

# **Gryphon™ Family**

General Purpose Handheld  
Linear Imager or Laser Barcode Readers

**Gryphon I GD4100/GM4100**

**Gryphon BT4100/ L GD4300**



**Product Reference Guide**

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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.

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# Chapter 1

## Introduction

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### About this Manual

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

### Overview

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

[Chapter 2, Setup](#) presents information about unpacking, cable connection information and setting up the reader.

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

[Chapter 4, Wireless Features](#) describes options and programming related to radio communication features for the RF variants of the Gryphon family.

[Chapter 5, Laser Features](#) describes options and programming specific to laser models.

[Chapter 6, References](#) provides background information and detailed instructions for more complex programming items.

[Chapter 7, 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 and LED/Beeper functions.

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

[Appendix C, Sample Barcodes](#) offers sample barcodes of several common symbologies.

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

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

## Manual Conventions

The following conventions are used in this document:

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



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



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

**CAUTION**

## References

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

## Technical Support

### Datalogic Website Support

The Datalogic website ([www.scanning.datalogic.com](http://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.

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## About the Reader

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

Several models of the Gryphon are available, and are covered in this manual:

- Gryphon I GD4100 - Corded linear imager barcode reader
- Gryphon I GM4100 - Cordless linear imager barcode reader with Datalogic STAR™.
- Gryphon L GD4300 - Model with Laser scan engine.
- Gryphon I BT 4100 - Model with Bluetooth options.

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.

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

See "[Interface Selection](#)" on [page 28](#) for a listing and descriptions of available interface sets by model type.

# The BC40xx™ Radio Base





## Base LEDs

LEDs on the Gryphon I Base provide information about the Base's status, as shown in [Figure 1](#).

**Figure 1. Gryphon I Base LEDs**



The following table describes the significance of each LED:

	LED	STATUS
	Power on / Data	Yellow On = Base is powered Yellow Blinking = Base receives data and commands from the Host or the Reader.
	Charging	Red On = Battery charging 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 327](#) 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 265](#)) and reception is enabled (see [Sleep Mode Timeout on page 94](#)). 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 the Aladdin Online Help for details.

### Star Model

For the Star model, press and hold (longer than one second) to initiate paging.

### BT Model

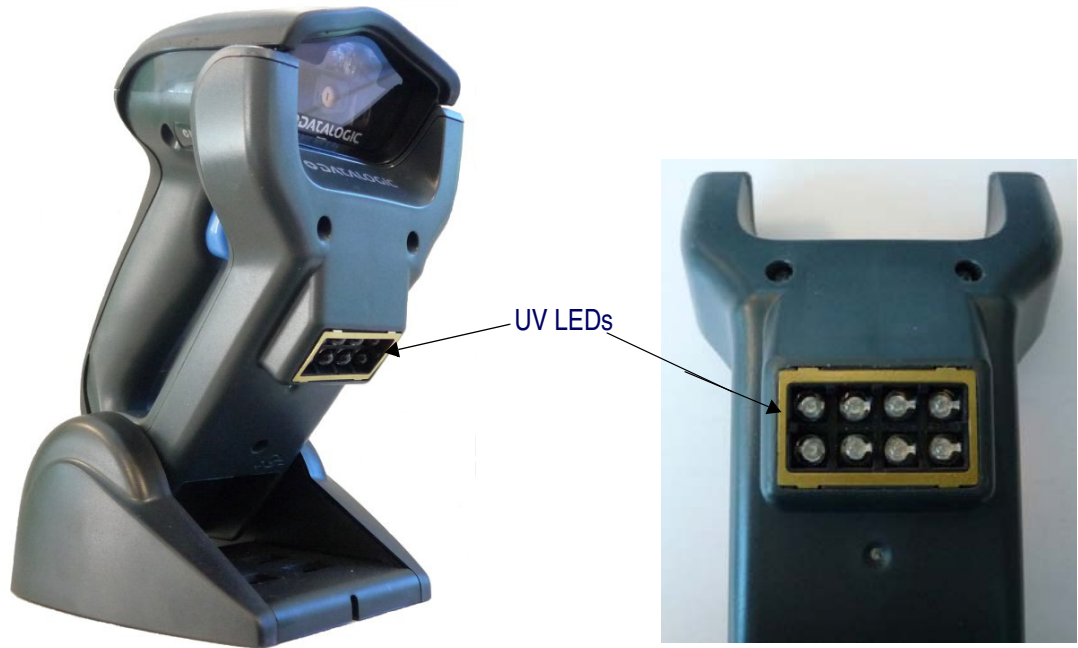
For the BT model, press quickly (less than one second) to initiate paging. Press and hold (longer than one second) to enable radio linking. This will make the base discoverable from a BT master.

---

## BC40XX UV Counterfeit Detection

The BC40XX Radio Base is available with a UV Counterfeit Money Detector, typically used to verify the authenticity of bank notes. Other uses for counterfeit detection are passport, ticket, credit card, travelers' check and similar applications where it is possible to detect fluorescent marks with UV light.

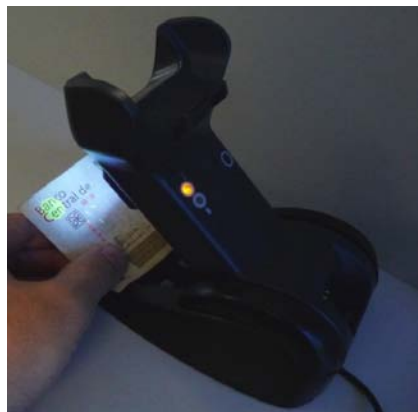
The detector contains eight special UV LEDs, as shown below:



The Counterfeit Detector is based on UV fluorescent emission. Real banknotes under ultraviolet rays usually absorb the UV light and will show special marks made with fluorescent inks. On the other hand, most counterfeit banknotes only reflect the UV lights, without showing fluorescent marks.

### To use:

1. Quickly press the Base button to light the UV LEDs.
2. Hold the item to be verified under the LED lights to ensure that the special fluorescent marks are visible.



3. The LEDs are set to switch off automatically after about 2 minutes. To keep the UV LEDs in always-on mode, quickly press the Base button a second time within 10 seconds of the first press. To switch them off, simply press the button again.



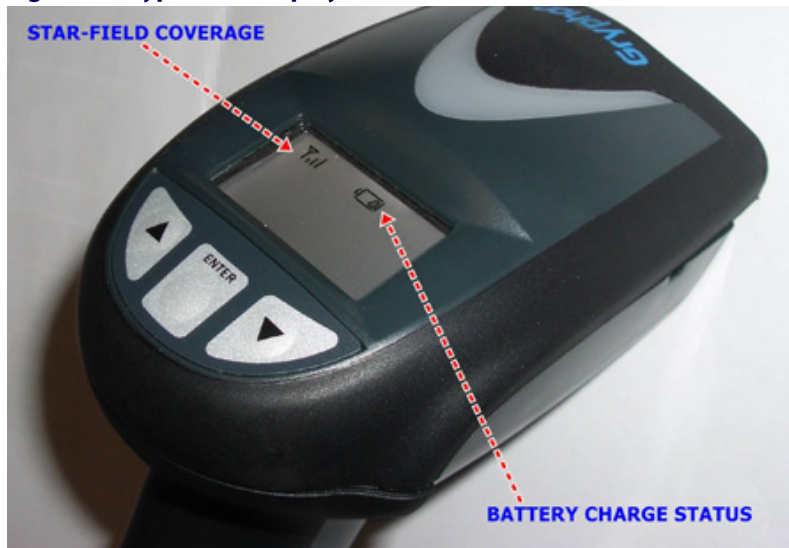
**An external power supply is necessary for full functionality of the Base station with UV Counterfeit Detector. Use only the recommended AC adapter 12Vdc.**

## 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 Features on page 272](#) and [Message Formatting on page 317](#) for more information.

**Figure 2. Gryphon™ I Display**





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## Battery Safety

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



**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.

## Programming the Reader

### Configuration Methods

#### Programming Barcodes

The reader is factory-configured with a standard set of default features. After scanning the interface barcode, you can select other options and customize your reader through use of the instructions and programming barcode labels available in the corresponding features section for your interface. Customizable settings for many features are found in "[Configuration Using Barcodes](#)" starting on page 37.

Some programming labels, like "[Restore Custom Defaults](#)" on page 33, require only the scan of the single label to enact the change. Most, however, require the reader to be placed in Programming Mode prior to scanning them. Scan an ENTER/EXIT barcode once to enter Programming Mode. Once the reader is in Programming Mode, scan a number of parameter settings before scanning the ENTER/EXIT barcode a second time, which will then accept your changes, exit Programming Mode and return the reader to normal operation.



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

#### Datalogic Aladdin™

Datalogic Aladdin™ is a multi-platform utility program providing a quick and user-friendly configuration method via the RS-232/USB-COM interface. Aladdin is available on the CD-ROM provided with your product, and also from the Datalogic website. Aladdin allows you to program the reader by selecting configuration commands through a user-friendly graphical interface running on a PC. These commands are sent to the reader over the selected communication interface, or they can be printed as barcodes to be scanned.

Aladdin also provides the ability to perform a software upgrade for the connected device (see the Datalogic Aladdin™ Help On-Line for more details).

# Chapter 2

## Setup

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### Unpacking

Check carefully to ensure the reader and any accessories ordered are present and undamaged. If any damage occurred during shipment, contact Datalogic Technical Support. Information is shown on [page 10](#).

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

### Setting Up the Reader

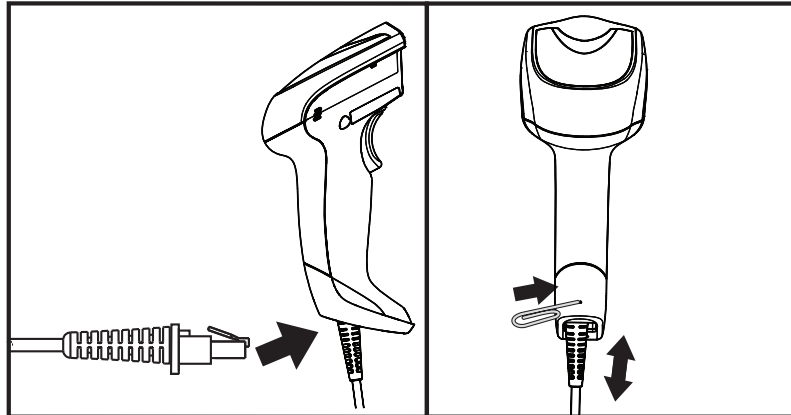
Depending on whether you are using a Corded or Mobile version of the Gryphon, follow the steps provided in this section to connect and get your reader up and communicating with its host.

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

## Installing the Interface Cable

For Corded versions, connect the reader cable by inserting the cable into the handle as shown in Figure 3. To remove it, insert a paper clip into the release aperture, then unplug the cable.

**Figure 3. 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 4. 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 4. RS-232 Connection**

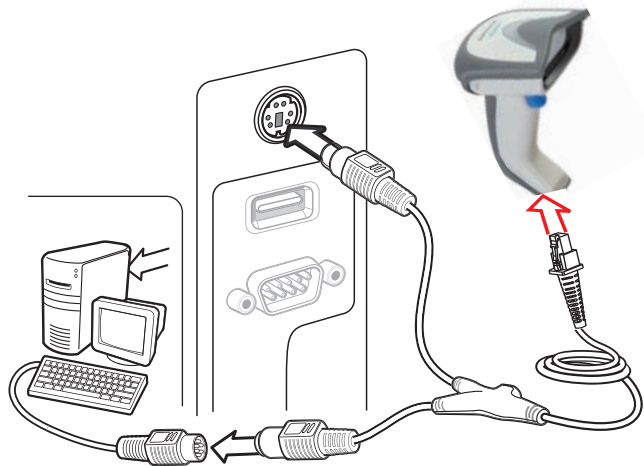


## Keyboard Wedge Connection



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 5.

**Figure 5. Keyboard Wedge Interface connection**



## USB Connection



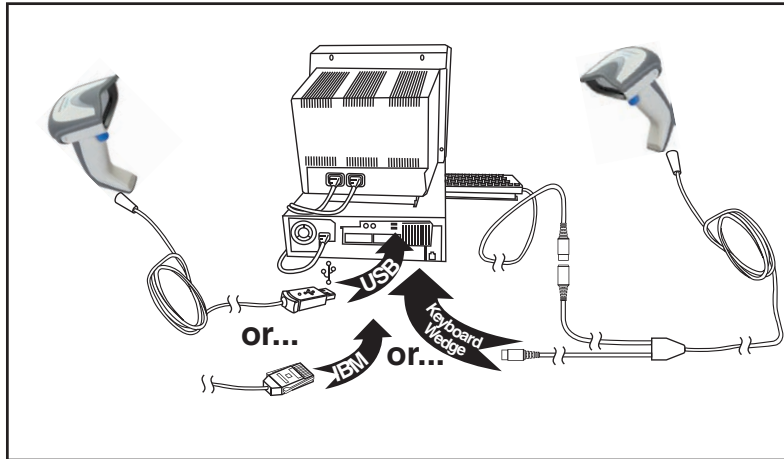
Connect the reader to a USB port on the terminal/PC using the correct USB cable for the interface type you ordered. Reference Figure 6.

**Figure 6. USB connection**



Other connection types are described below and illustrated in Figure 7.

**Figure 7. Other Interface Connections**



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

### 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.

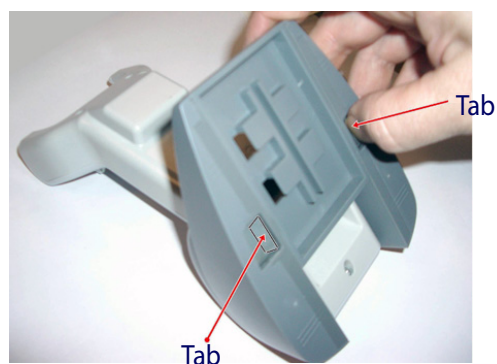


**A tool such as a rigid pen or a flat screwdriver can be used to change the mounts. Do not allow it to touch the contacts.**

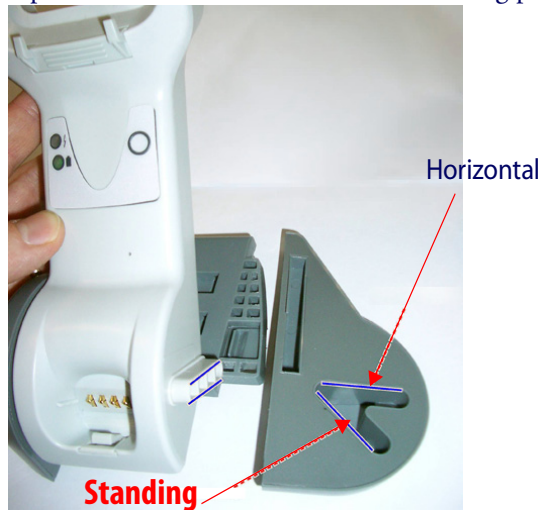
1. Insert the appropriate parts for the desired base station position, as shown below.



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.



## Connecting the Base Station

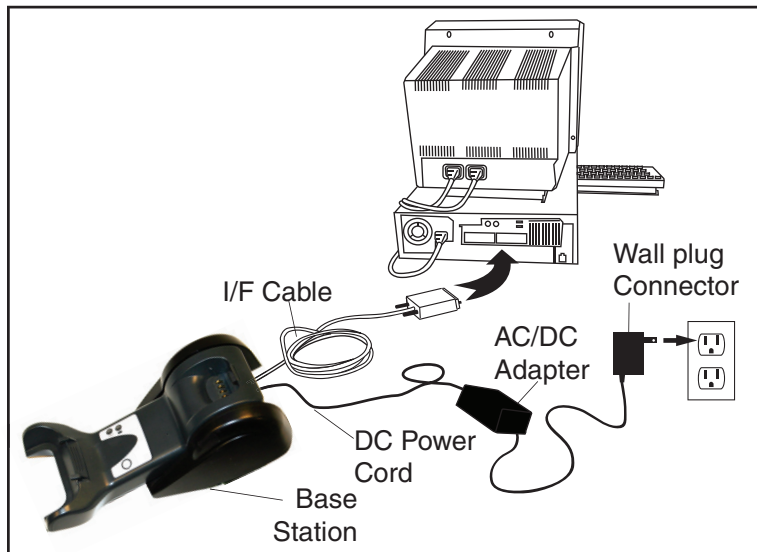
Figure 8 shows how to connect the Base Station to a terminal, PC or other host device. Turn off the host before connection and consult the manual for that equipment (if necessary) before proceeding. Connect the interface cable before applying power to the Base Station.



**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 8). Then connect to an AC Adapter, and plug the AC power cord into the (wall) outlet.

**Figure 8. Connecting the Base Station**

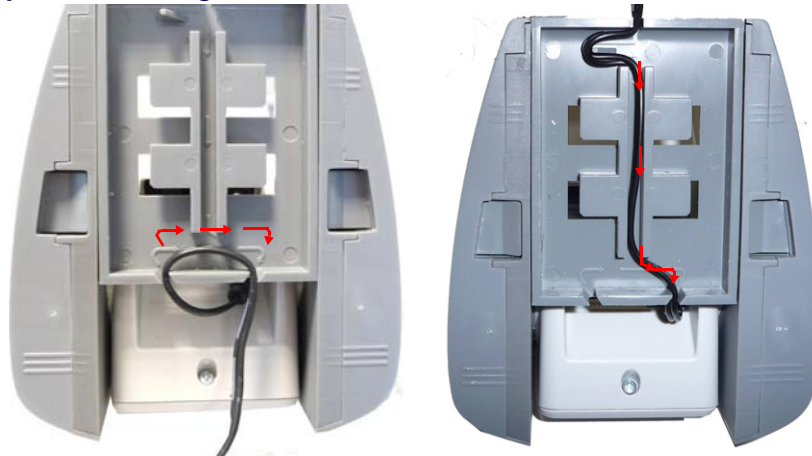




## Securing the DC Power Cord (Optional)

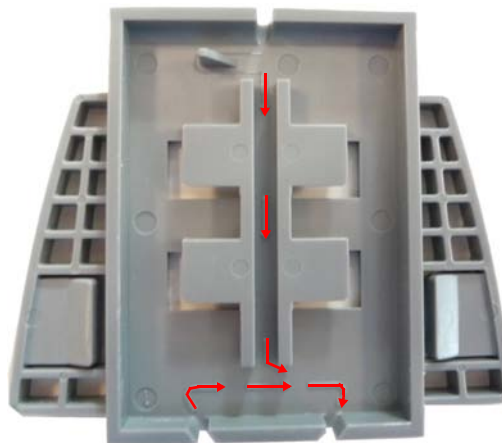
The DC power cord for the adapter can be secured to the bottom of the base in order to maximize the mechanical retention of the cable itself. The routing of the power cord can be changed to accommodate the base station positioning: horizontal, stand or wall mounting. The cables can be looped around to the front of the Base Station, or fed directly out the back of the Base Station, as shown in Figure 9 on page 23.

**Figure 9. Options for routing the DC cord**



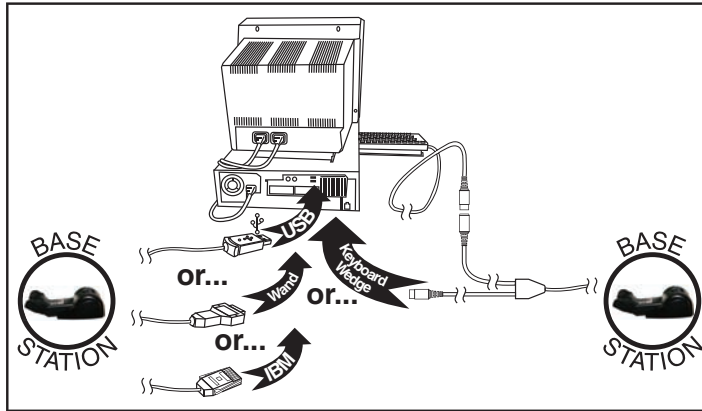
Please refer to the arrows depicted on the bottom of the base when placing the cables, detailed in Figure 10.

**Figure 10. 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 11. Connecting to the Host**



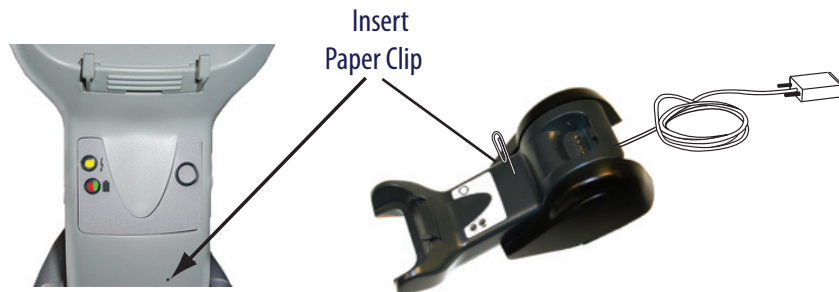
**Power Connection :** Plug the AC Adapter in to an approved AC wall socket with the cable facing downwards (as shown in Figure 8) to prevent undue strain on the socket.



**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 12.

**Figure 12. 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

## BT Models only

Remember: The mandatory condition for establishing a new linking between a BT handheld and a BT base is that the handheld is unlinked and they share the same security configuration. A successful link is indicated by three ascending tones from the reader. A high-low-high-low tone indicates the link attempt was unsuccessful. A single green LED flash after this tone indicates no Base Station was discovered. Two green LED flashes after this tone indicates that more than one Base Station was discovered and the reader did not link. Three LED flashes after this tone indicate a security error.

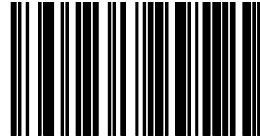
## Linking a BT Reader to a PC

The reader can optionally be linked to a Bluetooth-enabled PC with the serial port profile, in either server mode or client mode.

### Linking to a PC in Server Mode (BT Slave Mode)

To link a BT reader in server mode to a Bluetooth-enabled PC, follow these steps:

1. Install any drivers provided with the Bluetooth adapter.
2. Scan the Link to a PC in Server Mode barcode to make the scanner visible to the host computer..



Link to a PC in Server Mode

3. Use the host computer's Bluetooth manager to "Discover new devices" and select "Data-logic Scanner." If you receive an error message, it may be necessary to disable security on the device.
4. Select "connect" on the PC to link the reader to the PC. Use an RS-232 terminal program to see incoming data on the port designated by the computer's Bluetooth manager.

### Linking to a PC in Client Mode (BT Master Mode)

The reader can optionally be linked in client mode to a Bluetooth-enabled PC with the serial port profile. To do this, follow these steps:

1. Ensure the PC or terminal can network with Bluetooth devices and that it is powered on.
2. Ensure that a COM port is assigned under Services within the bluetooth setup menu.
3. Create a Link label that contains the address of the PC bluetooth adapter.



The bluetooth address can be found under "Properties" within in the bluetooth setup menu.

#### NOTE

The link label is a Code 128 function 3 label with the following format:

**<FN3 char>LnkB<12 character bluetooth address>**

4. Scan the link label you created in step 3.

# GRYPHON™ I System and Network Layouts

## Stand Alone Layouts

Figure 13. Single Reader Layout

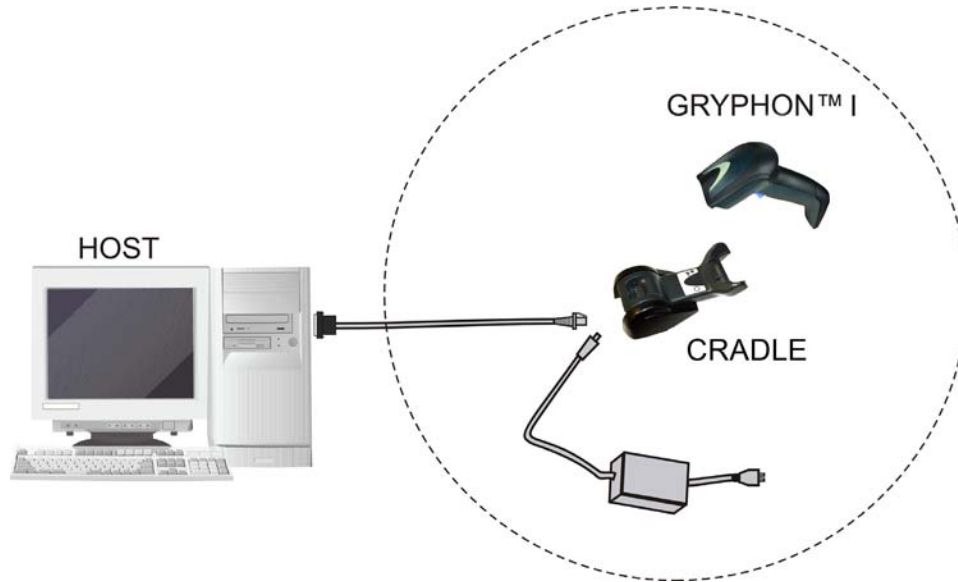
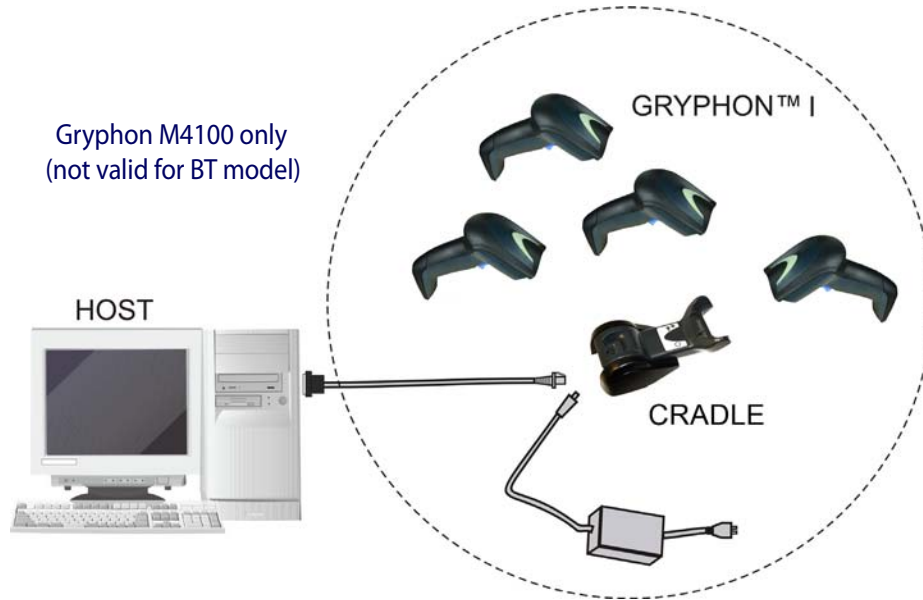
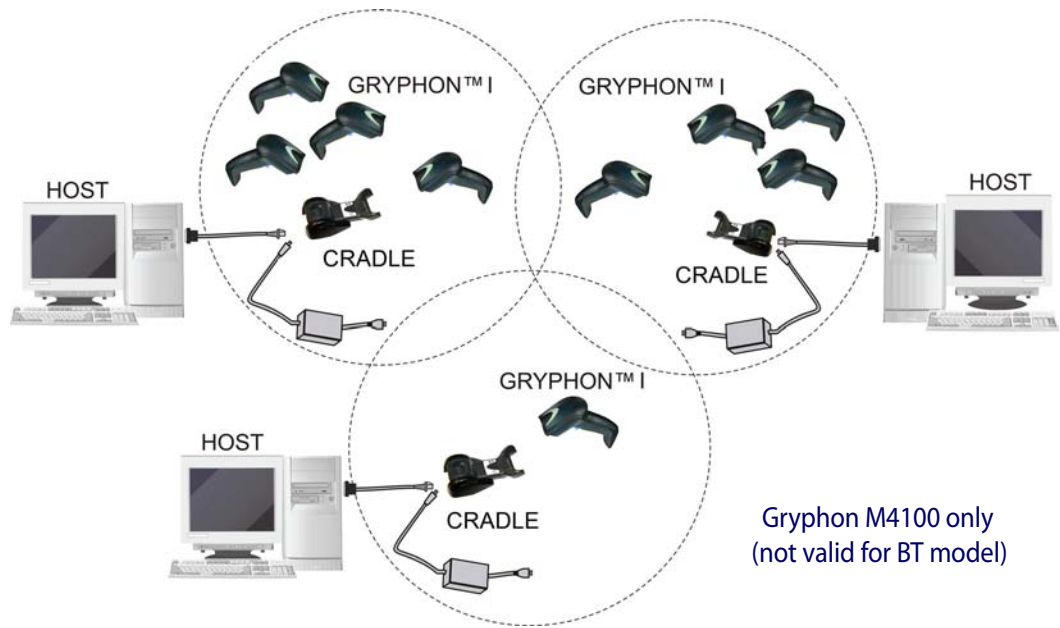


Figure 14. Multiple Reader Layout



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

**Figure 15. 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.

---

## Interface Selection

Upon completing the physical connection between the reader and its host, proceed to Table 1 starting on page 29 to select the interface type the reader is connected to (for example: RS-232, Keyboard Wedge, USB, etc.). Scan the appropriate barcode in that section to configure your system's correct interface type.

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

## Setting the Interface

Scan the programming barcode from this section which selects the appropriate interface type matching the system the reader will be connected to. Next, proceed to the corresponding section in this manual (also listed in Table 1 starting on page 29) to configure any desired settings and features associated with that interface.



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

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

**Table 1. Available Interfaces**

RS-232		FEATURES
RS-232 standard interface	 Select RS232-STD	Set RS-232 Interface Features starting on page 41
 Select RS232-WN	RS-232 Wincor-Nixdorf	
RS-232 for use with OPOS/UPOS/JavaPOS	 Select RS-232 OPOS	
 Select USB-COM-STD <sup>a</sup>	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 69
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 67

a. Download the correct USB Com driver from [www.datalogic.com](http://www.datalogic.com)

KEYBOARD	FEATURES
<p><b>AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 &amp; 95 w/Standard Key Encoding</b></p>  <p>Select KBD-AT</p>	<p>Set KEYBOARD WEDGE Interface Features starting on page 55</p>
 <p>Select KBD-AT-NK</p> <p><b>Keyboard Wedge for IBM AT PS2 with standard key encoding but without external keyboard</b></p>	
<p><b>AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 &amp; 95 w/Alternate Key</b></p>  <p>Select KBD-AT-ALT</p>	
 <p>Select KBD-AT-ALT-NK</p> <p><b>Keyboard Wedge for IBM AT PS2 with alternate key encoding but without external keyboard</b></p>	
<p>PC/XT w/Standard Key Encoding</p>  <p>Select KBD-XT</p>	
 <p>Select KBD-IBM-3153</p> <p>Keyboard Wedge for IBM Terminal 3153</p>	



KEYBOARD — cont.		FEATURES
<p><b>Keyboard Wedge for IBM Terminals 31xx, 32xx, 34xx, 37xx make only key-board</b></p>	 Select KBD-IBM-M	<p>Set KEYBOARD WEDGE Interface Features starting on page 55</p>
 Select KBD-IBM-MB	<p><b>Keyboard Wedge for IBM Terminals 31xx, 32xx, 34xx, 37xx make break key-board</b></p>	
<p><b>Keyboard Wedge for DIGITAL Terminals VT2xx, VT3xx, VT4xx</b></p>	 Select KBD-DIG-VT	
 Select USB Keyboard	<p>USB Keyboard with standard key encoding</p>	
<p>USB Keyboard with alternate key encoding</p>	 Select USB Alternate Keyboard	
 Select USB-KBD-APPLE	<p>USB Keyboard for Apple computers</p>	
WAND EMULATION	FEATURES	
<p>Wand Emulation</p>	 Select WAND	<p>Set WAND Interface Features starting on page 73</p>

# Customizing Configuration Settings

## Configure Interface Settings

If after scanning the interface barcode from the previous table, your installation requires you to select options to further customize your reader, turn to the appropriate section for your interface type in "Configuration Using Barcodes" starting on page 37.

- "RS-232 ONLY Interface" on page 41
- "RS-232/USB-Com Interfaces" on page 46
- "Keyboard Interface" on page 55
- "USB-OEM Interface" on page 67
- "IBM 46XX Interface" on page 69
- "Wand Emulation Interface" on page 73

## Global Interface Features

See "Global Interface Features" on page 39 for settings configurable by all interface types.

## Configuring Other Features

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

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

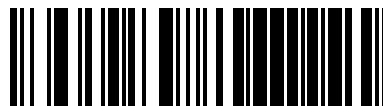
**Code Selection:** Includes options concerning the barcode label types (symbologies). These settings allow you to enable/disable symbologies, set label lengths, require check digit, etc.

**Wireless Features:** Contains programming options for RF and Bluetooth models only.

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

## Software Version Transmission

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



Transmit Software Version

---

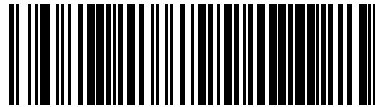
## Resetting the Product Configuration to Defaults

### Restore Custom Defaults

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



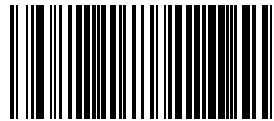
**Custom defaults are based on the interface type. Configure the imager for the correct interface before scanning this label.**



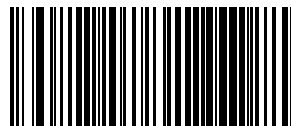
Restore Custom Default Configuration

### Restore Factory Configuration

If you want to restore the Factory Configuration for your imager, scan either the Restore USA Factory Configuration barcode or the Restore EU Factory Configuration barcode below. Both labels restore the scanner configuration to the factory settings, including the interface type. The USA label restores Label IDs to those historically used in the USA. The EU label restores Label IDs to those historically used in Europe. The Label ID sets for USA and EU are shown in the “Label ID” section on page 81 of this manual.



