

PowerScan™ PD9530
Industrial Coded Handheld
Area Imager Bar Code Reader



Product Reference Guide

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Patents

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

Utility Patents: EP996284; EP999514; EP1128315; EP1172756; EP1396811; EP1413971; EP1828957; JP4435343; US5481098; US6478224; US6512218; US6513714; US6561427; US6808114; US6877664; US6997385; US7053954; US7234641; US7387246; US7721966.

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 Bar Codes](#) provides instructions and bar code labels for customizing your reader. There are different sections for interface types, general features, data formatting, symbology-specific and model-specific features.

[Chapter 4, 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 pinouts and LED/Beeper functions.

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

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

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

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

Manual Conventions

The 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.



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

CAUTION

References

Current versions of this Product Reference Guide (PRG), Quick Reference Guide (QRG), the Datalogic Aladdin™ Configuration application, 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 Datalogic reseller.

Technical Support

Datalogic Website Support

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

Reseller Technical Support

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

Telephone Technical Support

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

About the Reader

The PowerScan™ 9530 is a feature-rich and rugged area imager reader. It is offered in several different models to better fit the different needs of each customer.

The table below shows the unique features of each model:

Model P/N	Optical feature
PD9530	Standard optic, standard and low density codes
PD9530-HP	Autofocus optic, High, standard and low density codes, wide angle
PD9530-HPE	Autofocus optic, High, standard and low density codes, wide angle
PD9530-DPM	High Density optic, high and medium density codes, DPM (laser, ink jet and dot peen)

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 done by scanning the programming barcodes within this guide or with Datalogic Aladdin™, available from the Datalogic website. See "[Datalogic Aladdin™](#)" on [page 12](#) for more information.

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.

In addition, the reader can be set up to read and output data from USA Driver License PDF417 barcodes. For more information reference the USA Driver License Parsing Quick Reference Guide (QRG), available on the Datalogic website.

See "[Interface Selection](#)" on [page 14](#) for a listing and descriptions of available interface sets by model type.

Programming the Reader

Configuration Methods

Programming Bar Codes

The reader is factory-configured with a standard set of default features. After scanning the interface bar code, you can select other options and customize your reader through use of the instructions and programming bar code labels available in the corresponding features section for your interface. Customizable settings for many features are found in ["Configuration Parameters" starting on page 19](#).

Some programming labels, like ["Restore Custom Defaults" on page 18](#), require only the scan of the single label to enact the change. Most, however, require the reader to be placed in Programming Mode prior to scanning them. Scan an ENTER/EXIT bar code once to enter Programming Mode. Once the reader is in Programming Mode, scan a number of parameter settings before scanning the ENTER/EXIT bar code a second time, which will then accept your changes, exit Programming Mode and return the reader to normal operation.



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

Datalogic Aladdin™

Datalogic Aladdin™ is a multi-platform utility program providing a quick and user-friendly configuration method via the RS-232/USB-COM interface. Aladdin allows you to program the reader by selecting configuration commands through a user-friendly graphical interface running on a PC. These commands are sent to the reader over the selected communication interface, or they can be printed as bar codes to be scanned. Aladdin also facilitates image capturing.

In addition, Aladdin makes it easy to upgrade the handheld's firmware, to attain the benefits of new reader features. Reference the Datalogic Aladdin™ Online Help for more details.

Aladdin is available for download free of charge on the Datalogic website.

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 Datalogic Technical Support. Information is shown on [page 10](#).

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

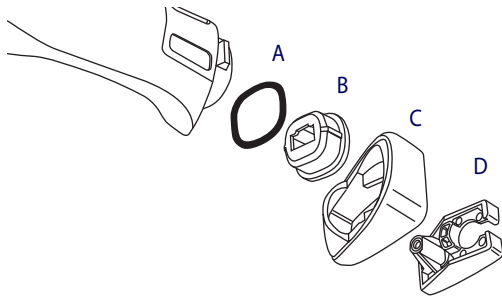
Setting Up the Reader

Follow the steps below to connect and get your reader up and communicating with its host.

1. Connect the Cable to the reader and the Host, shown on [page 14](#).
2. Configure the Interface (see [page 14](#)).
3. Configure the Reader starting on [page 17](#) (optional, depends on settings needed)

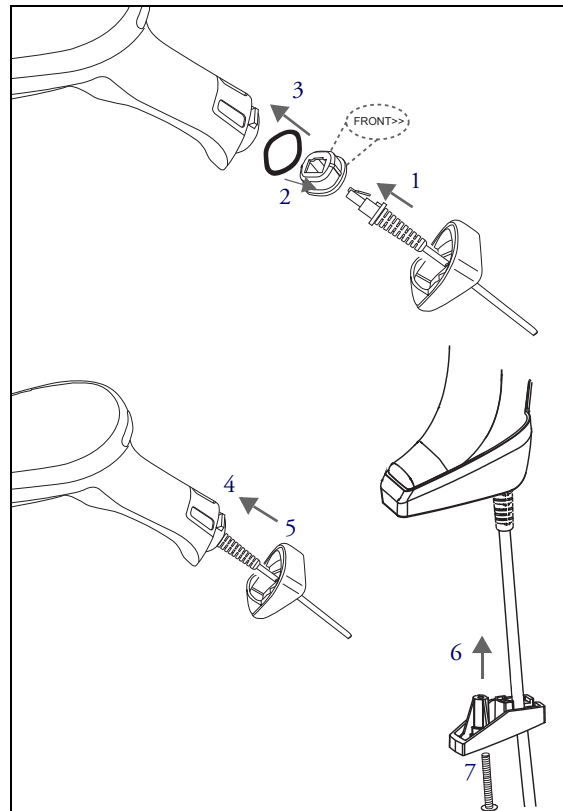
Connect the PowerScan by plugging directly into the host device as shown. The power can also be supplied through an external power supply via the Interface Cable supplied with a power jack.

Connecting the Cable



- A. Rubber gasket
- B. Cable Holder
- C. Cover
- D. Connector Holder

1. Slip the cable through the Cover.
2. Push the Rubber Gasket onto the Cable Holder.
3. Push the Cable Holder and gasket into the handle. Ensure that the “Front” marking on the Cable Holder is facing out, with the arrow pointing towards the front of the scanner.
4. Insert the end of the cable into the socket of the Cable Holder.
5. Push the Cover along the cable towards the reader, and hook it over the yellow “tooth” on the back of the handle.
6. Insert the cable through the Connector Holder, and push it up into the Cover.
7. Insert and tighten the screw to affix the cable assembly to the reader handle.



Interface Selection

Upon completing the physical connection between the reader and its host, proceed to [Table 1 on page 15](#) to select the interface type the reader is connected to (for example: RS-232, Keyboard Wedge, USB, etc.). Scan the appropriate bar code in that section to configure your system’s correct interface type.

Setting the Interface







Scan the programming bar code from this section which selects the appropriate interface type matching the system the reader will be connected to. Next, proceed to the corresponding section in this manual (also listed in [Table 1 on page 15](#)) 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 bar code label. **DO NOT** scan an ENTER/EXIT bar code prior to scanning an interface selection bar code.

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

Table 1. Available Interfaces

RS-232		FEATURES
RS-232 standard interface	 Select RS232-STD	Set RS-232 Interface Features starting on page 23
 Select RS232-WN	RS-232 Wincor-Nixdorf	
RS-232 for use with OPOS/UPOS/JavaPOS	 Select RS-232 OPOS	
USB		FEATURES
 Select USB COM-STD ^a	USB Com to simulate RS-232 standard interface	Set USB-OEM Interface Features starting on page 45
USB-OEM (can be used for OPOS/UPOS/JavaPOS)	 Select USB-OEM	
 Select USB Keyboard	USB Keyboard with standard key encoding	

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

USB (continued)		FEATURES
 Select USB Alternate Keyboard	USB Keyboard with alternate key encoding	Set USB-OEM Interface Features starting on page 45
 Select USB-KBD-APPLE	USB Keyboard for Apple computers	
KEYBOARD		FEATURES
 Select USB Alternate Keyboard	USB Keyboard with alternate key encoding	Set KEYBOARD WEDGE Interface Features starting on page 35
 Select USB-KBD-APPLE	USB Keyboard for Apple computers	
 Select KBD-AT	AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Standard Key Encoding	
 Select KBD-AT-NK	Keyboard Wedge for IBM AT PS2 with standard key encoding but without external keyboard	
 Select KBD-AT-ALT	AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Alternate Key	
 Select KBD-AT-ALT-NK	Keyboard Wedge for IBM AT PS2 with alternate key encoding but without external keyboard	

Customizing Configuration Settings

Configure Interface Settings

If after scanning the interface bar code 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 Parameters" starting on page 19.

Global Interface Features

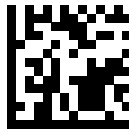
See "Global Interface Features" on page 21 for settings configurable by all interface types.

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. Go to "Configuration Using Bar Codes," starting on page 19 for a complete list of available options.

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

Self Test and Statistics

The internal status of the reader can be accessed in COM interfaces giving the following command string through a Terminal Emulator program: **\$S , yX , s [CR]**.

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 bar code 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

The "Restore Custom Default Configuration" command above is normally enough to restart the machine from a known status (set in the factory or by the customer via configuration file). The machine is set as it arrived to you from the factory or according to the custom configuration file you loaded afterward.

If you want to **permanently cancel** the setup defined by the configuration file use "[Restore Factory Configuration](#)" on page 257 of this manual.

The programming items listed in the following sections show the factory default settings for each of the menu commands. If no configuration file has been loaded, the above command restores the factory default.

Chapter 3

Configuration Using Bar Codes

This and following sections provide programming bar codes to configure your reader by changing the default settings. For details about additional methods of programming, see "Configuration Methods" on page 12.



You must first enable your reader to read bar codes in order to use this section. If you have not done this, go to Setup, starting on page 13 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 247 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 23
- "RS-232/USB-Com Interfaces" on page 28
- "Keyboard Settings" on page 35

Parameters common to all interface applications:

- "Data Format" on page 47 gives options to control the messages sent to the Host system by selecting parameters to control the message strings sent to the handheld.
- "Reading Parameters" on page 59 control various operating modes and indicators status functioning such as programming for scanning, beeper and LED indicators and other universal settings.
- "Motion Features" on page 199 provide the ability to configure motion settings for the handheld.

Symbology-specific parameters:

- "1D Symbologies" on page 79 provides configuration of a personalized mix of 1D codes, code families and their options.
- "2D Symbologies" on page 169 provides configuration of a personalized mix of 2D codes, code families and their options.



You must first enable your reader to read bar codes in order to use this section. If you have not done this, go to Setup, starting on page 13 and complete the appropriate procedure.



Enter/Exit Programming Mode

To program features:

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



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

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

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

For more detailed descriptions, programming information and examples for setting selected configuration items, see [References, starting on page 201](#).



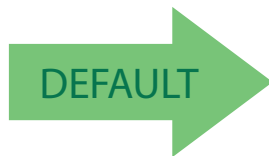
GLOBAL INTERFACE FEATURES

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.



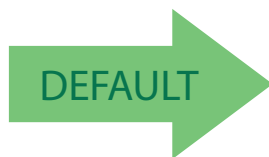
Host Commands = Obey
(Do Not Ignore Host Commands)



Host Commands = Ignore

USB Suspend Mode

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



USB Suspend Mode = Disable



USB Suspend Mode = Enable



Enter/Exit Programming Mode

NOTES

RS-232 ONLY INTERFACE

BAUD RATE on page 24
DATA BITS on page 25
STOP BITS on page 25
PARITY on page 26
HANDSHAKING CONTROL on page 27

Use the programming bar codes 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 28.

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



Baud Rate

See [page 202](#) for information on this feature.



Baud Rate = 1200



Baud Rate = 2400



Baud Rate = 4800



Baud Rate = 9600



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.



8 Data Bits

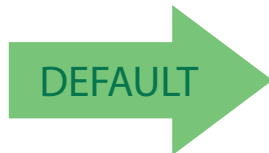


7 Data Bits



Stop Bits

Set the number of stop bits to match host device requirements. See [page 202](#) for more information on this feature.



1 Stop Bit

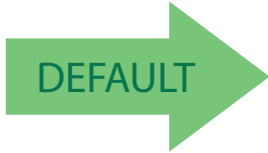


2 Stop Bits



Parity

This feature specifies parity required for sending and receiving data. Select the parity type according to host device requirements. See [page 202](#) for more information.



Parity = None



Parity = Even

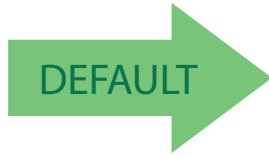


Parity = Odd



Handshaking Control

See [page 202](#) for more information about this feature.



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 29
BEEP ON ASCII BEL on page 29
BEEP ON NOT ON FILE on page 30
ACK NAK OPTIONS on page 30
ACK CHARACTER on page 31
NAK CHARACTER on page 31
ACK NAK TIMEOUT VALUE on page 32
ACK NAK RETRY COUNT on page 32
ACK NAK ERROR HANDLING on page 33
INDICATE TRANSMISSION FAILURE on page 33
DISABLE CHARACTER on page 34
ENABLE CHARACTER on page 34

The programming bar codes in this chapter allow modifications to the standard RS-232 and USB-Com interfaces. Reference [Appendix C, 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 211](#) for more information.



Intercharacter Delay = No Delay

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

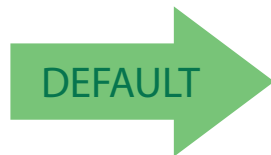


Select Intercharacter Delay Setting

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



CANCEL



00 = No Intercharacter Delay

Beep On ASCII BEL

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



Beep On ASCII BEL = Disable



Beep On ASCII BEL = Enable



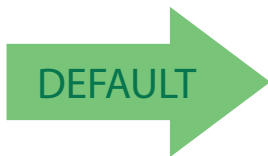
Enter/Exit Programming Mode

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.



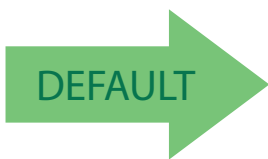
Beep On Not On File = Disable



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 204](#) for more information.



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

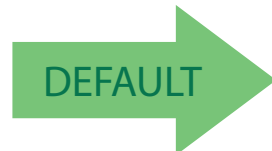
This setting specifies an ASCII character or hex value to be used as the ACK character. ASCII characters or any hex value from 0 to 0xFF can be selected. See [page 204](#) for more information.



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



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 205](#) for more

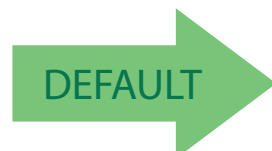


Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits](#) has been set as 7 Data Bits.

information.



Select NAK Character Setting



0x15 'NAK' Character



Enter/Exit Programming Mode

ACK NAK Timeout Value

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

See [page 206](#) for more information on setting this feature.



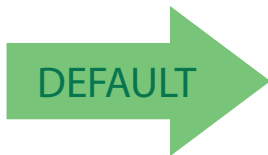
Select ACK NAK Timeout Value Setting

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

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



CANCEL



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 207](#) for more information.



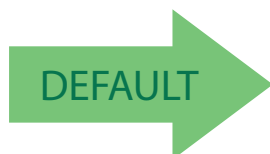
Select ACK NAK Retry Count Setting

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

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



CANCEL

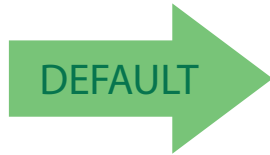


003 = 3 Retries



ACK NAK Error Handling

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



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





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.

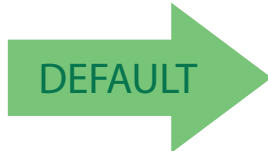


Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits](#) has been set as 7 Data Bits.

See [page 208](#) for more information on setting this feature.



Select Disable Character Setting



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.

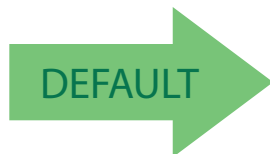


Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits](#) has been set as 7 Data Bits.

See [page 209](#) in “References” for more information on setting this feature.



Select Enable Character Setting



0x45 = Enable Character is 'E'

KEYBOARD SETTINGS

COUNTRY MODE on page 36
SEND CONTROL CHARACTERS on page 39
WEDGE QUIET INTERVAL on page 40
INTERCODE DELAY on page 40
CAPS LOCK STATE on page 41
NUMLOCK on page 41
USB KEYBOARD SPEED on page 42
USB KEYBOARD NUMERIC KEYPAD on page 43

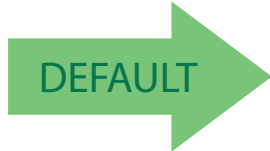
Use the programming bar codes in this chapter to select options for USB Keyboard and Wedge Interfaces. Reference [Appendix C, Standard Defaults](#) for a listing of standard factory settings.

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. Several languages are supported:



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 = Denmark

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



Country Mode = France



Enter/Exit Programming Mode

Country Mode (continued)

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



Country Mode = French Canadian



Country Mode = Germany

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



Country Mode = Hungary



Country Mode = Italy

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



Country Mode = Japanese 106-key



Country Mode = Lithuanian

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



Country Mode = Norway



Enter/Exit Programming Mode

Country Mode (continued)



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 = Sweden



Country Mode = Switzerland

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



Send Control Characters

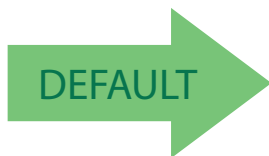
This feature specifies how the reader transmits ASCII control characters to the host. Reference [Appendix E, Scancode Tables](#) for more information about control characters.

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+Shift, 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 (see "[Microsoft Windows Codepage 1252](#)" on [page 269](#)).



Wedge Send Control Characters = 00



Wedge Send Control Characters = 01



Wedge Send Control Characters = 02



Enter/Exit Programming Mode

Wedge Quiet Interval

Specifies amount of time to look for keyboard activity before scanner breaks keyboard connection in order to transmit data to host. The selectable range for this setting is 00 to 990 milliseconds (00-0x63 by 01) in increments of ten milliseconds. See [page 210](#) in “References” for detailed information and examples for setting this feature.



Set Wedge Quiet Interval

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

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



CANCEL



**0A = Quiet Interval is
100 milliseconds**

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 212](#) in “References” for detailed information and examples for setting this feature.



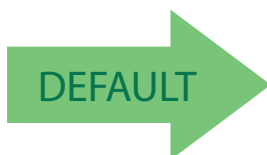
Set Intercode Delay

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

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



CANCEL

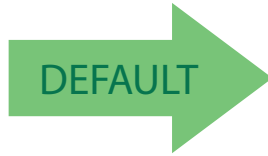


00 = No Wedge Intercode Delay

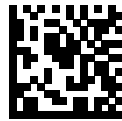


Caps Lock State

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



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 NUMLOCK key in the Keyboard Wedge interface.



Numlock = NUMLOCK key unchanged



Numlock = Numlock key toggled

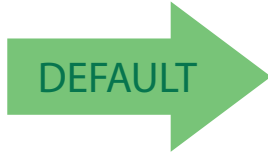


USB Keyboard Speed

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



This feature applies ONLY to the USB Keyboard interface.



USB Keyboard Speed = 1ms



USB Keyboard Speed = 2ms



USB Keyboard Speed = 3ms



USB Keyboard Speed = 4ms



USB Keyboard Speed = 5ms



USB Keyboard Speed = 6ms



Enter/Exit Programming Mode

USB Keyboard Speed (continued)



USB Keyboard Speed = 7ms



USB Keyboard Speed = 8ms



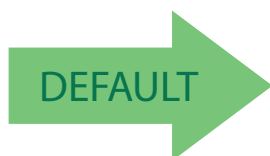
USB Keyboard Speed = 9ms



USB Keyboard Speed = 10ms

USB Keyboard Numeric Keypad

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



Standard Keys



Numeric Keypad



Enter/Exit Programming Mode

NOTES

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 C](#), for a listing of standard factory settings.



