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DATALOGIC

QuickScan™ Lite QW2100

General Purpose Corded Handheld
Linear Imager Bar Code Reader

Product Reference Guide

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Design patents: EP001987843, USD677258, ZL201230049587.7

Utility patents: EP0789315B1, EP1128315B1, EP1396811B1, EP1413971B1, EP1797521B1, US5992740, US6098883, US6454168, US6561427, US6808114, US6997385, US7387246, US7506816.

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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

Support Through the Website

Datalogic provides several services as well as technical support through its website. Log on to (www.datalogic.com).
For quick access, from the home page click on the search icon, and type in the name of the product you're looking for. This allows you access to download Data Sheets, Manuals, Software & Utilities, and Drawings.
Hover over the Support & Service menu for access to Services and Technical Support.

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 utlity 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:

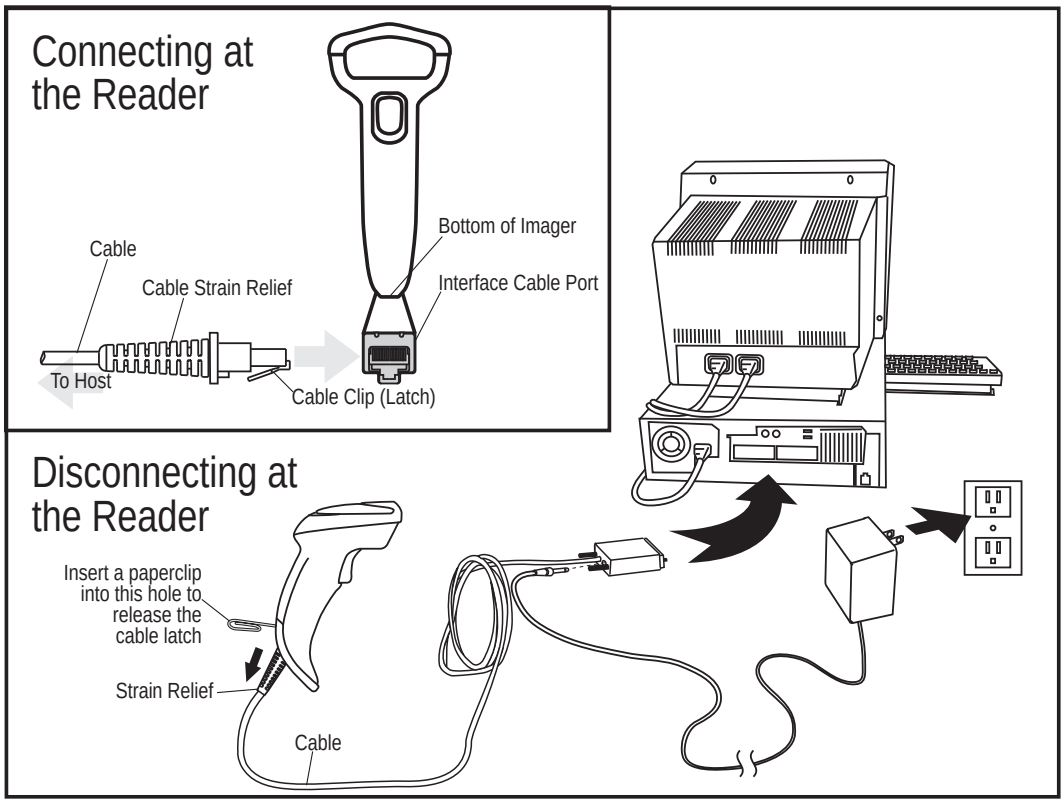
1. Install the Interface Cable
2. Select the Interface Type
3. Configure Interface Settings (only if not using factory settings for that interface)
4. Configure Other Features (if modifications are needed from factory settings)

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

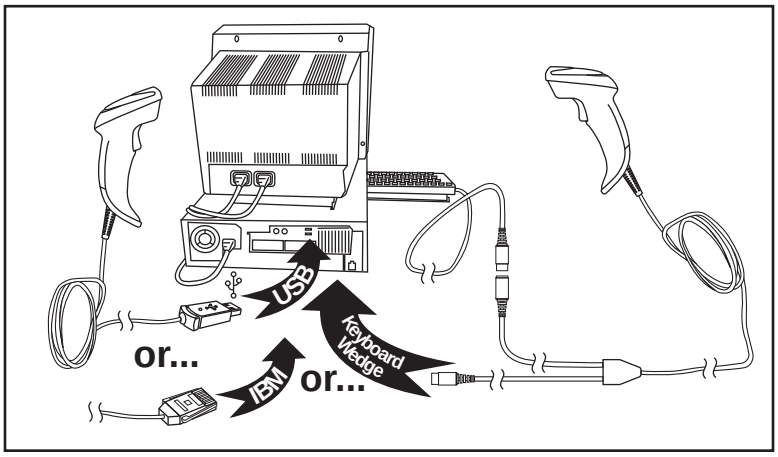


Other connection types are described below and illustrated in Figure 2.

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



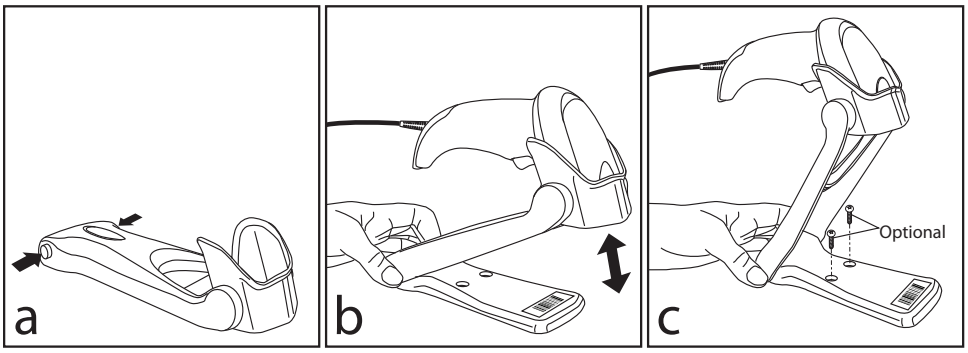
NOTE

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.

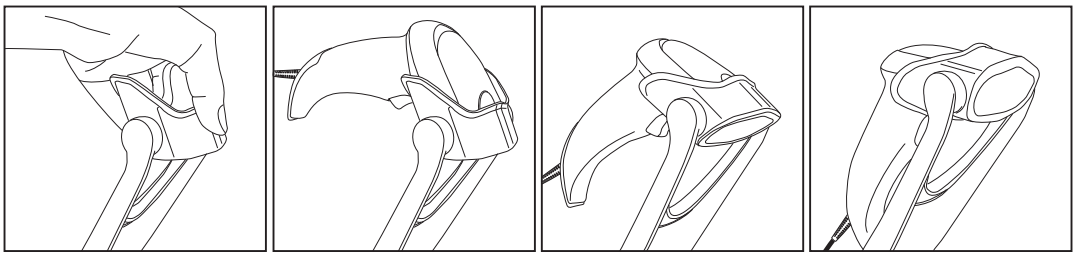
Figure 3. Adjusting the Stand Arm



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
AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Standard Key Encoding	 Select KBD-AT	Set KEYBOARD WEDGE Interface Features starting on page 53
 Select KBD-AT-NK	Keyboard Wedge for IBM AT PS2 with standard key encoding but without external keyboard	
AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Alternate Key	 Select KBD-AT-ALT	
 Select KBD-AT-ALT-NK	Keyboard Wedge for IBM AT PS2 with alternate key encoding but without external keyboard	
PC/XT w/Standard Key Encoding	 Select KBD-XT	

KEYBOARD — cont.	FEATURES
USB Keyboard with standard key encoding Select USB Keyboard	Set KEYBOARD WEDGE Interface Features starting on page 53
 Select USB Alternate Keyboard USB Keyboard with alternate key encoding	

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.

DEFAULT	Host Commands = Obey
Host Commands = Ignore	

ENTER/EXIT PROGRAMMING MODE

USB Suspend Mode

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

DEFAULT	USB Suspend Mode = Disable
USB Suspend Mode = Enable	

Chapter 4
General Features

Double Read Timeout

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

ENTER/EXIT PROGRAMMING MODE

	Double Read Timeout = 0.1 Second
Double Read Timeout = 0.2 Second	
	Double Read Timeout = 0.3 Second
Double Read Timeout = 0.4 Second	DEFAULT

ENTER/EXIT PROGRAMMING MODE

Double Read Timeout — continued

	Double Read Timeout = 0.5 Second
Double Read Timeout = 0.6 Second	
	Double Read Timeout = 0.7 Second
Double Read Timeout = 0.8 Second	
	Double Read Timeout = 0.9 Second
Double Read Timeout = 1 Second	

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

DEFAULT

016 = Timeout of 160 ms

ENTER/EXIT PROGRAMMING MODE

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.)

	Power Save Mode = Disabled
Power Save Mode = Enabled	DEFAULT

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.)

DEFAULT

Sleep Mode Timeout = Disabled

Sleep Mode Timeout = 30 Seconds

Sleep Mode Timeout = 1 Minute (60 Seconds)

Sleep Mode Timeout = 1 Minute 30 Seconds (90 Seconds)

Sleep Mode Timeout = 2 Minutes (120 Seconds)

ENTER/EXIT PROGRAMMING MODE

LED and Beeper Indicators

Power On Alert

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

	Power On Alert = Disable (No Audible Indication)
Power On Alert = Power-up Beep	DEFAULT

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

DEFAULT	Indicate Good Read = After Decode
Indicate Good Read = After Transmit	
	Indicate Good Read = After CTS Goes Inactive, Then Active

ENTER/EXIT PROGRAMMING MODE

Good Read Beep Type

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

DEFAULT	Good Read Beep Type = Mono
Good Read Beep Type = Bitonal	

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.)

