DATALOGIC

Gryphon™ I GD4100/GM4100

General Purpose Handheld Linear Imager Barcode Reader

Product Reference Guide

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Disclaimer

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Patents

This product is covered by one or more of the following patents:
US Pat.: 6,512,218 B1; 6,808,114 B1; 6,877,664 B1; 6,997,385 B2; 7,053,954 B1; 7,102,116 B2; 7,282,688 B2; 7,387,246 B2.
European Pat.: 996,284 B1; 999,514 B1; 1,128,315 B1; 1,396,811 B1.
Additional patents pending.

Table of Contents

Chapter 1
Introduction

About this Guide

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

Typically, units are factory-programmed for the most common terminal and communications settings. If you need to modify any programmable settings, custom configuration can be accomplished by scanning the programming barcodes within this guide.

Programming can alternatively be performed using the Datalogic Aladdin™ Configuration application which is downloadable from the Datalogic website listed on the back cover of this manual. This multi-platform utility program allows device configuration using a PC. It communicates to the device using a serial or USB cable and can also create configuration barcodes to print.

Manual Overview

Chapter 1, Introduction provides a product overview, unpacking instructions, and cable connection information.

Chapter 2, Getting Started presents information about unpacking and setting up the reader.

Chapter 4, Interfaces consists of interface configuration barcodes and details.

Chapter 3, General Features includes programming barcodes for selecting common features for the reader and general use barcodes to customize how the data is transmitted to the host device.

Chapter 5, RS-232 ONLY Interface supplies information about setting up the reader for RS-232 operation.

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

Chapter 7, Keyboard Interface discusses how to set up the reader for Keyboard Wedge operation.

Chapter 8, USB-OEM Interface explains how to set the reader up for USB operation.

Chapter 9, IBM 46XX Interface is a resource for setting up an IBM interface.

Chapter 10, Wand Emulation Interface explains how to set the reader up for Wand Emulation Interface.

Chapter 11, Data Editing offers advanced configuration options for customization of scanned data output.

Chapter 12, RF Features describes options and programming related to the reader's radio communication features.

Chapter 13, Symbologies defines options for all symbologies and provides the programming barcodes necessary for configuring these features.

Chapter 14, Message Formatting provides details for programming options.

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

Appendix B, LED and Beeper Indications supplies tables containing descriptions of the functions and behaviors of the reader's LED and Beeper indicators.

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

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

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

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

Manual Conventions

The following conventions are used in this document:

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

NOTE

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

CAUTION

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

References

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

Technical Support

Datalogic Website Support

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

Reseller Technical Support

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

Telephone Technical Support

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

NOTES

Chapter 2
Getting Started

About the Reader

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

See "Interface Selection"on page 67 for a listing and descriptions of available interface sets by model type.

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 9.

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

Setting Up the Reader

Depending on whether you are using a Corded or Mobile version of the Gryphon, follow the steps provided in this section to connect and get your reader up and communicating with its host.

1. Install the Batteries
2. Install the Interface Cable (Corded) or Connect the Base Station (Mobile)
3. Select the Interface Type
4. Configure Interface Settings (only if not using factory settings for that interface)
5. Configure Other Features (if modifications are needed from factory settings)

Battery Safety

To install, charge and/or do any other action on the battery, follow the instructions in this manual.

NOTE

Before installing the Battery, read "Battery Safety" on this and the following pages. Datalogic recommends annual replacement of rechargeable battery packs to ensure maximum performance.

WARNING

Do not discharge the battery using any device except for the scanner. When the battery is used in devices other than the designated product, it may damage the battery or reduce its life expectancy. If the device causes an abnormal current to flow, it may cause the battery to become hot, explode or ignite and cause serious injury.
Lithium-ion battery packs may get hot, explode or ignite and cause serious injury if exposed to abusive conditions. Be sure to follow the safety warnings listed below:

- **Do not place the battery pack in fire or heat.**
- **Do not connect the positive terminal and negative terminal of the battery pack to each other with any metal object (such as wire).**
- **Do not carry or store the battery pack together with metal objects.**
- **Do not pierce the battery pack with nails, strike it with a hammer, step on it or otherwise subject it to strong impacts or shocks.**
- **Do not solder directly onto the battery pack.**
- **Do not expose the battery pack to liquids, or allow the battery to get wet.**
- **Do not apply voltages to the battery pack contacts.**

In the event the battery pack leaks and the fluid gets into your eye, do not rub the eye. Rinse well with water and immediately seek medical care. If left untreated, the battery fluid could cause damage to the eye.

CAUTION

Always charge the battery at 32° – 104°F (0° - 40°C) temperature range.

Use only the authorized power supplies, battery pack, chargers, and docks supplied by your Datalogic reseller. The use of any other power supplies can damage the device and void your warranty.

Do not disassemble or modify the battery. The battery contains safety and protection devices, which, if damaged, may cause the battery to generate heat, explode or ignite.

Do not place the battery in or near fire, on stoves or other high temperature locations.

Do not place the battery in direct sunlight, or use or store the battery inside cars in hot weather. Doing so may cause the battery to generate heat, explode or ignite. Using the battery in this manner may also result in a loss of performance and a shortened life expectancy.

Do not place the battery in microwave ovens, high-pressure containers or on induction cookware.

Immediately discontinue use of the battery if, while using, charging or storing the battery, the battery emits an unusual smell, feels hot, changes color or shape, or appears abnormal in any other way.

Do not replace the battery pack when the device is turned on.

Do not remove or damage the battery pack's label.

Do not use the battery pack if it is damaged in any part.

Battery pack usage by children should be supervised.

As with other types of batteries, Lithium-Ion (LI) batteries will lose capacity over time. Capacity deterioration is noticeable after one year of service whether the battery is in use or not. It is difficult to precisely predict the finite life of a LI battery, but cell manufacturers rate them at 500 charge cycles. In other words, the batteries should be expected to take 500 full discharge / charge cycles before needing replacement. This number is higher if partial discharging / recharging is adhered to rather than full / deep discharging,

The typical manufacturer advertised useful life of LI batteries is one to three years, depending on usage and number of charges, etc., after which they should be removed from service, especially in mission critical applications. Do not continue to use a battery that is showing excessive loss of capacity, it should be properly recycled / disposed of and replaced. For most applications, batteries should be replaced after one year of service to maintain customer satisfaction and minimize safety concerns.

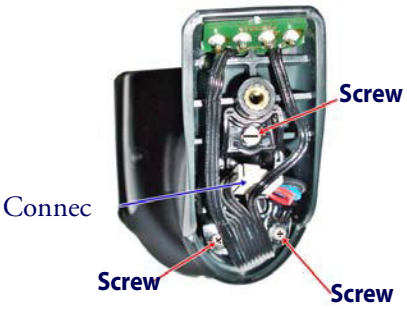
Collect and recycle waste batteries separately from the device in compliance with European Directive 2006/66/EC, 2002/95/EC, 2002/96/EC and subsequent modifications, US and China regulatory and others laws and regulations about the environment.

Install the Batteries

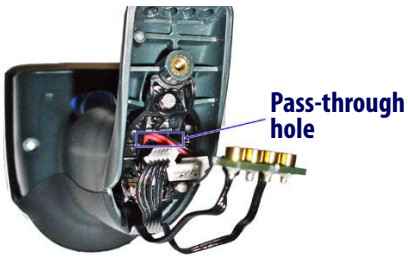
To install or change the battery of your reader, you must:

1. With a screwdriver, unscrew the battery cover screw.

2. Unplug the three screws securing the battery holder, and unplug the white connector.



3. Carefully lift out the gold contacts circuit, and remove the battery holder while letting the white connector pass through the hole in the battery holder (as shown in the picture below).



4. Remove the old battery from its place (if present), and insert the new battery in the same position.

5. Replace the battery holder, plug in the connector and return the contacts circuit to its previous location.

NOTE

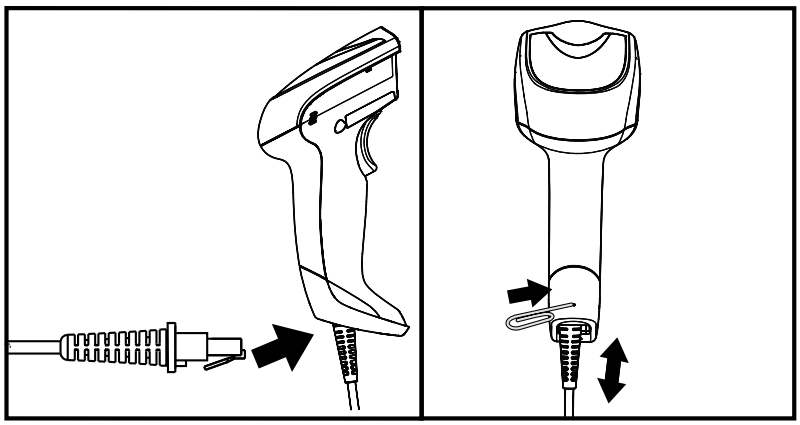
When inserting the new battery into the handle, take care to position the battery and the connector as shown.

6. Insert the cover in the handle and screw it back into place.

Install the Interface Cable

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

Figure 1. Connect/disconnect the cable



RS-232 Serial Connection

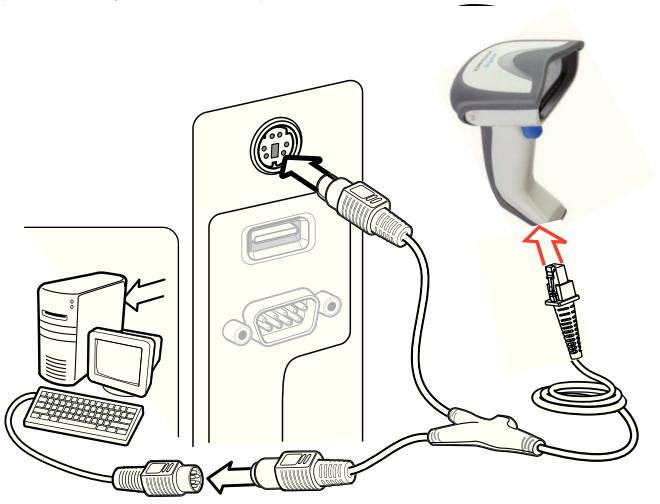
Turn off power to the terminal/PC and connect the reader to the terminal/PC serial port via the RS-232 cable as shown in Figure 2. If the terminal will not support POT (Power Off the Terminal) to supply reader power, use the approved power supply (AC Adapter). Plug the AC Adapter barrel connector into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

Figure 2. RS-232 Connection

Keyboard Wedge Connection

The Keyboard Wedge cable has a 'Y' connection from the reader. Connect the female to the male end from the keyboard and the remaining end at the keyboard port at the terminal/PC. Reference Figure 3.

Figure 3. Keyboard Wedge Interface connection



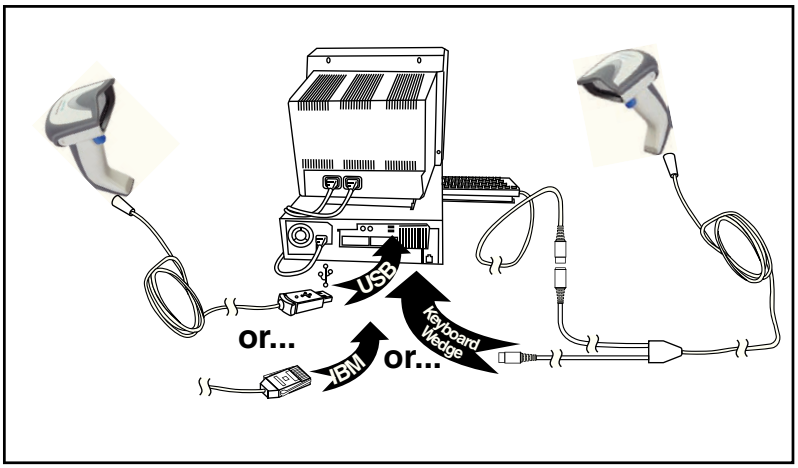
USB Connection

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

Figure 4. USB connection

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

Figure 5. Other Interface Connections



NOTE

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

RF Models

The power supply connects directly to the base (not on the cable's jack) for all configurations. For all interfaces (except RS-232) a power supply is recommended but not necessary, because the base can be powered from the Host. When the base is powered from the Host, select a slow charge rate.

Configuring the Base Station

The base charger/station may be configured in desk application to hold the reader in two different positions, either a horizontal or standing position, in order to provide the most comfortable use depending on needs.

Standing

Horizontal

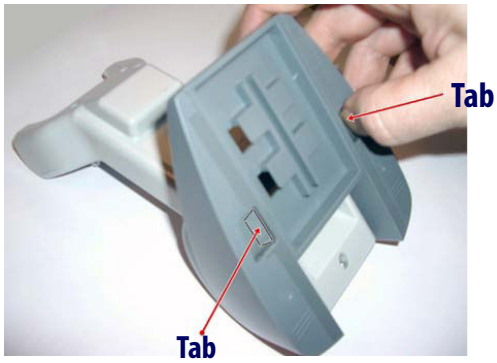
Changing the Base Station Position

The base station is configured by installing one of two sets of mechanical parts that come with the cordless kit. The default mounts (shown below) provide three options: vertical (wall) mounting, standing (45°), or horizontal mounting with a higher mechanical retention of the scanner. Use the other mounts only for horizontal mounting, with lower retention of the scanner. The different parts may be interchanged to customize retention preferences.

A tool such as a rigid pen or a flat screwdriver can be used to change the mounts. Do not allow it to touch the contacts.

1. Insert the appropriate parts for the desired base station position, as shown below.

2. Using your thumbs, push open the plastic tabs on the bottom of the base to free the wing holders.



3. The stand can now be repositioned in either horizontal or standing position.

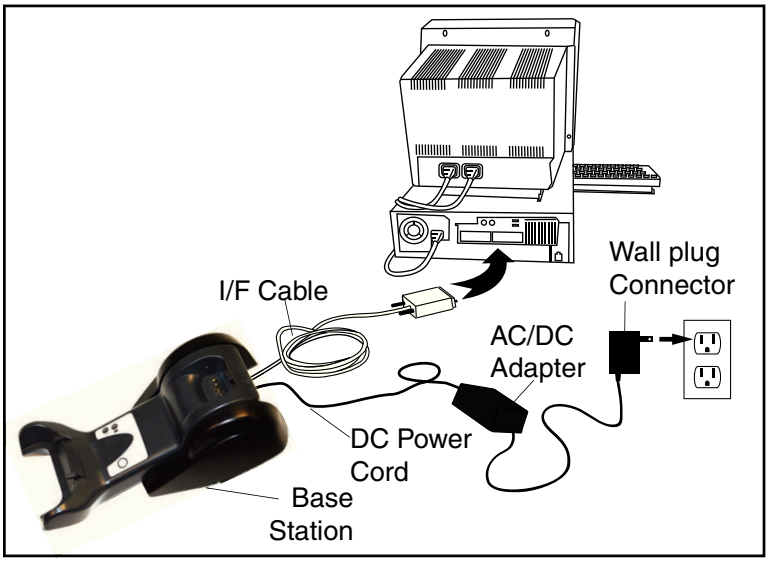
Connect the Base Station

Figure 6 shows how to connect the Base Station to a terminal, PC or other host device. Turn off the host before connection and consult the manual for that equipment (if necessary) before proceeding. Connect the interface cable before applying power to the Base Station.

NOTE **Gryphon Mobile can also be Powered by the Terminal. The external power supply is recommended but not necessary. When powered by the Terminal, the battery charger is automatically set as Slow charge.**

Base Station Connection and Routing. Fully insert the Power Cable and Interface (I/F) Cable connectors into their respective ports in the underside of the Base Station (see Figure 6). Then connect to an AC Adapter, and plug the AC power cord into the (wall) outlet.

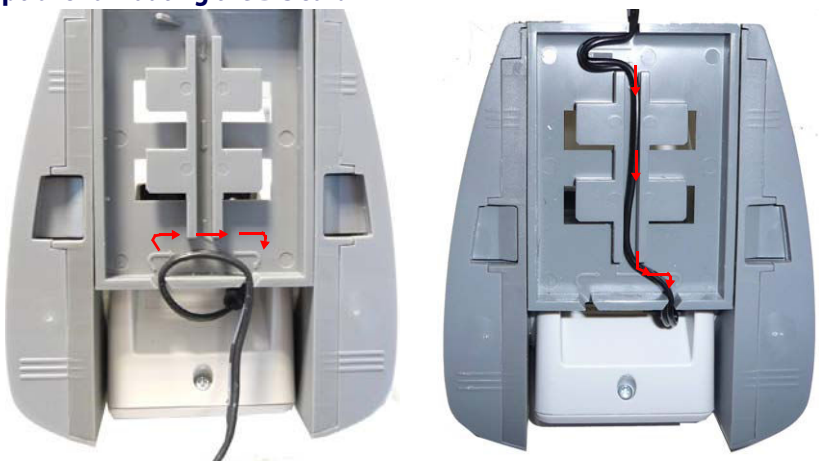
Figure 6. Connecting the Base Station



Securing the DC Power Cord (Optional)

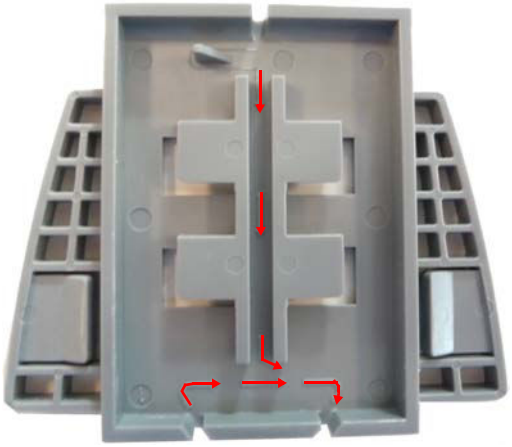
The DC power cord for the adapter can be secured to the bottom of the base in order to maximize the mechanical retention of the cable itself. The routing of the power cord can be changed to accommodate the base station positioning: horizontal, stand or wall mounting. The cables can be looped around to the front of the Base Station, or fed directly out the back of the Base Station, as shown in Figure 7 on page 23.

Figure 7. Options for routing the DC cord



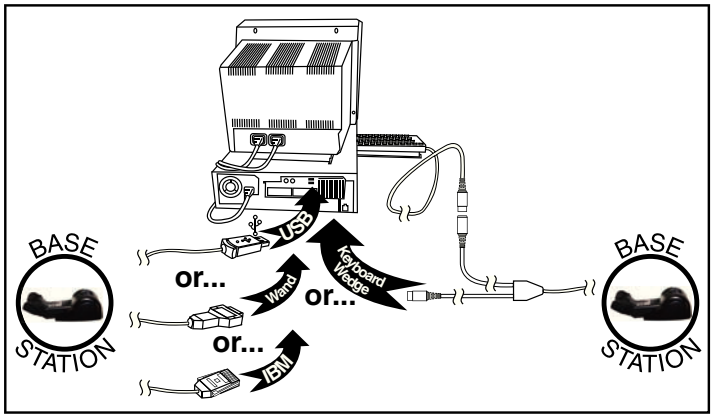
Please refer to the arrows depicted on the bottom of the base when placing the cables, detailed in Figure 8.

Figure 8. Arrows showing routing



Host Connection. Verify before connection that the reader's cable type is compatible with your host equipment. Most connections plug directly into the host device as shown below. Keyboard Wedge interface cables have a 'Y' connection where its female end mates with the male end of the cable from the keyboard and the remaining end at the keyboard port on the terminal/PC.

Figure 9. Connecting to the Host

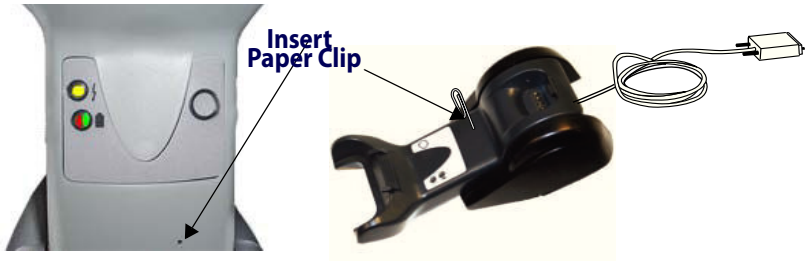


Power Connection . Plug the AC Adapter in to an approved AC wall socket with the cable facing downwards (as shown in Figure 6) to prevent undue strain on the socket.

NOTE **Gryphon Mobile can also be Powered by the Terminal. The external power supply is recommended but not necessary. When powered by the Terminal, the battery charger is automatically set as Slow charge.**

Disconnecting the Cable. To detach the cable, insert a paper clip or similar object into the hole on the base, as shown in Figure 10.

Figure 10. Disconnecting the Cable



Linking the Reader to a Base Station

RF Devices

For RF devices, before configuring the interface it is necessary to link the handheld with the base.

To link the handheld and the base, press the trigger to wake it and place it on the base. If the reader was previously linked to another base, you must first scan the Unlink action command before re-linking to the new base.

Unlink

GRYPHON™ I System and Network Layouts

Stand Alone Layouts

Figure 11. Single Reader Layout

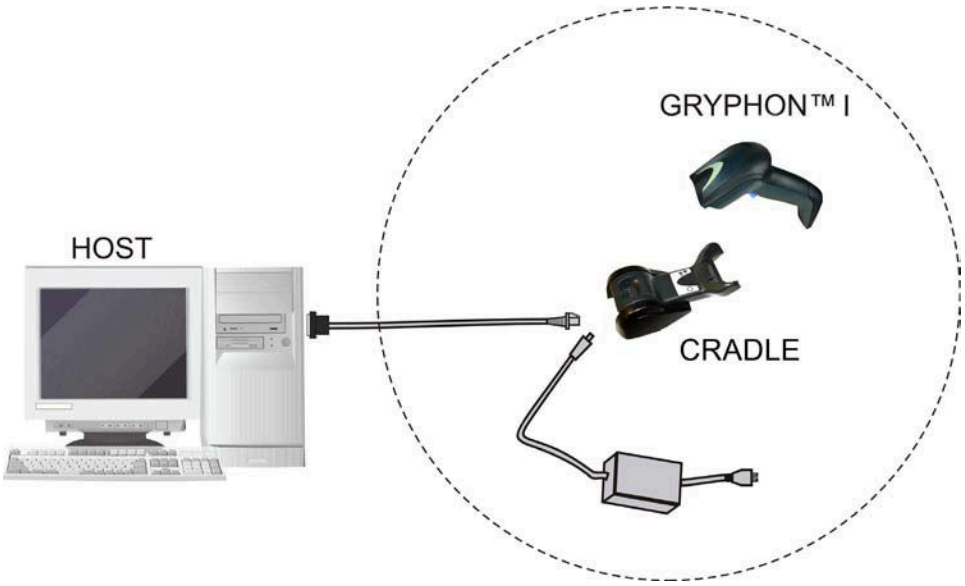
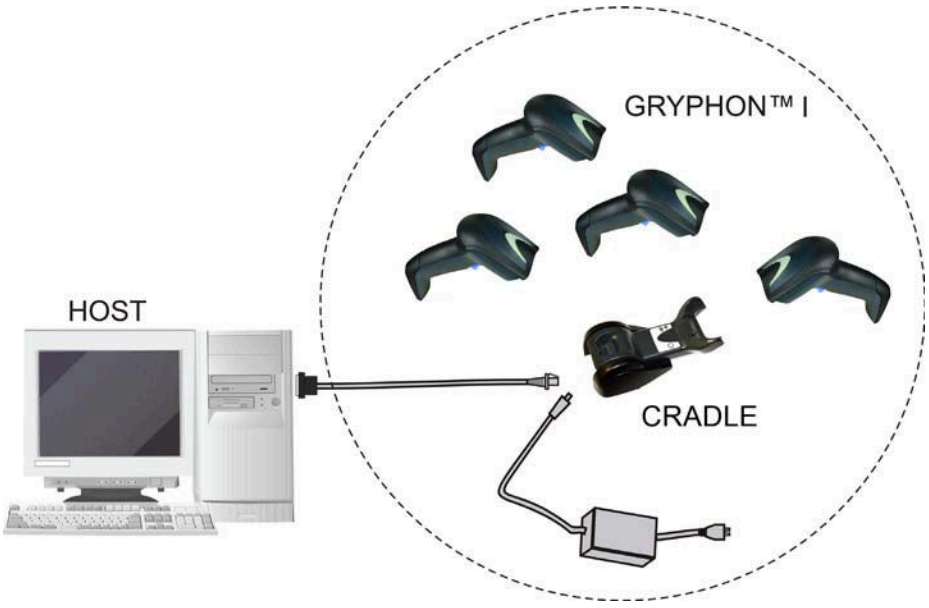
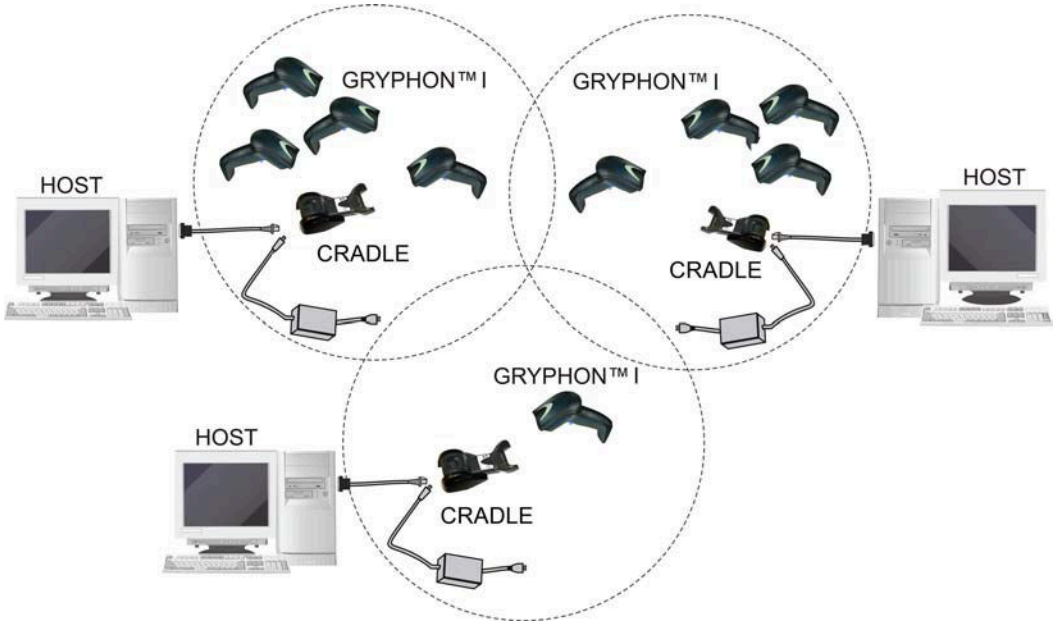


Figure 12. Multiple Reader Layout



In stand alone systems, each cradle is connected to a single Host.