Enter/Exit Programming Mode

USB-OEM Device Usage

The USB-OEM protocol allows for the reader to be identified as one of two different types of bar code 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



Interface Options

This feature provides for an interface-specific control mechanism.



Obey Scanner Configuration Host Commands



Ignore Scanner Configuration Host Commands



DATA FORMAT

GLOBAL PREFIX/SUFFIX on page 48
GLOBAL AIM ID on page 49
LABEL ID starting on page 52 <ul style="list-style-type: none">• Label ID: Pre-Loaded Sets• Individually Set Label ID• Label ID Control• Label ID Symbology Selection – 1D Symbologies• Label ID Symbology Selection – 2D Symbologies
CASE CONVERSION on page 58
CHARACTER CONVERSION on page 58



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

CAUTION

The features in this chapter can be used to build specific user-defined data into a message string. See “References” starting on [page 214](#) 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 bar code data, also called a header) and/or as a suffix (in a position following the bar code data, also called a footer). See [page 215](#) for more detailed instructions on setting this feature.

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



Set Global Prefix

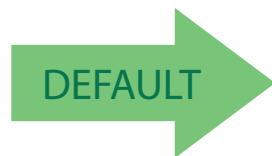


Set Global Suffix

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



CANCEL



No Global Prefix
Global Suffix = 0x0D (CR)

Global AIM ID

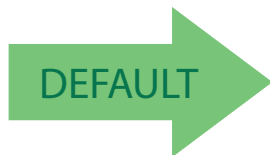


This feature enables/disables addition of AIM IDs for all symbology types.

AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned bar code data. See Table 2 on page 3-49 for a listing of AIM IDs.

AIM label identifiers consist of three characters as follows:

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



Global AIM ID = Disable



Global AIM ID = Enable

Table 2. AIM IDs

Tag Name	AIM ID code character	AIM ID code ASCII value
ABC CODABAR	X	58
ANKER PLESSEY	N	4E
AZTEC	z	7A
CHINA SENSIBLE CODE	X	58
CODABAR	F	46
CODE11	H	48
CODE128	C	43
CODE32	A	41
CODE39	A	41
CODE39 CIP	X	58
CODE39 DANISH PPT	X	58
CODE39 LAPOSTE	X	58
CODE39 PZN	X	58
CODE93	G	47
DATABAR 14	e	65
DATABAR 14 COMPOSITE	e	65
DATABAR EXPANDED	e	65
DATABAR EXPANDED COMPOSITE	e	65
DATABAR LIMITED	e	65
DATABAR LIMITED COMPOSITE	e	65



DATA MATRIX	d	64
EAN128	C	43
EAN128 COMPOSITE	C	43
EAN13	E	45
EAN13 P2	E	45
EAN13 P5	E	45
EAN13 COMPOSITE	E	45
EAN8	E	45
EAN8 P2	E	45
EAN8 P5	E	45
EAN8 COMPOSITE	E	45
FOLLET 2OF5	X	58
I2OF5	I	49
IATA INDUSTRIAL 2OF5	X	58
INDUSTRIAL 2OF5	X	58
ISBN	X	58
ISBT128 CONCAT	X	58
ISSN	X	58
MAXICODE	U	55
MICRO QR	Q	51
MICRO PDF	L	4C
MSI	M	4D
PDF417	L	4C
PLESSEY	P	50
POSTAL AUSTRALIAN	X	58
POSTAL IMB	X	58
POSTAL JAPANESE	X	58
POSTAL KIX	X	58
POSTAL PLANET	X	58
POSTAL PORTUGAL	X	58
POSTAL POSTNET BB	X	58
POSTAL ROYAL MAIL	X	58
POSTAL SWEDISH	X	58
POSTNET	X	58
QR CODE	Q	51
S25	S	53
TRIOPTIC	X	58
UPCA	E	45
UPCA P2	E	45
UPCA P5	E	45
UPCA COMPOSITE	E	45
UPCE	E	45
UPCE P2	E	45
UPCE P5	E	45
UPCE COMPOSITE	E	45

Set AIM ID Individually for GS1-128

This feature configures a Label ID individually for the GS1-128 symbology and the programming for this works the same way as Label ID. See [Label ID: Set Individually Per Symbology, starting on page 220](#) for detailed instructions on setting this feature.



Set AIM ID Individually for GS1-128 = Disable



Set AIM ID Individually for GS1-128 = Enable





Label ID

A Label ID is a customizable code of up to three ASCII characters (convert to Hex using the ASCII Chart on the inside back cover of this manual), used to identify a bar code symbology type. It can be appended previous to or following the transmitted bar code data depending upon how this option is enabled. This feature provides options for configuring custom Label IDs or individually per symbology (see "Individually Set Label ID" on page 53). 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 49.

See [Label ID, starting on page 217](#) 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 217](#) for details on the USA set and EU set.

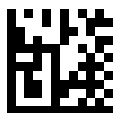


CAUTION

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.



Label ID Pre-loaded Set = USA Set



Label ID Pre-loaded Set = EU Set

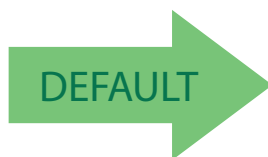


Individually Set Label ID

This feature configures a Label ID individually for a single symbology. To set, first define whether you want it as a prefix or suffix by scanning a label below. Then turn to [Label ID Symbology Selection – 1D Symbologies, starting on page 54](#) to select the symbology you want to set, followed by up to 3 characters from the ASCII Chart at the back of this manual. See "[Label ID: Set Individually Per Symbology](#)" on page 220 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.



Label ID Transmission = Disable



Label ID Transmission = Enable as Prefix



Label ID Transmission = Enable as Suffix



Label ID Symbology Selection – 1D Symbologies

This option selects the symbology for which a Label ID is to be configured. See "Label ID" on page 52 or page 220 in "References" for more detailed instructions.



If less than the expected string of 3 characters are selected, scan the ENTER/EXIT bar code twice to accept the selection and exit Programming Mode.



Set ABC Codabar Label ID Character(s)



Set Code 32 Pharmacode Label ID Character(s)



Set Anker Plessey Label ID Character(s)



Set Code 93 Label ID Character(s)



Set Australian Postal Code Label ID Character(s)



Set Concatenated ISBT 128 Label ID Character(s)



Set Codabar Label ID Character(s)



Set Danish PPT Label ID Character(s)



Set Code 11 Label ID Character(s)



Set EAN 13 Label ID Character(s)



Set Code 128 Label ID Character(s)



Set EAN 13 Composite Label ID Character(s)



Set Code 39 Label ID Character(s)



Set EAN 13 P2 Label ID Character(s)



Set Code 39 CIP Label ID Character(s)



Set EAN 13 P5 Label ID Character(s)



Label ID Symbology Selection – 1D Symbologies (continued)



Set EAN 8 Label ID Character(s)



Set GS1 DataBar Expanded Composite Label ID Character(s)



Set EAN 8 Composite Label ID Character(s)



Set GS1-128 Label ID Character(s)



Set EAN 8 P2 Label ID Character(s)



Set GS1-128 Composite Label ID Character(s)



Set EAN 8 P5 Label ID Character(s)



Set GSI DataBar Limited Label ID Character(s)



Set Follett 2 of 5 Label ID Character(s)



GSI DataBar Limited Composite Label ID Character(s)



Set GS1 DataBar 14 Label ID Character(s)



Set GTIN 2 Label ID Character(s)



Set GS1 DataBar 14 Composite Label ID Character(s)



Set GTIN 5 Label ID Character(s)



Set GS1 DataBar Expanded Label ID Character(s)



Set GTIN 8 Label ID Character(s)



Set IATA Industrial 2 of 5 Label ID Character(s)



Set LaPoste Code 39 Label ID Character(s)



Label ID Symbology Selection – 1D Symbologies (continued)



Set IMB Postal Code Label ID Character(s)



Set MSI Label ID Character(s)



Set Industrial 2 of 5 Label ID Character(s)



Set Planet Postal Code Label ID Character(s)



Set Interleaved 2 of 5 Label ID Character(s)



Set Plessey Label ID Character(s)



Set ISBN Label ID Character(s)



Set Portugal Postal Code Label ID Character(s)



Set ISSN Label ID Character(s)



Set Postnet Label ID Character(s)



Set Japan Postal Code Label ID Character(s)



Set Kix Postal Code Label ID Character(s)



Set PZN Code Label ID Character(s)



Set Postnet BB Label ID Character(s)



Set Royal Postal Code Label ID Character(s)



Set UPC-A Composite Label ID Character(s)



Set Standard 2 of 5 Label ID Character(s)



Set UPC-A P2 Label ID Character(s)

Label ID Symbology Selection – 1D Symbologies (continued)



Set Swedish Postal Code Label ID Character(s)



Set UPC-A P5 Label ID Character(s)



Set Trioptic Code Label ID Character(s)



Set UPC-E Label ID Character(s)



Set UPC-A Label ID Character(s)



Set UPC-E P5 Label ID Character(s)

Label ID Symbology Selection – 2D Symbologies



Set Aztec Label ID Character(s)



Set Maxicode Label ID Character(s)



Set China Sensible Label ID Character(s)



Set PDF 417 Label ID Character(s)



Set Codablock F Label ID Character(s)



Set Micro PDF 417 Label ID Character(s)



Set Data Matrix Label ID Character(s)



Set QR Code Label ID Character(s)



Set Micro QR Label ID Character(s)



Advanced Formatting: User Label Edit

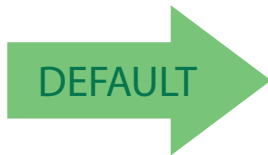
Advanced formatting is available to create user label edit scripts. See the Datalogic Aladdin configuration application or contact Technical Support.

Case Conversion

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



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



Case Conversion = Disable (no case conversion)



Case Conversion = Convert to upper case



Case Conversion = Convert to lower case

Character Conversion

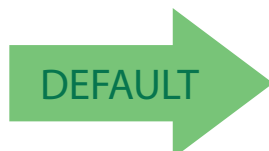
Character conversion is an eight byte configuration item. The eight bytes are 4 character pairs represented in hexadecimal ASCII values. The first character in the pair is the character that will be converted. The second character in the pair is the character to convert to. If the character to convert 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 bar code twice to accept the selections and exit Programming Mode.



Configure Character Conversion



0xFFFFFFFFFFFFFFF
(No character conversion)

READING PARAMETERS

DOUBLE READ TIMEOUT on page 60	SCANNING ACTIVE TIME on page 70
LED AND BEEPER INDICATORS on page 62	STAND ILLUMINATION CONTROL on page 71
POWER ON ALERT on page 62	FLASH ON TIME on page 71
GOOD READ: WHEN TO INDICATE on page 62	FLASH OFF TIME on page 72
GOOD READ BEEP TYPE on page 63	AIMING POINTER on page 72
GOOD READ BEEP FREQUENCY on page 63	AIMING DURATION TIMER on page 73
GOOD READ BEEP LENGTH on page 64	GREEN SPOT DURATION on page 74
GOOD READ BEEP VOLUME on page 65	PARTIAL LABEL READING CONTROL on page 75
GOOD READ LED DURATION on page 66	DECODE NEGATIVE IMAGE on page 75
SCAN MODE on page 67	IMAGE CAPTURE on page 76
STAND MODE INDICATION on page 68	MULTIPLE LABELS PER FRAME on page 76
PICK MODE on page 69	MULTIPLE LABELS ORDERING BY CODE SYMBOLOGY on page 77
STAND MODE SENSITIVITY on page 69	MULTIPLE LABELS ORDERING BY CODE LENGTH on page 77
STAND MODE ILLUMINATION OFF TIME on page 70	



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



Double Read Timeout = 0.7 Second



Enter/Exit Programming Mode

Double Read Timeout (continued)



Double Read Timeout = 0.8 Second



Double Read Timeout = 0.9 Second



Double Read Timeout = 1 Second



LED AND BEEPER INDICATORS

Power On Alert

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



Power On Alert = Disable (No Audible Indication)

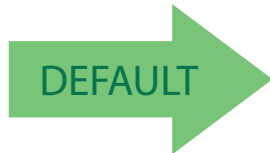


Power On Alert = Power-up Beep



Good Read: When to Indicate

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



Indicate Good Read = After Decode



Indicate Good Read = After Transmit

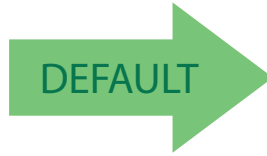


Indicate Good Read =
After CTS goes inactive then active



Good Read Beep Type

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



Good Read Beep Type = Mono



Good Read Beep Type = Bitonal

Good Read Beep Frequency

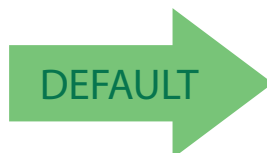
Adjusts the good read beep to sound at a selectable low, medium or high frequency, selectable from the list below. (Controls the beeper's pitch/tone.)



Good Read Beep Frequency = Low



Good Read Beep Frequency = Medium



Good Read Beep Frequency = High



Enter/Exit Programming Mode

Good Read Beep Length



Good Read Beep Length = 60 msec



Good Read Beep Length = 80 msec



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

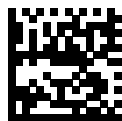


Good Read Beep Volume

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





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 100 milliseconds to 25,500 milliseconds (0.1 to 25.5 seconds) in 100ms increments. A setting of 00 keeps the LED on until the next trigger pull.

See [page 224](#) in “References” for detailed instructions and examples for setting this feature.



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



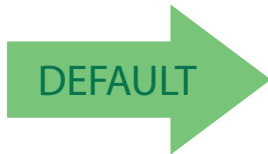
Select Good Read LED Duration Setting

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

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



CANCEL



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



Indicators are dimmed during sleep.



SCANNING FEATURES

Scan Mode

Selects the reader's scan operating mode. See [page 225](#) in “References” for descriptions.



Scan Mode = Trigger Single



DEFAULT



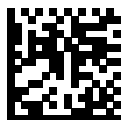
Scan Mode = Trigger Hold Multiple



Scan Mode = Trigger Pulse Multiple



Scan Mode = Flashing



Scan Mode = Always On



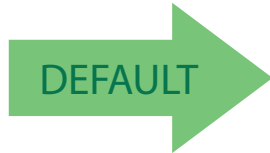
Scan Mode = Stand Mode



Enter/Exit Programming Mode

Stand Mode Indication

This operation is useful for indicating when the reader is in Stand Mode. If enabled, the blue indicator will blink when Stand Mode scanning is active. If reader detects motion and switches out of Stand Mode into Triggered Mode, blinking will stop until Stand Mode is active again.



Stand Mode Indication = Disable



Stand Mode Indication = Enable

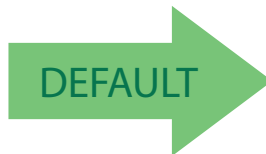


Pick Mode

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



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



Pick Mode = Disable



Pick Mode = Enable

Stand Mode Sensitivity

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



Stand Mode Sensitivity = Low



Stand Mode Sensitivity = Medium



Stand Mode Sensitivity = High



Enter/Exit Programming Mode

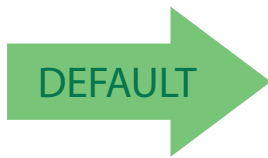
Stand Mode Illumination Off Time

Specifies the amount of time reader illumination stays off after pulling the trigger when in Stand Mode. The configurable range is 01 to 32 by 01 in increments of 500ms (500ms to 16 seconds). See [page 226](#) in “References” for a description of this feature.



Select Stand Mode Time Setting

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



04 = 2 Seconds

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 227](#) in “References” for further description of this feature.



Scanning Active Time = 3 seconds



Scanning Active Time = 5 seconds

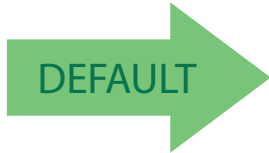


Scanning Active Time = 8 seconds



Stand Illumination Control

Controls the illumination status while the reading mode is stand mode and the reader is attempting to detect objects.



Stand Illumination Control = OFF



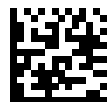
Stand Illumination Control = ON



Stand Illumination Control = Dim

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 229](#) in “References” for detailed information on setting this feature.



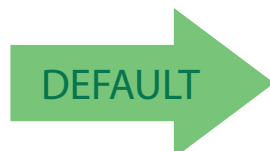
Select Flash ON Time Setting

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

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



CANCEL



10 = Flash is ON for 1 Second



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. See [page 230](#) in “References” for detailed information on setting this feature.



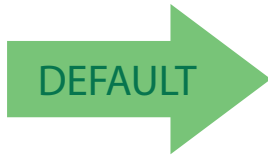
Select Flash OFF Time Setting

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

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



CANCEL



06 = Flash is OFF for 600ms

Aiming Pointer

Enables/disables the aiming pointer for all symbologies.



Aiming Pointer = Disable



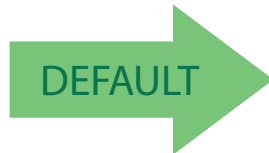
Aiming Pointer = Enable





Aiming Duration Timer

Specifies the frame of time the aiming pointer remains on after decoding a label, when in trigger single mode. The range for this setting is from 1 to 255 seconds in 1-second increments. See [page 228](#) in “References” for a description of this feature.



Set Aiming Duration Timer



Aiming Off After Decoding

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

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



CANCEL



Green Spot Duration

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



Green Spot Duration = Disable (Green Spot is Off)



Green Spot Duration = Short (300 msec)



Green Spot Duration = Medium (500 msec)



Green Spot Duration = Long (800 msec)



Partial Label Reading Control

Enable/Disable the option to ignore partial labels to be read within the boundary of the field of view.



Partial Label Reading Control = Disable



Partial Label Reading Control = Enable

Decode Negative Image

Enable/Disable the ability to decode a negative image for all symbologies. When this feature is enabled, you will be unable to read normally-printed labels or programming labels in this manual. Scan the “Disable” bar code below to return the scanner to its default for this feature.

The reader can also be set to decode both positive and negative codes for certain 2D codes. See "[2D Normal/Inverse Symbol Control](#)" on page 171 for information on this feature.

For additional options, see the Aladdin configuration application.

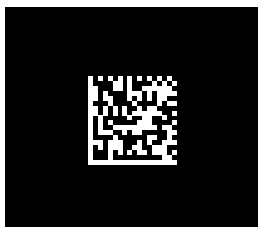


Unlike some programming features and options, Decode Negative Image selections require that you scan only one programming bar code label. DO NOT scan an ENTER/EXIT bar code prior to scanning a Decode Negative Image bar code.



CAUTION

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



Decode Negative Image = Disable



DEFAULT



Decode Negative Image = Enable



Image Capture

Image capture is supported by RS-232 and USB-COM interfaces only. For information and a list of options for Image Capture, use the Datalogic Aladdin configuration application, available for free download from the Datalogic Scanning website.

MULTIPLE LABEL READING

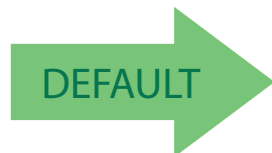
In standard (default) mode, when the reader's aiming system is activated (by a trigger pull, motion or other method depending on the mode), it then acquires and processes each image in the area in front of it (the Volume). In this case, the scanner stops processing the image once it decodes a label.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

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

Multiple Labels per Frame

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

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



Multiple Labels per Frame = Disable



Multiple Labels per Frame = Enable



Multiple Labels Ordering by Code Symbology

This feature allows you to specify the order multiple labels are transmitted by symbology type, when Multiple Labels per Frame is enabled. See page 231 in “References” for detailed information on setting this feature.