	Good Read Beep Frequency = Low
Good Read Beep Frequency = Medium	
DEFAULT	Good Read Beep Frequency = High

Good Read Beep Length

Specifies the duration of a good read beep.

	Good Read Beep Length = 60 msec

ENTER/EXIT PROGRAMMING MODE

Good Read Beep Length — continued

Good Read Beep Length = 80 msec	DEFAULT
	Good Read Beep Length = 100 msec
Good Read Beep Length = 120 msec	
	Good Read Beep Length = 140 msec
Good Read Beep Length = 160 msec	
	Good Read Beep Length = 180 msec
Good Read Beep Length = 200 msec	

ENTER/EXIT PROGRAMMING MODE

Illumination Control

Controls illumination during a good read beep.

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

DEFAULT	Illumination Control = Illumination off during beep
Illumination Control = Illumination and beep are independently controlled	

ENTER/EXIT PROGRAMMING MODE

Good Read Beep Volume

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

	Good Read Beep Volume = Beeper Off
Good Read Beep Volume = Low	
	Good Read Beep Volume = Medium
Good Read Beep Volume = High	DEFAULT

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.

Select Good Read LED Duration 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

020 = Good Read LED stays on for 2 seconds.

NOTE

Indicators are dimmed during sleep.

ENTER/EXIT PROGRAMMING MODE

Scanning Features

Scan Mode

See Scan Mode on page 246 for more detailed programming instructions.

Scan Mode = Trigger Single	DEFAULT
	Scan Mode = Trigger Hold Multiple
Scan Mode = Trigger Pulse Multiple	
	Scan Mode = Flashing
Scan Mode = Always On	
	Scan Mode = Autosense® Stand Mode
Scan Mode = Trigger Object Sense	

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.

NOTE

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

Stand Mode Triggered Timeout = 0.5 Seconds	DEFAULT
	Stand Mode Triggered Timeout = 1.5 Seconds
Stand Mode Triggered Timeout = 2 Seconds	
	Stand Mode Triggered Timeout = 3 Seconds
Stand Mode Triggered Timeout = 4 Seconds	

ENTER/EXIT PROGRAMMING MODE

Stand Mode Triggered Timeout — continued

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

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.

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

DEFAULT

005 = Scanning is active for 5 Seconds

Stand Mode Flash

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

DEFAULT	Stand Mode Flash = Disable
Stand Mode Flash = Enable	

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. See Flash On Time on page 248 for more detailed programming instructions.

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

DEFAULT

10 = Flash is ON for 1 Second

Flash Off Time

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

06 = Flash is OFF for 600ms

Stand Mode Sensitivity

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

	Stand Mode Sensitivity = Low
Stand Mode Sensitivity = Medium	DEFAULT
	Stand Mode Sensitivity = High

ENTER/EXIT PROGRAMMING MODE

Green Spot Duration

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

	Green Spot Duration = Disable (Green Spot is Off)
Green Spot Duration = Short (300 msec)	DEFAULT
	Green Spot Duration = Medium (500 msec)
Green Spot Duration = Long (800 msec)	

Chapter 5

RS-232 ONLY Interface

Introduction

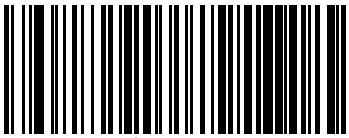
Use the programming bar codes in this chapter if modifications to the standard RS-232 interface settings are necessary to meet your system's requirements. Additional settings which apply to both the RS-232 and USB interfaces are available in Chapter 6, RS-232/USB-Com Interfaces.

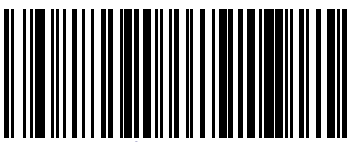
RS-232 Standard Factory Settings

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

Baud Rate

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





ENTER/EXIT PROGRAMMING MODE

Baud Rate — continued

Baud Rate = 9600	DEFAULT
	Baud Rate = 19,200
Baud Rate = 38,400	
	Baud Rate = 57,600
Baud Rate = 115,200	

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	DEFAULT

Stop Bits

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

DEFAULT	1 Stop Bit
2 Stop Bits	

ENTER/EXIT PROGRAMMING MODE

Parity

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

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

DEFAULT	Parity = None
Parity = Even	
	Parity = Odd

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.

DEFAULT	Handshaking Control = RTS
Handshaking Control = RTS/CTS	
	Handshaking Control = RTS/XON/XOFF
Handshaking Control = RTS On/CTS	
	Handshaking Control = RTS/CTS Scan Control

NOTES

Chapter 6

RS-232/USB-Com Interfaces

Introduction

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

Standard Factory Settings

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

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 250 for more detailed programming instructions.

	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

DEFAULT 00 = No Intercharacter Delay

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.

Beep On ASCII BEL = Disable	DEFAULT
	Beep On ASCII BEL = Enable

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.

Beep On Not On File = Disable	
DEFAULT	Beep On Not On File = Enable

ENTER/EXIT PROGRAMMING MODE

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

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

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

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. See ACK NAK Timeout Value on page 253 for more detailed programming instructions.

Select ACK NAK Timeout Value 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 ACK NAK Timeout value is 200ms

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

ENTER/EXIT PROGRAMMING MODE

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

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

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.

	Indicate Transmission Failure = Disable Indication
Indicate Transmission Failure = Enable Indication	DEFAULT

Disable Character

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

Select Disable Character Setting	

DEFAULT

0x44 = Disable Character is 'D'

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. 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

DEFAULT

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	•	
Croation	•	
Romanian	•	
Czech	•	
Slovakian	•	
Italian		•
French		•
German		•
English (British)		•
Swedish		•
Belgian		•
Danish		•
Norwegian		•
Swiss		•

DEFAULT

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

Country Mode = Spanish (Latin American)	
	Country Mode = Swedish
Country Mode = Swiss	

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.

DEFAULT	Caps Lock State = Caps Lock OFF
Caps Lock State = Caps Lock ON	
	Caps Lock State = AUTO Caps Lock Enable

ENTER/EXIT PROGRAMMING MODE

Numlock

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

DEFAULT	Numlock = Numlock key unchanged
Numlock = Numlock key toggled	

Keyboard Numeric Keypad

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

DEFAULT	Keyboard Numeric Keypad = Standard Keys
Keyboard Numeric Keypad = Numeric Keypad	

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.

DEFAULT	Keyboard Send Control Characters = 00
Keyboard Send Control Characters = 01	
	Keyboard Send Control Characters = 02

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.

NOTE

This feature applies ONLY to the Keyboard Wedge interface.

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

DEFAULT

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.

NOTE

This feature applies ONLY to the Keyboard Wedge interface.

	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

DEFAULT 00 = No Intercharacter Delay

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. See Intercode Delay on page 259 for more detailed programming instructions.

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

DEFAULT

00 = No Wedge Intercode Delay

ENTER/EXIT PROGRAMMING MODE

USB Keyboard Speed

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

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

DEFAULT	USB Keyboard Speed = 1ms
USB Keyboard Speed = 2ms	
	USB Keyboard Speed = 3ms
USB Keyboard Speed = 4ms	
	USB Keyboard Speed = 5ms

ENTER/EXIT PROGRAMMING MODE

USB Keyboard Speed — continued

USB Keyboard Speed = 6ms	
	USB Keyboard Speed = 7ms
USB Keyboard Speed = 8ms	
	USB Keyboard Speed = 9ms
USB Keyboard Speed = 10ms	

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 approprite chapter for their host type.

Standard Factory Settings

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

ENTER/EXIT PROGRAMMING MODE

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

NOTE

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

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

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	DEFAULT

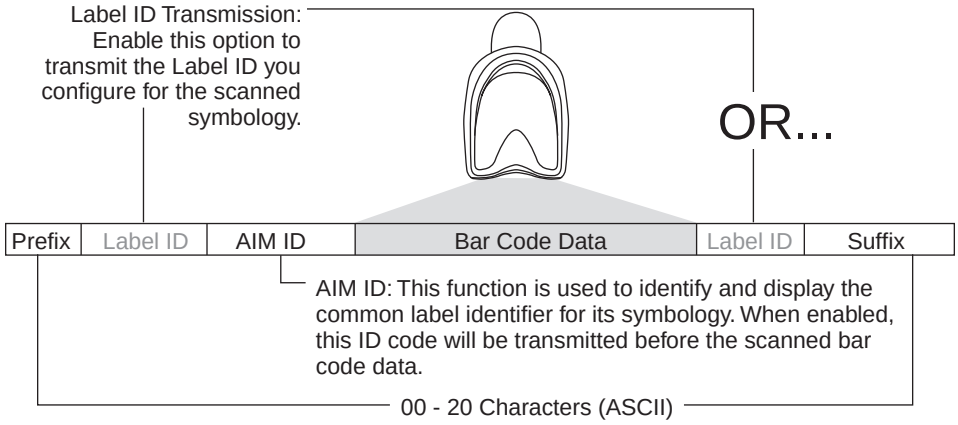
Chapter 9
Data Editing

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



NOTE **Additional advanced editing is available. See the Advanced Formatting features in the Datalogic Aladdin Configuration Application or contact** TECHNICAL SUPPORT on page 3 **for more information.**

ENTER/EXIT PROGRAMMING MODE

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.

	Set Global Prefix
Set Global Suffix	

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

CANCEL

DEFAULT

No Global Prefix
Global Suffix = 0x0D

ENTER/EXIT PROGRAMMING MODE

Global AIM ID

NOTE

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

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

DEFAULT	Global AIM ID = Disable
Global AIM ID = Enable	

GS1-128 AIM ID

If Global AIM ID is disabled, the AIM ID for GS1-128 can be enabled/disabled independently. The AIM ID for GS1-128 is a]C1,]C2 or]C3.

