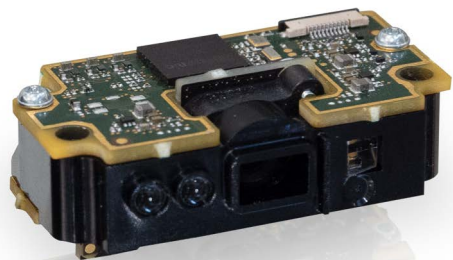


Gryphon™ | GFS/GFE4500

PRODUCT REFERENCE GUIDE



Fixed Mount Area Imager
Bar Code Reader

 **DATALOGIC**

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Patents

See www.patents.datalogic.com for patent list.

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PREFACE

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.

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.

Programming can alternatively be performed using the Datalogic Aladdin™ Configuration application, which is available 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.

OVERVIEW

Chapter 1, Introduction provides a product overview, battery safety information, and general information about programming the reader.

Chapter 2, Setup presents information about unpacking and setting up the reader, and interface configuration bar codes and details.

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, and symbology-specific features.

Chapter 4, References provides details concerning programmable features.

Appendix A, Technical Specifications lists physical and performance characteristics, as well as environmental specifications. It also provides standard cable pin-outs and descriptions of the functions and behaviors of the reader's LED and Beeper indicators.

Appendix B, GFS4400 Mounting Adapter shows the accessory to replace the setups based on previous Gryphon™ I GFS4400 family with the new Gryphon™ I GFS4500.

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

Appendix D, Sample Bar Codes offers sample bar codes of several common symbologies.

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

Appendix F, Reserved Characters lists reserved characters and their HEX value.

Appendix G, Scancode Tables lists control character emulation information for USB Keyboard interfaces.

Appendix H, ASCII Chart lists hexadecimal reference values for ASCII characters.

Manual Conventions

The following conventions are used in this document:

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



NOTE: This symbol draws attention to details or procedures that may be useful in improving, maintaining, or enhancing the performance of the hardware or software being discussed.



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



WARNING: This symbol advises you of actions that could result in harm or injury to the person performing the task.



HIGH VOLTAGE: This symbol alerts the user they are about to perform an action involving, either a dangerous level of voltage, or to warn against an action that could result in damage to devices or electrical shock.



LASER: This symbol alerts the user they are about to perform an action involving possible exposure to laser light radiation.



GROUNDING: This symbol advises you to pay particular attention to the grounding instructions for correct device functioning.




ESD: This symbol identifies a procedure that requires you take measures to prevent Electrostatic Discharge (ESD) e.g., use an ESD wrist strap. Circuit boards are most at risk. Please follow ESD procedures.

TECHNICAL SUPPORT

Support Through the Website

Datalogic provides several services as well as technical support through its website. Log on to (www.datalogic.com).

For quick access, from the home page click on the search icon , and type in the name of the product you're looking for. This allows you access to download Data Sheets, Manuals, Software & Utilities, and Drawings.

Hover over the Support & Service menu for access to Services and Technical Support.

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.

CHAPTER 1

INTRODUCTION

ABOUT THE READER

Designed for easy integration and simple installation, the GFS4500 scan modules provide ready-to-use versatile solutions for kiosks and machine manufacturers. The GFS4500 module can be easily integrated with little effort in different enclosures from multiple sides with its small regular size and various fixing points. The "naked" version GFE4500 is ideal for tailor-made fully integrated solution.

The Gryphon GFS4500 2D scan modules are made to last with a durable design for maximum uptime. You can rely on them for both indoor and outdoor applications with the IP54 sealing, the UV protected scratch resistant output window, the wide range operating temperature and the great resistance to accidental drops, shock, and vibrations. RS-232 and USB/RS-232 models have an integrated cable while the USB models are equipped with a locking clip to prevent the USB cable from coming loose or disconnecting. The 5-year factory warranty proves the GFS4500 series has been designed to last.

The GFS4500 2D scan modules features the most advanced Megapixel sensor technology with distinctive red or white illumination technology with adjustable brightness for outstanding reading performance. The wide angle optics allows snappy scanning of any 1D and 2D barcodes and it starts reading at almost contact while offering improved motion tolerance and first pass decoding of fast-moving codes. The speedy reading of tickets, boarding passes, loyalty cards, and coupons from mobile phone displays is granted by the ultimate decoding algorithms you can count on.

USING THE GRYPHON™ GFS4500 READER

To read a symbol or capture an image, simply aim the reader and pull the trigger. The Gryphon™ GFS4500 is a powerful omni-directional reader, so the orientation of the symbol is not important. Datalogic's unique 'Green Spot' for good-read feedback helps to improve productivity in noisy environments or in situations where silence is required.

The Gryphon™ GFS4500 readers reliably decode all standard 1D (linear) and 2D bar codes, including GS1 DataBar™ linear codes, Postal Codes (China Post), Stacked Codes (such as GS1 DataBar Expanded Stacked, GS1 DataBar Stacked, GS1 DataBar, Stacked Omnidirectional). The data stream - acquired from decoding a symbol - is rapidly sent to the host. The reader is immediately available to read another symbol.

GRYPHON™ GFS4500 AIMING SYSTEM

The Gryphon™ GFS4500 normally function by capturing and decoding codes. The reader is equipped with an internal Motionix™ motion-sensing function which activates the aiming system on device motion. The intelligent aiming system indicates the field of view which should be positioned over the bar code:

Gryphon™ GFS4500

Figure 1. Gryphon™ GFS4500's Aiming System

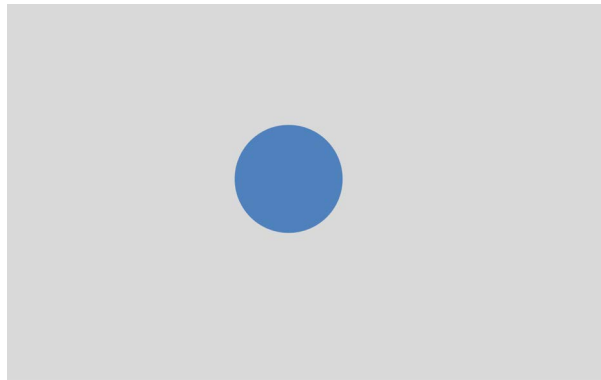


Figure 2. Relative Size and Location of Gryphon™ GFS4500's Aiming System Pattern on 2D Matrix Symbol

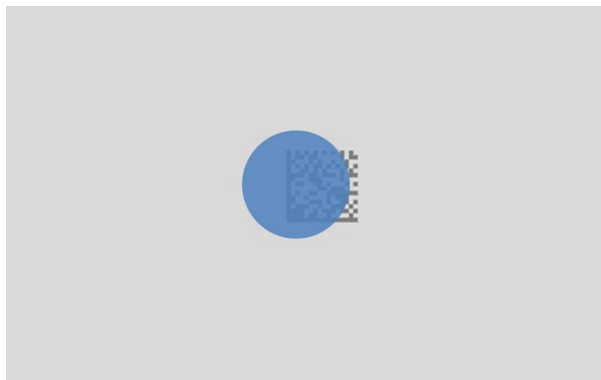
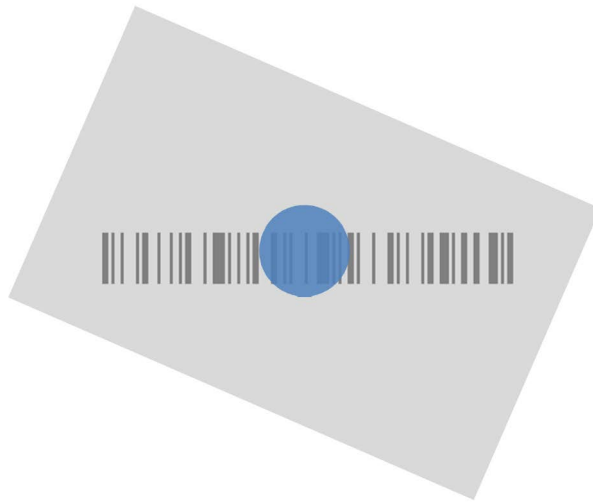
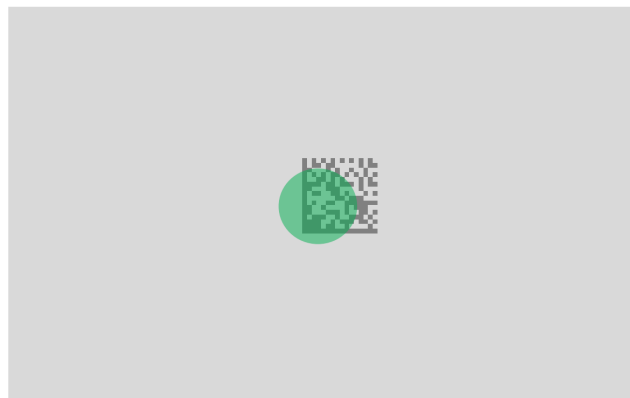


Figure 3. Relative Size and Location of Gryphon™ GFS4500's Aiming System Pattern on Linear bar code



A beam illuminates the label. The projected pattern of the aiming system will be smaller when the reader is closer to the bar code and larger when it is farther from the code. Symbologies with smaller bars or elements (mil size) should be read closer to the unit. Symbologies with larger bars or elements (mil size) should be read farther from the unit. If the aiming system is centered you will get a good read. Successful reading is signaled by an audible tone plus a good-read green spot LED indicator.

Figure 4. Relative Size and Location of Green Spot



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 15](#).

Some programming labels, like “Restore Custom Defaults”, 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.



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

Datalogic Aladdin™

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

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

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

CHAPTER 2

SETUP

UNPACKING

Check carefully to ensure the reader and any cables or accessories ordered are present and undamaged. If any damage occurred during shipment, contact "[Technical Support](#)" on page xiv.

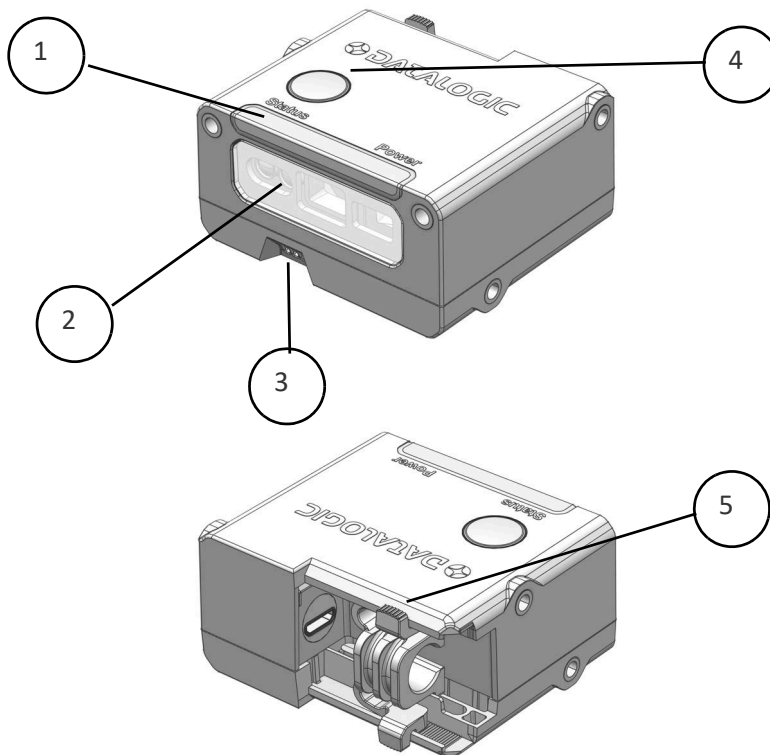
SETTING UP THE GRYPHON™ GFS4500 READER

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

1. Attach the USB cable (only for GFS4520 model).
2. Connect the reader to the Host (see the next section, [Connecting the Host Interface, starting on page 8](#) and Figure 5).
3. Select the Interface (see
4. Modify "[Customizing Configuration Settings](#)" on page 12 (only if modifications are needed from factory settings).

PARTS OF THE READER

The LED on the reader provides information about the data transmission.



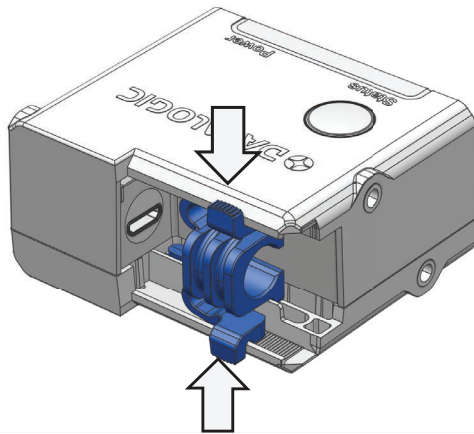
- | | |
|--|----------------|
| 1. Power/Status LEDs | 3. Scan Window |
| 2. Beeper Output | 4. Trigger |
| 5. USB Cable Retainer (Only for GFS4520) | |

ATTACHING AND RETAINING THE USB CABLE (GFS4520 MODEL ONLY)

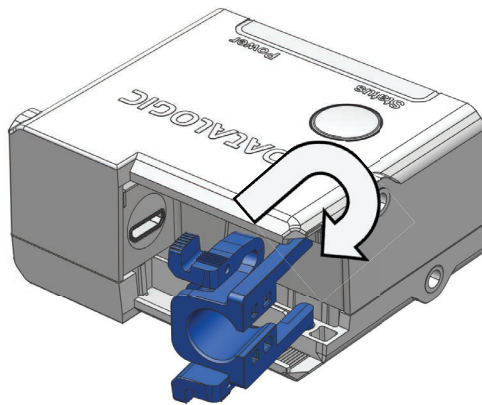
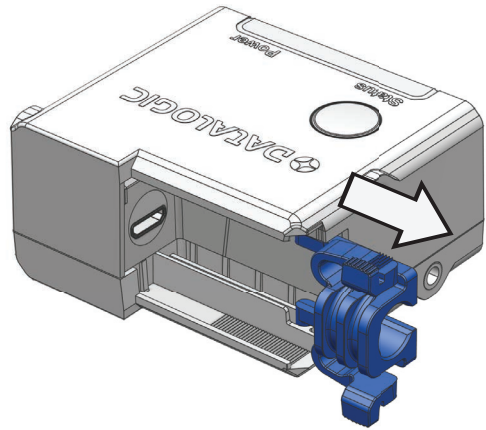
1. While pressing the retainer's locking wings, slide to pull it out of its housing.
2. Rotate the retainer clockwise and insert the USB cable.
3. Set back the retainer by rotating it counterclockwise and push until the cable is firmly locked.



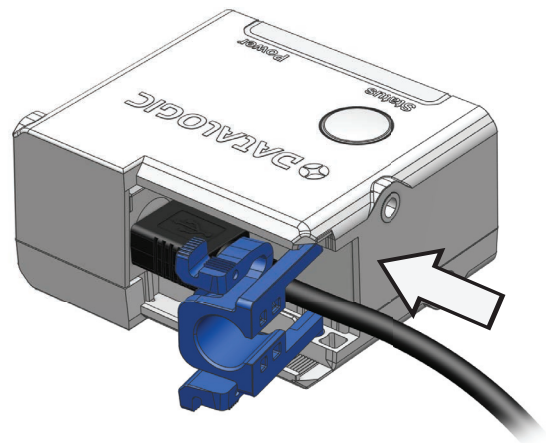
NOTE: Different microUSB cable sizes can be used. Ensure the connector shell size does not exceed 18.0 mm (w), 7.0 mm (h), 10.8 mm (d). Use only straight USB connectors, do not use right-angled connectors.

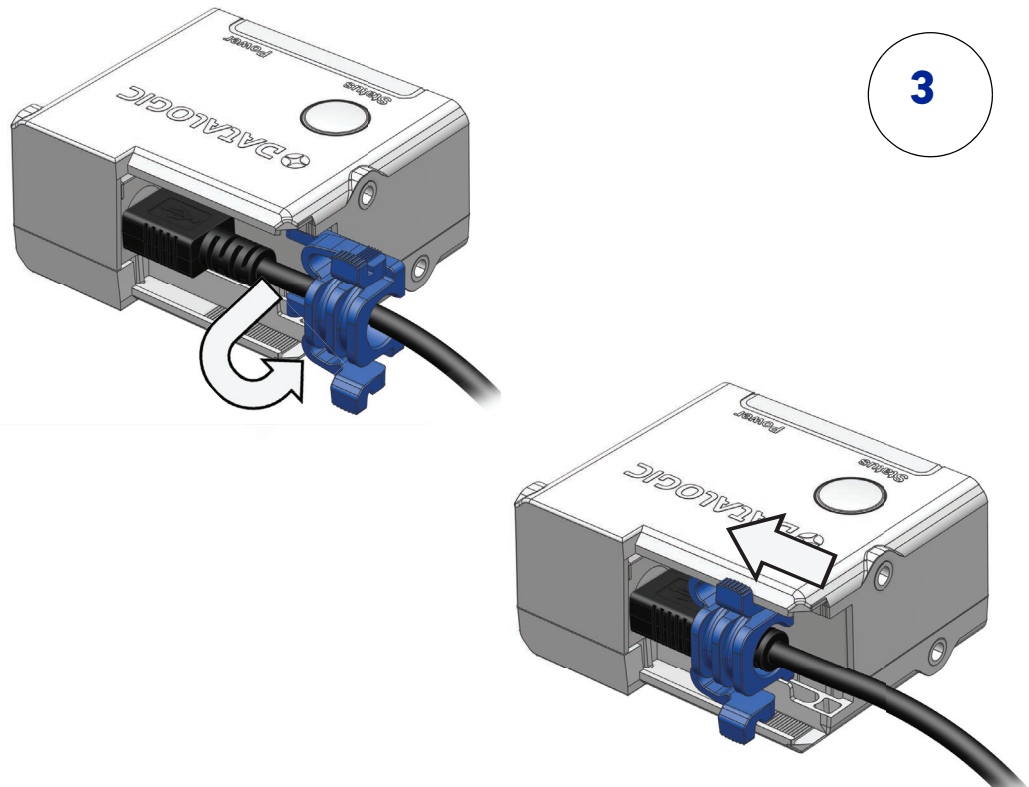


1



2





Video Tutorial

CONNECTING THE HOST INTERFACE

The reader can communicate using the interfaces illustrated on [page 10](#).

