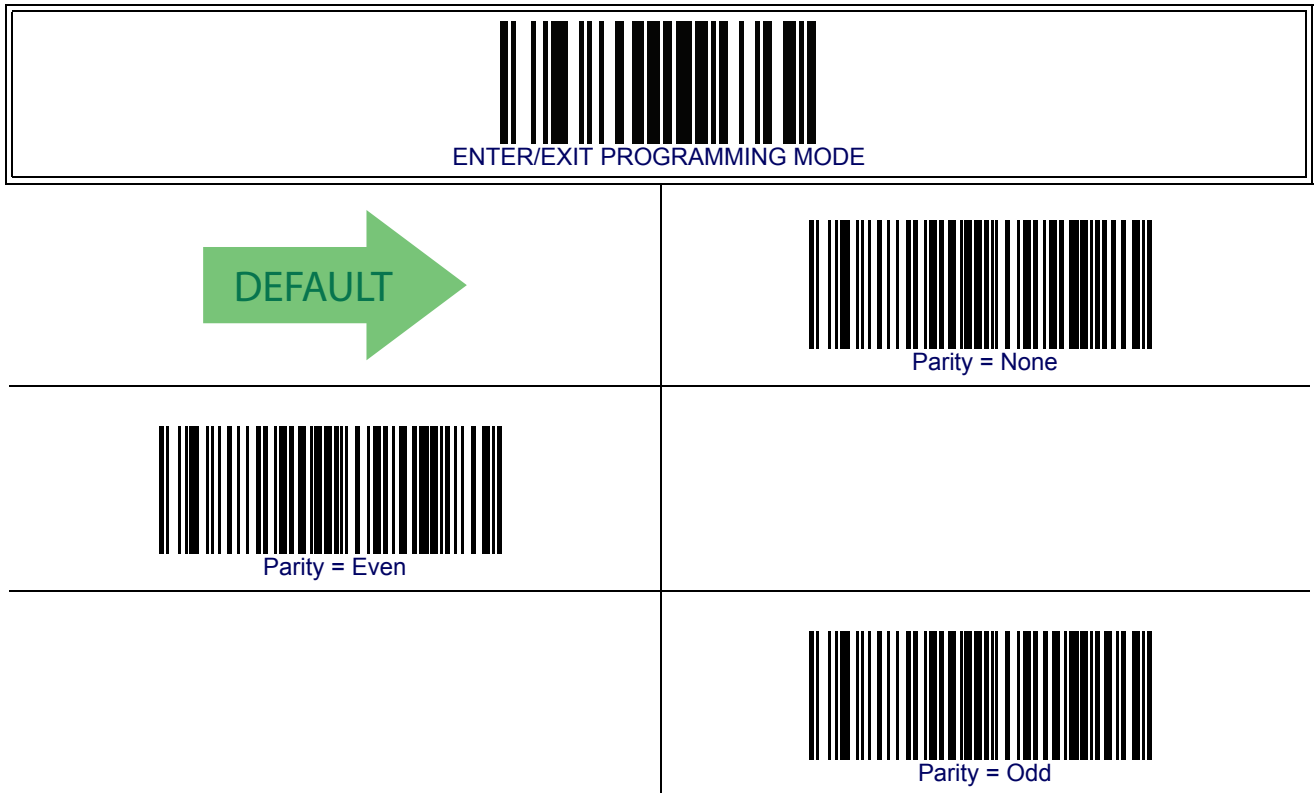
The stop bit(s) at the end of each transmitted character marks the end of transmission of one character and prepares the receiving device for the next character in the serial data stream. The number of stop bits selected (one or two) depends on the number the receiving terminal is programmed to accommodate.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

| | |
|---|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div>DEFAULT</div></div> | <div><div></div><div>Handshaking Control = RTS</div></div> |
| <div><div></div><div>Handshaking Control = RTS/CTS</div></div> | |
| | <div><div></div><div>Handshaking Control = RTS/XON/XOFF</div></div> |
| <div><div></div><div>Handshaking Control = RTS On/CTS</div></div> | |
| | <div><div></div><div>Handshaking Control = RTS/CTS Scan Control</div></div> |

Chapter 6

RS-232/USB-Com Interfaces

Introduction

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

Standard Factory Settings

Reference [Appendix B, Standard Defaults](#) 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.

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 E, Keypad](#), that represent the duration which was 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

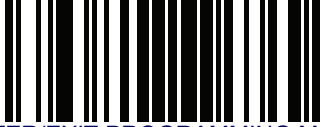



- 6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See [Table 7](#) for some examples of how to set this feature.

Table 7. 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 E, Keypad | '0' and '5' | '5' and '0' | 0' and '0' | '8' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Intercharacter Delay — cont.


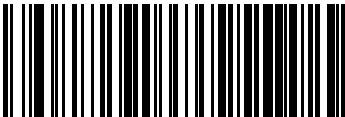

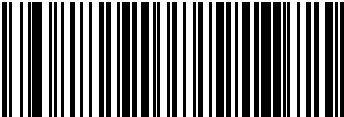
| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  Intercharacter Delay = No Delay |
|  Select Intercharacter Delay Setting | |
| Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning. |  CANCEL |



00 = No Intercharacter Delay

Beep On ASCII BEL

When this parameter is enabled, the reader 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.

| | |
|--|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Beep On ASCII BEL = Disable</div> | <div></div> |
| | <div> Beep On ASCII BEL = Enable</div> |

Beep On Not on File

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

| | |
|--|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Beep On Not On File = Disable</div> | |
| <div></div> | <div> Beep On Not On File = Enable</div> |

ACK NAK Options

This enables/disables the ability of the reader to support the RS-232 ACK/NAK protocol. When configured, the reader 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 reader expects an ACK/NAK response from the host when a label is sent.
- Enable for host-command acknowledge — The reader will respond with ACK/NAK when the host sends a command.
- Enable for label transmission and host-command acknowledge

| | |
|--|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> DEFAULT</div> | <div> ACK/NAK Protocol = Disable ACK/NAK</div> |
| <div> ACK/NAK Protocol = Enable for label transmission</div> | |
| | <div> ACK/NAK Protocol = Enable for host-command acknowledge</div> |
| <div> ACK/NAK Protocol = Enable for label transmission and host-command acknowledge</div> | |

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.

To set this feature:

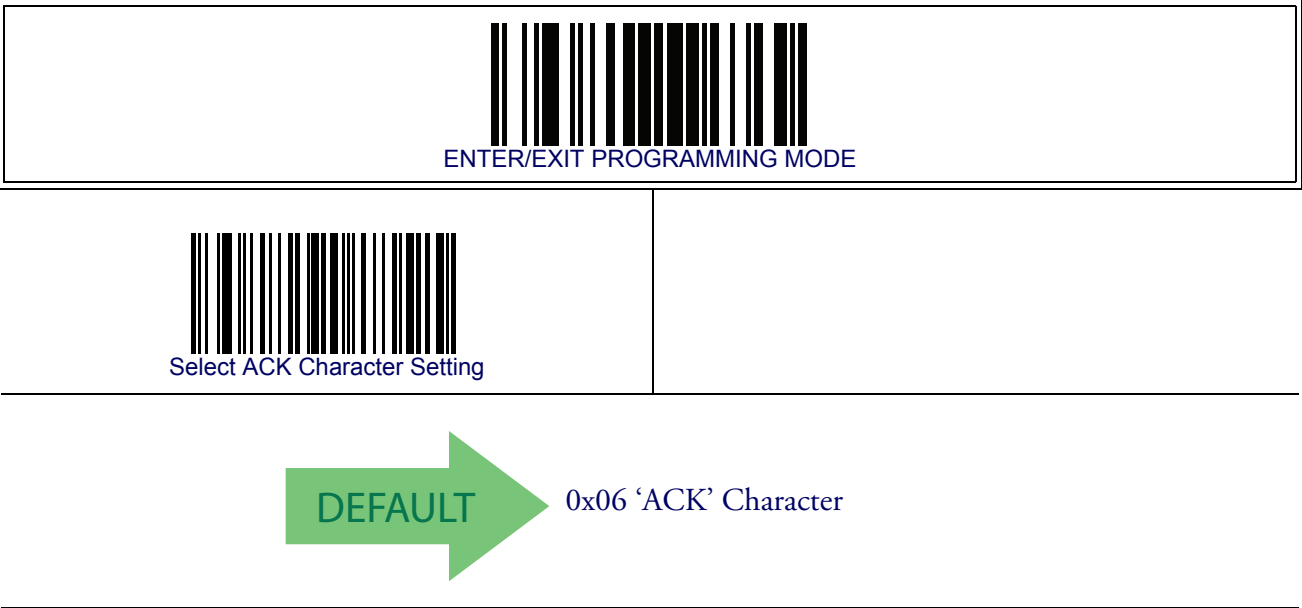
- 1. Determine the desired character or value.
- 2. Use the **ASCII Character Set** on the inside back cover of this manual to find the hex equivalent for the desired character/value.
- 3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
- 4. Scan the bar code: SELECT ACK CHARACTER SETTING.
- 5. Scan the appropriate two alpha-numeric characters from the keypad in **Appendix E, Keypad**, that represent the desired character/value in step 1 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 **Table 8** for some examples of how to set this feature.

Table 8. ACK Character Setting Examples

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

ACK Character — cont.



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** has been set as 7 Data Bits.

To set this feature:

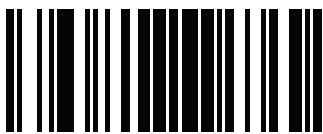
- 1. Determine the desired character or value.
- 2. Use the **ASCII Character Set** on the inside back cover of this manual to find the hex equivalent for the desired character/value.
- 3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
- 4. Scan the bar code: SELECT NAK CHARACTER SETTING.
- 5. Scan the appropriate two alpha-numeric characters from the keypad in **Appendix E, Keypad**, that represent the desired character/value in step 1 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 **Table 9** for some examples of how to set this feature.


Table 9. 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 ACK CHARACTER SETTING | | | | |
| 5 | Scan Two Characters From Appendix E, Keypad | '1' and '5' | '2' and '4' | '4' and '0' | '3' AND 'E' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

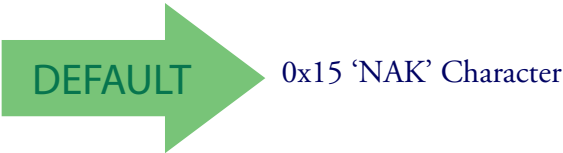
NAK Character — cont.



ENTER/EXIT PROGRAMMING MODE



Select NAK Character Setting



ACK NAK Timeout Value

This option specifies the amount of time the reader 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 E, Keypad](#), that represent the duration which was 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

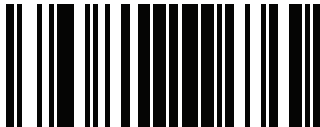
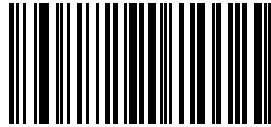

6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

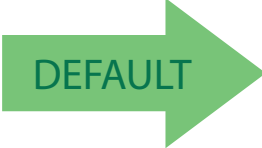
This completes the procedure. See [Table 10](#) for some examples of how to set this feature.

Table 10. ACK NAK Timeout Value Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|-------------|------------------|-------------------|-------------------|
| 1 | Desired Setting | 200ms | 1,000ms (1 sec.) | 5200ms (5.2 sec.) | 15,000ms (1 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 E, Keypad | '0' and '1' | '0' and '5' | '2' and '6' | '7' and '5' |
| 7 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

ACK NAK Timeout Value — cont.

| | |
|---|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select ACK NAK Timeout Value Setting</div> | |
| <p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p> | <div> CANCEL</div> |

DEFAULT

01 ACK NAK Timeout value is 200ms

ACK NAK Retry Count

This feature specifies the number of times the reader 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 E, Keypad](#), that represent the number which was 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

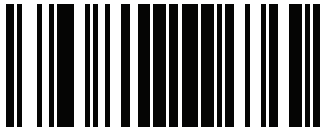
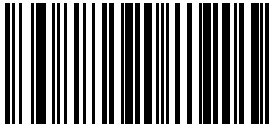
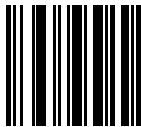
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See [Table 11](#) for some examples of how to set this feature.

Table 11. 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 E, Keypad | '0', '0' and '0' | '0', '0' and '3' | '0', '5' and '4' | '2', '5' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

ACK NAK Retry Count — cont.

| | |
|---|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select ACK NAK Retry Count Setting</div> | |
| <p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p> | <div> CANCEL</div> |

 003 = 3 Retries

ACK NAK Error Handling

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

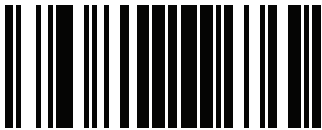
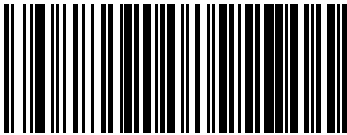
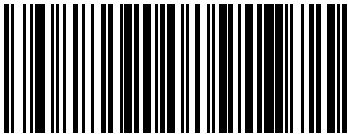

Options are:

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



Indicate Transmission Failure

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

| | |
|---|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Indicate Transmission Failure = Disable Indication</div></div> |
| <div><div></div><div>Indicate Transmission Failure = Enable Indication</div></div> | <div></div> |

Disable Character

Specifies the value of the RS-232 host command used to disable the reader. 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:

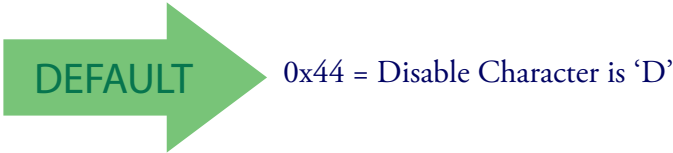
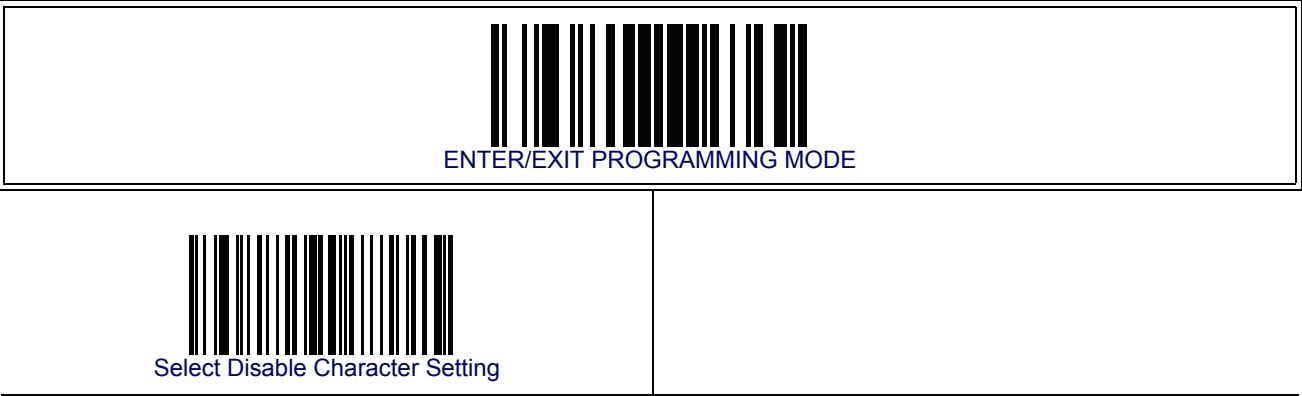
1. Determine the desired character or value. A setting of 0xFF indicates the the Disable Character is not used (not available).
2. Use the [ASCII Character Set](#) on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT DISABLE CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in [Appendix E, Keypad](#), that represent the desired character/value in step 1 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 [Table 12](#) for some examples of how to set this feature.

Table 12. Disable Character Setting Examples

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

Disable Character — cont.



Enable Character

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



NOTE

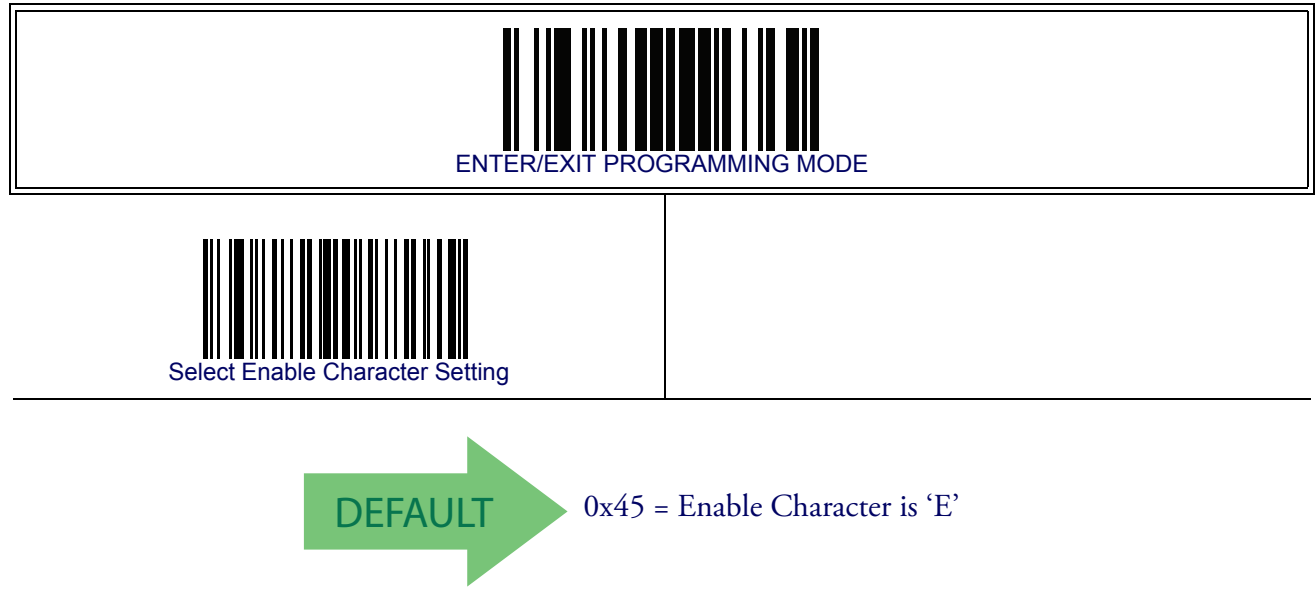
Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option **Data Bits** has been set as 7 Data Bits.

- To set this feature:
Determine the desired character or value. A setting of 0xFF indicates the the Enable Character is not used (not available).
1. Determine the desired character or value.
 2. Use the **ASCII Character Set** 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 alpha-numeric characters from the keypad in **Appendix E, Keypad**, that represent the desired character/value in step 2 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 **Table 13** for some examples of how to set this feature.

Table 13. Enable Character Setting Examples

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

Enable Character — cont.



NOTES

Chapter 7

Keyboard Interface

Introduction

Use the programming bar codes in this chapter to select options for USB Keyboard and Wedge Interfaces.

Standard Factory Settings

Reference [Appendix B, Standard Defaults](#) for a listing of standard factory settings.

Scancode Tables

Information about control character emulation which applies to keyboard interfaces is listed in [Appendix F, Scancode Tables](#).

Country Mode

This feature specifies the country/language supported by the keyboard. Only the following interfaces support ALL Country Modes.

- USB Keyboard (without alternate key encoding)
- AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Std Key Encoding
- 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 without Alternate Key
- Keyboard Wedge for IBM AT PS2 without alternate key encoding but without external keyboard

All other interfaces support ONLY the following Country Modes: U.S., Belgium, Britain, France, Germany, Italy, Spain, Sweden.

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div>→ DEFAULT</div> | <div><div></div><div>Country Mode = U.S.</div></div> |
| <div><div></div><div>Country Mode = Belgium</div></div> | |
| | <div><div></div><div>Country Mode = Britain</div></div> |
| <div><div></div><div>Country Mode = Croatia</div></div> | Supports only the interfaces listed in theCountry Mode fea- ture description. |
| Supports only the interfaces listed in theCountry Mode fea- ture description. | <div><div></div><div>Country Mode = Czech Republic</div></div> |

Country Mode — continued

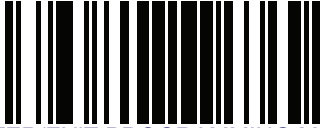
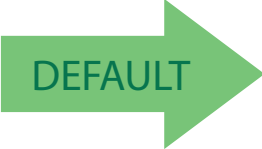
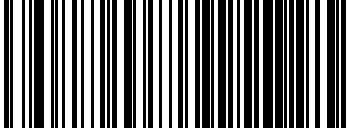

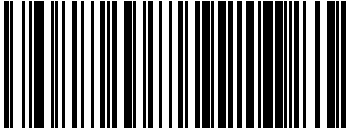
| | |
|--|---|
|  <p>ENTER/EXIT PROGRAMMING MODE</p> | |
|  <p>Country Mode = Denmark</p> | Supports only the interfaces listed in theCountry Mode feature description. |
| |  <p>Country Mode = France</p> |
|  <p>Country Mode = Germany</p> | |
| Supports only the interfaces listed in theCountry Mode feature description. |  <p>Country Mode = Hungary</p> |
|  <p>Country Mode = Italy</p> | |
| Supports only the interfaces listed in theCountry Mode feature description. |  <p>Country Mode = Japanese 106-key</p> |
|  <p>Country Mode = Norway</p> | Supports only the interfaces listed in theCountry Mode feature description. |

Country Mode — continued

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Country Mode = Poland</div></div> | Supports only the interfaces listed in theCountry Mode fea- ture description. |
| Supports only the interfaces listed in theCountry Mode fea- ture description. | <div><div></div><div>Country Mode = Portugal</div></div> |
| <div><div></div><div>Country Mode = Romania</div></div> | Supports only the interfaces listed in theCountry Mode fea- ture description. |
| Supports only the interfaces listed in theCountry Mode fea- ture description. | <div><div></div><div>Country Mode = Slovakia</div></div> |
| <div><div></div><div>Country Mode = Spain</div></div> | |
| | <div><div></div><div>Country Mode = Sweden</div></div> |
| <div><div></div><div>Country Mode = Switzerland</div></div> | Supports only the interfaces listed in theCountry Mode fea- ture description. |

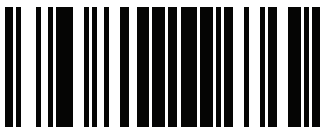
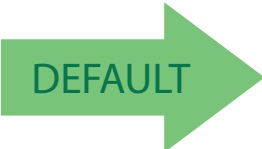
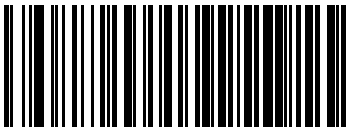

Caps Lock State

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

| | |
|---|--|
|  ENTER/EXIT PROGRAMMING MODE | |
|  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.

| | |
|--|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  DEFAULT |  Numlock = Numlock key unchanged |
|  Numlock = Numlock key toggled | |

Send Control Characters

This feature Specifies how the reader transmits ASCII control characters to the host. Reference [Appendix F, Scancode Tables](#) for more information about control characters.

Options are as follows:

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 — see [Microsoft Windows Codepage 1252 on page 374](#)).



Wedge Quiet Interval

This option specifies the amount of time to look for keyboard activity before the reader 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.



This feature applies ONLY to the Keyboard Wedge interface.

NOTE

Follow these instructions to set this feature:

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 WEDGE QUIET INTERVAL SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the duration which was 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

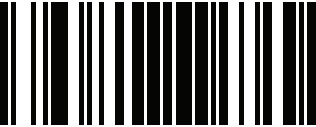

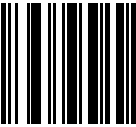
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

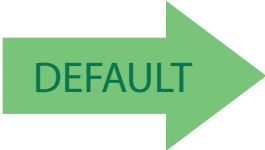
This completes the procedure to set the Wedge Quiet Interval. See [Table 14](#) for some examples of how to set this feature.

Table 14. Timeout 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 E, Keypad | '0' and '1' | '1' and '5' | '6' and '0' | '8' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Wedge Quiet Interval — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Wedge Quiet Interval Setting</div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div> CANCEL</div> |

 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.



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

NOTE

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 E, Keypad](#), that represent the duration which was 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

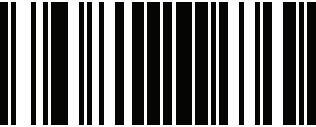
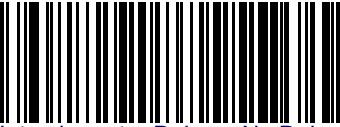


6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See [Table 14](#) for some examples of how to set this feature.

Table 15. 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 E, Keypad | '0' and '5' | '1' and '5' | '6' and '0' | '8' and '5' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Intercharacter Delay — cont.

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Intercharacter Delay = No Delay</div></div> |
| <div><div></div><div>Select Intercharacter Delay Setting</div></div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div><div></div><div>CANCEL</div></div> |

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.

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 E, Keypad](#), that represent the duration which was 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

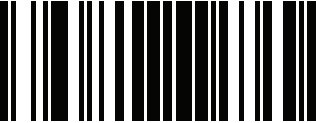
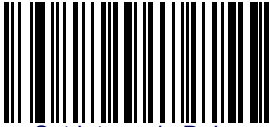
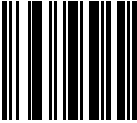
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See [Table 16](#) for some examples of how to set this feature.

Table 16. 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 E, Keypad | '0' and '0' | '0' and '5' | '6' and '0' | '9' AND '9' |
| 7 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Intercode Delay — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Set Intercode Delay</div> | |
| <p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p> | <div> CANCEL</div> |

DEFAULT

= No Wedge Intercode Delay

USB Keyboard Speed

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



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

NOTE

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div></div> | <div><div></div><div>USB Keyboard Speed = 1ms</div></div> |
| <div><div></div><div>USB Keyboard Speed = 2ms</div></div> | |
| | <div><div></div><div>USB Keyboard Speed = 3ms</div></div> |
| <div><div></div><div>USB Keyboard Speed = 4ms</div></div> | |
| | <div><div></div><div>USB Keyboard Speed = 5ms</div></div> |

USB Keyboard Speed — continued

| | |
|---|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>USB Keyboard Speed = 6ms</div></div> | |
| | <div><div></div><div>USB Keyboard Speed = 7ms</div></div> |
| <div><div></div><div>USB Keyboard Speed = 8ms</div></div> | |
| | <div><div></div><div>USB Keyboard Speed = 9ms</div></div> |
| <div><div></div><div>USB Keyboard Speed = 10ms</div></div> | |

Chapter 8

USB-OEM Interface

Introduction

Feature settings for USB interfaces differ depending upon which host type the reader will be connected with. Use the feature settings in this chapter and [Chapter 9, IBM 46XX Interface](#) to specifically configure for the USB-OEM interface. Other USB interfaces are included in the appropriate chapter for their host type.

Standard Factory Settings

Reference [Appendix B, Standard Defaults](#) for a listing of standard factory settings.

USB-OEM Device Usage

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

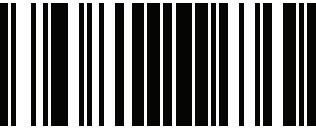
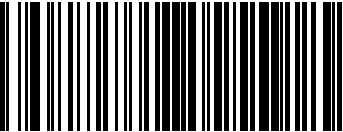
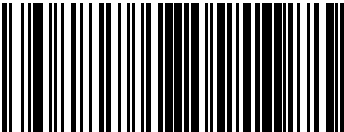

Options are:

- Table Top Scanner
- Handheld Scanner



It may be necessary to switch device usage when connecting two readers/scanners of the same type to a POS system.

NOTE

| | |
|--|---|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>USB-OEM Device Usage = Table Top Scanner</p></div> |
| <div><p>USB-OEM Device Usage = Handheld Scanner</p></div> | <div></div> |

USB-OEM Interface Options

This setting provides for an interface specific control mechanism..
Options are:

- Obey — Obey Scanner Configuration Host Commands
- Ignore — Ignore Scanner Configuration Host Commands



NOTES

Chapter 9

IBM 46XX Interface

Introduction

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

IBM Standard Factory Settings

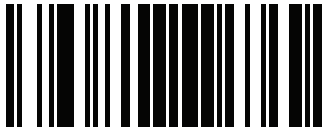
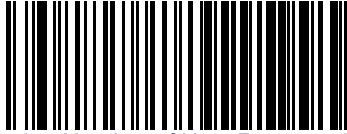


Reference [Appendix B, Standard Defaults](#) for a listing of standard factory settings.

46xx Number of Host Resets

Specifies how many consecutive resets are processed before the reader starts a five-second period to allow the user to enter Programming Mode and configure the reader. The configurable range for this feature is 1 to 15 resets.

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>46xx Number of Host Resets = 1</div></div> |
| <div><div></div><div>46xx Number of Host Resets = 2</div></div> | |
| | <div><div></div><div>46xx Number of Host Resets = 3</div></div> |
| <div><div></div><div>46xx Number of Host Resets = 4</div></div> | |
| | <div><div></div><div>46xx Number of Host Resets = 5</div></div> |
| <div><div></div><div>46xx Number of Host Resets = 6</div></div> | <div></div> |

46xx Number of Host Resets — cont.

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>46xx Number of Host Resets = 7</div></div> |
| <div><div></div><div>46xx Number of Host Resets = 8</div></div> | |
| | <div><div></div><div>46xx Number of Host Resets = 9</div></div> |
| <div><div></div><div>46xx Number of Host Resets = 10</div></div> | |
| | <div><div></div><div>46xx Number of Host Resets = 11</div></div> |
| <div><div></div><div>46xx Number of Host Resets = 12</div></div> | |

46xx Number of Host Resets — cont.

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>46xx Number of Host Resets = 13</div></div> |
| <div><div></div><div>46xx Number of Host Resets = 14</div></div> | |
| | <div><div></div><div>46xx Number of Host Resets = 15</div></div> |

Transmit Labels in Code 39 Format

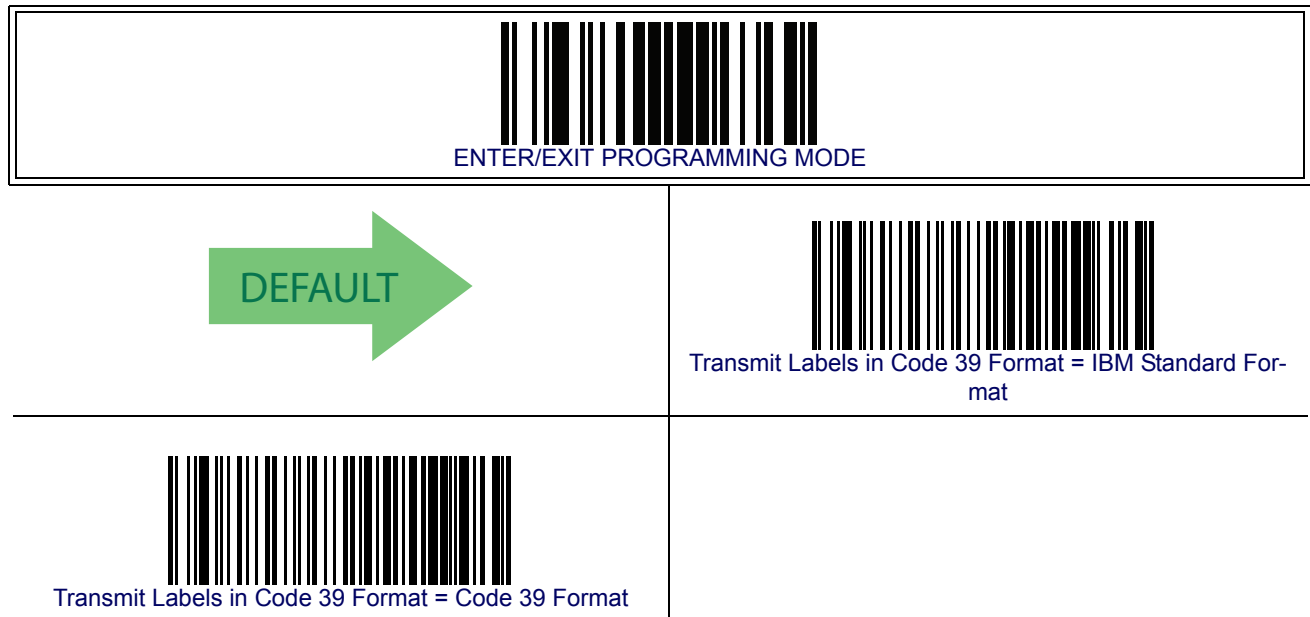
This feature enable/disables translation to Code 39 before transmitting label data to an IBM-46XX or a USB-OEM host. Only the symbology identifier is modified for the translation. The data is not converted to Code 39 or verified to be valid for Code 39.

Options are:

IBM Standard Format — Send labels in standard IBM format.

Code 39 Format — Translate the following symbologies to Code 39:

- USB-OEM: Code128, Code 93, and Codabar
- IBM-Port 5B: Code 128, Code 93, and Codabar
- IBM-Port 9B: Code 93 and Codabar



IBM 46XX Interface Options

This setting provides for an interface specific control mechanism..

Options are:

- Obey — Obey Scanner Configuration Host Commands
- Ignore — Ignore Scanner Configuration Host Commands



Chapter 10

Wand Emulation Interface

Introduction

This chapter provides feature/settings configuration for the Wand Emulation interface.

Wand Emulation Standard Factory Settings

Reference [Appendix B, Standard Defaults](#) for a listing of standard factory settings.

Wand Idle State

This feature specifies the level of the Wand output signal when the reader is idle.



NOTE

TTL logic levels:
0V <= Low <= 0.7V
2.4V <= High <= 5.25V



Wand Polarity

This option specifies the polarity of the Wand output signal. Choices are:

- Quiet zones and spaces are high, bars are low
- Quiet zones and spaces are low, bars are high



NOTE

TTL logic levels:
 $0V \leq \text{Low} \leq 0.7V$
 $2.4V \leq \text{High} \leq 5.25V$

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  Wand Polarity = Quiet Zones & Spaces High, Bars Low |
|  Wand Polarity = Quiet Zones & Spaces Low, Bars High |  |

Wand Signal Speed

This feature specifies the speed of the Wand output signal per nominal bar or space. Choices are:

- 330 microseconds
- 660 microseconds



Wand Label Symbology Conversion

When this feature is enabled for the Wand Emulation interface, all bar code labels are converted to a single symbology.

Options are:

- No conversion
- Convert to Code 39 symbology
- Convert to Code 39 Full ASCII
- Convert to Code 128 symbology



NOTES

Chapter 11

Data Editing

Data Editing Overview



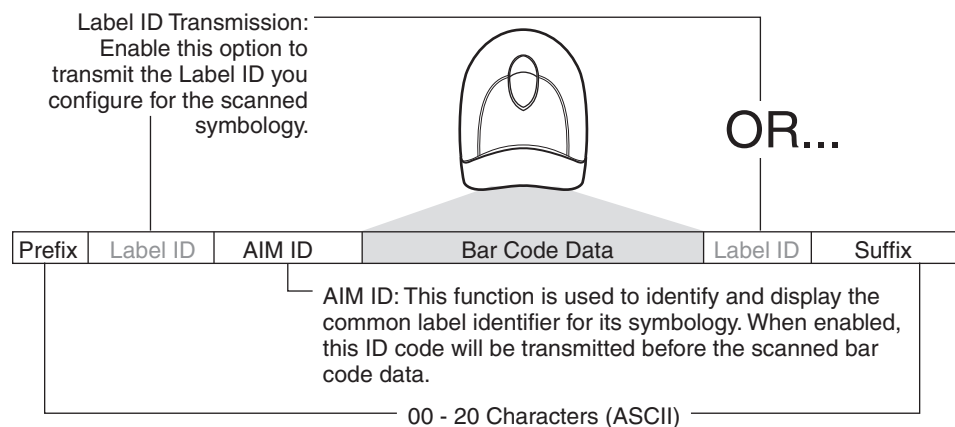
CAUTION

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

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

There are several types of selectable data characters that can be sent before and after scanned data. You can specify if they should be sent with all symbologies, or only with specific symbologies. [Figure 3](#) shows the available elements you can add to a message string:

Figure 3. Breakdown of a Message String



NOTE

Additional advanced editing is available. See the **Advanced Formatting features** in the **Datalogic Aladdin Configuration Application** or contact [Technical Support on page 3](#) for more information.

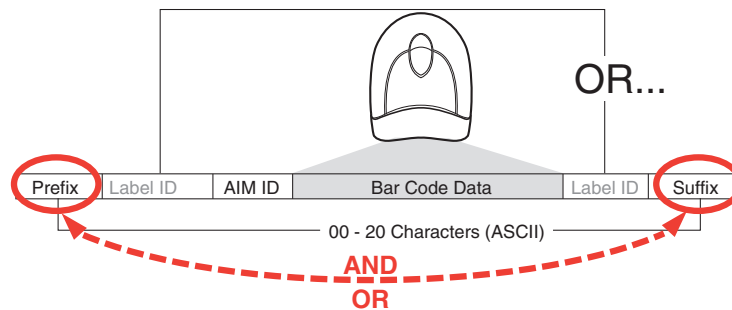
Please Keep In Mind...

- Modifying a message string is not a mandatory requirement. Data editing is sophisticated feature allowing highly customizable output for advanced users. Factory default settings for data editing is typically set to NONE.
- A prefix or suffix may be applied (reference the [Symbolologies](#) chapter for these settings) across all symbolologies (set via the Global features in this chapter).
- You can add any character from the [ASCII Character Set](#) (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 in [Figure 4](#).

Figure 4. Prefix and Suffix Positions



Example: Setting a Prefix

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

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 bar code.
3. Scan the SET GLOBAL PREFIX bar code.
4. Reference the ASCII Chart on the inside back cover of this manual, to find the hex value assigned to the desired character. The corresponding hex number for the '\$' character is 24. To enter this selection code, scan the '2' and '4' bar codes from [Appendix E, Keypad](#).



NOTE

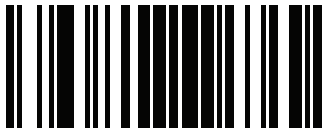
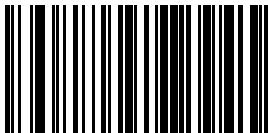
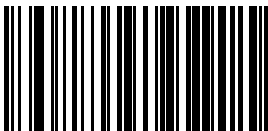
If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

- 5. If less than the expected string of 20 characters are selected, scan the ENTER/EXIT bar code to terminate the string.
- 6. Scan the ENTER/EXIT bar code once again to exit Programming Mode.
- 7. The resulting message string would appear as follows:

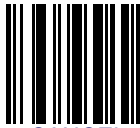
Scanned bar code data:12345

Resulting message string output: \$12345

This option sets up to 20 characters each from the set of ASCII characters or any hex value from 00 to FF. To configure this feature, scan the ENTER/EXIT bar code to place the unit in Programming Mode, then the “Set Global Prefix” or “Set Global Suffix,” bar code followed by the digits (in hex) from the Alphanumeric characters in [Appendix E, Keypad](#) representing your desired character(s). If less than the expected string of 20 characters are selected, scan the ENTER/EXIT bar code to terminate the string. Reference the section, [Example: Setting a Prefix on page 98](#), for more information. Exit programming mode by scanning the ENTER/EXIT bar code once again.

| | |
|--|--|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  Set Global Prefix |
|  Set Global Suffix | |

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



No Global Prefix
Global Suffix = 0x0D (CR)

Global AIM ID



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

NOTE

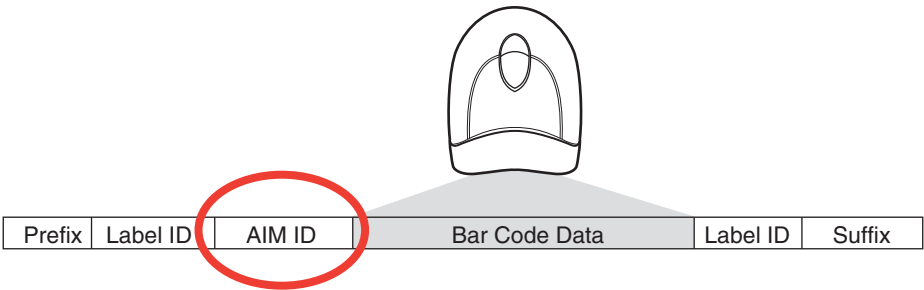
AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned bar code data. AIM label identifiers consist of three characters as follows:

- 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).