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

	GS1-128 AIM ID = Disable
GS1-128 AIM ID = Enable	DEFAULT

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	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.

DEFAULT	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.

ENTER/EXIT PROGRAMMING MODE

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.

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

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.

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

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.

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

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.

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

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.

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

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.

	Set Standard 2 of 5 Label ID Character(s)
Set Industrial 2 of 5 Label ID Character(s)	
	Set ISSN Label ID Character(s)
Set IATA Label ID Character(s)	
	Set Concatinated ISBT 128 Label ID Character(s)
Set MSI Label ID Character(s)	

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.

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

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.

Set ISBN Label ID Character(s)	
	Set Concatenated ISBT Label ID Character(s)

ENTER/EXIT PROGRAMMING MODE

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.

NOTE

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

4. The reader will save the string and exit Programming Mode when...
   - the ENTER/EXIT baqr 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

DEFAULT

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.

NOTE

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

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

ENTER/EXIT PROGRAMMING MODE

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

DEFAULT 0xFFFFFFFFFFFFFFFF

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.

ENTER/EXIT PROGRAMMING MODE

Disable All Symbologies

Scan this label to disable all symbologies.

	Disable all symbologies

Coupon Control

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

Options are:

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

To set this feature:

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

	Coupon Control = Allow all
Coupon Control = Enable only UPC/EAN	DEFAULT
	Coupon Control = Enable only GS1 DataBar

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	DEFAULT

UPC-A Check Character Transmission

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

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

ENTER/EXIT PROGRAMMING MODE

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.

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

UPC-A Number System Character Transmission

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

	UPC-A Number System Character = Do not transmit
UPC-A Number System Character = Transmit	DEFAULT

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'.

	In-Store Minimum Reads = 1
In-Store Minimum Reads = 2	DEFAULT
	In-Store Minimum Reads = 3
In-Store Minimum Reads = 4	

ENTER/EXIT PROGRAMMING MODE

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	DEFAULT

UPC-E Check Character Transmission

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

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

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.

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

Expand UPC-E to UPC-A

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

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

ENTER/EXIT PROGRAMMING MODE

UPC-E — cont.

UPC-E Number System Character Transmission

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

	UPC-E Number System Character = Do not transmit
UPC-E Number System Character = Transmit	DEFAULT

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.

	UPC-E Minimum Reads = 1
UPC-E Minimum Reads = 2	DEFAULT
	UPC-E Minimum Reads = 3
UPC-E Minimum Reads = 4	

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.

	EAN 13 = Disable
EAN 13 = Enable	DEFAULT

EAN 13 Check Character Transmission

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

	EAN 13 Check Character Transmission = Don't Send
EAN 13 Check Character Transmission = Send	DEFAULT

ENTER/EXIT PROGRAMMING MODE

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 Flag 1 Char= Don't transmit
EAN-13 Flag 1 Char= Transmit	DEFAULT

EAN-13 ISBN Conversion

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

DEFAULT	EAN-13 ISBN Conversion = Disable
EAN-13 ISBN Conversion = Convert to ISBN	

ENTER/EXIT PROGRAMMING MODE

EAN 13 — cont.

ISSN Enable/Disable

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

DEFAULT	ISSN = Disable
ISSN = Enable	

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.

DEFAULT	EAN 13 Minimum Reads = 1
EAN 13 Minimum Reads = 2	
	EAN 13 Minimum Reads = 3
EAN 13 Minimum Reads = 4	

ENTER/EXIT PROGRAMMING MODE

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	DEFAULT

EAN 8 Check Character Transmission

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

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

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.

DEFAULT	Expand EAN 8 to EAN 13 = Disable
Expand EAN 8 to EAN 13 = Enable	

EAN 8 Both Guards Substitution

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

DEFAULT	EAN 8 Both Guards Substitution = Disable
EAN 8 Both Guards Substitution = Enable	

ENTER/EXIT PROGRAMMING MODE

EAN 8 — cont.

EAN 8 Guard Insertion

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

DEFAULT

EAN 8 Guard Insertion = Disable

EAN 8 Guard Insertion = Enable

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.

DEFAULT

EAN 8 Guard Substitution = Disable

EAN 8 Guard Substitution = Enable

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.

	EAN 8 Minimum Segment Length Block = 5
EAN 8 Minimum Segment Length Block = 6	
	EAN 8 Minimum Segment Length Block = 7
EAN 8 Minimum Segment Length Block = 8	DEFAULT
	EAN 8 Minimum Segment Length Block = 9
EAN 8 Minimum Segment Length Block = 10	

ENTER/EXIT PROGRAMMING MODE

EAN 8 — cont.

EAN 8 Minimum Segment Length Block — cont.

	EAN 8 Minimum Segment Length Block = 11
EAN 8 Minimum Segment Length Block = 12	
	EAN 8 Minimum Segment Length Block = 13
EAN 8 Minimum Segment Length Block = 14	
	EAN 8 Minimum Segment Length Block = 15

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.

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

ENTER/EXIT PROGRAMMING MODE

EAN 8 — cont.

EAN 8 Stitch Exact Label Halves

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

NOTE

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

DEFAULT

EAN 8 Stitch Exact Label Halves = Disable

EAN 8 Stitch Exact Label Halves = Enable

EAN 8 Stitch Unlike Label Halves

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

NOTE

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

DEFAULT

EAN 8 Stitch Unlike Label Halves = Disable

EAN 8 Stitch Unlike Label Halves = Enable

ENTER/EXIT PROGRAMMING MODE

EAN Two Label

EAN Two Label Enable/Disable

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

DEFAULT	EAN Two Label = Disable
EAN Two Label = Enable	

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.

DEFAULT	EAN Two Label = Disable
EAN Two Label = Enable	

ENTER/EXIT PROGRAMMING MODE

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.

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

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.

UPC/EAN Decoding Level = 1	
DEFAULT	UPC/EAN Decoding Level = 2
UPC/EAN Decoding Level = 3	
	UPC/EAN Decoding Level = 4
UPC/EAN Decoding Level = 5	

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	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

DEFAULT

Price Weight Check = Disabled

Price Weight Check = 4-digit price-weight check

Price Weight Check = 5-digit price-weight check

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

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

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	UPC-A Minimum Reads = 1
UPC-A Minimum Reads = 2	
	UPC-A Minimum Reads = 3
UPC-A Minimum Reads = 4	

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 ddddddCddddddG.

DEFAULT

UPC/EAN Guard Insertion = Disable

UPC/EAN Guard Insertion = Enable

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.

DEFAULT

UPC/EAN Stitch Exact Label Halves = Disable

UPC/EAN Stitch Exact Label Halves = Enable

ENTER/EXIT PROGRAMMING MODE

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 GddddddC and CddddddG. The characters dCd must match between the two segments.

DEFAULT	UPC/EAN Stitch Unlike Label Halves = Disable
UPC/EAN Stitch Unlike Label Halves = Enable	

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.

DEFAULT	UPC/EAN Minimum Segment Length Block = 5
UPC/EAN Minimum Segment Length Block = 6	
	UPC/EAN Minimum Segment Length Block = 7
UPC/EAN Minimum Segment Length Block = 8	
	UPC/EAN Minimum Segment Length Block = 9
UPC/EAN Minimum Segment Length Block = 10	

ENTER/EXIT PROGRAMMING MODE

UPC/EAN Global Settings — cont.

UPC/EAN Minimum Segment Length — cont.

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

ENTER/EXIT PROGRAMMING MODE

Add-Ons

The following features apply to optional add-ons.

NOTE

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

Optional Add-ons

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

- P2
- P5
- GS1-128

NOTE

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

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

DEFAULT	Optional Add-Ons = Disable P2
Optional Add-Ons = Enable P2	
DEFAULT	Optional Add-Ons = Disable P5

ENTER/EXIT PROGRAMMING MODE

Add-Ons — cont.

Optional Add-ons — cont.

Optional Add-Ons = Enable P5	
DEFAULT	Optional Add-Ons = Disable GS1-128
Optional Add-Ons = Enable GS1-128	

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.

Optional Add-on Timer = 10ms	
	Optional Add-on Timer = 20ms
Optional Add-on Timer = 30ms	
	Optional Add-on Timer = 40ms
Optional Add-on Timer = 50ms	

ENTER/EXIT PROGRAMMING MODE

Add-Ons — cont.

Optional Add-On Timer — cont.

	Optional Add-on Timer = 60ms
Optional Add-on Timer = 70ms	DEFAULT
	Optional Add-on Timer = 100ms
Optional Add-on Timer = 120ms	
	Optional Add-on Timer = 140ms
Optional Add-on Timer = 160ms	

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	DEFAULT
	P2 Add-Ons Minimum Reads = 3
P2 Add-Ons Minimum Reads = 4	

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	P5 Add-Ons Minimum Reads = 1
P5 Add-Ons Minimum Reads = 2	
	P5 Add-Ons Minimum Reads = 3
P5 Add-Ons Minimum Reads = 4	

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.

DEFAULT	GS1-128 Add-Ons Minimum Reads = 1
GS1-128 Add-Ons Minimum Reads = 2	
	GS1-128 Add-Ons Minimum Reads = 3
GS1-128 Add-Ons Minimum Reads = 4	

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.

DEFAULT	GS1 DataBar Omnidirectional = Disable
GS1 DataBar Omnidirectional = Enable	

GS1 DataBar Omnidirectional GS1-128 Emulation

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

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

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.

DEFAULT	GS1 DataBar Omnidirectional Minimum Reads = 1
GS1 DataBar Omnidirectional Minimum Reads = 2	
	GS1 DataBar Omnidirectional Minimum Reads = 3
GS1 DataBar Omnidirectional Minimum Reads = 4	

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	GS1 DataBar Expanded = Disable
GS1 DataBar Expanded = Enable	

GS1 DataBar Expanded GS1-128 Emulation

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

DEFAULT	GS1 DataBar Expanded GS1-128 Emulation = Disable
GS1 DataBar Expanded GS1-128 Emulation = Enable	

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.