For USB model, connect the reader cable as shown in "[Attaching and Retaining the USB Cable \(GFS4520 Model Only\)](#)" on [page 6](#).

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 5](#). 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.

RS-232: The reader can communicate with a standard or Wincor-Nixdorf (W-N) RS-232 host.

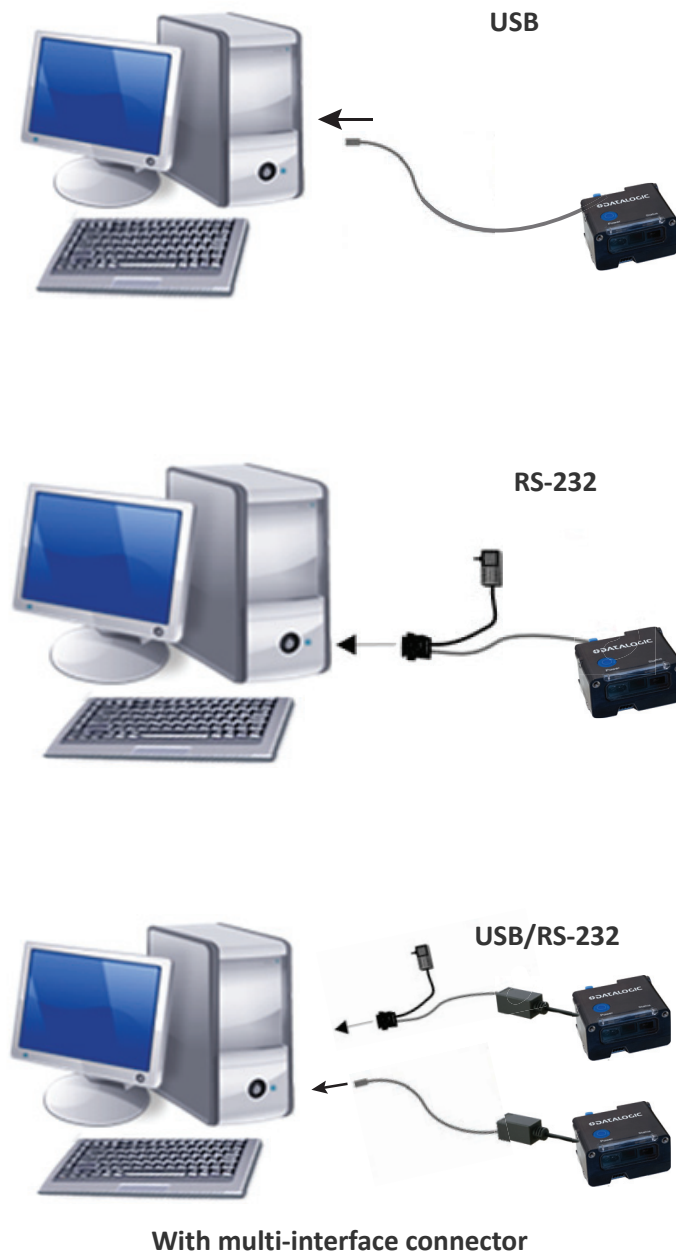
RS-232 OPOS: This interface is used for OPOS/UPOS/JavaPOS systems.

USB Connection

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

USB : Select to communicate either by USB OEM, USB COM STD, or USB Keyboard interface types by scanning the appropriate interface type bar codes available in this manual. The default interface is USB-KBD, or RS-232-STD.

Figure 5. Connection to the Host



NOTE: Specific cables are required for connection to different hosts. The connections illustrated in Figure 5 are examples only. Actual connectors may vary from those illustrated, but the steps to connect the reader remain the same.

INTERFACE SELECTION

Upon completing the physical connection between the reader and its host, proceed directly to "Configuring the Interface" on page 10 for information and programming for the interface type the scanner is connected to (for example: RS-232, USB, etc.) and scan the appropriate bar code in that section to select your system's correct interface type.

The reader, depending upon the model, will support one or more of the following sets of host interfaces:

- USB (Keyboard, COM, OEM)
- USB Composite (Keyboard + COM)
- USB HID POS
- USB Toshiba TEC
- RS-232 STD¹
- RS-232 WN¹
- RS232 OPOS¹
- Datalogic Magellan Scanners' specific interface


CONFIGURING THE INTERFACE

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



NOTE: Unlike some other programming features and options, interface selections require that you scan only one programming bar code label. DO NOT scan an ENTER/EXIT bar code prior to scanning an interface selection bar code. Some interfaces require the reader to start in the disabled state when powered up. If additional reader configuration is desired while in this state, pull the trigger and hold for 5 seconds. The reader will change to a state that allows programming with bar codes.

Table 1 - Available Interfaces





USB-OEM	
 Select USB-OEM	USB-OEM (can be used for OPOS/UPOS/JavaPOS)



NOTE: If you erroneously read the USB-OEM interface selection code, it is required to press and hold the trigger to unlock the reader. Then read the correct interface bar code. This will work only at power-up. Please reconnect the reader if the unlock is not successful.




1. Not available for GFS4520




Table 2 - Available Interfaces (continued)

SERIAL INTERFACES	
RS-232 standard interface ^a <i>*Not supported on USB only models</i>	 Select RS232-STD
 Select RS232-WN	RS-232 Wincor-Nixdorf ^a
RS-232 for use with OPOS/UPOS/JavaPOS ^a	 Select RS-232 OPOS
 Select USB-COM-STD ^b	USB-COM (simulates RS-232 standard interface)

a. Not available for GFS4520.

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

USB FOR TERMINALS	
USB HID POS	 Select USB HID POS
 Select USB Toshiba TEC	USB Toshiba TEC
USB FOR MAGELLAN SCANNERS	
USB for Magellans	 Select USB for Magellan Scanners

KEYBOARD	
USB Keyboard with standard key encoding	 <p>Select USB Standard Keyboard</p>
 <p>Select USB Alternative Keyboard</p>	USB Keyboard with alternative key encoding
<p>USB-Composite (combines USB-KBD emulation and USB-COM)</p>	 <p>Select USB-Composite</p>

CUSTOMIZING CONFIGURATION SETTINGS

Using the Programming Bar Codes

This manual contains feature descriptions and bar codes which allow you to reconfigure your reader. Some programming bar code labels, like [Resetting the Product Configuration to Defaults, starting on page 14](#), require only the scan of that single label to enact the change.

Most of the programming labels in this manual, however, require the reader to be placed in Programming Mode prior to scanning them. Scan an ENTER/EXIT bar code once to enter Programming Mode. Once the reader is in Programming Mode, you can scan a number of parameter settings before scanning the ENTER/EXIT bar code a second time, which will then accept your changes, exit Programming Mode and return the reader to normal operation.



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

Datalogic Aladdin™ Utility

Programming can alternatively be performed using the Datalogic Aladdin™ Configuration application which is available for free download 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.

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

Interface Settings

The reader is typically factory-configured with a set of default features standard to the interface type you ordered. See [Appendix C, Standard Defaults](#).

Global Interface Features, starting on [page 15](#) provides settings configurable by all interface types. If your installation requires you to further customize your reader, you can select other options through use of the instructions and programming bar codes available in the appropriate section for your interface.

- "RS-232 INTERFACE" on [page 18](#)
- "RS-232/USB-COM Interfaces" on [page 23](#)
- RS232 OPOS on [page 11](#)
- USB Composite (COM + Keyboard) on [page 12](#)
- KEYBOARD INTERFACE on [page 31](#)
- USB-OEM INTERFACE on [page 58](#)

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:

Configuration Using Bar Codes: General Features includes programming for scanning, beeper and LED indicators and other such universal settings.

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

1D/2D 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.

Software Version Transmission

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



Transmit Software Version

Resetting the Product Configuration to Defaults

Restore Custom Default Configuration

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



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



Restore Custom Default Configuration

CHAPTER 3

CONFIGURATION WITH 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 "Customizing Configuration Settings" on page 12.



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

CONFIGURATION PARAMETERS

Once the reader is set up, you can change the default parameters to meet your application needs. Refer to [Standard Defaults, starting on page 258](#) for initial configuration in order to set the default values and select the interface for your application.



NOTE: In the following sections, text shown with a green star indicates a factory default value.

★ This is an example of a default value.

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 Standard Settings, starting on page 19](#)
- [RS-232/USB-COM Settings, starting on page 24](#)
- [Keyboard Interface, starting on page 31](#)
- [USB-OEM Interface, starting on page 58](#)

Parameters common to all interface applications:

- [Global Prefix/Suffix, starting on page 61](#)
- [Data Format, starting on page 60](#) gives options to control the messages sent to the Host system by selecting parameters to control the message strings sent to the handheld.
- [Reading Parameters, starting on page 71](#) controls various operating modes and indicators status functioning.

Symbology-specific parameters:

1D Symbologies, starting on page 96 and 2D Symbologies, starting on page 185 define options for all symbologies and provides the programming bar codes necessary for configuring these features.



NOTE: 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 5 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 E](#), and scan the appropriate characters from the keypad.



NOTE: Additional information about many features can be found in the References, starting on page 217.

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 217](#).



GLOBAL INTERFACE FEATURES

The following interface features are configurable by all interface types.

To set features specific to your interface, turn to that section of this manual.

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 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

CONFIGURATION | RS-232 INTERFACE

Use the programming bar codes in this chapter if modifications to the standard RS-232 interface settings are necessary to meet your system's requirements. Additional settings which apply to both the RS-232 and USB interfaces are available in [RS-232/USB-COM Settings](#), starting on page 24.

SECTION CONTENTS

RS-232 STANDARD SETTINGS starting on page 19

- Baud Rate
- Data Bits
- Stop Bits
- Parity
- Handshaking Control

Standard Factory Settings

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



RS-232 STANDARD SETTINGS

Baud Rate

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



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.



7 Data Bits



★ 8 Data Bits



NOTE: Handheld and base station models support the 8-bit ASCII protocol. The 7-bit ASCII protocol support is subject to specific firmware release. If the setting is not supported, the reader will emit three short beeps upon scanning the label.

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..



★ 1 Stop Bit



2 Stop Bits



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.



★ Parity = None



Parity = Even



Parity = Odd



Handshaking Control

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

- RTS — RTS is asserted during transmissions. CTS is ignored.
- RTS/CTS — RTS is asserted during transmissions. CTS gates transmissions.
- RTS/XON/XOFF — RTS is asserted during transmissions. CTS is ignored. XON and XOFF gate transmissions.
- RTS On/CTS — RTS is always asserted. CTS gates transmissions.
- RTS/CTS Scan Control — RTS is asserted during transmissions. CTS gates transmissions and controls enable and disable state of reader.



★ Handshaking Control = RTS



Handshaking Control = RTS/CTS



Handshaking Control = RTS/XON/XOFF



Handshaking Control = RTS On/CTS



Handshaking Control = RTS/CTS Scan Control



Handshaking Control = RTS Off

CONFIGURATION | RS-232/USB-COM INTERFACES

SECTION CONTENTS	
<ul style="list-style-type: none">• Intercharacter Delay• Beep On ASCII BEL• Beep On Not on File• ACK NAK Options• ACK Character• NAK Character	<ul style="list-style-type: none">• ACK NAK Timeout Value• ACK NAK Retry Count• ACK NAK Error Handling• Indicate Transmission Failure• Disable Character• Enable Character

Standard Factory Settings

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



RS-232/USB-COM 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 "[Intercharacter Delay](#)" on [page 219](#) for more detailed programming instructions.



Intercharacter Delay = No Delay



Select Intercharacter Delay Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in [Appendix E](#) 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. 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/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 "ACK Character" on page 220 for more detailed programming instructions.



NOTE: Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option "Data Bits" on page 20 has been set as 7 Data Bits.



Select ACK Character 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

★ 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 "NAK Character" on page 221 for more detailed programming instructions.



NOTE: Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option "Data Bits" on page 20 has been set as 7 Data Bits.



Select NAK Character 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

★ 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 "[ACK NAK Timeout Value](#)" on page 222 for more detailed programming instructions.



Select ACK NAK Timeout Value Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in [Appendix E](#) 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 "[ACK NAK Retry Count](#)" on page 223 for more detailed programming instructions.



Select ACK NAK Retry Count Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in [Appendix E](#) 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.

Options are:

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



★ 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. See "Disable Character" on page 224 for more detailed programming instructions.



Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters.



Select Disable Character 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

★ 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. See "Enable Character" on page 225 for more detailed programming instructions



Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters.



Select Enable Character 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

★ 0x45 = Enable Character is 'E'

CONFIGURATION | KEYBOARD INTERFACE

SECTION CONTENTS

COUNTRY MODE starting on page 32

- Setting Country Mode

OTHER KEYBOARD PARAMETERS starting on page 47

- Encoding Type
- ALT Output Type
- Numlock
- Keyboard Numeric Keypad
- Keyboard Send Control Characters
- Intercharacter Delay
- Intercode Delay
- USB Keyboard Speed

Use the programming bar codes in this chapter to select options for USB Keyboard Interfaces. Reference [Appendix C](#), for a listing of standard factory settings. Information about control character emulation which applies to keyboard interfaces is listed in [Appendix G](#), Scancode Tables.

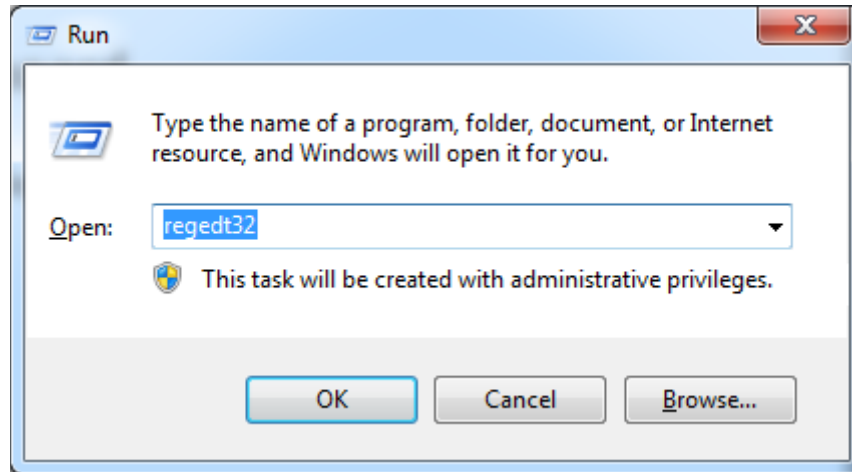
COUNTRY MODE

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

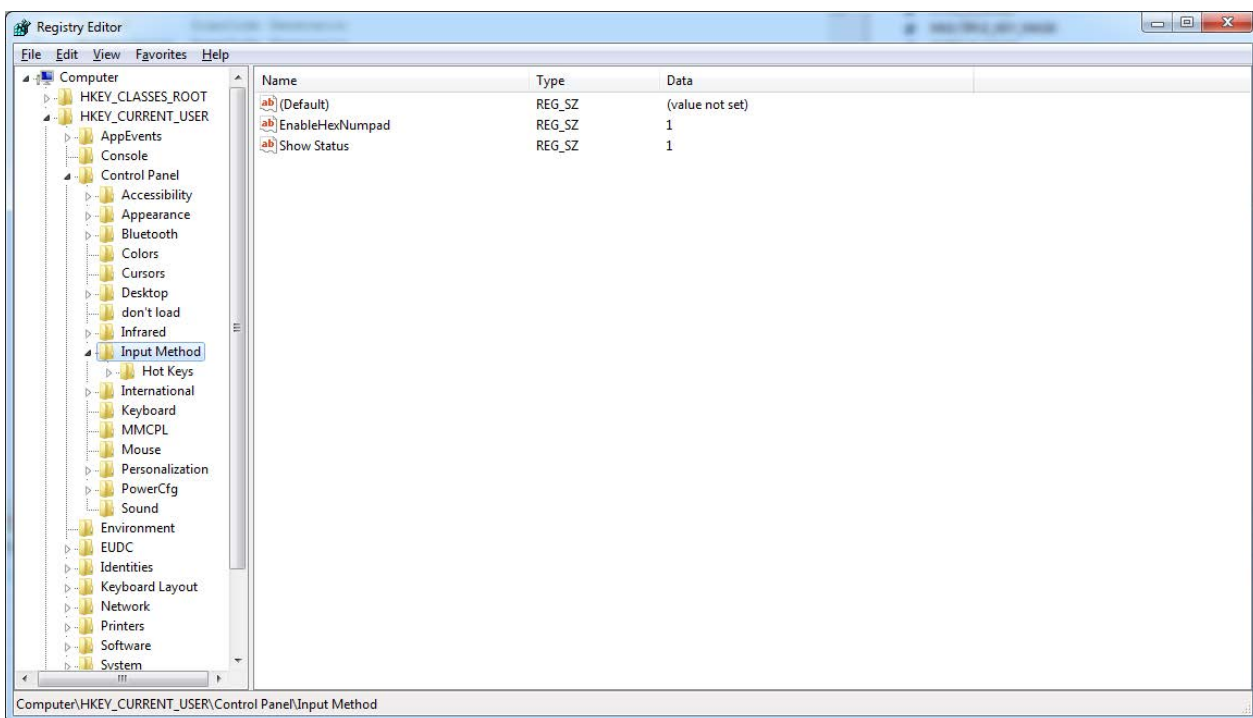
The Country Mode setting is ignored if the interface uses alternate key encoding.

