

# **Gryphon™ 2D Family**

General Purpose Handheld  
Area Imager Bar Code Reader

## **Gryphon I GD44XX/GBT4400/GM440X**



## **Product Reference Guide**

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**Patents****Gryphon I GD44XX**

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

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

Utility Patents: EP996284; EP999514; EP1128315; EP1172756; EP1396811; EP1413971; EP1828957; JP4435343; US5481098; US6478224; US6512218; US6513714; US6561427; US6758403; US6808114; US6877664; US6997385; US7053954; US7234641; US7387246; US7721966

**Gryphon GM440X, GBT4400**

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**BC40XX, UV Counterfeit Detection, CFS4000, CHR-GM40**

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

Design Patents: CN ZL201030175545.9; EP1177943; USD629003

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

[Chapter 4, References](#) provides background information and detailed instructions for more complex programming items.

[Chapter 5, Message Formatting](#) gives 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 pinouts and LED/Beeper functions.

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

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

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

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

## Manual Conventions

The following conventions are used in this document:

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



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



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

**CAUTION**

## References

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

## Technical Support

### Datalogic Website Support

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

### Reseller Technical Support

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

### Telephone Technical Support

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

## About the Reader

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

Two models of the Gryphon 2D are available, and are covered in this manual:

- Gryphon I GD44XX - Corded 2D imager bar code reader
- Gryphon I GBT4400 - 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 bar codes 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 29](#) for a listing and descriptions of available interface sets by model type.

# The BC40xx™ Radio Base

## Base LEDs

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

**Figure 1. Gryphon 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 \(Cordless Models ONLY\) on page 302](#) for more specific details on the LEDs.

## Base Button

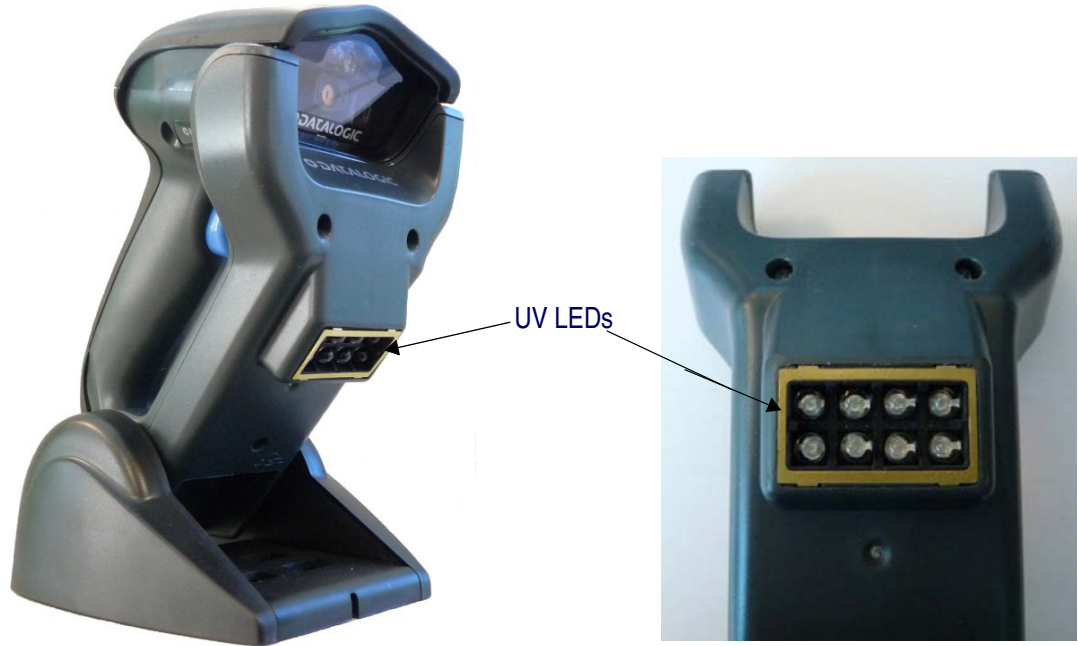
The Base contains a button which is used primarily to perform a paging function. Pressing the button causes a sound signal to be emitted by all scanners linked with this Base, as long as the scanner is awake (see [Powerdown Timeout on page 250](#)) and reception is enabled (see [LED and Beeper Indicators on page 92](#)). 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.

See ["Base Station Button Indicators" on page 302](#) for further information on Base Button functions.

## 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.

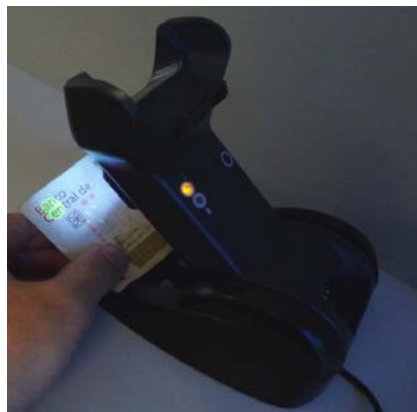
The detector contains eight special UV LEDs, as shown below:



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.



- 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.**

## 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.**



### WARNING

**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 Data-logic 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.



**Storage of batteries for long time at fully charged status or at fully discharged status should be avoided.**



**Only in case of long storage, to avoid deep discharge of the battery it is recommended to partially recharge the battery every three months to keep the charge status at a medium level.**

**As a reference, run a fast recharge for 20 minutes every three months on unused products to avoid any performance deterioration of the cell.**

The useful life of LI batteries depends 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 showing excessive loss of capacity, it should be properly recycled / disposed of and replaced.

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 Bar Codes

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

Some programming labels, like "[Restore Custom Defaults](#)" on page 34, require only the scan of the single label to enact the change. Most, however, require the reader to be placed in Programming Mode prior to scanning them. Scan an ENTER/EXIT bar code once to enter Programming Mode. Once the reader is in Programming Mode, scan a number of parameter settings before scanning the ENTER/EXIT bar code a second time, which will then accept your changes, exit Programming Mode and return the reader to normal operation.



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

### Datalogic Aladdin™

Datalogic Aladdin™ is a multi-platform utility program providing a quick and user-friendly configuration method via the RS-232/USB-COM interface. Aladdin 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 bar codes 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

---

### 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

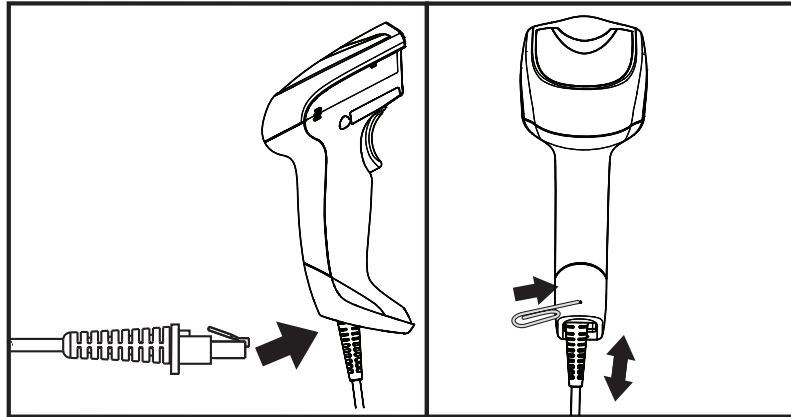
Depending on whether you are using a Corded or BT version of the Gryphon, follow the steps provided in this section to connect and get your reader up and communicating with its host.

1. Begin by [Installing the Interface Cable](#) (Corded) or [Connecting the Base Station](#) (BT)
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 2](#). To remove it, insert a paper clip into the release aperture, then unplug the cable.

**Figure 2. 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 3](#). 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 3. RS-232 Connection**

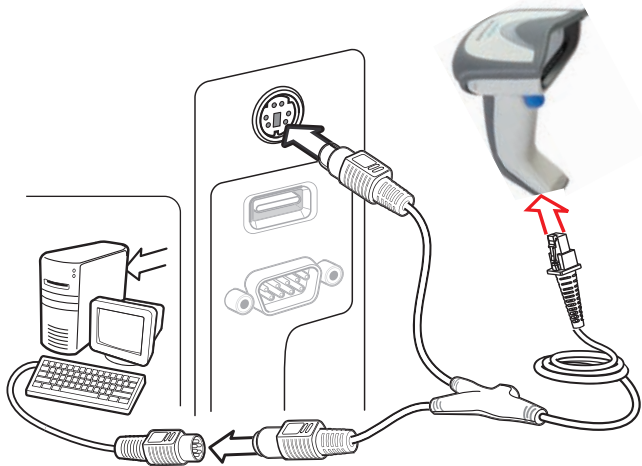


### Keyboard Wedge Connection



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 4](#).

**Figure 4. Keyboard Wedge Interface connection**



### USB Connection

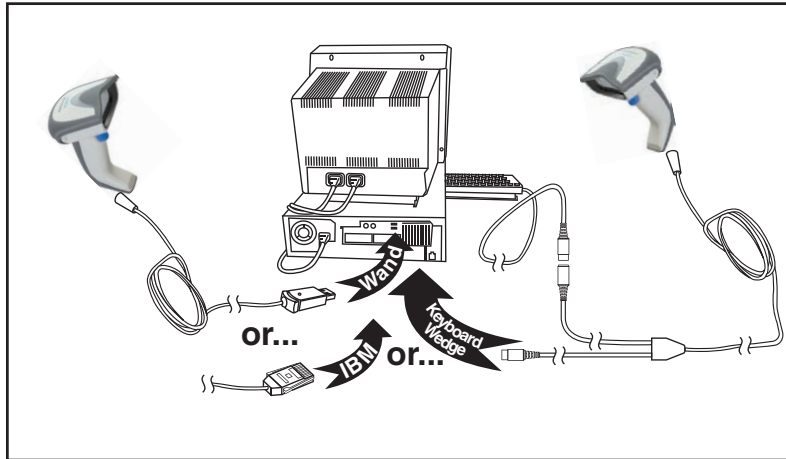


Connect the reader to a USB port on the terminal/PC using the correct USB cable for the interface type you ordered. Reference [Figure 5](#).

**Figure 5. USB connection**



Other connection types are described below and illustrated in [Figure 6](#).

**Figure 6. 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.**

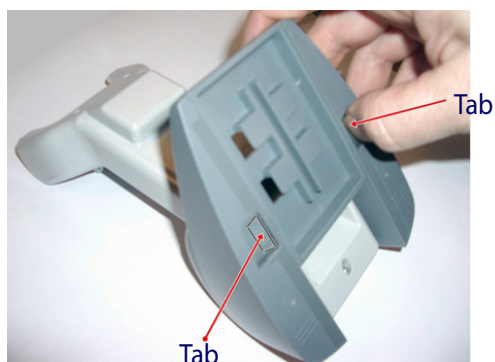
1. Insert the appropriate parts for the desired base station position, as shown below.



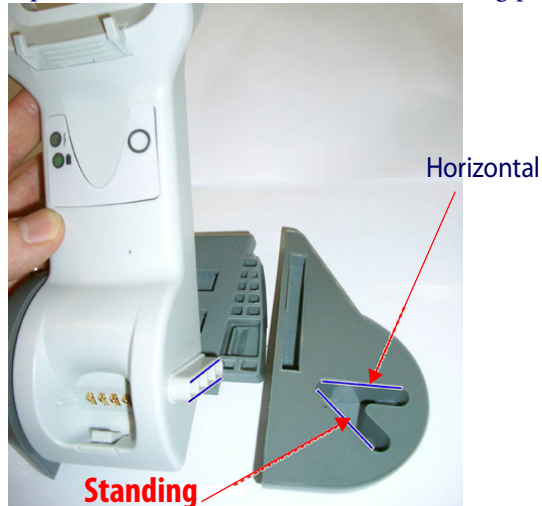
**To ensure best contact and performance, do not intermix the parts of the two different mount sets.**

### CAUTION

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



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



## Connecting the Base Station

Figure 7 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.



**The Gryphon GBT4400 can be set up to require a PIN code when connecting to the host. If you are connecting to a system that uses a custom security PIN, follow the procedure in "Connecting the Base when Security Pin is Enabled" on page 25. For information on how to configure this feature, see "BT Security Mode" starting on page 247.**

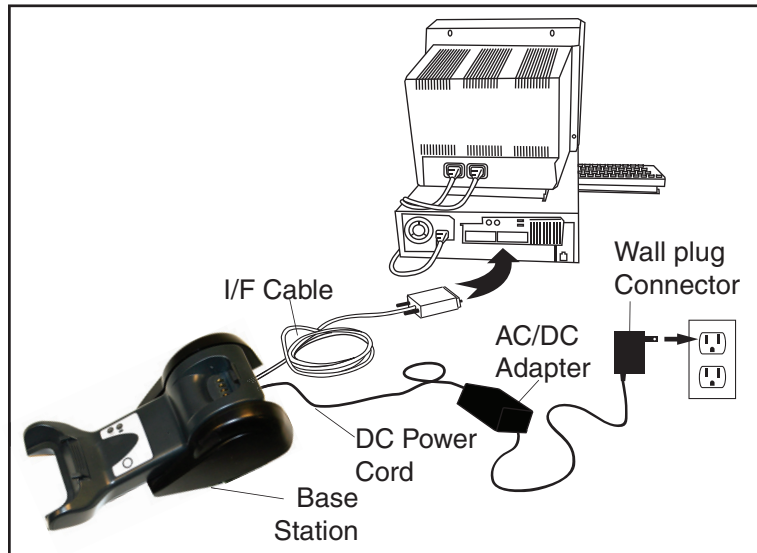
**Base Station Connection and Routing:** Fully insert the Power Cable and Interface (I/F) Cable connectors into their respective ports in the underside of the Base Station (see Figure 7). Then connect to an AC Adapter, and plug the AC power cord into the (wall) outlet.



**Gryphon Wireless can also be Powered by the Terminal. When powered by the Terminal, the battery charger is automatically set as Slow charge.**

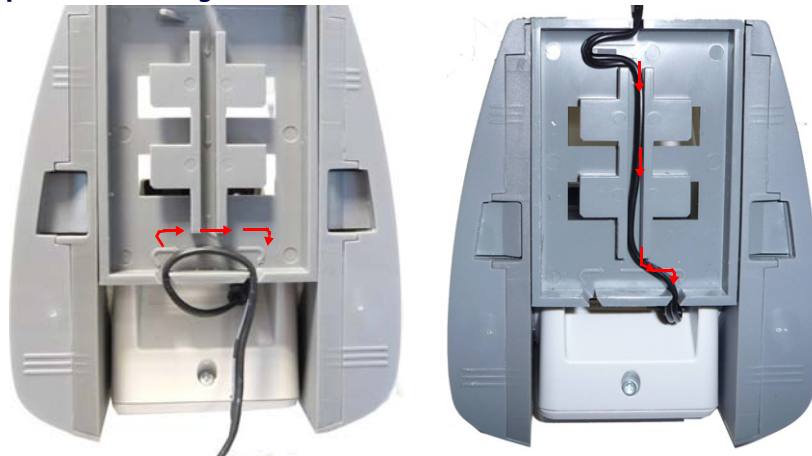
**For some specific interfaces or hosts or lengths of cable, the use of an external power supply may be recommended for full recharging capability (see "Technical Specifications" on page 293 for more details).**



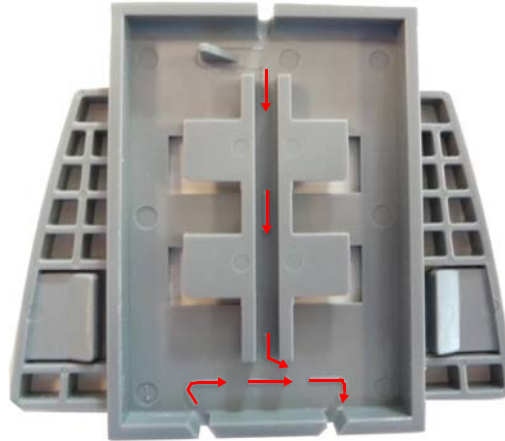
**Figure 7. Connecting the Base Station**

### 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 8 on page 23](#).

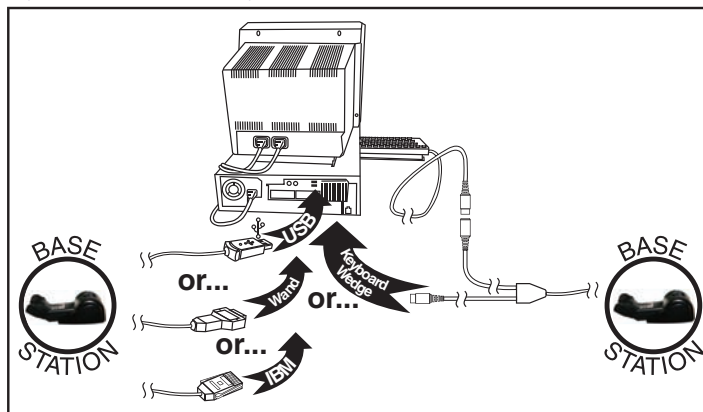
**Figure 8. Options for routing the DC cord**

Please refer to the arrows depicted on the bottom of the base when placing the cables, detailed in [Figure 9](#).

**Figure 9. Arrows showing routing**

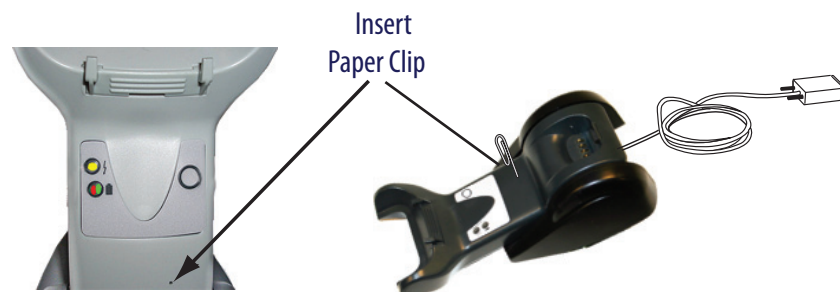
**Host Connection:** Verify before connection that the reader's cable type is compatible with your host equipment.

Most connections plug directly into the host device as shown in Figure 10. 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 10. 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 7) to prevent undue strain on the socket.

**Disconnecting the Cable:** To detach the cable, insert a paper clip or similar object into the hole on the base, as shown in Figure 11.

**Figure 11. Disconnecting the Cable**

## Connecting the Base when Security Pin is Enabled

When connecting the Base to a system that has a custom Security Pin enabled, follow the steps below in the order shown:

1. Power down the host system.
2. Connect the appropriate interface cable into the Base as shown in [Figure 10](#).
3. Place the reader in the Base.
4. Power up the host. The reader will link to the Base
5. When the host completely powers up, a new custom Security Pin Code may be sent to the reader and Base, depending on host configuration. Contact Datalogic Technical Support for more information.



**If you want to change security settings or set up a PIN, see ["BT Security Mode"](#) starting on page 247.**

## 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.



### 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 bar code below to make the scanner visible to the host computer.



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.

### Power Off

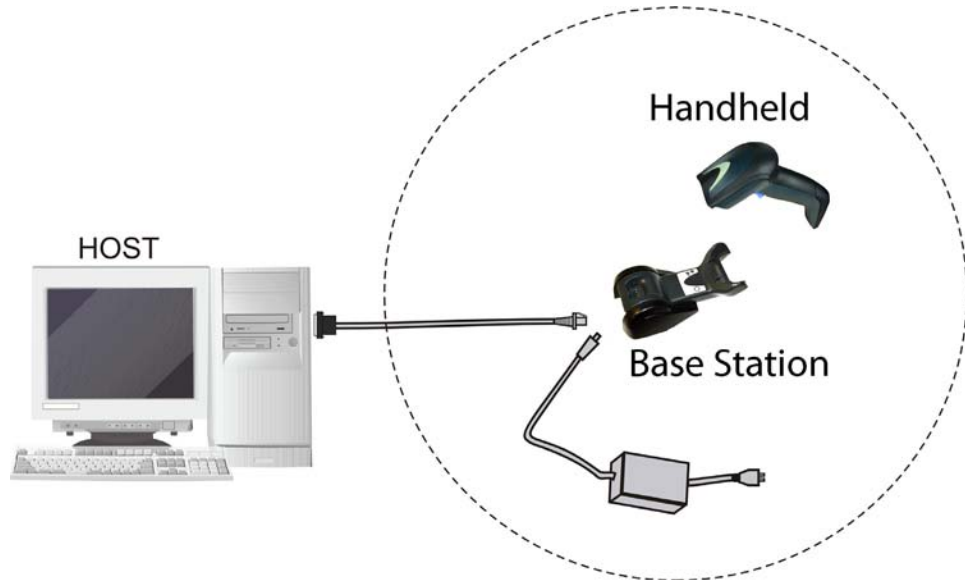
Shuts off power to the BT handheld until next trigger pull. This function only applies to the BT model.



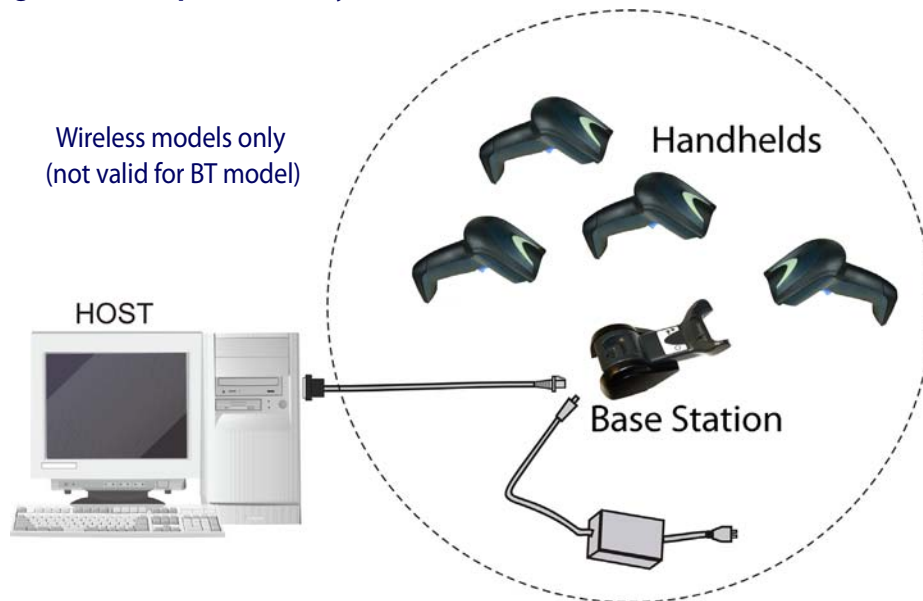
# Gryphon™ 2D System and Network Layouts

## Stand Alone Layouts

**Figure 12. Single Reader Layout**

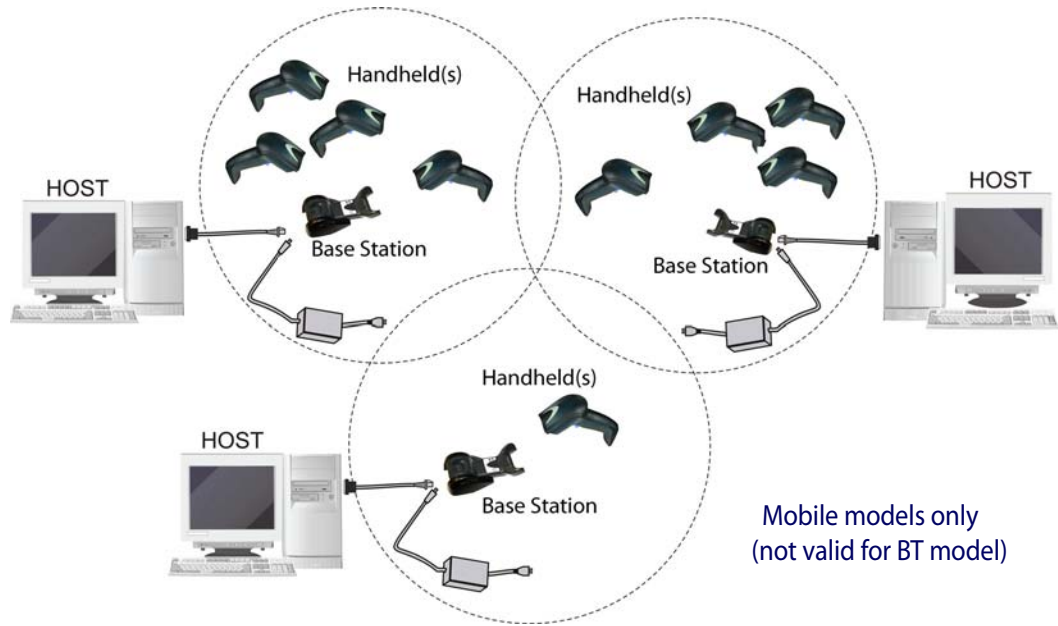


**Figure 13. Multiple Reader Layout**



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

**Figure 14. Multiple Stand Alone Layouts**



Many stand alone connections can operate in the same physical area without interference, provided all readers and base stations 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 30 to select the interface type the reader is connected to (for example: RS-232, Keyboard Wedge, USB, etc.). Scan the appropriate bar code in that section to configure your system's correct interface type.

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

### General Purpose Models

- RS-232
- RS-232 OPOS
- USB-COM
- Keyboard Wedge
- Wand Emulation (BT only)

### Retail Point of Sale Models

- RS-232
- RS-232 OPOS
- USB
- IBM 46XX

## Setting the Interface








Scan the programming bar code from this section which selects the appropriate interface type matching the system the reader will be connected to. Next, proceed to the corresponding section in this manual (also listed in Table 1 on page 30) to configure any desired settings and features associated with that interface.



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








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


**Table 1. Available Interfaces**

<b>RS-232</b>		<b>FEATURES</b>
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	
<b>IBM</b>		<b>FEATURES</b>
 Select IBM-P5B	IBM-46xx Port 5B reader interface	Set IBM Interface Features starting on page 67
IBM-46xx Port 9B reader interface	 Select IBM-P9B	
<b>USB-OEM</b>		<b>FEATURES</b>
 Select USB-OEM	USB-OEM (can be used for OPOS/UPOS/JavaPOS)	Set USB-OEM Interface Features starting on page 65

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



KEYBOARD	FEATURES
 <p>Select USB Alternate Keyboard</p> <p>USB Keyboard with alternate key encoding</p>	
<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>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>	Set KEYBOARD WEDGE Interface Features starting on page 55
 <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 keyboard</b></p>  <p>Select KBD-IBM-M</p>	<p>Set KEYBOARD WEDGE Interface Features starting on page 55</p>
 <p>Select KBD-IBM-MB</p> <p><b>Keyboard Wedge for IBM Terminals 31xx, 32xx, 34xx, 37xx make break keyboard</b></p>	
<p><b>Keyboard Wedge for DIGITAL Terminals VT2xx, VT3xx, VT4xx</b></p>  <p>Select KBD-DIG-VT</p>	
 <p>Select USB Keyboard</p> <p>USB Keyboard with standard key encoding</p>	
<p>USB Keyboard for Apple computers</p>  <p>Select USB-KBD-APPLE</p>	
WAND EMULATION	FEATURES
<p>Wand Emulation (BT only)</p>  <p>Select WAND</p>	<p>Set WAND Interface Features starting on page 71</p>

# Customizing Configuration Settings

## Configure Interface Settings

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

- "RS-232 Interface" on page 41
- "RS-232/USB-Com Interfaces" on page 46
- "Keyboard Settings" on page 55
- "RS-232/USB-Com Interfaces" on page 46
- "IBM 46XX Interface" on page 67
- "Wand Emulation Interface" on page 71

## 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.

**1D Symbologies:** Includes options concerning the bar code label types (symbologies). These settings allow you to enable/disable symbologies, set label lengths, require check digit, etc.

