

 **DATALOGIC**

QuickScan™ Lite QW2100

General Purpose Coded Handheld
Linear Imager Bar Code Reader



Product Reference Guide

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This product may be covered by one or more of the following patents:

Design Patents: CN ZL201230049587.7; EP1987843; USD677258.

Utility Patents: EP0789315B1; EP1128315B1; EP1396811B1; EP1413971B1; US5481098; US5992740; US6098883; US6454168; US6561427; US6758403; US6808114; US6997385; US7387246; US7506816.

Additional Patents Pending

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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 reader.

[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 reader 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 reader 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 reader for Keyboard Wedge operation.

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

[Chapter 9, Data Editing](#) offers advanced configuration options for customization of scanned data output.

[Chapter 10, Symbologies](#) defines options for all symbologies and provides the program-

ming bar codes necessary for configuring these features.

[Chapter 11, References](#) provides details concerning programmable features.

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

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

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

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

[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 reader of key issues or procedures that must be observed when using the reader:



NOTE

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



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 Reader

One distinctive feature offered by the reader is a very wide scan angle which can read long linearbar codes, such as utility bills. Whether used in Single Trigger or Continuous Mode, the ergonomic design of the reader will help to promote comfortable handling during extended periods of use.

The reader can communicate using the following interfaces:

RS-232 — The reader 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 54](#) for a full listing.

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

Unpacking

Check carefully to ensure the reader 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 Reader

Follow the steps provided in this section to connect and get your reader 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)

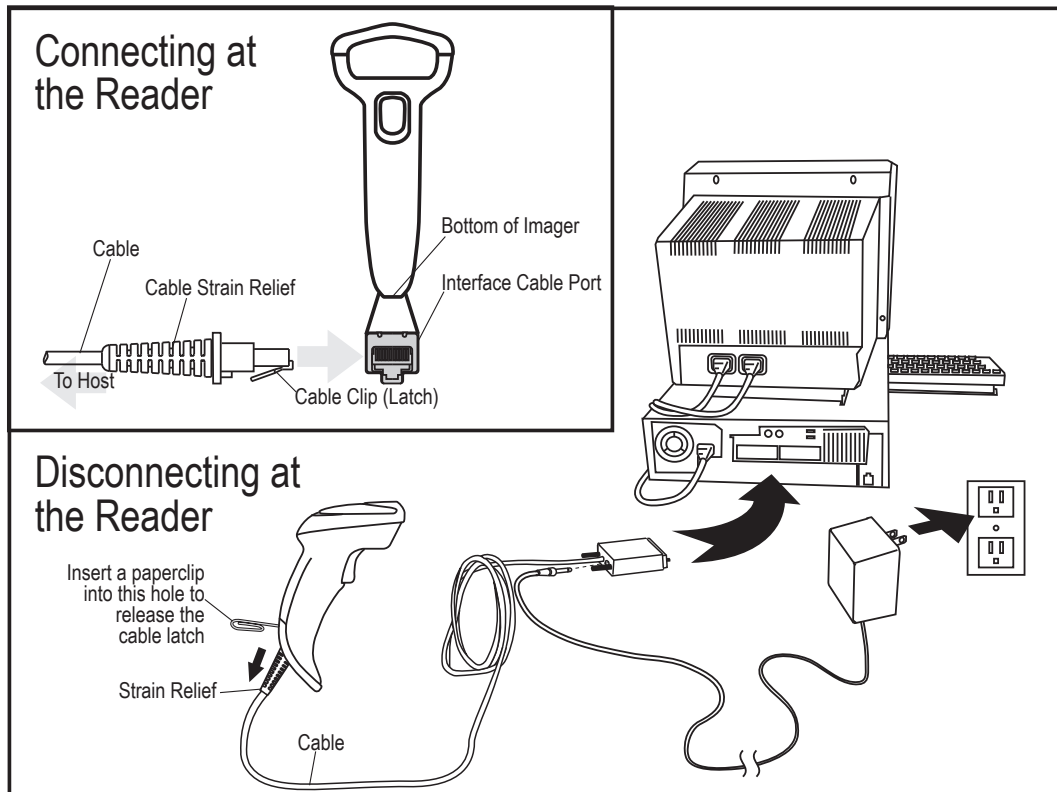
Install the Interface Cable

The reader 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 reader, 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 reader 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 reader 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

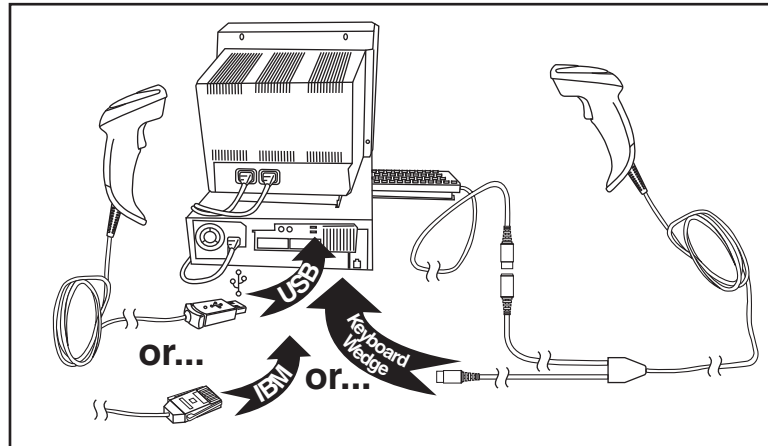


Other connection types are described below and illustrated in [Figure 2](#).

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

Keyboard Wedge Connection — The Keyboard Wedge cable has a ‘Y’ connection from the reader. 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



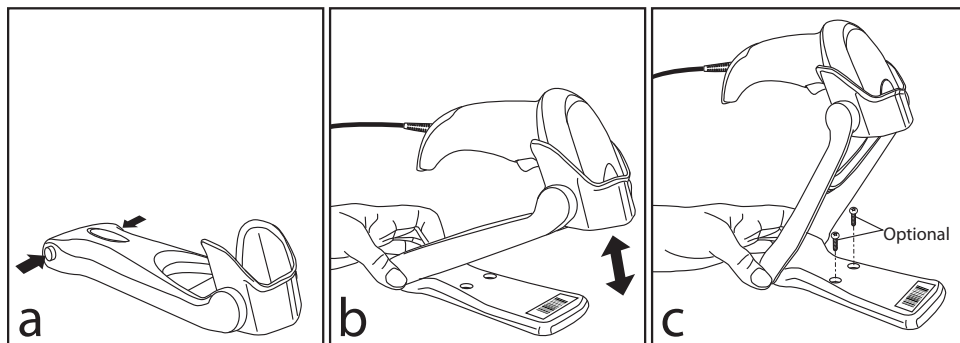
NOTE

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 reader remain the same.

Hands Free Stand

An accessory is available which holds the reader at a convenient angle, allowing hands free scanning of items. Press in on the release buttons on both sides of the stand to raise the arm of the stand as shown in [Figure 4](#). The stand can optionally be attached to a counter or table using self-tapping screws or double-sided tape.

Figure 3. Adjusting the Stand Arm

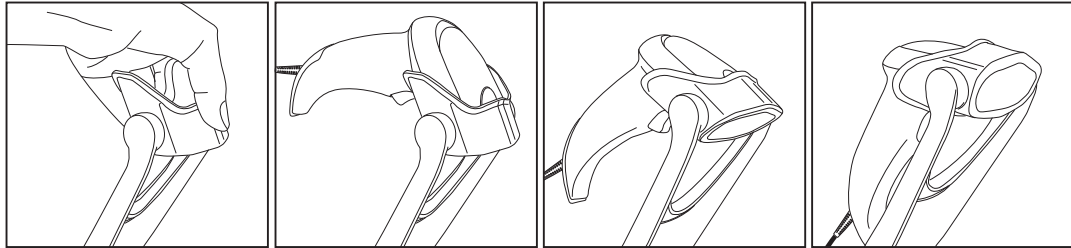


Hands Free Stand — continued

The holder cup can be positioned in any of the three angles shown in [Figure 4](#). Grasp the holder cup as indicated and rotate to the desired position.

Refer to [Scan Mode on page 30](#) for information about programming the reader for use with the stand.

Figure 4. Adjusting the Stand



This accessory can also be used as a holder to mount the reader on a wall or other vertical position as shown in [Figure 5](#).

Figure 5. Using the Wall Holder



Programming

The reader 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 reader 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 reader. Some programming bar code labels, like [Resetting the Product Configuration to Defaults on page 10](#), require only the scan of that single label to enact the change. Most of the programming labels in this manual, however, require the reader to be placed in Programming Mode prior to scanning them. Scan an ENTER/EXIT bar code once to enter Programming Mode. Once the reader is in Programming Mode, 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 reader 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 reader and its host, proceed directly to [Interfaces on page 11](#) for information and programming for the interface type the reader 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 reader 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 reader, turn to the appropriate section for your interface type as listed below:

- [RS-232 ONLY Interface, starting on page 37](#)
- [RS-232/USB-Com Interfaces, starting on page 43](#)
- [Keyboard Interface, starting on page 53](#)
- [USB-OEM Interface, starting on page 65](#)

Configure Other Features

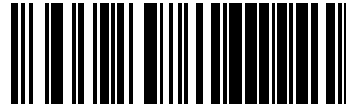
If your installation requires different programming than the standard factory default settings, the following sections of this manual allow configuration of non-interface-specific settings you might require:

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

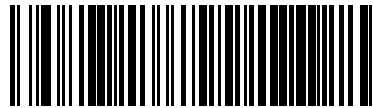
Resetting the Product Configuration to Defaults

If you aren't sure what programming options are in your reader, or you've changed some options and want to restore the Custom Default Configuration that may have been saved in the reader, 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 reader for the correct interface before scanning this label.



Restore Custom Default Configuration

If you aren't sure what programming options are in your reader, 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 reader 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:

USB Models (all are 2.0 full speed)

USB KBD

USB COM STD

USB OEM

RS-232 / Keyboard Wedge Models

RS-232 (Standard, Wincor-Nixdorf, OPOS)

Keyboard Wedge

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.

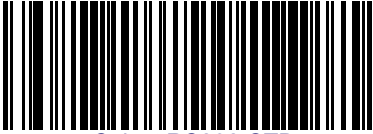
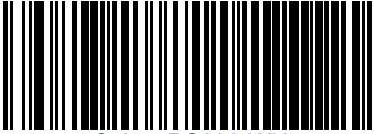
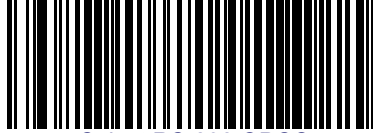
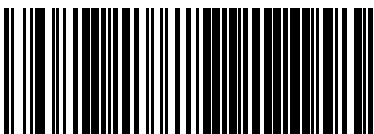


NOTE

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.

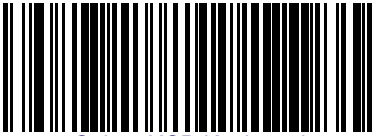
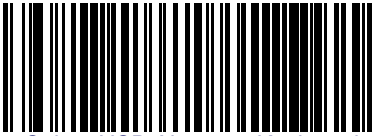
Some interfaces require the reader to start in the disabled state when powered up. If additional reader configuration is desired while in this state, pull the trigger and hold it for five seconds. The reader will change to a state that allows programming with bar codes.

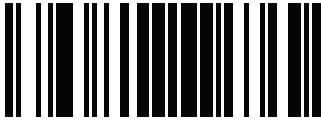
Table 1. Available Interfaces

RS-232		FEATURES
RS-232 standard interface	 Select RS232-STD	Set RS-232 Interface Features starting on page 37
 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	
USB-OEM		FEATURES
USB-OEM (can be used for OPOS/UPOS/JavaPOS)	 Select USB-OEM	Set USB-OEM Interface Features starting on page 65

^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>Set KEYBOARD WEDGE Interface Features starting on page 53</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>	

KEYBOARD — cont.	FEATURES
<p data-bbox="175 289 634 319">USB Keyboard with standard key encoding</p>  <p data-bbox="818 369 1049 399">Select USB Keyboard</p>	<p data-bbox="1230 315 1409 499">Set KEYBOARD WEDGE Interface Features starting on page 53</p>
 <p data-bbox="237 579 565 609">Select USB Alternate Keyboard</p> <p data-bbox="708 499 1162 529">USB Keyboard with alternate key encoding</p>	



ENTER/EXIT PROGRAMMING MODE

Global Interface Features


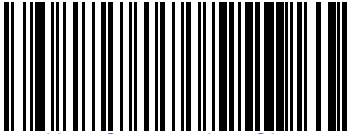
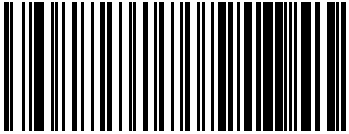
The following interface features are configurable by all interface types. To set features specific to your interface, turn to that section of this manual:

- [RS-232 ONLY Interface on page 37](#)
- [RS-232/USB-Com Interfaces on page 43](#)
- [Keyboard Interface on page 53](#)
- [USB-OEM Interface on page 65](#)

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:

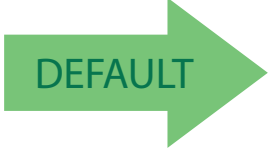

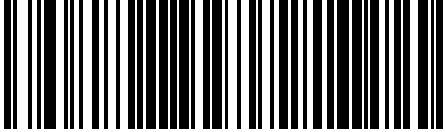
- service mode
- flash programming mode
- keeping the interface active
- transmission of labels.

	 <p>Host Commands = Obey</p>
 <p>Host Commands = Ignore</p>	



USB Suspend Mode

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

	 <p>USB Suspend Mode = Disable</p>
 <p>USB Suspend Mode = Enable</p>	

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

	 <p>Double Read Timeout = 0.5 Second</p>
 <p>Double Read Timeout = 0.6 Second</p>	
	 <p>Double Read Timeout = 0.7 Second</p>
 <p>Double Read Timeout = 0.8 Second</p>	
	 <p>Double Read Timeout = 0.9 Second</p>
 <p>Double Read Timeout = 1 Second</p>	



ENTER/EXIT PROGRAMMING MODE

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. See [Label Gone Timeout on page 244](#) for more detailed programming instructions.

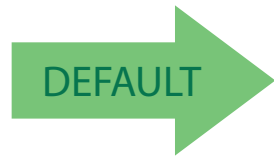


Select Label Gone Timeout Setting

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



016 = Timeout of 160 ms



Power Save Mode




When this feature is enabled, the reader will enter Power Save Mode (a lower power consumption state) after being idle (no scanner activity) for one second.



NOTE

RS-232 and USB interfaces ONLY.

A reader having a Scan Mode setting of Object Sense, Stand Mode, Flashing, or Always On will not enter Power Save Mode. (The reader is always internally active when in these modes.)

	 <p>Power Save Mode = Disabled</p>
 <p>Power Save Mode = Enabled</p>	



ENTER/EXIT PROGRAMMING MODE

Sleep Mode Timeout

Specifies the timeout value for the reader to enter Sleep Mode (a very low power consumption state).

**NOTE****RS-232 interface ONLY.**

A reader having a Scan Mode setting of Object Sense, Stand Mode, Flashing, or Always On will not enter Sleep Mode. (The reader is always internally active when in these modes.)

	<p>Sleep Mode Timeout = Disabled</p>
<p>Sleep Mode Timeout = 30 Seconds</p>	
	<p>Sleep Mode Timeout = 1 Minute (60 Seconds)</p>
<p>Sleep Mode Timeout = 1 Minute 30 Seconds (90 Seconds)</p>	
	<p>Sleep Mode Timeout = 2 Minutes (120 Seconds)</p>

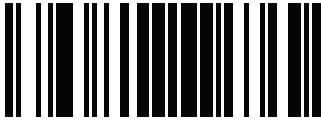


LED and Beeper Indicators

Power On Alert

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

	 <p>Power On Alert = Disable (No Audible Indication)</p>
 <p>Power On Alert = Power-up Beep</p>	



ENTER/EXIT PROGRAMMING MODE

Good Read: When to Indicate


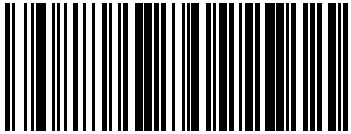
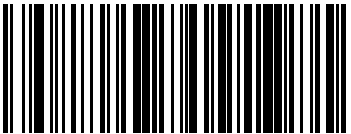
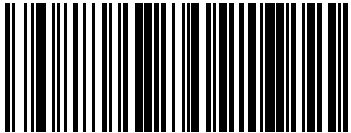
This feature specifies when the reader will provide indication (beep and/or flash its green LED) upon successfully reading a bar code. Choices are:

- 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.

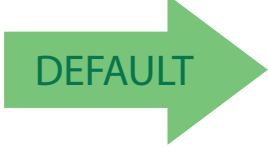
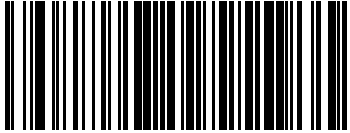
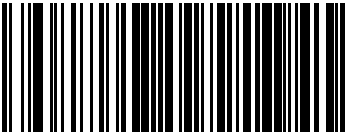
NOTE

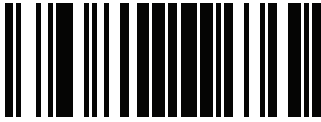
	 <p>Indicate Good Read = After Decode</p>
 <p>Indicate Good Read = After Transmit</p>	
	 <p>Indicate Good Read = After CTS Goes Inactive, Then Active</p>



Good Read Beep Type

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

	 <p>Good Read Beep Type = Mono</p>
 <p>Good Read Beep Type = Bitonal</p>	



ENTER/EXIT PROGRAMMING MODE

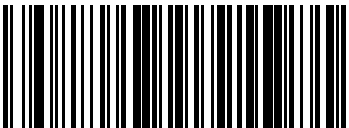
Good Read Beep Frequency

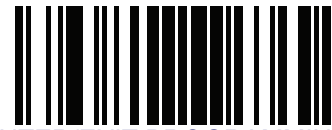
Adjusts the good read beep to sound at a selectable low, medium or high frequency, selectable from the list below. (Controls the beeper's pitch/tone.)

	 <p>Good Read Beep Frequency = Low</p>
 <p>Good Read Beep Frequency = Medium</p>	
	 <p>Good Read Beep Frequency = High</p>

Good Read Beep Length

Specifies the duration of a good read beep.

	 <p>Good Read Beep Length = 60 msec</p>
--	---



ENTER/EXIT PROGRAMMING MODE

Good Read Beep Length — continued

<p>Good Read Beep Length = 80 msec</p>	
	<p>Good Read Beep Length = 100 msec</p>
<p>Good Read Beep Length = 120 msec</p>	
	<p>Good Read Beep Length = 140 msec</p>
<p>Good Read Beep Length = 160 msec</p>	
	<p>Good Read Beep Length = 180 msec</p>
<p>Good Read Beep Length = 200 msec</p>	



ENTER/EXIT PROGRAMMING MODE

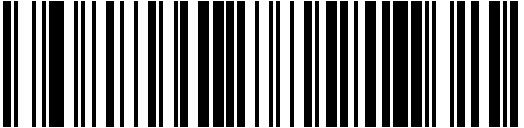
Illumination Control

Controls illumination during a good read beep.



Setting this configuration item to turn off illumination during the beep reduces the peak current drawn by the reader in some scanning modes.

NOTE

	 <p>Illumination Control = Illumination off during beep</p>
 <p>Illumination Control = Illumination and beep are independently controlled</p>	



Good Read Beep Volume

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



	 <p>Good Read Beep Volume = Beeper Off</p>
 <p>Good Read Beep Volume = Low</p>	
	 <p>Good Read Beep Volume = Medium</p>
 <p>Good Read Beep Volume = High</p>	

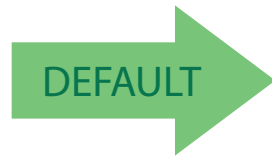


ENTER/EXIT PROGRAMMING MODE

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. See [Good Read LED Duration on page 245](#) for more detailed programming instructions.

 <p>Select Good Read LED Duration Setting</p>	
<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>	 <p>CANCEL</p>



020 = Good Read LED stays on for 2 seconds.



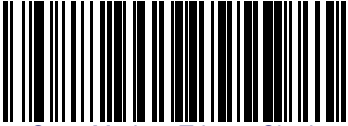

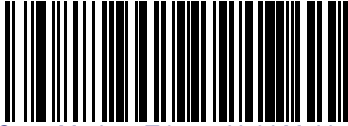
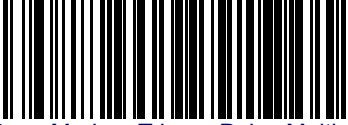




Indicators are dimmed during sleep.

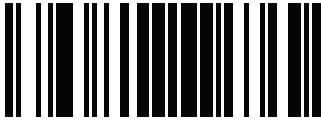
NOTE

Scanning Features

Scan Mode

See [Scan Mode on page 246](#) for more detailed programming instructions.

 <p>Scan Mode = Trigger Single</p>	
	 <p>Scan Mode = Trigger Hold Multiple</p>
 <p>Scan Mode = Trigger Pulse Multiple</p>	
	 <p>Scan Mode = Flashing</p>
 <p>Scan Mode = Always On</p>	
	 <p>Scan Mode = Autosense[®] Stand Mode</p>
 <p>Scan Mode = Trigger Object Sense</p>	



ENTER/EXIT PROGRAMMING MODE

Stand Mode Triggered Timeout

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



This timeout is only used when the Scan Mode is configured as **Auto-sense® Stand Mode**.

NOTE

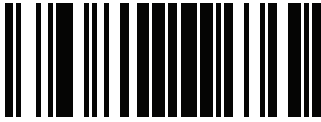
 <p>Stand Mode Triggered Timeout = 0.5 Seconds</p>	
	 <p>Stand Mode Triggered Timeout = 1.5 Seconds</p>
 <p>Stand Mode Triggered Timeout = 2 Seconds</p>	
	 <p>Stand Mode Triggered Timeout = 3 Seconds</p>
 <p>Stand Mode Triggered Timeout = 4 Seconds</p>	



ENTER/EXIT PROGRAMMING MODE

Stand Mode Triggered Timeout — continued


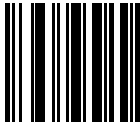
	 <p>Stand Mode Triggered Timeout = 6 Seconds</p>
 <p>Stand Mode Triggered Timeout = 8 Seconds</p>	
	 <p>Stand Mode Triggered Timeout = Switch back to Trigger Single on trigger pull</p>

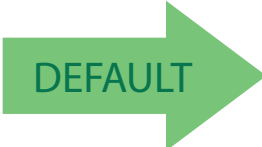


ENTER/EXIT PROGRAMMING MODE

Scanning Active Time

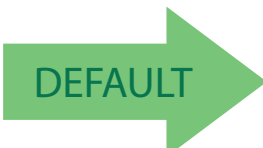
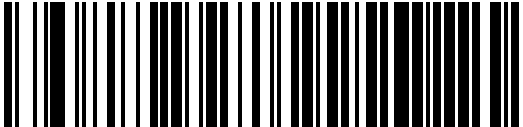
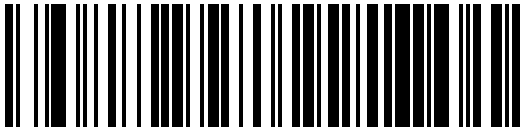
This setting specifies the amount of time that the reader stays in scan ON state once the state is entered. The range for this setting is from 1 to 255 seconds in 1-second increments. See [Scanning Active Time on page 247](#) for more detailed programming instructions.

 <p>Select Scanning Active Time Setting</p>	
<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>	 <p>CANCEL</p>

 **DEFAULT** 005 = Scanning is active for 5 Seconds

Stand Mode Flash

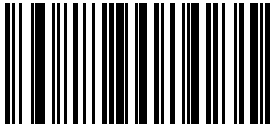
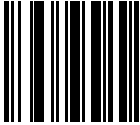
Enables/disables the LED flash when the reader is in Stand Mode.

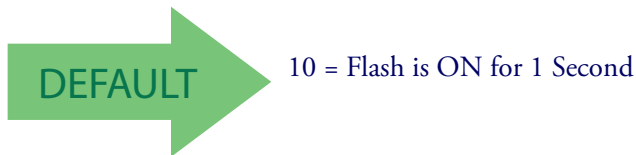
 DEFAULT	 <p>Stand Mode Flash = Disable</p>
 <p>Stand Mode Flash = Enable</p>	



Flash On Time

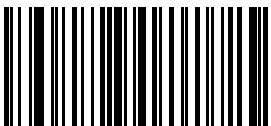

This feature specifies the ON time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments. See [Flash On Time on page 248](#) for more detailed programming instructions.

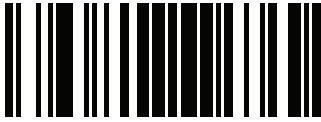
 <p>Select Flash ON Time Setting</p>	
<p>Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.</p>	 <p>CANCEL</p>



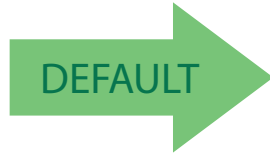
Flash Off Time

This feature specifies the OFF time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments. See [Flash Off Time on page 249](#) for more detailed programming instructions.