SETUP ON PC TO USE ALT UNIVERSAL

1. Open Registry Edit



2. Set EnableHexNumpad to 1 as follows:



3. Reset the PC.



Setting Country Mode



★ United States



French International (Belgian French)



United Kingdom



Danish



French (France)



German



Italian



Setting Country Mode (continued)



Norwegian



Portuguese (Portugal)



Spanish



Swedish



Swiss French



Japanese ASCII



Hungarian



Setting Country Mode (continued)



Czech



Slovak



Romanian



Croatian



Polish_214



French Canadian Win7



Lithuanian



Setting Country Mode (continued)



Vietnamese



Russian



Arabic 101



Chinese ASCII



Thai-Kedmanee



Albanian



Arabic 102



Setting Country Mode (continued)



Arabic 102 AZERTY



Azeri Cyrillic



Azeri Latin



Belarusian



Bosnian Cyrillic



Bosnian Latin



Bulgarian Cyrillic



Setting Country Mode (continued)



Bulgarian Latin



Canadian French (Legacy)



Canadian Multilingual



Chinese (Simplified)



Chinese (Traditional)



Czech Programmers



Czech QWERTY



Setting Country Mode (continued)



Dutch Netherland



Estonian



Faeroese



Finnish



French (Canada) 2000/XP



French (Canada) 95/98



Galician



Setting Country Mode (continued)



Greek



Greek Latin



Greek Polytonic



Greek220



Greek220 Latin



Greek319



Greek319 Latin



Setting Country Mode (continued)



Hebrew Israel



Hungarian_101KEY



Icelandic



Irish



Italian_142



Japanese (Shift-JIS)



Kazakh



Setting Country Mode (continued)



Korean (Hangul)



Korean ASCII



Kyrgyz Cyrillic



Latin America



Latvian



Latvian QWERTY



Lithuanian_IBM



Setting Country Mode (continued)



Macedonian -FYROM



Maltese_47KEY



Mongolian-Cyrillic



Polish Programmer



Portuguese Brazil



Portuguese Brazilian ABNT



Portuguese Brazilian ABNT2



Setting Country Mode (continued)



Romanian Legacy



Romanian Programmer



Romanian Standard



Russian Typewriter



Serbian Cyrillic



Serbian Latin



Slovak QWERTY



Setting Country Mode (continued)



Slovenian



Spanish Variation



Swiss German



Tatar



Turkish F



Turkish Q



Ukrainian



Setting Country Mode (continued)



US Dvorak



US Dvorak Left Hand



US Dvorak Right Hand



US English (Mac)



US English (North American)



US International



Uzbek Cyrillic



OTHER KEYBOARD PARAMETERS

Encoding Type



★ Encoding Type = Don't Use Encoding



Encoding Type = UTF_8



Encoding Type = Windows 874



Encoding Type = Windows 932



Encoding Type = Windows 936



Encoding Type = Windows 949



Encoding Type = Windows 950



Encoding Type (continued)



Encoding Type = Windows 1250



Encoding Type = Windows 1251



Encoding Type = Windows 1252



Encoding Type = Windows 1253



Encoding Type = Windows 1254



Encoding Type = Windows 1255



Encoding Type = Windows 1256



Encoding Type (continued)



Encoding Type = Windows 1257



Encoding Type = Windows 1258



Encoding Type = Windows 20866



Encoding Type = Windows 54936



Encoding Type = ISO 8859-1



Encoding Type = ISO 8859-2



Encoding Type = ISO 8859-3



Encoding Type (continued)



Encoding Type = ISO 8859-4



Encoding Type = ISO 8859-5



Encoding Type = ISO 8859-6



Encoding Type = ISO 8859-7



Encoding Type = ISO 8859-8



Encoding Type = ISO 8859-9



Encoding Type = ISO 8859-10



Encoding Type (continued)



Encoding Type = ISO 8859-11



Encoding Type = ISO 8859-13



Encoding Type = ISO 8859-14



Encoding Type = ISO 8859-15



Encoding Type = ISO 8859-16



Encoding Type = MS-DOS 437



Encoding Type = MS-DOS 737



Encoding Type (continued)



Encoding Type = MS-DOS 775



Encoding Type = MS-DOS 850



Encoding Type = MS-DOS 852



Encoding Type = MS-DOS 855



Encoding Type = MS-DOS 857



Encoding Type = MS-DOS 860



Encoding Type = MS-DOS 861



Encoding Type (continued)



Encoding Type = MS-DOS 862



Encoding Type = MS-DOS 863



Encoding Type = MS-DOS 865



Encoding Type = MS-DOS 866



Encoding Type = MS-DOS 869



Encoding Type = Mac CP10000



ALT Output Type

This option specifies the encode type of ALT Mode when the reader sends Output Keyboard Data in Alt Mode. (Be aware that the reader may switch automatically between ALT mode & Normal Keyboard Scancode, to correctly display some characters that are not present in the current Keyboard Country).



ALT Output Type = ALT Codepage
(use on non Unicode application: Notepad)



★ ALT Output Type = ALT Unicode
(use on Unicode application: Word)



ALT Output Type = ALT Universal
(Use for all)



ALT Output Type = ALT Unicode for Linux

Numlock

This option specifies the setting of the Numbers Lock (Numlock) key while in Keyboard interface. This only applies to alternate key encoding interfaces.



★ Numlock = Numlock Key Unchanged



Numlock = Numlock Key Toggled



Keyboard Numeric Keypad

This feature specifies if numeric characters will be sent using the standard keys or the numeric keypad.



★ Keyboard Numeric Keypad = Standard Keys



Keyboard Numeric Keypad = Numeric Keypad

Keyboard Send Control Characters

This feature is used by the USB Keyboard interfaces. It specifies how the reader transmits ASCII control characters to the host. Reference [Appendix G Scancode Tables](#) for more information about control characters.

Options are as follows:

Send Ctrl+Key : ASCII characters from 00H to 0x1FH inclusive are transmitted in the format Ctrl+Key. Special keys are available in the range from 81H to A1.

Send Ctrl+Shift+Key : The behavior is the same as above, but control keys are sent in the format Ctrl+Shift+Keys.

Send Special Function Key : Send characters between 00H and 1FH according to the special function key mapping table (see "[Interface Type USB-Keyboard Alt Mode](#)" on page 284). This is used to send keys that are not in the normal ASCII set. A unique set is provided for each available scancode set.



★ Keyboard Send Control Characters = Send Ctrl+Key



Keyboard Send Control Characters = Send Ctrl+Shift+Key



Keyboard Send Control Characters = Send Special Function
Key



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 "Intercode Delay" on page 227 for more detailed programming instructions.



Intercharacter Delay = No Delay



Select Intercharacter Delay Setting

To configure this feature, scan the ENTER/EXIT bar code above, then the bar code at left followed by digits from the Alphanumeric characters in [Appendix E, 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

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 "Intercode Delay" on page 227 for more detailed programming instructions



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 E, 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 Intercode Delay



USB Keyboard Speed

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



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



★ USB Keyboard Speed = 1ms



USB Keyboard Speed = 2ms



USB Keyboard Speed = 3ms



USB Keyboard Speed = 5ms



USB Keyboard Speed = 7ms



USB Keyboard Speed = 10ms

CONFIGURATION | USB-OEM INTERFACE

SECTION CONTENTS

- USB-OEM Device Usage



USB-OEM Device Usage

The USB-OEM protocol allows for the reader to be identified as one of two different types of bar code reader. Depending on what other reader 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:

- Tabletop Scanner
- Handheld Scanner



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



USB-OEM Device Usage = Tabletop Scanner



★ USB-OEM Device Usage = Handheld Scanner

CONFIGURATION | DATA FORMAT

SECTION CONTENTS

GLOBAL SETTINGS starting on page 61

- Global Prefix/Suffix
- Case Conversion
- Character Conversion
- Global AIM ID
- GS1-128 AIM ID

LABEL ID starting on page 64

- Label ID: Set Individually Per Symbology
- Label ID Control
- Label ID Symbology Selection



GLOBAL SETTINGS

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). See [page 229](#) in “References” for more detailed programming instructions.

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 E, Keypad](#) representing your desired character(s). End by scanning the ENTER/EXIT bar code.



Set Global Prefix



Set Global Suffix

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 E, 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

★ No Global Prefix

★ Global Suffix = Global Suffix = 0x0D(CR)



Case Conversion

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



NOTE: 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. See [page 235](#) in “References” for more detailed programming instructions.



Configure Character Conversion

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 E, 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

★ 0xFFFFFFFFFFFFFFF
(no character conversion)



Global AIM ID



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

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



★ Global AIM ID = Disable



Global AIM ID = Enable

GS1-128 AIM ID

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

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



★ GS1-128 AIM ID = Disable



GS1-128 AIM ID = Enable



LABEL ID

A Label ID is a customizable code of up to three ASCII characters (each can be one of hex 0x01-0xFF), used to identify a 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 65). 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 63.

Label ID: Pre-loaded Sets

The reader supports two pre-loaded sets of Label IDs, the USA set and the EU set. See "[Label ID: Pre-loaded Sets](#)" on page 231 for more information concerning the pre-loaded sets that are provided.



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



★ Label ID Pre-loaded Set = USA Set



Label ID Pre-loaded Set = EU Set



Label ID: Set Individually Per Symbology

This feature configures a Label ID individually for a single symbology.



NOTE: This setting requires the scanning of bar codes from multiple sections. See "Label ID: Set Individually Per Symbology" on page 233 for more detailed programming instructions.

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

This option selects the symbology for which a Label ID is to be configured. See "[Label ID: Set Individually Per Symbology](#)" on page 233 for full instructions.

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



Set UPC-A Label ID Character(s)



Set UPC-A/P2 Label ID Character(s)



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



Set UPC-E Label ID Character(s)



Set UPC-E/P2 Label ID Character(s)



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



Set EAN-13 Label ID Character(s)



Label ID Symbology Selection (continued)



Set EAN-13/P2 Label ID Character(s)



Set EAN-13/P5 Label ID Character(s)



Set ISBN Label ID Character(s)



Set ISSN Label ID Character(s)



Set EAN-8 Label ID Character(s)



Set EAN-8 P2 Label ID Character(s)



Set EAN-8 P5 Label ID Character(s)



Set GS1 DataBar Omnidirectional Label ID Character(s)



Label ID Symbology Selection (continued)



Set GS1 DataBar Expanded Label ID Character(s)



Set GS1 DataBar Limited Label ID Character(s)



Set Code 39 Label ID Character(s)



Set Code 32 Label ID Character(s)



Set Code 39 CIP HR Label ID Character(s)



Set Code 128 Label ID Character(s)



Set Code GS1-128 Label ID Character(s)



Set Interleaved 2 of 5 Label ID Character(s)



Label ID Symbology Selection (continued)



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



Datalogic 2 of 5 Label ID Character(s)



Standard 2 of 5 Label ID Character(s)



Industrial 2 of 5 Label ID Character(s)



IATA Label ID Character(s)



Codabar Label ID Character(s)



ABC Codabar Label ID Character(s)



ISBT 128 Label ID Character(s)
(single and concatenated)



Label ID Symbology Selection (continued)



Code 11 Label ID Character(s)



MSI Label ID Character(s)



Plessey Label ID Character(s)



Anker Plessey Label ID Character(s)



Set Matrix 2 of 5 Label ID Character(s)

CONFIGURATION | READING PARAMETERS

SECTION CONTENTS

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



SCANNING FEATURES

Scan Mode

Selects the reader's scan operating mode. See [page 236](#) in "References" for descriptions.



Scan Mode = On Line



Scan Mode = Serial On Line



Scan Mode = Always On^a



★ Scan Mode = Object Sense^b



Scan Mode = Test Mode

- a. "Always On" corresponds to "Automatic" operating mode in previous Gryphon GFS4400 series.
- b. "Object Sense" corresponds to "Automatic (Object Sense)" operating mode in previous Gryphon GFS4400 series.



Phase Off Event



★ Phase Off Event= Trigger Stop



Phase Off Event= Timeout



Phase Off Event= Trigger Stop - Timeout

Phase Off Timeout

Timeout can be set within a range of 1 second to 255 seconds in 1 second intervals.



Scanning Active Time

To configure this feature scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left, followed by the digits (in hex) from the Alpha-numeric characters in [Appendix E, Keypad](#) representing your desired character(s). End by scanning the ENTER/EXIT barcode 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

★ 5 = Timeout set for 5 seconds



Serial Start Character

See page [page 236](#) in “References” for more information.



Select Serial Start Characters

To configure this feature scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left, followed by the digits (in hex) from the Alpha-numeric characters in [Appendix E, Keypad](#) representing your desired character(s). End by scanning the ENTER/EXIT barcode 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

★ 0x02 = Serial Start Character is [02 STX]

Serial Stop Character

See page [page 236](#) in “References” for more information.



Select Serial Stop Characters

To configure this feature scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left, followed by the digits (in hex) from the Alpha-numeric characters in [Appendix E, Keypad](#) representing your desired character(s). End by scanning the ENTER/EXIT barcode 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

★ 0x03 = Serial Stop Character is [03 ETX]



NOTE: The Serial Start/Stop Characters must be different and must not contain reserved characters (see [Appendix F, Reserved Characters](#))



Presentation Mode Indication

This operation is useful for indicating when the reader is in Automatic/Triggered Object Sense Operating Mode. If enabled, the blue indicator will blink when Presentation Mode scanning is active.



★ Presentation Mode Indication = Disable



Presentation Mode Indication = Enable

Manual Trigger Control



NOTE: This feature is available in Serial On Line mode only.

This feature is used to enable/disable manual trigger when the reader is in Serial On Line reading mode.

- Enable: allows a manual trigger push to start a reading phase.
- Disable: (default) locks out the trigger button and does not allow manual triggering to start a reading phase. When disabled, the trigger can still be activated once by pressing and holding the trigger for 5 seconds to enter Debug Mode.



★ Manual Trigger Control = Disable



Manual Trigger Control = Enable



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



Scanning Active Time = 3 seconds



★ Scanning Active Time = 5 seconds



Scanning Active Time = 8 seconds

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 (continued)



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 = 0.8 Second



Double Read Timeout = 0.9 Second



Double Read Timeout = 1 Second



Stand Mode/Object Detection Indication (Stand Mode Flash)

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.



★ Stand Mode/Object Detection Indication = Disable



Stand Mode/Object Detection Indication = Enable

Stand Mode/Object Detection Sensitivity

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



Stand/Base Detection Sensitivity = Low



★ Stand/Base Detection Sensitivity = Medium



Stand/Base Detection Sensitivity = High



Stand Mode/Object Detection Illumination Off Time

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



Set Illumination OFF Time

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 E, 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

★04 = Illumination OFF Time 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 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 Beeper Volume

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



Good Read Beeper Volume = Beeper Off



Good Read Beeper Volume = Low



Good Read Beeper Volume = Medium



★ Good Read Beeper 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 240](#) 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 E, 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 msec.



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 LED color

With the following settings the color of Good Read LED (“Status”) can be modified if needed.



Good Read LED color = Red



★ Good Read LED color = Green



Good Read LED color = Blue



Green Spot Duration

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



Green Spot Duration = Disable (Green Spot is Off)



★ Green Spot Duration = Short (300 msec)



Green Spot Duration = Medium (500 msec)



Green Spot Duration = Long (800 msec)

Green Spot LED Intensity

With the following settings the intensity of Green Spot LED can modified if needed.



Set Green Spot Intensity Level = Low



Set Green Spot Intensity Level = Mid



★ Set Green Spot Intensity Level = High



Illuminator Intensity

With the following settings the illumination intensity can be modified if needed.



Set Illumination Intensity Level = Low



Set Illumination Intensity Level = Mid



★ Set Illumination Intensity Level = High



NOTE: Decreasing the Illuminator intensity level may reduce the overall reading performances.

Presentation Illumination Control

Controls the illumination status while the reading mode is Automatic Trigger Object Sense Operating Mode and the reader is attempting to detect objects.



★ Illumination Control = OFF



Illumination Control = ON



Illumination Control = Dim



Indicator LEDs Intensity

With the following settings the intensity of both Status and Power indication LEDs can be modified if needed.



Set Status & Power Indication Intensity Level = Low



★ Set Status & Power Indication Intensity Level = Mid



Set Status & Power Indication Intensity Level = High



CAMERA CONTROL

Aiming Pointer

Enables/disables the aiming pointer for all symbologies.



Aiming Pointer = Disable



★ Aiming Pointer = Enable



Aiming Pointer = Green Spot

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 217](#) in “References” for a description of this feature.