**WIRELESS FEATURES:** Contains programming options for RF, STAR and Bluetooth models only.

## 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 bar code below. This will restore the custom configuration for the currently active interface.



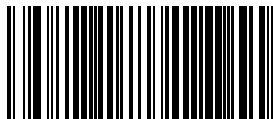
**Custom defaults are based on the interface type. Configure the imager for the correct interface before scanning this label.**



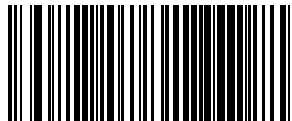
Restore Custom Default Configuration

### Restore Factory Configuration

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



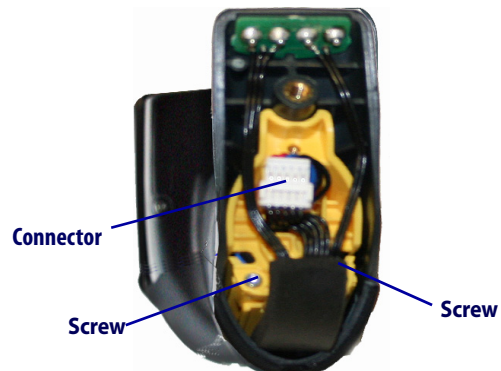
**Before replacing the Battery, read "Battery Safety" starting on page 14. Datalogic recommends annual replacement of rechargeable battery packs to ensure maximum performance.**

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

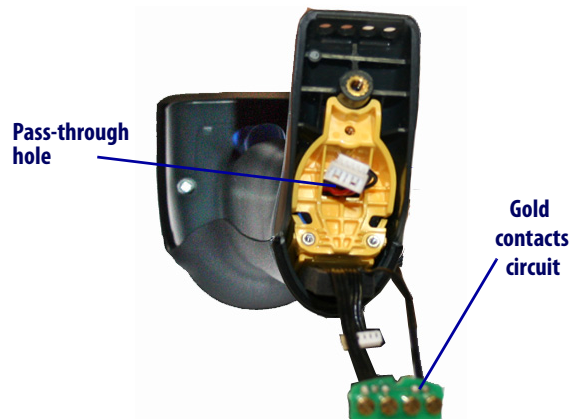
1. With a screwdriver, unscrew the battery cover screw.



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.

# Chapter 3

## Configuration Using Bar Codes

This and following sections provide programming bar codes to configure your reader by changing the default settings. For details about additional methods of programming, see "Configuration Methods" on page 16.



**You must first enable your reader to read bar codes in order to use this section. If you have not done this, go to [Setup](#), starting on page 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 303 for initial configuration in order to set the default values and select the interface for your application.

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

#### Interface Configuration:

- "RS-232/USB-Com Interfaces" on page 46
- "Keyboard Settings" on page 55

#### Parameters common to all interface applications:

- "Data Format" on page 75 gives options to control the messages sent to the Host system.
- "Reading Parameters" on page 89 control various operating modes and indicators status functioning.

#### Symbology-specific parameters:

- "1D Symbologies" on page 111 provides configuration of a personalized mix of 1D codes, code families and their options.
- "2D Symbologies" on page 203 provides configuration of a personalized mix of 2D codes, code families and their options.



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



**To program features:**

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



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

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

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

For more detailed descriptions, programming information and examples for setting selected configuration items, see [References, starting on page 255](#).



**By default, the handheld will decode bar code labels only when they are close to the center of the aiming pattern. This allows the handheld to accurately target labels when they are placed close together, such as on a pick sheet. See [Pick Mode, starting on page 100](#).**



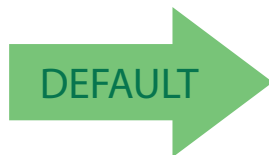
## GLOBAL INTERFACE FEATURES

The following interface features are configurable by all interface types.

### Host Commands — Obey/Ignore

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

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



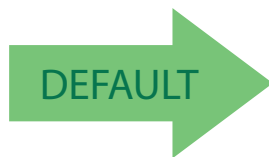
Host Commands = Obey  
(Do Not Ignore Host Commands)



Host Commands = Ignore

### USB Suspend Mode

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



USB Suspend Mode = Disable



USB Suspend Mode = Enable



# NOTES

# RS-232 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 bar codes in this section if modifications to the standard RS-232 interface settings are necessary to meet your system's requirements. Additional settings which apply to both the RS-232 and USB interfaces are available in the next section, "[RS-232/USB-Com Interfaces](#)" starting on page 46.

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



## Baud Rate

See [page 256](#) 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.



## Stop Bits

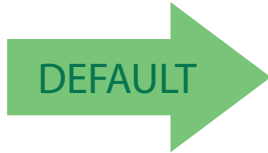
Set the number of stop bits to match host device requirements. See [page 256](#) for more information on this feature.





## Parity

This feature specifies parity required for sending and receiving data. Select the parity type according to host device requirements. See [page 256](#) for more information.



Parity = None



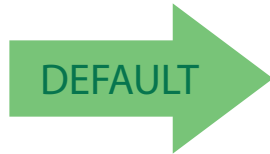
Parity = Even



Parity = Odd

## Handshaking Control

See [page 256](#) 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 bar codes 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 265](#) for more information.



Select Intercharacter Delay Setting



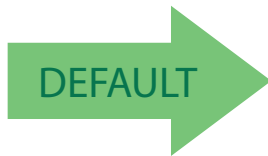
Intercharacter Delay = No Delay

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

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



CANCEL



**00 = No Intercharacter Delay**

## Beep On ASCII BEL

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



Beep On ASCII BEL = Disable



Beep On ASCII BEL = Enable

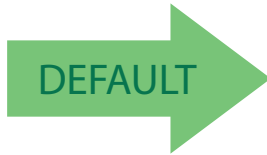


## Beep On Not on File

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

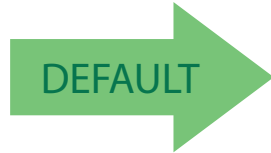


Beep On Not On File = Enable



## ACK NAK Options

This enables/disables the ability of the reader to support the RS-232 ACK/NAK protocol. See [page 258](#) 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

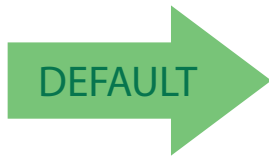
This setting specifies an ASCII character or hex value to be used as the ACK character. ASCII characters or any hex value from 0 to 0xFF can be selected. See [page 258](#) for more information.



**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

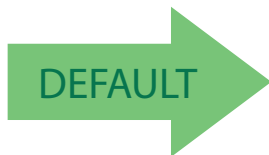
This setting specifies an ASCII character or hex value to be used as the NAK character. ASCII characters or any hex value from 0 to 0xFF can be selected. See [page 259](#) for more information.



**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 260](#) for more information on setting this feature.



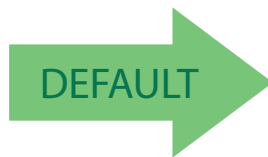
Select ACK NAK Timeout Value Setting

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

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



CANCEL



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

## ACK NAK Retry Count

This feature specifies the number of times the reader retries a label transmission due to a retry condition. The selectable range is from 1 to 254 retries. A selection of 0 disables the count, and a selection of 255 specifies unlimited retries. See [page 261](#) for more information.



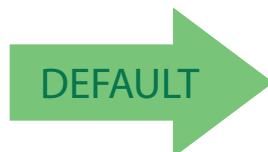
Select ACK NAK Retry Count Setting

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

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



CANCEL

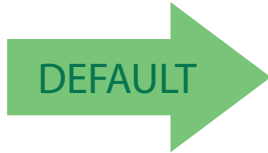


**003 = 3 Retries**



### ACK NAK Error Handling

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



ACK NAK Error Handling = Ignore Errors Detected



ACK NAK Error Handling = Process Error as Valid ACK Character



ACK NAK Error Handling = Process Error as Valid NAK Character

### Indicate Transmission Failure

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



Indicate Transmission Failure = Disable Indication



Indicate Transmission Failure = Enable Indication



## Disable Character

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

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

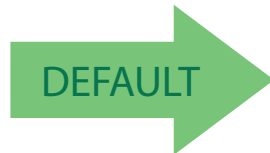


**Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits](#) has been set as 7 Data Bits.**

See [page 262](#) 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.

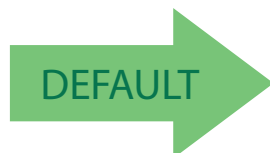


**Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits](#) has been set as 7 Data Bits.**

See [page 263](#) in “References” for more information on setting this feature.



Select Enable Character Setting



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



# NOTES



# KEYBOARD SETTINGS

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

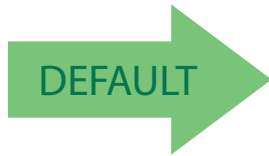
Use the programming bar codes in this chapter to select options for USB Keyboard and Wedge Interfaces. Reference [Appendix B, Standard Defaults](#) for a listing of standard factory settings.

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. Several languages are supported:



Country Mode = U.S.



Country Mode = Belgium



Country Mode = Britain



Country Mode = Croatia

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

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



Country Mode = Czech Republic



Country Mode = Denmark

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



## Country Mode (Continued)



Country Mode = France

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



Country Mode = French Canadian



Country Mode = Germany

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



Country Mode = Hungary



Country Mode = Italy

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



Country Mode = Japanese 106-key



## Country Mode (Continued)



Country Mode = Lithuanian

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



Country Mode = Norway



Country Mode = Poland

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

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



Country Mode = Portugal



Country Mode = Romania

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

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



Country Mode = Slovakia



Country Mode = Spain



Country Mode = Sweden



Country Mode = Switzerland

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



## Send Control Characters

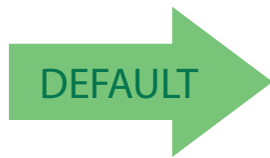
This feature specifies how the reader transmits ASCII control characters to the host. Reference [Appendix E, Scancode Tables](#) for more information about control characters.

Options are as follows:

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

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

**Control Character 02 :** Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (see "Microsoft Windows Codepage 1252" on page 329).



Wedge Send Control Characters = 00



Wedge Send Control Characters = 01



Wedge Send Control Characters = 02

### Wedge Quiet Interval

Specifies amount of time to look for keyboard activity before scanner breaks keyboard connection in order to transmit data to host. The selectable range for this setting is 00 to 990 milliseconds (00-0x63 by 01) in increments of ten milliseconds. See [page 264](#) in “References” for detailed information and examples for setting this feature.



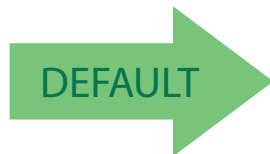
Set Wedge Quiet Interval

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

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



CANCEL



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

### Intercode Delay

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

See [page 266](#) in “References” for detailed information and examples for setting this feature.



Set Intercode Delay

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

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



CANCEL

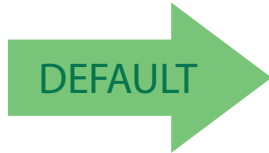


**00 = No Wedge Intercode Delay**



### Caps Lock State

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



Caps Lock State = Caps Lock OFF



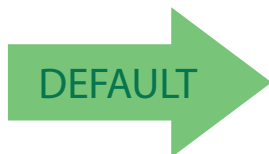
Caps Lock State = Caps Lock ON



Caps Lock State = AUTO Caps Lock Enable

### Numlock

This option specifies the setting of the NUMLOCK key in the Keyboard Wedge interface.



Numlock = NUMLOCK key unchanged



Numlock = Numlock key toggled

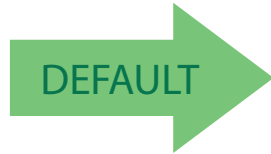


## USB Keyboard Speed

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



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



USB Keyboard Speed = 1ms



USB Keyboard Speed = 2ms



USB Keyboard Speed = 3ms



USB Keyboard Speed = 4ms



USB Keyboard Speed = 5ms



USB Keyboard Speed = 6ms



## USB Keyboard Speed — continued



USB Keyboard Speed = 7ms



USB Keyboard Speed = 8ms



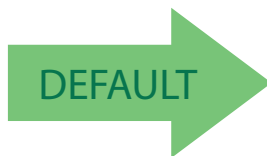
USB Keyboard Speed = 9ms



USB Keyboard Speed = 10ms

## USB Keyboard Numeric Keypad

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



Standard Keys



Numeric Keypad

# USB-OEM INTERFACE

**USB-OEM DEVICE USAGE** on page 66

**INTERFACE OPTIONS** on page 66

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 67 to specifically configure for the USB-OEM interface. Other USB interfaces are included in the appropriate chapter for their host type.

Reference [Appendix B](#) 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 bar code scanners. Depending on what other scanners you may already have connected to a USB-OEM POS, you may need to change this setting to enable all devices to communicate.

Options are:

- Table Top Scanner
- Handheld Scanner



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



USB-OEM Device Usage = Table Top Scanner



USB-OEM Device Usage = Handheld Scanner



### Interface Options

This feature provides for an interface-specific control mechanism.



Obey Scanner Configuration Host Commands



Ignore Scanner Configuration Host Commands



# IBM 46XX INTERFACE

<b>46XX NUMBER OF HOST RESETS</b> on page 68
<b>TRANSMIT LABELS IN CODE 39 FORMAT</b> on page 70
<b>INTERFACE OPTIONS</b> on page 70

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

Reference [Appendix B](#) 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

### 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

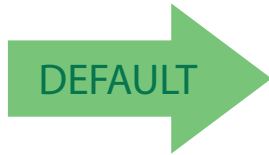
This feature enable/disables translation to Code 39 before transmitting label data to an IBM-46XX or a USB-OEM host. Only the symbology identifier is modified for the translation. The data is not converted to Code 39 or verified to be valid for Code 39.

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



This feature is valid only for the GBT4400 model.

<b>WAND SIGNAL SPEED</b> on page 72
<b>WAND POLARITY</b> on page 72
<b>WAND IDLE STATE</b> on page 73
<b>TRANSMIT NOISE</b> on page 73
<b>LABEL SYMBOLOGY CONVERSION</b> on page 74

This chapter provides feature/settings configuration for the Wand Emulation interface. Reference [Appendix B](#) 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**



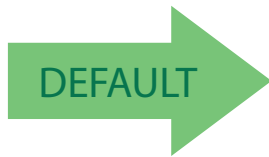
Wand Idle State = Low



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

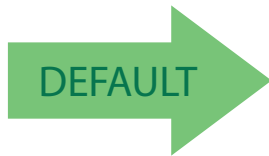


### Label Symbology Conversion

When this feature is enabled for the Wand Emulation interface, all bar code 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



Label Symbology Conversion = No conversion



Label Symbology Conversion = Convert to Code 39



Label Symbology Conversion =  
Convert to Code 39 Full ASCII



Label Symbology Conversion = Convert to Code 128

# DATA FORMAT

**GLOBAL PREFIX/SUFFIX** starting on page 76

**GLOBAL AIM ID** starting on page 77

**LABEL ID** starting on page 80

- Label ID: Pre-Loaded Sets
- Individually Set Label ID
- Label ID Control
- Label ID Symbology Selection • 1D Symbologies
- Label ID Symbology Selection • 2D Symbologies

**CASE CONVERSION** starting on page 87

**CHARACTER CONVERSION** starting on page 88



**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 268 for more detailed instructions on setting these features.



## Global Prefix/Suffix

This option sets up to 20 characters each from the set of ASCII characters or any hex value from 00 to FF. The characters may be added as a prefix (in a position before the bar code data, also called a header) and/or as a suffix (in a position following the bar code data, also called a footer). See [page 269](#) for more detailed instructions on setting this feature.

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



Set Global Prefix

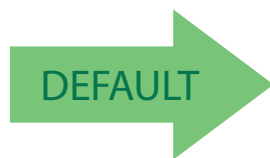


Set Global Suffix

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



CANCEL



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

## Global AIM ID

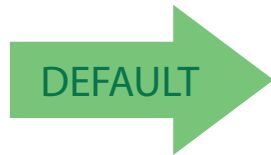


**This feature enables/disables addition of AIM IDs for all symbology types.**

AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned bar code data. See Table 2 on page 3-77 for a listing of AIM IDs.

AIM label identifiers consist of three characters as follows:

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



Global AIM ID = Disable



Global AIM ID = Enable

**Table 2. AIM IDs**

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



DATABAR EXPANDED COMPOSITE	e	65
DATABAR LIMITED	e	65
DATABAR LIMITED COMPOSITE	e	65
DATA MATRIX	d	64
EAN128	C	43
EAN128 COMPOSITE	C	43
EAN13	E	45
EAN13 P2	E	45
EAN13 P5	E	45
EAN13 COMPOSITE	E	45
EAN8	E	45
EAN8 P2	E	45
EAN8 P5	E	45
EAN8 COMPOSITE	E	45
FOLLET 2OF5	X	58
I2OF5	I	49
IATA INDUSTRIAL 2OF5	X	58
INDUSTRIAL 2OF5	X	58
ISBN	X	58
ISBT128 CONCAT	X	58
ISSN	X	58
MAXICODE	U	55
MICRO QR	Q	51
MICRO PDF	L	4C
MSI	M	4D
PDF417	L	4C
PLESSEY	P	50
POSTAL AUSTRALIAN	X	58
POSTAL IMB	X	58
POSTAL JAPANESE	X	58
POSTAL KIX	X	58
POSTAL PLANET	X	58
POSTAL PORTUGAL	X	58
POSTAL POSTNET BB	X	58
POSTAL ROYAL MAIL	X	58
POSTAL SWEDISH	X	58
POSTNET	X	58
QR CODE	Q	51
S25	S	53
TRIOPTIC	X	58
UPCA	E	45
UPCA P2	E	45
UPCA P5	E	45
UPCA COMPOSITE	E	45
UPCE	E	45
UPCE P2	E	45
UPCE P5	E	45
UPCE COMPOSITE	E	45





## Set AIM ID Individually for GS1-128

This feature configures a Label ID individually for the GS1-128 symbology and the programming for this works the same way as Label ID. See [Label ID: Set Individually Per Symbology, starting on page 274](#) for detailed instructions on setting this feature.



Set AIM ID Individually for GS1-128 = Disable



Set AIM ID Individually for GS1-128 = Enable





## Label ID

A Label ID is a customizable code of up to three ASCII characters (convert to Hex using the ASCII Chart on the inside back cover of this manual), used to identify a bar code symbology type. It can be appended previous to or following the transmitted bar code data depending upon how this option is enabled. This feature provides options for configuring custom Label IDs or individually per symbology (see "Individually Set Label ID" on page 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 77.

See [Label ID](#), starting on page 271 of "References" for more information on setting this feature.

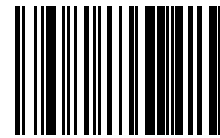
### Label ID: Pre-Loaded Sets

The reader supports two pre-loaded sets of Label IDs. See [Label ID: Pre-loaded Sets](#), starting on page 271 for details on the USA set and EU set.

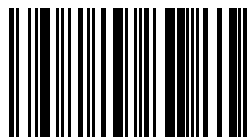


**CAUTION**

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



Label ID Pre-loaded Set = USA Set



Label ID Pre-loaded Set = EU Set

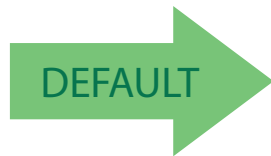


## Individually Set Label ID

This feature configures a Label ID individually for a single symbology. To set, first define whether you want it as a prefix or suffix by scanning a label below. Then turn to [Label ID Symbology Selection • 1D Symbologies](#), starting on page 82 to select the symbology you want to set, followed by up to 3 characters from the ASCII Chart at the back of this manual. See "[Label ID: Set Individually Per Symbology](#)" on page 274 for detailed instructions on setting this feature.

### Label ID Control

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



Label ID Transmission = Disable



Label ID Transmission = Enable as Prefix



Label ID Transmission = Enable as Suffix



### Label ID Symbology Selection – 1D Symbologies

This option selects the symbology for which a Label ID is to be configured. See "Label ID" on page 80 or page 274 in "References" for more detailed instructions.



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



Set ABC Codabar Label ID Character(s)



Set Code 32 Pharmacode Label ID Character(s)



Set Anker Plessey Label ID Character(s)



Set Code 93 Label ID Character(s)



Set Australian Postal Code Label ID Character(s)



Set Concatenated ISBT 128 Label ID Character(s)



Set Codabar Label ID Character(s)



Set Danish PPT Label ID Character(s)



Set Code 11 Label ID Character(s)



Set EAN 13 Label ID Character(s)



Set Code 128 Label ID Character(s)



Set EAN 13 Composite Label ID Character(s)



Set Code 39 Label ID Character(s)



Set EAN 13 P2 Label ID Character(s)

## Label ID Symbology Selection – 1D Symbologies (continued)



Set Code 39 CIP Label ID Character(s)



Set EAN 13 P5 Label ID Character(s)



Set EAN 8 Label ID Character(s)



Set GS1 DataBar Expanded Composite Label ID Character(s)



Set EAN 8 Composite Label ID Character(s)



Set GS1-128 Label ID Character(s)



Set EAN 8 P2 Label ID Character(s)



Set GS1-128 Composite Label ID Character(s)



Set EAN 8 P5 Label ID Character(s)



Set GSI DataBar Limited Label ID Character(s)



Set Follett 2 of 5 Label ID Character(s)



GSI DataBar Limited Composite Label ID Character(s)



Set GS1 DataBar 14 Label ID Character(s)



Set GTIN 2 Label ID Character(s)



Set GS1 DataBar 14 Composite Label ID Character(s)



Set GTIN 5 Label ID Character(s)



## Label ID Symbology Selection – 1D Symbologies (continued)



Set GS1 DataBar Expanded Label ID Character(s)



Set GTIN 8 Label ID Character(s)



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



Set LaPoste Code 39 Label ID Character(s)



Set IMB Postal Code Label ID Character(s)



Set MSI Label ID Character(s)



Set Industrial 2 of 5 Label ID Character(s)



Set Planet Postal Code Label ID Character(s)



Set Interleaved 2 of 5 Label ID Character(s)



Set Plessey Label ID Character(s)



Set ISBN Label ID Character(s)



Set Portugal Postal Code Label ID Character(s)



Set ISSN Label ID Character(s)



Set Postnet Label ID Character(s)



Set Japan Postal Code Label ID Character(s)



Set Kix Postal Code Label ID Character(s)

## Label ID Symbology Selection – 1D Symbologies (continued)



Set PZN Code Label ID Character(s)



Set Postnet BB Label ID Character(s)



Set Royal Postal Code Label ID Character(s)



Set UPC-A Composite Label ID Character(s)



Set Standard 2 of 5 Label ID Character(s)



Set UPC-A P2 Label ID Character(s)



Set Swedish Postal Code Label ID Character(s)



Set UPC-A P5 Label ID Character(s)



Set Trioptic Code Label ID Character(s)



Set UPC-E Label ID Character(s)



Set UPC-A Label ID Character(s)



Set UPC-E P5 Label ID Character(s)



## Label ID Symbology Selection – 2D Symbologies



Set Aztec Label ID Character(s)



Set Maxicode Label ID Character(s)



Set China Sensible Label ID Character(s)



Set PDF 417 Label ID Character(s)



Set Data Matrix Label ID Character(s)



Set Micro PDF 417 Label ID Character(s)



Set Micro QR Label ID Character(s)



Set QR Code Label ID Character(s)



## Advanced Formatting: User Label Edit

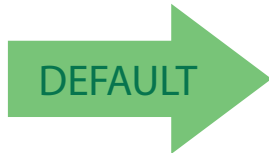
Advanced formatting is available to create user label edit scripts. See the Datalogic Aladdin configuration application or contact Technical Support.

### Case Conversion

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



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



Case Conversion = Disable (no case conversion)



Case Conversion = Convert to upper case



Case Conversion = Convert to lower case



## Character Conversion

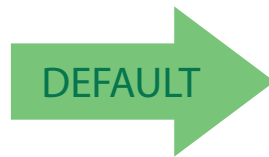
Character conversion is an eight byte configuration item. The eight bytes are 4 character pairs represented in hexadecimal ASCII values. The first character in the pair is the character that will be converted. The second character in the pair is the character to convert to. If the character to convert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



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



Configure Character Conversion



**0xFFFFFFFFFFFFFFFF**  
**(No character conversion)**

# READING PARAMETERS

## **DOUBLE READ TIMEOUT** starting on page 90

## **LED AND BEEPER INDICATORS** starting on page 92

- Power On Alert
- Good Read: When to Indicate
- Good Read Beep Type
- Good Read Beep Frequency
- Good Read Beep Length
- Good Read Beep Volume
- Good Read LED Duration

## **SCANNING FEATURES** starting on page 97

- Scan Mode
- Stand Mode Indication
- Stand Operation
- Pick Mode
- Stand Mode Sensitivity
- Stand Mode Illumination Off Time
- Scanning Active Time
- Stand Illumination Control
- Flash On Time
- Flash Off Time
- Aiming Pointer
- Aiming Duration Timer
- Green Spot Duration
- Mobile Phone Mode
- Partial Label Reading Control
- Decode Negative Image
- Image Capture

## **CORDED ONLY FEATURES** starting on page 107

- Corded Stand Mode
- Corded Stand Beep

## **MULTIPLE LABEL READING** starting on page 109

- Multiple Labels per Frame
- Multiple Labels Ordering by Code Symbology
- Multiple Labels Ordering by Code Length



### 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



## LED AND BEEPER INDICATORS

### Power On Alert

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



Power On Alert = Disable (No Audible Indication)



Power On Alert = Power-up Beep

### Good Read: When to Indicate

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



Indicate Good Read = After Decode



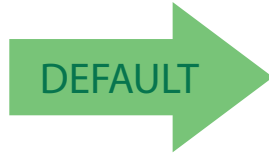
Indicate Good Read = After Transmit



Indicate Good Read =  
After CTS goes inactive then active

### Good Read Beep Type

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



Good Read Beep Type = Mono



Good Read Beep Type = Bitonal

### Good Read Beep Frequency

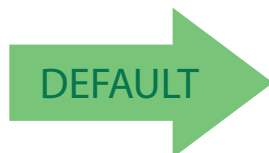
Adjusts the good read beep to sound at a selectable low, medium or high frequency, selectable from the list below. (Controls the beeper's pitch/tone.)