Select Symbologies for Multiple Labels Ordering

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

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



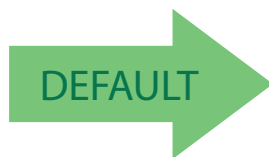
CANCEL



0000000000 = Random order

Multiple Labels Ordering by Code Length

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



Multiple Labels Ordering = Disable



Transmit Increasing Length Order



Transmit Decreasing Length Order



Enter/Exit Programming Mode

NOTES

1D SYMBOLOGIES

The reader supports the following 1D symbologies (bar code types). See "2D Symbologies" starting on page 169 for 2D bar codes. Symbology-dependent options are included in each chapter.

DISABLE ALL SYMBOLOGIES , page 80	GS1-128 , page 116
CODE EAN/UPC , page 81	CODE ISBT 128 , page 117
UPC-E , page 84	INTERLEAVED 2 OF 5 (I 2 OF 5) , page 120
GTIN FORMATTING , page 87	INTERLEAVED 2 OF 5 CIP HR , page 125
EAN 13 (JAN 13) , page 88	FOLLETT 2 OF 5 , page 125
ISSN , page 90	STANDARD 2 OF 5 , page 126
EAN 8 (JAN 8) , page 91	INDUSTRIAL 2 OF 5 , page 130
UPC/EAN GLOBAL SETTINGS , page 93	CODE IATA , page 134
ADD-ONS , page 95	CODABAR , page 135
CODE 39 , page 101	ABC CODABAR , page 141
TRIOPTIC CODE , page 107	CODE 11 , page 144
CODE 32 (ITAL PHARMACEUTICAL CODE) , page 107	GS1 DATABAR™ OMNIDIRECTIONAL , page 148
CODE 39 CIP (FRENCH PHARMACEUTICAL) , page 109	GS1 DATABAR™ EXPANDED , page 149
CODE 39 DANISH PPT , page 109	GS1 DATABAR™ LIMITED , page 154
CODE 39 LAPOSTE , page 110	CODE 93 , page 155
CODE 39 PZN , page 110	MSI , page 160
CODE 128 , page 111	PLESSEY , page 165

Default settings are indicated at each feature/option with a green arrow. Also reference [Appendix C, Standard Defaults](#) for a listing of the most widely used set of standard factory settings.

To set most features:

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



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

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

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



DISABLE ALL SYMBOLOGIES

Use this feature to disable all symbologies.

1. Scan the ENTER/EXIT PROGRAMMING Mode bar code.
2. Scan the Disable All Symbologies bar code.
3. Complete the programming sequence by scanning the ENTER/EXIT PROGRAMMING bar code.



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 bar codes to be decoded



Coupon Control = Enable only UPCA coupon decoding



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 bar codes.



UPC-A = Enable



UPC-A = Disable



UPC-A Check Character Transmission

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



UPC-A Check Character Transmission = Send



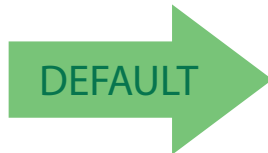
UPC-A Check Character Transmission = Don't Send





Expand UPC-A to EAN-13

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



UPC-A 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



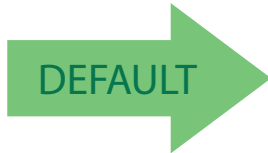
UPC-A Number System Character = Transmit





UPC-A 2D Component

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



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



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

UPC-E

The following options apply to the UPC-E symbology.

UPC-E Enable/Disable

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



UPC-E = Disable



UPC-E = Enable





UPC-E Check Character Transmission

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



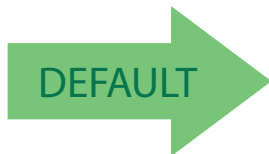
UPC-E Check Character Transmission = Don't Send



UPC-E Check Character Transmission = Send

UPC-E 2D Component

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



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

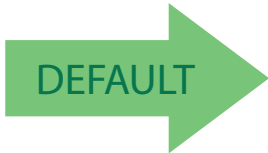


UPC-E 2D Component =
2D component must be decoded



Expand UPC-E to EAN-13

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



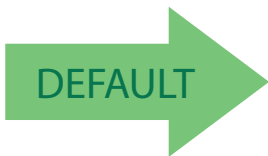
UPC-E to EAN-13 = Don't Expand



UPC-E to EAN-13 = Expand

Expand UPC-E to UPC-A

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



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

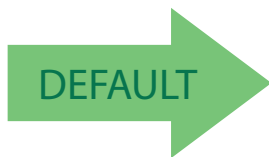


GTIN FORMATTING

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.



GTIN Formatting = Disable



GTIN Formatting = Enable



EAN 13 (JAN 13)

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

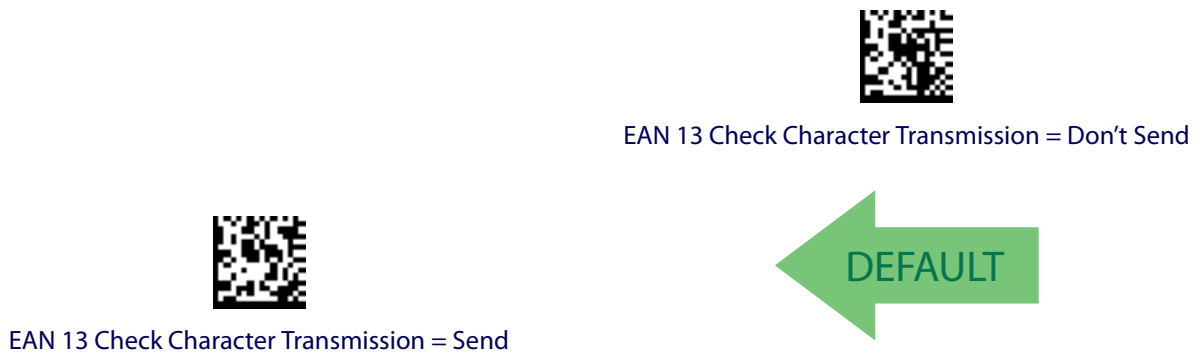
EAN 13 Enable/Disable

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



EAN 13 Check Character Transmission

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





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.



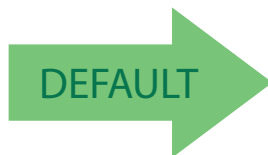
EAN-13 Flag 1 Char= Don't transmit



EAN-13 Flag 1 Char= Transmit

EAN-13 ISBN Conversion

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



EAN-13 ISBN Conversion = Disable

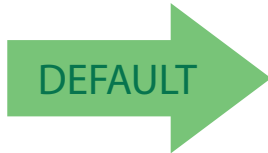


EAN-13 ISBN Conversion = Convert to ISBN



EAN-13 2D Component

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



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



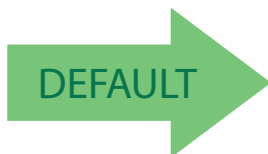
EAN-13 2D Component =
2D component must be decoded

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.



ISSN = Disable



ISSN = Enable



EAN 8 (JAN 8)

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

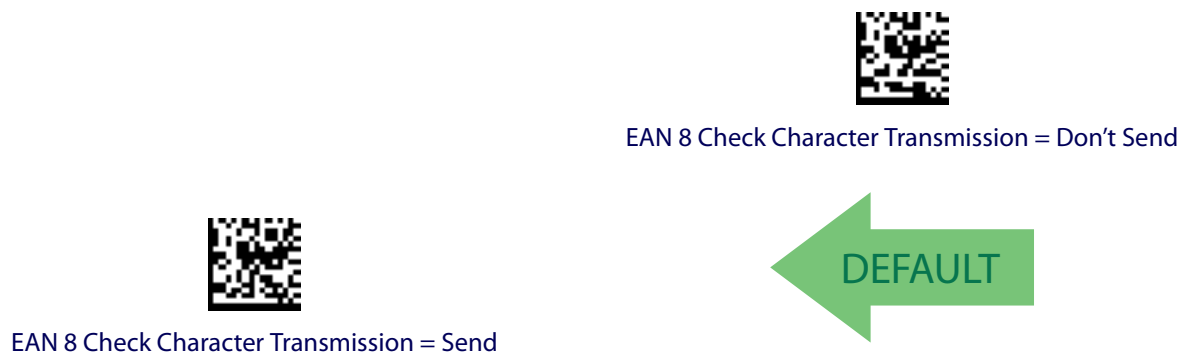
EAN 8 Enable/Disable

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



EAN 8 Check Character Transmission

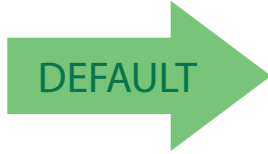
Enable this option to transmit the check character along with EAN 8 bar code data.





Expand EAN 8 to EAN 13

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



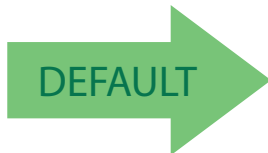
Expand EAN 8 to EAN 13 = Disable



Expand EAN 8 to EAN 13 = Enable

EAN 8 2D Component

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



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



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

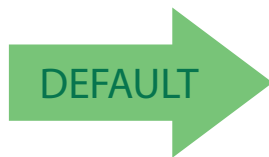


UPC/EAN GLOBAL SETTINGS

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

UPC/EAN Price Weight Check

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



Price Weight Check = Disabled



Price Weight Check = 4-digit price-weight check



Price Weight Check = 5-digit price-weight check



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

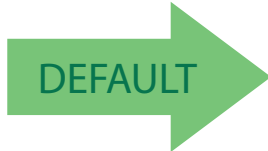


Price Weight Check = European 5-digit price-weight check



UPC/EAN Quiet Zones

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



UPC/EAN Quiet Zones = Two Modules



UPC/EAN Quiet Zones = Three Modules



ADD-ONS

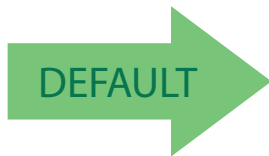
Contact Customer Support for advanced programming of optional and conditional add-ons.

Optional Add-ons

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



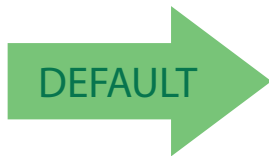
If a UPC/EAN base label and an add-on are both decoded, the reader will transmit the base label and add-on. If a UPC/EAN base label is decoded without an add-on, the base label will be transmitted without an add-on. Conditional add-on settings (if enabled) are considered by the reader before optional add-on settings.



Optional Add-Ons = Disable P2



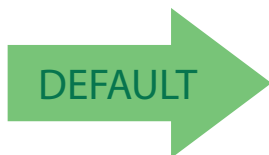
Optional Add-Ons = Enable P2



Optional Add-Ons = Disable P5



Optional Add-Ons = Enable P5



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 98.)



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 = 60ms



Optional Add-on Timer = 70ms



Optional Add-on Timer = 100ms



Optional Add-On Timer (continued)



Optional Add-on Timer = 120ms



Optional Add-on Timer = 140ms



Optional Add-on Timer = 160ms



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



Enter/Exit Programming Mode

Optional Add-On Timer (continued)



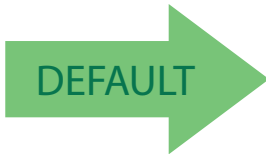
Optional Add-on Timer = 280ms



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 96](#).



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



Enter/Exit Programming Mode

Optional GS1-128 Add-On Timer (continued)



Optional GS1-128 Add-On Timer = 40ms



Optional GS1-128 Add-On Timer = 50ms



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



Enter/Exit Programming Mode

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



CODE 39

The following options apply to the Code 39 symbology.

Code 39 Enable/Disable



Code 39 = Disable



Code 39 = Enable

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



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



Enter/Exit Programming Mode

Code 39 Check Character Calculation (continued)



Code 39 Check Character Calculation =
Enable Italian Post Check



Code 39 Check Character Calculation =
Enable Daimler Chrysler Check

Code 39 Check Character Transmission

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



Code 39 Check Character Transmission = Don't Send



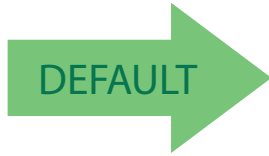
Code 39 Check Character Transmission = Send





Code 39 Start/Stop Character Transmission

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



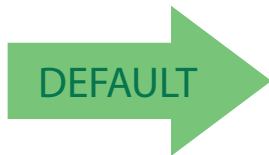
Code 39 Start/Stop Character Transmission =
Don't Transmit



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.



Code 39 Full ASCII = Disable



Code 39 Full ASCII = Enable



Code 39 Quiet Zones

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



Code 39 Quiet Zones = Quiet Zones on two sides



Code 39 Quiet Zones = Small Quiet Zones on two sides

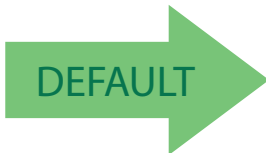


Code 39 Length Control

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

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

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



Code 39 Length Control = Variable Length



Code 39 Length Control = Fixed Length



Code 39 Set Length 1

This feature specifies one of the bar code lengths for [Code 39 Length Control](#). Length 1 is the minimum label length if in [Variable Length Mode](#), or the first fixed length if in [Fixed Length Mode](#). Length includes the bar code’s data characters only. The length can be set from 0 to 50 characters.

[Table 3](#) provides examples for setting Length 1. See [page 213](#) for detailed instructions on setting this feature.

Table 3. 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 bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL



02 = Length 1 is 2 Characters



Enter/Exit Programming Mode

Code 39 Set Length 2

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

[Table 4](#) provides examples for setting Length 2. See [page 213](#) for detailed instructions on setting this feature.

Table 4. 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 39 Length 2 Setting

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



CANCEL



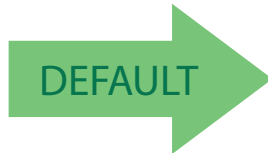
50 = Length 2 is 50 Characters



TRIOPTIC CODE

The following options apply to the Trioptic symbology.

Trioptic Code Enable/Disable



Trioptic Code = Disable



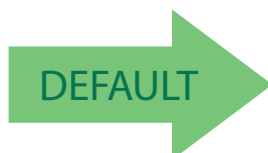
Trioptic Code = Enable

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 bar codes.



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 104

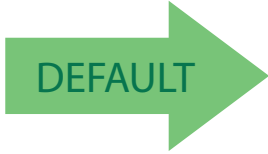
"Code 39 Length Control" on page 104

"Trioptic Code" on page 107



Code 32 Check Char Transmission

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



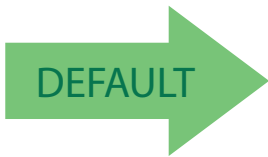
Code 32 Check Character Transmission = Don't Send



Code 32 Check Character Transmission = Send

Code 32 Start/Stop Character Transmission

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



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



Code 32 Start/Stop Character Transmission = Transmit

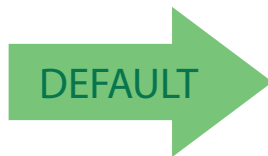


CODE 39 CIP (FRENCH PHARMACEUTICAL)

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.



Code 39 CIP = Disable



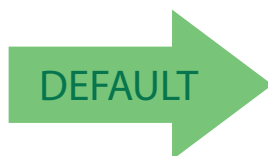
Code 39 CIP = Enable

CODE 39 DANISH PPT

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

Code 39 Danish PPT Enable/Disable

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



Code 39 Danish PPT = Disable



Code 39 Danish PPT = Enable

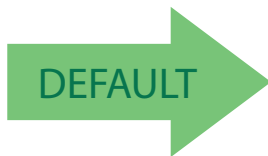


CODE 39 LAPOSTE

The following options apply to the Code 39 LaPoste symbology.

Code 39 LaPoste Enable/Disable

Enables/disables the ability of the scanner to decode Code39 La Poste labels.



Code 39 LaPoste = Disable



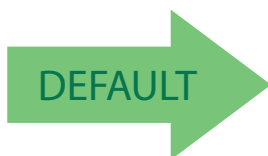
Code 39 LaPoste = Enable

CODE 39 PZN

The following options apply to the Code 39 PZN symbology.

Code 39 PZN Enable/Disable

Enables/disables the ability of the scanner to decode Code39 PZN labels.



Code 39 PZN = Disable



Code 39 PZN = Enable



CODE 128

The following options apply to the Code 128 symbology.

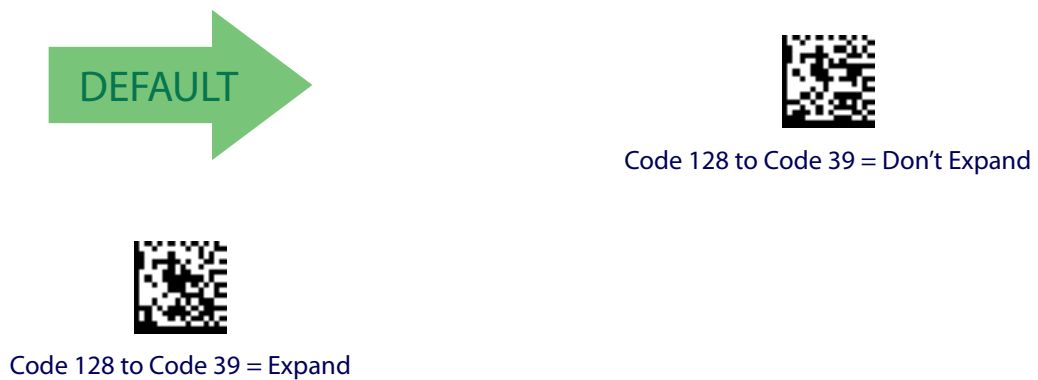
Code 128 Enable/Disable

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



Expand Code 128 to Code 39

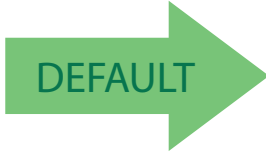
This feature enables/disables expansion of Code 128 labels to Code 39 labels.





Code 128 Check Character Transmission

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



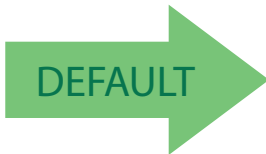
Code 128 Check Character Transmission = Don't Send



Code 128 Check Character Transmission = Send

Code 128 Function Character Transmission

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



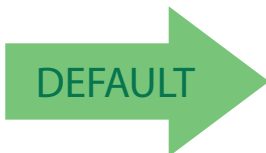
Code 128 Function Character Transmission = Don't Send



Code 128 Function Character Transmission = Send

Code 128 Sub-Code Exchange Transmission

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



Code 128 Sub-Code Exchange Transmission = Disable



Code 128 Sub-Code Exchange 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 bar code and are typically 10 times the width of the narrowest bar or space in the label.



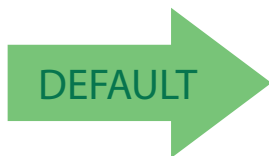
Code 128 Quiet Zones = Quiet Zones on two sides



Code 128 Quiet Zones = Small Quiet Zones on two sides

Code 128 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 128 symbology. See [page 213](#) for more information.



Code 128 Length Control = Variable Length



Code 128 Length Control = Fixed Length



Enter/Exit Programming Mode

Code 128 Set Length 1

Specifies one of the bar code lengths for [Code 128 Length Control](#). Length 1 is the minimum label length if in [Variable Length Mode](#), or the first fixed length if in [Fixed Length Mode](#). Length includes the bar code's data characters only. The length can be set from 1 to 80 characters.

[Table 5](#) provides some examples for setting Length 1. See [page 213](#) for detailed instructions on setting this feature.

Table 5. 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 bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL



01 = Length 1 is 1 Character



Code 128 Set Length 2

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

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

[Table 6](#) provides examples for setting Length 2. See [page 213](#) for detailed instructions on setting this feature.