★ Aiming Duration Timer = Aiming Off After Decoding



Aiming Duration Timer = 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 E](#) 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



Aiming LED intensity

With the following settings the intensity of Aiming LED can modified if needed.



Set Aiming Intensity Level = Low



Set Aiming Intensity Level = Mid



★ Set Aiming Intensity Level = High

Object Sense Aiming Enable

Enables/Disables the aimer while in object sense watch state.



Set Object Sense Aiming = Disabled



★ Set Object Sense Aiming = Enabled



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.

The Pick Mode can be enabled only in Trigger Single Scan Mode.



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



★ Pick Mode = Disable



Pick Mode = Enable

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.



NOTE: Mobile Phone Mode is automatically disabled when the scanner is in triggerless modes (Always On, Object Sense) and “High Motion Immunity” is enabled.



Mobile Phone Mode = Disable



★ Mobile Phone Mode = Enable



Mobile Phone Mode = Display Mode

Mirror Reading Mode

Enable/Disable the ability to decode the mirror image of a bar code label. This feature pertains mainly to 2D barcodes: Data Matrix, Maxicode, QR Code Aztec and PDF-417. All 1D codes can be read backwards without changing settings.



NOTE: Unlike some programming features and options, Mirror Reading Mode requires that you scan only one programming bar code label. **DO NOT** scan an ENTER/EXIT bar code prior to scanning a Mirror Reading Mode bar code.



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



★ Mirror Reading Mode = Disable



Mirror Reading Mode = Read only Mirrored barcodes



Mirror Reading Mode =
Read both Normal and Mirrored barcodes

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 reader to its default for this feature. To set decoding for only 2D codes, go to "2D Normal/Inverse Symbol Control" on [page 188](#). For additional options, see the Aladdin configuration application.



NOTE: 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



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.



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 acquires and processes each image in the area in front of it (the Volume). In this case, the reader 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 reader keeps on processing the image until all the labels present are decoded. The reader then sorts the data from all the bar codes (if configured to do so) before transmitting it.

Multiple Labels per Frame

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

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



★ Multiple Labels per Frame = Disable



Multiple Labels per Frame = Enable

Multiple Labels Ordering by Code Symbology

This feature allows you to specify the order multiple labels are transmitted by symbology type, when Multiple Labels per Frame is enabled.



Select Symbologies for Multiple Labels Ordering

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

★ 000000000000 = 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



Multiple Labels Ordering = Transmit Increasing Length Order



Multiple Labels Ordering = Transmit Decreasing Length Order

CONFIGURATION | 1D SYMBOLOGIES

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DISABLE ALL SYMBOLOGIES

Scan this label to disable all symbologies.



Disable All Symbolologies

COUPON CONTROL

Coupon Control

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

Options are:

- Allow all — allow all coupon bar codes to be decoded
- Enable only UPC/EAN — enables only UPC/EAN coupon decoding
- Enable only GS1 DataBar — enables only GS1 DataBar coupon decoding

To set this feature:

1. Scan the Enter/Exit bar code.
2. Scan either the enable or disable bar code below. You'll need to cover any unused bar codes on this and the facing page to ensure that the reader sees only the bar code you intend to scan.
3. Complete the programming sequence by scanning the Enter/Exit bar code.



Coupon Control = Allow all



★ Coupon Control = Enable only UPC-A



Coupon Control = Enable only GS1 DataBar



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 = Disable



★UPC-A = Enable

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 = Don't Send



★UPC-A Check Character Transmission = Send



Expand UPC-A to EAN-13

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



★ UPC-A to EAN-13 = Don't Expand



UPC-A to EAN-13 = Expand

UPC-A Number System Character Transmission

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



UPC-A Number System Character = Do not transmit



★ UPC-A Number System Character = Transmit



UPC-E

The following options apply to the UPC-E symbology.

UPC-E Enable/Disable

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



UPC-E = Disable



★UPC-E = Enable

UPC-E Check Character Transmission

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



UPC-E Check Character Transmission = Don't Send



★UPC-E Check Character Transmission = Send



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. Selecting this feature also changes the symbology ID to match those required for UPC-A.



★ 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 number system character.



UPC-E Number System Character = Do not transmit



★ UPC-E Number System Character = Transmit



GTIN Formatting

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



★ GTIN Formatting = Disable



GTIN Formatting = Enable



EAN-13

The following options apply to the EAN-13 symbology.

EAN-13 Enable/Disable

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



EAN-13 = Disable



★ EAN-13 = Enable

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 = Don't Send



★ EAN-13 Check Character Transmission = Send



EAN-13 Flag 1 Character

Enables/disables transmission of an EAN/JAN-13 Flag1 character. The Flag 1 character is the first character of the label



EAN-13 Flag 1 Char = Don't transmit



★ EAN-13 Flag 1 Char = Transmit

EAN-13 to ISBN Conversion

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



★ EAN-13 ISBN Conversion = Disable



EAN-13 ISBN Conversion = Enable



EAN-13 to ISSN Conversion

Enables/disables conversion of EAN/JAN-13 Bookland labels starting with 977 to ISSN labels.



★ ISSN = Disable



ISSN = Enable



EAN-8

The following options apply to the EAN-8 symbology.

EAN-8 Enable/Disable

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



EAN-8 = Disable



★ EAN-8 = Enable

EAN-8 Check Character Transmission

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



EAN-8 Check Character Transmission = Don't Send



★ EAN-8 Check Character Transmission = Send



Expand EAN-8 to EAN-13

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



★ EAN-8 to EAN-13 = Don't Expand



EAN-8 to EAN-13 = Expand



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.

Options are

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



★ Price Weight Check = Disable



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 ADD-ONS.



★ UPC/EAN Quiet Zones = Two Modules



UPC/EAN Quiet Zones = Three Modules



UPC/EAN Quiet Zones = Four Modules



UPC/EAN Quiet Zones = Five Modules



UPC/EAN Quiet Zones = Six Modules



UPC/EAN Quiet Zones = Seven Modules



UPC/EAN Quiet Zones = Eight Modules



Add-Ons

The following features apply to optional add-ons.



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

Optional Add-ons

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

- P2
- P5



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

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



★ Optional Add-Ons = Disable P2



Optional Add-Ons = Enable P2



★ Optional Add-Ons = Disable P5



Optional Add-Ons = Enable P5



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.



Optional Add-on Timer = 10ms



Optional Add-on Timer = 20ms



Optional Add-on Timer = 30ms



Optional Add-on Timer = 50ms



★ Optional Add-on Timer = 70ms



Optional Add-on Timer = 100ms



Optional Add-on Timer = 160ms



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 to GS1-128 Emulation

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



★ GS1 DataBar Omnidirectional to GS1-128 Emulation = Disable



GS1 DataBar Omnidirectional to GS1-128 Emulation = Enable



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 to GS1-128 Emulation

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



★ GS1 DataBar Expanded to GS1-128 Emulation
= Disable



GS1 DataBar Expanded to GS1-128 Emulation
= 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" on page 114. 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. See "Set Length 1" on page 241 for more detailed programming instructions.



Select GS1 DataBar Expanded Set 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 E, 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 1 = 01 (one character)



GS1 DataBar Expanded Set Length 2

This feature specifies one of the bar code lengths for "GS1 DataBar Expanded Length Control" on page 114. 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 00 specifies to ignore this length (only one fixed length). See "Set Length 2" on page 242 for more detailed programming instructions.



Select GS1 DataBar Expanded Set 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 E, 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 = 74 (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 to GS1-128 Emulation

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



★ GS1 DataBar Limited to GS1-128 Emulation = Disable



GS1 DataBar Limited to GS1-128 Emulation = Enable



CODE 39

The following options apply to the Code 39 symbology.

Code 39 Enable/Disable

When disabled, the reader will not read Code 39 bar codes.



Code 39 = Disable



★ Code 39 = Enable

Code 39 Check Character Calculation

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



★ Code 39 Check Character Calculation = Don't Calculate



Code 39 Check Character Calculation = Calculate Std Check



Code 39 Check Character Calculation = Calculate Mod 7 Check



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

In Code 39 decoding, this 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 and are typically 10 times the width of the narrowest bar or space in the label.



Codabar Quiet Zones = Quiet Zone on one side



★ Codabar Quiet Zones = Quiet Zones on two sides



Codabar Quiet Zones = Auto



Codabar Quiet Zones = Virtual Quiet Zones on two sides



Codabar 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 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" on page 120. 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, data, and full-ASCII shift characters. The length does not include start/stop characters.

The length can be set from 0 to 50 characters. See "Set Length 1" on page 241 for more detailed programming instructions.



Select Code 39 Set 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 E, 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 1 = 02 (2 characters)



Code 39 Set Length 2

This feature specifies one of the bar code lengths for "Code 39 Length Control" on page 120. 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 00 specifies to ignore this length (only one fixed length). See "Set Length 2" on page 242 for more detailed programming instructions.



Select Code 39 Set 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 E, 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 = 50 (50 characters)



TRIOPTIC CODE

The following options apply to the trioptic symbology.

Trioptic Code Enable/Disable

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



★ Trioptic Code = Disable



Trioptic Code = Enable

CODE 39 DANISH PPT

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

Code 39 Danish PPT Enable/Disable

When disabled, the reader will not read Code 39 Danish PPT bar codes.



★ Code 39 Danish PPT = Disable



Code 39 Danish PPT = Enable



CODE 39 PZN

The following options apply to the Code 39 PZN symbology.

Code 39 PZN Enable/Disable

When disabled, the reader will not read Code 39 PZN bar codes.



★ Code 39 PZN = Disable



Code 39 PZN = Enable

CODE 39 LA POSTE

The following options apply to the Code 39 La Poste symbology.

Code 39 La Poste Enable/Disable

When disabled, the reader will not read Code 39 La Poste bar codes.



★ Code 39 La Poste = Disable



Code 39 La Poste = Enable



CODE 32 (ITALIAN PHARMACEUTICAL)

The following options apply to the Code 32 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



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

"Code 39 Quiet Zones" on page 119

"Code 39 Length Control" on page 120

Code 32 Check Character 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

Enable this option to enable/disable 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 HR (FRENCH PHARMACEUTICAL)

The following options apply to the Code 39 CIP HR symbology.

Code 39 CIP HR Enable/Disable

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



★ Code 39 CIP HR = Disable



Code 39 CIP HR = Enable



CODE 128

The following options apply to the Code 128 symbology.

Code 128 Enable/Disable

Enables/Disables ability of the reader to decode Code 128 labels.



Code 128 = Disable



★ Code 128 = Enable

Expand Code 128 to Code 39

This feature enables/disables expansion of Code 128 labels to Code 39 labels. When enabled, the label identifier for a Code 128 label shall be set to Code 39 and all Code 39 formatting control shall be applied to the label.



★ 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 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 = No Quiet Zones



Code 128 Quiet Zones = Quiet Zone on one side



Code 128 Quiet Zones = Quiet Zones on two sides



★ Code 128 Quiet Zones = Auto



Code 128 Quiet Zones = Virtual 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.

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

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



★ Code 128 Length Control = Variable Length



Code 128 Length Control = Fixed Length



Code 128 Set Length 1

This feature specifies one of the bar code lengths for "[Code 128 Length Control](#)" on page 128. 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. See "[Set Length 1](#)" on page 241 for more detailed programming instructions.



Select Code 128 Set 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 E, 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 1 = 01 (one character)

Code 128 Set Length 2

This feature specifies one of the bar code lengths for "[Code 128 Length Control](#)" on page 128. 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 00 specifies to ignore this length (only one fixed length). See "[Set Length 2](#)" on page 242 for more detailed programming instructions.



Select Code 128 Set 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 E, 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 = 80 (80 characters)



GS1-128

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

GS1-128 Enable

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

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



GS1-128 = Transmit in Code 128 data format



★ GS1-128 = Transmit in GS1-128 data format



GS1-128 = Do not transmit GS1-128 labels



INTERLEAVED 2 OF 5 (I 2 OF 5)

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



CAUTION: When reading this symbology, the settings for I 2 of 5 Length Control AND I 2 of 5 Check Character Calculation MUST be enabled to increase decoding safety.

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.



★ I 2 of 5 Check Character Calculation = Disable



I 2 of 5 Check Character Calculation
= Calculate Std Check (Modulo 10 no AR)



I 2 of 5 Check Character Calculation
= Calculate German Parcel Check



I 2 of 5 Check Character Calculation
= Calculate DHL Check



I 2 of 5 Check Character Calculation
= Calculate Daimler Chrysler Check



I 2 of 5 Check Character Calculation
= Calculate Bosch Check



I 2 of 5 Check Character Calculation
= Calculate Italian Post Check



I 2 of 5 Check Character Transmission

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



NOTE: This feature is valid only when I 2 of 5 Check Character Calculation is enabled.



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 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" on page 134. 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. See "Set Length 1" on page 241 for more detailed programming instructions.



Select I 2 of 5 Set 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 E, 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 1 = 06 (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" on page 134. 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 in increments of two. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" on page 242 for more detailed programming instructions.



Select I 2 of 5 Set 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 E, 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 = 50 (50 characters)



INTERLEAVED 2 OF 5, FEBRABAN (DESK MODELS ONLY)

Interleaved 2 of 5, Febraban format Enable / Disable



NOTE: Interleaved 2 of 5 shall be enabled before enabling Febraban variant.

Enables/Disables ability of reader to decode Interleaved 2 of 5, Febraban format.



★ 2 of 5, Febraban format = Disable



2 of 5, Febraban format = Enable



INTERLEAVED 2 OF 5 CIP HR

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

Interleaved 2 of 5 CIP HR Enable/Disable

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



★ Interleaved 2 of 5 CIP HR = Disable



Interleaved 2 of 5 CIP HR = Enable



MATRIX 2 OF 5

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

Matrix 2 of 5 Enable/Disable

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



★ Matrix 2 of 5 = Disable



Matrix 2 of 5 = Enable

Matrix 2 of 5 Check Character Calculation

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



★ Matrix 2 of 5 Check Character Calculation
= Disable



Matrix 2 of 5 Check Character Calculation = Enable



Matrix 2 of 5 Check Character Transmission

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



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



★ Matrix 2 of 5 Check Character Transmission
= Send

Matrix 2 of 5 Length Control

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



★ Matrix 2 of 5 Length Control = Variable Length



Matrix 2 of 5 Length Control = Fixed Length



Matrix 2 of 5 Set Length 1

This feature specifies one of the bar code lengths for "[Standard 2 of 5 Length Control](#)" on [page 142](#). 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 1 to 50 characters. See "[Set Length 1](#)" on [page 241](#) for more detailed programming instructions.



Select Matrix 2 of 5 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 E, 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 1 = 08 (8 characters)

Matrix 2 of 5 Set Length 2

This feature specifies one of the bar code lengths for "[Standard 2 of 5 Length Control](#)" on [page 142](#). 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 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "[Set Length 2](#)" on [page 242](#) for more detailed programming instructions.



Select Matrix 2 of 5 Set 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 E, 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 = 50 (50 characters)



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 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](#)" on [page 142](#). 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 1 to 50 characters. See "[Set Length 1](#)" on [page 241](#) for more detailed programming instructions.



Select Standard 2 of 5 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 E, 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 1 = 08 (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](#)" on [page 142](#). 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 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "[Set Length 2](#)" on [page 242](#) for more detailed programming instructions.



Select Standard 2 of 5 Set 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 E, 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 = 50 (50 characters)



COMPRESSED 2 OF 5

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

Compressed 2 of 5 Enable/Disable

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



★ Compressed 2 of 5 = Disable



Compressed 2 of 5 = Enable

Compressed 2 of 5 Check Character Calculation

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



★ Compressed 2 of 5 Check Character Calculation
= Disable



Compressed 2 of 5 Check Character Calculation = Enable



Compressed 2 of 5 Check Character Transmission

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



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



★ Compressed 2 of 5 Check Character Transmission
= Send

Compressed 2 of 5 Length Control

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



★ Compressed 2 of 5 Length Control = Variable
Length



Compressed 2 of 5 Length Control = Fixed Length



Compressed 2 of 5 Set Length 1

This feature specifies one of the bar code lengths for "[Compressed 2 of 5 Length Control](#)" on page 145. 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 1 to 50 characters. See "[Set Length 1](#)" on page 241 for more detailed programming instructions.



Select Compressed 2 of 5 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 E, 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 1 = 01 (one character)

Compressed 2 of 5 Set Length 2

This feature specifies one of the bar code lengths for "[Compressed 2 of 5 Length Control](#)" on page 145. 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 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "[Set Length 2](#)" on page 242 for more detailed programming instructions.



Select Compressed 2 of 5 Set 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 E, 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 = 50 (50 characters)



DATALOGIC 2 OF 5

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

Datalogic 2 of 5 Enable/Disable

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



★ Datalogic 2 of 5 = Disable



Datalogic 2 of 5 = Enable

Datalogic 2 of 5 Check Character Calculation

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



★ Datalogic 2 of 5 Check Character Calculation = Disable



Datalogic 2 of 5 Check Character Calculation = Enable



Datalogic 2 of 5 Check Character Transmission

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



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



★ Datalogic 2 of 5 Check Character Transmission
= Send

Datalogic 2 of 5 Length Control

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

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

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



★ Datalogic 2 of 5 Length Control = Variable Length



Datalogic 2 of 5 Length Control = Fixed Length



Datalogic 2 of 5 Set Length 1

This feature specifies one of the bar code lengths for "Datalogic 2 of 5 Length Control" on [page 148](#). 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. See "Set Length 1" on [page 241](#) for more detailed programming instructions.



