BARCODE TECHNOLOGIES

WLS9600

1D Laser Scanner USB

Product Reference Guide

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Patents

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

Design Patents: CN ZL200830142386.5; CN ZL200930006852.1; EP870787; USD599799; USD606076.

Utility Patents: EP0789315B1; EP1128314B1; EP1128315B1; EP1396811B1; EP1413971B1; EP1942442B1; US5481098; US5493108; US5992740; US6454168; US6494376; US6517003; US6561427; US6808114; US6997385; US7387246

Additional patents pending.

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NOTES

Chapter 1
Introduction

About this Manual

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

Overview

Chapter 1, (this chapter) presents information about manual conventions, and an overview of the reader, its features and operation.

Chapter 2, Setup presents information about unpacking, cable connection information and setting up the reader.

Chapter 3, Configuration Using Barcodes provides instructions and barcode labels for customizing your reader. There are different sections for interface types, general features, data formatting, symbology-specific and model-specific features.

Chapter 4, Laser Features describes options and programming specific to laser models.

Chapter 5, References provides background information and detailed instructions for more complex programming items.

Appendix A, Technical Specifications lists physical and performance characteristics, as well as environmental and regulatory specifications. It also provides standard cable pin-outs and LED/Beeper functions.

Appendix B, Standard Defaults references common factory default settings for reader features and options.

Appendix C, Sample Barcodes offers sample barcodes of several common symbologies.

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

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

Manual Conventions

The 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:

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 this Product Reference Guide (PRG), Quick Reference Guide (QRG), and any other manuals, instruction sheets and utilities for this product can be downloaded from the website listed below. Alternatively, printed copies or product support CDs for most products can be purchased through your Wasp reseller.

Technical Support

Wasp Website Support

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

Telephone Technical Support

If you do not have internet or email access, you may contact Wasp Barcode Technologies technical support at 214-547-4100, or check the back cover of this manual for more contact information.

About the Reader

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 barcodes within this guide.

The WLS9600 model has a Laser scan engine. Advancements in the LED technology used in the imager-based readers significantly improve the illumination of the target field of view, resulting in higher scan efficiency. Whether used in Single Trigger or Continuous Mode, the ergonomic design of the reader will help to promote comfortable handling during extended periods of use.

See "Interface Selection"on page 8 for a listing and descriptions of available interface sets by model type.

Programming the Reader

Configuration Methods

Programming Barcodes

The reader is factory-configured with a standard set of default features. After scanning the interface barcode, you can select other options and customize your reader through use of the instructions and programming barcode labels available in the corresponding features section for your interface. Customizable settings for many features are found in "Configuration Using Barcodes" starting on page 15.

Some programming labels, like "Restore Custom Defaults"on page 13, require only the scan of the single label to enact the change. Most, however, require the reader to be placed in Programming Mode prior to scanning them. Scan an ENTER/EXIT barcode once to enter Programming Mode. Once the reader is in Programming Mode, scan a number of parameter settings before scanning the ENTER/EXIT barcode a second time, which will then accept your changes, exit Programming Mode and return the reader to normal operation.

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

NOTES

Chapter 2
Setup

Unpacking

Check carefully to ensure the reader and any accessories ordered are present and undamaged. If any damage occurred during shipment, contact Wasp Technical Support. Information is shown on page 2.

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

Setting Up the Reader

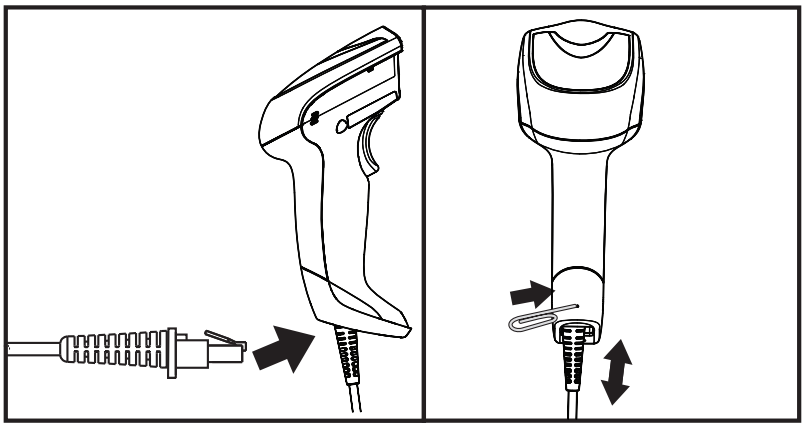
Follow the steps provided in this section to connect and get your reader up and communicating with its host.

1. Begin by Installing the Interface Cable.
2. Go to Interface Selection and set the desired interface.
3. Configure Interface Settings (only if not using factory settings for that interface)
4. Go to Configuring Other Features (if modifications are needed from factory settings)

Installing the Interface Cable

For Corded versions, connect the reader cable by inserting the cable into the handle as shown in Figure 1. To remove it, insert a paper clip into the release aperture, then unplug the cable.

Figure 1. Connect/disconnect the cable



RS-232 Serial Connection

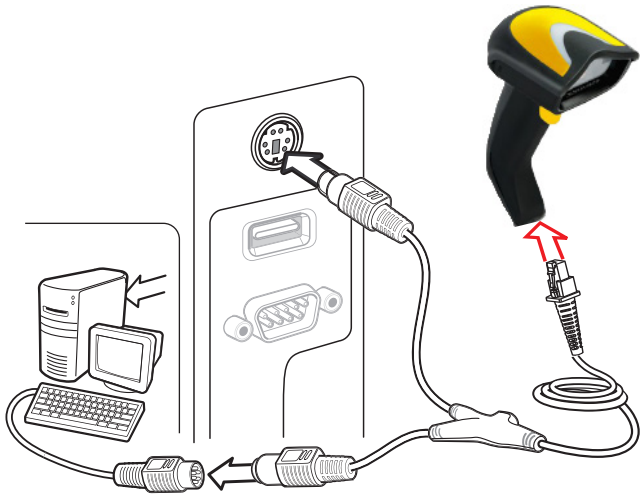
Turn off power to the terminal/PC and connect the reader to the terminal/PC serial port via the RS-232 cable as shown in Figure 2. If the terminal will not support POT (Power Off the Terminal) to supply reader power, use the approved power supply (AC Adapter). Plug the AC Adapter barrel connector into the socket on the RS-232 cable connector and the AC Adapter plug into a standard power outlet.

Figure 2. RS-232 Connection

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 3.

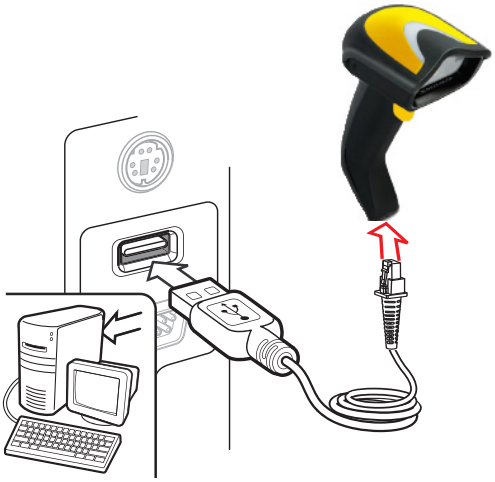
Figure 3. Keyboard Wedge Interface connection



USB Connection

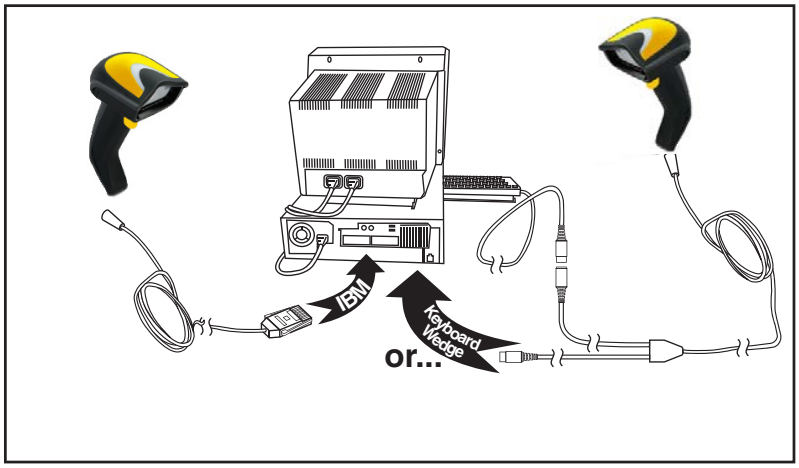
Connect the reader to a USB port on the terminal/PC using the correct USB cable for the interface type you ordered. Reference Figure 4.

Figure 4. USB connection



Other connection types are described below and illustrated in Figure 5.

Figure 5. Other Interface Connections



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.

Interface Selection

Upon completing the physical connection between the reader and its host, proceed to Table 1 starting on page 9 to select the interface type the reader is connected to (for example: RS-232, Keyboard Wedge, USB, etc.). Scan the appropriate barcode in that section to configure your system's correct interface type.

The reader will support one of the following sets of host interfaces:

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

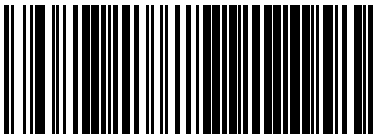
Setting the Interface

Scan the programming barcode from this section which selects the appropriate interface type matching the system the reader will be connected to. Next, proceed to the corresponding section in this manual (also listed in Table 1 starting on page 9) to configure any desired settings and features associated with that interface.

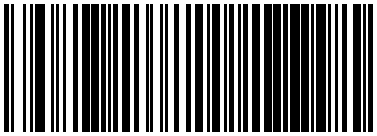
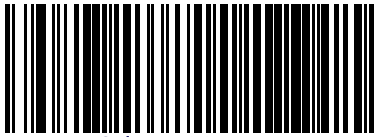
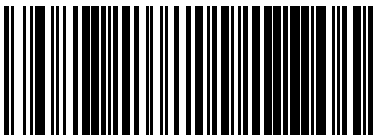
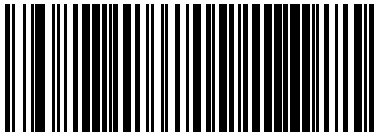
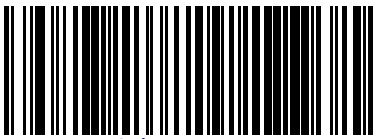
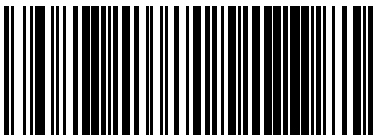
Unlike some programming features and options, interface selections require that you scan only one programming barcode label. DO NOT scan an ENTER/EXIT barcode prior to scanning an interface selection barcode.

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

Table 1. Available Interfaces

RS-232	FEATURES
RS-232 standard interface Select RS232-STD	Set RS-232 Interface Features starting on page 19
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**
Select USB-OEM USB-OEM (can be used for OPOS/UPOS/JavaPOS)	Set USB-OEM Interface Features starting on page 45

a. Download the correct USB Com driver from www.waspbarcode.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 33
 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	
 Select KBD-IBM-3153	Keyboard Wedge for IBM Terminal 3153	

KEYBOARD (continued)		FEATURES
Keyboard Wedge for IBM Terminals 31xx, 32xx, 34xx, 37xx make only keyboard	Select KBD-IBM-M	Set KEYBOARD WEDGE Interface Features starting on page 33
Select KBD-IBM-MB	Keyboard Wedge for IBM Terminals 31xx, 32xx, 34xx, 37xx make break keyboard	
Keyboard Wedge for DIGITAL Terminals VT2xx, VT3xx, VT4xx	Select KBD-DIG-VT	
Select USB Keyboard	USB Keyboard with standard key encoding	
USB Keyboard with alternate key encoding	Select USB Alternate Keyboard	
Select USB-KBD-APPLE	USB Keyboard for Apple computers	
WAND EMULATION		**FEATURES**
Wand Emulation	Select WAND	Set WAND Interface Features starting on page 47

Customizing Configuration Settings

Configure Interface Settings

If after scanning the interface barcode from the previous table, your installation requires you to select options to further customize your reader, turn to the appropriate section for your interface type in "Configuration Using Barcodes" starting on page 15.

- "RS-232 ONLY Interface" on page 19
- "RS-232/USB-Com Interfaces" on page 24
- "Keyboard Interface" on page 33
- "USB-OEM Interface" on page 45
- "Wand Emulation Interface" on page 47

Global Interface Features

See "Global Interface Features" on page 17 for settings configurable by all interface types.

Configuring Other Features

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

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

Code Selection**:** Includes options concerning the barcode label types (symbologies). These settings allow you to enable/disable symbologies, set label lengths, require check digit, etc.

Laser Features**:** Describes options and programming specific to laser models.

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

Restore Custom Defaults

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

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

Restore Custom Default Configuration

Restore Factory Configuration

If you want to restore the Factory Configuration for your imager, scan either the Restore USA Factory Configuration barcode or the Restore EU Factory Configuration barcode below. Both labels restore the scanner 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 on page 55 of this manual.

Restore USA Factory Configuration

Restore EU Factory Configuration

The programming items listed in the following sections show the factory default settings for each of the menu commands.

NOTES

Chapter 3
Configuration Using Barcodes

This and following sections provide programming barcodes to configure your reader by changing the default settings. For details about additional methods of programming, see Configuration Methods on page 3.

You must first enable your reader to read barcodes in order to use this section. If you have not done this, go to Setup, starting on page 5 and complete the appropriate procedure.

Configuration Parameters

Once the reader is set up, you can change the default parameters to meet your application needs. Refer to "Standard Defaults" starting on page 265 for initial configuration in order to set the default values and select the interface for your application.

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

Interface Configuration:

- "RS-232 ONLY Interface" on page 19
- "RS-232/USB-Com Interfaces" on page 24
- "Keyboard Interface" on page 33
- "USB-OEM Interface" on page 45
- "Wand Emulation Interface" on page 47

Parameters common to all interface applications:

- "Data Format" on page 51 gives options to control the messages sent to the Host system.
- "Reading Parameters" on page 65 control various operating modes and indicators status functioning.

Symbology-specific parameters:

- "Code Selection" on page 77 provides configuration of a personalized mix of codes, code families and their options.

Model-specific parameters:

- "Laser Features" on page 227 provides options specific to laser models.

Reading Configuration Barcodes

You must first enable your reader to read barcodes in order to use this section. If you have not done this, go to Setup, starting on page 5 **and complete the appropriate procedure.**

To program features:

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

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

   If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.
4. Complete the programming sequence by scanning the ENTER/EXIT PROGRAMMING barcode to exit Programming Mode.

For detailed descriptions, programming information and examples for setting selected configuration items, see References, starting on page 231.

GLOBAL INTERFACE FEATURES

The following interface features are configurable by all interface types.

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	

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	

NOTES

RS-232 ONLY INTERFACE

BAUD RATE on page 20
DATA BITS on page 21
STOP BITS on page 21
PARITY on page 22
HANDSHAKING CONTROL on page 23

Use the programming barcodes in this section 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 the next section, "RS-232/USB-Com Interfaces" starting on page 24.

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

Baud Rate

See page 231 for information on this feature.

	Baud Rate = 1200
Baud Rate = 2400	
	Baud Rate = 4800
Baud Rate = 9600	DEFAULT
	Baud Rate = 19,200
Baud Rate = 38,400	
	Baud Rate = 57,600
Baud Rate = 115,200	

Data Bits

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

	7 Data Bits
8 Data Bits	DEFAULT

Stop Bits

Set the number of stop bits to match host device requirements. See page 231 for more information on this feature.

DEFAULT	1 Stop Bit
2 Stop Bits	

Parity

This feature specifies parity required for sending and receiving data. Select the parity type according to host device requirements. See page 231 for more information.