Table 6. 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'	'1' and '5'	'8' and 0'
5	Scan ENTER/EXIT PROGRAMMING MODE				

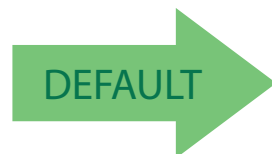


Select Code 128 Length 2 Setting

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



CANCEL



80 = Length 2 is 80 Characters



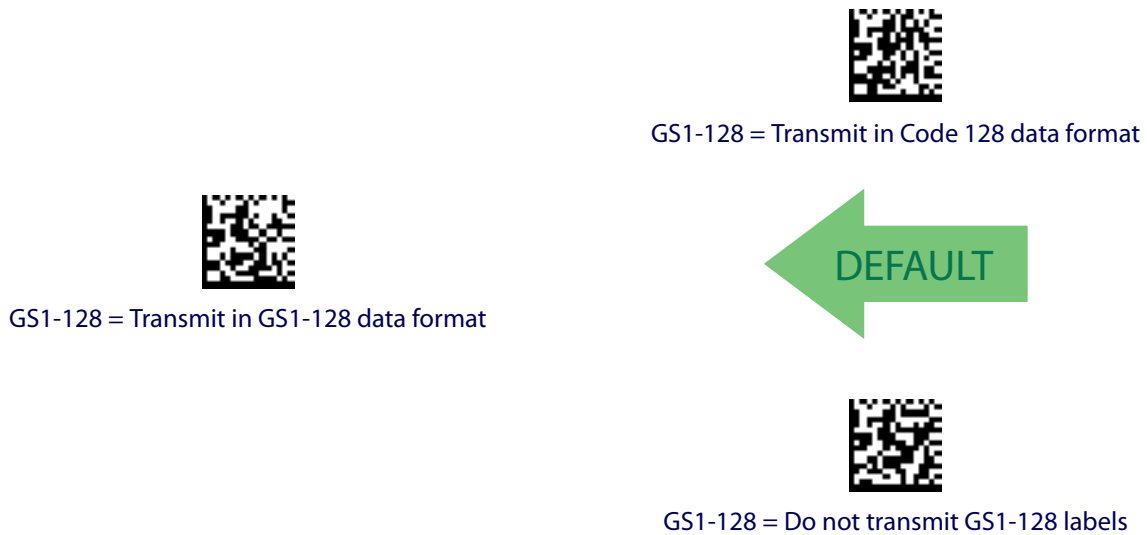
GS1-128

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 2D Component

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



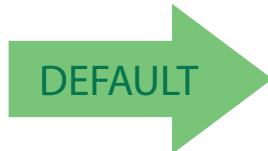


CODE ISBT 128

The following options apply to the ISBT 128 symbology.

ISBT 128 Concatenation

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



ISBN 128 Concatenation = Disable



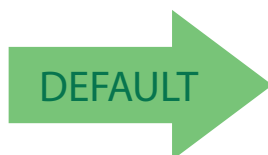
ISBN 128 Concatenation = Enable

ISBT 128 Force Concatenation

When enabled, this feature forces concatenation for ISBT.



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



ISBT 128 Force Concatenation = Disable



ISBT 128 Force Concatenation = Enable

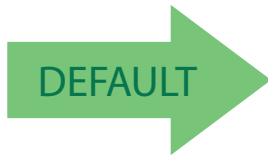


ISBT 128 Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.



This option is only valid when ISBT 128 Concatenation is enabled (see "ISBT 128 Concatenation" on page 117).



ISBT 128 Concatenation Mode = Static



ISBT 128 Concatenation Mode = Dynamic



ISBT 128 Dynamic Concatenation Timeout

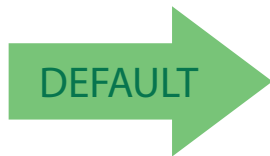
Specifies the timeout used by the ISBT 128 Dynamic Concatenation Mode.



ISBT 128 Dynamic Concatenation Timeout = 50 msec



ISBT 128 Dynamic Concatenation Timeout = 100 msec



ISBT 128 Dynamic Concatenation Timeout = 200 msec



ISBT 128 Dynamic Concatenation Timeout = 500 msec



ISBT 128 Dynamic Concatenation Timeout = 750 msec



ISBT 128 Dynamic Concatenation Timeout = 1 second

ISBT 128 Advanced Concatenation Options



To set up pairs of label types for concatenation, use the Datalogic Aladdin configuration application or contact Datalogic Technical Support, as described on [page 10](#).

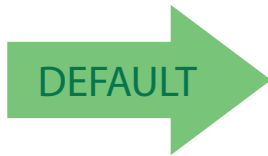


INTERLEAVED 2 OF 5 (I 2 OF 5)

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

I 2 of 5 Enable/Disable

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



I 2 of 5 = Disable

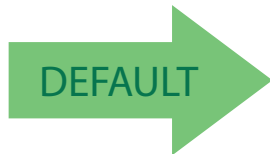


I 2 of 5 = Enable



I 2 of 5 Check Character Calculation

This option enables/disables calculation and verification of an optional I 2 of 5 check character. Combinations of these settings are possible via the Aladdin configuration utility, or contact Technical Support.



I 2 of 5 Check Character Calculation = Disable



I 2 of 5 Check Character Calculation = Check Standard
(Modulo 10)



I 2 of 5 Check Character Calculation = Check German Parcel



I 2 of 5 Check Character Calculation = Check DHL



I 2 of 5 Check Character Calculation = Check Daimler Chrysler



I 2 of 5 Check Character Calculation = Check Bosch



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 bar code data.



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



I 2 of 5 Check Character Transmission = Send

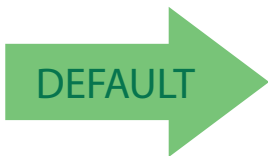


I 2 of 5 Length Control

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.



I 2 of 5 Length Control = Variable Length



I 2 of 5 Length Control = Fixed Length



1 2 of 5 Set Length 1

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

Table 7 provides some examples for setting Length 1. See page 213 for detailed instructions on setting this feature.

Table 7. 1 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 1 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				

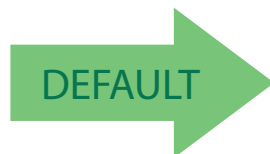


Select 1 2 of 5 Length 1 Setting

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



CANCEL



06 = Length 1 is 6 Characters



Enter/Exit Programming Mode

I 2 of 5 Set Length 2

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

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

Table 8 provides examples for setting Length 2. See **page 213** for detailed instructions on setting this feature.

Table 8. 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 bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL



50 = Length 2 is 50 Characters

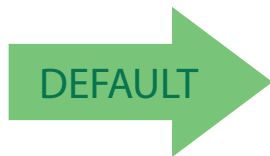


INTERLEAVED 2 OF 5 CIP HR

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.



Interleaved 2 of 5 CIP HR = Disable



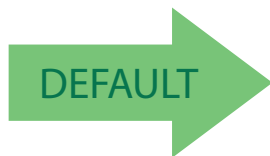
Interleaved 2 of 5 CIP HR = Enable

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 reader to decode Plessey labels.



Follett 2 of 5 = Disable



Follett 2 of 5 = Enable

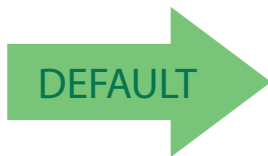


STANDARD 2 OF 5

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 bar codes.



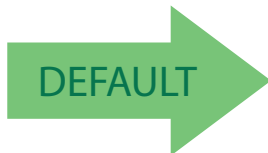
Standard 2 of 5 = Disable



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.



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

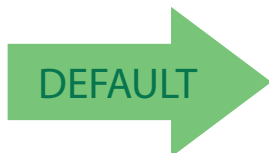


Standard 2 of 5 Length Control

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

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

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



Standard 2 of 5 Length Control = Variable Length



Standard 2 of 5 Length Control = Fixed Length



Enter/Exit Programming Mode

Standard 2 of 5 Set Length 1

This feature specifies one of the bar code lengths for [Standard 2 of 5 Length Control](#). Length 1 is the minimum label length if in [Variable Length Mode](#), or the first fixed length if in [Fixed Length Mode](#). Length includes the bar code's check and data characters. The length can be set from 1 to 50 characters.

[Table 9](#) provides some examples for setting Length 1. See [page 213](#) if you want detailed instructions on setting this feature.

Table 9. 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				

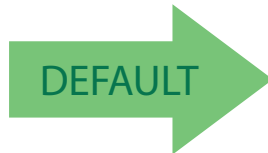


Select Standard 2 of 5 Length 1 Setting

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



CANCEL



08 = Length 1 is 8 Characters



Standard 2 of 5 Set Length 2

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

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

[Table 10](#) provides examples for setting Length 2. See [page 213](#) for detailed instructions on setting this feature.

Table 10. 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				

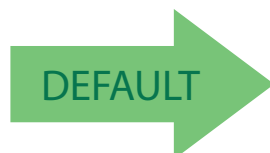


Select Standard 2 of 5 Length 2 Setting

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



CANCEL



50 = Length 2 is 50 Characters

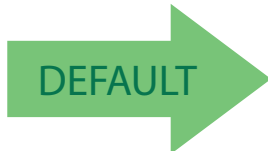


INDUSTRIAL 2 OF 5

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

Industrial 2 of 5 Enable/Disable

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



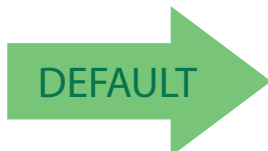
Industrial 2 of 5 = Disable



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.



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

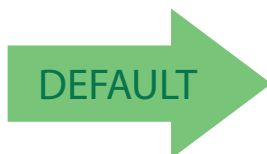


Industrial 2 of 5 Length Control

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

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

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



Industrial 2 of 5 Length Control = Variable Length



Industrial 2 of 5 = Fixed Length



Enter/Exit Programming Mode

Industrial 2 of 5 Set Length 1

This feature specifies one of the bar code lengths for [Industrial 2 of 5 Length Control](#). Length 1 is the minimum label length if in [Variable Length Mode](#), or the first fixed length if in [Fixed Length Mode](#). Length includes the bar code's data characters only. The length can be set from 0 to 50 characters.

[Table 11](#) provides some examples for setting Length 1. See [page 213](#) if you want detailed instructions on setting this feature.

Table 11. 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 bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL



01 = Length 1 is 1 Character



Industrial 2 of 5 Set Length 2

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

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

Table 12 provides examples for setting Length 2. See page 213 for detailed instructions on setting this feature.

Table 12. 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				

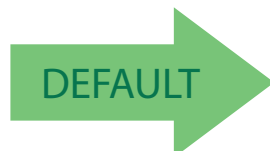


Select Industrial 2 of 5 Length 2 Setting

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



CANCEL



50 = Length 2 is 50 Characters

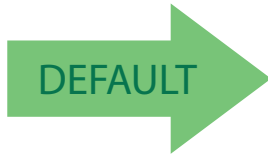


CODE IATA

The following options apply to the IATA symbology.

IATA Enable/Disable

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



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



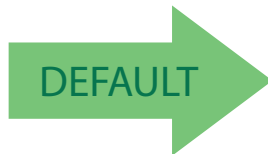


CODABAR

The following options apply to the Codabar symbology.

Codabar Enable/Disable

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



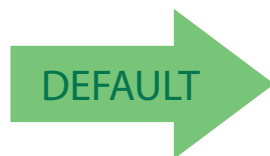
Codabar = Disable



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



Codabar Check Character Calculation =
Don't Calculate



Codabar Check Character Calculation = Enable AIM
standard check char.



Codabar Check Character Calculation =
Enable Modulo 10 check char.



Enter/Exit Programming Mode

Codabar Check Character Transmission

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



Codabar Check Character Transmission = Don't Send



Codabar Check Character Transmission = Send



Codabar Start/Stop Character Transmission

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



Codabar Start/Stop Character Transmission =
Don't Transmit



Codabar Start/Stop Character Transmission = Transmit





Codabar 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

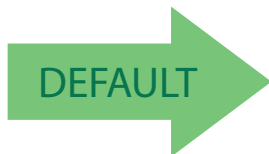


Codabar Check Character Set = abcd/abcd



Codabar Start/Stop Character Match

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



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

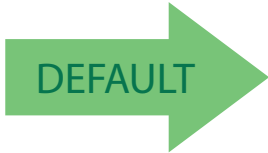


Codabar Start/Stop Character Match = Require Match



Codabar Quiet Zones

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



Codabar Quiet Zones = Quiet Zones on two sides



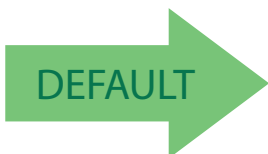
Codabar Quiet Zones = Small Quiet Zones on two sides

Codabar Length Control

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

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

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



Codabar Length Control = Variable Length



Codabar Length Control = Fixed Length



Codabar Set Length 1

This feature specifies one of the bar code lengths for [Codabar Length Control](#)[Codabar Length Control](#). Length 1 is the minimum label length if in [Variable Length Mode](#), or the first fixed length if in [Fixed Length Mode](#). Length includes the bar code’s start, stop, check and data characters. The length must include at least one data character. The length can be set from 3 to 50 characters.

[Table 13](#) provides some examples for setting Length 1. See [page 213](#) for detailed instructions on setting this feature.

Table 13. 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				

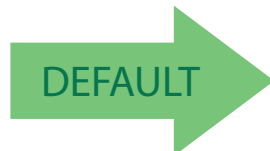


Select Codabar Length 1 Setting

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



CANCEL



03 = Length 1 is 3 Characters



Codabar Set Length 2

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

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

[Table 14](#) provides examples for setting Length 2. See [page 213](#) for detailed instructions on setting this feature.

Table 14. 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				

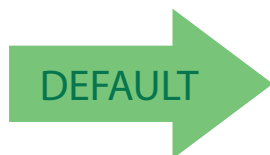


Select Codabar Length 2 Setting

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



CANCEL



50 = Length 2 is 50 Characters

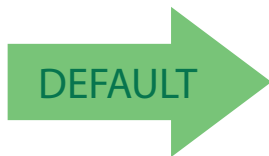


ABC CODABAR

The following options apply to the ABC Codabar symbology.

ABC Codabar Enable/Disable

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



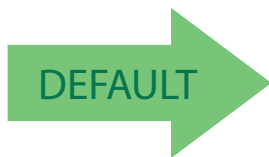
ABC Codabar = Disable



ABC Codabar = Enable

ABC Codabar Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.



ABC Codabar Concatenation Mode = Static



ABC Codabar Concatenation Mode = Dynamic



Enter/Exit Programming Mode

ABC Codabar Dynamic Concatenation Timeout

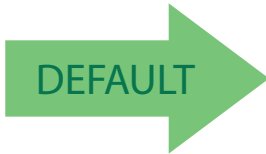
Specifies the timeout in 10-millisecond ticks used by the ABC Codabar Dynamic Concatenation Mode.



ABC Codabar Dynamic Concatenation Timeout =
50 msec



ABC Codabar Dynamic Concatenation Timeout =
100 msec



ABC Codabar Dynamic Concatenation Timeout =
200 msec



ABC Codabar Dynamic Concatenation Timeout =
500 msec



ABC Codabar Dynamic Concatenation Timeout =
750 msec



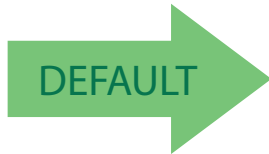
ABC Codabar Dynamic Concatenation Timeout =
1 Second



Enter/Exit Programming Mode

ABC Codabar Force Concatenation

Forces labels starting or ending with D to be concatenated.



ABC Codabar Force Concatenation = Disable



ABC Codabar Force Concatenation = Enable

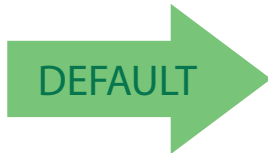


CODE 11

The following options apply to the Code 11 symbology.

Code 11 Enable/Disable

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



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





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

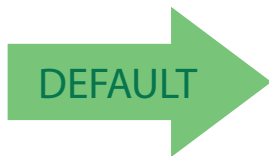


Code 11 Length Control

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

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

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



Code 11 Length Control = Variable Length



Code 11 Length Control = Fixed Length



Enter/Exit Programming Mode

Code 11 Set Length 1

This feature specifies one of the bar code lengths for [Code 11 Length Control](#). Length 1 is the minimum label length if in [Variable Length Mode](#), or the first fixed length if in [Fixed Length Mode](#). Length includes the bar code's check and data characters. The length can be set from 2 to 50 characters.

[Table 15](#) provides some examples for setting Length 1. See [page 213](#) for detailed instructions on setting this feature.

Table 15. 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				

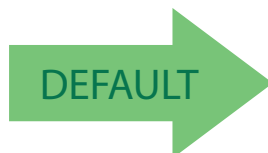


Select Code 11 Set Length 1 Setting

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



CANCEL



04 = Length 1 is 4 Characters



Code 11 Set Length 2

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

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

[Table 16](#) provides examples for setting Length 2. See [page 213](#) for detailed instructions on setting this feature.

Table 16. 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'	'1' and '5'	'5' and '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				

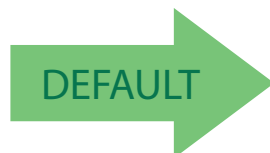


Select Code 11 Length 2 Setting

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



CANCEL



50 = Length 2 is 50 Characters

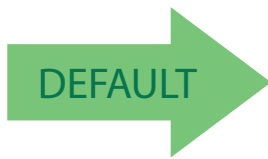


GS1 DATABAR™ OMNIDIRECTIONAL

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

GS1 DataBar™ Omnidirectional Enable/Disable

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



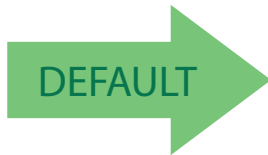
GS1 DataBar™ Omnidirectional = Disable



GS1 DataBar™ Omnidirectional = Enable

GS1 DataBar™ Omnidirectional GS1-128 Emulation

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



GS1 DataBar™ Omnidirectional GS1-128 Emulation = Disable

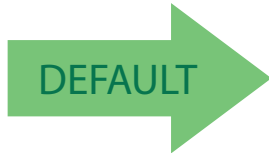


GS1 DataBar™ Omnidirectional GS1-128 Emulation = Enable



GS1 DataBar™ Omnidirectional 2D Component

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



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



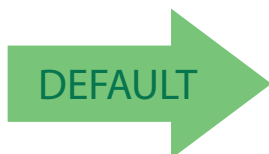
GS1 DataBar™ Omnidirectional 2D Component =
2D component must be decoded

GS1 DATABAR™ EXPANDED

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

GS1 DataBar™ Expanded Enable/Disable

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



GS1 DataBar™ Expanded = Disable

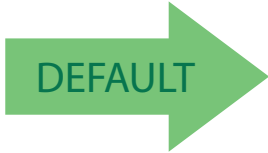


GS1 DataBar™ Expanded = Enable



GS1 DataBar™ Expanded GS1-128 Emulation

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



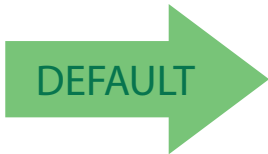
GS1 DataBar™ Expanded GS1-128 Emulation = Disable



GS1 DataBar™ Expanded GS1-128 Emulation = Enable

GS1 DataBar™ Expanded 2D Component

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



GS1 DataBar™ Expanded 2D Component = Disable



GS1 DataBar™ Expanded 2D Component = Enable

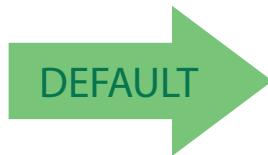


GS1 DataBar™ Expanded Length Control

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

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

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



GS1 DataBar™ Expanded Length Control =
Variable Length



GS1 DataBar™ Expanded Length Control = Fixed Length



Enter/Exit Programming Mode

GS1 DataBar™ Expanded Set Length 1

This feature specifies one of the bar code lengths for [GS1 DataBar™ Expanded Length Control](#). Length 1 is the minimum label length if in [Variable Length Mode](#), or the first fixed length if in [Fixed Length Mode](#). Length includes the bar code's data characters only. The length can be set from 1 to 74 characters.