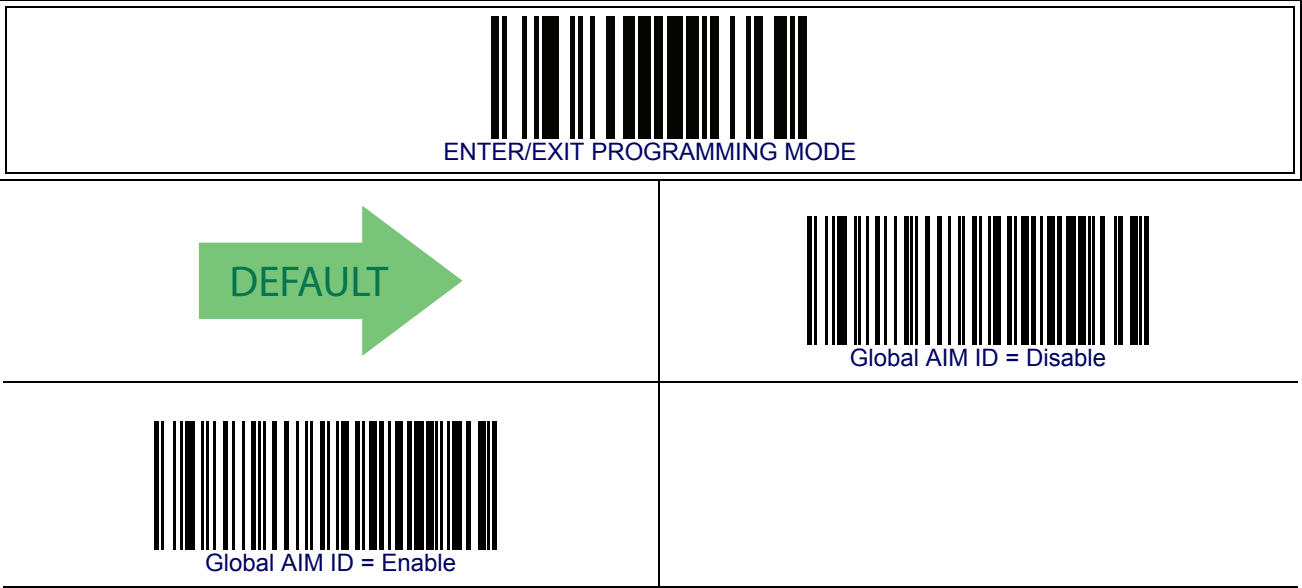
| SYMBOLGY | CHAR | SYMBOLGY | CHAR |
|---------------------|----------------|---|----------------|
| UPC/EAN | E ^a | Code 128/GS1-128 | C |
| Code 39 and Code 32 | A | GS1 DataBar Omnidirectional, GS1 DataBar Expanded | e |
| Codabar | F | Standard 2 of 5 | S |
| Interleaved 2 of 5 | I | ISBN | X ^b |
| 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 5. AIM ID



Global AIM ID — continued



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 or]C3.

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

| | |
|--|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> GS1-128 AIM ID = Disable</div> |
| <div> GS1-128 AIM ID = Enable</div> | <div></div> |

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 on page 103](#)) or individually per symbology (see [Label ID: Set Individually Per Symbology on page 106](#)). If you wish to program the reader to always include an industry standard label identifier for ALL symbology types, see the previous feature [Global AIM ID on page 100](#).

Label ID: Pre-loaded Sets

The imager supports two pre-loaded sets of Label IDs. [Table 17](#) shows the USA set and the EU set.



CAUTION

When changing from one Label ID set to another, all other imager 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.

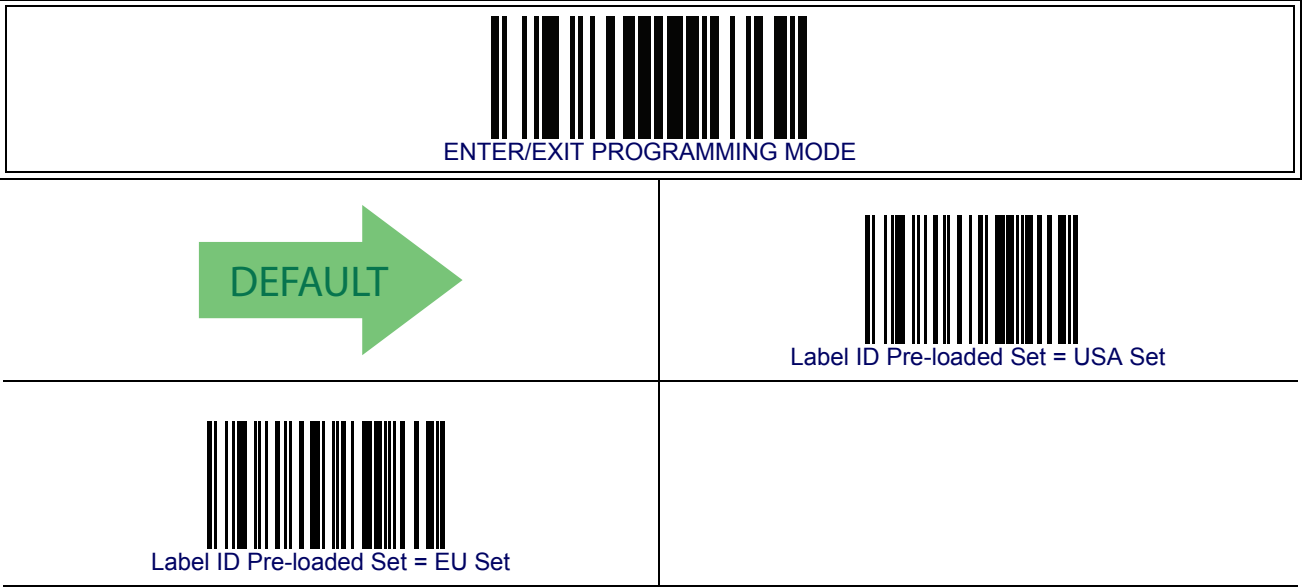


Table 17. Label ID Pre-loaded Sets

| Symbology | USA Label ID set | | EU Label ID set | |
|-----------------------------|------------------|-----------|-----------------|-------------------|
| | ASCII character | Hex value | ASCII character | Hexidecimal value |
| ABC Codabar | S | 530000 | S | 530000 |
| Anker Plessey | o | 6F0000 | o | 6F0000 |
| CODABAR | % | 250000 | R | 520000 |
| Codablock F | l | 6C0000 | m | 6D0000 |
| 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 |
| CODE4 | 4 | 340000 | 4 | 340000 |
| CODE5 | j | 6A0000 | j | 6A0000 |
| 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 |
| EAN13 P8 | F | 460000 | # | 230000 |
| EAN8 | FF | 464600 | A | 410000 |
| EAN8 P2 | FF | 464600 | J | 4A0000 |
| EAN8 P5 | FF | 464600 | K | 4B0000 |
| EAN8 P8 | FF | 464600 | * | 2A0000 |
| 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 |
| GTIN | G | 470000 | \$A | 244100 |
| GTIN2 | G2 | 473200 | \$B | 244200 |
| GTIN5 | G5 | 473500 | \$C | 244300 |
| GTIN8 | G8 | 473800 | \$D | 244400 |

| 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 CIP HR | e | 650000 | e | 650000 |
| ISBN | l | 490000 | @ | 400000 |
| ISBT128 | f | 660000 | f | 660000 |
| ISSN | n | 6E0000 | n | 6E0000 |
| MSI | @ | 400000 | Z | 5A0000 |
| Plessey | a | 610000 | a | 610000 |
| S25 | s | 730000 | P | 500000 |
| UPCA | A | 410000 | C | 430000 |
| UPCA P2 | A | 410000 | F | 460000 |
| UPCA P5 | A | 410000 | G | 470000 |
| UPCA P8 | A | 410000 | Q | 510000 |
| UPCE | E | 450000 | D | 440000 |
| UPCE P2 | E | 450000 | H | 480000 |
| UPCE P5 | E | 450000 | I | 490000 |
| UPCE P8 | E | 450000 | E | 450000 |

Label ID: Set Individually Per Symbolology

To configure a Label ID individually for a single symbolology:

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 on page 108](#). Reference [Figure 6](#) for Label ID positioning options if multiple identification features are enabled.
3. Scan a bar code to select the symbolology for which you wish to configure a custom Label ID from the section [Label ID Symbolology Selection, starting on page 109](#).
4. Determine the desired character(s) (you may choose up to three) which will represent the Label ID for the selected symbolology.
5. Turn to the [ASCII Character Set](#) 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, starting on page 359](#) and scan the bar codes representing the hex characters determined. For the example given, the characters '3' and 'D' would be scanned. More examples of Label ID settings are provided in [Table 18](#).



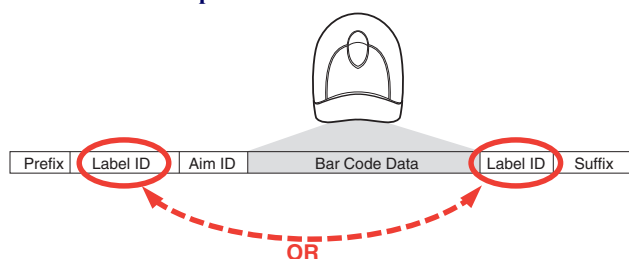
If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

NOTE

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 symbolology.

Figure 6. Label ID Position Options



Label ID — continued

Table 18. 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 on page 108 | 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, starting on page 109. | 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, starting on page 359. f 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 theENTER/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 |

Label ID — continued

Label ID Control

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

| | |
|--|--|
| <div><div></div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div></div> | <div><div></div><div>Label ID Transmission = Disable</div></div> |
| <div><div></div><div>Label ID Transmission = Enable as Prefix</div></div> | |
| | <div><div></div><div>Label ID Transmission = Enable as Suffix</div></div> |
| <div><div></div><div>CANCEL</div></div> | <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> |

Label ID — continued

Label ID Symbology Selection

This option selects the symbology for which a Label ID is to be configured. See [Label ID on page 103](#) for full instructions.

| | |
|--|---|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  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-A/GS1-128 Label ID Character(s) | |
| |  Set UPC-E Label ID Character(s) |
|  Set UPC-E/P2 Label ID Character(s) | |

Label ID — continued

Label ID Symbology Selection — continued

This option selects the symbology for which a Label ID is to be configured. See [Label ID on page 103](#) for full instructions.

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Set UPC-E/P5 Label ID Character(s)</div></div> |
| <div><div></div><div>Set UPC-E/GS1-128 Label ID Character(s)</div></div> | |
| | <div><div></div><div>Set EAN 13 Label ID Character(s)</div></div> |
| <div><div></div><div>Set EAN 13/P2 Label ID Character(s)</div></div> | |
| | <div><div></div><div>Set EAN 13/P5 Label ID Character(s)</div></div> |
| <div><div></div><div>Set EAN 13/GS1-128 Label ID Character(s)</div></div> | |

Label ID — continued

Label ID Symbology Selection — continued

This option selects the symbology for which a Label ID is to be configured. See [Label ID on page 103](#) for full instructions.

| | |
|--|---|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  Set EAN 8 Label ID Character(s) |
|  Set EAN 8/P2 Label ID Character(s) | |
| |  Set EAN 8/P5 Label ID Character(s) |
|  Set EAN 8/GS1-128 Label ID Character(s) | |
| |  Set GTIN Label ID Character(s) |
|  Set GTIN/P2 Label ID Character(s) | |

Label ID — continued

Label ID Symbology Selection — continued

This option selects the symbology for which a Label ID is to be configured. See [Label ID on page 103](#) for full instructions.

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Set GTIN/P5 Label ID Character(s)</div></div> |
| <div><div></div><div>Set GTIN/GS1-128 Label ID Character(s)</div></div> | |
| | <div><div></div><div>Set GS1 DataBar Omnidirectional Label ID Character(s)</div></div> |
| <div><div></div><div>Set GS1 DataBar Expanded Label ID Character(s)</div></div> | |
| | <div><div></div><div>Set GS1 DataBar Limited Label ID Character(s)</div></div> |
| <div><div></div><div>Set Code 39 Label ID Character(s)</div></div> | |

Label ID — continued

Label ID Symbology Selection — continued

This option selects the symbology for which a Label ID is to be configured. See [Label ID on page 103](#) for full instructions.

| | |
|--|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Set Code 32 Label ID Character(s) | |
| |  Set Code 39 CIP Label ID Character(s) |
|  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) | |

Label ID — continued

Label ID Symbology Selection — continued

This option selects the symbology for which a Label ID is to be configured. See [Label ID on page 103](#) for full instructions.

| | |
|--|---|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>Set Codabar Label ID Character(s)</p></div> |
| <div><p>Set ABC Codabar Label ID Character(s)</p></div> | |
| | <div><p>Set Code 11 Label ID Character(s)</p></div> |
| <div><p>Set Standard 2 of 5 Label ID Character(s)</p></div> | |
| | <div><p>Set Industrial 2 of 5 Label ID Character(s)</p></div> |
| <div><p>Set ISSN Label ID Character(s)</p></div> | |

Label ID — continued

Label ID Symbology Selection — continued

This option selects the symbology for which a Label ID is to be configured. See [Label ID on page 103](#) for full instructions.

| | |
|--|--|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Set IATA Label ID Character(s) | |
| |  Set Concatinated ISBT 128 Label ID Character(s) |
|  Set MSI Label ID Character(s) | |
| |  Set Plessey Label ID Character(s) |
|  Set Anker Plessey Label ID Character(s) | |
| |  Set Code 93 Label ID Character(s) |

Label ID — continued

Label ID Symbology Selection — continued

This option selects the symbology for which a Label ID is to be configured. See [Label ID on page 103](#) for full instructions.

| | |
|---|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Set Codablock F Label ID Character(s)</div></div> | |
| | <div><div></div><div>Set Code 4 Label ID Character(s)</div></div> |
| <div><div></div><div>Set Code 5 Label ID Character(s)</div></div> | |
| | <div><div></div><div>Set Follett 2 of 5 Label ID Character(s)</div></div> |

Case Conversion

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



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

NOTE

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div>DEFAULT</div></div> | <div><div></div><div>Case Conversion = Disable (no case conversion)</div></div> |
| <div><div></div><div>Case Conversion = Convert to upper case</div></div> | |
| | <div><div></div><div>Case Conversion = Convert to lower case</div></div> |

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:

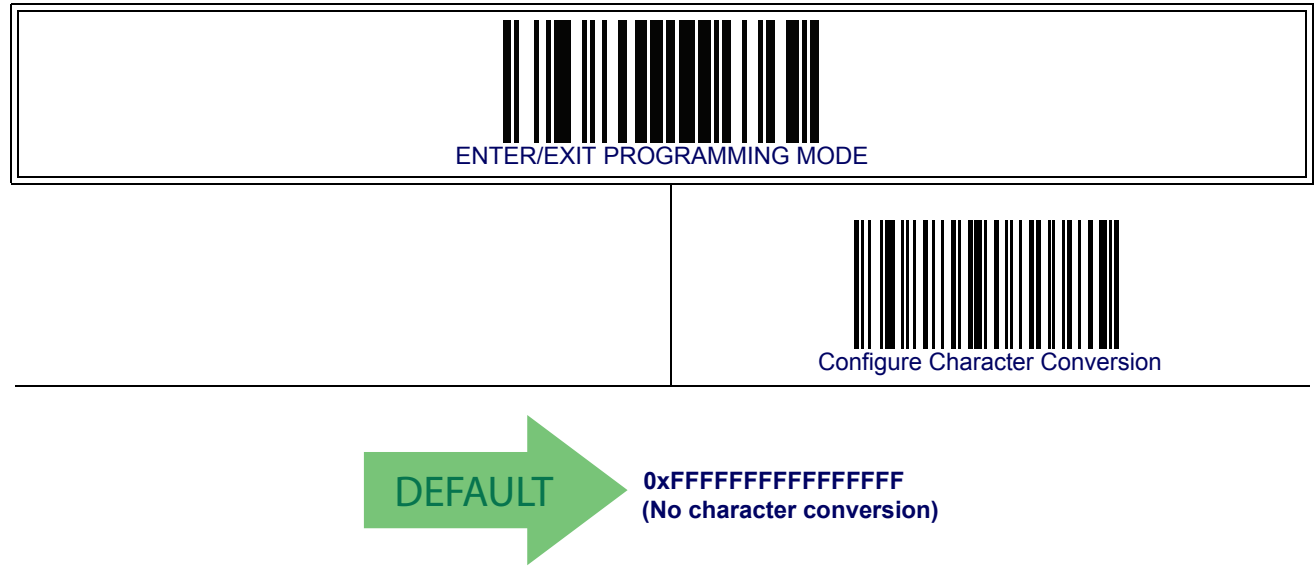
1. Scan the ENTER/EXIT bar code.
2. Scan the “Configure Character Conversion” bar code.
3. Determine the desired string. Sixteen positions must be determined as in the above example. Next, turn to the ASCII Chart on the inside back cover of this manual and find the equivalent hex digits needed to fulfill the string.
4. Turn to [Appendix E, 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.

Character Conversion — continued



NOTES

Chapter 12

Symbologies

Introduction

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

Symbologies

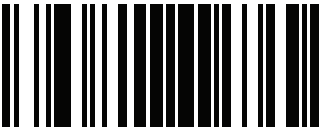

- UPC-A
- UPC-E
- GTIN Formatting
- EAN 13 (JAN 13)
- EAN 8 (JAN 8)
- Add-Ons
- GS1 DataBar™ Omnidirectional
- GS1 DataBar™ Expanded
- GS1 DataBar™ Limited
- Code 39
- Code 32 (Italian Pharmaceutical)
- Code 39 CIP (French Pharmaceutical)
- Code 128
- GS1-128
- Interleaved 2 of 5 (I 2 of 5)
- Interleaved 2 of 5 CIP HR
- Datalogic 2 of 5
- Codabar
- ABC Codabar
- Code 11
- Standard 2 of 5
- Industrial 2 of 5
- IATA
- ISBT 128
- MSI
- Plessey
- Code 93
- Codablock F
- Code 4
- Code 5
- Follett 2 of 5

Standard Factory Settings for 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.

Disable All Symbologies

Scan this label to disable all symbologies.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> Disable all symbologies</div> |

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 SWITCH 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 reader sees only the bar code you intend to scan.
3. Complete the programming sequence by scanning the SWITCH bar code.

| | |
|---|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> Coupon Control = Allow all</div> |
| <div> Coupon Control = Enable only UPC/EAN</div> | <div></div> |
| | <div> Coupon Control = Enable only GS1 DataBar</div> |

UPC-A

The following options apply to the UPC-A symbology.

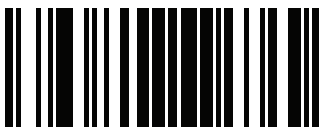
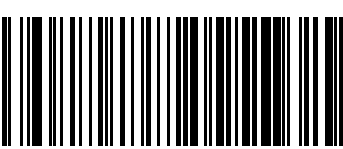


UPC-A Enable/Disable

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

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> UPC-A = Disable</div> |
| <div> UPC-A = Enable</div> | <div> DEFAULT</div> |

UPC-A Check Character Transmission

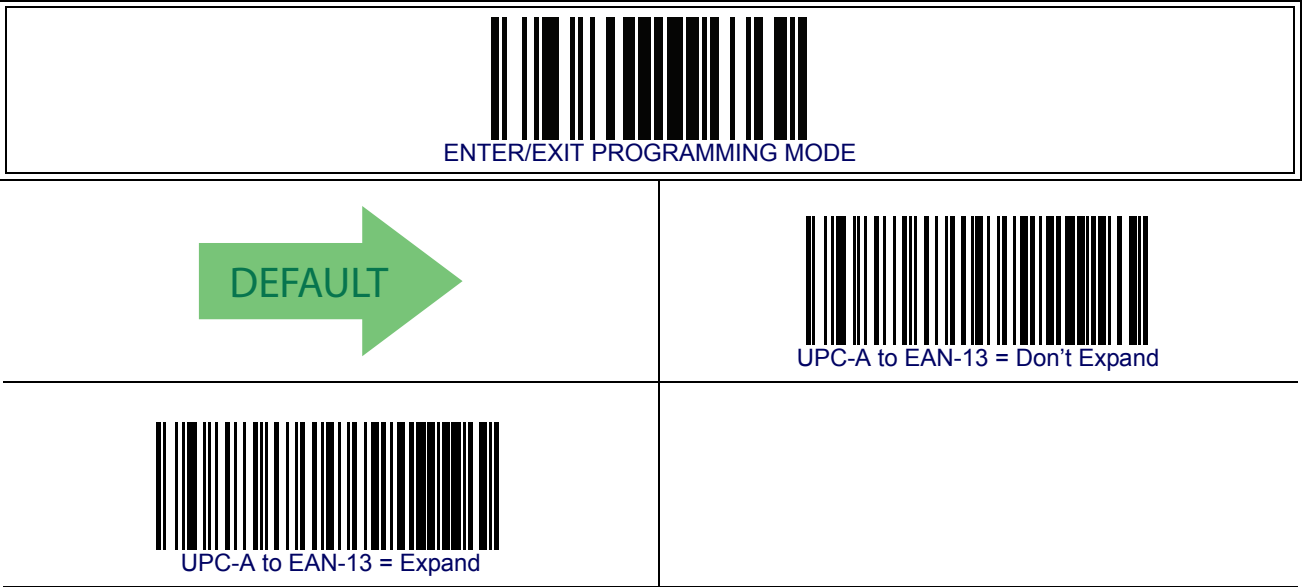
Enable this option to transmit the check character along with UPC-A bar code data.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> UPC-A Check Character Transmission = Don't Send</div> |
| <div> UPC-A Check Character Transmission = Send</div> | <div> DEFAULT</div> |

UPC-A — cont.

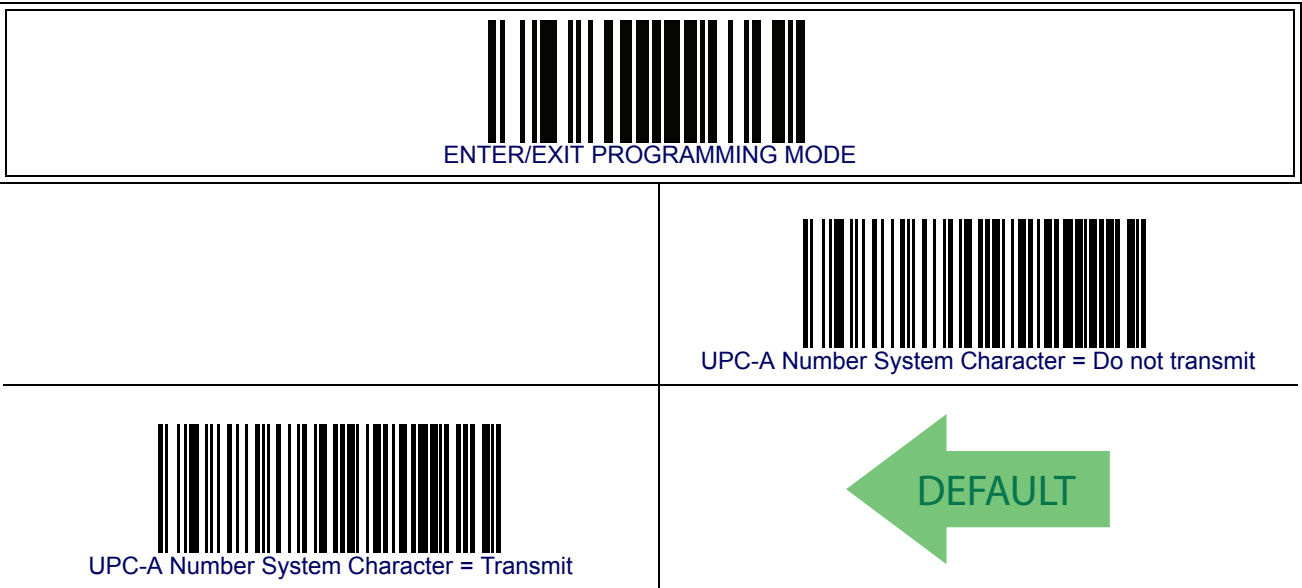
Expand UPC-A to EAN-13

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.



UPC-A Number System Character Transmission

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



UPC-A — cont.

In-Store Minimum Reads

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

In-store labels are defined as UPC-A labels with a number-system character of 2 or 4 as well as EAN 8 and EAN 13 labels with a Flag1 character of 2 or an EAN 13 label starting with the three characters '980'.

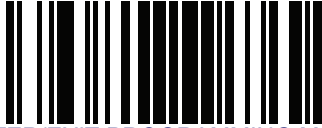
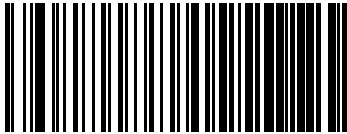
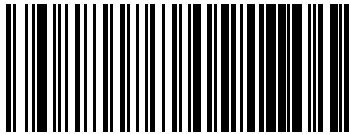

| | |
|---|--|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>In-Store Minimum Reads = 1</p></div> |
| <div><p>In-Store Minimum Reads = 2</p></div> | <div><p>DEFAULT</p></div> |
| | <div><p>In-Store Minimum Reads = 3</p></div> |
| <div><p>In-Store Minimum Reads = 4</p></div> | |

UPC-E

The following options apply to the UPC-E symbology.

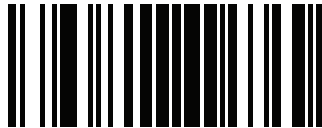
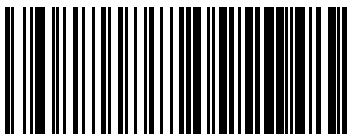
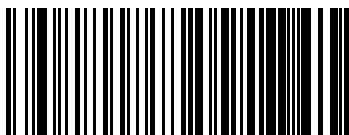

UPC-E Enable/Disable

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

| | |
|---|--|
| <div>  <p>ENTER/EXIT PROGRAMMING MODE</p> </div> | |
| | <div>  <p>UPC-E = Disable</p> </div> |
| <div>  <p>UPC-E = Enable</p> </div> | <div>  <p>DEFAULT</p> </div> |

UPC-E Check Character Transmission

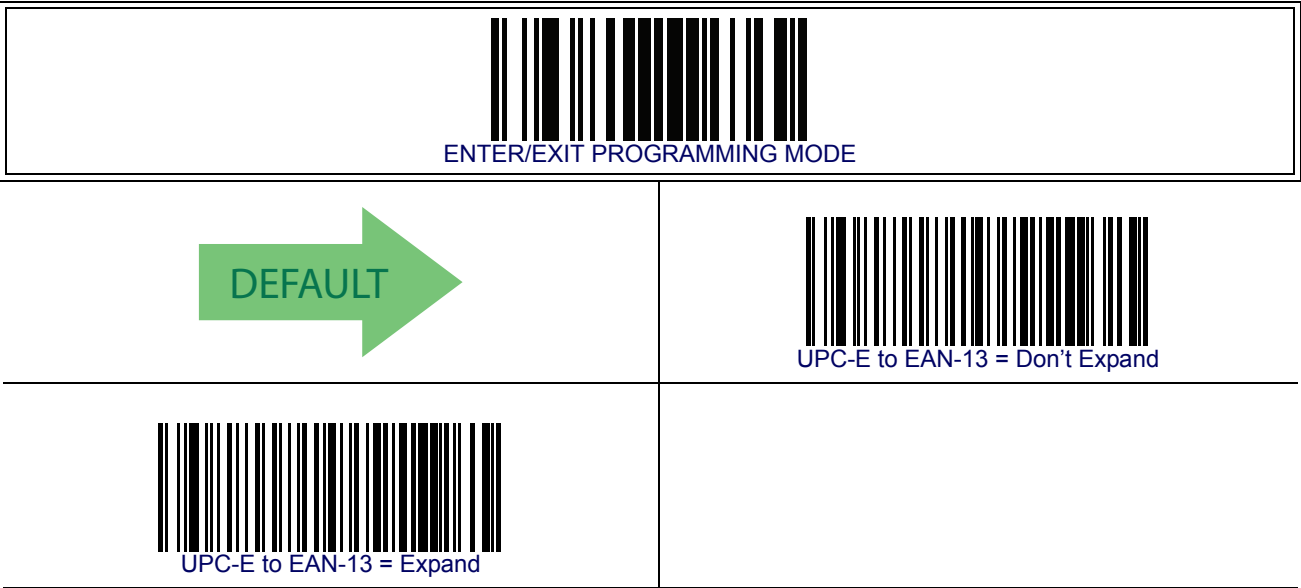
Enable this option to transmit the check character along with UPC-E bar code data.

| | |
|---|--|
| <div>  <p>ENTER/EXIT PROGRAMMING MODE</p> </div> | |
| | <div>  <p>UPC-E Check Character Transmission = Don't Send</p> </div> |
| <div>  <p>UPC-E Check Character Transmission = Send</p> </div> | <div>  <p>DEFAULT</p> </div> |

UPC-E — cont.

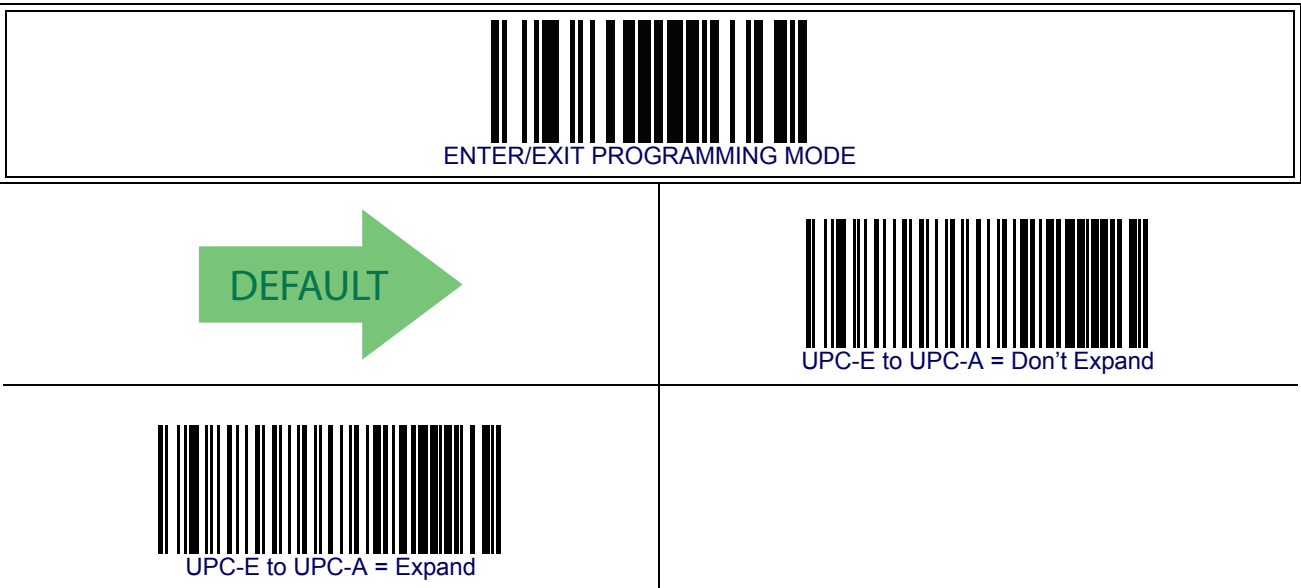
Expand UPC-E to EAN-13

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.



Expand UPC-E to UPC-A

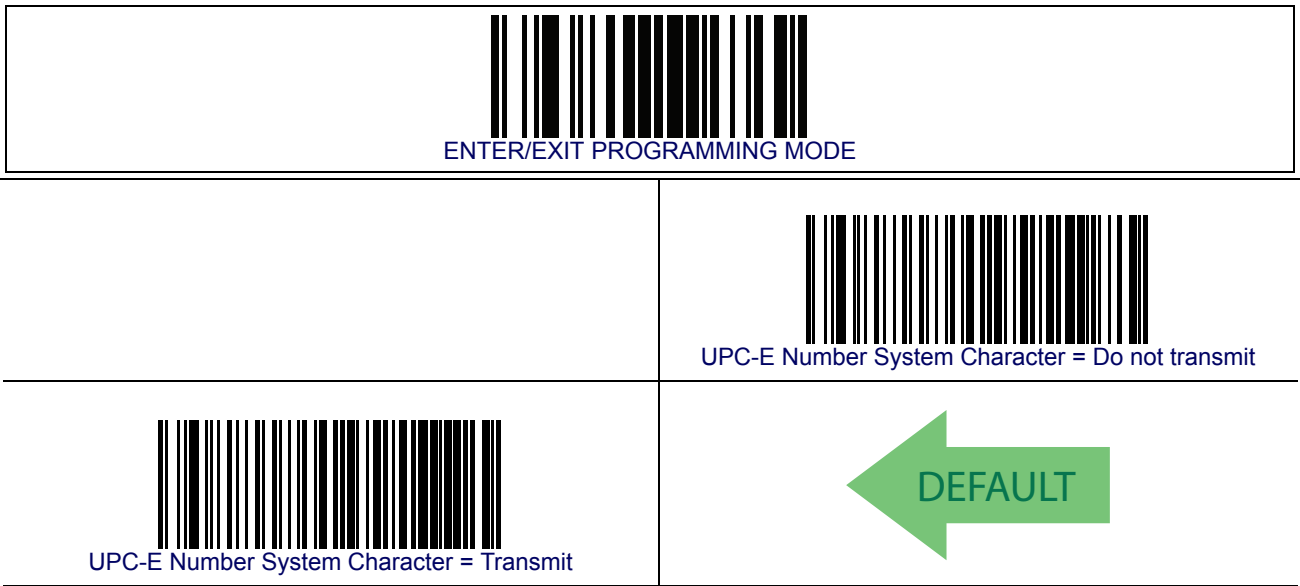
Expands UPC-E data to the UPC-A data format.



UPC-E — cont.

UPC-E Number System Character Transmission

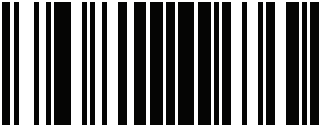

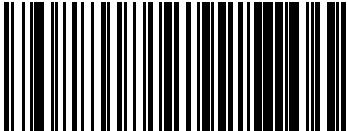
This feature enables/disables transmission of the UPC-E system number character.



UPC-E — cont.

UPC-E Minimum Reads

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

| | |
|--|---|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>UPC-E Minimum Reads = 1</p></div> |
| <div><p>UPC-E Minimum Reads = 2</p></div> | <div><p>DEFAULT</p></div> |
| | <div><p>UPC-E Minimum Reads = 3</p></div> |
| <div><p>UPC-E Minimum Reads = 4</p></div> | |

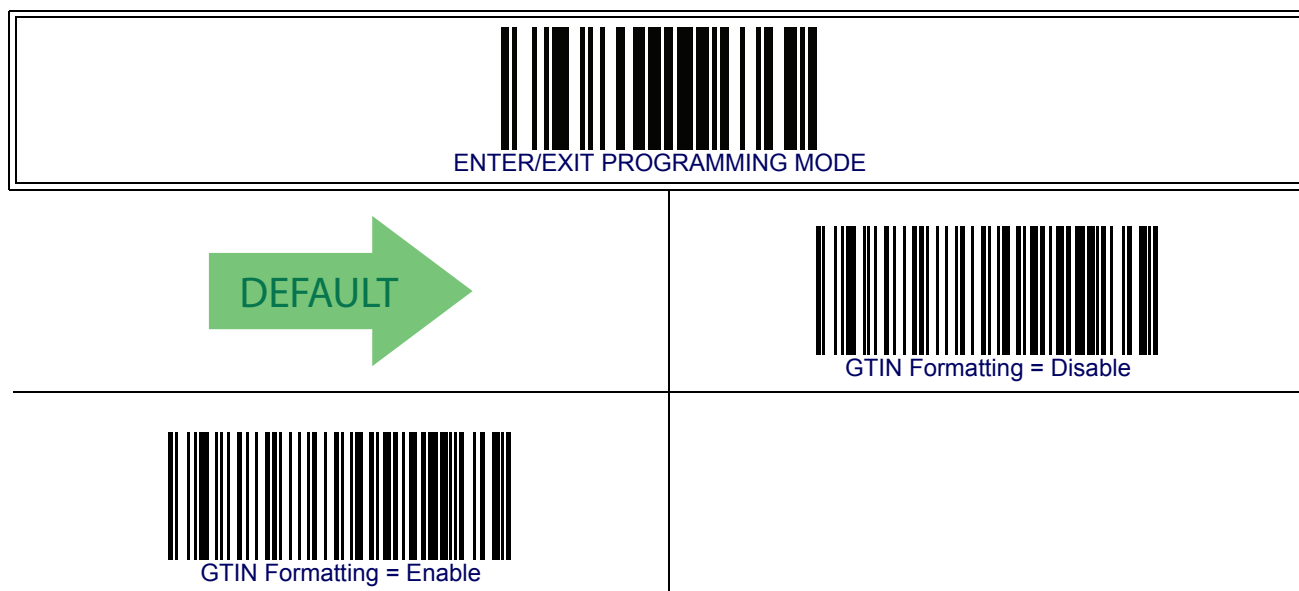
GTIN Formatting

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



NOTE

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.



EAN 13

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

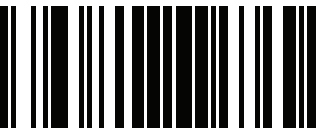
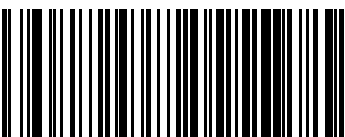
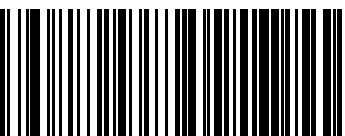

EAN 13 Enable/Disable

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

| | |
|--|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> EAN 13 = Disable</div> |
| <div> EAN 13 = Enable</div> | <div> DEFAULT</div> |

EAN 13 Check Character Transmission

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

| | |
|---|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> EAN 13 Check Character Transmission = Don't Send</div> |
| <div> EAN 13 Check Character Transmission = Send</div> | <div> DEFAULT</div> |

EAN 13 — cont.

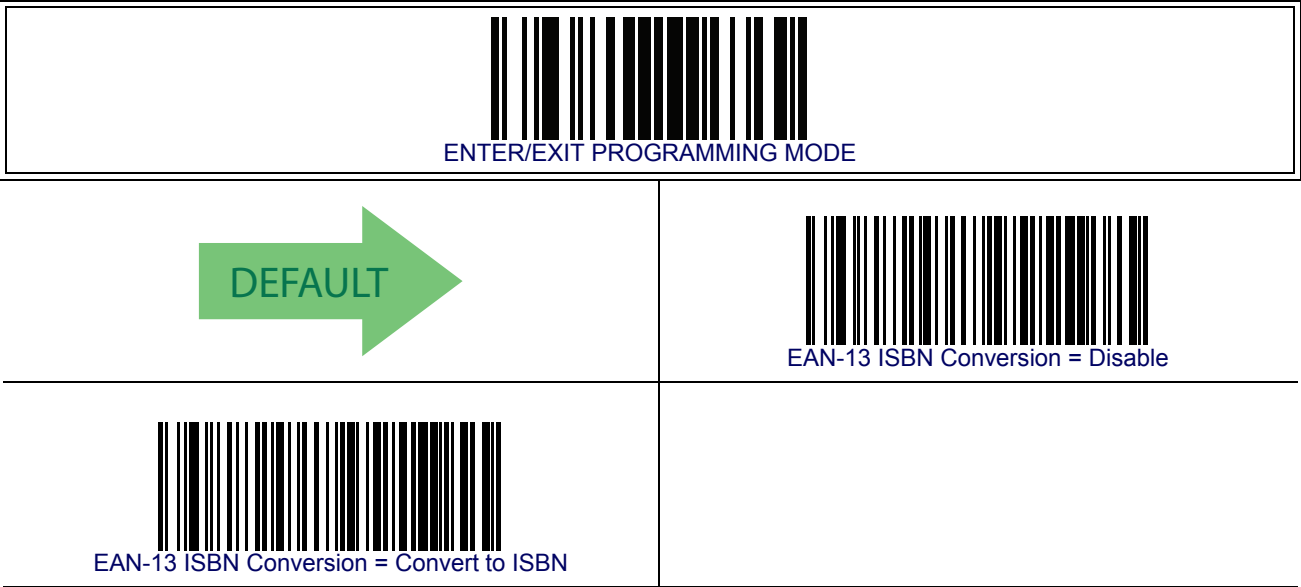
EAN-13 Flag 1 Character

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



EAN-13 ISBN Conversion

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



ISSN Enable/Disable

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



EAN 13 — cont.

EAN 13 Minimum Reads

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



EAN 8

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

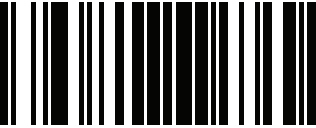
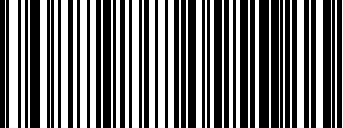
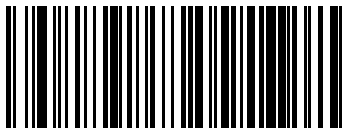

EAN 8 Enable/Disable

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

| | |
|--|---|
| <div style="text-align: center;"> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div style="text-align: center;"> EAN 8 = Disable</div> |
| <div style="text-align: center;"> EAN 8 = Enable</div> | <div style="text-align: center;"> DEFAULT</div> |

EAN 8 Check Character Transmission

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

| | |
|--|---|
| <div style="text-align: center;"> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div style="text-align: center;"> EAN 8 Check Character Transmission = Don't Send</div> |
| <div style="text-align: center;"> EAN 8 Check Character Transmission = Send</div> | <div style="text-align: center;"> DEFAULT</div> |

EAN 8 — cont.

Expand EAN 8 to EAN 13

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



EAN 8 — cont.