DEFAULT	Parity = None
Parity = Even	
	Parity = Odd

Handshaking Control

See page 231 for more information about this feature.

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

RS-232/USB-COM INTERFACES

INTERCHARACTER DELAY on page 25
BEEP ON ASCII BEL on page 25
BEEP ON NOT ON FILE on page 26
ACK NAK OPTIONS on page 27
ACK CHARACTER on page 28
NAK CHARACTER on page 28
ACK NAK TIMEOUT VALUE on page 29
ACK NAK RETRY COUNT on page 29
ACK NAK ERROR HANDLING on page 30
INDICATE TRANSMISSION FAILURE on page 30
DISABLE CHARACTER on page 31
ENABLE CHARACTER on page 31

The programming barcodes in this chapter allow modifications to the standard RS-232 and USB-Com interfaces. Reference Appendix B, Standard Defaults for a listing of standard factory settings.

Intercharacter Delay

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

See page 232 for more information.

	Intercharacter Delay = No Delay
Select Intercharacter Delay Setting	
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT

00 = No Intercharacter Delay

Beep On ASCII BEL

When this parameter is enabled, the 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

ACK NAK Options

This enables/disables the ability of the reader to support the RS-232 ACK/NAK protocol. See page 233 for more information.

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

ACK Character

This setting specifies an ASCII character or hex value to be used as the ACK character. ASCII characters or any hex value from 0 to 0xFF can be selected. See page 233 for more information.

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 page 234 for more information.

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

Select NAK Character Setting

DEFAULT

0x15 'NAK' Character

ACK NAK Timeout Value

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

See page 235 for more information on setting this feature.

Select ACK NAK Timeout Value Setting	
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT

01 ACK NAK Timeout value is 200ms

ACK NAK Retry Count

This feature specifies the number of times the 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 page 236 for more information.

Select ACK NAK Retry Count Setting	
Make a mistake? Scan the CANCEL barcode 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.

DEFAULT

ACK NAK Error Handling = Ignore Errors Detected

ACK NAK Error Handling = Process Error as Valid ACK Character

ACK NAK Error Handling = Process Error as Valid NAK Character

Indicate Transmission Failure

This option enables/disables the 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.

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.

See page 237 for more information on setting this feature.

Select Disable Character Setting

DEFAULT

0x44 = Disable Character is 'D'

Enable Character

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

ASCII characters or any hex value from 0 to 0xFF can be selected.

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.

See page 238 in "References" for more information on setting this feature.

Select Enable Character Setting

DEFAULT

0x45 = Enable Character is 'E'

NOTES

KEYBOARD INTERFACE

COUNTRY MODE on page 34
CAPS LOCK STATE on page 37
NUMLOCK on page 38
SEND CONTROL CHARACTERS on page 39
WEDGE QUIET INTERVAL on page 40
INTERCHARACTER DELAY on page 41
INTERCODE DELAY on page 42
USB KEYBOARD SPEED on page 43
USB KEYBOARD NUMERIC KEYPAD on page 44

Use the programming barcodes in this chapter to select options for USB Keyboard and Wedge Interfaces. Reference Appendix B, Standard Defaults for a listing of standard factory settings.

Information about control character emulation which applies to keyboard interfaces is listed in Appendix E, Scancode Tables.

Country Mode

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

Only the following interfaces support ALL Country Modes.

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

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

DEFAULT	Country Mode = U.S.
Country Mode = Belgium	
	Country Mode = Britain
Country Mode = Croatia	Supports only the interfaces listed in the Country Mode feature description.
Supports only the interfaces listed in the Country Mode feature description.	Country Mode = Czech Republic

Country Mode (continued)

Country Mode = Denmark	Supports only the interfaces listed in the Country Mode feature description.
	Country Mode = France
Country Mode = French Canadian	
	Country Mode = Germany
Country Mode = Hungary	Supports only the interfaces listed in the Country Mode feature description.
	Country Mode = Italy
Country Mode = Japanese 106-key	Supports only the interfaces listed in the Country Mode feature description.

Country Mode (continued)

Country Mode = Lithuanian

Supports only the interfaces listed in the Country Mode feature description.

Country Mode = Norway

Country Mode = Poland

Supports only the interfaces listed in the Country Mode feature description.

Supports only the interfaces listed in the Country Mode feature description.

Country Mode = Portugal

Country Mode = Romania

Supports only the interfaces listed in the Country Mode feature description.

Supports only the interfaces listed in the Country Mode feature description.

Country Mode = Slovakia

Country Mode = Spain

Country Mode (continued)

	Country Mode = Sweden
Country Mode = Switzerland	Supports only the interfaces listed in the Country Mode feature description.

Caps Lock State

This option specifies the format in which the reader sends character data. This applies to keyboard wedge interfaces and Bluetooth HID Profile. 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

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	

Send Control Characters

This feature Specifies how the reader transmits ASCII control characters to the host. Reference Appendix E, Scancode Tables for more information about control characters.

Options are as follows:

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

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

Control Character 02 . Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (Microsoft Windows Codepage 1252 — see "Microsoft Windows Codepage 1252"on page 291).

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

Wedge Quiet Interval

This option specifies the amount of time to look for keyboard activity before the reader breaks the keyboard connection in order to transmit data to host. The selectable range for this feature is from 0 to 990ms in 10ms increments.

This feature applies ONLY to the Keyboard Wedge interface.

See page 239 in "References" for detailed information and examples for setting this feature.

Select Wedge Quiet Interval Setting	
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT

10 = Quiet Interval of 100 ms

Intercharacter Delay

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

This feature applies ONLY to the Keyboard Wedge interface and Bluetooth HID Profile.

See page 240 in "References" for detailed information and examples for setting this feature.

	Intercharacter Delay = No Delay
Select Intercharacter Delay Setting	
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT

00 = No Intercharacter Delay

Intercode Delay

Specifies the delay between labels transmitted to the host for this interface. The selectable range for this feature is from 0 to 99 seconds.

See page 241 in "References" for detailed information and examples for setting this feature.

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

DEFAULT

00 = No Wedge Intercode Delay

USB Keyboard Speed

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

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
USB Keyboard Speed = 6ms	

USB Keyboard Speed (continued)

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

USB Keyboard Numeric Keypad

This option Controls whether numeric characters will be sent using standard keys or the numeric keypad.

DEFAULT	Standard Keys
Numeric Keypad	

USB-OEM INTERFACE

USB-OEM DEVICE USAGE on page 46

INTERFACE OPTIONS on page 46

Feature settings for USB interfaces differ depending upon which host type the reader will be connected with. Use the feature settings in this chapter to specifically configure for the USB-OEM interface. Other USB interfaces are included in the appropriate chapter for their host type.

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

USB-OEM Device Usage

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

Options are:

- Table Top Scanner
- Handheld Scanner

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

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

Interface Options

This feature provides for an interface-specific control mechanism.

	Obey Scanner Configuration Host Commands
Ignore Scanner Configuration Host Commands	DEFAULT

WAND EMULATION INTERFACE

WAND SIGNAL SPEED on page 48
WAND POLARITY on page 48
WAND IDLE STATE on page 49
TRANSMIT NOISE on page 49
LABEL SYMBOLOGY CONVERSION on page 50

This chapter provides feature/settings configuration for the Wand Emulation interface. Reference Appendix B, Standard Defaults for a listing of standard factory settings.

ENTER/EXIT PROGRAMMING MODE

Wand Signal Speed

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

- 330 microseconds
- 660 microseconds

	Wand Signal Speed = 330ms
Wand Signal Speed = 660ms	DEFAULT

Wand Polarity

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

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

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

	Wand Polarity = Quiet Zones & Spaces High, Bars Low
Wand Polarity = Quiet Zones & Spaces Low, Bars High	DEFAULT

Wand Idle State

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

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

	Wand Idle State = Low
Wand Idle State = High	DEFAULT

Transmit Noise

This option specifies the leading/trailing noise for the Wand interface.

DEFAULT	Transmit Noise = Disable
Transmit Noise = Transmit leading noise	
	Transmit Noise = Transmit trailing noise
Transmit Noise = Transmit leading and trailing noise	

Label Symbology Conversion

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

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

DEFAULT

Label Symbology Conversion = No conversion

Label Symbology Conversion = Convert to Code 39

Label Symbology Conversion = Convert to Code 39 Full ASCII

Label Symbology Conversion = Convert to Code 128

DATA FORMAT

GLOBAL PREFIX/SUFFIX on page 52

GLOBAL AIM ID on page 53

GS1-128 AIM ID on page 54

LABEL ID starting on page 55

- Label ID: Pre-loaded Sets
- Label ID: Set Individually Per Symbology
- Label ID Control
- Label ID Symbology Selection
- Set Global Mid Label ID Characters

CASE CONVERSION on page 64

CHARACTER CONVERSION on page 64

The features in this chapter can be used to build specific user-defined data into a message string. See "References" starting on page 244 for more detailed instructions on setting these features.

Global Prefix/Suffix

This option sets up to 20 characters each from the set of ASCII characters or any hex value from 00 to FF. The characters may be added as a prefix (in a position before the barcode data, also called a header) and/or as a suffix (in a position following the barcode data, also called a footer). See page 245 for more detailed instructions on setting this feature.

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above to place the unit in Programming Mode, then the "Set Global Prefix" or "Set Global Suffix," barcode followed by the digits (in hex) from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). If less than the expected string of 20 characters are selected, scan the ENTER/EXIT barcode to terminate the string. Exit programming mode by scanning the ENTER/EXIT barcode again.

Set Global Prefix

Set Global Suffix

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

CANCEL

DEFAULT

No Global Prefix
Global Suffix = 0x0D (CR)

Global AIM ID

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

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

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

SYMBOLOGY	CHAR	SYMBOLOGY	CHAR
UPC/EAN	E[a]	Code 128/GS1-128	C
Code 39 and Code 32	A	DataBar Omnidirectional, DataBar Expanded	e
Codabar	F	Standard 2 of 5	S
Interleaved 2 of 5	I	ISBN	X[b]
Code 93	G	Code 11	H

a. UPC-A and UPC-E labels are converted to EAN 13 when adding AIM IDs.
b. ISBN (X with a 0 modifier character)

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

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 barcode (symbology) type. It can be appended previous to or following the transmitted barcode 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" below) or individually per symbology (see "Label ID: Set Individually Per Symbology" on page 55). 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 53.

See Label ID, starting on page 247 of "References" for more information on setting this feature.

Label ID: Pre-loaded Sets

The reader supports two pre-loaded sets of Label IDs. See Label ID: Pre-loaded Sets, starting on page 247 for details on the USA set and the EU set.

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 standard factory defaults. Any custom configuration or custom defaults will be lost.

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

Label ID: Set Individually Per Symbology

This feature configures a Label ID individually for a single symbology. See Label ID: Set Individually Per Symbology, starting on page 249 for detailed instructions on setting this feature.

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 barcode to abort and not save the entry string. You can then start again at the beginning.

Label ID Symbology Selection

This option selects the symbology for which a Label ID is to be configured. See "Label ID" on page 55 or page 249 in "References" for more detailed 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)	
	Set UPC-E/P5 Label ID Character(s)

Label ID Symbology Selection (continued)

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)	
	Set EAN 8 Label ID Character(s)
Set EAN 8/P2 Label ID Character(s)	

Label ID Symbology Selection (continued)

	Set EAN 8/P5 Label ID Character(s)
Set EAN 8/GS1-128 Label ID Character(s)	
	Set GTIN Label ID Character(s)
Set GTIN/P2 Label ID Character(s)	
	Set GTIN/P5 Label ID Character(s)
Set GTIN/GS1-128 Label ID Character(s)	
	Set Code 39 Label ID Character(s)

ENTER/EXIT PROGRAMMING MODE

Label ID Symbology Selection (continued)

Set Code 32 Label ID Character(s)	
	Set Code 39 CIP Label ID Character(s)
Set Code 128 Label ID Character(s)	
	Set GS1-128 Label ID Character(s)
Set ISBT 128 Label ID Character(s)	
	Set Codablock F Label ID Character(s)
Set Interleaved 2 of 5 Label ID Character(s)	
	Set Follett 2 of 5 Label ID Character(s)

Label ID Symbology Selection (continued)

Set Interleaved 2 of 5 CIP HR Label ID Character(s)	
	Set Standard 2 of 5 Label ID Character(s)
Set Industrial 2 of 5 Label ID Character(s)	
	Set IATA Label ID Character(s)
Set China Postal Code Label ID Character(s)	
	Set Codabar Label ID Character(s)
Set ABC Codabar Label ID Character(s)	

Label ID Symbology Selection (continued)

Set Code 11 Label ID Character(s)

Set DataBar Omnidirectional Label ID Character(s)

Set DataBar Expanded Label ID Character(s)

Set DataBar Limited Label ID Character(s)

Set Code 93 Label ID Character(s)

Set MSI Label ID Character(s)

Set Plessey Label ID Character(s)

Label ID Symbology Selection (continued)

Set Anker Plessey Label ID Character(s)

Set Code 4 Label ID Character(s)

Set Code 5 Label ID Character(s)

Set Global Mid Label ID Characters

Specifies mid-label ID that is added for transmission between the labels of a two-label pair.

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above to place the unit in Programming Mode, then the "Set Global Mid Label ID Character(s)" barcode followed by the digits (in hex) from the Alphanumeric characters in Appendix D, Keypad representing your desired character(s). If less than the expected string of 20 characters are selected, scan the ENTER/EXIT barcode to terminate the string. Exit programming mode by scanning the ENTER/EXIT barcode again.

Set Global Mid Label ID Character(s)

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

CANCEL

DEFAULT

No Mid Label ID Character (00)

ENTER/EXIT PROGRAMMING MODE

Case Conversion

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

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

DEFAULT

Case Conversion = Disable (no case conversion)

Case Conversion = Convert to upper case

Case Conversion = Convert to lower case

Character Conversion

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

If less than the expected string of 16 characters are selected, scan the ENTER/EXIT barcode twice to accept the selections and exit Programming Mode.

Configure Character Conversion

DEFAULT

0xFFFFFFFFFFFFFFFF
(No character conversion)

READING PARAMETERS

DOUBLE READ TIMEOUT on page 66	**GOOD READ BEEP VOLUME** on page 71
LABEL GONE TIMEOUT on page 67	**GOOD READ LED DURATION** on page 72
POWER ON ALERT on page 68	**SCAN MODE** on page 73
GOOD READ: WHEN TO INDICATE on page 68	**SCANNING ACTIVE TIME** on page 74
GOOD READ BEEP TYPE on page 69	**FLASH ON TIME** on page 74
GOOD READ BEEP FREQUENCY on page 69	**FLASH OFF TIME** on page 75
GOOD READ BEEP LENGTH on page 70	**GREEN SPOT DURATION** on page 75

Double Read Timeout

Double Read Timeout prevents a double read of the same label by setting 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 specified timeout, the second read is ignored. Double Read Timeout does not apply to scan modes that require a trigger pull for each label read.

	Double Read Timeout = 0.1 Second
Double Read Timeout = 0.2 Second	
	Double Read Timeout = 0.3 Second
Double Read Timeout = 0.4 Second	
	Double Read Timeout = 0.5 Second
Double Read Timeout = 0.6 Second	DEFAULT
	Double Read Timeout = 0.7 Second

Double Read Timeout (continued)

Double Read Timeout = 0.8 Second	
	Double Read Timeout = 0.9 Second
Double Read Timeout = 1 Second	

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 page 252 in "References" for detailed instructions and examples for setting this feature.

Select Label Gone Timeout Setting	
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT

016 = Timeout of 160 ms

LED AND BEEPER INDICATORS

Power On Alert

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

	Power On Alert = Disable (No Audible Indication)
Power On Alert = Four Beeps	DEFAULT

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 barcode. .