[Table 17](#) provides some examples for setting Length 1. See [page 213](#) for detailed instructions on setting this feature.

Table 17. 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 bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL



01 = Length 1 is 1 Character



GS1 DataBar™ Expanded Set Length 2

This feature specifies one of the bar code lengths for GS1 DataBar™ Expanded Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the bar code’s data characters only. The length can be set from 1 to 74 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Table 18 provides examples for setting Length 2. See page 213 for detailed instructions on setting this feature.

Table 18. 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				

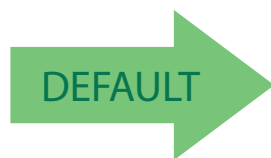


Select GS1 DataBar™ Expanded Set Length 2 Setting

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



CANCEL



74 = Length 2 is 74 Characters

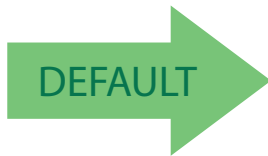


GS1 DATABAR™ LIMITED

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

GS1 DataBar™ Limited Enable/Disable

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



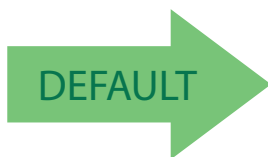
GS1 DataBar™ Limited = Disable



GS1 DataBar™ Limited = Enable

GS1 DataBar™ Limited GS1-128 Emulation

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



GS1 DataBar™ Limited GS1-128 Emulation = Disable

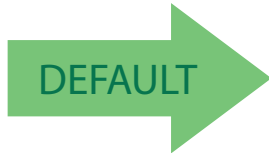


GS1 DataBar™ Limited GS1-128 Emulation = Enable



GS1 DataBar™ Limited 2D Component

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



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



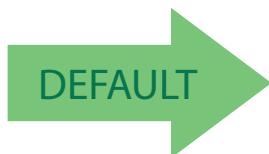
GS1 DataBar™ Limited 2D Component =
2D component must be decoded

CODE 93

The following options apply to the Code 93 symbology.

Code 93 Enable/Disable

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



Code 93 = Disable



Code 93 = Enable



Enter/Exit Programming Mode

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



Code 93 Check Character Transmission

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



Code 93 Check Character Transmission = Disable



Code 93 Check Character Transmission = Enable



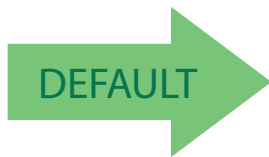


Code 93 Length Control

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

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

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



Code 93 Length Control = Variable Length



Code 93 = Fixed Length



Enter/Exit Programming Mode

Code 93 Set Length 1

Specifies one of the bar code lengths for [Code 93 Length Control](#). Length 1 is the minimum label length if in [Variable Length Mode](#), or the first fixed length if in [Fixed Length Mode](#). Length includes the bar code's data characters only. The length can be set from 01 to 50 characters.

[Table 19](#) provides some examples for setting Length 1. See [page 213](#) for detailed instructions on setting this feature.

Table 19. 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 bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL



01 = Length 1 is 1 Character



Code 93 Set Length 2

This feature specifies one of the bar code lengths for [Code 93 Length Control](#). Length 2 is the maximum label length if in [Variable Length Mode](#), or the second fixed length if in [Fixed Length Mode](#). Length includes the bar code’s check, data, and full-ASCII shift characters. The length does not include start/stop characters. The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

[Table 20](#) provides examples for setting Length 2. See [page 213](#) for detailed instructions on setting this feature.

Table 20. 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				

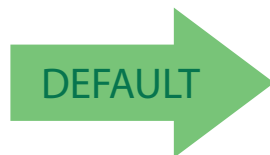


Select Code 93 Length 2 Setting

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



CANCEL



50 = Length 2 is 50 Characters



Enter/Exit Programming Mode

Code 93 Quiet Zones

Enables/disables quiet zones for Code 93.



Code 93 Quiet Zones = Quiet Zones on two sides



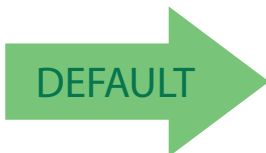
Code 93 Quiet Zones = Small Quiet Zones on two sides

MSI

The following options apply to the MSI symbology.

MSI Enable/Disable

Enables/Disables ability of reader to decode MSI labels.



MSI = Disable



MSI = Enable



Enter/Exit Programming Mode

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



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

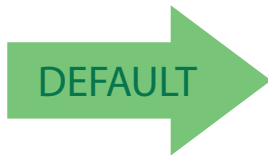


MSI Length Control

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.



MSI Length Control = Variable Length



MSI = Fixed Length



MSI Set Length 1

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

Table 21 provides some examples for setting Length 1. See page 213 for detailed instructions on setting this feature.

Table 21. 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				

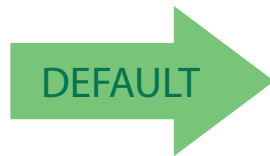


Select MSI Set Length 1 Setting

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



CANCEL



01 = Length 1 is 1 Character



Enter/Exit Programming Mode

MSI Set Length 2

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

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

[Table 22](#) provides examples for setting Length 2. See [page 213](#) for detailed instructions on setting this feature.

Table 22. 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 bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL



50 = Length 2 is 50 Characters

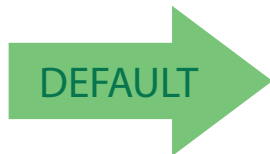


PLESSEY

The following options apply to the Plessey symbology.

Plessey Enable/Disable

Enables/Disables ability of reader to decode Plessey labels.



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



Plessey Check Character Calculation =
Enable Anker check char. verification



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



Enter/Exit Programming Mode

Plessey Check Character Transmission

Enables/disables transmission of an MSI check character.



Plessey Check Character Transmission = Disable



Plessey Check Character Transmission = Enable

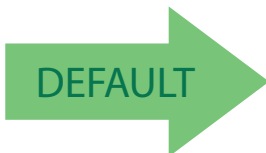


Plessey Length Control

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

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

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



Plessey Length Control = Variable Length



Plessey = Fixed Length



Plessey Set Length 1

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

[Table 23](#) provides some examples for setting Length 1. See [page 213](#) for detailed instructions on setting this feature.

Table 23. 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				

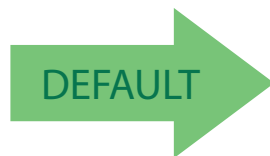


Select Plessey Set Length 1 Setting

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



CANCEL



01 = Length 1 is 1 Character



Enter/Exit Programming Mode

Plessey Set Length 2

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

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

[Table 24](#) provides examples for setting Length 2. See [page 213](#) for detailed instructions on setting this feature.

Table 24. 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				

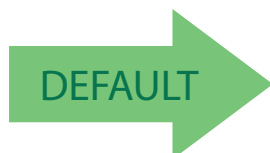


Select Plessey Length 2 Setting

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



CANCEL



50 = Length 2 is 50 Characters

2D SYMBOLOGIES

2D Global Features	
2D MAXIMUM DECODING TIME , page 170	2D NORMAL/INVERSE SYMBOL CONTROL , page 171
2D STRUCTURED APPEND , page 171	

The reader supports the following 2D symbologies (bar code types). Symbology-dependent options for each symbology are included in this chapter. See "The reader supports the following 1D symbologies (bar code types). See "2D Symbologies" starting on page 169 for 2D bar codes. Symbology-dependent options are included in each chapter." starting on page 79 for configuration of 1D bar codes.

AZTEC CODE , page 172	MICRO PDF417 , page 187
CHINA SENSIBLE CODE , page 175	QR CODE , page 190
DATA MATRIX , page 178	MICRO QR CODE , page 192
MAXICODE , page 181	UCC COMPOSITE , page 195
PDF417 , page 184	POSTAL CODE SELECTION , page 197

2D Global Features

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

To set most features:

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



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

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

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



2D Maximum Decoding Time

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



2D Maximum Decoding Time = 100 msec



2D Maximum Decoding Time = 200 msec



2D Maximum Decoding Time = 350 msec



2D Maximum Decoding Time = 500 msec



2D Maximum Decoding Time = 1 Second



2D Maximum Decoding Time = 2 Seconds

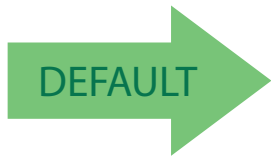


2D Maximum Decoding Time = 2.55 Seconds

2D Structured Append

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

DATA MATRIX	AZTEC
QR CODE	PDF 417



Structured Append = Disable



Structured Append = Enable

2D Normal/Inverse Symbol Control

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

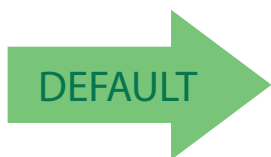
To decode all symbologies, including linear symbologies, refer to "[Decode Negative Image](#)" on [page 75D Symbology Selection](#)



Normal/Inverse Symbol Control = Normal



Normal/Inverse Symbol Control = Inverse



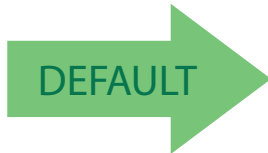
Normal/Inverse Symbol Control = Both Normal and Inverse



AZTEC CODE

Aztec Code Enable / Disable

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



Aztec Code = Disable



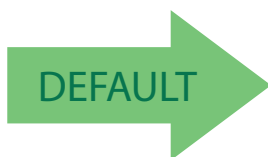
Aztec Code = Enable

Aztec Code Length Control

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

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

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



Aztec Code Length Control = Variable Length



Aztec Code Length Control = Fixed Length



Aztec Code Set Length 1

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

See [page 213](#) for detailed instructions on setting this feature.



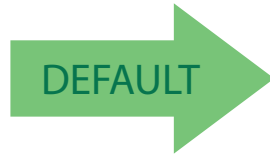
Select Aztec Code Length 1 Setting

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

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



CANCEL



0001 = Length 1 is 1 Character



Aztec Code Set Length 2

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

See [page 213](#) for detailed instructions on setting this feature.



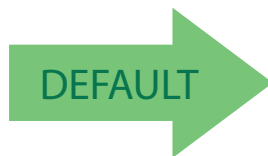
Select Aztec Code Length 2 Setting

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

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



CANCEL

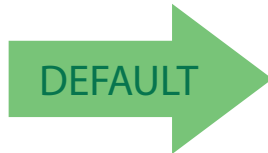


Length 2 is 3,832 Characters

CHINA SENSIBLE CODE

China Sensible Code Enable / Disable

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



China Sensible Code = Disable



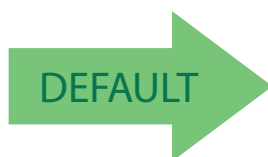
China Sensible Code = Enable

China Sensible Code Length Control

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

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

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



China Sensible Code Length Control = Variable Length



China Sensible Code Length Control = Fixed Length



China Sensible Code Set Length 1

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

See [page 213](#) for detailed instructions on setting this feature.



Select China Sensible Code Length 1 Setting

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

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



CANCEL



0001 = Length 1 is 1 Character



China Sensible Code Set Length 2

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

See [page 213](#) for detailed instructions on setting this feature.



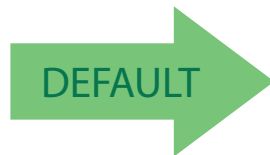
Select China Sensible Code Length 2 Setting

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

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



CANCEL



Length 2 is 7,827 Characters



DATA MATRIX

Data Matrix Enable / Disable

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

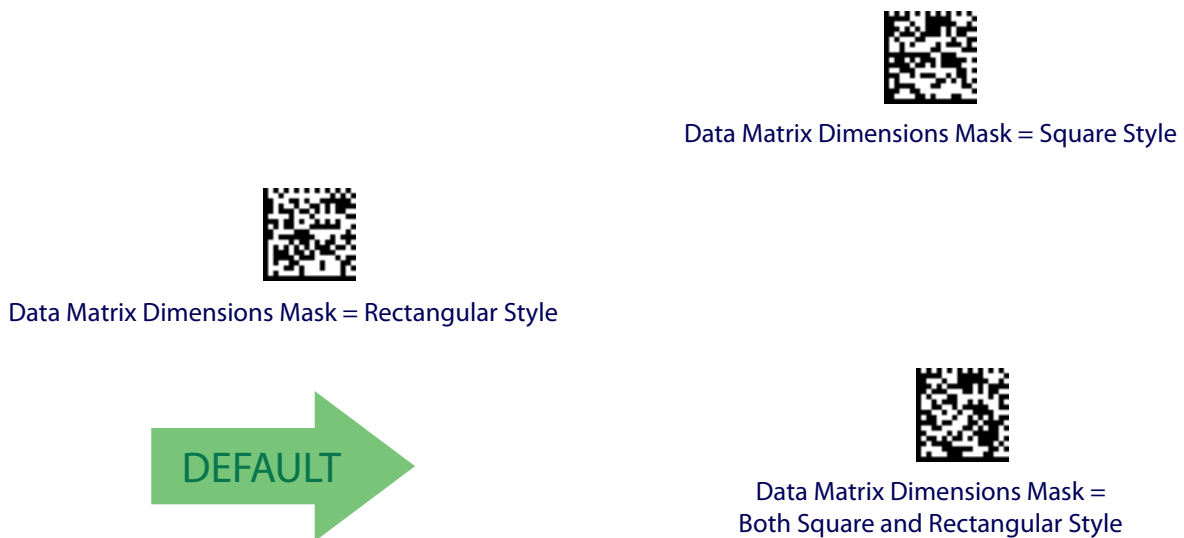


Data Matrix Square/Rectangular Style

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

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

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

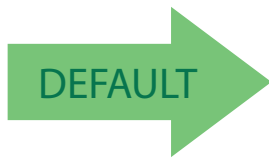


Data Matrix Length Control

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

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

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



Data Matrix Length Control = Variable Length



Data Matrix Length Control = Fixed Length

Data Matrix Set Length 1

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

See [page 213](#) for detailed instructions on setting this feature.



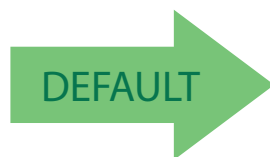
Select Data Matrix Length 1 Setting

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

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



CANCEL



0001 = Length 1 is 1 Character



Data Matrix Set Length 2

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

See [page 213](#) for detailed instructions on setting this feature.



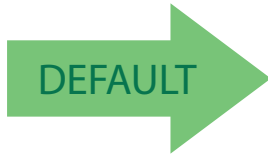
Select Data Matrix Length 2 Setting

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

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



CANCEL

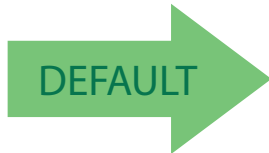


Length 2 is 3,116 Characters

MAXICODE

Maxicode Enable / Disable

Enables/disables ability of reader to decode Maxicode labels.



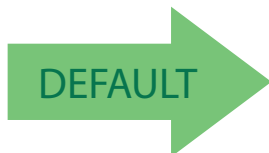
Maxicode = Disable



Maxicode = Enable

Maxicode Primary Message Transmission

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



Maxicode Primary Message Transmission = Disable



Maxicode Primary Message Transmission = Enable

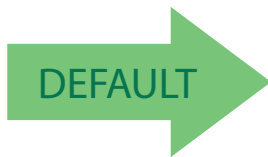


Maxicode Length Control

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

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

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



Maxicode Length Control = Variable Length



Maxicode Length Control = Fixed Length

Maxicode Set Length 1

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

See [page 213](#) for detailed instructions on setting this feature.



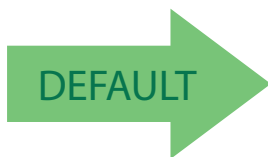
Select Maxicode Length 1 Setting

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

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



CANCEL



0001 = Length 1 is 1 Character



Maxicode Set Length 2

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

See [page 213](#) for detailed instructions on setting this feature.



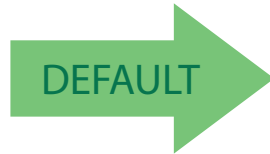
Select Maxicode Length 2 Setting

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

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



CANCEL



Length 2 is 0145 Characters



PDF417

PDF417 Enable / Disable

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



PDF417 Length Control

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

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

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





PDF417 Set Length 1

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

See [page 213](#) for detailed instructions on setting this feature.



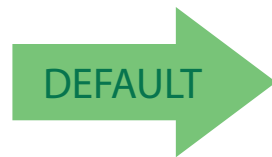
Select PDF417 Length 1 Setting

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

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



CANCEL



0001 = Length 1 is 1 Character



PDF417 Set Length 2

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

See [page 213](#) for detailed instructions on setting this feature.



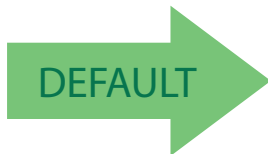
Select PDF417 Length 2 Setting

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

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



CANCEL

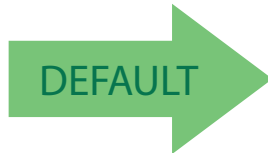


Length 2 is 2,710 Characters

MICRO PDF417

Micro PDF417 Enable / Disable

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



Micro PDF417 = Disable



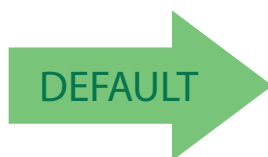
Micro PDF417 = Enable

Micro PDF417 Code 128 GS1-128 Emulation

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

Emulation choices are:

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



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



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

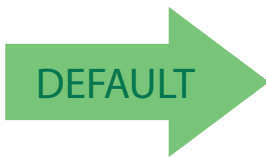


Micro PDF417 Length Control

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

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

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



Micro PDF417 Length Control = Variable Length



Micro PDF417 Length Control = Fixed Length

Micro PDF417 Set Length 1

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

See [page 213](#) for detailed instructions on setting this feature.



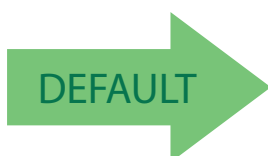
Select Micro PDF417 Length 1 Setting

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

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



CANCEL



0001 = Length 1 is 1 Character



Micro PDF417 Set Length 2

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

See [page 213](#) for detailed instructions on setting this feature.



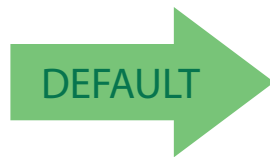
Select Micro PDF417 Length 2 Setting

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

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



CANCEL



Length 2 is 0366 Characters



QR CODE

QR Code Enable / Disable

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

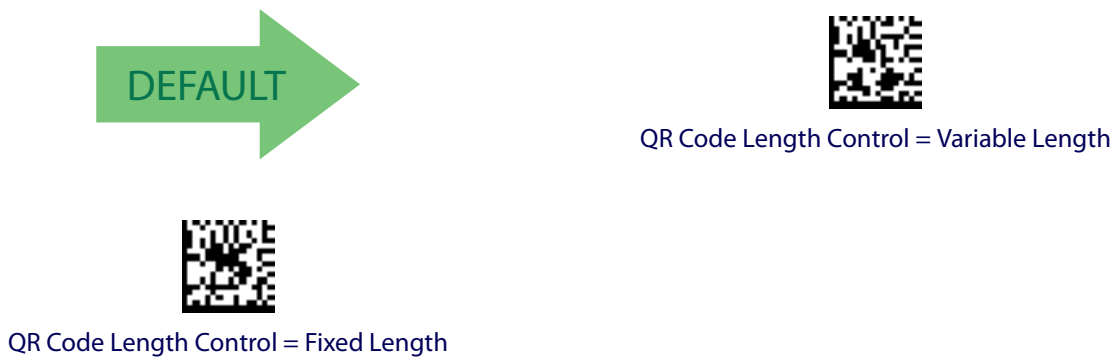


QR Code Length Control

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

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

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





QR Code Set Length 1

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

See [page 213](#) for detailed instructions on setting this feature.