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

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	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

ENTER/EXIT PROGRAMMING MODE

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.

Select GS1 DataBar Expanded Set Length 2 Setting	
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT 74 = Length 2 is 74 Characters

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.

DEFAULT	GS1 DataBar Limited = Disable
GS1 DataBar Limited = Enable	

GS1 DataBar Limited GS1-128 Emulation

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

DEFAULT	GS1 DataBar Limited GS1-128 Emulation = Disable
GS1 DataBar Limited GS1-128 Emulation = Enable	

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	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.

	Code 39 = Disable
Code 39 = Enable	DEFAULT

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	Code 39 Check Character Calculation = Don't Calculate
Code 39 Check Character Calculation = Calculate Std Check	
	Code 39 Check Character Calculation = Calculate Mod 7 Check
Code 39 Check Character Calculation = Enable Italian Post Check	
	Code 39 Check Character Calculation = Enable Daimler Chrysler Check

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.

	Code 39 Check Character Transmission = Don't Send
Code 39 Check Character Transmission = Send	DEFAULT

Code 39 Start/Stop Character Transmission

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

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

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	Code 39 Full ASCII = Disable
Code 39 Full ASCII = Enable	

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.

Code 39 Quiet Zones = Quiet Zone on one side

Code 39 Quiet Zones = Quiet Zones on two sides

Code 39 Quiet Zones = Auto

DEFAULT

Code 39 Quiet Zones = Virtual Quiet Zones on two sides

Code 39 Quiet Zones = Small Quiet Zones on two sides

ENTER/EXIT PROGRAMMING MODE

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	DEFAULT
	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.

Code 39 Decoding Level = 1	
	Code 39 Decoding Level = 2
Code 39 Decoding Level = 3	DEFAULT
	Code 39 Decoding Level = 4
Code 39 Decoding Level = 5	

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	Code 39 Length Control = Variable Length
Code 39 Length Control = Fixed Length	

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

ENTER/EXIT PROGRAMMING MODE

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.

Select Code 39Length 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

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.

	Code 39 Interdigit Ratio = Disable
Code 39 Interdigit Ratio = 1	
	Code 39 Interdigit Ratio = 2
Code 39 Interdigit Ratio = 3	
DEFAULT	Code 39 Interdigit Ratio = 4
Code 39 Interdigit Ratio = 5	

ENTER/EXIT PROGRAMMING MODE

Code 39 — cont.

Code 39 Interdigit Ratio — cont.

	Code 39 Interdigit Ratio = 6
Code 39 Interdigit Ratio = 7	
	Code 39 Interdigit Ratio = 8
Code 39 Interdigit Ratio = 9	
	Code 39 Interdigit Ratio = 10

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.

DEFAULT	Code 39 Character Correlation = Disable
Code 39 Character Correlation = Enable	

Code 39 Stitching

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

	Code 39 Stitching = Disable
Code 39 Stitching = Enable	DEFAULT

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	Code 32 = Disable
Code 32 = Enable	

Code 32 Feature Setting Exceptions

NOTE

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

Code 39 Quiet Zones 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.

DEFAULT	Code 32 Check Character Transmission = Don't Send
Code 32 Check Character Transmission = Send	

Code 32 Start/Stop Character Transmission

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

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

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	Code 39 CIP = Disable
Code 39 CIP = Enable	

Code 128

The following options apply to the Code 128 symbology.

Code 128 Enable/Disable

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

	Code 128 = Disable
Code 128 = Enable	DEFAULT

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.

DEFAULT	Code 128 to Code 39 = Don't Expand
Code 128 to Code 39 = Expand	

Code 128 Check Character Transmission

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

DEFAULT	Code 128 Check Character Transmission = Don't Send
Code 128 Check Character Transmission = Send	

ENTER/EXIT PROGRAMMING MODE

Code 128 — cont.

Code 128 Function Character Transmission

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

DEFAULT	Code 128 Function Character Transmission = Don't Send
Code 128 Function Character Transmission = Send	

Code 128 Sub-Code Change Transmission

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

DEFAULT	Code 128 Sub-Code Change Transmission = Disable
Code 128 Sub-Code Change Transmission = Enable	

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.

	Code 128 Quiet Zones = No Quiet Zones
Code 128 Quiet Zones = Quiet Zone on one side	
	Code 128 Quiet Zones = Quiet Zones on two sides
Code 128 Quiet Zones = Auto	DEFAULT
	Code 128 Quiet Zones = Virtual Quiet Zones on two sides

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	Code 128 Minimum Reads = 1
Code 128 Minimum Reads = 2	
	Code 128 Minimum Reads = 3
Code 128 Minimum Reads = 4	

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.

Code 128 Decoding Level = 1	
	Code 128 Decoding Level = 2
Code 128 Decoding Level = 3	DEFAULT
	Code 128 Decoding Level = 4
Code 128 Decoding Level = 5	

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	Code 128 Length Control = Variable Length
Code 128 Length Control = Fixed Length	

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.

Select Code 128 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

ENTER/EXIT PROGRAMMING MODE

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.

Select Code 128 Length 2 Setting	
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT

80 = Length 2 is 80 Characters

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.

DEFAULT	Code 128 Character Correlation = Disable
Code 128 Character Correlation = Enable	

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.

	Code 128 Stitching = Disable
Code 128 Stitching = Enable	DEFAULT

ENTER/EXIT PROGRAMMING MODE

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.

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

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.

DEFAULT	I 2 of 5 = Disable
I 2 of 5 = Enable	

ENTER/EXIT PROGRAMMING MODE

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.

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

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.

	I 2 of 5 Check Character Calculation = Check Italian Post

I 2 of 5 Check Character Transmission

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

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

ENTER/EXIT PROGRAMMING MODE

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.

	I 2 of 5 Minimum Reads = 1
I 2 of 5 Minimum Reads = 2	DEFAULT
	I 2 of 5 Minimum Reads = 3
I 2 of 5 Minimum Reads = 4	

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	DEFAULT
	2 of 5 Decoding Level = 4
2 of 5 Decoding Level = 5	

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	I 2 of 5 Length Control = Variable Length
I 2 of 5 Length Control = Fixed Length	

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

ENTER/EXIT PROGRAMMING MODE

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.

Select I 2 of 5 Length 2 Setting	
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT — 50 = Length 2 is 50 Characters

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.

DEFAULT	I 2 of 5 Character Correlation = Disable
I 2 of 5 Character Correlation = Enable	

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.

DEFAULT	I 2 of 5 Zero Pattern = Disable
I 2 of 5 Zero Pattern = Enable	

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	I 2 of 5 Stitching = Disable
I 2 of 5 Stitching = Enable	

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.

DEFAULT	Interleaved 2 of 5 CIP HR = Disable
Interleaved 2 of 5 CIP HR = Enable	

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.

DEFAULT	Datalogic 2 of 5 = Disable
Datalogic 2 of 5 = Enable	

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	Datalogic 2 of 5 Check Character Calculation = Disable
Datalogic 2 of 5 Check Character Calculation = Enable	

Datalogic 2 of 5 Check Character Transmission

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

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

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.

	I 2 of 5 Minimum Reads = 1
I 2 of 5 Minimum Reads = 2	DEFAULT
	I 2 of 5 Minimum Reads = 3
I 2 of 5 Minimum Reads = 4	

Datalogic 2 of 5 Decoding Level

NOTE

The Datalogic 2 of 5 Decoding Level feature is set using I 2 of 5 Decoding Level on page 157.

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	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.

Select Datalogic 2 of 5 Length 1 Setting	
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT

06 = Length 1 is 6 Characters

ENTER/EXIT PROGRAMMING MODE

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

DEFAULT

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.

	Datalogic 2 of 5 Interdigit Maximum Ratio = Disable
Datalogic 2 of 5 Interdigit Maximum Ratio = 1	
	Datalogic 2 of 5 Interdigit Maximum Ratio = 2
Datalogic 2 of 5 Interdigit Maximum Ratio = 3	
DEFAULT	Datalogic 2 of 5 Interdigit Maximum Ratio = 4
Datalogic 2 of 5 Interdigit Maximum Ratio = 5	

ENTER/EXIT PROGRAMMING MODE

Datalogic 2 of 5 Interdigit Maximum Ratio — cont.

	Datalogic 2 of 5 Interdigit Maximum Ratio = 6
Datalogic 2 of 5 Interdigit Maximum Ratio = 7	
	Datalogic 2 of 5 Interdigit Maximum Ratio = 8
Datalogic 2 of 5 Interdigit Maximum Ratio = 9	
	Datalogic 2 of 5 Interdigit Maximum Ratio = 10

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.

DEFAULT	I 2 of 5 Character Correlation = Disable
I 2 of 5 Character Correlation = Enable	

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.

DEFAULT	Datalogic 2 of 5 Stitching = Disable
Datalogic 2 of 5 Stitching = Enable	

ENTER/EXIT PROGRAMMING MODE

Codabar

The following options apply to the Codabar symbology.

Codabar Enable/Disable

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

DEFAULT	Codabar = Disable
Codabar = Enable	

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.

DEFAULT	Codabar Check Character Calculation = Don't Calculate
Codabar Check Character Calculation = Enable AIM standard check char.	
	Codabar Check Character Calculation = Enable Modulo 10 check char.

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	DEFAULT

Codabar Start/Stop Character Transmission

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

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

ENTER/EXIT PROGRAMMING MODE

Codabar — cont.

Codabar Start/Stop Character Set

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

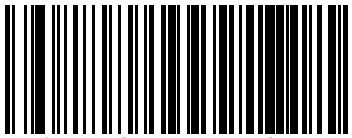
	Codabar Check Character Set = ABCD/TN*E
Codabar Check Character Set = ABCD/ABCD	
	Codabar Check Character Set = abcd/tn*e
Codabar Check Character Set = abcd/abcd	DEFAULT

ENTER/EXIT PROGRAMMING MODE

Codabar — cont.