 <p>Select Flash OFF Time Setting</p>	
<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>	 <p>CANCEL</p>



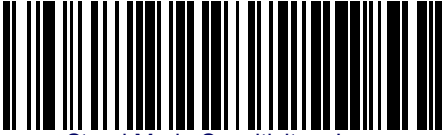
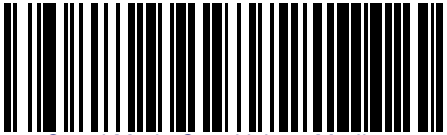

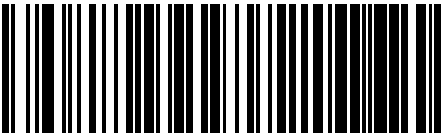
ENTER/EXIT PROGRAMMING MODE



06 = Flash is OFF for 600ms

Stand Mode Sensitivity

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

	 <p>Stand Mode Sensitivity = Low</p>
 <p>Stand Mode Sensitivity = Medium</p>	
	 <p>Stand Mode Sensitivity = High</p>



Green Spot Duration

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

	 <p>Green Spot Duration = Disable (Green Spot is Off)</p>
 <p>Green Spot Duration = Short (300 msec)</p>	
	 <p>Green Spot Duration = Medium (500 msec)</p>
 <p>Green Spot Duration = Long (800 msec)</p>	

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



ENTER/EXIT PROGRAMMING MODE

Baud Rate — continued




 <p>Baud Rate = 9600</p>	
	 <p>Baud Rate = 19,200</p>
 <p>Baud Rate = 38,400</p>	
	 <p>Baud Rate = 57,600</p>
 <p>Baud Rate = 115,200</p>	



ENTER/EXIT PROGRAMMING MODE

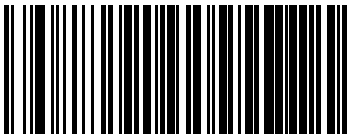
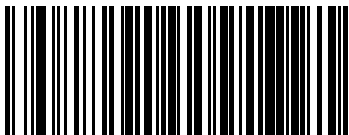
Data Bits

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

	 7 Data Bits
 8 Data Bits	

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.


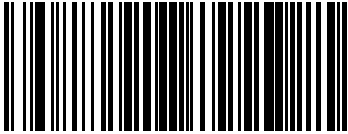
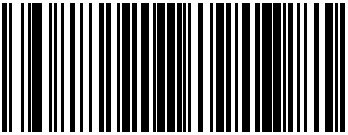
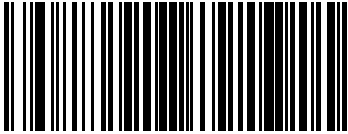
	 1 Stop Bit
 2 Stop Bits	

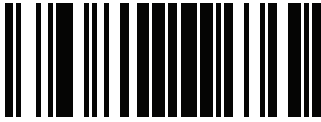


Parity

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

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

	 Parity = None
 Parity = Even	
	 Parity = Odd

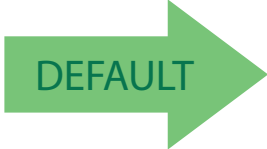
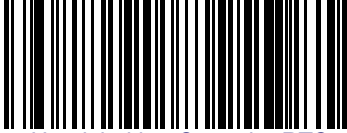
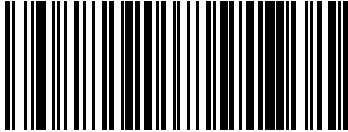
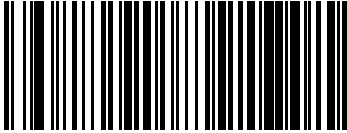
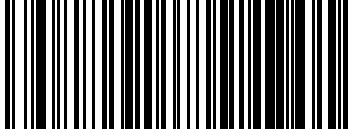
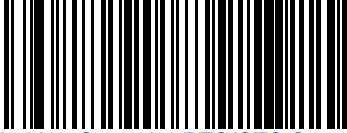


ENTER/EXIT PROGRAMMING MODE

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 reader.

	 <p>Handshaking Control = RTS</p>
 <p>Handshaking Control = RTS/CTS</p>	
	 <p>Handshaking Control = RTS/XON/XOFF</p>
 <p>Handshaking Control = RTS On/CTS</p>	
	 <p>Handshaking Control = RTS/CTS Scan Control</p>

NOTES

RS-232/USB-Com Interfaces

Introduction

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

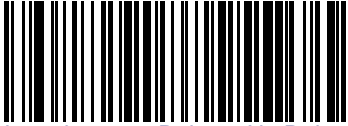
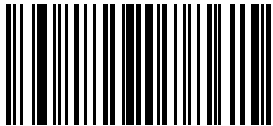

Standard Factory Settings

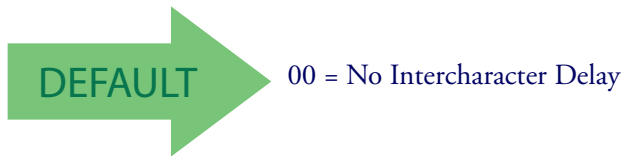
Reference [Appendix B, Standard Defaults](#) for a listing of standard factory settings.



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. See [Intercharacter Delay on page 250](#) for more detailed programming instructions.

	 <p>Intercharacter Delay = No Delay</p>
 <p>Select Intercharacter Delay Setting</p>	
<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>	 <p>CANCEL</p>





ENTER/EXIT PROGRAMMING MODE

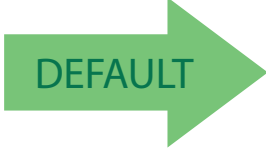
Beep On ASCII BEL

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.

 <p>Beep On ASCII BEL = Disable</p>	
	 <p>Beep On ASCII BEL = Enable</p>

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.

 <p>Beep On Not On File = Disable</p>	
	 <p>Beep On Not On File = Enable</p>



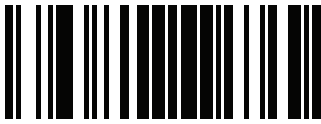
ACK NAK Options

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

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



ENTER/EXIT PROGRAMMING MODE

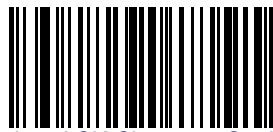
ACK Character

This setting specifies an ASCII character or hex value to be used as the ACK character. ASCII characters or any hex value from 0 to 0xFF can be selected. See [ACK Character on page 251](#) for more detailed programming instructions.



NOTE

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



Select ACK Character Setting

DEFAULT

0x06 'ACK' Character

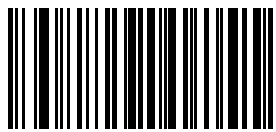
NAK Character

This setting specifies an ASCII character or hex value to be used as the NAK character. ASCII characters or any hex value from 0 to 0xFF can be selected. See [NAK Character on page 252](#) for more detailed programming instructions.



NOTE

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



Select NAK Character Setting

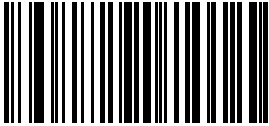

DEFAULT

0x15 'NAK' Character



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. See [ACK NAK Timeout Value on page 253](#) for more detailed programming instructions.

 <p>Select ACK NAK Timeout Value Setting</p>	
<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>	 <p>CANCEL</p>





ENTER/EXIT PROGRAMMING MODE

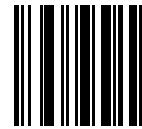
ACK NAK Retry Count

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. See [ACK NAK Retry Count on page 254](#) for more detailed programming instructions.



Select ACK NAK Retry Count 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

003 = 3 Retries

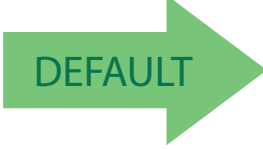
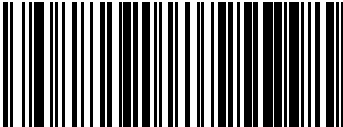

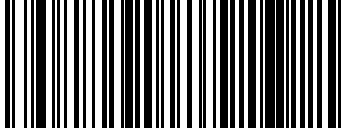


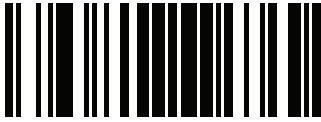
ACK NAK Error Handling

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

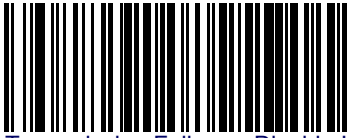
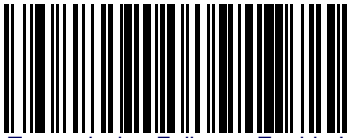

	 ACK NAK Error Handling = Ignore Errors Detected
 ACK NAK Error Handling = Process Error as Valid ACK Character	
	 ACK NAK Error Handling = Process Error as Valid NAK Character



ENTER/EXIT PROGRAMMING MODE

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.

	 <p>Indicate Transmission Failure = Disable Indication</p>
 <p>Indicate Transmission Failure = Enable Indication</p>	

Disable Character


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

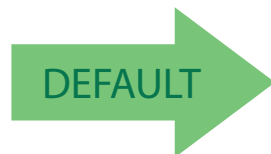
ASCII characters or any hex value from 0 to 0xFF can be selected. See [Disable Character on page 255](#) for more detailed programming instructions.



NOTE

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

 <p>Select Disable Character Setting</p>	
---	--



0x44 = Disable Character is 'D'



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. See [Enable Character on page 256](#) for more detailed programming instructions.

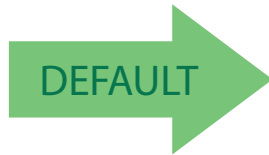


NOTE

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



Select Enable Character Setting



0x45 = Enable Character is 'E'

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](#).



ENTER/EXIT PROGRAMMING MODE

Country Mode

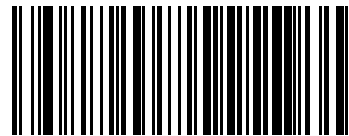
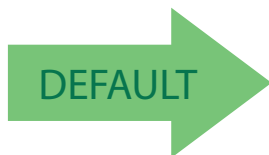
This feature specifies the country/language supported by the keyboard.

Country Modes are only valid for the following interfaces:

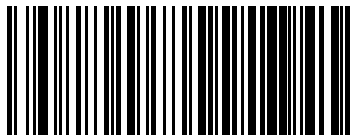
- USB Keyboard (without alternate key encoding)
- Keyboard Wedge

Below are the Country Modes supported by each product version (Standard or European):

Supported Country Codes	Standard Version	European Version
English (USA)	•	•
Spanish (Latin American)	•	•
Japanese	•	
Polish	•	
Portuguese (Brazilian)	•	•
Russian	•	
Hungarian	•	
Croatian	•	
Romanian	•	
Czech	•	
Slovakian	•	
Italian		•
French		•
German		•
English (British)		•
Swedish		•
Belgian		•
Danish		•
Norwegian		•
Swiss		•



Country Mode = English (USA)



Country Mode = Belgian



ENTER/EXIT PROGRAMMING MODE

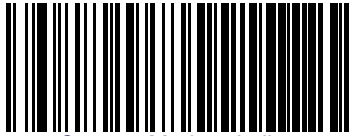
Country Mode – continued

	 Country Mode = English (British)
 Country Mode = Croatian	
	 Country Mode = Czech
 Country Mode = Danish	
	 Country Mode = French
 Country Mode = German	
	 Country Mode = Hungarian

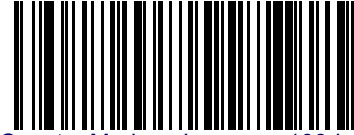


ENTER/EXIT PROGRAMMING MODE

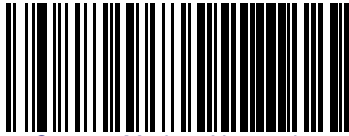
Country Mode – continued



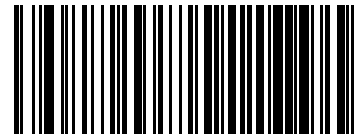
Country Mode = Italian



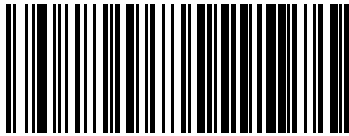
Country Mode = Japanese 106-key



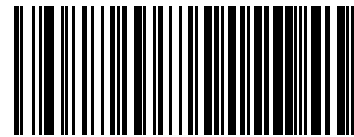
Country Mode = Norwegian



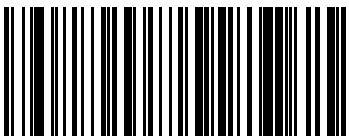
Country Mode = Polish



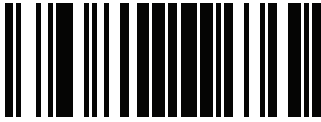
Country Mode = Portuguese (Brazilian)



Country Mode = Romanian



Country Mode = Slovakian



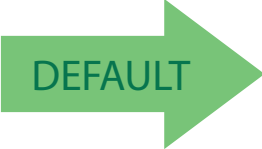
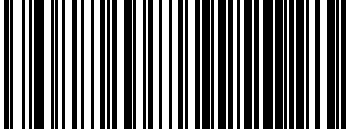
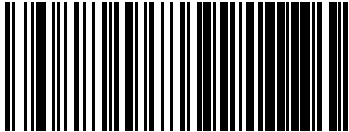
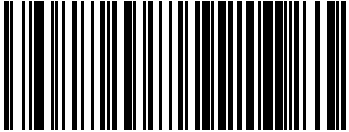
ENTER/EXIT PROGRAMMING MODE

Country Mode — continued

 <p>Country Mode = Spanish (Latin American)</p>	
	 <p>Country Mode = Swedish</p>
 <p>Country Mode = Swiss</p>	

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.

	 <p>Caps Lock State = Caps Lock OFF</p>
 <p>Caps Lock State = Caps Lock ON</p>	
	 <p>Caps Lock State = AUTO Caps Lock Enable</p>





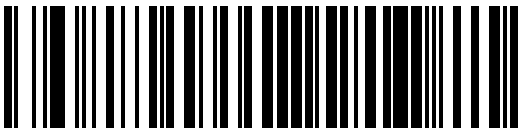
Numlock

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.

	 <p>Numlock = Numlock key unchanged</p>
 <p>Numlock = Numlock key toggled</p>	

Keyboard Numeric Keypad

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

	 <p>Keyboard Numeric Keypad = Standard Keys</p>
 <p>Keyboard Numeric Keypad = Numeric Keypad</p>	



ENTER/EXIT PROGRAMMING MODE

Keyboard Send Control Characters

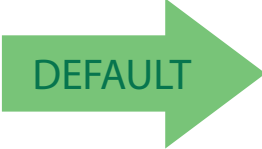
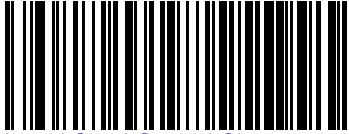
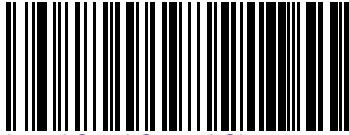
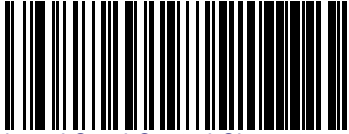
This feature is used by the Keyboard Wedge and USB Keyboard interfaces. It specifies how the reader transmits ASCII control characters to the host. Reference [Appendix F, Scancode Tables](#) for more information about control characters.

Options are as follows:

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

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

Send Special Function Key — Send characters between 00H and 1FH according to the special function key mapping table (see [Microsoft Windows Codepage 1252 on page 310](#)). This is used to send keys that are not in the normal ASCII set. A unique set is provided for each available scancode set.

	 <p>Keyboard Send Control Characters = 00</p>
 <p>Keyboard Send Control Characters = 01</p>	
	 <p>Keyboard Send Control Characters = 02</p>



ENTER/EXIT PROGRAMMING MODE

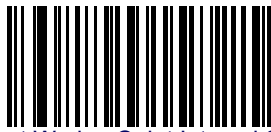
Wedge Quiet Interval

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. See [Wedge Quiet Interval on page 257](#) for more detailed programming instructions.



This feature applies ONLY to the Keyboard Wedge interface.

NOTE

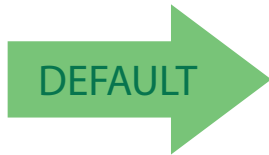


Select Wedge Quiet Interval Setting

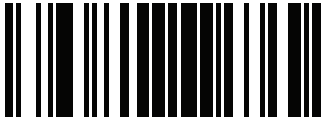
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL



10 = Quiet Interval of 100 ms



ENTER/EXIT PROGRAMMING MODE




Intercharacter Delay

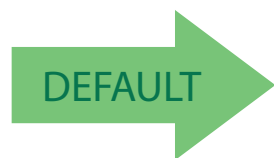
This parameter specifies the intercharacter delay between the end of one character and the beginning of the next. The delay can be set within a range of zero (0) to 990 milliseconds in 10ms increments. A setting of zero specifies no delay. See [Intercharacter Delay on page 258](#) for more detailed programming instructions.



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

NOTE

	 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

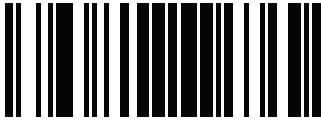


Intercode Delay

Specifies the delay between labels transmitted to the host for this interface. The selectable range for this feature is from 0 to 99 seconds. See [Intercode Delay on page 259](#) for more detailed programming instructions.

 <p>Set Intercode Delay</p>	
<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>	 <p>CANCEL</p>

 00 = No Wedge Intercode Delay



ENTER/EXIT PROGRAMMING MODE

USB Keyboard Speed

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



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

NOTE

	 <p>USB Keyboard Speed = 1ms</p>
 <p>USB Keyboard Speed = 2ms</p>	
	 <p>USB Keyboard Speed = 3ms</p>
 <p>USB Keyboard Speed = 4ms</p>	
	 <p>USB Keyboard Speed = 5ms</p>



USB Keyboard Speed – continued

 <p>USB Keyboard Speed = 6ms</p>	
	 <p>USB Keyboard Speed = 7ms</p>
 <p>USB Keyboard Speed = 8ms</p>	
	 <p>USB Keyboard Speed = 9ms</p>
 <p>USB Keyboard Speed = 10ms</p>	

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 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 readers. 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.

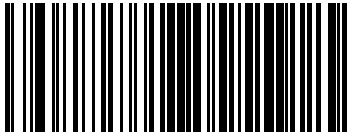
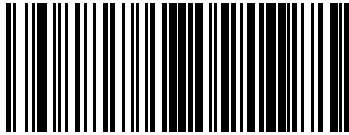

Options are:

- 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

	 USB-OEM Device Usage = Table Top Scanner
 USB-OEM Device Usage = Handheld Scanner	

USB-OEM Interface Options

This setting provides for an interface specific control mechanism..

Options are:

- Obey — Obey Reader Configuration Host Commands
- Ignore — Ignore Reader Configuration Host Commands

	 USB-OEM Interface Options = Obey
 USB-OEM Interface Options = Ignore	

Chapter 9

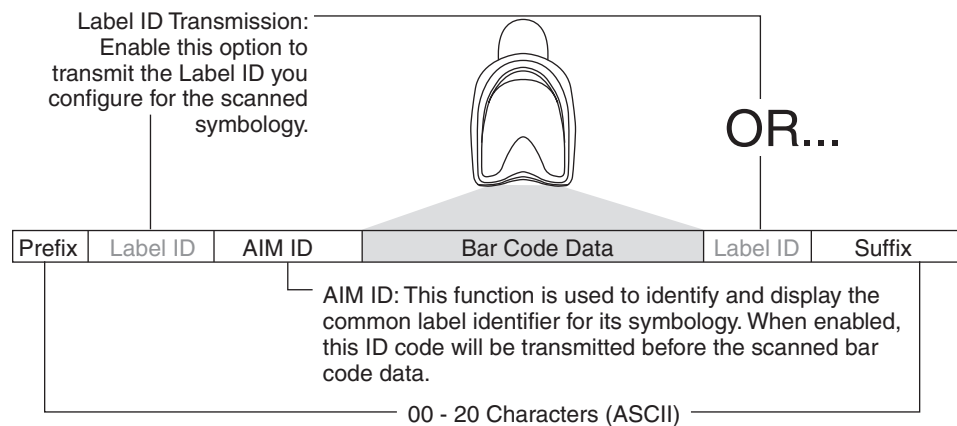
Data Editing

Data Editing Overview

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 6](#) shows the available elements you can add to a message string:

Figure 6. Breakdown of a Message String



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.

NOTE

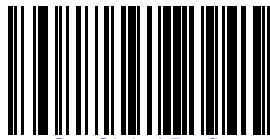
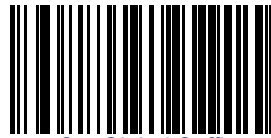


Please Keep In Mind...

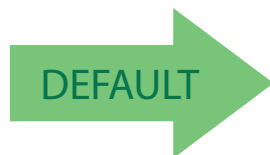
- Modifying a message string is not a mandatory requirement. Data editing is sophisticated feature allowing highly customizable output for advanced users. Factory default settings for data editing is typically set to NONE.
- A prefix or suffix may be applied (reference the [Symbologies](#) chapter for these settings) across all symbologies (set via the Global features in this chapter).
- You can add any character from the [ASCII Chart](#) (from 00-FF) 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

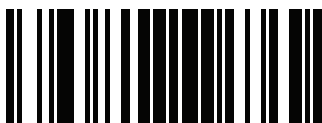
Up to 20 ASCII characters may be added as a prefix (in a position before the bar code data) and/or as a suffix (in a position following the bar code data) as indicated in . See [Global Prefix/Suffix on page 260](#) for more detailed programming instructions.

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



No Global Prefix
Global Suffix = 0x0D



ENTER/EXIT PROGRAMMING MODE

Global AIM ID



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

NOTE

AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned bar code data. See [Global AIM ID on page 261](#) for more detailed programming instructions.

	 <p>Global AIM ID = Disable</p>
 <p>Global AIM ID = Enable</p>	

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.

	 <p>GS1-128 AIM ID = Disable</p>
 <p>GS1-128 AIM ID = Enable</p>	



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 70](#)) or individually per symbology (see [Label ID: Set Individually Per Symbology on page 71](#)). 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 69](#).




Label ID: Pre-loaded Sets

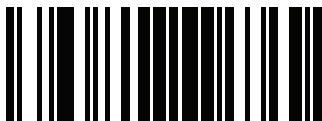
The reader supports two pre-loaded sets of Label IDs. shows the USA set and the EU set. See [Label ID: Pre-loaded Sets on page 262](#) for more information concerning the pre-loaded sets that are provided.



CAUTION

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

	 Label ID Pre-loaded Set = USA Set
 Label ID Pre-loaded Set = EU Set	



ENTER/EXIT PROGRAMMING MODE

Label ID: Set Individually Per Symbology

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

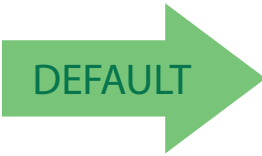
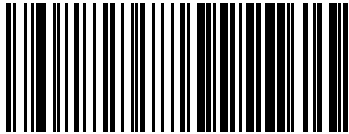
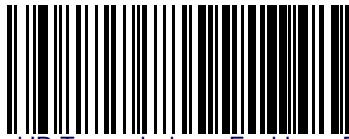
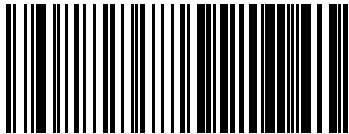
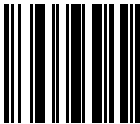


NOTE

This setting requires the scanning of bar codes from multiple sections. See [Label ID: Set Individually Per Symbology on page 264](#) for more detailed programming instructions.

Label ID Control

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

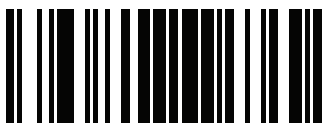
	 Label ID Transmission = Disable
 Label ID Transmission = Enable as Prefix	
	 Label ID Transmission = Enable as Suffix
 CANCEL	Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

Label ID — continued

Label ID Symbology Selection

This option selects the symbology for which a Label ID is to be configured. See [Label ID: Set Individually Per Symbology on page 264](#) for full instructions.

	 <p>Set UPC-A Label ID Character(s)</p>
 <p>Set UPC-A/P2 Label ID Character(s)</p>	
	 <p>Set UPC-A/P5 Label ID Character(s)</p>
 <p>Set UPC-A/GS1-128 Label ID Character(s)</p>	
	 <p>Set UPC-E Label ID Character(s)</p>
 <p>Set UPC-E/P2 Label ID Character(s)</p>	



ENTER/EXIT PROGRAMMING MODE

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: Set Individually Per Symbology on page 264](#) for full instructions.

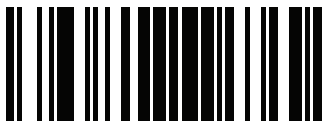
	 <p>Set UPC-E/P5 Label ID Character(s)</p>
 <p>Set UPC-E/GS1-128 Label ID Character(s)</p>	
	 <p>Set EAN 13 Label ID Character(s)</p>
 <p>Set EAN 13/P2 Label ID Character(s)</p>	
	 <p>Set EAN 13/P5 Label ID Character(s)</p>
 <p>Set EAN 13/GS1-128 Label ID Character(s)</p>	

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: Set Individually Per Symbology on page 264](#) for full instructions.

	 <p>Set EAN 8 Label ID Character(s)</p>
 <p>Set EAN 8/P2 Label ID Character(s)</p>	
	 <p>Set EAN 8/P5 Label ID Character(s)</p>
 <p>Set EAN 8/GS1-128 Label ID Character(s)</p>	
	 <p>Set GS1 DataBar Omnidirectional Label ID Character(s)</p>
 <p>Set GS1 DataBar Expanded Label ID Character(s)</p>	



ENTER/EXIT PROGRAMMING MODE

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: Set Individually Per Symbology on page 264](#) for full instructions.

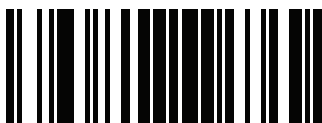
	 <p>Set GS1 DataBar Limited Label ID Character(s)</p>
 <p>Set Code 39 Label ID Character(s)</p>	
	 <p>Set Code 32 Label ID Character(s)</p>
 <p>Set Code 39 CIP Label ID Character(s)</p>	
	 <p>Set Code 128 Label ID Character(s)</p>
 <p>Set GS1-128 Label ID Character(s)</p>	

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: Set Individually Per Symbology on page 264](#) for full instructions.

 <p>Set Interleaved 2 of 5 Label ID Character(s)</p>	
	 <p>Set Interleaved 2 of 5 CIP HR Label ID Character(s)</p>
 <p>Set Datalogic 2 of 5 CIP HR Label ID Character(s)</p>	
	 <p>Set Codabar Label ID Character(s)</p>
 <p>Set ABC Codabar Label ID Character(s)</p>	
	 <p>Set Code 11 Label ID Character(s)</p>



ENTER/EXIT PROGRAMMING MODE

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: Set Individually Per Symbology on page 264](#) for full instructions.