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

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

Good Read Beep Type

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

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

Good Read Beep Frequency

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

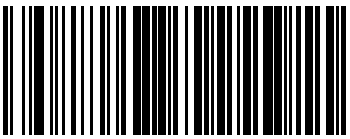
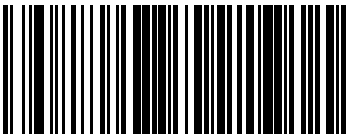
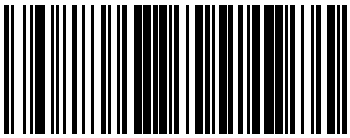
	Good Read Beep Frequency = Low
Good Read Beep Frequency = Medium	
DEFAULT	Good Read Beep Frequency = High

Good Read Beep Length

	Good Read Beep Length = 60 msec
Good Read Beep Length = 80 msec	DEFAULT
	Good Read Beep Length = 100 msec
Good Read Beep Length = 120 msec	
	Good Read Beep Length = 140 msec
Good Read Beep Length = 160 msec	
	Good Read Beep Length = 180 msec
Good Read Beep Length = 200 msec	

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

Good Read LED Duration

This feature specifies the amount of time that the Good Read LED remains on following a good read. The good read LED on time can be set within a range of 10 milliseconds to 2,550 milliseconds (0.001 to 2.55 seconds) in 100ms increments.

See page 253 in "References" for detailed instructions and examples for setting this feature.

Select Good Read LED Duration Setting	
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.	CANCEL

DEFAULT

003 = Good Read LED stays on for 300 ms

NOTE

Indicators are dimmed during sleep.

SCANNING FEATURES

Scan Mode

Selects the reader's scan operating mode. See page 254 in "References" for descriptions.

Scan Mode = Trigger Single	DEFAULT
	Scan Mode = Trigger Hold Multiple
Scan Mode = Trigger Pulse Multiple	
	Scan Mode = Flashing[a]
Scan Mode = Always On[b]	

a. Recommended scan mode for hands-free stand mode operation.

b. See "Laser Features" starting on page 227 for additional laser programmable timeout options.

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 page 255 in "References" for descriptions of each feature

Select Scanning Active Time Setting

Make a mistake? Scan the CANCEL barcode 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

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 page 256 in "References" for detailed information on setting this feature.

Select Flash ON Time Setting

Make a mistake? Scan the CANCEL barcode 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 page 257 in "References" for detailed information on setting this feature.

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

DEFAULT

06 = Flash is OFF for 600ms

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)	

NOTES

CODE SELECTION

The reader supports the following symbologies (barcode types). Symbology-dependent options for each symbology are included in this chapter.

CODE EAN/UPC on page 79	**STANDARD 2 OF 5** on page 148
• Coupon Control	**INDUSTRIAL 2 OF 5** on page 154
• UPC-A	• Code IATA
• UPC-E	**CHINA POSTAL CODE** on page 161
• EAN 13 (Jan 13)	**CODABAR** on page 167
• ISSN	• ABC Codabar
• EAN 8 (Jan 8)	**CODE 11** on page 182
• UPC/EAN Global Settings	**GS1 DATABAR™ OMNIDIRECTIONAL** on page 191
CODE 39 on page 106	• GS1 DataBar™ Omnidirectional
• Code 32 (ITAL Pharmaceutical Code)	• GS1 DataBar™ Expanded
• Code 39 CIP (French Pharmaceutical)	• GS1 DataBar™ Limited
CODE 128 on page 121	**CODE 93** on page 199
• GS1-128	**MSI** on page 207
CODE ISBT 128 on page 132	**PLESSEY** on page 213
CODABLOCK F on page 135	**CODE 4** on page 221
INTERLEAVED 2 OF 5 (I 2 OF 5) on page 139	**CODE 5** on page 222
• Follett 2 of 5	
• Interleaved 2 of 5 CIP HR	

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

To set most features:

1. Scan the ENTER/EXIT PROGRAMMING barcode at the top of applicable programming pages.
2. Scan the correct barcode to set the desired programming feature or parameter. You may need to cover unused barcodes on the page, and possibly the facing page, to ensure that the reader reads only the barcode you intend to scan.

3. If additional input parameters are needed, go to Appendix D, Keypad, and scan the appropriate characters from the keypad.

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

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

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

DISABLE ALL SYMBOLOGIES

Use this feature to disable all symbologies.

1. Scan the ENTER/EXIT PROGRAMMING barcode below.
2. Scan the Disable All Symbologies barcode.
3. Complete the programming sequence by scanning the ENTER/EXIT PROGRAMMING barcode.

ENTER/EXIT PROGRAMMING MODE

Disable All Symbologies

This does not disable the reading of programming labels.

CODE EAN/UPC

Coupon Control

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

Coupon Control = Allow all coupon barcodes to be decoded

Coupon Control = Enable only UPCA coupon decoding

DEFAULT

Coupon Control = Enable only GS1 DataBar™ coupon decoding

UPC-A

The following options apply to the UPC-A symbology.

UPC-A Enable/Disable

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

	UPC-A = Disable
UPC-A = Enable	DEFAULT

UPC-A Check Character Transmission

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

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

Expand UPC-A to EAN-13

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

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

UPC-A Number System Character Transmission

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

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

UPC-A Minimum Reads

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

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

UPC-E

The following options apply to the UPC-E symbology.

UPC-E Enable/Disable

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

	UPC-E = Disable
UPC-E = Enable	DEFAULT

UPC-E Check Character Transmission

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

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

Expand UPC-E to EAN-13

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

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

Expand UPC-E to UPC-A

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

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

UPC-E Number System Character Transmission

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

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

UPC-E Minimum Reads

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

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

GTIN FORMATTING

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

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

DEFAULT	GTIN Formatting = Disable
GTIN Formatting = Enable	

EAN 13 (JAN 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 barcodes.

	EAN 13 = Disable
EAN 13 = Enable	DEFAULT

EAN 13 Check Character Transmission

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

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

EAN-13 Flag 1 Character

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

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

EAN-13 ISBN Conversion

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

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

EAN 13 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	

ISSN

The following options apply to the ISSN symbology.

ISSN Enable/Disable

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

DEFAULT	ISSN = Disable
ISSN = Enable	

EAN 8 (JAN 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 barcodes.

	EAN 8 = Disable
EAN 8 = Enable	DEFAULT

EAN 8 Check Character Transmission

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

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

Expand EAN 8 to EAN 13

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

DEFAULT

Expand EAN 8 to EAN 13 = Disable

Expand EAN 8 to EAN 13 = Enable

EAN 8 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

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 barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs.

See page 242 for more information on this feature.

UPC/EAN Decoding Level = 1 (Conservative)	
DEFAULT	UPC/EAN Decoding Level = 2
UPC/EAN Decoding Level = 3	
	UPC/EAN Decoding Level = 4
UPC/EAN Decoding Level = 5 (Aggressive)	

UPC/EAN Correlation

When correlation is enabled, the reader will combine label data from multiple scans when decoding. This will help the scanner read labels that have spots, voids and/or 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	

UPC/EAN Price Weight Check

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

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

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	

ADD-ONS

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):

If a UPC/EAN base label and 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
Optional Add-Ons = Enable P5	
DEFAULT	Optional Add-Ons = Disable GS1-128
Optional Add-Ons = Enable GS1-128	

Optional Add-On Timer

This option sets the time the reader will look for an add-on when an add-on fragment has been seen and optional add-ons are enabled. (Also see "Optional GS1-128 Add-On Timer" on page 100.)

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	

Optional Add-On Timer (continued)

	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	

Optional Add-On Timer (continued)

	Optional Add-on Timer = 180ms
Optional Add-on Timer = 200ms	
	Optional Add-on Timer = 220ms
Optional Add-on Timer = 240ms	
	Optional Add-on Timer = 260ms
Optional Add-on Timer = 280ms	
	Optional Add-on Timer = 300ms

Optional GS1-128 Add-On Timer

This option sets the timer expiration value to read the added part after reading the linear EAN/UPC part. For UPC/EAN add-ons other than those of that type, see "Optional Add-On Timer" on page 97.

DEFAULT

Optional GS1-128 Add-On Timer = Disable

Optional GS1-128 Add-On Timer = 10ms

Optional GS1-128 Add-On Timer = 20ms

Optional GS1-128 Add-On Timer = 30ms

Optional GS1-128 Add-On Timer = 40ms

Optional GS1-128 Add-On Timer = 50ms

Optional GS1-128 Add-On Timer (continued)

	Optional GS1-128 Add-On Timer = 60ms
Optional GS1-128 Add-On Timer = 70ms	
	Optional GS1-128 Add-On Timer = 100ms
Optional GS1-128 Add-On Timer = 120ms	
	Optional GS1-128 Add-On Timer = 140ms
Optional GS1-128 Add-On Timer = 160ms	

Optional GS1-128 Add-On Timer (continued)

	Optional GS1-128 Add-On Timer = 180ms
Optional GS1-128 Add-On Timer = 200ms	
	Optional GS1-128 Add-On Timer = 220ms
Optional GS1-128 Add-On Timer = 240ms	
	Optional GS1-128 Add-On Timer = 260ms
Optional GS1-128 Add-On Timer = 280ms	
	Optional GS1-128 Add-On Timer = 300ms

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	

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	

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	

CODE 39

The following options apply to the Code 39 symbology.

Code 39 Enable/Disable

	Code 39 = Disable
Code 39 = Enable	DEFAULT

Code 39 Check Character Calculation

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

DEFAULT	Code 39 Check Character Calculation = Don't Calculate
Code 39 Check Character Calculation = Calculate Std Check	
	Code 39 Check Character Calculation = Calculate Mod 7 Check

Code 39 Check Character Calculation (continued)

Code 39 Check Character Calculation = Enable Italian Post Check	
	Code 39 Check Character Calculation = Enable Daimler Chrysler Check

Code 39 Check Character Transmission

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

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

Code 39 Start/Stop Character Transmission

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

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

Code 39 Full ASCII

Enables/disables the translation of Code 39 characters to Code 39 full-ASCII characters.

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

Code 39 Quiet Zones

This feature specifies the number of quiet zones for Code 39 labels. Quiet zones are blank areas at the ends of a barcode, 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	

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	

Code 39 Decoding Level

Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See page 242 for more information on this feature.

This configuration item applies to Code 39 and Code 32.

Code 39 Decoding Level = 1 (Conservative)	
	Code 39 Decoding Level = 2
Code 39 Decoding Level = 3	DEFAULT
	Code 39 Decoding Level = 4
Code 39 Decoding Level = 5 (Aggressive)	

Code 39 Length Control

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

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

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

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

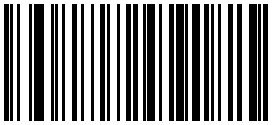
Code 39 Set Length 1

This feature specifies one of the barcode 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 barcode's data characters only. The length can be set from 0 to 50 characters.

Table 2 provides examples for setting Length 1. See page 242 for detailed instructions on setting this feature.

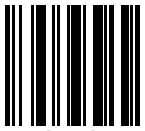
Table 2. Code 39 Length 1 Setting Examples

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



Select Code 39 Set Length 1 Setting

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



CANCEL

DEFAULT

02 = Length 1 is 2 Characters

Code 39 Set Length 2

This feature specifies one of the barcode 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 barcode's check, data, and full-ASCII shift characters. The length does not include start/stop characters.

Table 3 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

Table 3. Code 39 Length 2 Setting Examples

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

Select Code 39Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Code 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	

Code 39 Interdigit Ratio (continued)

	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

Code 39 Character Correlation

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

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 barcode are presented to the reader with this feature enabled, the barcode parts will be assembled by the reader's software, and the data will be decoded if all barcode proofing requirements are met.

	Code 39 Stitching = Disable
Code 39 Stitching = Enable	DEFAULT

CODE 32 (ITAL PHARMACEUTICAL CODE)

The following options apply to the Code 32 (Italian Pharmaceutical Code) symbology.

Code 32 Enable/Disable

When disabled, the reader will not read Code 32 barcodes.

DEFAULT	Code 32 = Disable
Code 32 = Enable	

Code 32 Feature Setting Exceptions

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

"Code 39 Quiet Zones" on page 109
"Code 39 Minimum Reads" on page 110
"Code 39 Decoding Level" on page 111
"Code 39 Interdigit Ratio" on page 115
"Code 39 Character Correlation" on page 117
"Code 39 Stitching" on page 117

Code 32 Check Char Transmission

Enable this option to transmit the check character along with Code 32 barcode 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/disables transmission of Code 32 start and stop characters.

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

CODE 39 CIP (FRENCH PHARMACEUTICAL)

The following options apply to the Code 39 CIP symbology.

Code 39 CIP Enable/Disable

Enables/Disables ability of the 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 barcodes.

	Code 128 = Disable
Code 128 = Enable	DEFAULT

Expand Code 128 to Code 39

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

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 barcode data.

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

Code 128 Function Character Transmission

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

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

Code 128 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	

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 barcode and are typically 10 times the width of the narrowest bar or space in the label.

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

Code 128 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	

Code 128 Decoding Level

Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See page 242 for more information on this feature.

Code 128 Decoding Level = 1 (Conservative)	
	Code 128 Decoding Level = 2
Code 128 Decoding Level = 3	DEFAULT
	Code 128 Decoding Level = 4
Code 128 Decoding Level = 5 (Aggressive)	

Code 128 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 128 symbology. See page 242 for more information..

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

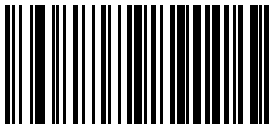
Code 128 Set Length 1

Specifies one of the barcode 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 barcode's data characters only. The length can be set from 1 to 80 characters.

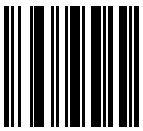
Table 4 provides some examples for setting Length 1. See page 242 for detailed instructions on setting this feature.

Table 4. Code 128 Length 1 Setting Examples

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


Select Code 128 Set Length 1 Setting

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


CANCEL

DEFAULT

01 = Length 1 is 1 Character

Code 128 Set Length 2

This feature specifies one of the barcode 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 barcode's data characters only.

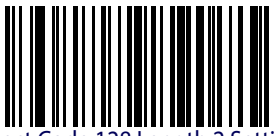
The length can be set from 1 to 80 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Table 5 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

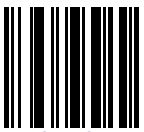
Table 5. Code 128 Length 2 Setting Examples

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

.


Select Code 128 Length 2 Setting

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


CANCEL

DEFAULT

80 = Length 2 is 80 Characters

Code 128 Character Correlation

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

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 barcode are presented to the reader with this feature enabled, the barcode parts will be assembled by the reader's software, and the data will be decoded if all barcode proofing requirements are met.

	Code 128 Stitching = Disable
Code 128 Stitching = Enable	DEFAULT

GS1-128

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

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

CODE ISBT 128

The following options apply to the ISBT 128 symbology.

ISBT 128 Concatenation

Use this option to enable/disable ISBT128 concatenation of 2 labels.

DEFAULT	ISBN 128 Concatenation = Disable
ISBN 128 Concatenation = Enable	

ISBT 128 Force Concatenation

When enabled, this feature forces concatenation for ISBT.

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

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

ISBT 128 Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.

This option is only valid when ISBT 128 Concatenation is enabled (see page 132).

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

ISBT 128 Dynamic Concatenation Timeout

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

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

CODABLOCK F

The following options apply to the Codablock F symbology.