Good Read Beep Frequency = Low



Good Read Beep Frequency = Medium



Good Read Beep Frequency = High



## Good Read Beep Length



Good Read Beep Length = 60 msec



Good Read Beep Length = 80 msec



Good Read Beep Length = 100 msec



Good Read Beep Length = 120 msec



Good Read Beep Length = 140 msec



Good Read Beep Length = 160 msec



Good Read Beep Length = 180 msec



Good Read Beep Length = 200 msec



## Good Read Beep Volume

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



Good Read Beep Volume = Beeper Off



Good Read Beep Volume = Low



Good Read Beep Volume = Medium



Good Read Beep Volume = High





### Good Read LED Duration

This feature specifies the amount of time that the Good Read LED remains on following a good read. The good read LED on time can be set within a range of 100 milliseconds to 25,500 milliseconds (0.1 to 25.5 seconds) in 100ms increments. A setting of 00 keeps the LED on until the next trigger pull.

See [page 277](#) in “References” for detailed instructions and examples for setting this feature.



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



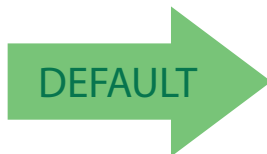
Select Good Read LED Duration Setting

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

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



CANCEL



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

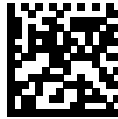


**Indicators are dimmed during sleep.**

## SCANNING FEATURES

### Scan Mode

Selects the reader's scan operating mode. See [page 278](#) in "References" for descriptions.



Scan Mode = Trigger Single



Scan Mode = Trigger Hold Multiple



Scan Mode = Trigger Pulse Multiple



Scan Mode = Flashing



Scan Mode = Always On



Scan Mode = Stand Mode

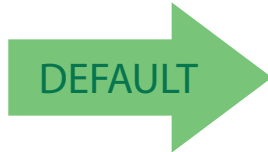


**Options concerning Stand Mode behavior are available at the following feature, [Stand Operation](#).**



### Stand Mode Indication

This operation is useful for indicating when the reader is in Stand Mode. If enabled, the blue indicator will blink when Stand Mode scanning is active. If reader detects motion (or removed from base station for cordless models) and switches out of Stand Mode into Triggered Mode, blinking will stop until Stand Mode is active again.



Stand Mode Indication = Disable



Stand Mode Indication = Enable



### Stand Operation

Specifies the behavior of the reader when stationary in a stand. There are two conditions which cause the reader to switch to Stand Mode:

1. The reader is configured to switch to Stand Mode when stationary.
2. The reader is placed into the cradle of the base station.

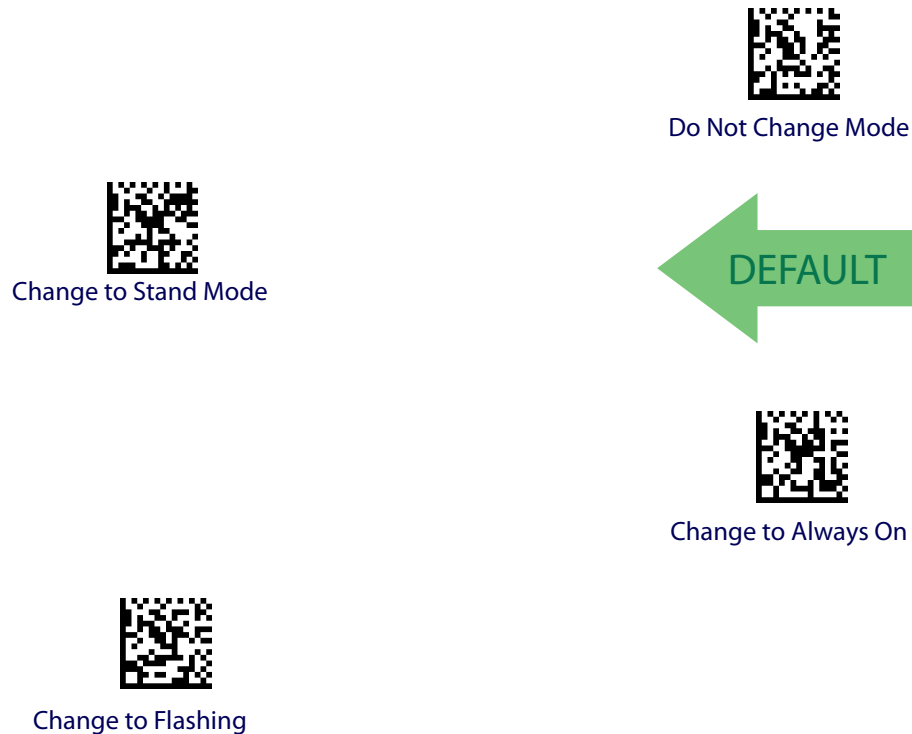
Below are further options concerning Stand Operation.

**Ignore Autorecognition.** Disables mode switching when the reader is placed in a stand.

**Switch to Stand Mode.** Automatically switches the reader to Stand Mode when the reader is placed in the stand.

**Switch to Flashing.** Automatically switches the reader to Flash Mode when the reader is placed in the stand.

**Switch to Always On.** Automatically switches the reader to Always On mode when the reader is placed in the stand.



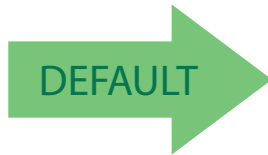


### Pick Mode

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



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



Pick Mode = Disable



Pick Mode = Enable

### Stand Mode Sensitivity

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



Stand Mode Sensitivity = Low



Stand Mode Sensitivity = Medium



Stand Mode Sensitivity = High



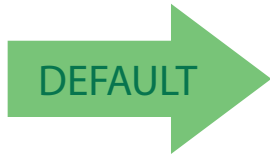
### Stand Mode Illumination Off Time

Specifies the amount of time reader illumination stays off after pulling the trigger when in Stand Mode. The configurable range is 01 to 32 by 01 in increments of 500ms (500ms to 16 seconds). See page 279 in “References” for a description of this feature.



Select Stand Mode Time Setting

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



**04 = 2 Seconds**

### Scanning Active Time

This setting specifies the amount of time that the reader stays in scan ON state once the state is entered. The range for this setting is from 1 to 255 seconds in 1-second increments. See page 280 in “References” for further description of this feature.



Scanning Active Time = 3 seconds



Scanning Active Time = 5 seconds

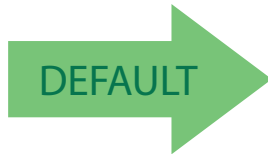


Scanning Active Time = 8 seconds



### Stand Illumination Control

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



Stand Illumination Control = OFF



Stand Illumination Control = ON



Stand Illumination Control = Dim

### Motion Still Timeout

Motion Still Timeout specifies the waiting time after which no motions is detected. When no motion is detected for period of time longer than the set Motion Still Timeout period, the scanner assumes it is in a motionless condition. The selectable setting are from 500 to 25,500 milliseconds in 100 millisecond increments. The default is 2 seconds. This option relates to such features and the Aimer On timing and Stand Mode Object Sense scanning with respect to motion. See [page 289](#) in "References" for detailed information on setting this feature.



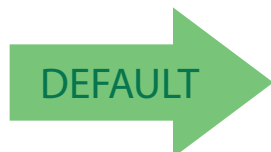
Select Motion Still Timeout Setting

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

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



CANCEL

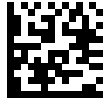


**14 = Motion Still Timeout for 2 seconds**



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



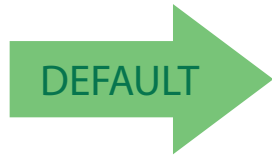
Select Flash ON Time Setting

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

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



CANCEL



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

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



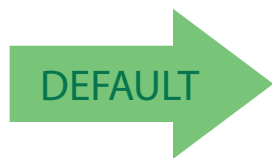
Select Flash OFF Time Setting

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

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



CANCEL



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



### Aiming Pointer

Enables/disables the aiming pointer for all symbologies.



Aiming Pointer = Disable

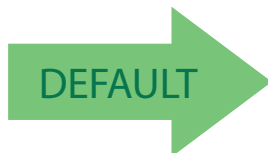


Aiming Pointer = Enable



### Aiming Duration Timer

Specifies the frame of time the aiming pointer remains on after decoding a label, when in trigger single mode. The range for this setting is from 1 to 255 seconds in 1-second increments. See [page 281](#) in “References” for a description of this feature.



Aiming Off After Decoding



Set Aiming Duration Timer

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

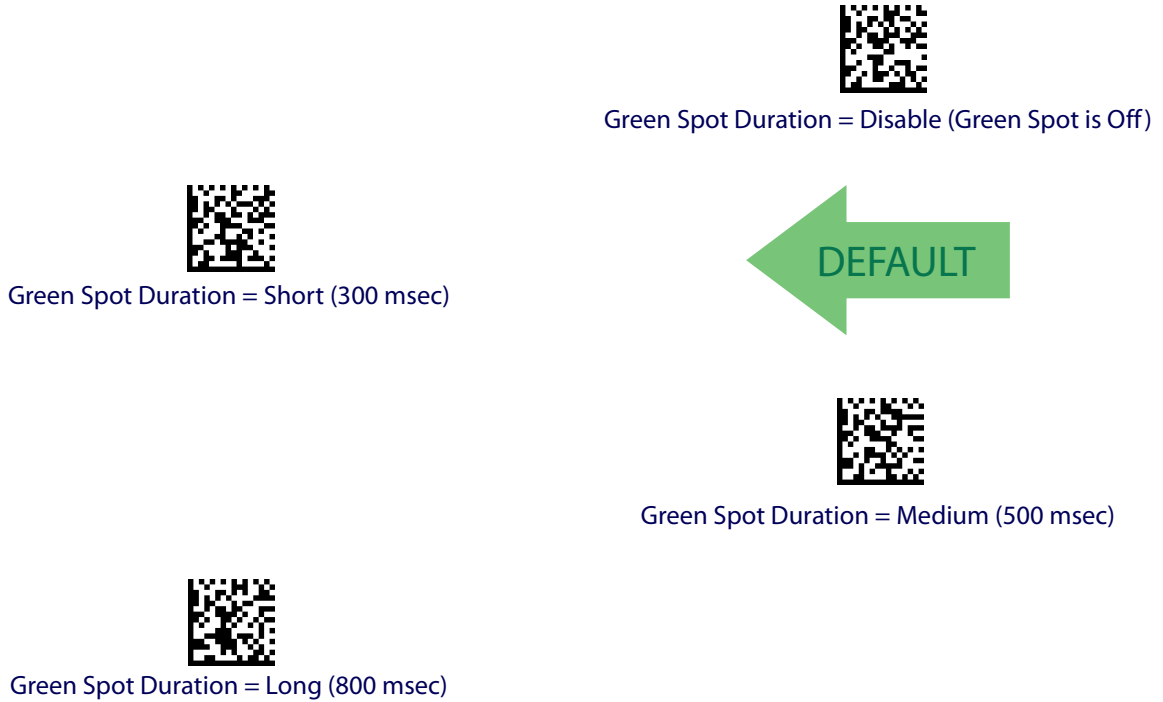
Make a mistake? Scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL

### Green Spot Duration

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



### Mobile Phone Mode

This mode is useful for scanning bar codes displayed on a mobile phone. Other options for this feature can be configured using the Datalogic Aladdin application.





### Partial Label Reading Control

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



Partial Label Reading Control = Disable



Partial Label Reading Control = Enable

### Decode Negative Image

Enable/Disable the ability to decode a negative image for all symbologies. When this feature is enabled, you will be unable to read normally-printed labels or programming labels in this manual. Scan the “Disable” bar code below to return the scanner to its default for this feature. To set decoding for only 2D codes, go to [2D Normal/Inverse Symbol Control](#) on page 205. For additional options, see the Aladdin configuration application.

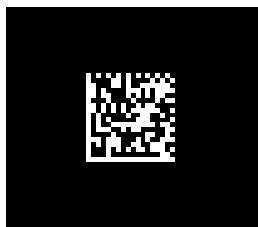


Unlike some programming features and options, **Decode Negative Image selections require that you scan only one programming bar code label. DO NOT scan an ENTER/EXIT bar code prior to scanning a Decode Negative Image bar code.**



**CAUTION**

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



Decode Negative Image = Disable



DEFAULT



Decode Negative Image = Enable

### Image Capture

For information and a list of options for Image Capture, use the Datalogic Aladdin configuration application, available for free download from the Datalogic Scanning website.

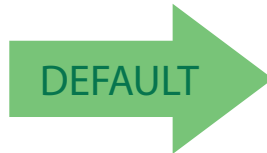
## CORDED ONLY FEATURES

### Corded Stand Mode

Sets the Stand Mode Operation for Corded models



**This feature is available starting with firmware release 610001013.**



Corded Stand Mode = Disable



Corded Stand Mode = Generic Stand



Corded Stand Mode = for All-in-one and Base



Corded Stand Mode = Precise Stand

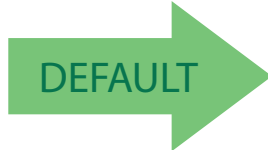


### Corded Stand Beep

Enables/Disables the beep that indicates when Corded Stand position is detected.



**This feature is available starting on firmware release 610001013.**



Corded Stand Beep = Disable



Corded Stand Beep = Enable

## MULTIPLE LABEL READING

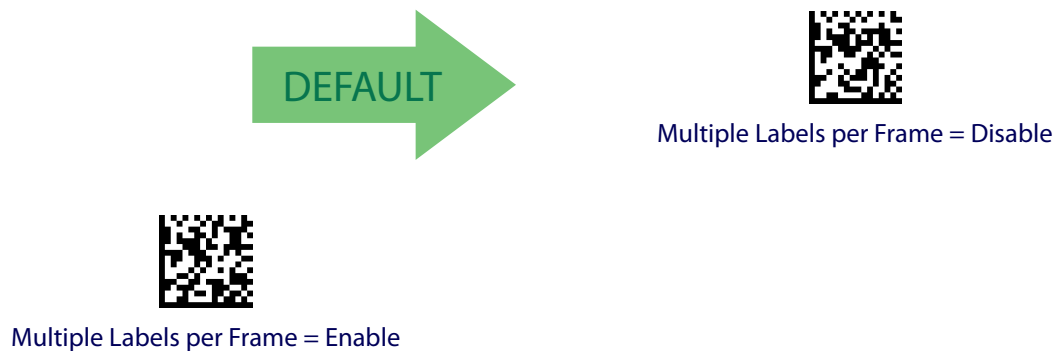
In standard (default) mode, when the reader's aiming system is activated (by a trigger pull, motion or other method depending on the mode), it then acquires and processes each image in the area in front of it (the Volume). In this case, the scanner stops processing the image once it decodes a label.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

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

### Multiple Labels per Frame

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

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



## Multiple Labels Ordering by Code Symbology

This feature allows you to specify the order multiple labels are transmitted by symbology type, when Multiple Labels per Frame is enabled. See [page 284](#) in “References” for detailed information on setting this feature.



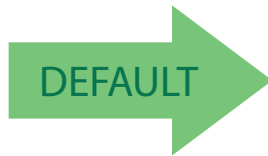
Select Symbologies for Multiple Labels Ordering

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

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



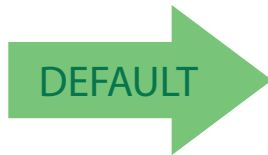
CANCEL



00000000000 = Random order

## Multiple Labels Ordering by Code Length

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



Multiple Labels Ordering = Disable



Transmit Increasing Length Order



Transmit Decreasing Length Order



# 1D SYMBOLOGIES

## 1D Code Selection

The reader supports the following 1D symbologies (bar code types). See "2D Symbologies" starting on page 203 for 2D bar codes. Symbology-dependent options are included in each chapter.

- |   |   |
|---|---|
| • Disable All Symbologies, page 112             | • GS1-128, page 150                       |
| • Code EAN/UPC, page 113                        | • Code ISBT 128, page 151                 |
| • UPC-E, page 116                               | • Interleaved 2 of 5 (1 2 of 5), page 154 |
| • GTIN Formatting, page 119                     | • Interleaved 2 of 5 CIP HR, page 159     |
| • EAN 13 (Jan 13), page 120                     | • Follett 2 of 5, page 159                |
| • ISSN, page 122                                | • Standard 2 of 5, page 160               |
| • EAN 8 (Jan 8), page 123                       | • Industrial 2 of 5, page 164             |
| • UPC/EAN Global Settings, page 125             | • Code IATA, page 168                     |
| • Add-Ons, page 127                             | • Codabar, page 169                       |
| • Code 39, page 134                             | • ABC Codabar, page 175                   |
| • Trioptic Code, page 140                       | • Code 11, page 178                       |
| • Code 32 (Ital Pharmaceutical Code), page 140  | • GS1 DataBar™ Omnidirectional, page 182  |
| • Code 39 CIP (French Pharmaceutical), page 142 | • GS1 DataBar™ Expanded, page 183         |
| • Code 39 Danish PPT, page 142                  | • GS1 DataBar™ Limited, page 188          |
| • Code 39 LaPoste, page 143                     | • Code 93, page 189                       |
| • Code 39 PZN, page 143                         | • MSI, page 194                           |
| • Code 128, page 144                            | • Plessey, page 199                       |

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



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

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



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

## DISABLE ALL SYMBOLOGIES

Use this feature to disable all symbologies.

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



Disable All Symbologies



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



## CODE EAN/UPC

### Coupon Control

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



Coupon Control = Allow all coupon bar codes to be decoded



Coupon Control = Enable only UPCA coupon decoding



Coupon Control = Enable only GS1 DataBar™ coupon decoding



## UPC-A

The following options apply to the UPC-A symbology.

### UPC-A Enable/Disable

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



UPC-A = Enable



UPC-A = Disable



### UPC-A Check Character Transmission

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



UPC-A Check Character Transmission = Send



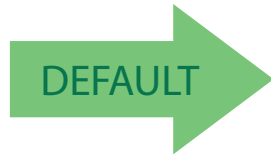
UPC-A Check Character Transmission = Don't Send





## Expand UPC-A to EAN-13

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



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



UPC-A to EAN-13 = Expand

## UPC-A Number System Character Transmission

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



UPC-A Number System Character = Do not transmit



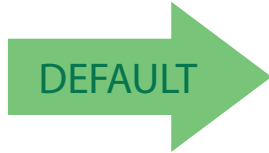
UPC-A Number System Character = Transmit





### UPC-A 2D Component

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



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



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

### UPC-E

The following options apply to the UPC-E symbology.

#### UPC-E Enable/Disable

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



UPC-E = Disable

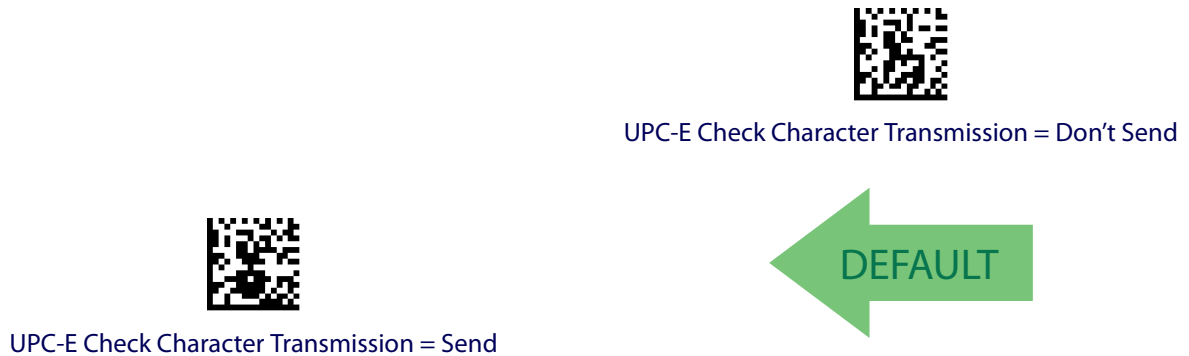


UPC-E = Enable



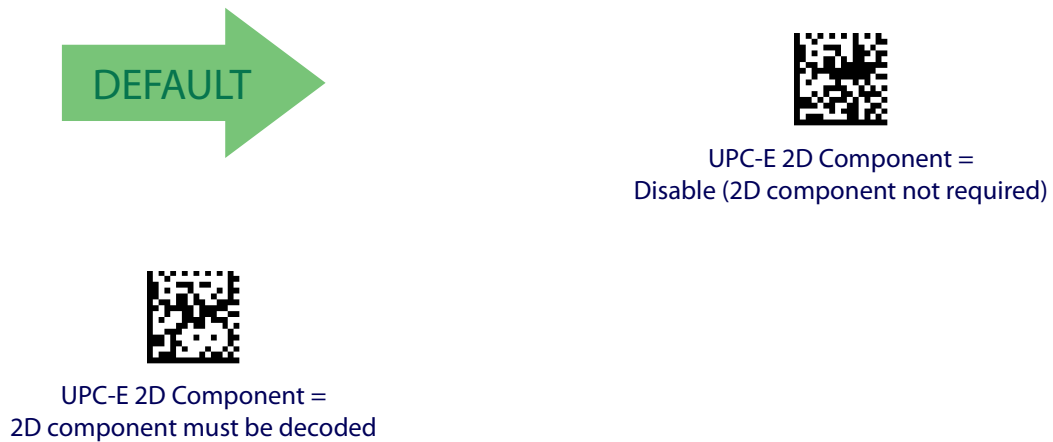
## UPC-E Check Character Transmission

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



## UPC-E 2D Component

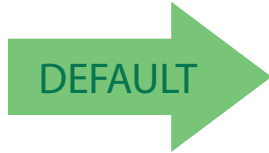
This feature enables/disables a requirement that a 2D label component be decoded when a base label for this symbology is decoded.





### Expand UPC-E to EAN-13

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



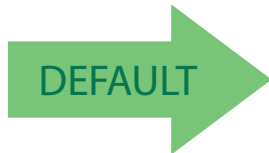
UPC-E to EAN-13 = Don't Expand



UPC-E to EAN-13 = Expand

### Expand UPC-E to UPC-A

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



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

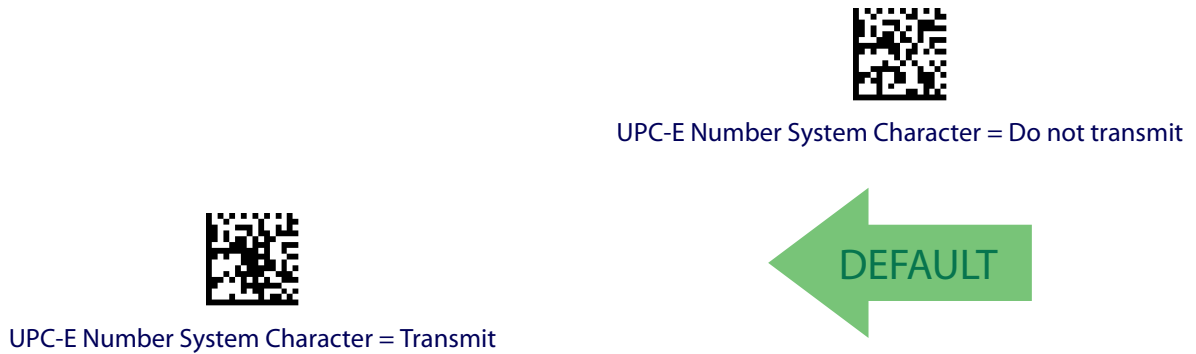


UPC-E to UPC-A = Expand



## UPC-E Number System Character Transmission

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



## 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.**





## EAN 13 (JAN 13)

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

### EAN 13 Enable/Disable

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



EAN 13 = Enable



EAN 13 = Disable



### EAN 13 Check Character Transmission

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



EAN 13 Check Character Transmission = Send



EAN 13 Check Character Transmission = Don't 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 ISBN Conversion

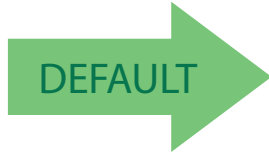
This option enables/disables conversion of EAN 13/JAN 13 Bookland labels starting with 978 to ISBN labels.





### **EAN-13 2D Component**

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



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



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

### **ISSN**

The following options apply to the ISSN symbology.

#### **ISSN Enable/Disable**

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



ISSN = Disable



ISSN = Enable



## EAN 8 (JAN 8)

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

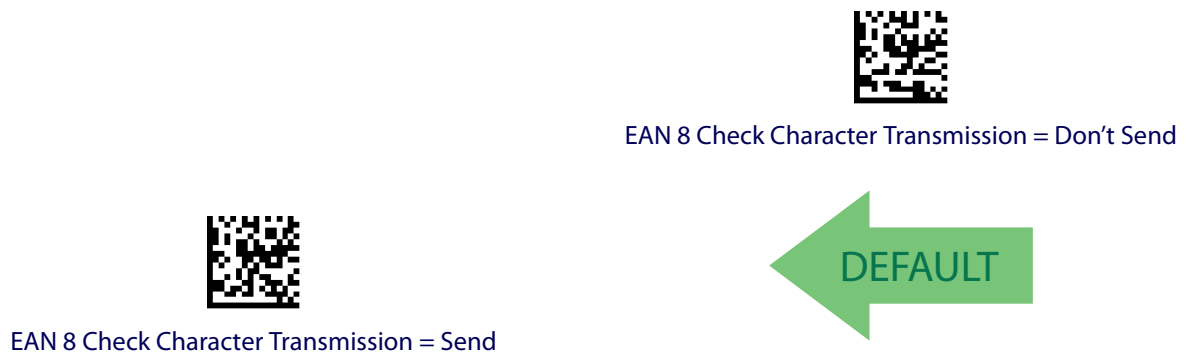
### EAN 8 Enable/Disable

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



### EAN 8 Check Character Transmission

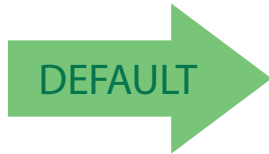
Enable this option to transmit the check character along with EAN 8 bar code data.





### Expand EAN 8 to EAN 13

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



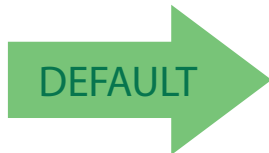
Expand EAN 8 to EAN 13 = Disable



Expand EAN 8 to EAN 13 = Enable

### EAN 8 2D Component

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



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



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

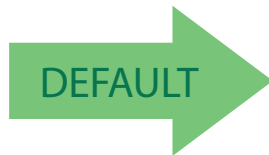


## UPC/EAN GLOBAL SETTINGS

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

### UPC/EAN Price Weight Check

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



Price Weight Check = Disabled



Price Weight Check = 4-digit price-weight check



Price Weight Check = 5-digit price-weight check



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

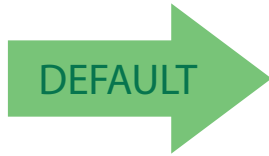


Price Weight Check = European 5-digit price-weight check



### UPC/EAN Quiet Zones

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



UPC/EAN Quiet Zones = Two Modules



UPC/EAN Quiet Zones = Three Modules



## ADD-ONS

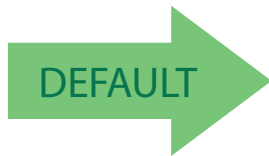
Contact Customer Support for advanced programming of optional and conditional add-ons.