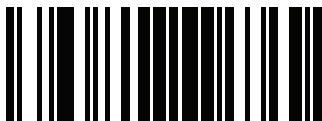
	 <p>Set Standard 2 of 5 Label ID Character(s)</p>
 <p>Set Industrial 2 of 5 Label ID Character(s)</p>	
	 <p>Set ISSN Label ID Character(s)</p>
 <p>Set IATA Label ID Character(s)</p>	
	 <p>Set Concatenated ISBT 128 Label ID Character(s)</p>
 <p>Set MSI Label ID Character(s)</p>	

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: Set Individually Per Symbology on page 264](#) for full instructions.

	 <p>Set Code 93 Label ID Character(s)</p>
 <p>Set Codablock F Label ID Character(s)</p>	
	 <p>Set Code 4 Label ID Character(s)</p>
 <p>Set Code 5 Label ID Character(s)</p>	
	 <p>Set Follett 2 of 5 Label ID Character(s)</p>



ENTER/EXIT PROGRAMMING MODE

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: Set Individually Per Symbology on page 264](#) for full instructions.

 <p data-bbox="347 646 685 676">Set ISBN Label ID Character(s)</p>	
	 <p data-bbox="915 848 1399 877">Set Concatenated ISBT Label ID Character(s)</p>



Set Global Mid Label ID Character(s)

Specifies a mid-label ID that is added for transmission between the labels of a two label pair. The expected string is a maximum of 20 characters. When combining two label pairs into a single label for transmission to the host, this label ID can be added to the data, following the first label and preceding the second label. To set this feature...

1. Scan the ENTER/EXIT bar code.
2. Determine the desired character(s) (you may choose up to twenty) which will represent the Mid Label ID for two label pairs. If the first character is 00, then nothing is added between the two labels.
3. Turn to the [ASCII Chart](#) on the inside back cover of this manual and find the equivalent hex digits associated with your choice of Label ID. For example, if you wish to select the characters 'M', 'I' and 'D' as a Label ID, the chart indicates its associated hex characters as 4D4944. Turn to [Keypad, starting on page 297](#) and scan the bar codes representing the hex characters determined. For the example given, the characters '4', 'D', '4', '9', '4' and '4' would be scanned. More examples of Label ID settings are provided in [Table 18](#).

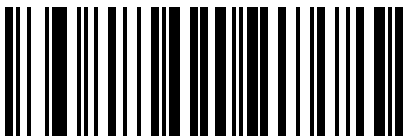


If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

NOTE

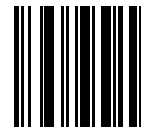
4. The reader will save the string and exit Programming Mode when...
 - the ENTER/EXIT bar code is scanned a second time, or
 - the hex values for all twenty available characters have been entered, or
 - the first 00 hex value entered terminates the string.

This completes the steps to configure a Global Mid Label ID for two label pairs.

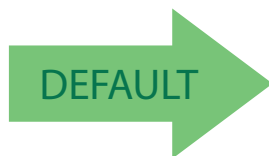


Set Global Mid Label ID Character(s)

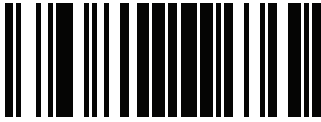
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL



No Global Mid Label ID Character(s)
00000000000000000000



ENTER/EXIT PROGRAMMING MODE

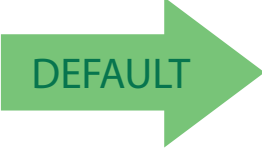
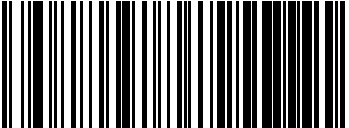
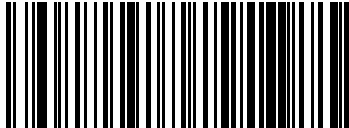
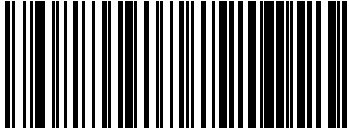
Case Conversion

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.

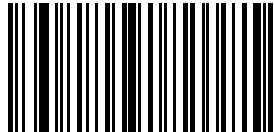
NOTE

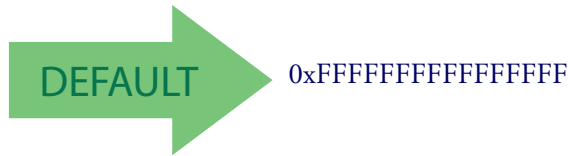
	 Case Conversion = Disable (no case conversion)
 Case Conversion = Convert to upper case	
	 Case Conversion = Convert to lower case



Character Conversion

Character conversion is an eight byte configuration item. The eight bytes are 4 character pairs represented in hexadecimal ASCII values. The first character in the pair is the character that will be converted. The second character in the pair is the character to convert to. If the character to convert in a pair is FF, then no conversion is done. See [Character Conversion on page 266](#) for more detailed programming instructions.

	 Configure Character Conversion
--	--



Chapter 10

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
- EAN 13
- 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
- Code 93
- Codablock F
- Code 4
- Code 5
- Follett 2 of 5
- BC412

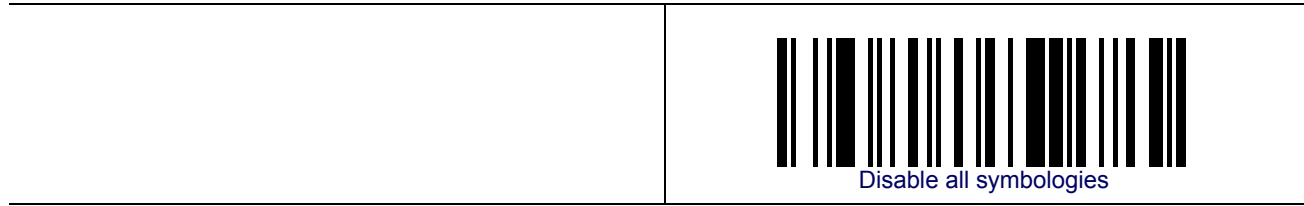
Standard Factory Settings for Symbologies

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.



Coupon Control

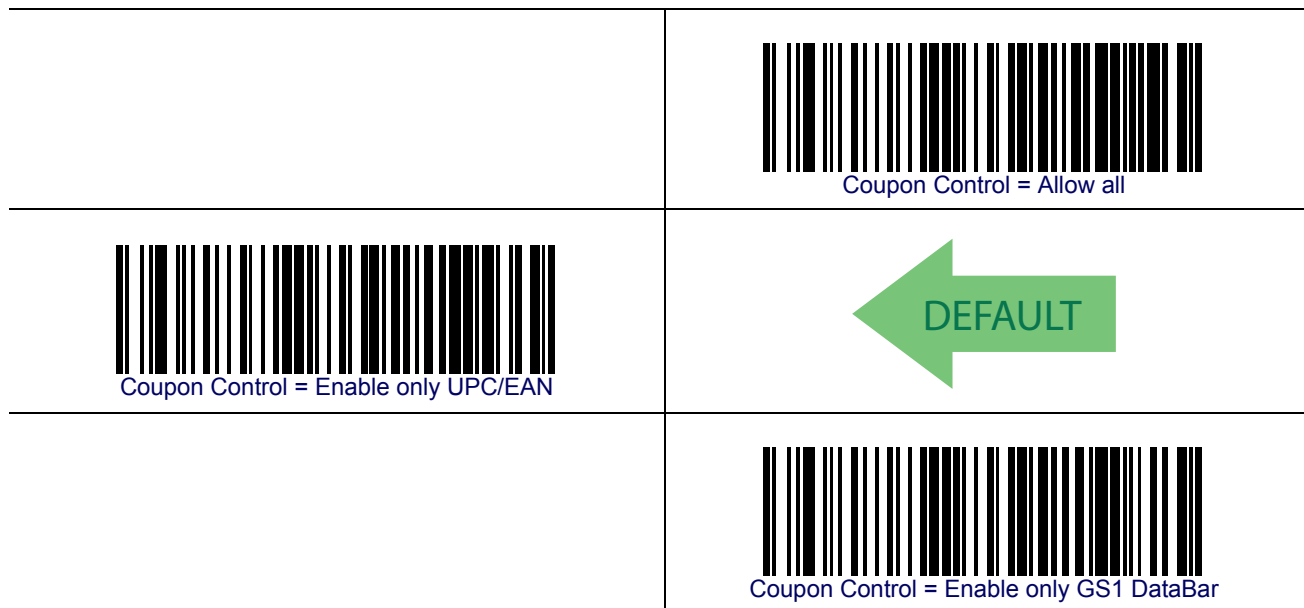
This feature is used to control the method of processing coupon labels.

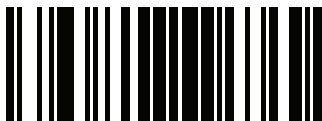
Options are:

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

To set this feature:

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





ENTER/EXIT PROGRAMMING MODE

UPC-A

The following options apply to the UPC-A symbology.

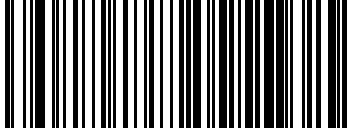
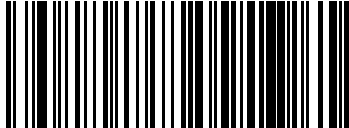

UPC-A Enable/Disable

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

	 UPC-A = Disable
 UPC-A = Enable	

UPC-A Check Character Transmission

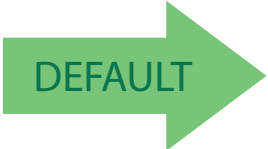
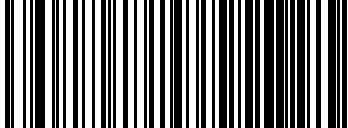
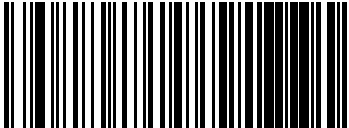
Enable this option to transmit the check character along with UPC-A bar code data.

	 UPC-A Check Character Transmission = Don't Send
 UPC-A Check Character Transmission = Send	

UPC-A — cont.


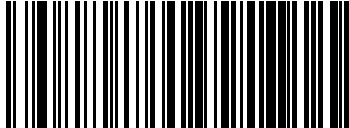

Expand UPC-A to EAN-13

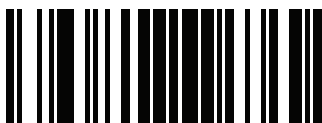
Expands UPC-A data to the EAN-13 data format. Selecting this feature also changes the symbology ID to match those required for EAN-13.

	 <p>UPC-A to EAN-13 = Don't Expand</p>
 <p>UPC-A to EAN-13 = Expand</p>	

UPC-A Number System Character Transmission

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

	 <p>UPC-A Number System Character = Do not transmit</p>
 <p>UPC-A Number System Character = Transmit</p>	



ENTER/EXIT PROGRAMMING MODE

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'.

	 <p>In-Store Minimum Reads = 1</p>
 <p>In-Store Minimum Reads = 2</p>	
	 <p>In-Store Minimum Reads = 3</p>
 <p>In-Store Minimum Reads = 4</p>	



UPC-E

The following options apply to the UPC-E symbology.

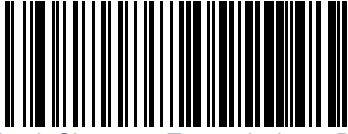
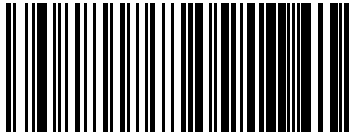

UPC-E Enable/Disable

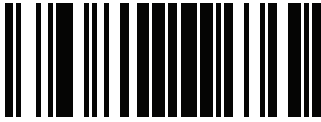
When disabled, the reader will not read UPC-E bar codes.

	 UPC-E = Disable
 UPC-E = Enable	

UPC-E Check Character Transmission

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

	 UPC-E Check Character Transmission = Don't Send
 UPC-E Check Character Transmission = Send	

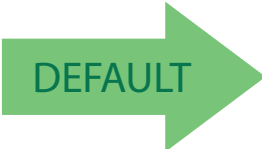
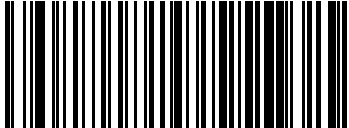
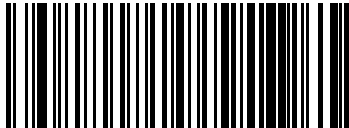


ENTER/EXIT PROGRAMMING MODE

UPC-E — cont.

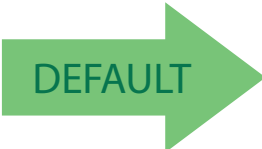
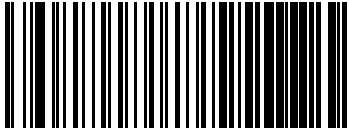
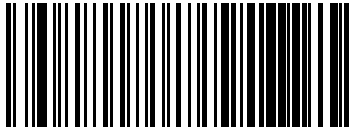
Expand UPC-E to EAN-13

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.

	 <p>UPC-E to EAN-13 = Don't Expand</p>
 <p>UPC-E to EAN-13 = Expand</p>	

Expand UPC-E to UPC-A


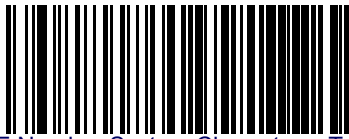

Expands UPC-E data to the UPC-A data format.

	 <p>UPC-E to UPC-A = Don't Expand</p>
 <p>UPC-E to UPC-A = Expand</p>	

UPC-E — cont.

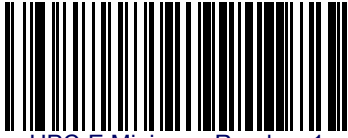
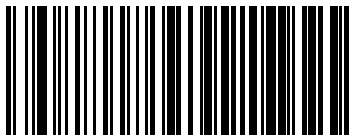

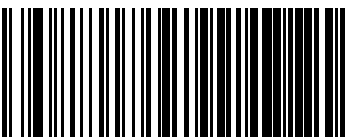
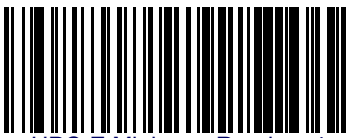
UPC-E Number System Character Transmission

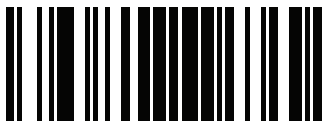
This feature enables/disables transmission of the UPC-E system number character.

	 <p>UPC-E Number System Character = Do not transmit</p>
 <p>UPC-E Number System Character = Transmit</p>	

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.

	 <p>UPC-E Minimum Reads = 1</p>
 <p>UPC-E Minimum Reads = 2</p>	
	 <p>UPC-E Minimum Reads = 3</p>
 <p>UPC-E Minimum Reads = 4</p>	



ENTER/EXIT PROGRAMMING MODE

EAN 13

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

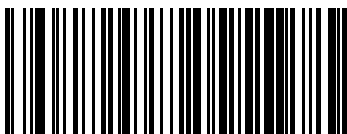
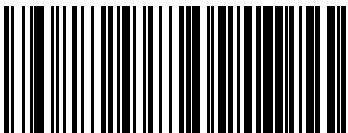

EAN 13 Enable/Disable

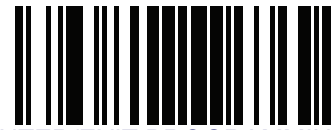
When disabled, the reader will not read EAN 13/JAN 13 bar codes.

	 <p>EAN 13 = Disable</p>
 <p>EAN 13 = Enable</p>	

EAN 13 Check Character Transmission

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

	 <p>EAN 13 Check Character Transmission = Don't Send</p>
 <p>EAN 13 Check Character Transmission = Send</p>	



EAN 13 — cont.

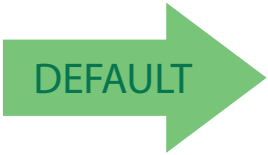


EAN-13 Flag 1 Character

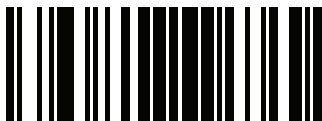
Enables/disables transmission of an EAN/JAN13 Flag1 character. The Flag 1 character is the first character of the label.

EAN-13 ISBN Conversion

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



ENTER/EXIT PROGRAMMING MODE

EAN 13 — cont.

ISSN Enable/Disable

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

	 <p>ISSN = Disable</p>
 <p>ISSN = Enable</p>	

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.

	 <p>EAN 13 Minimum Reads = 1</p>
 <p>EAN 13 Minimum Reads = 2</p>	
 <p>EAN 13 Minimum Reads = 3</p>	 <p>EAN 13 Minimum Reads = 3</p>
 <p>EAN 13 Minimum Reads = 4</p>	



EAN 8

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

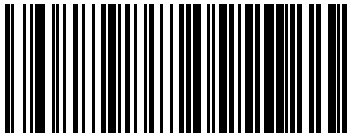
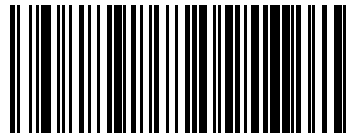

EAN 8 Enable/Disable

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

	 EAN 8 = Disable
 EAN 8 = Enable	

EAN 8 Check Character Transmission

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

	 EAN 8 Check Character Transmission = Don't Send
 EAN 8 Check Character Transmission = Send	

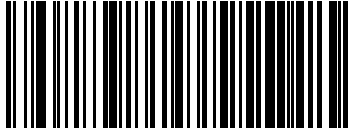
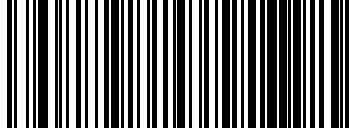


ENTER/EXIT PROGRAMMING MODE

EAN 8 — cont.

Expand EAN 8 to EAN 13

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

	 <p>Expand EAN 8 to EAN 13 = Disable</p>
 <p>Expand EAN 8 to EAN 13 = Enable</p>	

EAN 8 Both Guards Substitution

Enables/disables the ability of the reader to find an EAN/JAN8 guard pattern in cases where the EAN/JAN8 margin makes the guard look like a character.

	 <p>EAN 8 Both Guards Substitution = Disable</p>
 <p>EAN 8 Both Guards Substitution = Enable</p>	

EAN 8 — cont.

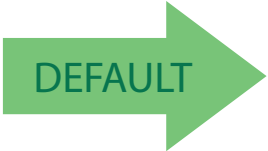
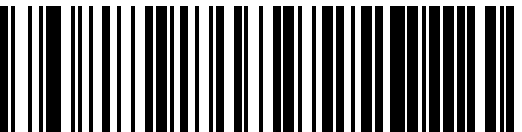

EAN 8 Guard Insertion

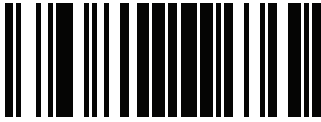
Enables/disables the ability to insert a guard into an otherwise full-strike EAN 8 segment.

	 <p>EAN 8 Guard Insertion = Disable</p>
 <p>EAN 8 Guard Insertion = Enable</p>	

EAN 8 Guard Substitution

Enables/disables the ability of the reader to substitute guard pattern for even parity 6 when an EAN/JAN8 label is presented.

	 <p>EAN 8 Guard Substitution = Disable</p>
 <p>EAN 8 Guard Substitution = Enable</p>	



ENTER/EXIT PROGRAMMING MODE

EAN 8 — cont.

EAN 8 Minimum Segment Length Block

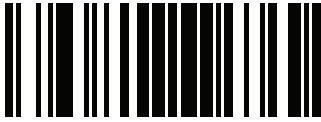
Specifies the minimum number of characters necessary in an EAN/JAN8 label segment in order for the reader to accept the segment for decoding.

	 <p>EAN 8 Minimum Segment Length Block = 5</p>
 <p>EAN 8 Minimum Segment Length Block = 6</p>	
	 <p>EAN 8 Minimum Segment Length Block = 7</p>
 <p>EAN 8 Minimum Segment Length Block = 8</p>	
	 <p>EAN 8 Minimum Segment Length Block = 9</p>
 <p>EAN 8 Minimum Segment Length Block = 10</p>	

EAN 8 — cont.

EAN 8 Minimum Segment Length Block — cont.

	 <p>EAN 8 Minimum Segment Length Block = 11</p>
 <p>EAN 8 Minimum Segment Length Block = 12</p>	
	 <p>EAN 8 Minimum Segment Length Block = 13</p>
 <p>EAN 8 Minimum Segment Length Block = 14</p>	
	 <p>EAN 8 Minimum Segment Length Block = 15</p>



ENTER/EXIT PROGRAMMING MODE

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.

	 EAN 8 Minimum Reads = 1
 EAN 8 Minimum Reads = 2	
	 EAN 8 Minimum Reads = 3
 EAN 8 Minimum Reads = 4	

EAN 8 — cont.

EAN 8 Stitch Exact Label Halves

Enables/disables the ability to stitch exact EAN 8 label halves with no overlapping characters.



The label halves being stitched together to assemble a complete label must have the structure GddddC and CddddG.

NOTE

	<p>EAN 8 Stitch Exact Label Halves = Disable</p>
<p>EAN 8 Stitch Exact Label Halves = Enable</p>	

EAN 8 Stitch Unlike Label Halves

Enables/disables the ability to stitch EAN 8 label halves together which may have differing characters in them.



The label structure must be GddddCd... and ..dCddddG. The characters dCd must match between the two segments.

NOTE

	<p>EAN 8 Stitch Unlike Label Halves = Disable</p>
<p>EAN 8 Stitch Unlike Label Halves = Enable</p>	


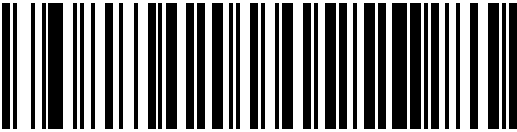
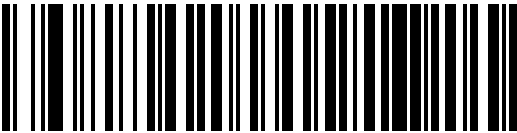


ENTER/EXIT PROGRAMMING MODE

EAN Two Label

EAN Two Label Enable/Disable

When disabled, the reader will not read EAN two label bar codes.

	 <p>EAN Two Label = Disable</p>
 <p>EAN Two Label = Enable</p>	

EAN Two Label Combined Transmission

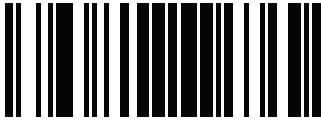
This feature enables/disables transmission of an EAN two label pair as one label. THE LABEL TYPE FOR ean TWO LABEL PAIRS IS ean 13.

	 <p>EAN Two Label = Disable</p>
 <p>EAN Two Label = Enable</p>	

EAN Two Label Minimum Reads

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

	 <p>EAN 8 Minimum Reads = 1</p>
 <p>EAN 8 Minimum Reads = 2</p>	
	 <p>EAN 8 Minimum Reads = 3</p>
 <p>EAN 8 Minimum Reads = 4</p>	



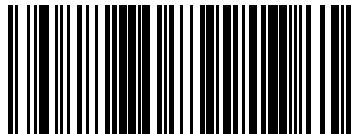


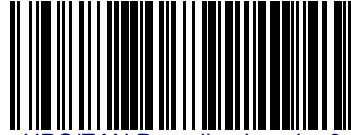

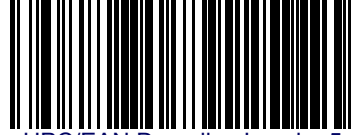
ENTER/EXIT PROGRAMMING MODE

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. See [Decoding Levels on page 267](#) for more detailed programming instructions.

 <p>UPC/EAN Decoding Level = 1</p>	
	 <p>UPC/EAN Decoding Level = 2</p>
 <p>UPC/EAN Decoding Level = 3</p>	
	 <p>UPC/EAN Decoding Level = 4</p>
 <p>UPC/EAN Decoding Level = 5</p>	



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 reader 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 Correlation = Disable
 UPC/EAN Correlation = Enable	



ENTER/EXIT PROGRAMMING MODE

UPC/EAN Global Settings — cont.

UPC/EAN Price Weight Check

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

Options are


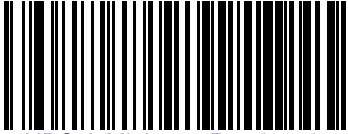
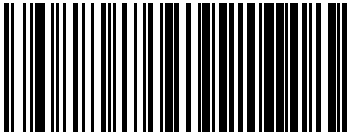
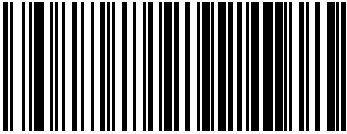
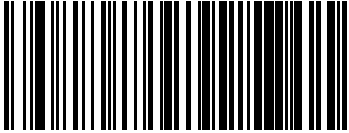
- Disabled
- Enable 4-digit price-weight check-digit calculation
- Enable 5-digit price-weight check-digit calculation
- Enable European 4-digit price-weight check-digit calculation
- Enable European 5-digit price-weight check-digit calculation

	 <p>Price Weight Check = Disabled</p>
 <p>Price Weight Check = 4-digit price-weight check</p>	
	 <p>Price Weight Check = 5-digit price-weight check</p>
 <p>Price Weight Check = European 4-digit price-weight check</p>	
	 <p>Price Weight Check = European 5-digit price-weight check</p>

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.

	 <p>UPC-A Minimum Reads = 1</p>
 <p>UPC-A Minimum Reads = 2</p>	
	 <p>UPC-A Minimum Reads = 3</p>
 <p>UPC-A Minimum Reads = 4</p>	



ENTER/EXIT PROGRAMMING MODE

UPC/EAN Global Settings — cont.