Restore USA Factory Configuration



Restore EU Factory Configuration

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

## Replacing the Battery



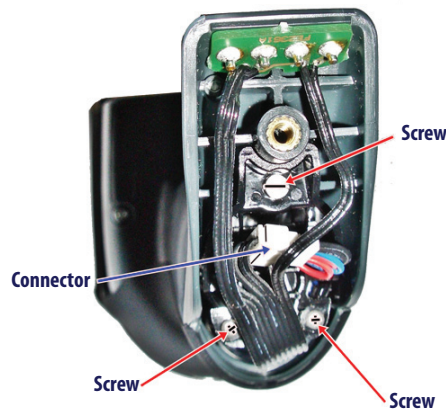
Before replacing the Battery, read "[Battery Safety](#)" starting on page 15. Datalogic recommends annual replacement of rechargeable battery packs to ensure maximum performance.

To change the battery of your reader, complete the following instructions.

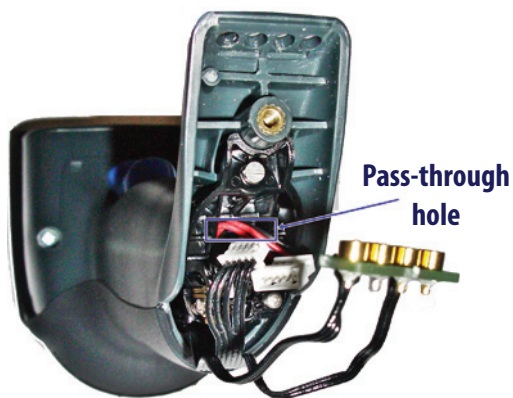
1. With a screwdriver, unscrew the battery cover screw.



2. Unscrew and remove 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 and three screws, plug in the connector, and return the contacts circuit to its previous location.



**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.



Battery replacement is now complete.

# NOTES

# Chapter 3

## Configuration Using Barcodes

This and following sections provide programming barcodes to configure your reader by changing the default settings. For details about additional methods of programming, see [Configuration Methods on page 16](#).



**You must first enable your reader to read barcodes in order to use this section. If you have not done this, go to [Setup, starting on page 17](#) and complete the appropriate procedure.**

### Configuration Parameters

Once the reader is set up, you can change the default parameters to meet your application needs. Refer to "[Standard Defaults](#)" [starting on page 329](#) for initial configuration in order to set the default values and select the interface for your application.

The following configuration parameters are applicable to all Gryphon models covered in this manual, unless otherwise indicated. The items are divided into logical groups, making it easy to find the desired function based on its reference group.

#### Interface Configuration:

- "[RS-232 ONLY Interface](#)" on page 41
- "[RS-232/USB-Com Interfaces](#)" on page 46
- "[Keyboard Interface](#)" on page 55
- "[USB-OEM Interface](#)" on page 67
- "[IBM 46XX Interface](#)" on page 69
- "[Wand Emulation Interface](#)" on page 73

#### Parameters common to all interface applications:

- "[Data Format](#)" on page 77 gives options to control the messages sent to the Host system.
- "[Reading Parameters](#)" on page 91 control various operating modes and indicators status functioning.

#### Symbology-specific parameters:

- "[Code Selection](#)" on page 107 provides configuration of a personalized mix of codes, code families and their options.

#### Model-specific parameters:

- "[Wireless Features](#)" on page 257 offers configuration of radio control parameters for RF and Bluetooth models.
- "[Laser Features](#)" on page 281 provides options specific to laser models.

## Reading Configuration Barcodes



**You must first enable your reader to read barcodes in order to use this section. If you have not done this, go to [Setup](#), starting on page 17 and complete the appropriate procedure.**

To program features:

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



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

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

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

For detailed descriptions, programming information and examples for setting selected configuration items, see [References](#), starting on page 285.






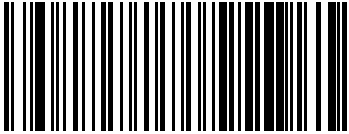
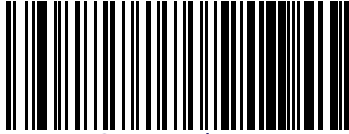
## GLOBAL INTERFACE FEATURES

The following interface features are configurable by all interface types.

### Host Commands — Obey/Ignore


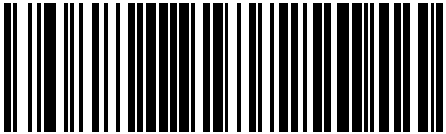
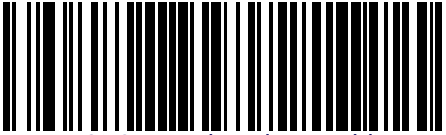
This option specifies whether the reader will obey or ignore host commands. When set to ignore, the reader will ignore all host commands except for those necessary for:

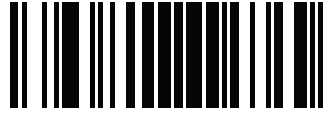
- service mode
- flash programming mode
- keeping the interface active
- transmission of labels.

	 Host Commands = Obey
 Host Commands = Ignore	

### USB Suspend Mode

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

	 USB Suspend Mode = Disable
 USB Suspend Mode = Enable	



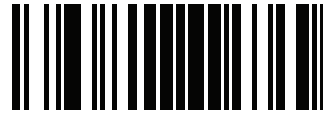
# NOTES

## RS-232 ONLY INTERFACE

<b>BAUD RATE</b> on page 42
<b>DATA BITS</b> on page 43
<b>STOP BITS</b> on page 43
<b>PARITY</b> on page 44
<b>HANDSHAKING CONTROL</b> on page 45

Use the programming barcodes in this section if modifications to the standard RS-232 interface settings are necessary to meet your system's requirements. Additional settings which apply to both the RS-232 and USB interfaces are available in the next section, "RS-232/USB-Com Interfaces" starting on page 4-46.

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



## Baud Rate

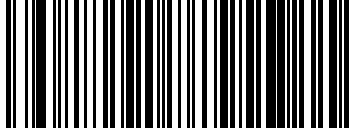
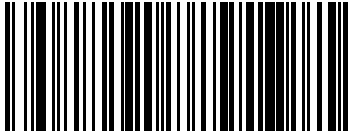
See [page 285](#) for information on this feature.

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



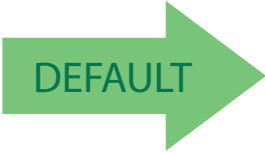
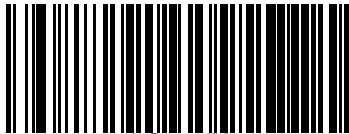
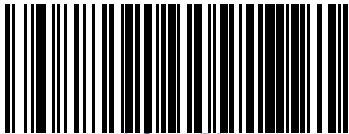
### Data Bits

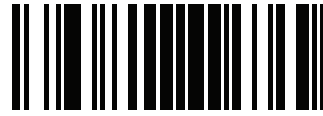
This parameter allows the reader to interface with devices requiring a 7-bit or 8-bit ASCII protocol for sending and receiving data.

	 <p>7 Data Bits</p>
 <p>8 Data Bits</p>	

### Stop Bits

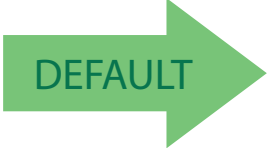
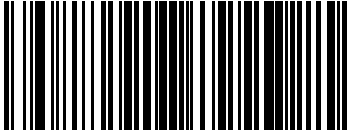
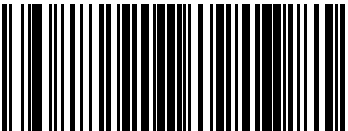
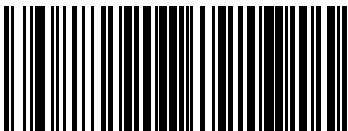
Set the number of stop bits to match host device requirements. See [page 285](#) for more information on this feature.

	 <p>1 Stop Bit</p>
 <p>2 Stop Bits</p>	



### Parity

This feature specifies parity required for sending and receiving data. Select the parity type according to host device requirements. See [page 285](#) for more information.

	 Parity = None
 Parity = Even	
	 Parity = Odd



## Handshaking Control

See [page 285](#) for more information about this feature.

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

## RS-232/USB-COM INTERFACES

<b>INTERCHARACTER DELAY</b> on page 47
<b>BEEP ON ASCII BEL</b> on page 47
<b>BEEP ON NOT ON FILE</b> on page 48
<b>ACK NAK OPTIONS</b> on page 49
<b>ACK CHARACTER</b> on page 50
<b>NAK CHARACTER</b> on page 50
<b>ACK NAK TIMEOUT VALUE</b> on page 51
<b>ACK NAK RETRY COUNT</b> on page 51
<b>ACK NAK ERROR HANDLING</b> on page 52
<b>INDICATE TRANSMISSION FAILURE</b> on page 52
<b>DISABLE CHARACTER</b> on page 53
<b>ENABLE CHARACTER</b> on page 53

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

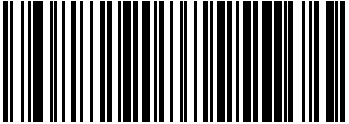




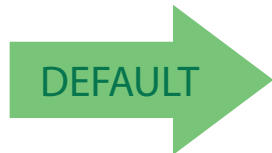


### Intercharacter Delay

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

See [page 286](#) for more information.

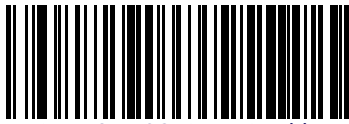

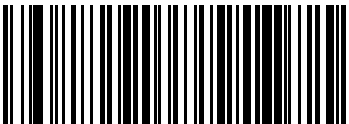
	 <p>Intercharacter Delay = No Delay</p>
 <p>Select Intercharacter Delay Setting</p>	
<p>Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.</p>	 <p>CANCEL</p>



**00 = No Intercharacter Delay**

### Beep On ASCII BEL

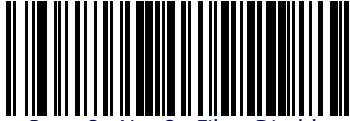
When this parameter is enabled, the reader issues a beep when a <BEL> character is detected on the RS-232 serial line. <BEL> is issued to gain a user's attention to an illegal entry or other important event.

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

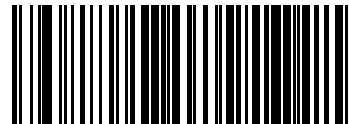
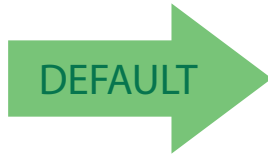


### Beep On Not on File

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



Beep On Not On File = Disable



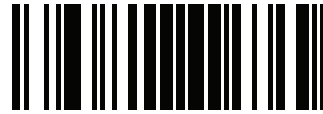
Beep On Not On File = Enable



## ACK NAK Options

This enables/disables the ability of the reader to support the RS-232 ACK/NAK protocol. See [page 287](#) for more information.

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



### ACK Character

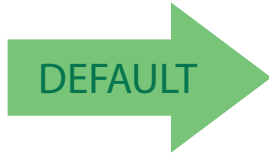
This setting specifies an ASCII character or hex value to be used as the ACK character. ASCII characters or any hex value from 0 to 0xFF can be selected. See [page 287](#) for more information.



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



Select ACK Character Setting



**0x06 'ACK' Character**

### NAK Character

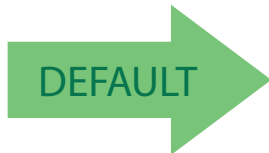
This setting specifies an ASCII character or hex value to be used as the NAK character. ASCII characters or any hex value from 0 to 0xFF can be selected. See [page 288](#) for more information.



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



Select NAK Character Setting



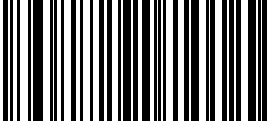

**0x15 'NAK' Character**

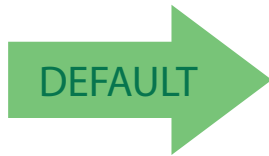


### ACK NAK Timeout Value

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

See [page 288](#) for more information on setting this feature.

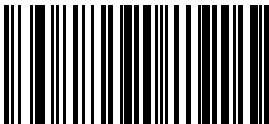

 <p>Select ACK NAK Timeout Value Setting</p>	
<p>Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.</p>	 <p>CANCEL</p>

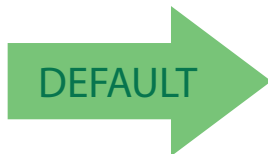


**01 ACK NAK Timeout value is 200ms**

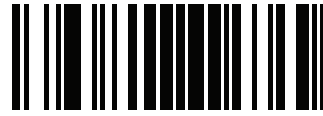
### ACK NAK Retry Count

This feature specifies the number of times the reader retries a label transmission due to a retry condition. The selectable range is from 1 to 254 retries. A selection of 0 disables the count, and a selection of 255 specifies unlimited retries. See [page 289](#) for more information.

 <p>Select ACK NAK Retry Count Setting</p>	
<p>Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.</p>	 <p>CANCEL</p>

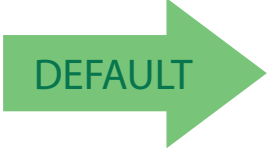
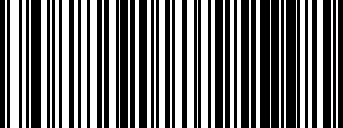
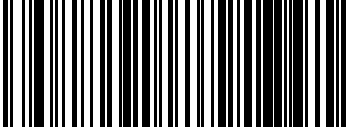
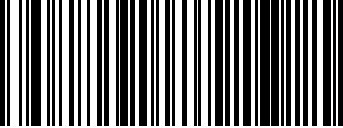


**003 = 3 Retries**



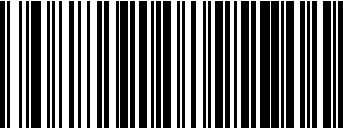
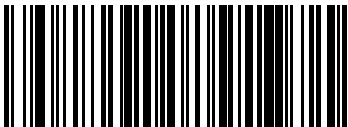

### ACK NAK Error Handling

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

	 <p>ACK NAK Error Handling = Ignore Errors Detected</p>
 <p>ACK NAK Error Handling = Process Error as Valid ACK Character</p>	
	 <p>ACK NAK Error Handling = Process Error as Valid NAK Character</p>

### Indicate Transmission Failure

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

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



### Disable Character

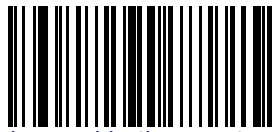
Specifies the value of the RS-232 host command used to disable the reader.

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

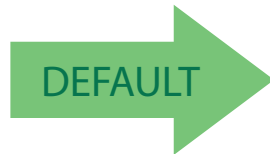


**Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option Data Bits has been set as 7 Data Bits.**

See [page 291](#) for more information on setting this feature.



Select Disable Character Setting



**0x44 = Disable Character is 'D'**

### Enable Character

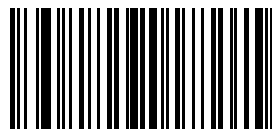
Specifies the value of the RS-232 host command used to enable the reader.

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



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

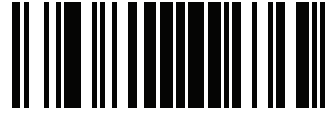
See [page 292](#) in "References" for more information on setting this feature.



Select Enable Character Setting



**0x45 = Enable Character is 'E'**



# NOTES



# KEYBOARD INTERFACE

<b>COUNTRY MODE</b> on page 56
<b>CAPS LOCK STATE</b> on page 59
<b>NUMLOCK</b> on page 59
<b>SEND CONTROL CHARACTERS</b> on page 60
<b>WEDGE QUIET INTERVAL</b> on page 61
<b>INTERCHARACTER DELAY</b> on page 62
<b>INTERCODE DELAY</b> on page 63
<b>USB KEYBOARD SPEED</b> on page 64

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

Information about control character emulation which applies to keyboard interfaces is listed in [Appendix E, Scancode Tables](#).

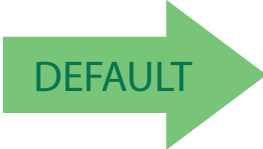
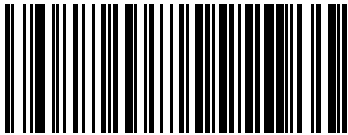
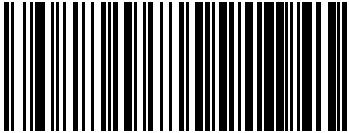
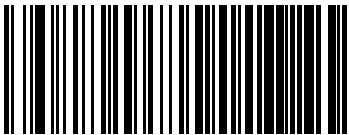
## Country Mode

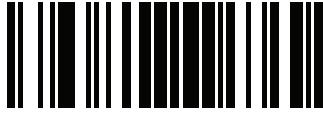
This feature specifies the country/language supported by the keyboard.

Only the following interfaces support ALL Country Modes.

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

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

	 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

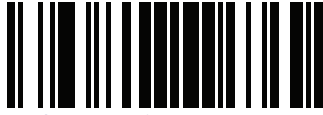


**Country Mode — continued**

 <p>Country Mode = Denmark</p>	<p>Supports only the interfaces listed in the Country Mode feature description.</p>
	 <p>Country Mode = France</p>
 <p>Country Mode = Germany</p>	
<p>Supports only the interfaces listed in the Country Mode feature description.</p>	 <p>Country Mode = Hungary</p>
 <p>Country Mode = Italy</p>	
<p>Supports only the interfaces listed in the Country Mode feature description.</p>	 <p>Country Mode = Japanese 106-key</p>
 <p>Country Mode = Norway</p>	<p>Supports only the interfaces listed in the Country Mode feature description.</p>

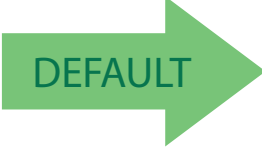



**Country Mode — continued**

 <p>Country Mode = Poland</p>	<p>Supports only the interfaces listed in the Country Mode feature description.</p>
<p>Supports only the interfaces listed in the Country Mode feature description.</p>	 <p>Country Mode = Portugal</p>
 <p>Country Mode = Romania</p>	<p>Supports only the interfaces listed in the Country Mode feature description.</p>
<p>Supports only the interfaces listed in the Country Mode feature description.</p>	 <p>Country Mode = Slovakia</p>
 <p>Country Mode = Spain</p>	 <p>Country Mode = Sweden</p>
 <p>Country Mode = Switzerland</p>	<p>Supports only the interfaces listed in the Country Mode feature description.</p>



### Caps Lock State

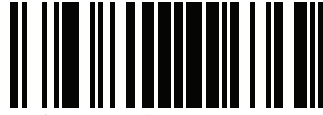
This option specifies the format in which the reader sends character data. This applies to keyboard wedge interfaces. This does not apply when an alternate key encoding keyboard is selected.

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

### Numlock

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

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



ENTER/EXIT PROGRAMMING MODE

## Send Control Characters

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

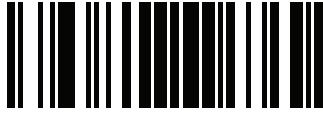
Options are as follows:

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

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

**Control Character 02** . Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (Microsoft Windows Codepage 1252 — see "Microsoft Windows Codepage 1252" on page 357).

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



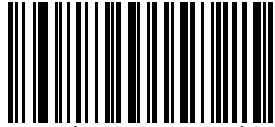
## Wedge Quiet Interval

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



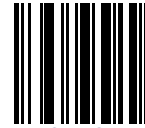
**This feature applies ONLY to the Keyboard Wedge interface.**

See [page 293](#) in “References” for detailed information and examples for setting this feature.

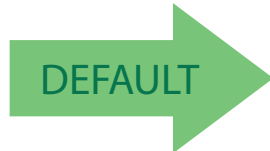


Select Wedge Quiet Interval Setting

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



CANCEL



**10 = Quiet Interval of 100 ms**

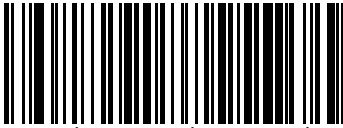
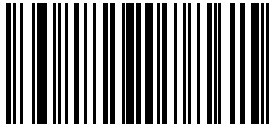

## Intercharacter Delay

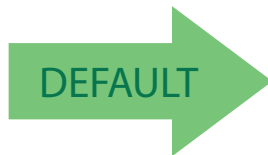
This parameter specifies the intercharacter delay between the end of one character and the beginning of the next. The delay can be set within a range of zero (0) to 990 milliseconds in 10ms increments. A setting of zero specifies no delay.



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

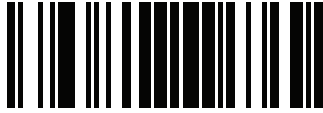
See [page 294](#) in “References” for detailed information and examples for setting this feature.

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



**00 = No Intercharacter Delay**

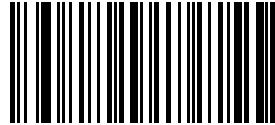




### Intercode Delay

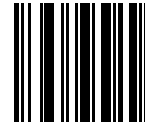
Specifies the delay between labels transmitted to the host for this interface. The selectable range for this feature is from 0 to 99 seconds.

See [page 295](#) in “References” for detailed information and examples for setting this feature.



Set Intercode Delay

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



CANCEL



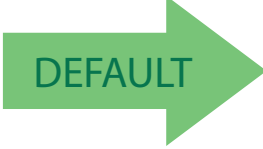
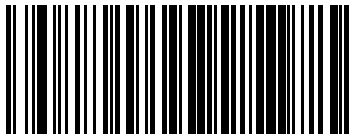
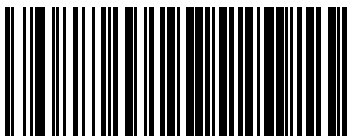
**00 = No Wedge Intercode Delay**

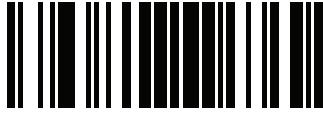
## USB Keyboard Speed

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

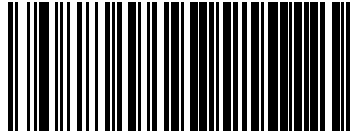


**This feature applies ONLY to the USB Keyboard interface.**

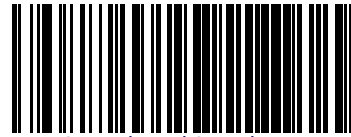
	 <p>USB Keyboard Speed = 1ms</p>
 <p>USB Keyboard Speed = 2ms</p>	
	 <p>USB Keyboard Speed = 3ms</p>
 <p>USB Keyboard Speed = 4ms</p>	
	 <p>USB Keyboard Speed = 5ms</p>



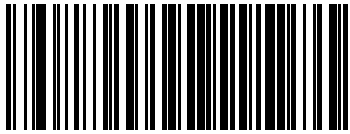
**USB Keyboard Speed — continued**



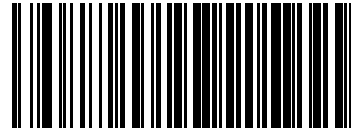
USB Keyboard Speed = 6ms



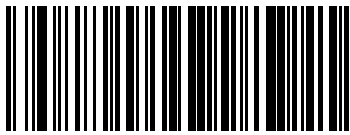
USB Keyboard Speed = 7ms



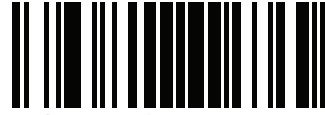
USB Keyboard Speed = 8ms



USB Keyboard Speed = 9ms



USB Keyboard Speed = 10ms



---

# NOTES

## USB-OEM INTERFACE

**USB-OEM DEVICE USAGE** on page 68

**INTERFACE OPTIONS** on page 68

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 "IBM 46XX Interface" on page 69 to specifically configure for the USB-OEM interface. Other USB interfaces are included in the appropriate chapter for their host type.

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

### USB-OEM Device Usage

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

Options are:

- Table Top Scanner
- Handheld Scanner

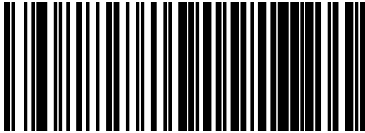
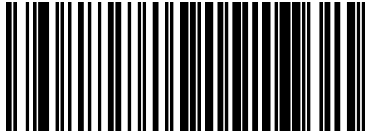



**It may be necessary to switch device usage when connecting two readers/scanners of the same type to a POS system.**

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

### Interface Options

This feature provides for an interface-specific control mechanism.

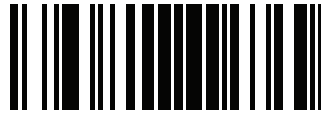
	 Obey Scanner Configuration Host Commands
 Ignore Scanner Configuration Host Commands	

# IBM 46XX INTERFACE

<b>46XX NUMBER OF HOST RESETS</b> <a href="#">on page 70</a>
<b>TRANSMIT LABELS IN CODE 39 FORMAT</b> <a href="#">on page 72</a>
<b>INTERFACE OPTIONS</b> <a href="#">on page 72</a>

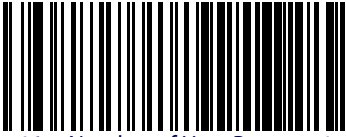
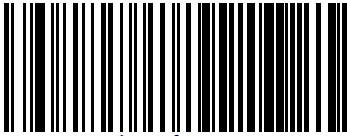
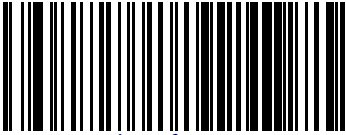
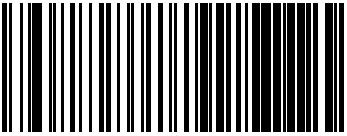
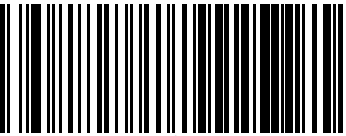
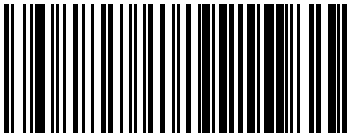

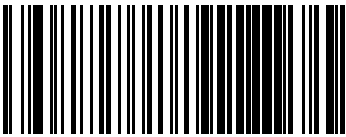
Use the barcodes in this section to configure programmable features for available IBM 46XX interfaces.

Reference [Appendix B, 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.

	 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	
	 46xx Number of Host Resets = 7





ENTER/EXIT PROGRAMMING MODE

46xx Number of Host Resets

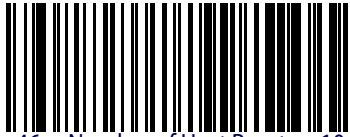
**46xx Number of Host Resets — cont.**



46xx Number of Host Resets = 8



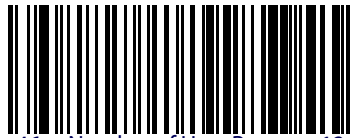
46xx Number of Host Resets = 9



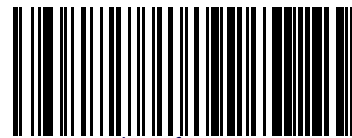
46xx Number of Host Resets = 10



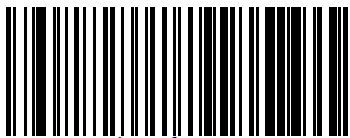
46xx Number of Host Resets = 11



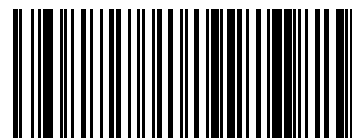
46xx Number of Host Resets = 12



46xx Number of Host Resets = 13



46xx Number of Host Resets = 14



46xx Number of Host Resets = 15

### Transmit Labels in Code 39 Format

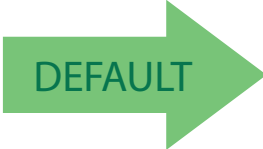
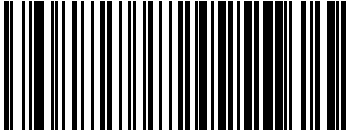
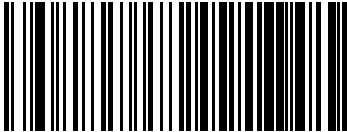
This feature enable/disables translation to Code 39 before transmitting label data to an IBM-46XX or a USB-OEM host. Only the symbology identifier is modified for the translation. The data is not converted to Code 39 or verified to be valid for Code 39.

Options are:

**IBM Standard Format.** Send labels in standard IBM format.

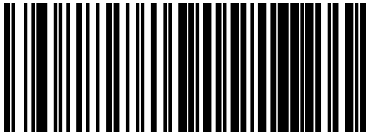
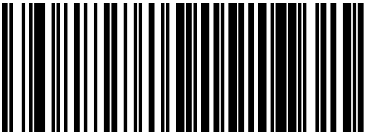

**Code 39 Format.** Translate the following symbologies to Code 39:

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

	 Transmit Labels in Code 39 Format = IBM Standard Format
 Transmit Labels in Code 39 Format = Code 39 Format	

### Interface Options

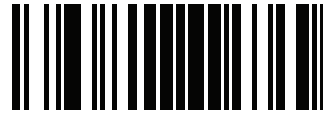
This feature provides for an interface-specific control mechanism.

	 Obey Scanner Configuration Host Commands
 Ignore Scanner Configuration Host Commands	

# WAND EMULATION INTERFACE

<b>WAND SIGNAL SPEED</b> on page 74
<b>WAND POLARITY</b> on page 74
<b>WAND IDLE STATE</b> on page 75
<b>TRANSMIT NOISE</b> on page 75
<b>LABEL SYMBOLOGY CONVERSION</b> on page 76

This chapter provides feature/settings configuration for the Wand Emulation interface. Reference [Appendix B, 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 Signal Speed = 330ms
 Wand Signal Speed = 660ms	

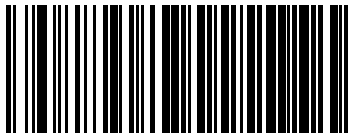
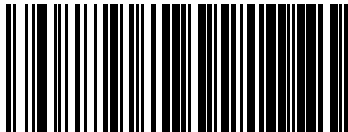

### Wand Polarity

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

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



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

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



### Wand Idle State

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



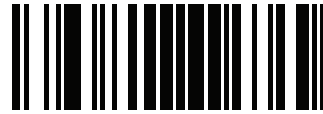
TTL logic levels:  
0V <= Low <= 0.7V  
2.4V <= High <= 5.25V

	 Wand Idle State = Low
 Wand Idle State = High	

### Transmit Noise

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

	 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

	 <p>Label Symbology Conversion = No conversion</p>
 <p>Label Symbology Conversion = Convert to Code 39</p>	
	 <p>Label Symbology Conversion = Convert to Code 39 Full ASCII</p>
 <p>Label Symbology Conversion = Convert to Code 128</p>	

# DATA FORMAT

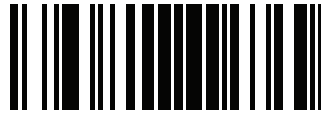
<b>GLOBAL PREFIX/SUFFIX</b> on page 78
<b>GLOBAL AIM ID</b> on page 79
<b>GS1-128 AIM ID</b> on page 80
<b>LABEL ID</b> starting on page 81 <ul style="list-style-type: none"><li>•Label ID: Pre-loaded Sets</li><li>•Label ID: Set Individually Per Symbology</li><li>•Label ID Control</li><li>•Label ID Symbology Selection</li><li>•Set Global Mid Label ID Characters</li></ul>
<b>CASE CONVERSION</b> on page 90
<b>CHARACTER CONVERSION</b> on page 90



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

## CAUTION

The features in this chapter can be used to build specific user-defined data into a message string. See “References” starting on [page 298](#) for more detailed instructions on setting these features.

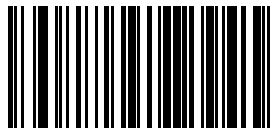
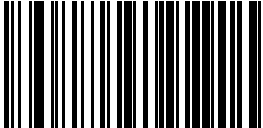


ENTER/EXIT PROGRAMMING MODE

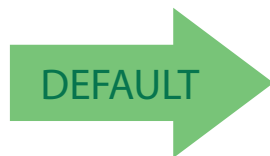
### Global Prefix/Suffix

This option sets up to 20 characters each from the set of ASCII characters or any hex value from 00 to FF. The characters may be added as a prefix (in a position before the barcode data, also called a header) and/or as a suffix (in a position following the barcode data, also called a footer). See [page 299](#) for more detailed instructions on setting this feature.

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

	 Set Global Prefix
 Set Global Suffix	

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



**No Global Prefix**  
**Global Suffix = 0x0D (CR)**





## Global AIM ID



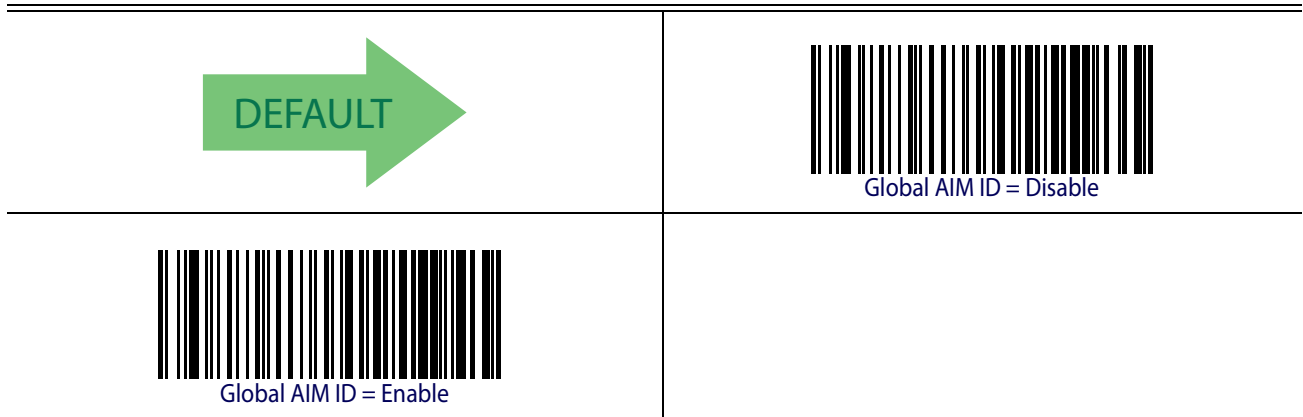
This feature enables/disables addition of AIM IDs for all symbology types.