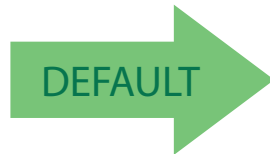
Select QR Code Length 1 Setting

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

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



CANCEL



0001 = Length 1 is 1 Character



QR Code Set Length 2

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

See [page 213](#) for detailed instructions on setting this feature.



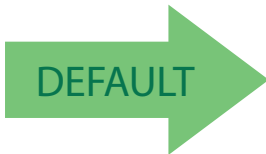
Select QR Code Length 2 Setting

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

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



CANCEL

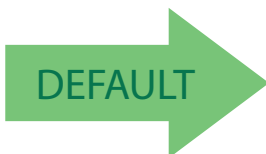


Length 2 is 7,089 Characters

MICRO QR CODE

Micro QR Code Enable/Disable

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



Micro QR Code = Disable



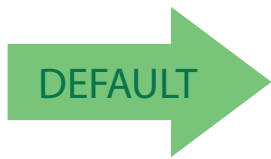
Micro QR Code = Enable

Micro QR Code Length Control

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

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

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



Micro QR Code Length Control = Variable Length



Micro QR Code Length Control = Fixed Length

Micro QR Code Set Length 1

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

See [page 213](#) for detailed instructions on setting this feature.



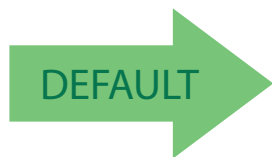
Select Micro QR Code Length 1 Setting

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

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



CANCEL



0001 = Length 1 is 1 Character



Micro QR Code Set Length 2

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

See [page 213](#) for detailed instructions on setting this feature.



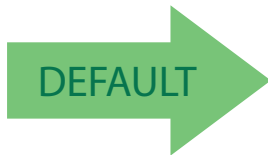
Select QR Code Length 2 Setting

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

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



CANCEL



Length 2 is 0035 Characters

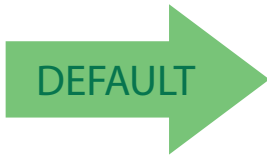
UCC COMPOSITE

UCC Composite Enable / Disable

Enables/disables the ability of the reader to decode the stacked part of a UCC Composite label.



This feature is not effective when Global AIM IDs are enabled (see "Global AIM ID" on page 49).



UCC Composite = Disable

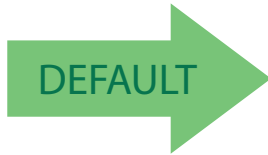


UCC Composite = Enable



UCC Optional Composite Timer

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



UCC Optional Composite Timer = Timer Disabled



UCC Optional Composite Timer = 100msec



UCC Optional Composite Timer = 200msec



UCC Optional Composite Timer = 300msec



UCC Optional Composite Timer = 400msec

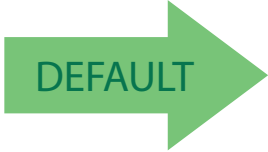


UCC Optional Composite Timer = 500msec

POSTAL CODE SELECTION

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

DISABLE ALL POSTAL CODES	AUSTRALIA POST
POSTNET	JAPAN POST
PLANET	IMB
ROYAL MAIL	SWEDEN POST
KIX	PORTUGAL POST



Postal Code Selection = Disable All Postal Codes



Postal Code Selection = Enable Postnet



Postal Code Selection = Enable Planet



Postal Code Selection = Enable Royal Mail



Postal Code Selection = Enable Kix



Postal Code Selection = Enable Australia Post

Postal Code Selection (continued)



Postal Code Selection = Enable Japan Post



Postal Code Selection = Enable IMB



Postal Code Selection = Enable Sweden Post



Postal Code Selection = Enable Portugal Post

Postnet BB Control

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



Postnet BB Control = Disable



Postnet BB Control = Enable

MOTION FEATURES

MOTION AIMING CONTROL on page 199

MOTION SENSITIVITY on page 200

MOTIONLESS TIMEOUT on page 200

Use this chapter to configure motion settings for the handheld.
Reference [Appendix C](#), for a listing of standard factory settings.

Motion Aiming Control

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



Motion Aiming Control = Disable



Motion Aiming Control = Enable

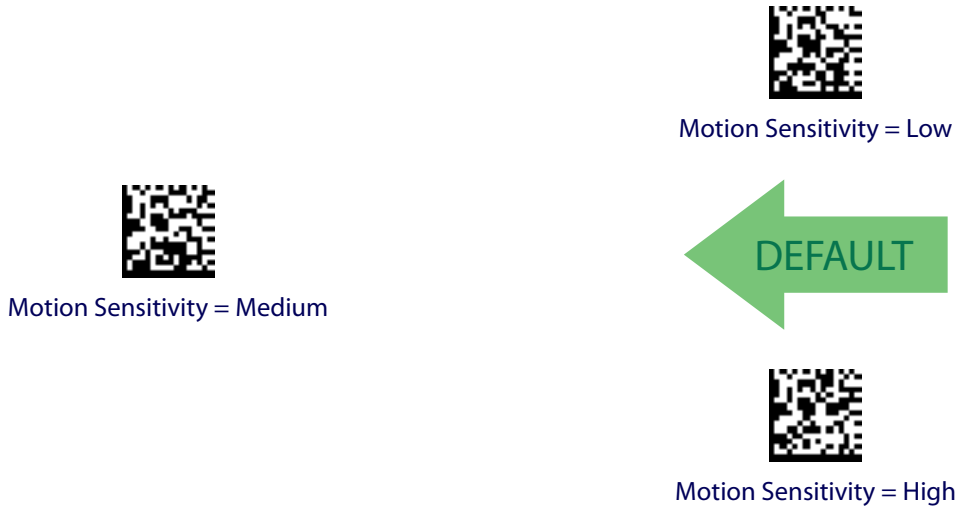




Enter/Exit Programming Mode

Motion Sensitivity

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



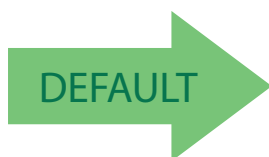
Motionless Timeout

Specifies the waiting time in 100 millisecond ticks to assume that the reader is in a motionless condition. The selectable range is 500 msec to 25.5 Seconds. When no motion event is detected for a period of time longer than this timeout, the software assumes the reader is in a motionless condition. This option relates to such features as Aimer On and Stand Mode Object Sense scanning with respect to motion. See "[Motionless Timeout](#)" on page 233 in References.



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

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



020 = Motionless Timeout = 2 seconds

Chapter 4

References

This section contains explanations and examples of selected bar code features. See [Configuration Using Bar Codes](#), starting on page 19 for the actual bar code labels used to configure the reader.

RS-232 PARAMETERS on page 202 <ul style="list-style-type: none">• RS-232 Only on page 202• RS-232/USB COM Parameters on page 203
KEYBOARD INTERFACE on page 210 <ul style="list-style-type: none">• Wedge Quiet Interval on page 210• Intercharacter Delay on page 211• Intercode Delay on page 212
SYMBOLOGIES on page 213 <ul style="list-style-type: none">• Set Length on page 213
DATA EDITING on page 214 <ul style="list-style-type: none">• Global Prefix/Suffix on page 215• Global AIM ID on page 216• Label ID on page 217• Character Conversion on page 222
READING PARAMETERS on page 223 <ul style="list-style-type: none">• Label Gone Timeout on page 223• Good Read LED Duration on page 224
SCANNING FEATURES on page 225 <ul style="list-style-type: none">• Scan Mode on page 225• Stand Mode Off Time on page 226• Scanning Active Time on page 227• Aiming Duration Time on page 228• Flash On Time on page 229• Flash Off Time on page 230• Multiple Labels Ordering by Code Symbology on page 231
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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 bar code to enter Programming Mode.
4. Go to [page 29](#) and scan the bar code: SELECT INTERCHARACTER DELAY SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

This completes the procedure. See [Table 25](#) for some examples of how to set this feature.

Table 25. 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 31](#) and scan ENTER/EXIT PROGRAMMING MODE to enter Programming Mode.
4. Scan the bar code: SELECT ACK CHARACTER SETTING.
5. Scan the appropriate two alphanumeric characters from the keypad in [Appendix D, Keypad](#), that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit.

See [Table 26](#) for some examples of how to set this feature.

Table 26. 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 31](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT NAK CHARACTER SETTING.
5. Scan the appropriate two alphanumeric 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 bar code to exit Programming Mode.

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

Table 27. 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 NAK CHARACTER SETTING				
5	Scan Two Characters From Appendix D, Keypad	'1' and '5'	'2' and '4'	'4' and '0'	'3' AND 'E'
6	Scan ENTER/EXIT PROGRAMMING MODE				

ACK NAK Timeout Value

This option specifies the amount of time the 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 32](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT ACK NAK TIMEOUT VALUE SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

Table 28. 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 32](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT ACK NAK RETRY COUNT SETTING.
5. Scan the appropriate three digits from the keypad in [Appendix D, Keypad](#), that represent the number which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

Table 29. 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 34](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT DISABLE CHARACTER SETTING.
5. Scan the appropriate two alphanumeric characters from the keypad in [Appendix D, Keypad](#), that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

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

Table 30. Disable Character Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired character/value	'd'	'j'	'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 34](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT ENABLE CHARACTER SETTING.
5. Scan the appropriate two alphanumeric characters from the keypad in [Appendix D, Keypad](#), that represent the desired character/value in step 2 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

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

Table 31. Enable Character Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired character/value	'e'	'j'	'E'	Enable Command Not Used
2	Hex equivalent from ASCII Chart	0x65	0x7D	0x45	0xFF
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT ENABLE CHARACTER 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 bar code to enter Prog. Mode.
4. Scan the bar code: SELECT WEDGE QUIET INTERVAL SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

Table 32. 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 29](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT INTERCHARACTER DELAY SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

Table 33. 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 40](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT INTERCODE DELAY SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

Table 34. 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

Set Length

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

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

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

Set Length 1

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

The 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 bar code to enter Programming Mode.
3. Scan the bar code 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 bar code to abort and not save the entry string. You can then start again at the beginning.

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

Set Length 2

This feature allows you to set one of the bar code 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 bar code to enter Programming Mode.
3. Scan the bar code to SELECT LENGTH 2 SETTING for your selected symbology.

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

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

This completes the procedure.

Data Editing



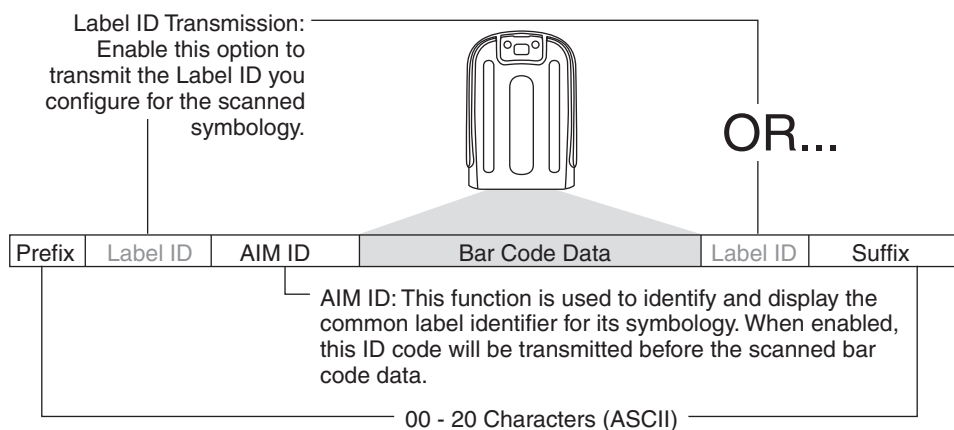
It is not recommended to use these features with IBM interfaces.

CAUTION

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

There are several types of selectable data characters that can be sent before and after scanned data. You can specify if they should be sent with all symbologies, or only with specific symbologies. [Figure 1](#) shows the available elements you can add to a message string:

Figure 1. Breakdown of a Message String



Additional advanced editing is available. See the Advanced formatting features in the Datalogic Aladdin configuration software, or contact Technical Support (as described on [page 10](#)) for more information.

Please Keep In Mind...

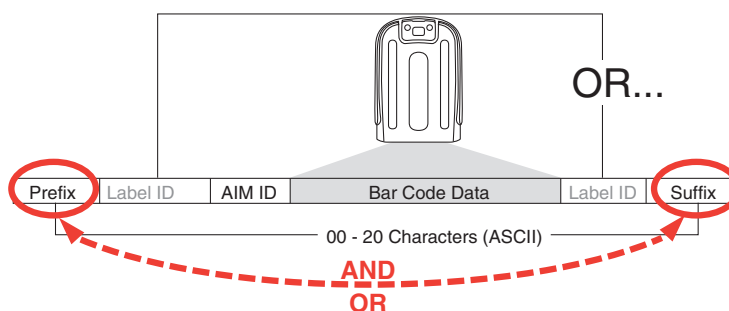
- Modifying a message string is not a mandatory requirement. Data editing is a sophisticated feature allowing highly customizable output for advanced users. Factory default settings for data editing is typically set to NONE.

- A prefix or suffix may be applied only to a specified symbology (reference [1D Symbologies, starting on page 79](#) or [2D Symbologies, starting on page 169](#)) 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 bar code data) and/or as a suffix (in a position following the bar code data) as indicated in [Figure 2](#).

Figure 2. Prefix and Suffix Positions



Example: Setting a Prefix

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

1. Determine which ASCII character(s) are to be added to scanned bar code data. In this example, we'll add a dollar sign ('\$') as a prefix.
2. Go to [page 48](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code, then scan the SET GLOBAL PREFIX bar code.
3. Reference the [ASCII Chart](#) on the inside back cover of this manual to find the hex value assigned to the desired character. The corresponding hex number for the '\$' character is 24. To enter this selection code, scan the '2' and '4' bar codes from [Appendix D, Keypad](#).



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

4. If less than the expected string of 20 characters are selected, scan the ENTER/EXIT bar code to terminate the string.
5. Scan the ENTER/EXIT bar code once again to exit Programming Mode.
6. The resulting message string would appear as follows:
Scanned bar code data: **12345**
Resulting message string output: **\$12345**

Global AIM ID



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

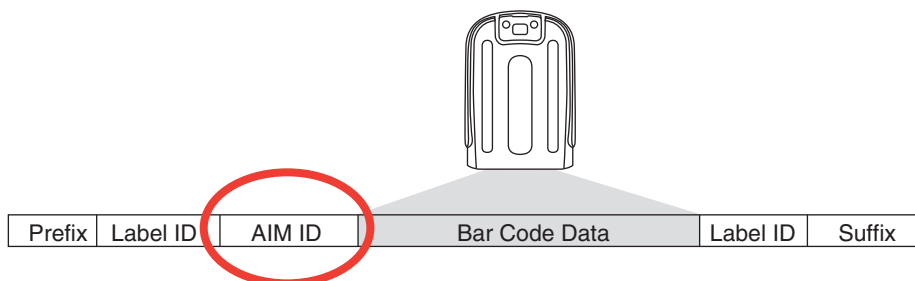
AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned bar code data. AIM label identifiers consist of three characters as follows:

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

SYMBOLGY	CHAR	SYMBOLGY	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

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

Figure 3. AIM ID



Label ID

A Label ID is a customizable code of up to three ASCII characters (each can be one of hex 0x01-0xFF), used to identify a bar code (symbology) type. It can be appended previous to or following the transmitted bar code data depending upon how this option is enabled. This feature provides options for configuring custom Label IDs as a pre-loaded set (see "Label ID: Pre-loaded Sets" below) or individually per symbology (see "Label ID: Set Individually Per Symbology" on page 220). 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 49.

Label ID: Pre-loaded Sets

The reader supports two pre-loaded sets of Label IDs. Table 35 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 35. Label ID Pre-loaded Sets

Symbology	USA Label ID set		EU Label ID set	
	Default Character	Default ASCII	Default Character	Default ASCII
ABC CODABAR	S	530000	S	530000
ANKER PLESSEY	o	6F0000	o	6F0000
AZTEC	Az	417A00	!	210000
CHINA SENSIBLE CODE	\$S	245300	\$S	245300
CODABAR	%	250000	R	520000
CODE11	CE	434500	b	620000
CODE128	#	230000	T	540000
CODE32	A	410000	X	580000
CODE39	*	2A0000	V	560000
CODE39 CIP	Y	590000	Y	590000
CODE39 DANISH PPT	\$Y	245900	\$Y	245900
CODE39 LAPOSTE	\$a	246100	\$a	246100
CODE39 PZN	\$Z	245A00	\$Z	245A00
CODE93	&	260000	U	550000
DATABAR 14	R4	523400	u	750000
DATABAR 14 COMPOSITE	R4	523400	c	523400
DATABAR EXPANDED	RX	525800	t	740000

Symbology	USA Label ID set		EU Label ID set	
	Default Character	Default ASCII	Default Character	Default ASCII
DATABAR EXPANDED COMPOSITE	RX	525800	d	525800
DATABAR LIMITED	RL	524C00	v	760000
DATABAR LIMITED COMPOSITE	RL	524C00	i	524C00
DATA MATRIX	Dm	446D00	w	770000
EAN128		000000	k	6B0000
EAN128 COMPOSITE		000000	\$E	244500
EAN13	F	460000	B	420000
EAN13 P2	F	460000	L	4C0000
EAN13 P5	F	460000	M	4D0000
EAN13 COMPOSITE	F	460000	\$F	244600
EAN8	FF	464600	A	410000
EAN8 P2	FF	464600	J	4A0000
EAN8 P5	FF	464600	K	4B0000
EAN8 COMPOSITE	FF	464600	\$G	244700
FOLLET 2OF5	O	4F0000	O	4F0000
GTIN	G	470000	\$A	244100
GTIN2	G2	473200	\$B	244200
GTIN5	G5	473500	\$C	244300
I2OF5	i	690000	N	4E0000
IATA INDUSTRIAL 2OF5	IA	494100	&	260000
INDUSTRIAL 2OF5	W	570000	W	570000
ISBN	I	490000	@	400000
ISBT128 CONCAT	f	660000	f	660000
ISSN	n	6E0000	n	6E0000
MAXICODE	MC	4D4300	x	780000
MICRO QR	\$Q	245100	\$Q	245100
MICRO PDF	mP	6D5000	8	380000
MSI	@	400000	Z	5A0000
PDF417	P	500000	r	720000
PLESSEY	a	610000	a	610000
POSTAL AUSTRALIAN	\$K	244B00	\$K	244B00
POSTAL IMB	\$V	245600	\$V	245600

Symbology	USA Label ID set		EU Label ID set	
	Default Character	Default ASCII	Default Character	Default ASCII
POSTAL JAPANESE	\$R	245200	\$R	245200
POSTAL KIX	\$U	245500	\$U	245500
POSTAL PLANET	\$W	245700	\$W	245700
POSTAL PORTUGAL	\$P	245000	\$P	245000
POSTAL POSTNET BB	\$L	244C00	\$L	244C00
POSTAL ROYAL MAIL	\$M	244D00	\$M	244D00
POSTAL SWEDISH	\$X	245800	\$X	245800
POSTNET	1	310000	1	310000
QR CODE	QR	515200	y	790000
S25	s	730000	P	500000
TRIOPTIC	\$T	245400	\$T	245400
UPCA	A	410000	C	430000
UPCA P2	A	410000	F	460000
UPCA P5	A	410000	G	470000
UPCA COMPOSITE	A	410000	\$H	244800
UPCE	E	450000	D	440000
UPCE P2	E	450000	H	480000
UPCE P5	E	450000	I	490000
UPCE COMPOSITE	E	450000	\$J	244A00

Label ID: Set Individually Per Symbology

To configure a Label ID individually for a single symbology:

1. Go to [page 53](#) and scan the ENTER/EXIT bar code.
2. Select Label ID position as either BEFORE (Enable as Prefix) or AFTER (Enable as suffix) by scanning the appropriate bar code in the section "Label ID Control" on [page 53](#). Reference [Figure 4](#) for Label ID positioning options if multiple identification features are enabled.
3. Scan a bar code to select the symbology for which you wish to configure a custom Label ID from the section "Label ID Symbology Selection – 1D Symbologies" on [page 54](#).
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 259](#) and scan the bar codes representing the hex characters determined. For the example given, the characters '3' and 'D' would be scanned. More examples of Label ID settings are provided in [Table 36](#).