Codabar Start/Stop Character Match

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

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

ENTER/EXIT PROGRAMMING MODE

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.

Codabar Quiet Zones = Quiet Zone on one side	
	Codabar Quiet Zones = Quiet Zones on two sides
Codabar Quiet Zones = Auto	DEFAULT
	Codabar Quiet Zones = Virtual Quiet Zones on two sides
Codabar Quiet Zones = Small Quiet Zones on two sides	

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.

	Codabar Minimum Reads = 1
Codabar Minimum Reads = 2	DEFAULT
	Codabar Minimum Reads = 3
Codabar Minimum Reads = 4	

ENTER/EXIT PROGRAMMING MODE

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.

Codabar Decoding Level = 1	
	Codabar Decoding Level = 2
Codabar Decoding Level = 3	DEFAULT
	Codabar Decoding Level = 4
Codabar Decoding Level = 5	

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.

DEFAULT	Codabar Length Control = Variable Length
Codabar Length Control = Fixed Length	

ENTER/EXIT PROGRAMMING MODE

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.

Select Codabar Length 1 Setting	
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT 03 = Length 1 is 3 Characters

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

ENTER/EXIT PROGRAMMING MODE

Codabar — cont.

Codabar Interdigit Ratio

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

	Codabar Interdigit Ratio = Disable
Codabar Interdigit Ratio = 1	
	Codabar Interdigit Ratio = 2
Codabar Interdigit Ratio = 3	
DEFAULT	Codabar Interdigit Ratio = 4
Codabar Interdigit Ratio = 5	

ENTER/EXIT PROGRAMMING MODE

Codabar — cont.

Codabar Interdigit Ratio — cont.

	Codabar Interdigit Ratio = 6
Codabar Interdigit Ratio = 7	
	Codabar Interdigit Ratio = 8
Codabar Interdigit Ratio = 9	
	Codabar Interdigit Ratio = 10

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	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.

DEFAULT	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.

DEFAULT	ABC Codabar = Disable
ABC Codabar = Enable	

ABC Codabar Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.

DEFAULT	ABC Codabar Concatenation Mode = Static
ABC Codabar Concatenation Mode = Dynamic	

ENTER/EXIT PROGRAMMING MODE

ABC Codabar — cont.

ABC Codabar Dynamic Concatenation Timeout

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

	ABC Codabar Dynamic Concatenation Timeout = 50 msec
ABC Codabar Dynamic Concatenation Timeout = 100 msec	
DEFAULT	ABC Codabar Dynamic Concatenation Timeout = 200 msec
ABC Codabar Dynamic Concatenation Timeout = 500 msec	
	ABC Codabar Dynamic Concatenation Timeout = 750 msec
ABC Codabar Dynamic Concatenation Timeout = 1 Second	

ENTER/EXIT PROGRAMMING MODE

ABC Codabar — cont.

ABC Codabar Force Concatenation

Forces labels starting or ending with D to be concatenated.

DEFAULT	ABC Codabar Force Concatenation = Disable
ABC Codabar Force Concatenation = Enable	

Code 11

The following options apply to the Code 11 symbology.

Code 11 Enable/Disable

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

DEFAULT	Code 11 = Disable
Code 11 = Enable	

ENTER/EXIT PROGRAMMING MODE

Code 11 — cont.

Code 11 Check Character Calculation

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

	Code 11 Check Character Calculation = Disable
Code 11 Check Character Calculation = Check C	
	Code 11 Check Character Calculation = Check K
Code 11 Check Character Calculation = Check C and K	DEFAULT

Code 11 Check Character Transmission

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

	Code 11 Check Character Transmission = Don't Send
Code 11 Check Character Transmission = Send	DEFAULT

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	DEFAULT
	Code 11 Minimum Reads = 3
Code 11 Minimum Reads = 4	

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	Code 11 Length Control = Variable Length
Code 11 Length Control = Fixed Length	

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

ENTER/EXIT PROGRAMMING MODE

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.

Select Code 11 Length 2 Setting	
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT

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.

	Code 11 Interdigit Ratio = Disable
Code 11 Interdigit Ratio = 1	
	Code 11 Interdigit Ratio = 2
Code11 Interdigit Ratio = 3	
DEFAULT	Code 11 Interdigit Ratio = 4
Code 11 Interdigit Ratio = 5	

ENTER/EXIT PROGRAMMING MODE

Code 11 — cont.

Code 11 Interdigit Ratio — cont.

	Code 11 Interdigit Ratio = 6
Code 11 Interdigit Ratio = 7	
	Code 11 Interdigit Ratio = 8
Code 11 Interdigit Ratio = 9	
	Code 11 Interdigit Ratio = 10

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.

Codabar Decoding Level = 1	
	Codabar Decoding Level = 2
Codabar Decoding Level = 3	DEFAULT
	Codabar Decoding Level = 4
Codabar Decoding Level = 5	

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	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.

DEFAULT	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.

DEFAULT	Standard 2 of 5 = Disable
Standard 2 of 5 = Enable	

Standard 2 of 5 Check Character Calculation

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

DEFAULT	Standard 2 of 5 Check Character Calculation = Disable
Standard 2 of 5 Check Character Calculation = Enable	

ENTER/EXIT PROGRAMMING MODE

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.

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

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.

	Standard 2 of 5 Minimum Reads = 1
Standard 2 of 5 Minimum Reads = 2	DEFAULT
	Standard 2 of 5 Minimum Reads = 3
Standard 2 of 5 Minimum Reads = 4	

ENTER/EXIT PROGRAMMING MODE

Standard 2 of 5 — cont.

Standard 2 of 5 Decoding Level

NOTE

The Standard 2 of 5 Decoding Level feature is set using I 2 of 5 Decoding Level on page 157.

Standard 2 of 5 Length Control

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

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

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

DEFAULT	Standard 2 of 5 Length Control = Variable Length
Standard 2 of 5 Length Control = Fixed Length	

ENTER/EXIT PROGRAMMING MODE

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.

Select Standard 2 of 5 Length 1 Setting	
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT

08 = Length 1 is 8 Characters

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

DEFAULT

50 = Length 2 is 50 Characters

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	Standard 2 of 5 Character Correlation = Disable
Standard 2 of 5 Character Correlation = Enable	

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.

DEFAULT	Standard 2 of 5 Stitching = Disable
Standard 2 of 5 Stitching = Enable	

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.

DEFAULT	Industrial 2 of 5 = Disable
Industrial 2 of 5 = Enable	

Industrial 2 of 5 Check Character Calculation

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

DEFAULT	Industrial 2 of 5 Check Character Calculation = Disable
Industrial 2 of 5 Check Character Calculation = Enable	

ENTER/EXIT PROGRAMMING MODE

Industrial 2 of 5 — cont.

Industrial 2 of 5 Check Character Transmission

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

	Industrial 2 of 5 Check Character Transmission = Disable
Industrial 2 of 5 Check Character Transmission = Enable	DEFAULT

Industrial 2 of 5 Length Control

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

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

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

DEFAULT	Industrial 2 of 5 Length Control = Variable Length
Industrial 2 of 5 = Fixed Length	

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.

Select Industrial 2 of 5 Set Length 1 Setting	
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT

01 = Length 1 is 1 Character

ENTER/EXIT PROGRAMMING MODE

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 of5 Length 2 Setting	
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT

50 = Length 2 is 50 Characters

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.

DEFAULT	Industrial 2 of 5 Minimum Reads = 1
Industrial 2 of 5 Minimum Reads = 2	
	Industrial 2 of 5 Minimum Reads = 3
Industrial 2 of 5 Minimum Reads = 4	

ENTER/EXIT PROGRAMMING MODE

Industrial 2 of 5 — cont.

Industrial 2 of 5 Stitching

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

DEFAULT	Industrial 2 of 5 Stitching = Disable
Industrial 2 of 5 Stitching = Enable	

Industrial 2 of 5 Character Correlation

Enable/disables character correlation for Industrial 2 of 5.

DEFAULT	Industrial 2 of 5 Character Correlation = Disable
Industrial 2 of 5 Character Correlation = Enable	

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.

DEFAULT	IATA = Disable
IATA = Enable	

IATA Check Character Transmission

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

	IATA Check Character Transmission = Disable
IATA Check Character Transmission = Enable	DEFAULT

ENTER/EXIT PROGRAMMING MODE

ISBT 128

The following options apply to the ISBT 128 symbology.

ISBT 128 Concatenation

Enables/disables ISBT128 concatenation of 2 labels.

DEFAULT	ISBN 128 Concatenation = Disable
ISBN 128 Concatenation = Enable	

ISBT 128 Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.

NOTE

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

DEFAULT	ISBT 128 Concatenation Mode = Static
ISBT 128 Concatenation Mode = Dynamic	

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

ENTER/EXIT PROGRAMMING MODE

ISBT 128 — cont.

ISBT 128 Force Concatenation

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

NOTE

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

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

ISBT 128 Advanced Concatenation Options

NOTE

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

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.

DEFAULT	MSI = Disable
MSI = Enable	

MSI Check Character Calculation

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

	MSI Check Character Calculation = Disable
MSI Check Character Calculation = Enable Mod10	DEFAULT
	MSI Check Character Calculation = Enable Mod11/10
MSI Check Character Calculation = Enable Mod10/10	

ENTER/EXIT PROGRAMMING MODE

MSI — cont.

MSI Check Character Transmission

Enables/disables transmission of an MSI check character.

	MSI Check Character Transmission = Disable
MSI Check Character Transmission = Enable	DEFAULT

MSI Length Control

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

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

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

DEFAULT	MSI Length Control = Variable Length
MSI = Fixed Length	

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

ENTER/EXIT PROGRAMMING MODE

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

DEFAULT

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.