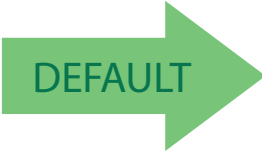
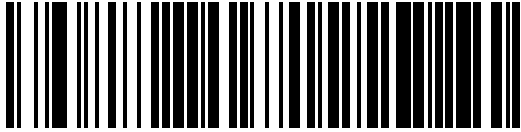
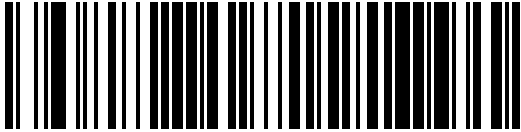
UPC/EAN Guard Insertion

Enables/disables the ability to insert either a missing leading or trailing guard on an otherwise complete UPC-A/EAN-13 segment.



NOTE

The segment must have the structure GddddddCdddddd or dddddCddddddG.

	 <p>UPC/EAN Guard Insertion = Disable</p>
 <p>UPC/EAN Guard Insertion = Enable</p>	

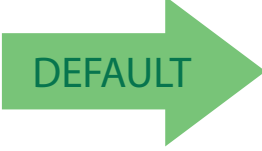


UPC/EAN Stitch Exact Label Halves

Enables/disables the ability to stitch exact UPC-A/EAN 13 label halves with no overlapping characters.



NOTE

The label halves being stitched together to assemble a complete label must have the structure GddddddC and CddddddG.

	 <p>UPC/EAN Stitch Exact Label Halves = Disable</p>
 <p>UPC/EAN Stitch Exact Label Halves = Enable</p>	

UPC/EAN Global Settings — cont.

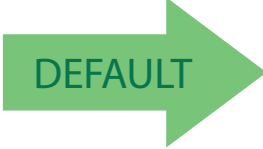
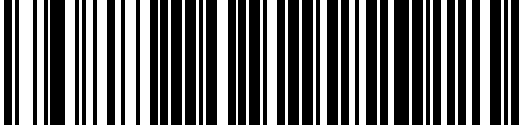
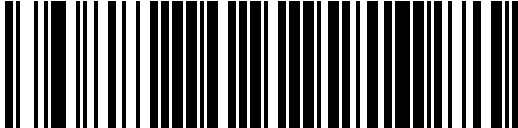
UPC/EAN Stitch Unlike Label Halves

Enables/disables the ability to stitch two UPC-A/EAN 13 label halves together that may have differing characters in them.



NOTE

The label half structures must have the structure GdddddC and CdddddG. The characters dCd must match between the two segments.

	 <p>UPC/EAN Stitch Unlike Label Halves = Disable</p>
 <p>UPC/EAN Stitch Unlike Label Halves = Enable</p>	



ENTER/EXIT PROGRAMMING MODE

UPC/EAN Global Settings — cont.

UPC/EAN Minimum Segment Length

Specifies the minimum number of characters necessary in an UPC/EAN/JAN label segment in order for the reader to accept the segment for decoding.

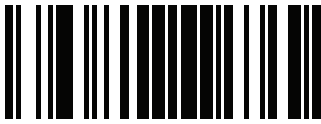
	 <p>UPC/EAN Minimum Segment Length Block = 5</p>
 <p>UPC/EAN Minimum Segment Length Block = 6</p>	
 <p>UPC/EAN Minimum Segment Length Block = 8</p>	 <p>UPC/EAN Minimum Segment Length Block = 7</p>
 <p>UPC/EAN Minimum Segment Length Block = 8</p>	
 <p>UPC/EAN Minimum Segment Length Block = 10</p>	 <p>UPC/EAN Minimum Segment Length Block = 9</p>
 <p>UPC/EAN Minimum Segment Length Block = 10</p>	



UPC/EAN Global Settings — cont.

UPC/EAN Minimum Segment Length — cont.

	 <p>UPC/EAN Minimum Segment Length Block = 11</p>
 <p>UPC/EAN Minimum Segment Length Block = 12</p>	
	 <p>UPC/EAN Minimum Segment Length Block = 13</p>
 <p>UPC/EAN Minimum Segment Length Block = 14</p>	
	 <p>UPC/EAN Minimum Segment Length Block = 15</p>



ENTER/EXIT PROGRAMMING MODE

Add-Ons

The following features apply to optional add-ons.



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

NOTE

Optional Add-ons

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

- P2
- P5
- GS1-128



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.

NOTE

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

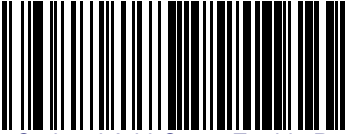
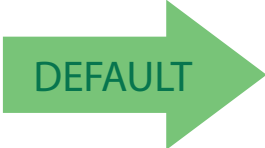
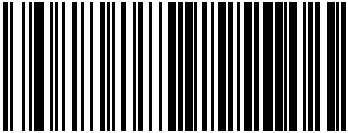
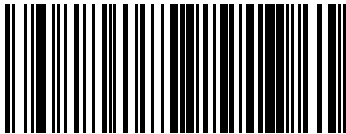
	<p>Optional Add-Ons = Disable P2</p>
<p>Optional Add-Ons = Enable P2</p>	
	<p>Optional Add-Ons = Disable P5</p>



ENTER/EXIT PROGRAMMING MODE

Add-Ons — cont.

Optional Add-ons — cont.

 <p>Optional Add-Ons = Enable P5</p>	
	 <p>Optional Add-Ons = Disable GS1-128</p>
 <p>Optional Add-Ons = Enable GS1-128</p>	



ENTER/EXIT PROGRAMMING MODE

Add-Ons — cont.

Optional Add-On Timer

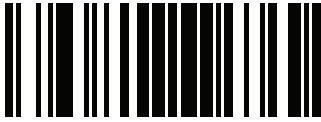
This option sets the time the reader will look for an add-on when an add-on fragment has been seen and optional add-ons are enabled.

 <p>Optional Add-on Timer = 10ms</p>	
	 <p>Optional Add-on Timer = 20ms</p>
 <p>Optional Add-on Timer = 30ms</p>	
	 <p>Optional Add-on Timer = 40ms</p>
 <p>Optional Add-on Timer = 50ms</p>	

Add-Ons — cont.

Optional Add-On Timer — cont.

	 <p>Optional Add-on Timer = 60ms</p>
 <p>Optional Add-on Timer = 70ms</p>	
	 <p>Optional Add-on Timer = 100ms</p>
 <p>Optional Add-on Timer = 120ms</p>	
	 <p>Optional Add-on Timer = 140ms</p>
 <p>Optional Add-on Timer = 160ms</p>	



ENTER/EXIT PROGRAMMING MODE

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.

	 P2 Add-Ons Minimum Reads = 1
 P2 Add-Ons Minimum Reads = 2	
	 P2 Add-Ons Minimum Reads = 3
 P2 Add-Ons Minimum Reads = 4	

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.

	 <p>P5 Add-Ons Minimum Reads = 1</p>
 <p>P5 Add-Ons Minimum Reads = 2</p>	
	 <p>P5 Add-Ons Minimum Reads = 3</p>
 <p>P5 Add-Ons Minimum Reads = 4</p>	

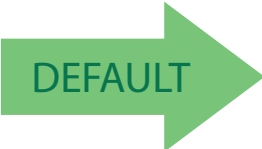
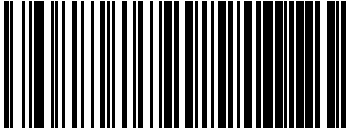


ENTER/EXIT PROGRAMMING MODE

Add-Ons — cont.

GS1-128 Add-Ons Minimum Reads

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.

	 <p>GS1-128 Add-Ons Minimum Reads = 1</p>
 <p>GS1-128 Add-Ons Minimum Reads = 2</p>	
	 <p>GS1-128 Add-Ons Minimum Reads = 3</p>
 <p>GS1-128 Add-Ons Minimum Reads = 4</p>	



ENTER/EXIT PROGRAMMING MODE

GS1 DataBar™ Omnidirectional

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

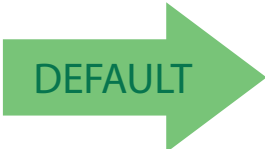
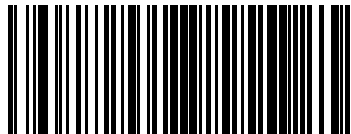
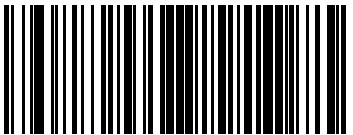
GS1 DataBar Omnidirectional Enable/Disable

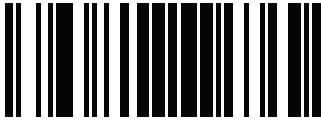
When disabled, the reader will not read GS1 DataBar Omnidirectional bar codes.

	 GS1 DataBar Omnidirectional = Disable
 GS1 DataBar Omnidirectional = Enable	

GS1 DataBar Omnidirectional GS1-128 Emulation

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

	 GS1 DataBar Omnidirectional GS1-128 Emulation = Disable
 GS1 DataBar Omnidirectional GS1-128 Emulation = Enable	

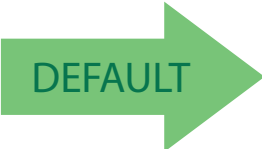
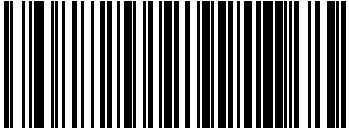
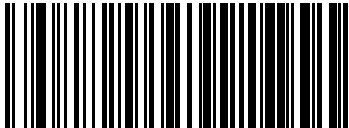




ENTER/EXIT PROGRAMMING MODE

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.

	 <p>GS1 DataBar Omnidirectional Minimum Reads = 1</p>
 <p>GS1 DataBar Omnidirectional Minimum Reads = 2</p>	
 <p>GS1 DataBar Omnidirectional Minimum Reads = 4</p>	 <p>GS1 DataBar Omnidirectional Minimum Reads = 3</p>



GS1 DataBar™ Expanded

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

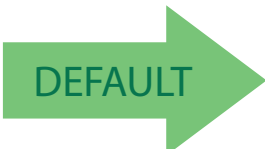
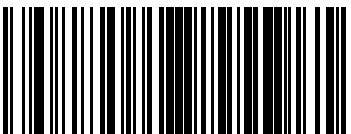
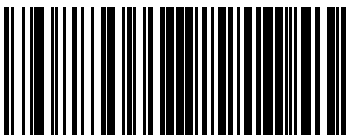
GS1 DataBar Expanded Enable/Disable

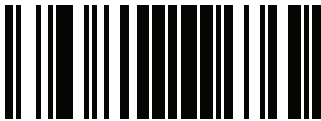
When disabled, the reader will not read GS1 DataBar Expanded bar codes.

	 <p>GS1 DataBar Expanded = Disable</p>
 <p>GS1 DataBar Expanded = Enable</p>	

GS1 DataBar Expanded GS1-128 Emulation

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

	 <p>GS1 DataBar Expanded GS1-128 Emulation = Disable</p>
 <p>GS1 DataBar Expanded GS1-128 Emulation = Enable</p>	



ENTER/EXIT PROGRAMMING MODE

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.

	 GS1 DataBar Expanded Minimum Reads = 1
 GS1 DataBar Expanded Minimum Reads = 2	
	 GS1 DataBar Expanded Minimum Reads = 3
 GS1 DataBar Expanded Minimum Reads = 4	



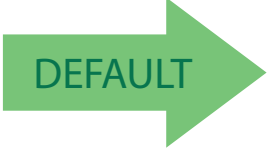
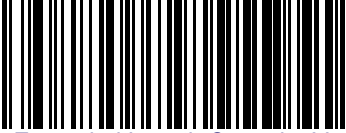
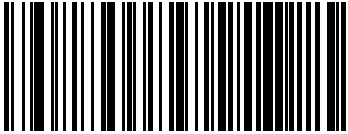
GS1 DataBar™ Expanded — cont.

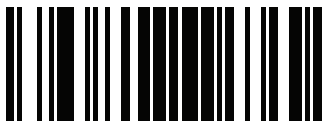
GS1 DataBar Expanded Length Control

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 Length Control = Variable Length
 GS1 DataBar Expanded Length Control = Fixed Length	



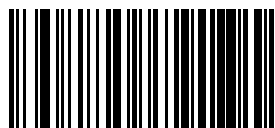
ENTER/EXIT PROGRAMMING MODE

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. See [Set Length 1 on page 268](#) for more detailed programming instructions.



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

DEFAULT

01 = Length 1 is 1 Character

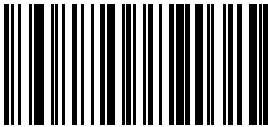
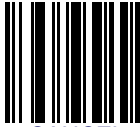


GS1 DataBar™ Expanded — cont.

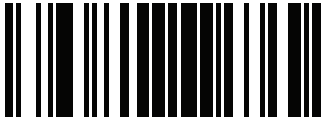
GS1 DataBar Expanded Set Length 2

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 00 specifies to ignore this length (only one fixed length). See [Set Length 2 on page 269](#) for more detailed programming instructions.

 <p>Select GS1 DataBar Expanded Set Length 2 Setting</p>	
<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>	 <p>CANCEL</p>





ENTER/EXIT PROGRAMMING MODE

GS1 DataBar™ Limited

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

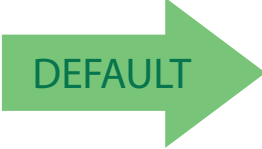
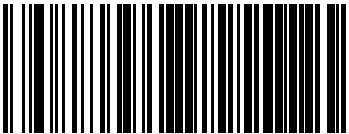

GS1 DataBar Limited Enable/Disable

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

	 <p>GS1 DataBar Limited = Disable</p>
 <p>GS1 DataBar Limited = Enable</p>	

GS1 DataBar Limited GS1-128 Emulation

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

	 <p>GS1 DataBar Limited GS1-128 Emulation = Disable</p>
 <p>GS1 DataBar Limited GS1-128 Emulation = Enable</p>	



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.

	 GS1 DataBar Limited Minimum Reads = 1
 GS1 DataBar Limited Minimum Reads = 2	
	 GS1 DataBar Limited Minimum Reads = 3
 GS1 DataBar Limited Minimum Reads = 4	



ENTER/EXIT PROGRAMMING MODE

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.

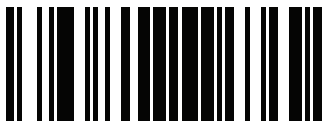
	 <p>Code 39 = Disable</p>
 <p>Code 39 = Enable</p>	

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.

	 <p>Code 39 Check Character Calculation = Don't Calculate</p>
 <p>Code 39 Check Character Calculation = Calculate Std Check</p>	
	 <p>Code 39 Check Character Calculation = Calculate Mod 7 Check</p>
 <p>Code 39 Check Character Calculation = Enable Italian Post Check</p>	
	 <p>Code 39 Check Character Calculation = Enable Daimler Chrysler Check</p>

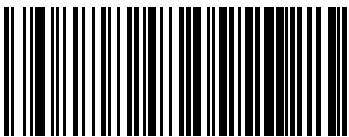




ENTER/EXIT PROGRAMMING MODE

Code 39 — cont.

Code 39 Check Character Transmission

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

	 <p>Code 39 Check Character Transmission = Don't Send</p>
 <p>Code 39 Check Character Transmission = Send</p>	

Code 39 Start/Stop Character Transmission

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

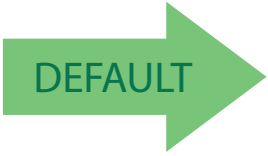
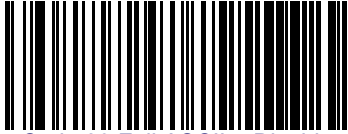
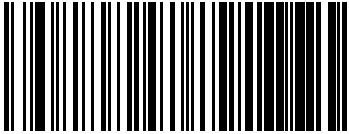
	 <p>Code 39 Start/Stop Character Transmission = Don't Transmit</p>
 <p>Code 39 Start/Stop Character Transmission = Transmit</p>	

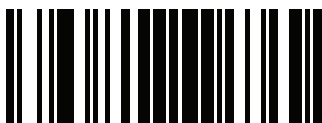


Code 39 — cont.

Code 39 Full ASCII

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

	 <p>Code 39 Full ASCII = Disable</p>
 <p>Code 39 Full ASCII = Enable</p>	



ENTER/EXIT PROGRAMMING MODE

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.

 <p>Code 39 Quiet Zones = Quiet Zone on one side</p>	
	 <p>Code 39 Quiet Zones = Quiet Zones on two sides</p>
 <p>Code 39 Quiet Zones = Auto</p>	
	 <p>Code 39 Quiet Zones = Virtual Quiet Zones on two sides</p>
 <p>Code 39 Quiet Zones = Small Quiet Zones on two sides</p>	



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.

	 Code 39 Minimum Reads = 1
 Code 39 Minimum Reads = 2	
	 Code 39 Minimum Reads = 3
 Code 39 Minimum Reads = 4	

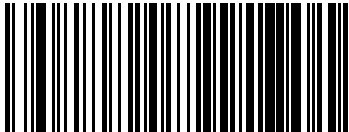
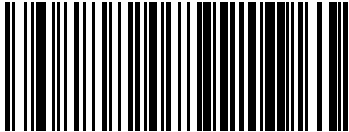


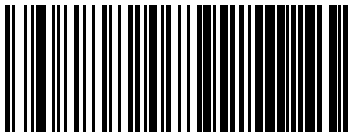



ENTER/EXIT PROGRAMMING MODE

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. See [Decoding Levels on page 267](#) for more detailed programming instructions.

 <p>Code 39 Decoding Level = 1</p>	
	 <p>Code 39 Decoding Level = 2</p>
 <p>Code 39 Decoding Level = 3</p>	
	 <p>Code 39 Decoding Level = 4</p>
 <p>Code 39 Decoding Level = 5</p>	



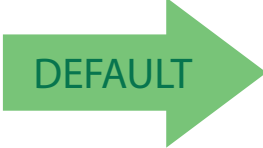


Code 39 — cont.

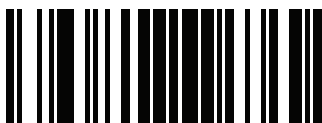
Code 39 Length Control

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.



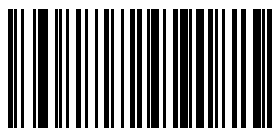
ENTER/EXIT PROGRAMMING MODE

Code 39 — cont.

Code 39 Set Length 1

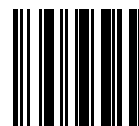
This feature specifies one of the bar code lengths for **Code 39 Length Control**. Length 1 is the minimum label length if in **Variable Length Mode**, or the first fixed length if in **Fixed Length Mode**. Length includes the bar code's data characters only.

The length can be set from 0 to 50 characters. See **Set Length 1 on page 268** for more detailed programming instructions.



Select Code 39 Set Length 1 Setting

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



CANCEL


 DEFAULT

02 = Length 1 is 2 Characters

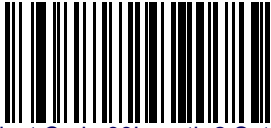
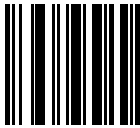


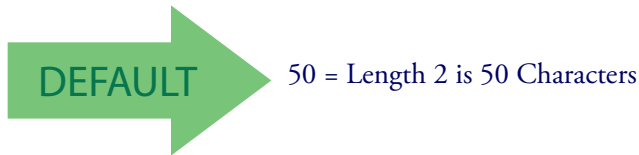
Code 39 — cont.

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 00 specifies to ignore this length (only one fixed length). See **Set Length 2 on page 269** for more detailed programming instructions.

 <p>Select Code 39 Length 2 Setting</p>	
<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>	 <p>CANCEL</p>





ENTER/EXIT PROGRAMMING MODE

Code 39 — cont.

Code 39 Interdigit Ratio

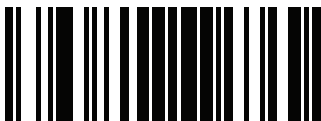
This feature specifies the ratio between an intercharacter space and module for Code 39 labels.

	<p>Code 39 Interdigit Ratio = Disable</p>
<p>Code 39 Interdigit Ratio = 1</p>	
	<p>Code 39 Interdigit Ratio = 2</p>
<p>Code 39 Interdigit Ratio = 3</p>	
<p>DEFAULT</p>	<p>Code 39 Interdigit Ratio = 4</p>
<p>Code 39 Interdigit Ratio = 5</p>	

Code 39 — cont.

Code 39 Interdigit Ratio — cont.

	 <p>Code 39 Interdigit Ratio = 6</p>
 <p>Code 39 Interdigit Ratio = 7</p>	
	 <p>Code 39 Interdigit Ratio = 8</p>
 <p>Code 39 Interdigit Ratio = 9</p>	
	 <p>Code 39 Interdigit Ratio = 10</p>



ENTER/EXIT PROGRAMMING MODE

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 reader 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.

	 <p>Code 39 Character Correlation = Disable</p>
 <p>Code 39 Character Correlation = Enable</p>	

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.

	 <p>Code 39 Stitching = Disable</p>
 <p>Code 39 Stitching = Enable</p>	





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 131
- Code 39 Minimum Reads on page 132
- Code 39 Decoding Level on page 133
- Code 39 Interdigit Ratio on page 137
- Code 39 Character Correlation on page 139
- Code 39 Stitching on page 139

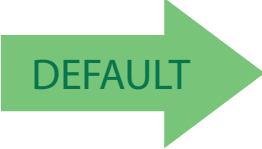
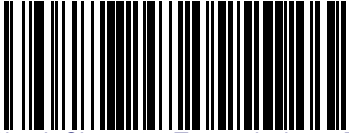



ENTER/EXIT PROGRAMMING MODE

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.

	 <p>Code 32 Check Character Transmission = Don't Send</p>
 <p>Code 32 Check Character Transmission = Send</p>	

Code 32 Start/Stop Character Transmission

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

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



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.

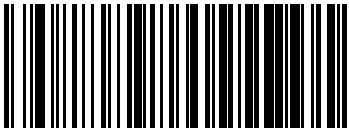
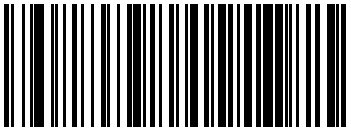

	 Code 39 CIP = Disable
 Code 39 CIP = Enable	

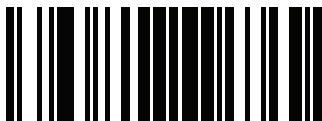
Code 128

The following options apply to the Code 128 symbology.

Code 128 Enable/Disable

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

	 Code 128 = Disable
 Code 128 = Enable	

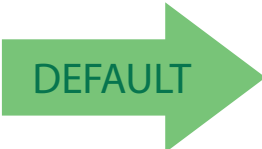
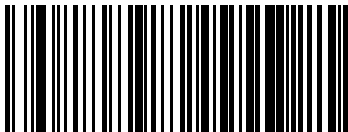
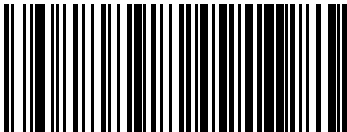


ENTER/EXIT PROGRAMMING MODE

Code 128 — cont.

Expand Code 128 to Code 39

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

	 <p>Code 128 to Code 39 = Don't Expand</p>
 <p>Code 128 to Code 39 = Expand</p>	

Code 128 Check Character Transmission

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

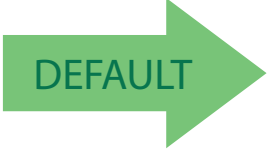
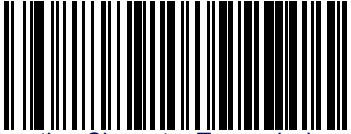

	 <p>Code 128 Check Character Transmission = Don't Send</p>
 <p>Code 128 Check Character Transmission = Send</p>	



Code 128 — cont.

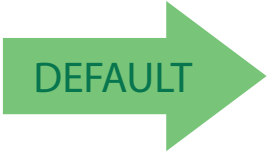
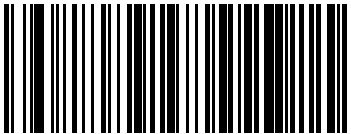
Code 128 Function Character Transmission

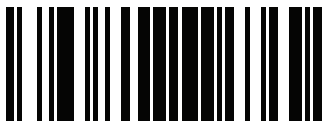
Enables/disables transmission of Code128 function characters 1, 2, 3, and 4.

	 <p>Code 128 Function Character Transmission = Don't Send</p>
 <p>Code 128 Function Character Transmission = Send</p>	

Code 128 Sub-Code Change Transmission

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

	 <p>Code 128 Sub-Code Change Transmission = Disable</p>
 <p>Code 128 Sub-Code Change Transmission = Enable</p>	



ENTER/EXIT PROGRAMMING MODE

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.

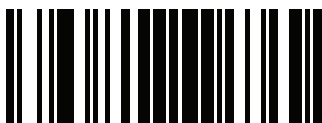
	 <p>Code 128 Quiet Zones = No Quiet Zones</p>
 <p>Code 128 Quiet Zones = Quiet Zone on one side</p>	
	 <p>Code 128 Quiet Zones = Quiet Zones on two sides</p>
 <p>Code 128 Quiet Zones = Auto</p>	
	 <p>Code 128 Quiet Zones = Virtual Quiet Zones on two sides</p>

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.

	 <p>Code 128 Minimum Reads = 1</p>
 <p>Code 128 Minimum Reads = 2</p>	
 <p>Code 128 Minimum Reads = 4</p>	 <p>Code 128 Minimum Reads = 3</p>



ENTER/EXIT PROGRAMMING MODE

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. See [Decoding Levels on page 267](#) for more detailed programming instructions.

 <p>Code 128 Decoding Level = 1</p>	
	 <p>Code 128 Decoding Level = 2</p>
 <p>Code 128 Decoding Level = 3</p>	
	 <p>Code 128 Decoding Level = 4</p>
 <p>Code 128 Decoding Level = 5</p>	



Code 128 — cont.

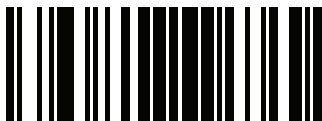
Code 128 Length Control

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.