### Optional Add-ons

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



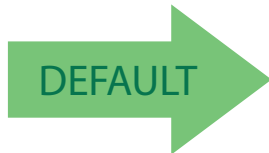
**If a UPC/EAN base label and an add-on are both decoded, the reader will transmit the base label and add-on. If a UPC/EAN base label is decoded without an add-on, the base label will be transmitted without an add-on. Conditional add-on settings (if enabled) are considered by the reader before optional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



Optional Add-Ons = Disable P2



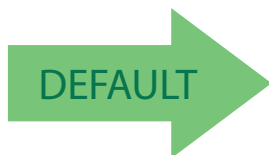
Optional Add-Ons = Enable P2



Optional Add-Ons = Disable P5



Optional Add-Ons = Enable P5



Optional Add-Ons = Disable GS1-128



Optional Add-Ons = Enable GS1-128



### Optional Add-On Timer

This option sets the time the reader will look for an add-on when an add-on fragment has been seen and optional add-ons are enabled. (Also see "Optional GS1-128 Add-On Timer" on page 131.)



Optional Add-on Timer = 10ms



Optional Add-on Timer = 20ms



Optional Add-on Timer = 30ms

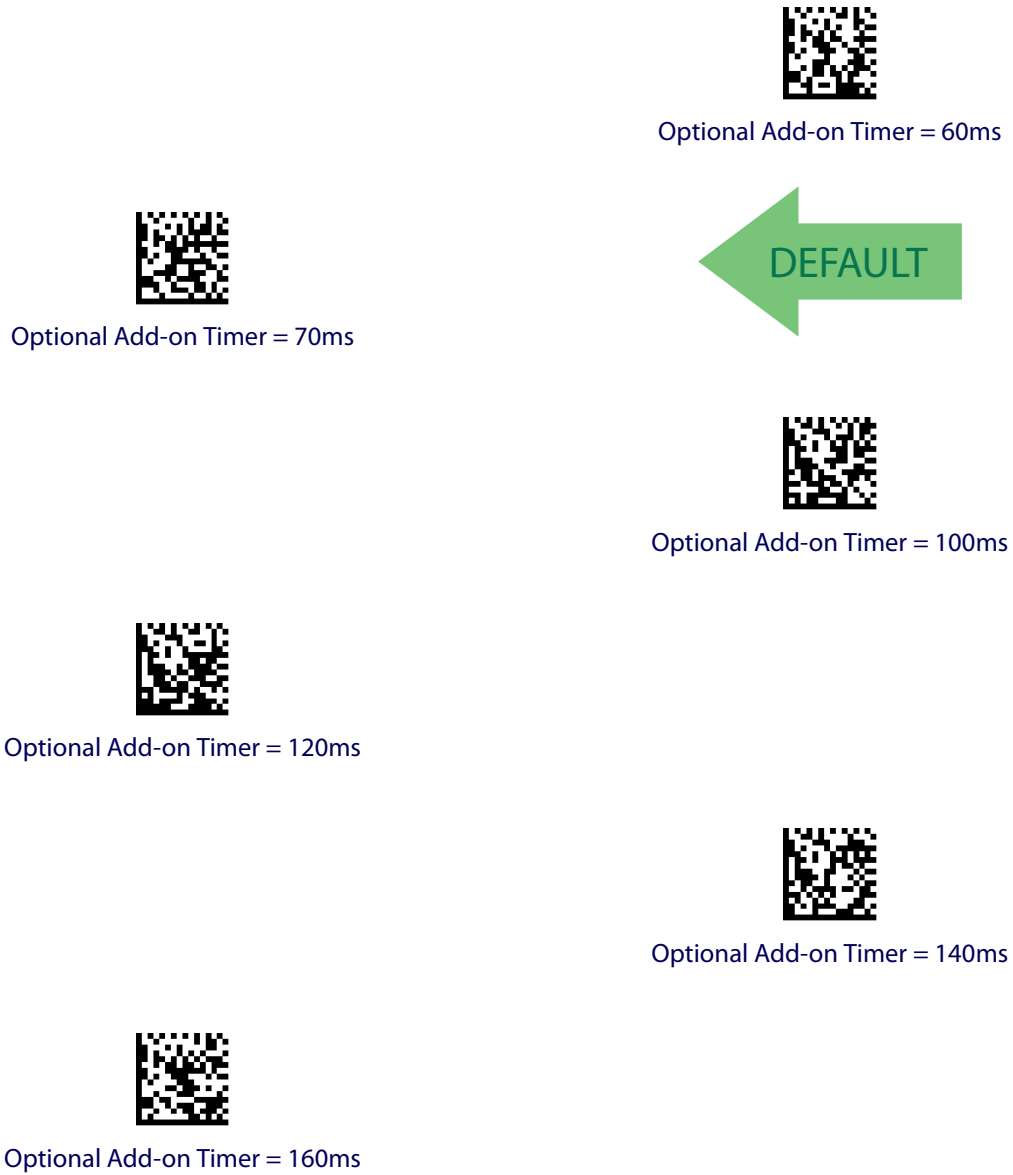


Optional Add-on Timer = 40ms



Optional Add-on Timer = 50ms

**Optional Add-On Timer — cont.**





## 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



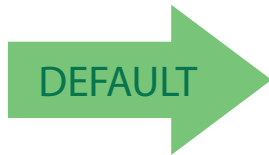
Optional Add-on Timer = 280ms



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 128.



Optional GS1-128 Add-On Timer = Disable



Optional GS1-128 Add-On Timer = 10ms



Optional GS1-128 Add-On Timer = 20ms



Optional GS1-128 Add-On Timer = 30ms



Optional GS1-128 Add-On Timer = 40ms



Optional GS1-128 Add-On Timer = 50ms



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



Optional GS1-128 Add-On Timer = 60ms



Optional GS1-128 Add-On Timer = 70ms



Optional GS1-128 Add-On Timer = 100ms



Optional GS1-128 Add-On Timer = 120ms



Optional GS1-128 Add-On Timer = 140ms



Optional GS1-128 Add-On Timer = 160ms

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



Optional GS1-128 Add-On Timer = 180ms



Optional GS1-128 Add-On Timer = 200ms



Optional GS1-128 Add-On Timer = 220ms



Optional GS1-128 Add-On Timer = 240ms



Optional GS1-128 Add-On Timer = 260ms



Optional GS1-128 Add-On Timer = 280ms



Optional GS1-128 Add-On Timer = 300ms



## CODE 39

The following options apply to the Code 39 symbology.

### Code 39 Enable/Disable



Code 39 = Enable



Code 39 = Disable



### 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 =  
Calculate Std Check



Code 39 Check Character Calculation = Don't Calculate



Code 39 Check Character Calculation =  
Calculate Mod 7 Check





### Code 39 Check Character Calculation — cont.



Code 39 Check Character Calculation =  
Enable Italian Post Check



Code 39 Check Character Calculation =  
Enable Daimler Chrysler Check

### Code 39 Check Character Transmission

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



Code 39 Check Character Transmission = Don't Send



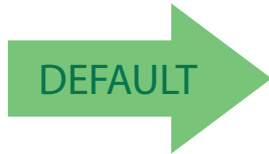
Code 39 Check Character Transmission = Send





### Code 39 Start/Stop Character Transmission

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



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



Code 39 Start/Stop Character Transmission = Transmit

### Code 39 Full ASCII

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



Code 39 Full ASCII = Disable



Code 39 Full ASCII = Enable



## Code 39 Quiet Zones

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



Code 39 Quiet Zones = Quiet Zones on two sides



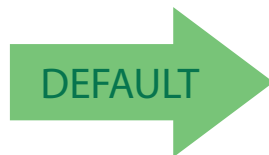
Code 39 Quiet Zones = Small Quiet Zones on two sides

## Code 39 Length Control

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

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

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



Code 39 Length Control = Variable Length



Code 39 Length Control = Fixed Length



### Code 39 Set Length 1

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

[Table 3](#) provides examples for setting Length 1. See [page 267](#) for detailed instructions on setting this feature.

**Table 3. 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 <a href="#">Appendix D, Keypad</a></b>	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				

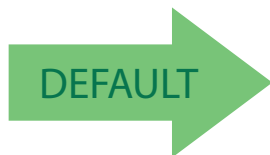


Select Code 39 Set Length 1 Setting

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



CANCEL



**02 = Length 1 is 2 Characters**



## Code 39 Set Length 2

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

[Table 4](#) provides examples for setting Length 2. See [page 267](#) for detailed instructions on setting this feature.

**Table 4. 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 <a href="#">Appendix D, Keypad</a></b>	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	<b>Scan ENTER/EXIT PROGRAMMING .MODE</b>				

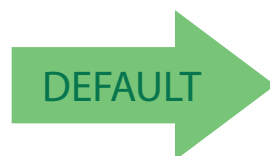


Select Code 39 Length 2 Setting

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



CANCEL



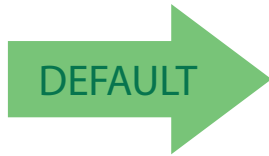
**50 = Length 2 is 50 Characters**



## TRIOPTIC CODE

The following options apply to the Trioptic symbology.

### Trioptic Code Enable/Disable



Trioptic Code = Disable



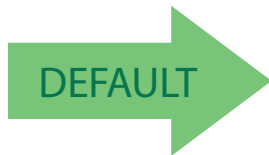
Trioptic Code = Enable

## CODE 32 (ITAL PHARMACEUTICAL CODE)

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

### Code 32 Enable/Disable

When disabled, the reader will not read Code 32 bar codes.



Code 32 = Disable



Code 32 = Enable

## Code 32 Feature Setting Exceptions

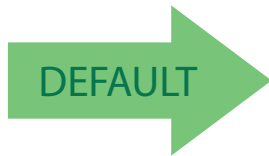


The following features are set for Code 32 by using these Code 39 settings:

- "Code 39 Quiet Zones" on page 137
- "Code 39 Length Control" on page 137
- "Trioptic Code" on page 140

## Code 32 Check Char Transmission

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



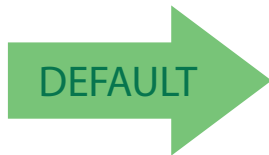
Code 32 Check Character Transmission = Don't Send



Code 32 Check Character Transmission = Send

## Code 32 Start/Stop Character Transmission

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



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



Code 32 Start/Stop Character Transmission = Transmit

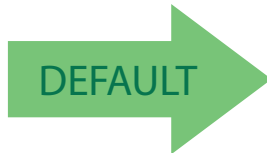


## CODE 39 CIP (FRENCH PHARMACEUTICAL)

The following options apply to the Code 39 CIP symbology.

### Code 39 CIP Enable/Disable

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



Code 39 CIP = Disable



Code 39 CIP = Enable

## CODE 39 DANISH PPT

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

### Code 39 Danish PPT Enable/Disable

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



Code 39 Danish PPT = Disable



Code 39 Danish PPT = Enable

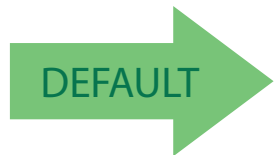


## CODE 39 LAPOSTE

The following options apply to the Code 39 LaPoste symbology.

### Code 39 LaPoste Enable/Disable

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



Code 39 LaPoste = Disable



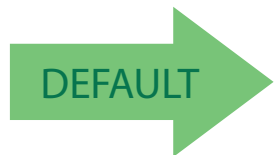
Code 39 LaPoste = Enable

## CODE 39 PZN

The following options apply to the Code 39 PZN symbology.

### Code 39 PZN Enable/Disable

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



Code 39 PZN = Disable



Code 39 PZN = Enable



## CODE 128

The following options apply to the Code 128 symbology.

### Code 128 Enable/Disable

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



Code 128 = Enable

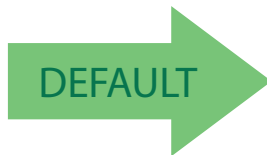


Code 128 = Disable



### Expand Code 128 to Code 39

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



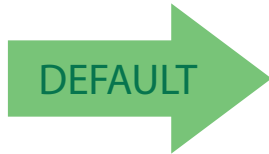
Code 128 to Code 39 = Don't Expand



Code 128 to Code 39 = Expand

## Code 128 Check Character Transmission

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



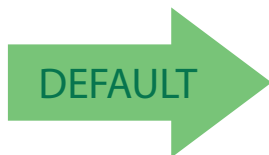
Code 128 Check Character Transmission = Don't Send



Code 128 Check Character Transmission = Send

## Code 128 Function Character Transmission

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



Code 128 Function Character Transmission = Don't Send

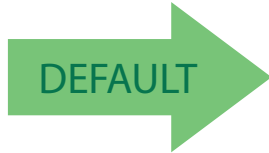


Code 128 Function Character Transmission = Send



### Code 128 Sub-Code Exchange Transmission

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



Code 128 Sub-Code Exchange Transmission = Disable



Code 128 Sub-Code Exchange Transmission = Enable

### Code 128 Quiet Zones

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



Code 128 Quiet Zones = Quiet Zones on two sides

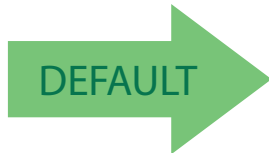


Code 128 Quiet Zones = Small Quiet Zones on two sides



## Code 128 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 128 symbology. See [page 267](#) for more information.



Code 128 Length Control = Variable Length



Code 128 Length Control = Fixed Length



## Code 128 Set Length 1

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

[Table 5](#) provides some examples for setting Length 1. See [page 267](#) for detailed instructions on setting this feature.

**Table 5. 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</b> <a href="#">Appendix D, Keypad</a>	'0' and '1'	'0' and '7'	'1' and '5'	'8' AND '0'
5	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				

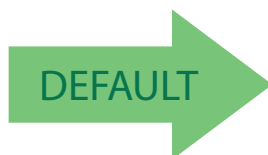


Select Code 128 Set Length 1 Setting

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



CANCEL



**01 = Length 1 is 1 Character**



## Code 128 Set Length 2

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

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

[Table 6](#) provides examples for setting Length 2. See [page 267](#) for detailed instructions on setting this feature.

**Table 6. 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'	'1' and '5'	'8' and '0'
5	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				



Select Code 128 Length 2 Setting

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



CANCEL



**80 = Length 2 is 80 Characters**



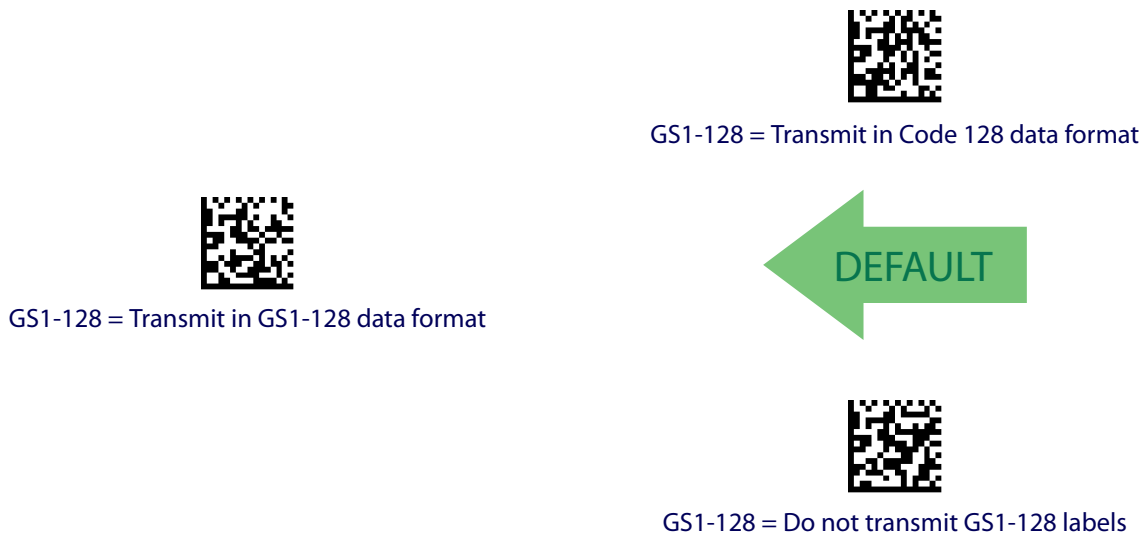
### GS1-128

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

#### GS1-128 Enable

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

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



#### GS1-128 2D Component

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



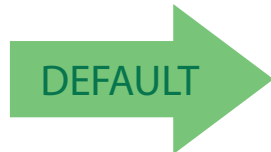


## CODE ISBT 128

The following options apply to the ISBT 128 symbology.

### ISBT 128 Concatenation

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



ISBN 128 Concatenation = Disable



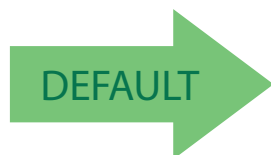
ISBN 128 Concatenation = Enable

### ISBT 128 Force Concatenation

When enabled, this feature forces concatenation for ISBT.



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



ISBN 128 Force Concatenation = Disable



ISBN 128 Force Concatenation = Enable

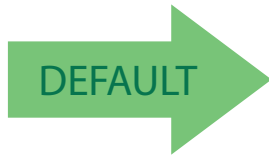


### ISBT 128 Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.



This option is only valid when ISBT 128 Concatenation is enabled (see "ISBT 128 Concatenation" on page 151).



ISBT 128 Concatenation Mode = Static



ISBT 128 Concatenation Mode = Dynamic

## ISBT 128 Dynamic Concatenation Timeout

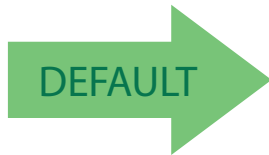
Specifies the timeout used by the ISBT 128 Dynamic Concatenation Mode.



ISBT 128 Dynamic Concatenation Timeout = 50 msec



ISBT 128 Dynamic Concatenation Timeout = 100 msec



ISBT 128 Dynamic Concatenation Timeout = 200 msec



ISBT 128 Dynamic Concatenation Timeout = 500 msec



ISBT 128 Dynamic Concatenation Timeout = 750 msec



ISBT 128 Dynamic Concatenation Timeout = 1 second

## ISBT 128 Advanced Concatenation Options



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

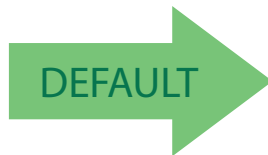


## INTERLEAVED 2 OF 5 (I 2 OF 5)

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

### I 2 of 5 Enable/Disable

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



I 2 of 5 = Disable

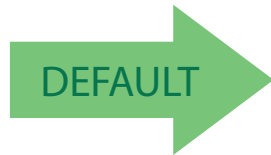


I 2 of 5 = Enable



## I 2 of 5 Check Character Calculation

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



I 2 of 5 Check Character Calculation = Disable



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



I 2 of 5 Check Character Calculation = Check German Parcel



I 2 of 5 Check Character Calculation = Check DHL



I 2 of 5 Check Character Calculation = Check Daimler Chrysler



I 2 of 5 Check Character Calculation = Check Bosch



I 2 of 5 Check Character Calculation = Italian Post



### I 2 of 5 Check Character Transmission

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



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



I 2 of 5 Check Character Transmission = Send

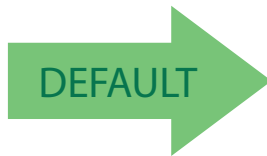


### I 2 of 5 Length Control

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

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

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



I 2 of 5 Length Control = Variable Length



I 2 of 5 Length Control = Fixed Length



### I 2 of 5 Set Length 1

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

Table 7 provides some examples for setting Length 1. See page 267 for detailed instructions on setting this feature.

**Table 7. 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>				

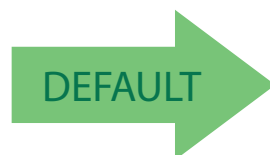


Select I 2 of 5 Length 1 Setting

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



CANCEL



**06 = Length 1 is 6 Characters**



### I 2 of 5 Set Length 2

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

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

Table 8 provides examples for setting Length 2. See page 267 for detailed instructions on setting this feature.

**Table 8. 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>				

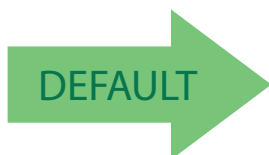


Select I 2 of 5 Length 2 Setting

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



CANCEL



**50 = Length 2 is 50 Characters**

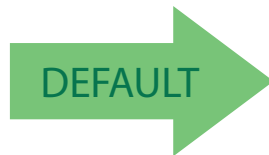


## INTERLEAVED 2 OF 5 CIP HR

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

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

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



Interleaved 2 of 5 CIP HR = Disable



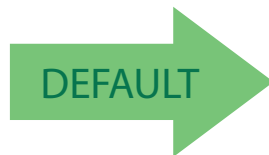
Interleaved 2 of 5 CIP HR = Enable

## FOLLETT 2 OF 5

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

### Follett 2 of 5 Enable/Disable

Enables/Disables ability of reader to decode Plessey labels.



Follett 2 of 5 = Disable



Follett 2 of 5 = Enable

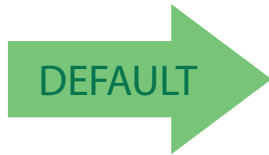


## STANDARD 2 OF 5

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

### Standard 2 of 5 Enable/Disable

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



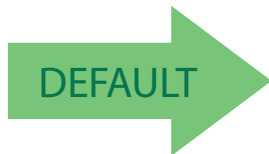
Standard 2 of 5 = Disable



Standard 2 of 5 = Enable

### Standard 2 of 5 Check Character Calculation

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



Standard 2 of 5 Check Character Calculation = Disable



Standard 2 of 5 Check Character Calculation = Enable

## Standard 2 of 5 Check Character Transmission

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



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



Standard 2 of 5 Check Character Transmission = Send

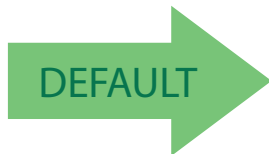


## Standard 2 of 5 Length Control

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

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

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



Standard 2 of 5 Length Control = Variable Length



Standard 2 of 5 Length Control = Fixed Length



### Standard 2 of 5 Set Length 1

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

[Table 9](#) provides some examples for setting Length 1. See [page 267](#) if you want detailed instructions on setting this feature.

**Table 9. 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</b> <a href="#">Appendix D, Keypad</a>	'0' and '1'	'0' and '7'	'1' and '5'	'5' AND '0'
5	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				

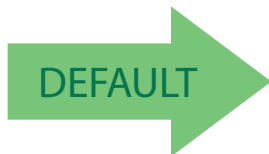


Select Standard 2 of 5 Length 1 Setting

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



CANCEL



**08 = Length 1 is 8 Characters**



## Standard 2 of 5 Set Length 2

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

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

[Table 10](#) provides examples for setting Length 2. See [page 267](#) for detailed instructions on setting this feature.

**Table 10. 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 <a href="#">Appendix D, Keypad</a></b>	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				

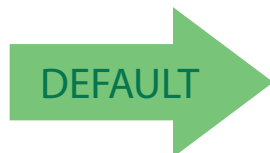


Select Standard 2 of 5 Length 2 Setting

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



CANCEL



**50 = Length 2 is 50 Characters**

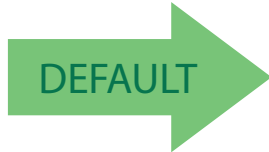


## INDUSTRIAL 2 OF 5

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

### Industrial 2 of 5 Enable/Disable

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



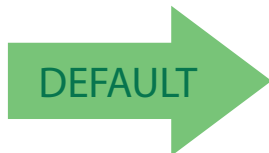
Industrial 2 of 5 = Disable



Industrial 2 of 5 = Enable

### Industrial 2 of 5 Check Character Calculation

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



Industrial 2 of 5 Check Character Calculation = Disable



Industrial 2 of 5 Check Character Calculation = Enable

## Industrial 2 of 5 Check Character Transmission

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



Industrial 2 of 5 Check Character Transmission = Disable



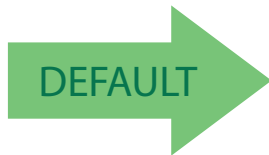
Industrial 2 of 5 Check Character Transmission = Enable

## Industrial 2 of 5 Length Control

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

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

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



Industrial 2 of 5 Length Control = Variable Length



Industrial 2 of 5 = Fixed Length



### Industrial 2 of 5 Set Length 1

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

Table 11 provides some examples for setting Length 1. See page 267 if you want detailed instructions on setting this feature.

**Table 11. Industrial 2 of 5 Length 1 Setting Examples**

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

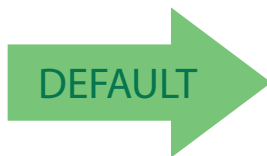


Select Industrial 2 of 5 Set Length 1 Setting

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



CANCEL



**01 = Length 1 is 1 Character**



## Industrial 2 of 5 Set Length 2

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

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

[Table 12](#) provides examples for setting Length 2. See [page 267](#) for detailed instructions on setting this feature.

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

STEP	ACTION	EXAMPLES			
1	Desired Setting	00 (Ignore This Length)	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT INDUSTRIAL 2 OF 5 LENGTH 2 SETTING				
4	Scan Two Characters From <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 bar code to abort and not save the entry string. You can then start again at the beginning.



CANCEL



**50 = Length 2 is 50 Characters**

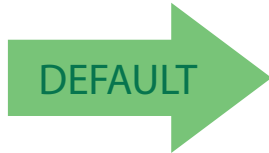


## CODE IATA

The following options apply to the IATA symbology.

### IATA Enable/Disable

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



IATA = Disable



IATA = Enable

### IATA Check Character Transmission

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



IATA Check Character Transmission = Disable



IATA Check Character Transmission = Enable

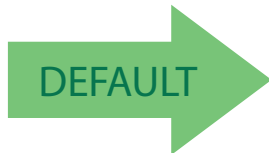


## CODABAR

The following options apply to the Codabar symbology.

### Codabar Enable/Disable

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



Codabar = Disable



Codabar = Enable

### Codabar Check Character Calculation

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



Codabar Check Character Calculation = Don't Calculate



Codabar Check Character Calculation = Enable AIM standard check char.



Codabar Check Character Calculation = Enable Modulo 10 check char.



### Codabar Check Character Transmission

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



Codabar Check Character Transmission = Don't Send



Codabar Check Character Transmission = Send



### Codabar Start/Stop Character Transmission

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



Codabar Start/Stop Character Transmission = Don't Transmit



Codabar Start/Stop Character Transmission = Transmit



### Codabar Start/Stop Character Set

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



Codabar Check Character Set = ABCD/TN\*E



Codabar Check Character Set = ABCD/ABCD



Codabar Check Character Set = abcd/tn\*e

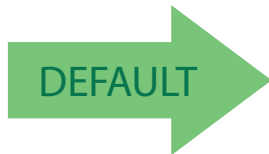


Codabar Check Character Set = abcd/abcd



### Codabar Start/Stop Character Match

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



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



Codabar Start/Stop Character Match = Require Match



### Codabar Quiet Zones

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



Codabar Quiet Zones = Quiet Zones on two sides



Codabar Quiet Zones = Small Quiet Zones on two sides

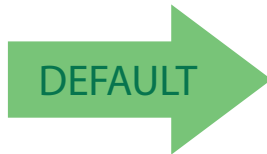


### Codabar Length Control

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

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

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



Codabar Length Control = Variable Length



Codabar Length Control = Fixed Length



### Codabar Set Length 1

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

[Table 13](#) provides some examples for setting Length 1. See [page 267](#) for detailed instructions on setting this feature.