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

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

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

Figure 4. Label ID Position Options

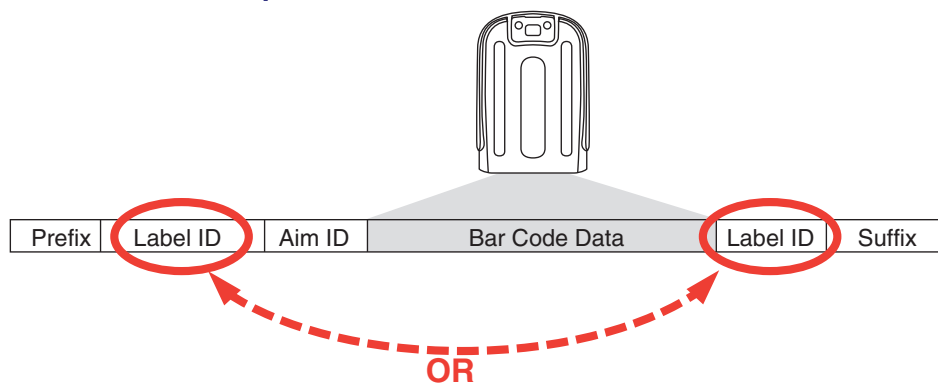


Table 36. Label ID Examples

STEP	ACTION	EXAMPLES			
1.	Scan the ENTER/EXIT bar code	(Scanner enters Programming Mode)			
2.	Determine placement of the Label ID characters BEFORE or AFTER with regard to scanned data using Label ID Control, starting on page 53	Enable as Prefix	Enable as Suffix	Enable as Prefix	Enable as Suffix
3.	Scan the bar code selecting the symbology type you wish to designate label ID characters for using Label ID Symbology Selection – 1D Symbologies, starting on page 54.	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 bar codes in the section: Keypad, starting on page 259. If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	44 42 2A	3D 43 33	2B	50 48
6.	Scan the ENTER/EXIT bar code	(Scanner exits Label ID entry)			
7.	Scan the ENTER/EXIT bar code once again	(Scanner exits Programming Mode)			
	Result:	DB*[bar code data]	[bar code data]=C3	+[bar code data]	[bar code data]PH

Character Conversion

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

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

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

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

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

To set Character Conversion:

1. Go to [page 58](#) and scan the ENTER/EXIT bar code.
2. Scan the “Configure Character Conversion” bar code.
3. Determine the desired string. Sixteen positions must be determined as in the above example. Next, turn to the [ASCII Chart](#) on the inside back cover of this manual and find the equivalent hex digits needed to fulfill the string.
4. Turn to [Appendix D, Keypad](#) and scan the bar codes representing the hex characters determined in the previous step.
5. Scan the ENTER/EXIT bar code to exit Programming Mode.



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

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 62](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT LABEL GONE TIMEOUT SETTING.
5. Scan the appropriate three alphanumeric 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 bar code to abort and not save the entry string. You can then start again at the beginning.

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

This completes the procedure. See [Table 37](#) for some examples of how to set this feature.

Table 37. Label Gone 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 66](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT GOOD READ LED DURATION SETTING.
5. Scan the appropriate three digits from the keypad in [Appendix D, Keypad](#) representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

This completes the procedure. See [Table 38](#) for some examples of how to set this feature.

Table 38. 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 GOOD READ LED DURATION SETTING				
5	Scan Three Characters From Appendix D, Keypad	'0,'0' and '0'	'0,'0' and '2'	'0,'1' and '5'	'2,'5' and '5'
6	Scan ENTER/EXIT PROGRAMMING MODE				

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 on and off regardless of the trigger status. Flash rate is controlled by [Flash On Time](#) and [Flash Off Time](#). When Flash is ON the imager reads continuously; when Flash is OFF scanning is deactivated.

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

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

Stand Mode Off Time

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

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the result with leading zeroes to yield two digits. For example: 2 = 02, 5 = 05, 20 = 20, etc.
3. Go to [page 70](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: Set Stand Mode Illuminator Off Time.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#), that represent the setting which was determined in the steps above. You will hear a two-beep indication after the last character.
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See [Table 39](#) for some examples of how to set this feature.

Table 39. Stand Mode Off Time

STEP	ACTION	EXAMPLES			
1	Desired Setting	500 ms	1 Second	5.5 Seconds	16 Seconds
2	Pad leading zero	01	02	11	32
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT STAND MODE OFF TIME				
5	Scan Two Characters From Appendix D, Keypad	'0' and '1'	'0' and '2'	'1' and '1'	'3' and '2'
6	Scan ENTER/EXIT PROGRAMMING MODE				

Scanning Active Time

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

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



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

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

This completes the procedure. See [Table 40](#) for some examples of how to set this feature.

Table 40. Scanning Active Time Setting Examples

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

Aiming Duration Time

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

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Go to [page 73](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT AIMING DURATION TIME SETTING.
5. Scan the appropriate three digits from the keypad in [Appendix D, Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

This completes the procedure. See [Table 41](#) for some examples of how to set this feature.

Table 41. Aiming Duration Time Setting Examples

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

Flash On Time

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

Follow these instructions to set this feature.

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 100 (setting is in 100ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Go to [page 71](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT FLASH ON TIME SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#) representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

This completes the procedure. See [Table 42](#) for examples of how to set this feature.

Table 42. Flash On Time Setting Examples

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

Flash Off Time

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

Follow these instructions to set this feature.

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 100 (setting is in 100ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Go to [page 72](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT FLASH OFF TIME SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

This completes the procedure. See [Table 43](#) for some examples of how to set this feature.

Table 43. 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				

Multiple Labels Ordering by Code Symbology

This feature Specifies the transmission ordering by symbology type, when Multiple Labels per Frame is enabled. Up to six symbologies can be selected. Zeroes must be added to pad the string to 12 characters if not using all six symbologies.

The labels are ordered first as specified in the output mask. Labels present in the volume but not specified will be transmitted as unspecified symbologies in random order as allowed by the reading time sequence. For each label decoded in the volume the reader signals the standard beeper and LED indications.

To specify the symbology order:

1. Determine the symbologies and order you want to specify.
2. Use [Table 45 on page 232](#) to find the hex values for up to six symbologies.
3. Go to [page 77](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: “SELECT SYMBOLOGIES FOR MULTIPLE LABELS ORDERING”.
5. Scan the appropriate two alphanumeric characters from the keypad in [Appendix D, Keypad](#), that represent the desired character/value in step 2 above.
6. Scan zeroes if needed to make a 12-character string.
7. When finished, scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

This completes the procedure. See [Table 44](#) for some examples of how to set this feature.

Table 44. Multiple Labels Ordering by Code Symbology Examples

STEP	ACTION	EXAMPLES			
1	Desired symbology	Code 39	Data Matrix	Code 128	Aztec
2	Hex equivalent from Table 45	24	0E	0C	4E
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT SYMBOLOGIES FOR MULTIPLE LABELS ORDERING				
5	Scan Two Characters From Appendix D, Keypad	'2' and '4'	'0' and 'E'	'0' and 'C'	'4' and 'E'
	RESULT	0x240E0C4E0000			
6	Scan ENTER/EXIT PROGRAMMING MODE				

[Table 45 on page 232](#) shows the hex value associated with each symbology.

Table 45. Symbology Hex Values

Hex Value	Symbology ID	Hex Value	Symbology ID
00	Don't care	2C	GTIN5
01	UPC-A	2D	GTIN8
02	UPC-E	2E	S2OF5
03	EAN8	2F	PDF417
04	EAN13	30	CODE11
05	UPC2	31	IATA
06	UPC5	32	MICRO_PDF
07	C128_ADDON	33	GS1 DataBar_LIM_ID
0A	EAN128	34	GS1 DataBar_LIM_COMP
0B	C128_PROGRAMMING_LABEL	35	GS1 DataBar_Omnidirectional_COMP
0C	CODE128	36	GS1 DataBar_EXP_COMP
0D	FNC3_C128_LABEL	37	GENERIC_DATA
0E	DATA MATRIX	38	CC_A
0F	MAXICODE	39	CC_B
10	QRCODE	3A	CC_C
11	Reserved	3B	LABELIMAGE
12	Reserved	3C	CAPTURE_IMAGE_LABEL
13	CODE49	3D	Reserved
14	UPC-E2	3E	M2OF5
15	UPC-E5	3F	D2OF5
16	Reserved	40	PLESSEY65
17	UPC-A2	42	ISSN
18	UPC-A5	43	ISBT
19	Reserved	44	Reserved
1A	EAN82	45	TIMER_EXPIRED_EVENT
1B	EAN85	46	FOLLETT_2OF5
1C	Reserved	47	Reserved
1D	EAN132	48	Reserved
1E	EAN135	49	CODE39_CIP
1F	EAN138	4A	ABC_CODABAR
20	ISBN_ID	4B	I2OF5_CIP
21	TWO_LABEL_PAIR	4C	C2OF5
22	I2OF5	4D	IND2OF5
23	CODABAR	4E	AZTEC
24	CODE39	4F	UPC-E_COMP
25	PHARMAC39	50	UPC-A_COMP
26	MSI_PLESSEY	51	EAN8_COMP
27	CODE93	52	EAN13_COMP
28	RSS_EXP_ID	53	EAN128_COMP
29	RSS_14_ID	54	DATA MATRIX_PROGRAMMING_LABEL
2A	GTIN	55	LABEL_ID_MAX
2B	GTIN2	FF	INVALID_LABEL_TYPE

Motion Features

Motionless Timeout

This setting specifies the amount of time that the reader takes to assume that it is in a motionless condition. The range for this setting is from 500 msec to 25.5 seconds, in 100 millisecond 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: 0.5 = 0005 = 00, 5 = 050, 20 = 200, etc.
3. Go to [page 200](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT MOTIONLESS TIMEOUT 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 bar code to abort and not save the entry string. You can then start again at the beginning.

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

This completes the procedure. See [Table 46](#) for examples of how to set this feature.

Table 46. Motionless Timeout Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	500ms	1 sec.	10 sec	9,900ms (9.9 sec.)
2	Divide by 100 (and pad with leading zeroes to yield two digits)	005	010	100	250
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT MOTIONLESS TIMEOUT SETTING				
5	Scan Two Characters From Appendix D, Keypad	'0', '0' and '5'	'0', '1' and '0'	'1', '0', and '0'	'2', '5', and '0'
6	Scan ENTER/EXIT PROGRAMMING MODE				

NOTES

Appendix A

Technical Specifications

The tables that follow contain Physical and Performance Characteristics, User Environment and Regulatory information. Table 48 provides Standard Cable Pinouts.

Table 47. Technical Specifications

Item	Description		
Physical Characteristics			
Dimensions	Height: 212 mm Length: 110 mm Width: 74 mm		
Weight (without cable)	330 gr (without cable)		
Electrical Characteristics			
Voltage & Current	PD9530/ PD9530-HP	PD9530-HPE	PD9530-DPM
Input Voltage	5 VDC +/- 5%	10 to 30 VDC	5 VDC +/- 5%
Input Current			
Operating (typical):	335mA	135mA @ 10V	350mA
Operating (max):	475mA	300mA @ 10V	480mA
Idle/Standby (typical)	180mA	60mA @ 10V	120mA

Performance Characteristics	
Light Source	LED
Roll (Tilt) Tolerance	± 180°
Pitch Tolerance	± 40°
Skew (Yaw) Tolerance	± 40°

Print Contrast Minimum	15% minimum reflectance	
	PD9530	PD9530-HP / PD9530-HPE
Resolution	Max resolution 1D 4 mils Max resolution 2D 7.5 mils	1D 2.5 mil 2D 4 mil

Depth of Field (Typical)^a		
Symbology	Standard Model	High Performance
Code 39	4 mils: 6-17 cm 20 mils: 4-55 cm 40 mils: 4-85 cm	2.5 mils: 2-6 cm 20 mils: 3-70 cm 40 mils: 3-110 cm
EAN 13	13 mils: 4-48 cm 13	13 mils: 3-60 cm
PDF-417	10 mils: 2-25 cm	10 mils: 2-30 cm
DataMatrix	7.5 mils: 7-14 cm 10 mils: 4-18 cm	4mil: 2-6 cm 10mil: 2-20 cm
Minimum Element Width	Standard Range: 1D Minimum Resolution = 4 mil PDF-417 Minimum Resolution = 5 mil Data Matrix Minimum Resolution = 7 mil	High Density: 1D Minimum Resolution = 2.5 mil PDF-417 Minimum Resolution = 4 mil Data Matrix Minimum Resolution = 5 mil
Print Contrast Minimum	5% minimum reflectance	

^a13 mils DOF based on EAN. All other 1D codes are Code 39. All labels grade A, 300 lux ambient light, 20°C, label inclination 10°

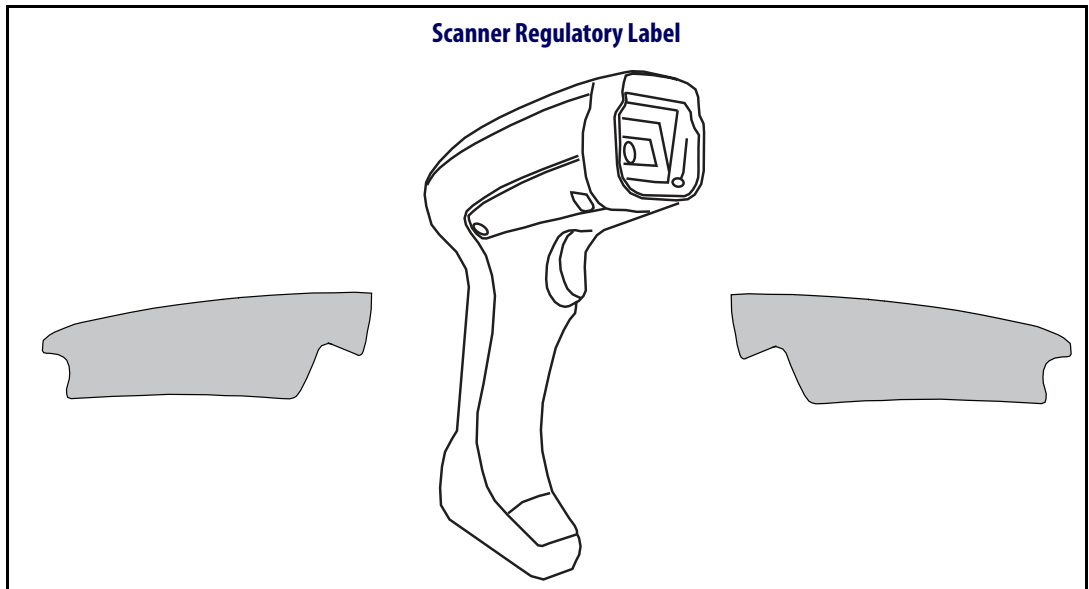
Decode Capability	
Item	Description
1D Bar Codes	GS1 Databar linear codes, UPC/EAN (A,E,13,8), UPC/EAN with P2/P5 Addons, UPC/EAN Coupons, ISBN, Code128, EAN128, ISBT128, Code39, Code39 Full ASCII, Code39 CIP, Code 32, Codabar, Interleaved 2 of 5, IATA, Industrial 2 of 5, Standard 2 of 5, Code11, MSI, Plessey, Code 93, Follet 2/5
2D / Stacked Codes	DataMatrix, MaxiCode and QR Codes(QR, Micro QR and Multiple QR codes), Aztec - Postal codes including Australian Post, China Post, Japanese Post, KIX Post, Korea Post, Planet Code, Postnet, Royal Mail Code (RM45CC), IMB - stacked codes including EAN/JAN Composites; GS1 Databar Composites, GS1 Databar Expanded Stacked; GS1 DataBar Stacked; GS1 DataBar Stacked Omnidirectional; MacroPDF; Micro PDF417; PDF417; UPC A/E Composites, French CIP13, Grid Matrix (Chinese) code
High Performance Model: Same as above plus decoding of OCR A-B	
Interfaces Supported^a	RS-232, Keyboard Wedge (IBM AT-PS/2), USB (USB-KBD, USB-COM).

a. See "Interface Selection" on page 14 for a listing of available interface sets by model type.

Item	Description
User Environment	
Operating Temperature	-4° to 122° F (-20° - +50° C)
Storage Temperature	-40° to 158° F (-40° to 70° C)
Humidity	0 to 95% non-condensing
Drop Specifications	Scanner withstands >50 times 6.5' (2 m) drops to concrete
Ambient Light Immunity	100,000 Lux
Contaminants Spray/ Rain/Dust/Particulates	IP65
ESD Level	20 KV
Beeper/Speaker	>= 80 dB @ 10 cm
Regulatory	
Electrical Safety	UL 60950, CSA C22.2 No. 60950, IEC 60950
EMI/RFI	North America (FCC) : Part 15 Class B; Canada (IC) : ICES-003 Class B; Russia (Gost); European Union EMC Directive; VCCI-Japan; Korean KCC; Taiwan EMC (BSMI); Australia (ACMA); Mexico (NOM Nyce)
Laser Safety	IEC Class 2 Radiation 1 mW Avg., Emitted wavelength 650 nm, 12ms pulse, Beam Divergence 8.4 deg x 8.1 deg ("plus" pattern)

Imager Labeling

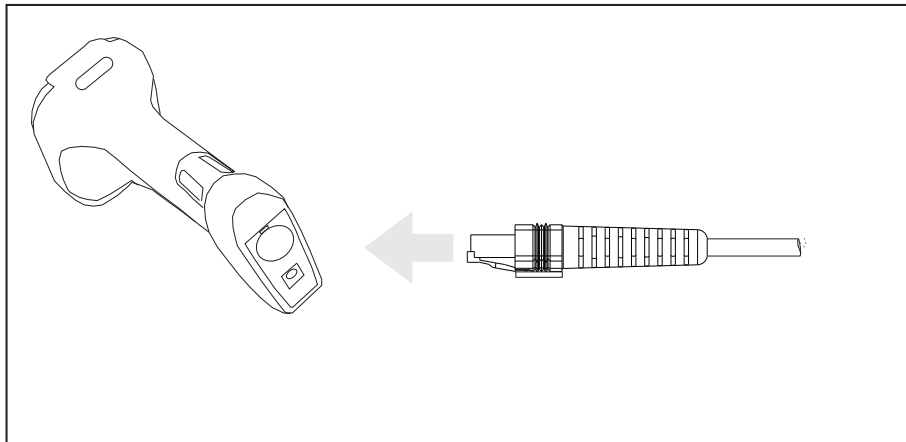
Sample labels are shown for illustrative purposes only. Please view the labels on your product for actual details, as they may vary from those depicted.



Standard Cable Pinouts

The data below provides standard pinout information for the interface cable.

Figure 5. Standard Cable Pinouts: Handheld



The signal descriptions in [Table 48](#) apply to the connector on the reader and are for reference only.