	MSI Minimum Reads = 1
MSI Minimum Reads = 2	
	MSI Minimum Reads = 3
MSI Minimum Reads = 4	DEFAULT

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.

	MSI Decoding Level = Disable
MSI Decoding Level = 1	
	MSI Decoding Level = 2
MSI Decoding Level = 3	DEFAULT
	MSI Decoding Level = 4
MSI Decoding Level = 5	

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.

DEFAULT	Code 93 = Disable
Code 93 = Enable	

Code 93 Check Character Calculation

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

	Code 93 Check Character Calculation = Disable
Code 93 Check Character Calculation = Enable Check C	
	Code 93 Check Character Calculation = Enable Check K
Code 93 Check Character Calculation = Enable Check C and K	DEFAULT

ENTER/EXIT PROGRAMMING MODE

Code 93 — cont.

Code 93 Check Character Transmission

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

	Code 93 Check Character Transmission = Disable
Code 93 Check Character Transmission = Enable	DEFAULT

Code 93 Length Control

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

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

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

DEFAULT	Code 93 Length Control = Variable Length
Code 93 = Fixed Length	

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

ENTER/EXIT PROGRAMMING MODE

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.

Select Code 93 Length 2 Setting	
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT 50 = Length 2 is 50 Characters

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.

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

ENTER/EXIT PROGRAMMING MODE

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.

	Code 93 Decoding Level = Disable
Code 93 Decoding Level = 1	
	Code 93 Decoding Level = 2
Code 93 Decoding Level = 3	DEFAULT
	Code 93 Decoding Level = 4
Code 93 Decoding Level = 5	

ENTER/EXIT PROGRAMMING MODE

Code 93 — cont.

Code 93 Quiet Zones

Enables/disables fixed length stitching for Code 93.

	Code 93 Quiet Zones = No Quiet Zones
Code 93 Quiet Zones = Quiet Zone on one side	
	Code 93 Quiet Zones = Quiet Zones on two sides
Code 93 Quiet Zones = Auto	DEFAULT
	Code 93 Quiet Zones = Virtual Quiet Zones on two sides

ENTER/EXIT PROGRAMMING MODE

Code 93 — cont.

Code 93 Stitching

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

	Code 93 Stitching = Disable
Code 93 Stitching = Enable	DEFAULT

Code 93 Character Correlation

Enables/disables Character Correlation for Code 93.

	Code 93 Character Correlation = Disable
Code 93 Character Correlation = Enable	DEFAULT

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.

DEFAULT	Codablock F = Disable
Codablock F = Enable	

Codablock F EAN Enable/Disable

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

DEFAULT	Codablock F EAN = Disable
Codablock F EAN = Enable	

ENTER/EXIT PROGRAMMING MODE

Codablock F AIM Check

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

	Codablock F AIM Check = Not AIM compliant
Codablock F AIM Check = AIM compliant	DEFAULT

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.

DEFAULT	Codablock F Length Control = Variable Length
Codablock F = Fixed Length	

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.

Select Codablock F 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

003 = Length 1 is 3 Characters

ENTER/EXIT PROGRAMMING MODE

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

DEFAULT

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.

DEFAULT	Code 4 = Disable
Code 4 = Enable	

Code 4 Check Character Transmission

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

	Code 4 Check Character Transmission = Don't Send
Code 4 Check Character Transmission = Send	DEFAULT

ENTER/EXIT PROGRAMMING MODE

Code 4 — cont.

Code 4 Hex to Decimal Conversion

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

	Code 4 Hex to Decimal Conversion = Disable
Code 4 Hex to Decimal Conversion = Enable	DEFAULT

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.

DEFAULT	Code 5 = Disable
Code 5 = Enable	

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	DEFAULT

Code 5 Hex to Decimal Conversion

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

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

ENTER/EXIT PROGRAMMING MODE

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.

NOTE

This configuration item applies to Code 4 and Code 5.

Code 4 and Code 5 Decoding Level = 1	
	Code 4 and Code 5 Decoding Level = 2
Code 4 and Code 5 Decoding Level = 3	DEFAULT
	Code 4 and Code 5 Decoding Level = 4
Code 4 and Code 5 Decoding Level = 5	

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.

DEFAULT	Code 4 or Code 5 Minimum Reads = 1
Code 4 or Code 5 Minimum Reads = 2	
	Code 4 or Code 5 Minimum Reads = 3
Code 4 or Code 5 Minimum Reads = 4	

ENTER/EXIT PROGRAMMING MODE

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.

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

BC412

The following options apply to the BC412 symbology.

BC412 Enable/Disable

Enables/Disables ability of reader to decode BC412 labels.

DEFAULT	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.

DEFAULT	BC412 Check Character Calculation = Don't Calculate
BC412 Check Character Calculation = Calculate Check Character	

ENTER/EXIT PROGRAMMING MODE

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.

	BC412 Minimum Reads = 1
BC412 Minimum Reads = 2	DEFAULT
	BC412 Minimum Reads = 3
BC412 Minimum Reads = 4	

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.

BC412 Decoding Level = 1

BC412 Decoding Level = 2

BC412 Decoding Level = 3

DEFAULT

BC412 Decoding Level = 4

BC412 Decoding Level = 5

ENTER/EXIT PROGRAMMING MODE

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.

DEFAULT	BC41'2 Length Control = Variable Length
BC412 Length Control = Fixed Length	

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.

Select BC412 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

ENTER/EXIT PROGRAMMING MODE

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 39Length 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

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.

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 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 flashes[1] on and off regardless of the trigger status. Flash rate is controlled by Flash On Time and Flash Off Time. When Flash is ON the reader reads continuously. When Flash is OFF scanning is deactivated.

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

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 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.

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 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.

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 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.

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 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.

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 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.

NOTE

This feature applies ONLY to the Keyboard Wedge interface.

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.

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 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.

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 16 for some examples of how to set this feature.

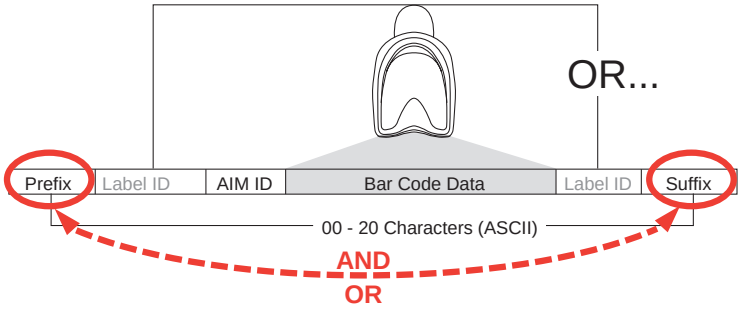
Table 16. Wedge Intercode Delay Examples

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

NOTE

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

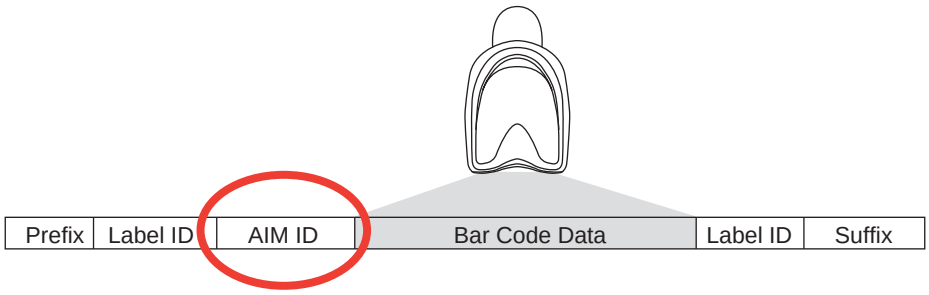
AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned bar code data. AIM label identifiers consist of three characters as follows:

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

SYMBOLOGY	CHAR	SYMBOLOGY	CHAR
UPC/EAN	E[a]	Code 128/GS1-128	C
Code 39 and Code 32	A	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	
Industrial 2 of 5	W	570000	W	570000
Interleaved 2 of 5 CIP HR	e	650000	e	650000
ISBN	I	490000	@	400000
ISBT128	f	660000	f	660000
ISSN	n	6E0000	n	6E0000
MSI	@	400000	Z	5A0000
S25	s	730000	P	500000
UPCA	A	410000	C	430000
UPCA P2	A	410000	F	460000
UPCA P5	A	410000	G	470000
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.

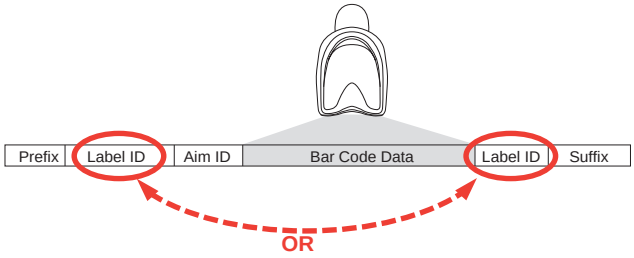
NOTE

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

6. Scan the ENTER/EXIT bar code to exit Label ID entry.
7. Scan the ENTER/EXIT bar code once again to exit Programming Mode.

This completes the steps to configure a Label ID for a given symbology.

Figure 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. f you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	44 42 2A	3D 43 33	2B	50 48
6.	Scan theENTER/EXIT bar code	(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 Varible 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.

NOTE

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

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

This completes the procedure. See 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.