EAN 8 Minimum Reads

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

| | |
|---|--|
| <div>  <p>ENTER/EXIT PROGRAMMING MODE</p> </div> | |
| <div>  <p>DEFAULT</p> </div> | <div>  <p>EAN 8 Minimum Reads = 1</p> </div> |
| <div>  <p>EAN 8 Minimum Reads = 2</p> </div> | |
| | <div>  <p>EAN 8 Minimum Reads = 3</p> </div> |
| <div>  <p>EAN 8 Minimum Reads = 4</p> </div> | |

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 Decoding Level

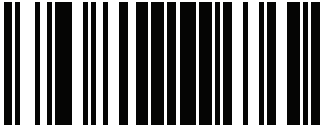
Decoding Levels are used to configure a bar code symbology decoder to be very aggressive to very conservative depending on a particular customer's needs.

- Choosing Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- Choosing Level 5 results in a very aggressive decoder. This aggressive behavior allows decoding of poorly printed and damaged labels at the expense of increasing the likelihood of decoding errors.
- Choosing Level 3, which is the default setting, allows the majority of product labels to be decoded.

There are many factors that determine when to change the decoding level for a particular symbology. These factors include spots, voids, non-uniform bar/space widths, damaged labels, etc. that may be experienced in some bar code labels. If there are many hard to read or damaged labels that cannot be decoded using a conservative setting, increase the decoding level to be more aggressive. If the majority of labels are very good quality labels, or there is a need to decrease the possibility of a decoder error, lower the decoding level to a more conservative level.

UPC/EAN Global Settings — cont.

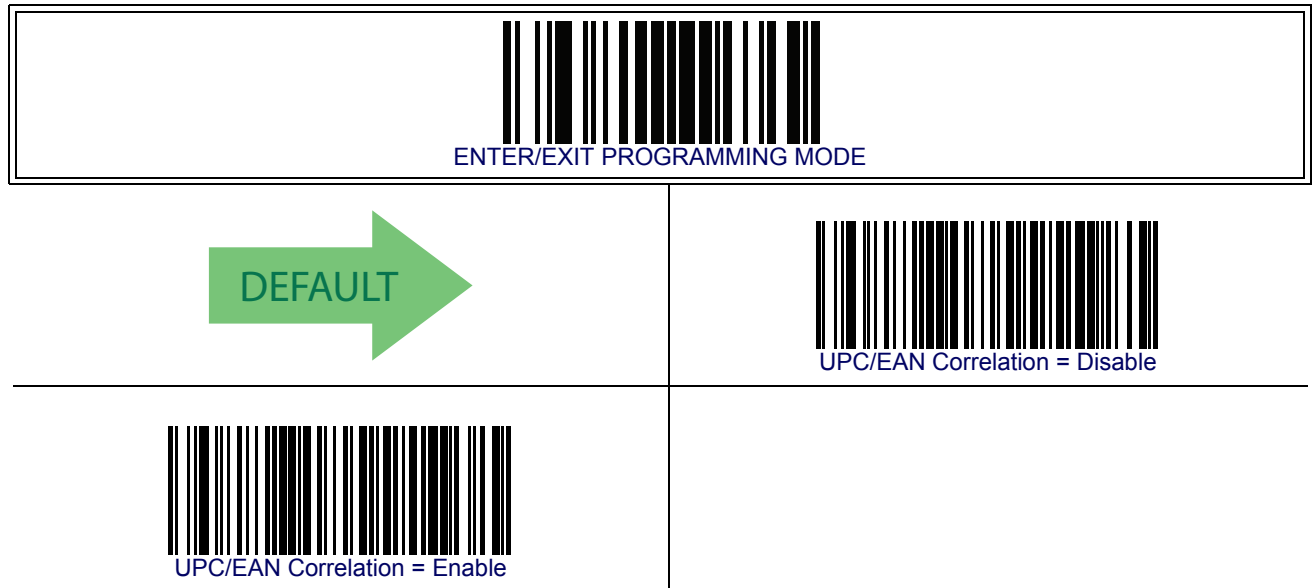
UPC/EAN Decoding Level — cont.

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>UPC/EAN Decoding Level = 1</div></div> | |
| <div><div></div><div>DEFAULT</div></div> | <div><div></div><div>UPC/EAN Decoding Level = 2</div></div> |
| <div><div></div><div>UPC/EAN Decoding Level = 3</div></div> | |
| | <div><div></div><div>UPC/EAN Decoding Level = 4</div></div> |
| <div><div></div><div>UPC/EAN Decoding Level = 5</div></div> | |

UPC/EAN Global Settings — cont.

UPC/EAN Correlation

When correlation is enabled, the bar code reader will combine label data from multiple scans when decoding. Enabling correlation will help the scanner read labels that have some spots and/or voids. It may also help read labels that have damaged areas. Enabling correlation will also increase the chances that a label will be read incorrectly.



UPC/EAN Global Settings — cont.

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

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div></div> | <div><div></div><div>Price Weight Check = Disabled</div></div> |
| <div><div></div><div>Price Weight Check = 4-digit price-weight check</div></div> | |
| | <div><div></div><div>Price Weight Check = 5-digit price-weight check</div></div> |
| <div><div></div><div>Price Weight Check = European 4-digit price-weight check</div></div> | |
| | <div><div></div><div>Price Weight Check = European 5-digit price-weight check</div></div> |

UPC/EAN Global Settings — cont.

UPC-A Minimum Reads

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

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> DEFAULT</div> | <div> UPC-A Minimum Reads = 1</div> |
| <div> UPC-A Minimum Reads = 2</div> | |
| | <div> UPC-A Minimum Reads = 3</div> |
| <div> UPC-A Minimum Reads = 4</div> | |

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 reader can be enabled to optionally read the following add-ons (supplementals):

- P2
- P5
- GS1-128



NOTE

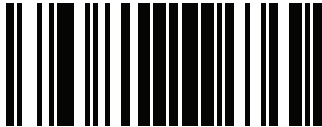
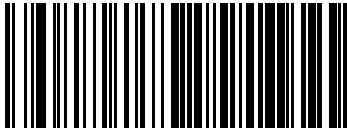
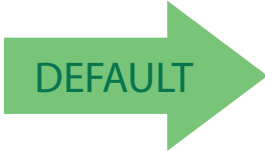
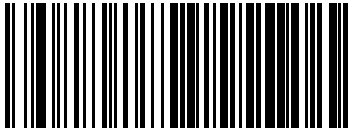
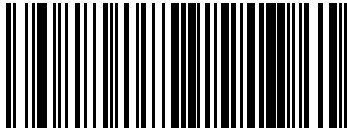
If a UPC/EAN base label and a an add-on are both decoded, the reader will transmit the base label and add-on. If a UPC/EAN base label is decoded without an add-on, the base label will be transmitted without an add-on.

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

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div>DEFAULT</div></div> | <div><div></div><div>Optional Add-Ons = Disable P2</div></div> |
| <div><div></div><div>Optional Add-Ons = Enable P2</div></div> | |
| <div><div>DEFAULT</div></div> | <div><div></div><div>Optional Add-Ons = Disable P5</div></div> |

Add-Ons — cont.

Optional Add-ons — cont.

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Optional Add-Ons = Enable P5</div></div> | |
| <div><div></div></div> | <div><div></div><div>Optional Add-Ons = Disable GS1-128</div></div> |
| <div><div></div><div>Optional Add-Ons = Enable GS1-128</div></div> | |

Add-Ons — cont.

Optional Add-On Timer

This option sets the time the reader will look for an add-on when an add-on fragment has been seen and optional add-ons are enabled. (Also see [Optional GS1-128 Add-On Timer on page 149.](#))

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Optional Add-on Timer = 10ms</div></div> | |
| | <div><div></div><div>Optional Add-on Timer = 20ms</div></div> |
| <div><div></div><div>Optional Add-on Timer = 30ms</div></div> | |
| | <div><div></div><div>Optional Add-on Timer = 40ms</div></div> |
| <div><div></div><div>Optional Add-on Timer = 50ms</div></div> | |

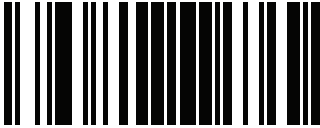
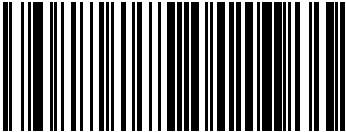
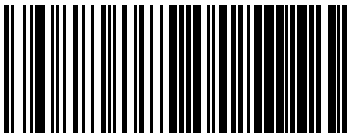
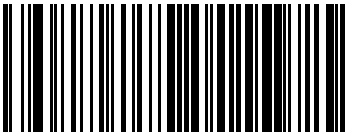
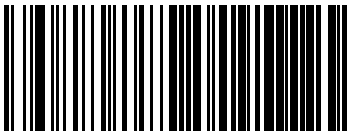
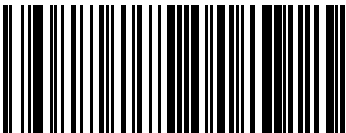
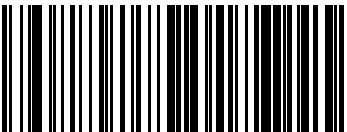
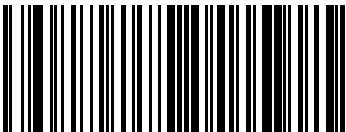
Add-Ons — cont.

Optional Add-On Timer — cont.

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Optional Add-on Timer = 60ms</div></div> |
| <div><div></div><div>Optional Add-on Timer = 70ms</div></div> | <div></div> |
| | <div><div></div><div>Optional Add-on Timer = 100ms</div></div> |
| <div><div></div><div>Optional Add-on Timer = 120ms</div></div> | |
| | <div><div></div><div>Optional Add-on Timer = 140ms</div></div> |
| <div><div></div><div>Optional Add-on Timer = 160ms</div></div> | |

Add-Ons — cont.

Optional Add-On Timer — cont.

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Optional Add-on Timer = 180ms</div></div> |
| <div><div></div><div>Optional Add-on Timer = 200ms</div></div> | |
| | <div><div></div><div>Optional Add-on Timer = 220ms</div></div> |
| <div><div></div><div>Optional Add-on Timer = 240ms</div></div> | |
| | <div><div></div><div>Optional Add-on Timer = 260ms</div></div> |
| <div><div></div><div>Optional Add-on Timer = 280ms</div></div> | |
| | <div><div></div><div>Optional Add-on Timer = 300ms</div></div> |

Add-Ons — cont.

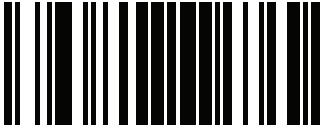
Optional GS1-128 Add-On Timer

This option sets the timer expiration value to read the additional part after reading the linear EAN/UPC part. For UPC/EAN add-ons other than those of this type, see [Optional Add-On Timer on page 146](#).

| | |
|--|--|
| <div><div></div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div></div></div> | <div><div></div><div>Optional GS1-128 Add-On Timer = Disable</div></div> |
| <div><div></div><div>Optional GS1-128 Add-On Timer = 10ms</div></div> | |
| | <div><div></div><div>Optional GS1-128 Add-On Timer = 20ms</div></div> |
| <div><div></div><div>Optional GS1-128 Add-On Timer = 30ms</div></div> | |
| | <div><div></div><div>Optional GS1-128 Add-On Timer = 40ms</div></div> |
| <div><div></div><div>Optional GS1-128 Add-On Timer = 50ms</div></div> | |

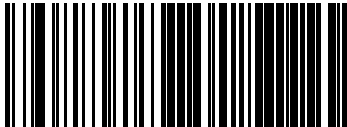
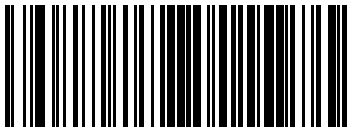
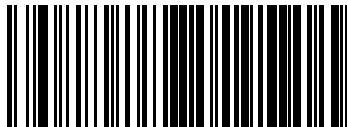
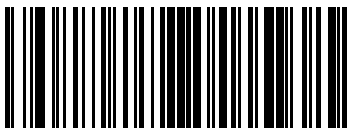
Add-Ons — cont.

Optional GS1-128 Add-On Timer — cont.

| | |
|--|---|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>Optional GS1-128 Add-On Timer = 60ms</p></div> |
| <div><p>Optional GS1-128 Add-On Timer = 70ms</p></div> | |
| | <div><p>Optional GS1-128 Add-On Timer = 100ms</p></div> |
| <div><p>Optional GS1-128 Add-On Timer = 120ms</p></div> | |
| | <div><p>Optional GS1-128 Add-On Timer = 140ms</p></div> |
| <div><p>Optional GS1-128 Add-On Timer = 160ms</p></div> | |

Add-Ons — cont.

Optional GS1-128 Add-On Timer — cont.

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Optional GS1-128 Add-On Timer = 180ms</div></div> |
| <div><div></div><div>Optional GS1-128 Add-On Timer = 200ms</div></div> | |
| | <div><div></div><div>Optional GS1-128 Add-On Timer = 220ms</div></div> |
| <div><div></div><div>Optional GS1-128 Add-On Timer = 240ms</div></div> | |
| | <div><div></div><div>Optional GS1-128 Add-On Timer = 260ms</div></div> |
| <div><div></div><div>Optional GS1-128 Add-On Timer = 280ms</div></div> | |
| | <div><div></div><div>Optional GS1-128 Add-On Timer = 300ms</div></div> |

Add-Ons — cont.

P2 Add-Ons Minimum Reads

This feature specifies the minimum number of times a P2 add-on must be read before it is marked as valid and then combined with a base label.

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>P2 Add-Ons Minimum Reads = 1</div></div> |
| <div><div></div><div>P2 Add-Ons Minimum Reads = 2</div></div> | <div></div> |
| | <div><div></div><div>P2 Add-Ons Minimum Reads = 3</div></div> |
| <div><div></div><div>P2 Add-Ons Minimum Reads = 4</div></div> | |

Add-Ons — cont.

P5 Add-Ons Minimum Reads

This feature specifies the minimum number of times a P5 add-on must be read before it is marked as valid and then combined with a base label.

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div>➔</div><div>DEFAULT</div></div> | <div><div></div><div>P5 Add-Ons Minimum Reads = 1</div></div> |
| <div><div></div><div>P5 Add-Ons Minimum Reads = 2</div></div> | |
| | <div><div></div><div>P5 Add-Ons Minimum Reads = 3</div></div> |
| <div><div></div><div>P5 Add-Ons Minimum Reads = 4</div></div> | |

This feature specifies the minimum number of times an GS1-128 add-on must be read before it is marked as valid and then combined with a base label.

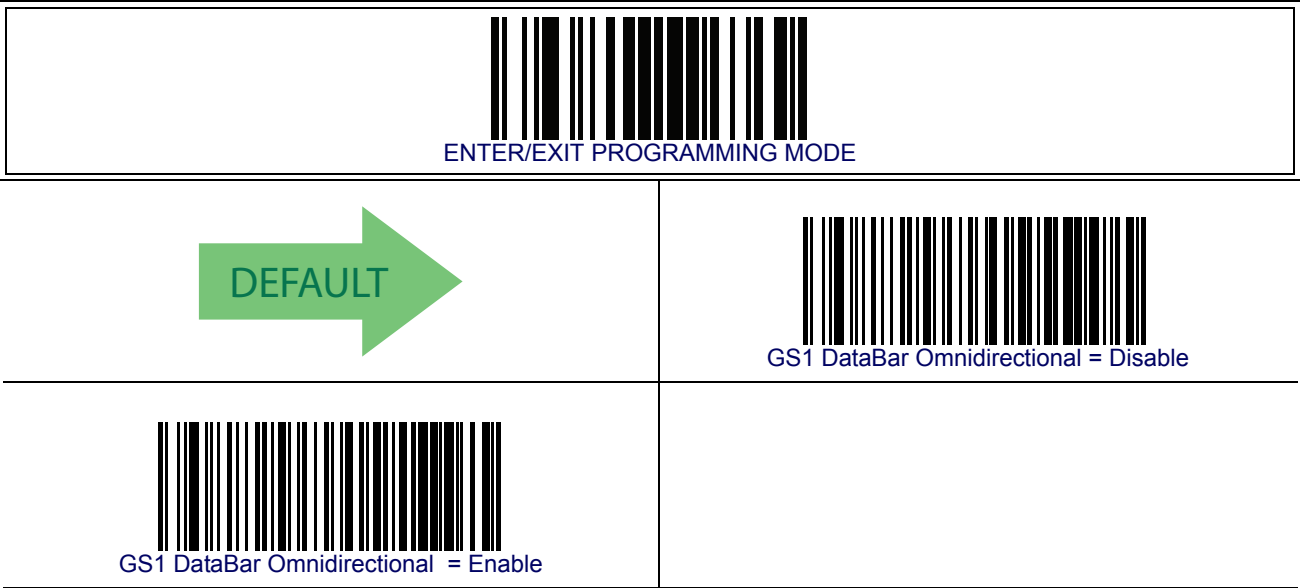
| | |
|--|--|
|  ENTER/EXIT PROGRAMMING MODE | |
|  |  GS1-128 Add-Ons Minimum Reads = 1 |
|  GS1-128 Add-Ons Minimum Reads = 2 | |
| |  GS1-128 Add-Ons Minimum Reads = 3 |
|  GS1-128 Add-Ons Minimum Reads = 4 | |

GS1 DataBar™ Omnidirectional

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

GS1 DataBar Omnidirectional Enable/Disable

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



GS1 DataBar Omnidirectional GS1-128 Emulation

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



GS1 DataBar™ Omnidirectional — cont.

GS1 DataBar Omnidirectional Minimum Reads

This feature specifies the minimum number of consecutive times a GS1 DataBar Omnidirectional label must be decoded before it is accepted as good read.

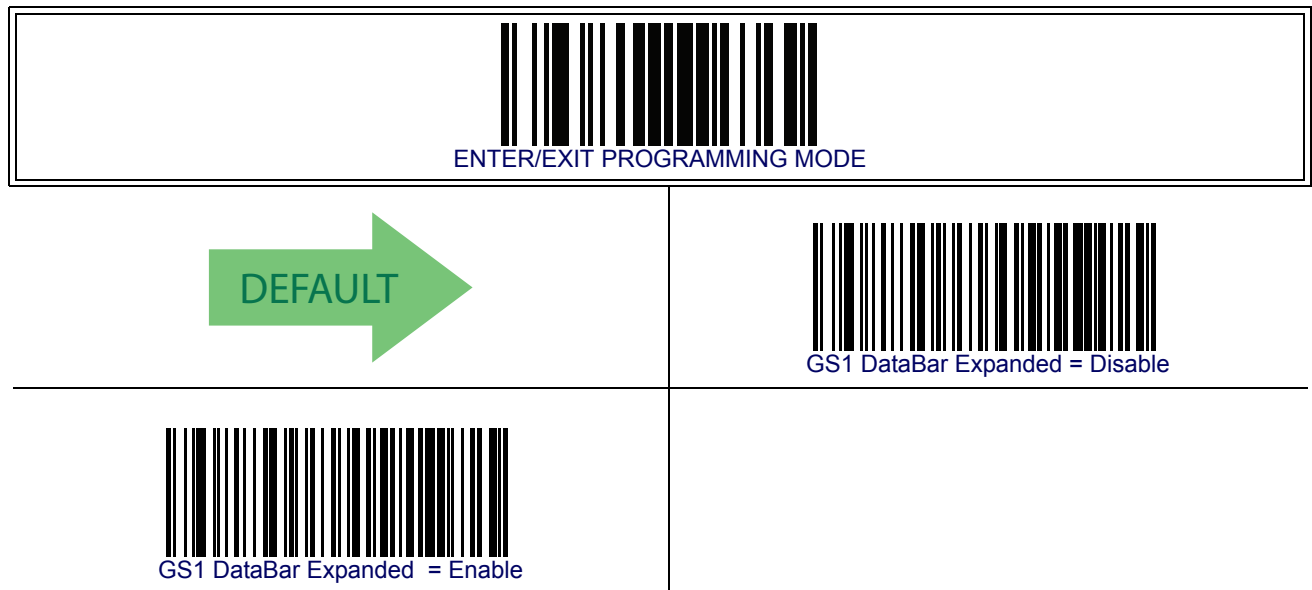
| | |
|---|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div></div> | <div><div></div><div>GS1 DataBar Omnidirectional Minimum Reads = 1</div></div> |
| <div><div></div><div>GS1 DataBar Omnidirectional Minimum Reads = 2</div></div> | |
| | <div><div></div><div>GS1 DataBar Omnidirectional Minimum Reads = 3</div></div> |
| <div><div></div><div>GS1 DataBar Omnidirectional Minimum Reads = 4</div></div> | |

GS1 DataBar™ Expanded

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

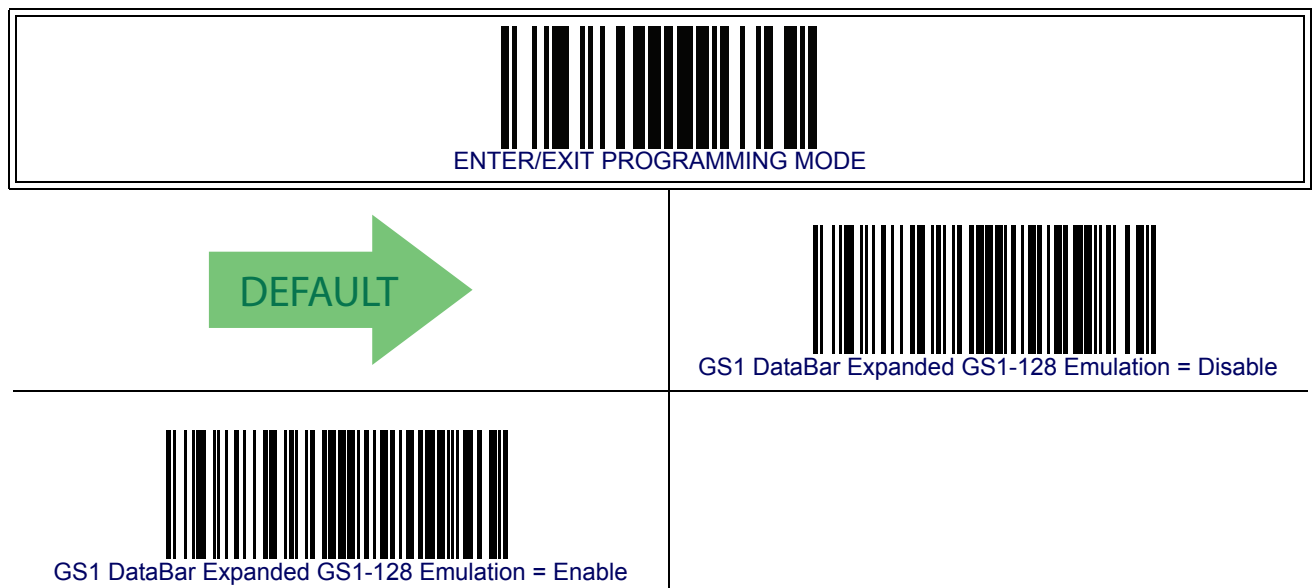
GS1 DataBar Expanded Enable/Disable

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



GS1 DataBar Expanded GS1-128 Emulation

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



GS1 DataBar™ Expanded — cont.

GS1 DataBar Expanded Minimum Reads

This feature specifies the minimum number of consecutive times a GS1 DataBar Expanded label must be decoded before it is accepted as good read.

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div></div> | <div><div></div><div>GS1 DataBar Expanded Minimum Reads = 1</div></div> |
| <div><div></div><div>GS1 DataBar Expanded Minimum Reads = 2</div></div> | |
| | <div><div></div><div>GS1 DataBar Expanded Minimum Reads = 3</div></div> |
| <div><div></div><div>GS1 DataBar Expanded Minimum Reads = 4</div></div> | |

GS1 DataBar™ Expanded — cont.

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.



GS1 DataBar™ Expanded — cont.

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.

Follow these instructions to set this feature:

- 1. Determine the desired character length (from 1 to 74). 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 bar code: SELECT GS1 DataBar EXPANDED LENGTH 1 SETTING.
- 4. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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 Programming Mode.

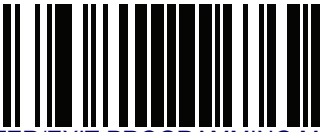
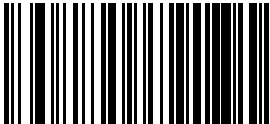
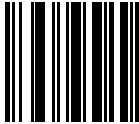
This completes the procedure. See [Table 19](#) for some examples of how to set this feature.


Table 19. GS1 DataBar Expanded 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 GS1 DataBar EXPANDED LENGTH 1SETTING | | | | |
| 4 | Scan Two Characters From Appendix E, Keypad | '0' and '1' | '0' and '7' | '5' and '2' | '7' AND '4' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

GS1 DataBar™ Expanded — cont.

GS1 DataBar Expanded Set Length 1 — cont.

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Select GS1 DataBar Expanded 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 |


 01 = Length 1 is 1 Character

GS1 DataBar™ Expanded — cont.

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 [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 74 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

- 1. Determine the desired character length (from 1 to 74). 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 bar code: SELECT GS1 DataBar EXPANDED LENGTH 2 SETTING.
- 4. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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 Programming Mode.

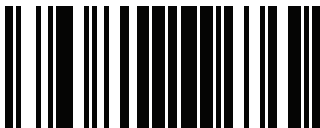
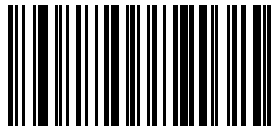

This completes the procedure. See [Table 20](#) for some examples of how to set this feature.

Table 20. GS1 DataBar Expanded 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 GS1 DataBar EXPANDED LENGTH 2 SETTING | | | | |
| 4 | Scan Two Characters From Appendix E, Keypad | '0' and '0' | '0' and '7' | '5' and '2' | '7' and '4' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

GS1 DataBar™ Expanded — cont.

GS1 DataBar Expanded Set Length 2 — cont.

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Select GS1 DataBar Expanded Set Length 2 Setting | |
| <p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p> |  CANCEL |

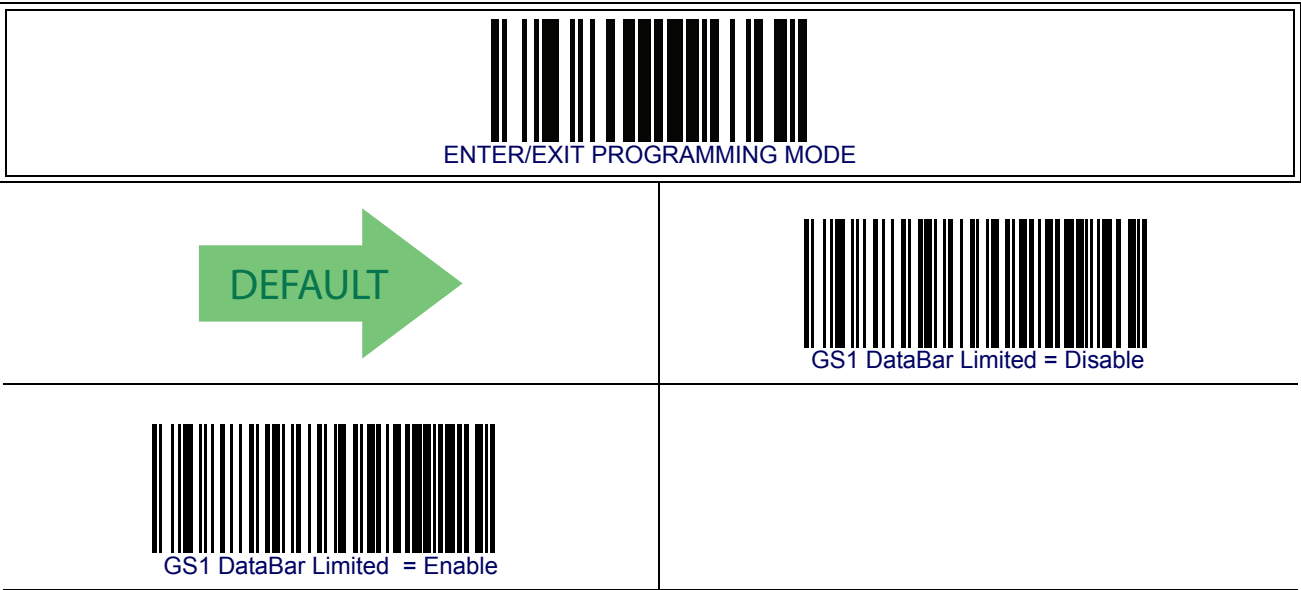

74 = Length 2 is 74 Characters

GS1 DataBar™ Limited

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

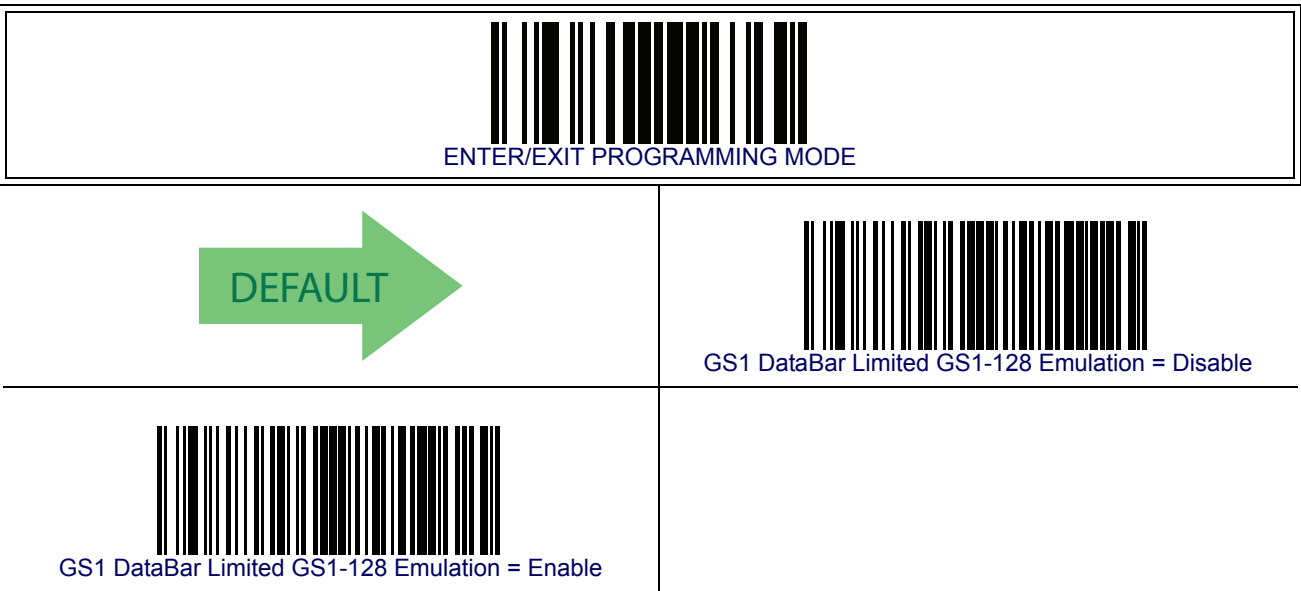
GS1 DataBar Limited Enable/Disable

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



GS1 DataBar Limited GS1-128 Emulation

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



GS1 DataBar™ Limited — cont.

GS1 DataBar Limited Minimum Reads

This feature specifies the minimum number of consecutive times a GS1 DataBar Limited label must be decoded before it is accepted as good read.

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div>→</div><div>DEFAULT</div></div> | <div><div></div><div>GS1 DataBar Limited Minimum Reads = 1</div></div> |
| <div><div></div><div>GS1 DataBar Limited Minimum Reads = 2</div></div> | |
| | <div><div></div><div>GS1 DataBar Limited Minimum Reads = 3</div></div> |
| <div><div></div><div>GS1 DataBar Limited Minimum Reads = 4</div></div> | |

Code 39

The following options apply to the Code 39 symbology.

Code 39 Enable/Disable

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

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> Code 39 = Disable</div> |
| <div> Code 39 = Enable</div> | <div> DEFAULT</div> |

Code 39 — cont.

Code 39 Check Character Calculation

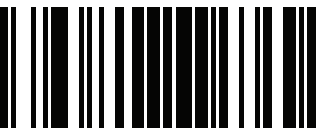
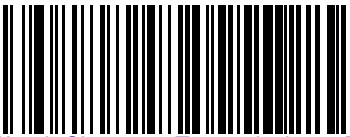
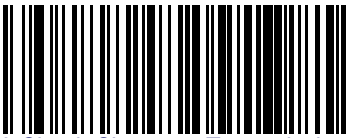

Enable this option to enable/disable calculation and verification of an optional Code 39 check character. When disabled, any check character in the label is treated as a data character.

| | |
|--|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  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 = Enable Italian Post Check | |
| |  Code 39 Check Character Calculation = Enable Daimler Chrysler Check |

Code 39 — cont.

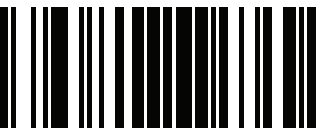

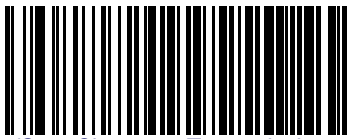
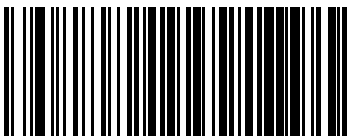
Code 39 Check Character Transmission

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

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> Code 39 Check Character Transmission = Don't Send</div> |
| <div> Code 39 Check Character Transmission = Send</div> | <div> DEFAULT</div> |

Code 39 Start/Stop Character Transmission

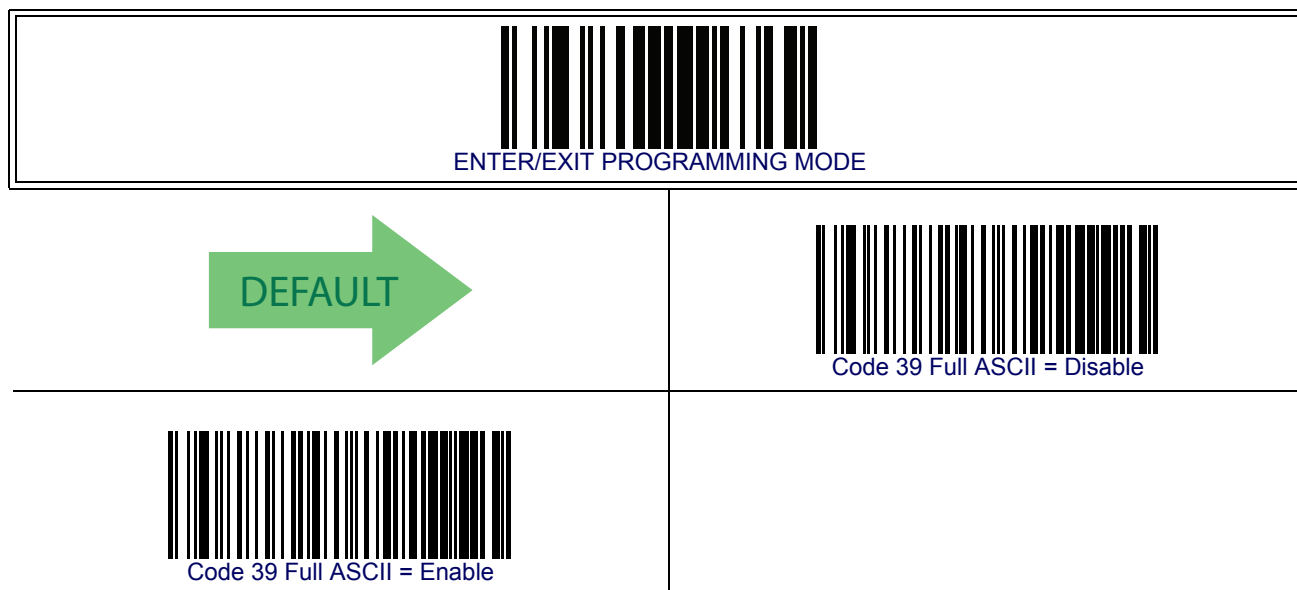
Enable this option to enable/disable transmission of Code 39 start and stop characters.

| | |
|---|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> DEFAULT</div> | <div> Code 39 Start/Stop Character Transmission = Don't Transmit</div> |
| <div> Code 39 Start/Stop Character Transmission = Transmit</div> | |

Code 39 — cont.

Code 39 Full ASCII

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



Code 39 — cont.

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.

| | |
|---|--|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| <div><p>Code 39 Quiet Zones = Quiet Zone on one side</p></div> | |
| | <div><p>Code 39 Quiet Zones = Quiet Zones on two sides</p></div> |
| <div><p>Code 39 Quiet Zones = Auto</p></div> | <div></div> |
| | <div><p>Code 39 Quiet Zones = Virtual Quiet Zones on two sides</p></div> |
| <div><p>Code 39 Quiet Zones = Small Quiet Zones on two sides</p></div> | |

Code 39 — cont.

Code 39 Minimum Reads

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

| | |
|--|---|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  Code 39 Minimum Reads = 1 |
|  Code 39 Minimum Reads = 2 |  |
| |  Code 39 Minimum Reads = 3 |
|  Code 39 Minimum Reads = 4 | |

Code 39 — cont.

Code 39 Decoding Level

Decoding Levels are used to configure a bar code symbology decoder to be very aggressive to very conservative depending on a particular customer's needs.

- Choosing Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- Choosing Level 5 results in a very aggressive decoder. This aggressive behavior allows decoding of poorly printed and damaged labels at the expense of increasing the likelihood of decoding errors.
- Choosing Level 3, which is the default setting, allows the majority of product labels to be decoded.

There are many factors that determine when to change the decoding level for a particular symbology. These factors include spots, voids, non-uniform bar/space widths, damaged labels, etc. that may be experienced in some bar code labels. If there are many hard to read or damaged labels that cannot be decoded using a conservative setting, increase the decoding level to be more aggressive. If the majority of labels are very good quality labels, or there is a need to decrease the possibility of a decoder error, lower the decoding level to a more conservative level.



This configuration item applies to Code 39 and Code 32.

NOTE

Code 39 — cont.

Code 39 Decoding Level — cont.

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Code 39 Decoding Level = 1</div></div> | |
| | <div><div></div><div>Code 39 Decoding Level = 2</div></div> |
| <div><div></div><div>Code 39 Decoding Level = 3</div></div> | <div></div> |
| | <div><div></div><div>Code 39 Decoding Level = 4</div></div> |
| <div><div></div><div>Code 39 Decoding Level = 5</div></div> | |

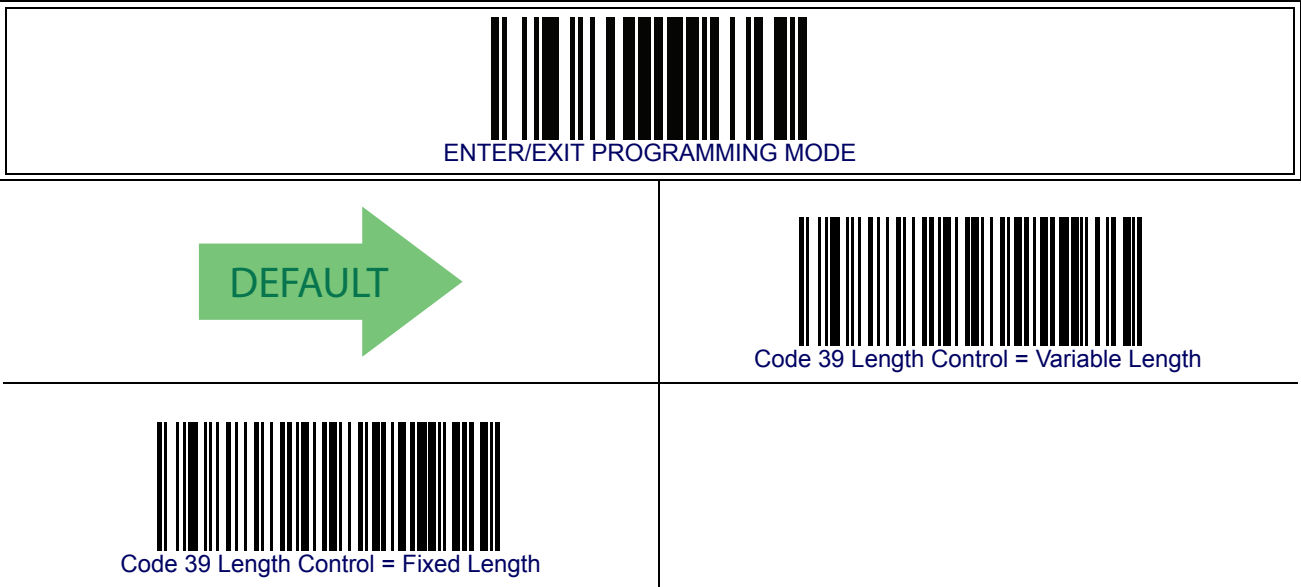
Code 39 — cont.

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.



Code 39 — cont.

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 data characters only.

The length can be set from 0 to 50 characters.

Follow these instructions to set this feature:

1. Determine the desired character length (from 0 to 50). 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 bar code: SELECT CODE 39 LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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 Programming Mode.

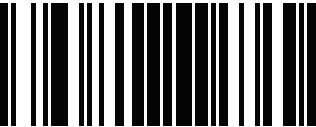
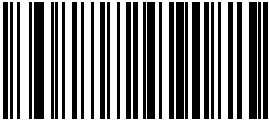

This completes the procedure. See [Table 21](#) for some examples of how to set this feature.