Figure 13. Multiple Stand Alone Layouts



Many stand alone connections can operate in the same physical area without interference, provided all readers and cradles in the system have different addresses.

Using the BC40xx™ Radio Base

Base LEDs

LEDs on the Gryphon I Base provide information about the Base's status, as shown in Figure 14.

Figure 14. Gryphon I Base LEDs

The following table describes the significance of each LED:

	LED	STATUS
ϟ	Power on / Data	Yellow On = Base is powered Yellow Blinking = Base receives data and commands from the Host or the Reader.
▬	Charging	Red On = the Battery is in progress.
▬	Charge completed	Green On = the Battery is completely charged.
▬	Charging + Charge completed	Red and Green Blinking together = the Reader is not correctly placed onto the Base.

See "Base Station Indications" on page 389 for more specific details on the LEDs.

Base Button

The base contains a button, which is used primarily to perform a paging function. Pressing the button causes a sound signal to be emitted by all scanners linked with this base, as long as the scanner is awake (see "Powerdown Timeout" on page 164) and reception is enabled (see "Sleep Mode Timeout" on page 37).

The button can also be used to "force device connection" via the Datalogic Aladdin Software tool (available for free download from the Datalogic website). See Aladdin for details.

Display

The Gryphon GM4100 is available with an optional Display. The Display features 4 lines and 16 characters, and offers icons and three additional keys to allow a better interaction with a remote host.

Fonts, contrast, backlight and other parameters can be configured for the Display. See "Display" on page 60 and "Message Formatting" on page 379 for more information.

Figure 15. Gryphon™ I Display

Programming

The reader is factory-configured with a set of default features standard. After scanning the interface barcode from the Interfaces section, you can select other options and customize your reader through use of the instructions and programming barcodes available in the corresponding features section for your interface, and also the Data Editing and Symbologies chapters of this manual.

Using the Programming Barcodes

This manual contains feature descriptions and barcodes which allow you to reconfigure your reader. Some programming barcode labels, like the "Restore Custom Default Configuration"on page 30, require only the scan of that single label to enact the change. Most of the programming labels in this manual, however, require the reader to be placed in Programming Mode prior to scanning them. Scan an ENTER/EXIT barcode once to enter Programming Mode. Once the reader is in Programming Mode, you can scan a number of parameter settings before scanning the ENTER/EXIT barcode a second time, which will then accept your changes, exit Programming Mode and return the reader to normal operation.

NOTE

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

Select the Interface Type

Upon completing the physical connection between the reader and its host, proceed directly to "Interfaces"on page 67 for information and programming for the interface type the reader is connected to (for example: RS-232, Keyboard Wedge, USB, etc.) and scan the appropriate barcode in that section to select your system's correct interface type.

Configure Interface Settings

If after scanning the interface barcode from the Interfaces section, your installation requires you to select options to further customize your reader, turn to the appropriate section for your interface type as listed below:

- RS-232 ONLY Interface, starting on page 73
- Keyboard Interface, starting on page 99
- USB-OEM Interface, starting on page 113
- IBM 46XX Interface, starting on page 117
- Wand Emulation Interface, starting on page 123

Configure Other Features

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

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

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

Software Version Transmission

The software version of the device can be transmitted over the RS-232 and Keyboard interfaces by scanning the following label.

Transmit Software Version

Resetting the Product Configuration to Defaults

Restore Custom Defaults

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

NOTE

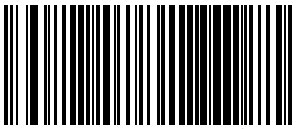
Custom defaults are based on the interface type. Configure the imager for the correct interface before scanning this label.

Restore Custom Default Configuration

Restore Factory Configuration

If you want to restore the Factory Configuration for your imager, scan either the Restore USA Factory Configuration barcode or the Restore EU Factory Configuration barcode below. Both labels restore the scanner configuration to the factory settings, including the interface type. The USA label restores Label IDs to those historically used in the USA. The EU label restores Label IDs to those historically used in Europe. The Label ID sets for USA and EU are shown in the "Label ID" section on page 135 of this manual.

Restore USA Factory Configuration



Restore EU Factory Configuration

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

NOTES

Chapter 3
General Features

Double Read Timeout

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

ENTER/EXIT PROGRAMMING MODE

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

Double Read Timeout — continued

ENTER/EXIT PROGRAMMING MODE

Double Read Timeout = 0.5 Second

Double Read Timeout = 0.6 Second

Double Read Timeout = 0.7 Second

Double Read Timeout = 0.8 Second

Double Read Timeout = 0.9 Second

Double Read Timeout = 1 Second

Label Gone Timeout

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

Follow these instructions to set this feature:

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 10 (setting is in 10ms increments). Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT LABEL GONE TIMEOUT SETTING.
5. Scan the appropriate three alpha-numeric characters from the keypad in Appendix E, Keypad representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

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

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

This completes the procedure. See Table 1 for some examples of how to set this feature.

Table 1. Timeout Setting Examples

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

Label Gone Timeout — cont.

ENTER/EXIT PROGRAMMING MODE

Select Label Gone Timeout Setting

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

CANCEL

DEFAULT

016 = Timeout of 160 ms

Sleep Mode Timeout

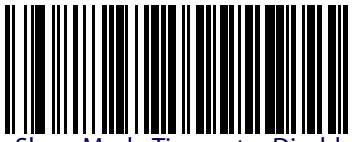
Specifies the timeout value for the reader to enter low power Sleep Mode. When Sleep Mode is enabled the reader cannot receive commands from the Host or base station.

In order for the reader to enter Sleep Mode, the following conditions must be met:

Corded version . RS-232 interface and trigger single, trigger multiple or trigger pulse.

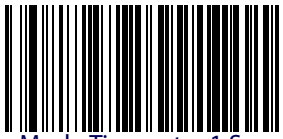
Mobile version . Sleep state is allowed only on the handheld (not on the base) when trigger single, trigger multiple or trigger pulse are set, and when the reader is not charging the battery.

ENTER/EXIT PROGRAMMING MODE



Sleep Mode Timeout = Disable

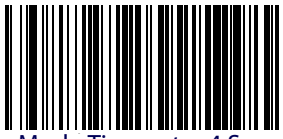
DEFAULT



Sleep Mode Timeout = 1 Second

Sleep Mode Timeout = 2 Seconds

Sleep Mode Timeout = 3 Seconds



Sleep Mode Timeout = 4 Seconds

Sleep Mode Timeout — continued

ENTER/EXIT PROGRAMMING MODE

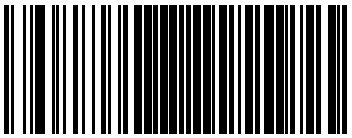
	Sleep Mode Timeout = 5 Seconds
Sleep Mode Timeout = 6 Seconds	
	Sleep Mode Timeout = 7 Seconds
Sleep Mode Timeout = 8 Seconds	
	Sleep Mode Timeout = 9 Seconds
Sleep Mode Timeout = 10 Seconds max.	

LED and Beeper Indicators

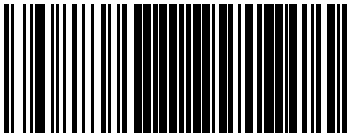
Power On Alert

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

ENTER/EXIT PROGRAMMING MODE



Power On Alert = Disable (No Audible Indication)



Power On Alert = Four Beeps

DEFAULT

Good Read: When to Indicate

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

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

.

NOTE

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Indicate Good Read = After Decode

Indicate Good Read = After Transmit

Indicate Good Read = After CTS Goes Inactive, Then Active

Good Read Beep Type

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Good Read Beep Type = Mono

Good Read Beep Type = Bitonal

Good Read Beep Frequency

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

ENTER/EXIT PROGRAMMING MODE

Good Read Beep Frequency = Low

Good Read Beep Frequency = Medium

DEFAULT

Good Read Beep Frequency = High

Good Read Beep Length

Specifies the duration of a good read beep.

ENTER/EXIT PROGRAMMING MODE

Good Read Beep Length = 60 msec

Good Read Beep Length — continued

ENTER/EXIT PROGRAMMING MODE

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

Good Read Beep Volume

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

ENTER/EXIT PROGRAMMING MODE

Good Read Beep Volume = Beeper Off

Good Read Beep Volume = Low

Good Read Beep Volume = Medium

Good Read Beep Volume = High

DEFAULT

Good Read LED Duration

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

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. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT GOOD READ LED DURATION SETTING.
5. Scan the appropriate three digits from the keypad in Appendix E, Keypad representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 2 for some examples of how to set this feature.

Table 2. Good Read LED Duration Setting Examples

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

Good Read LED Duration — cont.

ENTER/EXIT PROGRAMMING MODE

Select Good Read LED Duration Setting

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

CANCEL

DEFAULT

020 = Good Read LED stays on for 2 seconds.

NOTE

Indicators are dimmed during sleep.

Scanning Features

Scan Mode

Selects the scan operating mode for the reader. Selections are:

Trigger Single. When the trigger is pulled, scanning is activated until one of the following occurs:

- Scanning Active Time has elapsed
- a label has been read
- the trigger is released

This mode is associated with typical handheld reader operation: when the trigger is pulled, scanning starts and the product scans until the trigger is released, or a label is read, or the maximum Scanning Active Time has elapsed.

Trigger Hold Multiple . When the trigger is pulled, scanning starts and the product scans until the trigger is released or Scanning Active Time has elapsed. Reading a label does not disable scanning. Double Read Timeout prevents undesired multiple reads of the same label while in this mode.

Trigger Pulse Multiple. When the trigger is pulled, continuous scanning is activated until Scanning Active Time has elapsed or the trigger has been released and pulled again. Double Read Timeout[1] prevents undesired multiple reads of the same label while in this mode.

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

Always On. No trigger pull is required to read a barcode. Scanning is continually on. If the trigger is pulled, the reader acts as if it is in Trigger Single Mode. Double Read Timeout[1] prevents undesired multiple reads of the same label while in this mode.

Stand Mode. No trigger pull is required to read a barcode. 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[1] prevents undesired multiple reads while in this mode.

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

1. Controlled by Flash On Time.

Scan Mode — continued

ENTER/EXIT PROGRAMMING MODE

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
Scan Mode = Trigger Object Sense	

Stand Mode Triggered Timeout

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

NOTE

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

This feature is valid only for corded models.

ENTER/EXIT PROGRAMMING MODE

Stand Mode Triggered Timeout = 0.5 Seconds

DEFAULT

Stand Mode Triggered Timeout = 1.5 Seconds

Stand Mode Triggered Timeout = 2 Seconds

Stand Mode Triggered Timeout = 3 Seconds

Stand Mode Triggered Timeout = 4 Seconds

Stand Mode Triggered Timeout — continued

ENTER/EXIT PROGRAMMING MODE

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

Stand Detection

Specifies the behavior of the scanner when placed in a stand that contains autorecognition hardware.

ENTER/EXIT PROGRAMMING MODE

	Ignore Autorecognition
Switch to Stand Mode	DEFAULT
	Switch to Always On
Switch to Flashing	

Stand Mode Sensitivity

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

ENTER/EXIT PROGRAMMING MODE


Stand Mode Sensitivity = Low


Stand Mode Sensitivity = Medium

DEFAULT


Stand Mode Sensitivity = High

Scanning Active Time

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

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT SCANNING ACTIVE TIME SETTING.
5. Scan the appropriate three digits from the keypad in Appendix E, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 3 for some examples of how to set this feature.

Table 3. Scanning Active Time Setting Examples

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

Scanning Active Time — cont.

ENTER/EXIT PROGRAMMING MODE

Select Scanning Active Time Setting

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

CANCEL

DEFAULT

005 = Scanning is active for 5 Seconds

Flash On Time

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

Follow these instructions to set this feature.

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

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

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

This completes the procedure. See Table 4 for some examples of how to set this feature.

Table 4. Flash On Time Setting Examples

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

Flash On Time — cont.

ENTER/EXIT PROGRAMMING MODE

Select Flash ON Time Setting

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

CANCEL

DEFAULT

10 = Flash is ON for 1 Second

Flash Off Time

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

Follow these instructions to set this feature.

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

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

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

This completes the procedure. See Table 5 for some examples of how to set this feature.

Table 5. Flash Off Time Setting Examples

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

Flash Off Time — cont.

ENTER/EXIT PROGRAMMING MODE

Select Flash OFF Time Setting

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

CANCEL

DEFAULT

06 = Flash is OFF for 600ms

Green Spot Duration

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

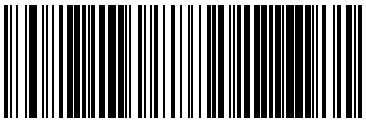
ENTER/EXIT PROGRAMMING MODE

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

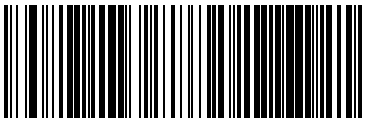
Display

Contrast

Read the code until the desired contrast is reached.



Lighter



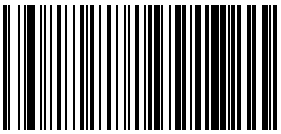
Darker

Font Size

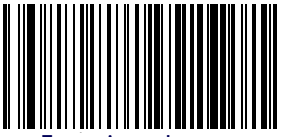
ENTER/EXIT PROGRAMMING MODE

DEFAULT

Font size = small



Font size = Medium



Font size = Large

Backlight

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Display backlight = off

Display backlight = on

Display Mode

The user can control the reader display behavior according to the following selections:

Local Echo mode: When a barcode is read with the reader:

- The code is sent to the Host.
- The reader display is cleared.
- The code is also sent to the reader display (Local Echo).
- The cursor is positioned after the last printed character on the reader display.

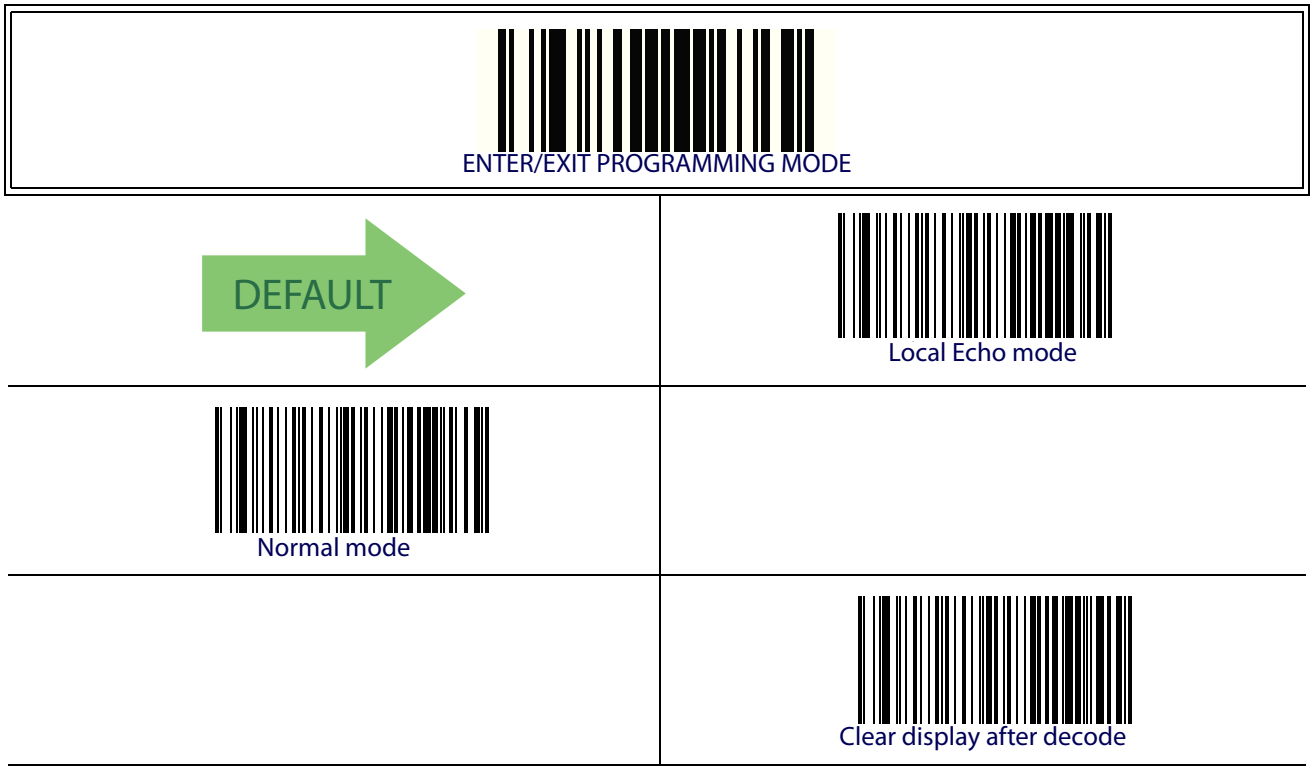
Normal mode: When a barcode is read with the reader:

- The code is sent to the Host.
- The reader display is not cleared. Therefore if any previous data was displayed on the reader screen it remains.
- There is no Local Echo to the reader display.

Clear Display After Decode mode: When a barcode is read with the reader:

- The code is sent to the Host.
- The reader display is cleared. Therefore if any previous data was displayed on the reader screen it is cancelled and the screen remains blank.
- There is no Local Echo of the code to the reader display.

Host messages sent to the reader are always written to the reader display.



Display Timeout

Specifies how long the display will remain on after a display write. Display is forced on after any display write or after any reading phase. Display and backlight are turned off after this timeout expires.

ENTER/EXIT PROGRAMMING MODE

Display Timeout = Disable	DEFAULT
	Display Timeout = 1 Second
Display Timeout = 2 Seconds	
	Display Timeout = 3 Seconds
Display Timeout = 4 Seconds	

Display Timeout (continued)

ENTER/EXIT PROGRAMMING MODE

Display Timeout = 5 Seconds

Display Timeout= 6 Seconds

Display Timeout = 7 Seconds

Display Timeout = 8 Seconds

Display Timeout = 9 Seconds

Display Timeout = 9.9 Seconds (9,900ms max.)

Keypad Select

This parameter specifies the character that has to be sent from the scanner when one of the three keys are pressed. For example, when key1 is pressed a 0x3C '<' character is sent.

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: DISPLAY KEYPAD SELECT.
4. Then read 3 HEX characters in the range 01-FE from the keypad in Appendix E, Keypad, corresponding to the left, center and right keys respectively.

NOTE

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

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

ENTER/EXIT PROGRAMMING MODE

Disable Keypad

Enable Keypad Select

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

CANCEL

DEFAULT

3C3D3E

NOTES

Chapter 4
Interfaces

Interface Selection

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

General Purpose Models

RS-232

RS-232 OPOS

USB

Keyboard Wedge

Wand Emulation

Retail Point of Sale Models

RS-232

RS-232 OPOS

USB

IBM 46XX

Configuring the Interface

Scan the programming barcode from this section which selects the appropriate interface type matching the system the reader will be connected to. Next, proceed to the corresponding chapter in this manual (also listed in Table 6) to configure any desired settings and features associated with that interface.

NOTE

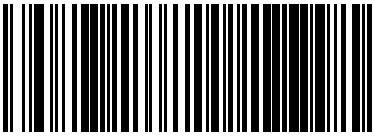
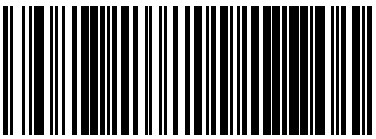
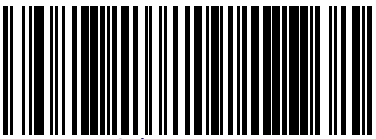
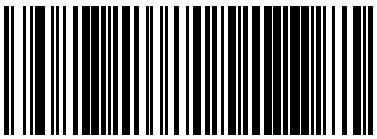
Unlike some other programming features and options, interface selections require that you scan only one programming barcode label. DO NOT scan an ENTER/EXIT barcode prior to scanning an interface selection barcode.

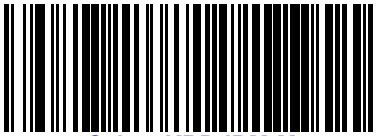
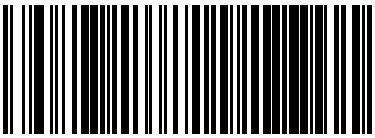
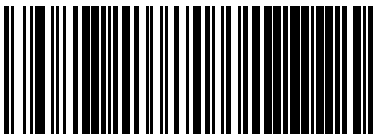
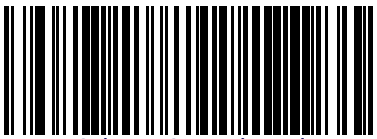
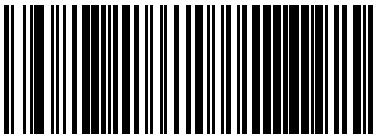
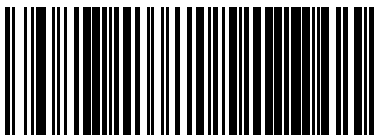
Some interfaces require the scanner to start in the disabled state when powered up. If additional scanner configuration is desired while in this state, pull the trigger and hold it for five seconds. The scanner will change to a state that allows programming with barcodes.

Table 6. Available Interfaces

RS-232		FEATURES
RS-232 standard interface	Select RS232-STD	Set RS-232 Interface Features starting on page 73
Select RS232-WN	RS-232 Wincor-Nixdorf	
RS-232 for use with OPOS/UPOS/JavaPOS	Select RS-232 OPOS	
Select USB-COM-STD[a]	USB Com to simulate RS-232 standard interface	
IBM		**FEATURES**
Select IBM-P5B	IBM-46xx Port 5B reader interface	Set IBM Interface Features starting on page 117
IBM-46xx Port 9B reader interface	Select IBM-P9B	
USB-OEM		**FEATURES**
Select USB-OEM	USB-OEM (can be used for OPOS/UPOS/JavaPOS)	Set USB-OEM Interface Features starting on page 113

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

KEYBOARD	FEATURES
AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Standard Key Encoding  Select KBD-AT	Set KEYBOARD WEDGE Interface Features starting on page 99
 Select KBD-AT-NK **Keyboard Wedge for IBM AT PS2 with standard key encoding but without external keyboard**	
AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/Alternate Key  Select KBD-AT-ALT	
 Select KBD-AT-ALT-NK **Keyboard Wedge for IBM AT PS2 with alternate key encoding but without external keyboard**	
PC/XT w/Standard Key Encoding  Select KBD-XT	
 Select KBD-IBM-3153 Keyboard Wedge for IBM Terminal 3153	

KEYBOARD — cont.		FEATURES
Keyboard Wedge for IBM Terminals 31xx, 32xx, 34xx, 37xx make only keyboard	 Select KBD-IBM-M	Set KEYBOARD WEDGE Interface Features starting on page 99
 Select KBD-IBM-MB	**Keyboard Wedge for IBM Terminals 31xx, 32xx, 34xx, 37xx make break keyboard**	
Keyboard Wedge for DIGITAL Terminals VT2xx, VT3xx, VT4xx	 Select KBD-DIG-VT	
 Select USB Keyboard	USB Keyboard with standard key encoding	
USB Keyboard with alternate key encoding	 Select USB Alternate Keyboard	
 Select USB-KBD-APPLE	USB Keyboard for Apple computers	
WAND EMULATION		**FEATURES**
Wand Emulation	 Select WAND	Set WAND Interface Features starting on page 123

Global Interface Features

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

- RS-232 ONLY Interface on page 73
- Keyboard Interface on page 99
- USB-OEM Interface on page 113
- IBM 46XX Interface on page 117
- Wand Emulation Interface on page 123

Host Commands — Obey/Ignore

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

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

USB Suspend Mode

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

USB Suspend Mode = Disable

USB Suspend Mode = Enable

Chapter 5
RS-232 ONLY Interface

Introduction

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

RS-232 Standard Factory Settings

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

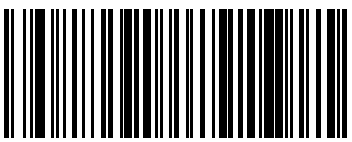
Baud Rate

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


ENTER/EXIT PROGRAMMING MODE


Baud Rate = 1200


Baud Rate = 2400


Baud Rate = 4800

Baud Rate — continued

ENTER/EXIT PROGRAMMING MODE

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

Data Bits

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

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.