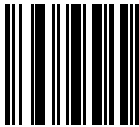
ENTER/EXIT PROGRAMMING MODE

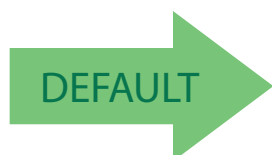
Code 128 — cont.

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. See [Set Length 1 on page 268](#) for more detailed programming instructions.

 <p>Select Code 128 Set Length 1 Setting</p>	
<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>	 <p>CANCEL</p>



01 = Length 1 is 1 Character

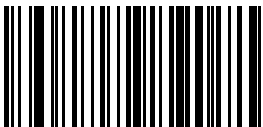



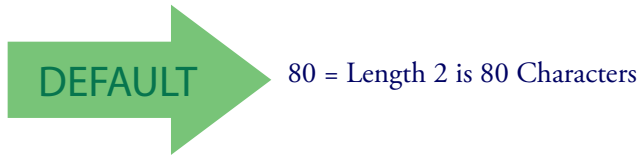
Code 128 — cont.

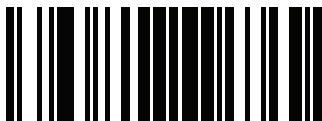
Code 128 Set Length 2

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 00 specifies to ignore this length (only one fixed length). See **Set Length 2 on page 269** for more detailed programming instructions.

 <p>Select Code 128 Length 2 Setting</p>	
<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>	 <p>CANCEL</p>



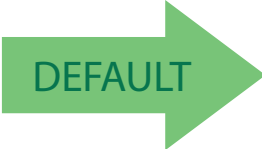


ENTER/EXIT PROGRAMMING MODE

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 reader 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.

	 <p>Code 128 Character Correlation = Disable</p>
 <p>Code 128 Character Correlation = Enable</p>	

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.

	 <p>Code 128 Stitching = Disable</p>
 <p>Code 128 Stitching = Enable</p>	



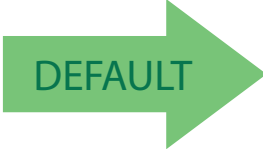
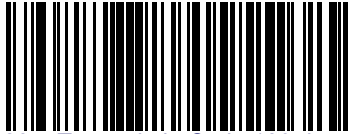
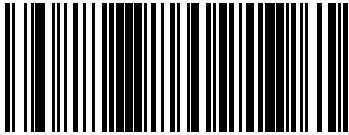
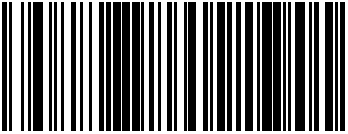
GS1-128

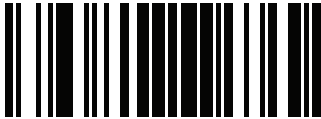
The following options apply to the GS1-128 symbology. (Also known as USS-128, GTIN-128, UCC-128.)

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.

	 <p>GS1-128 = Transmit in Code 128 data format</p>
 <p>GS1-128 = Transmit in GS1-128 data format</p>	
	 <p>GS1-128 = Do not transmit GS1-128 labels</p>



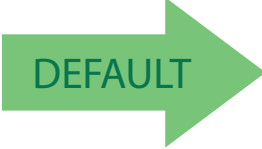


ENTER/EXIT PROGRAMMING MODE

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.

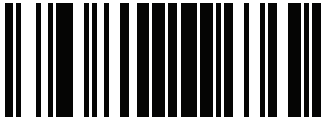
Interleaved 2 of 5 (I 2 of 5) — cont.

I 2 of 5 Check Character Calculation

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

	 <p>I 2 of 5 Check Character Calculation = Disable</p>
 <p>I 2 of 5 Check Character Calculation = Check Standard (Modulo 10)</p>	
 <p>I 2 of 5 Check Character Calculation = Check DHL</p>	 <p>I 2 of 5 Check Character Calculation = Check German Parcel</p>
 <p>I 2 of 5 Check Character Calculation = Check Bosch</p>	 <p>I 2 of 5 Check Character Calculation = Check Daimler Chrysler</p>

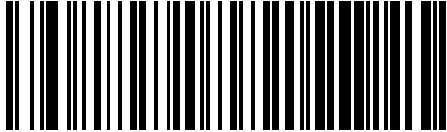
When disabled, any check character in label is treated as a data character.



ENTER/EXIT PROGRAMMING MODE

Interleaved 2 of 5 (I 2 of 5) — cont.

I 2 of 5 Check Character Calculation — cont.

	 <p>I 2 of 5 Check Character Calculation = Check Italian Post</p>
--	---

I 2 of 5 Check Character Transmission

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

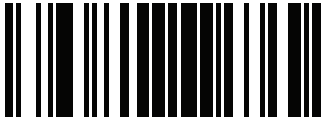
	 <p>I 2 of 5 Check Character Transmission = Don't Send</p>
 <p>I 2 of 5 Check Character Transmission = Send</p>	

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.

	 <p>I 2 of 5 Minimum Reads = 1</p>
 <p>I 2 of 5 Minimum Reads = 2</p>	
	 <p>I 2 of 5 Minimum Reads = 3</p>
 <p>I 2 of 5 Minimum Reads = 4</p>	



ENTER/EXIT PROGRAMMING MODE

Interleaved 2 of 5 (I 2 of 5) — cont.

I 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. See [Decoding Levels on page 267](#) for more detailed programming instructions.

 2 of 5 Decoding Level = 1	
	 2 of 5 Decoding Level = 2
 2 of 5 Decoding Level = 3	
	 2 of 5 Decoding Level = 4
 2 of 5 Decoding Level = 5	



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.



ENTER/EXIT PROGRAMMING MODE

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. See **Set Length 1 on page 268** for more detailed programming instructions.



Select I 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

06 = Length 1 is 6 Characters

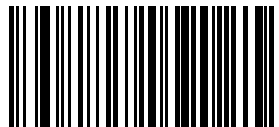



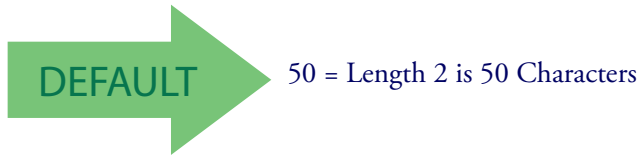
Interleaved 2 of 5 (I 2 of 5) — cont.

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). See **Set Length 2 on page 269** for more detailed programming instructions.

 <p>Select I 2 of 5 Length 2 Setting</p>	
<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>	 <p>CANCEL</p>





ENTER/EXIT PROGRAMMING MODE

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 reader 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.

	 <p>I 2 of 5 Character Correlation = Disable</p>
 <p>I 2 of 5 Character Correlation = Enable</p>	

I 2 of 5 Zero Pattern

Enables/disables ZERO-Digit decoding. This character does not represent any cipher. It allows encoding of an odd number of ciphers with Interleaved 2 of 5. It must be enabled to decode Code 2 of 5 CIP/HR.

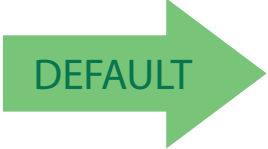
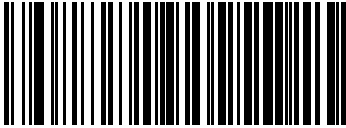
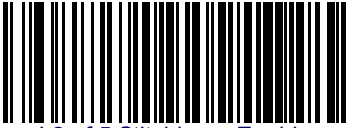
	 <p>I 2 of 5 Zero Pattern = Disable</p>
 <p>I 2 of 5 Zero Pattern = Enable</p>	



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.

	 <p>I 2 of 5 Stitching = Disable</p>
 <p>I 2 of 5 Stitching = Enable</p>	

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.

	 <p>Interleaved 2 of 5 CIP HR = Disable</p>
 <p>Interleaved 2 of 5 CIP HR = Enable</p>	



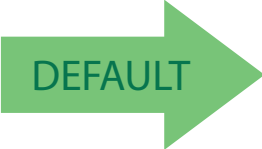
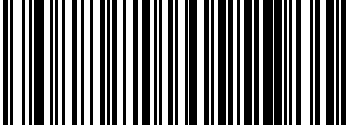
ENTER/EXIT PROGRAMMING MODE

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 = Disable
 Datalogic 2 of 5 = Enable	

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.

	 <p>Datalogic 2 of 5 Check Character Calculation = Disable</p>
 <p>Datalogic 2 of 5 Check Character Calculation = Enable</p>	

Datalogic 2 of 5 Check Character Transmission

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

	 <p>Datalogic 2 of 5 Check Character Transmission = Don't Send</p>
 <p>Datalogic 2 of 5 Check Character Transmission = Send</p>	




ENTER/EXIT PROGRAMMING MODE

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.

	 <p>1 2 of 5 Minimum Reads = 1</p>
 <p>1 2 of 5 Minimum Reads = 2</p>	
	 <p>1 2 of 5 Minimum Reads = 3</p>
 <p>1 2 of 5 Minimum Reads = 4</p>	

Datalogic 2 of 5 Decoding Level



The Datalogic 2 of 5 Decoding Level feature is set using [1 2 of 5 Decoding Level](#) on page 157.

NOTE



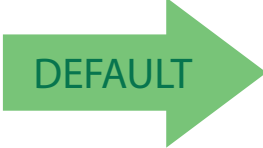
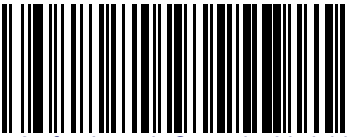

Datalogic 2 of 5 — cont.

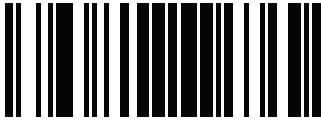
Datalogic 2 of 5 Length Control

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 Length Control = Variable Length
 Datalogic 2 of 5 Length Control = Fixed Length	



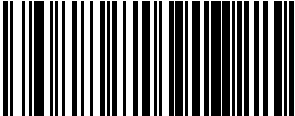
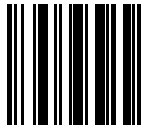
ENTER/EXIT PROGRAMMING MODE

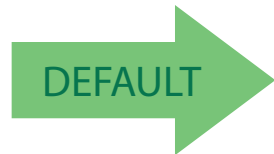
Datalogic 2 of 5 — cont.

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. See [Set Length 1 on page 268](#) for more detailed programming instructions.

 <p>Select Datalogic 2 of 5 Length 1 Setting</p>	
<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>	 <p>CANCEL</p>



06 = Length 1 is 6 Characters

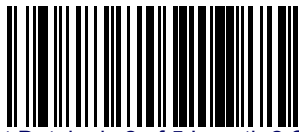


Datalogic 2 of 5 — cont.

Datalogic 2 of 5 Set Length 2

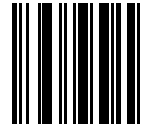
This feature specifies one of the bar code lengths for **Datalogic 2 of 5 Length Control**. Length 2 is the maximum label length if in **Variable Length** Mode, or the second fixed length if in **Fixed Length** Mode. The length includes the bar code's check and data characters.

The length can be set from 2 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See **Set Length 2 on page 269** for more detailed programming instructions.

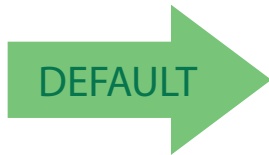


Select Datalogic 2 of 5 Length 2 Setting

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




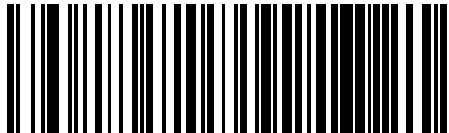

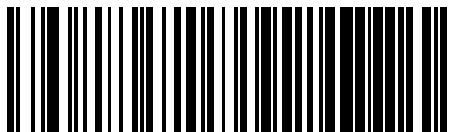


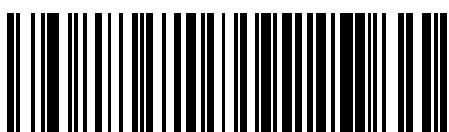
50 = Length 2 is 50 Characters



ENTER/EXIT PROGRAMMING MODE

Datalogic 2 of 5 Interdigit Maximum Ratio

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

	 <p>Datalogic 2 of 5 Interdigit Maximum Ratio = Disable</p>
 <p>Datalogic 2 of 5 Interdigit Maximum Ratio = 1</p>	
	 <p>Datalogic 2 of 5 Interdigit Maximum Ratio = 2</p>
 <p>Datalogic 2 of 5 Interdigit Maximum Ratio = 3</p>	
	 <p>Datalogic 2 of 5 Interdigit Maximum Ratio = 4</p>
 <p>Datalogic 2 of 5 Interdigit Maximum Ratio = 5</p>	

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>



ENTER/EXIT PROGRAMMING MODE

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 reader 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.

	 <p>I 2 of 5 Character Correlation = Disable</p>
 <p>I 2 of 5 Character Correlation = Enable</p>	

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.

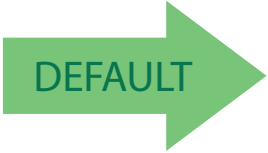
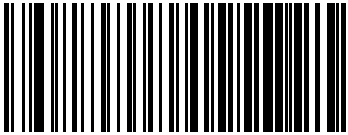
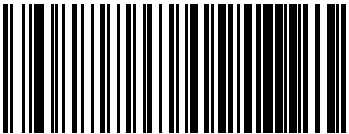
	 <p>Datalogic 2 of 5 Stitching = Disable</p>
 <p>Datalogic 2 of 5 Stitching = Enable</p>	

Codabar

The following options apply to the Codabar symbology.

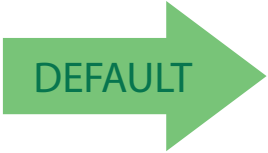
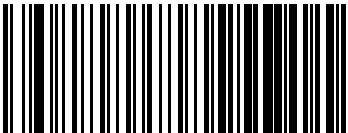
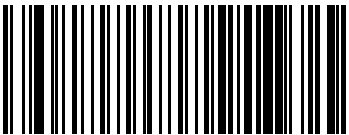
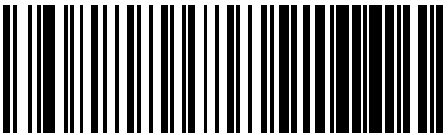
Codabar Enable/Disable

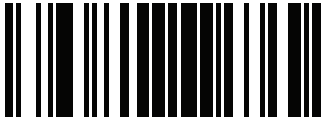
When disabled, the reader will not read Codabar bar codes.

	 <p>Codabar = Disable</p>
 <p>Codabar = Enable</p>	

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.

	 <p>Codabar Check Character Calculation = Don't Calculate</p>
 <p>Codabar Check Character Calculation = Enable AIM standard check char.</p>	
	 <p>Codabar Check Character Calculation = Enable Modulo 10 check char.</p>

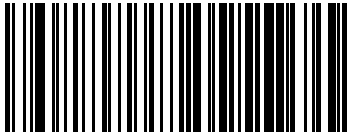
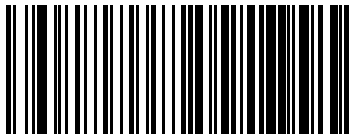



ENTER/EXIT PROGRAMMING MODE

Codabar — cont.

Codabar Check Character Transmission

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

	 Codabar Check Character Transmission = Don't Send
 Codabar Check Character Transmission = Send	

Codabar Start/Stop Character Transmission

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

	 Codabar Start/Stop Character Transmission = Don't Transmit
 Codabar Start/Stop Character Transmission = Transmit	

Codabar — cont.

Codabar Start/Stop Character Set

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

	 <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>	

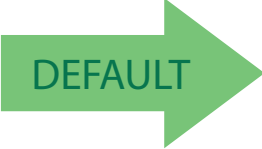
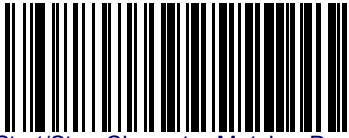



ENTER/EXIT PROGRAMMING MODE

Codabar — cont.

Codabar Start/Stop Character Match

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

	 <p>Codabar Start/Stop Character Match = Don't Require Match</p>
 <p>Codabar Start/Stop Character Match = Require Match</p>	

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.

 <p>Codabar Quiet Zones = Quiet Zone on one side</p>	
	 <p>Codabar Quiet Zones = Quiet Zones on two sides</p>
 <p>Codabar Quiet Zones = Auto</p>	
	 <p>Codabar Quiet Zones = Virtual Quiet Zones on two sides</p>
 <p>Codabar Quiet Zones = Small Quiet Zones on two sides</p>	



ENTER/EXIT PROGRAMMING MODE

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.

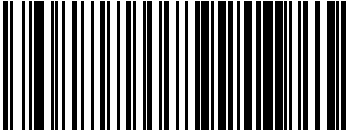
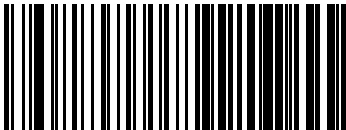


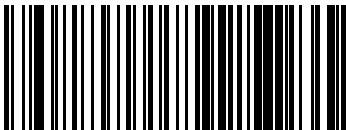

	 <p>Codabar Minimum Reads = 1</p>
 <p>Codabar Minimum Reads = 2</p>	
	 <p>Codabar Minimum Reads = 3</p>
 <p>Codabar Minimum Reads = 4</p>	



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. See [Decoding Levels on page 267](#) for more detailed programming instructions.

 <p>Codabar Decoding Level = 1</p>	
	 <p>Codabar Decoding Level = 2</p>
 <p>Codabar Decoding Level = 3</p>	
	 <p>Codabar Decoding Level = 4</p>
 <p>Codabar Decoding Level = 5</p>	



ENTER/EXIT PROGRAMMING MODE

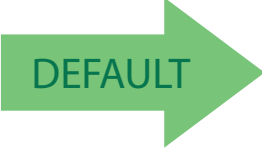
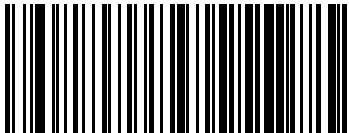
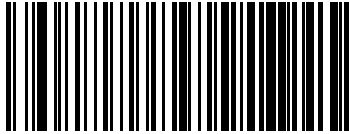
Codabar — cont.

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 Length Control = Variable Length
 Codabar Length Control = Fixed Length	

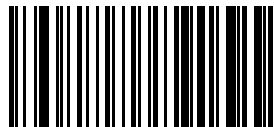
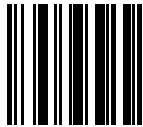


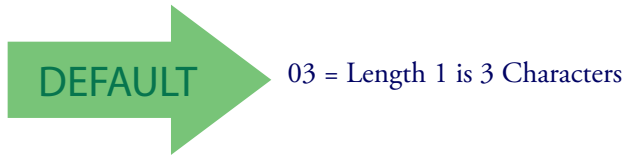
Codabar — cont.

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. See **Set Length 1 on page 268** for more detailed programming instructions.

 <p>Select Codabar Length 1 Setting</p>	
<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>	 <p>CANCEL</p>





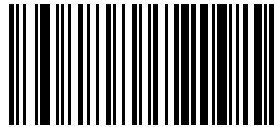
ENTER/EXIT PROGRAMMING MODE

Codabar — cont.

Codabar Set Length 2

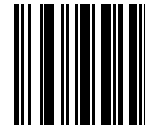
This feature specifies one of the bar code lengths for [Codabar Length Control](#). Length 2 is the maximum label length if in [Variable Length Mode](#), or the second fixed length if in [Fixed Length Mode](#). The length includes the bar code's start, stop, check and data characters. The length must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

The length can be set from 3 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See [Set Length 2 on page 269](#) for more detailed programming instructions.



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


 DEFAULT

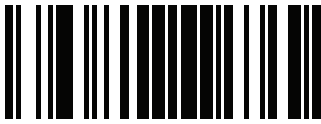
50 = Length 2 is 50 Characters

Codabar — cont.

Codabar Interdigit Ratio

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

	 <p>Codabar Interdigit Ratio = Disable</p>
 <p>Codabar Interdigit Ratio = 1</p>	
	 <p>Codabar Interdigit Ratio = 2</p>
 <p>Codabar Interdigit Ratio = 3</p>	
	 <p>Codabar Interdigit Ratio = 4</p>
 <p>Codabar Interdigit Ratio = 5</p>	



ENTER/EXIT PROGRAMMING MODE

Codabar — cont.

Codabar Interdigit Ratio — cont.

	 <p>Codabar Interdigit Ratio = 6</p>
 <p>Codabar Interdigit Ratio = 7</p>	
	 <p>Codabar Interdigit Ratio = 8</p>
 <p>Codabar Interdigit Ratio = 9</p>	
	 <p>Codabar Interdigit Ratio = 10</p>



Codabar — cont.

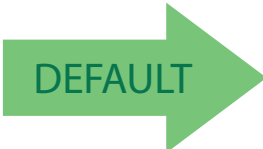
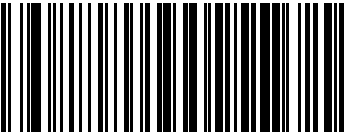
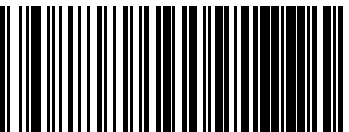
Codabar Character Correlation

When correlation is enabled, the bar code reader will combine label data from multiple scans when decoding. Enabling correlation will help the reader 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 Character Correlation = Disable
 Codabar Character Correlation = Enable	

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.

	 Codabar Stitching = Disable
 Codabar Stitching = Enable	



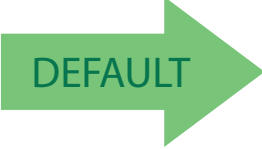
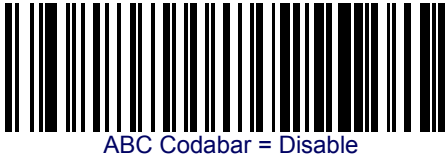
ENTER/EXIT PROGRAMMING MODE

ABC Codabar

The following options apply to the ABC Codabar symbology.

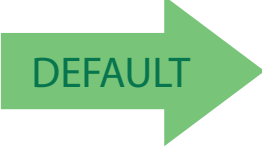


ABC Codabar Enable/Disable

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

ABC Codabar Concatenation Mode


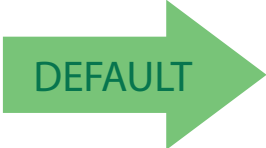

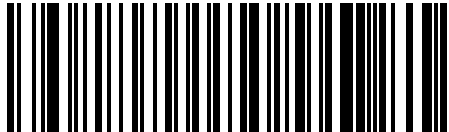

Specifies the concatenation mode between Static and Dynamic.

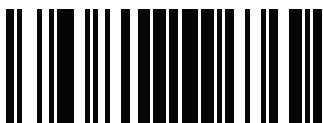
	
	

ABC Codabar — cont.

ABC Codabar Dynamic Concatenation Timeout

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

	 <p>ABC Codabar Dynamic Concatenation Timeout = 50 msec</p>
 <p>ABC Codabar Dynamic Concatenation Timeout = 100 msec</p>	
	 <p>ABC Codabar Dynamic Concatenation Timeout = 200 msec</p>
 <p>ABC Codabar Dynamic Concatenation Timeout = 500 msec</p>	
	 <p>ABC Codabar Dynamic Concatenation Timeout = 750 msec</p>
 <p>ABC Codabar Dynamic Concatenation Timeout = 1 Second</p>	

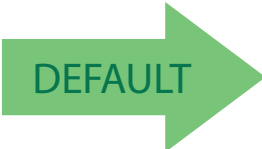
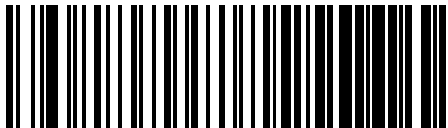



ENTER/EXIT PROGRAMMING MODE

ABC Codabar — cont.

ABC Codabar Force Concatenation

Forces labels starting or ending with D to be concatenated.



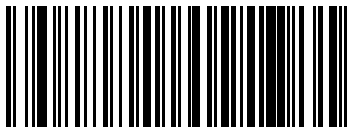
	 <p>ABC Codabar Force Concatenation = Disable</p>
 <p>ABC Codabar Force Concatenation = Enable</p>	

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.

	 <p>Code 11 = Disable</p>
 <p>Code 11 = Enable</p>	

Code 11 — cont.

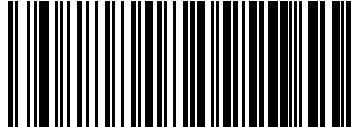
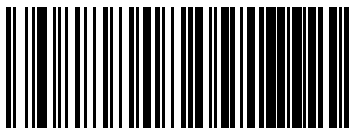

Code 11 Check Character Calculation

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

	 <p>Code 11 Check Character Calculation = Disable</p>
 <p>Code 11 Check Character Calculation = Check C</p>	
	 <p>Code 11 Check Character Calculation = Check K</p>
 <p>Code 11 Check Character Calculation = Check C and K</p>	

Code 11 Check Character Transmission

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

	 <p>Code 11 Check Character Transmission = Don't Send</p>
 <p>Code 11 Check Character Transmission = Send</p>	



ENTER/EXIT PROGRAMMING MODE

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.

	 Code 11 Minimum Reads = 1
 Code 11 Minimum Reads = 2	
	 Code 11 Minimum Reads = 3
 Code 11 Minimum Reads = 4	



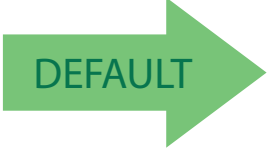


Code 11 — cont.

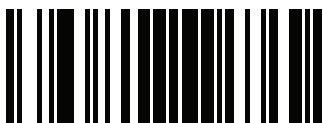
Code 11 Length Control

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.



ENTER/EXIT PROGRAMMING MODE

Code 11 — cont.

Code 11 Set Length 1

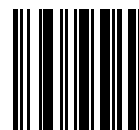
This feature specifies one of the bar code lengths for [Code 11 Length Control](#). Length 1 is the minimum label length if in [Variable Length Mode](#), or the first fixed length if in [Fixed Length Mode](#). Length includes the bar code's check and data characters.