**Table 13. 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 <a href="#">Appendix D, Keypad</a></b>	'0' and '3'	'0' and '9'	'1' and '5'	'5' AND '0'
5	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				

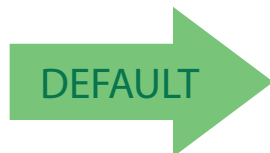


Select Codabar Length 1 Setting

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



CANCEL



**03 = Length 1 is 3 Characters**



### Codabar Set Length 2

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

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

Table 14 provides examples for setting Length 2. See page 267 for detailed instructions on setting this feature.

**Table 14. 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>				

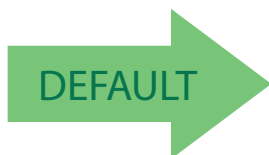


Select Codabar Length 2 Setting

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



CANCEL



**50 = Length 2 is 50 Characters**

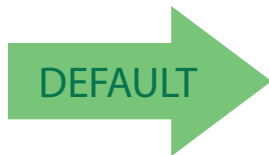


## ABC CODABAR

The following options apply to the ABC Codabar symbology.

### ABC Codabar Enable/Disable

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



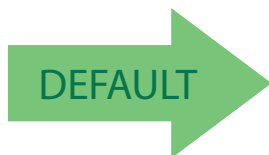
ABC Codabar = Disable



ABC Codabar = Enable

### ABC Codabar Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.



ABC Codabar Concatenation Mode = Static



ABC Codabar Concatenation Mode = Dynamic



## ABC Codabar Dynamic Concatenation Timeout

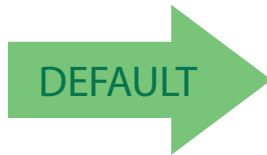
Specifies the timeout in 10-millisecond ticks used by the ABC Codabar Dynamic Concatenation Mode.



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



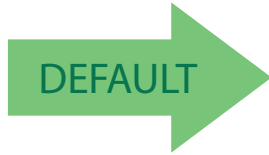
ABC Codabar Dynamic Concatenation Timeout = 750 msec



ABC Codabar Dynamic Concatenation Timeout = 1 Second

## ABC Codabar Force Concatenation

Forces labels starting or ending with D to be concatenated.



ABC Codabar Force Concatenation = Disable



ABC Codabar Force Concatenation = Enable

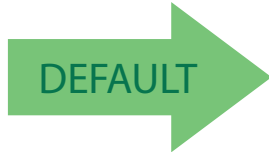


### CODE 11

The following options apply to the Code 11 symbology.

#### Code 11 Enable/Disable

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



Code 11 = Disable



Code 11 = Enable

#### Code 11 Check Character Calculation

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



Code 11 Check Character Calculation = Disable



Code 11 Check Character Calculation = Check C



Code 11 Check Character Calculation = Check K



Code 11 Check Character Calculation = Check C and K



## Code 11 Check Character Transmission

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

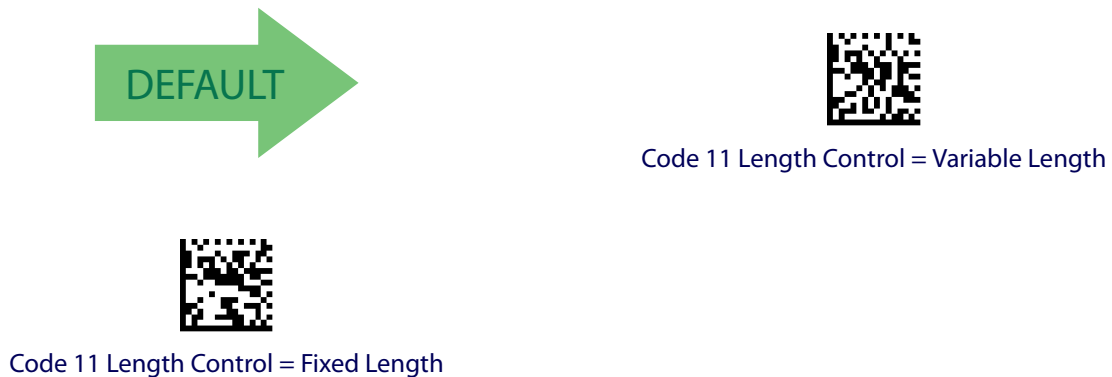


## Code 11 Length Control

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

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

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





### Code 11 Set Length 1

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

[Table 15](#) provides some examples for setting Length 1. See [page 267](#) for detailed instructions on setting this feature.

**Table 15. 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 <a href="#">Appendix D, Keypad</a></b>	'0' and '2'	'0' and '7'	'1' and '5'	'5' AND '0'
5	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				

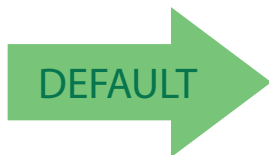


Select Code 11 Set Length 1 Setting

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



CANCEL



**04 = Length 1 is 4 Characters**



## Code 11 Set Length 2

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

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

[Table 16](#) provides examples for setting Length 2. See [page 267](#) for detailed instructions on setting this feature.

**Table 16. 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 <a href="#">Appendix D, Keypad</a></b>	'0' and '0'	'0' and '7'	'1' and '5'	'5' and '0'
5	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				

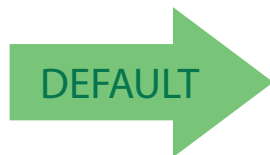


Select Code 11 Length 2 Setting

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



CANCEL



**50 = Length 2 is 50 Characters**

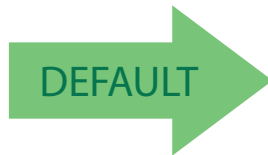


## GS1 DATABAR™ OMNIDIRECTIONAL

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

### GS1 DataBar™ Omnidirectional Enable/Disable

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



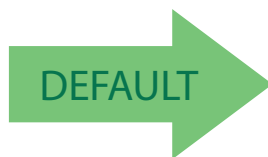
GS1 DataBar™ Omnidirectional = Disable



GS1 DataBar™ Omnidirectional = Enable

### GS1 DataBar™ Omnidirectional GS1-128 Emulation

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



GS1 DataBar™ Omnidirectional GS1-128 Emulation = Disable



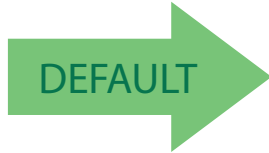
GS1 DataBar™ Omnidirectional GS1-128 Emulation = Enable





## GS1 DataBar™ Omnidirectional 2D Component

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



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



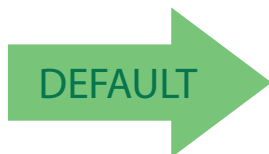
GS1 DataBar™ Omnidirectional 2D Component = 2D component must be decoded

## GS1 DATABAR™ EXPANDED

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

### GS1 DataBar™ Expanded Enable/Disable

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



GS1 DataBar™ Expanded = Disable

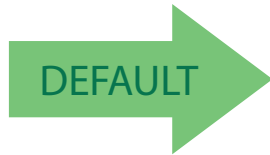


GS1 DataBar™ Expanded = Enable



### GS1 DataBar™ Expanded GS1-128 Emulation

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



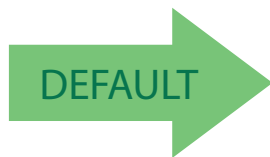
GS1 DataBar™ Expanded GS1-128 Emulation = Disable



GS1 DataBar™ Expanded GS1-128 Emulation = Enable

### GS1 DataBar™ Expanded 2D Component

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



GS1 DataBar™ Expanded 2D Component = Disable



GS1 DataBar™ Expanded 2D Component = Enable

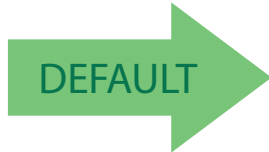


### GS1 DataBar™ Expanded Length Control

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

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

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



GS1 DataBar™ Expanded Length Control = Variable Length



GS1 DataBar™ Expanded Length Control = Fixed Length



### GS1 DataBar™ Expanded Set Length 1

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

Table 17 provides some examples for setting Length 1. See page 267 for detailed instructions on setting this feature.

**Table 17. GS1 DataBar™ Expanded Length 1 Setting Examples**

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

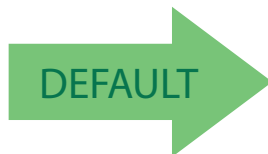


Select GS1 DataBar™ Expanded Set Length 1 Setting

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



CANCEL



**01 = Length 1 is 1 Character**



## GS1 DataBar™ Expanded Set Length 2

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

Table 18 provides examples for setting Length 2. See page 267 for detailed instructions on setting this feature.

**Table 18. 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>				

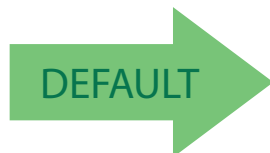


Select GS1 DataBar™ Expanded Set Length 2 Setting

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



CANCEL



**74 = Length 2 is 74 Characters**

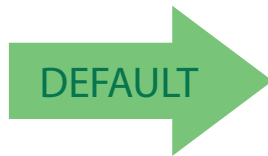


## GS1 DATABAR™ LIMITED

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

### GS1 DataBar™ Limited Enable/Disable

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



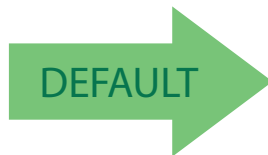
GS1 DataBar™ Limited = Disable



GS1 DataBar™ Limited = Enable

### GS1 DataBar™ Limited GS1-128 Emulation

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



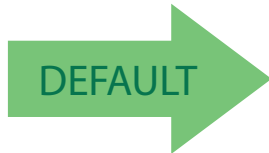
GS1 DataBar™ Limited GS1-128 Emulation = Disable



GS1 DataBar™ Limited GS1-128 Emulation = Enable

## GS1 DataBar™ Limited 2D Component

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



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



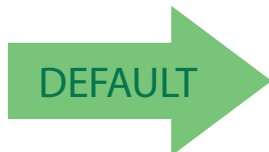
GS1 DataBar™ Limited 2D Component =  
2D component must be decoded

## CODE 93

The following options apply to the Code 93 symbology.

### Code 93 Enable/Disable

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



Code 93 = Disable



Code 93 = Enable



### Code 93 Check Character Calculation

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



Code 93 Check Character Calculation = Disable



Code 93 Check Character Calculation = Enable Check C



Code 93 Check Character Calculation = Enable Check K



Code 93 Check Character Calculation = Enable Check C and K



### Code 93 Check Character Transmission

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



Code 93 Check Character Transmission = Disable



Code 93 Check Character Transmission = Enable



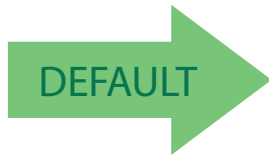


## Code 93 Length Control

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

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

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



Code 93 Length Control = Variable Length



Code 93 = Fixed Length



### Code 93 Set Length 1

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

[Table 19](#) provides some examples for setting Length 1. See [page 267](#) for detailed instructions on setting this feature.

**Table 19. Code 93 Length 1 Setting Examples**

STEP	ACTION	EXAMPLES			
1	<b>Desired Setting</b>	01 Characters	07 Characters	15 Characters	50 Characters
2	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				
3	<b>Scan SELECT CODE 93 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>				

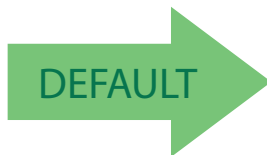


Select Code 93 Set Length 1 Setting

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



CANCEL



**01 = Length 1 is 1 Character**



## Code 93 Set Length 2

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

[Table 20](#) provides examples for setting Length 2. See [page 267](#) for detailed instructions on setting this feature.

**Table 20. CODE 93 Length 2 Setting Examples**

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

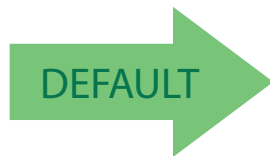


Select Code 93 Length 2 Setting

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



CANCEL



50 = Length 2 is 50 Characters



### Code 93 Quiet Zones

Enables/disables quiet zones for Code 93.



Code 93 Quiet Zones = Quiet Zones on two sides



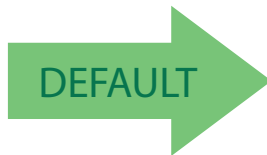
Code 93 Quiet Zones = Small Quiet Zones on two sides

### MSI

The following options apply to the MSI symbology.

#### MSI Enable/Disable

Enables/Disables ability of reader to decode MSI labels.



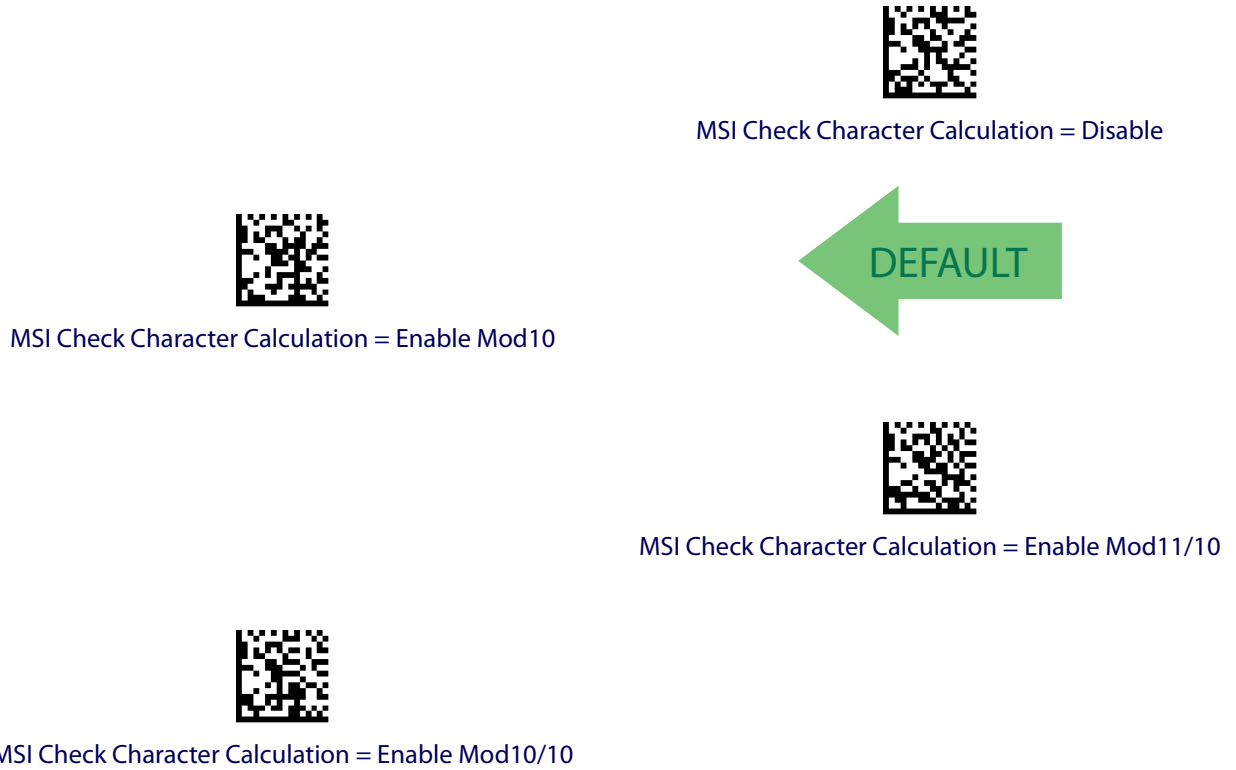
MSI = Disable



MSI = Enable

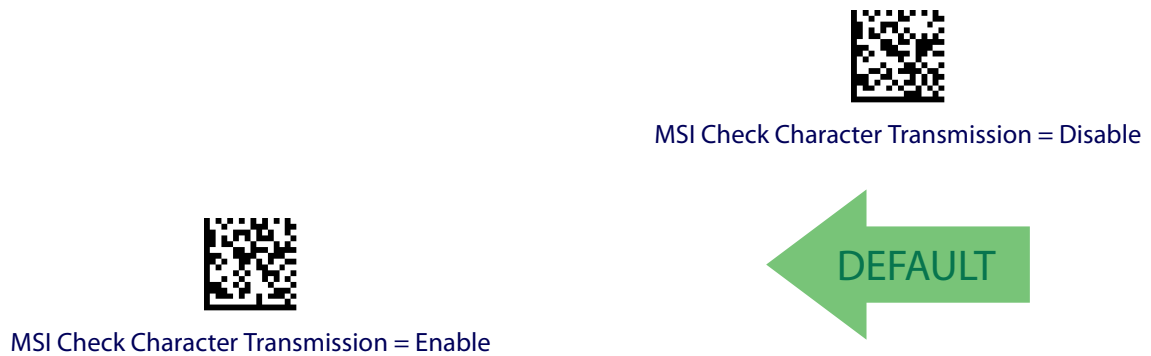
### MSI Check Character Calculation

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



### MSI Check Character Transmission

Enables/disables transmission of an MSI check character.



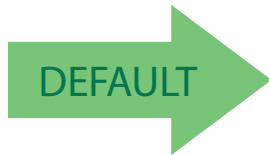


### MSI Length Control

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

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

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



MSI Length Control = Variable Length



MSI = Fixed Length



## MSI Set Length 1

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

[Table 21](#) provides some examples for setting Length 1. See [page 267](#) for detailed instructions on setting this feature.

**Table 21. MSI Length 1 Setting Examples**

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

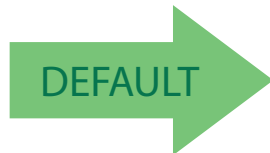


Select MSI Set Length 1 Setting

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



CANCEL



**01 = Length 1 is 1 Character**



### MSI Set Length 2

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

Table 22 provides examples for setting Length 2. See page 267 for detailed instructions on setting this feature.

**Table 22. MSI Length 2 Setting Examples**

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

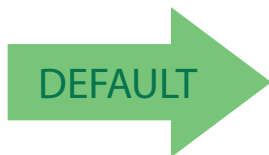


Select MSI Length 2 Setting

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



CANCEL



**50 = Length 2 is 50 Characters**



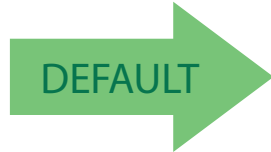


## PLESSEY

The following options apply to the Plessey symbology.

### Plessey Enable/Disable

Enables/Disables ability of reader to decode Plessey labels.



Plessey = Disable



Plessey = Enable

### Plessey Check Character Calculation

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



Plessey Check Character Calculation = Disable



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



Plessey Check Character Calculation =  
Enable Anker check char. verification



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



## Plessey Check Character Transmission

Enables/disables transmission of an MSI check character.



Plessey Check Character Transmission = Disable



Plessey Check Character Transmission = Enable

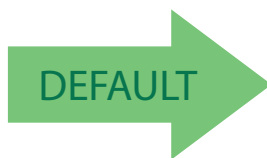


## Plessey Length Control

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

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

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



Plessey Length Control = Variable Length



Plessey = Fixed Length



## Plessey Set Length 1

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

[Table 23](#) provides some examples for setting Length 1. See [page 267](#) for detailed instructions on setting this feature.

**Table 23. Plessey Length 1 Setting Examples**

STEP	ACTION	EXAMPLES			
1	<b>Desired Setting</b>	01 Characters	07 Characters	15 Characters	50 Characters
2	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				
3	<b>Scan SELECT Plessey 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>				

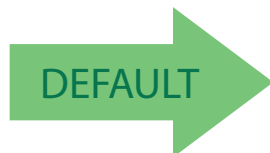


Select Plessey Set Length 1 Setting

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



CANCEL



**01 = Length 1 is 1 Character**



### Plessey Set Length 2

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

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

Table 24 provides examples for setting Length 2. See page 267 for detailed instructions on setting this feature.

**Table 24. Plessey Length 2 Setting Examples**

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

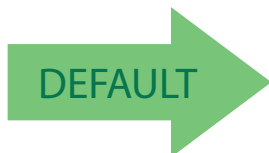


Select Plessey Length 2 Setting

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



CANCEL



**50 = Length 2 is 50 Characters**

# 2D SYMBOLOGIES

## 2D Global Features

- 2D Maximum Decoding Time, page 204
- 2D Normal/Inverse Symbol Control, page 205
- 2D Structured Append, page 205

The reader supports the following 2D symbologies (bar code types). Symbology-dependent options for each symbology are included in this chapter. See "1D Code Selection" starting on page 111 for configuration of 1D bar codes.

## 2D Symbologies

- Aztec Code, page 206
- China Sensible Code, page 209
- Data Matrix, page 212
- Maxicode, page 215
- PDF417, page 218
- Micro PDF417, page 221
- QR Code, page 224
- Micro QR Code, page 227
- UCC Composite, page 230
- Postal Code Selection, page 232

## 2D Global Features

The following features are common to all, or in some cases, most of the available 2D symbologies. Default settings are indicated at each feature/option with a green arrow. Also reference [Appendix 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 bar code at the top of applicable programming pages.
2. Scan the correct bar code to set the desired programming feature or parameter. You may need to cover unused bar codes on the page, and possibly the facing page, to ensure that the reader reads only the bar code you intend to scan.
3. If additional input parameters are needed, go to [Appendix D, Keypad](#), and scan the appropriate characters from the keypad.



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

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

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



## 2D Maximum Decoding Time

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



2D Maximum Decoding Time = 100 msec



2D Maximum Decoding Time = 200 msec



2D Maximum Decoding Time = 350 msec



2D Maximum Decoding Time = 500 msec



2D Maximum Decoding Time = 1 Second



2D Maximum Decoding Time = 2 Seconds



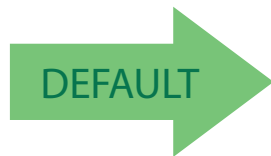
2D Maximum Decoding Time = 2.55 Seconds



## 2D Structured Append

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

- Data Matrix
- QR Code
- Aztec
- PDF 417



Structured Append = Disable

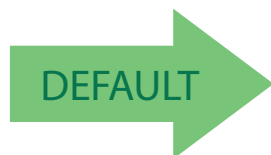


Structured Append = Enable

## 2D Normal/Inverse Symbol Control

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

To decode all symbologies, including linear symbologies, refer to "[Decode Negative Image](#)" on [page 106D Symbology Selection](#)



Normal/Inverse Symbol Control = Normal



Normal/Inverse Symbol Control = Inverse



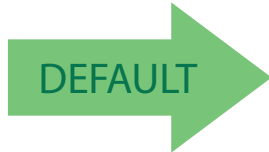
Normal/Inverse Symbol Control =  
Both Normal and Inverse



## Aztec Code

### Aztec Code Enable / Disable

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



Aztec Code = Disable



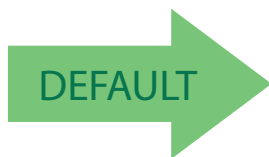
Aztec Code = Enable

### Aztec Code Length Control

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

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

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



Aztec Code Length Control = Variable Length



Aztec Code Length Control = Fixed Length



## Aztec Code Set Length 1

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

See [page 267](#) for detailed instructions on setting this feature.



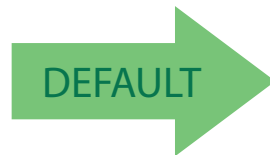
Select Aztec Code Length 1 Setting

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

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



CANCEL



**0001 = Length 1 is 1 Character**



## Aztec Code Set Length 2

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

See [page 267](#) for detailed instructions on setting this feature.



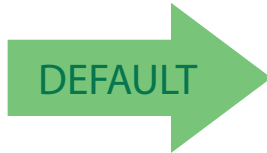
Select Aztec Code Length 2 Setting

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

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



CANCEL

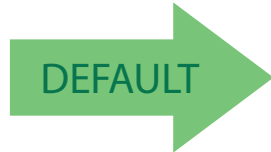


**Length 2 is 3,832 Characters**

## China Sensible Code

### China Sensible Code Enable / Disable

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



China Sensible Code = Disable



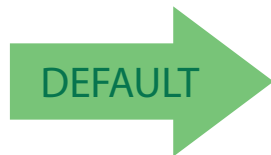
China Sensible Code = Enable

### China Sensible Code Length Control

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

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

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



China Sensible Code Length Control = Variable Length



China Sensible Code Length Control = Fixed Length



### China Sensible Code Set Length 1

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

See [page 267](#) for detailed instructions on setting this feature.



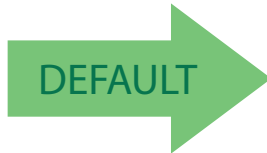
Select China Sensible Code Length 1 Setting

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

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



CANCEL



**0001 = Length 1 is 1 Character**



## China Sensible Code Set Length 2

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

See [page 267](#) for detailed instructions on setting this feature.



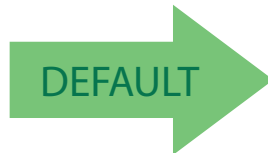
Select China Sensible Code Length 2 Setting

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

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



CANCEL



**Length 2 is 7,827 Characters**



## Data Matrix

### Data Matrix Enable / Disable

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



Data Matrix = Disable



Data Matrix = Enable



### Data Matrix Square/Rectangular Style

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

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

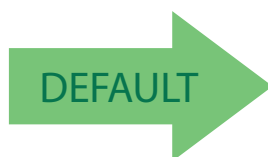
The configuration item can also be configured as a bit mask to filter one or more Data Matrix labels with different symbol size AND shape styles.



Data Matrix Dimensions Mask = Square Style



Data Matrix Dimensions Mask = Rectangular Style



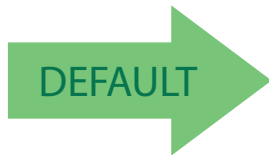
Data Matrix Dimensions Mask = Both Square and Rectangular Style

## Data Matrix Length Control

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

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

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



Data Matrix Length Control = Variable Length



Data Matrix Length Control = Fixed Length

## Data Matrix Set Length 1

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

See [page 267](#) for detailed instructions on setting this feature.



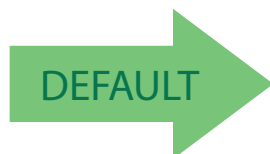
Select Data Matrix Length 1 Setting

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

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



CANCEL



**0001 = Length 1 is 1 Character**



### Data Matrix Set Length 2

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

See [page 267](#) for detailed instructions on setting this feature.



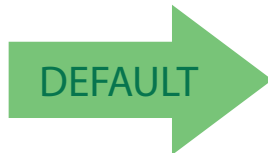
Select Data Matrix Length 2 Setting

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

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



CANCEL



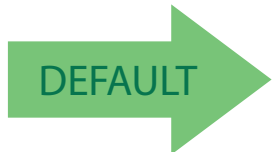
**Length 2 is 3,116 Characters**



## Maxicode

### Maxicode Enable / Disable

Enables/disables ability of reader to decode Maxicode labels.