Table 21. Code 39 Length 1 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|---------------|---------------|---------------|---------------|
| 1 | Desired Setting | 00 Characters | 07 Characters | 15 Characters | 50 Characters |
| 2 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 3 | Scan SELECT CODE 39 LENGTH 1 SETTING | | | | |
| 4 | Scan Two Characters From Appendix E, Keypad | '0' and '0' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Code 39 — cont.

Code 39 Set Length 1 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Code 39 Set Length 1 Setting</div> | |
| <p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p> | <div> CANCEL</div> |

DEFAULT

02 = Length 1 is 2 Characters

Code 39 — cont.

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 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50 — or 0 to ignore this 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 bar code: SELECT CODE 39 LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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 Programming Mode.

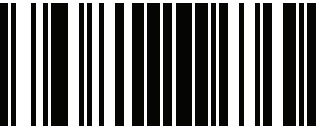
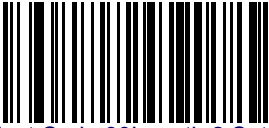

This completes the procedure. See [Table 22](#) for some examples of how to set this feature.

Table 22. Code 39 Length 2 Setting Examples

| 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 CODE 39 LENGTH 2 SETTING | | | | |
| 4 | Scan Two Characters From Appendix E, Keypad | '0' and '0' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Code 39 — cont.

Code 39 Set Length 2 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Code 39Length 2 Setting</div> | |
| <p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p> | <div> CANCEL</div> |

DEFAULT

50 = Length 2 is 50 Characters

Code 39 — cont.

Code 39 Interdigit Ratio

This feature specifies the ratio between an intercharacter space and module for Code 39 labels.

| | |
|---|--|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  Code 39 Interdigit Ratio = Disable |
|  Code 39 Interdigit Ratio = 1 | |
| |  Code 39 Interdigit Ratio = 2 |
|  Code 39 Interdigit Ratio = 3 | |
|  DEFAULT |  Code 39 Interdigit Ratio = 4 |
|  Code 39 Interdigit Ratio = 5 | |

Code 39 — cont.

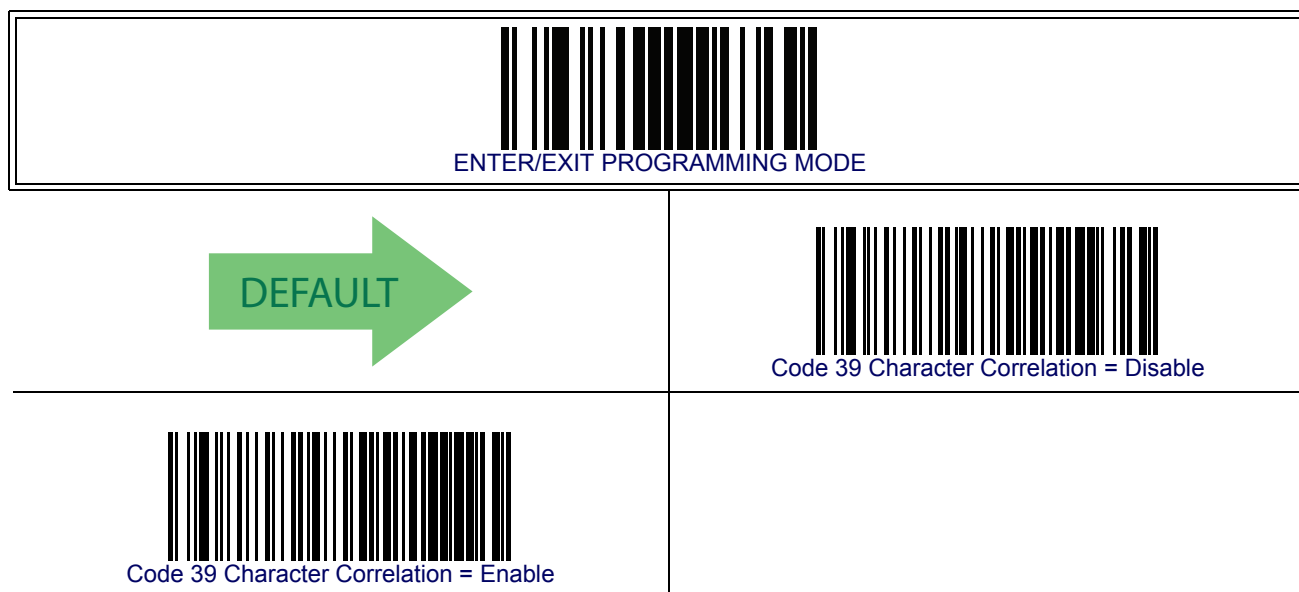
Code 39 Interdigit Ratio — cont.

| | |
|---|---|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>Code 39 Interdigit Ratio = 6</p></div> |
| <div><p>Code 39 Interdigit Ratio = 7</p></div> | |
| | <div><p>Code 39 Interdigit Ratio = 8</p></div> |
| <div><p>Code 39 Interdigit Ratio = 9</p></div> | |
| | <div><p>Code 39 Interdigit Ratio = 10</p></div> |

Code 39 — cont.

Code 39 Character Correlation

When correlation is enabled, the bar code reader will combine label data from multiple scans when decoding. Enabling correlation will help the scanner read labels that have some spots and/or voids. It may also help read labels that have damaged areas. Enabling correlation will also increase the chances that a label will be read incorrectly.



Code 39 Stitching

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

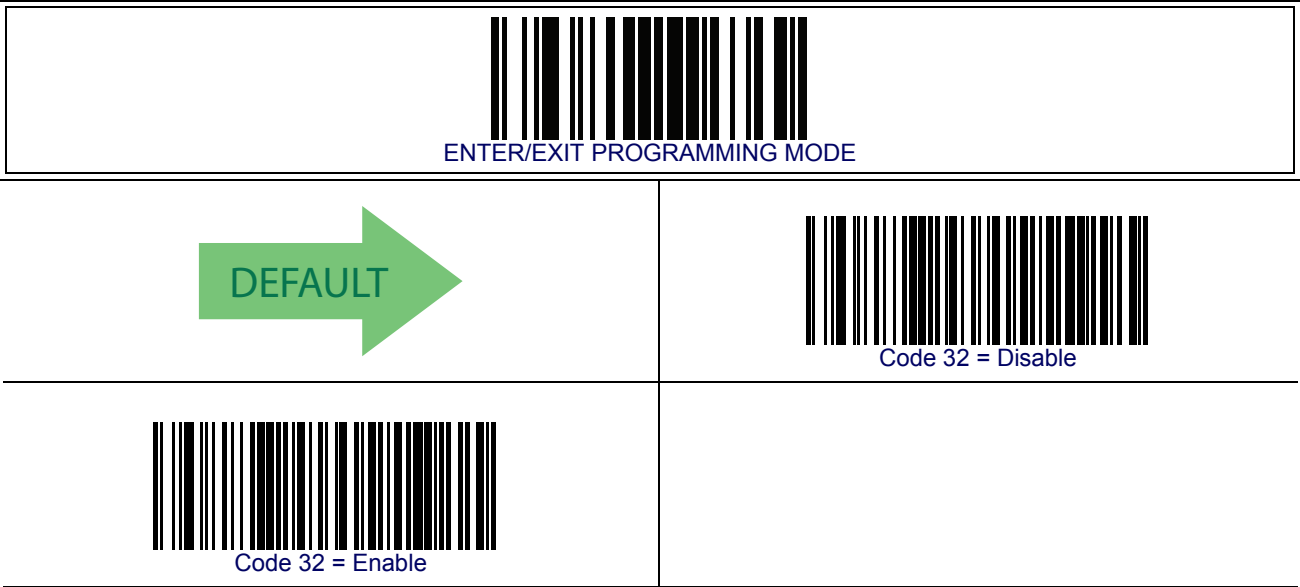


Code 32 (Italian Pharmaceutical)

The following options apply to the Code 32 symbology.

Code 32 Enable/Disable

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



Code 32 Feature Setting Exceptions



NOTE

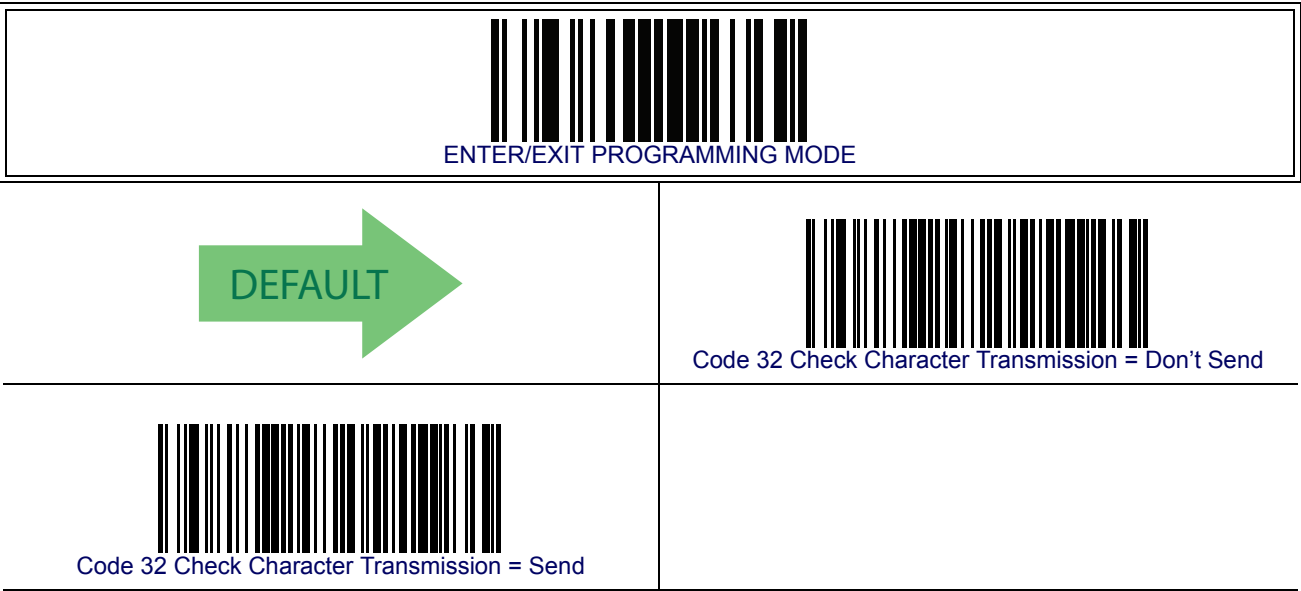
The following features are set for Code 32 by using these Code 39 settings:

- Code 39 Quiet Zones on page 170
- Code 39 Minimum Reads on page 171
- Code 39 Decoding Level on page 172
- Code 39 Interdigit Ratio on page 179
- Code 39 Character Correlation on page 181
- Code 39 Stitching on page 182

Code 32 (Italian Pharmaceutical) — cont.

Code 32 Check Character Transmission

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



Code 32 Start/Stop Character Transmission

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



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 reader to decode Code 39 CIP labels.



Code 128

The following options apply to the Code 128 symbology.

Code 128 Enable/Disable

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



Code 128 — cont.

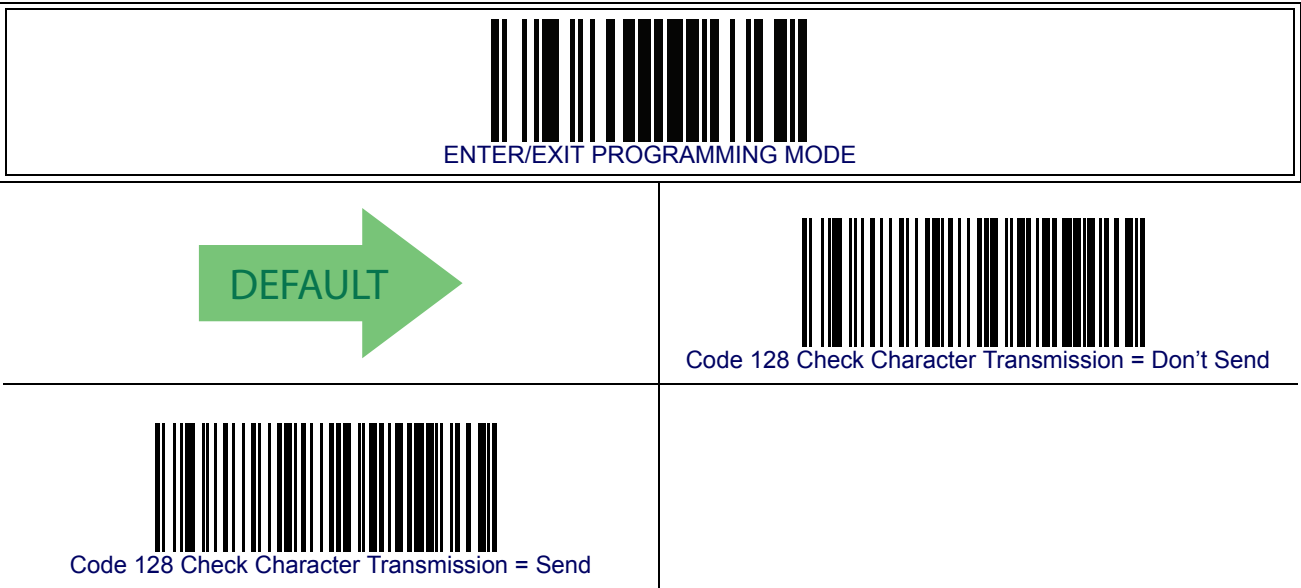
Expand Code 128 to Code 39

This feature enables/disables expansion of Code 128 labels to Code 39 labels.



Code 128 Check Character Transmission

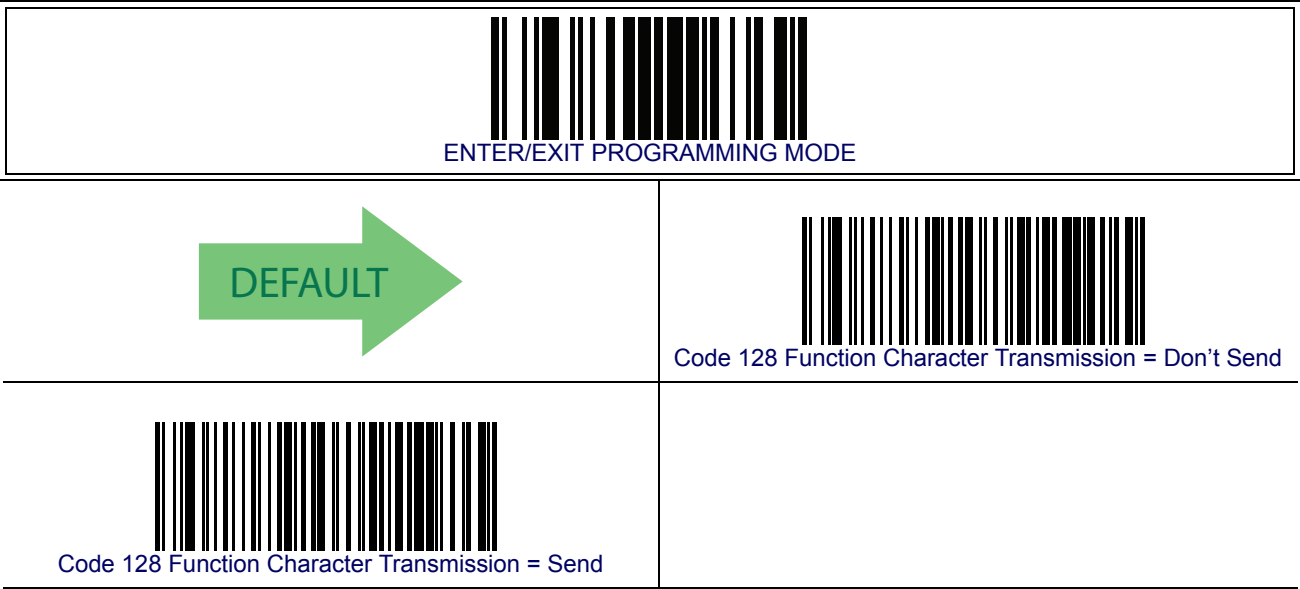
Enable this option to transmit the check character along with Code 128 bar code data.



Code 128 — cont.

Code 128 Function Character Transmission

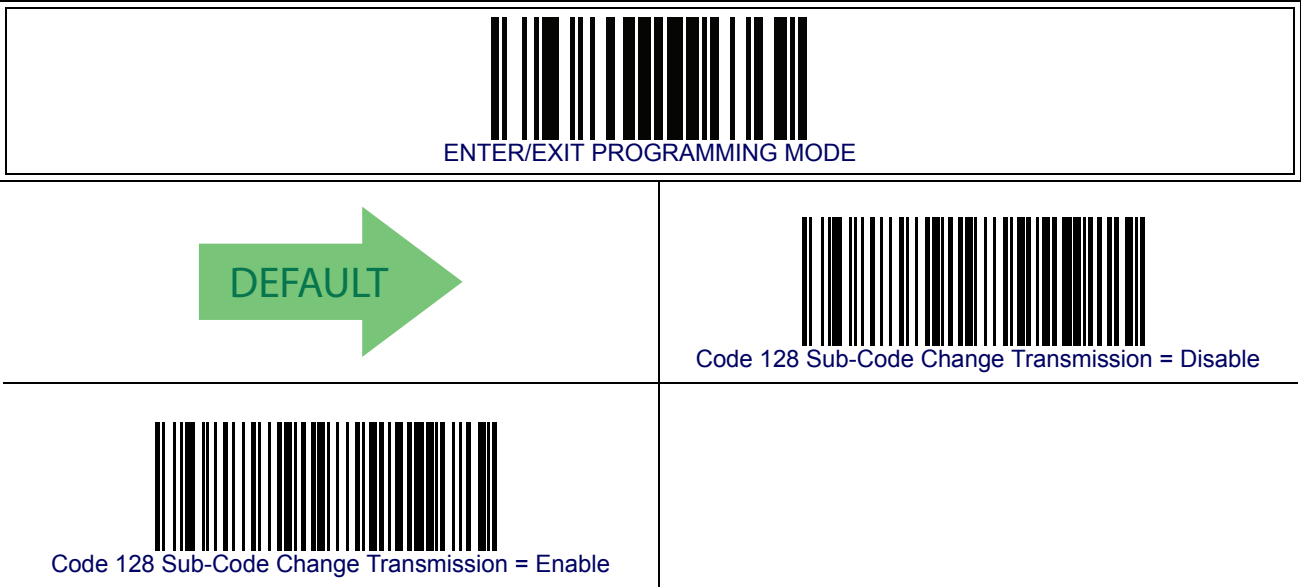
Enables/disables transmission of Code128 function characters 1, 2, 3, and 4.



Code 128 — cont.

Code 128 Sub-Code Change Transmission

Enables/disables the transmission of “Sub-Code exchange” characters (NOT transmitted by standard decoding).



Code 128 — cont.

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.

| | |
|--|---|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>Code 128 Quiet Zones = No Quiet Zones</p></div> |
| <div><p>Code 128 Quiet Zones = Quiet Zone on one side</p></div> | |
| | <div><p>Code 128 Quiet Zones = Quiet Zones on two sides</p></div> |
| <div><p>Code 128 Quiet Zones = Auto</p></div> | <div></div> |
| | <div><p>Code 128 Quiet Zones = Virtual Quiet Zones on two sides</p></div> |

Code 128 — cont.

Code 128 Minimum Reads

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

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div>→</div><div>DEFAULT</div></div> | <div><div></div><div>Code 128 Minimum Reads = 1</div></div> |
| <div><div></div><div>Code 128 Minimum Reads = 2</div></div> | |
| | <div><div></div><div>Code 128 Minimum Reads = 3</div></div> |
| <div><div></div><div>Code 128 Minimum Reads = 4</div></div> | |

Code 128 — cont.

Code 128 Decoding Level

Decoding Levels are used to configure a bar code symbology decoder to be very aggressive to very conservative depending on a particular customer's needs.

- Choosing Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- Choosing Level 5 results in a very aggressive decoder. This aggressive behavior allows decoding of poorly printed and damaged labels at the expense of increasing the likelihood of decoding errors.
- Choosing Level 3, which is the default setting, allows the majority of product labels to be decoded.

There are many factors that determine when to change the decoding level for a particular symbology. These factors include spots, voids, non-uniform bar/space widths, damaged labels, etc. that may be experienced in some bar code labels. If there are many hard to read or damaged labels that cannot be decoded using a conservative setting, increase the decoding level to be more aggressive. If the majority of labels are very good quality labels, or there is a need to decrease the possibility of a decoder error, lower the decoding level to a more conservative level.

Code 128 — cont.

Code 128 Decoding Level — cont.

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Code 128 Decoding Level = 1</div></div> | |
| | <div><div></div><div>Code 128 Decoding Level = 2</div></div> |
| <div><div></div><div>Code 128 Decoding Level = 3</div></div> | <div></div> |
| | <div><div></div><div>Code 128 Decoding Level = 4</div></div> |
| <div><div></div><div>Code 128 Decoding Level = 5</div></div> | |

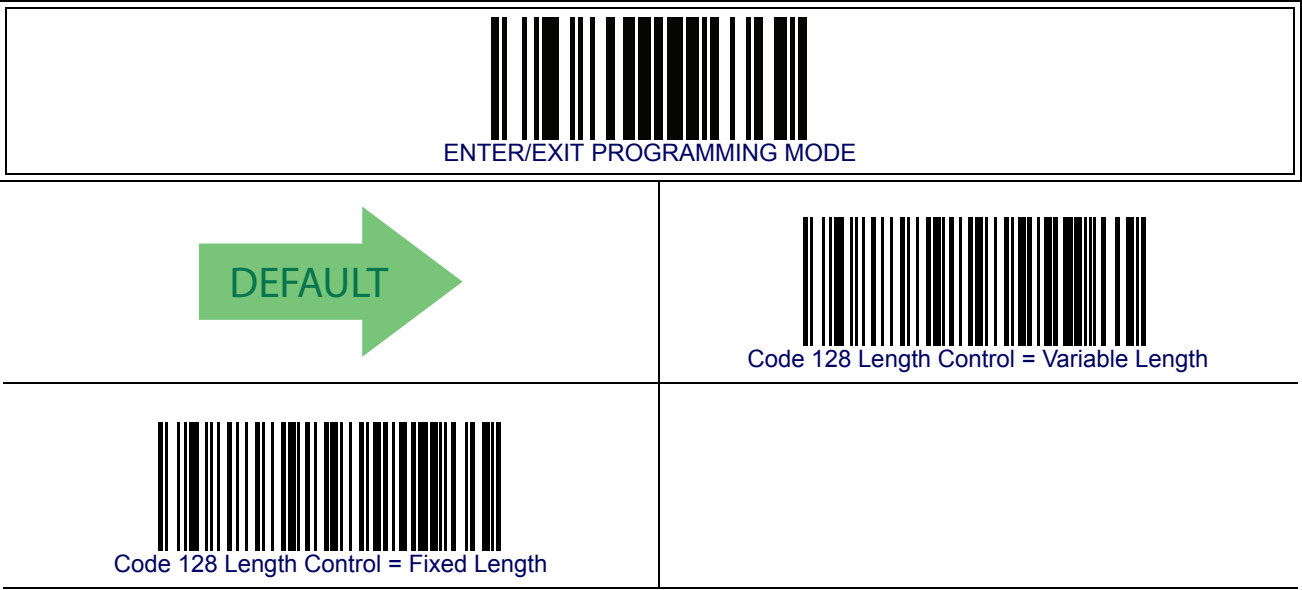
Code 128 — cont.

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.



Code 128 — cont.

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.

Follow these instructions to set this feature:

- 1. Determine the desired character length (from 1 to 80). 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 bar code: SELECT CODE 128 LENGTH 1 SETTING.
- 4. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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 Programming Mode.

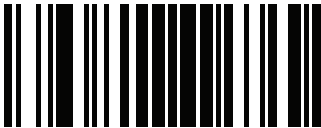
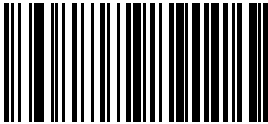
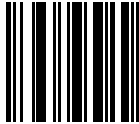
This completes the procedure. See [Table 23](#) for some examples of how to set this feature.

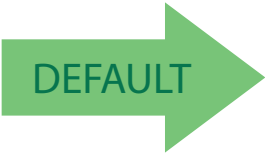
Table 23. Code 128 Length 1 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|--------------|---------------|---------------|---------------|
| 1 | Desired Setting | 01 Character | 07 Characters | 15 Characters | 80 Characters |
| 2 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 3 | Scan SELECT CODE 128 LENGTH 1 SETTING | | | | |
| 4 | Scan Two Characters From Appendix E, Keypad | '0' and '1' | '0' and '7' | '1' and '5' | '8' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Code 128 — cont.

Code 128 Set Length 1 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Code 128 Set Length 1 Setting</div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div> CANCEL</div> |

 01 = Length 1 is 1 Character

Code 128 — cont.

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 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 80 — or 0 to ignore this 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 bar code: SELECT CODE 128 LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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 Programming Mode.

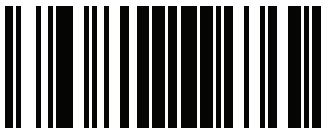
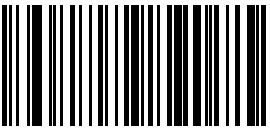

This completes the procedure. See [Table 24](#) for some examples of how to set this feature.

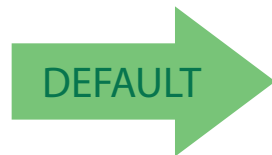
Table 24. Code 128 Length 2 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|-------------------------|---------------|---------------|---------------|
| 1 | Desired Setting | 00 (Ignore This Length) | 07 Characters | 15 Characters | 80 Characters |
| 2 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 3 | Scan SELECT CODE 128 LENGTH 2 SETTING | | | | |
| 4 | Scan Two Characters From Appendix E, Keypad | '0' and '0' | '0' and '7' | '0' and 'F' | '5' AND 0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Code 128 — cont.

Code 128 Set Length 2 — cont.

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Select Code 128 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 |

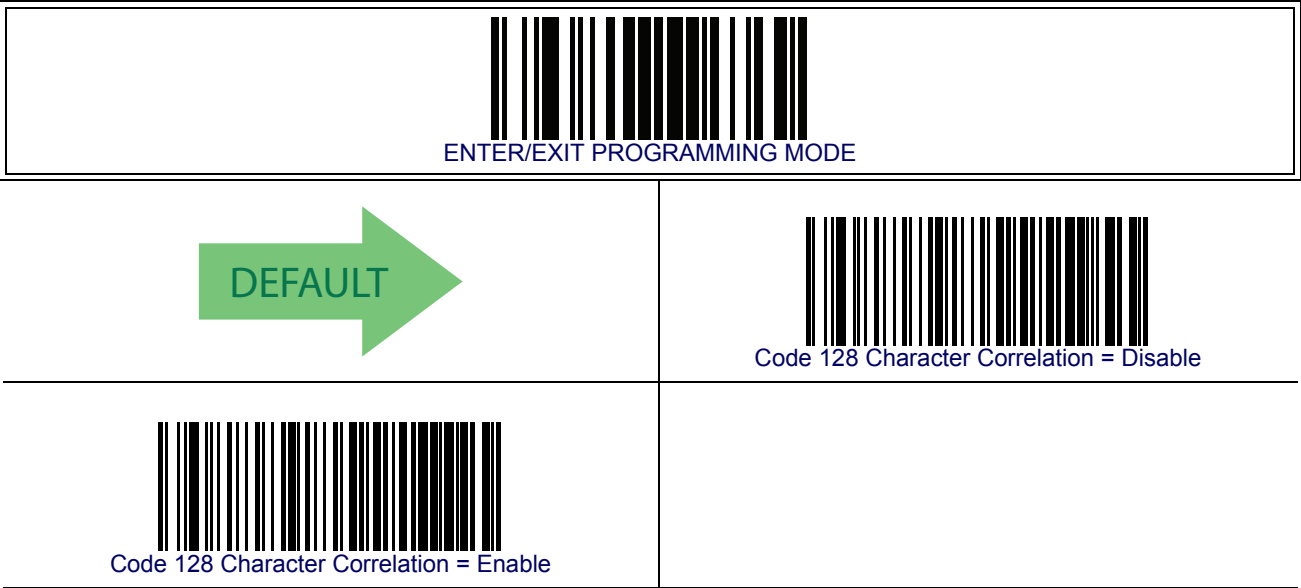


80 = Length 2 is 80 Characters

Code 128 — cont.

Code 128 Character Correlation

When correlation is enabled, the bar code reader will combine label data from multiple scans when decoding. Enabling correlation will help the scanner read labels that have some spots and/or voids. It may also help read labels that have damaged areas. Enabling correlation will also increase the chances that a label will be read incorrectly.



Code 128 — cont.

Code 128 Stitching

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



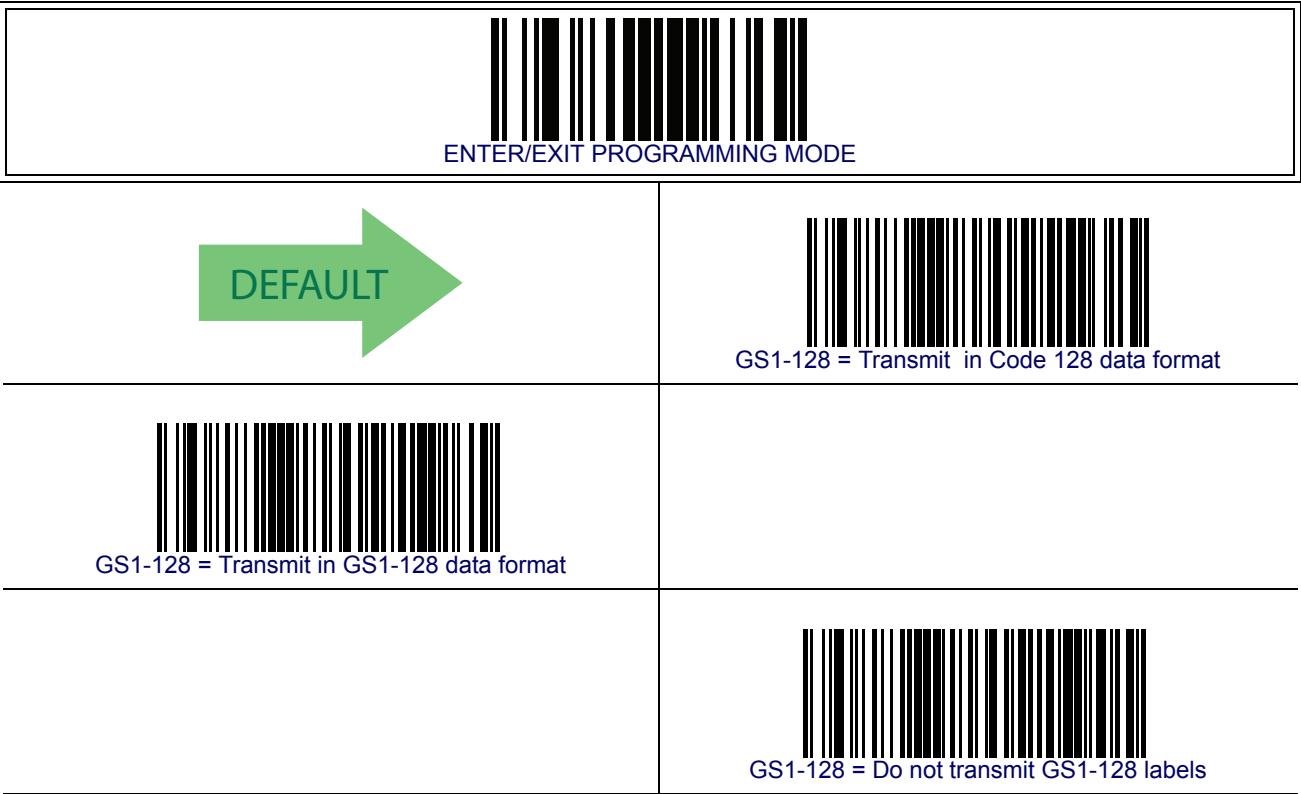
GS1-128

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 reader 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.

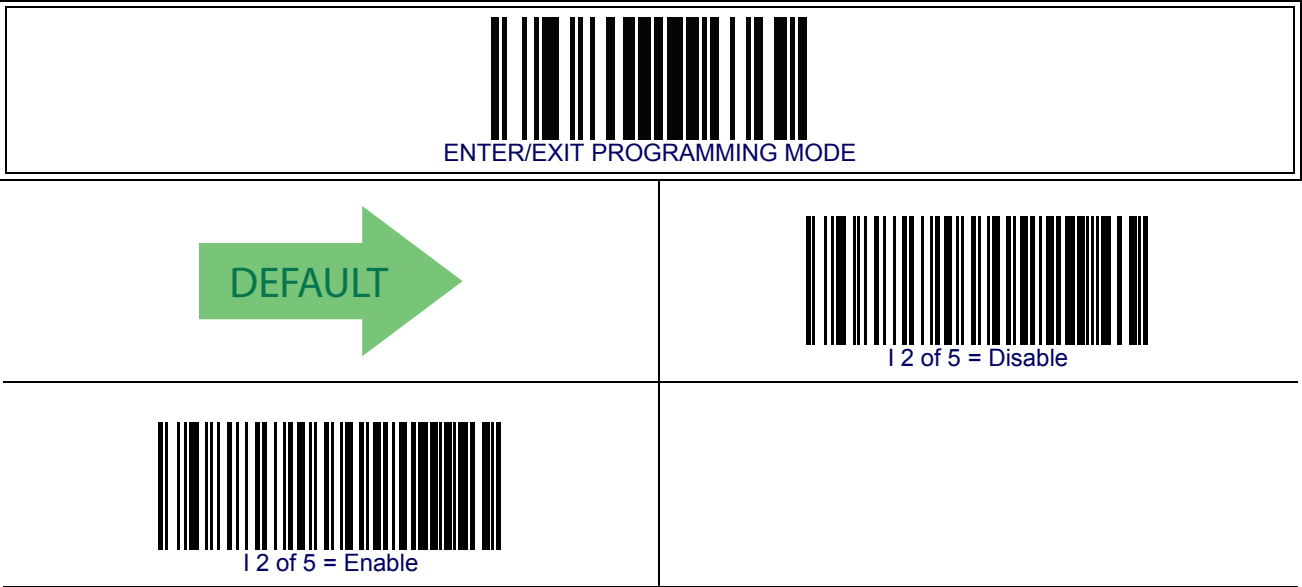


Interleaved 2 of 5 (I 2 of 5)

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

I 2 of 5 Enable/Disable

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



Interleaved 2 of 5 (I 2 of 5) — cont.

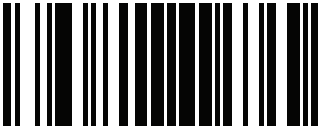
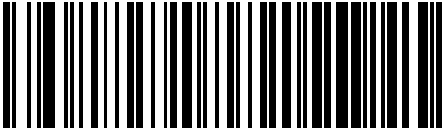
I 2 of 5 Check Character Calculation

This option enables/disables calculation and verification of an optional I 2 of 5 check character. When disabled, any check character in label is treated as a data character.

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div>→</div><div>DEFAULT</div></div> | <div><div></div><div>I 2 of 5 Check Character Calculation = Disable</div></div> |
| <div><div></div><div>I 2 of 5 Check Character Calculation = Check Standard (Modulo 10)</div></div> | |
| | <div><div></div><div>I 2 of 5 Check Character Calculation = Check German Parcel</div></div> |
| <div><div></div><div>I 2 of 5 Check Character Calculation = Check DHL</div></div> | |
| | <div><div></div><div>I 2 of 5 Check Character Calculation = Check Daimler Chrysler</div></div> |
| <div><div></div><div>I 2 of 5 Check Character Calculation = Check Bosch</div></div> | |

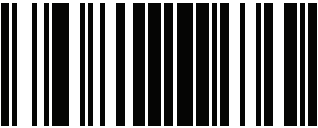

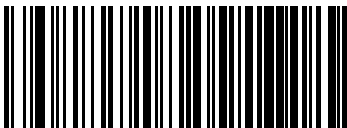

Interleaved 2 of 5 (I 2 of 5) — cont.

I 2 of 5 Check Character Calculation — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> I 2 of 5 Check Character Calculation = Check Italian Post</div> |

I 2 of 5 Check Character Transmission

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

| | |
|---|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> I 2 of 5 Check Character Transmission = Don't Send</div> |
| <div> I 2 of 5 Check Character Transmission = Send</div> | <div></div> |

Interleaved 2 of 5 (I 2 of 5) — cont.

I 2 of 5 Minimum Reads

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

| | |
|---|--|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>I 2 of 5 Minimum Reads = 1</p></div> |
| <div><p>I 2 of 5 Minimum Reads = 2</p></div> | <div><p>DEFAULT</p></div> |
| | <div><p>I 2 of 5 Minimum Reads = 3</p></div> |
| <div><p>I 2 of 5 Minimum Reads = 4</p></div> | |

Interleaved 2 of 5 (I 2 of 5) — cont.

2 of 5 Decoding Level



This configuration item applies to Interleaved 2 of 5, Datalogic 2 of 5 and Standard 2 of 5.

NOTE

Decoding Levels are used to configure a bar code symbology decoder to be very aggressive to very conservative depending on a particular customer's needs.

- Choosing Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- Choosing Level 5 results in a very aggressive decoder. This aggressive behavior allows decoding of poorly printed and damaged labels at the expense of increasing the likelihood of decoding errors.
- Choosing Level 3, which is the default setting, allows the majority of product labels to be decoded.

There are many factors that determine when to change the decoding level for a particular symbology. These factors include spots, voids, non-uniform bar/space widths, damaged labels, etc. that may be experienced in some bar code labels. If there are many hard to read or damaged labels that cannot be decoded using a conservative setting, increase the decoding level to be more aggressive. If the majority of labels are very good quality labels, or there is a need to decrease the possibility of a decoder error, lower the decoding level to a more conservative level.

Interleaved 2 of 5 (I 2 of 5) — cont.

2 of 5 Decoding Level — cont.

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>2 of 5 Decoding Level = 1</div></div> | |
| | <div><div></div><div>2 of 5 Decoding Level = 2</div></div> |
| <div><div></div><div>2 of 5 Decoding Level = 3</div></div> | <div></div> |
| | <div><div></div><div>2 of 5 Decoding Level = 4</div></div> |
| <div><div></div><div>2 of 5 Decoding Level = 5</div></div> | |

Interleaved 2 of 5 (I 2 of 5) — cont.

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.



Interleaved 2 of 5 (I 2 of 5) — cont.

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.

Follow these instructions to set this feature:

1. Determine the desired character length (from 2 to 50). The length must be an even number.
2. 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 I 2 of 5 LENGTH 1 SETTING.
5. Scan the appropriate two digits from the keypad in **Appendix E, Keypad**, that represent the length setting which was 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

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

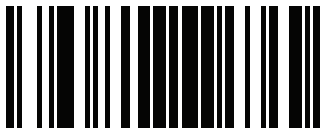
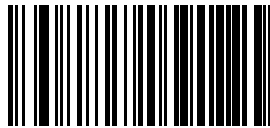

This completes the procedure. See **Table 27** for some examples of how to set this feature.

Table 25. I 2 of 5 Length 1 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|--------------|--------------|---------------|---------------|
| 1 | Desired Setting | 2 Characters | 6 Characters | 14 Characters | 50 Characters |
| 2 | Pad with leading zeroes to yield two digits | 02 | 06 | 14 | 50 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT I 2 of 5 LENGTH 1 SETTING | | | | |
| 5 | Scan Two Characters From Appendix E, Keypad | '0' and '2' | '0' and '6' | '1' and '4' | '5' AND '0' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Interleaved 2 of 5 (I 2 of 5) — cont.

Datalogic 2 of 5 Set Length 1 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select I 2 of 5 Length 1 Setting</div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div> CANCEL</div> |

→

DEFAULT

06 = Length 1 is 6 Characters

Interleaved 2 of 5 (I 2 of 5) — cont.

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).

Follow these instructions to set this feature:

1. Determine the desired character length (from 2 to 50, or 0 to ignore this length). The length must be an even number.
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 I 2 of 5 LENGTH 2 SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix E, 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.

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

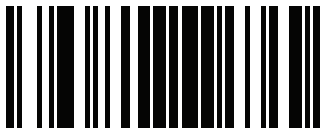
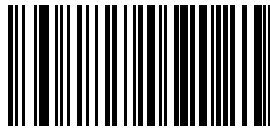
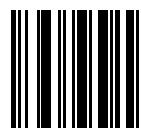
This completes the procedure. See [Table 28](#) for some examples of how to set this feature.

Table 26. I 2 of 5 Length 2 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|--------------------|--------------|---------------|---------------|
| 1 | Desired Setting | Ignore This Length | 4 Characters | 14 Characters | 50 Characters |
| 2 | Pad with leading zeroes to yield two digits | 00 | 04 | 14 | 50 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT I 2 OF 5 LENGTH 2 SETTING | | | | |
| 5 | Scan Two Characters From Appendix E, Keypad | '0' and '0' | '0' and '4' | '1' and '4' | '5' AND '0' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Interleaved 2 of 5 (I 2 of 5) — cont.