Codablock F Enable/Disable

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

DEFAULT	Codablock F = Disable
Codablock F = Enable	

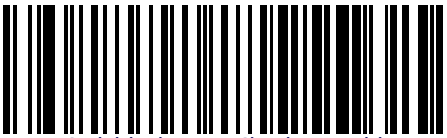
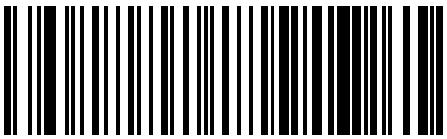
Codablock F EAN Enable/Disable

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

DEFAULT	Codablock F EAN = Disable
Codablock F EAN = Enable	

Codablock F AIM Check

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

	 Codablock F AIM Check = Disable
 Codablock F AIM Check = Enable Check C	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	

Codablock F Set Length 1

Specifies one of the barcode 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 barcode's data characters only. Characters can be set from 03 to 255 characters.

Table 6 provides some examples for setting Length 1. See page 242 for detailed instructions on setting this feature.

Table 6. CODABLOCK F Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	03 Characters	07 Characters	15 Characters	50 Characters
2	**Scan ENTER/EXIT PROGRAMMING MODE**				
3	**Scan SELECT CODABLOCK F LENGTH 1 SETTING**				
4	**Scan Three Characters From** Appendix D, Keypad	'0', '0' and '3'	'0', '0' and '7'	'0','1' and '5'	'0','5' AND '0'
5	**Scan ENTER/EXIT PROGRAMMING MODE**				

Select Codablock F Length 1 Setting

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

CANCEL

DEFAULT

03 = Length 1 is 3 Characters

Codablock F Set Length 2

This feature specifies one of the barcode 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 barcode's check, data, and full-ASCII shift characters. The length does not include start/stop characters.

Table 7 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

Table 7. CODABLOCK F Length 2 Setting Examples

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

Select Codablock F Length 2 Setting

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

CANCEL

DEFAULT

100 = Length 2 is 100 Characters

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 barcodes.

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

I 2 of 5 Check Character Calculation

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

DEFAULT	I 2 of 5 Check 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 (continued)

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

I 2 of 5 Check Character Calculation = Italian Post

I 2 of 5 Check Character Transmission

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

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

I 2 of 5 Check Character Transmission = Send

DEFAULT

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	

2 of 5 Decoding Level

This configuration item applies to Interleaved 2 of 5, China Postal Code and Standard 2 of 5.

Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See page 242 for more information on this feature.

2 of 5 Decoding Level = 1 (Conservative)	
	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 (Aggressive)	

I 2 of 5 Length Control

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

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

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

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

I 2 of 5 Set Length 1

This feature specifies one of the barcode 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 barcode's check and data characters. The length can be set from 2 to 50 characters in increments of two.

Table 8 provides some examples for setting Length 1. See page 242 for detailed instructions on setting this feature.

Table 8. I 2 of 5 Length 1 Setting Examples

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

Select I 2 of 5 Length 1 Setting

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

CANCEL

DEFAULT

06 = Length 1 is 6 Characters

I 2 of 5 Set Length 2

This feature specifies one of the barcode 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 barcode'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).

Table 9 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

Table 9. I 2 of 5 Length 2 Setting Examples

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

Select I 2 of 5 Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

I 2 of 5 Character Correlation

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

DEFAULT

I 2 of 5 Character Correlation = Disable

I 2 of 5 Character Correlation = Enable

I 2 of 5 Stitching

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

DEFAULT

I 2 of 5 Stitching = Disable

I 2 of 5 Stitching = Enable

FOLLETT 2 OF 5

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

Follett 2 of 5 Enable/Disable

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

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

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 barcodes.

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

Standard 2 of 5 Check Character Calculation

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

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

Standard 2 of 5 Check Character Transmission

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

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

Standard 2 of 5 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	

Standard 2 of 5 Decoding Level

The Standard 2 of 5 Decoding Level feature is set using "2 of 5 Decoding Level" on page 142**.**

Standard 2 of 5 Length Control

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

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

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

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

Standard 2 of 5 Set Length 1

This feature specifies one of the barcode 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 barcode's check and data characters. The length can be set from 1 to 50 characters.

Table 10 provides some examples for setting Length 1. See page 242 if you want detailed instructions on setting this feature.

Table 10. Standard 2 of 5 Length 1 Setting Examples

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

Select Standard 2 of 5 Length 1 Setting

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

CANCEL

DEFAULT

08 = Length 1 is 8 Characters

Standard 2 of 5 Set Length 2

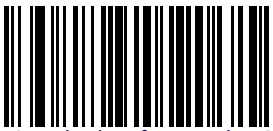
This feature specifies one of the barcode lengths for Standard 2 of 5 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the barcode's check and data characters.

The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

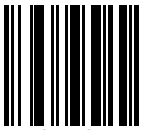
Table 11 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

Table 11. Standard 2 of 5 Length 2 Setting Examples

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


Select Standard 2 of 5 Length 2 Setting

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


CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Standard 2 of 5 Character Correlation

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

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 barcode are presented to the reader with this feature enabled, the barcode parts will be assembled by the reader's software, and the data will be decoded if all barcode proofing requirements are met.

DEFAULT

Standard 2 of 5 Stitching = Disable

Standard 2 of 5 Stitching = Enable

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

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	

Industrial 2 of 5 Set Length 1

This feature specifies one of the barcode 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 barcode's data characters only. The length can be set from 0 to 50 characters.

Table 12 provides some examples for setting Length 1. See page 242 if you want detailed instructions on setting this feature.

Table 12. Industrial 2 of 5 Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	00 Characters	07 Characters	15 Characters	50 Characters
2	**Scan ENTER/EXIT PROGRAMMING MODE**				
3	**Scan SELECT INDUSTRIAL 2 OF 5 LENGTH 1 SETTING**				
4	**Scan Two Characters From** Appendix D, Keypad	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	**Scan ENTER/EXIT PROGRAMMING MODE**				

Select Industrial 2 of 5 Set Length 1 Setting

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

CANCEL

DEFAULT

01 = Length 1 is 1 Character

Industrial 2 of 5 Set Length 2

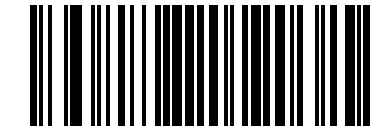
This feature specifies one of the barcode lengths for Industrial 2 of 5 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the barcode's check, data, and full-ASCII shift characters. The length does not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

The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

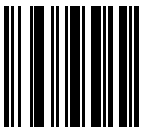
Table 13 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

Table 13. Industrial 2 of 5 Length 2 Setting Examples

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


Select Industrial 2 of5 Length 2 Setting

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


CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Industrial 2 of 5 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

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	

CODE 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

CHINA POSTAL CODE

The following options apply to the China Postal Code symbology.

China Postal Code Enable/Disable

When disabled, the reader will not read China Postal Code barcodes.

DEFAULT	China Postal Code = Disable
China Postal Code = Enable	

China Postal Code Check Character Calculation

This option enables/disables calculation and verification of an optional China Postal Code check character.

DEFAULT	China Postal Code Check Character Calculation = Disable
China Postal Code Check Character Calculation = Enable	

China Postal Code Minimum Reads

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

	China Postal Code Minimum Reads = 1
China Postal Code Minimum Reads = 2	DEFAULT
	China Postal Code Minimum Reads = 3
China Postal Code Minimum Reads = 4	

China Postal Code Decoding Level

The China Postal Code Decoding Level feature is set using "2 of 5 Decoding Level" on page 142**.**

China Postal Code Length Control

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

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

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

DEFAULT	China Postal Code Length Control = Variable Length
China Postal Code Length Control = Fixed Length	

China Postal Code Set Length 1

This feature specifies one of the barcode lengths for China Postal Code Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. The length includes the barcode's check and data characters. The length can be set from 2 to 50 characters in increments of two.

Table 14 provides some examples for setting Length 1. See page 242 for detailed instructions on setting this feature.

Table 14. China Postal Code Length 1 Setting Examples

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

Select China Postal Code Length 1 Setting

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

CANCEL

DEFAULT

06 = Length 1 is 6 Characters

China Postal Code Set Length 2

This feature specifies one of the barcode lengths for China Postal Code Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. The length includes the barcode'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).

Table 15 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

Table 15. China Postal Code Length 2 Setting Examples

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

Select China Postal Code Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

China Postal Code Character Correlation

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

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

China Postal Code Stitching

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

DEFAULT	China Postal Code Stitching = Disable
China Postal Code Stitching = Enable	

CODABAR

The following options apply to the Codabar symbology.

Codabar Enable/Disable

When disabled, the reader will not read Codabar barcodes.

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 character in the label is treated as a data character

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

Codabar Check Character Transmission

Enable this option to transmit the check character along with Codabar barcode 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

Codabar Start/Stop Character Set

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

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

Codabar Start/Stop Character Match

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

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

Codabar Quiet Zones

Specifies the number of quiet zones for Codabar labels. Quiet zones are blank areas at the ends of a barcode 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	

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	

Codabar Decoding Level

Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative, depending on a particular customer's needs. See page 242 for more information on this feature.

Codabar Decoding Level = 1 (Conservative)	
	Codabar Decoding Level = 2
Codabar Decoding Level = 3	DEFAULT
	Codabar Decoding Level = 4
Codabar Decoding Level = 5	

Codabar Length Control

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

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

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

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

Codabar Set Length 1

This feature specifies one of the barcode 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 barcode'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.

Table 16 provides some examples for setting Length 1. See page 242 for detailed instructions on setting this feature.

Table 16. Codabar Length 1 Setting Examples

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

Select Codabar Length 1 Setting

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

CANCEL

DEFAULT

03 = Length 1 is 3 Characters

Codabar Set Length 2

This feature specifies one of the barcode 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 barcode's start, stop, check and data characters. The length must include at least one data character.

The length can be set from 3 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Table 17 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

Table 17. Codabar Length 2 Setting Examples

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

Select Codabar Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Codabar 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	

Codabar Interdigit Ratio (continued)

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

Codabar Character Correlation

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

DEFAULT

Codabar Character Correlation = Disable

Codabar Character Correlation = Enable

Codabar Stitching

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

DEFAULT

Codabar Stitching = Disable

Codabar Stitching = Enable

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	

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	

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 barcodes.

DEFAULT

Code 11 = Disable

Code 11 = Enable

Code 11 Check Character Calculation

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

Code 11 Check Character Calculation = Disable

Code 11 Check Character Calculation = Check C

Code 11 Check Character Calculation = Check K

Code 11 Check Character Calculation = Check C and K

DEFAULT

Code 11 Check Character Transmission

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

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

Code 11 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	

Code 11 Length Control

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

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

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

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

Code 11 Set Length 1

This feature specifies one of the barcode 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 barcode's check and data characters. The length can be set from 2 to 50 characters.

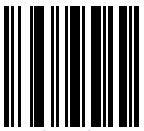
Table 18 provides some examples for setting Length 1. See page 242 for detailed instructions on setting this feature.

Table 18. Code 11 Length 1 Setting Examples

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

Select Code 11 Set Length 1 Setting

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


CANCEL

DEFAULT

04 = Length 1 is 4 Characters

Code 11 Set Length 2

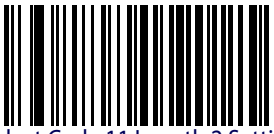
This feature specifies one of the barcode lengths for Code 11 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the barcode's check and data characters.

The length can be set from 2 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Table 19 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

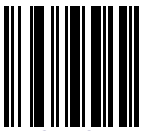
Table 19. Code 11 Length 2 Setting Examples

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



Select Code 11 Length 2 Setting

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



CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Code 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	

Code 11 Interdigit Ratio (continued)

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

Code 11 Decoding Level

Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See page 242 for more information on this feature.

Codabar Decoding Level = 1 (Conservative)	
	Codabar Decoding Level = 2
Codabar Decoding Level = 3	DEFAULT
	Codabar Decoding Level = 4
Codabar Decoding Level = 5 (Aggressive)	

Code 11 Character Correlation

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

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 barcode are presented to the reader with this feature enabled, the barcode parts will be assembled by the reader's software, and the data will be decoded if all barcode proofing requirements are met.

DEFAULT

Code 11 Stitching = Disable

Code 11 Stitching = Enable

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 barcodes.

DEFAULT	GS1 DataBar™ Omnidirectional = Disable
GS1 DataBar™ Omnidirectional = Enable	

GS1 DataBar™ Omnidirectional GS1-128 Emulation

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

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

GS1 DataBar™ Omnidirectional 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	

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 barcodes.

DEFAULT	GS1 DataBar™ Expanded = Disable
GS1 DataBar™ Expanded = Enable	

GS1 DataBar™ Expanded GS1-128 Emulation

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

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

GS1 DataBar™ 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

GS1 DataBar™ Expanded Length Control

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

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

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

DEFAULT

GS1 DataBar™ Expanded Length Control = Variable Length

GS1 DataBar™ Expanded Length Control = Fixed Length

GS1 DataBar™ Expanded Set Length 1

This feature specifies one of the barcode 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 barcode's data characters only. The length can be set from 1 to 74 characters.

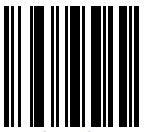
Table 20 provides some examples for setting Length 1. See page 242 for detailed instructions on setting this feature.

Table 20. GS1 DataBar™ Expanded Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	01 Character	07 Characters	52 Characters	74 Characters
2	**Scan ENTER/EXIT PROGRAMMING MODE**				
3	**Scan SELECT GS1 DataBar™ EXPANDED LENGTH 1SETTING**				
4	**Scan Two Characters From** Appendix D, Keypad	'0' and '1'	'0' and '7'	'5' and '2'	'7' AND '4'
5	**Scan ENTER/EXIT PROGRAMMING MODE**				

Select GS1 DataBar™ Expanded Set Length 1 Setting

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



CANCEL

DEFAULT

01 = Length 1 is 1 Character

GS1 DataBar™ Expanded Set Length 2

This feature specifies one of the barcode 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 barcode's data characters only. The length can be set from 1 to 74 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Table 21 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

Table 21. GS1 DataBar™ Expanded Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	00 (ignore second length)	07 Characters	52 Characters	74 Characters
2	**Scan ENTER/EXIT PROGRAMMING MODE**				
3	**Scan SELECT GS1 DataBar™ EXPANDED LENGTH 2 SETTING**				
4	**Scan Two Characters From** Appendix D, Keypad	'0' and '0'	'0' and '7'	'5' and '2'	'7' and '4'
5	**Scan ENTER/EXIT PROGRAMMING MODE**				

Select GS1 DataBar™ Expanded Set Length 2 Setting

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

CANCEL

DEFAULT

74 = Length 2 is 74 Characters

GS1 DATABAR™ LIMITED

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

GS1 DataBar™ Limited Enable/Disable

When disabled, the reader will not read GS1 DataBar™ Limited barcodes.

DEFAULT	GS1 DataBar™ Limited = Disable
GS1 DataBar™ Limited = Enable	

GS1 DataBar™ Limited GS1-128 Emulation

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

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

GS1 DataBar™ Limited 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	

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

Code 93 Check Character Transmission

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

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

Code 93 Length Control

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

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

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

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

Code 93 Set Length 1

Specifies one of the barcode 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 barcode's data characters only. The length can be set from 01 to 50 characters.

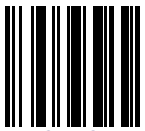
Table 22 provides some examples for setting Length 1. See page 242 for detailed instructions on setting this feature.