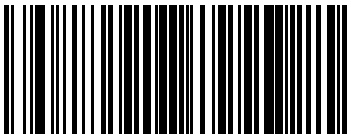
Parity

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.

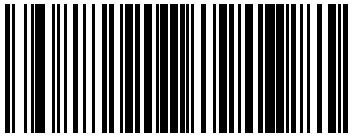
- Select None when no parity bit is required.
- Select Odd parity and the parity bit value is set to 0 or 1, based on data, to ensure that an odd number of 1 bits are contained in the coded character.
- Select Even parity and the parity bit value is set to 0 or 1, based on data, to ensure that an even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

ENTER/EXIT PROGRAMMING MODE

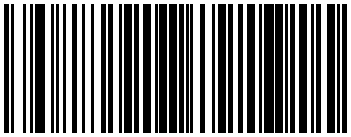
DEFAULT



Parity = None



Parity = Even



Parity = Odd

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.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Handshaking Control = RTS

Handshaking Control = RTS/CTS

Handshaking Control = RTS/XON/XOFF

Handshaking Control = RTS On/CTS

Handshaking Control = RTS/CTS Scan Control

NOTES

Chapter 6
RS-232/USB-Com Interfaces

Introduction

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

Standard Factory Settings

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.

To set the delay:

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

NOTE

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

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

This completes the procedure. See Table 7 for some examples of how to set this feature.

Table 7. Intercharacter Delay Setting Examples

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

Intercharacter Delay — cont.

ENTER/EXIT PROGRAMMING MODE

Intercharacter Delay = No Delay

Select Intercharacter Delay Setting

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

CANCEL

DEFAULT

00 = No Intercharacter Delay

Beep On ASCII BEL

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

ENTER/EXIT PROGRAMMING MODE


Beep On ASCII BEL = Disable

DEFAULT


Beep On ASCII BEL = Enable

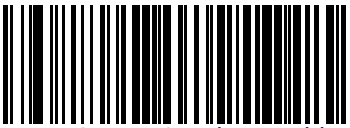
Beep On Not on File

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

ENTER/EXIT PROGRAMMING MODE


Beep On Not On File = Disable

DEFAULT


Beep On Not On File = Enable

ACK NAK Options

This enables/disables the ability of the reader to support the RS-232 ACK/NAK protocol. When configured, the reader and/or host sends an "ACK" when it receives data properly, and sends "NAK" when the data is in error.

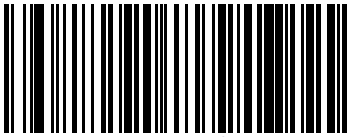
Options are:

- 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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

ACK/NAK Protocol = Disable ACK/NAK



ACK/NAK Protocol = Enable for label transmission

ACK/NAK Protocol = Enable for host-command acknowledge

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

ACK Character

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

NOTE

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

To set this feature:

1. Determine the desired character or value.
2. Use the ASCII Chart on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT ACK CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in Appendix E, Keypad, that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See Table 8 for some examples of how to set this feature.

Table 8. ACK Character Setting Examples

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

ACK Character — cont.

ENTER/EXIT PROGRAMMING MODE

Select ACK Character Setting

DEFAULT

0x06 'ACK' Character

NAK Character

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

NOTE

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

To set this feature:

1. Determine the desired character or value.
2. Use the ASCII Chart on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT NAK CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in Appendix E, Keypad, that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

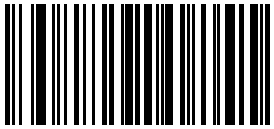
This completes the procedure. See Table 9 for some examples of how to set this feature.

Table 9. NAK Character Setting Examples

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

NAK Character — cont.


ENTER/EXIT PROGRAMMING MODE


Select NAK Character Setting

DEFAULT

0x15 'NAK' Character

ACK NAK Timeout Value

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

To set this value:

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 200 (setting is in 200ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT ACK NAK TIMEOUT VALUE SETTING.
5. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 10 for some examples of how to set this feature.

Table 10. ACK NAK Timeout Value Setting Examples

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

ACK NAK Timeout Value — cont.

ENTER/EXIT PROGRAMMING MODE

Select ACK NAK Timeout Value Setting

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

CANCEL

DEFAULT

01 ACK NAK Timeout value is 200ms

ACK NAK Retry Count

This feature specifies the number of times the reader retries a label transmission due to a retry condition. The selectable range is from 1 to 254 retries. A selection of 0 disables the count, and a selection of 255 specifies unlimited retries.

To set this feature:

1. Determine the desired setting.
2. Pad the number with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT ACK NAK RETRY COUNT SETTING.
5. Scan the appropriate three digits from the keypad in Appendix E, Keypad, that represent the number which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 11 for some examples of how to set this feature.

Table 11. ACK NAK Retry Count Setting Examples

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

ACK NAK Retry Count — cont.

ENTER/EXIT PROGRAMMING MODE

Select ACK NAK Retry Count Setting

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

CANCEL

DEFAULT

003 = 3 Retries

ACK NAK Error Handling

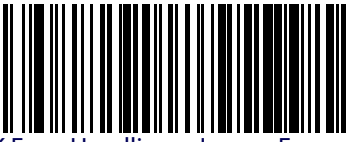
This feature specifies the method the reader uses to handle receive errors detected while waiting for an ACK character from the host.

Options are:

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

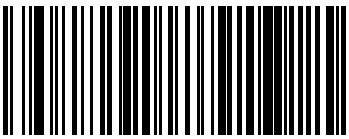
ENTER/EXIT PROGRAMMING MODE

DEFAULT



ACK NAK Error Handling = Ignore Errors Detected

ACK NAK Error Handling = Process Error as Valid ACK Character



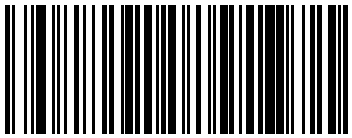
ACK NAK Error Handling = Process Error as Valid NAK Character

Indicate Transmission Failure

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

ENTER/EXIT PROGRAMMING MODE

Indicate Transmission Failure = Disable Indication



Indicate Transmission Failure = Enable Indication

DEFAULT

Disable Character

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

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

NOTE

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

To set the value:

1. Determine the desired character or value. A setting of 0xFF indicates the Disable Character is not used (not available).
2. Use the ASCII Chart on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT DISABLE CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in Appendix E, Keypad, that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See Table 12 for some examples of how to set this feature.

Table 12. Disable Character Setting Examples

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

Disable Character — cont.

ENTER/EXIT PROGRAMMING MODE

Select Disable Character Setting

DEFAULT

0x44 = Disable Character is 'D'

Enable Character

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

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

NOTE

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

To set this feature:

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

1. Determine the desired character or value.
2. Use the ASCII Chart on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT ENABLE CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in Appendix E, Keypad, that represent the desired character/value in step 2 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See Table 13 for some examples of how to set this feature.

Table 13. Enable Character Setting Examples

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

Enable Character — cont.

ENTER/EXIT PROGRAMMING MODE

Select Enable Character Setting

DEFAULT

0x45 = Enable Character is 'E'

NOTES

Chapter 7
Keyboard Interface

Introduction

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

Standard Factory Settings

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

Scancode Tables

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

Country Mode

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

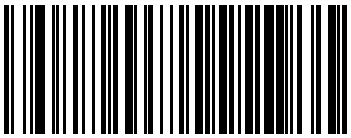
Only the following interfaces support ALL Country Modes.

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

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

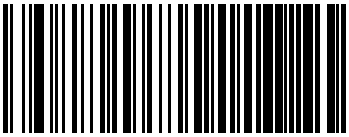

ENTER/EXIT PROGRAMMING MODE

DEFAULT


Country Mode = U.S.

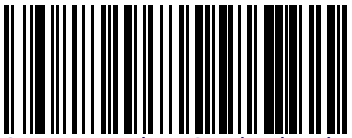

Country Mode = Belgium


Country Mode = Britain


Country Mode = Croatia

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

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


Country Mode = Czechoslovakia

Country Mode — continued

ENTER/EXIT PROGRAMMING MODE

Country Mode = Denmark	Supports only the interfaces listed in the Country Mode feature description.
	Country Mode = France
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 = Norway	Supports only the interfaces listed in the Country Mode feature description.

Country Mode — continued

ENTER/EXIT PROGRAMMING MODE

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.

Caps Lock State

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Caps Lock State = Caps Lock OFF

Caps Lock State = Caps Lock ON

Caps Lock State = AUTO Caps Lock Enable

Numlock

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Numlock = Numlock key unchanged

Numlock = Numlock key toggled

Send Control Characters

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

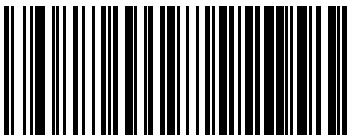
Options are as follows:

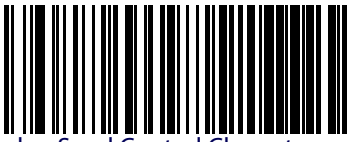
Control Character 00 . Characters from 00 to 0x1F are sent as control character Ctrl+Keys, special keys are located from 0x80 to 0xA1.

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

Control Character 02 . Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (Microsoft Windows Codepage 1252 — see "Microsoft Windows Codepage 1252"on page 422).

DEFAULT





Wedge Quiet Interval

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

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

Follow these instructions to set this feature:

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

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

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

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

Table 14. Timeout Setting Examples

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

Wedge Quiet Interval — cont.

ENTER/EXIT PROGRAMMING MODE

Select Wedge Quiet Interval Setting

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

CANCEL

DEFAULT

10 = Quiet Interval of 100 ms

Intercharacter Delay

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

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

To set the delay:

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

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

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

This completes the procedure. See Table 14 for some examples of how to set this feature.

Table 15. Intercharacter Delay Setting Examples

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

Intercharacter Delay — cont.

ENTER/EXIT PROGRAMMING MODE

Intercharacter Delay = No Delay

Select Intercharacter Delay Setting

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

CANCEL

DEFAULT

00 = No Intercharacter Delay

Intercode Delay

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

Follow these instructions to set this feature:

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

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

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

This completes the procedure. See Table 16 for some examples of how to set this feature.

Table 16. Wedge Intercode Delay Examples

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

Intercode Delay — cont.

ENTER/EXIT PROGRAMMING MODE

Set Intercode Delay

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

CANCEL

DEFAULT

00 = No Wedge Intercode Delay

USB Keyboard Speed

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

USB Keyboard Speed = 1ms

USB Keyboard Speed = 2ms

USB Keyboard Speed = 3ms

USB Keyboard Speed = 4ms

USB Keyboard Speed = 5ms

USB Keyboard Speed — continued

ENTER/EXIT PROGRAMMING MODE

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

Chapter 8
USB-OEM Interface

Introduction

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

Standard Factory Settings

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

USB-OEM Device Usage

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

Options are:

- Table Top Scanner
- Handheld Scanner

NOTE

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

ENTER/EXIT PROGRAMMING MODE

USB-OEM Device Usage = Table Top Scanner

USB-OEM Device Usage = Handheld Scanner

DEFAULT

Interface Options

This feature provides for an interface-specific control mechanism.

ENTER/EXIT PROGRAMMING MODE

Obey Scanner Configuration Host Commands

Ignore Scanner Configuration Host Commands

DEFAULT

NOTES

Chapter 9
IBM 46XX Interface

Introduction

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

IBM Standard Factory Settings

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

46xx Number of Host Resets

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

ENTER/EXIT PROGRAMMING MODE

46xx Number of Host Resets = 1

46xx Number of Host Resets = 2

46xx Number of Host Resets = 3

46xx Number of Host Resets = 4

46xx Number of Host Resets = 5

46xx Number of Host Resets = 6

DEFAULT

46xx Number of Host Resets — cont.

ENTER/EXIT PROGRAMMING MODE

46xx Number of Host Resets = 7

46xx Number of Host Resets = 8

46xx Number of Host Resets = 9

46xx Number of Host Resets = 10

46xx Number of Host Resets = 11

46xx Number of Host Resets = 12

46xx Number of Host Resets — cont.

ENTER/EXIT PROGRAMMING MODE

46xx Number of Host Resets = 13

46xx Number of Host Resets = 14

46xx Number of Host Resets = 15

Transmit Labels in Code 39 Format

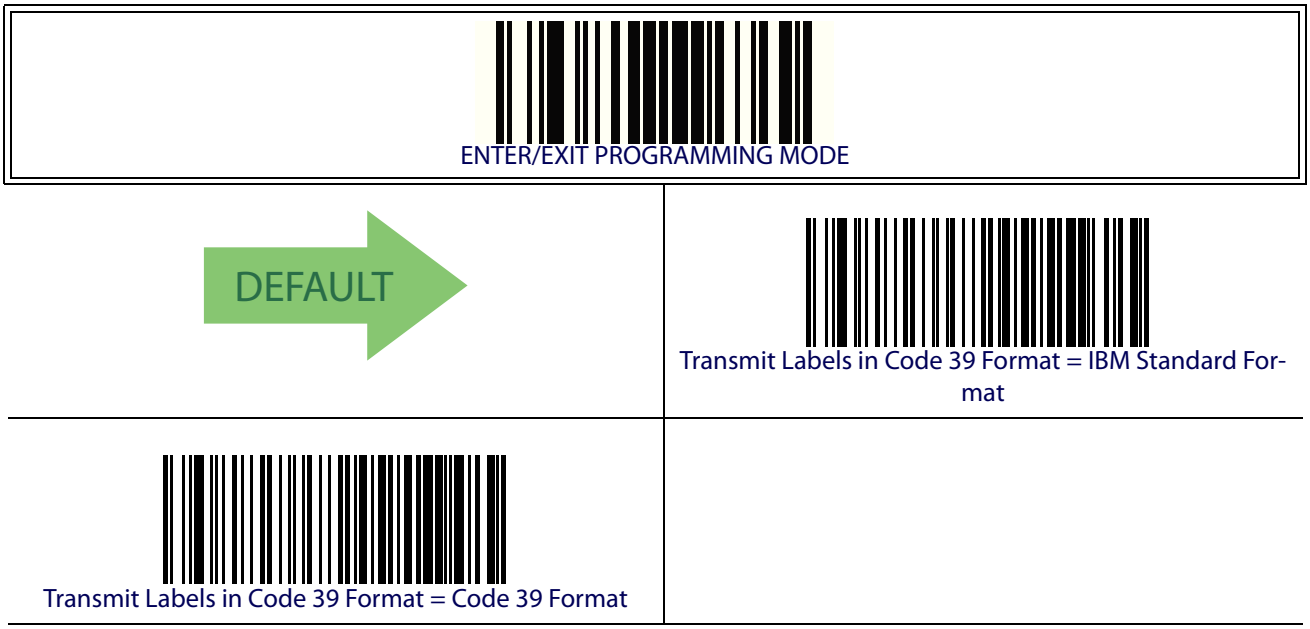
This feature enable/disables translation to Code 39 before transmitting label data to an IBM-46XX or a USB-OEM host. Only the symbology identifier is modified for the translation. The data is not converted to Code 39 or verified to be valid for Code 39.

Options are:

IBM Standard Format. Send labels in standard IBM format.

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

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



Interface Options

This feature provides for an interface-specific control mechanism.

ENTER/EXIT PROGRAMMING MODE

Obey Scanner Configuration Host Commands

Ignore Scanner Configuration Host Commands

DEFAULT

Chapter 10
Wand Emulation Interface

Introduction

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

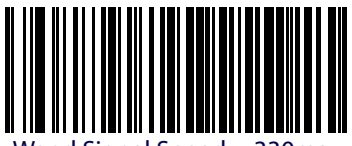
Wand Emulation Standard Factory Settings

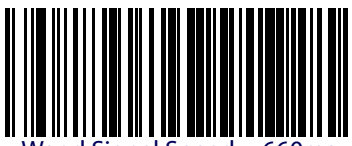
Reference Appendix C, Standard Defaults for a listing of standard factory settings.

Wand Signal Speed

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

- 330 microseconds
- 660 microseconds





Wand Polarity

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

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

NOTE

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Wand Polarity = Quiet Zones & Spaces High, Bars Low

Wand Polarity = Quiet Zones & Spaces Low, Bars High

Wand Idle State

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

NOTE

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

ENTER/EXIT PROGRAMMING MODE

Wand Idle State = Low

Wand Idle State = High

DEFAULT

Transmit Noise

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

- Disable (no leading/trailing noise)
- Enable leading noise
- Enable trailing noise
- Enable leading and trailing noise

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Transmit Noise = Disable

Transmit Noise = Transmit leading noise

Transmit Noise = Transmit trailing noise

Transmit Noise = Transmit leading and trailing noise

Label Symbology Conversion

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Label Symbology Conversion = No conversion

Label Symbology Conversion = Convert to Code 39

Label Symbology Conversion = Convert to Code 39 Full ASCII

Label Symbology Conversion = Convert to Code 128

NOTES

Chapter 11
Data Editing

Data Editing Overview

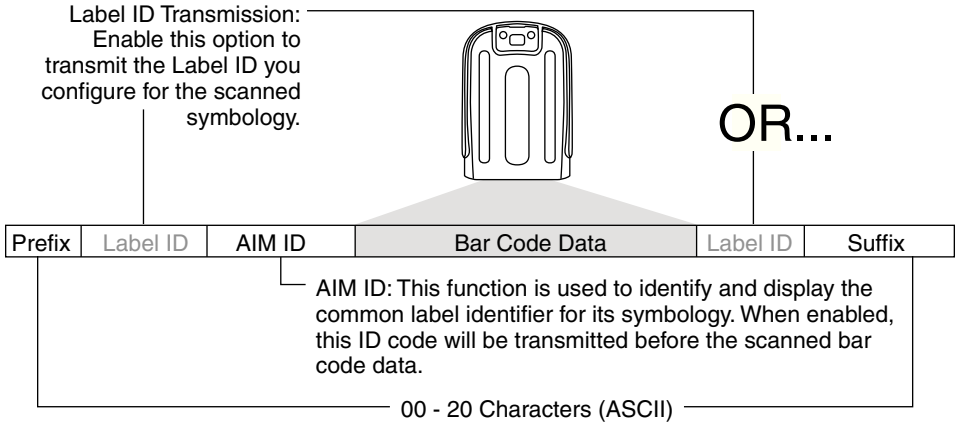
CAUTION

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

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

There are several types of selectable data characters that can be sent before and after scanned data. You can specify if they should be sent with all symbologies, or only with specific symbologies. Figure 16 shows the available elements you can add to a message string:

Figure 16. Breakdown of a Message String



NOTE

Additional advanced editing is available. See the Advanced formatting features in the Datalogic Aladdin configuration software, or contact Technical Support (described on page 11) for more information.

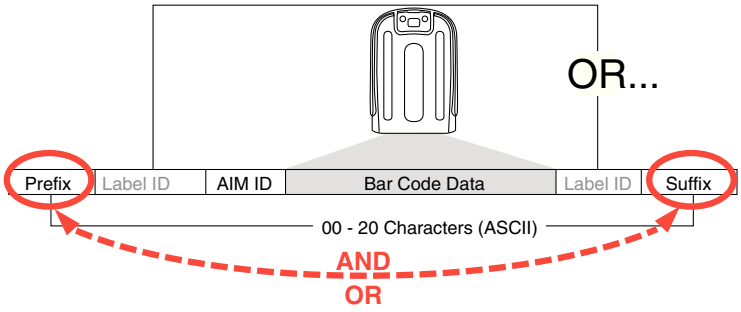
Please Keep In Mind...

- Modifying a message string is not a mandatory requirement. Data editing is sophisticated feature allowing highly customizable output for advanced users. Factory default settings for data editing is typically set to NONE.
- A prefix or suffix may be applied (reference the Symbologies chapter for these settings) across all symbologies (set via the Global features in this chapter).
- You can add any character from the ASCII Chart (from 00-FF) on the inside back cover of this manual as a prefix, suffix or Label ID.
- Enter prefixes and suffixes in the order in which you want them to appear on the output.

Global Prefix/Suffix

Up to 20 ASCII characters may be added as a prefix (in a position before the barcode data) and/or as a suffix (in a position following the barcode data) as indicated in Figure 17.

Figure 17. Prefix and Suffix Positions



Example: Setting a Prefix

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

1. Determine which ASCII character(s) are to be added to scanned barcode data. In this example, we'll add a dollar sign ('$') as a prefix.
2. Scan the ENTER/EXIT barcode.
3. Scan the SET GLOBAL PREFIX barcode.
4. Reference the ASCII Chart on the inside back cover of this manual, to find the hex value assigned to the desired character. The corresponding hex number for the '$' character is 24. To enter this selection code, scan the '2' and '4' barcodes from Appendix E, Keypad.

NOTE

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

5. If less than the expected string of 20 characters are selected, scan the ENTER/EXIT barcode to terminate the string.

6. Scan the ENTER/EXIT barcode once again to exit Programming Mode.
7. The resulting message string would appear as follows:

   Scanned barcode data:12345

   Resulting message string output: $12345

This option sets up to 20 characters each from the set of ASCII characters or any hex value from 00 to FF. To configure this feature, scan the ENTER/EXIT barcode to place the unit in Programming Mode, then the “Set Global Prefix” or “Set Global Suffix,” barcode followed by the digits (in hex) from the Alphanumeric characters in Appendix E, Keypad representing your desired character(s). If less than the expected string of 20 characters are selected, scan the ENTER/EXIT barcode to terminate the string. Reference the section, "Example: Setting a Prefix"on page 130, for more information. Exit programming mode by scanning the ENTER/EXIT barcode once again.

ENTER/EXIT PROGRAMMING MODE

Set Global Prefix

Set Global Suffix

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

CANCEL

DEFAULT

No Global Prefix
Global Suffix = 0x0D

Global AIM ID

NOTE

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

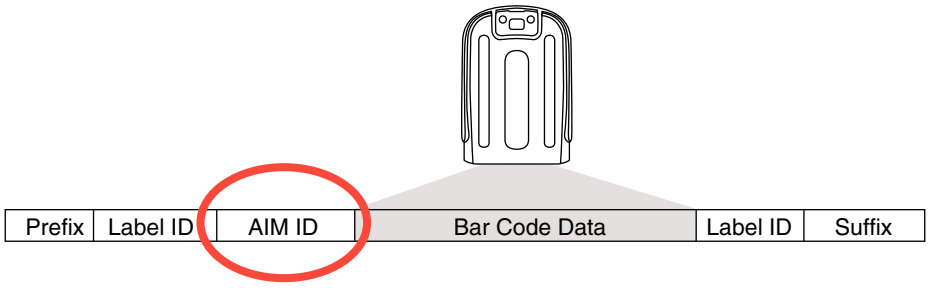
AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned barcode data. AIM label identifiers consist of three characters as follows:

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

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

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

Figure 18. AIM ID



Global AIM ID — continued

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Global AIM ID = Disable

Global AIM ID = Enable

GS1-128 AIM ID

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

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

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

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

ENTER/EXIT PROGRAMMING MODE

GS1-128 AIM ID = Disable

GS1-128 AIM ID = Enable

DEFAULT

Label ID

A Label ID is a customizable code of up to three ASCII characters (each can be one of hex 0x01-0xFF), used to identify a barcode (symbology) type. It can be appended previous to or following the transmitted barcode data depending upon how this option is enabled. This feature provides options for configuring custom Label IDs as a pre-loaded set (see "Label ID: Pre-loaded Sets" below) or individually per symbology (see "Label ID: Set Individually Per Symbology"on page 137). 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 132.

Label ID: Pre-loaded Sets

The reader supports two pre-loaded sets of Label IDs. Table 17 shows the USA set and the EU set.