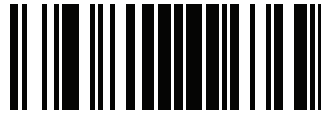
AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned barcode data. AIM label identifiers consist of three characters as follows:

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

SYMBOLGY	CHAR	SYMBOLGY	CHAR
UPC/EAN	E <sup>a</sup>	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 <sup>b</sup>
Code 93	G	Code 11	H

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

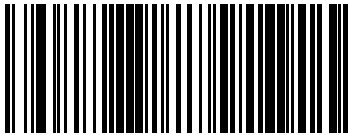




### GS1-128 AIM ID

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

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

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



### 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 81). 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 79.

See [Label ID, starting on page 301](#) of "References" for more information on setting this feature.

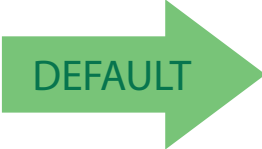
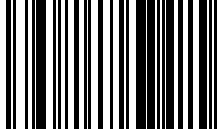
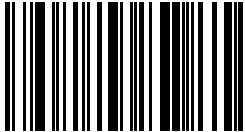
### Label ID: Pre-loaded Sets

The reader supports two pre-loaded sets of Label IDs. See [Label ID: Pre-loaded Sets, starting on page 301](#) for details on the USA set and the EU set.



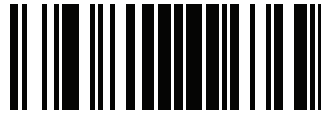
**CAUTION**

**When changing from one Label ID set to another, all other reader configuration settings, including the host interface type, will be erased and set to the standard factory defaults. Any custom configuration or custom defaults will be lost.**

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

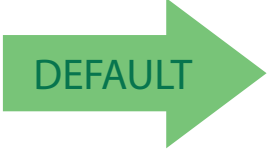




### Label ID: Set Individually Per Symbology

This feature configures a Label ID individually for a single symbology. See [Label ID: Set Individually Per Symbology, starting on page 303](#) for detailed instructions on setting this feature.



### Label ID Control

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

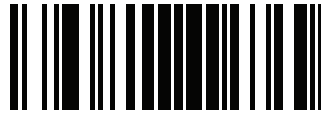
	
	
	
	<p>Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.</p>



### Label ID Symbology Selection

This option selects the symbology for which a Label ID is to be configured. See "Label ID" on page 81 or page 303 in "References" for more detailed instructions.

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



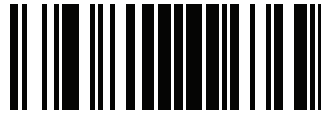
**Label ID Symbology Selection — continued**

 <p>Set UPC-E/GS1-128 Label ID Character(s)</p>	
	 <p>Set EAN 13 Label ID Character(s)</p>
 <p>Set EAN 13/P2 Label ID Character(s)</p>	
	 <p>Set EAN 13/P5 Label ID Character(s)</p>
 <p>Set EAN 13/GS1-128 Label ID Character(s)</p>	
	 <p>Set EAN 8 Label ID Character(s)</p>
 <p>Set EAN 8/P2 Label ID Character(s)</p>	

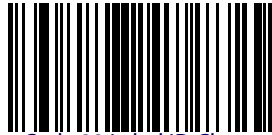


**Label ID Symbology Selection — continued**

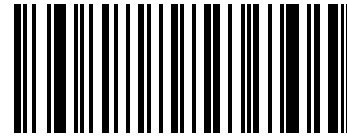
	 <p>Set EAN 8/P5 Label ID Character(s)</p>
 <p>Set EAN 8/GS1-128 Label ID Character(s)</p>	
	 <p>Set GTIN Label ID Character(s)</p>
 <p>Set GTIN/P2 Label ID Character(s)</p>	
	 <p>Set GTIN/P5 Label ID Character(s)</p>
 <p>Set GTIN/GS1-128 Label ID Character(s)</p>	
	 <p>Set Code 39 Label ID Character(s)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



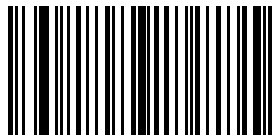
**Label ID Symbology Selection — continued**



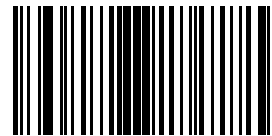
Set Code 32 Label ID Character(s)



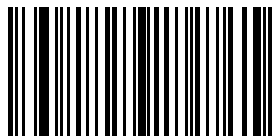
Set Code 39 CIP Label ID Character(s)



Set Code 128 Label ID Character(s)



Set GS1-128 Label ID Character(s)



Set ISBT 128 Label ID Character(s)



Set Codablock F Label ID Character(s)



Set Interleaved 2 of 5 Label ID Character(s)



Set Follett 2 of 5 Label ID Character(s)

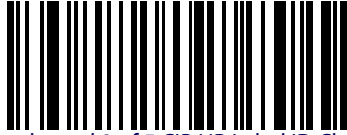




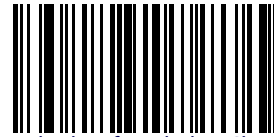
ENTER/EXIT PROGRAMMING MODE

Label ID Symbology Selection

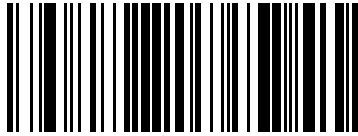
**Label ID Symbology Selection — continued**



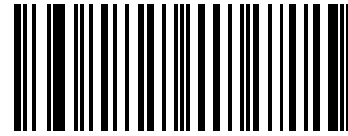
Set Interleaved 2 of 5 CIP HR Label ID Character(s)



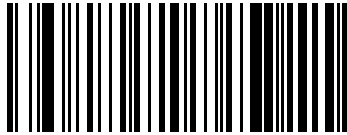
Set Standard 2 of 5 Label ID Character(s)



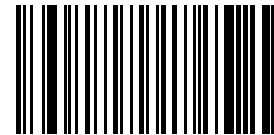
Set Industrial 2 of 5 Label ID Character(s)



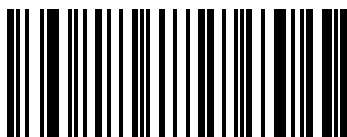
Set IATA Label ID Character(s)



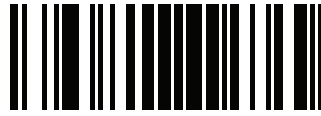
Set Datalogic 2 of 5 Label ID Character(s)



Set Codabar Label ID Character(s)



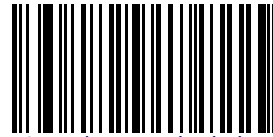
Set ABC Codabar Label ID Character(s)



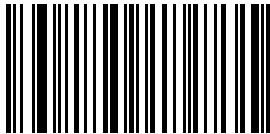
**Label ID Symbology Selection — continued**



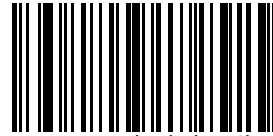
Set Code 11 Label ID Character(s)



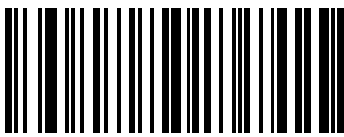
Set DataBar Omnidirectional Label ID Character(s)



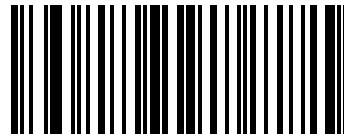
Set DataBar Expanded Label ID Character(s)



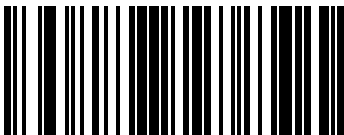
Set DataBar Limited Label ID Character(s)



Set Code 93 Label ID Character(s)



Set MSI Label ID Character(s)



Set Plessey Label ID Character(s)



ENTER/EXIT PROGRAMMING MODE

Set Global Mid Label ID Characters

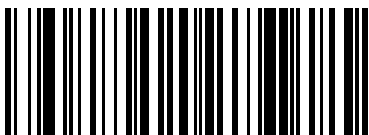
### Label ID Symbology Selection — continued

 <p>Set Anker Plessey Label ID Character(s)</p>	
	 <p>Set Code 4 Label ID Character(s)</p>
 <p>Set Code 5 Label ID Character(s)</p>	

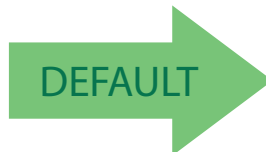
### Set Global Mid Label ID Characters

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

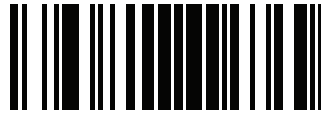
To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above to place the unit in Programming Mode, then the “Set Global Mid Label ID Character(s)” barcode followed by the digits (in hex) from the Alphanumeric characters in [Appendix D, Keypad](#) representing your desired character(s).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

 <p>Set Global Mid Label ID Character(s)</p>	
---	--

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



No Mid Label ID Character (00)

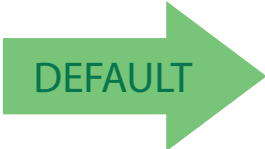

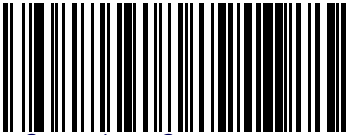
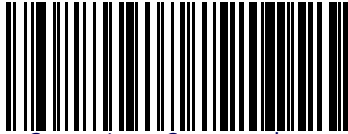


### Case Conversion

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



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

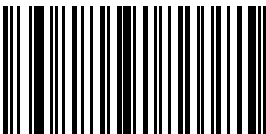
	 Case Conversion = Disable (no case conversion)
 Case Conversion = Convert to upper case	
	 Case Conversion = Convert to lower case

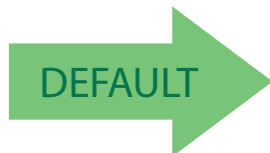
### Character Conversion

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



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

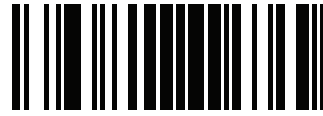
	 Configure Character Conversion
--	--



**0xFFFFFFFFFFFFFFF**  
(No character conversion)


## READING PARAMETERS

<b>DOUBLE READ TIMEOUT</b> on page 92	<b>GOOD READ LED DURATION</b> on page 100
<b>LABEL GONE TIMEOUT</b> on page 93	<b>SCAN MODE</b> on page 101
<b>SLEEP MODE TIMEOUT</b> on page 94	<b>STAND MODE TRIGGERED TIMEOUT</b> on page 102
<b>POWER ON ALERT</b> on page 96	<b>STAND DETECTION</b> on page 103
<b>GOOD READ: WHEN TO INDICATE</b> on page 96	<b>STAND MODE SENSITIVITY</b> on page 104
<b>GOOD READ BEEP TYPE</b> on page 97	<b>SCANNING ACTIVE TIME</b> on page 104
<b>GOOD READ BEEP FREQUENCY</b> on page 97	<b>FLASH ON TIME</b> on page 105
<b>GOOD READ BEEP LENGTH</b> on page 98	<b>FLASH OFF TIME</b> on page 105
<b>GOOD READ BEEP VOLUME</b> on page 99	<b>GREEN SPOT DURATION</b> on page 106



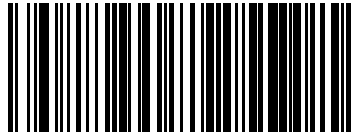
### Double Read Timeout

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

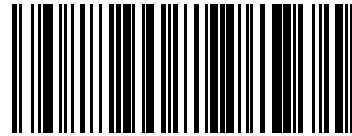
	 Double Read Timeout = 0.1 Second
 Double Read Timeout = 0.2 Second	
	 Double Read Timeout = 0.3 Second
 Double Read Timeout = 0.4 Second	
	 Double Read Timeout = 0.5 Second
 Double Read Timeout = 0.6 Second	
	 Double Read Timeout = 0.7 Second



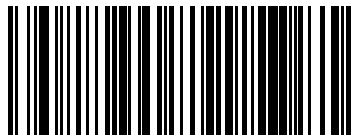
**Double Read Timeout — continued**



Double Read Timeout = 0.8 Second



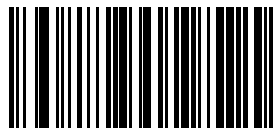
Double Read Timeout = 0.9 Second



Double Read Timeout = 1 Second

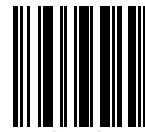
**Label Gone Timeout**

This feature sets the time after the last label segment is seen before the reader prepares for a new label. The timeout can be set within a range of 10 milliseconds to 2,550 milliseconds (2.55 seconds) in 10ms increments. Label Gone Timeout does not apply to scan modes that require a trigger pull for each label that is read. See [page 306](#) in “References” for detailed instructions and examples for setting this feature.

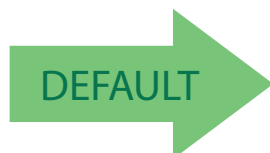


Select Label Gone Timeout Setting

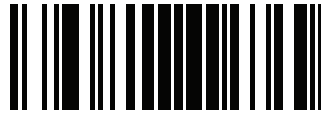
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



**016 = Timeout of 160 ms**



### Sleep Mode Timeout

This feature sets the amount of time that the reader will be idle before it enters into a low power Sleep Mode. When in Sleep Mode the reader can no longer receive commands from the Host or base station until it is woken up again by a trigger pull or being placed into a base station.

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

**Corded version (GD4100 only).** RS-232 interface and trigger single, trigger multiple or trigger pulse.

**Mobile version (GM4100 only).** 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.



This feature is not applicable to the Gryphon Laser or Gryphon BT models

 <p>Sleep Mode Timeout = Disable</p>	
	 <p>Sleep Mode Timeout = 1 Second</p>
 <p>Sleep Mode Timeout = 2 Seconds</p>	
	 <p>Sleep Mode Timeout = 3 Seconds</p>
 <p>Sleep Mode Timeout = 4 Seconds</p>	





**Sleep Mode Timeout — continued**

	 <p>Sleep Mode Timeout = 5 Seconds</p>
 <p>Sleep Mode Timeout = 6 Seconds</p>	
	 <p>Sleep Mode Timeout = 7 Seconds</p>
 <p>Sleep Mode Timeout = 8 Seconds</p>	
	 <p>Sleep Mode Timeout = 9 Seconds</p>
 <p>Sleep Mode Timeout = 10 Seconds</p>	

## LED AND BEEPER INDICATORS

### Power On Alert

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

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

### 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. .



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

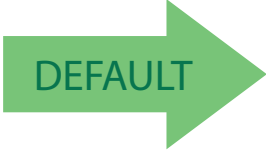
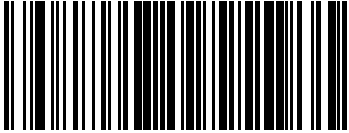
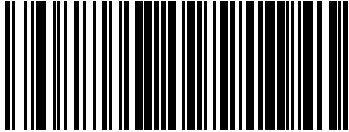
**This item is not configurable for the GM4100/GBT 4100 models.**

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



### Good Read Beep Type

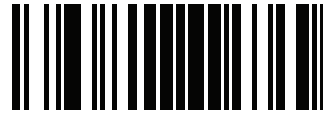
Specifies whether the good read beep has a mono or bitonal beep sound.

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




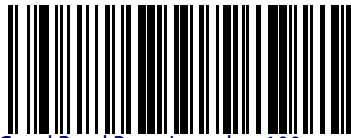

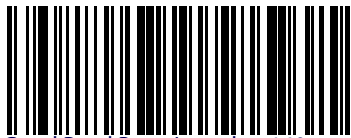
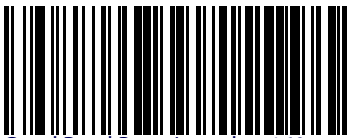
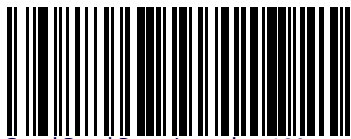

### Good Read Beep Frequency

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

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



### Good Read Beep Length

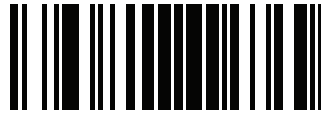
	 <p>Good Read Beep Length = 60 msec</p>
 <p>Good Read Beep Length = 80 msec</p>	
	 <p>Good Read Beep Length = 100 msec</p>
 <p>Good Read Beep Length = 120 msec</p>	
	 <p>Good Read Beep Length = 140 msec</p>
 <p>Good Read Beep Length = 160 msec</p>	
	 <p>Good Read Beep Length = 180 msec</p>
 <p>Good Read Beep Length = 200 msec</p>	



## Good Read Beep Volume

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

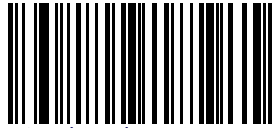
	 Good Read Beep Volume = Beeper Off
 Good Read Beep Volume = Low	
	 Good Read Beep Volume = Medium
 Good Read Beep Volume = High	



### Good Read LED Duration

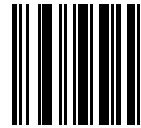
This feature specifies the amount of time that the Good Read LED remains on following a good read. The good read LED on time can be set within a range of 10 milliseconds to 2,550 milliseconds (0.001 to 2.55 seconds) in 100ms increments.

See [page 307](#) in “References” for detailed instructions and examples for setting this feature.

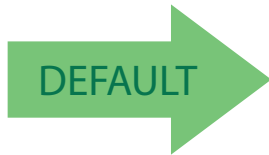


Select Good Read LED Duration Setting

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



CANCEL



**020 = Good Read LED stays on for 2 seconds.**



**Indicators are dimmed during sleep.**



## SCANNING FEATURES

### Scan Mode

Selects the reader's scan operating mode. See [page 308](#) in "References" for descriptions.

 <p>Scan Mode = Trigger Single</p>	
	 <p>Scan Mode = Trigger Hold Multiple</p>
 <p>Scan Mode = Trigger Pulse Multiple</p>	
	 <p>Scan Mode = Flashing<sup>a</sup></p>
 <p>Scan Mode = Always On<sup>b</sup></p>	
	 <p>Scan Mode = Stand Mode<sup>c</sup></p>
 <p>Scan Mode = Trigger Object Sense<sup>c</sup></p>	

- a. Recommended scan mode for Gryphon L for hands-free stand mode operation.
- b. See "Laser Features" starting on page [5-281](#) for additional laser programmable timeout options.
- c. Not applicable to the Gryphon L.



ENTER/EXIT PROGRAMMING MODE

Reading Parameters

### Stand Mode Triggered Timeout

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



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

**This feature is valid only for corded models. It is not applicable to the Gryphon L model.**

Stand Mode Triggered Timeout = 0.5 Seconds	
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 = 6 Seconds	





### Stand Mode Triggered Timeout — continued

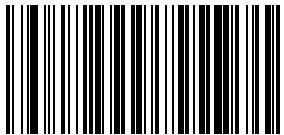
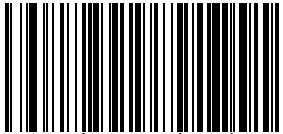

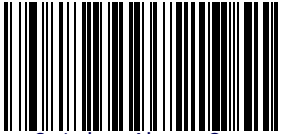
 <p>Stand Mode Triggered Timeout = 8 Seconds</p>	
	 <p>Stand Mode Triggered Timeout = Switch back to Trigger Single on trigger pull</p>

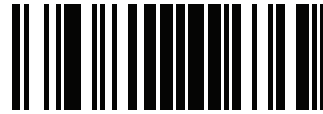
### Stand Detection

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



This feature is not applicable to the Gryphon L.

	 <p>Ignore Autorecognition</p>
 <p>Switch to Stand Mode</p>	
	 <p>Switch to Always On</p>
 <p>Switch to Flashing</p>	







### Stand Mode Sensitivity

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

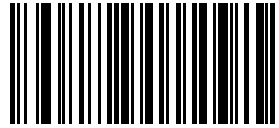
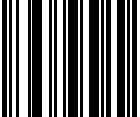


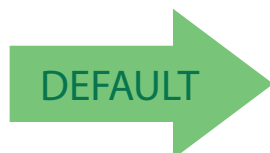
**This feature is not applicable to the Gryphon L.**

	 Stand Mode Sensitivity = Low
 Stand Mode Sensitivity = Medium	
	 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. See [page 309](#) in “References” for descriptions of each feature

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

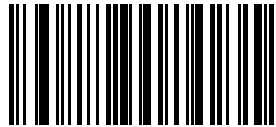
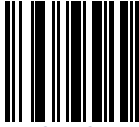


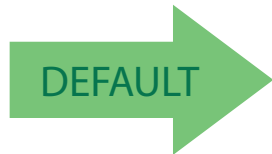
**005 = Scanning is active for 5 Seconds**



### Flash On Time

This feature specifies the ON time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments. See [page 310](#) in “References” for detailed information on setting this feature.

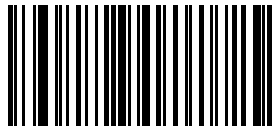

 <p>Select Flash ON Time Setting</p>	
<p>Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.</p>	 <p>CANCEL</p>

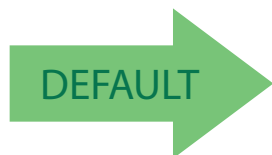


**10 = Flash is ON for 1 Second**

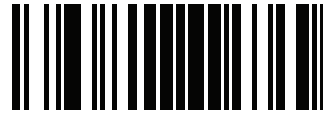
### Flash Off Time

This feature specifies the OFF time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments. See [page 311](#) in “References” for detailed information on setting this feature.

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



**06 = Flash is OFF for 600ms**



### Green Spot Duration

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

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

# CODE SELECTION

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

<b>CODE EAN/UPC</b> on page 109	<b>STANDARD 2 OF 5</b> on page 178
• Coupon Control	<b>INDUSTRIAL 2 OF 5</b> on page 184
• UPC-A	• Code IATA
• UPC-E	<b>DATALOGIC 2 OF 5</b> on page 191
• EAN 13 (Jan 13)	<b>CODABAR</b> on page 197
• ISSN	• ABC Codabar
• EAN 8 (Jan 8)	<b>CODE 11</b> on page 212
• UPC/EAN Global Settings	<b>GS1 DATABAR™ OMNIDIRECTIONAL</b> on page 221
<b>CODE 39</b> on page 136	• GS1 DataBar™ Omnidirectional
• Code 32 (ITAL Pharmaceutical Code)	• GS1 DataBar™ Expanded
• Code 39 CIP (French Pharmaceutical)	• GS1 DataBar™ Limited
<b>CODE 128</b> on page 151	<b>CODE 93</b> on page 229
• GS1-128	<b>MSI</b> on page 237
<b>CODE ISBT 128</b> on page 162	<b>PLESSEY</b> on page 244
<b>CODABLOCK F</b> on page 165	<b>CODE 4</b> on page 252
<b>INTERLEAVED 2 OF 5 (I 2 OF 5)</b> on page 169	<b>CODE 5</b> on page 253
• Follett 2 of 5	
• Interleaved 2 of 5 CIP HR	

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

To set most features:

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

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



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

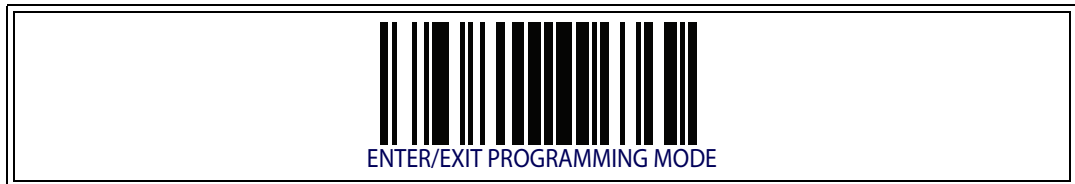
**If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.**

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

## DISABLE ALL SYMBOLOGIES

Use this feature to disable all symbolologies.

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



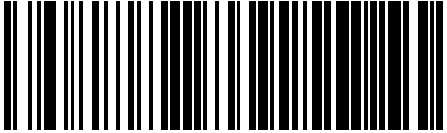
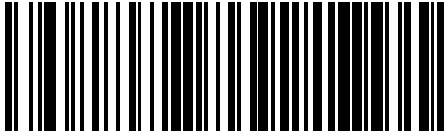

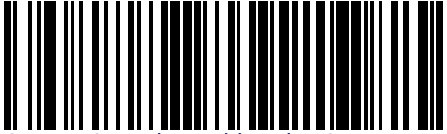
**This does not disable the reading of programming labels.**

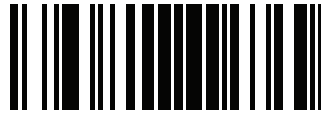


## CODE EAN/UPC

### Coupon Control

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

	 Coupon Control = Allow all coupon barcodes to be decoded
 Coupon Control = Enable only UPCA coupon decoding	
	 Coupon Control = Enable only GS1 DataBar™ coupon decoding



Code EAN/UPC

ENTER/EXIT PROGRAMMING MODE

## UPC-A

The following options apply to the UPC-A symbology.

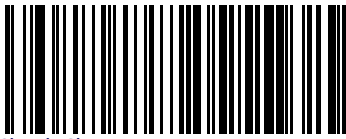
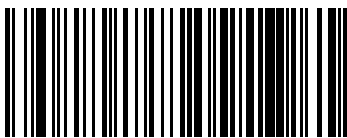

### UPC-A Enable/Disable

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

	 UPC-A = Disable
 UPC-A = Enable	

### UPC-A Check Character Transmission

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

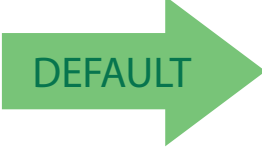


	 UPC-A Check Character Transmission = Don't Send
 UPC-A Check Character Transmission = Send	






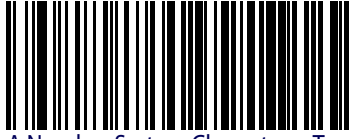

### Expand UPC-A to EAN-13

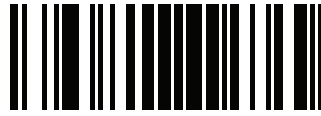
Expands UPC-A data to the EAN-13 data format. Selecting this feature also changes the symbology ID to match those required for EAN-13.

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

### UPC-A Number System Character Transmission

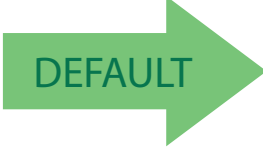




This feature enables/disables transmission of the UPC-A number system character.

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



### UPC-A 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.

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



### UPC-E

The following options apply to the UPC-E symbology.


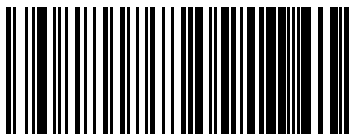
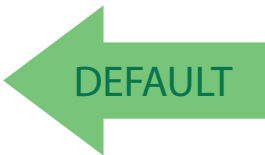
#### UPC-E Enable/Disable

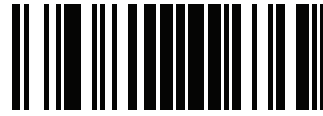
When disabled, the reader will not read UPC-E barcodes.

	 UPC-E = Disable
 UPC-E = Enable	

#### UPC-E Check Character Transmission

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

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



### Expand UPC-E to EAN-13

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

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

### Expand UPC-E to UPC-A

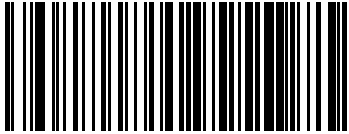
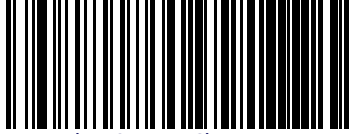

Expands UPC-E data to the UPC-A data format.

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



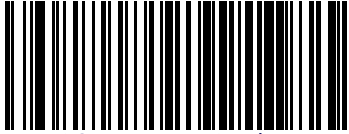
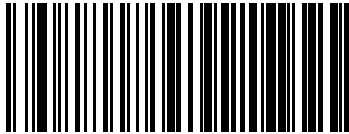



### UPC-E Number System Character Transmission

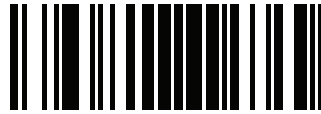
This feature enables/disables transmission of the UPC-E system number character.

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

### UPC-E Minimum Reads

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

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

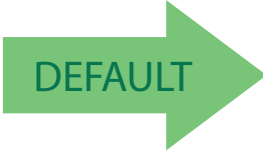
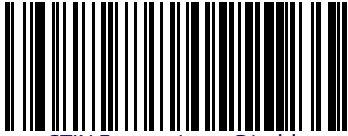
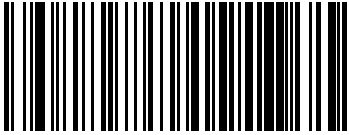


### GTIN FORMATTING

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



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

	 <p>GTIN Formatting = Disable</p>
 <p>GTIN Formatting = Enable</p>	



### EAN 13 (JAN 13)

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

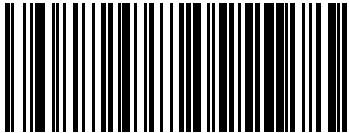
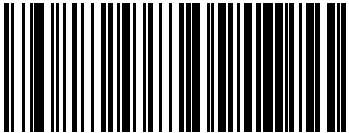

#### EAN 13 Enable/Disable

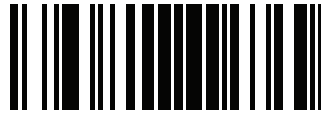
When disabled, the reader will not read EAN 13/JAN 13 barcodes.

	 EAN 13 = Disable
 EAN 13 = Enable	

#### EAN 13 Check Character Transmission

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

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



### EAN-13 Flag 1 Character

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

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

### EAN-13 ISBN Conversion

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

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





### EAN 13 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.

	 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.

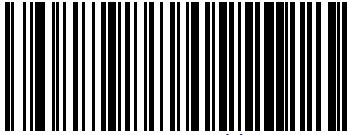
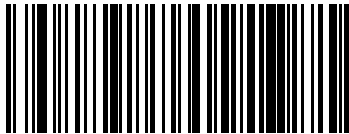



### EAN 8 (JAN 8)

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

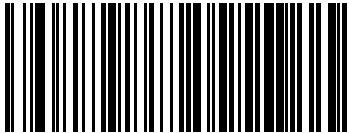
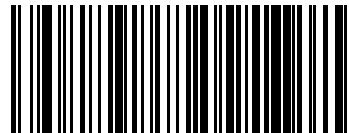
#### EAN 8 Enable/Disable

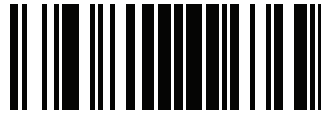
When disabled, the reader will not read EAN 8/JAN 8 barcodes.

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

#### EAN 8 Check Character Transmission

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

	 <p>EAN 8 Check Character Transmission = Don't Send</p>
 <p>EAN 8 Check Character Transmission = Send</p>	

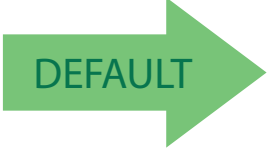




EAN 8 (Jan 8)

ENTER/EXIT PROGRAMMING MODE

### Expand EAN 8 to EAN 13

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

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

### EAN 8 Minimum Reads

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

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



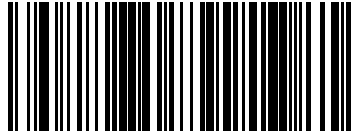
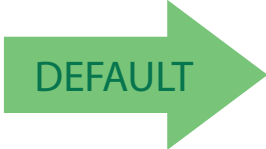
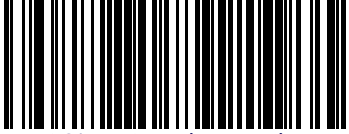
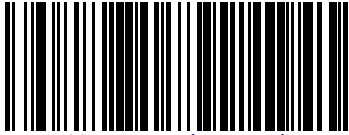
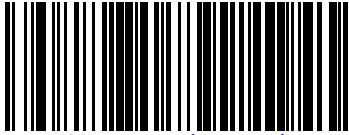
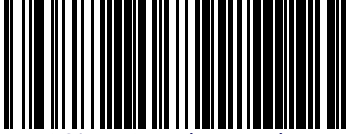

## UPC/EAN GLOBAL SETTINGS

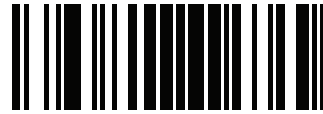
This section provides configuration settings for UPC-A, UPC-E, EAN 13 and EAN 8 symbologies, and affects all of these unless otherwise marked for each feature description.

### UPC/EAN Decoding Level

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

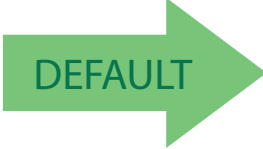


See [page 296](#) for more information on this feature.

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



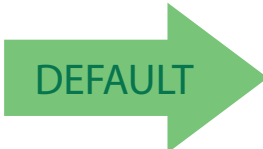





### UPC/EAN Correlation

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

### UPC/EAN Price Weight Check

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



### In-Store Minimum Reads

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

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

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



### ADD-ONS

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

#### Optional Add-ons

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



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

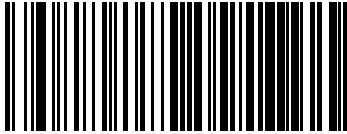

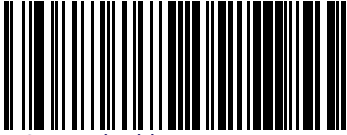
	 Optional Add-Ons = Disable P2
 Optional Add-Ons = Enable P2	
	 Optional Add-Ons = Disable P5
 Optional Add-Ons = Enable P5	
	 Optional Add-Ons = Disable GS1-128
 Optional Add-Ons = Enable GS1-128	

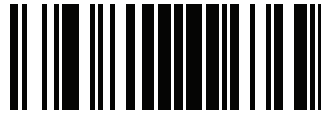





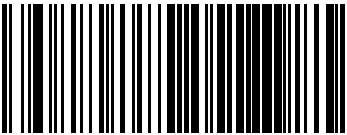

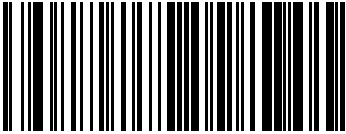
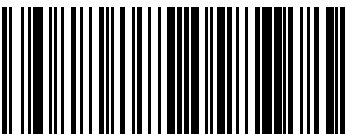
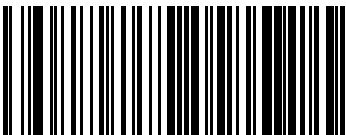

### Optional Add-On Timer

This option sets the time the reader will look for an add-on when an add-on fragment has been seen and optional add-ons are enabled. (Also see "Optional GS1-128 Add-On Timer" on page 130.)