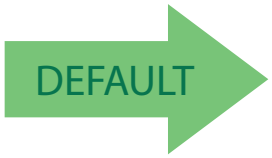
Table 22. Code 93 Length 1 Setting Examples

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

Select Code 93 Set Length 1 Setting

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


CANCEL



01 = Length 1 is 1 Character

Code 93 Set Length 2

This feature specifies one of the barcode 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 barcode's check, data, and full-ASCII shift characters. The length does not include start/stop characters. The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Table 23 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

Table 23. CODE 93 Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	00 (Ignore This Length)	07 Characters	15 Characters	50 Characters
2	**Scan ENTER/EXIT PROGRAMMING MODE**				
3	**Scan SELECT CODE 93 LENGTH 2 SETTING**				
4	**Scan Two Characters From** Appendix D, Keypad	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	**Scan ENTER/EXIT PROGRAMMING MODE**				

Select Code 93 Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Code 93 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	

Code 93 Decoding Level

Specifies the decoding level for Code 93. Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See page 242 for more information on this feature.

	Code 93 Decoding Level = Disable
Code 93 Decoding Level = 1 (Conservative)	
	Code 93 Decoding Level = 2
Code 93 Decoding Level = 3	DEFAULT
	Code 93 Decoding Level = 4
Code 93 Decoding Level = 5 (Aggressive)	

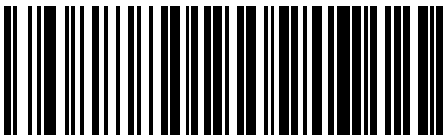
Code 93 Quiet Zones

Enables/disables quiet zones 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

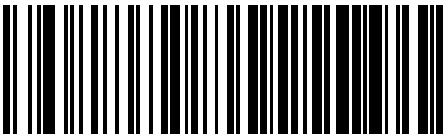
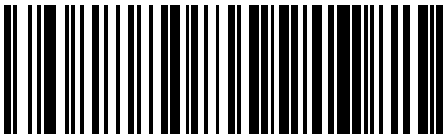
Code 93 Stitching

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.

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

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	

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

MSI Set Length 1

This feature specifies one of the barcode 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 barcode's data characters only. The length can be set from 01 to 50 characters.

Table 24 provides some examples for setting Length 1. See page 242 for detailed instructions on setting this feature.

Table 24. MSI Length 1 Setting Examples

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

Select MSI Set Length 1 Setting

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

CANCEL

DEFAULT

01 = Length 1 is 1 Character

MSI Set Length 2

This feature specifies one of the barcode 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 barcode's check, data, and full-ASCII shift characters. The length does not include start/stop characters.
The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Table 25 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

Table 25. MSI Length 2 Setting Examples

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

Select MSI Length 2 Setting

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

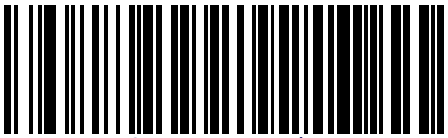
CANCEL

DEFAULT

50 = Length 2 is 50 Characters

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	

MSI Decoding Level

Specifies the decoding level for MSI. Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See page 242 for more information on this feature.

	MSI Decoding Level = Disable
MSI Decoding Level = 1 (conservative)	
	MSI Decoding Level = 2
MSI Decoding Level = 3	DEFAULT
	MSI Decoding Level = 4
MSI Decoding Level = 5 (aggressive)	

PLESSEY

The following options apply to the Plessey symbology.

Plessey Enable/Disable

Enables/Disables ability of reader to decode Plessey labels.

DEFAULT	Plessey = Disable
Plessey = Enable	

Plessey Check Character Calculation

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

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

Plessey Check Character Transmission

Enables/disables transmission of an MSI check character.

	Plessey Check Character Transmission = Disable
Plessey Check Character Transmission = Enable	DEFAULT

Plessey Length Control

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

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

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

DEFAULT	Plessey Length Control = Variable Length
Plessey = Fixed Length	

Plessey Set Length 1

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

Table 26 provides some examples for setting Length 1. See page 242 for detailed instructions on setting this feature.

Table 26. Plessey Length 1 Setting Examples

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

Select Plessey Set Length 1 Setting

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

CANCEL

DEFAULT

01 = Length 1 is 1 Character

Plessey Set Length 2

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

The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Table 27 provides examples for setting Length 2. See page 243 for detailed instructions on setting this feature.

Table 27. Plessey Length 2 Setting Examples

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

Select Plessey Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Plessey Minimum Reads

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

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

Plessey Decoding Level

Specifies the decoding level for Plessey. Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See page 242 for more information on this feature.

	Plessey Decoding Level = Disable
Plessey Decoding Level = 1 (conservative)	
	Plessey Decoding Level = 2
Plessey Decoding Level = 3	DEFAULT
	Plessey Decoding Level = 4
Plessey Decoding Level = 5 (aggressive)	

Plessey Stitching

Enables/disables fixed length stitching for Plessey.

DEFAULT

Plessey Stitching = Disable

Plessey Stitching = Enable

Plessey Character Correlation

Enables/disables Character Correlation for Plessey.

DEFAULT

Plessey Character Correlation = Disable

Plessey Character Correlation = Enable

CODE 4

The following options apply to the Code 4 symbology.

Code 4 Enable/Disable

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

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

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 imager to decode Code 5 labels.

DEFAULT	Code 5 = Disable
Code 5 = Enable	

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

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 barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See page 231 for more information on this feature.

This configuration item applies to Code 4 and Code 5.

Code 4 and Code 5 Decoding Level = 1 (conservative)	
	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 (aggressive)	

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	

NOTES

LASER FEATURES

LASER SCAN ANGLE on page 228
LASER IDLE MODE on page 228
BI-DIRECTIONAL READ DECODING on page 229
ALWAYS ON SCAN MODE TIMEOUT on page 230

This section provides options and programming related to the reader's laser features. Reference Appendix B, Standard Defaults for a listing of standard factory settings.

For hands-free or stand operations, it is recommended that *Flashing* scan mode be used. See "Scan Mode" on page 73 for programming labels for this feature. For more information, go to page 254 in "References".

Laser Scan Angle

This feature sets the scan angle for the laser. The Narrow scan angle is helpful for selecting and reading a specific barcode among a tight grouping of labels.

DEFAULT

Laser Scan Angle = Normal (47 degrees)

Laser Scan Angle = Narrow (35 degrees)

Laser Idle Mode

Laser Idle Mode option is applicable for; trigger Single, Trigger Hold Multiple & Trigger Pulse Multiple only.

This configuration provides control over the laser scanning motor when the laser is not actively scanning. The options are:

Dither Disable . Shuts down the motor (laser mirror dithering) during laser engine idle time to reduce overall scanner power consumption.

Dither Enable. Allows the laser engine motor to continue dithering when laser is not active; may provide an improved read response time.

DEFAULT

Dither Disable

Dither Enable

Bi-Directional Read Decoding

This configuration provides control over the good read and barcode label requirement. This programming option for Gyphon Laser affects all barcode symbologies.

Bi-Directional Read Disable. When Bi-directional reading is disabled, the laser scan is only required to obtain a valid label read in one scanning direction.

Bi-Directional Read Enable. When enabled, the reader is must obtain a valid good read in both scanning directions as part of the label read/decode process. Enabled will provides increased decode reliability.

	Bi-Directional Read Disable
Bi-Directional Read Enable	DEFAULT

Always On Scan Mode Timeout

When the WLS9600 is in Always On scanning mode, timeout periods can be configured. If the programmed Always On Timeout elapses, the reader will shut down and a trigger pull is required to resume operation.

	Always On Timeout: 1 Hour
Always On Timeout: 2 Hours	
	Always On Timeout: 3 Hours
Always On Timeout: 4 Hours	
DEFAULT	Always On Timeout: 5 Hours

Chapter 5
References

This section contains explanations and examples of selected barcode features. See the Configuration section for the actual barcode labels used to configure the reader.

RS-232 Parameters

RS-232 Only

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.

Stop Bits

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

Parity

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

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

Handshaking Control

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

- RTS — RTS is asserted during transmissions. CTS is ignored.
- RTS/CTS — RTS is asserted during transmissions. CTS gates transmissions.

- RTS/XON/XOFF — RTS is asserted during transmissions. CTS is ignored. XON and XOFF gate transmissions.
- RTS On/CTS — RTS is always asserted. CTS gates transmissions.

RTS/CTS Scan Control — RTS is asserted during transmissions. CTS gates transmissions and controls enable and disable state of scanner.

RS-232/USB COM Parameters

Intercharacter Delay

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

To set the delay:

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 10 (setting is in 10ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Go to page 25 and scan the barcode: SELECT INTERCHARACTER DELAY SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

6. Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit.

This completes the procedure. See Table 28 for some examples of how to set this feature.

Table 28. Intercharacter Delay Setting Examples

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

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.

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

1. Determine the desired character or value.
2. Use the ASCII Chart on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Go to page 28 and scan ENTER/EXIT PROGRAMMING MODE to enter Programming Mode.
4. Scan the barcode: SELECT ACK CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in Appendix D, 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 barcode to exit.

See Table 29 for some examples of how to set this feature.

Table 29. ACK Character Setting Examples

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

NAK Character

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

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. Go to page 28 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT NAK CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in Appendix D, Keypad, that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See Table 30 for some examples of how to set this feature.

Table 30. NAK Character Setting Examples

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

ACK NAK Timeout Value

This option specifies the amount of time the 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. Go to page 29 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT ACK NAK TIMEOUT VALUE SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 31 for some examples of how to set this feature.

Table 31. ACK NAK Timeout Value Setting Examples

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

ACK NAK Retry Count

This feature specifies the number of times the 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. Go to page 29 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT ACK NAK RETRY COUNT SETTING.
5. Scan the appropriate three digits from the keypad in Appendix D, Keypad, that represent the number which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 32 for some examples of how to set this feature.

Table 32. ACK NAK Retry Count Setting Examples

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

Disable Character

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

ASCII characters or any hex value from 0 to 0xFF can be selected.

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

To set the value:

1. Determine the desired character or value. A setting of 0xFF indicates the Disable Character is not used (not available).
2. Use the ASCII Chart on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Go to page 31 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT DISABLE CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in Appendix D, 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 barcode to exit Programming Mode.

This completes the procedure. See Table 33 for some examples of how to set this feature.

Table 33. Disable Character Setting Examples

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

Enable Character

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

ASCII characters or any hex value from 0 to 0xFF can be selected.

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

To set this feature:

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

1. Determine the desired character or value.
2. Use the ASCII Chart on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Go to page 31 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT ENABLE CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in Appendix D, 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 barcode to exit Programming Mode.

This completes the procedure. See Table 34 for some examples of how to set this feature.

Table 34. Enable Character Setting Examples

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

Keyboard Interface

Wedge Quiet Interval

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

This feature applies ONLY to the Keyboard Wedge interface.

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 10 (setting is in 10ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Go to page 40 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Prog. Mode.
4. Scan the barcode: SELECT WEDGE QUIET INTERVAL SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

6. Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit.

This completes the procedure to set the Wedge Quiet Interval. See Table 35 for some examples of how to set this feature.

Table 35. Wedge Quiet Interval Setting Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	10ms	150ms	600ms	850ms
2	**Divide by 10 (and pad with leading zeroes)**	01	15	60	85
3	**Scan ENTER/EXIT PROGRAMMING MODE**				
4	**Scan SELECT WEDGE QUIET INTERVAL SETTING**				
5	**Scan Two Characters From** Appendix D, Keypad	'0' and '1'	'1' and '5'	'6' and '0'	'8' and '5'
6	**Scan ENTER/EXIT PROGRAMMING MODE**				

Intercharacter Delay

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

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. Go to page 41 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT INTERCHARACTER DELAY SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 36 for some examples of how to set this feature.

Table 36. Intercharacter Delay Setting Examples

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

Intercode Delay

Specifies the delay between labels transmitted to the host for this interface. The selectable range for this feature is from 0 to 99 seconds.

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc
3. Go to page 42 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT INTERCODE DELAY SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 37 for some examples of how to set this feature.

Table 37. Wedge Intercode Delay Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	No Delay	5 Seconds	60 Seconds	99 Seconds
2	**Pad with leading zero(es)**	00	05	60	99
3	**Scan ENTER/EXIT PROGRAMMING MODE**				
4	**Scan SELECT INTERCODE DELAY SETTING**				
5	**Scan Two Characters From** Appendix D, Keypad	'0' and '0'	'0' and '5'	'6' and '0'	'9' AND '9'
6	**Scan ENTER/EXIT PROGRAMMING MODE**				

Symbologies

Decoding Level

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

- Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- 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.
- 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 barcode 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

Length Control allows you to select either variable length decoding or fixed length decoding for the specified symbology.

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

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

Set Length 1

This feature specifies one of the barcode lengths for 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 barcode's data characters only.

The number of characters that can be set varies, depending on the symbology. Reference the page for your selected symbology to see specific variables.

1. Determine the desired character length (varies depending on symbology). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Go to the Set Length page for your selected symbology and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode to SELECT LENGTH 1 SETTING for your selected symbology.
4. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

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

5. Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Prog Mode.

Set Length 2

This feature allows you to set one of the barcode lengths for the specified symbology. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. See the page for the specific symbology for parameters.

The length that can be set varies depending on the symbology. A setting of 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50 — or 0 to ignore this length). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Go to the Set Length page for your selected symbology and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode to SELECT LENGTH 2 SETTING for your selected symbology.
4. Scan the appropriate two digits from the keypad in Appendix D, Keypad that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

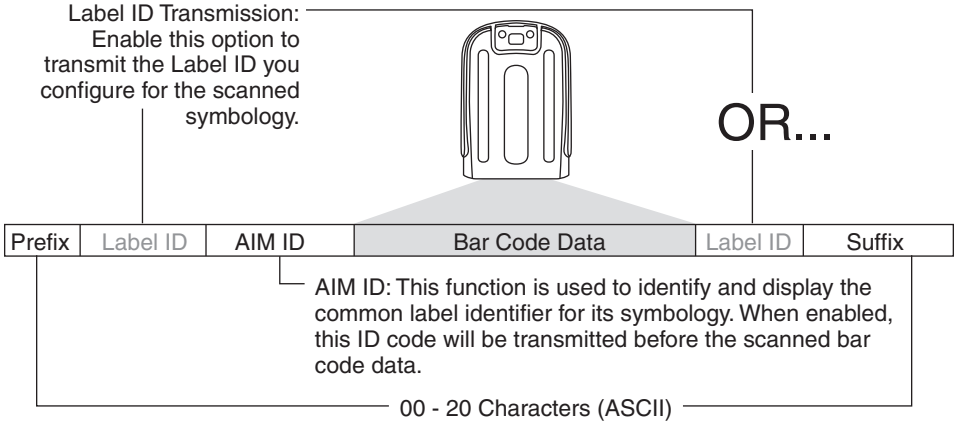
This completes the procedure.

Data Editing

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

There are several types of selectable data characters that can be sent before and after scanned data. You can specify if they should be sent with all symbologies, or only with specific symbologies. Figure 6 shows the available elements you can add to a message string:

Figure 6. Breakdown of a Message String



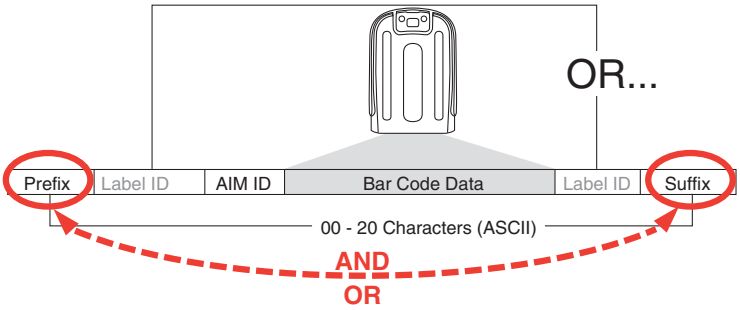
Please Keep In Mind...