Table 48. Standard Cable Pinouts

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

LED and Beeper Indications

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

Table 49. LED and Beeper Indications

INDICATION	DESCRIPTION	LED	BEEPER
Power-up Beep	The reader is in the process of powering-up.		Reader beeps four times at highest frequency and volume upon power-up.
Good Read Beep	A label has been successfully scanned by the reader.	LED behavior for this indication is configurable via the feature "Good Read: When to Indicate"	The reader will beep once at current frequency, volume, mono/bi-tonal setting and duration upon a successful label scan.
ROM Failure	There is an error in the reader's software/programming	Flashes	Reader sounds one error beep at highest volume.
Limited Scanning Label Read	Indicates that a host connection is not established when the 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 ^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
Image Capture	When ready to capture image	Blue light flashes 2 times when updating	N/A

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

Table 50. Programming Mode Indications

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

INDICATION	DESCRIPTION	LED	BEEPER
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	
6	Digital PCB	
11	Imager	

Appendix B

Sample Bar Codes

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

1D Bar Codes



978033029095



A B C D E F



Code 128



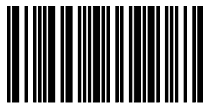
113458

Sample Bar Codes (continued)

Code 32



Codabar



Code 93



Code 11



GS1 DataBar™ (RSS)



GS1 DataBar™ variants must be enabled to read the bar codes below (see [GS1 DataBar™ Omnidirectional](#) on page 148).

GS1 DataBar™ Expanded Stacked



10293847560192837465019283746029478450366523

GS1 DataBar™ Expanded



1234890hjio9900mnb

GS1 DataBar™ Limited



08672345650916

GS1 DataBar™-14

GS1 DataBar™ Omnidirectional Truncated



55432198673467

GS1 DataBar™ Omnidirectional Stacked



90876523412674

GS1 DataBar™ Omnidirectional Stacked



78123465709811

2D Bar Codes

Aztec



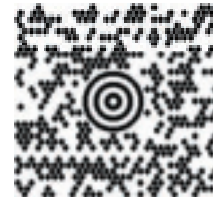
Datamatrix



China Sensible Code



MaxiCode



Test Message

PDF 417



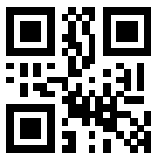
ABCabc

Micro PDF 417



BV17453

QR Code



35900G9

Micro QR Code



123456

UCC Composite



Appendix C

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 bar codes for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features.

Table 51. Standard Defaults

Parameter	Default	Your Setting	Page Number
GLOBAL INTERFACE FEATURES			
Host Commands — Obey/Ignore	Obey		21
USB Suspend Mode	Disable		21
RS-232 ONLY			
Baud Rate	115200		24
Data Bits	8 Data Bits		25
Stop Bits	1 Stop Bit		25
Parity	None		26
Handshaking Control	RTS		27
RS-232/USB-Com			
Intercharacter Delay	No Delay		29
Beep On ASCII BEL	Disable		29
Beep On Not on File	Enable		30
ACK NAK Options	Disable		30
ACK Character	'ACK'		31
NAK Character	'NAK'		31
ACK NAK Timeout Value	200 ms		32
ACK NAK Retry Count	3 Retries		32

Parameter	Default	Your Setting	Page Number
ACK NAK Error Handling	Ignore Errors Detected		33
Indicate Transmission Failure	Enable		33
Disable Character	'D'		34
Enable Character	'E'		34
KEYBOARD WEDGE			
Country Mode	U.S. Keyboard		36
Send Control Characters	00		39
Wedge Quiet Interval	100 ms		40
Intercode Delay	No Delay		40
Caps Lock State	Caps Lock OFF		41
Numlock	NumLock Key Unchanged		41
USB Keyboard Speed	1 ms		42
USB Keyboard Numeric Keypad	Standard Keys		43
USB-OEM			
USB-OEM Device Usage	Handheld		46
Interface Options	Ignore Scanner Configuration Host Commands		46
Data Format			
Global Prefix/Suffix	No Global Prefix Global Suffix = 0x0D (CR)		48
Global AIM ID	Disable		49
Set AIM ID Individually for GS1-128	Enable		51
Label ID: Pre-Loaded Sets	EU Set		52
Individually Set Label ID	Disable		53
Case Conversion	Disable		58
Character Conversion	No Char Conversion		58
READING PARAMETERS			
Double Read Timeout	0.6 Second		59
Power On Alert	Power-up Beep		62
Good Read: When to Indicate	After Decode		62

Parameter	Default	Your Setting	Page Number
Good Read Beep Type	Mono		63
Good Read Beep Frequency	High		63
Good Read Beep Length	80 ms		64
Good Read Beep Volume	High		65
Good Read LED Duration	300 ms		66
Scanning Features			
Scan Mode	Trigger Single		67
Stand Mode Indication	Disable		68
Pick Mode	Disable		69
Stand Mode Sensitivity	Medium		69
Stand Mode Illumination Off Time	2 Seconds		70
Scanning Active Time	5 Seconds		70
Stand Illumination Control	OFF		71
Flash On Time	10 = Flash is ON for 1 Second		71
Flash Off Time	06 = Flash is OFF for 600ms		72
Aiming Pointer	Enable		72
Aiming Duration Timer	Aiming Off After Decoding		73
Green Spot Duration	300 ms		74
Partial Label Reading Control	Enable		75
Decode Negative Image	Disable		75
Multiple Label Reading			
Multiple Labels per Frame	Disable		76
Multiple Labels Ordering by Code Symbology	Random Order		77
Multiple Labels Ordering by Code Length	Disable		77
CODE SELECTION - 1D SYMBOLOGIES			
Code EAN/UPC			
Coupon Control	Enable only UPCA coupon decoding		81

Parameter	Default	Your Setting	Page Number
UPC-A			
UPC-A Enable/Disable	Enable		82
UPC-A Check Character Transmission	Send		82
Expand UPC-A to EAN-13	Don't Expand		83
UPC-A Number System Character Transmission	Transmit		83
UPC-A 2D Component	2D Component Not Required		84
UPC-E			
UPC-E Enable/Disable	Enable		84
UPC-E Check Character Transmission	Send		85
UPC-E 2D Component	2D Component Not Required		85
Expand UPC-E to EAN-13	Don't Expand		86
Expand UPC-E to UPC-A	Don't Expand		86
UPC-E Number System Character Transmission	Transmit		87
GTIN			
GTIN Formatting	Disable		87
EAN 13 (Jan 13)			
EAN 13 Enable/Disable	Enable		88
EAN 13 Check Character Transmission	Send		88
EAN-13 Flag 1 Character	Transmit		89
EAN-13 ISBN Conversion	Disable		89
EAN-13 2D Component	2D Component Not Required		90
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 2D Component	2D Component Not Required		92

Parameter	Default	Your Setting	Page Number
UPC/EAN Global Settings			
UPC/EAN Price Weight Check	Disable		93
UPC/EAN Quiet Zones	Two Modules		94
Add-Ons			
Optional Add-ons	Disable P2, P5 and P8		95
Optional Add-On Timer	70 ms		96
Optional GS1-128 Add-On Timer	Disable		98
Code 39			
Code 39 Enable/Disable	Enable		101
Code 39 Check Character Calculation	Calculate Std Check		101
Code 39 Check Character Transmission	Send		102
Code 39 Start/Stop Character Transmission	Don't Transmit		103
Code 39 Full ASCII	Disable		103
Code 39 Quiet Zones	Small Quiet Zones on two sides		104
Code 39 Length Control	Variable		104
Code 39 Set Length 1	2		105
Code 39 Set Length 2	50		106
Trioptic Code			
Trioptic Code Enable/Disable	Disable		107
Code 32 (Italian Pharmaceutical Code)			
Code 32 Enable/Disable	Disable		107
Code 32 Check Char Transmission	Don't Send		108
Code 32 Start/Stop Character Transmission	Don't Transmit		108
Code 39 CIP (French Pharmaceutical Code)			
Code 39 CIP Enable/Disable	Disable		109
Special Codes			
Code 39 Danish PPT Enable/Disable	Disable		109
Code 39 LaPoste Enable/Disable	Disable		110
Code 39 PZN Enable/Disable	Disable		110

Parameter	Default	Your Setting	Page Number
Code 128			
Code 128 Enable/Disable	Enable		111
Expand Code 128 to Code 39	Don't Expand		111
Code 128 Check Character Transmission	Don't Send		112
Code 128 Function Character Transmission	Don't Send		112
Code 128 Sub-Code Exchange Transmission	Disable		112
Code 128 Quiet Zones	Small Quiet Zones on two sides		113
Code 128 Length Control	Variable		113
Code 128 Set Length 1	1		114
Code 128 Set Length 2	80		115
GS1-128			
GS1-128 Enable	Transmit in Code 128 Data Format		116
GS1-128 2D Component	Disable		116
ISBT 128			
ISBT 128 Concatenation	Disable		117
ISBT 128 Force Concatenation	Disable		117
ISBT 128 Concatenation Mode	Static		118
ISBT 128 Dynamic Concatenation Timeout	200 msec		119
Interleaved 2 of 5			
I 2 of 5 Enable/Disable	Disable		120
I 2 of 5 Check Character Calculation	Disable		121
I 2 of 5 Check Character Transmission	Send		122
I 2 of 5 Length Control	Variable		122
I 2 of 5 Set Length 1	6		123
I 2 of 5 Set Length 2	50		124
Interleaved 2 of 5 CIP HR			
Interleaved 2 of 5 CIP HR Enable/Disable	Disable		125
Follett 2 of 5			
Follett 2 of 5 Enable/Disable	Disable		125

Parameter	Default	Your Setting	Page Number
Standard 2 of 5			
Standard 2 of 5 Enable/Disable	Disable		126
Standard 2 of 5 Check Character Calculation	Disable		126
Standard 2 of 5 Check Character Transmission	Send		127
Standard 2 of 5 Length Control	Variable		127
Standard 2 of 5 Set Length 1	8		128
Standard 2 of 5 Set Length 2	50		129
Industrial 2 of 5			
Industrial 2 of 5 Enable/Disable	Disable		130
Industrial 2 of 5 Check Character Calculation	Disable		130
Industrial 2 of 5 Check Character Transmission	Enable		131
Industrial 2 of 5 Length Control	Variable		131
Industrial 2 of 5 Set Length 1	1		132
Industrial 2 of 5 Set Length 2	50		133
Code IATA			
IATA Enable/Disable	Disable		134
IATA Check Character Transmission	Enable		134
Codabar			
Codabar Enable/Disable	Disable		135
Codabar Check Character Calculation	Don't Calculate		135
Codabar Check Character Transmission	Send		136
Codabar Start/Stop Character Transmission	Transmit		136
Codabar Start/Stop Character Set	abcd/abcd		137
Codabar Start/Stop Character Match	Don't Require Match		137
Codabar Quiet Zones	Quiet Zones on two sides		138
Codabar Length Control	Variable		138
Codabar Set Length 1	3		139
Codabar Set Length 2	50		140
ABC Codabar	Disable		141

Parameter	Default	Your Setting	Page Number
ABC Codabar			
ABC Codabar Enable/Disable	Disable		141
ABC Codabar Concatenation Mode	Static		141
ABC Codabar Dynamic Concatenation Timeout	200 msec		142
ABC Codabar Force Concatenation	Disable		143
Code 11			
Code 11 Enable/Disable	Disable		144
Code 11 Check Character Calculation	Check C and K		144
Code 11 Check Character Transmission	Send		145
Code 11 Length Control	Variable		145
Code 11 Set Length 1	4		146
Code 11 Set Length 2	50		147
GS1 DataBar™ Omnidirectional			
GS1 DataBar™ Omnidirectional Enable/Disable	Disable		148
GS1 DataBar™ Omnidirectional GS1-128 Emulation	Disable		148
GS1 DataBar™ Omnidirectional 2D Component	2D component not required		149
GS1 DataBar™ Expanded			
GS1 DataBar™ Expanded Enable/Disable	Disable		149
GS1 DataBar™ Expanded GS1-128 Emulation	Disable		150
GS1 DataBar™ Expanded 2D Component	2D component not required		150
GS1 DataBar™ Expanded Length Control	Variable		151
GS1 DataBar™ Expanded Set Length 1	1		152
GS1 DataBar™ Expanded Set Length 2	74		153
GS1 DataBar™ Limited			
GS1 DataBar™ Limited Enable/Disable	Disable		154
GS1 DataBar™ Limited GS1-128 Emulation	Disable		154
GS1 DataBar™ Limited 2D Component	2D component not required		155

Parameter	Default	Your Setting	Page Number
Code 93			
Code 93 Enable/Disable	Disable		155
Code 93 Check Character Calculation	Enable Check C and K		156
Code 93 Check Character Transmission	Enable		156
Code 93 Length Control	Variable		157
Code 93 Set Length 1	1		158
Code 93 Set Length 2	50		159
Code 93 Quiet Zones	Small Quiet Zones on two sides		160
MSI			
MSI Enable/Disable	Disable		160
MSI Check Character Calculation	Enable Mod10		161
MSI Check Character Transmission	Enable		161
MSI Length Control	Variable		163
MSI Set Length 1	1		163
MSI Set Length 2	50		164
Plessey			
Plessey Enable/Disable	Disable		165
Plessey Check Character Calculation	Enable Plessey std. check char. verification		165
Plessey Check Character Transmission	Enable		166
Plessey Length Control	Variable		166
Plessey Set Length 1	1		167
Plessey Set Length 2	50		168
CODE SELECTION - 2D SYMBOLOGIES			
2D Maximum Decoding Time	350msec		170
2D Structured Append	Disable		171
2D Normal/Inverse Symbol Control	Both		171
Aztec Code Enable / Disable	Disable		172
Aztec Code Length Control	Enable		172
Aztec Code Length Control	Variable		172

Parameter	Default	Your Setting	Page Number
Aztec Code Set Length 1	1		173
China Sensible Code Enable / Disable	Disable		175
China Sensible Code Length Control	Variable		175
China Sensible Code Set Length 1	1		176
China Sensible Code Set Length 2	7,827		177
Data Matrix Enable / Disable	Enable		178
Data Matrix Square/Rectangular Style	Both Square and Rectangular style		178
Data Matrix Length Control	Variable		179
Data Matrix Set Length 1	1		179
Data Matrix Set Length 2	3,116		180
Maxicode Enable / Disable	Disable		181
Maxicode Primary Message Transmission	Disable		181
Maxicode Length Control	Variable		182
Maxicode Set Length 1	1		182
Maxicode Set Length 2	0145		183
PDF417 Enable / Disable	Enable		184
PDF417 Length Control	Variable		184
PDF417 Set Length 1	1		185
PDF417 Set Length 2	2,710		186
Micro PDF417 Enable / Disable	Disable		187
Micro PDF417 Code 128 GS1-128 Emulation	Micro PDF AIM ID and label type		187
Micro PDF417 Length Control	Variable		188
Micro PDF417 Set Length 1	1		188
Micro PDF417 Set Length 2	0366		189
QR Code Enable / Disable	Enable		190
QR Code Length Control	Variable		190
QR Code Set Length 1	1		191
QR Code Set Length 2	7,089		192
Micro QR Code Enable/Disable	Disable		192

Parameter	Default	Your Setting	Page Number
Micro QR Code Length Control	Variable		193
Micro QR Code Set Length 1	0001		193
Micro QR Code Set Length 2	0035		194
UCC Composite Enable / Disable	Disable		195
UCC Optional Composite Timer	Timer Disabled		196
Postal Code Selection	Disable all Postal codes		197
Postnet BB Control	Disable		198
Motion Features			
Motion Aiming Control	Enable		199
Motion Sensitivity	Medium		200
Motionless Timeout	2 seconds		200

Restore Factory Configuration

If you want to restore the Factory Configuration for your imager, scan either the Restore USA Factory Configuration bar code or the Restore EU Factory Configuration bar code below. Both labels restore the scanner configuration to the factory settings, including the interface type.



CAUTION

Scanning either of the “Restore Factory Configuration” commands below will result in the loss of any custom configuration settings for your device. Go to [Restore Custom Defaults on page 18](#) if you want to restore custom configuration settings.

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 [Label ID: Pre-loaded Sets, starting on page 217](#) of this manual.



Restore USA Factory Configuration



Restore EU Factory Configuration

NOTES

Appendix D

Keypad

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



0



1



2



3



4



5



6



7



8



9

Keypad (continued)



A



B



C



D



E



F

Appendix E

Scancode Tables

Control Character Emulation

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

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

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

Control Character 02 . Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (Microsoft Windows Codepage 1252 — See page -268.)

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 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	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+\ C+]	GS C+]	RS C+^	US C(S)+_
2x	<u>SP</u>	<u>!</u>	<u>"</u>	<u>#</u>	<u>\$</u>	<u>%</u>	<u>&</u>	<u>'</u>	<u>(</u>	<u>)</u>	<u>*</u>	<u>±</u>	<u>~</u>	<u>=</u>	<u>~</u>	<u>/</u>
3x	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>:</u>	<u>:</u>	<u>≤</u>	<u>≡</u>	<u>≥</u>	<u>?</u>
4x	<u>@</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>	<u>J</u>	<u>K</u>	<u>L</u>	<u>M</u>	<u>N</u>	<u>O</u>
5x	<u>P</u>	<u>Q</u>	<u>R</u>	<u>S</u>	<u>T</u>	<u>U</u>	<u>V</u>	<u>W</u>	<u>X</u>	<u>Y</u>	<u>Z</u>	<u>[</u>	<u>\</u>	<u>]</u>	<u>^</u>	<u>_</u>
6x	<u>`</u>	<u>a</u>	<u>b</u>	<u>c</u>	<u>d</u>	<u>e</u>	<u>f</u>	<u>g</u>	<u>h</u>	<u>i</u>	<u>j</u>	<u>k</u>	<u>l</u>	<u>m</u>	<u>n</u>	<u>o</u>
7x	<u>p</u>	<u>q</u>	<u>r</u>	<u>s</u>	<u>t</u>	<u>u</u>	<u>v</u>	<u>w</u>	<u>x</u>	<u>y</u>	<u>z</u>	<u>{</u>	<u>|</u>	<u>}</u>	<u>~</u>	<i>Del</i>
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	„	...	†	‡	^	%o	Š	<	Š	<	Œ	□
Bx	°	±	²	³	´	µ	¶	·	,	ı	°	»	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 — cont.

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 Keyprd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Space	!	“	#	\$	%	&	‘	()	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	Del
8x	€	□	‘	f	„	...	†	‡	^	‰	Š	<	Š	<	Œ	□
9x	□	‘	’	“	”	•	–	—	~	™	š	>	œ	□	ž	Ÿ
Ax	NBSP	ı	ç	£	¤	¥	¦	§	¨	©	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 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	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+0252	A+0253	A+0254	A+0255

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

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

Digital Interface

Table 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	F13	F14	F15	F16	↑	↓	←	→					Cl ↓	Cl ↑	

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					Cl ↓	Cl ↑			BS	Tab	à	S+ Tab	Enter Keyprd	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 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	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 59. 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 Keyprd	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 60. 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 61. 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	EOI 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	⋯	ƒ 201A	€ 201E	… 2025	† 2020	‡ 2021	ˆ 02C6	‰ 2030	Š 0160	< 2038	€ 0162	⋯	ž 017D	⋯	⋯
90	⋯	ˆ 2078	˜ 2079	˘ 207C	˙ 207D	˚ 207E	– 207F	— 207F	˛ 02DC	˜ 2122	Š 0161	> 2039	€ 0163	⋯	ž 017E	ÿ 0178
A0	NEST 00AD	ı 00A1	ı̇ 00A2	ı̈ 00A3	ı̄ 00A4	ı̇ 00A5	ı̈ 00A6	ı̄ 00A7	ı̇ 00A8	ı̈ 00A9	ı̄ 00AA	ı̇ 00AB	ı̈ 00AC	ı̄ 00AD	ı̇ 00AE	ı̈ 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	ø 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

NOTES

NOTES

NOTES

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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