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



**Optional Add-On Timer — cont.**


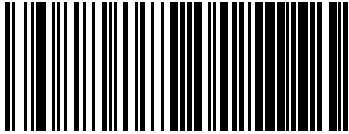

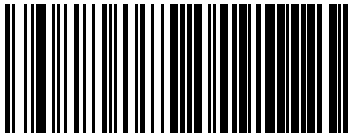
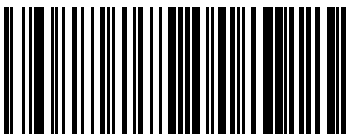
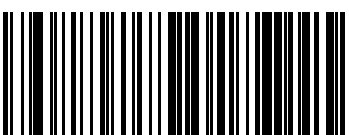

	 <p>Optional Add-on Timer = 60ms</p>
 <p>Optional Add-on Timer = 70ms</p>	
	 <p>Optional Add-on Timer = 100ms</p>
 <p>Optional Add-on Timer = 120ms</p>	
	 <p>Optional Add-on Timer = 140ms</p>
 <p>Optional Add-on Timer = 160ms</p>	

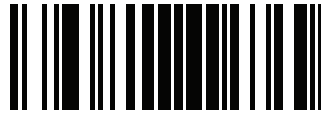


ENTER/EXIT PROGRAMMING MODE

Optional Add-On Timer

**Optional Add-On Timer — cont.**

	 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 127.

	 <p>Optional GS1-128 Add-On Timer = Disable</p>
 <p>Optional GS1-128 Add-On Timer = 10ms</p>	
 <p>Optional GS1-128 Add-On Timer = 20ms</p>	 <p>Optional GS1-128 Add-On Timer = 20ms</p>
 <p>Optional GS1-128 Add-On Timer = 30ms</p>	
 <p>Optional GS1-128 Add-On Timer = 40ms</p>	 <p>Optional GS1-128 Add-On Timer = 40ms</p>
 <p>Optional GS1-128 Add-On Timer = 50ms</p>	

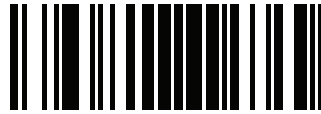


ENTER/EXIT PROGRAMMING MODE



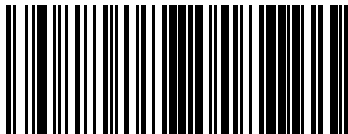
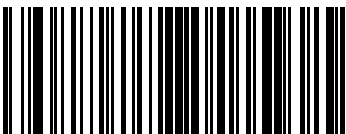
Optional GS1-128 Add-On Timer

**Optional GS1-128 Add-On Timer — cont.**

	 <p>Optional GS1-128 Add-On Timer = 60ms</p>
 <p>Optional GS1-128 Add-On Timer = 70ms</p>	
	 <p>Optional GS1-128 Add-On Timer = 100ms</p>
 <p>Optional GS1-128 Add-On Timer = 120ms</p>	
	 <p>Optional GS1-128 Add-On Timer = 140ms</p>
 <p>Optional GS1-128 Add-On Timer = 160ms</p>	



**Optional GS1-128 Add-On Timer — cont.**

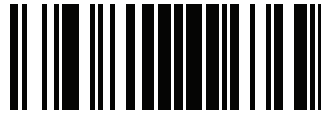
	 Optional GS1-128 Add-On Timer = 180ms
 Optional GS1-128 Add-On Timer = 200ms	
	 Optional GS1-128 Add-On Timer = 220ms
 Optional GS1-128 Add-On Timer = 240ms	
	 Optional GS1-128 Add-On Timer = 260ms
 Optional GS1-128 Add-On Timer = 280ms	
	 Optional GS1-128 Add-On Timer = 300ms



## P2 Add-Ons Minimum Reads

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

	 P2 Add-Ons Minimum Reads = 1
 P2 Add-Ons Minimum Reads = 2	
	 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.

	 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.

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

## CODE 39

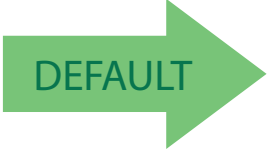
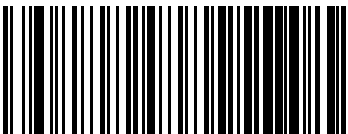
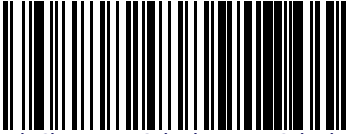

The following options apply to the Code 39 symbology.

### Code 39 Enable/Disable

	 Code 39 = Disable
 Code 39 = Enable	

### Code 39 Check Character Calculation

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

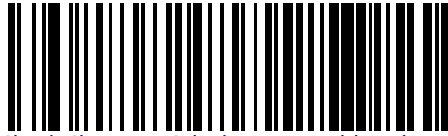
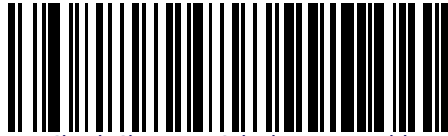
	 Code 39 Check Character Calculation = Don't Calculate
 Code 39 Check Character Calculation = Calculate Std Check	
	 Code 39 Check Character Calculation = Calculate Mod 7 Check



ENTER/EXIT PROGRAMMING MODE

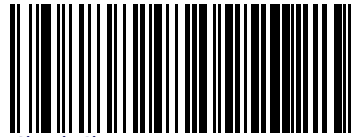
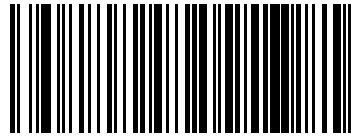

Code 39 Check Character Transmission

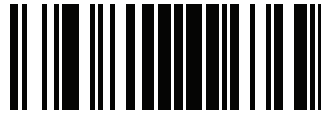
### Code 39 Check Character Calculation — cont.

 <p>Code 39 Check Character Calculation = Enable Italian Post Check</p>	
	 <p>Code 39 Check Character Calculation = Enable Daimler Chrysler Check</p>

### Code 39 Check Character Transmission

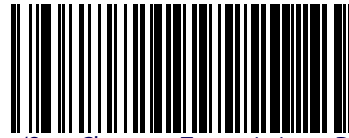
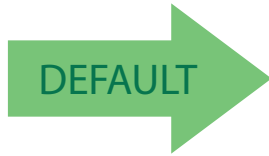
Enable this option to transmit the check character along with Code 39 barcode data.

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

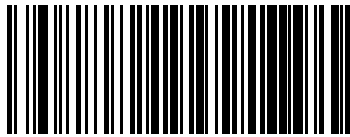


### Code 39 Start/Stop Character Transmission

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



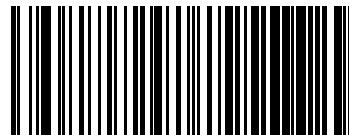
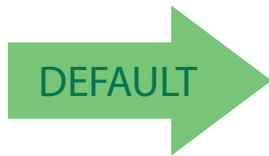
Code 39 Start/Stop Character Transmission = Don't Transmit



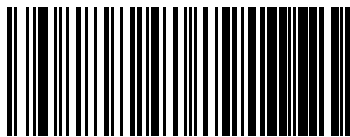
Code 39 Start/Stop Character Transmission = Transmit

### Code 39 Full ASCII

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



Code 39 Full ASCII = Disable

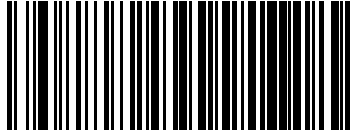


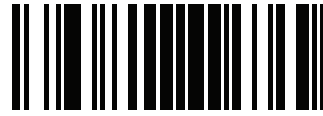
Code 39 Full ASCII = Enable



### Code 39 Quiet Zones

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

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



### Code 39 Minimum Reads

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

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

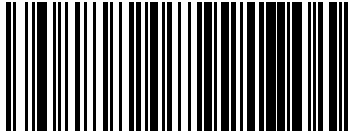
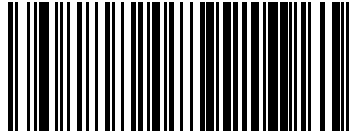
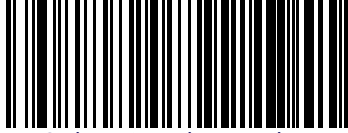
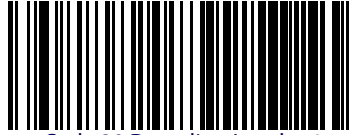
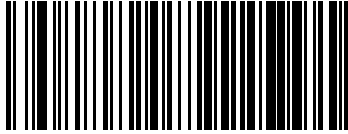


### Code 39 Decoding Level

Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See [page 296](#) for more information on this feature.



This configuration item applies to Code 39 and Code 32.

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

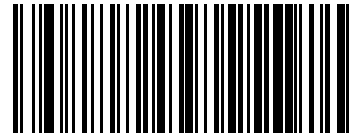
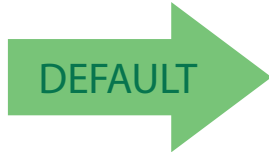


### Code 39 Length Control

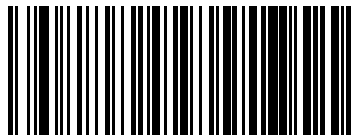
This feature specifies either variable length decoding or fixed length decoding for the Code 39 symbology.

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

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



Code 39 Length Control = Variable Length



Code 39 Length Control = Fixed Length





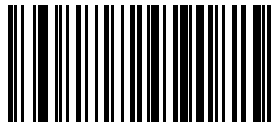
### Code 39 Set Length 1

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

Table 2 provides examples for setting Length 1. See [page 296](#) for detailed instructions on setting this feature.

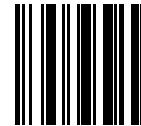
**Table 2. Code 39 Length 1 Setting Examples**

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

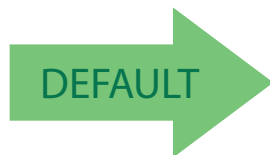


Select Code 39 Set Length 1 Setting

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



CANCEL



**02 = Length 1 is 2 Characters**



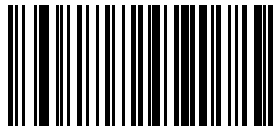
### Code 39 Set Length 2

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

Table 3 provides examples for setting Length 2. See [page 297](#) for detailed instructions on setting this feature.

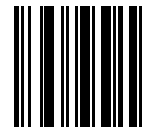
**Table 3. Code 39 Length 2 Setting Examples**

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

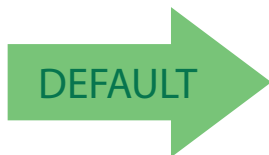


Select Code 39 Length 2 Setting

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



CANCEL

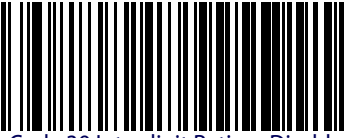


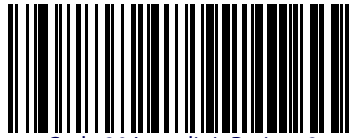
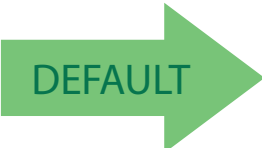
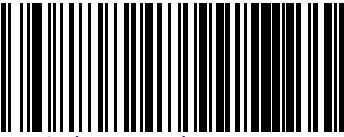
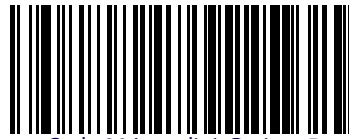


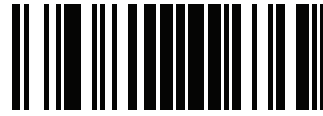
**50 = Length 2 is 50 Characters**



### Code 39 Interdigit Ratio

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

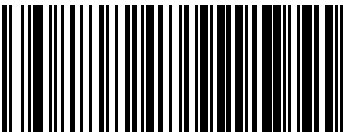
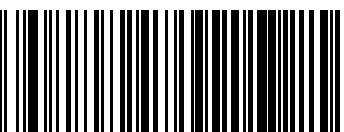
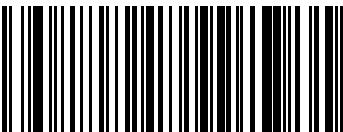
	 <p>Code 39 Interdigit Ratio = Disable</p>
 <p>Code 39 Interdigit Ratio = 1</p>	
	 <p>Code 39 Interdigit Ratio = 2</p>
 <p>Code 39 Interdigit Ratio = 3</p>	
	 <p>Code 39 Interdigit Ratio = 4</p>
 <p>Code 39 Interdigit Ratio = 5</p>	



Code 39

ENTER/EXIT PROGRAMMING MODE

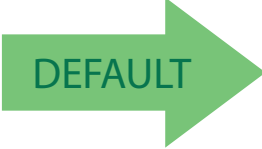
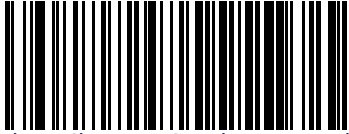

**Code 39 Interdigit Ratio — cont.**

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



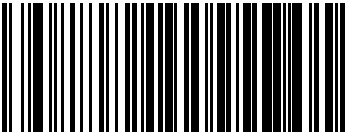
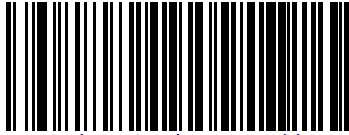

### Code 39 Character Correlation

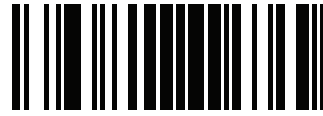
When correlation is enabled, the barcode reader will combine label data from multiple scans when decoding. Enabling correlation will help the scanner read labels that have some spots and/or voids. It may also help read labels that have damaged areas. Enabling correlation will also increase the chances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

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

### Code 39 Stitching

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

	 Code 39 Stitching = Disable
 Code 39 Stitching = Enable	

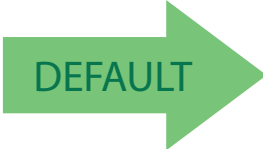
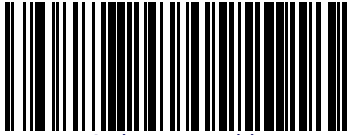
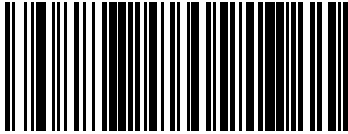


## CODE 32 (ITAL PHARMACEUTICAL CODE)

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

### Code 32 Enable/Disable

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

	 <p>Code 32 = Disable</p>
 <p>Code 32 = Enable</p>	

### Code 32 Feature Setting Exceptions



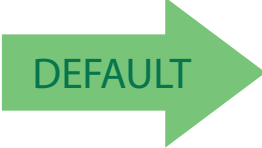
The following features are set for Code 32 by using these Code 39 settings:

- "Code 39 Quiet Zones" on page 139
- "Code 39 Minimum Reads" on page 140
- "Code 39 Decoding Level" on page 141
- "Code 39 Interdigit Ratio" on page 145
- "Code 39 Character Correlation" on page 147
- "Code 39 Stitching" on page 147



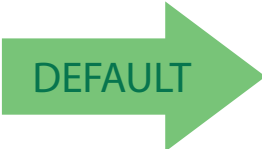
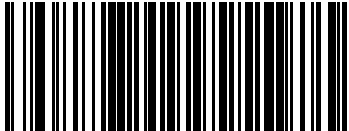
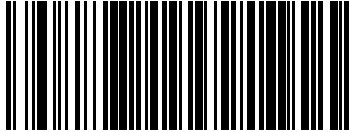
### Code 32 Check Char Transmission

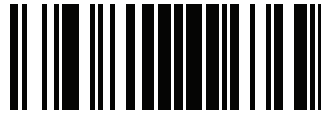
Enable this option to transmit the check character along with Code 32 barcode data.

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

### Code 32 Start/Stop Character Transmission

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

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

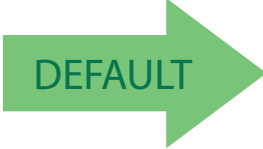
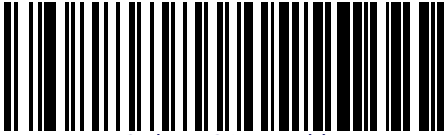



**CODE 39 CIP (FRENCH PHARMACEUTICAL)**

The following options apply to the Code 39 CIP symbology.

**Code 39 CIP Enable/Disable**

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

	 Code 39 CIP = Disable
 Code 39 CIP = Enable	






### CODE 128

The following options apply to the Code 128 symbology.

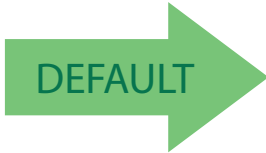
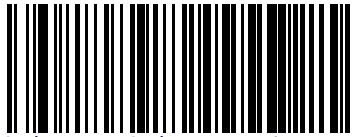
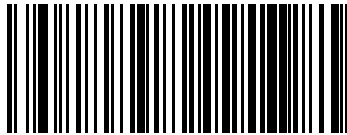
#### Code 128 Enable/Disable

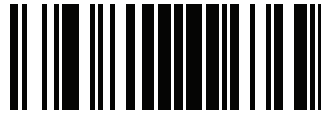
When disabled, the reader will not read Code 128 barcodes.

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

#### Expand Code 128 to Code 39

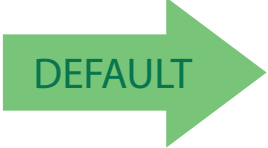
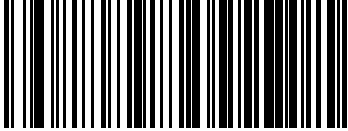
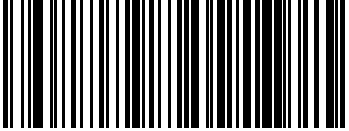
This feature enables/disables expansion of Code 128 labels to Code 39 labels.

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



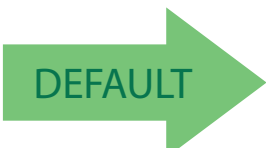


### Code 128 Check Character Transmission

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

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

### Code 128 Function Character Transmission

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

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

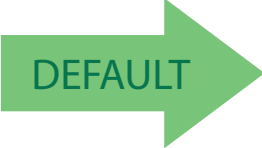
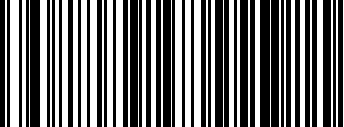
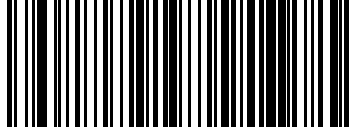


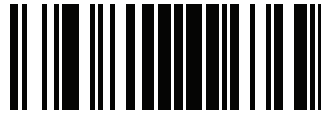
ENTER/EXIT PROGRAMMING MODE

Code 128 Sub-Code Change Transmission

## Code 128 Sub-Code Change Transmission

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

	 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.

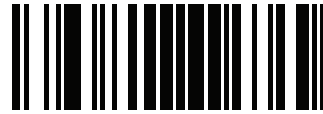
	 <p>Code 128 Quiet Zones = No Quiet Zones</p>
 <p>Code 128 Quiet Zones = Quiet Zone on one side</p>	
	 <p>Code 128 Quiet Zones = Quiet Zones on two sides</p>
 <p>Code 128 Quiet Zones = Auto</p>	
	 <p>Code 128 Quiet Zones = Virtual Quiet Zones on two sides</p>



### Code 128 Minimum Reads

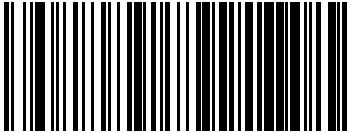
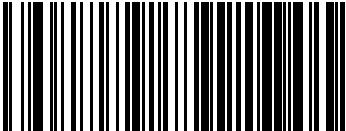
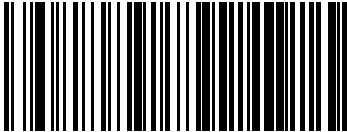

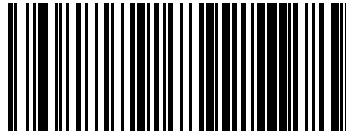

This feature specifies the minimum number of consecutive times a Code 128 label must be decoded before it is accepted as good read.

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



### Code 128 Decoding Level

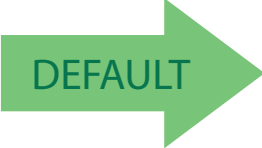
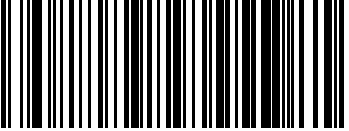
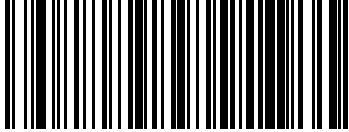
Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See [page 296](#) for more information on this feature.

 <p>Code 128 Decoding Level = 1 (Conservative)</p>	
	 <p>Code 128 Decoding Level = 2</p>
 <p>Code 128 Decoding Level = 3</p>	
	 <p>Code 128 Decoding Level = 4</p>
 <p>Code 128 Decoding Level = 5 (Aggressive)</p>	



## Code 128 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 128 symbology. See [page 296](#) for more information..

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



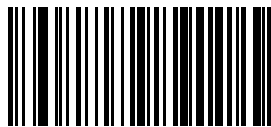
### Code 128 Set Length 1

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

Table 4 provides some examples for setting Length 1. See [page 296](#) for detailed instructions on setting this feature.

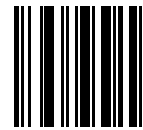
**Table 4. Code 128 Length 1 Setting Examples**

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

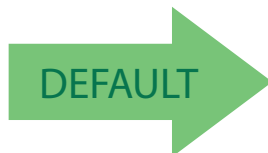


Select Code 128 Set Length 1 Setting

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



CANCEL



**01 = Length 1 is 1 Character**





### Code 128 Set Length 2

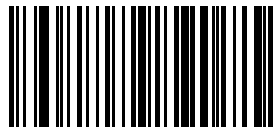
This feature specifies one of the barcode lengths for [Code 128 Length Control](#). Length 2 is the maximum label length if in [Variable Length Mode](#), or the second fixed length if in [Fixed Length Mode](#). Length includes the barcode’s data characters only.

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

Table 5 provides examples for setting Length 2. See [page 297](#) for detailed instructions on setting this feature.

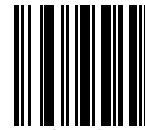
**Table 5. Code 128 Length 2 Setting Examples**

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



Select Code 128 Length 2 Setting

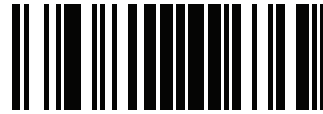
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL


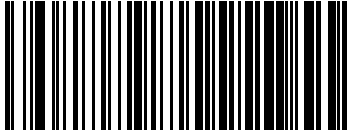
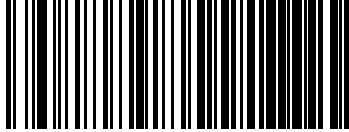


**80 = Length 2 is 80 Characters**



### 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.

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

### Code 128 Stitching

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

	 Code 128 Stitching = Disable
 Code 128 Stitching = Enable	



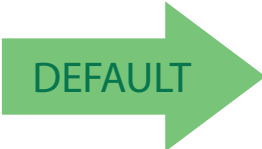
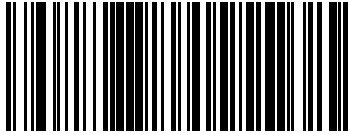
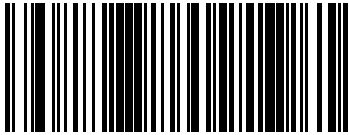
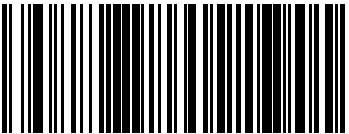
### GS1-128

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

#### GS1-128 Enable

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

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

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

## CODE ISBT 128

The following options apply to the ISBT 128 symbology.

### ISBT 128 Concatenation

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




	 ISBT 128 Concatenation = Disable
 ISBT 128 Concatenation = Enable	

### ISBT 128 Force Concatenation

When enabled, this feature forces concatenation for ISBT.



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

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



ENTER/EXIT PROGRAMMING MODE

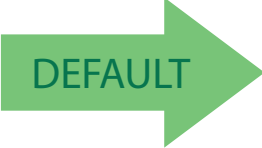
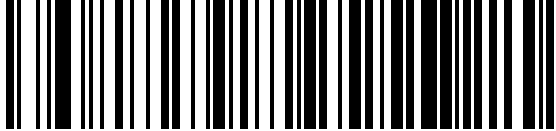
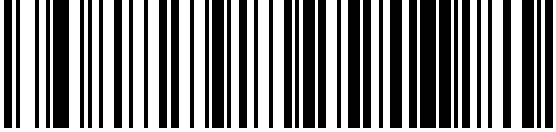
ISBT 128 Concatenation Mode

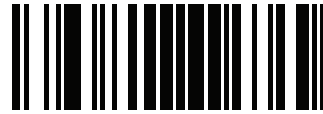
## ISBT 128 Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.



This option is only valid when [ISBT 128 Concatenation](#) is enabled (see page 162).

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



### ISBT 128 Dynamic Concatenation Timeout

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

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

### ISBT 128 Advanced Concatenation Options



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

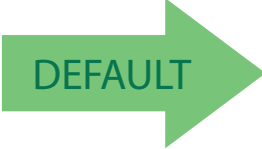




### CODABLOCK F

The following options apply to the Codablock F symbology.

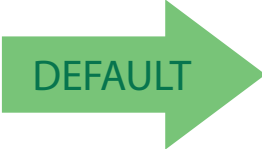
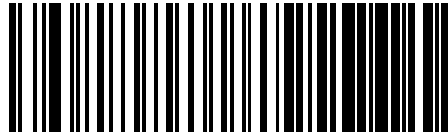
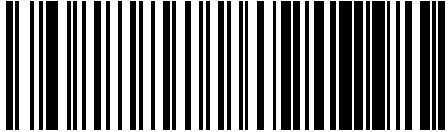
#### Codablock F Enable/Disable

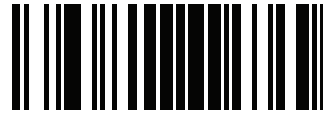
Enables/Disables ability of reader to decode Codablock F labels.

	 <p>Codablock F = Disable</p>
 <p>Codablock F = Enable</p>	

#### Codablock F EAN Enable/Disable

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

	 <p>Codablock F EAN = Disable</p>
 <p>Codablock F EAN = Enable</p>	



### Codablock F AIM Check

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

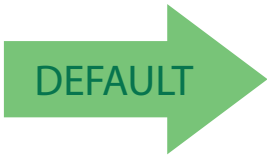


	 <p>Codablock F AIM Check = Disable</p>
 <p>Codablock F AIM Check = Enable Check C</p>	

### Codablock F Length Control

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

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

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

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





### Codablock F Set Length 1

Specifies one of the barcode lengths for [Codablock F Length Control](#). Length 1 is the minimum label length if in [Variable Length](#) Mode, or the first fixed length if in [Fixed Length](#) Mode. Length includes the barcode's data characters only. Characters can be set from 03 to 255 characters.

Table 6 provides some examples for setting Length 1. See [page 296](#) for detailed instructions on setting this feature.

**Table 6. CODABLOCK F Length 1 Setting Examples**

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

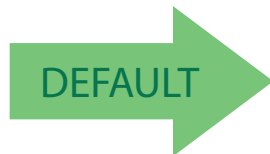


Select Codablock F Length 1 Setting

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



CANCEL



**03 = Length 1 is 3 Characters**



### Codablock F Set Length 2

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

Table 7 provides examples for setting Length 2. See [page 297](#) for detailed instructions on setting this feature.

**Table 7. CODABLOCK F Length 2 Setting Examples**

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

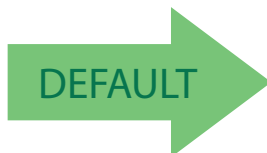


Select Codablock F Length 2 Setting

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



CANCEL



**100 = Length 2 is 100 Characters**

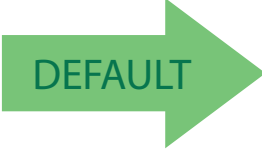




### INTERLEAVED 2 OF 5 (I 2 OF 5)

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

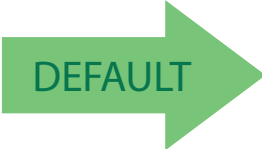

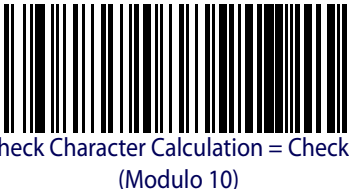

#### I 2 of 5 Enable/Disable

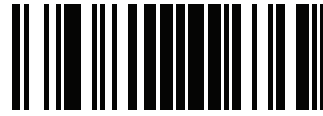
When disabled, the reader will not read I 2 of 5 barcodes.

#### I 2 of 5 Check Character Calculation

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

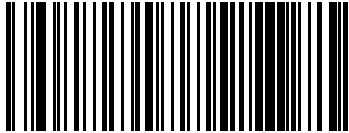
	
	
	



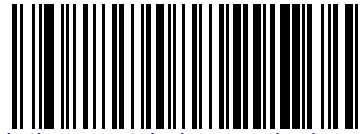
Interleaved 2 of 5 (I 2 of 5)

ENTER/EXIT PROGRAMMING MODE

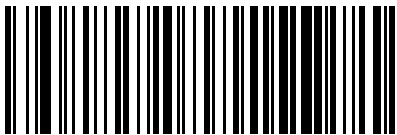
### I 2 of 5 Check Character Calculation - cont.



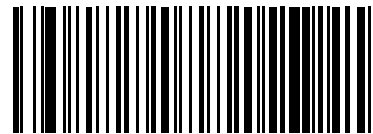
I 2 of 5 Check Character Calculation = Check DHL



I 2 of 5 Check Character Calculation = Check Daimler Chrysler



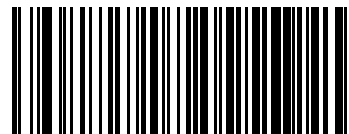
I 2 of 5 Check Character Calculation = Check Bosch



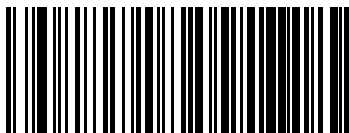
I 2 of 5 Check Character Calculation = Italian Post

### I 2 of 5 Check Character Transmission

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



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



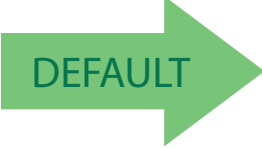
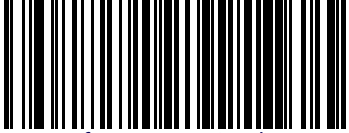



I 2 of 5 Check Character Transmission = Send

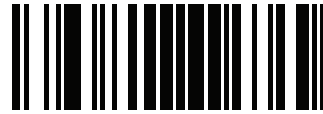




## I 2 of 5 Minimum Reads

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

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

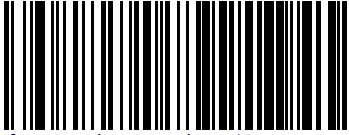
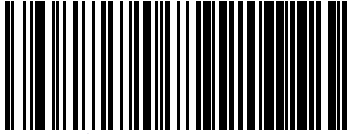
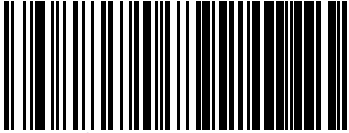

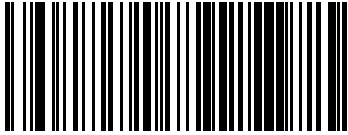
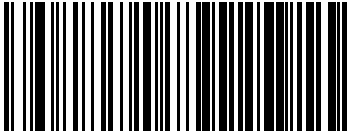


## 2 of 5 Decoding Level



This configuration item applies to Interleaved 2 of 5, 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. See [page 296](#) for more information on this feature.

 <p>2 of 5 Decoding Level = 1 (Conservative)</p>	
	 <p>2 of 5 Decoding Level = 2</p>
 <p>2 of 5 Decoding Level = 3</p>	
	 <p>2 of 5 Decoding Level = 4</p>
 <p>2 of 5 Decoding Level = 5 (Aggressive)</p>	



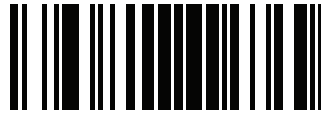
## I 2 of 5 Length Control

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

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

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

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



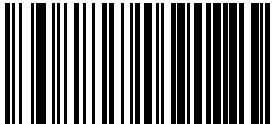
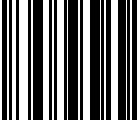
### I 2 of 5 Set Length 1

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

Table 8 provides some examples for setting Length 1. See page 296 for detailed instructions on setting this feature.

Table 8. I 2 of 5 Length 1 Setting Examples

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

 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



**06 = Length 1 is 6 Characters**





## I 2 of 5 Set Length 2

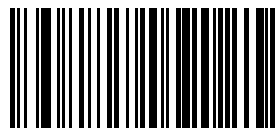
This feature specifies one of the barcode lengths for **I 2 of 5 Length Control**. Length 2 is the maximum label length if in **Variable Length Mode**, or the second fixed length if in **Fixed Length Mode**. The length includes the barcode’s check and data characters.

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

Table 9 provides examples for setting Length 2. See [page 297](#) for detailed instructions on setting this feature.