The length can be set from 2 to 50 characters. See [Set Length 1 on page 268](#) for more detailed programming instructions.



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


 DEFAULT

04 = Length 1 is 4 Characters

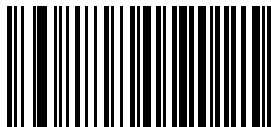



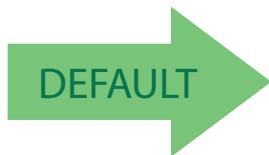
Code 11 — cont.

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 00 specifies to ignore this length (only one fixed length). See **Set Length 2 on page 269** for more detailed programming instructions.

 <p>Select Code 11 Length 2 Setting</p>	
<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>	 <p>CANCEL</p>



50 = Length 2 is 50 Characters

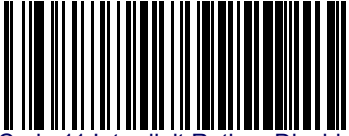
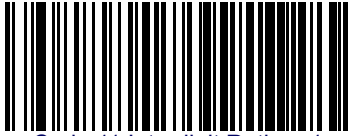


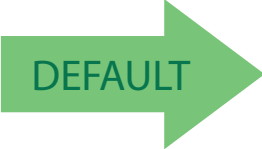

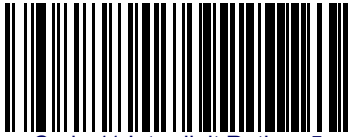


ENTER/EXIT PROGRAMMING MODE

Code 11 — cont.

Code 11 Interdigit Ratio

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

	 <p>Code 11 Interdigit Ratio = Disable</p>
 <p>Code 11 Interdigit Ratio = 1</p>	
	 <p>Code 11 Interdigit Ratio = 2</p>
 <p>Code 11 Interdigit Ratio = 3</p>	
	 <p>Code 11 Interdigit Ratio = 4</p>
 <p>Code 11 Interdigit Ratio = 5</p>	

Code 11 — cont.

Code 11 Interdigit Ratio — cont.

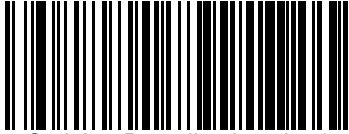
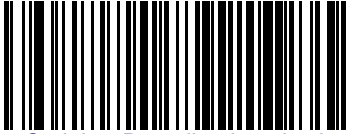
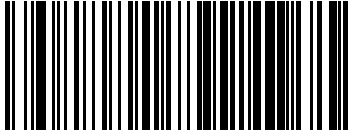

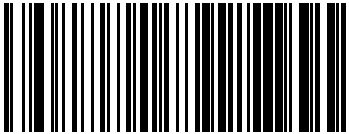
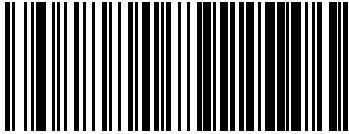
	 <p>Code 11 Interdigit Ratio = 6</p>
 <p>Code 11 Interdigit Ratio = 7</p>	
	 <p>Code 11 Interdigit Ratio = 8</p>
 <p>Code 11 Interdigit Ratio = 9</p>	
	 <p>Code 11 Interdigit Ratio = 10</p>



ENTER/EXIT PROGRAMMING MODE

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. See [Decoding Levels on page 267](#) for more detailed programming instructions.

 <p>Codabar Decoding Level = 1</p>	
	 <p>Codabar Decoding Level = 2</p>
 <p>Codabar Decoding Level = 3</p>	
	 <p>Codabar Decoding Level = 4</p>
 <p>Codabar Decoding Level = 5</p>	



Code 11 — cont.


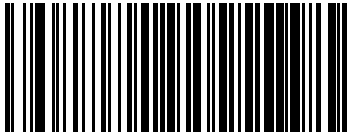
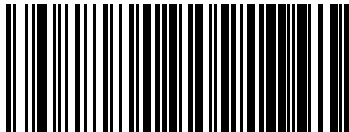
Code 11 Character Correlation

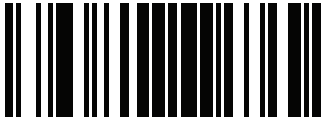
When correlation is enabled, the bar code reader will combine label data from multiple scans when decoding. Enabling correlation will help the reader read labels that have some spots and/or voids. It may also help read labels that have damaged areas. Enabling correlation will also increase the chances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

	 Code 11 Character Correlation = Disable
 Code 11 Character Correlation = Enable	

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.

	 Code 11 Stitching = Disable
 Code 11 Stitching = Enable	



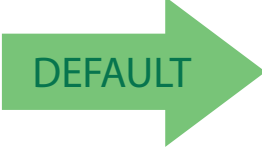


ENTER/EXIT PROGRAMMING MODE

Standard 2 of 5

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

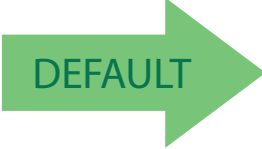


Standard 2 of 5 Enable/Disable

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

Standard 2 of 5 Check Character Calculation

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

Standard 2 of 5 — cont.

Standard 2 of 5 Check Character Transmission

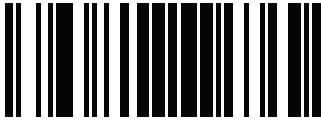
This feature enables/disables transmission of an optional Standard 2 of 5 check character.

	 <p>Standard 2 of 5 Check Character Transmission = Don't Send</p>
 <p>Standard 2 of 5 Check Character Transmission = Send</p>	

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.

	 <p>Standard 2 of 5 Minimum Reads = 1</p>
 <p>Standard 2 of 5 Minimum Reads = 2</p>	
	 <p>Standard 2 of 5 Minimum Reads = 3</p>
 <p>Standard 2 of 5 Minimum Reads = 4</p>	



ENTER/EXIT PROGRAMMING MODE

Standard 2 of 5 — cont.

Standard 2 of 5 Decoding Level



The Standard 2 of 5 Decoding Level feature is set using [1 2 of 5 Decoding Level](#) on page 157.

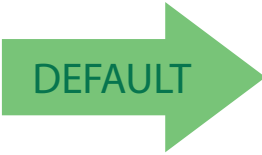
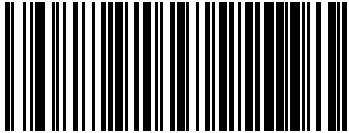
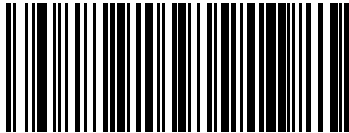
NOTE

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.

	 <p>Standard 2 of 5 Length Control = Variable Length</p>
 <p>Standard 2 of 5 Length Control = Fixed Length</p>	

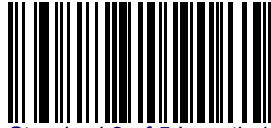
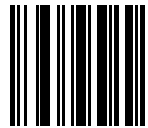


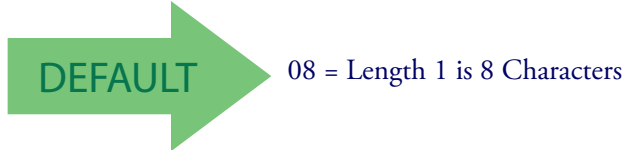
Standard 2 of 5 — cont.

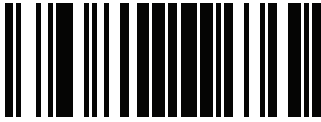
Standard 2 of 5 Set Length 1

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. See **Set Length 1 on page 268** for more detailed programming instructions.

 <p>Select Standard 2 of 5 Length 1 Setting</p>	
<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>	 <p>CANCEL</p>





ENTER/EXIT PROGRAMMING MODE

Standard 2 of 5 — cont.

Standard 2 of 5 Set Length 2

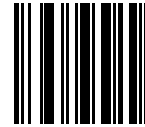
This feature specifies one of the bar code lengths for [Standard 2 of 5 Length Control](#). Length 2 is the maximum label length if in [Variable Length Mode](#), or the second fixed length if in [Fixed Length Mode](#). Length includes the bar code's check and data characters.

The length can be set from 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See [Set Length 2 on page 269](#) for more detailed programming instructions.

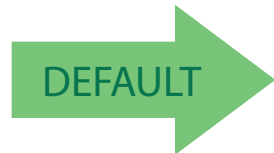


Select Standard 2 of 5 Length 2 Setting

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

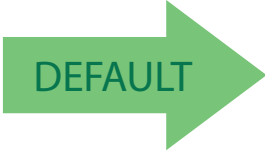
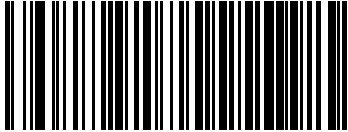
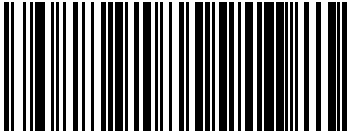


50 = Length 2 is 50 Characters

Standard 2 of 5 — cont.

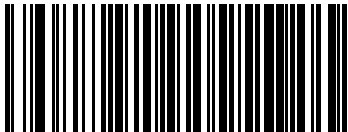
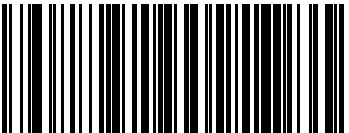
Standard 2 of 5 Character Correlation

When correlation is enabled, the bar code reader will combine label data from multiple scans when decoding. Enabling correlation will help the reader 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.

	 <p>Standard 2 of 5 Character Correlation = Disable</p>
 <p>Standard 2 of 5 Character Correlation = Enable</p>	

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.

	 <p>Standard 2 of 5 Stitching = Disable</p>
 <p>Standard 2 of 5 Stitching = Enable</p>	



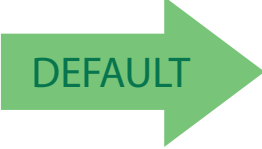


ENTER/EXIT PROGRAMMING MODE

Industrial 2 of 5

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

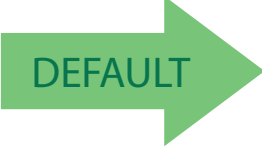


Industrial 2 of 5 Enable/Disable

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

Industrial 2 of 5 Check Character Calculation

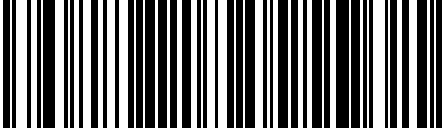
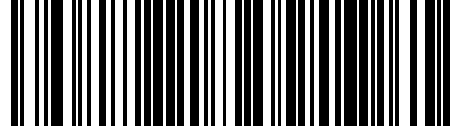

Enables/Disables calculation and verification of an optional Industrial 2 of 5 check character.

Industrial 2 of 5 — cont.

Industrial 2 of 5 Check Character Transmission

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

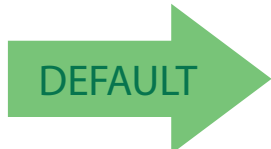
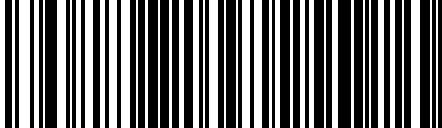
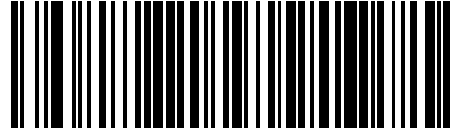
	 <p>Industrial 2 of 5 Check Character Transmission = Disable</p>
 <p>Industrial 2 of 5 Check Character Transmission = Enable</p>	

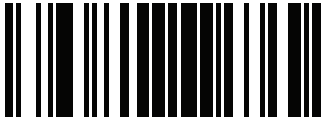
Industrial 2 of 5 Length Control

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.

	 <p>Industrial 2 of 5 Length Control = Variable Length</p>
 <p>Industrial 2 of 5 = Fixed Length</p>	



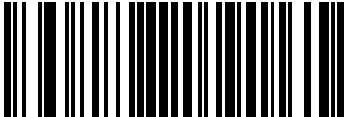
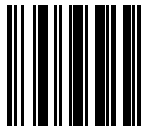
ENTER/EXIT PROGRAMMING MODE

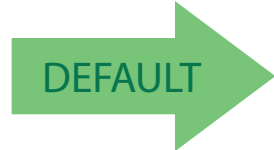
Industrial 2 of 5 — cont.

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. See **Set Length 1 on page 268** for more detailed programming instructions.

 <p>Select Industrial 2 of 5 Set Length 1 Setting</p>	
<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>	 <p>CANCEL</p>



01 = Length 1 is 1 Character

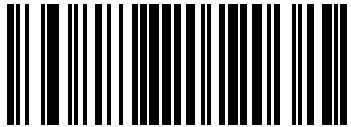


Industrial 2 of 5 — cont.

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 00 specifies to ignore this length (only one fixed length). See **Set Length 2 on page 269** for more detailed programming instructions.

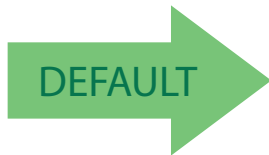


Select Industrial 2 of 5 Length 2 Setting

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

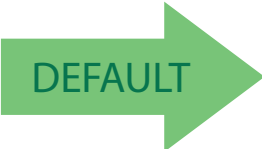
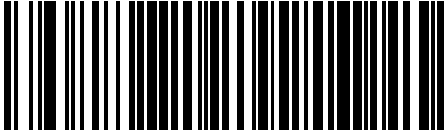

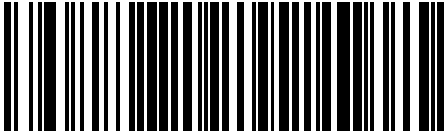
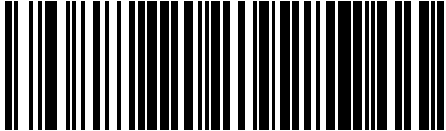


ENTER/EXIT PROGRAMMING MODE

Industrial 2 of 5 — cont.

Industrial 2 of 5 Minimum Reads

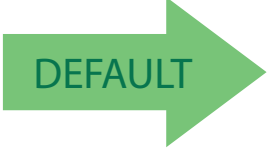
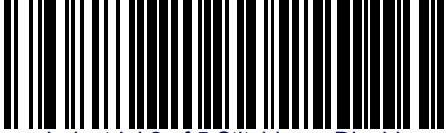

This feature specifies the minimum number of consecutive times an Industrial 2 of 5 label must be decoded before it is accepted as good read.

	 <p>Industrial 2 of 5 Minimum Reads = 1</p>
 <p>Industrial 2 of 5 Minimum Reads = 2</p>	
	 <p>Industrial 2 of 5 Minimum Reads = 3</p>
 <p>Industrial 2 of 5 Minimum Reads = 4</p>	

Industrial 2 of 5 — cont.

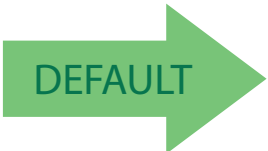
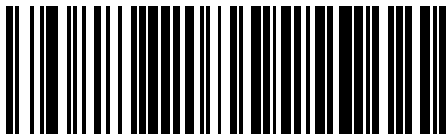
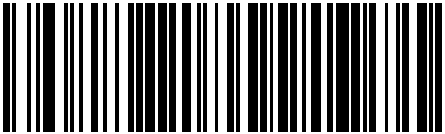
Industrial 2 of 5 Stitching

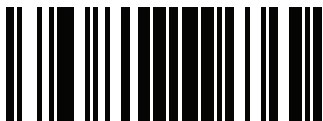
Enables/disables fixed length stitching for Industrial 2 of 5.

	 <p>Industrial 2 of 5 Stitching = Disable</p>
 <p>Industrial 2 of 5 Stitching = Enable</p>	

Industrial 2 of 5 Character Correlation

Enable/disables character correlation for Industrial 2 of 5.

	 <p>Industrial 2 of 5 Character Correlation = Disable</p>
 <p>Industrial 2 of 5 Character Correlation = Enable</p>	



ENTER/EXIT PROGRAMMING MODE

IATA

The following options apply to the IATA symbology.

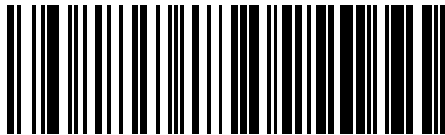
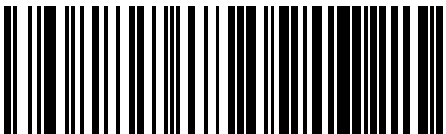

IATA Enable/Disable

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

	 <p>IATA = Disable</p>
 <p>IATA = Enable</p>	

IATA Check Character Transmission

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

	 <p>IATA Check Character Transmission = Disable</p>
 <p>IATA Check Character Transmission = Enable</p>	

ISBT 128

The following options apply to the ISBT 128 symbology.

ISBT 128 Concatenation

Enables/disables ISBT128 concatenation of 2 labels.

	 <p>ISBN 128 Concatenation = Disable</p>
 <p>ISBN 128 Concatenation = Enable</p>	

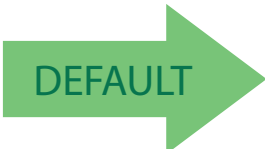
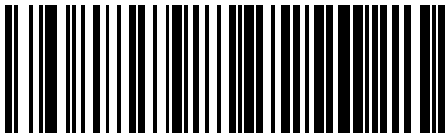
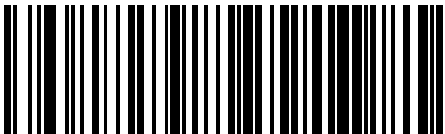
ISBT 128 Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.



This option is only valid when ISBT 128 Concatenation is enabled (see page 210).

NOTE

	 <p>ISBT 128 Concatenation Mode = Static</p>
 <p>ISBT 128 Concatenation Mode = Dynamic</p>	



ENTER/EXIT PROGRAMMING MODE

ISBT 128 — cont.

ISBT 128 Dynamic Concatenation Timeout

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

	 ISBT 128 Dynamic Concatenation Timeout = 50 msec
 ISBT 128 Dynamic Concatenation Timeout = 100 msec	
	 ISBT 128 Dynamic Concatenation Timeout = 200 msec
 ISBT 128 Dynamic Concatenation Timeout = 500 msec	
	 ISBT 128 Dynamic Concatenation Timeout = 750 msec
 ISBT 128 Dynamic Concatenation Timeout = 1 second	



ISBT 128 — 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 210).

NOTE

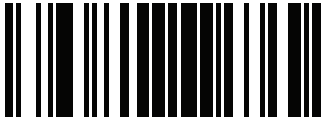
	 ISBT 128 Force Concatenation = Disable
 ISBT 128 Force Concatenation = Enable	

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



ENTER/EXIT PROGRAMMING MODE

MSI

The following options apply to the MSI symbology.


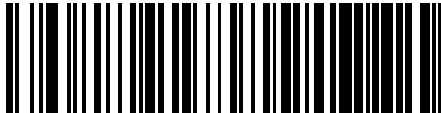
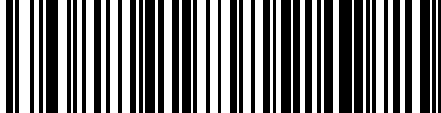
MSI Enable/Disable

Enables/Disables ability of reader to decode MSI labels.

	 <p>MSI = Disable</p>
 <p>MSI = Enable</p>	

MSI Check Character Calculation

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

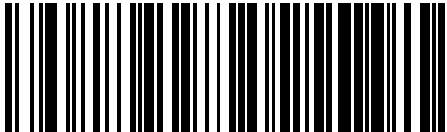
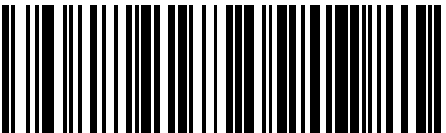

	 <p>MSI Check Character Calculation = Disable</p>
 <p>MSI Check Character Calculation = Enable Mod10</p>	
	 <p>MSI Check Character Calculation = Enable Mod11/10</p>
 <p>MSI Check Character Calculation = Enable Mod10/10</p>	



MSI — cont.

MSI Check Character Transmission

Enables/disables transmission of an MSI check character.

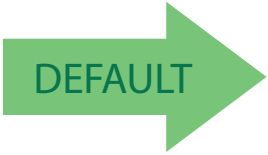

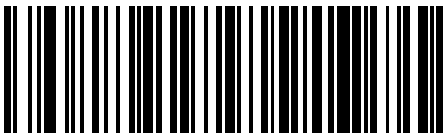
	 <p>MSI Check Character Transmission = Disable</p>
 <p>MSI Check Character Transmission = Enable</p>	

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.

	 <p>MSI Length Control = Variable Length</p>
 <p>MSI = Fixed Length</p>	



ENTER/EXIT PROGRAMMING MODE

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. See [Set Length 1 on page 268](#) for more detailed programming instructions.



Select MSI Set Length 1 Setting

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



CANCEL

DEFAULT

01 = Length 1 is 1 Character

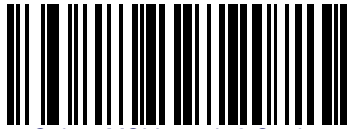


MSI — cont.

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). See **Set Length 2 on page 269** for more detailed programming instructions.

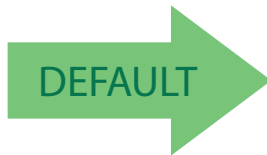


Select MSI Length 2 Setting

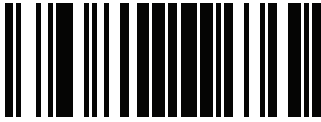
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL



50 = Length 2 is 50 Characters



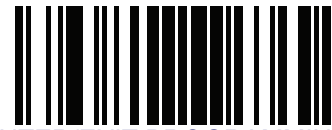
ENTER/EXIT PROGRAMMING MODE

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.

	 <p>MSI Minimum Reads = 1</p>
 <p>MSI Minimum Reads = 2</p>	
	 <p>MSI Minimum Reads = 3</p>
 <p>MSI Minimum Reads = 4</p>	

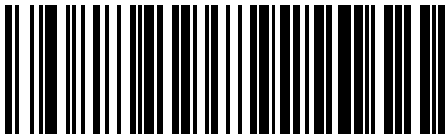

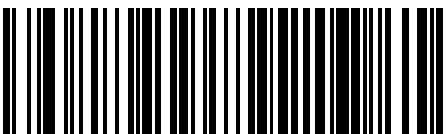
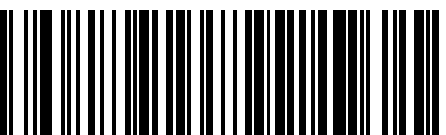

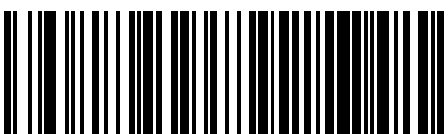



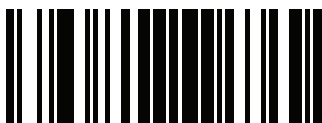
ENTER/EXIT PROGRAMMING MODE

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. See [Decoding Levels on page 267](#) for more detailed programming instructions.

	 <p>MSI Decoding Level = Disable</p>
 <p>MSI Decoding Level = 1</p>	
	 <p>MSI Decoding Level = 2</p>
 <p>MSI Decoding Level = 3</p>	
	 <p>MSI Decoding Level = 4</p>
 <p>MSI Decoding Level = 5</p>	



ENTER/EXIT PROGRAMMING MODE

Code 93

The following options apply to the Code 93 symbology.

Code 93 Enable/Disable

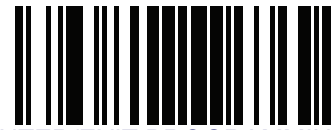
Enables/Disables ability of reader to decode Code 93 labels.

Code 93 Check Character Calculation

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

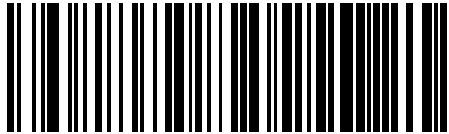
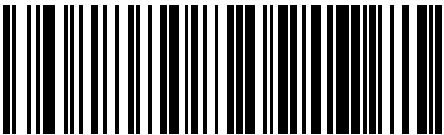



ENTER/EXIT PROGRAMMING MODE

Code 93 — cont.

Code 93 Check Character Transmission

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


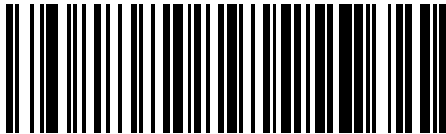
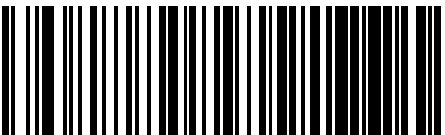
	 <p>Code 93 Check Character Transmission = Disable</p>
 <p>Code 93 Check Character Transmission = Enable</p>	

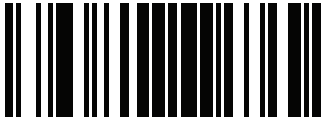
Code 93 Length Control

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.

	 <p>Code 93 Length Control = Variable Length</p>
 <p>Code 93 = Fixed Length</p>	



ENTER/EXIT PROGRAMMING MODE

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. See [Set Length 1 on page 268](#) for more detailed programming instructions.



Select Code 93 Set Length 1 Setting

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



CANCEL


 DEFAULT

01 = Length 1 is 1 Character



Code 93 — cont.

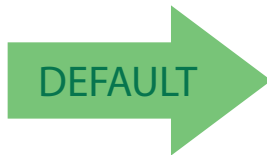
Code 93 Set Length 2

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 00 specifies to ignore this length (only one fixed length). See **Set Length 2 on page 269** for more detailed programming instructions.



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



50 = Length 2 is 50 Characters



ENTER/EXIT PROGRAMMING MODE

Code 93 — cont.