I 2 of 5 Set Length 2 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select I 2 of 5 Length 2 Setting</div> | |
| <p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p> | <div> CANCEL</div> |

→

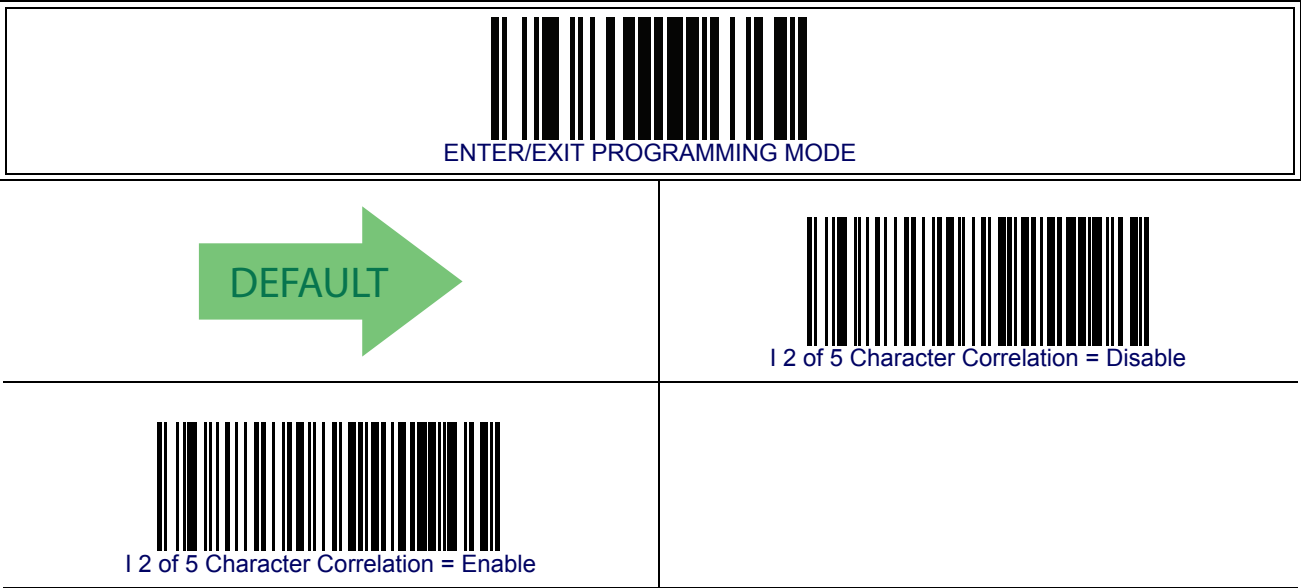
DEFAULT

50 = Length 2 is 50 Characters

Interleaved 2 of 5 (I 2 of 5) — cont.

I 2 of 5 Character Correlation

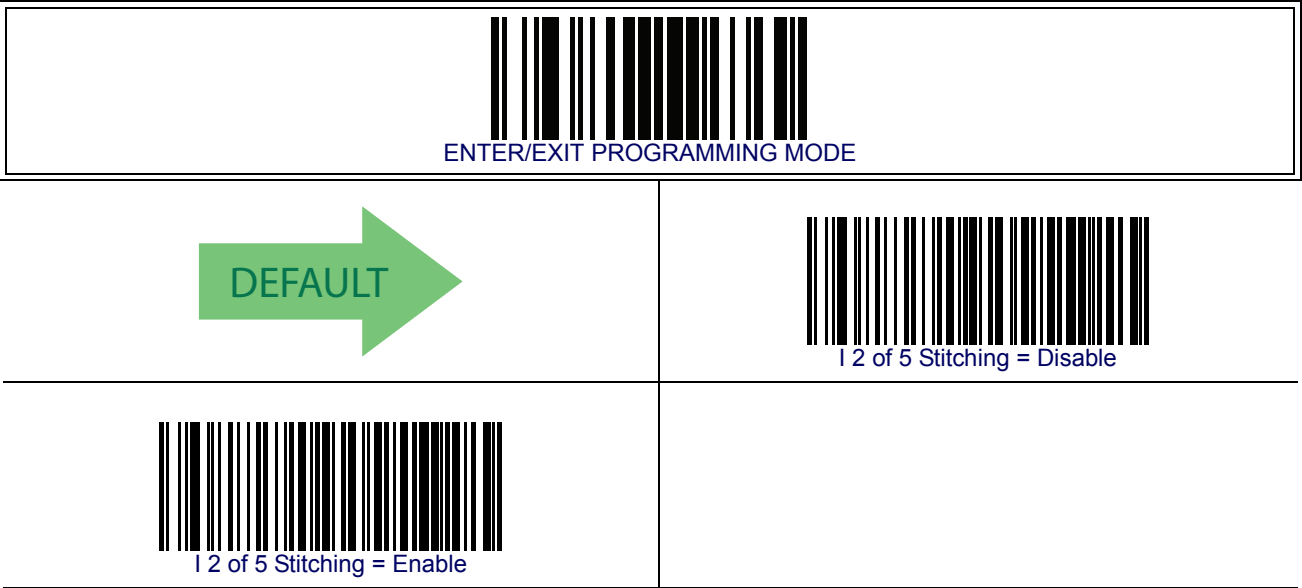
When correlation is enabled, the bar code reader will combine label data from multiple scans when decoding. Enabling correlation will help the scanner read labels that have some spots and/or voids. It may also help read labels that have damaged areas. Enabling correlation will also increase the chances that a label will be read incorrectly.



Interleaved 2 of 5 (I 2 of 5) — cont.

I 2 of 5 Stitching

This option enables/disables stitching for I 2 of 5 labels. When parts of a I 2 of 5 bar code are presented to the reader with this feature enabled, the bar code parts will be assembled by the reader’s software, and the data will be decoded if all bar code proofing requirements are met.



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 reader to decode Interleaved 2 of 5 CIP HR labels.

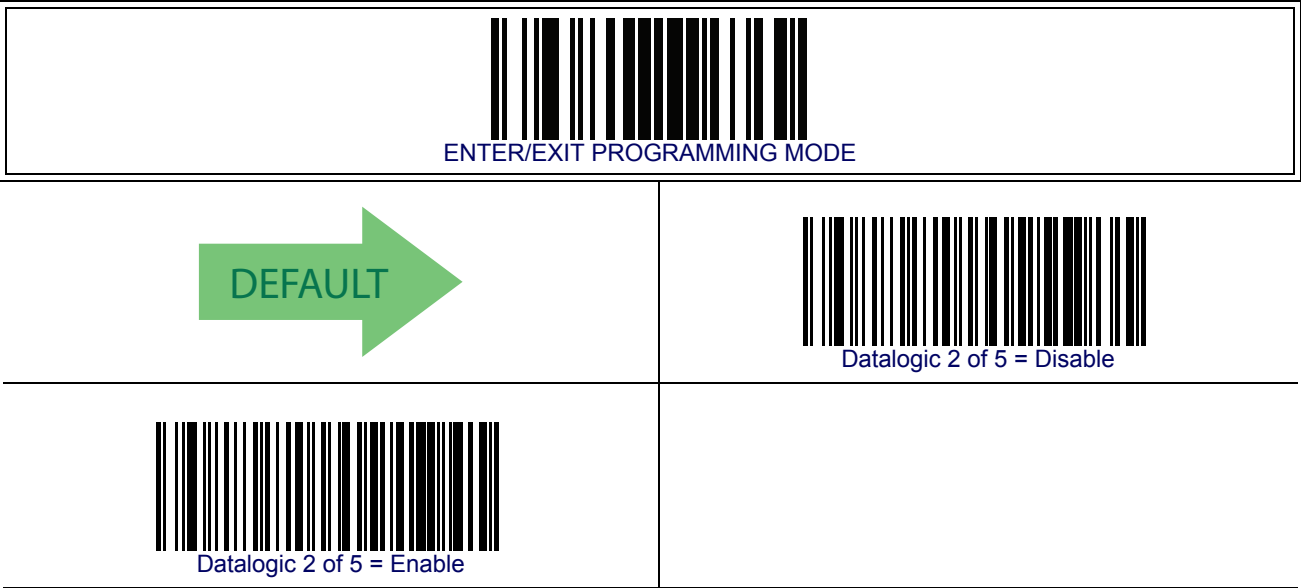


Datalogic 2 of 5

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

Datalogic 2 of 5 Enable/Disable

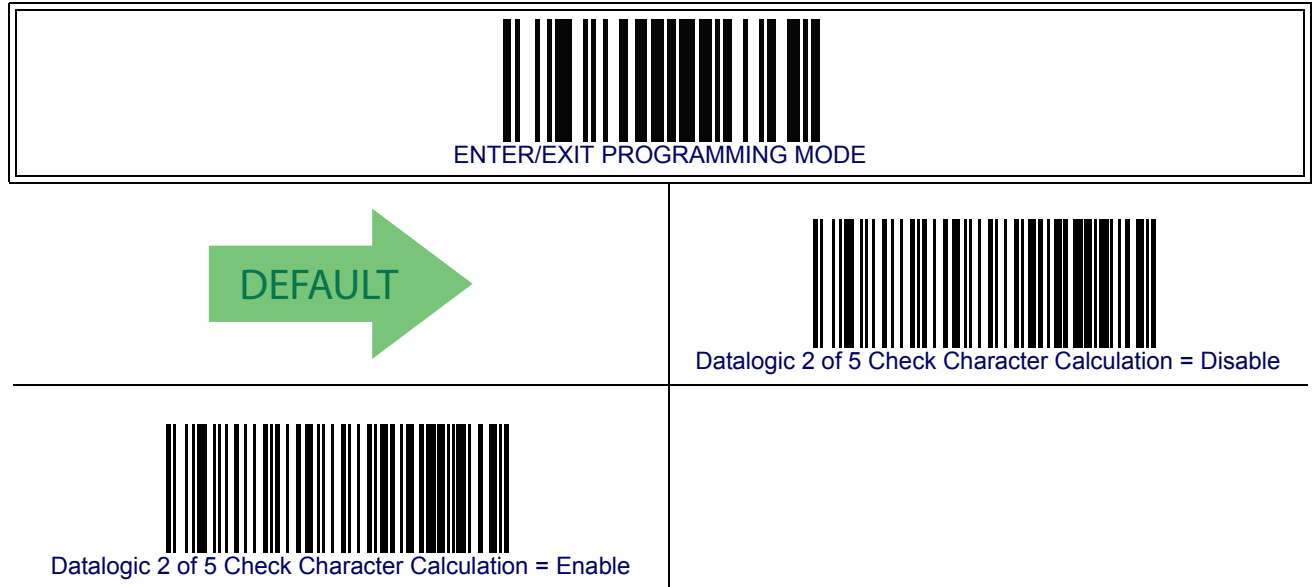
When disabled, the reader will not read Datalogic 2 of 5 bar codes.



Datalogic 2 of 5 — cont.

Datalogic 2 of 5 Check Character Calculation

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



Datalogic 2 of 5 — cont.

Datalogic 2 of 5 Minimum Reads

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

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>1 2 of 5 Minimum Reads = 1</div></div> |
| <div><div></div><div>1 2 of 5 Minimum Reads = 2</div></div> | <div><div>←</div><div>DEFAULT</div></div> |
| | <div><div></div><div>1 2 of 5 Minimum Reads = 3</div></div> |
| <div><div></div><div>1 2 of 5 Minimum Reads = 4</div></div> | |

Datalogic 2 of 5 Decoding Level



NOTE

The Datalogic 2 of 5 Decoding Level feature is set using 2 of 5 Decoding Level on page 205.

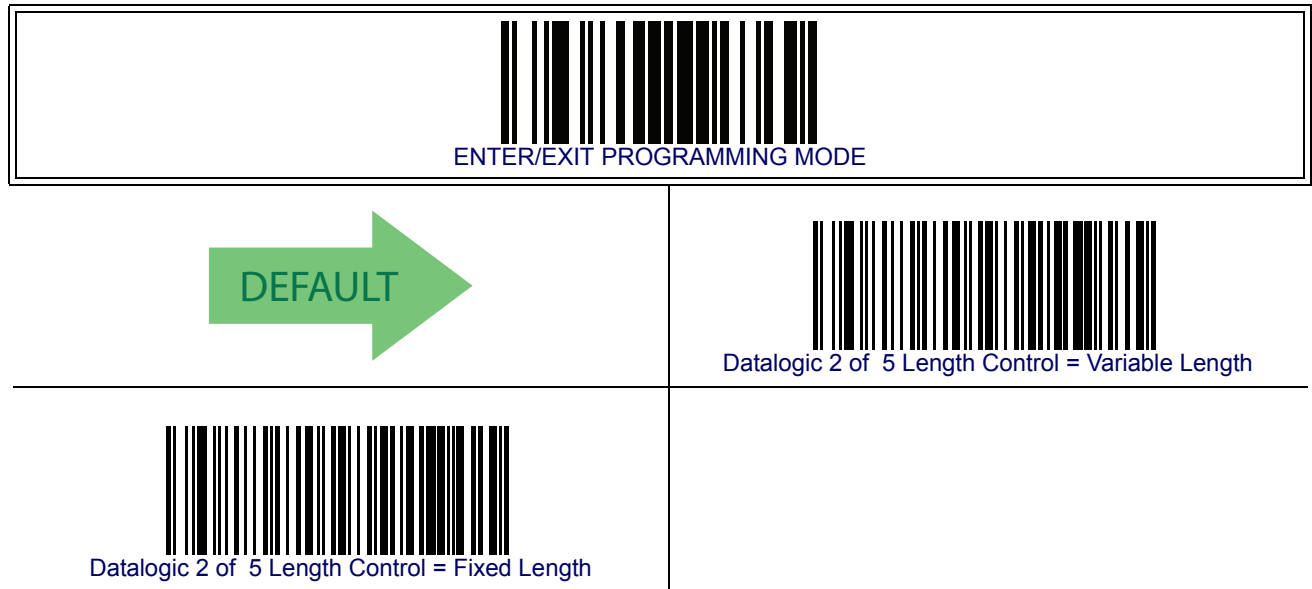
Datalogic 2 of 5 — cont.

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.



Datalogic 2 of 5 — cont.

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 check and data characters.

The length can be set from 2 to 50 characters in increments of two.

Follow these instructions to set this feature:

1. Determine the desired character length (from 2 to 50). The length must be an even number.
2. 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 I 2 of 5 LENGTH 1 SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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

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

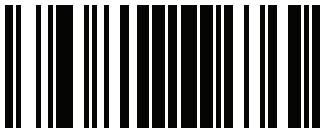
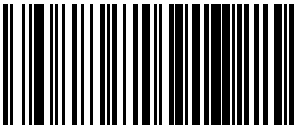

This completes the procedure. See [Table 27](#) for some examples of how to set this feature.

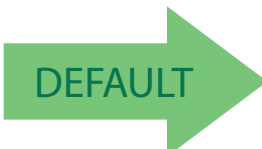
Table 27. Datalogic 2 of 5 Length 1 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|--------------|--------------|---------------|---------------|
| 1 | Desired Setting | 2 Characters | 6 Characters | 14 Characters | 50 Characters |
| 2 | Pad with leading zeroes to yield two digits | 02 | 06 | 14 | 50 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT Datalogic 2 of 5 LENGTH 1 SETTING | | | | |
| 5 | Scan Two Characters From Appendix E, Keypad | '0' and '2' | '0' and '6' | '1' and '4' | '5' AND '0' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Datalogic 2 of 5 — cont.

Datalogic 2 of 5 Set Length 1 — cont.

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Select Datalogic 2 of 5 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 |

 06 = Length 1 is 6 Characters

Datalogic 2 of 5 — cont.

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 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).

Follow these instructions to set this feature:

1. Determine the desired character length (from 2 to 50, or 0 to ignore this length). The length must be an even number.
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 Datalogic 2 of 5 LENGTH 2 SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix E, 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.

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

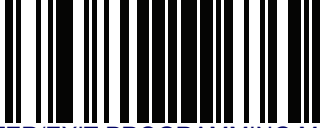


This completes the procedure. See [Table 28](#) for some examples of how to set this feature.

Table 28. Datalogic 2 of 5 Length 2 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|--------------------|--------------|---------------|---------------|
| 1 | Desired Setting | Ignore This Length | 4 Characters | 14 Characters | 50 Characters |
| 2 | Pad with leading zeroes to yield two digits | 00 | 04 | 14 | 50 |
| 3 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 4 | Scan SELECT DATALOGIC 2 OF 5 LENGTH 2 SETTING | | | | |
| 5 | Scan Two Characters From Appendix E, Keypad | '0' and '0' | '0' and '4' | '1' and '4' | '5' AND '0' |
| 6 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Datalogic 2 of 5 — cont.

Datalogic 2 of 5 Set Length 2 — cont.

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Select Datalogic 2 of 5 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

Datalogic 2 of 5 Interdigit Maximum Ratio

This feature specifies the maximum ratio between intercharacter space and module for Datalogic 2 of 5.

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Datalogic 2 of 5 Interdigit Maximum Ratio = Disable</div></div> |
| <div><div></div><div>Datalogic 2 of 5 Interdigit Maximum Ratio = 1</div></div> | |
| | <div><div></div><div>Datalogic 2 of 5 Interdigit Maximum Ratio = 2</div></div> |
| <div><div></div><div>Datalogic 2 of 5 Interdigit Maximum Ratio = 3</div></div> | |
| <div><div>→</div><div>DEFAULT</div></div> | <div><div></div><div>Datalogic 2 of 5 Interdigit Maximum Ratio = 4</div></div> |
| <div><div></div><div>Datalogic 2 of 5 Interdigit Maximum Ratio = 5</div></div> | |

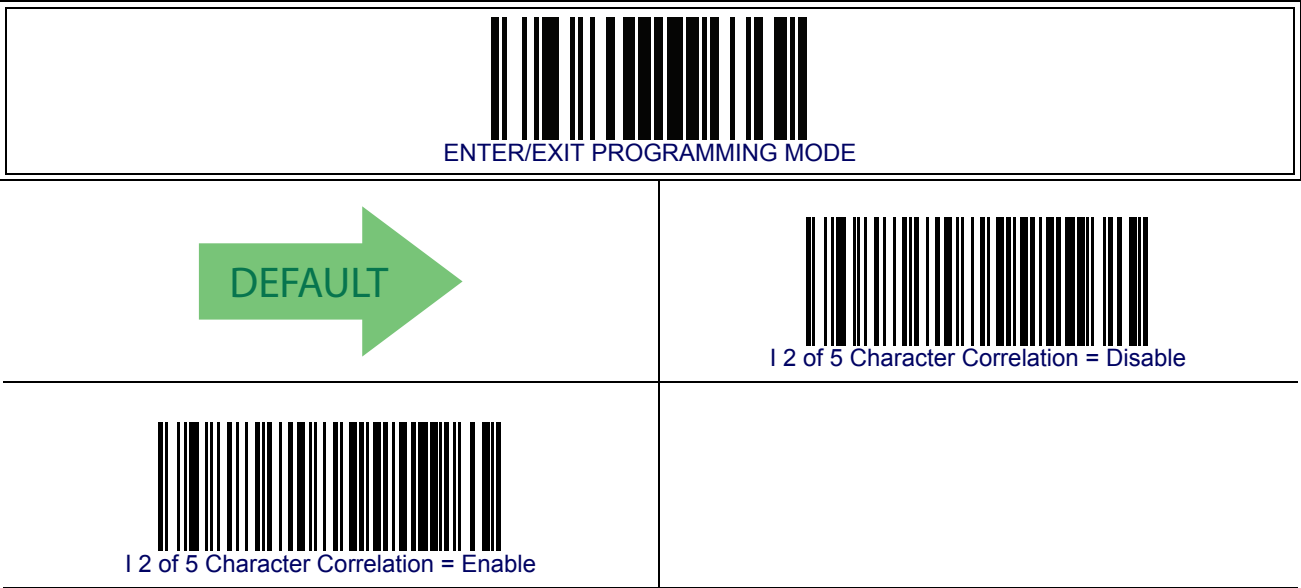
Datalogic 2 of 5 Interdigit Maximum Ratio — cont.

| | |
|---|--|
| |  <p>Datalogic 2 of 5 Interdigit Maximum Ratio = 6</p> |
|  <p>Datalogic 2 of 5 Interdigit Maximum Ratio = 7</p> | |
| |  <p>Datalogic 2 of 5 Interdigit Maximum Ratio = 8</p> |
|  <p>Datalogic 2 of 5 Interdigit Maximum Ratio = 9</p> | |
| |  <p>Datalogic 2 of 5 Interdigit Maximum Ratio = 10</p> |

Datalogic 2 of 5 — cont.

Datalogic 2 of 5 Character Correlation

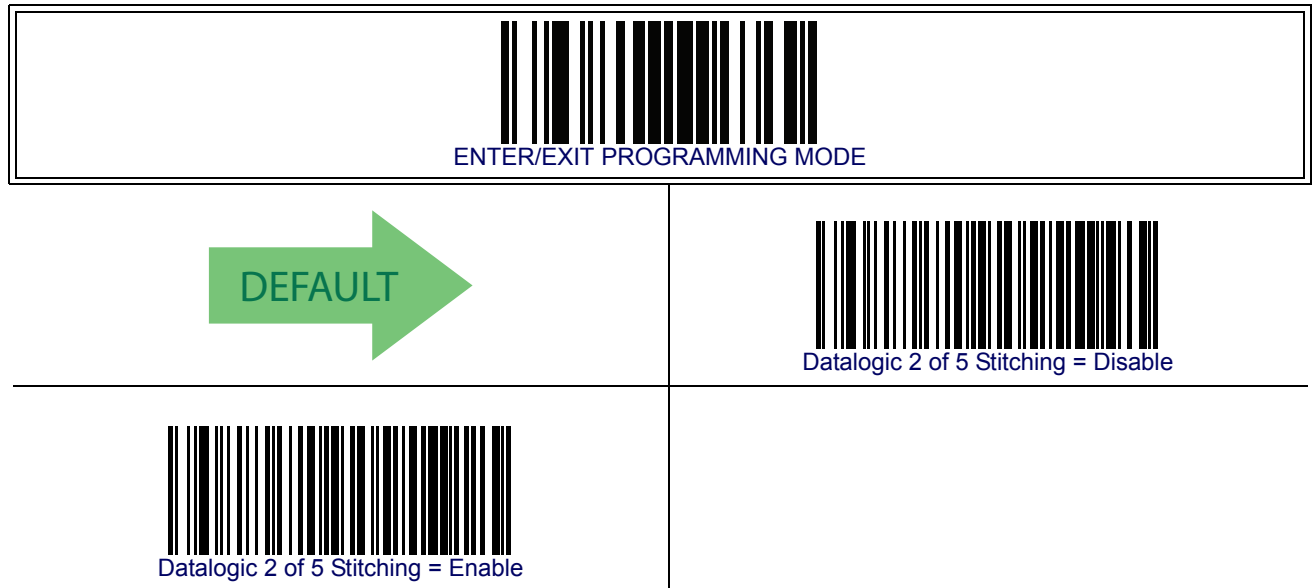
When correlation is enabled, the bar code reader will combine label data from multiple scans when decoding. Enabling correlation will help the scanner read labels that have some spots and/or voids. It may also help read labels that have damaged areas. Enabling correlation will also increase the chances that a label will be read incorrectly.



Datalogic 2 of 5 — cont.

Datalogic 2 of 5 Stitching

This option enables/disables stitching for Datalogic 2 of 5 labels. When parts of a Datalogic 2 of 5 bar code are presented to the reader with this feature enabled, the bar code parts will be assembled by the reader's software, and the data will be decoded if all bar code proofing requirements are met.

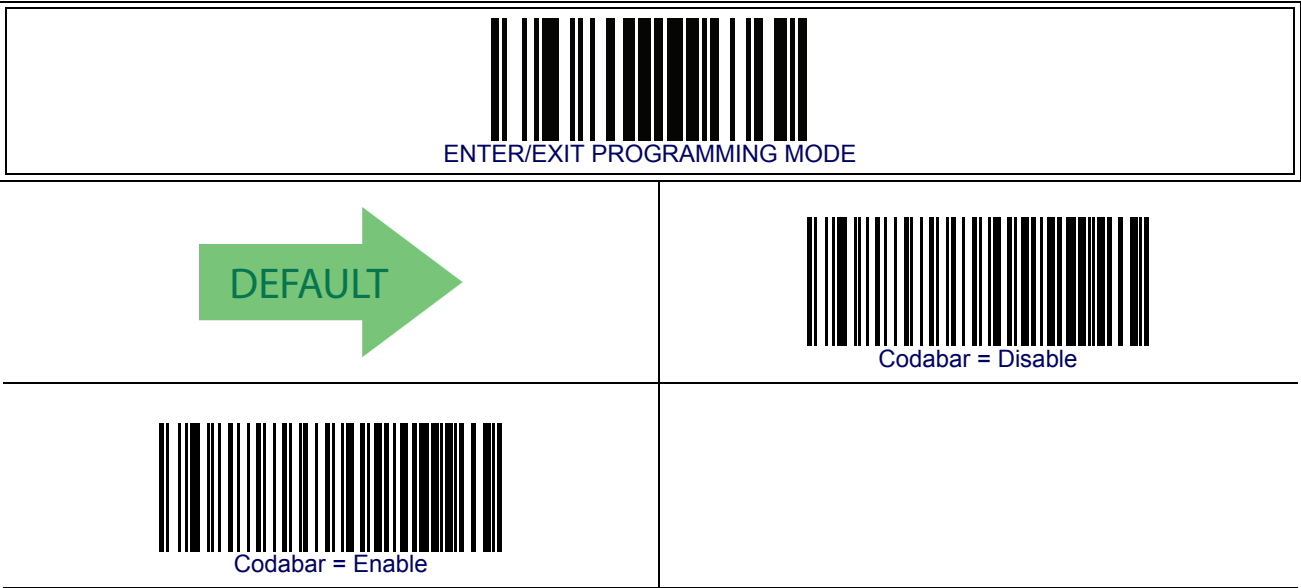


Codabar

The following options apply to the Codabar symbology.

Codabar Enable/Disable

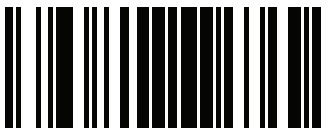

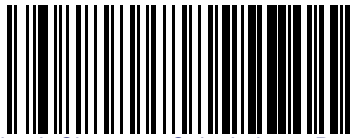

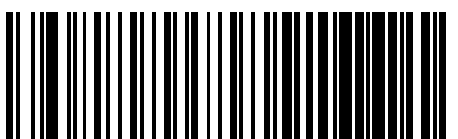
When disabled, the reader will not read Codabar bar codes.



Codabar — cont.

Codabar Check Character Calculation

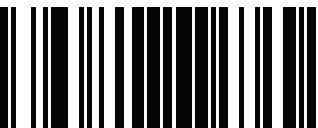
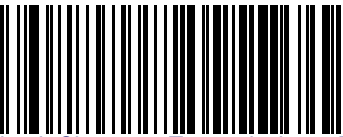
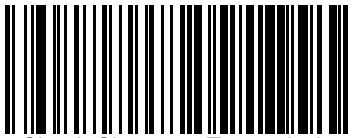

Enable this option to enables/disables calculation and verification of an optional Codabar check character. When disabled, any check characters in the label are treated as data characters.

| | |
|--|--|
|  ENTER/EXIT PROGRAMMING MODE | |
|  |  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 — cont.

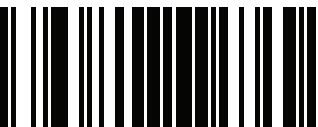
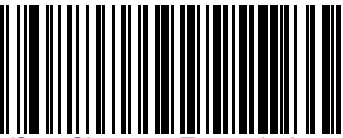
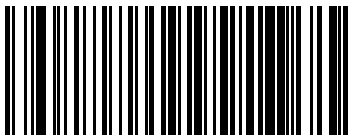

Codabar Check Character Transmission

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

| | |
|--|---|
| <div style="text-align: center;"> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div style="text-align: center;"> Codabar Check Character Transmission = Don't Send</div> |
| <div style="text-align: center;"> Codabar Check Character Transmission = Send</div> | <div style="text-align: center;"> DEFAULT</div> |

Codabar Start/Stop Character Transmission

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

| | |
|---|--|
| <div style="text-align: center;"> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div style="text-align: center;"> Codabar Start/Stop Character Transmission = Don't Transmit</div> |
| <div style="text-align: center;"> Codabar Start/Stop Character Transmission = Transmit</div> | <div style="text-align: center;"> DEFAULT</div> |

Codabar — cont.

Codabar Start/Stop Character Set

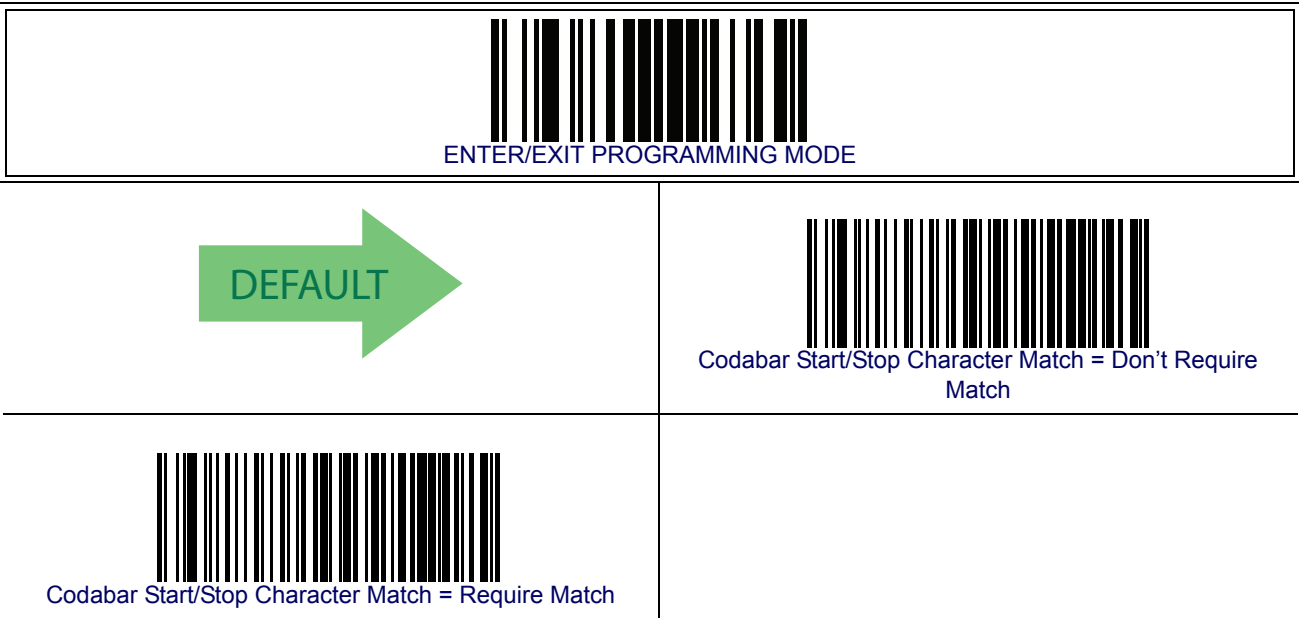
This option specifies the format of transmitted Codabar start/stop characters.

| | |
|--|--|
|  <p>ENTER/EXIT PROGRAMMING MODE</p> | |
| |  <p>Codabar Check Character Set = ABCD/TN*E</p> |
|  <p>Codabar Check Character Set = ABCD/ABCD</p> | |
| |  <p>Codabar Check Character Set = abcd/tn*e</p> |
|  <p>Codabar Check Character Set = abcd/abcd</p> |  <p>DEFAULT</p> |

Codabar — cont.

Codabar Start/Stop Character Match

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



Codabar — cont.

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.

| | |
|---|--|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Codabar Quiet Zones = Quiet Zone on one side | |
| |  Codabar Quiet Zones = Quiet Zones on two sides |
|  Codabar Quiet Zones = Auto |  DEFAULT |
| |  Codabar Quiet Zones = Virtual Quiet Zones on two sides |
|  Codabar Quiet Zones = Small Quiet Zones on two sides | |

Codabar — cont.

Codabar Minimum Reads

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

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Codabar Minimum Reads = 1</div></div> |
| <div><div></div><div>Codabar Minimum Reads = 2</div></div> | <div></div> |
| | <div><div></div><div>Codabar Minimum Reads = 3</div></div> |
| <div><div></div><div>Codabar Minimum Reads = 4</div></div> | |

Codabar — cont.

Codabar Decoding Level

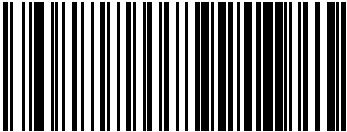
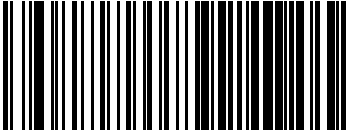
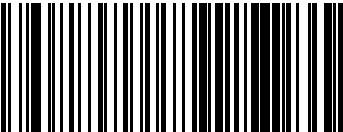
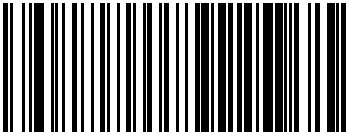
Decoding Levels are used to configure a bar code symbology decoder to be very aggressive to very conservative depending on a particular customer's needs.

- Choosing Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- Choosing Level 5 results in a very aggressive decoder. This aggressive behavior allows decoding of poorly printed and damaged labels at the expense of increasing the likelihood of decoding errors.
- Choosing Level 3, which is the default setting, allows the majority of product labels to be decoded.

There are many factors that determine when to change the decoding level for a particular symbology. These factors include spots, voids, non-uniform bar/space widths, damaged labels, etc. that may be experienced in some bar code labels. If there are many hard to read or damaged labels that cannot be decoded using a conservative setting, increase the decoding level to be more aggressive. If the majority of labels are very good quality labels, or there is a need to decrease the possibility of a decoder error, lower the decoding level to a more conservative level.

Codabar — cont.

Codabar Decoding Level — cont.

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Codabar Decoding Level = 1</div></div> | |
| | <div><div></div><div>Codabar Decoding Level = 2</div></div> |
| <div><div></div><div>Codabar Decoding Level = 3</div></div> | <div></div> |
| | <div><div></div><div>Codabar Decoding Level = 4</div></div> |
| <div><div></div><div>Codabar Decoding Level = 5</div></div> | |

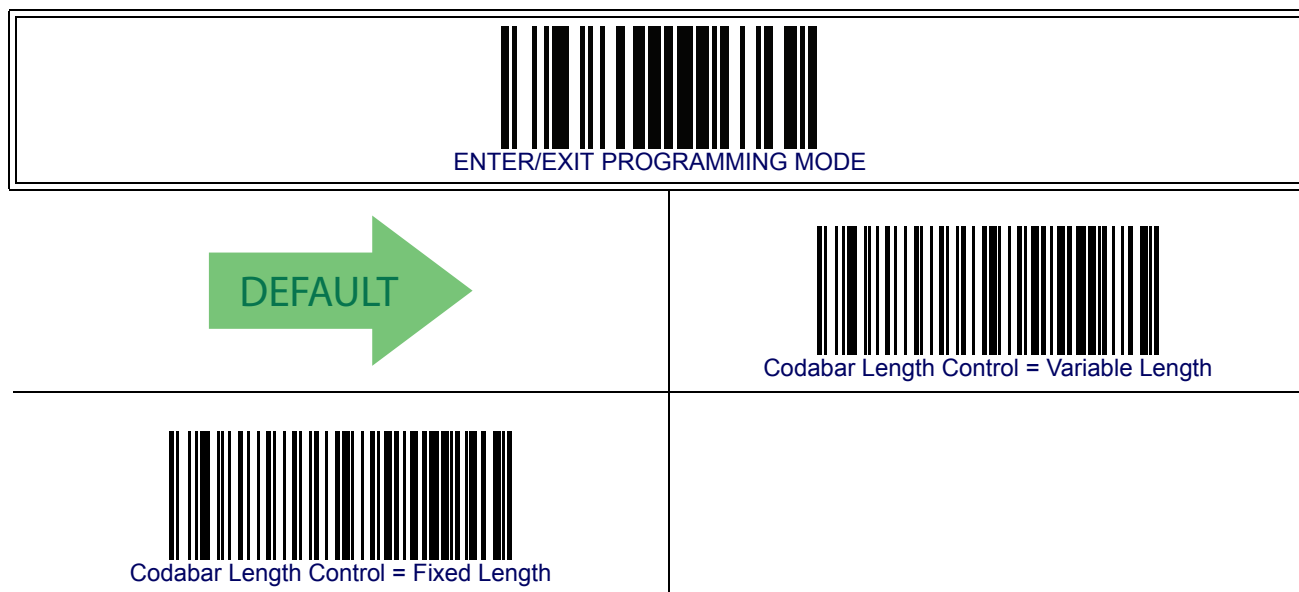
Codabar — cont.

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.



Codabar — cont.

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.

Follow these instructions to set this feature:

- 1. Determine the desired character length (from 3 to 50). 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 bar code: SELECT CODABAR LENGTH 1 SETTING.
- 4. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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 Programming Mode.

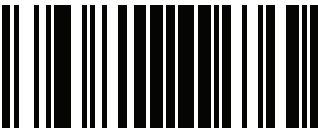
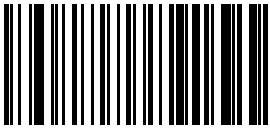

This completes the procedure. See [Table 29](#) for some examples of how to set this feature.

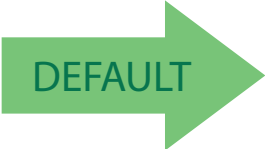
Table 29. Codabar Length 1 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|---------------|---------------|---------------|---------------|
| 1 | Desired Setting (and pad with leading zeroes) | 03 Characters | 09 Characters | 15 Characters | 50 Characters |
| 2 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 3 | Scan SELECT CODABAR LENGTH 1 SETTING | | | | |
| 4 | Scan Two Characters From Appendix E, Keypad | '0' and '3' | '0' and '9' | '1' and '5' | '5' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Codabar — cont.

Codabar Set Length 1 — cont.

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Select Codabar 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 |

 03 = Length 1 is 3 Characters

Codabar — cont.

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 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

- 1. Determine the desired character length (from 3 to 50 — or 0 to ignore this 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 bar code: SELECT CODABAR LENGTH 2 SETTING.
- 4. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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 Programming Mode.

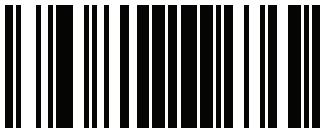
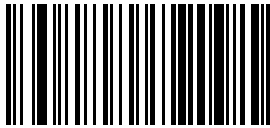

This completes the procedure. See [Table 30](#) for some examples of how to set this feature.

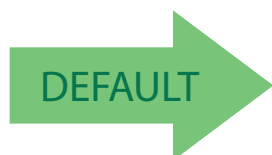
Table 30. Codabar Length 2 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|-----------------------|---------------|---------------|---------------|
| 1 | Desired Setting (and pad with leading zeroes) | 00 Ignore This Length | 07 Characters | 15 Characters | 50 Characters |
| 2 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 3 | Scan SELECT CODE 39 LENGTH 2 SETTING | | | | |
| 4 | Scan Two Characters From Appendix E, Keypad | '0' and '0' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Codabar — cont.

Codabar Set Length 2 — cont.

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Select CodabarLength 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 |



50 = Length 2 is 50 Characters

Codabar — cont.

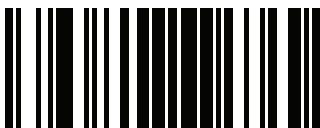
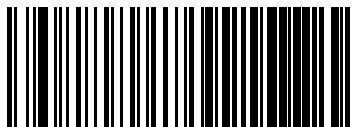
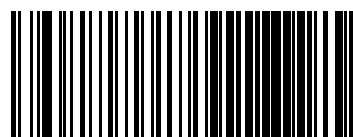
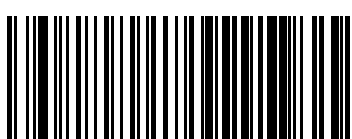
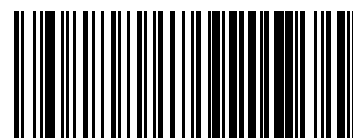

Codabar Interdigit Ratio

This feature specifies the ratio between an intercharacter space and module for Codabar labels.

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Codabar Interdigit Ratio = Disable</div></div> |
| <div><div></div><div>Codabar Interdigit Ratio = 1</div></div> | |
| | <div><div></div><div>Codabar Interdigit Ratio = 2</div></div> |
| <div><div></div><div>Codabar Interdigit Ratio = 3</div></div> | |
| <div><div></div></div> | <div><div></div><div>Codabar Interdigit Ratio = 4</div></div> |
| <div><div></div><div>Codabar Interdigit Ratio = 5</div></div> | |

Codabar — cont.