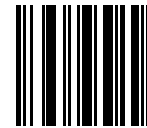
**Table 9. I 2 of 5 Length 2 Setting Examples**

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

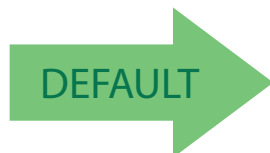


Select I 2 of 5 Length 2 Setting

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



CANCEL



**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.

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

### 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.

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

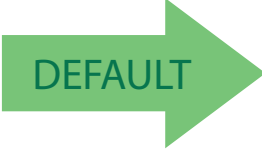
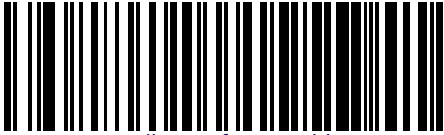


## FOLLETT 2 OF 5

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

### Follett 2 of 5 Enable/Disable

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

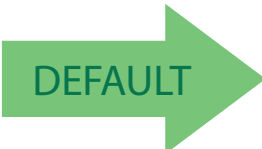
	 <p>Follett 2 of 5 = Disable</p>
 <p>Follett 2 of 5 = Enable</p>	

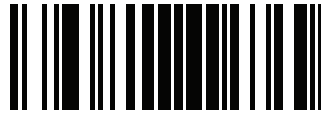
## INTERLEAVED 2 OF 5 CIP HR

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

### Interleaved 2 of 5 CIP HR Enable/Disable

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

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

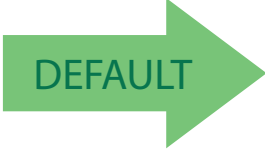
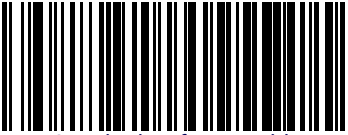
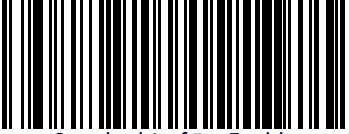


### STANDARD 2 OF 5

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


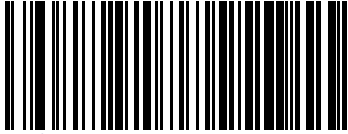
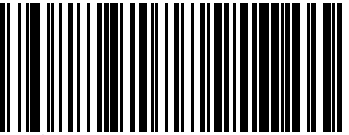
#### Standard 2 of 5 Enable/Disable

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

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

#### Standard 2 of 5 Check Character Calculation

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

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



### Standard 2 of 5 Check Character Transmission

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

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

### Standard 2 of 5 Minimum Reads

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

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

## Standard 2 of 5 Decoding Level



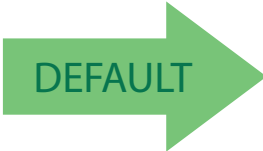

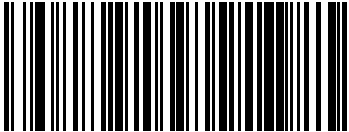
The Standard 2 of 5 Decoding Level feature is set using "2 of 5 Decoding Level" on page 172.

## Standard 2 of 5 Length Control

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

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

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

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



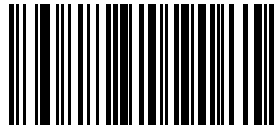
### Standard 2 of 5 Set Length 1

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

Table 10 provides some examples for setting Length 1. See [page 296](#) if you want detailed instructions on setting this feature.

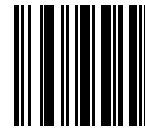
**Table 10. Standard 2 of 5 Length 1 Setting Examples**

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

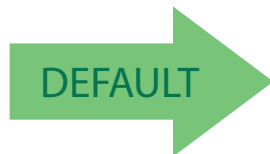


Select Standard 2 of 5 Length 1 Setting

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



CANCEL



**08 = Length 1 is 8 Characters**



### Standard 2 of 5 Set Length 2

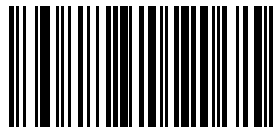
This feature specifies one of the barcode lengths for [Standard 2 of 5 Length Control](#). Length 2 is the maximum label length if in [Variable Length](#) Mode, or the second fixed length if in [Fixed Length](#) Mode. Length includes the barcode's check and data characters.

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

Table 11 provides examples for setting Length 2. See [page 297](#) for detailed instructions on setting this feature.

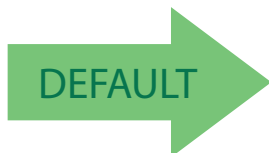
**Table 11. Standard 2 of 5 Length 2 Setting Examples**

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



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.



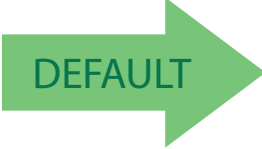
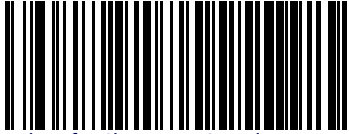

**50 = Length 2 is 50 Characters**





### Standard 2 of 5 Character Correlation

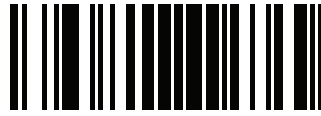
When correlation is enabled, the barcode reader will combine label data from multiple scans when decoding. Enabling correlation will help the scanner read labels that have some spots and/or voids. It may also help read labels that have damaged areas. Enabling correlation will also increase the chances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

	 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.

	 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.

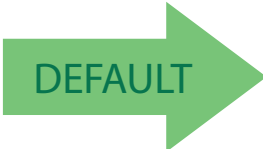


#### Industrial 2 of 5 Enable/Disable

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.

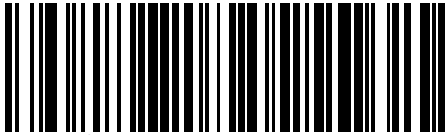
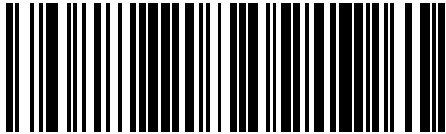



ENTER/EXIT PROGRAMMING MODE

Industrial 2 of 5 Check Character Transmission

## Industrial 2 of 5 Check Character Transmission

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

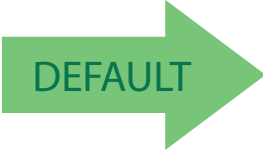
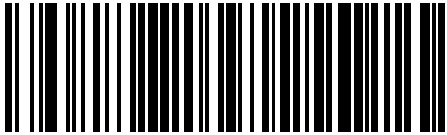
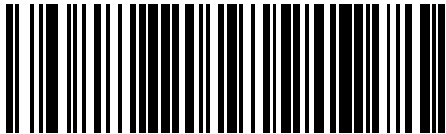
	 <p>Industrial 2 of 5 Check Character Transmission = Disable</p>
 <p>Industrial 2 of 5 Check Character Transmission = Enable</p>	

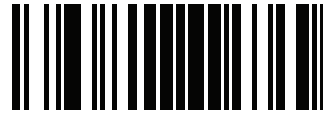
## Industrial 2 of 5 Length Control

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

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

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

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



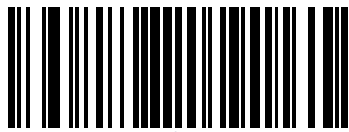
### Industrial 2 of 5 Set Length 1

This feature specifies one of the barcode lengths for **Industrial 2 of 5 Length Control**. Length 1 is the minimum label length if in **Variable Length Mode**, or the first fixed length if in **Fixed Length Mode**. Length includes the barcode’s data characters only. The length can be set from 0 to 50 characters.

Table 12 provides some examples for setting Length 1. See [page 296](#) if you want detailed instructions on setting this feature.

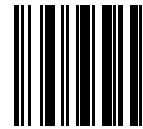
**Table 12. Industrial 2 of 5 Length 1 Setting Examples**

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

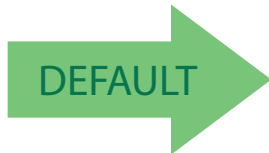


Select Industrial 2 of 5 Set Length 1 Setting

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



CANCEL



**01 = Length 1 is 1 Character**



### Industrial 2 of 5 Set Length 2

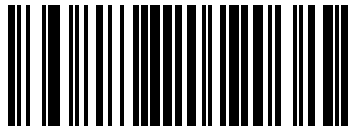
This feature specifies one of the barcode lengths for **Industrial 2 of 5 Length Control**. Length 2 is the maximum label length if in **Variable Length Mode**, or the second fixed length if in **Fixed Length Mode**. Length includes the barcode’s check, data, and full-ASCII shift characters. The length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

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

Table 13 provides examples for setting Length 2. See [page 297](#) for detailed instructions on setting this feature.

**Table 13. Industrial 2 of 5 Length 2 Setting Examples**

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



Select Industrial 2 of 5 Length 2 Setting

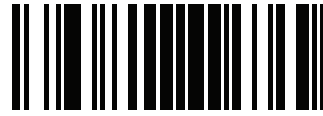
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

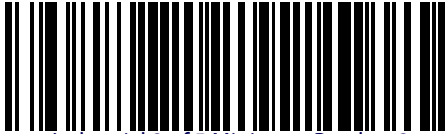


**50 = Length 2 is 50 Characters**



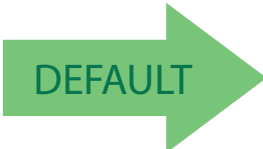
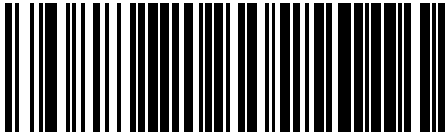
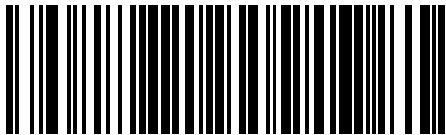
### Industrial 2 of 5 Minimum Reads

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

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

### Industrial 2 of 5 Stitching

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

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

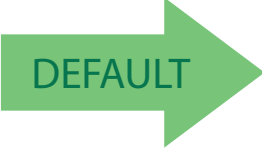
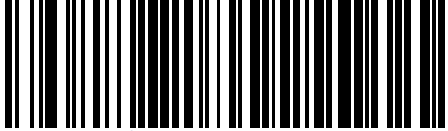
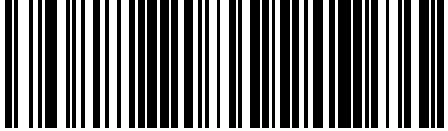


ENTER/EXIT PROGRAMMING MODE

Industrial 2 of 5 Character Correlation

## Industrial 2 of 5 Character Correlation

Enable/disables character correlation for Industrial 2 of 5.

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

### CODE IATA

The following options apply to the IATA symbology.

#### IATA Enable/Disable

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

	 IATA = Disable
 IATA = Enable	

#### IATA Check Character Transmission

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

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





## DATALOGIC 2 OF 5

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

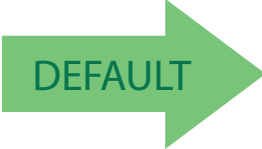
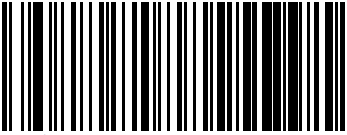
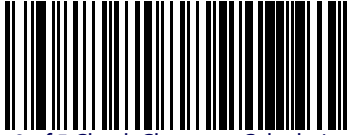
### Datalogic 2 of 5 Enable/Disable

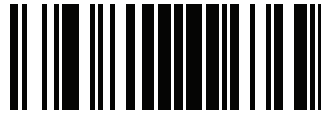
When disabled, the reader will not read Datalogic 2 of 5 barcodes.

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

### Datalogic 2 of 5 Check Character Calculation

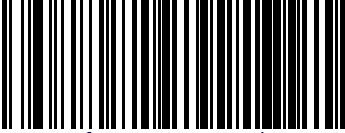


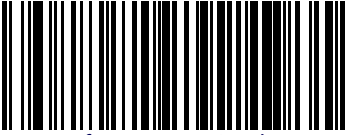
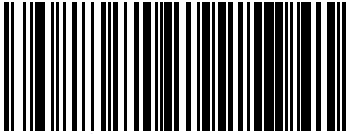
This option enables/disables calculation and verification of an optional Datalogic 2 of 5 check character.

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



### Datalogic 2 of 5 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.

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

### Datalogic 2 of 5 Decoding Level



The Datalogic 2 of 5 Decoding Level feature is set using "2 of 5 Decoding Level" on page 172.

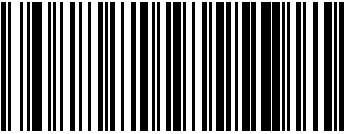


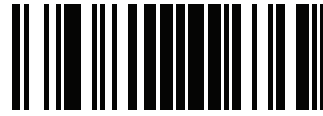
## Datalogic 2 of 5 Length Control

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.

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



### 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.

Table 14 provides some examples for setting Length 1. See [page 296](#) for detailed instructions on setting this feature.

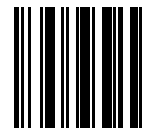
**Table 14. Datalogic 2 of 5 Length 1 Setting Examples**

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

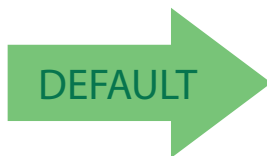


Select Datalogic 2 of 5 Length 1 Setting

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



CANCEL



**06 = Length 1 is 6 Characters**



### Datalogic 2 of 5 Set Length 2

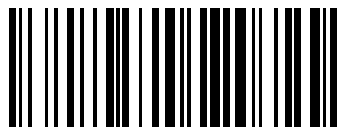
This feature specifies one of the barcode lengths for [Datalogic 2 of 5 Length Control](#). Length 2 is the maximum label length if in [Variable Length Mode](#), or the second fixed length if in [Fixed Length Mode](#). The length includes the barcode’s check and data characters.

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

Table 15 provides examples for setting Length 2. See [page 297](#) for detailed instructions on setting this feature.

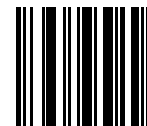
**Table 15. Datalogic 2 of 5 Length 2 Setting Examples**

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

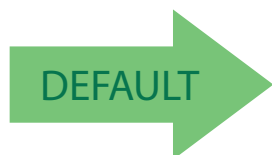


Select Datalogic 2 of 5 Length 2 Setting

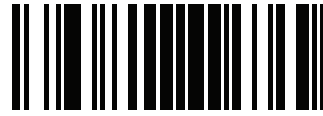
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



**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.

	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.

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

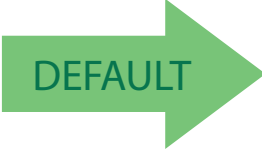
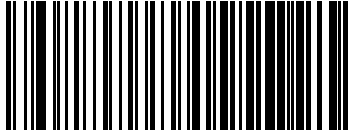
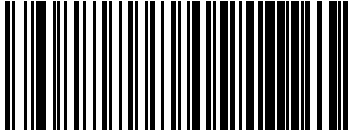


### CODABAR

The following options apply to the Codabar symbology.

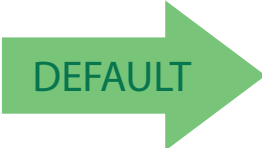
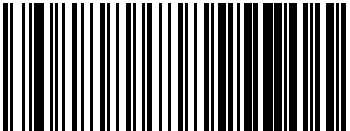
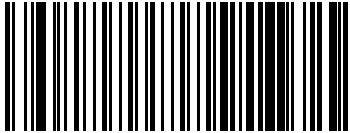
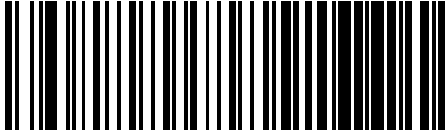
#### Codabar Enable/Disable

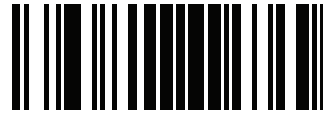
When disabled, the reader will not read Codabar barcodes.

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

#### Codabar Check Character Calculation

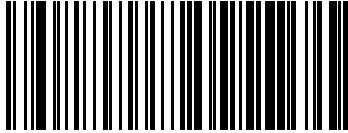
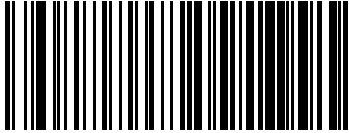

Enable this option to enables/disables calculation and verification of an optional Codabar check character. When disabled, any check character in the label is treated as a data character

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



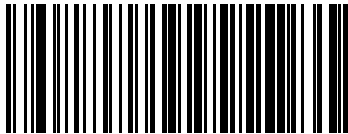
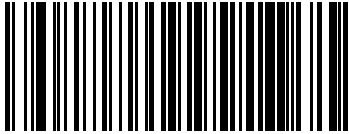

### Codabar Check Character Transmission

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

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

### Codabar Start/Stop Character Transmission

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

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





ENTER/EXIT PROGRAMMING MODE

Codabar Start/Stop Character Set


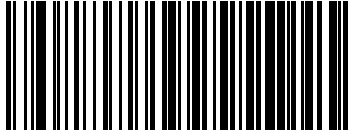
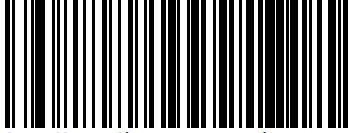
### Codabar Start/Stop Character Set

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

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

### Codabar Start/Stop Character Match

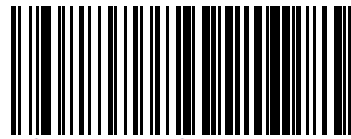

When enabled, this option requires that start and stop characters match.

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



### Codabar Quiet Zones

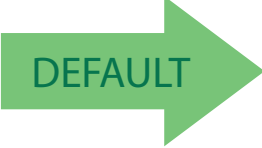
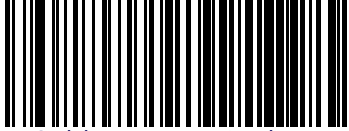
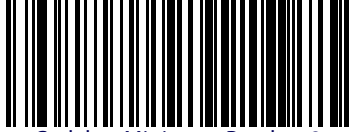
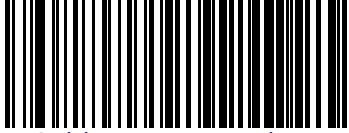

Specifies the number of quiet zones for Codabar labels. Quiet zones are blank areas at the ends of a barcode and are typically 10 times the width of the narrowest bar or space in the label.

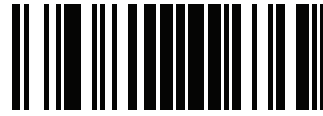
 <p>Codabar Quiet Zones = Quiet Zone on one side</p>	
	 <p>Codabar Quiet Zones = Quiet Zones on two sides</p>
 <p>Codabar Quiet Zones = Auto</p>	
	 <p>Codabar Quiet Zones = Virtual Quiet Zones on two sides</p>
 <p>Codabar Quiet Zones = Small Quiet Zones on two sides</p>	



### Codabar Minimum Reads

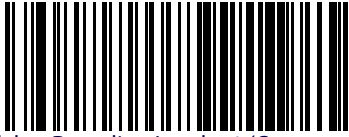
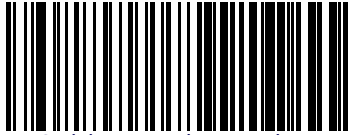
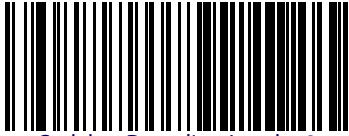

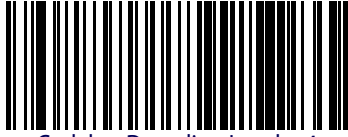
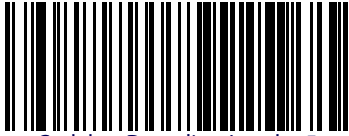
This feature specifies the minimum number of consecutive times a Codabar label must be decoded before it is accepted as good read.

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



### Codabar Decoding Level

Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative, depending on a particular customer's needs. See [page 296](#) for more information on this feature.

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

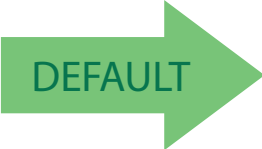
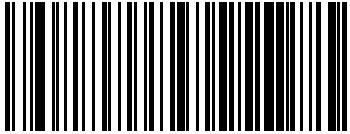
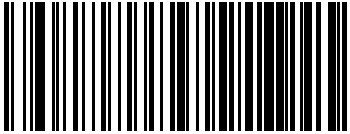


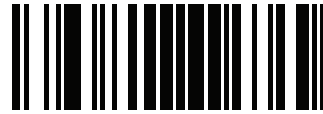
### Codabar Length Control

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

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

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

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



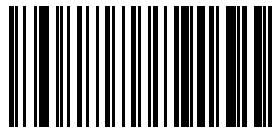
### Codabar Set Length 1

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

Table 16 provides some examples for setting Length 1. See [page 296](#) for detailed instructions on setting this feature.

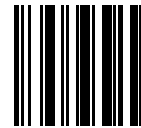
**Table 16. Codabar Length 1 Setting Examples**

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

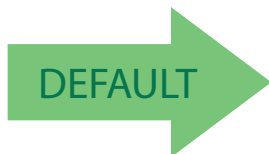


Select Codabar Length 1 Setting

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



CANCEL



**03 = Length 1 is 3 Characters**



### Codabar Set Length 2

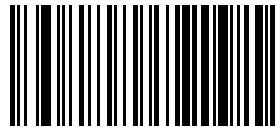
This feature specifies one of the barcode lengths for **Codabar Length Control**. Length 2 is the maximum label length if in **Variable Length Mode**, or the second fixed length if in **Fixed Length Mode**. The length includes the barcode’s start, stop, check and data characters. The length must include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

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

Table 17 provides examples for setting Length 2. See page 297 for detailed instructions on setting this feature.

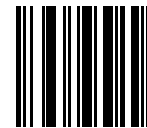
**Table 17. Codabar Length 2 Setting Examples**

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

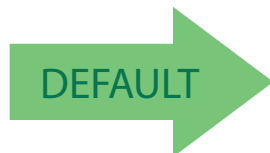


Select Codabar Length 2 Setting

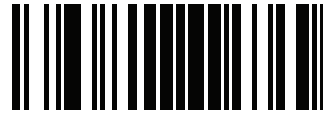
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



**50 = Length 2 is 50 Characters**



### Codabar Interdigit Ratio

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

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

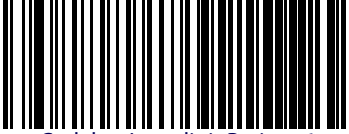
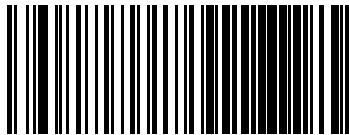
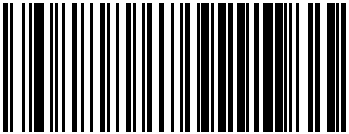
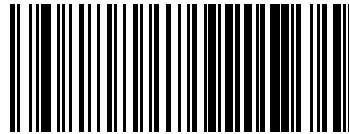
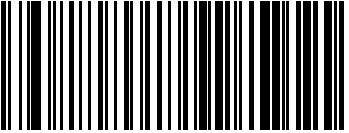




ENTER/EXIT PROGRAMMING MODE

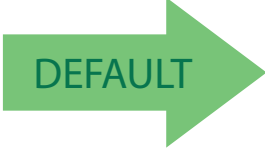
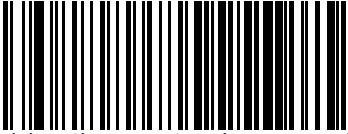

Codabar Interdigit Ratio

**Codabar Interdigit Ratio — cont.**

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


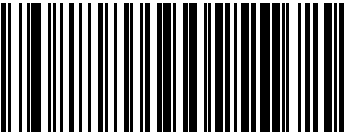
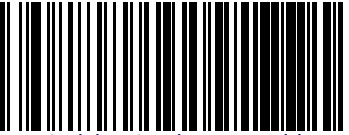
## Codabar Character Correlation

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 Character Correlation = Disable
 Codabar Character Correlation = Enable	

## Codabar Stitching

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

	 Codabar Stitching = Disable
 Codabar Stitching = Enable	



### ABC CODABAR

The following options apply to the ABC Codabar symbology.

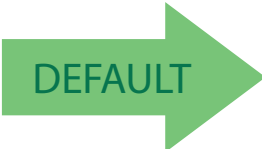


#### ABC Codabar Enable/Disable

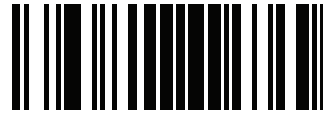
Enables/Disables ability of reader to decode ABC Codabar labels.

#### ABC Codabar Concatenation Mode

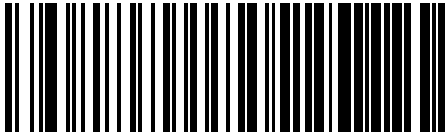

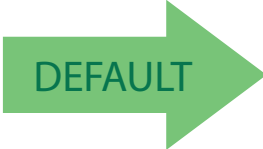
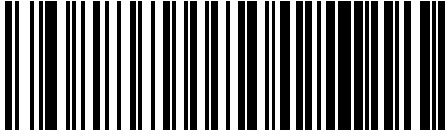
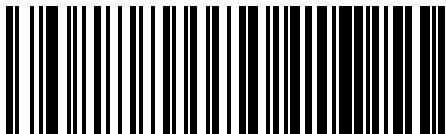
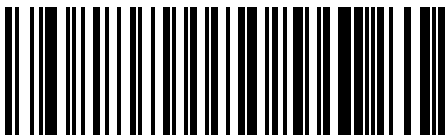
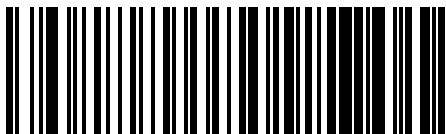
Specifies the concatenation mode between Static and Dynamic.



### ABC Codabar Dynamic Concatenation Timeout

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

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



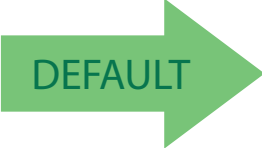


ENTER/EXIT PROGRAMMING MODE

ABC Codabar Force Concatenation

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## ABC Codabar Force Concatenation

Forces labels starting or ending with D to be concatenated.

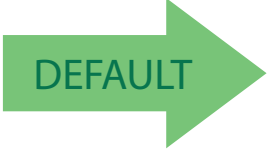
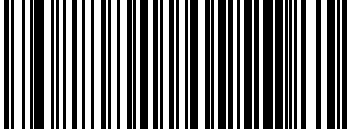
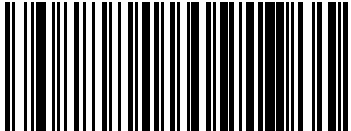
	 ABC Codabar Force Concatenation = Disable
 ABC Codabar Force Concatenation = Enable	

## CODE 11

The following options apply to the Code 11 symbology.

### Code 11 Enable/Disable

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

	 Code 11 = Disable
 Code 11 = Enable	

### Code 11 Check Character Calculation

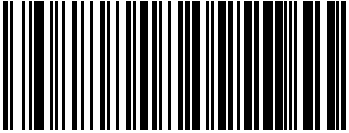


This option enables/disables calculation and verification of optional Code 11 check character.

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



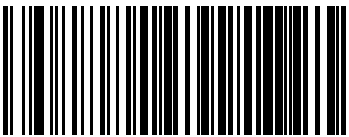
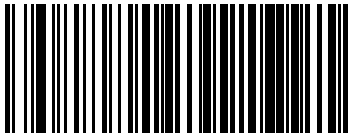
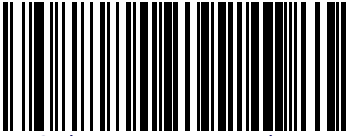

### Code 11 Check Character Transmission

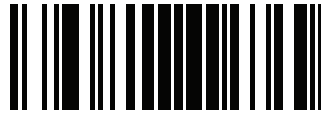
This feature enables/disables transmission of an optional Code 11 check character.

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

### Code 11 Minimum Reads

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

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

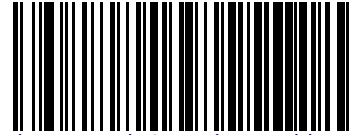
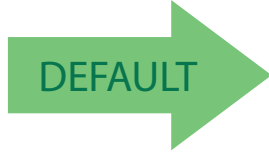


### Code 11 Length Control

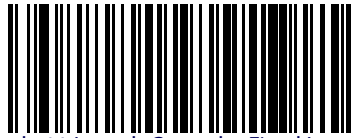
This feature specifies either variable length decoding or fixed length decoding for the Code 11 symbology.

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

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



Code 11 Length Control = Variable Length



Code 11 Length Control = Fixed Length





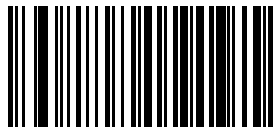
### Code 11 Set Length 1

This feature specifies one of the barcode lengths for **Code 11 Length Control**. Length 1 is the minimum label length if in **Variable Length Mode**, or the first fixed length if in **Fixed Length Mode**. Length includes the barcode’s check and data characters. The length can be set from 2 to 50 characters.

Table 18 provides some examples for setting Length 1. See [page 296](#) for detailed instructions on setting this feature.

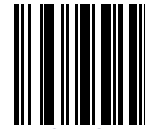
**Table 18. Code 11 Length 1 Setting Examples**

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

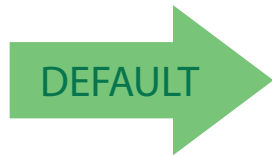


Select Code 11 Set Length 1 Setting

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



CANCEL



**04 = Length 1 is 4 Characters**



### Code 11 Set Length 2

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

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

Table 19 provides examples for setting Length 2. See [page 297](#) for detailed instructions on setting this feature.

**Table 19. Code 11 Length 2 Setting Examples**

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

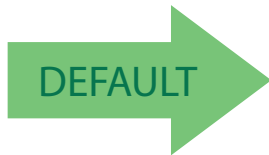


Select Code 11 Length 2 Setting

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



CANCEL

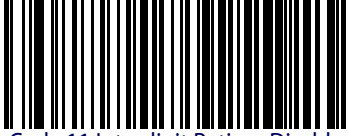

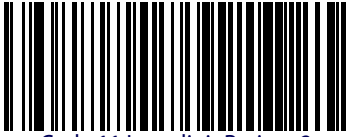
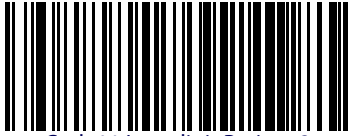
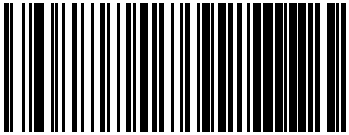
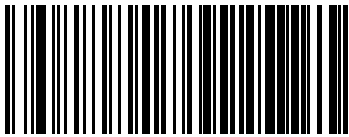


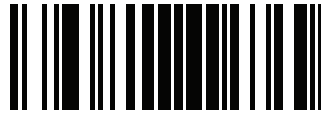
**50 = Length 2 is 50 Characters**



### Code 11 Interdigit Ratio

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

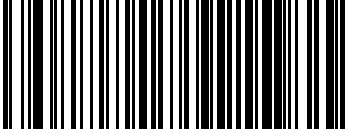
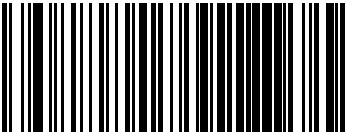
	 Code 11 Interdigit Ratio = Disable
 Code 11 Interdigit Ratio = 1	
	 Code 11 Interdigit Ratio = 2
 Code 11 Interdigit Ratio = 3	
	 Code 11 Interdigit Ratio = 4
 Code 11 Interdigit Ratio = 5	



Code 11

ENTER/EXIT PROGRAMMING MODE

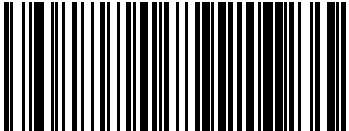
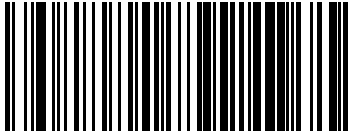
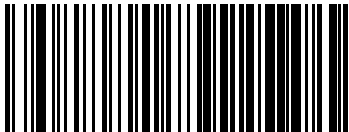
**Code 11 Interdigit Ratio — cont.**

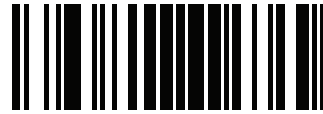
	 Code 11 Interdigit Ratio = 6
 Code 11 Interdigit Ratio = 7	
	 Code 11 Interdigit Ratio = 8
 Code 11 Interdigit Ratio = 9	
	 Code 11 Interdigit Ratio = 10



## Code 11 Decoding Level

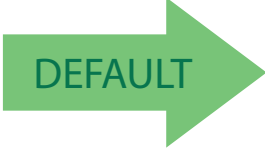
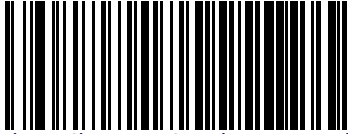
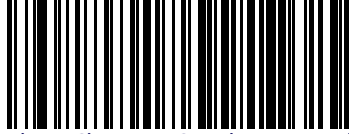
Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See [page 296](#) for more information on this feature.

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



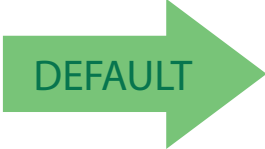
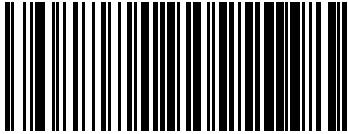
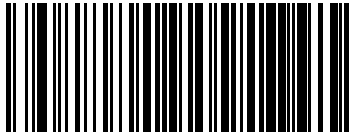
### Code 11 Character Correlation

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

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

### Code 11 Stitching

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

	 Code 11 Stitching = Disable
 Code 11 Stitching = Enable	

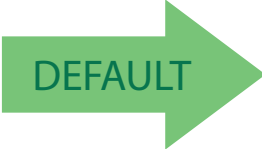
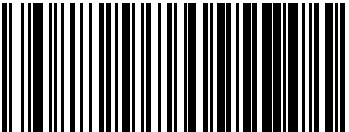
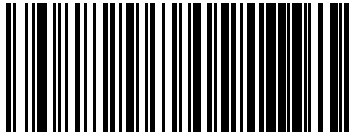


### GS1 DATABAR™ OMNIDIRECTIONAL

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

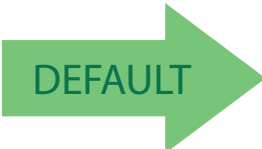
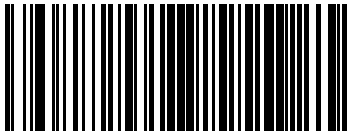

#### GS1 DataBar™ Omnidirectional Enable/Disable

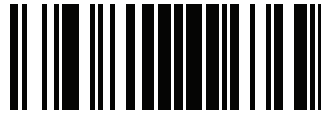
When disabled, the reader will not read GS1 DataBar™ Omnidirectional barcodes.