Code 93 Minimum Reads

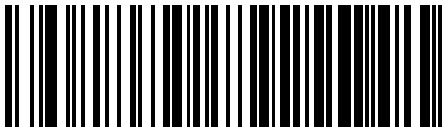
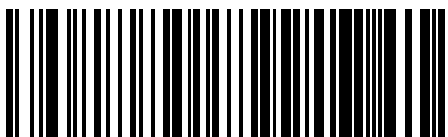
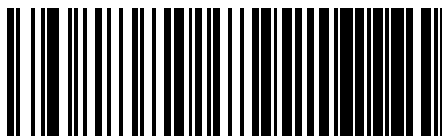
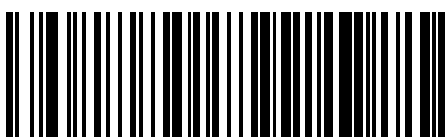



This feature specifies the minimum number of consecutive times a Code 93 label must be decoded before it is accepted as good read.

	 Code 93 Minimum Reads = 1
 Code 93 Minimum Reads = 2	
	 Code 93 Minimum Reads = 3
 Code 93 Minimum Reads = 4	

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. See [Decoding Levels on page 267](#) for more detailed programming instructions.

	 <p>Code 93 Decoding Level = Disable</p>
 <p>Code 93 Decoding Level = 1</p>	
	 <p>Code 93 Decoding Level = 2</p>
 <p>Code 93 Decoding Level = 3</p>	
	 <p>Code 93 Decoding Level = 4</p>
 <p>Code 93 Decoding Level = 5</p>	



ENTER/EXIT PROGRAMMING MODE

Code 93 — cont.

Code 93 Quiet Zones

Enables/disables fixed length stitching for Code 93.

	 <p>Code 93 Quiet Zones = No Quiet Zones</p>
 <p>Code 93 Quiet Zones = Quiet Zone on one side</p>	
	 <p>Code 93 Quiet Zones = Quiet Zones on two sides</p>
 <p>Code 93 Quiet Zones = Auto</p>	
	 <p>Code 93 Quiet Zones = Virtual Quiet Zones on two sides</p>

Code 93 — cont.

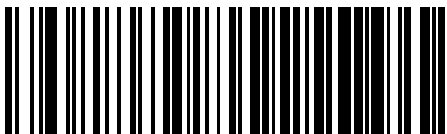
Code 93 Stitching

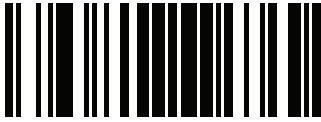
Disable/enable fixed or variable length stitching for Code 93.

	 <p>Code 93 Stitching = Disable</p>
 <p>Code 93 Stitching = Enable</p>	

Code 93 Character Correlation

Enables/disables Character Correlation for Code 93.

	 <p>Code 93 Character Correlation = Disable</p>
 <p>Code 93 Character Correlation = Enable</p>	



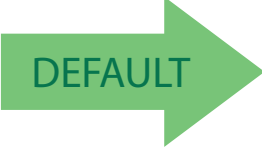

ENTER/EXIT PROGRAMMING MODE

Codablock F

The following options apply to the Codablock F symbology.

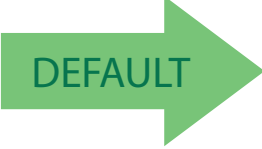


Codablock F Enable/Disable

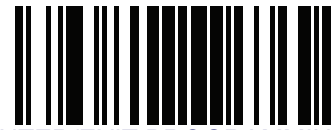
Enables/Disables the ability of the reader to decode Codablock F labels.

Codablock F EAN Enable/Disable

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

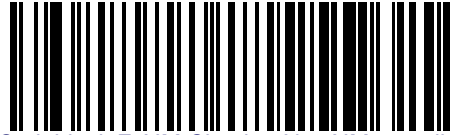
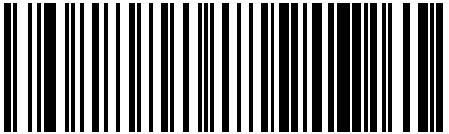

	
	



ENTER/EXIT PROGRAMMING MODE

Codablock F AIM Check

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


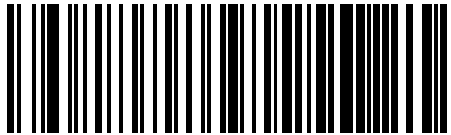
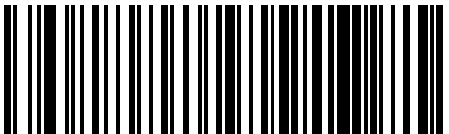
	 <p>Codablock F AIM Check = Not AIM compliant</p>
 <p>Codablock F AIM Check = AIM compliant</p>	

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.

	 <p>Codablock F Length Control = Variable Length</p>
 <p>Codablock F = Fixed Length</p>	



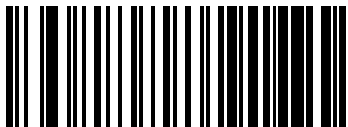
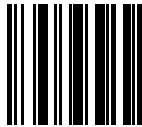
ENTER/EXIT PROGRAMMING MODE

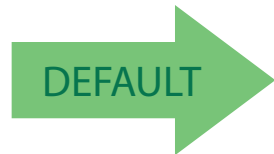
Codablock F — cont.

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. See [Set Length 1 on page 268](#) for more detailed programming instructions.

 <p>Select Codablock F Length 1 Setting</p>	
<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>	 <p>CANCEL</p>



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 00 specifies to ignore this length (only one fixed length). See **Set Length 2 on page 269** for more detailed programming instructions.

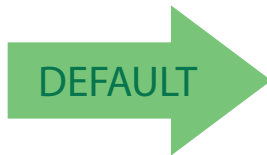


Select Codablock F Length 2 Setting

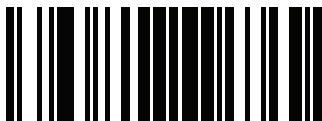
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL



100 = Length 2 is 100 Characters



ENTER/EXIT PROGRAMMING MODE

Code 4

The following options apply to the Code 4 symbology.

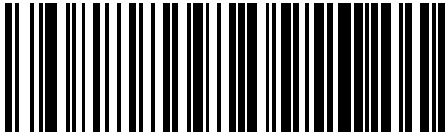
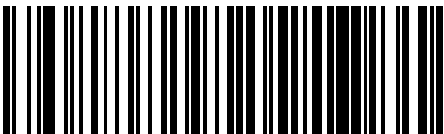

Code 4 Enable/Disable

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

	 <p>Code 4 = Disable</p>
 <p>Code 4 = Enable</p>	

Code 4 Check Character Transmission

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

	 <p>Code 4 Check Character Transmission = Don't Send</p>
 <p>Code 4 Check Character Transmission = Send</p>	



Code 4 — cont.

Code 4 Hex to Decimal Conversion

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

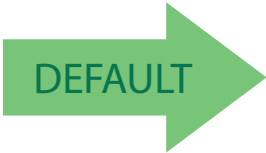


	 <p>Code 4 Hex to Decimal Conversion = Disable</p>
 <p>Code 4 Hex to Decimal Conversion = Enable</p>	

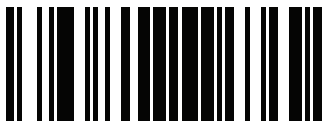
Code 5

The following options apply to the Code 5 symbology.

Code 5 Enable/Disable

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

	 <p>Code 5 = Disable</p>
 <p>Code 5 = Enable</p>	


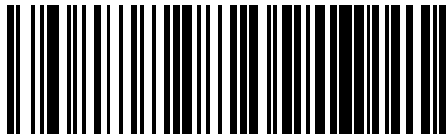



ENTER/EXIT PROGRAMMING MODE

Code 5 — cont.


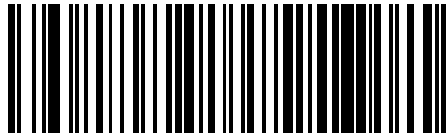
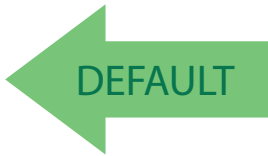
Code 5 Check Character Transmission

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

	 Code 5 Check Character Transmission = Don't Send
 Code 5 Check Character Transmission = Send	

Code 5 Hex to Decimal Conversion

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

	 Code 5 Hex to Decimal Conversion = Disable
 Code 5 Hex to Decimal Conversion = Enable	



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. See [Decoding Levels on page 267](#) for more detailed programming instructions.



This configuration item applies to Code 4 and Code 5.

NOTE

 <p>Code 4 and Code 5 Decoding Level = 1</p>	
	 <p>Code 4 and Code 5 Decoding Level = 2</p>
 <p>Code 4 and Code 5 Decoding Level = 3</p>	
	 <p>Code 4 and Code 5 Decoding Level = 4</p>
 <p>Code 4 and Code 5 Decoding Level = 5</p>	



ENTER/EXIT PROGRAMMING MODE

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.

	 <p>Code 4 or Code 5 Minimum Reads = 1</p>
 <p>Code 4 or Code 5 Minimum Reads = 2</p>	
	 <p>Code 4 or Code 5 Minimum Reads = 3</p>
 <p>Code 4 or Code 5 Minimum Reads = 4</p>	



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 reader to decode Follett 2 of 5 labels.

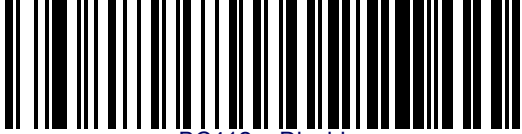
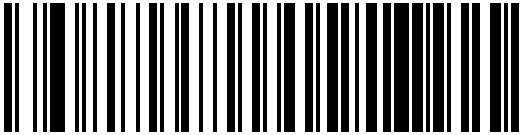
	 Follett 2 of 5 = Disable
 Follett 2 of 5 = Enable	

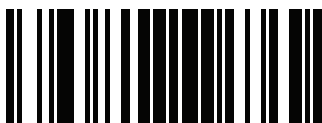
BC412

The following options apply to the BC412 symbology.

BC412 Enable/Disable

Enables/Disables ability of reader to decode BC412 labels.

	 BC412 = Disable
 BC412 = Enable	

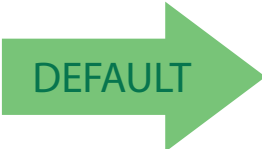
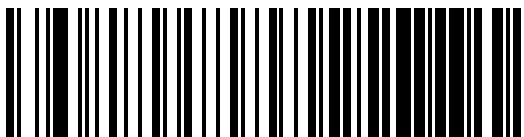
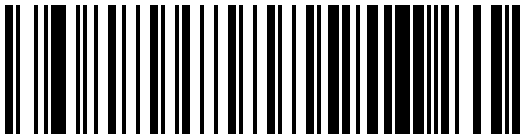


ENTER/EXIT PROGRAMMING MODE

BC412 — cont.

BC412 Check Character Calculation

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

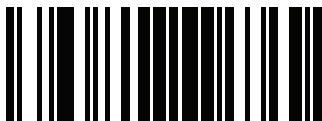
	 <p>BC412 Check Character Calculation = Don't Calculate</p>
 <p>BC412 Check Character Calculation = Calculate Check Character</p>	

BC412 — cont.

BC412 Minimum Reads

This feature specifies the minimum number of consecutive times a BC412 label must be decoded before it is accepted as good read.

	 <p>BC412 Minimum Reads = 1</p>
 <p>BC412 Minimum Reads = 2</p>	
	 <p>BC412 Minimum Reads = 3</p>
 <p>BC412 Minimum Reads = 4</p>	



ENTER/EXIT PROGRAMMING MODE

BC412 — cont.

BC412 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. See [Decoding Levels on page 267](#) for more detailed programming instructions.

 <p>BC412 Decoding Level = 1</p>	
	 <p>BC412 Decoding Level = 2</p>
 <p>BC412 Decoding Level = 3</p>	
	 <p>BC412 Decoding Level = 4</p>
 <p>BC412 Decoding Level = 5</p>	



BC412 — cont.

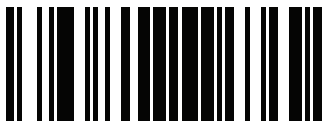
BC412 Length Control

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

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

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




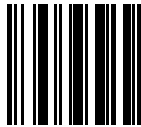
ENTER/EXIT PROGRAMMING MODE

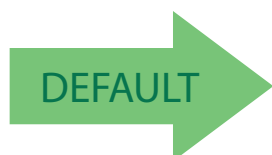
BC412 — cont.

BC412 Set Length 1

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

The length can be set from 0 to 50 characters. See [Set Length 1 on page 268](#) for more detailed programming instructions.

 <p>Select BC412 Set Length 1 Setting</p>	
<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>	 <p>CANCEL</p>



01 = Length 1 is 1 Character

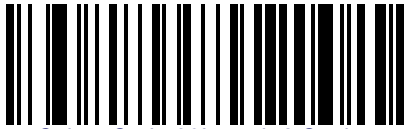


BC412 — cont.

BC412 Set Length 2

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

The length can be set from 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See **Set Length 2 on page 269** for more detailed programming instructions.

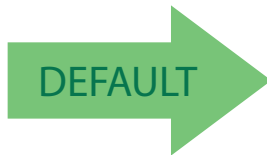


Select Code 39 Length 2 Setting

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

Chapter 11

References

This section contains explanations and examples of selected bar code features. See the programming sections for the actual bar code labels used to configure the reader.

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.



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 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				

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 100 (and pad with leading zeroes)	000	002	015	025
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT GOOD READ LED DURATION 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				

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** 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 reader reads continuously. When Flash is OFF scanning is deactivated.

Always On— No trigger pull is required to read a bar code. Scanning is continually on. **Double Read Timeout** prevents undesired multiple reads while in this mode.

Autosense[®] 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** 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.

1. Controlled by **Flash On Time**.

Scanning Active Time

This setting specifies the amount of time that the reader stays in scan ON state once the state is entered. The range for this setting is from 1 to 255 seconds in 1-second increments.

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT SCANNING ACTIVE TIME SETTING.
5. Scan the appropriate three digits from the keypad in [Appendix 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				

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 ON 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

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				

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.



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 2](#) 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'	'1' and '5'	'6' and '0'	'8' and '5'
6	Scan ENTER/EXIT PROGRAMMING MODE				

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 Chart](#) on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT 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				

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 Chart](#) on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT NAK CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in [Appendix 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 NAK 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				

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 6](#) 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 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				

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 Chart](#) on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT DISABLE CHARACTER SETTING.
5. Scan the appropriate two 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'	'}'	'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				

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 Chart](#) on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT ENABLE CHARACTER SETTING.
5. Scan the appropriate two 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 ENABLE 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				

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 2](#) 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				

Intercharacter Delay

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



NOTE

This feature applies ONLY to the Keyboard Wedge interface.

To set the delay:

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



NOTE

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

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

This completes the procedure. See [Table 2](#) 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				

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.

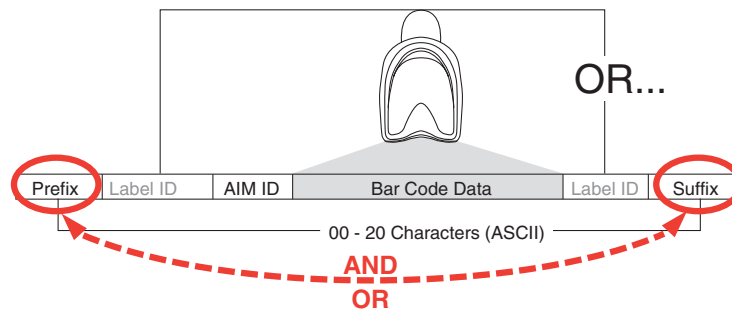
Table 16. Wedge Intercode Delay Examples

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				

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 7](#).

Figure 7. Prefix and Suffix Positions



Example: Setting a Prefix

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

1. Determine which ASCII character(s) are to be added to scanned bar code data. In this example, we'll add a dollar sign ('\$') as a prefix.
2. Scan the ENTER/EXIT 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 260](#), for more information. Exit programming mode by scanning the ENTER/EXIT bar code once again.

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:

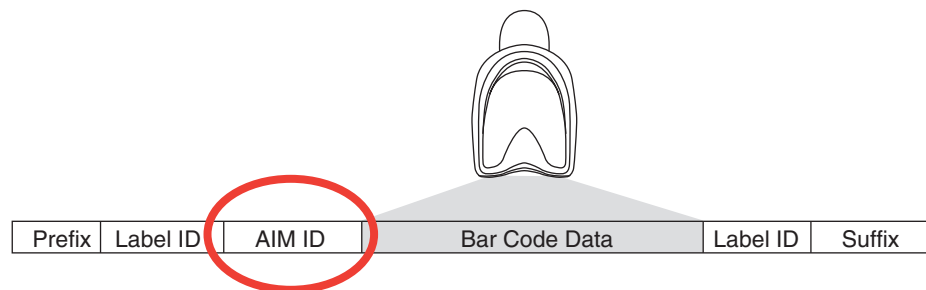
- A close brace character (ASCII '['), followed by...
- A code character (see the table below), followed by...
- A modifier character (the modifier character is symbol dependent).

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 8. AIM ID



Label ID: Pre-loaded Sets

The following table lists the pre-loaded label ID sets for the USA and Europe.

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
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
I2OF5	i	690000	N	4E0000
IATA	IA	494100	&	260000

Symbology	USA Label ID set		EU Label ID set	
	Label ID	Count	Label ID	Count
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
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 Symbology

To configure a Label ID individually for a single symbology:

1. Scan the ENTER/EXIT bar code.
2. Select Label ID position as either BEFORE (Enable as Prefix) or AFTER (Enable as suffix) by scanning the appropriate bar code in the section [Label ID Control on page 71](#). Reference [Figure 9](#) for Label ID positioning options if multiple identification features are enabled.
3. Scan a bar code to select the symbology for which you wish to configure a custom Label ID from the section [Label ID Symbology Selection, starting on page 72](#).
4. Determine the desired character(s) (you may choose up to three) which will represent the Label ID for the selected symbology.
5. Turn to the [ASCII Chart](#) on the inside back cover of this manual and find the equivalent hex digits associated with your choice of Label ID. For example, if you wish to select an equal sign (=) as a Label ID, the chart indicates its associated hex characters as 3D. Turn to [Keypad, starting on page 297](#) 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](#).



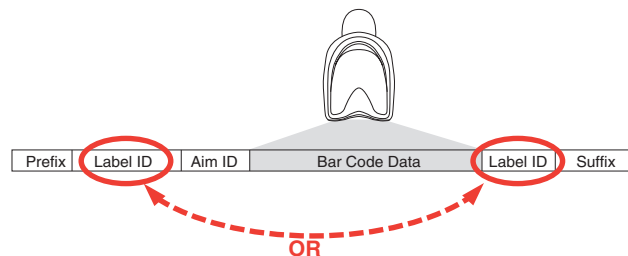
If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.

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 symbology.

Figure 9. Label ID Position Options



Label ID: Set Individually Per Symbology — continued

Table 18. Label ID Examples

STEP	ACTION	EXAMPLES			
1.	Scan the ENTER/EXIT bar code	(Reader 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 71	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 72.	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 297. If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	44 42 2A	3D 43 33	2B	50 48
6.	Scan the ENTER/EXIT bar code	(Reader exits Label ID entry)			
7.	Scan the ENTER/EXIT bar code once again	(Reader exits Programming Mode)			
Result:		DB*[bar code data]	[bar code data]=C3	+ [bar code data]	[bar code data]PH

Character Conversion

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

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

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

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

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

To set Character Conversion:

1. Scan the ENTER/EXIT bar code.
2. Scan the “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.

Decoding Levels

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.

Set Length 1

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

Reference the [Symbologies](#) section to view the selectable range (number of characters) for the symbology being set.

Follow these instructions to set this feature:

1. Determine the desired character length. Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the "Select Length 1 Setting" for the symbology being set.
4. Scan the appropriate two digits from the keypad in [Appendix 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 2](#) for some examples of how to set this feature.

Table 19. Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	01 Character	07 Characters	52 Characters	74 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT LENGTH 1SETTING for the desired symbology				
4	Scan Two Characters From Appendix E, Keypad	'0' and '1'	'0' and '7'	'5' and '2'	'7' AND '4'
5	Scan ENTER/EXIT PROGRAMMING MODE				

Set Length 2

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

Reference the [Symbologies](#) section to view the selectable range (number of characters) for the symbology being set.. A setting of 00 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

1. Determine the desired character length. Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the “Select Length 2 Setting” for the symbology being set.
4. Scan the appropriate two digits from the keypad in [Appendix 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. Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	00 (ignore second length)	07 Characters	52 Characters	74 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT LENGTH 2 SETTING				
4	Scan Two Characters From Appendix E, Keypad	'0' and '0'	'0' and '7'	'5' and '2'	'7' and '4'
5	Scan ENTER/EXIT PROGRAMMING MODE				

NOTES

Appendix A

Technical Specifications

Table 1 contains Physical and Performance Characteristics, User Environment and Regulatory information. Table 2 provides Standard Cable Pinouts.

Table 1. Technical Specifications

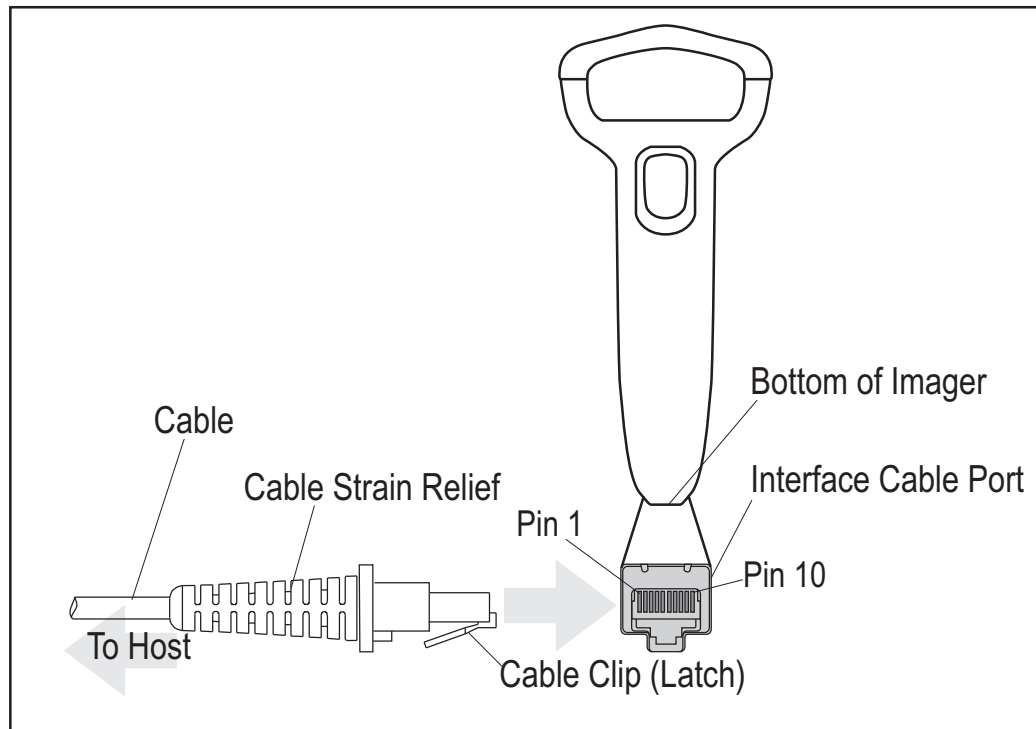
Item	Description
Physical Characteristics	
Dimensions	2.8 in. H x 6.7 in. L x 2.6 in. W (7.1 cm H x 17.1 cm L x 6.6 cm W)
Weight (without cable)	Approximately 4.2 oz. (119 g)
Color	Black or White
Electrical Characteristics	
Voltage & Current	5.0 VDC +/-10% Max Operating Current @ 5V < 260mA Typical Operating (Scanning) Current @ 5V < 180mA Idle Operating Current @ 5V < 80mA Sleep/Suspend @ 5V < 2.5mA
Performance Characteristics	
Light Source	617nm LEDs
Roll (Tilt) Tolerance	± 45° from normal
Pitch Tolerance	± 65°
Skew (Yaw) Tolerance	± 70°
Scan Angle	56° ± 2°
Typical Depth of Field	5.0 mil 1.5 - 15.0 cm 7.5 mil 0 - 24.0 cm 10 mil (80% UPC) 0 - 38.0 cm 13 mil (100% UPC) 0 - 45.0 cm 20 mil * to 65.0 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	QW2120: USB Com Std., USB Keyboard, USB Alternate Keyboard, USB-OEM. QW2170: RS-232 Std., RS-232 Wincor-Nixdorf, RS-232 OPOS, Keyboard Wedge (AT with or w/o Alternate Key, IBM AT PS2 with or w/o Alternate Key, PC-XT.
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-IP4X
Beeper Volume	User-selectable: three levels
Beeper Tone (frequency)	User-selectable: three tones
Electrostatic Discharge	Conforms to ±16 kV air/direct discharge and ±8 kV of contact discharge.
Regulatory	
Electrical Safety	EN60950/IEC60950
EMI/RFI	FCC Part 15 Class B, ICES-003 Class B, European Union EMC Directive, Australia Class B, Japan VCCI/MITI

Standard Cable Pinouts

Figure 10 and Table 2 provide standard pinout information for the reader's cable.

Figure 10. Standard Cable Pinouts



The signal descriptions in Table 2 apply to the connector on the reader and are for reference only.