Select Datalogic 2 of 5 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 E, 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 1 = 06 (6 characters)

Datalogic 2 of 5 Set Length 2

This feature specifies one of the bar code lengths for "Datalogic 2 of 5 Length Control" on [page 148](#). 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 00 specifies to ignore this length (only one fixed length). See "Set Length 2" on [page 242](#) for more detailed programming instructions.



Select Datalogic 2 of 5 Set 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 E, 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 = 50 (50 characters)



INDUSTRIAL 2 OF 5

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

Industrial 2 of 5 Enable/Disable

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



★ 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
= Don't Send



★ Industrial 2 of 5 Check Character Transmission
= Send

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 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 Length Control = 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" on [page 151](#). 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 1 to 50 characters. See "Set Length 1" on [page 241](#) for more detailed programming instructions.



Select Industrial 2 of 5 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 E, 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 1 = 06 (6 characters)

Industrial 2 of 5 Set Length 2

This feature specifies one of the bar code lengths for "Industrial 2 of 5 Length Control" on [page 151](#). 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 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" on [page 242](#) for more detailed programming instructions.



Select Industrial 2 of 5 Set 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 E, 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 = 50 (50 characters)



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 IATA check character.



IATA Check Character Transmission
= Don't Send



★ IATA Check Character Transmission
= Send



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 Follett 2 of 5 labels.



★ Follett 2 of 5 = Disable



Follett 2 of 5 = 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

This option enables/disables calculation and verification of an optional Codabar check character. When disabled, any check characters in the label are treated as data characters.



★ Codabar Check Character Calculation = Disable



Codabar Check Character Calculation
= Calculate AIM Std Check



Codabar Check Character Calculation
= Calculate Modulo 10 Check



Codabar Check Character Calculation
= Calculate NW-7 Check



Codabar Check Character Transmission

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



NOTE: This feature is valid only when Codabar Check Character Calculation is enabled.



Codabar Check Character Transmission
= Don't Send



★ Codabar Check Character Transmission
= Send

Codabar Start/Stop Character Transmission

This option enables/disables 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

This feature 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 Zone on one side



★ Codabar Quiet Zones = Quiet Zones on two sides



Codabar Quiet Zones = Auto



Codabar Quiet Zones = Virtual 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 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" on page 159. 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. See "Set Length 1" on page 241 for more detailed programming instructions.



Select Codabar 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 E, 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 1 = 03 (3 characters)



Codabar Set Length 2

This feature specifies one of the bar code lengths for "Codabar Length Control" on page 159. 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 00 specifies to ignore this length (only one fixed length). See "Set Length 2" on page 242 for more detailed programming instructions.



Select Codabar 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 E, 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 = 50 (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

This parameter specifies the timeout in 10-millisecond ticks used by the ABC Codabar Dynamic Concatenation Mode. The timeout can be set within a range of 05 to 255 in 10ms increments. A setting of zero specifies no delay.



Select ABC Codabar Dynamic Concatenation
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 E, 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

★ Timeout = 20 (200 msec)

ABC Codabar Force Concatenation

When ABC Codabar Concatenation is enabled and Force Concatenation is disabled, both Codabar stand alone labels and ABC Codabar concatenated labels are transmitted. When ABC Codabar Concatenation is enabled and Force Concatenation is enabled only ABC Codabar concatenated labels are transmitted while Codabar stand alone labels are not transmitted.

Force Concatenation has no effect if the ABC Codabar Concatenation is disabled. The Force Concatenation mode has effect both in Static and Dynamic Concatenation Modes.



★ ABC Codabar Force Concatenation = Disable



ABC Codabar Force Concatenation = Enable



ISBT 128

The following options apply to the ISBT 128 symbology.

ISBT 128 Concatenation

Enables/disables ISBT 128 concatenation of 2 labels.



★ ISBT 128 Concatenation = Disable



ISBT 128 Concatenation = Enable

ISBT 128 Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.



★ 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 Force Concatenation

When enabled, this feature forces all ISBT 128 labels to be concatenated.



NOTE: This option is only valid when "ISBT 128 Concatenation" on page 163 is enabled.



★ ISBT 128 Force Concatenation = Disable



ISBT 128 Force Concatenation = Enable

ISBT 128 Advanced Concatenation Options



NOTE: Use the Datalogic Aladdin configuration application or Contact Customer Support to set up pairs of label types for concatenation.



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 = Calculate Check C



Code 11 Check Character Calculation = Calculate Check K



★ Code 11 Check Character Calculation = Calculate Check C and K



Code 11 Check Character Transmission

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



Code 11 Check Character Transmission = Don't Send



★ Code 11 Check Character Transmission = Send

Code 11 Length Control

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

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

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



★ Code 11 Length Control = Variable Length



Code 11 Length Control = Fixed Length



Code 11 Set Length 1

This feature specifies one of the bar code lengths for "Code 11 Length Control" on page 167. 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. See "Set Length 1" on page 241 for more detailed programming instructions.



Select Code 11 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 E, 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 1 = 04 (4 characters)

Code 11 Set Length 2

This feature specifies one of the bar code lengths for "Code 11 Length Control" on page 167. 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 00 specifies to ignore this length (only one fixed length). See "Set Length 2" on page 242 for more detailed programming instructions.



Select Code 11 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 E, 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 = 50 (50 characters)



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

This option enables/disables calculation and verification of optional Code 93 check character.



Code 93 Check Character Calculation = Disable



Code 93 Check Character Calculation = Calculate Check C



Code 93 Check Character Calculation
= Calculate Check K



★ Code 93 Check Character Calculation
= Calculate Check C and K



Code 93 Check Character Transmission

This feature enables/disables transmission of an optional Code 93 check character.



★ Code 93 Check Character Transmission = Don't
Send



Code 93 Check Character Transmission = Send

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 length may be set.

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



★ Code 93 Length Control = Variable Length



Code 93 Length Control = Fixed Length



Code 93 Set Length 1

This feature specifies one of the bar code lengths for "Code 93 Length Control" on page 170. 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. See "Set Length 1" on page 241 for more detailed programming instructions.



Select Code 93 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 E, 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 1 = 01 (one character)

Code 93 Set Length 2

This feature specifies one of the bar code lengths for "Code 93 Length Control" on page 170. 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 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" on page 242 for more detailed programming instructions.



Select Code 93 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 E, 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 = 50 (50 characters)



Code 93 Quiet Zones

This feature specifies the number of quiet zones for Code 93 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 93 Quiet Zones = No Quiet Zones



Code 93 Quiet Zones = Quiet Zone on one side



Code 93 Quiet Zones = Quiet Zones on two sides



★ Code 93 Quiet Zones = Auto



Code 93 Quiet Zones = Virtual Quiet Zones on two sides



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 Calculation = Disable



★ MSI Check Character Calculation = Calculate Mod 10



MSI Check Character Calculation
= Calculate Mod 11/10



MSI Check Character Calculation
= Calculate Mod 10/10



MSI Check Character Transmission

Enables/disables transmission of an MSI check character.



MSI Check Character Transmission = Don't Send



★ MSI Check Character Transmission = Send

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 length may be set.

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



★ MSI Length Control = Variable Length



MSI Length Control = Fixed Length



MSI Set Length 1

This feature specifies one of the bar code lengths for "MSI Length Control" on page 174. 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 50 characters. See "Set Length 1" on page 241 for more detailed programming instructions.



Select MSI 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 E, 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 1 = 01 (one character)

MSI Set Length 2

This feature specifies one of the bar code lengths for "MSI Length Control" on page 174. 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 data characters only.

The length can be set from 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" on page 242 for more detailed programming instructions.



Select MSI 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 E, 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 = 50 (50 characters)



PHARMACODE

The following options apply to the Pharmacode symbology.

Pharmacode Enable/Disable

Enables/Disables ability of reader to decode Pharmacode labels.



★ Pharmacode = Disable



Pharmacode = Enable

Pharmacode Label Direction

This feature specifies the direction in which labels are decoded.



★ Pharmacode Label Direction= Horizontal left to right



Pharmacode Label Direction = Horizontal right to left



Pharmacode Label Direction = Vertical top down



Pharmacode Label Direction = Vertical bottom up



Pharmacode Length Control

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



★ Pharmacode Length Control = Variable Length



Pharmacode Length Control = Fixed Length

Pharmacode Set Length 1

This feature specifies one of the bar code lengths for "Pharmacode Length Control" on page 177. 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 60 characters. See "Set Length 1" on page 241 for more detailed programming instructions.



Select Pharmacode 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 E, 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 1 = 02 (two characters)



Pharmacode Set Length 2

This feature specifies one of the bar code lengths for "Pharmacode Length Control" on [page 177](#). 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.

Length can be set from 2 to 6 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "[Set Length 2](#)" on [page 242](#) for more detailed programming instructions.



Select Pharmacode 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 E, 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 = 6 (six 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 a Plessey check character.



Plessey Check Character Calculation = Disable



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



Plessey Check Character Calculation
= Anker check char. verification



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



Plessey Check Character Transmission

Enables/disables transmission of a Plessey check character.



Plessey Check Character Transmission = Don't Send



★ Plessey Check Character Transmission = Send

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 length may be set.

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



★ Plessey Length Control = Variable Length



Plessey Length Control = Fixed Length



Plessey Set Length 1

This feature specifies one of the bar code lengths for "Plessey Length Control" on page 180. 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 1 to 50 characters. See "Set Length 1" on page 241 for more detailed programming instructions.



Select Plessey 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 E, 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 1 = 01 (one character)

Plessey Set Length 2

This feature specifies one of the bar code lengths for "Plessey Length Control" on page 180. 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.

Length can be set from 1 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" on page 242 for more detailed programming instructions.



Select Plessey 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 E, 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 = 50 (50 characters)



BC412

The following options apply to the BC412 symbology.

BC412 Enable/Disable

Enables/Disables ability of reader to decode BC412 labels.



★ BC412 = Disable



BC412 = Enable

BC412 Check Character Calculation

Enable this option to enable/disable calculation and verification of an optional BC412 check character. When disabled, any check character in the label is treated as a data character.



BC412 Check Character Calculation = Disable



★ BC412 Check Character Calculation = Calculate



BC412 Length Control

This feature specifies either variable length decoding or fixed length decoding for the BC412 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.



★ BC412 Length Control = Variable Length



BC412 Length Control = Fixed Length



BC412 Set Length 1

This feature specifies one of the bar code lengths for "BC412 Length Control" on page 183. 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. See "Set Length 1" on page 241 for more detailed programming instructions.



Select BC412 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 E, 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 1 = 01 (one character)

BC412 Set Length 2

This feature specifies one of the bar code lengths for "BC412 Length Control" on page 183. 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 01 to 50 characters. A setting of 00 specifies to ignore this length (only one fixed length). See "Set Length 2" on page 242 for more detailed programming instructions.



Select BC412 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 E, 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 = 50 (50 characters)

CONFIGURATION | 2D SYMBOLOGIES

SECTION CONTENTS

- **2D GLOBAL FEATURES** starting on page 186
- **AZTEC CODE** starting on page 189
- **CHINA SENSIBLE CODE** starting on page 191
- **DATA MATRIX** starting on page 193
- **GS1 DotCODE** starting on page 196
- **MAXICODE** starting on page 198
- **PDF417** starting on page 201
- **MICRO PDF417** starting on page 203
- **QR CODE** starting on page 206
- **MICRO QR CODE** starting on page 208
- **UCC COMPOSITE** starting on page 210

The reader supports the following 2D symbologies (bar code types). Symbology-dependent options for each symbology are included in this chapter. See "**1D SYMBOLOGIES** starting on page 96 for configuration of 1D bar codes.

2D GLOBAL FEATURES

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

To set most features:

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



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

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

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



2D Maximum Decoding Time

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



2D Maximum Decoding Time = 100 msec



2D Maximum Decoding Time = 200 msec



★ 2D Maximum Decoding Time = 350 msec



2D Maximum Decoding Time = 500 msec



2D Maximum Decoding Time = 1 Second



2D Maximum Decoding Time = 2 Seconds



2D Maximum Decoding Time = 2.55 Seconds



2D Structured Append

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

- Data Matrix
- Aztec
- QR Code
- PDF 417



★ Structured Append = Disable



Structured Append = Enable

2D Normal/Inverse Symbol Control

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



★ 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" on page 189.

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 "Set Length 1" on page 241 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 E, 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

Specifies one of the bar code lengths for "Aztec Code Length Control" on page 189.

Length 2 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 "Set Length 2" on page 242 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 E, 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" on page 191. 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 "Set Length 1" on page 241 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 E, 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" on page 191. 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 "Set Length 2" on page 242 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 E, 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

This feature specifies one of the bar code lengths for "Data Matrix Length Control" on page 194. 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 "Set Length 1" on page 241 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 E, 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" on [page 194](#). 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 "[Set Length 2](#)" on [page 242](#) 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 E, 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



GS1 DOTCODE

The following options apply for the DotCode barcode decoding

DotCode Enable

This options enables/disables the ability of the reader to decode DotCode barcodes.



DotCode = Enable



★ DotCode = Disable

DotCode High Resolution Enable

This options improves the decoding performance for very small module size barcodes, e.g. tobacco products.



★ DotCode High Resolution = Enable



DotCode High Resolution = Disable



DotCode Position-based Decoding

This option can improve the decoding performance when the next barcode to be decoded is approximately shown in the same position as the previous one.



DotCode Position-based Decoding = Enable



★ DotCode Position-based Decoding = Disable

Additional Options

To improve performances the following additional settings are available using Aladdin configuration utility, downloadable from www.datalogic.com.

- Dot Size
- Fixed Length or Variable Length
- Min and Max barcode size



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" on page 199. 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 "Set Length 1" on page 241 for detailed instructions on setting this feature.



Select Maxicode Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in [Appendix E, 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](#)" on page 199. 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 "[Set Length 2](#)" on page 242 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 E, 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 = Disable



★ PDF417 = Enable

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 Length Control = Variable Length



PDF417 Length Control = Fixed Length



PDF417 Set Length 1

Specifies one of the bar code lengths for "PDF417 Length Control" on page 201. 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 "Set Length 1" on page 241 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 E, 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" on page 201. 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 "Set Length 2" on page 242 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 E, 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 Micro PDF 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" on page 204. 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 "Set Length 1" on page 241 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 E, 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" on [page 204](#). 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 "[Set Length 2](#)" on [page 242](#) for detailed instructions on setting this feature.



Select Micro PDF417 Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE bar code above, then the bar code at left followed by the digits from the Alphanumeric characters in [Appendix E, 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 = Disable



★ QR Code = Enable

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 Length Control = Variable Length



QR Code Length Control = Fixed Length



QR Code Set Length 1

This feature specifies one of the bar code lengths for "QR Code Length Control" on page 206. 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 "Set Length 1" on page 241 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 E, 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" on page 206. 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 "Set Length 2" on page 242 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 E, 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

This feature specifies one of the bar code lengths for "Micro QR Code Length Control" on [page 208](#). 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 "Set Length 1" on [page 241](#) 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 E, 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" on [page 208](#). 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 "Set Length 2" on [page 242](#) for detailed instructions on setting this feature.



Select Micro 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 E, 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 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. The UCC Optional Composite Timer can be set within a range of 10 to 300 msec. A setting of 0 disables the timer.



UCC Optional Composite Timer = Timer Disabled



★ UCC Optional Composite Timer = 70 msec



UCC Optional Composite Timer = 100 msec



UCC Optional Composite Timer = 200 msec



UCC Optional Composite Timer = 300 msec



Postal Code Selection

Enables/disables the ability of the reader to decode labels of a specific postal symbol-ogy.

- 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 = Enable Japan Post



Postal Code Selection (continued)



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 reader to decode B and B' fields of Postnet labels.



★ Postnet BB Control = Disable



Postnet BB Control = Enable

CONFIGURATION | OCR DECODING

The GFS/GFE4500 family is equipped with an Optical Character Recognition feature.

This section describes how to configure the Datalogic bar code reader to enable OCR decoding.

The GFS/GFE4500 models support the following OCR font types:

- OCR-A
- OCR-B
- MICR E13B
- US Currency Serial Number.

In most OCR applications a suitable usage of check digits and the addition of constraints on sub-strings types (e.g. digits-only or letter-only) reduces misdecoding probabilities.

The user can choose between a set of predefined templates (already optimized for decoding) and customizable free templates.

For free templates, as OCR decoding is less reliable than traditional barcode decoding, the reader provides tools to minimize misdecoded labels. As a result, particular care shall be dedicated to the setup of free custom templates to reduce incorrect output.

For more information on how to customize the user templates for your needs, please contact Datalogic Technical Support.

Use one of the following labels to enable one of the predefined templates for OCR decoding.



OCR Decoding Predefined Templates

The following selections are exclusive, enabling one template automatically disables the others.



★ OCR Predefined Template = Disable OCR Function



OCR Predefined Template = EU Identity Card OCR



OCR Predefined Template = IATA Passport OCR



OCR Predefined Template = Italian Post OCR Payment



OCR Predefined Template = Italian Bank
Freccia Bank Payment form



OCR Predefined Template = Swiss Driving License OCR

CONFIGURATION | MOTION FEATURES

SECTION CONTENTS
MOTION FEATURES starting on page 215 <ul style="list-style-type: none">• High Motion Immunity• Motion Aiming Control

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



High Motion Immunity

When set to triggerless scanning mode (e.g. Always On, Stand Mode/Object Detection, etc.) the reading capabilities can be modified according to two main goals:

- increased performance for rapidly moving barcodes - Enable High Motion Immunity:
- increased performance for distant barcodes - Disable High Motion Immunity:

Depending on specific environmental conditions, application requirements, or expected performance, choose the best solution.