CAUTION

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Label ID Pre-loaded Set = USA Set

Label ID Pre-loaded Set = EU Set

Table 17. Label ID Pre-loaded Sets

Symbology	USA Label ID set		EU Label ID set	
	ASCII character	Hexidecimal value	ASCII character	Hexidecimal value
ABC Codabar	S	530000	S	530000
Anker Plessey	o	6F0000	o	6F0000
CODABAR	%	250000	R	520000

Symbology	USA Label ID set		EU Label ID set	
Codablock F	I	6C0000	m	6D0000
CODE11	CE	434500	b	620000
CODE128	#	230000	T	540000
CODE32	A	410000	X	580000
CODE39	*	2A0000	V	560000
CODE39 CIP	Y	590000	Y	590000
CODE4	4	340000	4	340000
CODE5	j	6A0000	j	6A0000
CODE93	&	260000	U	550000
DATALOGIC 2OF5	s	730000	s	730000
EAN13	F	460000	B	420000
EAN13 P2	F	460000	L	4C0000
EAN13 P5	F	460000	M	4D0000
EAN13 P8	F	460000	#	230000
EAN8	FF	464600	A	410000
EAN8 P2	FF	464600	J	4A0000
EAN8 P5	FF	464600	K	4B0000
EAN8 P8	FF	464600	*	2A0000
FOLLETT 2OF5	O	4F0000	O	4F0000
GS1 DATABAR EXPANDED	RX	525800	t	740000
GS1 DATABAR LIMITED	RL	524C00	v	760000
GS1 DATABAR OMNIDIRECTIONAL	R4	523400	u	750000
GS1-128		000000	k	6B0000
GTIN	G	470000	$A	244100
GTIN2	G2	473200	$B	244200
GTIN5	G5	473500	$C	244300
GTIN8	G8	473800	$D	244400
IATA	IA	494100	&	260000
Industrial 2 of 5	W	570000	W	570000
Interleaved 2 of 5	i	690000	N	4E0000
Interleaved 2 of 5 CIP HR	e	650000	e	650000

Symbology	USA Label ID set		EU Label ID set	
ISBN	I	490000	@	400000
ISBT128	f	660000	f	660000
ISSN	n	6E0000	n	6E0000
MSI	@	400000	Z	5A0000
Plessey	a	610000	a	610000
S25	s	730000	P	500000
UPCA	A	410000	C	430000
UPCA P2	A	410000	F	460000
UPCA P5	A	410000	G	470000
UPCA P8	A	410000	Q	510000

Label ID: Set Individually Per Symbology

To configure a Label ID individually for a single symbology:

1. Scan the ENTER/EXIT barcode.
2. Select Label ID position as either BEFORE (Enable as Prefix) or AFTER (Enable as suffix) by scanning the appropriate barcode in the section "Label ID Control"on page 140. Reference Figure 19 for Label ID positioning options if multiple identification features are enabled.
3. Scan a barcode to select the symbology for which you wish to configure a custom Label ID from the section Label ID Symbology Selection, starting on page 141.
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 407 and scan the barcodes representing the hex characters determined. For the example given, the characters '3' and 'D' would be scanned. More examples of Label ID settings are provided in Table 18.

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

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

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

Figure 19. Label ID Position Options

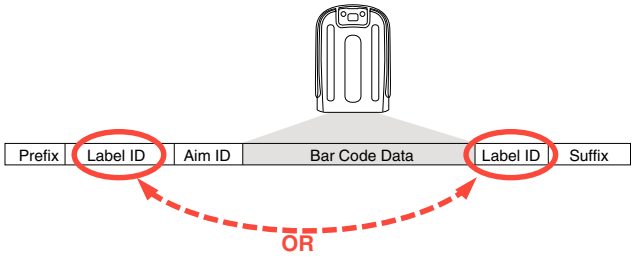


Table 18. Label ID Examples

STEP	ACTION	EXAMPLES			
1.	**Scan the ENTER/EXIT barcode**	(Scanner enters Programming Mode)			
2.	**Determine placement of the Label ID characters BEFORE or AFTER with regard to scanned data using** Label ID Control, starting on page 140	Enable as Prefix	Enable as Suffix	Enable as Prefix	Enable as Suffix
3.	**Scan the barcode selecting the symbology type you wish to designate label ID characters for using** Label ID Symbology Selection, starting on page 141**.**	DataBar Omnidirectional	Code 39	Interleaved 2 of 5	Code 32
4.	**Custom Label ID example (desired characters):**	D B *	= C 3	+	P H
5.	**Find hex equivalents from the ASCII table (inside back cover), then scan in these digits/characters using the barcodes in the section:** Keypad, starting on page 407**. If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.**	44 42 2A	3D 43 33	2B	50 48
6.	**Scan the ENTER/EXIT barcode**	(Scanner exits Label ID entry)			
7.	**Scan the ENTER/EXIT barcode once again**	(Scanner exits Programming Mode)			

STEP	ACTION	EXAMPLES			
1.	**Scan the ENTER/EXIT barcode**	(Scanner enters Programming Mode)			
2.	**Determine placement of the Label ID characters BEFORE or AFTER with regard to scanned data using** Label ID Control, starting on page 140	Enable as Prefix	Enable as Suffix	Enable as Prefix	Enable as Suffix
3.	**Scan the barcode selecting the symbology type you wish to designate label ID characters for using** Label ID Symbology Selection, starting on page 141**.**	DataBar Omnidirectional	Code 39	Interleaved 2 of 5	Code 32
4.	**Custom Label ID example (desired characters):**	D B *	= C 3	+	P H
5.	**Find hex equivalents from the ASCII table (inside back cover), then scan in these digits/characters using the barcodes in the section:** Keypad, starting on page 407**. If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.**	44 42 2A	3D 43 33	2B	50 48
	Result:	DB*[barcode data]	[barcode data]=C3	+[barcode data]	[barcode data]PH

Label ID Control

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Label ID Transmission = Disable

Label ID Transmission = Enable as Prefix

Label ID Transmission = Enable as Suffix

CANCEL

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

Label ID Symbology Selection

This option selects the symbology for which a Label ID is to be configured. See "Label ID"on page 135 for full instructions.

ENTER/EXIT PROGRAMMING MODE

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

Label ID Symbology Selection — continued

ENTER/EXIT PROGRAMMING MODE

Set UPC-E/P5 Label ID Character(s)

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

Set EAN 13 Label ID Character(s)

Set EAN 13/P2 Label ID Character(s)

Set EAN 13/P5 Label ID Character(s)

Set EAN 13/GS1-128 Label ID Character(s)

Label ID Symbology Selection — continued

ENTER/EXIT PROGRAMMING MODE

Set EAN 8 Label ID Character(s)

Set EAN 8/P2 Label ID Character(s)

Set EAN 8/P5 Label ID Character(s)

Set EAN 8/GS1-128 Label ID Character(s)

Set GTIN Label ID Character(s)

Set GTIN/P2 Label ID Character(s)

Label ID Symbology Selection — continued

ENTER/EXIT PROGRAMMING MODE

Set GTIN/P5 Label ID Character(s)

Set GTIN/GS1-128 Label ID Character(s)

Set Code 39 Label ID Character(s)

Set Code 32 Label ID Character(s)

Set Code 39 CIP Label ID Character(s)

Set Code 128 Label ID Character(s)

Set GS1-128 Label ID Character(s)

Label ID Symbology Selection — continued

ENTER/EXIT PROGRAMMING MODE

Set ISBT 128 Label ID Character(s)	
	Set Codablock F Label ID Character(s)
Set Interleaved 2 of 5 Label ID Character(s)	
	Set Follett 2 of 5 Label ID Character(s)
Set Interleaved 2 of 5 CIP HR Label ID Character(s)	
	Set Standard 2 of 5 Label ID Character(s)

Label ID Symbology Selection — continued

ENTER/EXIT PROGRAMMING MODE

Set Industrial 2 of 5 Label ID Character(s)

Set IATA Label ID Character(s)

Set Datalogic 2 of 5 Label ID Character(s)

Set Codabar Label ID Character(s)

Set ABC Codabar Label ID Character(s)

Set Code 11 Label ID Character(s)

Label ID Symbology Selection — continued

ENTER/EXIT PROGRAMMING MODE

	Set DataBar Omnidirectional Label ID Character(s)
Set DataBar Expanded Label ID Character(s)	
	Set DataBar Limited Label ID Character(s)
Set Code 93 Label ID Character(s)	
	Set MSI Label ID Character(s)
Set Plessey Label ID Character(s)	
	Set Anker Plessey Label ID Character(s)

Label ID Symbology Selection — continued

ENTER/EXIT PROGRAMMING MODE

Set Code 4 Label ID Character(s)

Set Code 5 Label ID Character(s)

Case Conversion

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

NOTE

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Case Conversion = Disable (no case conversion)

Case Conversion = Convert to upper case

Case Conversion = Convert to lower case

Character Conversion

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

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

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

With the label, AB12BA21, it would look as follows after the character

conversion: BB22BB22.

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

To set Character Conversion:

1. Scan the ENTER/EXIT barcode.
2. Scan the “Configure Character Conversion” barcode.
3. Determine the desired string. Sixteen positions must be determined as in the above example. Next, turn to the ASCII Chart on the inside back cover of this manual and find the equivalent hex digits needed to fulfill the string.
4. Turn to Appendix E, Keypad and scan the barcodes representing the hex characters determined in the previous step.
5. Scan the ENTER/EXIT barcode to exit Programming Mode.

NOTE

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

Character Conversion — continued

ENTER/EXIT PROGRAMMING MODE

Configure Character Conversion

DEFAULT

0xFFFFFFFFFFFFFFFF
(No character conversion)

NOTES

Chapter 12
RF Features

Introduction

This section provides options and programming related to the reader's radio communication features.

Standard Factory Settings

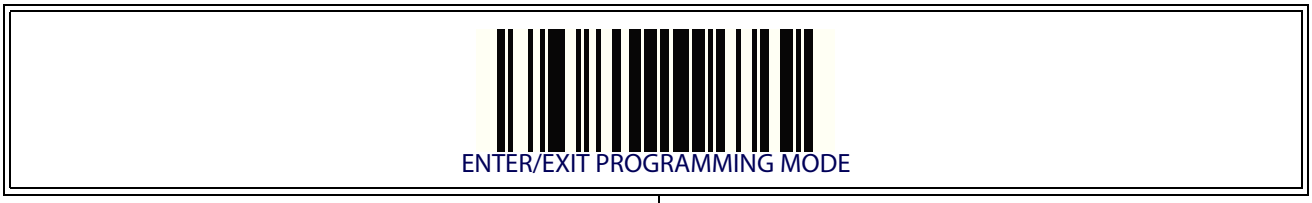
Reference Appendix C, Standard Defaults for a listing of standard factory settings.

RF Beeper Features

Several options are available to configure beeper behavior for RF operation.

Good Transmission Beep

Enables/disables the Good Transmission Beep indication. When enabled, a beep occurs when a Label is correctly transmitted to the base.



Beep Frequency

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Beep Frequency = Low

Beep Frequency = Medium

Beep Frequency = High

Beep Duration

This feature controls the duration of radio-specific beep indications.

ENTER/EXIT PROGRAMMING MODE

Beep Duration = 60 msec

Beep Duration = 80 msec

DEFAULT

Beep Duration = 100 msec

Beep Duration = 120 msec

Beep Duration = 140 msec

Beep Duration — cont.

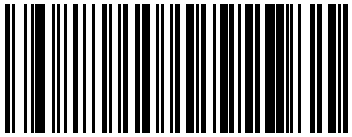
ENTER/EXIT PROGRAMMING MODE

Beep Duration = 160 msec	
	Beep Duration = 180 msec
Beep Duration = 200 msec	

Beep Volume

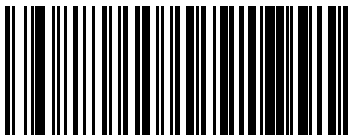
Selects the beeper volume (loudness) of radio-specific beep indications. There are three selectable volume levels.

ENTER/EXIT PROGRAMMING MODE



Beep Volume = Low

Beep Volume = Medium



Beep Volume = High

DEFAULT

Disconnect Beep

Enables/disables the beep indication that a handheld has become disconnected from a Base Station.

ENTER/EXIT PROGRAMMING MODE

Disconnect Beep = Disable

Disconnect Beep = Enable

DEFAULT

Base Station Beep

Enables/disables a beep indication when the handheld is placed in the Base Station.

ENTER/EXIT PROGRAMMING MODE

BT Base Station Beep = Disable

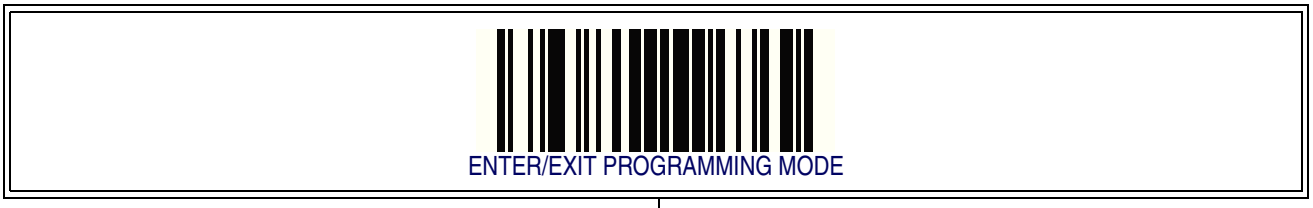
BT Base Station Beep = Enable

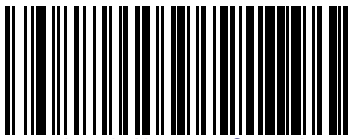
DEFAULT

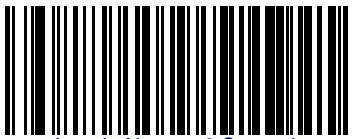
Leash Alarm

This setting specifies the number of seconds to sound the Leash Mode beeps (three per second) when the handheld goes out of range. This is especially useful in instances where the reader might inadvertently have been placed in a bag or cart.

For this mode to be effective, the feature "Sleep Mode Timeout" on page 37 must be disabled. If the reader is asleep, there is no way for it to know where it is relative to the Base Station because communication is not active between the devices.







Leash Alarm — cont.

ENTER/EXIT PROGRAMMING MODE

Leash Alarm = 5 Seconds

Leash Alarm = 10 Seconds

Leash Alarm = 25 Seconds

Leash Alarm = 30 Seconds

Configuration Update

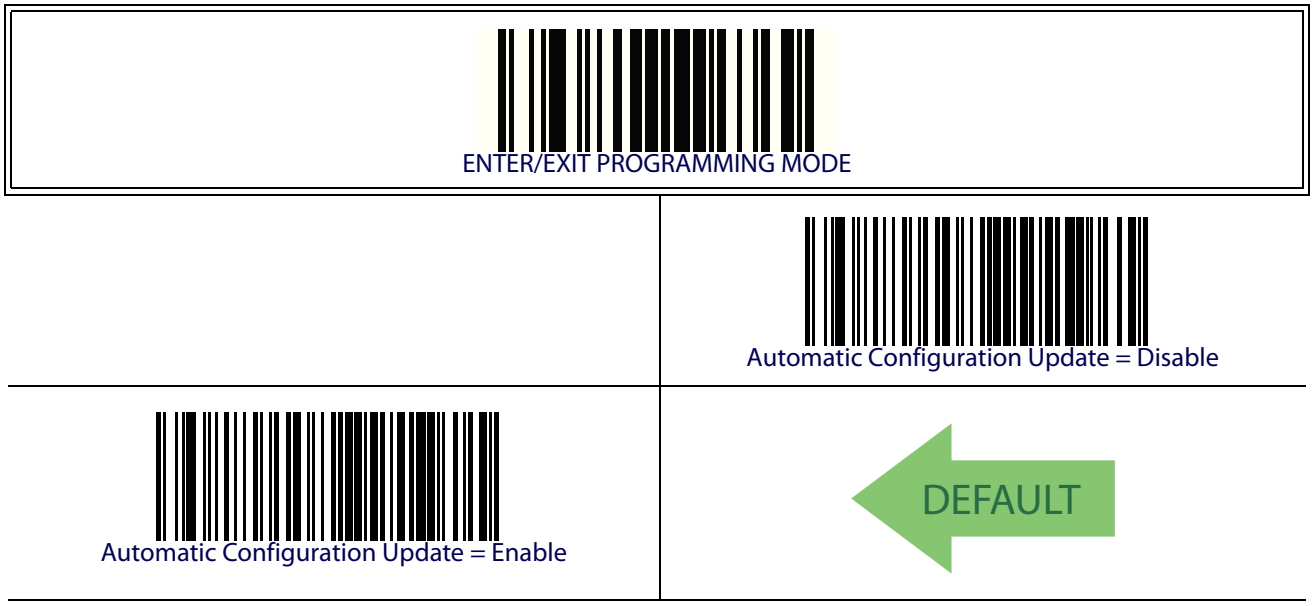
Automatic Configuration Update

When this feature is enabled, a reader and its linked Base Station can automatically ensure they stay in sync with regard to application hardware and/or configuration. This is accomplished by the linked reader and Base Station comparing application version number and configuration file check sum. If either is different, the Base Station will automatically update the reader with its application/configuration.

If the units are linked, any changes made to the Base Station configuration through the scan utility software will automatically be sent to the reader at the completion of the programming session.

In the same way, any changes made to the linked reader's configuration will also be transmitted to the Base Station when the reader exits Programming Mode.

If Auto Configuration update is enabled, it can also be done when the reader is installed on its base station.



Copy Configuration to Scanner

Scan the following label to copy the current Base Station configuration to the scanner. Use this method when the Auto Configuration Update feature is disabled and you want a one-time configuration update to be performed on the scanner.

NOTE **Do not scan an ENTER/EXIT PROGRAMMING MODE label in conjunction with this barcode.**

Copy Configuration to Scanner

Copy Configuration to Base Station

Scan the following label to copy the current scanner configuration to the Base Station. Use this method when the Auto Configuration Update feature is disabled and you want a one-time configuration update to be performed on the Base Station.

Copy Configuration to Base Station

NOTE **Do not scan an ENTER/EXIT PROGRAMMING MODE label with this barcode.**

Powerdown Timeout

The Powerdown Timeout feature sets the time for automatically switching the unit off when the imager has been idle.

ENTER/EXIT PROGRAMMING MODE

Powerdown Timeout = Disable

Powerdown Timeout = 10 minutes

Powerdown Timeout = 20 minutes

Powerdown Timeout = 40 minutes

DEFAULT

Powerdown Timeout = 60 Minutes (1 Hour)

Powerdown Timeout — continued

ENTER/EXIT PROGRAMMING MODE

	Powerdown Timeout = 120 Minutes (2 Hours)
Powerdown Timeout = 4 Hours	
	Powerdown Timeout = 6 Hours
Powerdown Timeout = 8 Hours	
	Powerdown Timeout = 16 Hours
Powerdown Timeout = 24 Hours	

Batch Features

Batch Mode

This option specifies whether to store labels in the handheld while disconnected from the base. Options are as follows:

- Disabled — The handheld will not store/batch labels.
- Manual — The handheld will always store labels to Flash memory. The user must manually send the stored labels to the remote device using a special "batch send" label.

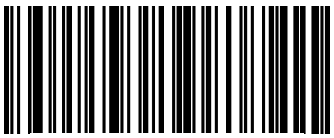
Batch Features — cont.

Send Batch

Use this barcode to initiate sending of labels stored in batch memory.

Do not scan an ENTER/EXIT PROGRAMMING MODE label in conjunction with this barcode.

NOTE



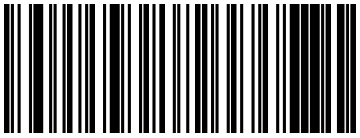
Send Batch

Erase Batch Memory

Use this barcode to erase any labels stored in batch memory.

Do not scan an ENTER/EXIT PROGRAMMING MODE label in conjunction with this barcode.

NOTE



Erase Batch Memory

RF Address Stamping

These features allow configuration of source radio data inclusion.

Source Radio Address Transmission

Enables/disables the ability of source radio address information to be transmitted to the host and, if so, at what position with respect to the label data.

Options are:

- Do Not Include — Do not include source-radio ID
- Prefix — Include source-radio ID as prefix

NOTE

When included as a prefix, the source-radio ID is displayed after all label formatting has been applied.

The 6 byte hex address is sent as 12 ascii characters, i.e., an address of:

00 06 66 00 1A ED

will be sent as (shown in hex):

30 30 30 36 36 36 30 30 31 41 45 44

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Source Radio Address Transmission = Do Not Include

Source Radio Address Transmission = Prefix

Source Radio Address Delimiter Character

This option specifies the delimiter character to be placed between the label data and radio address when address stamping is enabled.

NOTE **This feature only applies if "Source Radio Address Transmission"on page** 167 **is enabled.**

Follow these instructions to select the delimiter character:

1. Determine the desired character, then find its hexadecimal equivalent on the ASCII Chart on the inside back cover. A setting of 00 specifies no delimiter character.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SET SOURCE RADIO ADDRESS DELIMITER CHARACTER.
4. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the hexidecimal characters which were determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 19 for some examples of how to set this feature.

Table 19. Source Radio Address Delimiter Character Setting Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	No delimiter character	, (comma)	- (dash)	/ (slash)
2	**Scan ENTER/EXIT PROGRAMMING MODE**				
3	**Scan SET SOURCE RADIO ADDRESS DELIMiTER CHARACTER**				
4	**Scan Two Characters From** Appendix E, Keypad	'0' and '0'	'2' and 'C'	'2' and 'D'	'2' AND 'F'
5	**Scan ENTER/EXIT PROGRAMMING MODE**				

Source Radio Address Delimiter Character — cont.

ENTER/EXIT PROGRAMMING MODE

Set Source Radio Address Delimiter Character

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

CANCEL

DEFAULT

00 = No Delimiter Character

Radio Protocol Timeout

This parameter sets the valid wait time before transmission between the handheld reader and Base Station is considered failed.

When setting this parameter, take into consideration the radio traffic (number of readers in the same area). The selectable range for this feature is from 02 to 25 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: 2 = 02, 5 = 05, 25 = 25, etc
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT RADIO PROTOCOL TIMEOUT.
5. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 20 for some examples of how to set this feature.

Table 20. Wedge Intercode Delay Examples

STEP	ACTION	EXAMPLES			
1	**Desired Setting**	2 Seconds	5 Seconds	10 Seconds	25 Seconds
2	**Pad with leading zero(es)**	02	05	10	25
3	**Scan ENTER/EXIT PROGRAMMING MODE**				
4	**Scan SELECT INTERCODE DELAY SETTING**				
5	**Scan Two Characters From** Appendix E, Keypad	'0' and '2'	'0' and '5'	'1' and '0'	'2' AND '5'
6	**Scan ENTER/EXIT PROGRAMMING MODE**				

Radio Protocol Timeout - continued

ENTER/EXIT PROGRAMMING MODE

Set Radio Protocol Timeout

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

CANCEL

DEFAULT

02 = 2 Seconds Radio Protocol Timeout

Radio Transmit Mode

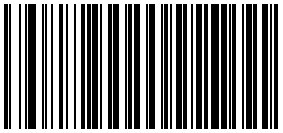
Specifies the transmission protocol for Star communications.

Options are:

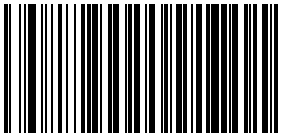
- ACK from cradle to scanner — signals a good transmission as soon as the Base Station receives a label
- ACK when sent to host — scanner signals a good transmission as soon as the Base Station has sent the label to the host
- ACK from host — scanner signals a good transmission as soon as the Base Station has sent the label to the host and host has replied with an acknowledge message.

ENTER/EXIT PROGRAMMING MODE

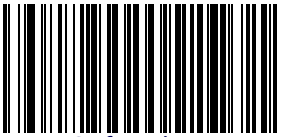
DEFAULT



ACK from cradle



ACK when sent to host



ACK from host

NOTE

ACK from host works only for RS232 or USB-COM interfaces with ACK/NACK disabled. If ACK from host is configured with any other interface conditions, it works like ACK when sent to host.

See "Message Formatting"on page 379 **for details.**

RF Batch Mode Transmit Delay

Specifies the delay in 10 msec increments between transmitting labels stored in batch memory .

ENTER/EXIT PROGRAMMING MODE

DEFAULT

RF Batch Mode Transmit Delay = No Delay

RF Batch Mode Transmit Delay = 0.5 seconds

RF Batch Mode Transmit Delay = 1 second

RF Batch Mode Transmit Delay = 2.5 seconds

Chapter 13
Symbologies

Introduction

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

Symbologies

Code EAN/UPC
- Coupon Control
- UPC-A
- UPC-E
- EAN 13 (Jan 13)
- ISSN
- EAN 8 (Jan 8)
- UPC/EAN Global Settings

Code 39
- Code 32 (Italian Pharmaceutical Code)
- Code 39 CIP (French Pharmaceutical)

Code 128
- GS1-128

Code ISBT 128

Codablock F

Interleaved 2 of 5 (I 2 of 5)
- Follett 2 of 5
- Interleaved 2 of 5 CIP HR

Standard 2 of 5

Industrial 2 of 5
- Code IATA

Datalogic 2 of 5

Codabar
- ABC Codabar

Code 11

GS1 DataBar™ Omnidirectional
- GS1 DataBar™ Omnidirectional
- GS1 DataBar™ Expanded
- GS1 DataBar™ Limited

Code 93

MSI

Plessey

Code 4

Code 5

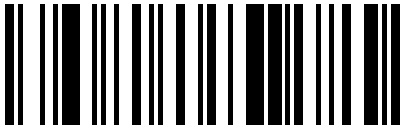
Standard Factory Settings for Symbologies

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.

Disable All Symbologies

Use this feature to disable all symbologies.

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



Code EAN/UPC

Coupon Control

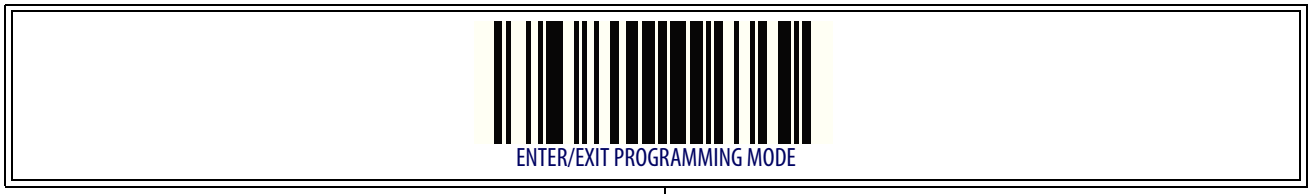
This feature is used to control the reader's method of processing coupon labels.