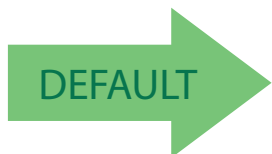
Maxicode = Disable



Maxicode = Enable

### Maxicode Primary Message Transmission

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



Maxicode Primary Message Transmission = Disable



Maxicode Primary Message Transmission = Enable

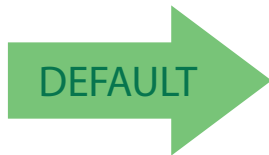


### Maxicode Length Control

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

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

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



Maxicode Length Control = Variable Length



Maxicode Length Control = Fixed Length

### Maxicode Set Length 1

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

See [page 267](#) for detailed instructions on setting this feature.



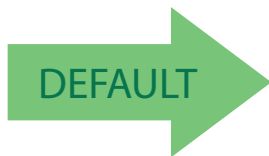
Select Maxicode Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric keypad representing your desired character(s). End by scanning the ENTER/EXIT bar code again.

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



CANCEL



0001 = Length 1 is 1 Character

## Maxicode Set Length 2

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

See [page 267](#) for detailed instructions on setting this feature.



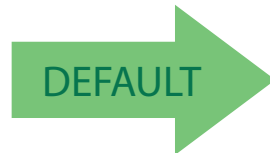
Select Maxicode Length 2 Setting

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

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



CANCEL



**Length 2 is 0145 Characters**



# PDF417

## PDF417 Enable / Disable

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



## PDF417 Length Control

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

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

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





## PDF417 Set Length 1

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

See [page 267](#) for detailed instructions on setting this feature.



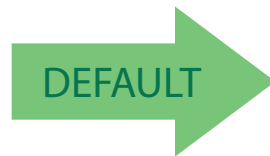
Select PDF417 Length 1 Setting

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

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



CANCEL



**0001 = Length 1 is 1 Character**



### PDF417 Set Length 2

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

See [page 267](#) for detailed instructions on setting this feature.



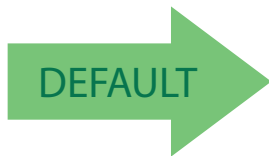
Select PDF417 Length 2 Setting

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

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



CANCEL

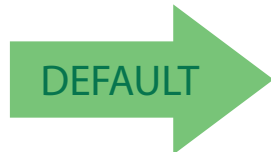


**Length 2 is 2,710 Characters**

## Micro PDF417

### Micro PDF417 Enable / Disable

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



Micro PDF417 = Disable



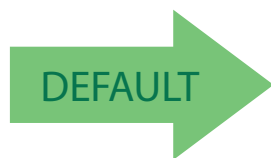
Micro PDF417 = Enable

### Micro PDF417 Code 128 GS1-128 Emulation

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

Emulation choices are:

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



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



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

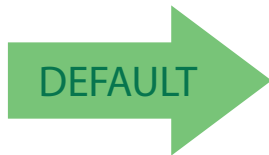


## Micro PDF417 Length Control

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

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

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



Micro PDF417 Length Control = Variable Length



Micro PDF417 Length Control = Fixed Length

## Micro PDF417 Set Length 1

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

See [page 267](#) for detailed instructions on setting this feature.



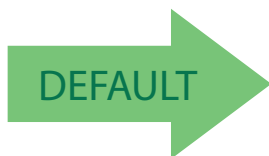
Select Micro PDF417 Length 1 Setting

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

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



CANCEL



**0001 = Length 1 is 1 Character**



## Micro PDF417 Set Length 2

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

See [page 267](#) for detailed instructions on setting this feature.



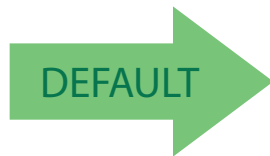
Select Micro PDF417 Length 2 Setting

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

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



CANCEL



**Length 2 is 0366 Characters**



## QR Code

### QR Code Enable / Disable

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

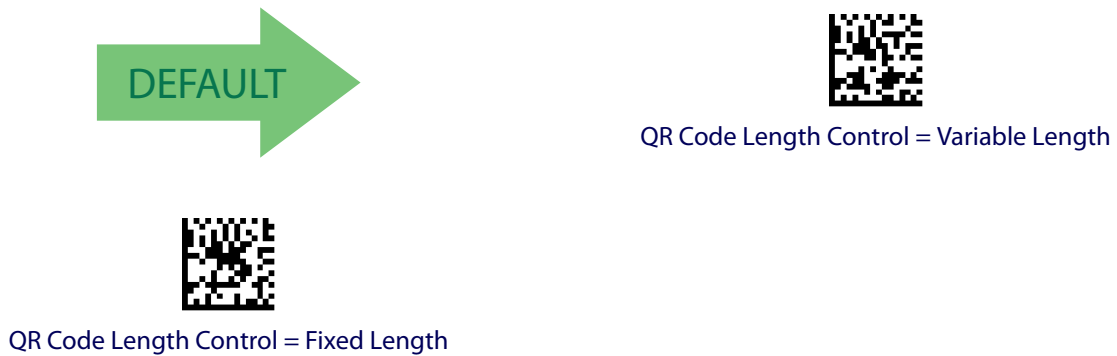


### QR Code Length Control

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

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

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



## QR Code Set Length 1

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

See [page 267](#) for detailed instructions on setting this feature.



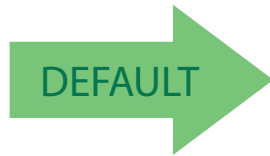
Select QR Code Length 1 Setting

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

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



CANCEL



**0001 = Length 1 is 1 Character**



### QR Code Set Length 2

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

See [page 267](#) for detailed instructions on setting this feature.



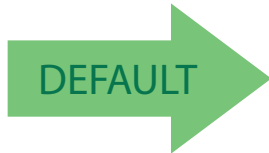
Select QR Code Length 2 Setting

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

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



CANCEL

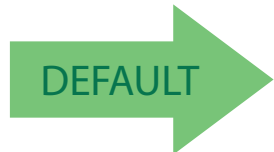


**Length 2 is 7,089 Characters**

## Micro QR Code

### Micro QR Code Enable/Disable

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



Micro QR Code = Disable



Micro QR Code = Enable

### Micro QR Code Length Control

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

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

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



Micro QR Code Length Control = Variable Length



Micro QR Code Length Control = Fixed Length



### Micro QR Code Set Length 1

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

See [page 267](#) for detailed instructions on setting this feature.



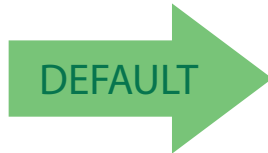
Select Micro QR Code Length 1 Setting

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

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



CANCEL



**0001 = Length 1 is 1 Character**

## Micro QR Code Set Length 2

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

See [page 267](#) for detailed instructions on setting this feature.



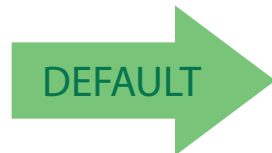
Select QR Code Length 2 Setting

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

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



CANCEL



**Length 2 is 0035 Characters**



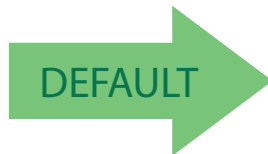
# UCC Composite

## UCC Composite Enable / Disable

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



**This feature is not effective when Global AIM IDs are enabled (see "Global AIM ID" on page 77).**



UCC Composite = Disable

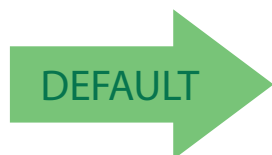


UCC Composite = Enable



## UCC Optional Composite Timer

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



UCC Optional Composite Timer = Timer Disabled



UCC Optional Composite Timer = 100msec



UCC Optional Composite Timer = 200msec



UCC Optional Composite Timer = 300msec



UCC Optional Composite Timer = 400msec



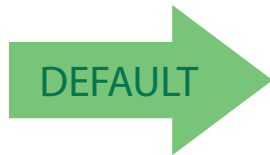
UCC Optional Composite Timer = 500msec

---

## Postal Code Selection

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

- Disable All Postal Codes
- Postnet
- Planet
- Royal Mail
- Kix
- Australia Post
- Japan Post
- IMB
- Sweden Post
- Portugal Post



Postal Code Selection = Disable All Postal Codes



Postal Code Selection = Enable Postnet



Postal Code Selection = Enable Planet



Postal Code Selection = Enable Royal Mail



Postal Code Selection = Enable Kix



Postal Code Selection = Enable Australia Post

## Postal Code Selection — cont.



Postal Code Selection = Enable Japan Post



Postal Code Selection = Enable IMB



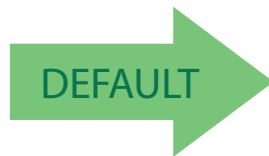
Postal Code Selection = Enable Sweden Post



Postal Code Selection = Enable Portugal Post

## Postnet BB Control

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



Postnet BB Control = Disable



Postnet BB Control = Enable

---

# NOTES

## WIRELESS FEATURES

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

### **WIRELESS BEEPER FEATURES** starting on page 236

- Good Transmission Beep
- Beep Frequency
- Beep Duration
- Beep Volume
- Disconnect Beep
- Docking Beep
- Leash Alarm

### **CONFIGURATION UPDATES** starting on page 241

- Automatic Configuration Update
- Copy Configuration to Scanner
- Copy Configuration to Base Station

### **BATCH FEATURES** starting on page 242

- Batch Mode
- Send Batch
- Erase Batch Memory
- RF Batch Mode Transmit Delay

### **DIRECT RADIO AUTOLINK** starting on page 244

### **BLUETOOTH-ONLY FEATURES** starting on page 245

- Source Radio Address Transmission
- Source Radio Address Delimiter Character
- Link Timeout
- BT Security Mode
- BT PIN Code
- Select PIN Code Length
- Set PIN Code
- BT Poll Rate
- Power Off
- Powerdown Timeout

### **FEATURES FOR STAR MODELS ONLY** starting on page 251

- STAR Radio Protocol Timeout
- STAR Radio Transmit Mode



## 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

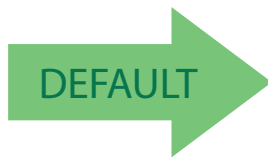


Good Transmission Beep = Enable



### Beep Frequency

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



Beep Frequency = Low



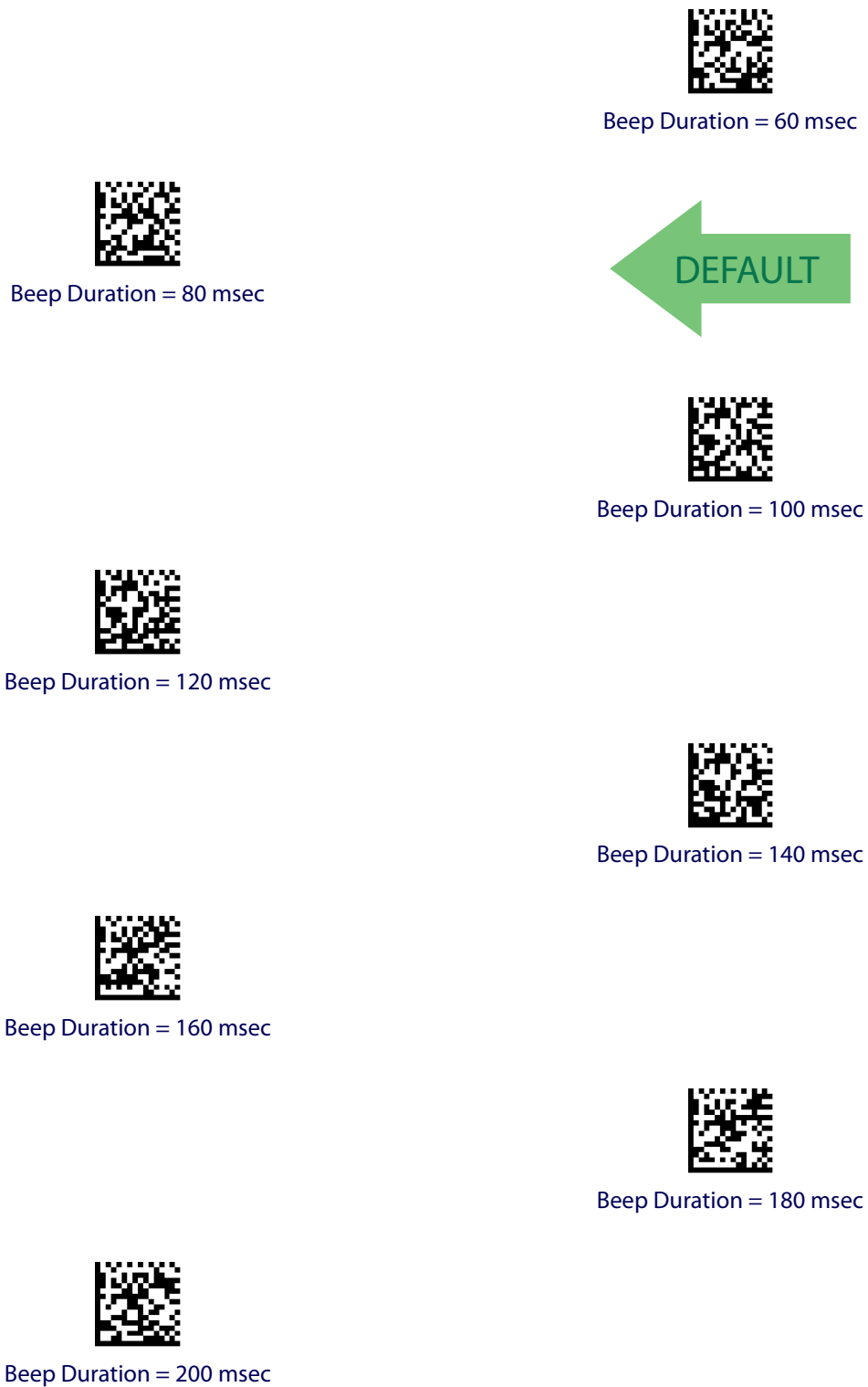
Beep Frequency = Medium



Beep Frequency = High

## Beep Duration

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





### 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.**



Disconnect Beep = Disable



Disconnect Beep = Enable





### Docking Beep

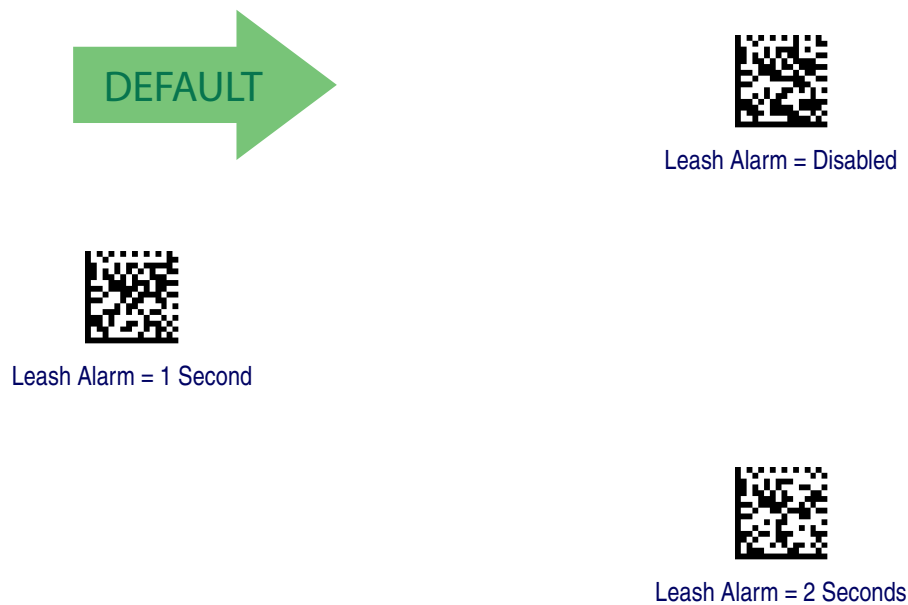
Enables/disables a beep indication when the handheld is placed in the Base Station.



### Leash Alarm

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

For this mode to be effective, the reader must be linked to the Base Station. 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.





## 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

## Configuration Updates

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



Automatic Configuration Update = Disable



Automatic Configuration Update = Enable

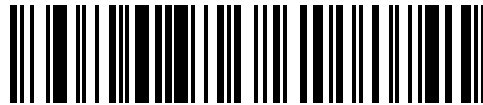


### Copy Configuration to Scanner

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 bar code.**



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 bar code.**

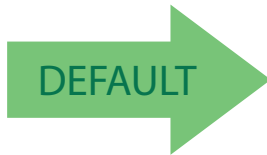


## Batch Features

### 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

When the scanner is configured in Manual Batch Mode, use the following bar code to initiate sending of labels stored in batch memory.



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



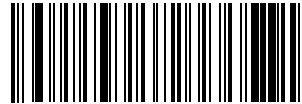
Send Batch

### Erase Batch Memory

When the scanner is configured in Manual Batch Mode, use the following bar code to erase any labels stored in batch memory.



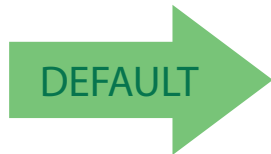
**Do not scan an ENTER/EXIT PROGRAMMING MODE label in conjunction with this bar code.**



Erase Batch Memory

### RF Batch Mode Transmit Delay

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



RF Batch Mode Transmit Delay = No Delay



RF Batch Mode Transmit Delay = 50 mS



RF Batch Mode Transmit Delay = 100 mS



RF Batch Mode Transmit Delay = 0.5 seconds



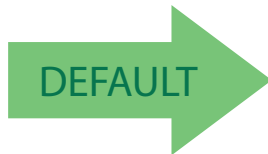
RF Batch Mode Transmit Delay = 1 second



RF Batch Mode Transmit Delay = 2.5 seconds

## Direct Radio Autolink

This feature enables/disables the ability to link a wireless handheld to a base station without scanning the Unlink label first.



Direct Radio Link = Unlink Label Required



Direct Radio Link = Automatic Unlinking



## 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 26](#).

### RF Address Stamping

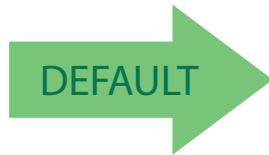
These features allow configuration of source radio data inclusion.

#### 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 286](#) 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 245 is enabled.**



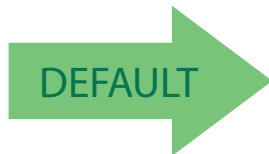
Set Source Radio Address Delimiter Character

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

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



CANCEL



**00 = No Delimiter Character**

### Link Timeout

This feature specifies the wait time in one-second ticks for response from the remote. The selectable timeout range is 01 to 40 (01-0x28) seconds in one second increments.

See [page 260](#) for more information on setting this feature.



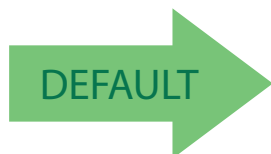
Set Link Timeout

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

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



CANCEL



**02 Link Timeout value is 2 seconds**



## BT Security Features

On the BT system, it is possible to set a (configurable) PIN code to authenticate/connect BT devices, and encrypt the data.

The BT PIN code can be enabled and configured by reading the bar codes in the following sections.



**If you are using a BT scanner directly connected to a host through a BT dongle, verify that the scanner and the BT driver used by the dongle share the same PIN code and the same security level. Otherwise the connection cannot be established.**

Follow these steps to set the PIN code for a scanner:

1. Enable BT Security Mode by scanning the “Enable” bar code below.
2. Select a PIN code length of either 4 or 16 characters by scanning the appropriate bar code in "Select PIN Code Length" on page 248.
3. Scan the relevant bar code from "Set PIN Code" on page 248, then scan the desired alphanumeric characters from the keypad in [Appendix D. Keypad](#) to set the PIN code.

See [page 288](#) in “References” for more detailed information and examples for this feature.

## BT Security Mode

This feature enables/disables authentication and encryption of the BT link. Use the feature "BT PIN Code" on page 248 to specify the length and digits in the PIN code used to authenticate the BT Link.



**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 “Disabled,” 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

After enabling Security Mode (see "BT Security Mode" on page 247), specify whether you want to set a 4-digit or a 16-digit PIN Code. See page 288 for detailed information and examples for setting this feature.

### Select PIN Code Length



Select 4-character BT PIN Code



Select 16-character BT PIN Code

### Set PIN Code

Determine the desired characters for the PIN code, then convert to hexadecimal using the ASCII Chart on the inside back cover of this manual. See page 288 for detailed information and examples for setting this feature.



Set 4-character BT PIN Code

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



Set 16-character BT PIN Code



CANCEL

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



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 = 50 ms



BT Poll Rate = 100 ms



BT Poll Rate = 200 ms



### Power Off

See “Power Off” on page 26 for information about this BT feature.

### 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 = 30 minutes



Powerdown Timeout = 60 Minutes (1 Hour)



Powerdown Timeout = 120 Minutes (2 Hours)

## FEATURES FOR STAR MODELS ONLY



The features in this section are valid only for the Gryphon I GM440X Star model:

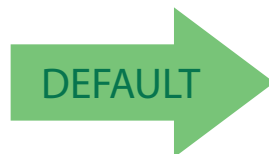
- [STAR Radio Protocol Timeout](#)
- [STAR Radio Transmit Mode](#)

### 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 287](#) 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>



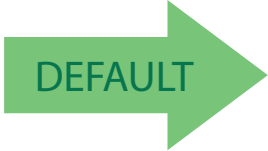



**02 = 2 Seconds Radio Protocol Timeout**

## 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 RS-232 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 291 for details.



**The Base Station can receive a host message only if Host Commands Obey/Ignore (page 39) is set to Ignore.**

# MOTION FEATURES

**MOTION AIMING CONTROL** on page 253

**MOTION SENSITIVITY** on page 254

**MOTIONLESS TIMEOUT** on page 254

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

## Motion Aiming Control

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



Motion Aiming Control = Disable



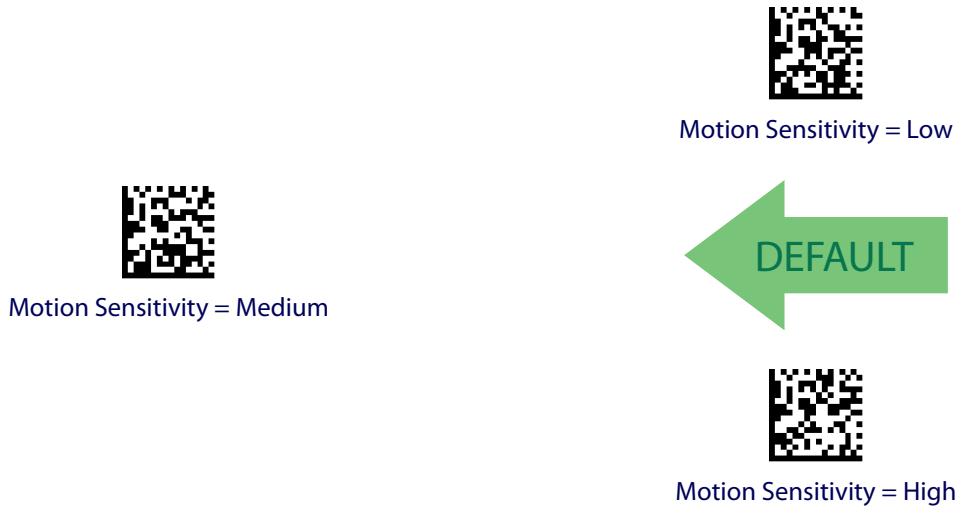
Motion Aiming Control = Enable





### Motion Sensitivity

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



### Motionless Timeout

Specifies the waiting time in 100 millisecond ticks to assume that the reader is in a motionless condition. The selectable range is 500 msec to 25.5 Seconds. When no motion event is detected for a period of time longer than this timeout, the software assumes the reader is in a motionless condition. This normally results in returning the scanner to Stand Mode. This option relates to such features as Aimer On and Stand Mode Object Sense scanning with respect to motion. See "Motionless Timeout" on page 289 in References.



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

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





# Chapter 4

## References

This section contains explanations and examples of selected bar code features. See "Configuration Using Bar Codes" starting on page 37 for the actual bar code labels used to configure the reader.

<b>RS-232 PARAMETERS</b> starting on page 256 <ul style="list-style-type: none"><li>•RS-232</li><li>•RS-232/USB COM Parameters</li></ul>
<b>KEYBOARD INTERFACE</b> starting on page 264 <ul style="list-style-type: none"><li>•Wedge Quiet Interval</li><li>•Intercharacter Delay</li><li>•Intercode Delay</li></ul>
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## RS-232 Parameters

### RS-232

#### Baud Rate

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

#### Stop Bits

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

#### Parity

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

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

#### Handshaking Control

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

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

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

## RS-232/USB COM Parameters

### Intercharacter Delay

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

To set the delay:

1. Determine the desired setting in milliseconds.
2. Divide the desired setting by 10 (setting is in 10ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Go to [page 47](#) and scan the bar code: SELECT INTERCHARACTER DELAY SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 25. Intercharacter Delay Setting Examples**

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

## ACK NAK Options

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

Options are:

- Disable
- Enable for label transmission — The reader expects an ACK/NAK response from the host when a label is sent.
- Enable for host-command acknowledge — The reader will respond with ACK/NAK when the host sends a command.
- Enable for label transmission and host-command acknowledge

## ACK Character

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



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

1. Determine the desired character or value.
2. Use the [ASCII Chart](#) on the inside back cover of this manual to find the hex equivalent for the desired character/value.
3. Go to [page 50](#) and scan ENTER/EXIT PROGRAMMING MODE to enter Programming Mode.
4. Scan the bar code: SELECT ACK CHARACTER SETTING.
5. Scan the appropriate two alphanumeric characters from the keypad in [Appendix D, Keypad](#), that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit.

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

**Table 26. ACK Character Setting Examples**

STEP	ACTION	EXAMPLES			
1	Desired Character/Value	ACK	\$	@	>
2	Hex equivalent from <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 bar code to enter Programming Mode.
4. Scan the bar code: SELECT NAK CHARACTER SETTING.
5. Scan the appropriate two alphanumeric characters from the keypad in [Appendix D, Keypad](#), that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

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

**Table 27. NAK Character Setting Examples**

STEP	ACTION	EXAMPLES			
1	Desired Character/Value	NAK	\$	@	>
2	Hex equivalent from <a href="#">ASCII Chart</a>	0x15	0x24	0x40	0x3E
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT NAK 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 bar code to enter Programming Mode.
4. Scan the bar code: SELECT ACK NAK TIMEOUT VALUE SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 28. ACK NAK Timeout Value Setting Examples**

STEP	ACTION	EXAMPLES			
1	<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</b> <i>Appendix D, Keypad</i>	'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 bar code to enter Programming Mode.
4. Scan the bar code: SELECT ACK NAK RETRY COUNT SETTING.
5. Scan the appropriate three digits from the keypad in [Appendix D, Keypad](#), that represent the number which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 29. ACK NAK Retry Count Setting Examples**

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

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

**Table 30. Disable Character Setting Examples**

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

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

**Table 31. Enable Character Setting Examples**

STEP	ACTION	EXAMPLES			
1	Desired character/value	'e'	'}'	'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 ENABLE 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 bar code to enter Prog. Mode.
4. Scan the bar code: SELECT WEDGE QUIET INTERVAL SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 32. Wedge Quiet Interval Setting Examples**

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

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



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

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

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

**Table 33. Intercharacter Delay Setting Examples**

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

## Intercode Delay

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

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc
3. Go to [page 61](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT INTERCODE DELAY SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 34. Wedge Intercode Delay Examples**

STEP	ACTION	EXAMPLES			
1	<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

## Set Length

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

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

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

### Set Length 1

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

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

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



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

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

### Set Length 2

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

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

Follow these instructions to set this feature:

1. Determine the desired character length (from 1 to 50 — or 0 to ignore this length). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Go to the Set Length page for your selected symbology and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the bar code to SELECT LENGTH 2 SETTING for your selected symbology.

- Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#) that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

This completes the procedure.

## Data Editing



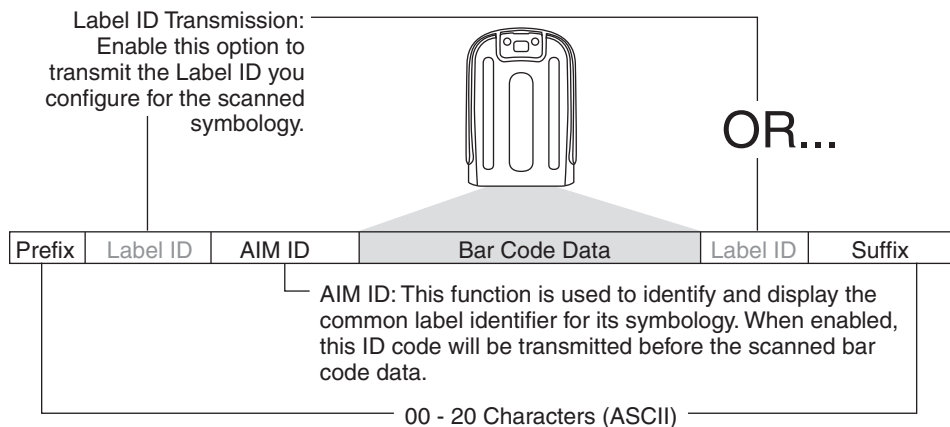
**It is not recommended to use these features with IBM interfaces.**

### CAUTION

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

There are several types of selectable data characters that can be sent before and after scanned data. You can specify if they should be sent with all symbologies, or only with specific symbologies. Figure 15 shows the available elements you can add to a message string:

**Figure 15. Breakdown of a Message String**



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

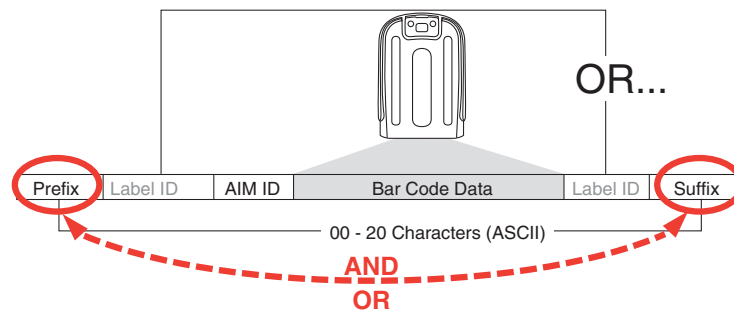
### Please Keep In Mind...

- Modifying a message string is not a mandatory requirement. Data editing is a sophisticated feature allowing highly customizable output for advanced users. Factory default settings for data editing is typically set to NONE.
- A prefix or suffix may be applied only to a specified symbology (reference "[1D Code Selection](#)" starting on page 111) or across all symbologies (set via the Global features in this chapter).
- You can add any character from the [ASCII Chart](#) (from 00-FF) on the inside back cover of this manual as a prefix, suffix or Label ID.
- Enter prefixes and suffixes in the order in which you want them to appear on the output.

## Global Prefix/Suffix

Up to 20 ASCII characters may be added as a prefix (in a position before the bar code data) and/or as a suffix (in a position following the bar code data) as indicated in Figure 16.

**Figure 16. Prefix and Suffix Positions**



### Example: Setting a Prefix

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

1. Determine which ASCII character(s) are to be added to scanned bar code data. In this example, we'll add a dollar sign ('\$') as a prefix.
2. Go to [page 76](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code, then scan the SET GLOBAL PREFIX bar code.
3. Reference the [ASCII Chart](#) on the inside back cover of this manual to find the hex value assigned to the desired character. The corresponding hex number for the '\$' character is 24. To enter this selection code, scan the '2' and '4' bar codes from [Appendix D, Keypad](#).



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

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

## Global AIM ID



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

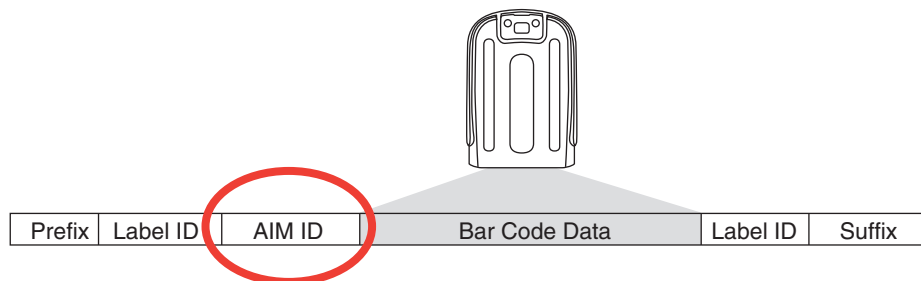
AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned bar code data. AIM label identifiers consist of three characters as follows:

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

SYMBOLGY	CHAR	SYMBOLGY	CHAR
UPC/EAN	E <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)

**Figure 17. AIM ID**





## Label ID

A Label ID is a customizable code of up to three ASCII characters (each can be one of hex 0x01-0xFF), used to identify a bar code (symbology) type. It can be appended previous to or following the transmitted bar code data depending upon how this option is enabled. This feature provides options for configuring custom Label IDs as a pre-loaded set (see "Label ID: Pre-loaded Sets" below) or individually per symbology (see "Label ID: Set Individually Per Symbology" on page 274). 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 77.

### Label ID: Pre-loaded Sets

The reader supports two pre-loaded sets of Label IDs. Table 35 shows the USA and the EU sets.



#### CAUTION

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

**Table 35. Label ID Pre-loaded Sets**

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

Symbology	USA Label ID set		EU Label ID set	
	Default Character	Default ASCII	Default Character	Default ASCII
DATABAR 14 COMPOSITE	R4	523400	c	523400
DATABAR EXPANDED	RX	525800	t	740000
DATABAR EXPANDED COMPOSITE	RX	525800	d	525800
DATABAR LIMITED	RL	524C00	v	760000
DATABAR LIMITED COMPOSITE	RL	524C00	i	524C00
DATA MATRIX	Dm	446D00	w	770000
EAN128		000000	k	6B0000
EAN128 COMPOSITE		000000	\$E	244500
EAN13	F	460000	B	420000
EAN13 P2	F	460000	L	4C0000
EAN13 P5	F	460000	M	4D0000
EAN13 COMPOSITE	F	460000	\$F	244600
EAN8	FF	464600	A	410000
EAN8 P2	FF	464600	J	4A0000
EAN8 P5	FF	464600	K	4B0000
EAN8 COMPOSITE	FF	464600	\$G	244700
FOLLET 2OF5	O	4F0000	O	4F0000
GTIN	G	470000	\$A	244100
GTIN2	G2	473200	\$B	244200
GTIN5	G5	473500	\$C	244300
I2OF5	i	690000	N	4E0000
IATA INDUSTRIAL 2OF5	IA	494100	&	260000
INDUSTRIAL 2OF5	W	570000	W	570000
ISBN	I	490000	@	400000
ISBT128 CONCAT	f	660000	f	660000
ISSN	n	6E0000	n	6E0000
MAXICODE	MC	4D4300	x	780000
MICRO QR	\$Q	245100	\$Q	245100
MICRO PDF	mP	6D5000	8	380000

Symbology	USA Label ID set		EU Label ID set	
	Default Character	Default ASCII	Default Character	Default ASCII
MSI	@	400000	Z	5A0000
PDF417	P	500000	r	720000
PLESSEY	a	610000	a	610000
POSTAL AUSTRALIAN	\$K	244B00	\$K	244B00
POSTAL IMB	\$V	245600	\$V	245600
POSTAL JAPANESE	\$R	245200	\$R	245200
POSTAL KIX	\$U	245500	\$U	245500
POSTAL PLANET	\$W	245700	\$W	245700
POSTAL PORTUGAL	\$P	245000	\$P	245000
POSTAL POSTNET BB	\$L	244C00	\$L	244C00
POSTAL ROYAL MAIL	\$M	244D00	\$M	244D00
POSTAL SWEDISH	\$X	245800	\$X	245800
POSTNET	1	310000	1	310000
QR CODE	QR	515200	y	790000
S25	s	730000	P	500000
TRIOPTIC	\$T	245400	\$T	245400
UPCA	A	410000	C	430000
UPCA P2	A	410000	F	460000
UPCA P5	A	410000	G	470000
UPCA COMPOSITE	A	410000	\$H	244800
UPCE	E	450000	D	440000
UPCE P2	E	450000	H	480000
UPCE P5	E	450000	I	490000
UPCE COMPOSITE	E	450000	\$J	244A00

## Label ID: Set Individually Per Symbology

To configure a Label ID individually for a single symbology:

1. Go to [page 81](#) and scan the ENTER/EXIT bar code.
2. Select Label ID position as either BEFORE (Enable as Prefix) or AFTER (Enable as suffix) by scanning the appropriate bar code in the section "Label ID Control" on page 81. Reference Figure 18 for Label ID positioning options if multiple identification features are enabled.
3. Scan a bar code to select the symbology for which you wish to configure a custom Label ID from the section "Label ID Symbology Selection • 1D Symbologies" on page 82.
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 319](#) and scan the bar codes representing the hex characters determined. For the example given, the characters '3' and 'D' would be scanned. More examples of Label ID settings are provided in [Table 36](#).



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

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

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

**Figure 18. Label ID Position Options**

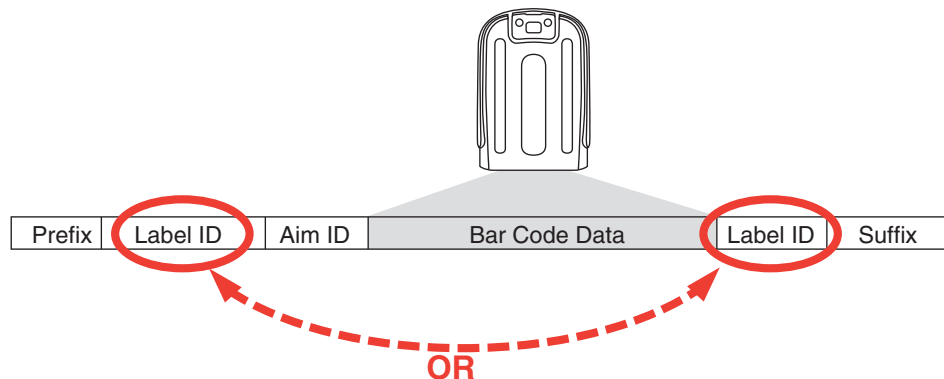


Table 36. Label ID Examples

STEP	ACTION	EXAMPLES			
1.	Scan the ENTER/EXIT bar code	(Scanner enters Programming Mode)			
2.	Determine placement of the Label ID characters BEFORE or AFTER with regard to scanned data using "Label ID Control" starting on page 81	Enable as Prefix	Enable as Suffix	Enable as Prefix	Enable as Suffix
3.	Scan the bar code selecting the symbology type you wish to designate label ID characters for using "Label ID Symbology Selection • 1D Symbologies" starting on page 82.	DataBar Omnidirectional	Code 39	Interleaved 2 of 5	Code 32
4.	Custom Label ID example (desired characters):	D B *	= C 3	+	P H
5.	Find hex equivalents from the ASCII Chart (inside back cover), then scan in these digits/characters using the bar codes in the section: "Keypad" starting on page 319. If you make a mistake before the last character, scan the CANCEL bar code to abort and not save the entry string. You can then start again at the beginning.	44 42 2A	3D 43 33	2B	50 48
6.	Scan the ENTER/EXIT bar code	(Scanner exits Label ID entry)			
7.	Scan the ENTER/EXIT bar code once again	(Scanner exits Programming Mode)			
	<b>Result:</b>	DB*[bar code data]	[bar code data]=C3	+ [bar code data]	[bar code data]PH

## Character Conversion

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

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

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

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

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

To set Character Conversion:

1. Go to [page 88](#) and scan the ENTER/EXIT bar code.
2. Scan the “Configure Character Conversion” bar code.
3. Determine the desired string. Sixteen positions must be determined as in the above example. Next, turn to the [ASCII Chart](#) on the inside back cover of this manual and find the equivalent hex digits needed to fulfill the string.
4. Turn to [Appendix D, Keypad](#) and scan the bar codes representing the hex characters determined in the previous step.
5. Scan the ENTER/EXIT bar code to exit Programming Mode.



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

# Reading Parameters

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



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

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

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

**Table 37. 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 GOOD READ LED DURATION 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 on and off regardless of the trigger status. Flash rate is controlled by [Flash On Time](#) and [Flash Off Time](#). When Flash is ON the imager reads continuously; when Flash is OFF scanning is deactivated.

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

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



## Stand Mode Off Time

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

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the result with leading zeroes to yield two digits. For example: 2 = 02, 5 = 05, 20 = 20, etc.
3. Go to [page 101](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: Set Stand Mode Illuminator Off Time.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#), that represent the setting which was determined in the steps above. You will hear a two-beep indication after the last character.
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

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

**Table 38. Stand Mode Off Time**

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

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



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

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

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

**Table 39. 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>				

## Aiming Duration Time

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

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Go to [page 104](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT AIMING DURATION TIME SETTING.
5. Scan the appropriate three digits from the keypad in [Appendix D, Keypad](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 40. Aiming Duration 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 AIMING DURATION 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 102](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT FLASH ON TIME SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix D, Keypad](#) representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

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

**Table 41. Flash On 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 ON 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>				

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



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

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

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

**Table 42. 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>				

## Multiple Labels Ordering by Code Symbology

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

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

To specify the symbology order:

1. Determine the symbologies and order you want to specify.
2. Use [Table 44 on page 285](#) to find the hex values for up to six symbologies.
3. Go to [page 110](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: “SELECT SYMBOLOGIES FOR MULTIPLE LABELS ORDERING”.
5. Scan the appropriate two alphanumeric characters from the keypad in [Appendix D, Keypad](#), that represent the desired character/value in step 2 above.
6. Scan zeroes if needed to make a 12-character string.
7. When finished, scan the ENTER/EXIT PROGRAMMING MODE bar code to exit Programming Mode.

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

**Table 43. Multiple Labels Ordering by Code Symbology Examples**

STEP	ACTION	EXAMPLES			
1	Desired symbology	Code 39	Data Matrix	Code 128	Aztec
2	Hex equivalent from <a href="#">Table 44</a>	24	0E	0C	4E
3	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				
4	<b>Scan SELECT SYMBOLOGIES FOR MULTIPLE LABELS ORDERING</b>				
5	Scan Two Characters From <a href="#">Appendix D, Keypad</a>	'2' and '4'	'0' and 'E'	'0' and 'C'	'4' and 'E'
	RESULT	<b>0x240E0C4E0000</b>			
6	<b>Scan ENTER/EXIT PROGRAMMING MODE</b>				

[Table 44 on page 285](#) shows the hex value associated with each symbology.

**Table 44. Symbology Hex Values**

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

## RF Features

### 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 245 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 246](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the bar code: 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 bar code to abort and not save the entry string. You can then start again at the beginning.**

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

**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 251](#) 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. STAR Radio Protocol Timeout 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 SELECTSTAR RADIO PROTOCOL TIMEOUT SETTING</b>				
5	<b>Scan Two Characters From</b> <a href="#">Appendix D, Keypad</a>	'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 or 16-character pin code to be used for authentication of the BT link. To set the pin code:

1. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode, then enable "BT Security Mode" on page 247.
2. Specify the desired pin code length (4 or 16) by scanning the appropriate bar code in "Select PIN Code Length" on page 248.
3. Determine the desired characters. For example, D254 or STOR12345678135M
4. Convert the characters to hexadecimal using the [ASCII Chart](#) on the inside back cover of this manual.
5. Go to [page 248](#) and Scan the bar code: SET 4 CHAR PIN CODE or SET 16-CHAR PIN CODE.
6. Scan the appropriate alphanumeric characters from the keypad in [Appendix D, Keypad](#), representing the hexadecimal entries determined in the steps above. You will hear a two-beep indication after the last character.



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

7. Scan the ENTER/EXIT PROGRAMMING MODE bar code 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.**

**Table 47. BT Pin Code Setting Examples**

STEP	ACTION	EXAMPLES	
1	Desired Setting	D254	STOR12345678135M
2	Convert the characters to hexadecimal	44 32 35 34	53 54 4F 52 31 32 33 34 35 36 37 38 31 33 35 4D
3	Scan ENTER/EXIT PROGRAMMING MODE		
4	Scan SET BT PIN CODE		
5	Scan 8 or 32 Alphanumeric Characters From <a href="#">Appendix D, Keypad</a>	44323534	53544F5231323334353637383133354D
6	Scan ENTER/EXIT PROGRAMMING MODE		

# Motion Features

## Motionless Timeout

This setting specifies the amount of time that the reader takes to assume that it is in a motionless condition. The range for this setting is from 500 msec to 25.5 seconds, in 100 millisecond increments.

Follow these instructions to set this feature.

1. Determine the desired setting.
2. Pad the result with leading zeroes to yield three digits. For example: 0.5 = 0005 = 00, 5 = 050, 20 = 200, etc.
3. Go to [page 254](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT MOTIONLESS TIMEOUT SETTING.
5. Scan the appropriate three digits from the keypad in [Appendix D, Keypad](#) representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



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

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

This completes the procedure. See [Table 48](#) for examples of how to set this feature.

**Table 48. Motionless Timeout Setting Examples**

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

# NOTES

# Chapter 5

## Message Formatting

### Message Formatting



**Message Formatting is only available for the Gryphon™ Wireless 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.
- The maximum character length for messages is 48.
- 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 236).

The message field can store plain text and escape sequences.

- Escape sequences are interpreted as commands.

## 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:

`ESC [ 6 q ESC [ 3 q ESC [ 7 q` Turns on the green LED, emits a good read tone, and turns off the green LED.

`ESC [ 6 q ESC [ 5 q ESC [ 7 q` Turns on the green LED for 100 ms and then turns off the green LED.

Escape sequences different from those listed will be ignored.

# Appendix A

## Technical Specifications

Table 49 contains Physical and Performance Characteristics, User Environment and Regulatory information.

**Table 49. Technical Specifications**

Item	Description	
	GD44XX	GBT4400/GM440X
<b>Physical Characteristics</b>		
Color	White or Black	
Dimensions	Height 7.1"/181 mm Length 3.9"/100 mm Width 2.8"/71 mm	Height 7.1"/181 mm Length 3.9"/100 mm Width 2.8"/71 mm
Weight (without cable)	Approximately 6.9 ounces /195.6 g	GBT4400/GM440X Handheld Unit: Approximately 8.7 ounces/246 g Base Station/Charger: Approximately 8.7 ounces/246 g
<b>Electrical Characteristics</b>		
Battery Type	N/A	Li-Ion battery pack
Typical charge time for full charge from full discharge	N/A	4 hours with 12V external power supply adapter <sup>a</sup>
	N/A	Max 22 hours with Host power (In this case no supply adapter is needed) <sup>a</sup>
Operating autonomy (continuous reading)	N/A	scans typical/fully charged battery GBT4400 >50,000 reads GM440X 60,000 reads (typical)
Base Station Consumption and DC input supply range	N/A	Volt 4.75-14 VDC; Power <8W <sup>b</sup> ; I <sub>max</sub> 500mA when in host/bus powered mode <sup>b</sup>

Item	Description	
<b>Performance Characteristics</b>		
Scanning Illumination Source	LEDs	
Aiming Source	Laser Class 2	
Roll (Tilt) Angle <sup>c</sup>	Up to $\pm 180^\circ$	
Pitch Angle <sup>c</sup>	$\pm 40^\circ$	
Skew (Yaw) Angle <sup>c</sup>	$\pm 40^\circ$	
Field of View	40° Hx26° V	
<b>Depth of Field (Typical) <sup>d</sup></b>		
<b>Symbology</b>	<b>Standard Range (SR) Models 433, 910, BT, D</b>	<b>High Density (HD) Models BT, D only</b>
Code 39	5mil: 1.6" - 7.5" (4.0 - 19cm) 10mil: 0.4" - 11.8" (1.0 - 30cm) 20mil: up to 17.7" (up to 45cm)	3mil: 0.9" - 3.6" (2.4 - 9.1cm) 5 mil: 0.3" - 4.5" (0.8 - 11.3cm)
EAN	7.5mil: 0.5" - 10.6" (2.0 - 27cm) 13mil: 0.6" - 15.7" (1.5 - 40cm)	7.5mil: 0" - 5" (0 - 12.7cm) 13mil: 4.3" - 6.8" (1.1 - 17.2cm)
PDF 417	6.6mil: 1.0" - 5.9" (2.5 - 15cm) 10mil: 0.2" - 8.6" (0.5 - 22cm) 15mil: 0.6" - 13.4" (1.5 - 34cm)	4mil: 0.7" - 2.7" (1.8 - 6.8cm) 6.6mil: 0.1" - 4.4" (0.1 - 11.2cm) 10mil: 0" - 5.6" (0 - 14.3cm)
Data Matrix	10mil: 0.8" to 6.3" (2.0 - 16cm) 15mil: 0" to 9.3" (0 - 23.6cm)	5mil: 1.1" - 2.4" (2.8-6.1cm)
QR Code	10mil: 1.2" to 4.9" (3.0 - 12.5cm) 15mil: 0.4" to 7.5" (1.0 - 19cm)	6.7mil: 0.8" - 1.7" (2.1 - 4.2cm)
Minimum Element Width	<b>Standard Range:</b> 1D Minimum Resolution = 4 mil PDF-417 Minimum Resolution = 5 mil Data Matrix Minimum Resolution = 7 mil	<b>High Density:</b> 1D Minimum Resolution = 2.5 mil PDF-417 Minimum Resolution = 4 mil Data Matrix Minimum Resolution = 5 mil
Print Contrast Minimum	25% minimum reflectance	



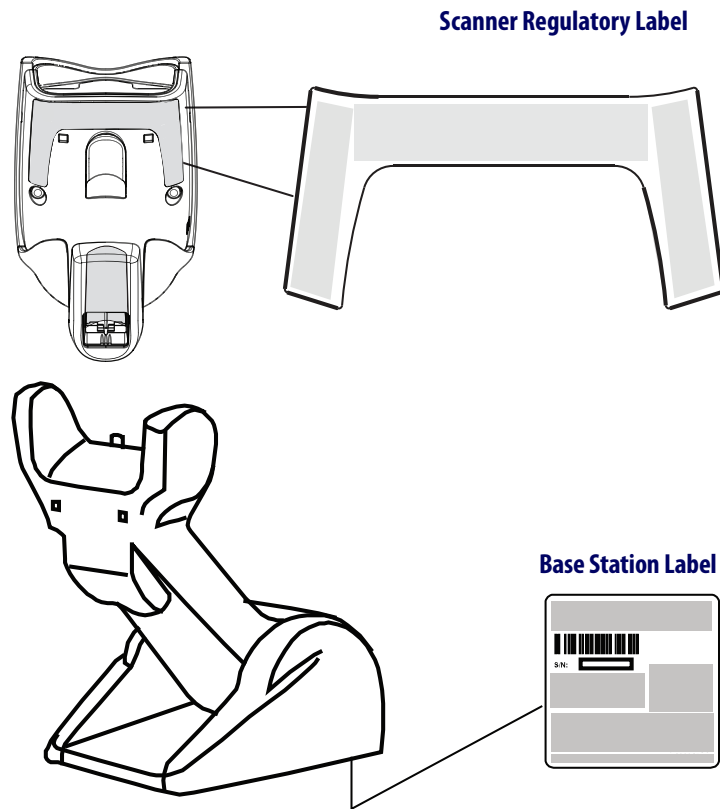
Item	Description
Decode Capability	<p><b>1D Bar Codes</b></p> <p>UPC/EAN/JAN (A, E, 13, 8); UPC/EAN/JAN (including P2 /P5); UPC/EAN/JAN (including; ISBN /Bookland &amp; ISSN); UPC/EAN Coupons; Code 39 (including full ASCII); Code 39 Tri-optic; Code39 CIP (French Pharmaceutical); LOGMARS (Code 39 w/ standard check digit enabled); Danish PPT; Code 32 (Italian Pharmacode 39); Code 128; Code 128 ISBT; Interleaved 2 of 5; Standard 2 of 5; Interleaved 2 of 5 CIP (HR); Industrial 2 of 5; Discrete 2 of 5; IATA 2of5 Air cargo code; Code 11; Codabar; ABC Codabar; Code 93; MSI; PZN; Plessey; Anker Plessey; Follett 2 of 5; GS1 DataBar Omnidirectional; GS1 DataBar Limited; GS1 DataBar Expanded; GS1 DataBar Truncated; DATABAR Expanded Coupon.</p>
	<p><b>2D / Stacked Codes</b></p> <p>The Gryphon I GBT4400 scanner is capable of decoding the following symbologies using multiple frames (i.e. Multi-Frame Decoding): PDF-417; QR Code; Aztec; Data Matrix; Inverse Data Matrix; Data Matrix is configurable for the following parameters; Normal or Inverted; Square or Rectangular Style; Data length (1 - 3600 characters); Maxicode; QR Codes (QR and Multiple QR Codes); Aztec; Postal Codes; Australian Post; Japanese Post; KIX Post; Planet Code; Postnet; Royal Mail Code (RM45CC); Intelligent Mail Bar Code (IMB); Sweden Post; Portugal Post; LaPoste A/R 39; 4-State Canada; PDF-417; Micro PDF417; GS1 Composites (1 - 12); French CIP13<sup>e</sup>; GS1 DataBar Stacked; GS1 DataBar Stacked Omnidirectional; GS1 DataBar Expanded Stacked; GSI Databar Composites; Chinese Sensible Code; Inverted 2D codes.</p> <p>Note: The reader can apply the Normal/Reverse Decoding Control to the following symbologies: Data Matrix, QR, Aztec and Chinese Sensible Code.</p>
Interfaces Supported <sup>f</sup>	<p>RS-232 Std, RS-232 Wincor-Nixdorf, RS-232 OPOS, IBM 46xx (ports5B 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 (BT model only).</p>

- a. Charge Times are much lower when battery is within daily typical operating condition.
- b. Typical input current measured under factory default configuration.
- c. Based on ISO 15423 specifications
- d. 13 mils DOF based on EAN. All other 1D codes are Code 39. All labels grade A, typical environmental light, 20°C, label inclination 10°
- e. It is acceptable to handle this with ULE.
- f. See "Interface Selection" on page 29 for a listing of available interface sets by model type.