★ High Motion Immunity = Disable



High Motion Immunity = Enable

Motion Aiming Control

Enables/Disables the Aiming system when motion is detected.



★ Motion Aiming Control = Disable



Motion Aiming Control = Enable

CHAPTER 4

REFERENCES

This section contains explanations and examples of selected bar code features. See "Configuration with Bar Codes" on page 15 for the actual bar code labels.

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RS-232 PARAMETERS

RS-232 ONLY

Baud Rate

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

Data Bits

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

Stop Bits

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

Parity

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

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

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 reader.

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 24](#) and scan the bar code: SELECT INTERCHARACTER DELAY SETTING.
5. Scan the appropriate two digits from the keypad in [Appendix E](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



NOTE: If you make a mistake before the last character, scan the CANCEL 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 the following table for examples of how to set this feature.

Table 3 - Intercharacter Delay Setting Examples

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



NOTE: Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option Data Bits page 27 has been set as 7 Data Bits.

1. Determine the desired character or value.
2. Use the ASCII Chart on [page 292](#) to find the hex equivalent for the desired character/value.
3. 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 E](#), that represent the desired character/value determined above. The second character will cause a two-beep indication.
6. Scan the ENTER/EXIT PROGRAMMING MODE bar code to exit.

See the table below for examples of how to set this feature.

Table 4 - ACK Character Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Character/Value	ACK	\$	@	>
2	Hex equivalent from ASCII Chart on page 292	0x06	0x24	0x40	0x3E
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT ACK CHARACTER SETTING				
5	Scan two characters from Appendix E	'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.



NOTE: Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option Data Bits on page 27 has been set as 7 Data Bits.

To set this feature:

1. Determine the desired character or value.
2. Use the ASCII Chart on [page 292](#) to find the hex equivalent for the desired character/value.
3. 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 alpha-numeric characters from the keypad in [Appendix E](#), that represent the desired character/value determined 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 the table below for examples of how to set this feature.

Table 5 - NAK Character Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Character/Value	NAK	\$	@	>
2	Hex equivalent	0x15	0x24	0x40	0x3E
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT NAK CHARACTER SETTING				
5	Scan two characters from Appendix E	'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. 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 E](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



NOTE: If you make a mistake before the last character, scan the CANCEL 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 the table below for examples of how to set this feature.

Table 6 - ACK NAK Timeout Value Setting Examples

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

ACK NAK Retry Count

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

To set this feature:

1. Determine the desired setting.
2. Pad the number with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. 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 E](#), that represent the number which was determined in the steps above. You will hear a two-beep indication after the last character.



NOTE: If you make a mistake before the last character, scan the CANCEL 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 the table below for examples of how to set this feature.

Table 7 - ACK NAK Retry Count Setting Examples

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

Disable Character

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

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



NOTE: Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option "Data Bits" on page 20 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 [page 292](#) to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT DISABLE CHARACTER SETTING on [page 30](#).
5. Scan the appropriate two alphanumeric characters from the keypad in [Appendix E](#), that represent the desired character/value determined 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 the table below for examples of how to set this feature.

Table 8 -Disable Character Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired character/value	'd'	'}'	'D'	Disable Command Not Used
2	Hex equivalent from ASCII Chart on page 292	0x64	0x7D	0x44	0xFF
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT DISABLE CHARACTER VALUE SETTING				
5	Scan three characters from Appendix E	'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.



NOTE: Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option "Data Bits" on page 20 has been set as 7 Data Bits.

To set the value:

1. Determine the desired character or value. A setting of 0xFF indicates the Enable Character is not used (not available).
2. Use the ASCII Chart in [Appendix H](#) to find the hex equivalent for the desired character/value.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT ENABLE CHARACTER SETTING on [page 30](#).
5. Scan the appropriate two alphanumeric characters from the keypad in [Appendix E](#), that represent the desired character/value determined 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 the table below for examples of how to set this feature.

Table 9 - Enable Character Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired character/value	'e'	'}	'E'	Enable Command Not Used
2	Hex equivalent from ASCII Chart on page 292	0x65	0x7D	0x45	0xFF
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT ENABLE CHARACTER VALUE SETTING				
5	Scan two characters from Appendix E	'6' and '5'	'7' and 'D'	'4' and '5'	'F' and 'F'
6	Scan ENTER/EXIT PROGRAMMING MODE				

KEYBOARD INTERFACE

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. Go to [page 56](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT INTERCHARACTER DELAY SETTING on [page 56](#).
5. Scan the appropriate two digits from the keypad in [Appendix D](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



NOTE: If you make a mistake before the last character, scan the CANCEL 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 the table below for examples of how to set this feature.

Table 10 - Intercharacter Delay Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	50ms	150ms	600ms	850ms
2	Divide by 10 (and pad with leading zeroes to yield two-digits)	05	15	60	85
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT INTERCHARACTER DELAY SETTING				
5	Scan two characters from Appendix D	'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 56](#) and scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT INTERCODE DELAY SETTING on [page 56](#).
5. Scan the appropriate two digits from the keypad in [Appendix E](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



NOTE: If you make a mistake before the last character, scan the CANCEL 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 the table below for examples of how to set this feature.

Table 11 - Intercode Delay Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	No Delay	5 seconds	60 seconds	99 seconds
2	Pad with leading zero(es)	00	05	60	99
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT INTERCODE DELAY SETTING				
5	Scan two characters from Appendix E	'0' and '0'	'0' and '5'	'6' and '0'	'9' and '9'
6	Scan ENTER/EXIT PROGRAMMING MODE				

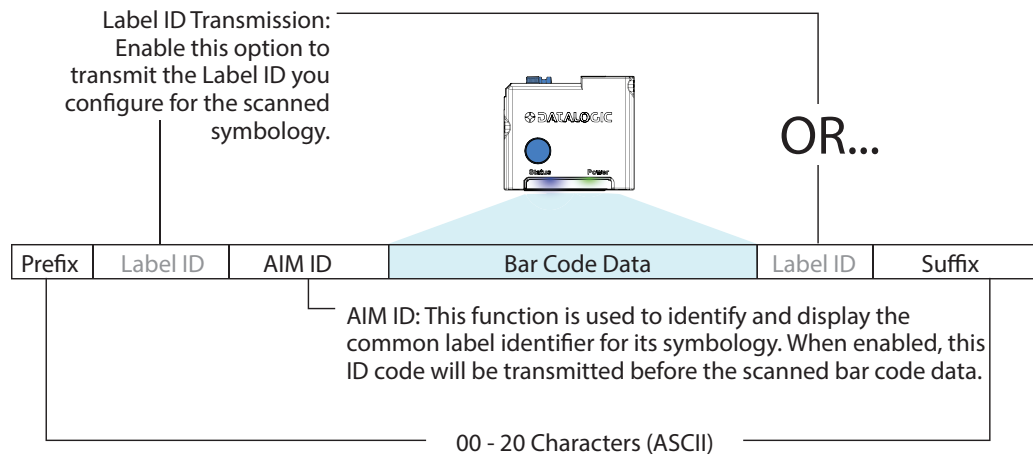
DATA FORMAT

Data Editing

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. The following shows the available elements you can add to a message string:

Figure 6 - Breakdown of a Message String



NOTE: Additional advanced editing is available. See the Advanced formatting features in the Datalogic Aladdin configuration software, or contact "Technical Support" on page xiv for more information.

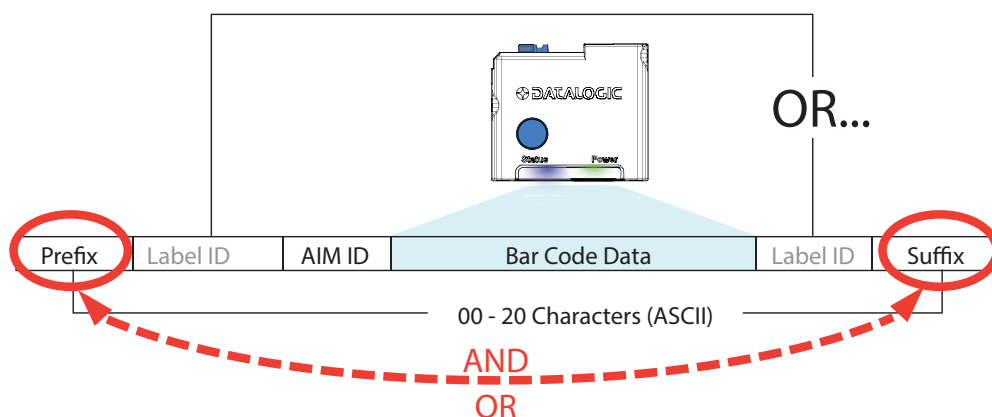
Please Keep In Mind...

- Modifying a message string is not a mandatory requirement. Data editing is a sophisticated feature allowing highly customizable output for advanced users. Factory default settings for data editing is typically set to NONE.
- A prefix or suffix may be applied only to a specified symbology (reference [1D Symbologies, starting on page 96](#)) or across all symbologies (set via the Global features in [Configuration with Bar Codes, starting on page 15](#)).
- You can add any character from the ASCII Chart on [page 292](#) (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.

Figure 7 Prefix and Suffix Positions



Example: Setting a Prefix

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

1. Determine which ASCII character(s) are to be added to scanned bar code data. In this example, we'll add a dollar sign ('\$') as a prefix.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code, then scan the SET GLOBAL PREFIX bar code.
3. Reference the ASCII Chart on [page 292](#) in [Appendix H](#) 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 E](#).



NOTE: 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.

The resulting message string would appear as follows:

Scanned bar code data: **12345**

Resulting message string output: **\$12345**

Global AIM ID



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

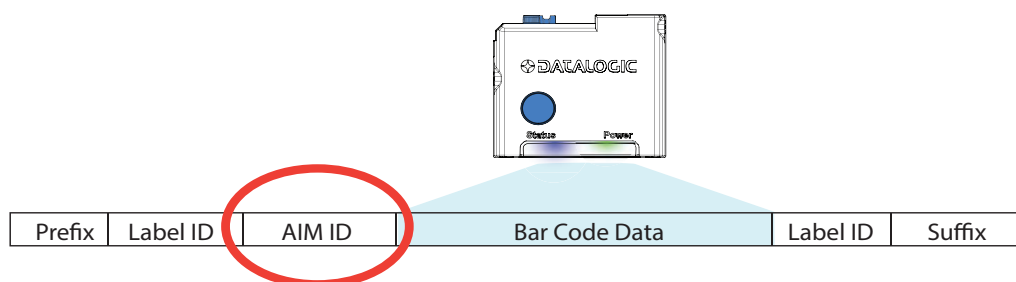
AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with scanned bar code data. AIM label identifiers consist of three characters as follows:

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

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

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

Figure 8 AIM ID



Label ID

A Label ID is a customizable code of up to three ASCII characters (each can be one of hex 0x01-0xFF), used to identify a 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 or individually per symbology (see "[Label ID: Set Individually Per Symbology](#)" on page 65). 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 63.

Label ID: Pre-loaded Sets

The following table lists the pre-loaded label ID sets for the USA and Europe.

Table 12 - Label ID Pre-loaded Sets

SYMBOLGY	USA LABEL ID SET		EU LABEL ID SET	
	ASCII character	Hex value	ASCII character	Hexadecimal value
ABC Codabar	S	530000	S	530000
CODABAR	%	250000	R	520000
Code 39 CIP HR	Y	590000	Y	590000
Code 93	&	260000	U	550000
Code 11	CE	434500	b	620000
Code 128	#	230000	T	540000
Code 32	A	410000	X	580000
Code 39	*	2A0000	V	560000
Datalogic 2of5	s	730000	s	730000
EAN13	F	460000	B	420000
EAN13 P2	F	460000	L	4C0000
EAN13 P5	F	460000	M	4D0000
EAN8	FF	464600	A	410000
EAN8 P2	FF	464600	J	4A0000
EAN8 P5	FF	464600	K	4B0000
FOLLETT 2OF5	O	4F0000	O	4F0000
GS1 DATABAR EXPANDED	RX	525800	t	740000
GS1 DATABAR LIMITED	RL	524C00	v	760000
GS1 DATABAR OMNIDIRECTIONAL	R4	523400	u	750000
GS1-128		000000	k	6B0000
I2OF5	i	690000	N	4E0000
IATA	IA	494100	&	260000
Industrial 2 of 5	W	570000	W	570000
Interleaved 2 of 5	e	650000	e	650000
ISBN	l	490000	@	400000
ISBT128	f	660000	f	660000

SYMBOLGY	USA LABEL ID SET		EU LABEL ID SET	
ISSN	n	6E0000	n	6E0000
MSI	@	400000	Z	5A0000
S25	s	730000	P	500000
UPCA	A	410000	C	430000
UPCA P2	A	410000	F	460000
UPCA P5	A	410000	G	470000
UPCE	E	450000	D	440000
UPCE P2	E	450000	H	480000
UPCE P5	E	450000	I	490000
OCR-A	o	6F0000	\$o	246F00
OCR-B	o	6F0000	\$p	247000
MICR	o	6F0000	\$m	246D00

Label ID: Set Individually Per Symbology

To configure a Label ID individually for a single symbology:

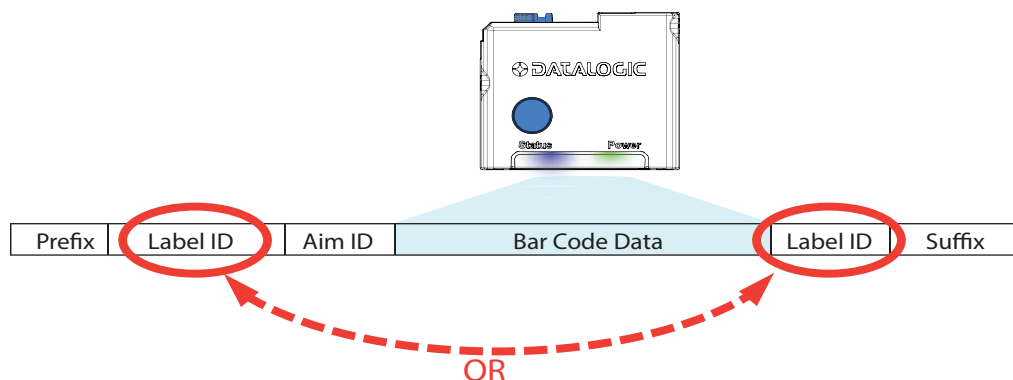
1. Scan the ENTER/EXIT bar code.
2. Select Label ID position as either BEFORE (Enable as Prefix) or AFTER (Enable as suffix) by scanning the appropriate bar code in the section "Label ID Control" on page 65. Reference Figure 9 for Label ID positioning options if multiple identification features are enabled.
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" on page 66.
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 page 292 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, in Appendix E, 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 13 on page 234.



NOTE: 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 9 Label ID Position Options



Label ID: Set Individually Per Symbology — continued

Table 13 Label ID Examples

STEP	ACTION	EXAMPLES			
1	Scan the ENTER/EXIT bar code	(Reader 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 65	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, starting on page 66	GS1 DataBar Omnidirectional	Code 39	Interleaved 2 of 5	Code 32
4	Custom Label ID example (desired characters):	D B *	= C 3	+	PH
5	Find hex equivalents from the ASCII table (inside back cover), then scan in these digits/characters using the bar codes in the section: Keypad, starting on page 278. 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	(Reader exits Label ID entry)			
7	Scan the ENTER/EXIT bar code once again	(Reader exits Programming Mode)			
Result:		DB*[bar code data]	[bar code data]=C3	+[bar code data]	[bar code data]PH

Character Conversion

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

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

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

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

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

To set Character Conversion:

1. Scan the ENTER/EXIT bar code.
2. Scan the bar code for "Character Conversion" on page 62
3. Determine the desired string. Sixteen positions must be determined as in the above example. Next, turn to the ASCII Chart on page 292 on the inside back cover of this manual and find the equivalent hex digits needed to fulfill the string.
4. Turn to Appendix E, Keypad and scan the bar codes representing the hex characters determined in the previous step.
5. Scan the ENTER/EXIT bar code to exit Programming Mode.



NOTE: 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.

SCANNING FEATURES

Scan Mode

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

On Line:

In On Line mode, the reading phase is defined as the time between the Phase ON and Phase OFF events. The Phase events can be generated by an external input (trigger) or by the Trigger button. While in this mode the scanner activates reading only during a reading phase. The Phase events can be signals coming from the trigger button (or external presence sensor connected to the scanner input for RS-232 models).

On Line mode allows the following configurations:

Phase Off Event: Specifies whether the reading phase is closed on a timeout or phase off event. The following selections are available:

- Trigger Stop: the reading phase ends when the trigger event stops. Timeout is disabled.
- Timeout: the reading phase ends when the timeout is expired. Trigger stop is ignored.
- Trigger Stop - Timeout: the reading phase ends when the first event occurred.

Timeout: Specifies the maximum duration for the reading phase. Selections: from 1 to 255 seconds in 1 second increments.

Serial On Line:

In Serial On Line mode, a reading phase is defined as the time between two events: phase on and phase off, generated by a message sent from the host interface to the scanner. While in this mode the scanner activates reading only during a reading phase. The message (character or string) is user programmable.