	 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.

	 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.

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





### GS1 DATABAR™ EXPANDED

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

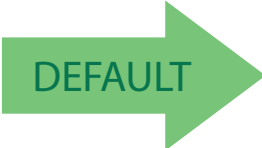
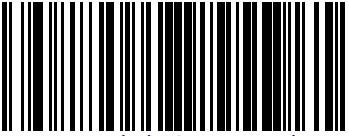
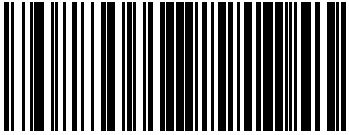
#### GS1 DataBar™ Expanded Enable/Disable

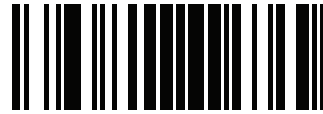
When disabled, the reader will not read GS1 DataBar™ Expanded barcodes.

	 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.

	 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.

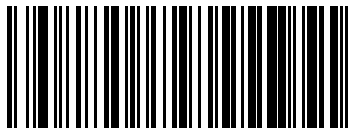
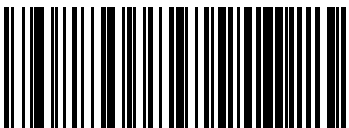
	 <p>GS1 DataBar™ Expanded Minimum Reads = 1</p>
 <p>GS1 DataBar™ Expanded Minimum Reads = 2</p>	
 <p>GS1 DataBar™ Expanded Minimum Reads = 4</p>	 <p>GS1 DataBar™ Expanded Minimum Reads = 3</p>

### 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.

	 <p>GS1 DataBar™ Expanded Length Control = Variable Length</p>
 <p>GS1 DataBar™ Expanded Length Control = Fixed Length</p>	



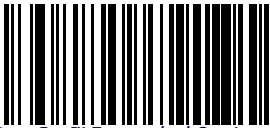
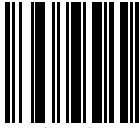
### GS1 DataBar™ Expanded Set Length 1

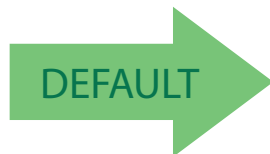
This feature specifies one of the barcode lengths for GS1 DataBar™ Expanded Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the barcode’s data characters only. The length can be set from 1 to 74 characters.

Table 20 provides some examples for setting Length 1. See page 296 for detailed instructions on setting this feature.

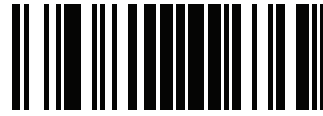
Table 20. GS1 DataBar™ Expanded Length 1 Setting Examples

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

 Select GS1 DataBar™ Expanded Set Length 1 Setting	
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.	 CANCEL



01 = Length 1 is 1 Character



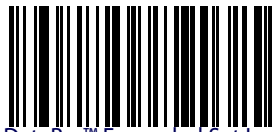
### GS1 DataBar™ Expanded Set Length 2

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

Table 21 provides examples for setting Length 2. See [page 297](#) for detailed instructions on setting this feature.

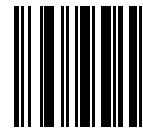
**Table 21. GS1 DataBar™ Expanded Length 2 Setting Examples**

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

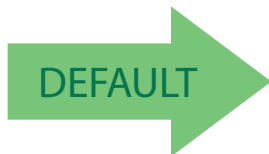


Select GS1 DataBar™ Expanded Set Length 2 Setting

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



CANCEL



**74 = Length 2 is 74 Characters**



### GS1 DATABAR™ LIMITED

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


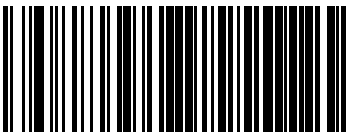
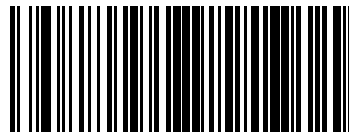
#### GS1 DataBar™ Limited Enable/Disable

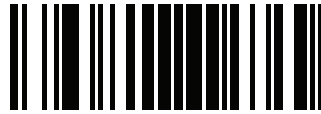
When disabled, the reader will not read GS1 DataBar™ Limited barcodes.

	 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.

	 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.

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



### CODE 93

The following options apply to the Code 93 symbology.

#### Code 93 Enable/Disable

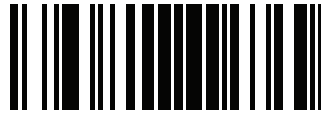
Enables/Disables ability of reader to decode Code 93 labels.

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

#### Code 93 Check Character Calculation


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

	 <p>Code 93 Check Character Calculation = Disable</p>
 <p>Code 93 Check Character Calculation = Enable Check C</p>	
	 <p>Code 93 Check Character Calculation = Enable Check K</p>
 <p>Code 93 Check Character Calculation = Enable Check C and K</p>	



### Code 93 Check Character Transmission

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

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

### Code 93 Length Control

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

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

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

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







### Code 93 Set Length 1

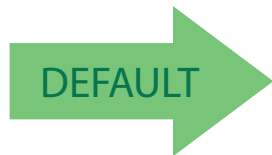
Specifies one of the barcode lengths for [Code 93 Length Control](#). Length 1 is the minimum label length if in [Variable Length Mode](#), or the first fixed length if in [Fixed Length Mode](#). Length includes the barcode’s data characters only. The length can be set from 01 to 50 characters.

Table 22 provides some examples for setting Length 1. See [page 296](#) for detailed instructions on setting this feature.

**Table 22. Code 93 Length 1 Setting Examples**

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

 Select Code 93 Set Length 1 Setting	
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.	 CANCEL



**01 = Length 1 is 1 Character**



### Code 93 Set Length 2

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

Table 23 provides examples for setting Length 2. See [page 297](#) for detailed instructions on setting this feature.

**Table 23. CODE 93 Length 2 Setting Examples**

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

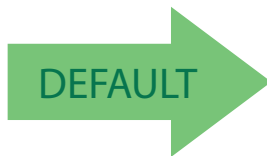


Select Code 93 Length 2 Setting

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



CANCEL



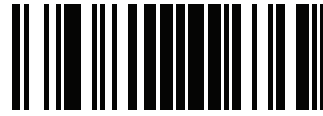
**50 = Length 2 is 50 Characters**



### Code 93 Minimum Reads

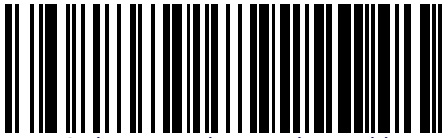






This feature specifies the minimum number of consecutive times a Code 93 label must be decoded before it is accepted as good read.

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



### Code 93 Decoding Level

Specifies the decoding level for Code 93. Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See [page 296](#) for more information on this feature.

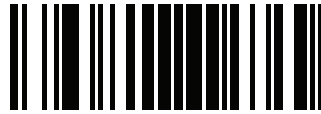
	 <p>Code 93 Decoding Level = Disable</p>
 <p>Code 93 Decoding Level = 1 (Conservative)</p>	
	 <p>Code 93 Decoding Level = 2</p>
 <p>Code 93 Decoding Level = 3</p>	
	 <p>Code 93 Decoding Level = 4</p>
 <p>Code 93 Decoding Level = 5 (Aggressive)</p>	



## Code 93 Quiet Zones

Enables/disables quiet zones for Code 93.

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

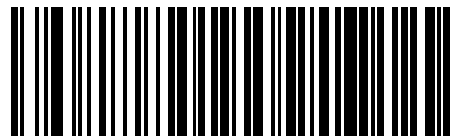


Code 93

ENTER/EXIT PROGRAMMING MODE

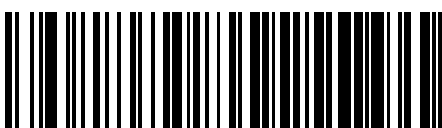
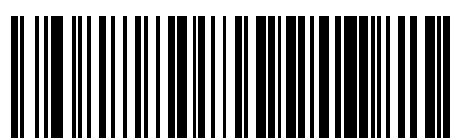

## Code 93 Stitching

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

	 Code 93 Stitching = Disable
 Code 93 Stitching = Enable	

## Code 93 Character Correlation

Enables/disables Character Correlation for Code 93.

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



ENTER/EXIT PROGRAMMING MODE

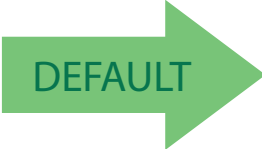
MSI Enable/Disable

## MSI

The following options apply to the MSI symbology.

### MSI Enable/Disable

Enables/Disables ability of reader to decode MSI labels.

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

### MSI Check Character Calculation

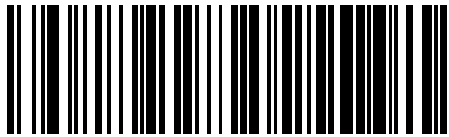


Enables/Disables calculation and verification of an optional MSI check character.

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



### MSI Check Character Transmission

Enables/disables transmission of an MSI check character.

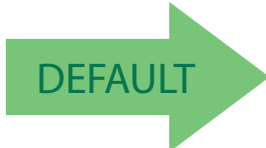
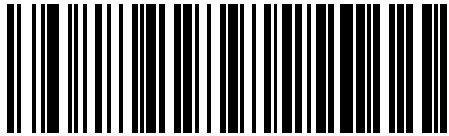
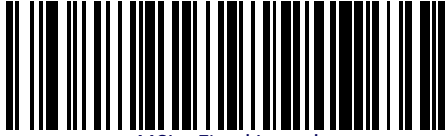
	 <p>MSI Check Character Transmission = Disable</p>
 <p>MSI Check Character Transmission = Enable</p>	

### MSI Length Control

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

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

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

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





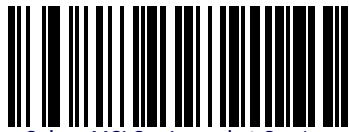
### MSI Set Length 1

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

Table 24 provides some examples for setting Length 1. See [page 296](#) for detailed instructions on setting this feature.

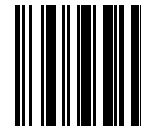
**Table 24. MSI Length 1 Setting Examples**

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

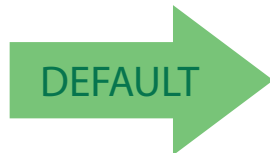


Select MSI Set Length 1 Setting

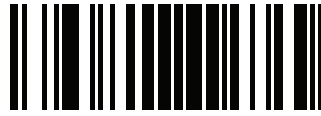
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



**01 = Length 1 is 1 Character**



### MSI Set Length 2

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

Table 25 provides examples for setting Length 2. See [page 297](#) for detailed instructions on setting this feature.

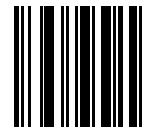
**Table 25. MSI Length 2 Setting Examples**

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

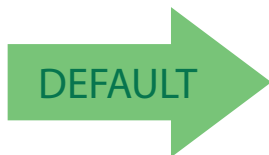


Select MSI Length 2 Setting

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



CANCEL



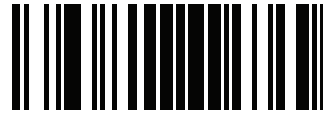
**50 = Length 2 is 50 Characters**



### MSI Minimum Reads

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

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



### MSI Decoding Level

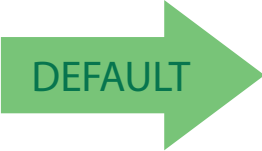
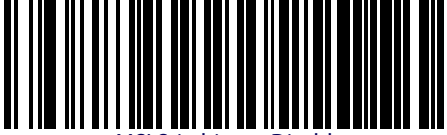
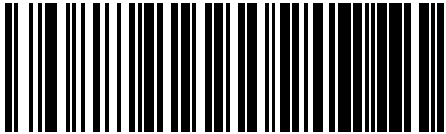
Specifies the decoding level for MSI. Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See [page 296](#) for more information on this feature.

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



### MSI Stitching

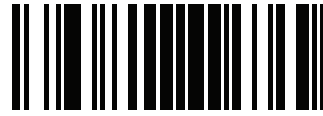
Enables/disables fixed length stitching for MSI.

	 MSI Stitching = Disable
 MSI Stitching = Enable	

### MSI Character Correlation

Enables/disables Character Correlation for MSI.

	 MSI Character Correlation = Disable
 MSI Character Correlation = Enable	

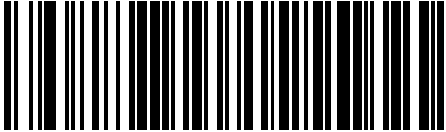



### PLESSEY

The following options apply to the Plessey symbology.

#### Plessey Enable/Disable

Enables/Disables ability of reader to decode Plessey labels.

	 Plessey = Disable
 Plessey = Enable	








ENTER/EXIT PROGRAMMING MODE

Plessey Check Character Calculation

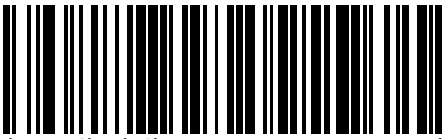
### Plessey Check Character Calculation

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

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

### Plessey Check Character Transmission

Enables/disables transmission of an MSI check character.

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

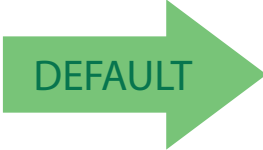
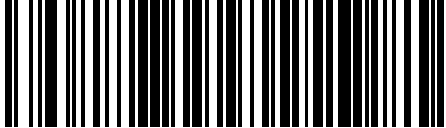
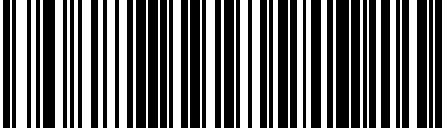


### Plessey Length Control

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

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

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

	 Plessey Length Control = Variable Length
 Plessey = Fixed Length	





### Plessey Set Length 1

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

Table 26 provides some examples for setting Length 1. See [page 296](#) for detailed instructions on setting this feature.

**Table 26. Plessey Length 1 Setting Examples**

STEP	ACTION	EXAMPLES			
		01 Characters	07 Characters	15 Characters	50 Characters
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 <a href="#">Appendix D, Keypad</a>	'0' and '1'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				

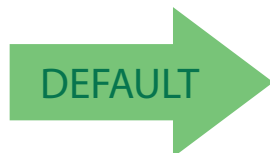


Select Plessey Set Length 1 Setting

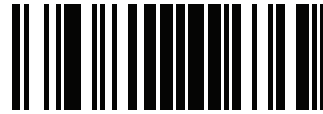
Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



**01 = Length 1 is 1 Character**



## Plessey Set Length 2

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

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

Table 27 provides examples for setting Length 2. See [page 297](#) for detailed instructions on setting this feature.

**Table 27. Plessey Length 2 Setting Examples**

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



Select Plessey Length 2 Setting

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



CANCEL



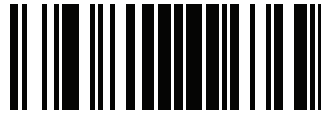
**50 = Length 2 is 50 Characters**



### Plessey Minimum Reads

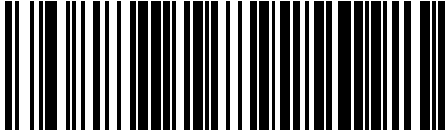
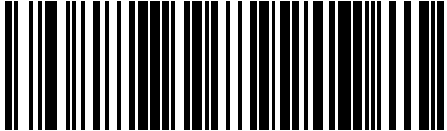
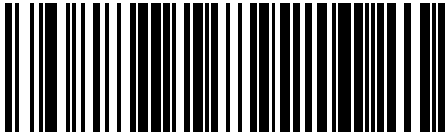




This feature specifies the minimum number of consecutive times a Plessey label must be decoded before it is accepted as good read.

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



### Plessey Decoding Level

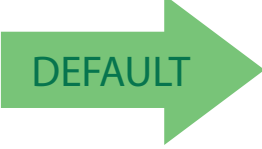


Specifies the decoding level for Plessey. Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See [page 296](#) for more information on this feature.

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



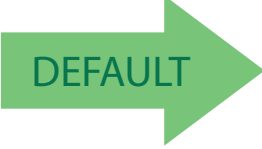


### Plessey Stitching

Enables/disables fixed length stitching for Plessey.

	 <p>Plessey Stitching = Disable</p>
 <p>Plessey Stitching = Enable</p>	

### Plessey Character Correlation

Enables/disables Character Correlation for Plessey.

	 <p>Plessey Character Correlation = Disable</p>
 <p>Plessey Character Correlation = Enable</p>	

## CODE 4

The following options apply to the Code 4 symbology.


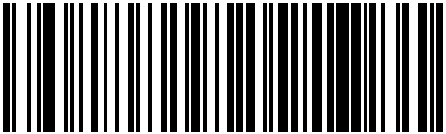

### Code 4 Enable/Disable

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

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

### Code 4 Check Character Transmission

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

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



### Code 4 Hex to Decimal Conversion

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

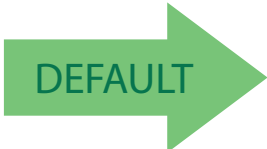
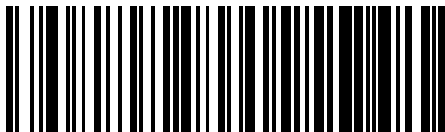
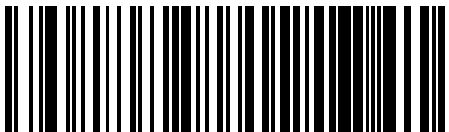
	 <p>Code 4 Hex to Decimal Conversion = Disable</p>
 <p>Code 4 Hex to Decimal Conversion = Enable</p>	

### CODE 5

The following options apply to the Code 5 symbology.

#### Code 5 Enable/Disable

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

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

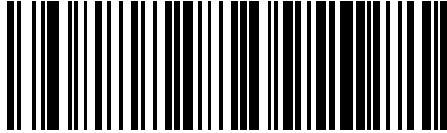
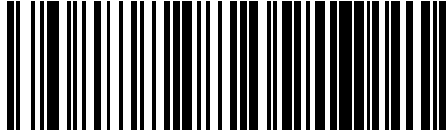


Code 5

ENTER/EXIT PROGRAMMING MODE

### Code 5 Check Character Transmission

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

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

### Code 5 Hex to Decimal Conversion

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

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





## CODE 4 AND CODE 5 COMMON CONFIGURATION ITEMS

The following options apply to both Code 4 and Code 5 symbologies.

### Code 4 and 5 Decoding Level

Decoding Levels are used to configure a barcode symbology decoder to be very aggressive to very conservative depending on a particular customer's needs. See [page 285](#) for more information on this feature.



This configuration item applies to Code 4 and Code 5.

 Code 4 and Code 5 Decoding Level = 1 (conservative)	
	 Code 4 and Code 5 Decoding Level = 2
 Code 4 and Code 5 Decoding Level = 3	
	 Code 4 and Code 5 Decoding Level = 4
 Code 4 and Code 5 Decoding Level = 5 (aggressive)	



### Code 4 and Code 5 Minimum Reads

This feature specifies the minimum number of consecutive times a Code 4 or Code 5 label must be decoded before it is accepted as good read.

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

# Chapter 4

## Wireless Features



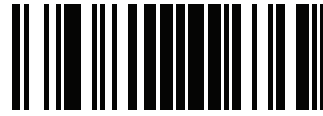
The features in this section are valid only for the GM4100 and GBT4100 models.

This section provides options and programming related to the reader's STAR and Bluetooth communication features. Reference [Appendix B, Standard Defaults](#) for a listing of standard factory settings.

The following features are valid for both STAR and Bluetooth Wireless models:

<b>WIRELESS BEEPER FEATURES</b> starting on page 258	<b>CONFIGURATION UPDATES</b> starting on page 263
• Good Transmission Beep	• Automatic Configuration Update
• Beep Frequency	• Copy Configuration to Scanner
• Beep Duration	• Copy Configuration to Base Station
• Beep Volume	• Automatic Flash Update
• Disconnect Beep	• Request Flash Update
• Base Station Beep	<b>POWERDOWN TIMEOUT</b> starting on page 265
• Leash Alarm	<b>BATCH FEATURES</b> starting on page 267
	• Batch Mode
<b>RF ADDRESS STAMPING</b> starting on page 269	• Send Batch
• Source Radio Address Transmission	• Erase Batch Memory
• Source Radio Address Delimiter Character	• RF Batch Mode Transmit Delay

- **FEATURES FOR STAR MODELS ONLY** starting on page 270
- **BLUETOOTH-ONLY FEATURES** starting on page 277



## WIRELESS 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.

	 Good Transmission Beep = Disable
 Good Transmission Beep = Enable	

### Beeper Frequency

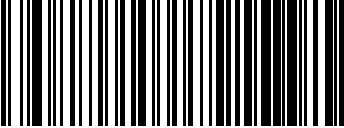
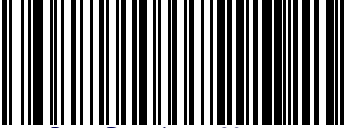

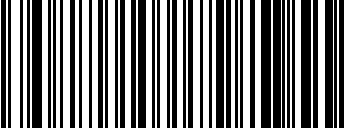
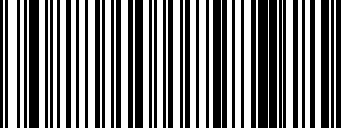
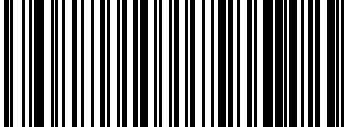
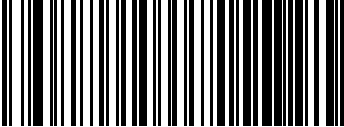
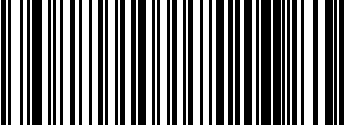
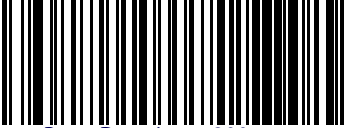
Adjusts radio-specific beep indications to sound at a low, medium or high frequency, selectable from the list below. (Controls the beeper's pitch/tone.)

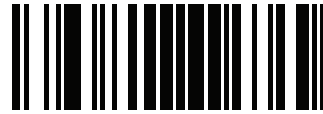
	 Beeper Frequency = Low
 Beeper Frequency = Medium	
	 Beeper Frequency = High



## Beep Duration

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

	 Beep Duration = 60 msec
 Beep Duration = 80 msec	
	 Beep Duration = 100 msec
 Beep Duration = 120 msec	
	 Beep Duration = 140 msec
 Beep Duration = 160 msec	
	 Beep Duration = 180 msec
 Beep Duration = 200 msec	

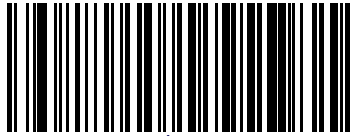


ENTER/EXIT PROGRAMMING MODE

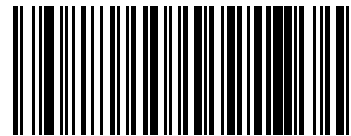
Wireless Beeper Features

### Beep Volume

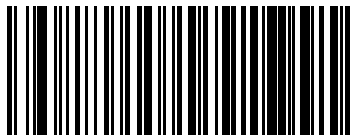
Selects the beeper volume (loudness) of radio-specific beep indications. There are three selectable volume levels.



Beep Volume = Low



Beep Volume = Medium



Beep Volume = High

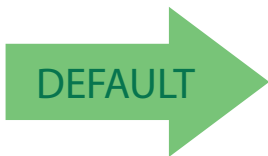


### Disconnect Beep

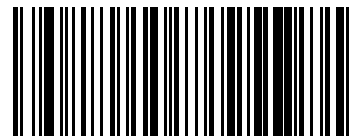
Enables/disables the beep indication that a handheld has become connected or disconnected from a Base Station.



The defaults are different for the STAR and BT models.



GM 4100 STAR default



Disconnect Beep = Disable



Disconnect Beep = Enable


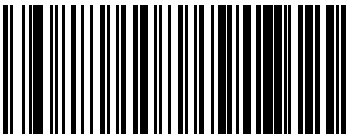



BT default



### Base Station Beep

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

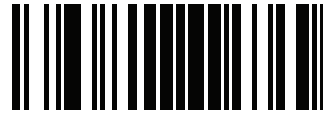
	 <p>BT Base Station Beep = Disable</p>
 <p>BT Base Station Beep = Enable</p>	

### Leash Alarm

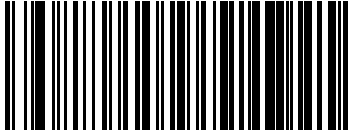
This setting specifies the number of seconds to sound the Leash Mode beeps (three per second) when the handheld goes out of range. This is especially useful in instances where the reader might inadvertently have been placed in a bag or cart.

For this mode to be effective, reader must be linked to the Base Station and [Sleep Mode Timeout on page 94](#) must be disabled. If the reader is asleep or disconnected from the Base Station, there is no way for it to know where it is relative to the Base Station because communication is not active between the devices.

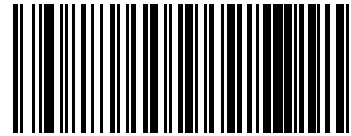
	 <p>Leash Alarm = Disabled</p>
 <p>Leash Alarm = 1 Second</p>	
	 <p>Leash Alarm = 2 Seconds</p>



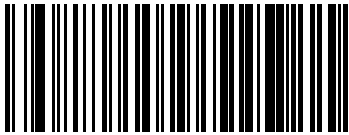
**Leash Alarm — cont.**



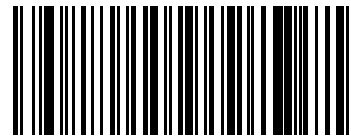
Leash Alarm = 3 Seconds



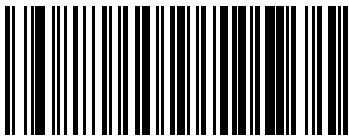
Leash Alarm = 4 Seconds



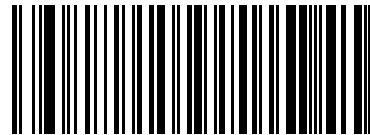
Leash Alarm = 5 Seconds



Leash Alarm = 10 Seconds



Leash Alarm = 25 Seconds



Leash Alarm = 30 Seconds





ENTER/EXIT PROGRAMMING MODE

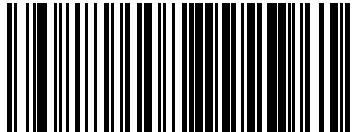
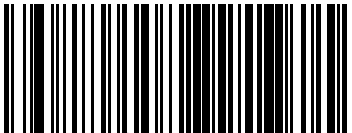
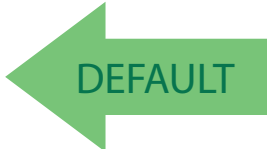
Automatic Configuration Update

## CONFIGURATION UPDATES

See [page 312](#) in “References” for detailed information and examples of these features.

### 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. See [page 312](#) for more information on this feature.

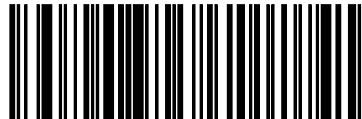
	 Automatic Configuration Update = Disable
 Automatic Configuration Update = Enable	

### Copy Configuration to Scanner

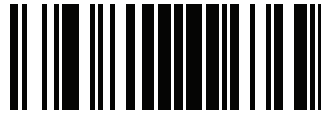
Scan the following label to copy the current Base Station configuration to the scanner. Use this method when the Auto Configuration Update feature is disabled and you want a one-time configuration update to be performed on the scanner.



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

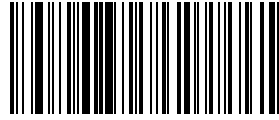


Copy Configuration to Scanner



### 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



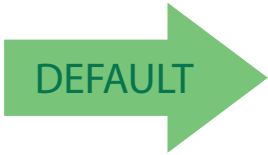
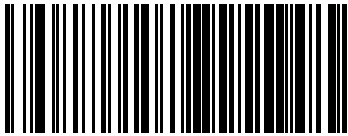
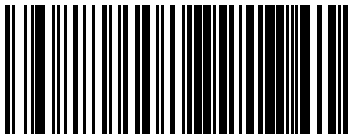
**Do not scan an ENTER/EXIT PROGRAMMING MODE label with this barcode.**

### Automatic Flash Update

This feature enables/disables the automatic flash update of a reader.



**This item is valid only with POS version of Base Station (model 4010).**

	 Automatic Flash Update = Disable
 Automatic Flash Update = Enable	



ENTER/EXIT PROGRAMMING MODE

Request Flash Update

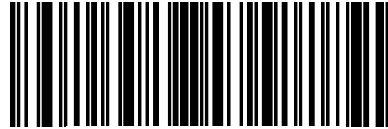
## Request Flash Update

Scan this barcode to request a flash update from a Base Station



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

**NOTE**

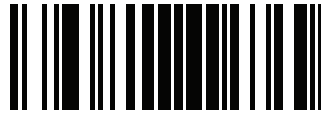


Request Flash Update

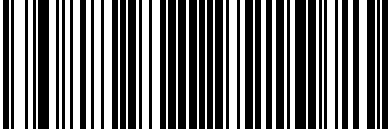

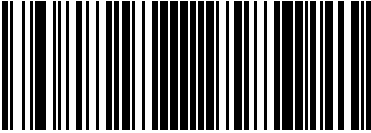
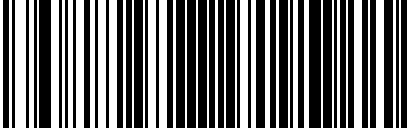
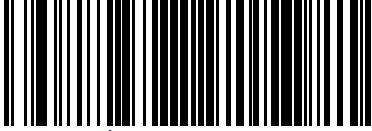

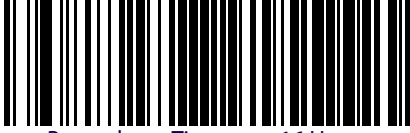
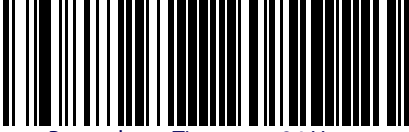
## Powerdown Timeout

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

	 Powerdown Timeout = Disable
 Powerdown Timeout = 10 minutes	
	 Powerdown Timeout = 20 minutes
 Powerdown Timeout = 40 minutes	



**Powerdown Timeout — continued**

 <p>Powerdown Timeout = 60 Minutes (1 Hour)</p>	
	 <p>Powerdown Timeout = 120 Minutes (2 Hours)</p>
 <p>Powerdown Timeout = 4 Hours</p>	
	 <p>Powerdown Timeout = 6 Hours</p>
 <p>Powerdown Timeout = 8 Hours</p>	
	 <p>Powerdown Timeout = 16 Hours</p>
 <p>Powerdown Timeout = 24 Hours</p>	



## 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.
- Automatic — The handheld will store labels to RAM when the handheld goes out of range and is disconnected from the remote device.
- 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 Mode = Disabled
 Batch Mode = Automatic	
	 Batch Mode = Manual

### Send Batch

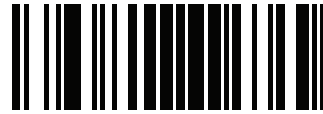
Use this barcode to initiate sending of labels stored in batch memory.



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



Send Batch

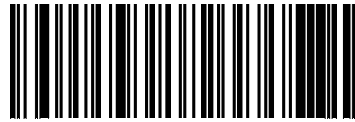


### Erase Batch Memory

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




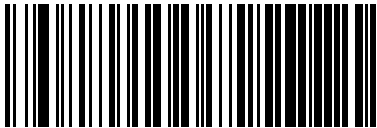

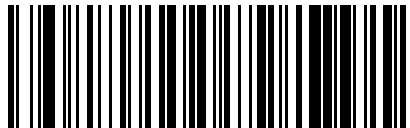
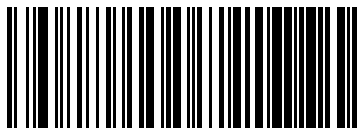
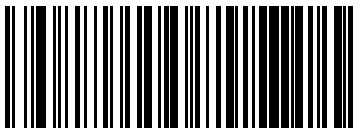
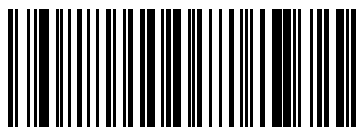
**Do not scan an ENTER/EXIT PROGRAMMING MODE label in conjunction with this barcode.**



Erase Batch Memory

### RF Batch Mode Transmit Delay

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

	 <p>RF Batch Mode Transmit Delay = No Delay</p>
 <p>RF Batch Mode Transmit Delay = 50 mS</p>	
	 <p>RF Batch Mode Transmit Delay = 100 mS</p>
 <p>RF Batch Mode Transmit Delay = 0.5 seconds</p>	
	 <p>RF Batch Mode Transmit Delay = 1 second</p>
 <p>RF Batch Mode Transmit Delay = 2.5 seconds</p>	



### RF ADDRESS STAMPING

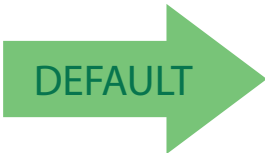
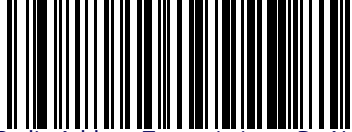
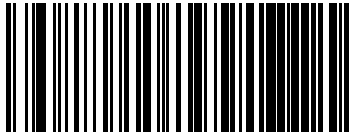
These features allow configuration of source radio data inclusion.