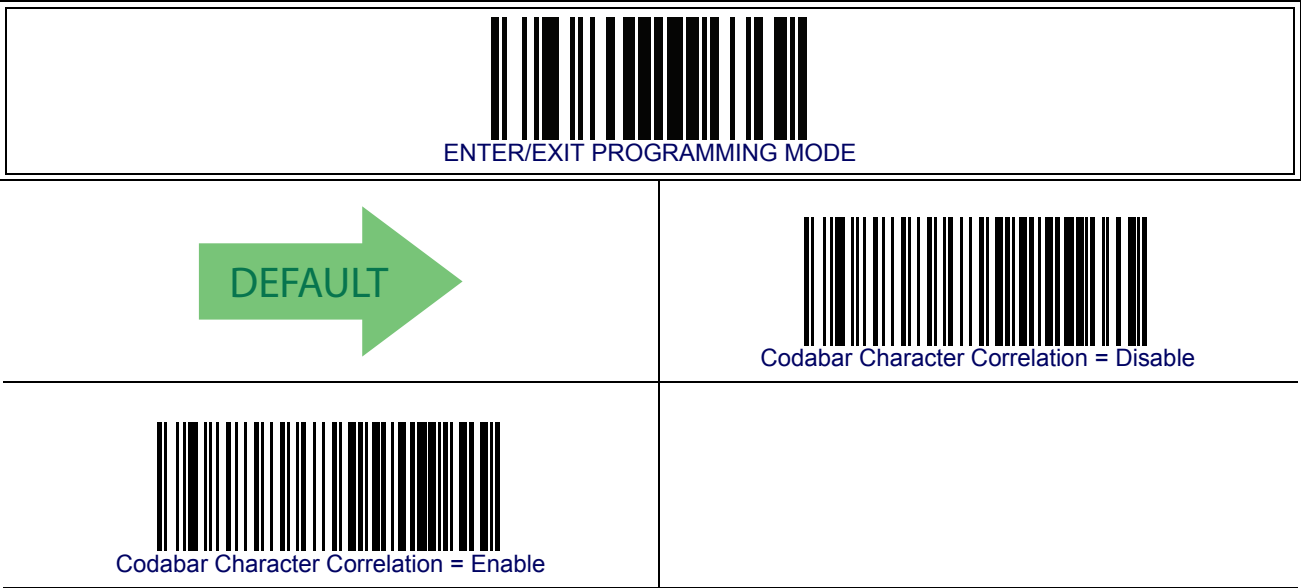
Codabar Interdigit Ratio — cont.

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  Codabar Interdigit Ratio = 6 |
|  Codabar Interdigit Ratio = 7 | |
| |  Codabar Interdigit Ratio = 8 |
|  Codabar Interdigit Ratio = 9 | |
| |  Codabar Interdigit Ratio = 10 |

Codabar — cont.

Codabar Character Correlation

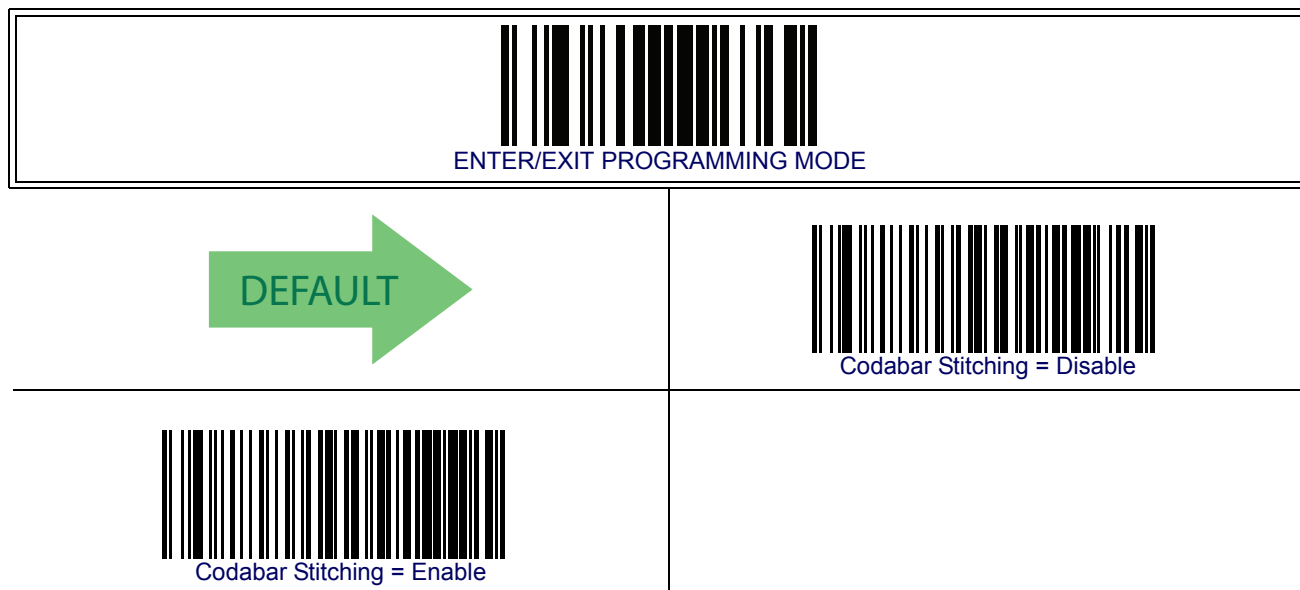
When correlation is enabled, the bar code reader will combine label data from multiple scans when decoding. Enabling correlation will help the scanner read labels that have some spots and/or voids. It may also help read labels that have damaged areas. Enabling correlation will also increase the chances that a label will be read incorrectly.



Codabar — cont.

Codabar Stitching

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



ABC Codabar

The following options apply to the ABC Codabar symbology.

ABC Codabar Enable/Disable

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



ABC Codabar Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.



ABC Codabar — cont.

ABC Codabar Dynamic Concatenation Timeout

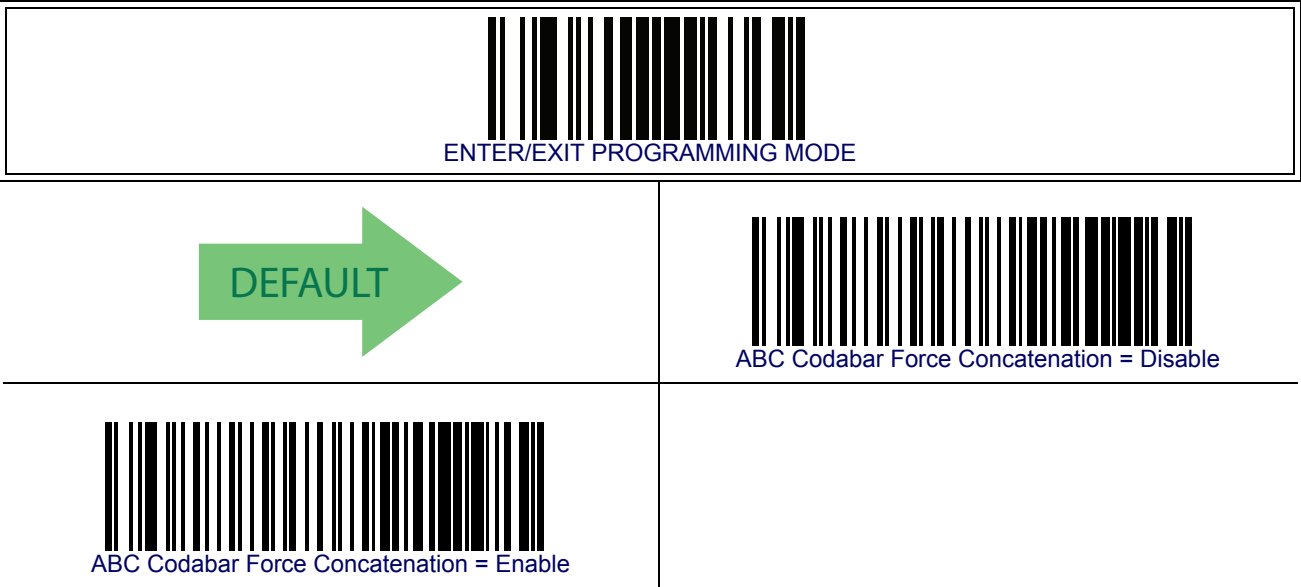
Specifies the timeout in 10-millisecond ticks used by the ABC Codabar Dynamic Concatenation Mode.

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>ABC Codabar Dynamic Concatenation Timeout = 50 msec</div></div> |
| <div><div></div><div>ABC Codabar Dynamic Concatenation Timeout = 100 msec</div></div> | |
| <div><div></div></div> | <div><div></div><div>ABC Codabar Dynamic Concatenation Timeout = 200 msec</div></div> |
| <div><div></div><div>ABC Codabar Dynamic Concatenation Timeout = 500 msec</div></div> | |
| | <div><div></div><div>ABC Codabar Dynamic Concatenation Timeout = 750 msec</div></div> |
| <div><div></div><div>ABC Codabar Dynamic Concatenation Timeout = 1 Second</div></div> | |

ABC Codabar — cont.

ABC Codabar Force Concatenation

Forces labels starting or ending with D to be concatenated.

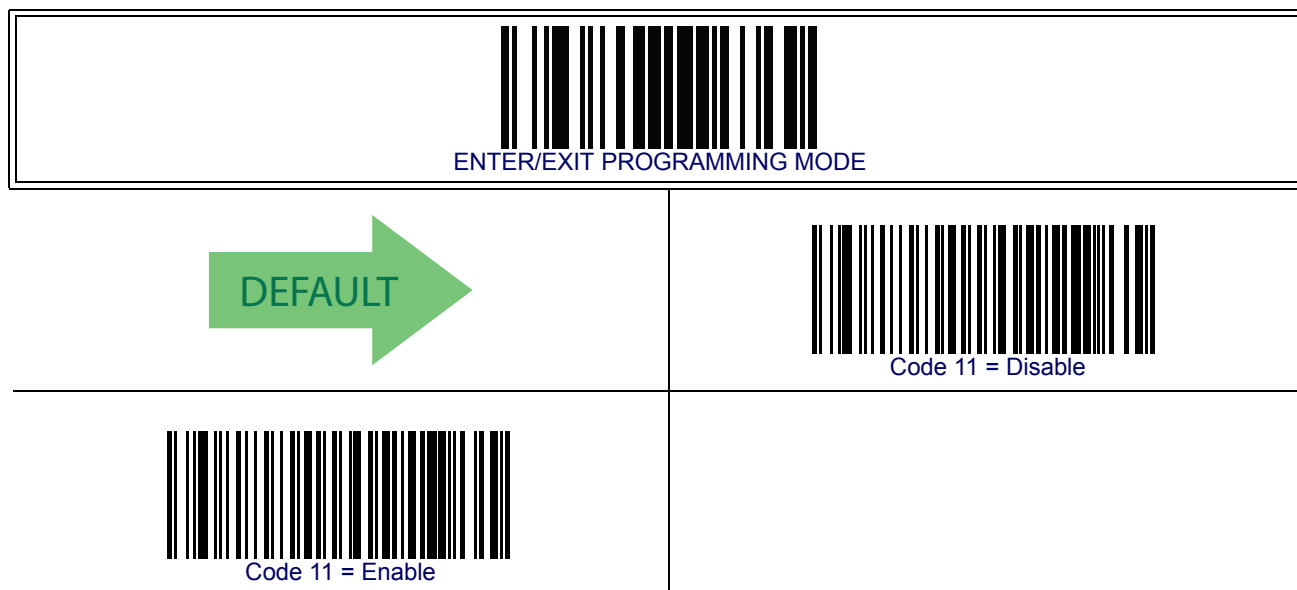


Code 11

The following options apply to the Code 11 symbology.

Code 11 Enable/Disable

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



Code 11 — cont.

Code 11 Check Character Calculation

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

| | |
|---|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Code 11 Check Character Calculation = Disable</div></div> |
| <div><div></div><div>Code 11 Check Character Calculation = Check C</div></div> | |
| | <div><div></div><div>Code 11 Check Character Calculation = Check K</div></div> |
| <div><div></div><div>Code 11 Check Character Calculation = Check C and K</div></div> | <div></div> |

Code 11 — cont.

Code 11 Check Character Transmission

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

| | |
|--|---|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  Code 11 Check Character Transmission = Don't Send |
|  Code 11 Check Character Transmission = Send |  |

Code 11 — cont.

Code 11 Minimum Reads

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

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Code 11 Minimum Reads = 1</div></div> |
| <div><div></div><div>Code 11 Minimum Reads = 2</div></div> | <div></div> |
| | <div><div></div><div>Code 11 Minimum Reads = 3</div></div> |
| <div><div></div><div>Code 11 Minimum Reads = 4</div></div> | |

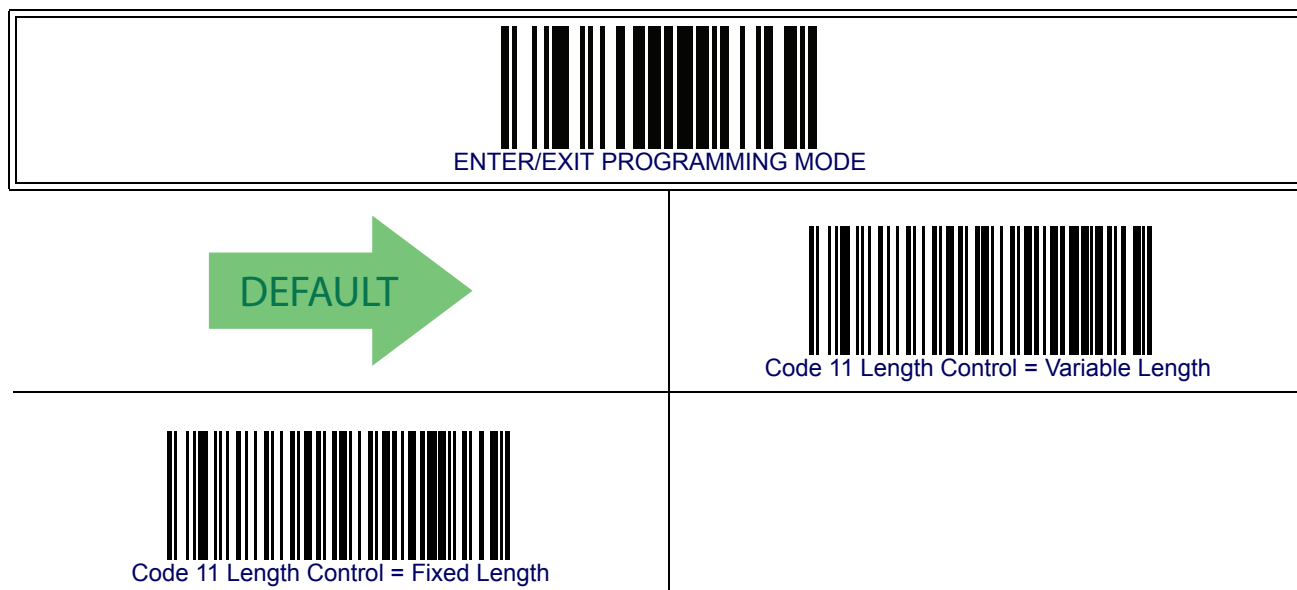
Code 11 — cont.

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.



Code 11 — cont.

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.

Follow these instructions to set this feature:

- 1. Determine the desired character length (from 2 to 50). 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 bar code: SELECT CODE 11 LENGTH 1 SETTING.
- 4. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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 Programming Mode.

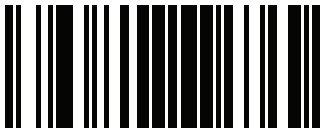
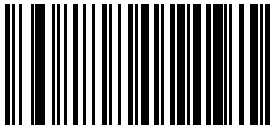

This completes the procedure. See [Table 31](#) for some examples of how to set this feature.

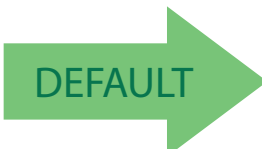
Table 31. Code 11 Length 1 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|---------------|---------------|---------------|---------------|
| 1 | Desired Setting (pad with leading zeroes) | 02 Characters | 07 Characters | 15 Characters | 50 Characters |
| 2 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 3 | Scan SELECT CODE 11 LENGTH 1 SETTING | | | | |
| 4 | Scan Two Characters From Appendix E, Keypad | '0' and '2' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Code 11 — cont.

Code 11 Set Length 1 — cont.

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Select Code 11 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 |

 04 = Length 1 is 4 Characters

Code 11 — cont.

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 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

1. Determine the desired character length (from 2 to 50 — or 0 to ignore this 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 bar code: SELECT CODE 11 LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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 Programming Mode.

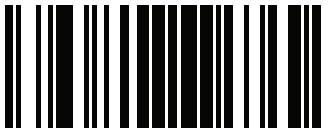
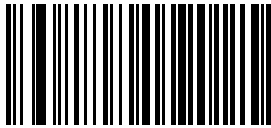

This completes the procedure. See [Table 32](#) for some examples of how to set this feature.

Table 32. Code 11 Length 2 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|---|-------------------------|---------------|---------------|---------------|
| 1 | Desired Setting (pad with leading zeroes) | 00 (Ignore This Length) | 07 Characters | 15 Characters | 50 Characters |
| 2 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 3 | Scan SELECT CODE 11 LENGTH 2 SETTING | | | | |
| 4 | Scan Two Characters From Appendix E, Keypad | '0' and '0' | '0' and '7' | '0' and 'F' | '3' AND 2' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Code 11 — cont.

Code 11 Set Length 2 — cont.

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Select Code 11 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 |

 50 = Length 2 is 50 Characters

Code 11 — cont.

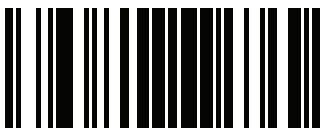
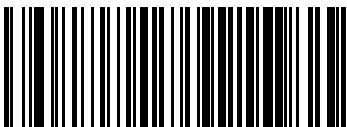
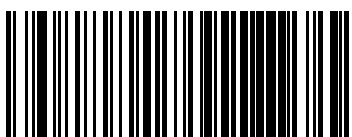

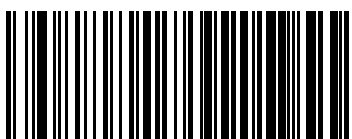

Code 11 Interdigit Ratio

This feature specifies the ratio between an intercharacter space and module for Code 11 labels.

| | |
|---|--|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>Code 11 Interdigit Ratio = Disable</p></div> |
| <div><p>Code 11 Interdigit Ratio = 1</p></div> | |
| | <div><p>Code 11 Interdigit Ratio = 2</p></div> |
| <div><p>Code11 Interdigit Ratio = 3</p></div> | |
| <div></div> | <div><p>Code 11 Interdigit Ratio = 4</p></div> |
| <div><p>Code 11 Interdigit Ratio = 5</p></div> | |

Code 11 — cont.

Code 11 Interdigit Ratio — cont.

| | |
|---|---|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  Code 11 Interdigit Ratio = 6 |
|  Code 11 Interdigit Ratio = 7 | |
| |  Code 11 Interdigit Ratio = 8 |
|  Code 11 Interdigit Ratio = 9 | |
| |  Code 11 Interdigit Ratio = 10 |

Code 11 Decoding Level

Decoding Levels are used to configure a bar code symbology decoder to be very aggressive to very conservative depending on a particular customer's needs.

- Choosing Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- Choosing Level 5 results in a very aggressive decoder. This aggressive behavior allows decoding of poorly printed and damaged labels at the expense of increasing the likelihood of decoding errors.
- Choosing Level 3, which is the default setting, allows the majority of product labels to be decoded.

There are many factors that determine when to change the decoding level for a particular symbology. These factors include spots, voids, non-uniform bar/space widths, damaged labels, etc. that may be experienced in some bar code labels. If there are many hard to read or damaged labels that cannot be decoded using a conservative setting, increase the decoding level to be more aggressive. If the majority of labels are very good quality labels, or there is a need to decrease the possibility of a decoder error, lower the decoding level to a more conservative level.

Code 11 — cont.

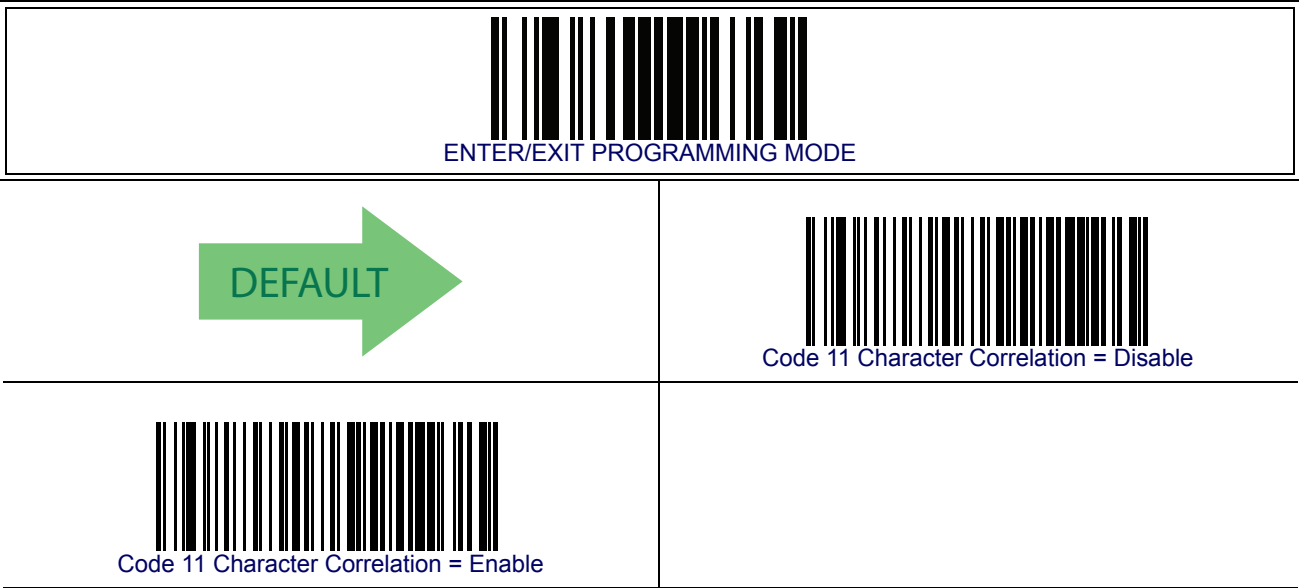
Code 11 Decoding Level — cont.

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Codabar Decoding Level = 1</div></div> | |
| | <div><div></div><div>Codabar Decoding Level = 2</div></div> |
| <div><div></div><div>Codabar Decoding Level = 3</div></div> | <div></div> |
| | <div><div></div><div>Codabar Decoding Level = 4</div></div> |
| <div><div></div><div>Codabar Decoding Level = 5</div></div> | |

Code 11 — cont.

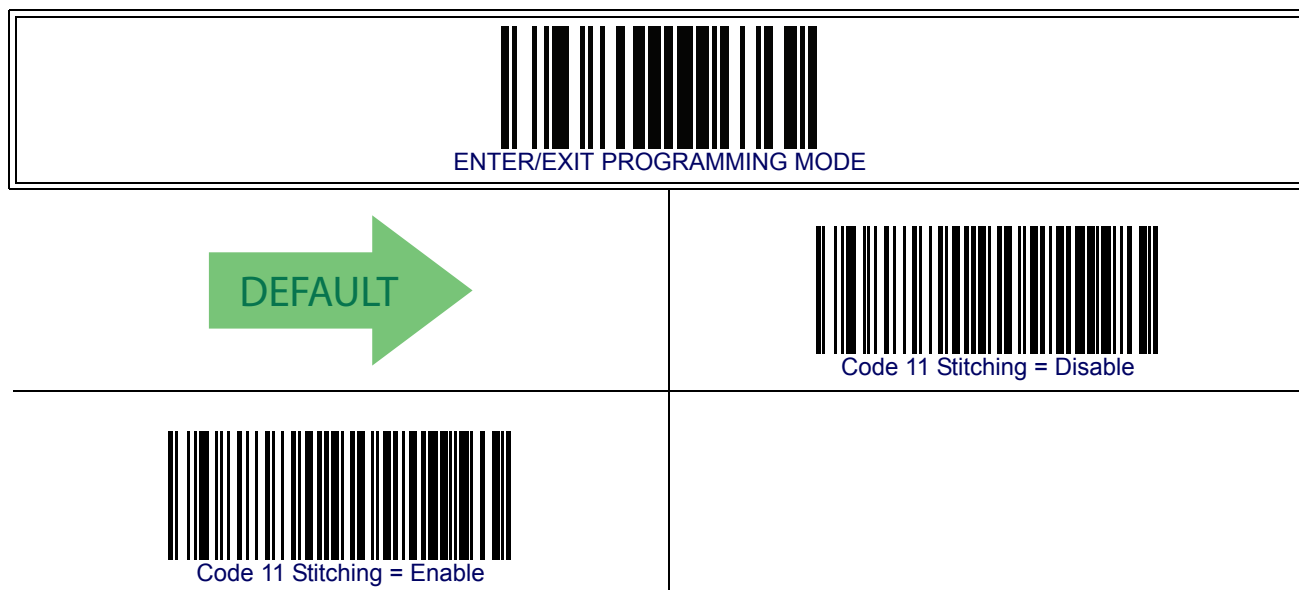
Code 11 Character Correlation

When correlation is enabled, the bar code reader will combine label data from multiple scans when decoding. Enabling correlation will help the scanner read labels that have some spots and/or voids. It may also help read labels that have damaged areas. Enabling correlation will also increase the chances that a label will be read incorrectly.



Code 11 Stitching

This option enables/disables stitching for Code 11 labels. When parts of a Code 11 bar code are presented to the reader with this feature enabled, the bar code parts will be assembled by the reader's software, and the data will be decoded if all bar code proofing requirements are met.

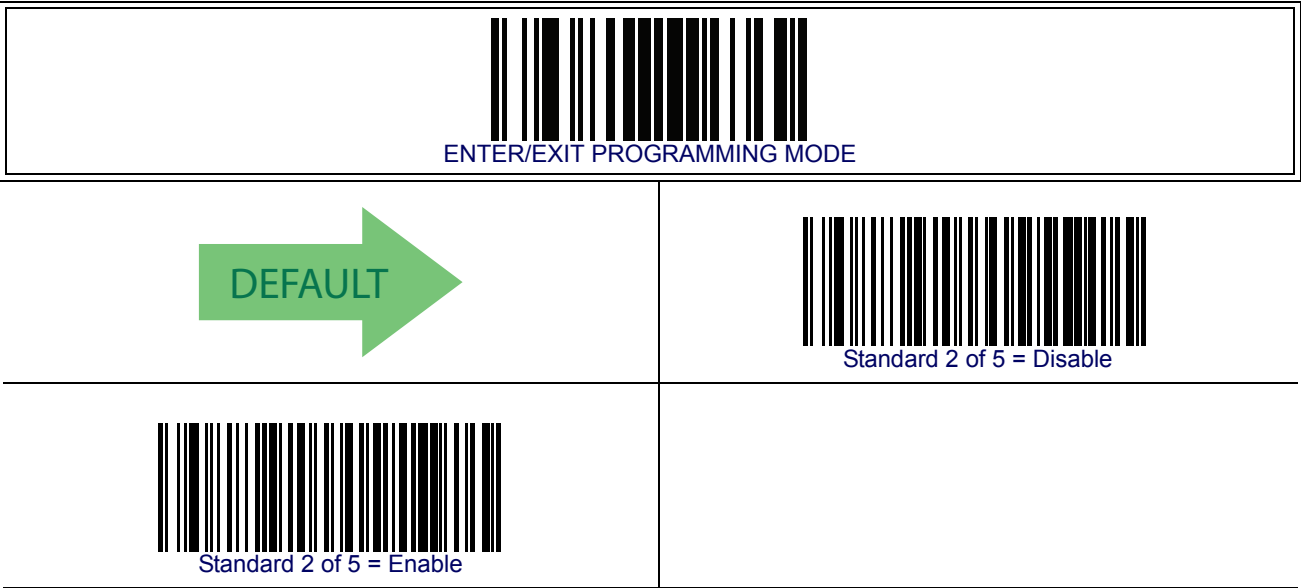


Standard 2 of 5

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

Standard 2 of 5 Enable/Disable

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



Standard 2 of 5 — cont.

Standard 2 of 5 Check Character Calculation

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



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 — cont.

Standard 2 of 5 Minimum Reads

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

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Standard 2 of 5 Minimum Reads = 1</div></div> |
| <div><div></div><div>Standard 2 of 5 Minimum Reads = 2</div></div> | <div></div> |
| | <div><div></div><div>Standard 2 of 5 Minimum Reads = 3</div></div> |
| <div><div></div><div>Standard 2 of 5 Minimum Reads = 4</div></div> | |

Standard 2 of 5 Decoding Level



NOTE

The Standard 2 of 5 Decoding Level feature is set using [2 of 5 Decoding Level](#) on page 205.

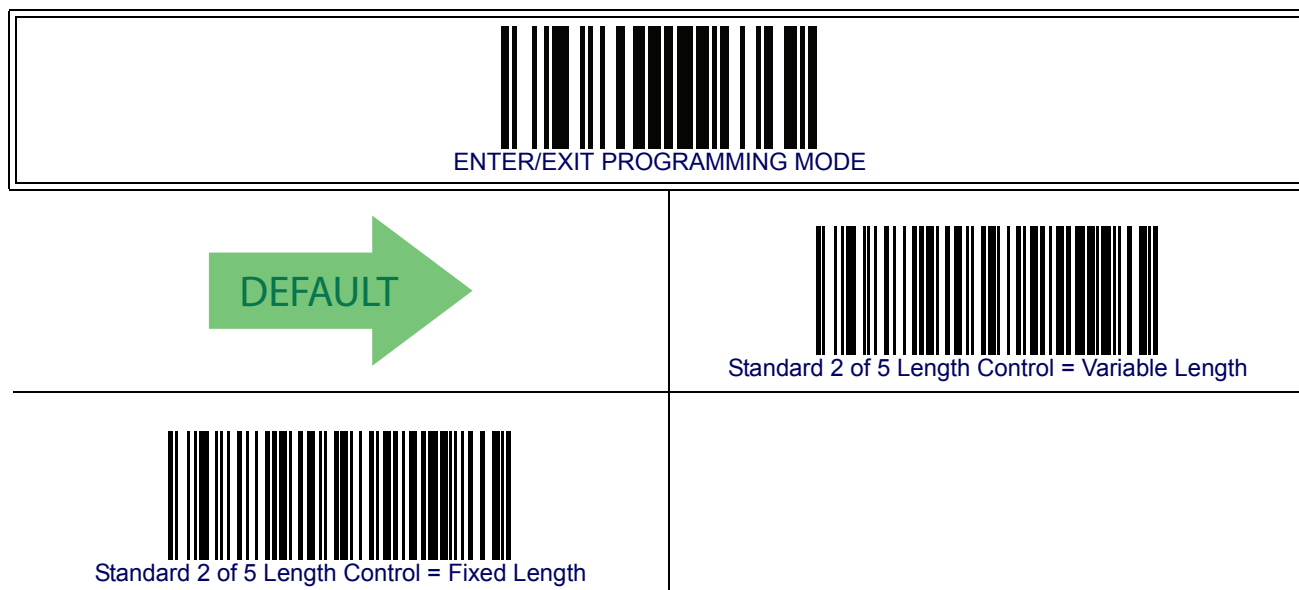
Standard 2 of 5 — cont.

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.



Standard 2 of 5 — cont.

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.

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50). 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 bar code: SELECT STANDARD 2 OF 5 LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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 Programming Mode.

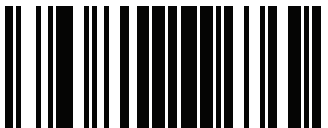
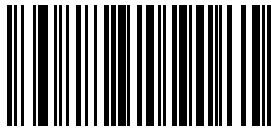

This completes the procedure. See [Table 33](#) for some examples of how to set this feature.

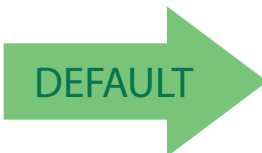
Table 33. Standard 2 of 5 Length 1 Setting Examples

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

Standard 2 of 5 — cont.

Standard 2 of 5 Set Length 1 — cont.

| | |
|--|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Select Standard 2 of 5 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** 08 = Length 1 is 8 Characters

Standard 2 of 5 — cont.

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 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50 — or 0 to ignore this 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 bar code: SELECT STANDARD 2 OF 5 LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in [Appendix E, Keypad](#), that represent the length setting which was 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 Programming Mode.




This completes the procedure. See [Table 34](#) for some examples of how to set this feature.

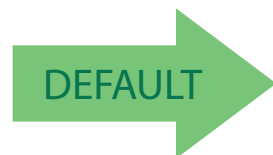
Table 34. Standard 2 of 5 Length 2 Setting Examples

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

Standard 2 of 5 — cont.

Standard 2 of 5 Set Length 2 — cont.

| | |
|--|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  Select Standard 2 of 5 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 |

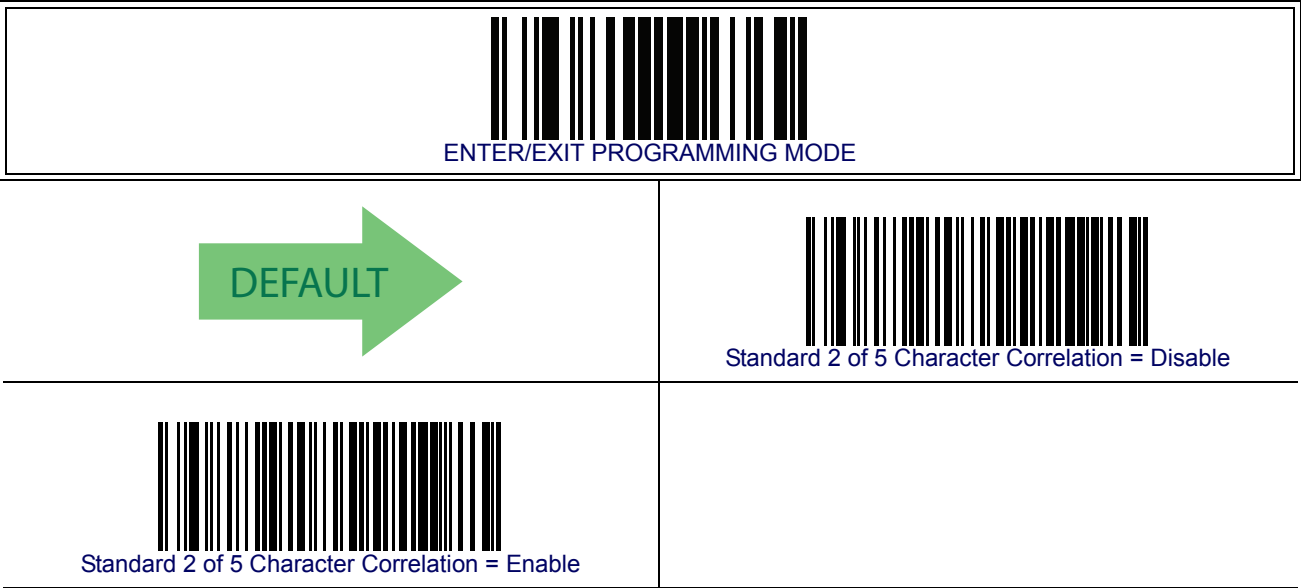


50 = Length 2 is 50 Characters

Standard 2 of 5 — cont.

Standard 2 of 5 Character Correlation

When correlation is enabled, the bar code reader will combine label data from multiple scans when decoding. Enabling correlation will help the scanner read labels that have some spots and/or voids. It may also help read labels that have damaged areas. Enabling correlation will also increase the chances that a label will be read incorrectly.



Standard 2 of 5 Stitching

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



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 reader to decode Industrial 2 of 5 labels.


ENTER/EXIT PROGRAMMING MODE

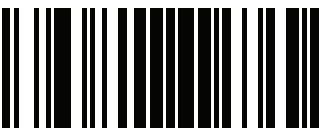


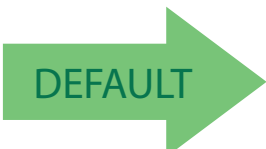

Industrial 2 of 5 = Disable

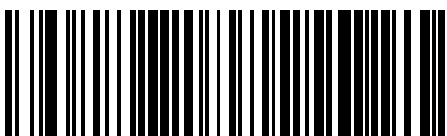

Industrial 2 of 5 = Enable

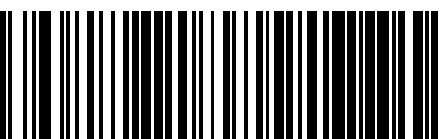
Industrial 2 of 5 Check Character Calculation

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


ENTER/EXIT PROGRAMMING MODE




Industrial 2 of 5 Check Character Calculation = Disable


Industrial 2 of 5 Check Character Calculation = Enable

Industrial 2 of 5 — cont.

Industrial 2 of 5 Check Character Transmission

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

| | |
|--|--|
|  ENTER/EXIT PROGRAMMING MODE | |
| |  Industrial 2 of 5 Check Character Transmission = Disable |
|  Industrial 2 of 5 Check Character Transmission = Enable |  |

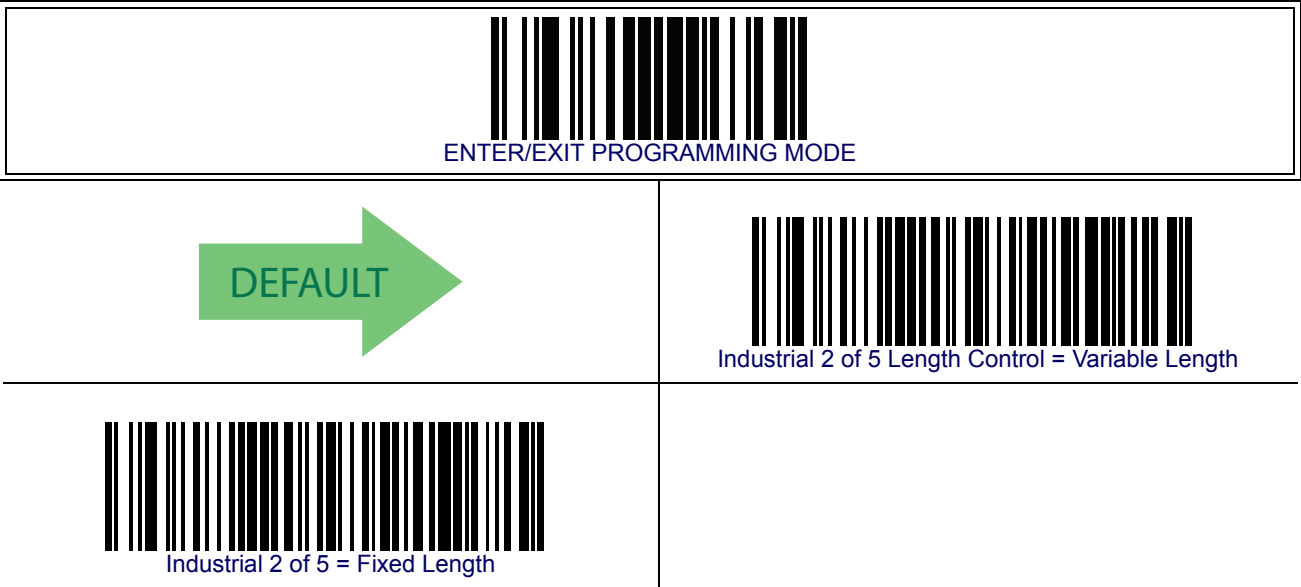
Industrial 2 of 5 — cont.

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.



Industrial 2 of 5 — cont.

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.

Follow these instructions to set this feature:

1. Determine the desired character length (from 0 to 50). Pad the number with leading zeroes to yield two digits. For example: 1 = 01, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the bar code: SELECT INDUSTRIAL 2 of 5 LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in the Keypad Appendix, that represent the length setting which was 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 Programming Mode.

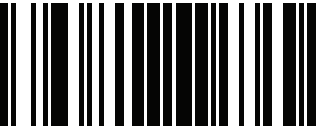


This completes the procedure. See the table below for some examples of how to set this feature.

Table 35. Code 39 Length 1 Setting Examples

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

Industrial 2 of 5 — cont.

Industrial 2 of 5 Set Length 1 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Industrial 2 of 5 Set Length 1 Setting</div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div> CANCEL</div> |

DEFAULT

01 = Length 1 is 1 Character

Industrial 2 of 5 — cont.

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 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50 — or 0 to ignore this 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 bar code: SELECT INDUSTRIAL 2 OF 5 LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in the Keypad Appendix that represent the length setting which was 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 Programming Mode.

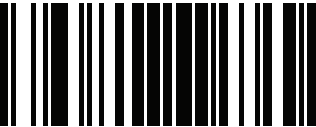
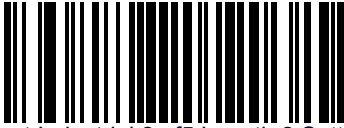

This completes the procedure. See the table below for some examples of how to set this feature.

Table 36. Code 39 Length 2 Setting Examples

| 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 INDUSTRIAL 2 OF 5 LENGTH 2 SETTING | | | | |
| 4 | Scan Two Characters From the Keypad Appendix | '0' and '0' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Industrial 2 of 5 — cont.

Industrial 2 of 5 Set Length 2 — cont.

| | |
|---|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Industrial 2 of5 Length 2 Setting</div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div> CANCEL</div> |

DEFAULT

50 = Length 2 is 50 Characters

Industrial 2 of 5 — cont.