Serial On Line mode configurations:

Serial Start Character (or String): Specifies the string message to be sent over the host interface to activate the reading phase.

Serial Stop Character (or String): Specifies the string message to be sent over the host interface to stop the reading phase.



NOTE: The Serial Start/Stop Characters must be different and must not contain reserved characters (see Appendix F, Reserved Characters). See "Manual Trigger Control" on page 75 to configure control of manual triggering.

Phase Off Event: Specifies whether the reading phase is closed on a timeout or phase off event.

The following selections are available:

- Trigger Stop: the reading phase ends when the serial stop character (or string) is received. Timeout is disabled.
- Timeout: the reading phase ends when the timeout is expired. Serial stop character (or string) is ignored.
- Trigger Stop - Timeout: the reading phase ends when the first event occurred.

Timeout (Scanning Active Time option): Specifies the maximum duration for the reading phase. Selections: from 1 to 255 seconds in 1 second increments.

Always On:

In Always On, the scanner is continuously scanning. When a label enters the reading zone and is decoded, no more decodes and reading phases are allowed until the label has left the reading area. In order to guarantee identification of the code in the reading zone, a threshold specifies the number of scans after the successful decode that the scanner will wait before rearming the reading phase. The transmission of the decoded label depends on the configuration of the Transmission Mode parameter.

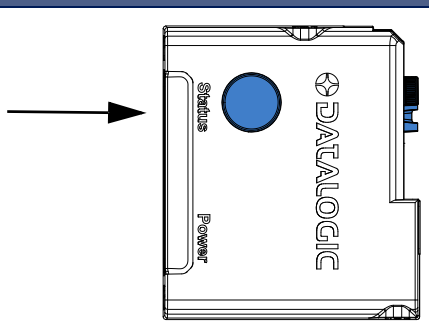
Object Sense:

Object Sense mode is the same as Always On mode but with the illumination system normally off¹. As an object or bar code enters the reading area, illumination is turned ON. Illumination will return to the Presentation Illumination Control setting as the reading phase is closed (see Automatic Mode above).

Test Mode:

Once entered, the Status LED is activated in different colors depending on the Good Read rate of the current barcode. This mode is useful to check if the fixed scanner is placed at correct position/distance in respect to the incoming barcodes.

Every 3 seconds, the Good Read is calculated and the Status LED is turned on as following:

GOOD READ RATE	STATUS LED	
0%	OFF	
Between 1% and 30%	Blinking Red	
Between 31% and 50%	Fixed Red	
Between 51% and 85%	Fixed Orange	
Over 86%	Fixed Green	

1. Default. The illumination can be programmed for several different operation states (off, dim or on) while the reading phase is not active. See "Presentation Illumination Control" on [page 87](#).

Scanning Active Time

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

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
4. Scan the bar code: SELECT SCANNING ACTIVE TIME SETTING on [page 76](#).
5. Scan the appropriate three digits from the keypad in [Appendix E](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



NOTE: If you make a mistake before the last character, scan the CANCEL 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 the table below for examples of how to set this feature.

Table 14 Scanning Active Time Setting Examples

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

Aiming Duration Time

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

Follow these instructions to set this feature:

1. Determine the desired setting.
2. Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
3. 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 two digits from the keypad in [Appendix E](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



NOTE: If you make a mistake before the last character, scan the CANCEL 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 the following table for some examples of how to set this feature.

Table 15 Aiming Duration Time Setting Examples

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

LED AND BEEPER INDICATORS

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 84](#) 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 two digits from the keypad in [Appendix E](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



NOTE: If you make a mistake before the last character, scan the CANCEL 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 the following table for some examples of how to set this feature.

Table 16 Good Read LED Duration Setting Example

STEP	ACTION	EXAMPLES			
1	Desired Setting	Good Read LED stays on until next trigger pull (00)	20ms	150ms	2550ms (2.55 sec.)
2	Divide by 10 (and pad with leading zeroes)	000	002	015	255
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT GOOD READ LED DURATION SETTING				
5	Scan three characters from Appendix E	'0', '0' and '0'	'0', '0' and '2'	'0', '1' and '5'	'2', '5' and '5'
6	Scan ENTER/EXIT PROGRAMMING MODE				

SYMBOLOGIES

Set Length

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

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

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

Set Length 1

This feature specifies one of the bar code lengths for a given symbology. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode.

Reference the [1D Symbologies, starting on page 96](#) to view the selectable range (number of characters) for the symbology being set.

Follow these instructions to set this feature:

1. Determine the desired character length. Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the "Select Length 1 Setting" for the symbology being set.
4. Scan the appropriate two digits from the keypad in [Appendix E](#), that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.



NOTE: If you make a mistake before the last character, scan the CANCEL 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 Programming Mode.

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

Table 17 Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	01 Character	07 Character	52 Character	74 Character
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT LENGTH 1 SETTING for the desired symbology				
4	Scan two characters from Appendix E	'0' and '1'	'0' and '7'	'5' and '2'	'7' and '4'
5	Scan ENTER/EXIT PROGRAMMING MODE				

Set Length 2

This feature specifies one of the bar code lengths for a given symbology. Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode.

Reference the [1D Symbologies, starting on page 96](#) to view the selectable range (number of characters) for the symbology being set. A setting of 00 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

1. Determine the desired character length. Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
2. Scan the ENTER/EXIT PROGRAMMING MODE bar code to enter Programming Mode.
3. Scan the “Select Length 2 Setting” for the symbology being set.
4. Scan the appropriate two digits from the keypad in [Appendix E](#), that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.



NOTE: If you make a mistake before the last character, scan the CANCEL 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 Programming Mode.

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

Table 18 Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	00 (ignore second length)	07 Character	52 Character	74 Character
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT LENGTH 2 SETTING				
4	Scan two characters from Appendix E	'0' and '0'	'0' and '7'	'5' and '2'	'7' and '4'
5	Scan ENTER/EXIT PROGRAMMING MODE				

APPENDIX A

TECHNICAL SPECIFICATIONS

The table below contains Physical and Performance Characteristics, User Environment and Regulatory information.

GRYPHON™ GFS4500 TECHNICAL SPECIFICATIONS

Table 19 GFS4500 Technical Specifications

PHYSICAL CHARACTERISTICS	
Color	Black. Other colors and custom logo options are available for minimum quantity purchase.
Dimensions	GFS4500: 2.8 x 4.8 x 5.5 cm / 1.1 x 1.9 x 2.2 in. GFE4500: 2.0 x 2.7 x 4.8 cm / 0.8 x 1.1 x 1.9 in.
Weight (without cable)	GFS4520: 52 g / 1.8 oz (micro-USB connector) GFS4550: 152 g / 5.4 oz (2m straight cable DB9 connector included) GFS4590: 95 g / 3.4 oz (10cm multi-interface connector included) GFE4590: 17 g / 0.6 oz (12 pin connector)
ELECTRICAL CHARACTERISTICS	
Current	Operating (Typical): < 225 mA Standby/Idle (Typical): - Automatic Object Sense Mode: 115 mA - Online & Serial Online Modes: 55 mA
Input Voltage	GFS4520: 5 VDC +/- 5%; GFS4550/GFX4590: 5 - 14 VDC
ENVIRONMENTAL CHARACTERISTICS	
Operating Temperature	GFS4500: -20 to 50 °C / -4 to 122 °F (suitable up to 55°C / 131 °F) GFE4500: -20 to 60 °C / -4 to 140 °F
Storage/Transport Temperature	-40 to 70 °C / -40 to 158 °F
Ambient Light immunity	0-120,000 Lux
Drop Resistance	Withstands repeated drops from 1.5 m / 5 ft onto a concrete surface
Vibration Resistance	Tolerates random vibration, 5 G, from 22 Hz to 300 Hz, 2 hrs / 3 axes

Particulate & Water Sealing	IP45
READING PERFORMANCE	
Image Capture	Graphic Formats: BMP, JPEG, TIFF; Greyscale: 256, 16, 2
Image Sensor	1 Megapixel: 1280 x 800 pixels
Field of View	51°H, 32°V
Print Contrast Ratio (Min.)	15%
Motion Tolerance	70 IPS (EAN/UPC)
Frame Rate	60 full-frame/s
Reading Angles	Pitch: +/- 60°; Roll (Tilt): +/- 180°; Skew (Yaw): +/- 60°
Reading Indicators	Beeper (Adjustable Tone and volume); Datalogic 'Green Spot' Good Read Feedback; Top-Front Good Read LED with Adjustable brightness
Resolution (Maximum)	1D Linear: 0.076 mm / 3 mils Data Matrix: 0.13 mm / 5 mils PDF417: 0.13 mm / 5 mils
INTERFACES	
Interfaces	GFS4520: USB (micro-USB connector) GFS4550: RS232 (2m straight cable DB9 connector) GFS4590: USB / RS232 (10cm multi-interface connector) GFE4590: USB / RS232 (12 pin connector)
Digital I/O	GFS4550 / GFE4590: One SW Programmable digital input + one SW programmable digital output

DOF - DEPTH OF FIELD (TYPICAL)^A	
Symbology	Resolution
Code 39	5 mil: 4 to 30.0 cm / 0.16 to 11.8 in
	10 mil: 1.7 to 53.5 cm / 0.6 to 21.0 in
Datamatrix	10 mil: 3.5 to 23.5 cm / 1.3 to 9.6 in
	15 mil: 3.0 to 35.0 cm / 1.2 to 13.7 in
EAN/UPC	13 mil: 4.0 to 82.0 cm / 1.6 to 32.3 in
PDF417	10 mil: 1.5 to 35.0 cm / 5.9 to 13.7 in
QR Code	10 mil: 3.5 to 22.0 cm / 1.4 to 8.7 in

- a. Minimum distance determined by symbol length and scan angle. Printing resolution, contrast, and ambient light dependent.

DECODING CAPABILITIES

DECODE CAPABILITY
1D/ Linear Bar Codes Auto discriminates all standard 1D codes including GS1 DataBar™ linear codes.
2D Bar Codes Aztec Code; China Han Xin Code; Data Matrix; MaxiCode; Micro QR Code; QR Code; Dot Code; Dot Matrix
Postal Codes Australian Post; British Post; China Post; IMB; Japanese Post; KIX Post; Planet Code; Postnet; Royal Mail Code (RM4SCC)
2D Stacked Codes EAN/JAN Composites; GS1 DataBar Composites; GS1 DataBar Expanded Stacked; GS1 DataBar Stacked; GS1 DataBar Stacked Omnidirectional; MacroPDF; MicroPDF417; PDF417; UPC A/E Composites
Digital Watermarking Digimarc Barcodes
REGULATORY
See Regulatory Addendum included with your product.

RS-232 Electrical Connections (GFS4550 only)

9-PIN CONNECTOR		
1	Trigger	Trigger signal input (see Figure 5 and Figure 6 on next page)
2	TX	Transmit Data (output from scanner)
3	RX	Receive Data (input to scanner)
4	NC	Not connected
5	GND	Ground
6	VCC	+5Vdc
7	CTS	Clear to Send (Input to Scanner)
8	RTS	Request To Send (output from scanner)
9	DIGITAL OUTPUT	Output signal (see Figure 8 and Figure 9)

Default configuration is RS-232: 9600, 8, N, 1, no handshaking, ACK/NAK disabled.

Input Connection - Typical Layout

Figure 10. NPN Configuration



★ NPN configuration = Set Input Configuration to NPN

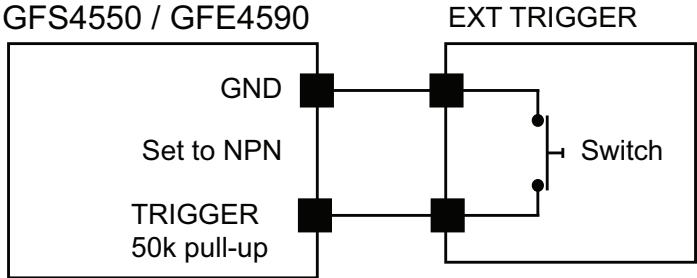
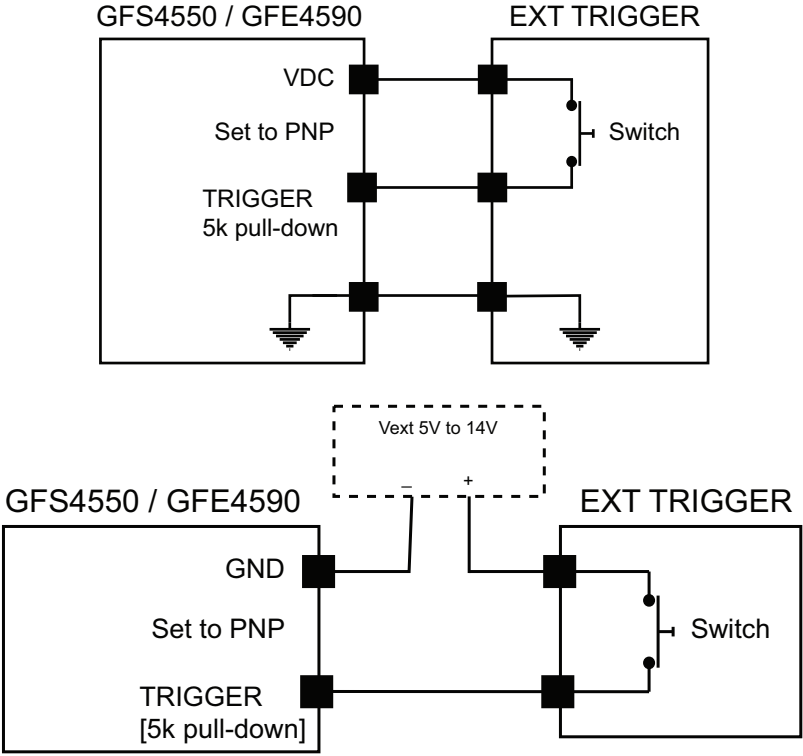


Figure 11. PNP Configuration



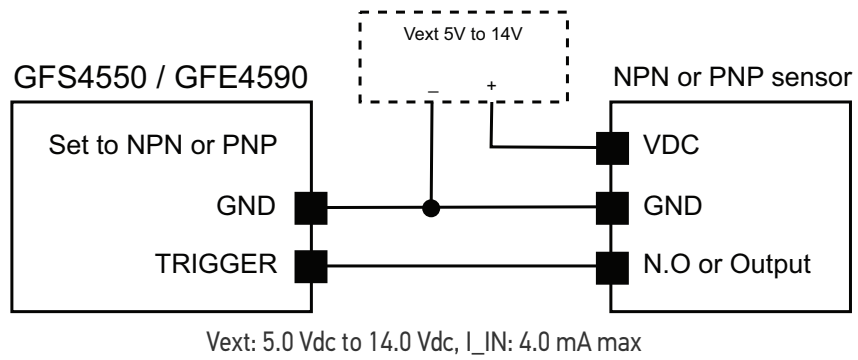
★ PNP configuration = Set Input Configuration to PNP



Vext: 5.0 Vdc to 14.0 Vdc, I_IN: 4.0 mA max

Figure 12. NPN or PNP Configuration

Ensures both sides are configured the same way.