#### 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. See page 312 in "References" for detailed information and examples for setting this feature.



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


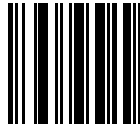
	 Source Radio Address Transmission = Do Not Include
 Source Radio Address Transmission = Prefix	

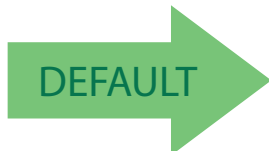
#### Source Radio Address Delimiter Character

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



This feature only applies if "Source Radio Address Transmission" on page 269 is enabled.

 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



00 = No Delimiter Character

## Features for Star Models Only

The features in this section are valid only for the Gryphon I GM4100 Star model:

- [STAR Radio Protocol Timeout](#)
- [STAR Radio Transmit Mode](#)

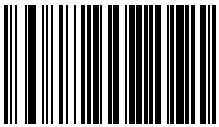

### DISPLAY FEATURES [starting on page 272](#)

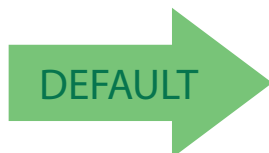
- [Contrast](#)
- [Font Size](#)
- [Backlight](#)
- [Display Mode](#)
- [Display Timeout](#)
- [Keypad Select](#)

### STAR 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. See [page 314](#) in “References” for detailed information and examples for setting this feature.

 <p>Set Radio Protocol Timeout</p>	
<p>Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.</p>	 <p>CANCEL</p>



**02 = 2 Seconds Radio Protocol Timeout**

### STAR Radio Transmit Mode

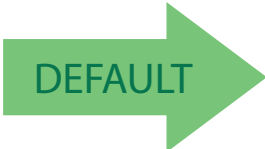
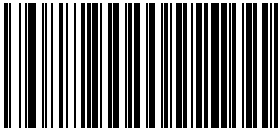
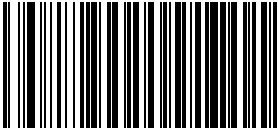
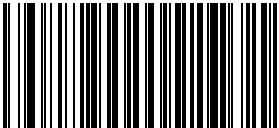
Specifies the transmission protocol for Star communications.





Options are:

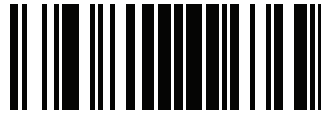
- ACK from cradle to scanner — signals a good transmission as soon as the Base Station receives a label
- ACK when sent to host — scanner signals a good transmission as soon as the Base Station has sent the label to the host
- ACK from host — scanner signals a good transmission as soon as the Base Station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

	 ACK from cradle
 ACK when sent to host	
	 ACK from host



**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.**

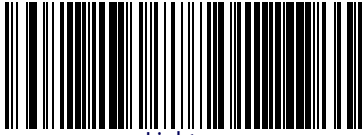
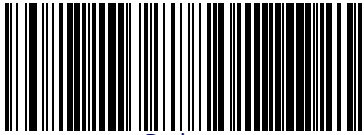
See "Message Formatting" on page 317 for details.



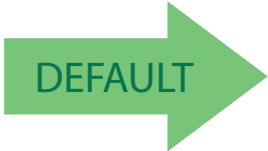
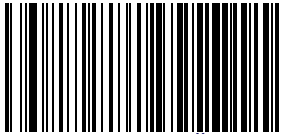
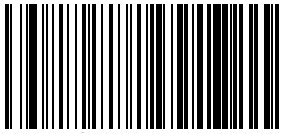
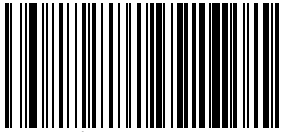
## DISPLAY FEATURES

### Contrast

Read the code until the desired contrast is reached.


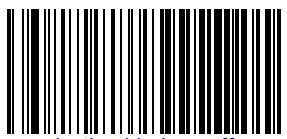
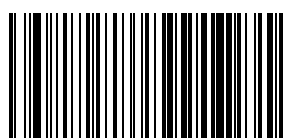
	 <p>Lighter</p>
 <p>Darker</p>	

### Font Size

	 <p>Font size = small</p>
 <p>Font size = Medium</p>	
	 <p>Font size = Large</p>

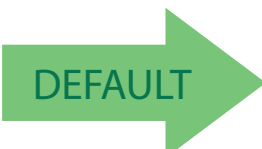
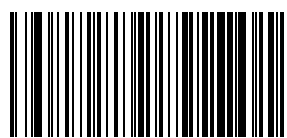
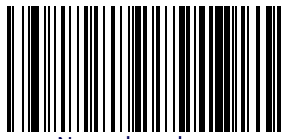


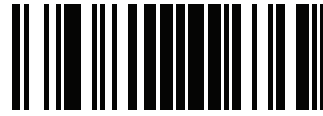
### Backlight

	 Display backlight = off
 Display backlight = on	

### Display Mode

The user can control the reader display behavior according to various selections. See [page 312](#) in “References” for detailed information about each feature.

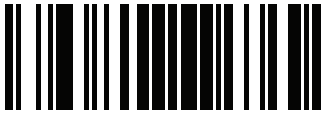
	 Local Echo mode
 Normal mode	
	 Clear display after decode



### 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.

 <p>Display Timeout = Disable</p>	
 <p>Display Timeout = 1 Second</p>	 <p>Display Timeout = 1 Second</p>
 <p>Display Timeout = 2 Seconds</p>	 <p>Display Timeout = 2 Seconds</p>
 <p>Display Timeout = 3 Seconds</p>	 <p>Display Timeout = 3 Seconds</p>
 <p>Display Timeout = 4 Seconds</p>	 <p>Display Timeout = 4 Seconds</p>

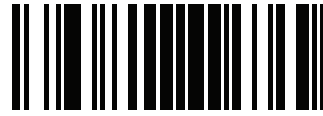


ENTER/EXIT PROGRAMMING MODE

Display Timeout

**Display Timeout - cont.**

	 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.)	



ENTER/EXIT PROGRAMMING MODE

### 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.

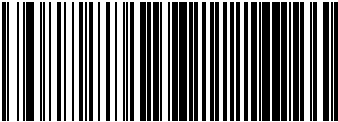
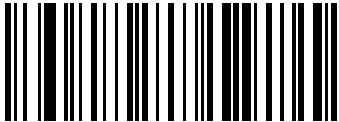

Follow these instructions to set this feature:

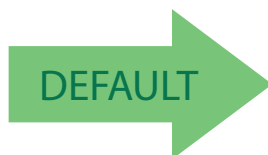
1. Determine the desired setting.
2. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
3. Scan the barcode: DISPLAY KEYPAD SELECT.
4. Then read 3 HEX characters in the range 01-FE from the keypad in Appendix D, Keypad, corresponding to the left, center and right keys respectively.



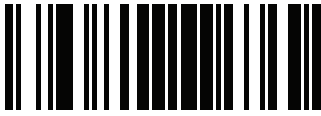
**If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.**

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

	 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



**3C3D3E**



## Bluetooth-Only Features

The features in this section are valid only for Gryphon Bluetooth models. Also reference the Setup section for instructions on [Linking a BT Reader to a PC, starting on page 25](#).

### BT SECURITY FEATURES

- [BT Security Mode](#)
- [BT Pin Code](#)

### OTHER BT FEATURES

- [BT Poll Rate](#)

## BT SECURITY FEATURES

These features enable/disable the BT system to require a configurable pin code to authenticate/connect the BT devices, and encrypt the data.

### BT Security Mode

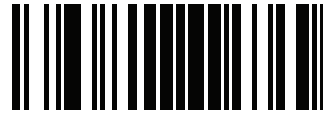
This feature enables/disables authentication and encryption of the BT link. Use the feature "BT Pin Code" on page 278 to specify the pin code used to authenticate the BT Link.



**NOTE**

**Changing the security mode setting will unlink the devices. If the Automatic Configuration Update is set to the default enabled setting, the devices must only be relinked. If the Automatic Configuration Update is set to the disabled setting, the Security Mode setting must also be updated in the Base Station using Aladdin. After the Base Station has been updated the devices must be relinked.**

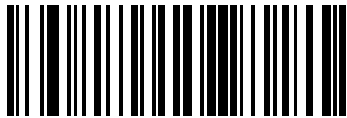
	 BT Security Mode = Disable
 BT Security Mode = Enable	



### BT Pin Code

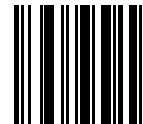
This option specifies the 4-character pin code to be used for authentication of the BT link. "BT Security Mode" on page 277 must first be enabled to require the pin code.

See page 315 for detailed information and examples for setting this feature.

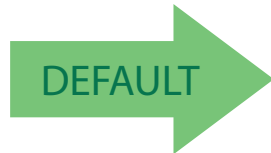


Select BT Pin Code

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



CANCEL



**31323334 = Default Pin Code is 1234**



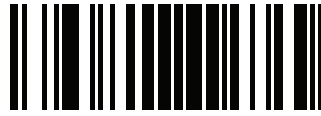


## OTHER BT FEATURES

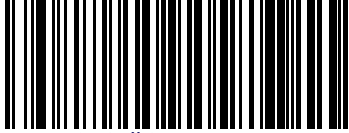
### BT Poll Rate

This feature specifies the time between BT polls.

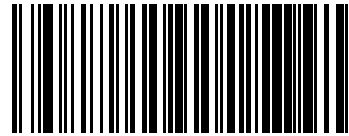
 BT Poll Rate = Maximum BT Poll Rate	
	 BT Poll Rate = 10 ms
 BT Poll Rate = 20 ms	
	 BT Poll Rate = 30 ms
 BT Poll Rate = 50 ms	
	 BT Poll Rate = 100 ms



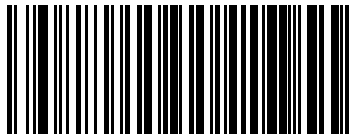
**BT Poll Rate (continued)**



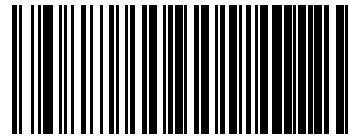
BT Poll Rate = 150 ms



BT Poll Rate = 200 ms



BT Poll Rate = 500 ms



BT Poll Rate = 990 ms

# Chapter 5

## Laser Features

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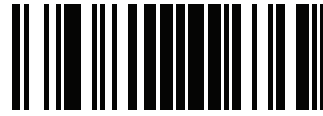
The features in this section are valid for the Gryphon L GD4300 model only.

<b>LASER SCAN ANGLE</b> on page 282
<b>LASER IDLE MODE</b> on page 282
<b>BI-DIRECTIONAL READ DECODING</b> on page 283
<b>ALWAYS ON SCAN MODE TIMEOUT</b> on page 284

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



**For hands-free or stand operations, it is recommended that *Flashing scan mode* be used. See "Scan Mode" on page 101 for programming labels for this feature. For more information, go to [page 308](#) in "References".**



### Laser Scan Angle

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

	Laser Scan Angle = Normal (47 degrees)
Laser Scan Angle = Narrow (35 degrees)	

### Laser Idle Mode

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

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

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

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

	Dither Disable
Dither Enable	

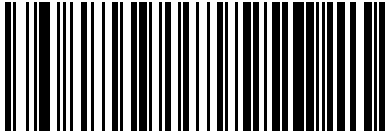


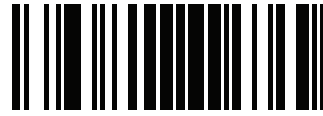
## Bi-Directional Read Decoding

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

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

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

	 Bi-Directional Read Disable
 Bi-Directional Read Enable	



### Always On Scan Mode Timeout

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

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

# Chapter 6

## References

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

### RS-232 Parameters

#### RS-232 Only

##### Baud Rate

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

##### Stop Bits

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

##### Parity

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

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

##### Handshaking Control

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

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

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

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

## RS-232/USB COM Parameters

### Intercharacter Delay

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

To set the delay:

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 10 (setting is in 10ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Go to [page 47](#) and scan the barcode: SELECT INTERCHARACTER DELAY SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 28. Intercharacter Delay Setting Examples**

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



## ACK NAK Options

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

Options are:

- Disable
- Enable for label transmission — The reader expects an ACK/NAK response from the host when a label is sent.
- Enable for host-command acknowledge — The reader will respond with ACK/NAK when the host sends a command.
- Enable for label transmission and host-command acknowledge

## ACK Character

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



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

1. Determine the desired character or value.
2. Use the [ASCII Chart](#) on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Go to [page 50](#) and scan ENTER/EXIT PROGRAMMING MODE to enter Programming Mode.
4. Scan the barcode: SELECT ACK CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in [Appendix D Keypad](#), that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit.

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

**Table 29. ACK Character Setting Examples**

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

## NAK Character

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



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

To set this feature:

1. Determine the desired character or value.
2. Use the [ASCII Chart](#) on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Go to [page 50](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT NAK CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in [Appendix D Keypad](#), that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

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

**Table 30. NAK Character Setting Examples**

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

## ACK NAK Timeout Value

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

To set this value:

1. Determine the desired setting in milliseconds.

2. Divide the desired setting by 200 (setting is in 200ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Go to [page 51](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT ACK NAK TIMEOUT VALUE SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 31. ACK NAK Timeout Value Setting Examples**

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

## ACK NAK Retry Count

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

To set this feature:

1. Determine the desired setting.
2. Pad the number with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Go to [page 51](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT ACK NAK RETRY COUNT SETTING.

5. Scan the appropriate three digits from the keypad in [Appendix D Keypad](#), that represent the number which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 32. ACK NAK Retry Count Setting Examples**

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

## Disable Character

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

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



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

To set the value:

1. Determine the desired character or value. A setting of 0xFF indicates the Disable Character is not used (not available).
2. Use the [ASCII Chart](#) on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Go to [page 53](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT DISABLE CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in [Appendix D Keypad](#), that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

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

**Table 33. Disable Character Setting Examples**

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

## Enable Character

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

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



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

To set this feature:

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

1. Determine the desired character or value.
2. Use the [ASCII Chart](#) on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Go to [page 53](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT ENABLE CHARACTER SETTING.
5. Scan the appropriate two alpha-numeric characters from the keypad in [Appendix D Keypad](#), that represent the desired character/value in step 2 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

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

**Table 34. Enable Character Setting Examples**

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

# Keyboard Interface

## Wedge Quiet Interval

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



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

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 10 (setting is in 10ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Go to [page 61](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Prog. Mode.
4. Scan the barcode: SELECT WEDGE QUIET INTERVAL SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 35. Wedge Quiet Interval Setting Examples**

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

## Intercharacter Delay

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



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

To set the delay:

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 10 (setting is in 10ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Go to [page 62](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT INTERCHARACTER DELAY SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 36. Intercharacter Delay Setting Examples**

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



## Intercode Delay

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

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc
3. Go to [page 63](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT INTERCODE DELAY SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 37. Wedge Intercode Delay Examples**

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

# Symbologies

## Decoding Level

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

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

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

## Set Length

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

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

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

### Set Length 1

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

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

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



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

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

---

## Set Length 2

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

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

Follow these instructions to set this feature:

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



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

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

This completes the procedure.

## Data Editing



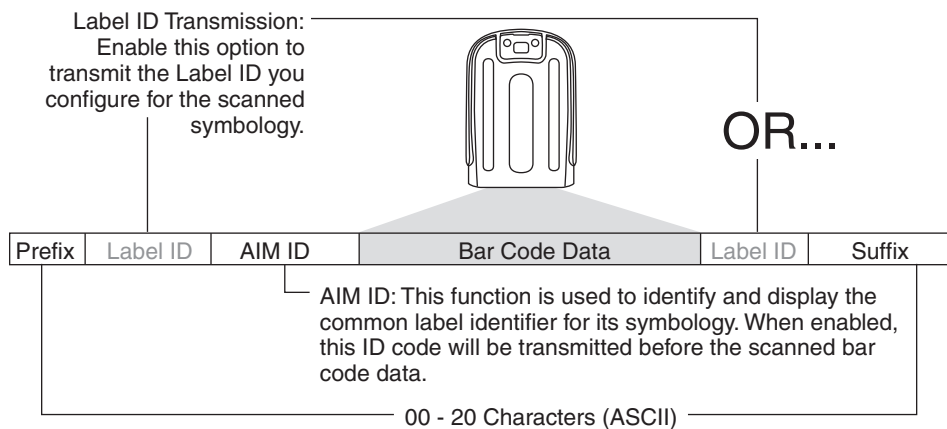
**It is not recommended to use these features with IBM interfaces.**

### CAUTION

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

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

**Figure 16. Breakdown of a Message String**



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

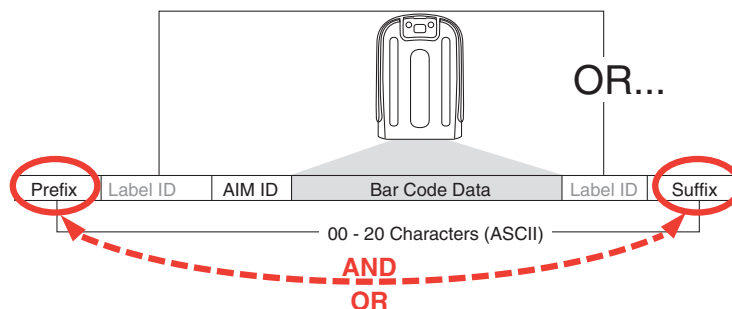
### Please Keep In Mind...

- Modifying a message string is not a mandatory requirement. Data editing is a sophisticated feature allowing highly customizable output for advanced users. Factory default settings for data editing is typically set to NONE.
- A prefix or suffix may be applied only to a specified symbology (reference [Code Selection, starting on page 107](#)) or across all symbologies (set via the Global features in this chapter).
- You can add any character from the [ASCII Chart](#) (from 00-FF) on the inside back cover of this manual as a prefix, suffix or Label ID.
- Enter prefixes and suffixes in the order in which you want them to appear on the output.

## Global Prefix/Suffix

Up to 20 ASCII characters may be added as a prefix (in a position before the barcode data) and/or as a suffix (in a position following the barcode data) as indicated in Figure 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. Go to [page 78](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode.
3. Scan the SET GLOBAL PREFIX barcode.
4. Reference the [ASCII Chart](#) on the inside back cover of this manual to find the hex value assigned to the desired character. The corresponding hex number for the '\$' character is 24. To enter this selection code, scan the '2' and '4' barcodes from [Appendix D Keypad](#).



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

5. If less than the expected string of 20 characters are selected, scan the ENTER/EXIT barcode to terminate the string.
6. Scan the ENTER/EXIT barcode once again to exit Programming Mode.
7. The resulting message string would appear as follows:

Scanned barcode data: **12345**

Resulting message string output: **\$12345**

## Global AIM ID



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

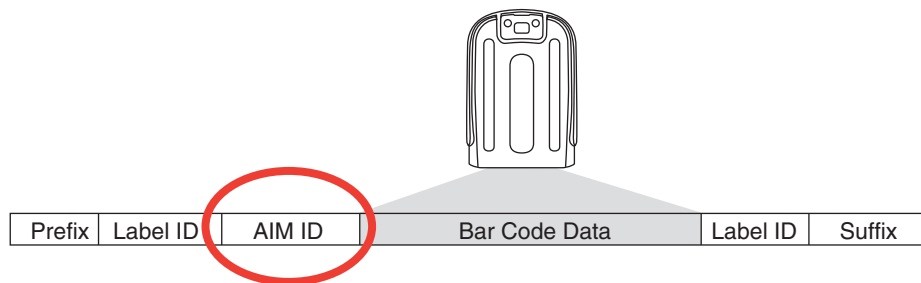
AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned barcode data. AIM label identifiers consist of three characters as follows:

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

SYMBOLGY	CHAR	SYMBOLGY	CHAR
UPC/EAN	E <sup>a</sup>	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 <sup>b</sup>
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**



## 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 303). If you wish to program the reader to always include an industry standard label identifier for ALL symbology types, see "Global AIM ID" on page 79.

### Label ID: Pre-loaded Sets

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



#### CAUTION

**When changing from one Label ID set to another, all other reader configuration settings, including the host interface type, will be erased and set to the standard factory defaults. Any custom configuration or custom defaults will be lost.**

**Table 38. Label ID Pre-loaded Sets**

Symbology	USA Label ID set		EU Label ID set	
	ASCII character	Hexidecimal value	ASCII character	Hexidecimal value
ABC Codabar	S	530000	S	530000
Anker Plessey	o	6F0000	o	6F0000
CODABAR	%	250000	R	520000
Codablock F	l	6C0000	m	6D0000
CODE11	CE	434500	b	620000
CODE128	#	230000	T	540000
CODE32	A	410000	X	580000
CODE39	*	2A0000	V	560000
CODE39 CIP	Y	590000	Y	590000
CODE4	4	340000	4	340000
CODE5	j	6A0000	j	6A0000
CODE93	&	260000	U	550000
DATALOGIC 20F5	s	730000	s	730000
EAN13	F	460000	B	420000
EAN13 P2	F	460000	L	4C0000
EAN13 P5	F	460000	M	4D0000
EAN13 P8	F	460000	#	230000

### Label ID Pre-Loaded Sets (continued)

Symbology	USA Label ID set		EU Label ID set	
	ASCII character	Hexidecimal value	ASCII character	Hexidecimal value
EAN8	FF	464600	A	410000
EAN8 P2	FF	464600	J	4A0000
EAN8 P5	FF	464600	K	4B0000
EAN8 P8	FF	464600	*	2A0000
FOLLETT 20F5	O	4F0000	O	4F0000
GS1 DATABAR EXPANDED	RX	525800	t	740000
GS1 DATABAR LIMITED	RL	524C00	v	760000
GS1 DATABAR OMNIDIRECTIONAL	R4	523400	u	750000
GS1-128		000000	k	6B0000
GTIN	G	470000	\$A	244100
GTIN2	G2	473200	\$B	244200
GTIN5	G5	473500	\$C	244300
GTIN8	G8	473800	\$D	244400
IATA	IA	494100	&	260000
Industrial 2 of 5	W	570000	W	570000
Interleaved 2 of 5	i	690000	N	4E0000
Interleaved 2 of 5 CIP HR	e	650000	e	650000
ISBN	l	490000	@	400000
ISBT128	f	660000	f	660000
ISSN	n	6E0000	n	6E0000
MSI	@	400000	Z	5A0000
Plessey	a	610000	a	610000
S25	s	730000	P	500000
UPCA	A	410000	C	430000
UPCA P2	A	410000	F	460000
UPCA P5	A	410000	G	470000
UPCA P8	A	410000	Q	510000



## Label ID: Set Individually Per Symbology

To configure a Label ID individually for a single symbology:

1. Go to [page 81](#) and scan the ENTER/EXIT barcode.
2. Select Label ID position as either BEFORE (Enable as Prefix) or AFTER (Enable as suffix) by scanning the appropriate barcode in the section "Label ID Control" on [page 82](#). 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" on [page 83](#).
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 345](#) and scan the barcodes representing the hex characters determined. For the example given, the characters '3' and 'D' would be scanned. More examples of Label ID settings are provided in [Table 39](#).

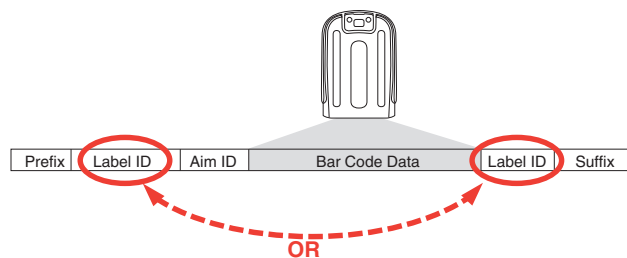


**If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.**

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

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

**Figure 19. Label ID Position Options**



**Table 39. Label ID Examples**

STEP	ACTION	EXAMPLES			
1.	Scan the ENTER/EXIT barcode	(Scanner enters Programming Mode)			
2.	<p>Determine placement of the Label ID characters BEFORE or AFTER with regard to scanned data using Label ID Control, starting on page 82</p>	Enable as Prefix	Enable as Suffix	Enable as Prefix	Enable as Suffix
3.	<p>Scan the barcode selecting the symbology type you wish to designate label ID characters for using Label ID Symbology Selection, starting on page 83.</p>	DataBar Omnidirectional	Code 39	Interleaved 2 of 5	Code 32
4.	<p>Custom Label ID example (desired characters):</p>	D B *	= C 3	+	P H
5.	<p>Find hex equivalents from the ASCII Chart (inside back cover), then scan in these digits/characters using the barcodes in the section: Keypad, starting on page 345. 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.</p>	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)			
<b>Result:</b>		DB*[barcode data]	[barcode data]=C3	+[barcode data]	[barcode data]PH

## Character Conversion

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

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

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

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

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

To set Character Conversion:

1. Go to [page 90](#) and scan the ENTER/EXIT barcode.
2. Scan the “Configure Character Conversion” barcode.
3. Determine the desired string. Sixteen positions must be determined as in the above example. Next, turn to the [ASCII Chart](#) on the inside back cover of this manual and find the equivalent hex digits needed to fulfill the string.
4. Turn to [Appendix D Keypad](#) and scan the barcodes representing the hex characters determined in the previous step.
5. Scan the ENTER/EXIT barcode to exit Programming Mode.



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

## Reading Parameters

### Label Gone Timeout

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

Follow these instructions to set this feature:

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 10 (setting is in 10ms increments). Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Go to [page 93](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT LABEL GONE TIMEOUT SETTING.
5. Scan the appropriate three alpha-numeric characters from the keypad in [Appendix D Keypad](#) representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 40. Timeout Setting Examples**

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

## Good Read LED Duration

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

Follow these instructions to set this feature:

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



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

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

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

**Table 41. Good Read LED Duration Setting Examples**

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

# Scanning Features

## Scan Mode

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

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

- [Scanning Active Time](#) has elapsed
- a label has been read
- the trigger is released

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

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

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



**Flashing is the recommended scan mode for Gryphon L hands-free (stand mode) of operation**

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

The following two features are valid only for the Gryphon I (desk and mobile), but not the Gryphon Laser model. See "[Laser Features](#)" on page 281 for specific parameters for the Laser model.

**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 is in single read mode. [Double Read Timeout](#) 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](#).

## Scanning Active Time

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

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Go to [page 104](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT SCANNING ACTIVE TIME SETTING.
5. Scan the appropriate three digits from the keypad in [Appendix D Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 42. Scanning Active Time Setting Examples**

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

## Flash On Time

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

Follow these instructions to set this feature.

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 100 (setting is in 100ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Go to [page 105](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT FLASH ON TIME SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D Keypad](#) representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 43. Flash On Time Setting Examples**

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



## Flash Off Time

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

Follow these instructions to set this feature.

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 100 (setting is in 100ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Go to [page 105](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT FLASH OFF TIME SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 44. Flash Off Time Setting Examples**

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

## Display Settings

### 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.

## RF Features

### Configuration Update

#### Automatic Configuration Update

When this feature is enabled, the base station and reader will keep their configurations synchronized. If a reader's configuration is altered by reading programming labels, this change is automatically transferred and updated in a linked base station. Likewise, if the base station's configuration is changed using Aladdin or by host commands, then the reader's configuration will automatically be updated if this feature is enabled.

### RF Address Stamping

#### 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.



**This feature only applies if "Source Radio Address Transmission" on page 269 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. Go to [page 269](#) and 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 D Keypad](#), that represent the hexadecimal characters which were determined in the steps above. You will hear a two-beep indication after the last character.



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

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

This completes the procedure. See [Table 45](#) for some examples of how to set this feature.

**Table 45. Source Radio Address Delimiter Character Setting Examples**

STEP	ACTION	EXAMPLES			
1	<b>Desired Setting</b>	No delimiter character	, (comma)	- (dash)	/ (slash)
2	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				
3	<b>Scan SET SOURCE RADIO ADDRESS DELIMITER CHARACTER</b>				
4	<b>Scan Two Characters From <a href="#">Appendix D Keypad</a></b>	'0' and '0'	'2' and 'C'	'2' and 'D'	'2' AND 'F'
5	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				

## STAR 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. Go to [page 270](#) and 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 D Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 46. Wedge Intercode Delay Examples**

STEP	ACTION	EXAMPLES			
1	<b>Desired Setting</b>	2 Seconds	5 Seconds	10 Seconds	25 Seconds
2	<b>Pad with leading zero(es)</b>	02	05	10	25
3	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				
4	<b>Scan SELECT INTERCODE DELAY SETTING</b>				
5	<b>Scan Two Characters From <a href="#">Appendix D Keypad</a></b>	'0' and '2'	'0' and '5'	'1' and '0'	'2' AND '5'
6	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				

## BT-Only Features

### BT Pin Code

This option specifies the 4-character pin code to be used for authentication of the BT link. "BT Security Mode" on page 277 must first be enabled to require the pin code.

To set the pin code:

1. Determine the desired characters. For example, D254.
2. Convert the characters to hexadecimal using the [ASCII Chart](#) on the inside back cover of this manual. In the case of the example, the hexadecimal equivalents would be:  
D = 0x44, 2 = 0x32, 5 = 0x35, and 4 = 0x34
3. Go to [page 278](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
4. Scan the barcode: SELECT BT PIN CODE.
5. Scan the appropriate alpha-numeric characters from the keypad in [Appendix D Keypad](#), representing the hexadecimal entries which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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



**Changing the pin code setting will unlink the devices. If the Automatic Configuration Update is set to the default enabled setting, the devices must only be relinked. If the Automatic Configuration Update is set to the disabled setting, the Pin Code setting must also be updated in the Base Station using Aladdin. After the Base Station has been updated, the devices must be relinked.**

This completes the procedure. See [Table 47](#) for examples of how to set this feature.

**Table 47. BT Pin Code Setting Examples**

STEP	ACTION	EXAMPLES			
1	Desired Setting	1234	D254	1359	STOR
2	Convert the characters to hexadecimal	31 32 33 34	44 32 35 34	31 33 35 39	53 54 4F 52
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT LABEL GONE TIMEOUT SETTING				
5	Scan the Eight Alpha-Numeric Characters From <a href="#">Appendix D Keypad</a>	31323334	44323534	31333539	53544F52
6	Scan ENTER/EXIT PROGRAMMING MODE				

# NOTES

# Chapter 7

## Message Formatting

### Message Formatting



**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 Wireless Beeper Features on page 258).

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

<b>ESC [ n A</b>	Up <b>n</b> rows, no scroll
<b>ESC [ n B</b>	Down <b>n</b> rows, no scroll
<b>ESC [ n C</b>	Right <b>n</b> columns
<b>ESC [ n D</b>	Left <b>n</b> columns
<b>ESC [ G</b>	CR
<b>ESC [ r ; c H</b>	Move to row <b>r</b> , column <b>c</b> (ESC[1;1H is the upper left character position of the display)
<b>ESC D</b>	Down 1 row, with scroll
<b>ESC E</b>	CR and cursor down 1 row with scroll
<b>ESC M</b>	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

<b>ESC [ 0 m</b>	Normal mode
<b>ESC [ 7 m</b>	Reverse mode
<b>ESC # 4</b>	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.
<b>ESC # 5</b>	Normal font: subsequent characters are written using the 6x8 font, which allows for four rows of sixteen characters on the display.
<b>ESC # 7</b>	Medium font: subsequent characters are written using the 8x8 font, which allows for 4 rows of 12 characters on the display.



## Clearing Display

<code>ESC [ 0 K</code>	From cursor position to end of line inclusive
<code>ESC [ 1 K</code>	From beginning of line to cursor position (not inclusive)
<code>ESC [ 2 K</code>	Entire line
<code>ESC [ 0 J</code>	From cursor position to end of display inclusive
<code>ESC [ 1 J</code>	From beginning of display to cursor position (not inclusive)
<code>ESC [ 2 J</code>	Entire display; moves cursor to upper left corner on display

## LED and Beeper Control

<code>ESC [ 0 q</code>	Emit short High tone + short delay
<code>ESC [ 1 q</code>	Emit short Low tone + short delay
<code>ESC [ 2 q</code>	Emit long Low tone + short delay
<code>ESC [ 3 q</code>	Emit good read tone
<code>ESC [ 4 q</code>	Emit bad tx tone
<code>ESC [ 5 q</code>	Wait 100 ms
<code>ESC [ 6 q</code>	Turn on the green LED
<code>ESC [ 7 q</code>	Turn off the green LED
<code>ESC [ 8 q</code>	Turn on the green spot
<code>ESC [ 9 q</code>	Turn off the green spot
<code>ESC [ 0 r</code>	Beep for Find me function (new)
<code>ESC [ 1 r</code>	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:

<code>ESC [ 6 q ESC [ 3 q ESC [ 7 q</code>	Turns on the green LED, emits a good read tone, and turns off the green LED.
<code>ESC [ 6 q ESC [ 5 q ESC [ 7 q</code>	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 48 contains Physical and Performance Characteristics, User Environment and Regulatory information. Table 49 provides Standard Cable Pinouts.