Item	Description		
User Environment	<b>GD44XX Models</b>	<b>GBT Models</b>	
Operating Temperature	32° to 131° F (0° to 55° C)	32° to 122° F (0° to 50° C)	
Charging Temperature	N/A	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	Scanner withstands 18 drops from 1.8 meters (5.9 feet) to concrete		
Ambient Light Immunity	Up to 100,000 Lux		
Contaminants Spray/Rain/Dust/Particulates	IEC 529-IP52		
ESD Level	16 KV		
<b>Regulatory</b>			
Electrical Safety	UL 60950, CSA C22.2 No. 60950, IEC 60950		
EMI/RFI	<b>GD44XX Models</b>	<b>GBT Models</b>	<b>GM44 433 Models</b>
	North America (FCC) : Part 15 Class B; Canada (IC) : ICES-003 Class B; Russia (Gost); European Union EMC Directive; VCCI-Japan; Korean KCC; Taiwan EMC (BSMI); Australia (ACMA)	Europe - CE; Australia - C-tick; Russia – GOST; USA/CANADA – FCC/IC; Japan – JRF/VCCI; Mexico - NOM + Cofetel; South Korea - KCC; Brazil - ANATEL; Argentina - CNC; China - SRRC; Malaysia - SIRIM; Indonesia, Singapore - IDA; Taiwan - NCC; Philippines - NTC	Europe - CE; Australia - C-tick; Russia – GOST; Singapore - IDA; China - SRRC; Brazil - ANATEL
			<b>GM44 910 Models</b>
USA/CANADA – FCC/IC; Mexico - NOM + Cofetel;			
Laser Safety	IEC Class 2 Radiation 1 mW Avg., Emitted wavelength 650 nm, 12ms pulse, Beam Divergence 8.4 deg x 8.1 deg ("plus" pattern). Complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.		

# Imager Labeling

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



## Radio Features

Radio Features	BT	433 model	910 model
Frequency Range	2400 to 2483.5 MHz	433.92 MHz	910.00 MHz
Range (in open air)	30m	30m	30m

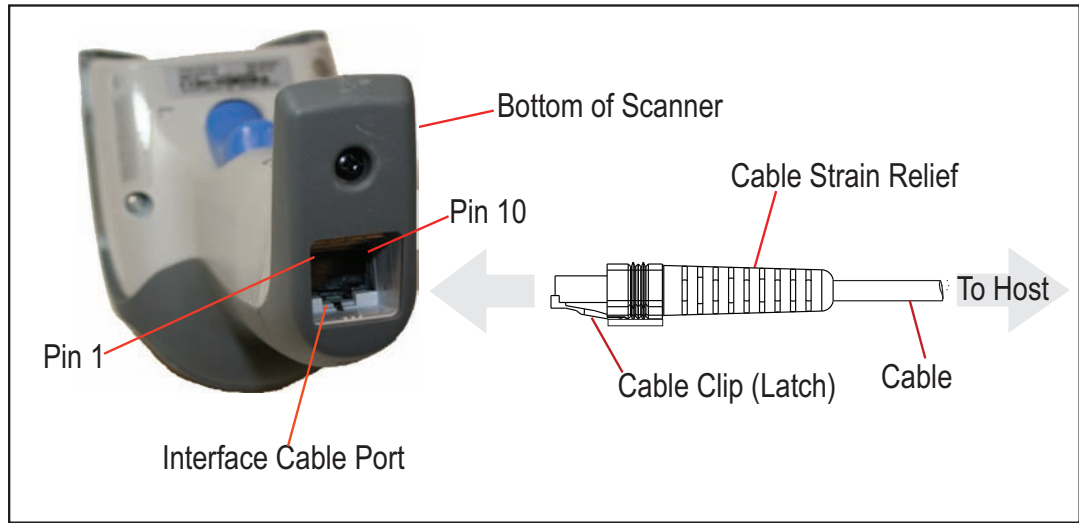


**For Star Models: Max number of devices per base station = 16**

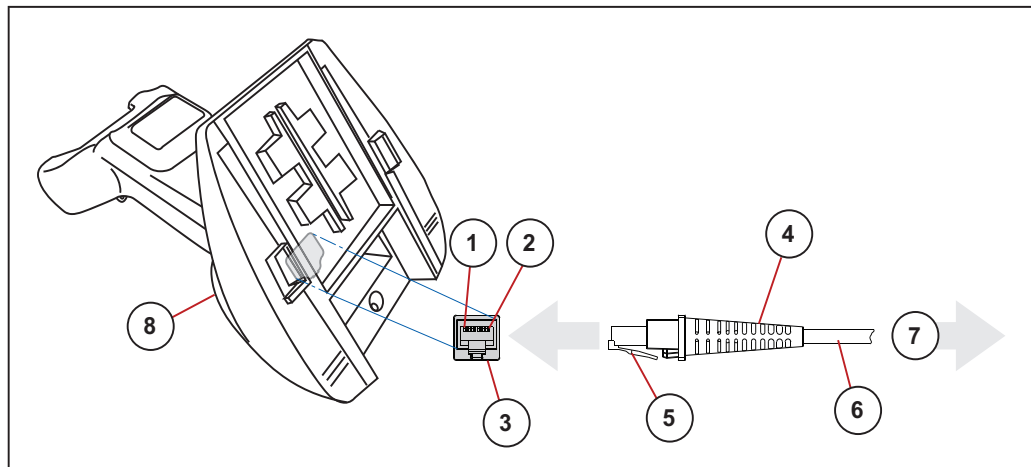
# Standard Cable Pinouts

Figure 19, Figure 20 and Table 50 provide standard pinout information for the interface cable.

**Figure 19. Standard Cable Pinouts: Handheld**



**Figure 20. Standard Cable Pinouts: Base Station**



The signal descriptions in Table 50 apply to the connector on the reader and are for reference only.

**Table 50. Standard Cable Pinouts — Handheld (GD44XX model) or Base Station (GBT4400 and GM44XX Star models) 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 bar code labels.

**Table 51. LED and Beeper Indications**

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

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

**Table 52. 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.

<b>NUMBER OF LED FLASHES/BEEPS</b>	<b>ERROR All Models: GD44XX, GBT4400, GM44XX</b>	<b>CORRECTIVE ACTION</b>
1	Configuration	Contact Helpdesk for assistance
2	Interface PCB	
6	Digital PCB	
12	Imager	
15	Accelerometer	

## Base Station Indications (Cordless Models ONLY)

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
Configuration alignment with the handheld is in progress	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 alternately ~1Hz
No handheld is placed on the cradle	Red and Green LEDs off

## Base Station Button Indicators

BUTTON PUSH EVENT	CORDLESS	RED INDICATOR(**)	GREEN INDICATOR(**)
Push at power-up	force device connection (Aladdin)	Off	Slow blink Fast blink
< 1 sec (*)	UV LED On/Off	Off	Off
1 to 5 sec	Paging	Off	Fast blink
5 to 10 sec	Unlink (Only BT)	Off	Slow blink
10 to 15 sec	Reset	Fast blink	Off
15 to 20 sec	Restore custom defaults	Slow blink	Off
> 20 sec	No action	Off	Off

\*Only for models with UV Counterfeit Money Detector, see page 13 for more details.



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

**Table 53. Standard Defaults**

Parameter	Default	Your Setting	Page Number
<b>GLOBAL INTERFACE FEATURES</b>			
Host Commands — Obey/Ignore	Obey		39
USB Suspend Mode	Disable		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	RTS		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 NAK Options	Disable		49
ACK Character	'ACK'		50
NAK Character	'NAK'		50
ACK NAK Timeout Value	200 ms		51
ACK NAK Retry Count	3 Retries		51
ACK NAK Error Handling	Ignore Errors Detected		52
Indicate Transmission Failure	Enable		52

Parameter	Default	Your Setting	Page Number
Disable Character	'D'		53
Enable Character	'E'		53
<b>KEYBOARD WEDGE</b>			
Country Mode	U.S. Keyboard		56
Send Control Characters	00		60
Wedge Quiet Interval	100 ms		61
Intercode Delay	No Delay		61
Caps Lock State	Caps Lock OFF		62
Numlock	NumLock Key Unchanged		62
USB Keyboard Speed	1 ms		63
USB Keyboard Numeric Keypad	Standard Keys		64
<b>USB-OEM</b>			
USB-OEM Device Usage	Handheld		66
Interface Options	Ignore Scanner Configuration Host Commands		66
<b>IBM 46xx</b>			
46xx Number of Host Resets	6		<b>68</b>
Transmit Labels in Code 39 Format	IBM Standard Format		<b>70</b>
Interface Options	Ignore Scanner Configuration Host Commands		<b>70</b>
<b>Wand Emulation (BT model only)</b>			
Wand Signal Speed	660 ms		72
Wand Polarity	Quiet Zones & Spaces Low, Bars High		72
Wand Idle State	High		73
Transmit Noise	Disable		73
Label Symbology Conversion	No conversion		74
<b>Data Format</b>			
Global Prefix/Suffix	No Global Prefix Global Suffix = 0x0D (CR)		76

Parameter	Default	Your Setting	Page Number
Global AIM ID	Disable		77
Set AIM ID Individually for GS1-128	Enable		79
Label ID: Pre-Loaded Sets	EU Set		80
Individually Set Label ID	Disable		81
Case Conversion	Disable		87
Character Conversion	No Char Conversion		88
<b>READING PARAMETERS</b>			
Double Read Timeout	0.6 Second		89
Power On Alert	Power-up Beep		92
Good Read: When to Indicate	After Decode		92
Good Read Beep Type	Mono		93
Good Read Beep Frequency	High		93
Good Read Beep Length	80 ms		94
Good Read Beep Volume	High		95
Good Read LED Duration	300 ms		96
<b>Scanning Features</b>			
Scan Mode	Trigger Single		97
Stand Mode Indication	Disable		98
Stand Operation	Switch to Stand Mode		99
Pick Mode	Disable		100
Stand Mode Sensitivity	Medium		100
Stand Mode Illumination Off Time	2 Seconds		101
Scanning Active Time	5 Seconds		101
Stand Illumination Control	OFF		102
Flash On Time	10 = Flash is ON for 1 Second		103
Flash Off Time	06 = Flash is OFF for 600ms		103
Aiming Pointer	Enable		104
Aiming Duration Timer	Aiming Off After Decoding		104
Green Spot Duration	300 ms		105

Parameter	Default	Your Setting	Page Number
Mobile Phone Mode	Enable		105
Partial Label Reading Control	Enable		106
Decode Negative Image	Disable		106
<b>Corded Only Features</b>			
Corded Stand Mode	Disable		107
Corded Stand Beep	Disable		108
<b>Multiple Label Reading</b>			
Multiple Labels per Frame	Disable		109
Multiple Labels Ordering by Code Symbology	Random Order		110
Multiple Labels Ordering by Code Length	Disable		110
<b>CODE SELECTION - 1D SYMBOLOGIES</b>			
<b>Code EAN/UPC</b>			
Coupon Control	Enable only UPCA coupon decoding		113
UPC-A			
UPC-A Enable/Disable	Enable		114
UPC-A Check Character Transmission	Send		114
Expand UPC-A to EAN-13	Don't Expand		115
UPC-A Number System Character Transmission	Transmit		115
UPC-A 2D Component	2D Component Not Required		116
UPC-E			
UPC-E Enable/Disable	Enable		116
UPC-E Check Character Transmission	Send		117
UPC-E 2D Component	2D Component Not Required		117
Expand UPC-E to EAN-13	Don't Expand		118
Expand UPC-E to UPC-A	Don't Expand		118
UPC-E Number System Character Transmission	Transmit		119
GTIN			
GTIN Formatting	Disable		119

Parameter	Default	Your Setting	Page Number
EAN 13 (Jan 13)			
EAN 13 Enable/Disable	Enable		120
EAN 13 Check Character Transmission	Send		120
EAN-13 Flag 1 Character	Transmit		121
EAN-13 ISBN Conversion	Disable		121
EAN-13 2D Component	2D Component Not Required		122
ISSN			
ISSN Enable/Disable	Disable		122
EAN 8			
EAN 8 Enable/Disable	Enable		123
EAN 8 Check Character Transmission	Send		123
Expand EAN 8 to EAN 13	Disable		124
EAN 8 2D Component	2D Component Not Required		124
UPC/EAN Global Settings			
UPC/EAN Price Weight Check	Disable		125
UPC/EAN Quiet Zones	Two Modules		126
Add-Ons			
Optional Add-ons	Disable P2, P5 and P8		127
Optional Add-On Timer	70 ms		128
Optional GS1-128 Add-On Timer	Disable		131
Code 39			
Code 39 Enable/Disable	Enable		134
Code 39 Check Character Calculation	Calculate Std Check		134
Code 39 Check Character Transmission	Send		135
Code 39 Start/Stop Character Transmission	Don't Transmit		136
Code 39 Full ASCII	Disable		136
Code 39 Quiet Zones	Small Quiet Zones on two sides		137
Code 39 Length Control	Variable		137
Code 39 Set Length 1	2		138

<b>Parameter</b>	<b>Default</b>	<b>Your Setting</b>	<b>Page Number</b>
Code 39 Set Length 2	50		139
Trioptic Code			
Trioptic Code Enable/Disable	Disable		140
Code 32 (Italian Pharmaceutical Code)			
Code 32 Enable/Disable	Disable		140
Code 32 Check Char Transmission	Don't Send		141
Code 32 Start/Stop Character Transmission	Don't Transmit		141
Code 39 CIP (French Pharmaceutical Code)			
Code 39 CIP Enable/Disable	Disable		142
Special Codes			
Code 39 Danish PPT Enable/Disable	Disable		142
Code 39 LaPoste Enable/Disable	Disable		143
Code 39 PZN Enable/Disable	Disable		143
Code 128			
Code 128 Enable/Disable	Enable		144
Expand Code 128 to Code 39	Don't Expand		144
Code 128 Check Character Transmission	Don't Send		145
Code 128 Function Character Transmission	Don't Send		145
Code 128 Sub-Code Exchange Transmission	Disable		146
Code 128 Quiet Zones	Small Quiet Zones on two sides		146
Code 128 Length Control	Variable		147
Code 128 Set Length 1	1		148
Code 128 Set Length 2	80		149
GS1-128			
GS1-128 Enable	Transmit in Code 128 Data Format		150
GS1-128 2D Component	Disable		150
ISBT 128			
ISBT 128 Concatenation	Disable		151
ISBT 128 Force Concatenation	Disable		151

<b>Parameter</b>	<b>Default</b>	<b>Your Setting</b>	<b>Page Number</b>
ISBT 128 Concatenation Mode	Static		152
ISBT 128 Dynamic Concatenation Timeout	200 msec		153
Interleaved 2 of 5			
I 2 of 5 Enable/Disable	Disable		154
I 2 of 5 Check Character Calculation	Disable		155
I 2 of 5 Check Character Transmission	Send		156
I 2 of 5 Length Control	Variable		156
I 2 of 5 Set Length 1	6		157
I 2 of 5 Set Length 2	50		158
Interleaved 2 of 5 CIP HR			
Interleaved 2 of 5 CIP HR Enable/Disable	Disable		159
Follett 2 of 5			
Follett 2 of 5 Enable/Disable	Disable		159
Standard 2 of 5			
Standard 2 of 5 Enable/Disable	Disable		160
Standard 2 of 5 Check Character Calculation	Disable		160
Standard 2 of 5 Check Character Transmission	Send		161
Standard 2 of 5 Length Control	Variable		161
Standard 2 of 5 Set Length 1	8		162
Standard 2 of 5 Set Length 2	50		163
Industrial 2 of 5			
Industrial 2 of 5 Enable/Disable	Disable		164
Industrial 2 of 5 Check Character Calculation	Disable		164
Industrial 2 of 5 Check Character Transmission	Enable		165
Industrial 2 of 5 Length Control	Variable		165
Industrial 2 of 5 Set Length 1	1		166
Industrial 2 of 5 Set Length 2	50		167
Code IATA			
IATA Enable/Disable	Disable		168
IATA Check Character Transmission	Enable		168

<b>Parameter</b>	<b>Default</b>	<b>Your Setting</b>	<b>Page Number</b>
Codabar			
Codabar Enable/Disable	Disable		169
Codabar Check Character Calculation	Don't Calculate		169
Codabar Check Character Transmission	Send		170
Codabar Start/Stop Character Transmission	Transmit		170
Codabar Start/Stop Character Set	abcd/abcd		171
Codabar Start/Stop Character Match	Don't Require Match		171
Codabar Quiet Zones	Small Quiet Zones on two sides		172
Codabar Length Control	Variable		172
Codabar Set Length 1	3		173
Codabar Set Length 2	50		174
ABC Codabar	Disable		175
ABC Codabar			
ABC Codabar Enable/Disable	Disable		175
ABC Codabar Concatenation Mode	Static		175
ABC Codabar Dynamic Concatenation Timeout	200 msec		176
ABC Codabar Force Concatenation	Disable		177
Code 11			
Code 11 Enable/Disable	Disable		178
Code 11 Check Character Calculation	Check C and K		178
Code 11 Check Character Transmission	Send		179
Code 11 Length Control	Variable		179
Code 11 Set Length 1	4		180
Code 11 Set Length 2	50		181
GS1 DataBar™ Omnidirectional			
GS1 DataBar™ Omnidirectional Enable/Disable	Disable		182
GS1 DataBar™ Omnidirectional GS1-128 Emulation	Disable		182
GS1 DataBar™ Omnidirectional 2D Component	2D component not required		183
GS1 DataBar™ Expanded			



<b>Parameter</b>	<b>Default</b>	<b>Your Setting</b>	<b>Page Number</b>
GS1 DataBar™ Expanded Enable/Disable	Disable		183
GS1 DataBar™ Expanded GS1-128 Emulation	Disable		184
GS1 DataBar™ Expanded 2D Component	2D component not required		184
GS1 DataBar™ Expanded Length Control	Variable		185
GS1 DataBar™ Expanded Set Length 1	1		186
GS1 DataBar™ Expanded Set Length 2	74		187
GS1 DataBar™ Limited			
GS1 DataBar™ Limited Enable/Disable	Disable		188
GS1 DataBar™ Limited GS1-128 Emulation	Disable		188
GS1 DataBar™ Limited 2D Component	2D component not required		189
Code 93			
Code 93 Enable/Disable	Disable		189
Code 93 Check Character Calculation	Enable Check C and K		190
Code 93 Check Character Transmission	Enable		190
Code 93 Length Control	Variable		191
Code 93 Set Length 1	1		192
Code 93 Set Length 2	50		193
Code 93 Quiet Zones	Small Quiet Zones on two sides		194
MSI			
MSI Enable/Disable	Disable		194
MSI Check Character Calculation	Enable Mod10		195
MSI Check Character Transmission	Enable		195
MSI Length Control	Variable		197
MSI Set Length 1	1		197
MSI Set Length 2	50		198
Plessey			
Plessey Enable/Disable	Disable		199
Plessey Check Character Calculation	Enable Plessey std. check char. verification		199

<b>Parameter</b>	<b>Default</b>	<b>Your Setting</b>	<b>Page Number</b>
Plessey Check Character Transmission	Enable		200
Plessey Length Control	Variable		200
Plessey Set Length 1	1		201
Plessey Set Length 2	50		202
<b>CODE SELECTION - 2D SYMBOLOGIES</b>			
2D Maximum Decoding Time	350msec		204
2D Structured Append	Disable		205
2D Normal/Inverse Symbol Control	Normal		205
Aztec Code Enable / Disable	Disable		206
Aztec Code Length Control	Enable		206
Aztec Code Length Control	Variable		206
Aztec Code Set Length 1	1		207
China Sensible Code Enable / Disable	Disable		209
China Sensible Code Length Control	Variable		209
China Sensible Code Set Length 1	1		210
China Sensible Code Set Length 2	7,827		211
Data Matrix Enable / Disable	Enable		212
Data Matrix Square/Rectangular Style	Both Square and Rectangular style		212
Data Matrix Length Control	Variable		213
Data Matrix Set Length 1	1		213
Data Matrix Set Length 2	3,116		214
Maxicode Enable / Disable	Disable		215
Maxicode Primary Message Transmission	Disable		215
Maxicode Length Control	Variable		216
Maxicode Set Length 1	1		216
Maxicode Set Length 2	0145		217
PDF417 Enable / Disable	Enable		218
PDF417 Length Control	Variable		218
PDF417 Set Length 1	1		219
PDF417 Set Length 2	2,710		220

Parameter	Default	Your Setting	Page Number
Micro PDF417 Enable / Disable	Disable		221
Micro PDF417 Code 128 GS1-128 Emulation	Micro PDF AIM ID and label type		221
Micro PDF417 Length Control	Variable		222
Micro PDF417 Set Length 1	1		222
Micro PDF417 Set Length 2	0366		223
QR Code Enable / Disable	Enable		224
QR Code Length Control	Variable		224
QR Code Set Length 1	1		225
QR Code Set Length 2	7,089		226
Micro QR Code Enable/Disable	Disable		227
Micro QR Code Length Control	Variable		227
Micro QR Code Set Length 1	0001		228
Micro QR Code Set Length 2	0035		229
UCC Composite Enable / Disable	Disable		230
UCC Optional Composite Timer	Timer Disabled		231
Postal Code Selection	Disable all Postal codes		232
Postnet BB Control	Disable		233
<b>WIRELESS Features</b>			
Good Transmission Beep	Enable		236
Beep Frequency	Low		236
Beep Duration	80 msec		237
Beep Volume	High		238
Disconnect Beep	Enable		238
Docking Beep	Enable		239
Leash Alarm	Disable		239
Automatic Configuration Update	Enable		241
Copy Configuration to Scanner	N/A		241
Copy Configuration to Base Station	N/A		241
Batch Mode	Disable		242
Send Batch	N/A		242

<b>Parameter</b>	<b>Default</b>	<b>Your Setting</b>	<b>Page Number</b>
Erase Batch Memory	N/A		243
RF Batch Mode Transmit Delay	No Delay		243
Direct Radio Autolink	Unlink Label Required		244
<b>Features for BT Models Only</b>			
Source Radio Address Transmission	Do not include		245
Source Radio Address Delimiter Character	No Delimiter Character		246
Link Timeout	2 Seconds		246
BT Security Features			
BT Security Mode	Disable		247
Select PIN Code Length	4-character BT PIN Code		248
Set PIN Code	31323334 = Default Pin Code is 1234		248
BT Poll Rate	20 ms		249
Powerdown Timeout	30 minutes		250
<b>Features for Star Models Only</b>			
STAR Radio Protocol Timeout	2 seconds		251
STAR Radio Transmit Mode	ACK from cradle		252
<b>Motion Features</b>			
Motion Aiming Control	Enable		253
Motion Sensitivity	Medium		254
Motionless Timeout	2 seconds		254

# Appendix C

## Sample Bar Codes

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

### 1D Bar Codes



---

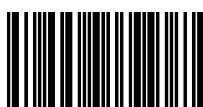
## Sample Bar Codes — continued

**Code 32**



B9P91Q

**Codabar**



13579

**Code 93**



ABCDEF

**Code 11**



123456789

---

## GS1 DataBar™ (RSS)



GS1 DataBar™ variants must be enabled to read the bar codes below (see [GS1 DataBar™ Omnidirectional](#) on page 182).

### GS1 DataBar™ Expanded Stacked



10293847560192837465019283746029478450366523

### GS1 DataBar™ Expanded



1234890hjo9900mnb

### GS1 DataBar™ Limited



08672345650916

## GS1 DataBar™-14

### GS1 DataBar™ Omnidirectional Truncated



55432198673467

### GS1 DataBar™ Omnidirectional Stacked



90876523412674

### GS1 DataBar™ Omnidirectional Stacked



78123465709811

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## 2D Bar Codes

**Aztec**



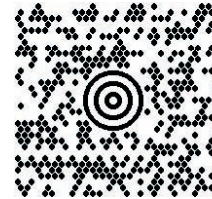
**Datamatrix**



**China Sensible Code**



**MaxiCode**



**PDF 417**



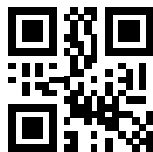
ABCabc

**Micro PDF 417**



BV17453

**QR Code**



35900G9

**Micro QR Code**



123456

**UCC Composite**

(17) 050923 (10) ABC123



(01) 0 4012345 67890 1 1



# Appendix D

## Keypad

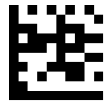
Use the bar codes in this appendix to enter numbers as you would select digits/characters from a keypad.



0



1



2



3



4



5



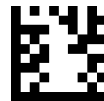
6



7



8



9



A



B



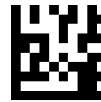
C



D



E



F

# Appendix E

## Scancode Tables

### Control Character Emulation

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

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

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

**Control Character 02 :** Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (Microsoft Windows Codepage 1252 — See page -328.)

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

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	NULL C+@	SOH C(S)+A	STX C(S)+B	ETX C(S)+C	EOT C(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	0	1	2	3	4	5	6	7	8	9	:	;	<=	=	>=	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{		}	~	Del
8x	€	Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	↑	↓	←	→	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓
Ax	Cr↑	□	‘	f	„	...	†	‡	^	%	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 55. Scancode Set When Control Character is 02

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓	Cr↑	BS	Tab	→	S+ Tab	Enter Keyprd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	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	<	Ś	<	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 56. Scancode Set When Control Character is 00 or 01

	x0	x1	x2	x3	x4	x5	X6	x7	x8	x9	xA	xB	xC	xD	xE	Xf
0x	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 57. Scancode Set When Control Character is 02

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓	Cr↑	BS	Tab	→	S+ Tab	Enter 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 58. Scancode Set When Control Character is 00 or 01

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

Table 59. Scancode Set When Control Character is 02

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x					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 60. Scancode Set When Control Character is 00 or 01

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	NULL C+@	SOH C(S)+A	STX C(S)+B	ETX C(S)+C	EOT C+D	ENQ C(S)+E	ACK C(S)+F	BEL C(S)+G	BS	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 61. Scancode Set When Control Character is 02

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

# IBM XT

**Table 62. 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 63. 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	• 20A8	ƒ 20A9	ſ 0192	ˆ 201E	˜ 2026	† 2020	‡ 2021	ˆ 02C6	‰ 2030	Š 0160	‹ 2039	Œ 0152	• 017D	Ž 017D	• 017D
90	• 017D	ˆ 2018	˜ 2019	ˆ 201C	ˆ 201D	• 2022	– 2013	— 2014	ˆ 02DC	™ 2122	Š 0161	› 203A	œ 0153	• 017E	Ž 017E	Ÿ 0178
A0	NSP 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	Þ 00DE	ß 00DF
E0	à 00E0	á 00E1	â 00E2	ã 00E3	ä 00E4	å 00E5	æ 00E6	ç 00E7	è 00E8	é 00E9	ê 00EA	ë 00EB	ì 00EC	í 00ED	î 00EE	ï 00EF
F0	ø 00F0	ñ 00F1	ò 00F2	ó 00F3	ô 00F4	õ 00F5	ö 00F6	÷ 00F7	ø 00F8	ù 00F9	ú 00FA	û 00FB	ü 00FC	ý 00FD	þ 00FE	ÿ 00FF

---

# NOTES

# 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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