Table 2. Standard Cable Pinouts — Reader Side

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

NOTES

Appendix B

Standard Defaults

The most common configuration settings are listed in the “Default” column of [Table 3](#). The settings in this table are as applied to a standard RS-232 interface. See [Table 4](#) 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 3. Standard Defaults

Parameter	Default	Your Setting	Page Number
General Features			
Host Commands — Obey/Ignore	Obey		15
USB Suspend Mode	Disable		16
Double Read Timeout	0.4 Second		17
Label Gone Timeout	160 ms		19
Power Save Mode	Enabled		20
Sleep Mode Timeout	Disabled		21
Power On Alert	4 Beeps		22
Good Read: When to Indicate	After Decode		23
Good Read Beep Type	Mono		24
Good Read Beep Frequency	Medium		25
Good Read Beep Length	80 ms		25
Illumination Control	Illumination Off during beep		27
Good Read Beep Volume	High		28
Good Read LED Duration	LED on until next trigger pull		29
Scan Mode	Trigger Single		30
Stand Mode Triggered Timeout	0.5 Seconds		31
Scanning Active Time	5 Seconds		33
Stand Mode Flash	Disable		33

Parameter	Default	Your Setting	Page Number
Flash On Time	1 Second		34
Flash Off Time	600 ms		34
Stand Mode Sensitivity	Medium		35
Green Spot Duration	300 ms		36
RS-232			
Baud Rate	9600		37
Data Bits	8 Data Bits		39
Stop Bits	1 Stop Bit		39
Parity	None		40
Handshaking Control	Disable		41
RS-232/USB-COM			
Intercharacter Delay	No Delay		44
Beep On ASCII BEL	Disable		45
Beep On Not on File	Enable		45
ACK Character	'ACK'		47
NAK Character	'NAK'		47
ACK NAK Timeout Value	600 ms		48
ACK NAK Retry Count	3 Retries		49
ACK NAK Error Handling	Ignore Errors Detected		50
Indicate Transmission Failure	Enable		51
Disable Character	'D'		51
Enable Character	'E'		52
Keyboard Wedge			
Country Mode	U.S. Keyboard		54
Caps Lock State	Caps Lock OFF		57
Numlock	Numlock Key Unchanged		58
Keyboard Numeric Keypad	Standard Keys		58
Keyboard Send Control Characters	Disable		59
Wedge Quiet Interval	100ms		60
Intercharacter Delay	No Delay		61
Intercode Delay	100 ms		62
USB Keyboard Speed	1 ms		63

Parameter	Default	Your Setting	Page Number
USB-OEM			
USB-OEM Device Usage	Handheld Scanner		66
USB-OEM Interface Options	Ignore		66
Data Editing			
Global Prefix/Suffix	No Global Prefix Global Suffix = 0x0D (CR)		68
Global AIM ID	Disable		69
GS1-128 AIM ID	Enable		69
Label ID Control	Disable		71
Set Global Mid Label ID Character(s)	No Characters		80
Case Conversion	Disable		81
Character Conversion	No Char Conver- sion		82
Symbologies			
Coupon Control	Enable only UPC/ EAN		84
UPC-A			
UPC-A Enable/Disable	Enable		85
UPC-A Check Character Transmission	Enable		85
Expand UPC-A to EAN-13	Don't Expand		86
UPC-A Number System Character Trans- mission	Transmit		86
In-Store Minimum Reads	2		87
UPC-E			
UPC-E Enable/Disable	Enable		88
UPC-E Check Character Transmission	Send		88
Expand UPC-E to EAN-13	Don't Expand		89
Expand UPC-E to UPC-A	Don't Expand		89
UPC-E Number System Character Trans- mission	Transmit		90
UPC-E Minimum Reads	2		90
EAN 13			
EAN 13 Enable/Disable	Enable		91
EAN 13 Check Character Transmission	Send		91
EAN-13 Flag 1 Character	Transmit		92

Parameter	Default	Your Setting	Page Number
EAN-13 ISBN Conversion	Disable		92
ISSN Enable/Disable	Disable		93
EAN 13 Minimum Reads	1		93
EAN 8			
EAN 8 Enable/Disable	Enable		94
EAN 8 Check Character Transmission	Send		94
Expand EAN 8 to EAN 13	Disable		95
EAN 8 Both Guards Substitution	Disable		95
EAN 8 Guard Insertion	Disable		96
EAN 8 Guard Substitution	Disable		96
EAN 8 Minimum Segment Length Block	8		97
EAN 8 Minimum Reads	1		99
EAN 8 Stitch Exact Label Halves	Disable		100
EAN 8 Stitch Unlike Label Halves	Disable		100
EAN Two Label			
EAN Two Label Enable/Disable	Disable		101
EAN Two Label Combined Transmission	Disable		101
EAN Two Label Minimum Reads	1 Read		102
UPC/EAN Global Settings			
UPC/EAN Decoding Level	2		103
UPC/EAN Correlation	Disable		104
UPC/EAN Price Weight Check	Disable		105
UPC-A Minimum Reads	1 Read		106
UPC/EAN Guard Insertion	Disable		107
UPC/EAN Stitch Exact Label Halves	Disable		107
UPC/EAN Stitch Unlike Label Halves	Disable		108
UPC/EAN Minimum Segment Length	5		109
Add-Ons			
Optional Add-ons	Disable P2, P5 and P8		111
Optional Add-On Timer	70 ms		113
P2 Add-Ons Minimum Reads	2		115
P5 Add-Ons Minimum Reads	1		116

Parameter	Default	Your Setting	Page Number
GS1-128 Add-Ons Minimum Reads	1		117
GS1 DataBar Omnidirectional			
GS1 DataBar Omnidirectional Enable/Disable	Disable		118
GS1 DataBar Omnidirectional GS1-128 Emulation	Disable		118
GS1 DataBar Omnidirectional Minimum Reads	1		119
GS1 DataBar Expanded			
GS1 DataBar Expanded Enable/Disable	Disable		120
GS1 DataBar Expanded GS1-128 Emulation	Disable		120
GS1 DataBar Expanded Minimum Reads	1		121
GS1 DataBar Expanded Length Control	Variable		122
GS1 DataBar Expanded Set Length 1	1		123
GS1 DataBar Expanded Set Length 2	74		124
GS1 DataBar Limited			
GS1 DataBar Limited Enable/Disable	Disable		125
GS1 DataBar Limited GS1-128 Emulation	Disable		125
GS1 DataBar Limited Minimum Reads	1		126
Code 39			
Code 39 Enable/Disable	Enable		127
Code 39 Check Character Calculation	Don't Calculate		128
Code 39 Check Character Transmission	Send		129
Code 39 Start/Stop Character Transmission	Don't Transmit		129
Code 39 Full ASCII	Disable		130
Code 39 Quiet Zones	Auto		131
Code 39 Minimum Reads	2		132
Code 39 Decoding Level	3		133
Code 39 Length Control	Variable		134
Code 39 Set Length 1	2		135
Code 39 Set Length 2	50		136
Code 39 Interdigit Ratio	4		137
Code 39 Character Correlation	Disable		139

Parameter	Default	Your Setting	Page Number
Code 39 Stitching	Enable		139
Code 32			
Code 32 Enable/Disable	Disable		140
Code 32 Check Character Transmission	Don't Send		141
Code 32 Start/Stop Character Transmission	Don't Transmit		141
Code 39 CIP			
Code 39 CIP Enable/Disable	Disable		142
Code 128			
Code 128 Enable/Disable	Enable		142
Expand Code 128 to Code 39	Don't Expand		143
Code 128 Check Character Transmission	Don't Send		143
Code 128 Quiet Zones	Auto		145
Code 128 Minimum Reads	1		146
Code 128 Decoding Level	3		147
Code 128 Length Control	Variable		148
Code 128 Set Length 1	1		149
Code 128 Set Length 2	80		150
Code 128 Character Correlation	Disable		151
Code 128 Stitching	Enable		151
GS1-128			
GS1-128 Enable	Transmit in Code 128 Data Format		152
Interleaved 2 of 5			
I 2 of 5 Enable/Disable	Disable		153
I 2 of 5 Check Character Calculation	Disable		154
I 2 of 5 Check Character Transmission	Send		155
I 2 of 5 Minimum Reads	2		165
I 2 of 5 Decoding Level	3		157
I 2 of 5 Length Control	Variable		158
I 2 of 5 Set Length 1	12		159
I 2 of 5 Set Length 2	100		160
I 2 of 5 Character Correlation	Disable		161
I 2 of 5 Stitching	Disable		162

Parameter	Default	Your Setting	Page Number
Interleaved 2 of 5 CIP			
Interleaved 2 of 5 CIP HR Enable/Disable	Disable		162
Datalogic 2 of 5			
Datalogic 2 of 5 Enable/Disable	Enable		163
Datalogic 2 of 5 Check Character Calculation	Disable		164
Datalogic 2 of 5 Check Character Transmission	Don't Send		164
Datalogic 2 of 5 Minimum Reads	2		165
Datalogic 2 of 5 Length Control	Variable		166
Datalogic 2 of 5 Set Length 1	12		167
Datalogic 2 of 5 Set Length 2	100		168
Datalogic 2 of 5 Interdigit Maximum Ratio	4		169
Datalogic 2 of 5 Character Correlation	Disable		171
Datalogic 2 of 5 Stitching	Disable		171
Codabar			
Codabar Enable/Disable	Disable		172
Codabar Check Character Calculation	Don't Calculate		172
Codabar Check Character Transmission	Send		173
Codabar Start/Stop Character Transmission	Transmit		173
Codabar Start/Stop Character Set	abcd/abcd		174
Codabar Start/Stop Character Match	Don't Require Match		175
Codabar Quiet Zones	Auto		176
Codabar Minimum Reads	2		177
Codabar Decoding Level	3		178
Codabar Length Control	Variable		179
Codabar Set Length 1	3		180
Codabar Set Length 2	50		181
Codabar Interdigit Ratio	4		182
Codabar Character Correlation	Disable		184
Codabar Stitching	Disable		184
ABC Codabar			
ABC Codabar Enable/Disable	Disable		185

Parameter	Default	Your Setting	Page Number
ABC Codabar Concatenation Mode	Static		185
ABC Codabar Dynamic Concatenation Timeout	200mS		186
ABC Codabar Force Concatenation	Disable		187
Code 11			
Code 11 Enable/Disable	Disable		187
Code 11 Check Character Calculation	Check C and K		188
Code 11 Check Character Transmission	Send		188
Code 11 Minimum Reads	2		189
Code 11 Length Control	Variable		190
Code 11 Set Length 1	4		191
Code 11 Set Length 2	50		192
Code 11 Interdigit Ratio	4		193
Code 11 Decoding Level	3		195
Code 11 Character Correlation	Disable		196
Code 11 Stitching	Disable		196
Standard 2 of 5			
Standard 2 of 5 Enable/Disable	Disable		197
Standard 2 of 5 Check Character Calculation	Disable		197
Standard 2 of 5 Check Character Transmission	Send		198
Standard 2 of 5 Minimum Reads	2		198
Standard 2 of 5 Decoding Level	3		199
Standard 2 of 5 Length Control	Variable		199
Standard 2 of 5 Set Length 1	8		200
Standard 2 of 5 Set Length 2	50		201
Standard 2 of 5 Character Correlation	Disable		202
Standard 2 of 5 Stitching	Disable		202
Industrial 2 of 5			
Industrial 2 of 5 Enable/Disable	Disable		203
Industrial 2 of 5 Check Character Calculation	Disable		203
Industrial 2 of 5 Check Character Transmission	Enable		204

Parameter	Default	Your Setting	Page Number
Industrial 2 of 5 Length Control	Variable		204
Industrial 2 of 5 Set Length 1	1 Character		205
Industrial 2 of 5 Set Length 2	50 Characters		206
Industrial 2 of 5 Minimum Reads	1 Read		207
Industrial 2 of 5 Stitching	Disable		208
Industrial 2 of 5 Character Correlation	Disable		208
IATA			
IATA Enable/Disable	Disable		209
IATA Check Character Transmission	Enable		209
ISBT 128			
ISBT 128 Concatenation	Disable		210
ISBT 128 Concatenation Mode	Static		210
ISBT 128 Dynamic Concatenation Time-out	200ms		211
ISBT 128 Force Concatenation	Disable		212
ISBT 128 Advanced Concatenation Options	Disable		212
MSI			
MSI Enable/Disable	Disable		213
MSI Check Character Calculation	Enable Mod10		213
MSI Check Character Transmission	Enable		214
MSI Length Control	Variable		214
MSI Set Length 1	1 Character		215
MSI Set Length 2	50 Characters		216
MSI Minimum Reads	4 Reads		217
MSI Decoding Level	Level 3		218
Code 93			
Code 93 Enable/Disable	Disable		219
Code 93 Check Character Calculation	Disable		219
Code 93 Check Character Transmission	Enable		220
Code 93 Length Control	Variable		220
Code 93 Set Length 1	1 Character		221
Code 93 Set Length 2	50 Characters		222
Code 93 Minimum Reads	1 Read		223

Parameter	Default	Your Setting	Page Number
Code 93 Decoding Level	Level 3		224
Code 93 Quiet Zones	Auto		225
Code 93 Stitching	Enable		226
Code 93 Character Correlation	Enable		226
Codablock F			
Codablock F Enable/Disable	Disable		227
Codablock F EAN Enable/Disable	Disable		227
Codablock F AIM Check	Enable Check C		228
Codablock F Length Control	Variable		228
Codablock F Set Length 1	3 Characters		229
Codablock F Set Length 2	100 Characters		230
Code 4			
Code 4 Enable/Disable	Disable		231
Code 4 Check Character Transmission	Enable		231
Code 4 Hex to Decimal Conversion	Enable		232
Code 5			
Code 5 Enable/Disable	Disable		232
Code 5 Check Character Transmission	Enable		233
Code 5 Hex to Decimal Conversion	Enable		233
Code 4 and Code 5 Common Configuration Items			
Code 4 and 5 Decoding Level	3		234
Code 4 and Code 5 Minimum Reads	1		235
Follett 2 of 5			
Follett 2 of 5 Enable/Disable	Disable		236
BC412			
BC412 Enable/Disable	Disable		236
BC412 Check Character Calculation	Don't Calculate		237
BC412 Minimum Reads	2 Reads		238
BC412 Decoding Level	3		239
BC412 Length Control	Variable Length		240
BC412 Set Length 1	1 Character		241
BC412 Set Length 2	50 Characters		242

Default Exceptions

Table 3 lists standard default settings as applied to a standard RS-232 interface. Table 4 provides a listing of default exceptions to that list as applied to the other interface types.

Table 4. Default Exceptions by Interface Type

Parameter	Default Exception
Interfaces: 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
Interlaved 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 Exception
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
Interrelated 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 Exception
EAN13/P5 Label ID Character(s)	M
EAN13/GS1-128 Label ID Character(s)	#
GS1 DataBar 14 (Omnidirectional) Label ID Character(s)	u
GS1 DataBar Expanded Label ID Character(s)	t
GS1 DataBar Limited Label ID Character(s)	v

NOTES

Appendix C

LED and Beeper Indications

The reader's beeper sounds and its LED illuminates to indicate various functions or errors on the reader. 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 reader'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 reader is in the process of powering-up.		Reader beeps four times at highest frequency and volume upon power-up.
Good Read Beep	A label has been successfully scanned by the reader.	LED behavior for this indication is configurable via the feature “ Good Read: When to Indicate ”	The reader 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 reader's software/programming	Flashes	Reader sounds one error beep at highest volume.
Limited Scanning Label Read	Indicates that a host connection is not established when the USB interface is enabled.	N/A	Reader 'chirps' six times at the highest frequency and current volume.
Reader Active Mode	The reader is active and ready to scan.	The LED is lit steadily ^a	N/A
Reader Disabled	The reader 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 reader is in Programming Mode.

Label Programming Mode Entry	A valid programming label has been scanned.	LED blinks continuously	Reader sounds four low frequency beeps.
Label Programming Mode Rejection of Label	A label has been rejected.	N/A	Reader 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	Reader 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 reader has exited Programming Mode.	N/A	Reader 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	Reader 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 reader sounds a long tone, this means the reader has not passed its automatic Selftest and has entered FRU¹ isolation mode. If the reader 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	Reader 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

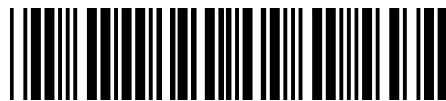
Code 128



Interleaved 2 of 5

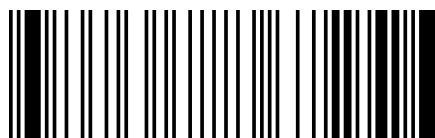
Sample Bar Codes — continued

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 295).

NOTE



10293847560192837465019283746029478450366523
(GS1 DataBar Expanded Stacked)



1234890hjo9900mnb
(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)

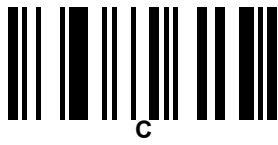
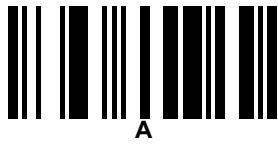
NOTES



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



	 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 308](#)).

Interface Type PC AT PS/2 or USB-Keybaord

Table 1. 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	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	HT	LF	VT	FF	CR	SO	SI
	C(S)+ @	C(S)+A	C(S)+B	C(S)+C	C+D	C(S)+E	C(S)+F	C(S)+ G	C(S)+ H	TAB	C(S)+J	C(S)+K	C(S)+L	Enter	C(S)+ N	C(S)+ O
1x	DLE	DC1	DC2	DC3	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS	RS	US
	C(S)+P	C(S)+ Q	C(S)+R	C(S)+S	C(S)+T	C(S)+ U	C(S)+V	C(S)+ W	C(S)+X	C(S)+Y	C(S)+Z	Esc	C(S)+\ 	C+]]	C(S)+^	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	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
					(keyp)											
9x	F12	Home	End	Pg Up	Pg Dwn	á	â	ß	à	Ar↓	Ar↑	Al↓	Al ↑	Cl↓	Cl ↑	Cr↓
Ax	Cr↑	_	‘	f	„	…	†	‡	^	%o	Š	‹	Ś	‹	Œ	_
Bx	°	±	²	³	´	µ	¶	·	,	¹	º	»	¼	½	¾	¿
Cx	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Dx	Ð	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-Keyboard — cont.

Table 2. 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	à	S+ Tab	Enter Keypd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	ß	â	á	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	„	…	†	‡	^	%o	Š	◁	Ś	◁	Œ	–
9x	–	‘	’	“	”	•	–	—	˘	™	š	▷	œ	–	–	ÿ
Ax	NBSP	ı	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	-	°	-
Bx	°	±	²	³	´	µ	¶	·	,	ı	º	»	¼	½	¾	¿
Cx	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Dx	Ð	–	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
Ex	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
Fx	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

Interface type PC AT PS/2 Alt Mode or USB-Keyboard Alt Mode

Table 3. 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+00 0	Alt+00 1	Alt+00 2	Alt+00 3	Alt+00 4	Alt+00 5	Alt+00 6	Alt+00 7	Alt+00 8	HT TAB	Alt+01 0	Alt+01 1	Alt+01 2	CR Enter	Alt+01 4	Alt+01 5
1x	Alt+01 6	Alt+01 7	Alt+01 8	Alt+01 9	Alt+02 0	Alt+02 1	Alt+02 2	Alt+02 3	Alt+02 4	Alt+02 5	Alt+02 6	ESC Esc	Alt+02 8	Alt+02 9	Alt+03 0	Alt+03 1
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	á	â	ß	à	Ar↓	Ar↑	Al↓	Al ↑	Cl ↓	Cl ↑	Cr ↓
Ax	Cr↑	A+016 1	A+016 2	A+016 3	A+016 4	A+016 5	A+016 6	A+016 7	A+016 8	A+016 9	A+017 0	A+017 1	A+017 2	A+017 3	A+017 4	A+017 5
Bx	A+017 6	A+017 7	A+017 8	A+017 9	A+018 0	A+018 1	A+018 2	A+018 3	A+018 4	A+018 5	A+018 6	A+018 7	A+018 8	A+018 9	A+019 0	A+019 1
Cx	A+019 2	A+019 3	A+019 4	A+019 5	A+019 6	A+019 7	A+019 8	A+019 9	A+020 0	A+020 1	A+020 2	A+020 3	A+020 4	A+020 5	A+020 6	A+020 7
Dx	A+020 8	A+020 9	A+021 0	A+021 1	A+021 2	A+021 3	A+021 4	A+021 5	A+021 6	A+021 7	A+021 8	A+021 9	A+022 0	A+022 1	A+022 2	A+022 3
Ex	A+022 4	A+022 5	A+022 6	A+022 7	A+022 8	A+022 9	A+023 0	A+023 1	A+023 2	A+023 3	A+023 4	A+023 5	A+023 6	A+023 7	A+023 8	A+023 9
Fx	A+024 0	A+024 1	A+024 2	A+024 3	A+024 4	A+024 5	A+024 6	A+024 7	A+024 8	A+024 9	A+025 0	A+025 1	A+052	A+025 3	A+025 4	A+025 5

Interface type PC AT PS/2 Alt Mode or USB-Keyboard Alt Mode — cont.

Table 4. 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	à	S+ Tab	Enter Keypd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	ß	à	á	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+012 8	A+012 9	A+013 0	A+013 1	A+013 2	A+013 3	A+013 4	A+013 5	A+013 6	A+013 7	A+013 8	A+013 9	A+014 0	A+014 1	A+014 2	A+014 3
9x	A+014 4	A+014 5	A+014 6	A+014 7	A+014 8	A+014 9	A+015 0	A+015 1	A+015 2	A+015 3	A+015 4	A+015 5	A+015 6	A+015 7	A+015 8	A+015 9
Ax	A+016 0	A+016 1	A+016 2	A+016 3	A+016 4	A+016 5	A+016 6	A+016 7	A+016 8	A+016 9	A+017 0	A+017 1	A+017 2	A+017 3	A+017 4	A+017 5
Bx	A+017 6	A+017 7	A+017 8	A+017 9	A+018 0	A+018 1	A+018 2	A+018 3	A+018 4	A+018 5	A+018 6	A+018 7	A+018 8	A+018 9	A+019 0	A+019 1
Cx	A+019 2	A+019 3	A+019 4	A+019 5	A+019 6	A+019 7	A+019 8	A+019 9	A+020 0	A+020 1	A+020 2	A+020 3	A+020 4	A+020 5	A+020 6	A+020 7
Dx	A+020 8	A+020 9	A+021 0	A+021 1	A+021 2	A+021 3	A+021 4	A+021 5	A+021 6	A+021 7	A+021 8	A+021 9	A+022 0	A+022 1	A+022 2	A+022 3
Ex	A+022 4	A+022 5	A+022 6	A+022 7	A+022 8	A+022 9	A+023 0	A+023 1	A+023 2	A+023 3	A+023 4	A+023 5	A+023 6	A+023 7	A+023 8	A+023 9
Fx	A+024 0	A+024 1	A+024 2	A+024 3	A+024 4	A+024 5	A+024 6	A+024 7	A+024 8	A+024 9	A+025 0	A+025 1	A+052	A+025 3	A+025 4	A+025 5

Digital Interface

Table 5. 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	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	HT	LF	VT	FF	CR	SO	SI
	C(S)+ @	C(S)+A	C(S)+B	C(S)+C	C+D	C(S)+E	C(S)+F	C(S)+ G	C(S)+ H	TAB	C(S)+J	C(S)+K	C(S)+L	Enter	C(S)+ N	C(S)+ O
1x	DLE	DC1	DC2	DC3	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS	RS	US
	C(S)+P	C(S)+ Q	C(S)+R	C(S)+S	C(S)+T	C(S)+ U	C(S)+V	C(S)+ W	C(S)+X	C(S)+Y	C(S)+Z	Esc	C(S)+\ [	C+]	C(S)+^	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	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
					(keyp)											
9x	F12	F13	F14	F15	F16	á	â	ß	à					Cl↓	Cl↑	

Digital Interface — cont.

Table 6. 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	à	S+ Tab	Enter Keypd	Enter	Ins	
1x			ß	à	á	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

Table 7. 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	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	HT	LF	VT	FF	CR	SO	SI
	C(S)+ @	C(S)+A	C(S)+B	C(S)+C	C+D	C(S)+E	C(S)+F	C(S)+ G	C(S)+ H	TAB	C(S)+J	C(S)+K	C(S)+L	Enter	C(S)+ N	C(S)+ O
1x	DLE	DC1	DC2	DC3	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS	RS	US
	C(S)+P	C(S)+ Q	C(S)+R	C(S)+S	C(S)+T	C(S)+ U	C(S)+V	C(S)+ W	C(S)+X	C(S)+Y	C(S)+Z	Esc	C(S)+\ 	C+]	C(S)+^	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	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	á	â	ß	à	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓
Ax	Cr↑															

IBM XT — cont.

Table 8. 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	à	S+ Tab	Enter Keypd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	ß	â	á	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	<u>NUL</u> 0000	<u>STX</u> 0001	<u>SOT</u> 0002	<u>ETX</u> 0003	<u>EOT</u> 0004	<u>ENQ</u> 0005	<u>ACK</u> 0006	<u>BEL</u> 0007	<u>BS</u> 0008	<u>HT</u> 0009	<u>LF</u> 000A	<u>VT</u> 000B	<u>FF</u> 000C	<u>CR</u> 000D	<u>SO</u> 000E	<u>SI</u> 000F
10	<u>DLE</u> 0010	<u>DC1</u> 0011	<u>DC2</u> 0012	<u>DC3</u> 0013	<u>DC4</u> 0014	<u>NAK</u> 0015	<u>SYN</u> 0016	<u>ETB</u> 0017	<u>CAN</u> 0018	<u>EM</u> 0019	<u>SUB</u> 001A	<u>ESC</u> 001B	<u>FS</u> 001C	<u>GS</u> 001D	<u>RS</u> 001E	<u>US</u> 001F
20	<u>SP</u> 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	{	|	}	~	<u>DEL</u> 007F
80	€ 20AC	•	/	f	"	…	†	‡	~	%	š	<	€	•	ž	•
90	•	\	/	"	"	•	—	—	~	™	š	>	œ	•	ž	ÿ
A0	<u>NBSP</u> 00A0	¡	¢	£	¤	¥	¦	§	¨	@	ª	«	¬	–	®	¯
B0	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
C0	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D0	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
E0	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F0	ø	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

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ASCII Chart

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

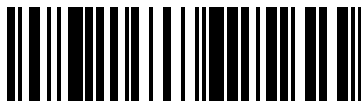


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820036414 (Rev. C) January 2014