Industrial 2 of 5 Minimum Reads

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

| | |
|--|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  |  Industrial 2 of 5 Minimum Reads = 1 |
|  Industrial 2 of 5 Minimum Reads = 2 | |
| |  Industrial 2 of 5 Minimum Reads = 3 |
|  Industrial 2 of 5 Minimum Reads = 4 | |

Industrial 2 of 5 — cont.

Industrial 2 of 5 Stitching

Enables/disables fixed length stitching for Industrial 2 of 5.



ENTER/EXIT PROGRAMMING MODE



DEFAULT



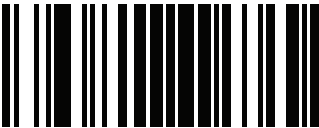
Industrial 2 of 5 Stitching = Disable



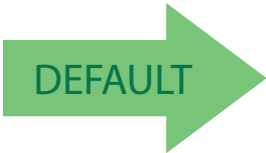
Industrial 2 of 5 Stitching = Enable

Industrial 2 of 5 Character Correlation

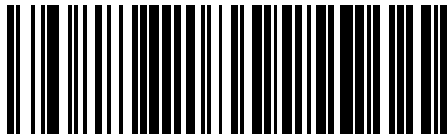
Enable/disables character correlation for Industrial 2 of 5.



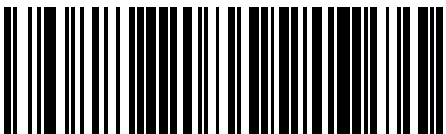
ENTER/EXIT PROGRAMMING MODE



DEFAULT



Industrial 2 of 5 Character Correlation = Disable



Industrial 2 of 5 Character Correlation = Enable

IATA

The following options apply to the IATA symbology.

IATA Enable/Disable

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



IATA Check Character Transmission

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

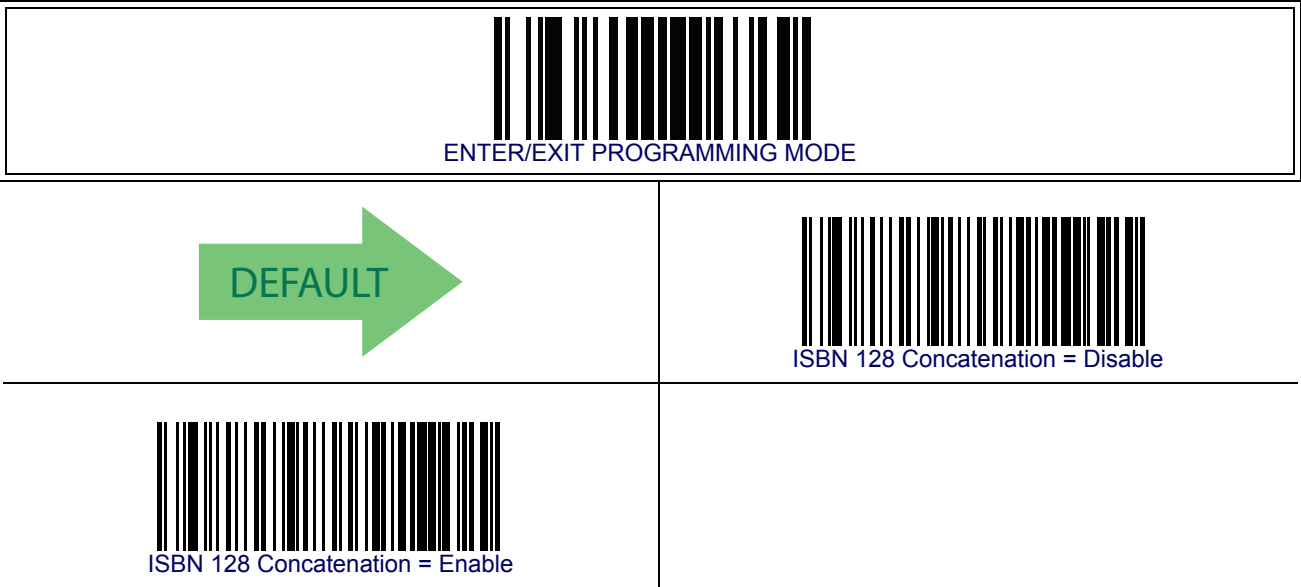


ISBT 128

The following options apply to the ISBT 128 symbology.

ISBT 128 Concatenation

Enables/disables ISBT128 concatenation of 2 labels.



ISBT 128 Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.



This option is only valid when [ISBT 128 Concatenation](#) is enabled (see page 282).

NOTE



ISBT 128 — cont.

ISBT 128 Dynamic Concatenation Timeout

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

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>ISBT 128 Dynamic Concatenation Timeout = 50 msec</div></div> |
| <div><div></div><div>ISBT 128 Dynamic Concatenation Timeout = 100 msec</div></div> | |
| <div><div>→</div><div>DEFAULT</div></div> | <div><div></div><div>ISBT 128 Dynamic Concatenation Timeout = 200 msec</div></div> |
| <div><div></div><div>ISBT 128 Dynamic Concatenation Timeout = 500 msec</div></div> | |
| | <div><div></div><div>ISBT 128 Dynamic Concatenation Timeout = 750 msec</div></div> |
| <div><div></div><div>ISBT 128 Dynamic Concatenation Timeout = 1 second</div></div> | |

ISBT 128 — cont.

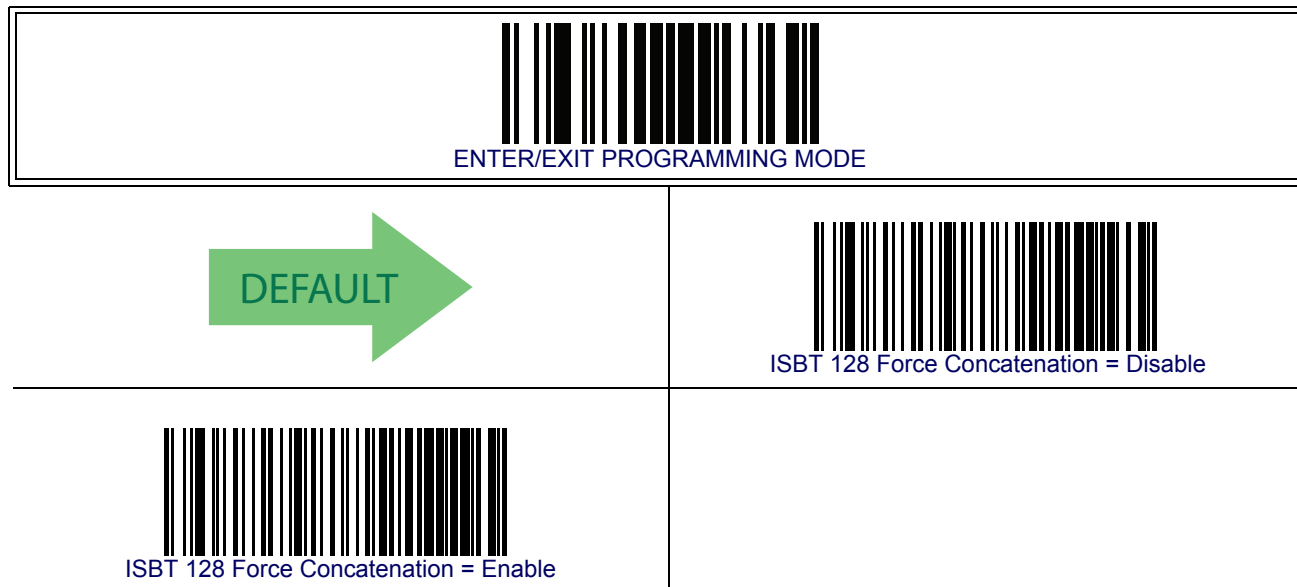
ISBT 128 Force Concatenation

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



This option is only valid when **ISBT 128 Concatenation** is enabled. (see page 282).

NOTE



ISBT 128 Advanced Concatenation Options



Use the Datalogic Aladdin configuration application or Contact Customer Support to set up pairs of label types for concatenation.

NOTE

MSI

The following options apply to the MSI symbology.

MSI Enable/Disable

Enables/Disables ability of reader to decode MSI labels.



MSI — cont.

MSI Check Character Calculation

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

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>MSI Check Character Calculation = Disable</div></div> |
| <div><div></div><div>MSI Check Character Calculation = Enable Mod10</div></div> | <div></div> |
| | <div><div></div><div>MSI Check Character Calculation = Enable Mod11/10</div></div> |
| <div><div></div><div>MSI Check Character Calculation = Enable Mod10/10</div></div> | |

MSI — cont.

MSI Check Character Transmission

Enables/disables transmission of an MSI check character.

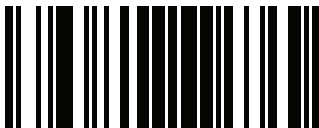
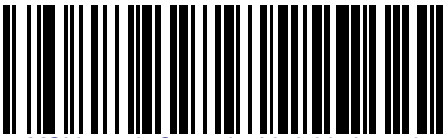

| | |
|--|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> MSI Check Character Transmission = Disable</div> |
| <div> MSI Check Character Transmission = Enable</div> | <div>← DEFAULT</div> |

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.

| | |
|--|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div>→ DEFAULT</div> | <div> MSI Length Control = Variable Length</div> |
| <div> MSI = Fixed Length</div> | |

MSI — cont.

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.

Follow these instructions to set this feature:

1. Determine the desired character length (from 0 to 50). Pad the number with leading zeroes to yield two digits. For example: 1 = 01, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the bar code: SELECT MSI LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in the Keypad Appendix, that represent the length setting which was 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 Programming Mode.

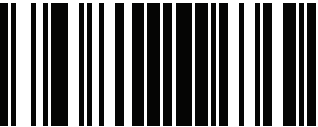
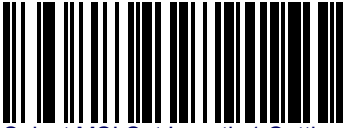

This completes the procedure. See the table below for some examples of how to set this feature.

Table 37. MSI Length 1 Setting Examples

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

MSI — cont.

MSI Set Length 1 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select MSI Set Length 1 Setting</div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div> CANCEL</div> |

DEFAULT

01 = Length 1 is 1 Character

MSI — cont.

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).

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50 — or 0 to ignore this 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 bar code: SELECT MSI LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in the Keypad Appendix that represent the length setting which was 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 Programming Mode.

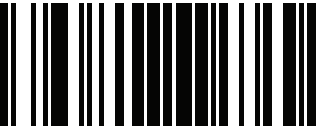


This completes the procedure. See the table below for some examples of how to set this feature.

Table 38. MSI Length 2 Setting Examples

| 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 MSI LENGTH 2 SETTING | | | | |
| 4 | Scan Two Characters From the Keypad Appendix | '0' and '0' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

MSI — cont.

MSI Set Length 2 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select MSI Length 2 Setting</div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div> CANCEL</div> |

DEFAULT

50 = Length 2 is 50 Characters

MSI — cont.

MSI Minimum Reads

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

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>MSI Minimum Reads = 1</div></div> |
| <div><div></div><div>MSI Minimum Reads = 2</div></div> | |
| | <div><div></div><div>MSI Minimum Reads = 3</div></div> |
| <div><div></div><div>MSI Minimum Reads = 4</div></div> | <div></div> |

MSI — cont.

MSI Decoding Level

Decoding Levels are used to configure a bar code symbology decoder to be very aggressive to very conservative depending on a particular customer’s needs.

- Choosing Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- Choosing Level 5 results in a very aggressive decoder. This aggressive behavior allows decoding of poorly printed and damaged labels at the expense of increasing the likelihood of decoding errors.
- Choosing Level 3, which is the default setting, allows the majority of product labels to be decoded.

There are many factors that determine when to change the decoding level for a particular symbology. These factors include spots, voids, non-uniform bar/space widths, damaged labels, etc. that may be experienced in some bar code labels. If there are many hard to read or damaged labels that cannot be decoded using a conservative setting, increase the decoding level to be more aggressive. If the majority of labels are very good quality labels, or there is a need to decrease the possibility of a decoder error, lower the decoding level to a more conservative level.

| | |
|---|--|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>MSI Decoding Level = Disable</p></div> |
| <div><p>MSI Decoding Level = 1</p></div> | |
| | <div><p>MSI Decoding Level = 2</p></div> |

MSI — cont.

MSI Decoding Level — cont.

| | |
|---|--|
|  MSI Decoding Level = 3 |  |
| |  MSI Decoding Level = 4 |
|  MSI Decoding Level = 5 | |

Plessey

The following options apply to the Plessey symbology.

Plessey Enable/Disable

Enables/Disables ability of reader to decode Plessey labels.



Plessey — cont.

Plessey Check Character Calculation

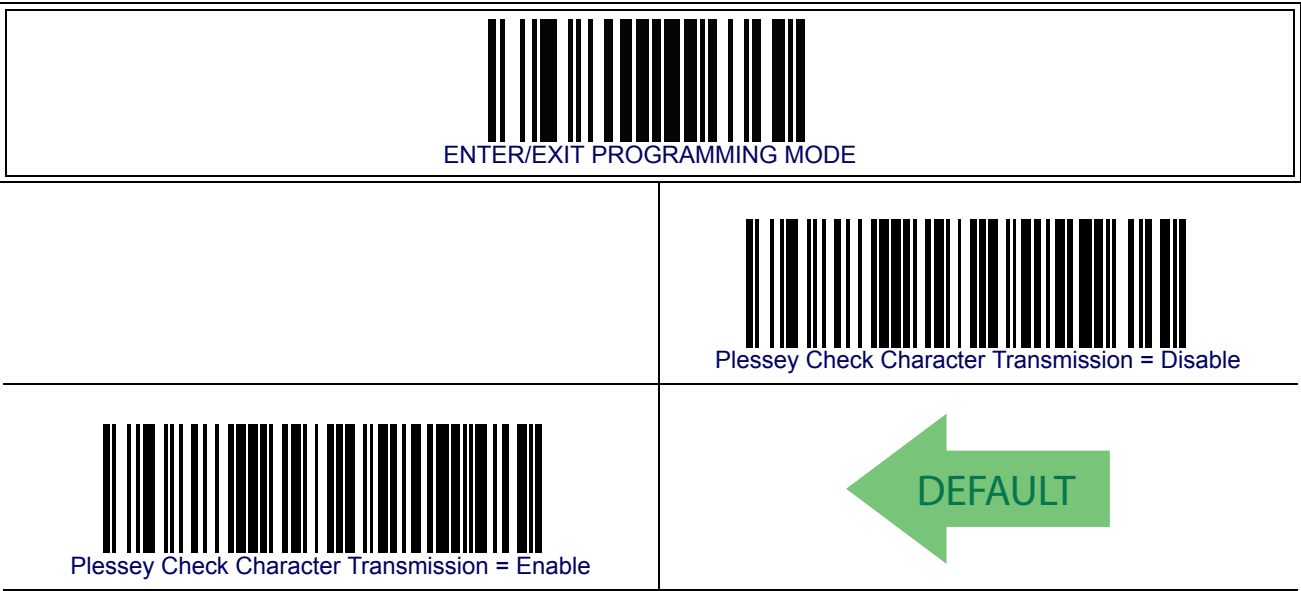
Enables/Disables calculation and verification of an optional Plessey check character.

| | |
|---|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Plessey Check Character Calculation = Disable</div></div> |
| <div><div></div><div>Plessey Check Character Calculation = Enable Plessey std. check char. verification</div></div> | <div></div> |
| | <div><div></div><div>Plessey Check Character Calculation = Enable Anker check char. verification</div></div> |
| <div><div></div><div>Plessey Check Character Calculation = Enable Plessey std. and Anker check char verification</div></div> | |

Plessey — cont.

Plessey Check Character Transmission

Enables/disables transmission of an MSI check character.



Plessey Length Control

This feature specifies either 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.



Plessey — cont.

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. The length can be set from 01 to 50 characters.

Follow these instructions to set this feature:

1. Determine the desired character length (from 0 to 50). Pad the number with leading zeroes to yield two digits. For example: 1 = 01, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the bar code: SELECT PLESSEY LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in the Keypad Appendix, that represent the length setting which was 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 Programming Mode.

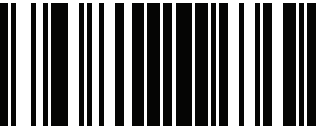


This completes the procedure. See the table below for some examples of how to set this feature.

Table 39. Plessey Length 1 Setting Examples

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

Plessey — cont.

Plessey Set Length 1 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Plessey Set Length 1 Setting</div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div> CANCEL</div> |

→

DEFAULT

01 = Length 1 is 1 Character

Plessey — cont.

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. 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).

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50 — or 0 to ignore this 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 bar code: SELECT PLESSEY LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in the Keypad Appendix that represent the length setting which was 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 Programming Mode.

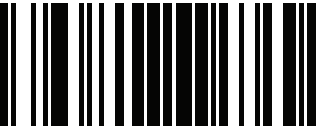
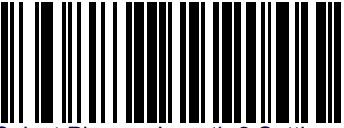

This completes the procedure. See the table below for some examples of how to set this feature.

Table 40. Plessey Length 2 Setting Examples

| 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 2 SETTING | | | | |
| 4 | Scan Two Characters From the Keypad Appendix | '0' and '0' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Plessey — cont.

Plessey Set Length 2 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Plessey Length 2 Setting</div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div> CANCEL</div> |

DEFAULT

50 = Length 2 is 50 Characters

Plessey — cont.

Plessey Minimum Reads

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

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| | <div><div></div><div>Plessey Minimum Reads = 1</div></div> |
| <div><div></div><div>Plessey Minimum Reads = 2</div></div> | |
| | <div><div></div><div>Plessey Minimum Reads = 3</div></div> |
| <div><div></div><div>Plessey Minimum Reads = 4</div></div> | <div><div>←</div><div>DEFAULT</div></div> |

Plessey — cont.

Plessey Decoding Level

Decoding Levels are used to configure a bar code symbology decoder to be very aggressive to very conservative depending on a particular customer’s needs.

- Choosing Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- Choosing Level 5 results in a very aggressive decoder. This aggressive behavior allows decoding of poorly printed and damaged labels at the expense of increasing the likelihood of decoding errors.
- Choosing Level 3, which is the default setting, allows the majority of product labels to be decoded.

There are many factors that determine when to change the decoding level for a particular symbology. These factors include spots, voids, non-uniform bar/space widths, damaged labels, etc. that may be experienced in some bar code labels. If there are many hard to read or damaged labels that cannot be decoded using a conservative setting, increase the decoding level to be more aggressive. If the majority of labels are very good quality labels, or there is a need to decrease the possibility of a decoder error, lower the decoding level to a more conservative level.

| | |
|---|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> Plessey Decoding Level = Disable</div> |
| <div> Plessey Decoding Level = 1</div> | |
| | <div> Plessey Decoding Level = 2</div> |

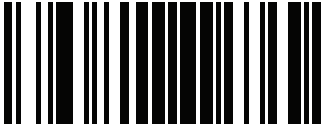
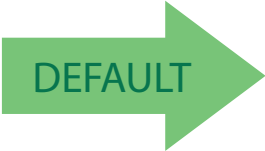
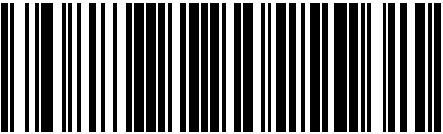
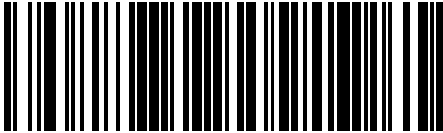
Plessey — cont.

Plessey Decoding Level — cont.

| | |
|---|--|
|  Plessey Decoding Level = 3 |  |
| |  Plessey Decoding Level = 4 |
|  Plessey Decoding Level = 5 | |

Plessey Stitching

Enables/disables fixed length stitching for Plessey.

| | |
|--|---|
|  ENTER/EXIT PROGRAMMING MODE | |
|  |  Plessey Stitching = Disable |
|  Plessey Stitching = Enable | |

Plessey — cont.

Plessey Character Correlation

Enables/disables Character Correlation for Plessey.



Code 93

The following options apply to the Code 93 symbology.

Code 93 Enable/Disable

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



Code 93 — cont.

Code 93 Check Character Calculation

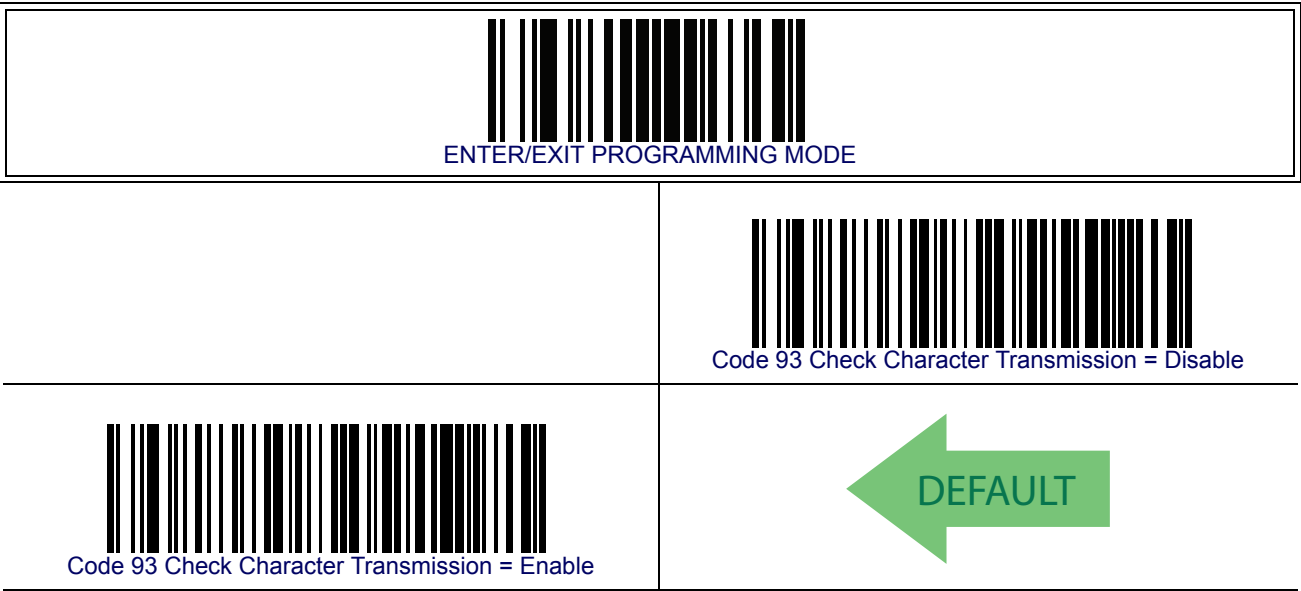
Enables/disables calculation and verification of an optional Code 93 check character.

| | |
|---|--|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>Code 93 Check Character Calculation = Disable</p></div> |
| <div><p>Code 93 Check Character Calculation = Enable Check C</p></div> | |
| | <div><p>Code 93 Check Character Calculation = Enable Check K</p></div> |
| <div><p>Code 93 Check Character Calculation = Enable Check C and K</p></div> | <div></div> |

Code 93 — cont.

Code 93 Check Character Transmission

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



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.



Code 93 — cont.

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](#) Mode. Length includes the bar code's data characters only.

The length can be set from 01 to 50 characters.

Follow these instructions to set this feature:

1. Determine the desired character length (from 0 to 50). Pad the number with leading zeroes to yield two digits. For example: 1 = 01, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the bar code: SELECT CODE 93 LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in the Keypad Appendix, that represent the length setting which was 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 Programming Mode.

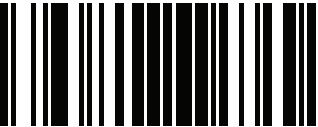


This completes the procedure. See the table below for some examples of how to set this feature.

Table 41. Code 93 Length 1 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|--|---------------|---------------|---------------|---------------|
| 1 | Desired Setting | 01 Characters | 07 Characters | 15 Characters | 50 Characters |
| 2 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 3 | Scan SELECT CODE 93 LENGTH 1 SETTING | | | | |
| 4 | Scan Two Characters From the Keypad Appendix | '0' and '1' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Code 93 — cont.

Code 93 Set Length 1 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Code 93 Set Length 1 Setting</div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div> CANCEL</div> |

DEFAULT

01 = Length 1 is 1 Character

Code 93 — cont.

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 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50 — or 0 to ignore this 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 bar code: SELECT CODE 93 LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in the Keypad Appendix that represent the length setting which was 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 Programming Mode.

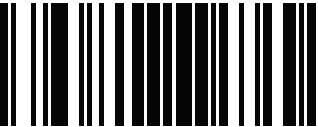
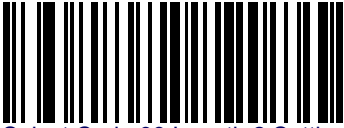

This completes the procedure. See the table below for some examples of how to set this feature.

Table 42. CODE 93 Length 2 Setting Examples

| 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 CODE 93 LENGTH 2 SETTING | | | | |
| 4 | Scan Two Characters From the Keypad Appendix | '0' and '0' | '0' and '7' | '1' and '5' | '5' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Code 93 — cont.

Code 93 Set Length 2 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Code 93 Length 2 Setting</div> | |
| <p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p> | <div> CANCEL</div> |

DEFAULT

50 = Length 2 is 50 Characters

Code 93 — cont.

Code 93 Minimum Reads

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

| | |
|--|--|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div>→</div><div>DEFAULT</div></div> | <div><div></div><div>Code 93 Minimum Reads = 1</div></div> |
| <div><div></div><div>Code 93 Minimum Reads = 2</div></div> | |
| | <div><div></div><div>Code 93 Minimum Reads = 3</div></div> |
| <div><div></div><div>Code 93 Minimum Reads = 4</div></div> | |

Code 93 — cont.

Code 93 Decoding Level

Decoding Levels are used to configure a bar code symbology decoder to be very aggressive to very conservative depending on a particular customer’s needs.

- Choosing Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- Choosing Level 5 results in a very aggressive decoder. This aggressive behavior allows decoding of poorly printed and damaged labels at the expense of increasing the likelihood of decoding errors.
- Choosing Level 3, which is the default setting, allows the majority of product labels to be decoded.

There are many factors that determine when to change the decoding level for a particular symbology. These factors include spots, voids, non-uniform bar/space widths, damaged labels, etc. that may be experienced in some bar code labels. If there are many hard to read or damaged labels that cannot be decoded using a conservative setting, increase the decoding level to be more aggressive. If the majority of labels are very good quality labels, or there is a need to decrease the possibility of a decoder error, lower the decoding level to a more conservative level.

| | |
|---|--|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>Code 93 Decoding Level = Disable</p></div> |
| <div><p>Code 93 Decoding Level = 1</p></div> | |
| | <div><p>Code 93 Decoding Level = 2</p></div> |

Code 93 — cont.

Code 93 Decoding Level — cont.

| | |
|---|--|
|  Code 93 Decoding Level = 3 |  |
| |  Code 93 Decoding Level = 4 |
|  Code 93 Decoding Level = 5 | |

Code 93 — cont.

Code 93 Quiet Zones

Enables/disables fixed length stitching for Code 93.

| | |
|---|--|
| <div><p>ENTER/EXIT PROGRAMMING MODE</p></div> | |
| | <div><p>Code 93 Quiet Zones = No Quiet Zones</p></div> |
| <div><p>Code 93 Quiet Zones = Quiet Zone on one side</p></div> | |
| | <div><p>Code 93 Quiet Zones = Quiet Zones on two sides</p></div> |
| <div><p>Code 93 Quiet Zones = Auto</p></div> | <div></div> |
| | <div><p>Code 93 Quiet Zones = Virtual Quiet Zones on two sides</p></div> |

Code 93 — cont.

Code 93 Stitching

Disable/enable fixed or variable length stitching for Code 93.



Code 93 Character Correlation

Enables/disables Character Correlation for Code 93.



Codablock F

The following options apply to the Codablock F symbology.

Codablock F Enable/Disable

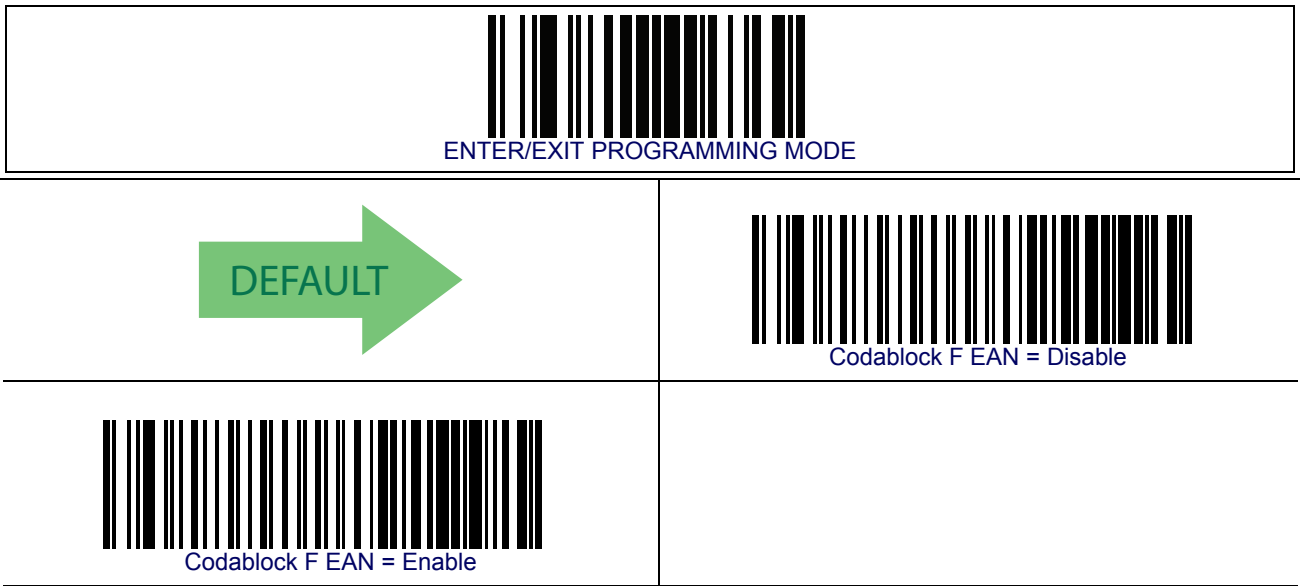
Enables/Disables the ability of the imager to decode Codablock F labels.



Codablock F — cont.

Codablock F EAN Enable/Disable

Enables/Disables the Codablock F EAN subtype (code with FNC1 in the first position).



Codablock F AIM Check

Specifies if Check Digit calculation algorithm is AIM compliant or not.



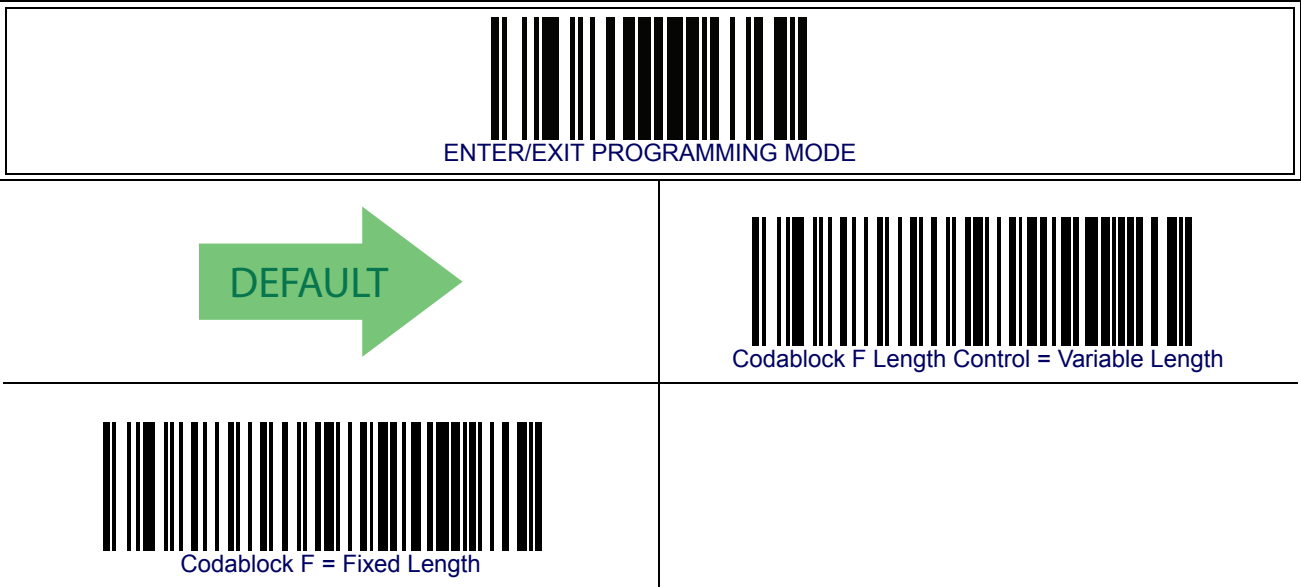
Codablock F — cont.

Codablock F Length Control

This feature specifies either variable length decoding or fixed length decoding for the Codablock F 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.



Codablock F — cont.

Codablock F Set Length 1

This feature specifies one of the bar code lengths for [Codablock F 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 003 to 255 characters.

Follow these instructions to set this feature:

1. Determine the desired character length (from 3 to 255). Pad the number with leading zeroes to yield three digits. For example: 3 = 003, 5 = 005, 20 = 020, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the bar code: SELECT CODABLOCK F LENGTH 1 SETTING.
4. Scan the appropriate three digits from the keypad in the Keypad Appendix, that represent the length setting which was 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 Programming Mode.

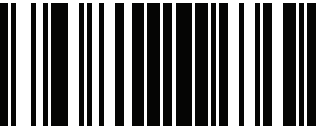


This completes the procedure. See the table below for some examples of how to set this feature.

Table 43. CODABLOC K F Length 1 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|--|------------------|------------------|-----------------|-----------------|
| 1 | Desired Setting | 003 Characters | 007 Characters | 015 Characters | 050 Characters |
| 2 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 3 | Scan SELECT CODABLOCK F LENGTH 1 SETTING | | | | |
| 4 | Scan three Characters From the Keypad Appendix | '0', '0' and '3' | '0', '0' and '7' | '0','1' and '5' | '0','5' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Codablock F — cont.

Codablock F Set Length 1 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Codablock F Length 1 Setting</div> | |
| <div>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</div> | <div> CANCEL</div> |

DEFAULT

003 = Length 1 is 3 Characters

Codablock F — cont.

Codablock F Set Length 2

This feature specifies one of the bar code lengths for [Codablock F 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 3 to 255 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

1. Determine the desired character length (from 3 to 255 — or 0 to ignore this length). Pad the number with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the bar code: SELECT CODABLOCK F LENGTH 2 SETTING.
4. Scan the appropriate three digits from the keypad in the Keypad Appendix that represent the length setting which was 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 Programming Mode.

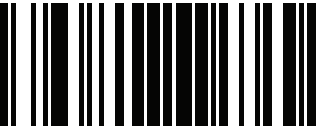


This completes the procedure. See the table below for some examples of how to set this feature.

Table 44. CODABLOCK Length 2 Setting Examples

| STEP | ACTION | EXAMPLES | | | |
|------|--|--------------------------|------------------|------------------|------------------|
| 1 | Desired Setting | 000 (Ignore This Length) | 007 Characters | 015 Characters | 050 Characters |
| 2 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |
| 3 | Scan SELECT CODABLOCK F LENGTH 2 SETTING | | | | |
| 4 | Scan three Characters From the Keypad Appendix | '0', '0' and '0' | '0', '0' and '7' | '0', '1' and '5' | '0', '5' AND '0' |
| 5 | Scan ENTER/EXIT PROGRAMMING MODE | | | | |

Codablock F — cont.

Codablock F Set Length 2 — cont.

| | |
|--|---|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| <div> Select Codablock F Length 2 Setting</div> | |
| <p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p> | <div> CANCEL</div> |

100 = Length 2 is 100 Characters

Code 4

The following options apply to the Code 4 symbology.

Code 4 Enable/Disable

Enables/Disables ability of imager to decode Code 4 labels.



Code 4 — cont.

Code 4 Check Character Transmission

This feature enables/disables transmission of an optional Code 4 check character.

| | |
|---|--|
| <div style="text-align: center;"> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div style="text-align: center;"> Code 4 Check Character Transmission = Don't Send</div> |
| <div style="text-align: center;"> Code 4 Check Character Transmission = Send</div> | <div style="text-align: center;"> DEFAULT</div> |

Code 4 Hex to Decimal Conversion

This feature enables/disables the conversion of hexadecimal label data to decimal label data.

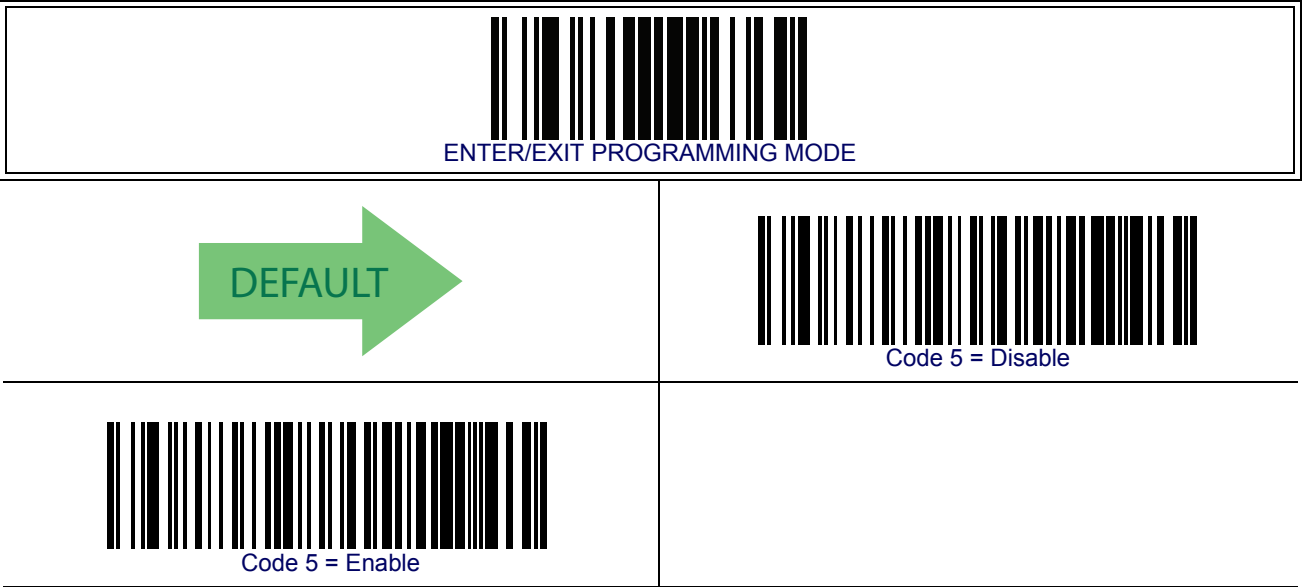
| | |
|--|--|
| <div style="text-align: center;"> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div style="text-align: center;"> Code 4 Hex to Decimal Conversion = Disable</div> |
| <div style="text-align: center;"> Code 4 Hex to Decimal Conversion = Enable</div> | <div style="text-align: center;"> DEFAULT</div> |

Code 5

The following options apply to the Code 5 symbology.

Code 5 Enable/Disable

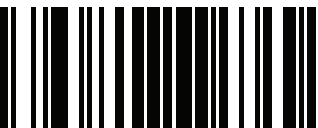

Enables/Disables ability of imager to decode Code 5 labels.



Code 5 — cont.

Code 5 Check Character Transmission

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

| | |
|---|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> Code 5 Check Character Transmission = Don't Send</div> |
| <div> Code 5 Check Character Transmission = Send</div> | <div> DEFAULT</div> |

Code 5 Hex to Decimal Conversion

This feature enables/disables the conversion of hexadecimal label data to decimal label data.

| | |
|--|--|
| <div> ENTER/EXIT PROGRAMMING MODE</div> | |
| | <div> Code 5 Hex to Decimal Conversion = Disable</div> |
| <div> Code 5 Hex to Decimal Conversion = Enable</div> | <div> DEFAULT</div> |

Code 4 and Code 5 Common Configuration Items

The following options apply to both Code 4 and Code 5 symbologies.

Code 4 and 5 Decoding Level

Decoding Levels are used to configure a bar code symbology decoder to be very aggressive to very conservative depending on a particular customer's needs.

- Choosing Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- Choosing Level 5 results in a very aggressive decoder. This aggressive behavior allows decoding of poorly printed and damaged labels at the expense of increasing the likelihood of decoding errors.
- Choosing Level 3, which is the default setting, allows the majority of product labels to be decoded.

There are many factors that determine when to change the decoding level for a particular symbology. These factors include spots, voids, non-uniform bar/space widths, damaged labels, etc. that may be experienced in some bar code labels. If there are many hard to read or damaged labels that cannot be decoded using a conservative setting, increase the decoding level to be more aggressive. If the majority of labels are very good quality labels, or there is a need to decrease the possibility of a decoder error, lower the decoding level to a more conservative level.