Options are:

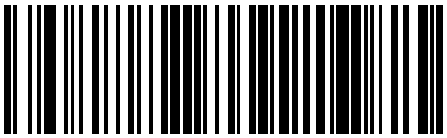
- Allow all coupon barcodes to be decoded
- Enable only UPC/EAN coupon decoding
- Enable only GS1 DataBar™ coupon decoding

To set this feature:

1. Scan the ENTER/EXIT PROGRAMMING barcode.
2. Scan either the enable or disable barcode below. You'll need to cover unused barcodes on this and the facing page to ensure that the reader sees only the barcode you intend to scan.
3. Complete the programming sequence by scanning the ENTER/EXIT PROGRAMMING barcode.



DEFAULT



UPC-A

The following options apply to the UPC-A symbology.

UPC-A Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

UPC-A = Disable

UPC-A = Enable

DEFAULT

UPC-A Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

UPC-A Check Character Transmission = Don't Send

UPC-A Check Character Transmission = Send

DEFAULT

Expand UPC-A to EAN-13

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

UPC-A Number System Character Transmission

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

UPC-A Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

UPC-A Minimum Reads = 1

UPC-A Minimum Reads = 2

UPC-A Minimum Reads = 3

UPC-A Minimum Reads = 4

UPC-E

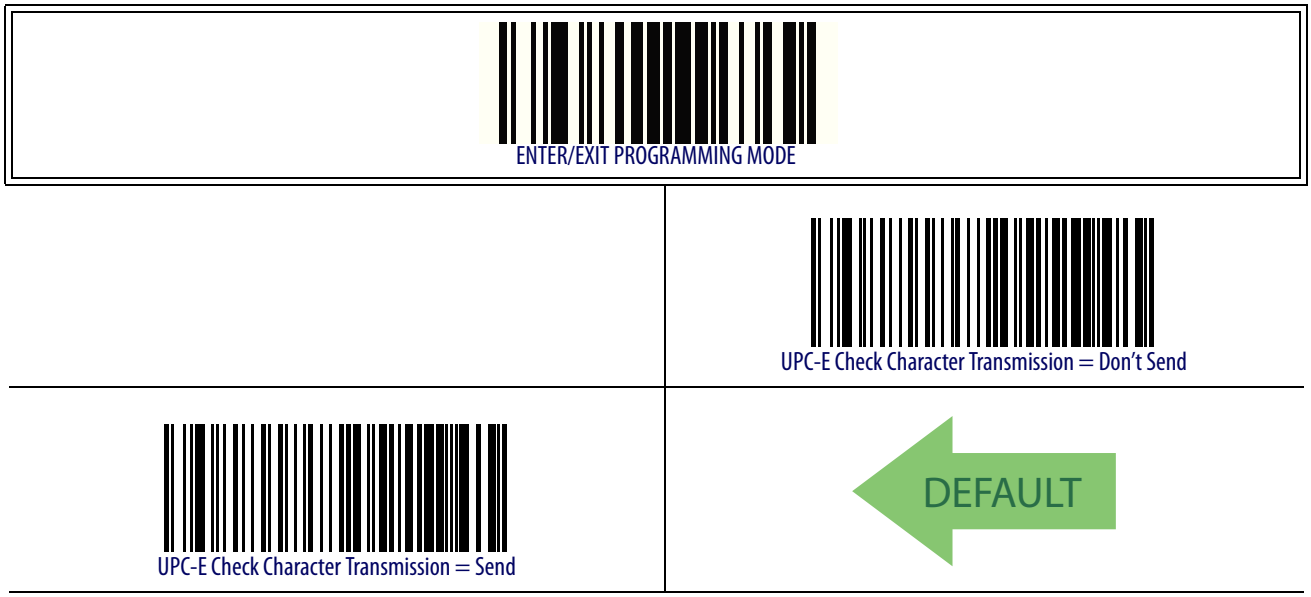
The following options apply to the UPC-E symbology.

UPC-E Enable/Disable

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

UPC-E Check Character Transmission

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



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.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

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

UPC-E to EAN-13 = Expand

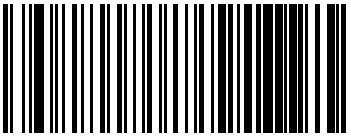
Expand UPC-E to UPC-A

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

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



UPC-E to UPC-A = Expand

UPC-E Number System Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

UPC-E Number System Character = Do not transmit

UPC-E Number System Character = Transmit

DEFAULT

UPC-E Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE


UPC-E Minimum Reads = 1


UPC-E Minimum Reads = 2

DEFAULT


UPC-E Minimum Reads = 3


UPC-E Minimum Reads = 4

GTIN Formatting

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

NOTE

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

GTIN Formatting = Disable

GTIN Formatting = Enable

EAN 13 (Jan 13)

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

EAN 13 Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

EAN 13 = Disable

EAN 13 = Enable

DEFAULT

EAN 13 Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

EAN 13 Check Character Transmission = Don't Send

EAN 13 Check Character Transmission = Send

DEFAULT

EAN-13 Flag 1 Character

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

ENTER/EXIT PROGRAMMING MODE

EAN-13 Flag 1 Char= Don't transmit

EAN-13 Flag 1 Char= Transmit

DEFAULT

EAN-13 ISBN Conversion

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

EAN-13 ISBN Conversion = Disable

EAN-13 ISBN Conversion = Convert to ISBN

EAN 13 Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

EAN 13 Minimum Reads = 1

EAN 13 Minimum Reads = 2

EAN 13 Minimum Reads = 3

EAN 13 Minimum Reads = 4

ISSN

The following options apply to the ISSN symbology.

ISSN Enable/Disable

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

EAN 8 (Jan 8)

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

EAN 8 Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

EAN 8 = Disable

EAN 8 = Enable

DEFAULT

EAN 8 Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

EAN 8 Check Character Transmission = Don't Send

EAN 8 Check Character Transmission = Send

DEFAULT

Expand EAN 8 to EAN 13

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

EAN 8 Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

EAN 8 Minimum Reads = 1

EAN 8 Minimum Reads = 2

EAN 8 Minimum Reads = 3

EAN 8 Minimum Reads = 4

UPC/EAN Global Settings

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

UPC/EAN Decoding Level

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

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

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

UPC/EAN Decoding Level — cont.

ENTER/EXIT PROGRAMMING MODE

UPC/EAN Decoding Level = 1

DEFAULT

UPC/EAN Decoding Level = 2

UPC/EAN Decoding Level = 3

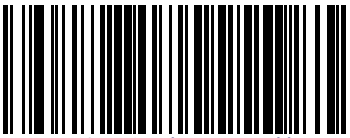
UPC/EAN Decoding Level = 4

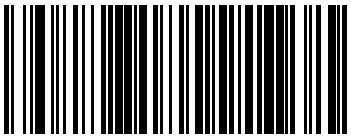
UPC/EAN Decoding Level = 5

UPC/EAN Correlation

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

DEFAULT





UPC/EAN Price Weight Check

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

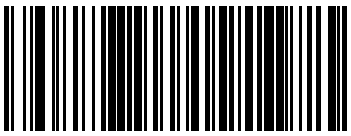
Options are

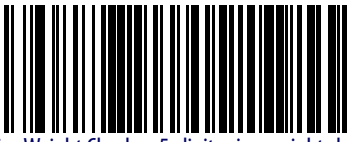
- Disabled
- Enable 4-digit price-weight check-digit calculation
- Enable 5-digit price-weight check-digit calculation
- Enable European 4-digit price-weight check-digit calculation
- Enable European 5-digit price-weight check-digit calculation


ENTER/EXIT PROGRAMMING MODE

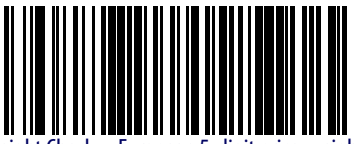
DEFAULT


Price Weight Check = Disabled


Price Weight Check = 4-digit price-weight check


Price Weight Check = 5-digit price-weight check


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


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

In-Store Minimum Reads

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

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

ENTER/EXIT PROGRAMMING MODE

In-Store Minimum Reads = 1

In-Store Minimum Reads = 2

DEFAULT

In-Store Minimum Reads = 3

In-Store Minimum Reads = 4

Add-Ons

The following features apply to optional add-ons.

NOTE

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

Optional Add-ons

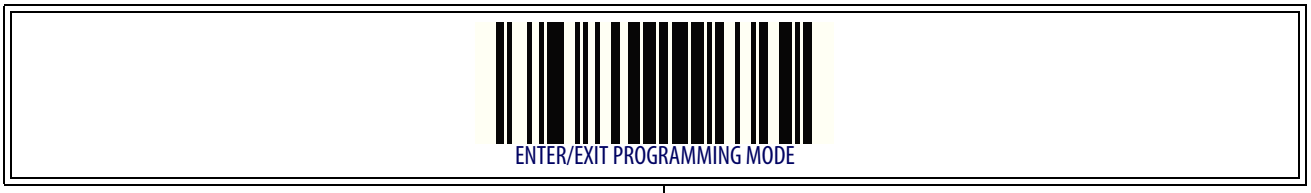
The reader can be enabled to optionally read the following add-ons (supplementals):

- P2
- P5
- GS1-128

NOTE

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

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



DEFAULT

DEFAULT

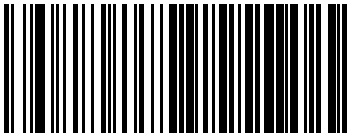
Add-Ons — cont.

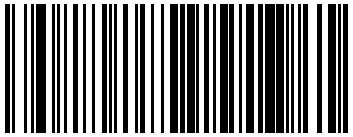
Optional Add-ons — cont.


ENTER/EXIT PROGRAMMING MODE


Optional Add-Ons = Enable P5

DEFAULT


Optional Add-Ons = Disable GS1-128


Optional Add-Ons = Enable GS1-128

Optional Add-On Timer

This option sets the time the reader will look for an add-on when an add-on fragment has been seen and optional add-ons are enabled. (Also see "Optional GS1-128 Add-On Timer"on page 203.)

ENTER/EXIT PROGRAMMING MODE

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 — cont.

ENTER/EXIT PROGRAMMING MODE

Optional Add-on Timer = 60ms

Optional Add-on Timer = 70ms

DEFAULT

Optional Add-on Timer = 100ms

Optional Add-on Timer = 120ms

Optional Add-on Timer = 140ms

Optional Add-on Timer = 160ms

Optional Add-On Timer — cont.

ENTER/EXIT PROGRAMMING MODE

Optional Add-on Timer = 180ms

Optional Add-on Timer = 200ms

Optional Add-on Timer = 220ms

Optional Add-on Timer = 240ms

Optional Add-on Timer = 260ms

Optional Add-on Timer = 280ms

Optional Add-on Timer = 300ms

Optional GS1-128 Add-On Timer

This option sets the timer expiration value to read the added part after reading the linear EAN/UPC part. For UPC/EAN add-ons other than those of that type, see "Optional Add-On Timer"on page 200.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Optional GS1-128 Add-On Timer = Disable

Optional GS1-128 Add-On Timer = 10ms

Optional GS1-128 Add-On Timer = 20ms

Optional GS1-128 Add-On Timer = 30ms

Optional GS1-128 Add-On Timer = 40ms

Optional GS1-128 Add-On Timer = 50ms

Optional GS1-128 Add-On Timer — cont.

ENTER/EXIT PROGRAMMING MODE

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

Optional GS1-128 Add-On Timer — cont.

ENTER/EXIT PROGRAMMING MODE

Optional GS1-128 Add-On Timer = 180ms

Optional GS1-128 Add-On Timer = 200ms

Optional GS1-128 Add-On Timer = 220ms

Optional GS1-128 Add-On Timer = 240ms

Optional GS1-128 Add-On Timer = 260ms

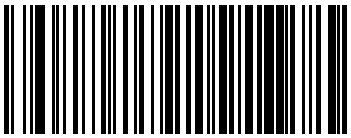
Optional GS1-128 Add-On Timer = 280ms

Optional GS1-128 Add-On Timer = 300ms

P2 Add-Ons Minimum Reads

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

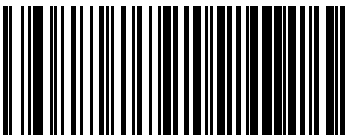
ENTER/EXIT PROGRAMMING MODE



P2 Add-Ons Minimum Reads = 1

P2 Add-Ons Minimum Reads = 2

DEFAULT



P2 Add-Ons Minimum Reads = 3

P2 Add-Ons Minimum Reads = 4

P5 Add-Ons Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

P5 Add-Ons Minimum Reads = 1

P5 Add-Ons Minimum Reads = 2

P5 Add-Ons Minimum Reads = 3

P5 Add-Ons Minimum Reads = 4

GS1-128 Add-Ons Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

GS1-128 Add-Ons Minimum Reads = 1

GS1-128 Add-Ons Minimum Reads = 2

GS1-128 Add-Ons Minimum Reads = 3

GS1-128 Add-Ons Minimum Reads = 4

Code 39

The following options apply to the Code 39 symbology.

Code 39 Enable/Disable

When disabled, the reader will not read Code 39 barcodes.

ENTER/EXIT PROGRAMMING MODE

Code 39 = Disable

Code 39 = Enable

DEFAULT

Code 39 Check Character Calculation

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

ENTER/EXIT PROGRAMMING MODE

Code 39 Check Character Calculation = Don't Calculate

Code 39 Check Character Calculation = Calculate Std Check

DEFAULT

Code 39 Check Character Calculation = Calculate Mod 7 Check

Code 39 Check Character Calculation = Enable Italian Post Check

Code 39 Check Character Calculation = Enable Daimler Chrysler Check

Code 39 Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

Code 39 Check Character Transmission = Don't Send

Code 39 Check Character Transmission = Send

DEFAULT

Code 39 Start/Stop Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

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

Code 39 Start/Stop Character Transmission = Transmit

Code 39 Full ASCII

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 39 Full ASCII = Disable

Code 39 Full ASCII = Enable

Code 39 Quiet Zones

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

ENTER/EXIT PROGRAMMING MODE

Code 39 Quiet Zones = Quiet Zone on one side

Code 39 Quiet Zones = Quiet Zones on two sides

Code 39 Quiet Zones = Auto

DEFAULT

Code 39 Quiet Zones = Virtual Quiet Zones on two sides

Code 39 Quiet Zones = Small Quiet Zones on two sides

Code 39 Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 39 Minimum Reads = 1

Code 39 Minimum Reads = 2

Code 39 Minimum Reads = 3

Code 39 Minimum Reads = 4

Code 39 Decoding Level

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

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

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

NOTE **This configuration item applies to Code 39 and Code 32.**

Code 39 Decoding Level — cont.

ENTER/EXIT PROGRAMMING MODE

Code 39 Decoding Level = 1

Code 39 Decoding Level = 2

Code 39 Decoding Level = 3

DEFAULT

Code 39 Decoding Level = 4

Code 39 Decoding Level = 5

Code 39 Length Control

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

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 39 Length Control = Variable Length

Code 39 Length Control = Fixed Length

Code 39 Set Length 1

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

The length can be set from 0 to 50 characters.

Follow these instructions to set this feature:

1. Determine the desired character length (from 0 to 50). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT CODE 39 LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

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

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

This completes the procedure. See Table 21for some examples of how to set this feature.

Table 21. Code 39 Length 1 Setting Examples

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

Code 39 Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Code 39 Set Length 1 Setting

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

CANCEL

DEFAULT

02 = Length 1 is 2 Characters

Code 39 Set Length 2

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

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

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50 — or 0 to ignore this length). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT CODE 39 LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 22 for some examples of how to set this feature.

Table 22. Code 39 Length 2 Setting Examples

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

Code 39 Set Length 2 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Code 39Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Code 39 Interdigit Ratio

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

ENTER/EXIT PROGRAMMING MODE

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

Code 39 Interdigit Ratio — cont.

ENTER/EXIT PROGRAMMING MODE

Code 39 Interdigit Ratio = 6

Code 39 Interdigit Ratio = 7

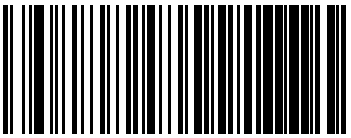
Code 39 Interdigit Ratio = 8

Code 39 Interdigit Ratio = 9

Code 39 Interdigit Ratio = 10

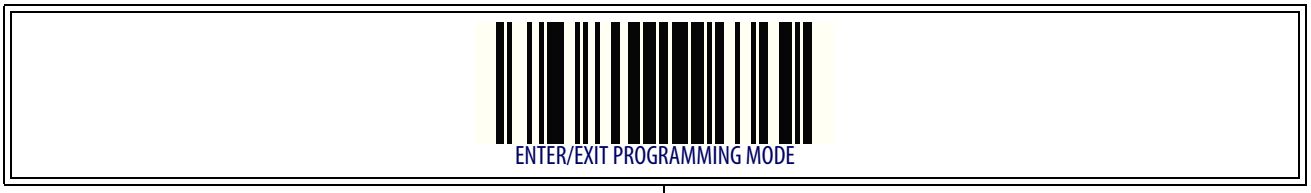
Code 39 Character Correlation

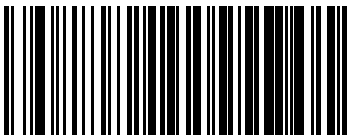
When correlation is enabled, the barcode reader will combine label data from multiple scans when decoding. Enabling correlation will help the scanner read labels that have some spots and/or voids. It may also help read labels that have damaged areas. Enabling correlation will also increase the chances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



Code 39 Stitching

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





Code 32 (Italian Pharmaceutical Code)

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

Code 32 Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 32 = Disable

Code 32 = Enable

Code 32 Feature Setting Exceptions

NOTE

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

"Code 39 Quiet Zones"on page 213
"Code 39 Minimum Reads"on page 214
"Code 39 Decoding Level"on page 215
"Code 39 Interdigit Ratio"on page 222
"Code 39 Character Correlation"on page 224
"Code 39 Stitching"on page 224

Code 32 Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 32 Check Character Transmission = Don't Send

Code 32 Check Character Transmission = Send

Code 32 Start/Stop Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

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

Code 32 Start/Stop Character Transmission = Transmit

Code 39 CIP (French Pharmaceutical)

The following options apply to the Code 39 CIP symbology.

Code 39 CIP Enable/Disable

Enables/Disables ability of the reader to decode Code 39 CIP labels.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 39 CIP = Disable

Code 39 CIP = Enable

Code 128

The following options apply to the Code 128 symbology.

Code 128 Enable/Disable

When disabled, the reader will not read Code 128 barcodes.

ENTER/EXIT PROGRAMMING MODE

Code 128 = Disable

Code 128 = Enable

DEFAULT

Expand Code 128 to Code 39

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 128 to Code 39 = Don't Expand

Code 128 to Code 39 = Expand

Code 128 Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 128 Check Character Transmission = Don't Send

Code 128 Check Character Transmission = Send

Code 128 Function Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 128 Function Character Transmission = Don't Send

Code 128 Function Character Transmission = Send

Code 128 Sub-Code Change Transmission

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 128 Sub-Code Change Transmission = Disable

Code 128 Sub-Code Change Transmission = Enable

Code 128 Quiet Zones

This feature specifies the number of quiet zones for Code 128 labels. Quiet zones are blank areas at the ends of a barcode and are typically 10 times the width of the narrowest bar or space in the label.

ENTER/EXIT PROGRAMMING MODE

Code 128 Quiet Zones = No Quiet Zones

Code 128 Quiet Zones = Quiet Zone on one side

Code 128 Quiet Zones = Quiet Zones on two sides

Code 128 Quiet Zones = Auto

DEFAULT

Code 128 Quiet Zones = Virtual Quiet Zones on two sides

Code 128 Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 128 Minimum Reads = 1

Code 128 Minimum Reads = 2

Code 128 Minimum Reads = 3

Code 128 Minimum Reads = 4

Code 128 Decoding Level

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

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

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

Code 128 Decoding Level — cont.

ENTER/EXIT PROGRAMMING MODE

Code 128 Decoding Level = 1

Code 128 Decoding Level = 2

Code 128 Decoding Level = 3

DEFAULT

Code 128 Decoding Level = 4

Code 128 Decoding Level = 5

Code 128 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 128 symbology.

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 128 Length Control = Variable Length

Code 128 Length Control = Fixed Length

Code 128 Set Length 1

This feature specifies one of the barcode lengths for Code 128 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the barcode's data characters only.

The length can be set from 1 to 80 characters.

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 80). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT CODE 128 LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 23 for some examples of how to set this feature.

Table 23. Code 128 Length 1 Setting Examples

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

Code 128 Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Code 128 Set Length 1 Setting

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

CANCEL

DEFAULT

01 = Length 1 is 1 Character

Code 128 Set Length 2

This feature specifies one of the barcode lengths for Code 128 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the barcode's data characters only.

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

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 80 — or 0 to ignore this length). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT CODE 128 LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 24 for some examples of how to set this feature.

Table 24. Code 128 Length 2 Setting Examples

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

Code 128 Set Length 2 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Code 128 Length 2 Setting

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

CANCEL

DEFAULT

80 = Length 2 is 80 Characters

Code 128 Character Correlation

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 128 Character Correlation = Disable

Code 128 Character Correlation = Enable

Code 128 Stitching

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

ENTER/EXIT PROGRAMMING MODE

Code 128 Stitching = Disable

Code 128 Stitching = Enable

DEFAULT

GS1-128

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

GS1-128 Enable

This option enables/disables the ability of the reader to translate GS1-128 labels to the GS1-128 data format. Options are:

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

Code ISBT 128

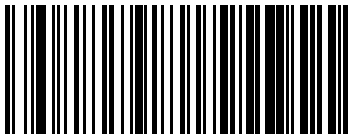
The following options apply to the ISBT 128 symbology.

ISBT 128 Concatenation

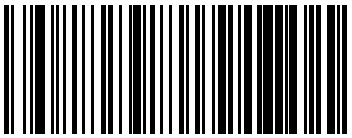
Use this option to enable/disable ISBT128 concatenation of 2 labels.

ENTER/EXIT PROGRAMMING MODE

DEFAULT



ISBN 128 Concatenation = Disable



ISBN 128 Concatenation = Enable

ISBT 128 Force Concatenation

When enabled, this feature forces concatenation for ISBT.

NOTE **This option is only valid when** ISBT 128 Concatenation**is enabled (see page 242).**

ENTER/EXIT PROGRAMMING MODE

DEFAULT

ISBT 128 Force Concatenation = Disable

ISBT 128 Force Concatenation = Enable

ISBT 128 Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.

NOTE

This option is only valid when ISBT 128 Concatenation**is enabled (see page 242).**

ENTER/EXIT PROGRAMMING MODE

DEFAULT

ISBT 128 Concatenation Mode = Static

ISBT 128 Concatenation Mode = Dynamic

ISBT 128 Dynamic Concatenation Timeout

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

ENTER/EXIT PROGRAMMING MODE

ISBT 128 Dynamic Concatenation Timeout = 50 msec

ISBT 128 Dynamic Concatenation Timeout = 100 msec

DEFAULT

ISBT 128 Dynamic Concatenation Timeout = 200 msec

ISBT 128 Dynamic Concatenation Timeout = 500 msec

ISBT 128 Dynamic Concatenation Timeout = 750 msec

ISBT 128 Dynamic Concatenation Timeout = 1 second

ISBT 128 Advanced Concatenation Options

NOTE

To set up pairs of label types for concatenation, use the Datalogic Aladdin configuration application or contact Datalogic Technical Support, as described on page 11**.**

Codablock F

The following options apply to the Codablock F symbology.

Codablock F Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Codablock F = Disable

Codablock F = Enable

Codablock F EAN Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Codablock F EAN = Disable

Codablock F EAN = Enable

Codablock F AIM Check

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

ENTER/EXIT PROGRAMMING MODE

Codablock F AIM Check = Disable

Codablock F AIM Check = Enable Check C

DEFAULT

Codablock F Length Control

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

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Codablock F Length Control = Variable Length

Codablock F = Fixed Length

Codablock F Set Length 1

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

The length can be set from 03 to 255 characters.

Follow these instructions to set this feature:

1. Determine the desired character length (from 3 to 255). Pad the number with leading zeroes to yield two digits. For example: 3 = 03, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT CODABLOCK F LENGTH 1 SETTING.
4. Scan the appropriate three digits from the keypad in the Keypad Appendix, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

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

Table 25. CODABLOCK F Length 1 Setting Examples

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

Codablock F Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Codablock F Length 1 Setting

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

CANCEL

DEFAULT

03 = Length 1 is 3 Characters

Codablock F Set Length 2

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

The length can be set from 3 to 255 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

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

NOTE

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

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

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

Table 26. CODABLOCK F Length 2 Setting Examples

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

Codablock F Set Length 2 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Codablock F Length 2 Setting

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

CANCEL

DEFAULT

100 = Length 2 is 100 Characters

Interleaved 2 of 5 (I 2 of 5)

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

I 2 of 5 Enable/Disable

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

I 2 of 5 Check Character Calculation

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

I 2 of 5 Check Character Calculation = Disable

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

I 2 of 5 Check Character Calculation = Check German Parcel

I 2 of 5 Check Character Calculation = Check DHL

I 2 of 5 Check Character Calculation = Check Daimler Chrysler

I 2 of 5 Check Character Calculation = Check Bosch

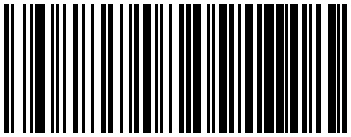
I 2 of 5 Check Character Calculation = Italian Post

I 2 of 5 Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE


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


I 2 of 5 Check Character Transmission = Send

DEFAULT

I 2 of 5 Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

I 2 of 5 Minimum Reads = 1

I 2 of 5 Minimum Reads = 2

I 2 of 5 Minimum Reads = 3

I 2 of 5 Minimum Reads = 4

2 of 5 Decoding Level

NOTE

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

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

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

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

2 of 5 Decoding Level — cont.