- Modifying a message string is not a mandatory requirement. Data editing is a sophisticated feature allowing highly customizable output for advanced users. Factory default settings for data editing is typically set to NONE.
- A prefix or suffix may be applied only to a specified symbology (reference Code Selection, starting on page 77) or 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 barcode data) and/or as a suffix (in a position following the barcode 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 barcode data. In this example, we'll add a dollar sign ('$') as a prefix.
2. Go to page 52 and scan the ENTER/EXIT PROGRAMMING MODE barcode.
3. Scan the SET GLOBAL PREFIX barcode.
4. Reference the ASCII Chart on the inside back cover of this manual to find the hex value assigned to the desired character. The corresponding hex number for the '$' character is 24. To enter this selection code, scan the '2' and '4' barcodes from Appendix D, Keypad.

   If you make a mistake before the last character, scan the CANCEL barcode 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 barcode to terminate the string.
6. Scan the ENTER/EXIT barcode once again to exit Programming Mode.
7. The resulting message string would appear as follows:

   Scanned barcode data:**12345**

   Resulting message string output: **$12345**

Global AIM ID

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

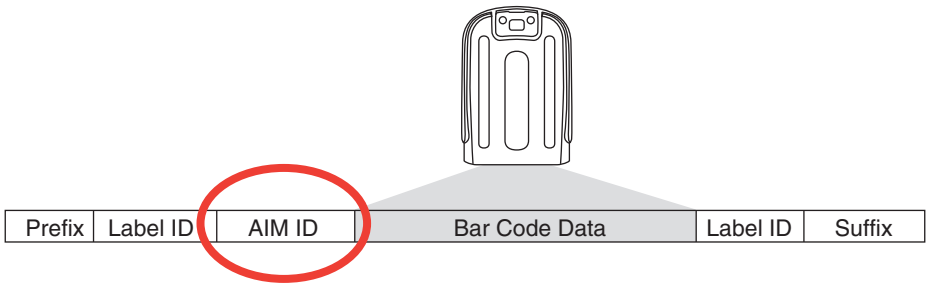
AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned barcode data. AIM label identifiers consist of three characters as follows:

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

SYMBOLOGY	CHAR	SYMBOLOGY	CHAR
UPC/EAN	E[a]	Code 128/GS1-128	C
Code 39 and Code 32	A	DataBar Omnidirectional, DataBar Expanded	e
Codabar	F	Standard 2 of 5	S
Interleaved 2 of 5	I	ISBN	X[b]
Code 93	G	Code 11	H

a. UPC-A and UPC-E labels are converted to EAN 13 when adding AIM IDs.
b. ISBN (X with a 0 modifier character)

Figure 8. AIM ID



Label ID

A Label ID is a customizable code of up to three ASCII characters (each can be one of hex 0x01-0xFF), used to identify a barcode (symbology) type. It can be appended previous to or following the transmitted barcode 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" below) or individually per symbology (see "Label ID: Set Individually Per Symbology"on page 249). If you wish to program the reader to always include an industry standard label identifier for ALL symbology types, see "Global AIM ID"on page 53.

Label ID: Pre-loaded Sets

The reader supports two pre-loaded sets of Label IDs. Table 38 shows the USA and the EU sets.

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 standard factory defaults. Any custom configuration or custom defaults will be lost.

Table 38. Label ID Pre-loaded Sets

Symbology	USA Label ID set		EU Label ID set	
	ASCII character	Hexidecimal value	ASCII character	Hexidecimal value
ABC Codabar	S	530000	S	530000
Anker Plessey	o	6F0000	o	6F0000
CODABAR	%	250000	R	520000
Codablock F	l	6C0000	m	6D0000
CODE11	CE	434500	b	620000
CODE128	#	230000	T	540000
CODE32	A	410000	X	580000
CODE39	*	2A0000	V	560000
CODE39 CIP	Y	590000	Y	590000
CODE4	4	340000	4	340000
CODE5	j	6A0000	j	6A0000
CODE93	&	260000	U	550000
CHINA POSTAL CODE	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

Label ID Pre-Loaded Sets (continued)

Symbology	USA Label ID set		EU Label ID set	
	ASCII character	Hexidecimal value	ASCII character	Hexidecimal value
EAN8	FF	464600	A	410000
EAN8 P2	FF	464600	J	4A0000
EAN8 P5	FF	464600	K	4B0000
EAN8 P8	FF	464600	*	2A0000
FOLLETT 2OF5	O	4F0000	O	4F0000
GS1 DATABAR EXPANDED	RX	525800	t	740000
GS1 DATABAR LIMITED	RL	524C00	v	760000
GS1 DATABAR OMNIDIRECTIONAL	R4	523400	u	750000
GS1-128		000000	k	6B0000
GTIN	G	470000	$A	244100
GTIN2	G2	473200	$B	244200
GTIN5	G5	473500	$C	244300
GTIN8	G8	473800	$D	244400
IATA	IA	494100	&	260000
Industrial 2 of 5	W	570000	W	570000
Interleaved 2 of 5	i	690000	N	4E0000
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
Plessey	a	610000	a	610000
S25	s	730000	P	500000
UPCA	A	410000	C	430000
UPCA P2	A	410000	F	460000
UPCA P5	A	410000	G	470000
UPCA P8	A	410000	Q	510000

Label ID: Set Individually Per Symbology

To configure a Label ID individually for a single symbology:

1. Go to page 55 and scan the ENTER/EXIT barcode.
2. Select Label ID position as either BEFORE (Enable as Prefix) or AFTER (Enable as suffix) by scanning the appropriate barcode in the section "Label ID Control"on page 56. Reference Figure 9 for Label ID positioning options if multiple identification features are enabled.
3. Scan a barcode to select the symbology for which you wish to configure a custom Label ID from the section "Label ID Symbology Selection"on page 57.
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 279 and scan the barcodes 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 39.

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

6. Scan the ENTER/EXIT barcode to exit Label ID entry.
7. Scan the ENTER/EXIT barcode 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

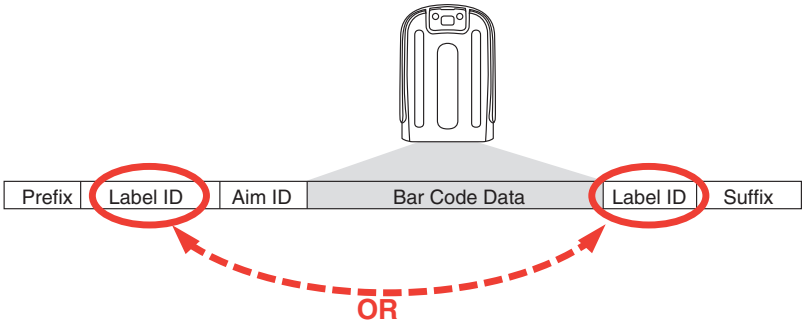


Table 39. Label ID Examples

STEP	ACTION	EXAMPLES			
1.	**Scan the ENTER/EXIT barcode**	(Scanner enters Programming Mode)			
2.	**Determine placement of the Label ID characters BEFORE or AFTER with regard to scanned data using** Label ID Control, starting on page 56	Enable as Prefix	Enable as Suffix	Enable as Prefix	Enable as Suffix
3.	**Scan the barcode selecting the symbology type you wish to designate label ID characters for using** Label ID Symbology Selection, starting on page 57**.**	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 Chart**(inside back cover), then scan in these digits/characters using the barcodes in the section:** Keypad, starting on page 279**. If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.**	44 42 2A	3D 43 33	2B	50 48
6.	**Scan the ENTER/EXIT barcode**	(Scanner exits Label ID entry)			
7.	**Scan the ENTER/EXIT barcode once again**	(Scanner exits Programming Mode)			
Result:		DB*[barcode data]	[barcode data]=C3	+[barcode data]	[barcode 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. Go to page 64 and scan the ENTER/EXIT barcode.
2. Scan the "Configure Character Conversion" barcode.
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 D, Keypad and scan the barcodes representing the hex characters determined in the previous step.
5. Scan the ENTER/EXIT barcode to exit Programming Mode.

If less than the expected string of 16 characters are selected, scan the ENTER/EXIT barcode twice to accept the selections and exit Programming Mode.

Reading Parameters

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. Go to page 67 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT LABEL GONE TIMEOUT SETTING.
5. Scan the appropriate three alpha-numeric characters from the keypad in Appendix D, Keypad representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 40 for some examples of how to set this feature.

Table 40. 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 D, 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 10 milliseconds to 2,550 milliseconds (0.001 to 2.55 seconds) in 100ms increments.

Follow these instructions to set this feature:

1. Determine the desired setting in milliseconds. A setting of 0 means that the good read LED stays on until the next time the trigger is pulled.
2. Divide the desired setting by 10 (setting is in 100ms increments). Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 000, 20 = 020, etc.
3. Go to page 72 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT GOOD READ LED DURATION SETTING.
5. Scan the appropriate three digits from the keypad in Appendix D, Keypad representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 41 for some examples of how to set this feature.

Table 41. Good Read LED Duration Setting Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	Good Read LED stays on until next trigger pull (00)	20ms	150ms	2550ms (2.55 sec.)
2	**Divide by 10 (and pad with leading zeroes)**	000	002	015	255
3	**Scan ENTER/EXIT PROGRAMMING MODE**				
4	**Scan SELECT LABEL GONE TIMEOUT SETTING**				
5	**Scan Three Characters From** Appendix D, Keypad	'0', '0' and '0'	'0', '0' and '2'	'0', '1' and '5'	'2', '5' and '5'
6	**Scan ENTER/EXIT PROGRAMMING MODE**				

Scanning Features

Scan Mode

This mode is associated with typical handheld reader operation. Selects the scan operating mode for the reader. The following selections are valid for all models:

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

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 imager reads continuously; when Flash is OFF scanning is deactivated.

Flashing is the recommended scan mode for WLS9600 hands-free (stand mode) of operation

Always On. No trigger pull is required to read a barcode. Scanning is continually on. If the trigger is pulled, the reader acts as if it is in Trigger Single Mode. Double Read Timeout prevents undesired multiple reads of the same label while in this mode.

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. Go to page 74 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT SCANNING ACTIVE TIME SETTING.
5. Scan the appropriate three digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 42 for some examples of how to set this feature.

Table 42. Scanning Active Time Setting Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	1 Second	90 Sec. (1.5 min.)	180 Sec. (3 min.)	255 Seconds (4.25 min.)
2	**Pad leading zero(es)**	001	090	180	255
3	**Scan ENTER/EXIT PROGRAMMING MODE**				
4	**Scan SELECT SCANNING ACTIVE TIME SETTING**				
5	**Scan Three Characters From** Appendix D, Keypad	'0', '0' and '1'	'0', '9' and '0'	'1', '8' and '0'	'2', '5' and '5'
6	**Scan ENTER/EXIT PROGRAMMING MODE**				

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. Go to page 74 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT FLASH ON TIME SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 43 for some examples of how to set this feature.

Table 43. Flash On Time Setting Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	500ms	1,000ms (1 sec.)	5200ms (5.2 sec.)	9,900ms (9.9 sec.)
2	**Divide by 100 (and pad with leading zeroes to yield two digits)**	05	10	52	99
3	**Scan ENTER/EXIT PROGRAMMING MODE**				
4	**Scan SELECT FLASH OFF TIME SETTING**				
5	**Scan Two Characters From** Appendix D, Keypad	'0' and '5'	'1' and '0'	'5' and '2'	'9' and '9'
6	**Scan ENTER/EXIT PROGRAMMING MODE**				

Flash Off Time

This feature specifies the OFF time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments.

Follow these instructions to set this feature.

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 100 (setting is in 100ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Go to page 75 and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT FLASH OFF TIME SETTING.
5. Scan the appropriate two digits from the keypad in Appendix D, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 44 for some examples of how to set this feature.

Table 44. Flash Off Time Setting Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	500ms	1,000ms (1 sec.)	5200ms (5.2 sec.)	9,900ms (9.9 sec.)
2	**Divide by 100 (and pad with leading zeroes to yield two digits)**	05	10	52	99
3	**Scan ENTER/EXIT PROGRAMMING MODE**				
4	**Scan SELECT FLASH OFF TIME SETTING**				
5	**Scan Two Characters From** Appendix D, Keypad	'0' and '5'	'1' and '0'	'5' and '2'	'9' and '9'
6	**Scan ENTER/EXIT PROGRAMMING MODE**				

NOTES

Appendix A
Technical Specifications

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

Table 45. Technical Specifications

Item	Description
Physical Characteristics	
Color	Black/Yellow
Dimensions	Height 7.1"/181 mm Length 3.9"/100 mm Width 2.8"/71 mm
Weight (without cable)	Approximately 6.0 ounces/169 g
Electrical Characteristics	
Voltage & Current	Input current at 5V±5% = 260 mA (max) 2.5 mA (USB suspend) Standby (typical) <= 30mA
Performance Characteristics	
Light Source	650nm Class 2 Laser
Roll (Tilt) Tolerance	± 35° from normal
Pitch Tolerance	± 50°
Skew (Yaw) Tolerance	± 65°
Field of View	Scan Angle: 47° (normal) or 35° (narrow)
Depth of Field (Typical) [a] (	5 mil - 1.4" to 6.22" (3,6cm to 15,8cm) 13 mil[a] – 0.87" to 18.7" (2,2cm to 47,5cm) 20 mil – up to 27.1" (to 69cm)
Minimum Element Width	4 mil
Print Contrast Minimum	15% minimum reflectance

Item	Description
Decode Capability	UPC/EAN/JAN, P2 /P5, ISBN/ISSN; Code 39, Code39 FullASCII; Italian Pharmacode 39, Code39 CIP; Code 128, GS1-128; C128 ISBT; Code 128 addons;I 2 of 5; Standard 2 of 5; I 2 of 5 CIP HR; Industrial 2 of 5; IATA; China Postal Code; Follet 2 of 5; Code 11; Plessey, Anker Plessey; Codabar, ABC Codabar ; Code 93; MSI; GS1 DataBar™ Omnidirectional, GS1 DataBar™ Limited, GS1 DataBar™ Expanded; Code 4, Code 5; Codablock F, Codablock F EAN;
Interfaces Supported[b]	RS-232 Std, RS-232 Wincor-Nixdorf, RS-232 OPOS, USB Com Std., USB Keyboard, USB Alternate Keyboard,USB OEM, Keyboard Wedge (AT with or w/o Alternate Key, IBM AT PS2 with or w/o Alternate Key, PC-XT, IBM 3153, IBM Terminals 31xx, 32xx,34xx, 37xx make only and make break keyboard, Digital Terminals VT2x, VT3xx, VT4xx, and Apple) and Wand Emulation.
User Environment	
Operating Temperature	32° to 122° F (0° to 50° C)
Charging Temperature	32° to 104° F (0° to 40° C)
Storage Temperature	-4° to 158° F (-20° to 70° C)
Humidity	Operating: 5% to 90% relative humidity, non-condensing
Drop Specifications	18 drops from 1.8 meters (5.9 feet) to concrete
Ambient Light Immunity	Up to 100,000 Lux
Contaminants Spray/Rain/ Dust/Particulates	IP52
ESD Level	16 KV
Regulatory	
Electrical Safety	See the Quick Reference Guide for details.
EMI/RFI	
Laser Safety	
LED class safety	

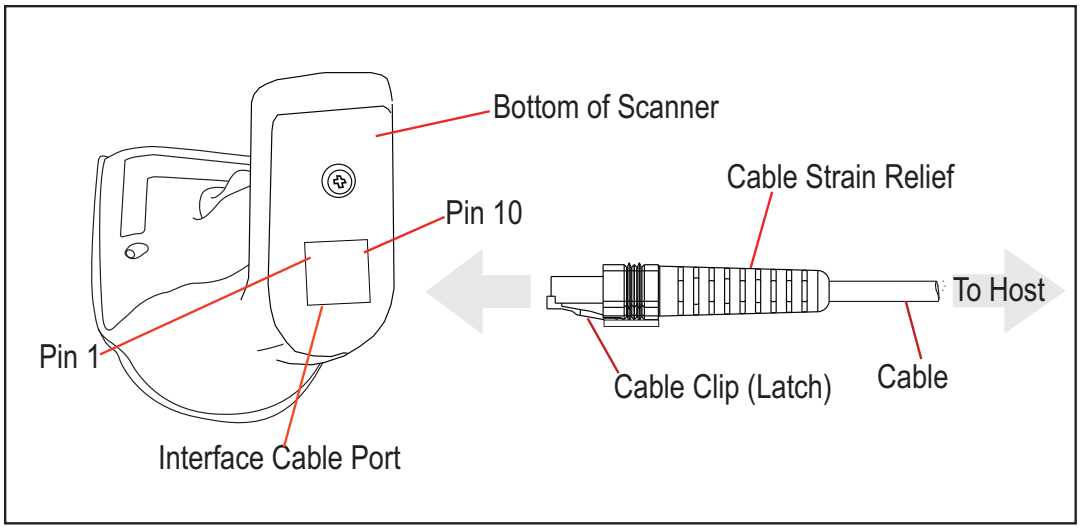
a. 13 mils DOF based on EAN. All others are Code 39. All labels grade A, typical environmental light, 20°C, label inclination 10°

b. See "Interface Selection"on page 8 for a listing of available interface sets by model type.