This configuration item applies to Code 4 and Code 5.

NOTE

Code 4 and Code 5 Common Configuration Items — cont.

Code 4 and 5 Decoding Level — cont.

| | |
|--|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div></div><div>Code 4 and Code 5 Decoding Level = 1</div></div> | |
| | <div><div></div><div>Code 4 and Code 5 Decoding Level = 2</div></div> |
| <div><div></div><div>Code 4 and Code 5 Decoding Level = 3</div></div> | <div></div> |
| | <div><div></div><div>Code 4 and Code 5 Decoding Level = 4</div></div> |
| <div><div></div><div>Code 4 and Code 5 Decoding Level = 5</div></div> | |

Code 4 and Code 5 Common Configuration Items — cont.

Code 4 and Code 5 Minimum Reads

This feature specifies the minimum number of consecutive times a Code 4 or Code 5 label must be decoded before it is accepted as good read.

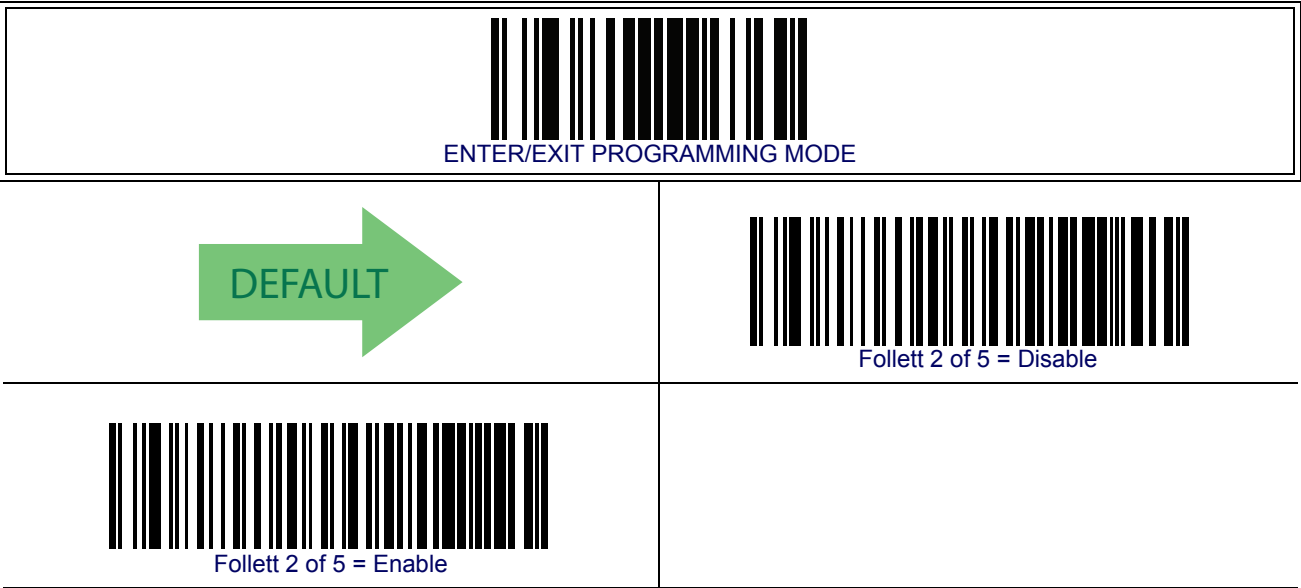
| | |
|---|---|
| <div><div></div><div>ENTER/EXIT PROGRAMMING MODE</div></div> | |
| <div><div>→</div><div>DEFAULT</div></div> | <div><div></div><div>Code 4 or Code 5 Minimum Reads = 1</div></div> |
| <div><div></div><div>Code 4 or Code 5 Minimum Reads = 2</div></div> | |
| | <div><div></div><div>Code 4 or Code 5 Minimum Reads = 3</div></div> |
| <div><div></div><div>Code 4 or Code 5 Minimum Reads = 4</div></div> | |

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 imager to decode Follett 2 of 5 labels.



Appendix A

Technical Specifications

Table 45 contains Physical and Performance Characteristics, User Environment and Regulatory information. Table 46 provides Standard Cable Pinouts.

Table 45. Technical Specifications

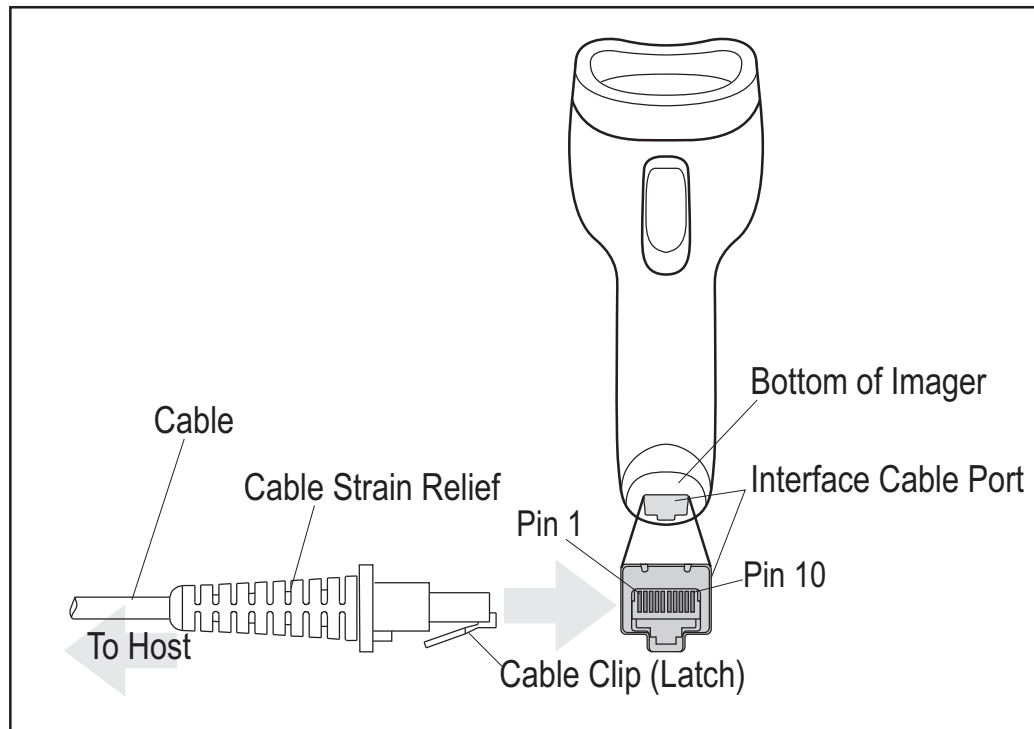
| Item | Description | | | | | | | | | | | | | | |
|------------------------------------|---|---------|--------------|---------|-------------|---------|---------------|------------------|---------------|-------------------|---------------|--------|----------|--------|----------|
| Physical Characteristics | | | | | | | | | | | | | | | |
| Dimensions | 2.8 in. H x 6.7 in. L x 2.6 in. W (7.1 cm H x 17.1 cm L x 6.6 cm W) | | | | | | | | | | | | | | |
| Weight (without cable) | Approximately 4.2 oz. (119 g) | | | | | | | | | | | | | | |
| Color | Black or White | | | | | | | | | | | | | | |
| Electrical Characteristics | | | | | | | | | | | | | | | |
| Voltage & Current | QD2110 4-14 VDC QD2130 5.0 VDC +/-10% 180mA @ 5V Typical Idle 345mA @ 5V Typical Scanning | | | | | | | | | | | | | | |
| Performance Characteristics | | | | | | | | | | | | | | | |
| Light Source | 617nm LEDs | | | | | | | | | | | | | | |
| Roll (Tilt) Tolerance | ± 45° from normal | | | | | | | | | | | | | | |
| Pitch Tolerance | ± 65° | | | | | | | | | | | | | | |
| Skew (Yaw) Tolerance | ± 65° | | | | | | | | | | | | | | |
| Scan Angle | 43° ± 3° | | | | | | | | | | | | | | |
| Typical Depth of Field | <table> <tr> <td>4.0 mil</td><td>3.0 - 9.5 cm</td></tr> <tr> <td>5.0 mil</td><td>2.3 - 14 cm</td></tr> <tr> <td>7.5 mil</td><td>1.5 - 26.5 cm</td></tr> <tr> <td>10 mil (80% UPC)</td><td>1.3 - 37.5 cm</td></tr> <tr> <td>13 mil (100% UPC)</td><td>2.5 - 46.5 cm</td></tr> <tr> <td>15 mil</td><td>to 48 cm</td></tr> <tr> <td>20 mil</td><td>to 59 cm</td></tr> </table> | 4.0 mil | 3.0 - 9.5 cm | 5.0 mil | 2.3 - 14 cm | 7.5 mil | 1.5 - 26.5 cm | 10 mil (80% UPC) | 1.3 - 37.5 cm | 13 mil (100% UPC) | 2.5 - 46.5 cm | 15 mil | to 48 cm | 20 mil | to 59 cm |
| 4.0 mil | 3.0 - 9.5 cm | | | | | | | | | | | | | | |
| 5.0 mil | 2.3 - 14 cm | | | | | | | | | | | | | | |
| 7.5 mil | 1.5 - 26.5 cm | | | | | | | | | | | | | | |
| 10 mil (80% UPC) | 1.3 - 37.5 cm | | | | | | | | | | | | | | |
| 13 mil (100% UPC) | 2.5 - 46.5 cm | | | | | | | | | | | | | | |
| 15 mil | to 48 cm | | | | | | | | | | | | | | |
| 20 mil | to 59 cm | | | | | | | | | | | | | | |
| Minimum Element Width | 4 mil | | | | | | | | | | | | | | |
| Print Contrast Minimum | 15% minimum reflectance | | | | | | | | | | | | | | |

| Item | Description |
|---|--|
| Decode Capability | UPC/EAN/JAN, P2 /P5 GS1-128 add-ons; Code 39; Code 39 Full ASCII; Code 32 (Italian Pharmacode); Code 128; ISBT 128; I 2 of 5; Standard 2 of 5; Code 11; Codabar; GS1-128; Code 93; MSI; GS1 DataBar Omnidirectional, GS1 DataBar Limited, GS1 DataBar Expanded; EAN 13 ISBN; Datalogic 2 of 5; Follet 2/5; Code 4, code 5. |
| Interfaces Supported | RS-232 Std., RS-232 Wincor-Nixdorf, RS-232 OPOS, IBM 46xx (ports 5B and 9B), USB Com Std., USB Keyboard, USB Alternate Keyboard, USB Keyboard Apple, USB-OEM, Keyboard Wedge (AT with or w/o Alternate Key, IBM AT PS2 with or w/o Alternate Key, PC-XT, IBM 3153, IBM Terminals 31xx, 32xx, 34xx, 37xx make only and make break keyboard, and Digital Terminals VT2x, VT3xx and VT4xx). |
| User Environment | |
| Operating Temperature | 32° to 122° F (0° to 50° C) |
| Storage Temperature | -40° to 158° F (-40° to 70° C) |
| Humidity | 5% to 95% relative humidity, non-condensing |
| Drop Specifications | Withstands multiple 5 ft./1.524 m drops to concrete. |
| Ambient Light Immunity | Immune to direct exposure of normal office and factory lighting conditions, as well as direct exposure to sunlight. |
| Contaminants Spray/rain Dust/particulates | IEC 529-IPX2 IEC 529-IP5X |
| Beeper Volume | User-selectable: three levels |
| Beeper Tone (frequency) | User-selectable: three tones |
| Electrostatic Discharge | Conforms to ±20 kV air/direct discharge and ±8 kV of contact discharge. |
| Regulatory | |
| Electrical Safety | USA: UL 60950, Canada: CAN/CSA-C22.2 No. 60950, EN60950/IEC60950, NOM-019-SCFI |
| EMI/RFI | FCC Part 15 Class B, ICES-003 Class B, European Union EMC Directive, Australia Class B, Taiwan EMC, Japan VCCI/MITI, Korea KCC |

Standard Cable Pinouts

Figure 7 and Table 46 provide standard pinout information for the imager's cable.

Figure 7. Standard Cable Pinouts



The signal descriptions in Table 46 apply to the connector on the imager and are for reference only.

Table 46. Standard Cable Pinouts — Imager Side

| Pin | RS-232 | OEM | USB | Keyboard Wedge |
|-----|-----------|-------|-----|-------------------|
| 1 | RTS (out) | | | |
| 2 | | | D+ | CLKIN (KBD side) |
| 3 | | | D- | DATAIN (KBD side) |
| 4 | GND | GND | GND | GND |
| 5 | RX | | | |
| 6 | TX | | | |
| 7 | VCC | VCC | VCC | VCC |
| 8 | | IBM_B | | CLKOUT (PC side) |
| 9 | | IBM_A | | DATAOUT (PC side) |
| 10 | CTS (in) | | | |

NOTES

Appendix B

Standard Defaults

The most common configuration settings are listed in the “Default” column of [Table 47](#). The settings in this table are as applied to a standard RS-232 interface. See [Table 48](#) for a listing of default exceptions to this list as applied to other interface types. Page references are also provided for feature descriptions and programming bar codes for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features.

Table 47. Standard Defaults

| Parameter | Default | Your Setting | Page Number |
|------------------------------|--------------------------------|--------------|-------------|
| General Features | | | |
| Double Read Timeout | 0.4 Second | | 17 |
| Label Gone Timeout | 160 ms | | 19 |
| Power On Alert | 4 Beeps | | 21 |
| Good Read: When to Indicate | After Decode | | 22 |
| Good Read Beep Type | Mono | | 23 |
| Good Read Beep Frequency | Medium | | 24 |
| Good Read Beep Length | 80 ms | | 24 |
| Good Read Beep Volume | High | | 26 |
| Good Read LED Duration | LED on until next trigger pull | | 27 |
| Scan Mode | Trigger Single | | 29 |
| Stand Mode Triggered Timeout | 3 Seconds | | 31 |
| Scanning Active Time | 5 Seconds | | 33 |
| Flash On Time | 1 Second | | 35 |
| Flash Off Time | 600 ms | | 37 |
| Stand Mode Sensitivity | Medium | | 39 |
| Green Spot Duration | 300 ms | | 40 |
| RS-232 | | | |

| Parameter | Default | Your Setting | Page Number |
|-------------------------------|------------------------|--------------|-------------|
| Baud Rate | 9600 | | 41 |
| Data Bits | 8 Data Bits | | 43 |
| Stop Bits | 1 Stop Bit | | 44 |
| Parity | None | | 45 |
| Handshaking Control | Disable | | 46 |
| RS-232/USB-COM | | | |
| Intercharacter Delay | No Delay | | 48 |
| Beep On ASCII BEL | Disable | | 50 |
| Beep On Not on File | Enable | | 50 |
| ACK Character | 'ACK' | | 52 |
| NAK Character | 'NAK' | | 54 |
| ACK NAK Timeout Value | 600 ms | | 56 |
| ACK NAK Retry Count | 3 Retries | | 58 |
| ACK NAK Error Handling | Ignore Errors Detected | | 60 |
| Indicate Transmission Failure | Enable | | 61 |
| Disable Character | 'D' | | 62 |
| Enable Character | 'E' | | 64 |
| Keyboard Wedge | | | |
| Country Mode | U.S. Keyboard | | 68 |
| Caps Lock State | Caps Lock OFF | | 71 |
| Numlock | Numlock Key Unchanged | | 71 |
| Send Control Characters | Disable | | 72 |
| Intercode Delay | 100 ms | | 77 |
| Intercharacter Delay | No Delay | | 75 |
| Intercode Delay | 100 ms | | 78 |
| USB Keyboard Speed | 1 ms | | 79 |
| USB-OEM | | | |
| USB-OEM Device Usage | Handheld Scanner | | 82 |
| USB-OEM Interface Options | Ignore | | 83 |
| IBM 46XX | | | |

| Parameter | Default | Your Setting | Page Number |
|---|--|--------------|-------------|
| 46xx Number of Host Resets | 6 | | 86 |
| Transmit Labels in Code 39 Format | IBM Std Format | | 89 |
| IBM 46XX Interface Options | Ignore | | 90 |
| Wand Emulation | | | |
| Wand Idle State | High | | 91 |
| Wand Polarity | QZ & Spaces High, Bars Low | | 92 |
| Wand Signal Speed | 660ms | | 93 |
| Wand Label Symbology Conversion | No Conversion | | 94 |
| Wand Transmit Noise | Disable | | 95 |
| Data Editing | | | |
| Global Prefix/Suffix | No Global Prefix Global Suffix = 0x0D (CR) | | 98 |
| Global AIM ID | Disable | | 100 |
| Label ID Control | Disable | | 108 |
| Case Conversion | Disable | | 117 |
| Character Conversion | No Char Conver- sion | | 118 |
| Symbologies | | | |
| Coupon Control | Enable only UPC/ EAN | | 123 |
| UPC-A | | | |
| UPC-A Enable/Disable | Enable | | 124 |
| UPC-A Check Character Transmis- sion | Enable | | 124 |
| Expand UPC-A to EAN-13 | Don't Expand | | 125 |
| UPC-A Number System Character Transmission | Transmit | | 125 |
| UPC-A Minimum Reads | 1 | | 143 |
| In-Store Minimum Reads | 2 | | 126 |
| UPC-E | | | |
| UPC-E Enable/Disable | Enable | | 127 |
| UPC-E Check Character Transmis- sion | Send | | 127 |

| Parameter | Default | Your Setting | Page Number |
|--|-----------------------|--------------|-------------|
| Expand UPC-E to EAN-13 | Don't Expand | | 128 |
| Expand UPC-E to UPC-A | Don't Expand | | 128 |
| UPC-E Number System Character Transmission | Transmit | | 129 |
| UPC-E Minimum Reads | 2 | | 130 |
| GTIN | | | |
| GTIN Formatting | Disable | | 131 |
| EAN 13 | | | |
| EAN 13 Enable/Disable | Enable | | 132 |
| EAN 13 Check Character Transmission | Send | | 132 |
| EAN-13 Flag 1 Character | Transmit | | 133 |
| EAN-13 ISBN Conversion | Disable | | 134 |
| ISSN Enable/Disable | Disable | | 134 |
| EAN 13 Minimum Reads | 1 | | 135 |
| EAN 8 | | | |
| EAN 8 Enable/Disable | Enable | | 136 |
| EAN 8 Check Character Transmission | Send | | 136 |
| Expand EAN 8 to EAN 13 | Disable | | 137 |
| EAN 8 Minimum Reads | 1 | | 138 |
| UPC/EAN Global Settings | | | |
| UPC/EAN Decoding Level | 2 | | 139 |
| UPC/EAN Correlation | Disable | | 141 |
| UPC/EAN Price Weight Check | Disable | | 142 |
| Add-Ons | | | |
| Optional Add-ons | Disable P2, P5 and P8 | | 144 |
| Optional Add-On Timer | 70 ms | | 146 |
| Optional GS1-128 Add-On Timer | Disable | | 149 |
| P2 Add-Ons Minimum Reads | 2 | | 152 |
| P5 Add-Ons Minimum Reads | 1 | | 153 |
| GS1-128 Add-Ons Minimum Reads | 1 | | 154 |

| Parameter | Default | Your Setting | Page Number |
|---|----------------|--------------|-------------|
| GS1 DataBar Omnidirectional | | | |
| GS1 DataBar Omnidirectional Enable/Disable | Disable | | 155 |
| GS1 DataBar Omnidirectional GS1-128 Emulation | Disable | | 155 |
| GS1 DataBar Omnidirectional Minimum Reads | 1 | | 156 |
| GS1 DataBar Expanded | | | |
| GS1 DataBar Expanded Enable/Disable | Disable | | 157 |
| GS1 DataBar Expanded GS1-128 Emulation | Disable | | 157 |
| GS1 DataBar Expanded Minimum Reads | 1 | | 158 |
| GS1 DataBar Expanded Length Control | Variable | | 159 |
| GS1 DataBar Expanded Set Length 1 | 1 | | 160 |
| GS1 DataBar Expanded Set Length 2 | 74 | | 162 |
| GS1 DataBar Limited | | | |
| GS1 DataBar Limited Enable/Disable | Disable | | 164 |
| GS1 DataBar Limited GS1-128 Emulation | Disable | | 164 |
| GS1 DataBar Limited Minimum Reads | 1 | | 165 |
| Code 39 | | | |
| Code 39 Enable/Disable | Enable | | 166 |
| Code 39 Check Character Calculation | Calculate | | 167 |
| Code 39 Check Character Transmission | Send | | 168 |
| Code 39 Start/Stop Character Transmission | Don't Transmit | | 168 |
| Code 39 Full ASCII | Disable | | 169 |
| Code 39 Quiet Zones | Auto | | 170 |
| Code 39 Minimum Reads | 2 | | 171 |
| Code 39 Decoding Level | 3 | | 172 |

| Parameter | Default | Your Setting | Page Number |
|---|----------------------------------|--------------|-------------|
| Code 39 Length Control | Variable | | 174 |
| Code 39 Set Length 1 | 2 | | 175 |
| Code 39 Set Length 2 | 50 | | 177 |
| Code 39 Interdigit Ratio | 4 | | 179 |
| Code 39 Character Correlation | Disable | | 181 |
| Code 39 Stitching | Enable | | 182 |
| Code 32 | | | |
| Code 32 Enable/Disable | Disable | | 183 |
| Code 32 Feature Setting Exceptions | 3 | | 183 |
| Code 32 Check Character Transmission | Don't Send | | 184 |
| Code 32 Start/Stop Character Transmission | Don't Transmit | | 184 |
| Code 39 CIP | | | |
| Code 39 CIP Enable/Disable | Disable | | 185 |
| Code 128 | | | |
| Code 128 Enable/Disable | Enable | | 185 |
| Expand Code 128 to Code 39 | Don't Expand | | 186 |
| Code 128 Check Character Transmission | Send | | 186 |
| Code 128 Quiet Zones | Auto | | 189 |
| Code 128 Minimum Reads | 1 | | 190 |
| Code 128 Decoding Level | 3 | | 191 |
| Code 128 Length Control | Variable | | 193 |
| Code 128 Set Length 1 | 1 | | 194 |
| Code 128 Set Length 2 | 80 | | 196 |
| Code 128 Character Correlation | Disable | | 198 |
| Code 128 Stitching | Enable | | 199 |
| GS1-128 | | | |
| GS1-128 Enable | Transmit in Code 128 Data Format | | 200 |
| Interleaved 2 of 5 | | | |
| I 2 of 5 Enable/Disable | Disable | | 201 |

| Parameter | Default | Your Setting | Page Number |
|---|------------------------|--------------|-------------|
| I 2 of 5 Check Character Calculation | Disable | | 202 |
| I 2 of 5 Check Character Transmis- sion | Send | | 203 |
| I 2 of 5 Minimum Reads | 2 | | 216 |
| 2 of 5 Decoding Level | 3 | | 205 |
| I 2 of 5 Length Control | Variable | | 207 |
| I 2 of 5 Set Length 1 | 12 | | 208 |
| I 2 of 5 Set Length 2 | 100 | | 210 |
| I 2 of 5 Character Correlation | Disable | | 212 |
| I 2 of 5 Stitching | Disable | | 213 |
| Interleaved 2 of 5 CIP | | | |
| Interleaved 2 of 5 CIP HR Enable/ Disable | Disable | | 214 |
| Datalogic 2 of 5 | | | |
| Datalogic 2 of 5 Enable/Disable | Enable | | 214 |
| Datalogic 2 of 5 Check Character Calculation | Disable | | 215 |
| Datalogic 2 of 5 Minimum Reads | 2 | | 216 |
| Datalogic 2 of 5 Length Control | Variable | | 217 |
| Datalogic 2 of 5 Set Length 1 | 12 | | 218 |
| Datalogic 2 of 5 Set Length 2 | 100 | | 220 |
| Datalogic 2 of 5 Character Correla- tion | Disable | | 224 |
| Datalogic 2 of 5 Stitching | Disable | | 225 |
| Codabar | | | |
| Codabar Enable/Disable | Disable | | 226 |
| Codabar Check Character Calcula- tion | Don't Calculate | | 227 |
| Codabar Check Character Transmis- sion | Send | | 228 |
| Codabar Start/Stop Character Trans- mission | Transmit | | 228 |
| Codabar Start/Stop Character Set | abcd/abcd | | 229 |
| Codabar Start/Stop Character Match | Don't Require Match | | 230 |

| Parameter | Default | Your Setting | Page Number |
|---|---------------|--------------|-------------|
| Codabar Quiet Zones | Auto | | 231 |
| Codabar Minimum Reads | 2 | | 232 |
| Codabar Decoding Level | 3 | | 233 |
| Codabar Length Control | Variable | | 235 |
| Codabar Set Length 1 | 3 | | 236 |
| Codabar Set Length 2 | 50 | | 238 |
| Codabar Interdigit Ratio | 4 | | 240 |
| Codabar Character Correlation | Disable | | 242 |
| Codabar Stitching | Disable | | 243 |
| ABC Codabar | | | |
| ABC Codabar Enable/Disable | Disable | | 244 |
| ABC Codabar Concatenation Mode | Static | | 244 |
| ABC Codabar Dynamic Concatenation Timeout | 200mS | | 245 |
| ABC Codabar Force Concatenation | Disable | | 246 |
| Code 11 | | | |
| Code 11 Enable/Disable | Disable | | 247 |
| | 1 | | 247 |
| Code 11 Check Character Calculation | Check C and K | | 248 |
| Code 11 Check Character Transmission | Send | | 249 |
| Code 11 Minimum Reads | 2 | | 250 |
| Code 11 Length Control | Variable | | 251 |
| Code 11 Set Length 1 | 4 | | 252 |
| Code 11 Set Length 2 | 50 | | 254 |
| Code 11 Interdigit Ratio | 4 | | 256 |
| Code 11 Decoding Level | 3 | | 258 |
| Code 11 Character Correlation | Disable | | 260 |
| Code 11 Stitching | Disable | | 261 |
| Standard 2 of 5 | | | |
| Standard 2 of 5 Enable/Disable | Disable | | 262 |

| Parameter | Default | Your Setting | Page Number |
|--|---------------|--------------|-------------|
| Standard 2 of 5 Check Character Calculation | Disable | | 263 |
| Standard 2 of 5 Check Character Transmission | Send | | 263 |
| Standard 2 of 5 Minimum Reads | 2 | | 264 |
| Standard 2 of 5 Decoding Level | 3 | | 264 |
| Standard 2 of 5 Length Control | Variable | | 265 |
| Standard 2 of 5 Set Length 1 | 8 | | 266 |
| Standard 2 of 5 Set Length 2 | 50 | | 268 |
| Standard 2 of 5 Character Correlation | Disable | | 270 |
| Standard 2 of 5 Stitching | Disable | | 271 |
| Industrial 2 of 5 | | | |
| Industrial 2 of 5 Enable/Disable | Disable | | 272 |
| Industrial 2 of 5 Check Character Calculation | Disable | | 272 |
| Industrial 2 of 5 Check Character Transmission | Enable | | 273 |
| Industrial 2 of 5 Length Control | Variable | | 274 |
| Industrial 2 of 5 Set Length 1 | 1 Character | | 275 |
| Industrial 2 of 5 Set Length 2 | 50 Characters | | 277 |
| Industrial 2 of 5 Minimum Reads | 1 Read | | 279 |
| Industrial 2 of 5 Stitching | Disable | | 280 |
| Industrial 2 of 5 Character Correlation | Disable | | 280 |
| IATA | | | |
| IATA Enable/Disable | Disable | | 281 |
| IATA Check Character Transmission | Enable | | 281 |
| ISBT 128 | | | |
| ISBT 128 Concatenation | Disable | | 282 |
| ISBT 128 Concatenation Mode | Disable | | 283 |
| ISBT 128 Dynamic Concatenation Timeout | 200ms | | 284 |
| ISBT 128 Force Concatenation | Enable | | 285 |

| Parameter | Default | Your Setting | Page Number |
|---|--|--------------|-------------|
| ISBT 128 Advanced Concatenation Options | Disable | | 285 |
| MSI | | | |
| MSI Enable/Disable | Disable | | 286 |
| MSI Check Character Calculation | Enable Mod10 | | 287 |
| MSI Check Character Transmission | Enable | | 288 |
| MSI Length Control | Variable | | 288 |
| MSI Set Length 1 | 1 Character | | 289 |
| MSI Set Length 2 | 50 Characters | | 291 |
| MSI Minimum Reads | 4 Reads | | 293 |
| MSI Decoding Level | Level 3 | | 294 |
| Plessey | | | |
| Plessey Enable/Disable | Disable | | 296 |
| Plessey Check Character Calculation | Enable Plessey Std. Check Char. Verif. | | 297 |
| Plessey Check Character Transmission | Enable | | 298 |
| Plessey Length Control | Variable | | 298 |
| Plessey Set Length 1 | 1 Character | | 299 |
| Plessey Set Length 2 | 50 Characters | | 301 |
| Plessey Minimum Reads | 4 Reads | | 303 |
| Plessey Decoding Level | Level 3 | | 304 |
| Plessey Stitching | Disable | | 305 |
| Plessey Character Correlation | Disable | | 306 |
| Code 93 | | | |
| Code 93 Enable/Disable | Disable | | 306 |
| Code 93 Check Character Calculation | Disable | | 307 |
| Code 93 Check Character Transmission | Enable | | 308 |
| Code 93 Length Control | Variable | | 308 |
| Code 93 Set Length 1 | 1 Character | | 309 |
| Code 93 Set Length 2 | 50 Characters | | 311 |

| Parameter | Default | Your Setting | Page Number |
|--|----------------|--------------|-------------|
| Code 93 Minimum Reads | 1 Read | | 313 |
| Code 93 Decoding Level | Level 3 | | 314 |
| Code 93 Quiet Zones | Auto | | 316 |
| Code 93 Stitching | Enable | | 317 |
| Code 93 Character Correlation | Enable | | 317 |
| Codablock F | | | |
| Codablock F Enable/Disable | Disable | | 318 |
| Codablock F EAN Enable/Disable | Disable | | 319 |
| Codablock F AIM Check | Enable Check C | | 319 |
| Codablock F Length Control | Variable | | 320 |
| Codablock F Set Length 1 | 3 Characters | | 321 |
| Codablock F Set Length 2 | 100 Characters | | 323 |
| Code 4 | | | |
| Code 4 Enable/Disable | Disable | | 325 |
| Code 4 Check Character Transmission | Enable | | 326 |
| Code 4 Hex to Decimal Conversion | Enable | | 326 |
| Code 5 | | | |
| Code 5 Enable/Disable | Disable | | 327 |
| Code 5 Check Character Transmission | Enable | | 328 |
| Code 5 Hex to Decimal Conversion | Enable | | 328 |
| Code 4 and Code 5 Common Configuration Items | | | |
| Code 4 and 5 Decoding Level | 3 | | 329 |
| Code 4 and Code 5 Minimum Reads | 1 | | 331 |
| Follett 2 of 5 | | | |
| Follett 2 of 5 Enable/Disable | Disable | | 332 |

Default Exceptions

Table 47 lists standard default settings as applied to a standard RS-232 interface. Table 48 provides a listing of default exceptions to that list as applied to the other interface types.

Table 48. Default Exceptions by Interface Type

| Parameter | Default Excpction |
|--|-------------------|
| Interfaces: IBM 46XX Port 5B, IBM 46XX Port 9B, USB-OEM | |
| Global Suffix | No Global Suffix |
| Double Read Timeout | 500 msec |
| 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 |
| Interelaved 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 |
| EAN8/P2 Label ID Character(s) | B |
| EAN8/P5 Label ID Character(s) | B |
| EAN8/GS1-128 Label ID Character(s) | B |

| Parameter | Default Excpction |
|--|-------------------|
| 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 |
| Interelaved 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 |
| 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 |

| Parameter | Default Excpction |
|--|-------------------|
| 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 |
| GTIN W/o Add on Label ID Character(s) | \$A |
| GTIN Addon 2 Label ID Character(s) | \$B |
| GTIN Add on 5 Label ID Character(s) | \$C |
| GTIN Add on 8 Label ID Character(s) | \$D |

Appendix C

LED and Beeper Indications

The imager's beeper sounds and its LED illuminates to indicate various functions or errors on the imager. An optional "Green Spot" also performs useful functions. The tables below list these indications. One exception to the behaviors listed in the tables is that the imager's functions are programmable, and may or may not be turned on. For example, certain indications, such as the power-up beep can be disabled using programming bar code labels.

LED and Beeper Indications

| INDICATION | DESCRIPTION | LED | BEEPER |
|---|--|--|--|
| Power-up Beep | The imager is in the process of powering-up. | | Imager beeps four times at highest frequency and volume upon power-up. |
| Good Read Beep | A label has been successfully scanned by the imager. | LED behavior for this indication is configurable via the feature “ Good Read: When to Indicate ” | The imager will beep once at current frequency, volume, mono/bi-tonal setting and duration upon a successful label scan. |
| ROM Failure | There is an error in the imager's software/programming | Flashes | Imager sounds one error beep at highest volume. |
| Limited Scanning Label Read | Indicates that a host connection is not established when the IBM or USB interface is enabled. | N/A | Imager 'chirps' six times at the highest frequency and current volume. |
| Imager Active Mode | The imager is active and ready to scan. | The LED is lit steadily ^a | N/A |
| Imager Disabled | The imager has been disabled by the host. | The LED blinks continuously | N/A |
| Green Spot is on continuously | While in Stand Mode or Trigger Object Sense mode the green spot shall be on while in stand watch state. | N/A | N/A |
| Green Spot ^a flashes momentarily | Upon successful read of a label, the software shall turn the green spot on for the time specified by the configured value. | N/A | N/A |

Programming Mode - The following indications ONLY occur when the imager is in Programming Mode.

| | | | |
|--|---|-------------------------|--|
| Label Programming Mode Entry | A valid programming label has been scanned. | LED blinks continuously | Imager sounds four low frequency beeps. |
| Label Programming Mode Rejection of Label | A label has been rejected. | N/A | Imager 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 | Imager 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 imager has exited Programming Mode. | N/A | Imager 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 | Imager sounds two times at low frequency and current volume. |

^a Except when in sleep mode or when a [Good Read LED Duration](#) other than 00 is selected

Error Codes

Upon startup, if the imager sounds a long tone, this means the imager has not passed its automatic Selftest and has entered FRU¹ isolation mode. If the imager is reset, the sequence will be repeated. The following table describes the LED flashes/beep codes associated with an error found.

| NUMBER OF LED FLASHES/BEEPS | ERROR | CORRECTIVE ACTION |
|-----------------------------|--------------------|---------------------------------|
| 1 | Configuration | Contact Helpdesk for assistance |
| 2 | Interface PCB | |
| 4 | Imager Module | |
| 5 | [Reserved] | |
| 6 | Digital PCB | |
| 14 | CPLD/Code Mismatch | |

1. Field Replaceable Unit (FRU)

NOTES

Appendix D

Sample bar codes

The sample bar codes in this appendix are typical representations for their symbology types.



UPC-A

EAN-13



Code 39

Code 128



Interleaved 2 of 5

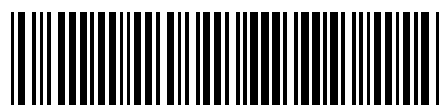
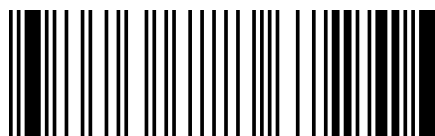
Sample bar codes — continued

Code 32



Codabar

Code 93



Code 11

GS1 DataBar (RSS)



GS1 DataBar variants must be enabled to read the bar codes below
(see [GS1 DataBar \(RSS\)](#) on page 357).

NOTE



10293847560192837465019283746029478450366523
(GS1 DataBar Expanded Stacked)



1234890hjio9900mnb
(GS1 DataBar Expanded)



08672345650916
(GS1 DataBar Limited)

GS1 DataBar-14



55432198673467
(GS1 DataBar Omnidirectional Truncated)



90876523412674
(GS1 DataBar Omnidirectional Stacked)









78123465709811
(GS1 DataBar Omnidirectional Stacked)

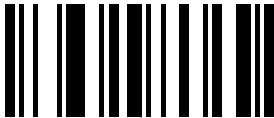
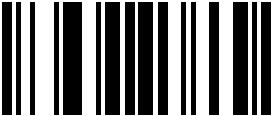

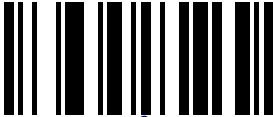
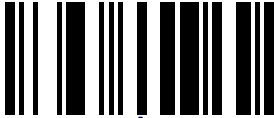


NOTES


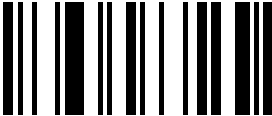

Appendix E

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 |

NOTES

Appendix F

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 — [see page 372](#)).

Interface Type PC AT PS/2 or USB-Keybaord

Table 49. 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(S)+@ | SOH C(S)+A | STX C(S)+B | ETX C(S)+C | EOT C+D | ENQ C(S)+E | ACK C(S)+F | BEL C(S)+G | BS C(S)+H | 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(S)+\ | GS C+] | RS C(S)+^ | 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 | „ | … | † | ‡ | ^ | ‰ | Š | ◀ | Š | ◀ | 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 | Ñ | 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 via dedicated keys (when available in the selected country mode) or by an Alt Mode sequence.

Interface Type PC AT PS/2 or USB-Keybaord — cont.

Table 50. 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 | „ | ... | † | ‡ | ^ | ‰ | Š | ◁ | Ś | ◁ | Œ | — |
| 9x | — | ‘ | ’ | “ | ” | • | — | — | ~ | ™ | š | ▷ | œ | — | — | ÿ |
| Ax | NBSP | ı | ¢ | £ | ¤ | ¥ | ¦ | § | ¨ | © | 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-Keybaord Alt Mode

Table 51. 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 | Alt+008 | 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-Keybaord Alt Mode — cont.

Table 52. 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 |

Digital Interface

Table 53. 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(S)+@ | SOH C(S)+A | STX C(S)+B | ETX C(S)+C | EOT C+D | ENQ C(S)+E | ACK C(S)+F | BEL C(S)+G | BS C(S)+H | 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(S)+\ | GS C+] | RS C(S)+^ | US C(S)+_ |
| 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 | | Sh↓ | Sh↑ | Ins | Ent (keyp) | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 |
| 9x | F12 | F13 | F14 | F15 | F16 | ↑ | ↓ | ← | → | | | | | Cl↓ | Cl↑ | |

Digital Interface — cont.

Table 54. Scancode Set When Control Character is 02

| | X0 | x1 | x2 | x3 | x4 | x5 | x6 | x7 | x8 | x9 | xA | xB | xC | xD | xE | xF |
|----|-------|----|----|----|-----|-----|----|----|----|----|-----|-----|--------|----------------|-------|-----|
| 0x | | | | | CI↓ | CI↑ | | | | BS | Tab | → | S+ Tab | Enter Keypd | Enter | Ins |
| 1x | | | ← | ↓ | ↑ | 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 |

IBM31xx 102-key

Table 55. 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(S)+@ | SOH C(S)+A | STX C(S)+B | ETX C(S)+C | EOT C+D | ENQ C(S)+E | ACK C(S)+F | BEL C(S)+G | BS C(S)+H | 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(S)+\ | GS C+] | RS C(S)+^ | US C(S)+_ |
| 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 | <u>P</u> | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 6x | ‘ | <u>a</u> | 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 | Enter | Reset | Insert | Delete | Field - | Field + | Enter paddle | Printl | Ar↓ | Ar↑ | Al↓ | Al↑ | Cl↓ | Cl↑ | Cr↓ |
| Ax | Cr↑ | | | | | | | | | | | | | | | |

IBM31xx 102-key — cont.

Table 56. 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 | <u>P</u> | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 6x | ‘ | <u>a</u> | 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 | { | | } | | <i>Del</i> |

IBM XT

Table 57. 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(S)+@ | SOH C(S)+A | STX C(S)+B | ETX C(S)+C | EOT C+D | ENQ C(S)+E | ACK C(S)+F | BEL C(S)+G | BS C(S)+H | 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(S)+\ | GS C+] | RS C(S)+^ | US C(S)+_ |
| 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 | | 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↑ | | | | | | | | | | | | | | | |

IBM XT — cont.

Table 58. 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 |

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 | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | / |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [| \ |] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | } | ~ | DEL 007F |
| 80 | € 20AC | | ƒ 201A | Œ 0192 | ” 201E | … 2026 | † 2020 | ‡ 2021 | ˆ 02C6 | ‰ 2030 | Š 0160 | < 2039 | ƒ 0152 | | Ž 017D | |
| 90 | | ˆ 2018 | ˆ 2019 | ” 201C | ” 201D | • 2022 | — 2013 | — 2014 | ˆ 02DC | ˆ 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 |

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ASCII Character Set

The table on this page shows a set of ASCII characters and their corresponding Hex Values. The Hex Values in this table are needed for setting symbology specific label identifiers, as well as enabling custom prefix and suffix characters.

| 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 |



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+49 711 90 11 88-0
www.kumaident.de



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Datalogic ADC, Inc.

959 Terry Street | Eugene | OR 97402 | USA
Telephone: (1) 541-683-5700 | Fax: (1) 541-345-7140