ENTER/EXIT PROGRAMMING MODE

2 of 5 Decoding Level = 1

2 of 5 Decoding Level = 2

2 of 5 Decoding Level = 3

DEFAULT

2 of 5 Decoding Level = 4

2 of 5 Decoding Level = 5

I 2 of 5 Length Control

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

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

I 2 of 5 Length Control = Variable Length

I 2 of 5 Length Control = Fixed Length

I 2 of 5 Set Length 1

This feature specifies one of the barcode lengths for I 2 of 5 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. The length includes the barcode's check and data characters.

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

Follow these instructions to set this feature:

1. Determine the desired character length (from 2 to 50). The length must be an even number.
2. Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT I 2 of 5 LENGTH 1 SETTING.
5. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

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

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

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

Table 27. I 2 of 5 Length 1 Setting Examples

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

I 2 of 5 Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select I 2 of 5 Length 1 Setting

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

CANCEL

DEFAULT

06 = Length 1 is 6 Characters

I 2 of 5 Set Length 2

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

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

Follow these instructions to set this feature:

1. Determine the desired character length (from 2 to 50, or 0 to ignore this length). The length must be an even number.
2. Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT I 2 of 5 LENGTH 2 SETTING.
5. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

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

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

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

Table 28. I 2 of 5 Length 2 Setting Examples

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

I 2 of 5 Set Length 2 — cont.

ENTER/EXIT PROGRAMMING MODE

Select I 2 of 5 Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

I 2 of 5 Character Correlation

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

I 2 of 5 Character Correlation = Disable

I 2 of 5 Character Correlation = Enable

I 2 of 5 Stitching

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

I 2 of 5 Stitching = Disable

I 2 of 5 Stitching = Enable

Follett 2 of 5

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

Follett 2 of 5 Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Follett 2 of 5 = Disable

Follett 2 of 5 = Enable

Interleaved 2 of 5 CIP HR

The following options apply to the Interleaved 2 of 5 CIP HR symbology.

Interleaved 2 of 5 CIP HR Enable/Disable

Enables/Disables ability of reader to decode Interleaved 2 of 5 CIP HR labels.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Interleaved 2 of 5 CIP HR = Disable

Interleaved 2 of 5 CIP HR = Enable

Standard 2 of 5

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

Standard 2 of 5 Enable/Disable

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

Standard 2 of 5 Check Character Calculation

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

Standard 2 of 5 Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

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

Standard 2 of 5 Check Character Transmission = Send

DEFAULT

Standard 2 of 5 Minimum Reads

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

Standard 2 of 5 Decoding Level

NOTE

The Standard 2 of 5 Decoding Level feature is set using "2 of 5 Decoding Level"on page 257.

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.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Standard 2 of 5 Length Control = Variable Length

Standard 2 of 5 Length Control = Fixed Length

Standard 2 of 5 Set Length 1

This feature specifies one of the barcode lengths for Standard 2 of 5 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the barcode's check and data characters.

The length can be set from 1 to 50 characters.

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT STANDARD 2 OF 5 LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

This completes the procedure. See Table 29 for some examples of how to set this feature.

Table 29. Standard 2 of 5 Length 1 Setting Examples

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

Standard 2 of 5 Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Standard 2 of 5 Length 1 Setting

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

CANCEL

DEFAULT

08 = Length 1 is 8 Characters

Standard 2 of 5 Set Length 2

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

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

Follow these instructions to set this feature:

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

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

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

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

Table 30. Standard 2 of 5 Length 2 Setting Examples

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

Standard 2 of 5 Set Length 2 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Standard 2 of 5 Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Standard 2 of 5 Character Correlation

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Standard 2 of 5 Character Correlation = Disable

Standard 2 of 5 Character Correlation = Enable

Standard 2 of 5 Stitching

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Standard 2 of 5 Stitching = Disable

Standard 2 of 5 Stitching = Enable

Industrial 2 of 5

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

Industrial 2 of 5 Enable/Disable

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

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 Transmission

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

ENTER/EXIT PROGRAMMING MODE

Industrial 2 of 5 Check Character Transmission = Disable

Industrial 2 of 5 Check Character Transmission = Enable

DEFAULT

Industrial 2 of 5 Length Control

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

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Industrial 2 of 5 Length Control = Variable Length

Industrial 2 of 5 = Fixed Length

Industrial 2 of 5 Set Length 1

This feature specifies one of the barcode lengths for Industrial 2 of 5 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the barcode's data characters only.

The length can be set from 0 to 50 characters.

Follow these instructions to set this feature:

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

NOTE

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

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

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

Table 31. 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 the Keypad Appendix	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				

Industrial 2 of 5 Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Industrial 2 of 5 Set Length 1 Setting

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

CANCEL

DEFAULT

01 = Length 1 is 1 Character

Industrial 2 of 5 Set Length 2

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

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

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50 — or 0 to ignore this length). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT INDUSTRIAL 2 OF 5 LENGTH 2 SETTING.

Industrial 2 of 5 Set Length 2 — cont.

4. Scan the appropriate two digits from the keypad in the Keypad Appendix that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

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

Table 32. 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 the Keypad Appendix**	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	**Scan ENTER/EXIT PROGRAMMING MODE**				

ENTER/EXIT PROGRAMMING MODE

Select Industrial 2 of5 Length 2 Setting

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

CANCEL

DEFAULT **50 = Length 2 is 50 Characters**

Industrial 2 of 5 Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Industrial 2 of 5 Minimum Reads = 1

Industrial 2 of 5 Minimum Reads = 2

Industrial 2 of 5 Minimum Reads = 3

Industrial 2 of 5 Minimum Reads = 4

Industrial 2 of 5 Stitching

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

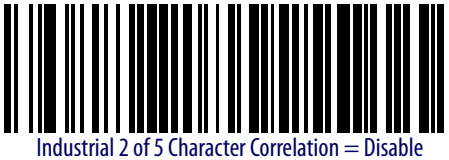
Industrial 2 of 5 Stitching = Disable

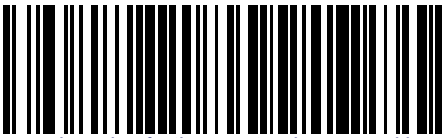
Industrial 2 of 5 Stitching = Enable

Industrial 2 of 5 Character Correlation

Enable/disables character correlation for Industrial 2 of 5.

DEFAULT





Code IATA

The following options apply to the IATA symbology.

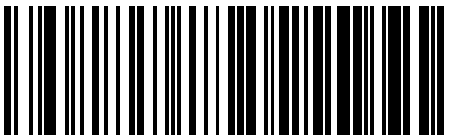
IATA Enable/Disable

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

IATA Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE


IATA Check Character Transmission = Disable


IATA Check Character Transmission = Enable

DEFAULT

Datalogic 2 of 5

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

Datalogic 2 of 5 Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Datalogic 2 of 5 = Disable

Datalogic 2 of 5 = Enable

Datalogic 2 of 5 Check Character Calculation

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Datalogic 2 of 5 Check Character Calculation = Disable

Datalogic 2 of 5 Check Character Calculation = Enable

Datalogic 2 of 5 Minimum Reads

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

Datalogic 2 of 5 Decoding Level

NOTE

The Datalogic 2 of 5 Decoding Level feature is set using "2 of 5 Decoding Level"on page 257.

Datalogic 2 of 5 Length Control

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

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Datalogic 2 of 5 Length Control = Variable Length

Datalogic 2 of 5 Length Control = Fixed Length

Datalogic 2 of 5 Set Length 1

This feature specifies one of the barcode lengths for Datalogic 2 of 5 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. The length includes the barcode's check and data characters.

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

Follow these instructions to set this feature:

1. Determine the desired character length (from 2 to 50). The length must be an even number.
2. Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT I 2 of 5 LENGTH 1 SETTING.
5. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

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

Table 33. Datalogic 2 of 5 Length 1 Setting Examples

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

Datalogic 2 of 5 Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Datalogic 2 of 5 Length 1 Setting

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

CANCEL

DEFAULT

06 = Length 1 is 6 Characters

Datalogic 2 of 5 Set Length 2

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

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

Follow these instructions to set this feature:

1. Determine the desired character length (from 2 to 50, or 0 to ignore this length). The length must be an even number.
2. Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT Datalogic 2 of 5 LENGTH 2 SETTING.
5. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

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

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

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

Table 34. Datalogic 2 of 5 Length 2 Setting Examples

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

Datalogic 2 of 5 Set Length 2 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Datalogic 2 of 5 Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Datalogic 2 of 5 Character Correlation

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

I 2 of 5 Character Correlation = Disable

I 2 of 5 Character Correlation = Enable

Datalogic 2 of 5 Stitching

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Datalogic 2 of 5 Stitching = Disable

Datalogic 2 of 5 Stitching = Enable

Codabar

The following options apply to the Codabar symbology.

Codabar Enable/Disable

When disabled, the reader will not read Codabar barcodes.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Codabar = Disable

Codabar = Enable

Codabar Check Character Calculation

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Codabar Check Character Calculation = Don't Calculate

Codabar Check Character Calculation = Enable AIM standard check char.

Codabar Check Character Calculation = Enable Modulo 10 check char.

Codabar Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

Codabar Check Character Transmission = Don't Send

Codabar Check Character Transmission = Send

DEFAULT

Codabar Start/Stop Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

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.

ENTER/EXIT PROGRAMMING MODE

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

Codabar Start/Stop Character Match

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

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

Codabar Start/Stop Character Match = Require Match

Codabar Quiet Zones

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

ENTER/EXIT PROGRAMMING MODE

Codabar Quiet Zones = Quiet Zone on one side

Codabar Quiet Zones = Quiet Zones on two sides

Codabar Quiet Zones = Auto

DEFAULT

Codabar Quiet Zones = Virtual Quiet Zones on two sides

Codabar Quiet Zones = Small Quiet Zones on two sides

Codabar Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Codabar Minimum Reads = 1

Codabar Minimum Reads = 2

Codabar Minimum Reads = 3

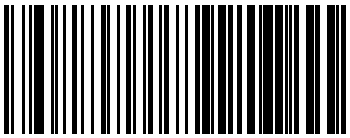
Codabar Minimum Reads = 4

Codabar Decoding Level

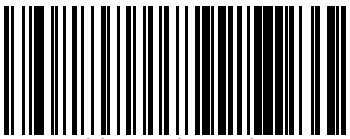
Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative, depending on a particular customer's needs.

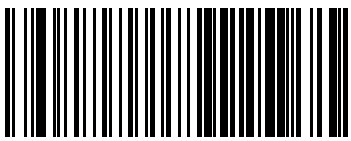
- Choosing Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- Choosing Level 5 results in a very aggressive decoder. This aggressive behavior allows decoding of poorly printed and damaged labels at the expense of increasing the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

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



DEFAULT



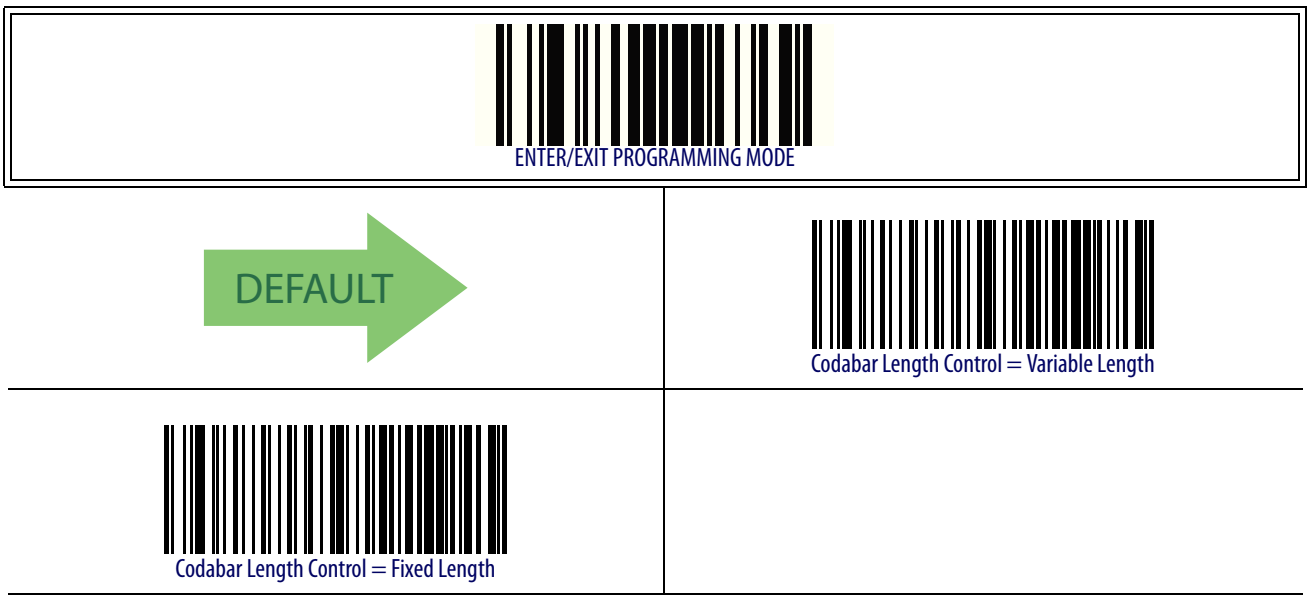


Codabar Length Control

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 Set Length 1

This feature specifies one of the barcode lengths for Codabar Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the barcode's start, stop, check and data characters. The length must include at least one data character.

The length can be set from 3 to 50 characters.

Follow these instructions to set this feature:

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

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

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

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

Table 35. Codabar Length 1 Setting Examples

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

Codabar Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Codabar Length 1 Setting

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

CANCEL

DEFAULT

03 = Length 1 is 3 Characters

Codabar Set Length 2

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

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

Follow these instructions to set this feature:

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

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

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

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

Table 36. 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 E, Keypad	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	**Scan ENTER/EXIT PROGRAMMING MODE**				

Codabar Set Length 2 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Codabar Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Codabar Interdigit Ratio

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

ENTER/EXIT PROGRAMMING MODE

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

Codabar Interdigit Ratio — cont.

ENTER/EXIT PROGRAMMING MODE

Codabar Interdigit Ratio = 6

Codabar Interdigit Ratio = 7

Codabar Interdigit Ratio = 8

Codabar Interdigit Ratio = 9

Codabar Interdigit Ratio = 10

Codabar Character Correlation

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

Codabar Stitching

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

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.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

ABC Codabar = Disable

ABC Codabar = Enable

ABC Codabar Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

ABC Codabar Concatenation Mode = Static

ABC Codabar Concatenation Mode = Dynamic

ABC Codabar Dynamic Concatenation Timeout

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

ENTER/EXIT PROGRAMMING MODE

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

ABC Codabar Force Concatenation

Forces labels starting or ending with D to be concatenated.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

ABC Codabar Force Concatenation = Disable

ABC Codabar Force Concatenation = Enable

Code 11

The following options apply to the Code 11 symbology.

Code 11 Enable/Disable

When disabled, the reader will not read Code 11 barcodes.

Code 11 Check Character Calculation

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

ENTER/EXIT PROGRAMMING MODE

Code 11 Check Character Calculation = Disable

Code 11 Check Character Calculation = Check C

Code 11 Check Character Calculation = Check K

Code 11 Check Character Calculation = Check C and K

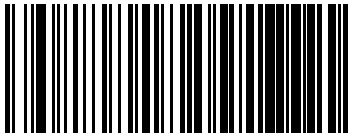
DEFAULT

Code 11 Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE


Code 11 Check Character Transmission = Don't Send


Code 11 Check Character Transmission = Send

DEFAULT

Code 11 Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 11 Minimum Reads = 1

Code 11 Minimum Reads = 2

Code 11 Minimum Reads = 3

Code 11 Minimum Reads = 4

Code 11 Length Control

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

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

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

Code 11 Set Length 1

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

The length can be set from 2 to 50 characters.

Follow these instructions to set this feature:

1. Determine the desired character length (from 2 to 50). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT CODE 11 LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

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

Table 37. Code 11 Length 1 Setting Examples

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

Code 11 Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Code 11 Set Length 1 Setting

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

CANCEL

DEFAULT

04 = Length 1 is 4 Characters

Code 11 Set Length 2

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

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

Follow these instructions to set this feature:

1. Determine the desired character length (from 2 to 50 — or 0 to ignore this length). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT CODE 11 LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

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

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

This completes the procedure. See Table 38 for some examples of how to set this feature.

Table 38. Code 11 Length 2 Setting Examples

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

Code 11 Set Length 2 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Code 11 Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Code 11 Interdigit Ratio

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

ENTER/EXIT PROGRAMMING MODE

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

Code 11 Interdigit Ratio — cont.

ENTER/EXIT PROGRAMMING MODE

Code 11 Interdigit Ratio = 6

Code 11 Interdigit Ratio = 7

Code 11 Interdigit Ratio = 8

Code 11 Interdigit Ratio = 9

Code 11 Interdigit Ratio = 10

Code 11 Decoding Level

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

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

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

Code 11 Decoding Level — cont.

ENTER/EXIT PROGRAMMING MODE

Codabar Decoding Level = 1

Codabar Decoding Level = 2

Codabar Decoding Level = 3

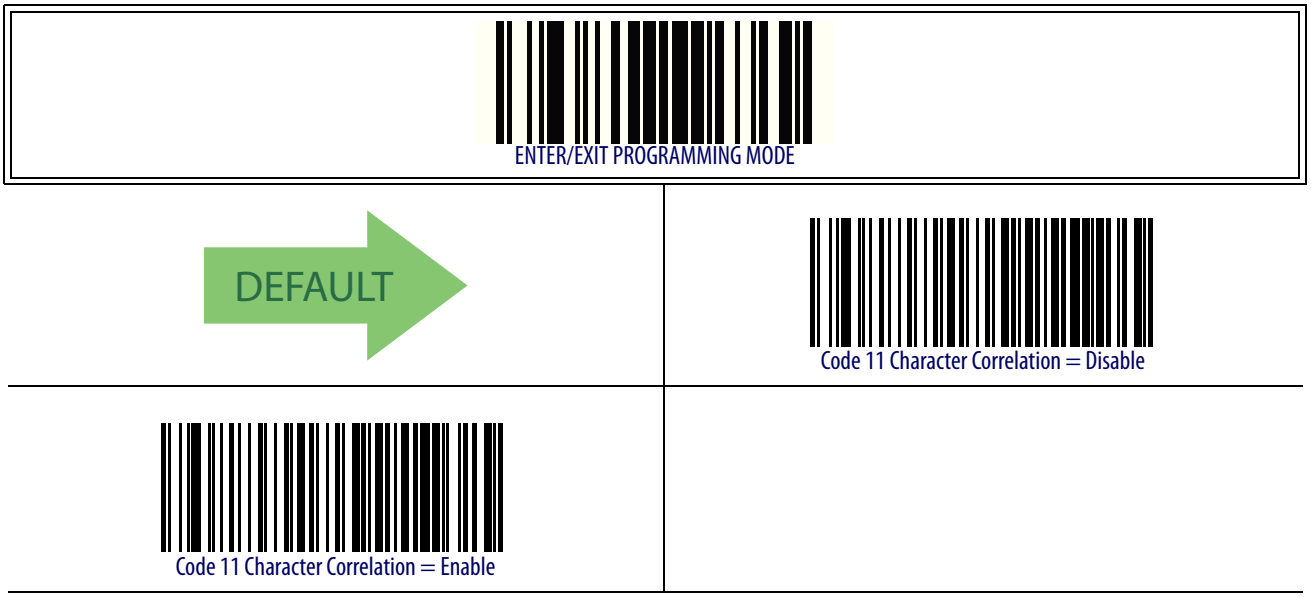
DEFAULT

Codabar Decoding Level = 4

Codabar Decoding Level = 5

Code 11 Character Correlation

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



Code 11 Stitching

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

GS1 DataBar™ Omnidirectional

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

GS1 DataBar™ Omnidirectional Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

GS1 DataBar™ Omnidirectional = Disable

GS1 DataBar™ Omnidirectional = Enable

GS1 DataBar™ Omnidirectional GS1-128 Emulation

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

GS1 DataBar™ Omnidirectional GS1-128 Emulation = Disable

GS1 DataBar™ Omnidirectional GS1-128 Emulation = Enable

GS1 DataBar™ Omnidirectional Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

GS1 DataBar™ Omnidirectional Minimum Reads = 1

GS1 DataBar™ Omnidirectional Minimum Reads = 2

GS1 DataBar™ Omnidirectional Minimum Reads = 3

GS1 DataBar™ Omnidirectional Minimum Reads = 4

GS1 DataBar™ Expanded

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

GS1 DataBar™ Expanded Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

GS1 DataBar™ Expanded = Disable

GS1 DataBar™ Expanded = Enable

GS1 DataBar™ Expanded GS1-128 Emulation

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

GS1 DataBar™ Expanded GS1-128 Emulation = Disable

GS1 DataBar™ Expanded GS1-128 Emulation = Enable

GS1 DataBar™ Expanded Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

GS1 DataBar™ Expanded Minimum Reads = 1

GS1 DataBar™ Expanded Minimum Reads = 2

GS1 DataBar™ Expanded Minimum Reads = 3

GS1 DataBar™ Expanded Minimum Reads = 4

GS1 DataBar™ Expanded Length Control

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

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

GS1 DataBar™ Expanded Length Control = Variable Length

GS1 DataBar™ Expanded Length Control = Fixed Length

GS1 DataBar™ Expanded Set Length 1

This feature specifies one of the barcode lengths for GS1 DataBar™ Expanded Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the barcode's data characters only.

The length can be set from 1 to 74 characters.

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 74). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT GS1 DataBar™ EXPANDED LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

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

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

This completes the procedure. See Table 39 for some examples of how to set this feature.

Table 39. GS1 DataBar™ Expanded Length 1 Setting Examples

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

GS1 DataBar™ Expanded Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select GS1 DataBar™ Expanded Set Length 1 Setting

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

CANCEL

DEFAULT

01 = Length 1 is 1 Character

GS1 DataBar™ Expanded Set Length 2

This feature specifies one of the barcode lengths for GS1 DataBar™ Expanded Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the barcode's data characters only.

The length can be set from 1 to 74 characters. A setting of 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 74). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT GS1 DataBar™ EXPANDED LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in Appendix E, Keypad, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

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

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

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

Table 40. GS1 DataBar™ Expanded Length 2 Setting Examples

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

GS1 DataBar™ Expanded Set Length 2 — cont.

ENTER/EXIT PROGRAMMING MODE

Select GS1 DataBar™ Expanded Set Length 2 Setting

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

CANCEL

DEFAULT

74 = Length 2 is 74 Characters

GS1 DataBar™ Limited

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

GS1 DataBar™ Limited Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

GS1 DataBar™ Limited = Disable

GS1 DataBar™ Limited = Enable

GS1 DataBar™ Limited GS1-128 Emulation

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

GS1 DataBar™ Limited GS1-128 Emulation = Disable

GS1 DataBar™ Limited GS1-128 Emulation = Enable

GS1 DataBar™ Limited Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

GS1 DataBar™ Limited Minimum Reads = 1

GS1 DataBar™ Limited Minimum Reads = 2

GS1 DataBar™ Limited Minimum Reads = 3

GS1 DataBar™ Limited Minimum Reads = 4

Code 93

The following options apply to the Code 93 symbology.

Code 93 Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

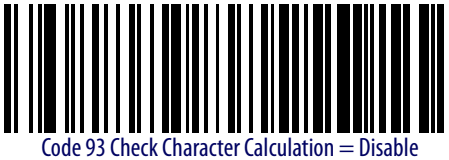
Code 93 = Disable

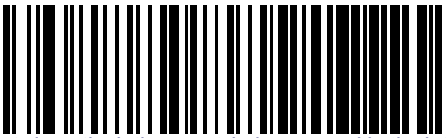
Code 93 = Enable

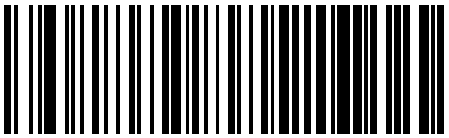
Code 93 Check Character Calculation

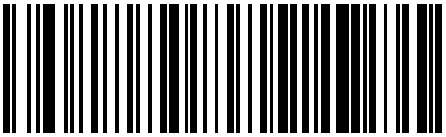
Enables/disables calculation and verification of an optional Code 93 check character.

ENTER/EXIT PROGRAMMING MODE


Code 93 Check Character Calculation = Disable


Code 93 Check Character Calculation = Enable Check C


Code 93 Check Character Calculation = Enable Check K


Code 93 Check Character Calculation = Enable Check C and K

DEFAULT

Code 93 Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

Code 93 Check Character Transmission = Disable

Code 93 Check Character Transmission = Enable

DEFAULT

Code 93 Length Control

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

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 93 Length Control = Variable Length

Code 93 = Fixed Length

Code 93 Set Length 1

This feature specifies one of the barcode lengths for Code 93 Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the barcode's data characters only.

The length can be set from 01 to 50 characters.