Standard Cable Pinouts

Figure 10 and Table 46 provide standard pinout information.

Figure 10. Standard Cable Pinouts



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

Table 46. Standard Cable Pinouts — Reader Side

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

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 barcode labels.

Table 47. 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 IBM or 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 Stand 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

a. Except when in sleep mode or when a Good Read LED Duration other than 00 is selected

Table 48. Programming Mode Indications

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.

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 (Field Replaceable Unit) 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	Laser Pointer (if so equipped)	
6	Digital PCB	
14	CPLD/Code Mismatch	

NOTES

Appendix B
Standard Defaults

The most common configuration settings are listed in the "Default" column of the table below. Page references are also provided for feature descriptions and programming barcodes for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features.

Table 49. Standard Defaults

Parameter	Default	Your Setting	Page Number
GLOBAL INTERFACE FEATURES			
Host Commands — Obey/Ignore	Obey		17
USB Suspend Mode	Disable		17
RS-232 ONLY			
Baud Rate	9600		20
Data Bits	8 Data Bits		21
Stop Bits	1 Stop Bit		21
Parity	None		22
Handshaking Control	RTS		23
RS-232/USB-Com			
Intercharacter Delay	No Delay		25
Beep On ASCII BEL	Disable		25
Beep On Not on File	Enable		26
ACK Character	'ACK'		28
NAK Character	'NAK'		28
ACK NAK Timeout Value	200 ms		29
ACK NAK Retry Count	3 Retries		29
ACK NAK Error Handling	Ignore Errors Detected		30
Indicate Transmission Failure	Enable		30
Disable Character	'D'		31
Enable Character	'E'		31

Parameter	Default	Your Setting	Page Number
KEYBOARD WEDGE			
Country Mode	U.S. Keyboard		34
Caps Lock State	Caps Lock OFF		37
Numlock	Numlock Key Unchanged		38
Send Control Characters	Control Character 00		39
Wedge Quiet Interval	100 ms		40
Intercharacter Delay	No Delay		41
Intercode Delay	100 ms		42
USB Keyboard Speed	1 ms		43
USB Keyboard Numeric Keypad	Standard Keys		44
USB-OEM			
USB-OEM Device Usage	Handheld Scanner		46
Interface Options	Ignore Host Configuration Commands		46
Wand Emulation			
Wand Signal Speed	660 ms		48
Wand Polarity	Quiet Zones & Spaces High, Bars Low		48
Wand Idle State	High		49
Transmit Noise	Disable		49
Label Symbology Conversion	No conversion		50
Data Format			
Global Prefix/Suffix	No Global Prefix Global Suffix = 0x0D (CR)		52
Global AIM ID	Disable		53
GS1-128 AIM ID	Enable		54
Label ID: Pre-loaded Sets	USA Set		55
Label ID Control	Disable		56
Set Global Mid Label ID Characters	No Mid Label ID Character		63
Case Conversion	Disable		64
Character Conversion	No Char Conversion		64

Parameter	Default	Your Setting	Page Number
READING PARAMETERS			
Double Read Timeout	0.6 Second		65
Label Gone Timeout	160 ms		67
Power On Alert	4 Beeps		68
Good Read: When to Indicate	After Decode		68
Good Read Beep Type	Mono		69
Good Read Beep Frequency	Medium		69
Good Read Beep Length	80 ms		70
Good Read Beep Volume	High		71
Good Read LED Duration	300 ms		72
Scan Mode	Trigger Single		73
Scanning Active Time	5 Seconds		74
Flash On Time	1 Second		74
Flash Off Time	600 ms		75
Green Spot Duration	300 ms		75
Code Selection			
Coupon Control	Enable UPCA coupon decoding		79
UPC-A			
UPC-A Enable/Disable	Enable		80
UPC-A Check Character Transmission	Enable		80
Expand UPC-A to EAN-13	Don't Expand		81
UPC-A Number System Character Transmission	Transmit		81
UPC-A Minimum Reads	1		82
UPC-E			
UPC-E Enable/Disable	Enable		83
UPC-E Check Character Transmission	Send		83
Expand UPC-E to EAN-13	Don't Expand		84
Expand UPC-E to UPC-A	Don't Expand		84
UPC-E Number System Character Transmission	Transmit		85
UPC-E Minimum Reads	2		85

Parameter	Default	Your Setting	Page Number
GTIN			
GTIN Formatting	Disable		86
EAN 13 (Jan 13)			
EAN 13 Enable/Disable	Enable		87
EAN 13 Check Character Transmission	Send		87
EAN-13 Flag 1 Character	Transmit		88
EAN-13 ISBN Conversion	Disable		88
EAN 13 Minimum Reads	1		89
ISSN			
ISSN Enable/Disable	Disable		90
EAN 8			
EAN 8 Enable/Disable	Enable		91
EAN 8 Check Character Transmission	Send		91
Expand EAN 8 to EAN 13	Disable		92
EAN 8 Minimum Reads	1		92
UPC/EAN Global Settings			
UPC/EAN Decoding Level	2		93
UPC/EAN Correlation	Disable		94
UPC/EAN Price Weight Check	Disable		94
In-Store Minimum Reads	2		95
Add-Ons			
Optional Add-ons	Disable P2, P5 and GS1-128		96
Optional Add-On Timer	70 ms		97
Optional GS1-128 Add-On Timer	Disable		100
P2 Add-Ons Minimum Reads	2		103
P5 Add-Ons Minimum Reads	1		104
GS1-128 Add-Ons Minimum Reads	1		105
Code 39			
Code 39 Enable/Disable	Enable		106
Code 39 Check Character Calculation	Don't Calculate		106
Code 39 Check Character Transmission	Don't Send		107
Code 39 Start/Stop Character Transmission	Don't Transmit		108

Parameter	Default	Your Setting	Page Number
Code 39 Full ASCII	Disable		108
Code 39 Quiet Zones	Auto		109
Code 39 Minimum Reads	2		110
Code 39 Decoding Level	3		111
Code 39 Length Control	Variable		112
Code 39 Set Length 1	2		113
Code 39 Set Length 2	50		114
Code 39 Interdigit Ratio	4		115
Code 39 Character Correlation	Disable		117
Code 39 Stitching	Enable		117
Code 32 (Italian Pharmaceutical Code)			
Code 32 Enable/Disable	Disable		118
Code 32 Feature Setting Exceptions	N/A		118
Code 32 Check Char Transmission	Don't Send		119
Code 32 Start/Stop Character Transmission	Don't Transmit		119
Code 39 CIP (French Pharmaceutical Code)			
Code 39 CIP Enable/Disable	Disable		118
Code 128			
Code 128 Enable/Disable	Enable		121
Expand Code 128 to Code 39	Don't Expand		121
Code 128 Check Character Transmission	Send		122
Code 128 Function Character Transmission	Don't Send		122
Code 128 Sub-Code Change Transmission	Disable		123
Code 128 Quiet Zones	Auto		124
Code 128 Minimum Reads	1		125
Code 128 Decoding Level	3		126
Code 128 Length Control	Variable		127
Code 128 Set Length 1	1		128
Code 128 Set Length 2	80		129
Code 128 Character Correlation	Disable		130
Code 128 Stitching	Enable		130

Parameter	Default	Your Setting	Page Number
GS1-128			
GS1-128 Enable	Transmit in GS1-128 data format		131
ISBT 128			
ISBT 128 Concatenation	Disable		132
ISBT 128 Force Concatenation	Disable		132
ISBT 128 Concatenation Mode	Static		133
ISBT 128 Dynamic Concatenation Timeout	200 msec		134
Codablock F			
Codablock F Enable/Disable	Disable		135
Codablock F EAN Enable/Disable	Disable		135
Codablock F AIM Check	Enable check C		136
Codablock F Length Control	Variable		136
Codablock F Set Length 1	3 characters		137
Codablock F Set Length 2	100 characters		138
Interleaved 2 of 5			
I 2 of 5 Enable/Disable	Disable		139
I 2 of 5 Check Character Calculation	Disable		139
I 2 of 5 Check Character Transmission	Send		140
I 2 of 5 Minimum Reads	2		162
2 of 5 Decoding Level	3		162
I 2 of 5 Length Control	Variable		143
I 2 of 5 Set Length 1	6		144
I 2 of 5 Set Length 2	50		145
I 2 of 5 Character Correlation	Disable		146
I 2 of 5 Stitching	Disable		146
Follett 2 of 5			
Follett 2 of 5 Enable/Disable	Disable		147
Interleaved 2 of 5 CIP HR			
Interleaved 2 of 5 CIP HR Enable/Disable	Disable		147
Standard 2 of 5			
Standard 2 of 5 Enable/Disable	Disable		148
Standard 2 of 5 Check Character Calculation	Disable		148

Parameter	Default	Your Setting	Page Number
Standard 2 of 5 Check Character Transmission	Send		149
Standard 2 of 5 Minimum Reads	2		149
Standard 2 of 5 Decoding Level	3		150
Standard 2 of 5 Length Control	Variable		150
Standard 2 of 5 Set Length 1	8		151
Standard 2 of 5 Set Length 2	50		152
Standard 2 of 5 Character Correlation	Disable		153
Standard 2 of 5 Stitching	Disable		153
Industrial 2 of 5			
Industrial 2 of 5 Enable/Disable	Disable		154
Industrial 2 of 5 Check Character Calculation	Disable		154
Industrial 2 of 5 Check Character Transmission	Enable		155
Industrial 2 of 5 Length Control	Variable		155
Industrial 2 of 5 Set Length 1	1		156
Industrial 2 of 5 Set Length 2	50		157
Industrial 2 of 5 Minimum Reads	1		158
Industrial 2 of 5 Stitching	Disable		158
Industrial 2 of 5 Character Correlation	Disable		159
Code IATA			
IATA Enable/Disable	Disable		160
IATA Check Character Transmission	Enable		160
China Postal Code			
China Postal Code Enable/Disable	Disable		161
China Postal Code Check Character Calculation	Disable		161
China Postal Code Minimum Reads	2		162
China Postal Code Decoding Level	3		162
China Postal Code Length Control	Variable		163
China Postal Code Set Length 1	6 characters		164
China Postal Code Set Length 2	50		165
China Postal Code Character Correlation	Disable		166
China Postal Code Stitching	Disable		166
Codabar			

Parameter	Default	Your Setting	Page Number
Codabar Enable/Disable	Disable		167
Codabar Check Character Calculation	Don't Calculate		167
Codabar Check Character Transmission	Send		168
Codabar Start/Stop Character Transmission	Transmit		168
Codabar Start/Stop Character Set	abcd/abcd		169
Codabar Start/Stop Character Match	Don't Require Match		169
Codabar Quiet Zones	Auto		170
Codabar Minimum Reads	2		171
Codabar Decoding Level	3		172
Codabar Length Control	Variable		172
Codabar Set Length 1	3		174
Codabar Set Length 2	50		175
Codabar Interdigit Ratio	4		176
Codabar Character Correlation	Disable		178
Codabar Stitching	Disable		178
ABC Codabar			
ABC Codabar Enable/Disable	Disable		179
ABC Codabar Concatenation Mode	Static		179
ABC Codabar Dynamic Concatenation Timeout	200 msec		180
ABC Codabar Force Concatenation	Disable		181
Code 11			
Code 11 Enable/Disable	Disable		182
Code 11 Check Character Calculation	Check C and K		182
Code 11 Check Character Transmission	Send		183
Code 11 Minimum Reads	2		183
Code 11 Length Control	Variable		184
Code 11 Set Length 1	4		185
Code 11 Set Length 2	50		186
Code 11 Interdigit Ratio	4		187
Code 11 Decoding Level	3		189
Code 11 Character Correlation	Disable		190
Code 11 Stitching	Disable		190

Parameter	Default	Your Setting	Page Number
GS1 DataBar™ Omnidirectional			
GS1 DataBar™ Omnidirectional Enable/Disable	Disable		191
GS1 DataBar™ Omnidirectional GS1-128 Emulation	Disable		191
GS1 DataBar™ Omnidirectional Minimum Reads	1		192
GS1 DataBar™ Expanded			
GS1 DataBar™ Expanded Enable/Disable	Disable		193
GS1 DataBar™ Expanded GS1-128 Emulation	Disable		193
GS1 DataBar™ Expanded Minimum Reads	1		194
GS1 DataBar™ Expanded Length Control	Variable		194
GS1 DataBar™ Expanded Set Length 1	1		195
GS1 DataBar™ Expanded Set Length 2	74		196
GS1 DataBar™ Limited			
GS1 DataBar™ Limited Enable/Disable	Disable		197
GS1 DataBar™ Limited GS1-128 Emulation	Disable		197
GS1 DataBar™ Limited Minimum Reads	1		198
Code 93			
Code 93 Enable/Disable	Disable		199
Code 93 Check Character Calculation	Enable Check C and K		199
Code 93 Check Character Transmission	Disable		200
Code 93 Length Control	Variable		200
Code 93 Set Length 1	1		201
Code 93 Set Length 2	50		202
Code 93 Minimum Reads	1		203
Code 93 Decoding Level	3		204
Code 93 Quiet Zones	Auto		205
Code 93 Stitching	Enable		206
Code 93 Character Correlation	Disable		206
MSI			
MSI Enable/Disable	Disable		207
MSI Check Character Calculation	Enable Mod10		207
MSI Check Character Transmission	Enable		208
MSI Length Control	Variable		209

Parameter	Default	Your Setting	Page Number
MSI Set Length 1	1		209
MSI Set Length 2	50		210
MSI Minimum Reads	4		211
MSI Decoding Level	3		212
Plessey			
Plessey Enable/Disable	Disable		213
Plessey Check Character Calculation	Enable Plessey std. check char. verification		214
Plessey Check Character Transmission	Enable		214
Plessey Length Control	Variable		215
Plessey Set Length 1	1		216
Plessey Set Length 2	50		217
Plessey Minimum Reads	4		218
Plessey Decoding Level	3		219
Plessey Stitching	Disable		220
Plessey Character Correlation	Disable		220
Code 4			
Code 4 Enable/Disable	Disable		221
Code 4 Check Character Transmission	Send		221
Code 4 Hex to Decimal Conversion	Enable		222
Code 5			
Code 5 Enable/Disable	Disable		222
Code 5 Check Character Transmission	Send		223
Code 5 Hex to Decimal Conversion	Enable		223
Code 4 and 5 Common Configuration Items			
Code 4 and 5 Decoding Level	3		224
Code 4 and Code 5 Minimum Reads	1		225
Laser Features			
Laser Scan Angle	47 degrees		228
Laser Idle Mode	Disable		228
Bi-Directional Read Decoding	Enable		229
Always On Scan Mode Timeout	5 Hours		230

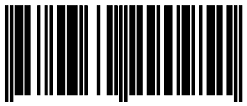
Appendix C
Sample Barcodes

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

1D Barcodes

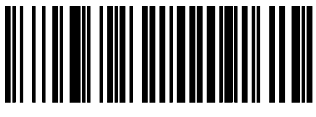
UPC-A

EAN-13



Code 39

Code 128

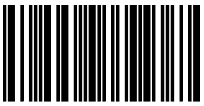


Interleaved 2 of 5

Sample Barcodes (continued)

Code 32

Codabar



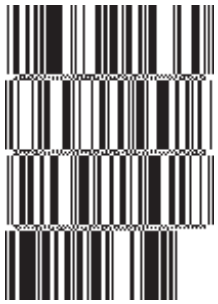
Code 93

Code 11

GS1 DataBar™ (RSS)

GS1 DataBar™ variants must be enabled to read the barcodes below (see GS1 DataBar™ Omnidirectional on page 191).