NOTE

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

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

This completes the procedure. See 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

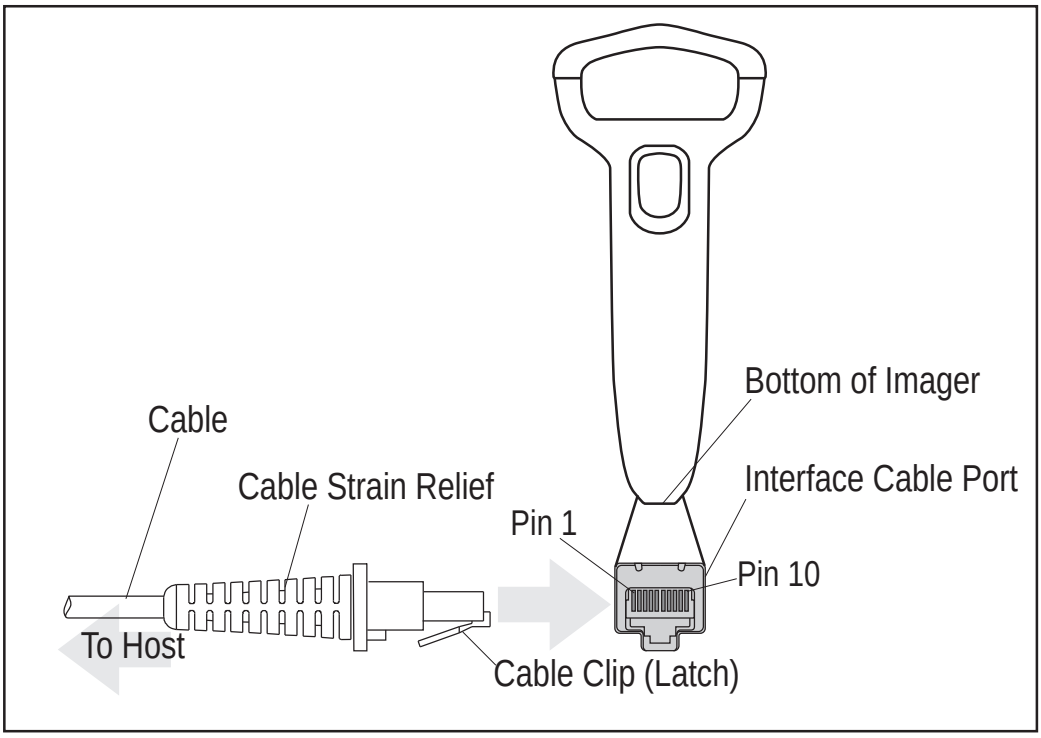
Item	Description
Physical Characteristics	
Dimensions	2.8 in. H x 6.7 in. L x 2.6 in. W (7.1 cm H x 17.1 cm L x 6.6 cm W)
Weight (without cable)	Approximately 4.2 oz. (119 g)
Color	Black or White
Electrical Characteristics	
Voltage & Current	5.0 VDC +/-10% Max Operating Current @ 5V < 260mA Typical Operating (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 2.5 - 15.0 cm 7.5 mil 0 - 24.0 cm 10 mil (80% UPC) 0 - 35.0 cm 13 mil (100% UPC) 0 - 40.0 cm 20 mil 0 to 60.0 cm
Minimum Element Width	4 mil
Print Contrast Minimum	25% 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 appled 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 Conversion		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 Transmission	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 Transmission	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 Excption
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
Interelaved 2of5 Label ID Character(s)	I
Code Standard 2/5 Label ID Character(s)	H
Codabar Label ID Character(s)	N
Code 128 Label ID Character(s)	K
GS1-128 Label ID Character(s)	P
Datalogic 2 of 5 Label ID Character(s)	H
ISBT 128 Label ID Character(s)	K
UPCE P2 Label ID Character(s)	C
UPCE/P5 Label ID Character(s)	C
UPCE/GS1-128 Label ID Character(s)	C
EAN8/P2 Label ID Character(s)	B
EAN8/P5 Label ID Character(s)	B
EAN8/GS1-128 Label ID Character(s)	B

Parameter	Default Excption
EAN13/P2 Label ID Character(s)	A
EAN13/P5 Label ID Character(s)	A
EAN13/GS1-128 Label ID Character(s)	A
GS1 DataBar 14 (Omnidirectional) Label ID Character(s)	E
GS1 DataBar Expanded Label ID Character(s)	E
GS1 DataBar Limited Label ID Character(s)	E
Character Conversion	CR to `
Interface: RS232-OPOS	
Baud Rate	115200 Baud
Transmission Label ID Code	Prefix
GS1-128 AIM ID	Disable
UPCA Label ID Character(s)	C
UPCE Label ID Character(s)	D
EAN 8 Label ID Character(s)	A
EAN 13 Label ID Character(s)	B
Code ISBN Label ID Character(s)	@
Code 39 Label ID Character(s)	V
Code 32 Label ID Character(s)	X
Interelaved 2of5 Label ID Character(s)	N
Code Standard 2/5 Label ID Character(s)	P
Codabar Label ID Character(s)	R
Code 11 Label ID Character(s)	b
Code 128 Label ID Character(s)	T
GS1-128 Label ID Character(s)	k
UPCA/P2 Label ID Character(s)	F
UPCA/P5 Label ID Character(s)	G
UPCA/GS1-128 Label ID Character(s)	Q
UPCE P2 Label ID Character(s)	H
UPCE/P5 Label ID Character(s)	I
EAN8/P2 Label ID Character(s)	J
EAN8/P5 Label ID Character(s)	K
EAN8/GS1-128 Label ID Character(s)	*
EAN13/P2 Label ID Character(s)	L

Parameter	Default Excption
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/bitonal 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 FRU[1] 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

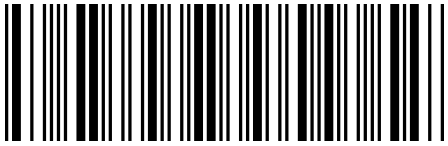
EAN-13

Code 39

Code 128

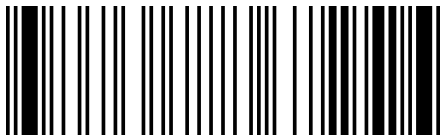
Interleaved 2 of 5

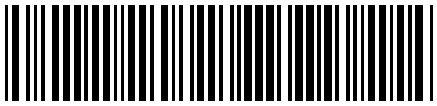
Code 32



Codabar

Code 93





Code 11

GS1 DataBar (RSS)

NOTE **GS1 DataBar variants must be enabled to read the bar codes below (see GS1 DataBar (RSS) on page 295).**

1029384756019283746501928374602947845036652 3
(GS1 DataBar Expanded Stacked)

1234890hjio9900mnb
(GS1 DataBar Expanded)

08672345650916
(GS1 DataBar Limited)

GS1 DataBar-14

55432198673467
(GS1 DataBar Omnidirectional Truncated)

90876523412674
(GS1 DataBar Omnidirectional Stacked)

78123465709811
(GS1 DataBar Omnidirectional Stacked)

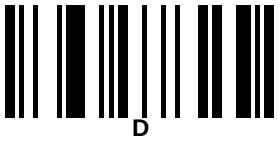
NOTES

Appendix E

Keypad

Use the bar codes in this appendix to enter numbers as you would select digits/characters from a keypad.

6	
	7
8	
	9
A	
	B
C	

	 D
E	
	F

NOTES

Appendix F
Scancode Tables

Control Character Emulation

Control character emulation selects from different scancode tables as listed in this appendix. Each of the control character sets below are detailed by interface type in the tables. These apply to Wedge and USB Keyboard platforms.

Control Character 00 — Characters from 00 to 0x1F are sent as control character Ctrl+Keys, special keys are located from 0x80 to 0xA1.

Control Character 01 — Characters from 00 to 0x1F are sent as control character Ctrl+Capital Key, special keys are located from 0x80 to 0xA1.

Control Character 02 — Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (Microsoft Windows Codepage 1252 — see page 308).

Interface Type PC AT PS/2 or USB-Keyboard

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 C(S)+@	SOH C(S)+A	STX C(S)+B	ETX C(S)+C	EOT C+D	ENQ C(S)+E	ACK C(S)+F	BEL C(S)+G	BS C(S)+H	HT TAB	LF C(S)+J	VT C(S)+K	FF C(S)+L	CR Enter	SO C(S)+N	SI C(S)+O
1x	DLE C(S)+P	DC1 C(S)+Q	DC2 C(S)+R	DC3 C(S)+S	DC4 C(S)+T	NAK C(S)+U	SYN C(S)+V	ETB C(S)+W	CAN C(S)+X	EM C(S)+Y	SUB C(S)+Z	ESC Esc	FS C(S)+\	GS C+]	RS C(S)+^	US C(S)+_
2x	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	Del
8x	_	Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	á	â	ß	à	Ar↓	Ar↑	Al↓	Al ↑	Cl↓	Cl ↑	Cr↓
Ax	Cr↑	_	‘	*f*	„	…	†	‡	ˆ	‰	Š	‹	Ś	‹	Œ	_
Bx	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
Cx	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Dx	Ð	_	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
Ex	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
Fx	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

Extended characters (sky blue) are sent 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*	„	…	†	‡	ˆ	‰	Š	‹	Ś	‹	Œ	_
9x	_	‘	’	“	”	•	–	—	˜	™	š	›	œ	_	_	Ÿ
Ax	NBSP	¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	-	®	¯
Bx	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
Cx	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Dx	Ð	_	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
Ex	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
Fx	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