Follow these instructions to set this feature:

1. Determine the desired character length (from 0 to 50). Pad the number with leading zeroes to yield two digits. For example: 1 = 01, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT CODE 93 LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in the Keypad Appendix, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

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

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

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

Table 41. Code 93 Length 1 Setting Examples

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

Code 93 Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Code 93 Set Length 1 Setting

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

CANCEL

DEFAULT

01 = Length 1 is 1 Character

Code 93 Set Length 2

This feature specifies one of the barcode lengths for Code 93 Length Control. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the barcode's check, data, and full-ASCII shift characters. The length does not include start/stop characters.

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

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50 — or 0 to ignore this length). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT CODE 93 LENGTH 2 SETTING.
4. Scan the appropriate two digits from the keypad in the Keypad Appendix that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

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

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

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

Table 42. CODE 93 Length 2 Setting Examples

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

Code 93 Set Length 2 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Code 93 Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Code 93 Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 93 Minimum Reads = 1

Code 93 Minimum Reads = 2

Code 93 Minimum Reads = 3

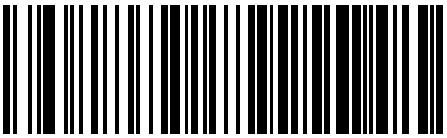
Code 93 Minimum Reads = 4

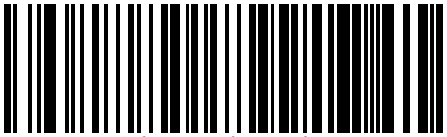
Code 93 Decoding Level

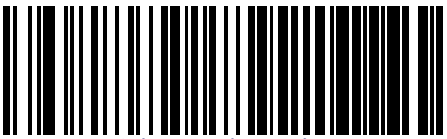
Specifies the decoding level for Code 93. Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs.

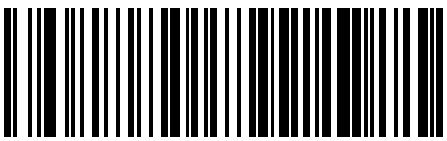
- Choosing Level 1 results in a very conservative decoder at the expense of not being able to read poorly printed or damaged labels.
- Choosing Level 5 results in a very aggressive decoder. This aggressive behavior allows decoding of poorly printed and damaged labels at the expense of increasing the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

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









DEFAULT

Code 93 Decoding Level — cont.

ENTER/EXIT PROGRAMMING MODE

Code 93 Decoding Level = 4

Code 93 Decoding Level = 5

Code 93 Quiet Zones

Enables/disables quiet zones for Code 93.

ENTER/EXIT PROGRAMMING MODE

Code 93 Quiet Zones = No Quiet Zones

Code 93 Quiet Zones = Quiet Zone on one side

Code 93 Quiet Zones = Quiet Zones on two sides

Code 93 Quiet Zones = Auto

DEFAULT

Code 93 Quiet Zones = Virtual Quiet Zones on two sides

Code 93 Stitching

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

ENTER/EXIT PROGRAMMING MODE

Code 93 Stitching = Disable

Code 93 Stitching = Enable

DEFAULT

Code 93 Character Correlation

Enables/disables Character Correlation for Code 93.

ENTER/EXIT PROGRAMMING MODE

Code 93 Character Correlation = Disable

Code 93 Character Correlation = Enable

DEFAULT

MSI

The following options apply to the MSI symbology.

MSI Enable/Disable

Enables/Disables ability of reader to decode MSI labels.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

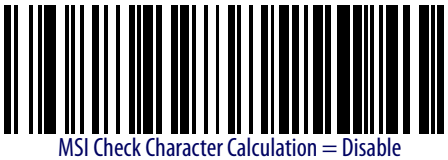
MSI = Disable

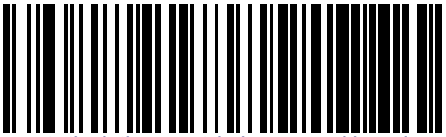
MSI = Enable

MSI Check Character Calculation

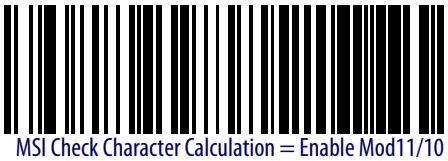
Enables/Disables calculation and verification of an optional MSI check character.

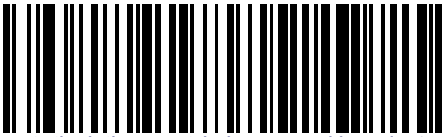

ENTER/EXIT PROGRAMMING MODE


MSI Check Character Calculation = Disable


MSI Check Character Calculation = Enable Mod10

DEFAULT


MSI Check Character Calculation = Enable Mod11/10


MSI Check Character Calculation = Enable Mod10/10

MSI Check Character Transmission

Enables/disables transmission of an MSI check character.

ENTER/EXIT PROGRAMMING MODE

MSI Check Character Transmission = Disable

MSI Check Character Transmission = Enable

DEFAULT

MSI Length Control

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

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

MSI Length Control = Variable Length

MSI = Fixed Length

MSI Set Length 1

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

Follow these instructions to set this feature:

1. Determine the desired character length (from 0 to 50). Pad the number with leading zeroes to yield two digits. For example: 1 = 01, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT MSI LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in the Keypad Appendix, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

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

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

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

Table 43. MSI Length 1 Setting Examples

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

MSI Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select MSI Set Length 1 Setting

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

CANCEL

DEFAULT

01 = Length 1 is 1 Character

MSI Set Length 2

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

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

Follow these instructions to set this feature:

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

NOTE

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

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

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

Table 44. MSI Length 2 Setting Examples

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

MSI Set Length 2 — cont.

ENTER/EXIT PROGRAMMING MODE

Select MSI Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

MSI Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

MSI Minimum Reads = 1

MSI Minimum Reads = 2

MSI Minimum Reads = 3

MSI Minimum Reads = 4

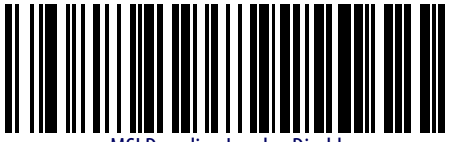
DEFAULT

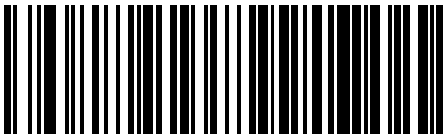
MSI Decoding Level

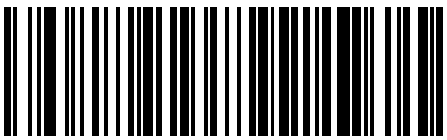
Specifies the decoding level for MSI. Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs.

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

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







DEFAULT

MSI Decoding Level — cont.

ENTER/EXIT PROGRAMMING MODE

MSI Decoding Level = 4

MSI Decoding Level = 5

MSI Stitching

Enables/disables fixed length stitching for MSI.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

MSI Stitching = Disable

MSI Stitching = Enable

MSI Character Correlation

Enables/disables Character Correlation for MSI.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

MSI Character Correlation = Disable

MSI Character Correlation = Enable

Plessey

The following options apply to the Plessey symbology.

Plessey Enable/Disable

Enables/Disables ability of reader to decode Plessey labels.

Plessey Check Character Calculation

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

ENTER/EXIT PROGRAMMING MODE

Plessey Check Character Calculation = Disable

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

DEFAULT

Plessey Check Character Calculation =
Enable Anker check char. verification

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

Plessey Check Character Transmission

Enables/disables transmission of an MSI check character.

ENTER/EXIT PROGRAMMING MODE

Plessey Check Character Transmission = Disable

Plessey Check Character Transmission = Enable

DEFAULT

Plessey Length Control

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

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

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Plessey Length Control = Variable Length

Plessey = Fixed Length

Plessey Set Length 1

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

Follow these instructions to set this feature:

1. Determine the desired character length (from 0 to 50). Pad the number with leading zeroes to yield two digits. For example: 1 = 01, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: SELECT PLESSEY LENGTH 1 SETTING.
4. Scan the appropriate two digits from the keypad in the Keypad Appendix, that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.

NOTE

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

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

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

Table 45. Plessey Length 1 Setting Examples

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

Plessey Set Length 1 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Plessey Set Length 1 Setting

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

CANCEL

DEFAULT

01 = Length 1 is 1 Character

Plessey Set Length 2

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

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

Follow these instructions to set this feature:

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

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

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

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

Table 46. Plessey Length 2 Setting Examples

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

Plessey Set Length 2 — cont.

ENTER/EXIT PROGRAMMING MODE

Select Plessey Length 2 Setting

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

CANCEL

DEFAULT

50 = Length 2 is 50 Characters

Plessey Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

Plessey Minimum Reads = 1

Plessey Minimum Reads = 2

Plessey Minimum Reads = 3

Plessey Minimum Reads = 4

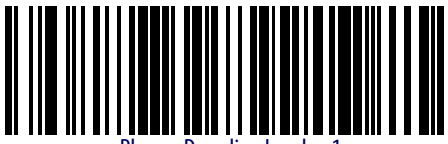
DEFAULT

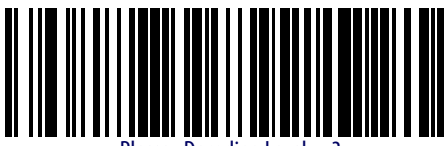
Plessey Decoding Level

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

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

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





DEFAULT

Plessey Decoding Level — cont.

ENTER/EXIT PROGRAMMING MODE

Plessey Decoding Level = 4

Plessey Decoding Level = 5

Plessey Stitching

Enables/disables fixed length stitching for Plessey.

ENTER/EXIT PROGRAMMING MODE

DEFAULT

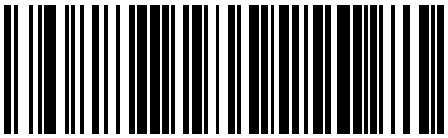
Plessey Stitching = Disable

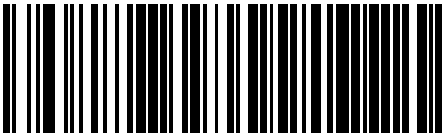
Plessey Stitching = Enable

Plessey Character Correlation

Enables/disables Character Correlation for Plessey.

DEFAULT





Code 4

The following options apply to the Code 4 symbology.

Code 4 Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 4 = Disable

Code 4 = Enable

Code 4 Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

Code 4 Check Character Transmission = Don't Send

Code 4 Check Character Transmission = Send

DEFAULT

Code 4 Hex to Decimal Conversion

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

ENTER/EXIT PROGRAMMING MODE

Code 4 Hex to Decimal Conversion = Disable

Code 4 Hex to Decimal Conversion = Enable

DEFAULT

Code 5

The following options apply to the Code 5 symbology.

Code 5 Enable/Disable

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 5 = Disable

Code 5 = Enable

Code 5 Check Character Transmission

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

ENTER/EXIT PROGRAMMING MODE

Code 5 Check Character Transmission = Don't Send

Code 5 Check Character Transmission = Send

DEFAULT

Code 5 Hex to Decimal Conversion

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

ENTER/EXIT PROGRAMMING MODE

Code 5 Hex to Decimal Conversion = Disable

Code 5 Hex to Decimal Conversion = Enable

DEFAULT

Code 4 and Code 5 Common Configuration Items

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

Code 4 and 5 Decoding Level

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

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

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

NOTE **This configuration item applies to Code 4 and Code 5.**

Code 4 and 5 Decoding Level — cont.

ENTER/EXIT PROGRAMMING MODE

Code 4 and Code 5 Decoding Level = 1

Code 4 and Code 5 Decoding Level = 2

Code 4 and Code 5 Decoding Level = 3

DEFAULT

Code 4 and Code 5 Decoding Level = 4

Code 4 and Code 5 Decoding Level = 5

Code 4 and Code 5 Minimum Reads

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

ENTER/EXIT PROGRAMMING MODE

DEFAULT

Code 4 or Code 5 Minimum Reads = 1

Code 4 or Code 5 Minimum Reads = 2

Code 4 or Code 5 Minimum Reads = 3

Code 4 or Code 5 Minimum Reads = 4

Chapter 14
Message Formatting

Message Formatting

NOTE

Message Formatting is only available for the Gryphon™ Mobile model.

A message from the Host to the base must follow these rules:

- If Address stamping options or address delimiter are enabled on the base, the Host replay must have address field and delimiter too. Otherwise the message will be ignored. Address delimiter is present only when address stamping is enabled.
- Address stamping is necessary to correctly route the message to the Gryphon I, especially when more than one handheld is linked to the same base. Address stamping could be disabled if the system is in point to point configuration. If address stamping is not enabled, the messages are addressed to the first handheld linked to the base.
- Messages end with “CR” 0x0D ASCII character. The CR character cannot be contained in the middle.
- Messages cannot start with '$' or # because these are reserved for Service mode command
- Base station can receive host message only if Host Commands Obey/Ignore is set to Ignore.
- Message could be sent to the HH in response to a Label when “Transmit mode” require Ack from Host (see transmit mode parameter) or at any time. When messages are sent not in response to a label must start with DC2 0x12 ASCII character and could be sent in any transmit mode setting.
- Message could be sent to all HH linked to base by using a Multicast message:
  “00 00 00 00 2A AA”
- In order to receive a message, handhelds must not be in sleep state.

The format of the ACK from Host message (used for transmission mode 02) is:
[Scanner_Addr] [Scanner_Addr_delimiter] MESSAGE <CR>
The format of a generic message From Host to HH is:
[Scanner_Addr] [Scanner_Addr_delimiter] DC2 MESSAGE <CR>
where DC2 is ASCII 0x12 (^R) character.

[Items in square brackets are optional.]

- If you want to control the Scanner's beeper from the host, you will also probably want to disable the good transmission beep that is emitted when the code is received from the cradle. (See RF Beeper Features on page 154).

The message field can store plain text and escape sequences.

- Escape sequences are interpreted as commands.
- Plain text is directly printed on the display. If writing beyond the end of line, the display does not wrap automatically. Extra characters are ignored. Control characters are not interpreted (i.e. LF, FF, etc.).

Cursor Control

ESC [n A	Up **n** rows, no scroll
ESC [n B	Down **n** rows, no scroll
ESC [n C	Right **n** columns
ESC [n D	Left **n** columns
ESC [G	CR
ESC [r ; c H	Move to row **r** , column **c** (ESC[1;1H is the upper left character position of the display)
ESC D	Down 1 row, with scroll
ESC E	CR and cursor down 1 row with scroll
ESC M	Up 1 row and scroll

NOTES:

- Since CR is used as the message terminator, you must use ESC [G or ESC E to print a CR.
- The cursor row position **is not** affected by the currently selected font. The display always has 4 rows, so when writing with the large font, actually two rows are written to: the current one and the one below it. You will need **two** ESC E commands to step from one row to the next when using the large font.
- The cursor column position **is** affected by the currently selected font. Therefore, column 6 is 36 pixels from the left border only if you last selected the 6x8 font; otherwise it could be 48 or 72 pixels from the left border.

Font Selection

ESC [0 m	Normal mode
ESC [7 m	Reverse mode
ESC # 4	Large font: subsequent characters are written on the current row and the row below it using the 12x16 font which allows for two rows of eight characters on the display.
ESC # 5	Normal font: subsequent characters are written using the 6x8 font, which allows for four rows of sixteen characters on the display.
ESC # 7	Medium font: subsequent characters are written using the 8x8 font, which allows for 4 rows of 12 characters on the display.

Clearing Display

ESC [0 K	From cursor position to end of line inclusive
ESC [1 K	From beginning of line to cursor position (not inclusive)
ESC [2 K	Entire line
ESC [0 J	From cursor position to end of display inclusive
ESC [1 J	From beginning of display to cursor position (not inclusive)
ESC [2 J	Entire display; moves cursor to upper left corner on display

LED and Beeper Control

ESC [0 q	Emit short High tone + short delay
ESC [1 q	Emit short Low tone + short delay
ESC [2 q	Emit long Low tone + short delay
ESC [3 q	Emit good read tone
ESC [4 q	Emit bad tx tone
ESC [5 q	Wait 100 ms
ESC [6 q	Turn on the green LED
ESC [7 q	Turn off the green LED
ESC [8 q	Turn on the red LED
ESC [9 q	Turn off the red LED
ESC [0 r	Beep for Find me function (new)
ESC [1 r	Power-off (new)

The LED control escape sequences are intended to activate the LEDs for short periods of time and can be used in combination with the Beeper. The LED and Beeper will be controlled by the system after the entire command sequence is interpreted.

Example:

ESC [6 q ESC [3 q ESC [7 q	Turns on the green LED, emits a good read tone, and turns off the green LED.
ESC [6 q ESC [5 q ESC [7 q	Turns on the green LED for 100 ms and then turns off the green LED.

Messages from Scanner Command Keys

The Gryphon™ I series scanners with display have 3 command keys that can each be associated with a character to send to the host.

By pressing the keys on the scanner, the associated character with its relative message formatting is sent to the Host. For example, keys can be used to select items from a menu sent to the scanner display by the application program.

The messages are handled by the system as if they were barcodes, that's why KeyID can have so many fields appended to it. If in your application there is some chance of reading a 1-char barcode identical to KeyID, the way you can distinguish between the two is to enable the Code ID: The KeyID is the only 1-character long EAN 8 code.

The default characters associated with each key (KeyID) are shown in the following table:

(left) Key	'<'
(center) Key	'='
(right) Key	'>'

Appendix A
Technical Specifications

Table 47 contains Physical and Performance Characteristics, User Environment and Regulatory information. Table 48 provides Standard Cable Pinouts.

Table 47. Technical Specifications

Item	Description
Physical Characteristics	
Color	White/Gray Gray/Gray
Dimensions	Height 7.1”/181 mm Length 3.9”/100 mm Width 2.8”/71 mm
Weight (without cable)	GD 41x0: Approximately 6.0 ounces/169 g GM4100-D: Approximately 8.7 ounces/246 g BC40x0: Approximately 8.7 ounces/246 g
Electrical Characteristics	
Voltage & Current	GD4130 model: 5V±5% Input range. 1.9W max. 360 mA (max) at 5V 2.5 mA RS-232 sleep mode/ USB suspend GD4110 model: 4.5÷14V Input range. Power 1.8W max. 340 mA (max) at 5V. 2.5 mA (RS-232 sleep mode / USB suspend) BC40x0 base: 4.75-14V; Input range. Power 8W max (a); Imax 500mA when in host/bus powered mode (a).
Battery Type	Li-Ion battery pack
Charge time for full charge from full discharge	4 hours with external power supply adapter (c)
	max 22h hours with Host power (this case no supply adapter is needed). (c)

Item	Description
Operating autonomy (continuous reading)	50,000 reads (typical)
Performance Characteristics	
Light Source	Dual LEDs
Roll (Tilt) Tolerance	± 35° from normal
Pitch Tolerance	± 65°
Skew (Yaw) Tolerance	± 65°
Field of View	10" (25.4cm) wide at 12.5" (31.8cm) from the reader
Depth of Field (Typical) (d)	3 mil – 2.9" to 4.7" (7.5cm to 12cm) 13 mil (d) – 1.2" to 23.6" (3cm to 60cm) 20 mil – 1.2" to 31.5" (3cm to 80cm)
Minimum Element Width	3 mil
Print Contrast Minimum	15% minimum reflectance
Decode Capability	UPC/EAN/JAN, P2 /P5, ISBN/ISSN; Code 39, Code39 FullASCII; Italian Pharmacode 39, Code39 CIP; Code 128, GS1-128; C128 ISBT; Code 128 addons;I 2 of 5; Standard 2 of 5; I 2 of 5 CIP HR; Industrial 2 of 5; IATA; Datalogic 2 of 5; Follet 2 of 5; Code 11; Plessey, Anker Plessey; Codabar, ABC Codabar ; Code 93; MSI; GS1 DataBar™ Omnidirectional, GS1 DataBar™ Limited, GS1 DataBar™ Expanded; Code 4, Code 5; Codablock F, Codablock F EAN;
Interfaces Supported(b)	RS-232 Std, RS-232 Wincor-Nixdorf, RS-232 OPOS, IBM 46xx (ports 5B and 9B), USB Com Std., USB Keyboard, USB Alternate Keyboard,USB OEM, Keyboard Wedge (AT with or w/o Alternate Key, IBM AT PS2 with or w/o Alternate Key, PC-XT, IBM 3153, IBM Terminals 31xx, 32xx,34xx, 37xx make only and make break keyboard, Digital Terminals VT2x, VT3xx, VT4xx, and Apple) and Wand Emulation.
User Environment	
Operating Temperature	32° to 131° F (0° to 55° C)
Charging Temperature	32° to 104° F (0° to 40° C)
Storage Temperature	-4° to 158° F (-20° to 70° C)
Humidity	Operating: 5% to 90% relative humidity, non-condensing
Drop Specifications	18 drops from 1.8 meters (5.9 feet) to concrete
Ambient Light Immunity	Up to 100,000 Lux
Contaminants Spray/rain-Dust/particulates	GD41x0 IP52 GM4100 IP42
ESD Level	16 KV

Item	Description
Regulatory	
Electrical Safety	IEC 60950-1 , CAN/CSA-C22.2 No. 60950-1-03; UL 60950-1
EMI/RFI	GD41x0 North America (FCC) : Part 15 Class B, Canada (IC) : ICES-003 Class B, European Union EMC Directive, Australian (SMA) , Taiwan EMC (BSMI) , Russia (Gost) GM4100/BC40x0 Pending: 433 MHz model Europe - CE, Russia – Gost; Australia – Ctick; China – SRRC; Singapore – IDA, Brasile – Anatel
LED class safety	IEC Class 1

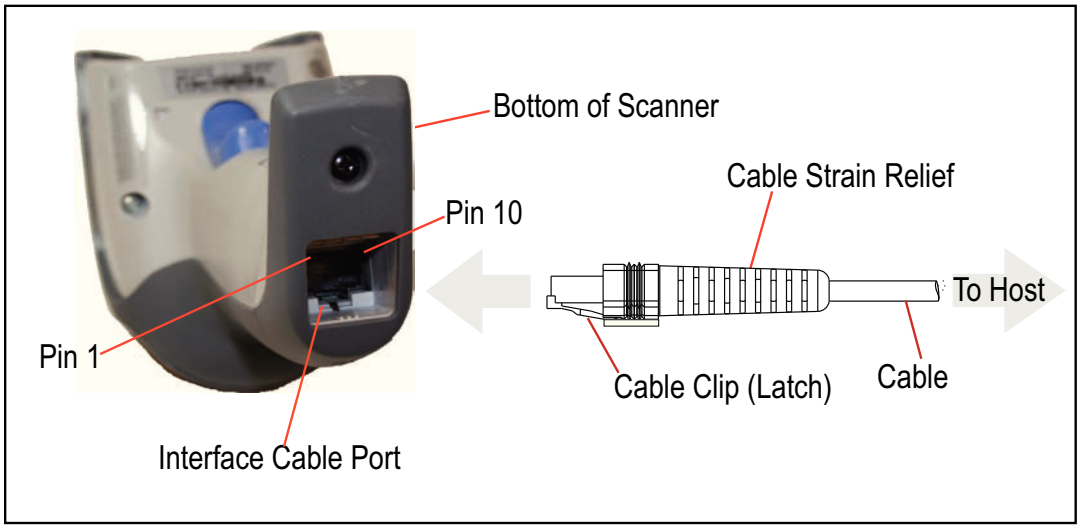
Radio Features	
	433MHz model
Working Center Frequency	433.920 MHz
RF bit rate	19200 baud
Range (in open air)	30 m
Max. number of devices per base station	16

(a) Typical input current measured under factory default configuration.
(b) See "Interface Selection"on page 67 for a listing of available interface sets by model type.
(c) Charge Times are much lower when battery is within daily typical operating condition.
(d) 13 mils DOF based on EAN. All others are Code 39. All labels grade A, typical environmental light, 20°C, label inclination 10°

Standard Cable Pinouts

Figure 20 and Table 48 provide standard pinout information for the Base Station's interface cable.

Figure 20. Standard Cable Pinouts



The signal descriptions in Table 48 apply to the connector on the reader and are for reference only.

Table 48. Standard Cable Pinouts — Reader Side

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

Appendix B
LED and Beeper Indications

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

Table 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/bitonal setting and duration upon a successful label scan.
ROM Failure	There is an error in the reader's software/programming	Flashes	Reader sounds one error beep at highest volume.
Limited Scanning Label Read	Indicates that a host connection is not established when the IBM or USB interface is enabled.	N/A	Reader 'chirps' six times at the highest frequency and current volume.
Reader Active Mode	The reader is active and ready to scan.	The LED is lit steadily[a]	N/A
Reader Disabled	The reader has been disabled by the host.	The LED blinks continuously	N/A
Green Spot is on continuously	While in Stand Mode or Trigger Stand Mode the green spot shall be on while in stand watch state.	N/A	N/A
Green Spot[a] flashes momentarily	Upon successful read of a label, the software shall turn the green spot on for the time specified by the configured value.	N/A	N/A

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

Table 50. Programming Mode Indications

Programming Mode - The following indications ONLY occur when the reader is in Programming Mode.			
Label Programming Mode Entry	A valid programming label has been scanned.	LED blinks continuously	Reader sounds four low frequency beeps.
Label Programming Mode Rejection of Label	A label has been rejected.	N/A	Reader sounds three times at lowest frequency & current volume.
Label Programming Mode Acceptance of Partial Label	In cases where multiple labels must be scanned to program one feature, this indication acknowledges each portion as it is successfully scanned.	N/A	Reader sounds one short beep at highest frequency & current volume.
Label Programming Mode Acceptance of Programming	Configuration option(s) have been successfully programmed via labels and the reader has exited Programming Mode.	N/A	Reader sounds one high frequency beep and 4 low frequency beeps followed by reset beeps.
Label Programming Mode Cancel Item Entry	Cancel label has been scanned.	N/A	Reader sounds two times at low frequency and current volume.