GS1 DataBar™ Expanded Stacked



1029384756019283746501928374602947845036652 3

GS1 DataBar™ Expanded

1234890hjio9900mnb

GS1 DataBar™ Limited

08672345650916

GS1 DataBar™-14

GS1 DataBar™ Omnidirectional Truncated

55432198673467

GS1 DataBar™ Omnidirectional Stacked

90876523412674

GS1 DataBar™ Omnidirectional Stacked

78123465709811

NOTES

Appendix D
Keypad

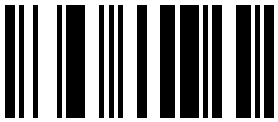
Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.

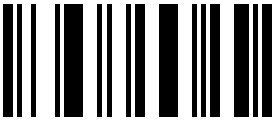
0	
	1
2	
	3
4	
	5

6	
	7
8	
	9

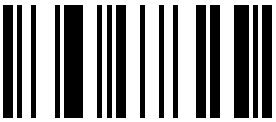
HID Variable PIN Code

Cancel an incomplete HID Variable PIN Code	
	Exit HID Variable PIN Code


A


B

C


D

E

F

NOTES

Appendix E
Scancode Tables

Control Character Emulation

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

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

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

Control Character 02 . Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (Microsoft Windows Codepage 1252 — See page 290.)

Single Press and Release Keys

In the following tables, Ar↓ means Alt right pressed and Ar↑ means Alt right released and so on. Definitions for other keys are Al (Alt left), Cr (Control Right) Cl (Control Left) Sh (shift). This method can be used for combining Alt, Control or Shift with other keys.

Example: Consider a Control character set to 00. If AltRight+A is required before sending a label to the host, it could be done by setting three Prefix keys in this way: 0x99 0x41 0x9A.

Interface Type PC AT PS/2, USB-Keyboard or USB-Keyboard for APPLE

Table 50. Scancode Set When Control Character is 00 or 01

	x0	x1	x2	x3	x4	x5	X6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	NULL C+@	SOH C(S)+A	STX C(S)+B	ETX C(S)+C	EOT C(S)+D	ENQ C(S)+E	ACK C(S)+F	BEL C(S)+G	BS	HT TAB	LF C(S)+J	VT C(S)+K	FF C(S)+L	CR Enter	SO C(S)+N	SI C(S)+O
1x	DLE C(S)+P	DC1 C(S)+Q	DC2 C(S)+R	DC3 C(S)+S	DC4 C(S)+T	NAK C(S)+U	SYN C(S)+V	ETB C(S)+W	CAN C(S)+X	EM C(S)+Y	SUB C(S)+Z	ESC Esc	FS C+\	GS C+]	RS C+^	US C(S)+_
2x	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	*Del*
8x	€	Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	↑	↓	←	→	Ar↓	Ar↑	Al↓	Al ↑	Cl ↓	Cl ↑	Cr ↓
Ax	Cr ↑		‘	*f*	„	…	†	‡	ˆ	‰	Š	‹	Ś	‹	Œ	
Bx	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
Cx	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Dx	Ð		Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
Ex	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
Fx	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

Extended characters (sky blue) are sent through dedicated keys (when available in the selected country mode) or by using an Alt Mode sequence.

Interface Type PC AT PS/2, USB-Keyboard or USB-Keyboard for APPLE (continued)

Table 51. Scancode Set When Control Character is 02

	x0	x1	x2	x3	x4	x5	X6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Ar↓	Ar↑	Al↓	Al ↑	Cl ↓	Cl ↑	Cr ↓	Cr ↑	BS	Tab	→	S+ Tab	Enter Keypd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Space	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	*Del*
8x	€		‘	*f*	„	…	†	‡	ˆ	‰	Š	‹	Ś	‹	Œ	
9x		‘	’	“	”	•	–	—	˜	™	š	›	œ		ž	Ÿ
Ax	NBSP	¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	-	®	¯
Bx	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
Cx	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Dx	Ð		Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
Ex	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
Fx	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

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

Table 52. Scancode Set When Control Character is 00 or 01

	x0	x1	x2	x3	x4	x5	X6	x7	x8	x9	xA	xB	xC	xD	xE	Xf
0x	Alt+000	Alt+001	Alt+002	Alt+003	Alt+004	Alt+005	Alt+006	Alt+007	BS	HT TAB	Alt+010	Alt+011	Alt+012	CR Enter	Alt+014	Alt+015
1x	Alt+016	Alt+017	Alt+018	Alt+019	Alt+020	Alt+021	Alt+022	Alt+023	Alt+024	Alt+025	Alt+026	ESC Esc	Alt+028	Alt+029	Alt+030	Alt+031
2x	A+032	A+033	A+034	A+035	A+036	A+037	A+038	A+039	A+040	A+041	A+042	A+043	A+044	A+045	A+046	A+047
3x	A+048	A+049	A+050	A+051	A+052	A+053	A+054	A+055	A+056	A+057	A+058	A+059	A+060	A+061	A+062	A+063
4x	A+064	A+065	A+066	A+067	A+068	A+069	A+070	A+071	A+072	A+073	A+074	A+075	A+076	A+077	A+078	A+079
5x	A+080	A+081	A+082	A+083	A+084	A+085	A+086	A+087	A+088	A+089	A+090	A+091	A+092	A+093	A+094	A+095
6x	A+096	A+097	A+098	A+099	A+100	A+101	A+102	A+103	A+104	A+105	A+106	A+107	A+108	A+109	A+110	A+111
7x	A+112	A+113	A+114	A+115	A+116	A+117	A+118	A+119	A+120	A+121	A+122	A+123	A+124	A+125	A+126	A+127
8x	€	Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	↑	↓	←	→	Ar↓	Ar↑	Al↓	Al ↑	Cl ↓	Cl ↑	Cr ↓
Ax	Cr ↑	A+0161	A+0162	A+0163	A+0164	A+0165	A+0166	A+0167	A+0168	A+0169	A+0170	A+0171	A+0172	A+0173	A+0174	A+0175
Bx	A+0176	A+0177	A+0178	A+0179	A+0180	A+0181	A+0182	A+0183	A+0184	A+0185	A+0186	A+0187	A+0188	A+0189	A+0190	A+0191
Cx	A+0192	A+0193	A+0194	A+0195	A+0196	A+0197	A+0198	A+0199	A+0200	A+0201	A+0202	A+0203	A+0204	A+0205	A+0206	A+0207
Dx	A+0208	A+0209	A+0210	A+0211	A+0212	A+0213	A+0214	A+0215	A+0216	A+0217	A+0218	A+0219	A+0220	A+0221	A+0222	A+0223
Ex	A+0224	A+0225	A+0226	A+0227	A+0228	A+0229	A+0230	A+0231	A+0232	A+0233	A+0234	A+0235	A+0236	A+0237	A+0238	A+0239
Fx	A+0240	A+0241	A+0242	A+0243	A+0244	A+0245	A+0246	A+0247	A+0248	A+0249	A+0250	A+0251	A+052	A+0253	A+0254	A+0255

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

Table 53. Scancode Set When Control Character is 02

	x0	x1	x2	x3	x4	x5	X6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Ar↓	Ar↑	Al↓	Al ↑	Cl ↓	Cl ↑	Cr ↓	Cr ↑	BS	Tab	→	S+ Tab	Enter Keypd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	A+032	A+033	A+034	A+035	A+036	A+037	A+038	A+039	A+040	A+041	A+042	A+043	A+044	A+045	A+046	A+047
3x	A+048	A+049	A+050	A+051	A+052	A+053	A+054	A+055	A+056	A+057	A+058	A+059	A+060	A+061	A+062	A+063
4x	A+064	A+065	A+066	A+067	A+068	A+069	A+070	A+071	A+072	A+073	A+074	A+075	A+076	A+077	A+078	A+079
5x	A+080	A+081	A+082	A+083	A+084	A+085	A+086	A+087	A+088	A+089	A+090	A+091	A+092	A+093	A+094	A+095
6x	A+096	A+097	A+098	A+099	A+100	A+101	A+102	A+103	A+104	A+105	A+106	A+107	A+108	A+109	A+110	A+111
7x	A+112	A+113	A+114	A+115	A+116	A+117	A+118	A+119	A+120	A+121	A+122	A+123	A+124	A+125	A+126	A+127
8x	A+0128	A+0129	A+0130	A+0131	A+0132	A+0133	A+0134	A+0135	A+0136	A+0137	A+0138	A+0139	A+0140	A+0141	A+0142	A+0143
9x	A+0144	A+0145	A+0146	A+0147	A+0148	A+0149	A+0150	A+0151	A+0152	A+0153	A+0154	A+0155	A+0156	A+0157	A+0158	A+0159
Ax	A+0160	A+0161	A+0162	A+0163	A+0164	A+0165	A+0166	A+0167	A+0168	A+0169	A+0170	A+0171	A+0172	A+0173	A+0174	A+0175
Bx	A+0176	A+0177	A+0178	A+0179	A+0180	A+0181	A+0182	A+0183	A+0184	A+0185	A+0186	A+0187	A+0188	A+0189	A+0190	A+0191
Cx	A+0192	A+0193	A+0194	A+0195	A+0196	A+0197	A+0198	A+0199	A+0200	A+0201	A+0202	A+0203	A+0204	A+0205	A+0206	A+0207
Dx	A+0208	A+0209	A+0210	A+0211	A+0212	A+0213	A+0214	A+0215	A+0216	A+0217	A+0218	A+0219	A+0220	A+0221	A+0222	A+0223
Ex	A+0224	A+0225	A+0226	A+0227	A+0228	A+0229	A+0230	A+0231	A+0232	A+0233	A+0234	A+0235	A+0236	A+0237	A+0238	A+0239
Fx	A+0240	A+0241	A+0242	A+0243	A+0244	A+0245	A+0246	A+0247	A+0248	A+0249	A+0250	A+0251	A+052	A+0253	A+0254	A+0255

Table 54. Scancode Set When Control Character is 00 or 01

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	NULL C+@	SOH C(S)+A	STX C(S)+B	ETX C(S)+C	EOT C+D	ENQ C(S)+E	ACK C(S)+F	BEL C(S)+G	BS	HT TAB	LF C(S)+J	VT C(S)+K	FF C(S)+L	CR Enter	SO C(S)+N	SI C(S)+O
1x	DLE C(S)+P	DC1 C(S)+Q	DC2 C(S)+R	DC3 C(S)+S	DC4 C(S)+T	NAK C(S)+U	SYN C(S)+V	ETB C(S)+W	CAN C(S)+X	EM C(S)+Y	SUB C(S)+Z	ESC Esc	FS C(S)+\	GS C+]	RS C(S)+^	US C(S)+_
2x	Space	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	Del
8x		Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	F13	F14	F15	F16	↑	↓	←	→					Cl ↓	Cl ↑	

Table 55. 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			←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Space	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	Del

IBM31xx 102-key

Table 56. Scancode Set When Control Character is 00 or 01

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	NULL C+@	SOH C(S)+A	STX C(S)+B	ETX C(S)+C	EOT C+D	ENQ C(S)+E	ACK C(S)+F	BEL C(S)+G	BS	HT TAB	LF C(S)+J	VT C(S)+K	FF C(S)+L	CR Enter	SO C(S)+N	SI C(S)+O
1x	DLE C(S)+P	DC1 C(S)+Q	DC2 C(S)+R	DC3 C(S)+S	DC4 C(S)+T	NAK C(S)+U	SYN C(S)+V	ETB C(S)+W	CAN C(S)+X	EM C(S)+Y	SUB C(S)+Z	ESC Esc	FS C(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	Enter	Reset	Insert	Delete	Field -	Field +	Enter paddle	Printl	Ar↓	Ar↑	Al↓	Al ↑	Cl ↓	Cl ↑	Cr ↓
Ax	Cr ↑															

Table 57. Scancode Set When Control Character is 02

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Ar↓	Ar↑	Al↓	Al ↑	Cl ↓	Cl ↑	Cr ↓	Cr ↑	BS	Tab	→	S+ Tab	Enter Keypd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Space	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	‘	a	B	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	R	s	t	u	v	w	x	y	z	{	|	}		*Del*

IBM XT

Table 58. Scancode Set When Control Character is 00 or 01

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	NULL C+@	SOH C(S)+A	STX C(S)+B	ETX C(S)+C	EOT C+D	ENQ C(S)+E	ACK C(S)+F	BEL C(S)+G	BS C(S)+H	HT TAB	LF C(S)+J	VT C(S)+K	FF C(S)+L	CR Enter	SO C(S)+N	SI C(S)+O
1x	DLE C(S)+P	DC1 C(S)+Q	DC2 C(S)+R	DC3 C(S)+S	DC4 C(S)+T	NAK C(S)+U	SYN C(S)+V	ETB C(S)+W	CAN C(S)+X	EM C(S)+Y	SUB C(S)+Z	ESC Esc	FS C(S)+\	GS C+]	RS C(S)+^	US C(S)+_
2x	Space	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	‘	a	B	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	R	s	t	u	v	w	x	y	z	{	|	}		*Del*
8x		Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	↑	↓	←	→	Ar↓	Ar↑	Al↓	Al ↑	Cl ↓	Cl ↑	Cr ↓
Ax	Cr ↑															

Table 59. Scancode Set when Control Character 02

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Ar↓	Ar↑	Al↓	Al ↑	Cl ↓	Cl ↑	Cr ↓	Cr ↑	BS	Tab	→	S+ Tab	Enter Keypd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Space	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	‘	a	B	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	R	s	t	u	v	w	x	y	z	{	|	}		*Del*

Microsoft Windows Codepage 1252

Windows-1252 is a character encoding of the Latin alphabet, used by default in the legacy components of Microsoft Windows in English and some other Western languages.

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	NUL 0000	STX 0001	SOT 0002	ETX 0003	EOT 0004	ENQ 0005	ACK 0006	BEL 0007	BS 0008	HT 0009	LF 000A	VT 000B	FF 000C	CR 000D	SO 000E	SI 000F
10	DLE 0010	DC1 0011	DC2 0012	DC3 0013	DC4 0014	NAK 0015	SYN 0016	ETB 0017	CAN 0018	EM 0019	SUB 001A	ESC 001B	FS 001C	GS 001D	RS 001E	US 001F
20	SP 0020	! 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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820050590 (Rev. G) January 2014