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

Table 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+000	Alt+001	Alt+002	Alt+003	Alt+004	Alt+005	Alt+006	Alt+007	Alt+008	HT TAB	Alt+010	Alt+011	Alt+012	CR Enter	Alt+014	Alt+015
1x	Alt+016	Alt+017	Alt+018	Alt+019	Alt+020	Alt+021	Alt+022	Alt+023	Alt+024	Alt+025	Alt+026	ESC Esc	Alt+028	Alt+029	Alt+030	Alt+031
2x	A+032	A+033	A+034	A+035	A+036	A+037	A+038	A+039	A+040	A+041	A+042	A+043	A+044	A+045	A+046	A+047
3x	A+048	A+049	A+050	A+051	A+052	A+053	A+054	A+055	A+056	A+057	A+058	A+059	A+060	A+061	A+062	A+063
4x	A+064	A+065	A+066	A+067	A+068	A+069	A+070	A+071	A+072	A+073	A+074	A+075	A+076	A+077	A+078	A+079
5x	A+080	A+081	A+082	A+083	A+084	A+085	A+086	A+087	A+088	A+089	A+090	A+091	A+092	A+093	A+094	A+095
6x	A+096	A+097	A+098	A+099	A+100	A+101	A+102	A+103	A+104	A+105	A+106	A+107	A+108	A+109	A+110	A+111
7x	A+112	A+113	A+114	A+115	A+116	A+117	A+118	A+119	A+120	A+121	A+122	A+123	A+124	A+125	A+126	A+127
8x	_	Sh↓	Sh?	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	á	â	ß	à	Ar↓	Ar↑	Al↓	Al ↑	Cl ↓	Cl ↑	Cr ↓
Ax	Cr↑	A+0161	A+0162	A+0163	A+0164	A+0165	A+0166	A+0167	A+0168	A+0169	A+0170	A+0171	A+0172	A+0173	A+0174	A+0175
Bx	A+0176	A+0177	A+0178	A+0179	A+0180	A+0181	A+0182	A+0183	A+0184	A+0185	A+0186	A+0187	A+0188	A+0189	A+0190	A+0191
Cx	A+0192	A+0193	A+0194	A+0195	A+0196	A+0197	A+0198	A+0199	A+0200	A+0201	A+0202	A+0203	A+0204	A+0205	A+0206	A+0207
Dx	A+0208	A+0209	A+0210	A+0211	A+0212	A+0213	A+0214	A+0215	A+0216	A+0217	A+0218	A+0219	A+0220	A+0221	A+0222	A+0223
Ex	A+0224	A+0225	A+0226	A+0227	A+0228	A+0229	A+0230	A+0231	A+0232	A+0233	A+0234	A+0235	A+0236	A+0237	A+0238	A+0239
Fx	A+0240	A+0241	A+0242	A+0243	A+0244	A+0245	A+0246	A+0247	A+0248	A+0249	A+0250	A+0251	A+052	A+0253	A+0254	A+0255

Interface type PC AT PS/2 Alt Mode or USB-Keyboard Alt Mode — 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	â	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+0128	A+0129	A+0130	A+0131	A+0132	A+0133	A+0134	A+0135	A+0136	A+0137	A+0138	A+0139	A+0140	A+0141	A+0142	A+0143
9x	A+0144	A+0145	A+0146	A+0147	A+0148	A+0149	A+0150	A+0151	A+0152	A+0153	A+0154	A+0155	A+0156	A+0157	A+0158	A+0159
Ax	A+0160	A+0161	A+0162	A+0163	A+0164	A+0165	A+0166	A+0167	A+0168	A+0169	A+0170	A+0171	A+0172	A+0173	A+0174	A+0175
Bx	A+0176	A+0177	A+0178	A+0179	A+0180	A+0181	A+0182	A+0183	A+0184	A+0185	A+0186	A+0187	A+0188	A+0189	A+0190	A+0191
Cx	A+0192	A+0193	A+0194	A+0195	A+0196	A+0197	A+0198	A+0199	A+0200	A+0201	A+0202	A+0203	A+0204	A+0205	A+0206	A+0207
Dx	A+0208	A+0209	A+0210	A+0211	A+0212	A+0213	A+0214	A+0215	A+0216	A+0217	A+0218	A+0219	A+0220	A+0221	A+0222	A+0223
Ex	A+0224	A+0225	A+0226	A+0227	A+0228	A+0229	A+0230	A+0231	A+0232	A+0233	A+0234	A+0235	A+0236	A+0237	A+0238	A+0239
Fx	A+0240	A+0241	A+0242	A+0243	A+0244	A+0245	A+0246	A+0247	A+0248	A+0249	A+0250	A+0251	A+052	A+0253	A+0254	A+0255

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 C(S)+@	SOH C(S)+A	STX C(S)+B	ETX C(S)+C	EOT C+D	ENQ C(S)+E	ACK C(S)+F	BEL C(S)+G	BS C(S)+H	HT TAB	LF C(S)+J	VT C(S)+K	FF C(S)+L	CR Enter	SO C(S)+N	SI C(S)+O
1x	DLE C(S)+P	DC1 C(S)+Q	DC2 C(S)+R	DC3 C(S)+S	DC4 C(S)+T	NAK C(S)+U	SYN C(S)+V	ETB C(S)+W	CAN C(S)+X	EM C(S)+Y	SUB C(S)+Z	ESC Esc	FS C(S)+\	GS C+]	RS C(S)+^	US C(S)+_
2x	Space	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	Del
8x		Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	F13	F14	F15	F16	á	â	ß	à					Cl↓	Cl↑	

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					Cl↓	Cl↑			BS	Tab	à	S+ Tab	Enter Keypd	Enter	Ins	
1x			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

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 C(S)+@	SOH C(S)+A	STX C(S)+B	ETX C(S)+C	EOT C+D	ENQ C(S)+E	ACK C(S)+F	BEL C(S)+G	BS C(S)+H	HT TAB	LF C(S)+J	VT C(S)+K	FF C(S)+L	CR Enter	SO C(S)+N	SI C(S)+O
1x	DLE C(S)+P	DC1 C(S)+Q	DC2 C(S)+R	DC3 C(S)+S	DC4 C(S)+T	NAK C(S)+U	SYN C(S)+V	ETB C(S)+W	CAN C(S)+X	EM C(S)+Y	SUB C(S)+Z	ESC Esc	FS C(S)+\	GS C+]	RS C(S)+^	US C(S)+_
2x	Space	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	‘	a	B	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	R	s	t	u	v	w	x	y	z	{	|	}		Del
8x		Sh?	Sh?	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	á	â	ß	à	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓
Ax	Cr↑															

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	NUL 0000	STX 0001	SOT 0002	ETX 0003	EOT 0004	ENQ 0005	ACK 0006	BEL 0007	BS 0008	HT 0009	LF 000A	VT 000B	FF 000C	CR 000D	SO 000E	SI 000F
10	DLE 0010	DC1 0011	DC2 0012	DC3 0013	DC4 0014	NAK 0015	SYN 0016	ETB 0017	CAN 0018	EM 0019	SUB 001A	ESC 001B	FS 001C	GS 001D	RS 001E	US 001F
20	SP 0020	! 0021	" 0022	# 0023	$ 0024	% 0025	& 0026	' 0027	(0028	) 0029	* 002A	+ 002B	, 002C	- 002D	. 002E	/ 002F
30	0 0030	1 0031	2 0032	3 0033	4 0034	5 0035	6 0036	7 0037	8 0038	9 0039	: 003A	; 003B	< 003C	= 003D	> 003E	? 003F
40	@ 0040	A 0041	B 0042	C 0043	D 0044	E 0045	F 0046	G 0047	H 0048	I 0049	J 004A	K 004B	L 004C	M 004D	N 004E	O 004F
50	P 0050	Q 0051	R 0052	S 0053	T 0054	U 0055	V 0056	W 0057	X 0058	Y 0059	Z 005A	[005B	\ 005C	] 005D	^ 005E	_ 005F
60	` 0060	a 0061	b 0062	c 0063	d 0064	e 0065	f 0066	g 0067	h 0068	i 0069	j 006A	k 006B	l 006C	m 006D	n 006E	o 006F
70	p 0070	q 0071	r 0072	s 0073	t 0074	u 0075	v 0076	w 0077	x 0078	y 0079	z 007A	{ 007B	| 007C	} 007D	~ 007E	DEL 007F
80	€ 20AC		‚ 201A	ƒ 0192	„ 201E	… 2026	† 2020	‡ 2021	ˆ 02C6	‰ 2030	Š 0160	‹ 2039	Œ 0152		Ž 017D	
90		‘ 2018	’ 2019	“ 201C	” 201D	• 2022	– 2013	— 2014	˜ 02DC	™ 2122	š 0161	› 203A	œ 0153		ž 017E	Ÿ 0178
A0	NBSP 00A0	¡ 00A1	¢ 00A2	£ 00A3	¤ 00A4	¥ 00A5	¦ 00A6	§ 00A7	¨ 00A8	© 00A9	ª 00AA	« 00AB	¬ 00AC	- 00AD	® 00AE	¯ 00AF
B0	° 00B0	± 00B1	² 00B2	³ 00B3	´ 00B4	µ 00B5	¶ 00B6	· 00B7	¸ 00B8	¹ 00B9	º 00BA	» 00BB	¼ 00BC	½ 00BD	¾ 00BE	¿ 00BF
C0	À 00C0	Á 00C1	Â 00C2	Ã 00C3	Ä 00C4	Å 00C5	Æ 00C6	Ç 00C7	È 00C8	É 00C9	Ê 00CA	Ë 00CB	Ì 00CC	Í 00CD	Î 00CE	Ï 00CF
D0	Ð 00D0	Ñ 00D1	Ò 00D2	Ó 00D3	Ô 00D4	Õ 00D5	Ö 00D6	× 00D7	Ø 00D8	Ù 00D9	Ú 00DA	Û 00DB	Ü 00DC	Ý 00DD	Þ 00DE	ß 00DF
E0	à 00E0	á 00E1	â 00E2	ã 00E3	ä 00E4	å 00E5	æ 00E6	ç 00E7	è 00E8	é 00E9	ê 00EA	ë 00EB	ì 00EC	í 00ED	î 00EE	ï 00EF
F0	ð 00F0	ñ 00F1	ò 00F2	ó 00F3	ô 00F4	õ 00F5	ö 00F6	÷ 00F7	ø 00F8	ù 00F9	ú 00FA	û 00FB	ü 00FC	ý 00FD	þ 00FE	ÿ 00FF

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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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