Error Codes

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

NUMBER OF LED FLASHES/BEEPS	ERROR	CORRECTIVE ACTION
1	Configuration	Contact Helpdesk for assistance
2	Interface PCB	
4	Reader Module	
5	Laser Pointer (if so equipped)	
6	Digital PCB	
14	CPLD/Code Mismatch	

Base Station Indications

INDICATION	LEDS
Power-up Complete	Yellow LED on
Reader Disabled by the HOST or the communication with HOST is not established	Yellow LED blinking ~1Hz
Data/labels are transmitted to the HOST	Yellow LEDs turned off for 100mSec
Programming Mode	Yellow LED blinks quickly
Base and handheld are exchanging data	Red LED blinks quickly
Battery charger in progress	Red LED on
Battery charger complete	Green LED on
Battery charger error	Green LED and Red LEDs blink alternatively ~1Hz
No handheld is placed on the cradle	Red and Green LEDs off

NOTES

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 barcodes 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
General Features			
Double Read Timeout	0.4 Second		33
Label Gone Timeout	160 ms		35
Sleep Mode Timeout	Disable		37
Power On Alert	4 Beeps		39
Good Read: When to Indicate	After Decode		40
Good Read Beep Type	Mono		41
Good Read Beep Frequency	Medium		42
Good Read Beep Length	80 ms		42
Good Read Beep Volume	High		44
Good Read LED Duration	LED on until next trigger pull		45
Scan Mode	Trigger Single		47
Stand Mode Triggered Timeout	0.5 second		49
Stand Detection	Switch to Stand mode		51
Stand Mode Sensitivity	Medium		52
Scanning Active Time	5 Seconds		53
Flash On Time	1 Second		55

Parameter	Default	Your Setting	Page Number
Flash Off Time	600 ms		57
Green Spot Duration	300 ms		59
Display			
- Font Size	Small		60
- Backlight	Off		61
- Display Mode	Local Echo mode		62
- Display Timeout	Disable		63
Interfaces			
Host Commands — Obey/Ignore			71
USB Suspend Mode			72
RS-232			
Baud Rate	9600		73
Data Bits	8 Data Bits		75
Stop Bits	1 Stop Bit		75
Parity	None		76
Handshaking Control	Disable		77
RS-232/USB-COM			
Intercharacter Delay	No Delay		80
Beep On ASCII BEL	Disable		82
Beep On Not on File	Enable		82
ACK Character	'ACK'		84
NAK Character	'NAK'		86
ACK NAK Timeout Value	600 ms		88
ACK NAK Retry Count	3 Retries		90
ACK NAK Error Handling	Ignore Errors Detected		92
Indicate Transmission Failure	Enable		93
Disable Character	'D'		94
Enable Character	'E'		96
Keyboard Wedge			
Country Mode	U.S. Keyboard		100

Parameter	Default	Your Setting	Page Number
Caps Lock State	Caps Lock OFF		102
Numlock	Numlock Key Unchanged		103
Send Control Characters	Disable		104
Wedge Quiet Interval	100 ms		105
Intercharacter Delay	No Delay		107
Intercode Delay	100 ms		109
USB Keyboard Speed	1 ms		111
USB-OEM			
USB-OEM Device Usage	Handheld Scanner		114
Interface Options	Ignore Host Configuration Commands		115
Wand Emulation			
Wand Idle State	High		125
Wand Polarity	Quiet Zones & Spaces High, Bars Low		124
Wand Signal Speed	660 ms		123
Label Symbology Conversion	No conversion		127
Transmit Noise	Disable		126
Data Editing			
Global Prefix/Suffix	No Global Prefix Global Suffix = 0x0D (CR)		130
Global AIM ID	Disable		132
GS1-128 AIM ID	Enable		134
Label ID Control	Disable		140
Case Conversion	Disable		149
Character Conversion	No Char Conversion		150
RF Features			
Good Transmission Beep	Enable		154
Beep Frequency	Low		155
Beep Duration	80 msec		156
Beep Volume	High		158
Disconnect Beep	Enable		159

Parameter	Default	Your Setting	Page Number
Automatic Configuration Update	Enable		162
Powerdown Timeout	60 minutes (1 hour)		164
Batch Mode	Disable		166
Source Radio Address Transmission	Do not include		167
Source Radio Address Delimiter Character	Enable		169
Radio Protocol Timeout	2 seconds		171
Radio Transmit Mode	ACK from cradle		173
RF Batch Mode Transmit Delay	No Delay		174
Symbologies			
Coupon Control	Enable UPC/EAN coupon decoding		177
UPC-A			
UPC-A Enable/Disable	Enable		178
UPC-A Check Character Transmission	Enable		178
Expand UPC-A to EAN-13	Don't Expand		179
UPC-A Number System Character Transmission	Transmit		179
UPC-A Minimum Reads	1		180
UPC-E			
UPC-E Enable/Disable	Enable		181
UPC-E Check Character Transmission	Send		181
Expand UPC-E to EAN-13	Don't Expand		182
Expand UPC-E to UPC-A	Don't Expand		182
UPC-E Number System Character Transmission	Transmit		183
UPC-E Minimum Reads	2		184
GTIN			
GTIN Formatting	Disable		185
EAN 13 (Jan 13)			
EAN 13 Enable/Disable	Enable		186
EAN 13 Check Character Transmission	Send		186
EAN-13 Flag 1 Character	Transmit		187

Parameter	Default	Your Setting	Page Number
EAN-13 ISBN Conversion	Disable		187
EAN 13 Minimum Reads	1		188
ISSN			
ISSN Enable/Disable	Disable		189
EAN 8			
EAN 8 Enable/Disable	Enable		190
EAN 8 Check Character Transmission	Send		190
Expand EAN 8 to EAN 13	Disable		191
EAN 8 Minimum Reads	1		192
UPC/EAN Global Settings			
UPC/EAN Decoding Level	3		193
UPC/EAN Correlation	Disable		195
UPC/EAN Price Weight Check	Disable		196
In-Store Minimum Reads	2		197
Add-Ons			
Optional Add-ons	Disable P2, P5 and P8		198
Optional Add-On Timer	70 ms		200
Optional GS1-128 Add-On Timer	Disable		203
P2 Add-Ons Minimum Reads	2		206
P5 Add-Ons Minimum Reads	1		207
GS1-128 Add-Ons Minimum Reads	1		208
Code 39			
Code 39 Enable/Disable	Enable		209
Code 39 Check Character Calculation	Calculate		210
Code 39 Check Character Transmission	Send		211
Code 39 Start/Stop Character Transmission	Don't Transmit		211
Code 39 Full ASCII	Disable		212
Code 39 Quiet Zones	Auto		213
Code 39 Minimum Reads	1		214
Code 39 Decoding Level	3		215

Parameter	Default	Your Setting	Page Number
Code 39 Length Control	Variable		217
Code 39 Set Length 1	2		218
Code 39 Set Length 2	50		220
Code 39 Interdigit Ratio	4		222
Code 39 Character Correlation	Disable		224
Code 39 Stitching	Enable		224
Code 32 (Italian Pharmaceutical Code)			
Code 32 Enable/Disable	Disable		225
Code 32 Feature Setting Exceptions	3		225
Code 32 Check Character Transmission	Don't Send		226
Code 32 Start/Stop Character Transmission	Don't Transmit		226
Code 39 CIP (French Pharmaceutical Code)			
Code 39 CIP Enable/Disable	Disable		225
Code 128			
Code 128 Enable/Disable	Enable		228
Expand Code 128 to Code 39	Don't Expand		228
Code 128 Check Character Transmission	Send		229
Code 128 Function Character Transmission	Don't Send		229
Code 128 Sub-Code Change Transmission	Disable		230
Code 128 Quiet Zones	Auto		231
Code 128 Minimum Reads	1		232
Code 128 Decoding Level	3		233
Code 128 Length Control	Variable		235
Code 128 Set Length 1	1		236
Code 128 Set Length 2	80		238
Code 128 Character Correlation	Disable		239
Code 128 Stitching	Enable		240
GS1-128			
GS1-128 Enable	Transmit in Code 128 Data Format		241

Parameter	Default	Your Setting	Page Number
ISBT 128			
ISBT 128 Concatenation	Disable		242
ISBT 128 Force Concatenation	Disable		243
ISBT 128 Concatenation Mode	Static		244
ISBT 128 Dynamic Concatenation Time-out	200 msec		245
ISBT 128 Advanced Concatenation Options	Disable		245
Codablock F			
Codablock F Enable/Disable	Disable		246
Codablock F EAN Enable/Disable	Disable		247
Codablock F AIM Check	Enable check C		247
Codablock F Length Control	Variable		248
Codablock F Set Length 1	3 characters		249
Codablock F Set Length 2	100 characters		251
Interleaved 2 of 5			
I 2 of 5 Enable/Disable	Enable		253
I 2 of 5 Check Character Calculation	Disable		254
I 2 of 5 Check Character Transmission	Send		255
I 2 of 5 Minimum Reads	1		287
2 of 5 Decoding Level	3		287
I 2 of 5 Length Control	Variable		259
I 2 of 5 Set Length 1	12		260
I 2 of 5 Set Length 2	100		262
I 2 of 5 Character Correlation	Disable		264
I 2 of 5 Stitching	Disable		264
Follett 2 of 5			
Follett 2 of 5 Enable/Disable	Disable		265
Interleaved 2 of 5 CIP HR			
Interleaved 2 of 5 CIP HR Enable/Disable	Disable		266
Standard 2 of 5			

Parameter	Default	Your Setting	Page Number
Standard 2 of 5 Enable/Disable	Disable		267
Standard 2 of 5 Check Character Calculation	Disable		267
Standard 2 of 5 Check Character Transmission	Send		268
Standard 2 of 5 Minimum Reads	1		269
Standard 2 of 5 Decoding Level	3		270
Standard 2 of 5 Length Control	Variable		270
Standard 2 of 5 Set Length 1	8		271
Standard 2 of 5 Set Length 2	50		273
Standard 2 of 5 Character Correlation	Disable		275
Standard 2 of 5 Stitching	Disable		275
Industrial 2 of 5			
Industrial 2 of 5 Enable/Disable	Disable		276
Industrial 2 of 5 Check Character Calculation	Disable		276
Industrial 2 of 5 Check Character Transmission	Enable		277
Industrial 2 of 5 Length Control	Variable		277
Industrial 2 of 5 Set Length 1	1		278
Industrial 2 of 5 Set Length 2	50		279
Industrial 2 of 5 Minimum Reads	1		281
Industrial 2 of 5 Stitching	Disable		282
Industrial 2 of 5 Character Correlation	Disable		283
Code IATA			
IATA Enable/Disable	Disable		284
IATA Check Character Transmission	Enable		285
Datalogic 2 of 5			
Datalogic 2 of 5 Enable/Disable	Disable		286
Datalogic 2 of 5 Check Character Calculation	Disable		286
Datalogic 2 of 5 Minimum Reads	1		287

Parameter	Default	Your Setting	Page Number
Datalogic 2 of 5 Decoding Level	3		287
Datalogic 2 of 5 Length Control	Variable		288
Datalogic 2 of 5 Set Length 1	6 characters		289
Datalogic 2 of 5 Set Length 2	50		291
Datalogic 2 of 5 Character Correlation	Disable		293
Datalogic 2 of 5 Stitching	Disable		293
Codabar			
Codabar Enable/Disable	Disable		294
Codabar Check Character Calculation	Don't Calculate		295
Codabar Check Character Transmission	Send		296
Codabar Start/Stop Character Transmission	Don't Transmit		296
Codabar Start/Stop Character Set	abcd/abcd		297
Codabar Start/Stop Character Match	Don't Require Match		298
Codabar Quiet Zones	Auto		299
Codabar Minimum Reads	1		300
Codabar Decoding Level	3		301
Codabar Length Control	Variable		302
Codabar Set Length 1	3		303
Codabar Set Length 2	50		305
Codabar Interdigit Ratio	4		307
Codabar Character Correlation	Disable		309
Codabar Stitching	Disable		309
ABC Codabar			
ABC Codabar Enable/Disable	Disable		310
ABC Codabar Concatenation Mode	Static		310
ABC Codabar Dynamic Concatenation Timeout	200 msec		311
ABC Codabar Force Concatenation	Disable		312
Code 11			
Code 11 Enable/Disable	Disable		313

Parameter	Default	Your Setting	Page Number
Code 11 Check Character Calculation	Check C and K		314
Code 11 Check Character Transmission	Send		315
Code 11 Minimum Reads	1		316
Code 11 Length Control	Variable		317
Code 11 Set Length 1	4		318
Code 11 Set Length 2	50		320
Code 11 Interdigit Ratio	4		322
Code 11 Decoding Level	3		324
Code 11 Character Correlation	Disable		326
Code 11 Stitching	Disable		326
GS1 DataBar™ Omnidirectional			
GS1 DataBar™ Omnidirectional Enable/Disable	Disable		327
GS1 DataBar™ Omnidirectional GS1-128 Emulation	Disable		327
GS1 DataBar™ Omnidirectional Minimum Reads	1		328
GS1 DataBar™ Expanded			
GS1 DataBar™ Expanded Enable/Disable	Disable		329
GS1 DataBar™ Expanded GS1-128 Emulation	Disable		329
GS1 DataBar™ Expanded Minimum Reads	1		330
GS1 DataBar™ Expanded Length Control	Variable		331
GS1 DataBar™ Expanded Set Length 1	1		332
GS1 DataBar™ Expanded Set Length 2	74		334
GS1 DataBar™ Limited			
GS1 DataBar™ Limited Enable/Disable	Disable		336
GS1 DataBar™ Limited GS1-128 Emulation	Disable		336
GS1 DataBar™ Limited Minimum Reads	1		337
Code 93			
Code 93 Enable/Disable	Disable		338

Parameter	Default	Your Setting	Page Number
Code 93 Check Character Calculation	Enable Check C and K		339
Code 93 Check Character Transmission	Enable		340
Code 93 Length Control	Variable		340
Code 93 Set Length 1	1		341
Code 93 Set Length 2	50		343
Code 93 Minimum Reads	1		345
Code 93 Decoding Level	3		346
Code 93 Quiet Zones	Auto		348
Code 93 Stitching	Enable		349
Code 93 Character Correlation	Enable		349
MSI			
MSI Enable/Disable	Disable		350
MSI Check Character Calculation	Enable Mod10		351
MSI Check Character Transmission	Enable		352
MSI Length Control	Variable		353
MSI Set Length 1	1		353
MSI Set Length 2	50		355
MSI Minimum Reads	4		357
MSI Decoding Level	3		358
MSI Stitching	Disable		359
MSI Character Correlation	Disable		359
Plessey			
Plessey Enable/Disable	Disable		361
Plessey Check Character Calculation	Enable Plessey std. check char. verification		362
Plessey Check Character Transmission	Enable		363
Plessey Length Control	Variable		363
Plessey Set Length 1	1		364
Plessey Set Length 2	50		366
Plessey Minimum Reads	4		368
Plessey Decoding Level	3		369

Parameter	Default	Your Setting	Page Number
Plessey Stitching	Disable		370
Plessey Character Correlation	Disable		371
Code 4			
Code 4 Enable/Disable	Disable		372
Code 4 Check Character Transmission	Send		372
Code 4 Hex to Decimal Conversion	Enable		373
Code 5			
Code 5 Enable/Disable	Disable		374
Code 5 Check Character Transmission	Send		374
Code 5 Hex to Decimal Conversion	Enable		375
Code 4 and 5 Common Configuration Items			
Code 4 and 5 Decoding Level	3		376
Code 4 and Code 5 Minimum Reads	1		378

Appendix D
Sample Barcodes

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

UPC-A

EAN-13

Code 39

Code 128

Interleaved 2 of 5

Sample Barcodes — continued

Code 32

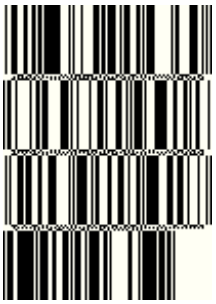
Codabar

Code 93

Code 11

GS1 DataBar™ (RSS)

NOTE **GS1 DataBar™ variants must be enabled to read the barcodes below (see GS1 DataBar™ Omnidirectional on page 327).**



10293847560192837465019283746029478450366523
(GS1 DataBar™ Expanded Stacked)

1234890hjio9900mnb
(GS1 DataBar™ Expanded)

08672345650916
(GS1 DataBar™ Limited)

GS1 DataBar™-14

55432198673467
(GS1 DataBar™ Omnidirectional Truncated)

90876523412674
(GS1 DataBar™ Omnidirectional Stacked)

78123465709811
(GS1 DataBar™ Omnidirectional Stacked)

NOTES

Appendix E
Keypad

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

6	
	7
8	
	9

A	
	B
C	
	D
E	
	F

NOTES

Appendix F
Scancode Tables

Control Character Emulation

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

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

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

Control Character 02 . Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (Microsoft Windows Codepage 1252 — See page -420.)

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 or USB-Keyboard

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+\	GS C+]	RS C+^	US C(S)+_
2x	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	*Del*
8x	€	Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	↑	↓	←	→	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓
Ax	Cr↑	□	‘	*ƒ*	„	…	†	‡	ˆ	‰	Š	‹	Ś	‹	Œ	□
Bx	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
Cx	À	Á	Ä	Ã	Ä	Å	Æ	Ç	È	É	Ë	Ē	Ì	Í	Ī	Ï
Dx	Đ	□	Ò	Ó	Ö	Õ	Ö	×	Ø	Ù	Ú	Ü	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 or USB-Keyboard — 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 Keypd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Space	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	*Del*
8x	€	□	‘	*f*	„	…	†	‡	ˆ	‰	S	‹	S	‹	Œ	□
9x	□	‘	’	“	”	•	–	—	˜	™	š	›	œ	□	ž	Y
Ax	NBSP	¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	-	®	¯
Bx	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
Cx	A	A	A	A	A	A	Æ	Ç	E	E	E	E	I	I	I	I
Dx	Ð	□	O	O	O	O	O	×	Ø	U	U	U	U	Y	Þ	ß
Ex	à	á	â	ã	ä		å	æ	ç	è	é	ê	ë	i	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+052	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 Keypd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	A+032	A+033	A+034	A+035	A+036	A+037	A+038	A+039	A+040	A+041	A+042	A+043	A+044	A+045	A+046	A+047
3x	A+048	A+049	A+050	A+051	A+052	A+053	A+054	A+055	A+056	A+057	A+058	A+059	A+060	A+061	A+062	A+063
4x	A+064	A+065	A+066	A+067	A+068	A+069	A+070	A+071	A+072	A+073	A+074	A+075	A+076	A+077	A+078	A+079
5x	A+080	A+081	A+082	A+083	A+084	A+085	A+086	A+087	A+088	A+089	A+090	A+091	A+092	A+093	A+094	A+095
6x	A+096	A+097	A+098	A+099	A+100	A+101	A+102	A+103	A+104	A+105	A+106	A+107	A+108	A+109	A+110	A+111
7x	A+112	A+113	A+114	A+115	A+116	A+117	A+118	A+119	A+120	A+121	A+122	A+123	A+124	A+125	A+126	A+127
8x	A+0128	A+0129	A+0130	A+0131	A+0132	A+0133	A+0134	A+0135	A+0136	A+0137	A+0138	A+0139	A+0140	A+0141	A+0142	A+0143
9x	A+0144	A+0145	A+0146	A+0147	A+0148	A+0149	A+0150	A+0151	A+0152	A+0153	A+0154	A+0155	A+0156	A+0157	A+0158	A+0159
Ax	A+0160	A+0161	A+0162	A+0163	A+0164	A+0165	A+0166	A+0167	A+0168	A+0169	A+0170	A+0171	A+0172	A+0173	A+0174	A+0175
Bx	A+0176	A+0177	A+0178	A+0179	A+0180	A+0181	A+0182	A+0183	A+0184	A+0185	A+0186	A+0187	A+0188	A+0189	A+0190	A+0191
Cx	A+0192	A+0193	A+0194	A+0195	A+0196	A+0197	A+0198	A+0199	A+0200	A+0201	A+0202	A+0203	A+0204	A+0205	A+0206	A+0207
Dx	A+0208	A+0209	A+0210	A+0211	A+0212	A+0213	A+0214	A+0215	A+0216	A+0217	A+0218	A+0219	A+0220	A+0221	A+0222	A+0223
Ex	A+0224	A+0225	A+0226	A+0227	A+0228	A+0229	A+0230	A+0231	A+0232	A+0233	A+0234	A+0235	A+0236	A+0237	A+0238	A+0239
Fx	A+0240	A+0241	A+0242	A+0243	A+0244	A+0245	A+0246	A+0247	A+0248	A+0249	A+0250	A+0251	A+052	A+0253	A+0254	A+0255

Table 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	→	S+ Tab	Enter Keypd	Enter	Ins	
1x			←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Space	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	Del

IBM31xx 102-key

Table 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	Print	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓
Ax	Cr↑															

IBM31xx 102-key — cont.

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 Keypd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Space	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	B	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	R	s	t	u	v	w	x	y	z	{	|	}		*Del*

IBM XT

Table 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 is 02

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓	Cr↑	BS	Tab	→	S+ Tab	Enter Keypd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Space	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	B	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	R	s	t	u	v	w	x	y	z	{	|	}		*Del*

Microsoft Windows Codepage 1252

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

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	NUL 0000	STX 0001	SOT 0002	ETX 0003	EOT 0004	ENQ 0005	ACK 0006	BEL 0007	BS 0008	HT 0009	LF 000A	VT 000B	FF 000C	CR 000D	SO 000E	SI 000F
10	DLE 0010	DC1 0011	DC2 0012	DC3 0013	DC4 0014	NAK 0015	SYN 0016	ETB 0017	CAN 0018	EM 0019	SUB 001A	ESC 001B	FS 001C	GS 001D	RS 001E	US 001F
20	SP 0020	! 0021	" 0022	# 0023	$ 0024	% 0025	& 0026	' 0027	(0028	) 0029	* 002A	+ 002B	, 002C	- 002D	. 002E	/ 002F
30	0 0030	1 0031	2 0032	3 0033	4 0034	5 0035	6 0036	7 0037	8 0038	9 0039	: 003A	; 003B	< 003C	= 003D	> 003E	? 003F
40	@ 0040	A 0041	B 0042	C 0043	D 0044	E 0045	F 0046	G 0047	H 0048	I 0049	J 004A	K 004B	L 004C	M 004D	N 004E	O 004F
50	P 0050	Q 0051	R 0052	S 0053	T 0054	U 0055	V 0056	W 0057	X 0058	Y 0059	Z 005A	[005B	\ 005C	] 005D	^ 005E	_ 005F
60	` 0060	a 0061	b 0062	c 0063	d 0064	e 0065	f 0066	g 0067	h 0068	i 0069	j 006A	k 006B	l 006C	m 006D	n 006E	o 006F
70	p 0070	q 0071	r 0072	s 0073	t 0074	u 0075	v 0076	w 0077	x 0078	y 0079	z 007A	{ 007B	| 007C	} 007D	~ 007E	DEL 007F
80	€ 20AC		‚ 201A	ƒ 0192	„ 201E	… 2026	† 2020	‡ 2021	ˆ 02C6	‰ 2030	Š 0160	‹ 2039	Œ 0152		Ž 017D	
90		' 2018	' 2019	" 201C	" 201D	• 2022	– 2013	— 2014	˜ 02DC	™ 2122	š 0161	› 203A	œ 0153		ž 017E	Ÿ 0178
A0	NBSP 00A0	¡ 00A1	¢ 00A2	£ 00A3	¤ 00A4	¥ 00A5	¦ 00A6	§ 00A7	¨ 00A8	© 00A9	ª 00AA	« 00AB	¬ 00AC	- 00AD	® 00AE	¯ 00AF
B0	° 00B0	± 00B1	² 00B2	³ 00B3	´ 00B4	µ 00B5	¶ 00B6	· 00B7	¸ 00B8	¹ 00B9	º 00BA	» 00BB	¼ 00BC	½ 00BD	¾ 00BE	¿ 00BF
C0	À 00C0	Á 00C1	Â 00C2	Ã 00C3	Ä 00C4	Å 00C5	Æ 00C6	Ç 00C7	È 00C8	É 00C9	Ê 00CA	Ë 00CB	Ì 00CC	Í 00CD	Î 00CE	Ï 00CF
D0	Ð 00D0	Ñ 00D1	Ò 00D2	Ó 00D3	Ô 00D4	Õ 00D5	Ö 00D6	× 00D7	Ø 00D8	Ù 00D9	Ú 00DA	Û 00DB	Ü 00DC	Ý 00DD	Þ 00DE	ß 00DF
E0	à 00E0	á 00E1	â 00E2	ã 00E3	ä 00E4	å 00E5	æ 00E6	ç 00E7	è 00E8	é 00E9	ê 00EA	ë 00EB	ì 00EC	í 00ED	î 00EE	ï 00EF
F0	ð 00F0	ñ 00F1	ò 00F2	ó 00F3	ô 00F4	õ 00F5	ö 00F6	÷ 00F7	ø 00F8	ù 00F9	ú 00FA	û 00FB	ü 00FC	ý 00FD	þ 00FE	ÿ 00FF

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P

R

S

T

U

V

W

X

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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