**Table 48. Technical Specifications**

Item	Description	
<b>Physical Characteristics</b>		
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/GD4300 : Approximately 6.0 ounces/169 g GM4100/GBT4100: Approximately 8.7 ounces/246 g BC40x0: Approximately 8.7 ounces/246 g BC40x0-CF: Approximately 10.1 ounces/290 g	
<b>Electrical Characteristics</b>		
Voltage & Current	<p><b>GD4130 model:</b> 5V±5% Input range. 1.9W max. 360 mA (max) at 5V 2.5 mA RS-232 sleep mode/ USB suspend</p> <p><b>GD4110 model:</b> 4.5÷14V Input range. Power 1.8W max. 340 mA (max) at 5V. 2.5 mA (RS-232 sleep mode / USB suspend)</p> <p><b>BC40x0 base:</b> 4.75-14V; Input range. Power 8W max<sup>a</sup>; I<sub>max</sub> 500mA when in host/bus powered mode<sup>a</sup>.</p>	<p><b>GD4330 model:</b> Input current at 5V±5% = 260 mA (max) 2.5 mA (USB suspend) Standby (typical) ≤ 30mA</p> <p><b>GD4310 model:</b> Input Power = 1.2W max in the 4.5÷14V range 2.5 mA (USB suspend) Standby (typical): 30mA @5V (90mA @5V for IBM46xx)</p> <p><b>BC40x0-CF base:</b> 10-14V; Input range. Power 8W max<sup>a</sup>; I<sub>max</sub> 800mA .</p>
Battery Type	Li-Ion battery pack	
Charge time for full charge from full discharge	4 hours with external power supply adapter <sup>b</sup>	
	Max 22h hours with Host power (In this case no supply adapter is needed) <sup>b</sup>	

## Technical Specifications

Item	Description	
Operating autonomy (continuous reading)	GM4100: 50,000 reads (typical) GBT4100: 30,000 reads (typical)	
<b>Performance Characteristics</b>	<b>GD41x0 model:</b>	<b>GD43x0 model:</b>
Light Source	Dual LEDs	650nm Class 2 Laser
Roll (Tilt) Tolerance	± 35° from normal	
Pitch Tolerance	GD 41x0/GM4100/GBT4100: ± 65° GD4300: ± 50°	
Skew (Yaw) Tolerance	± 65°	
Field of View	10" (25.4cm) wide at 12.5" (31.8cm) from the reader	Scan Angle: 47° (normal) or 35° (narrow)
Depth of Field (Typical) <sup>c</sup> (	3 mil – 2.9" to 4.7" (7.5cm to 12cm) 13 mil <sup>c</sup> – 1.2" to 23.6" (3cm to 60cm) 20 mil – 1.2" to 31.5" (3cm to 80cm)	5 mil - 1.4" to 6.22" (3,6cm to 15,8cm) 13 mil <sup>c</sup> – 0.87" to 18.7" (2,2cm to 47,5cm) 20 mil – up to 27.1" (to 69cm)
Minimum Element Width	3 mil	4 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 <sup>d</sup>	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.	
<b>User Environment</b>		
Operating Temperature	GD 41x0: 32° to 131° F (0° to 55° C) GM4100/GBT4100/GD4300: 32° to 122° F (0° to 50° C)	
Charging Temperature	32° to 104° F (0° to 40° C)	
Storage Temperature	-4° to 158° F (-20° to 70° C)	
Humidity	Operating: 5% to 90% relative humidity, non-condensing	
Drop Specifications	18 drops from 1.8 meters (5.9 feet) to concrete	
Ambient Light Immunity	Up to 100,000 Lux	
Contaminants Spray/Rain/ Dust/Particulates	IP52	
ESD Level	16 KV	

Item	Description
<b>Regulatory</b>	
Electrical Safety	See the Quick Reference Guide for each specific product for details.
EMI/RFI	
Laser Safety	
LED class safety	

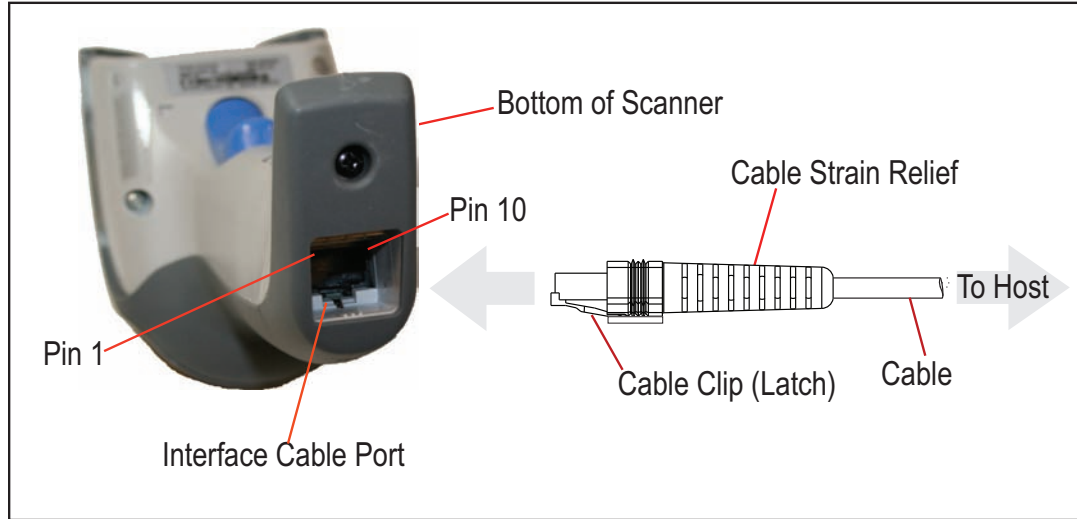
- a. Typical input current measured under factory default configuration.
- b. Charge Times are much lower when battery is within daily typical operating condition.
- c. 13 mils DOF based on EAN. All others are Code 39. All labels grade A, typical environmental light, 20°C, label inclination 10°
- d. See "Interface Selection" on page 28 for a listing of available interface sets by model type.

Radio Features	Model		
	433MHz model	910 Mhz	BT
Working Center Frequency	433.920 MHz	910.000 MHz	2400 to 2483.5 MHz
Range (in open air)	30 m	15 m	30 m
Max. number of devices per base station	16	16	1

## Standard Cable Pinouts

Figure 20 and Table 49 provide standard pinout information for the Base Station’s interface cable.

**Figure 20. Standard Cable Pinouts**



The signal descriptions in Table 49 apply to the connector on the reader and are for reference only.

**Table 49. Standard Cable Pinouts — Reader Side**

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

## LED and Beeper Indications

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

**Table 50. 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 " <a href="#">Good Read: When to Indicate</a> "	The reader will beep once at current frequency, volume, mono/bi-tonal setting and duration upon a successful label scan.
ROM Failure	There is an error in the reader's software/programming	Flashes	Reader sounds one error beep at highest volume.
Limited Scanning Label Read	Indicates that a host connection is not established when the IBM or USB interface is enabled.	N/A	Reader 'chirps' six times at the highest frequency and current volume.
Reader Active Mode	The reader is active and ready to scan.	The LED is lit steadily <sup>a</sup>	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 <sup>a</sup> 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 51. 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 charging in progress	Red LED on
Battery charging 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 B

## Standard Defaults

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

**Table 52. Standard Defaults**

Parameter	Default	Your Setting	Page Number
<b>GLOBAL INTERFACE FEATURES</b>			
Host Commands — Obey/Ignore			39
USB Suspend Mode			39
<b>RS-232 ONLY</b>			
Baud Rate	9600		42
Data Bits	8 Data Bits		43
Stop Bits	1 Stop Bit		43
Parity	None		44
Handshaking Control	Disable		45
<b>RS-232/USB-COM</b>			
Intercharacter Delay	No Delay		47
Beep On ASCII BEL	Disable		47
Beep On Not on File	Enable		48
ACK Character	‘ACK’		50
NAK Character	‘NAK’		50
ACK NAK Timeout Value	600 ms		51
ACK NAK Retry Count	3 Retries		51

Parameter	Default	Your Setting	Page Number
ACK NAK Error Handling	Ignore Errors Detected		52
Indicate Transmission Failure	Enable		52
Disable Character	'D'		53
Enable Character	'E'		53
<b>KEYBOARD WEDGE</b>			
Country Mode	U.S. Keyboard		56
Caps Lock State	Caps Lock OFF		58
Numlock	Numlock Key Unchanged		59
Send Control Characters	Disable		60
Wedge Quiet Interval	100 ms		61
Intercharacter Delay	No Delay		62
Intercode Delay	100 ms		63
USB Keyboard Speed	1 ms		64
<b>USB-OEM</b>			
USB-OEM Device Usage	Handheld Scanner		68
Interface Options	Ignore Host Configuration Commands		68
<b>IBM 46xx</b>			
46xx Number of Host Resets	6		70
Transmit Labels in Code 39 Format	IBM Standard Format		72
Interface Options	Ignore Scanner Configuration Host Commands		72
<b>WAND EMULATION</b>			
Wand Signal Speed	660 ms		74
Wand Polarity	Quiet Zones & Spaces High, Bars Low		74
Wand Idle State	High		75
Transmit Noise	Disable		75
Label Symbology Conversion	No conversion		76
<b>DATA FORMAT</b>			
Global Prefix/Suffix	No Global Prefix Global Suffix = 0x0D (CR)		78

Parameter	Default	Your Setting	Page Number
Global AIM ID	Disable		79
GS1-128 AIM ID	Enable		80
Label ID: Pre-loaded Sets	USA Set		81
Label ID Control	Disable		82
Set Global Mid Label ID Characters	No Mid Label ID Character		89
Case Conversion	Disable		90
Character Conversion	No Char Conversion		90
<b>READING PARAMETERS</b>			
Double Read Timeout	0.4 Second		91
Label Gone Timeout	160 ms		93
Sleep Mode Timeout	Disable		94
Power On Alert	4 Beeps		96
Good Read: When to Indicate	After Decode		96
Good Read Beep Type	Mono		97
Good Read Beep Frequency	Medium		97
Good Read Beep Length	80 ms		98
Good Read Beep Volume	High		99
Good Read LED Duration	LED on until next trigger pull		100
Scan Mode	Trigger Single		101
Stand Mode Triggered Timeout	0.5 second		102
Stand Detection	Switch to Stand mode		103
Stand Mode Sensitivity	Medium		104
Scanning Active Time	5 Seconds		104
Flash On Time	1 Second		105
Flash Off Time	600 ms		105
Green Spot Duration	300 ms		106
<b>CODE SELECTION</b>			
Coupon Control	Enable UPCA coupon decoding		109
<b>UPC-A</b>			
UPC-A Enable/Disable	Enable		110

Parameter	Default	Your Setting	Page Number
UPC-A Check Character Transmission	Enable		110
Expand UPC-A to EAN-13	Don't Expand		111
UPC-A Number System Character Transmission	Transmit		111
UPC-A Minimum Reads	1		112
<b>UPC-E</b>			
UPC-E Enable/Disable	Enable		113
UPC-E Check Character Transmission	Send		113
Expand UPC-E to EAN-13	Don't Expand		114
Expand UPC-E to UPC-A	Don't Expand		114
UPC-E Number System Character Transmission	Transmit		115
UPC-E Minimum Reads	2		115
<b>GTIN</b>			
GTIN Formatting	Disable		116
<b>EAN 13 (Jan 13)</b>			
EAN 13 Enable/Disable	Enable		117
EAN 13 Check Character Transmission	Send		117
EAN-13 Flag 1 Character	Transmit		118
EAN-13 ISBN Conversion	Disable		118
EAN 13 Minimum Reads	1		119
<b>ISSN</b>			
ISSN Enable/Disable	Disable		120
<b>EAN 8</b>			
EAN 8 Enable/Disable	Enable		121
EAN 8 Check Character Transmission	Send		121
Expand EAN 8 to EAN 13	Disable		122
EAN 8 Minimum Reads	1		122
<b>UPC/EAN Global Settings</b>			
UPC/EAN Decoding Level	3		123
UPC/EAN Correlation	Disable		124
UPC/EAN Price Weight Check	Disable		124
In-Store Minimum Reads	2		125

Parameter	Default	Your Setting	Page Number
<b>Add-Ons</b>			
Optional Add-ons	Disable P2, P5 and P8		126
Optional Add-On Timer	70 ms		127
Optional GS1-128 Add-On Timer	Disable		130
P2 Add-Ons Minimum Reads	2		133
P5 Add-Ons Minimum Reads	1		134
GS1-128 Add-Ons Minimum Reads	1		135
<b>Code 39</b>			
Code 39 Enable/Disable	Enable		136
Code 39 Check Character Calculation	Calculate		136
Code 39 Check Character Transmission	Send		137
Code 39 Start/Stop Character Transmission	Don't Transmit		138
Code 39 Full ASCII	Disable		138
Code 39 Quiet Zones	Auto		139
Code 39 Minimum Reads	2		140
Code 39 Decoding Level	3		141
Code 39 Length Control	Variable		142
Code 39 Set Length 1	2		143
Code 39 Set Length 2	50		144
Code 39 Interdigit Ratio	4		145
Code 39 Character Correlation	Disable		147
Code 39 Stitching	Enable		147
<b>Code 32 (Italian Pharmaceutical Code)</b>			
Code 32 Enable/Disable	Disable		148
Code 32 Feature Setting Exceptions	N/A		148
Code 32 Check Char Transmission	Don't Send		149
Code 32 Start/Stop Character Transmission	Don't Transmit		149
<b>Code 39 CIP (French Pharmaceutical Code)</b>			
Code 39 CIP Enable/Disable	Disable		148
<b>Code 128</b>			
Code 128 Enable/Disable	Enable		151

Parameter	Default	Your Setting	Page Number
Expand Code 128 to Code 39	Don't Expand		151
Code 128 Check Character Transmission	Send		152
Code 128 Function Character Transmission	Don't Send		152
Code 128 Sub-Code Change Transmission	Disable		153
Code 128 Quiet Zones	Auto		154
Code 128 Minimum Reads	1		155
Code 128 Decoding Level	3		156
Code 128 Length Control	Variable		157
Code 128 Set Length 1	1		158
Code 128 Set Length 2	80		159
Code 128 Character Correlation	Disable		160
Code 128 Stitching	Enable		160
<b>GS1-128</b>			
GS1-128 Enable	Transmit in Code 128 Data Format		161
<b>ISBT 128</b>			
ISBT 128 Concatenation	Disable		162
ISBT 128 Force Concatenation	Disable		162
ISBT 128 Concatenation Mode	Static		163
ISBT 128 Dynamic Concatenation Timeout	200 msec		164
ISBT 128 Advanced Concatenation Options	Disable		164
<b>Codablock F</b>			
Codablock F Enable/Disable	Disable		165
Codablock F EAN Enable/Disable	Disable		165
Codablock F AIM Check	Enable check C		166
Codablock F Length Control	Variable		166
Codablock F Set Length 1	3 characters		167
Codablock F Set Length 2	100 characters		168
<b>Interleaved 2 of 5</b>			
I 2 of 5 Enable/Disable	Enable		169
I 2 of 5 Check Character Calculation	Disable		169
I 2 of 5 Check Character Transmission	Send		170



Parameter	Default	Your Setting	Page Number
1 2 of 5 Minimum Reads	2		192
2 of 5 Decoding Level	3		192
1 2 of 5 Length Control	Variable		173
1 2 of 5 Set Length 1	12		174
1 2 of 5 Set Length 2	100		175
1 2 of 5 Character Correlation	Disable		176
1 2 of 5 Stitching	Disable		176
<b>Follett 2 of 5</b>			
Follett 2 of 5 Enable/Disable	Disable		177
<b>Interleaved 2 of 5 CIP HR</b>			
Interleaved 2 of 5 CIP HR Enable/Disable	Disable		177
<b>Standard 2 of 5</b>			
Standard 2 of 5 Enable/Disable	Disable		178
Standard 2 of 5 Check Character Calculation	Disable		178
Standard 2 of 5 Check Character Transmission	Send		179
Standard 2 of 5 Minimum Reads	2		179
Standard 2 of 5 Decoding Level	3		180
Standard 2 of 5 Length Control	Variable		180
Standard 2 of 5 Set Length 1	8		181
Standard 2 of 5 Set Length 2	50		182
Standard 2 of 5 Character Correlation	Disable		183
Standard 2 of 5 Stitching	Disable		183
<b>Industrial 2 of 5</b>			
Industrial 2 of 5 Enable/Disable	Disable		184
Industrial 2 of 5 Check Character Calculation	Disable		184
Industrial 2 of 5 Check Character Transmission	Enable		185
Industrial 2 of 5 Length Control	Variable		185
Industrial 2 of 5 Set Length 1	1		186
Industrial 2 of 5 Set Length 2	50		187
Industrial 2 of 5 Minimum Reads	1		188
Industrial 2 of 5 Stitching	Disable		188

## Standard Defaults

Parameter	Default	Your Setting	Page Number
Industrial 2 of 5 Character Correlation	Disable		189
<b>Code IATA</b>			
IATA Enable/Disable	Disable		190
IATA Check Character Transmission	Enable		190
<b>Datalogic 2 of 5</b>			
Datalogic 2 of 5 Enable/Disable	Disable		191
Datalogic 2 of 5 Check Character Calculation	Disable		191
Datalogic 2 of 5 Minimum Reads	2		192
Datalogic 2 of 5 Decoding Level	3		192
Datalogic 2 of 5 Length Control	Variable		193
Datalogic 2 of 5 Set Length 1	6 characters		194
Datalogic 2 of 5 Set Length 2	50		195
Datalogic 2 of 5 Character Correlation	Disable		196
Datalogic 2 of 5 Stitching	Disable		196
<b>Codabar</b>			
Codabar Enable/Disable	Disable		197
Codabar Check Character Calculation	Don't Calculate		197
Codabar Check Character Transmission	Send		198
Codabar Start/Stop Character Transmission	Transmit		198
Codabar Start/Stop Character Set	abcd/abcd		199
Codabar Start/Stop Character Match	Don't Require Match		199
Codabar Quiet Zones	Auto		200
Codabar Minimum Reads	2		201
Codabar Decoding Level	3		202
Codabar Length Control	Variable		202
Codabar Set Length 1	3		204
Codabar Set Length 2	50		205
Codabar Interdigit Ratio	4		206
Codabar Character Correlation	Disable		208
Codabar Stitching	Disable		208

Parameter	Default	Your Setting	Page Number
<b>ABC Codabar</b>			
ABC Codabar Enable/Disable	Disable		209
ABC Codabar Concatenation Mode	Static		209
ABC Codabar Dynamic Concatenation Timeout	200 msec		210
ABC Codabar Force Concatenation	Disable		211
<b>Code 11</b>			
Code 11 Enable/Disable	Disable		212
Code 11 Check Character Calculation	Check C and K		212
Code 11 Check Character Transmission	Send		213
Code 11 Minimum Reads	2		213
Code 11 Length Control	Variable		214
Code 11 Set Length 1	4		215
Code 11 Set Length 2	50		216
Code 11 Interdigit Ratio	4		217
Code 11 Decoding Level	3		219
Code 11 Character Correlation	Disable		220
Code 11 Stitching	Disable		220
<b>GS1 DataBar™ Omnidirectional</b>			
GS1 DataBar™ Omnidirectional Enable/Disable	Disable		221
GS1 DataBar™ Omnidirectional GS1-128 Emulation	Disable		221
GS1 DataBar™ Omnidirectional Minimum Reads	1		222
<b>GS1 DataBar™ Expanded</b>			
GS1 DataBar™ Expanded Enable/Disable	Disable		223
GS1 DataBar™ Expanded GS1-128 Emulation	Disable		223
GS1 DataBar™ Expanded Minimum Reads	1		224
GS1 DataBar™ Expanded Length Control	Variable		224
GS1 DataBar™ Expanded Set Length 1	1		225
GS1 DataBar™ Expanded Set Length 2	74		226
<b>GS1 DataBar™ Limited</b>			
GS1 DataBar™ Limited Enable/Disable	Disable		227
GS1 DataBar™ Limited GS1-128 Emulation	Disable		227

Parameter	Default	Your Setting	Page Number
GS1 DataBar™ Limited Minimum Reads	1		228
<b>Code 93</b>			
Code 93 Enable/Disable	Disable		229
Code 93 Check Character Calculation	Enable Check C and K		229
Code 93 Check Character Transmission	Enable		230
Code 93 Length Control	Variable		230
Code 93 Set Length 1	1		231
Code 93 Set Length 2	50		232
Code 93 Minimum Reads	1		233
Code 93 Decoding Level	3		234
Code 93 Quiet Zones	Auto		235
Code 93 Stitching	Enable		236
Code 93 Character Correlation	Enable		236
<b>MSI</b>			
MSI Enable/Disable	Disable		237
MSI Check Character Calculation	Enable Mod10		237
MSI Check Character Transmission	Enable		238
MSI Length Control	Variable		239
MSI Set Length 1	1		239
MSI Set Length 2	50		240
MSI Minimum Reads	4		241
MSI Decoding Level	3		242
MSI Stitching	Disable		243
MSI Character Correlation	Disable		243
<b>Plessey</b>			
Plessey Enable/Disable	Disable		244
Plessey Check Character Calculation	Enable Plessey std. check char. verification		245
Plessey Check Character Transmission	Enable		245
Plessey Length Control	Variable		246
Plessey Set Length 1	1		247

Parameter	Default	Your Setting	Page Number
Plessey Set Length 2	50		248
Plessey Minimum Reads	4		249
Plessey Decoding Level	3		250
Plessey Stitching	Disable		251
Plessey Character Correlation	Disable		251
<b>Code 4</b>			
Code 4 Enable/Disable	Disable		252
Code 4 Check Character Transmission	Send		252
Code 4 Hex to Decimal Conversion	Enable		253
<b>Code 5</b>			
Code 5 Enable/Disable	Disable		253
Code 5 Check Character Transmission	Send		254
Code 5 Hex to Decimal Conversion	Enable		254
<b>Code 4 and 5 Common Configuration Items</b>			
Code 4 and 5 Decoding Level	3		255
Code 4 and Code 5 Minimum Reads	1		256
<b>WIRELESS FEATURES</b>			
Good Transmission Beep	Enable		258
Beep Frequency	Low		258
Beep Duration	80 msec		259
Beep Volume	High		260
Disconnect Beep	Enable		260
Base Station Beep	Enable		261
Leash Alarm	Disable		261
Automatic Configuration Update	Enable		263
Automatic Flash Update	Disable		264
Powerdown Timeout	60 minutes (1 hour)		265
Batch Mode	Disable		267
RF Batch Mode Transmit Delay	No Delay		268
Source Radio Address Transmission	Do not include		269

## Standard Defaults

Parameter	Default	Your Setting	Page Number
Source Radio Address Delimiter Character	Enable		269
<b>Features for Star Models Only</b>			
STAR Radio Protocol Timeout	2 seconds		270
STAR Radio Transmit Mode	ACK from cradle		270
<b>Display (STAR model only)</b>			
- Contrast			272
- Font Size	Small		272
- Backlight	Off		273
- Display Mode	Local Echo mode		273
- Display Timeout	Disable		274
Keypad Select	3C3D3E		276
<b>Features for BT Models Only</b>			
BT Security Mode	Disable		277
BT Pin Code	31323334 = Default Pin Code is 1234		278
BT Poll Rate	20 ms		279
<b>LASER FEATURES</b>			
Laser Scan Angle	47 degrees		282
Laser Idle Mode	Disable		282
Bi-Directional Read Decoding	Enable		283
Always On Scan Mode Timeout	5 Hours		284

# Appendix C

## Sample Barcodes

---

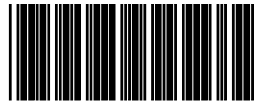
The sample barcodes in this appendix are typical representations for their symbology types.



**UPC-A**

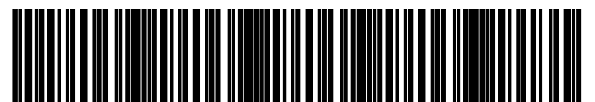


**EAN-13**



123ABC

**Code 39**



12345678901234567890123456789012345678901234

**Code 128**



12345678901231

**Interleaved 2 of 5**

## Sample Barcodes — continued



A020096020

**Code 32**



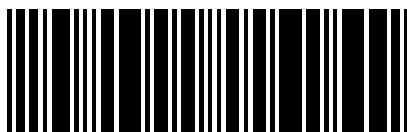
057654850

**Codabar**



12345678

**Code 93**



7554628485801

**Code 11**



## GS1 DataBar™ (RSS)



GS1 DataBar™ variants must be enabled to read the barcodes below (see [GS1 DataBar™ Omnidirectional](#) on page 221).



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

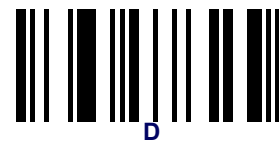
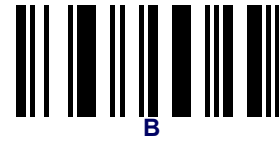
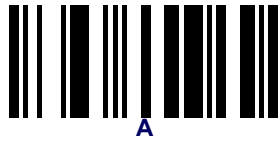
# Appendix D

## Keypad

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

 0	
	 1
 2	
	 3
 4	
	 5





# NOTES

# Appendix E

## Scancode Tables

---

### Control Character Emulation

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

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

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

**Control Character 02** . Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (Microsoft Windows Codepage 1252 — See page -356.)

### Single Press and Release Keys

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

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

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

Table 53. 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	<u>SP</u>	!	"	#	\$	%	&	'	(	)	*	±	.	=	-	/
3x	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	:	:	≤	≡	≥	?
4x	<u>@</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>	<u>J</u>	<u>K</u>	<u>L</u>	<u>M</u>	<u>N</u>	<u>O</u>
5x	<u>P</u>	<u>Q</u>	<u>R</u>	<u>S</u>	<u>T</u>	<u>U</u>	<u>V</u>	<u>W</u>	<u>X</u>	<u>Y</u>	<u>Z</u>	[	\	]	^	_
6x	<u>`</u>	<u>a</u>	<u>b</u>	<u>c</u>	<u>d</u>	<u>e</u>	<u>f</u>	<u>g</u>	<u>h</u>	<u>i</u>	<u>j</u>	<u>k</u>	<u>l</u>	<u>m</u>	<u>n</u>	<u>o</u>
7x	<u>p</u>	<u>q</u>	<u>r</u>	<u>s</u>	<u>t</u>	<u>u</u>	<u>v</u>	<u>w</u>	<u>x</u>	<u>y</u>	<u>z</u>	{		}	~	<i>Del</i>
8x	€	Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	↑	↓	←	→	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓
Ax	Cr↑	□	‘	f	„	...	†	‡	^	%	Š	<	Š	<	Œ	□
Bx	°	±	²	³	´	µ	¶	·	,	¹	º	»	¼	½	¾	¿
Cx	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Dx	Ð	□	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
Ex	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
Fx	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

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



## Interface Type PC AT PS/2, USB-Keyboard or USB-Keyboard for APPLE — cont.

Table 54. 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	„	…	†	‡	^	%	Š	<	Š	<	Œ	□
9x	□	‘	’	“	”	•	—	—	~	™	š	>	œ	□	ž	ÿ
Ax	NBSP	ı	ç	£	¤	¥	¦	§	¨	©	ª	«	¬	-	®	¯
Bx	°	±	²	³	´	µ	¶	·	,	¹	º	»	¼	½	¾	¿
Cx	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Dx	Ð	□	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
Ex	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
Fx	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

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

Table 55. Scancode Set When Control Character is 00 or 01

	x0	x1	x2	x3	x4	x5	X6	x7	x8	x9	xA	xB	xC	xD	xE	Xf
0x	Alt+000	Alt+001	Alt+002	Alt+003	Alt+004	Alt+005	Alt+006	Alt+007	BS	HT TAB	Alt+010	Alt+011	Alt+012	CR Enter	Alt+014	Alt+015
1x	Alt+016	Alt+017	Alt+018	Alt+019	Alt+020	Alt+021	Alt+022	Alt+023	Alt+024	Alt+025	Alt+026	ESC Esc	Alt+028	Alt+029	Alt+030	Alt+031
2x	A+032	A+033	A+034	A+035	A+036	A+037	A+038	A+039	A+040	A+041	A+042	A+043	A+044	A+045	A+046	A+047
3x	A+048	A+049	A+050	A+051	A+052	A+053	A+054	A+055	A+056	A+057	A+058	A+059	A+060	A+061	A+062	A+063
4x	A+064	A+065	A+066	A+067	A+068	A+069	A+070	A+071	A+072	A+073	A+074	A+075	A+076	A+077	A+078	A+079
5x	A+080	A+081	A+082	A+083	A+084	A+085	A+086	A+087	A+088	A+089	A+090	A+091	A+092	A+093	A+094	A+095
6x	A+096	A+097	A+098	A+099	A+100	A+101	A+102	A+103	A+104	A+105	A+106	A+107	A+108	A+109	A+110	A+111
7x	A+112	A+113	A+114	A+115	A+116	A+117	A+118	A+119	A+120	A+121	A+122	A+123	A+124	A+125	A+126	A+127
8x	€	Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	↑	↓	←	→	Ar↓	Ar↑	Al↓	Al ↑	Cl ↓	Cl ↑	Cr ↓
Ax	Cr ↑	A+0161	A+0162	A+0163	A+0164	A+0165	A+0166	A+0167	A+0168	A+0169	A+0170	A+0171	A+0172	A+0173	A+0174	A+0175
Bx	A+0176	A+0177	A+0178	A+0179	A+0180	A+0181	A+0182	A+0183	A+0184	A+0185	A+0186	A+0187	A+0188	A+0189	A+0190	A+0191
Cx	A+0192	A+0193	A+0194	A+0195	A+0196	A+0197	A+0198	A+0199	A+0200	A+0201	A+0202	A+0203	A+0204	A+0205	A+0206	A+0207
Dx	A+0208	A+0209	A+0210	A+0211	A+0212	A+0213	A+0214	A+0215	A+0216	A+0217	A+0218	A+0219	A+0220	A+0221	A+0222	A+0223
Ex	A+0224	A+0225	A+0226	A+0227	A+0228	A+0229	A+0230	A+0231	A+0232	A+0233	A+0234	A+0235	A+0236	A+0237	A+0238	A+0239
Fx	A+0240	A+0241	A+0242	A+0243	A+0244	A+0245	A+0246	A+0247	A+0248	A+0249	A+0250	A+0251	A+0252	A+0253	A+0254	A+0255

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

Table 56. Scancode Set When Control Character is 02

	x0	x1	x2	x3	x4	x5	X6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓	Cr↑	BS	Tab	→	S+ Tab	Enter Keyprd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	A+032	A+033	A+034	A+035	A+036	A+037	A+038	A+039	A+040	A+041	A+042	A+043	A+044	A+045	A+046	A+047
3x	A+048	A+049	A+050	A+051	A+052	A+053	A+054	A+055	A+056	A+057	A+058	A+059	A+060	A+061	A+062	A+063
4x	A+064	A+065	A+066	A+067	A+068	A+069	A+070	A+071	A+072	A+073	A+074	A+075	A+076	A+077	A+078	A+079
5x	A+080	A+081	A+082	A+083	A+084	A+085	A+086	A+087	A+088	A+089	A+090	A+091	A+092	A+093	A+094	A+095
6x	A+096	A+097	A+098	A+099	A+100	A+101	A+102	A+103	A+104	A+105	A+106	A+107	A+108	A+109	A+110	A+111
7x	A+112	A+113	A+114	A+115	A+116	A+117	A+118	A+119	A+120	A+121	A+122	A+123	A+124	A+125	A+126	A+127
8x	A+0128	A+0129	A+0130	A+0131	A+0132	A+0133	A+0134	A+0135	A+0136	A+0137	A+0138	A+0139	A+0140	A+0141	A+0142	A+0143
9x	A+0144	A+0145	A+0146	A+0147	A+0148	A+0149	A+0150	A+0151	A+0152	A+0153	A+0154	A+0155	A+0156	A+0157	A+0158	A+0159
Ax	A+0160	A+0161	A+0162	A+0163	A+0164	A+0165	A+0166	A+0167	A+0168	A+0169	A+0170	A+0171	A+0172	A+0173	A+0174	A+0175
Bx	A+0176	A+0177	A+0178	A+0179	A+0180	A+0181	A+0182	A+0183	A+0184	A+0185	A+0186	A+0187	A+0188	A+0189	A+0190	A+0191
Cx	A+0192	A+0193	A+0194	A+0195	A+0196	A+0197	A+0198	A+0199	A+0200	A+0201	A+0202	A+0203	A+0204	A+0205	A+0206	A+0207
Dx	A+0208	A+0209	A+0210	A+0211	A+0212	A+0213	A+0214	A+0215	A+0216	A+0217	A+0218	A+0219	A+0220	A+0221	A+0222	A+0223
Ex	A+0224	A+0225	A+0226	A+0227	A+0228	A+0229	A+0230	A+0231	A+0232	A+0233	A+0234	A+0235	A+0236	A+0237	A+0238	A+0239
Fx	A+0240	A+0241	A+0242	A+0243	A+0244	A+0245	A+0246	A+0247	A+0248	A+0249	A+0250	A+0251	A+0252	A+0253	A+0254	A+0255

# Digital Interface

Table 57. 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 58. Scancode Set When Control Character is 02

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

# IBM31xx 102-key

Table 59. Scancode Set When Control Character is 00 or 01

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

Table 60. 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 61. 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 62. Scancode Set when Control Character 02**

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

# 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	ENO 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	• 2018	ƒ 201A	ƒ 0192	„ 201E	… 2026	† 2020	‡ 2021	ˆ 02C6	‰ 2030	Š 0160	< 2039	€ 0152	• 017D	Ž 017D	• 017D
90	• 017D	ˆ 2018	ˆ 2019	ˆ 201C	ˆ 201D	• 2022	— 2013	— 2014	ˆ 02DC	• 2122	Š 0161	ˆ 203A	€ 0153	• 017E	Ž 017E	Ÿ 0178
A0	NESE 00A0	ı 00A1	ı 00A2	£ 00A3	¤ 00A4	¥ 00A5	ı 00A6	ı 00A7	ı 00A8	ı 00A9	ı 00AA	ı 00AB	ı 00AC	ı 00AD	ı 00AE	ı 00AF
B0	• 00B0	± 00B1	± 00B2	± 00B3	ˆ 00B4	ı 00B5	ı 00B6	ı 00B7	ı 00B8	ı 00B9	ı 00BA	ı 00BB	ı 00BC	ı 00BD	ı 00BE	ı 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	Ë 00DE	ß 00DF
E0	à 00E0	á 00E1	â 00E2	ã 00E3	ä 00E4	å 00E5	æ 00E6	ç 00E7	è 00E8	é 00E9	ê 00EA	ë 00EB	ì 00EC	í 00ED	î 00EE	ï 00EF
F0	ø 00F0	ñ 00F1	ò 00F2	ó 00F3	ô 00F4	õ 00F5	ö 00F6	÷ 00F7	ø 00F8	ù 00F9	ú 00FA	û 00FB	ü 00FC	ý 00FD	þ 00FE	ÿ 00FF

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# ASCII Chart

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

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