Output Connection - Typical Layout

Figure 13. NPN Output Configuration



★ NPN configuration = Set Output Configuration to NPN

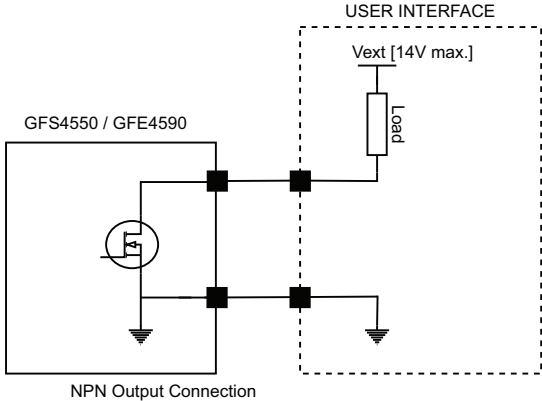
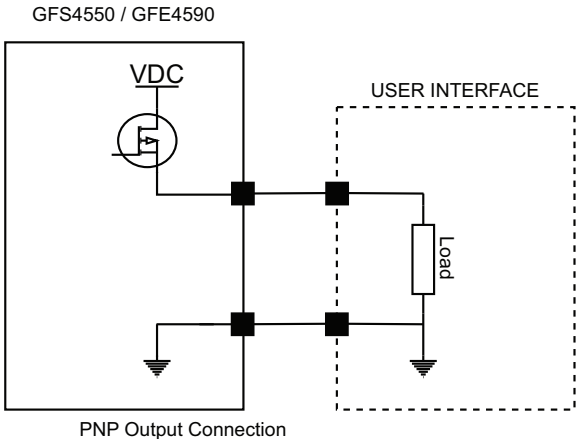


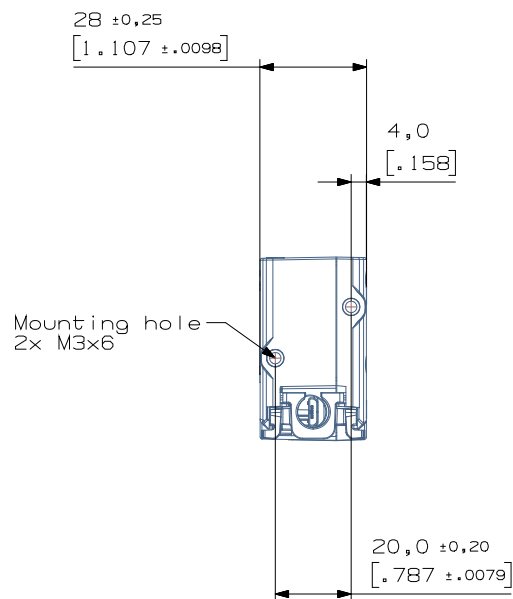
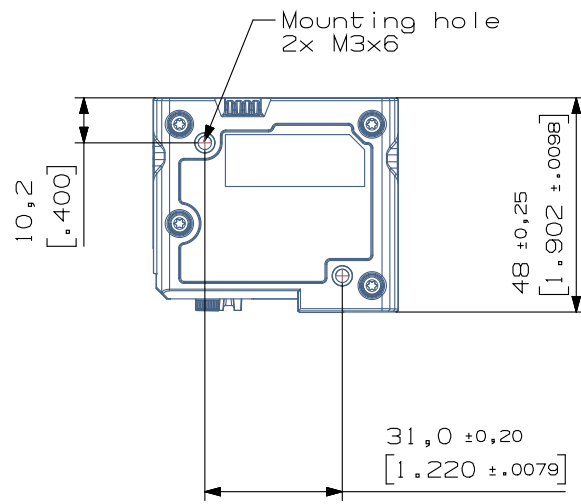
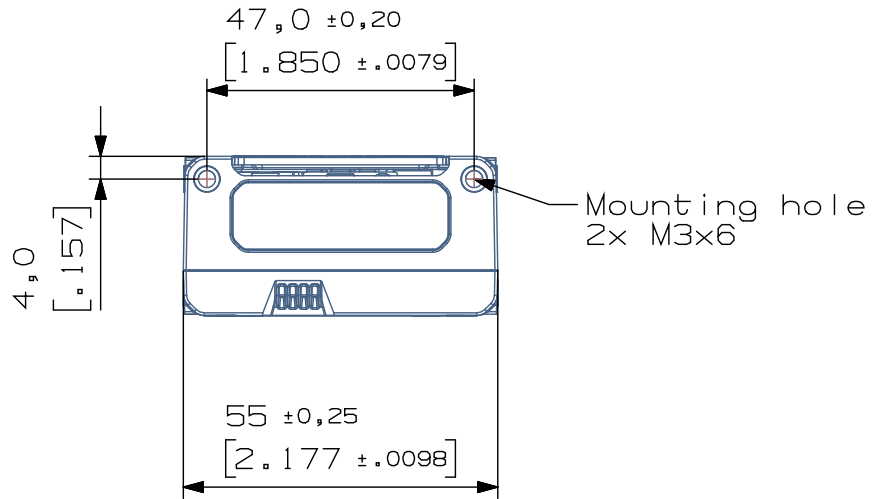
Figure 14. PNP Output Configuration



★ PNP configuration = Set Output Configuration to PNP



GFS4500 Dimensions

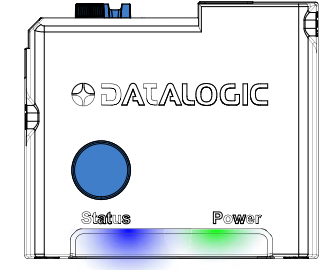


LED AND BEEPER INDICATIONS

Buttons and LED Status

The top of the product has a button and three indicator LEDs:

Table 20 LED Indications

	POWER LED (green)	ON = Power ON
		Blinking = USB enumeration (USB version only) or FW Upgrade
		OFF = Power OFF or Limited Scanning Mode or Standby (USB version only)
	STATUS LED (Multicolor)	Green = Good Read, USB enumeration (USB version only) or FW Upgrade
		Blue = External trigger, or button pressed or phase active or Image Capture mode.
		RED = Used to indicate Wrong Code or No Read, depending on the configuration (see Product Reference Guide).

Indicators

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 following tables list these indications. One exception to the behaviors listed in the table is that the reader's functions are programmable, and so 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.

INDICATION	LED	BEEPER
Power-up	Upper LED flashes/blinks on power-up, however, this may be too rapid to view. With a USB interface, the LED blinks until enumeration with the host is completed.	Imager beeps four times at highest frequency and volume upon power-up.
Good Read	Upper green LED comes on for programmed time (default). LED behavior for this indication is configurable using Aladdin utility.	One beep at current frequency, volume, mono/bi-tonal setting upon a successful label scan. It is also possible to upload custom jingles with Aladdin.
ROM Failure	200ms on / 200ms off	Imager sounds one error beep at highest volume for 200 mS.
Limited Scanning Label Read	N/A	Imager 'chirps' six times at the highest frequency and current volume.
Imager Disabled	The LED blinks continuously 100ms on / 900ms off	N/A

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Nothing happens when the scan button is pulled.	No power to the reader	Check system power. Ensure power supply is connected.
	Interface or power cables are loose.	Ensure all cable connections are secure.
Status LED comes on, but bar code is not decoded.	Imager not programmed for correct bar code type.	Ensure reader is programmed to read the type of bar code scanned.
	Bar code label is unreadable.	Check the label to ensure it is not defaced. Try scanning another bar code type.
	Distance between reader and bar code is incorrect.	Move imager closer to or further from the bar code.
Bar code is decoded but not transmitted to the host.	Imager not programmed for the correct host type.	Scan the appropriate host type bar code.

CLEANING PROCEDURE

Exterior surfaces and scan windows exposed to spills, smudges or debris accumulation require periodic cleaning to ensure best performance during scanning operations. Follow the procedures described in this instruction sheet to keep your device in good operating condition



WARNING: Be sure to turn off power and unplug the device from electrical outlet before cleaning.



CAUTION: DO NOT use abrasive pads or cleaning agents.

Common Cleaning Solutions

The cleaners and disinfectants listed below are recommended for use on Datalogic's Gryphon GFS4500 Enclosures:

CLEANERS	DISINFECTANTS
Formula 409® Glass and Surface Cleaner or Glassex® with ammonia	Hydrogen Peroxide 3%
70% Isopropyl Alcohol	
Windex® Multi-Surface	
100% Gentle dish soap and water	
70% Ethil alcohol	



NOTE: Disinfectants may be harsh on metal. They are recommended for use only on enclosures



CAUTION: DO NOT spray or pour cleaner directly onto the unit.

DO NOT use solutions in their concentrated form.

DO NOT use aerosols, solvents or abrasives.

DO NOT use paper towels or rough cloths to clean windows.

Cleaning enclosure and window surfaces

1. Moisten a soft cloth with a recommended cleaning solution. Be sure to apply the solution to your cloth first. Wring excessive liquid from the cloth.
2. Use the cloth to wipe down the surface of the unit. Use cotton swabs, lightly moistened, to reach in corners and crevices.
3. Use another clean dry cloth to remove any residue of the cleaning agent and ensure the unit is dry.

NOTES

APPENDIX B

GFS4400 MOUNTING ADAPTER

USING THE GFS4400 ADAPTER

Customers can take advantage of the accessory “Mounting Adapter to replicate the GFS4400 fixing holes” (Part Number: MA-4500-BK) to replace their setups based on previous Gryphon™ I GFS4400 family, with the new Gryphon™ I GFS4500. Since the two products have different mounting holes, the Adapter Plate can be attached to the GFS4500 to replicate the same mounting holes of the previous GFS4400.

Two M3x10 screws are required to attach the Mounting Adapter to the GFS4500 (already included in MA-4500-BK package).

M3 screws are then required to attach the adapter to the surface, maximum length is 6mm (not included in MA- 4500-BK package).



Figure 15. Comparison of front views of Gryphon GFS4400 (left) and Gryphon GFS4500 with Mounting Adapter (right)

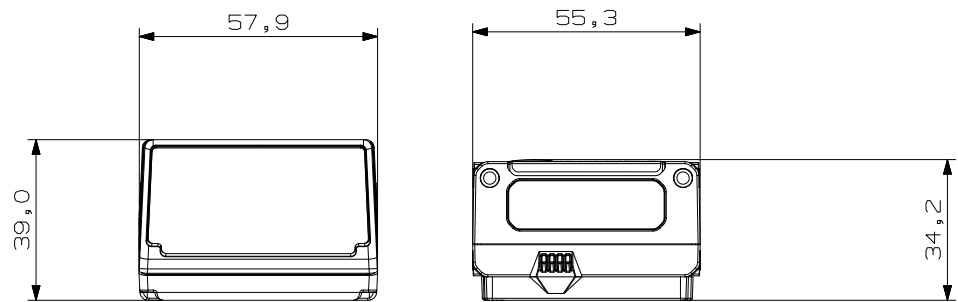
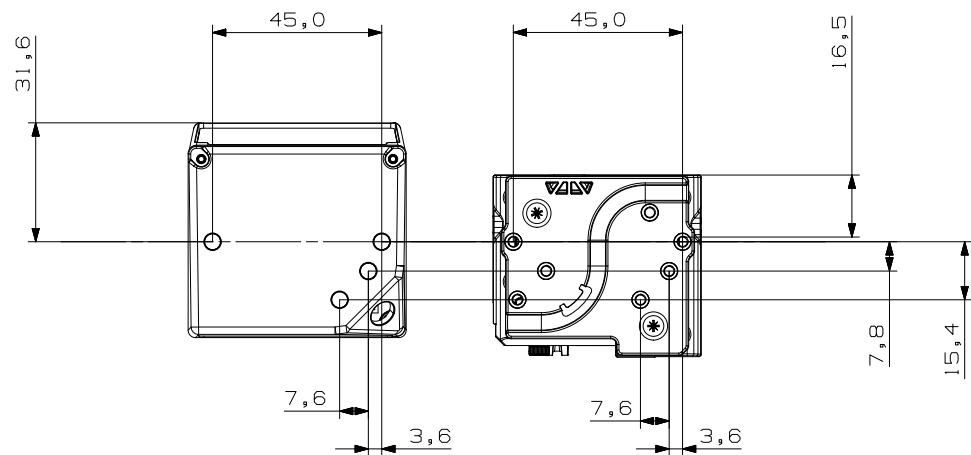


Figure 16. Comparison of bottom views of Gryphon GFS4400 (left) and Gryphon GFS4500 with Mounting Adapter (right)



APPENDIX C

STANDARD DEFAULTS

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

Table 21 Standard Defaults

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
GLOBAL INTERFACE FEATURES			
Host Commands — Obey/Ignore	Obey		17
USB Suspend Mode	Enable		17
RS-232 ONLY			
Baud Rate	9600		19
Data Bits	8 Data Bits		20
Stop Bits	1 Stop Bit		20
Parity	None		21
Handshaking Control	RTS		22
RS-232/USB-COM			
Intercharacter Delay	No Delay		24
Beep On ASCII BEL	Disable		25
Beep On Not on File	Enable		25
ACK NAK Options	Disable		26
ACK Character	‘ACK’		27
NAK Character	‘NAK’		27
ACK NAK Timeout Value	200 msec		28
ACK NAK Retry Count	3 Retries		27
ACK NAK Error Handling	Ignore Errors Detected		29

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
Indicate Transmission Failure	Enable		29
Disable Character	'D'		30
Enable Character	'E'		30
KEYBOARD			
Setting Country Mode	U.S. Keyboard		33
Encoding Type	Don't Use Encoding		47
ALT Output Type	ALT Unicode		54
Numlock	Numlock Key Unchanged		54
Keyboard Numeric Keypad	Standard Keys		55
Keyboard Send Control Characters	Send Ctrl+Key		55
Intercharacter Delay	00 = No Intercharacter Delay		56
Intercode Delay	00 = No Intercode Delay		56
USB Keyboard Speed	1ms		57
USB OEM			
USB-OEM Device Usage	Handheld		59
DATA FORMAT			
Global Prefix/Suffix	No Global Prefix Global Suffix = 0x0D (CR)		61
Case Conversion	Disable (no case conversion)		62
Character Conversion	0xFFFFFFFFFFFFFFFF (no character conversion)		62
Global AIM ID	Disable		63
GS1-128 AIM ID	Disable		63
Label ID: Pre-loaded Sets	USA Set		64
Label ID Control	Disable		65
Label ID Symbology Selection			66
READING PARAMETERS			
Scan Mode	Object Sense		72
Phase Off Event	Trigger Stop		73
Phase Off Timeout	5 seconds		73

STANDARD DEFAULTS

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
Serial Start Character	0x02 = Serial Start Character is [02 STX]		74
Serial Stop Character	0x02 = Serial Start Character is [02 STX]		74
Presentation Mode Indication	Disable		75
Manual Trigger Control	Disable		75
Scanning Active Time	5 seconds		76
Double Read Timeout	0.6 second		76
Stand Mode/Object Detection Indication (Stand Mode Flash)	Disable		78
Stand Mode/Object Detection Sensitivity	Medium		78
Stand Mode/Object Detection Illumination Off Time	1 second		79
Power On Alert	Power-up Beep		80
Good Read Beep Type	Mono		80
Good Read Beep Frequency	Medium		81
Good Read Beep Length	80 msec		82
Good Read Beeper Volume	High		83
Good Read LED Duration	300 msec		84
Good Read: When to Indicate	After Decode		85
Good Read LED color	Green		85
Green Spot Duration	Short (300 msec)		86
Green Spot LED Intensity	High		86
Illuminator Intensity	High		87
Presentation Illumination Control	OFF		87
Indicator LEDs Intensity	Mid		88
Aiming Pointer	Enable		89
Aiming Duration Timer	Aiming Off After Decoding		89
Aiming LED intensity	High		90
Object Sense Aiming Enable	Enabled		90
Pick Mode	Disable		91
Mobile Phone Mode	Enable		91

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
Mirror Reading Mode	Disable		92
Decode Negative Image	Disable		93
Multiple Labels per Frame	Disable		94
Multiple Labels Ordering by Code Symbology	Random Order		94
Multiple Labels Ordering by Code Length	Disable		95
CODE SELECTION - 1D SYMBOLOGIES			
Code EAN/UPC			
Coupon Control	Enable only UPC/EAN		97
UPC-A			
UPC-A Enable/Disable	Enable		98
UPC-A Check Character Transmission	Send		98
Expand UPC-A to EAN-13	Don't expand		99
UPC-A Number System Character Transmission	Transmit		99
UPC-E			
UPC-E Enable/Disable	Enable		100
UPC-E Check Character Transmission	Send		100
Expand UPC-E to EAN-13	Don't expand		101
Expand UPC-E to UPC-A	Don't expand		101
UPC-E Number System Character Transmission	Transmit		101
GTIN			
GTIN Formatting	Disable		102
EAN 13 (Jan 13)			
EAN-13 Enable/Disable	Enable		103
EAN-13 Check Character Transmission	Send		103
EAN-13 Flag 1 Character	Transmit		104
EAN-13 to ISBN Conversion	Disable		104

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
ISSN			
EAN-13 to ISSN Conversion	Disable		105
EAN 8			
EAN-8 Enable/Disable	Enable		106
EAN-8 Check Character Transmission	Send		106
Expand EAN-8 to EAN-13	Don't Expand		107
UPC/EAN Global Settings			
UPC/EAN Price Weight Check	Disable		108
UPC/EAN Quiet Zones	Two Modules		109
ADD-ONS			
Optional Add-ons	Disable P2 and P5		110
Optional Add-On Timer	70 msec		111
GS1 DATABAR™ OMNIDIRECTIONAL			
GS1 DataBar Omnidirectional Enable/Disable	Disable		112
GS1 DataBar Omnidirectional to GS1-128 Emulation	Disable		112
GS1 DataBar Expanded Enable/Disable	Disable		113
GS1 DataBar Expanded to GS1-128 Emulation	Disable		113
GS1 DataBar Expanded Length Control	Variable		114
GS1 DataBar Expanded Set Length 1	1		114
GS1 DataBar Expanded Set Length 2	74		115
GS1 DATABAR™ LIMITED			
GS1 DataBar Limited Enable/Disable	Disable		116
GS1 DataBar Limited to GS1-128 Emulation	Disable		116
CODE 39			
Code 39 Enable/Disable	Enable		117
Code 39 Check Character Calculation	Don't calculate		117

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
Code 39 Check Character Transmission	Send		118
Code 39 Start/Stop Character Transmission	Don't transmit		118
Code 39 Full ASCII	Disable		119
Code 39 Quiet Zones	Small Quiet Zones on two sides		119
Code 39 Length Control	Variable		120
Code 39 Set Length 1	1		120
Code 39 Set Length 2	50		121
TRIOPTIC CODE			
Trioptic Code Enable/Disable	Disable		122
CODE 39 DANISH PPT			
Code 39 Danish PPT Enable/Disable	Disable		122
CODE 39 PZN			
Code 39 PZN Enable/Disable	Disable		123
CODE 39 LA POSTE			
Code 39 La Poste Enable/Disable	Disable		123
CODE 32 (Italian Pharmaceutical Code)			
Code 32 Enable/Disable	Disable		124
Code 32 Check Character Transmission	Don't Send		124
Code 32 Start/Stop Character Transmission	Don't Transmit		125
Code 39 CIP HR (French Pharmaceutical Code)			
Code 39 CIP HR Enable/Disable	Disable		125
SPECIAL CODES			
Code 128			
Code 128 Enable/Disable	Enable		126
Expand Code 128 to Code 39	Don't Expand		126
Code 128 Check Character Transmission	Don't Send		127
Code 128 Function Character Transmission	Don't Send		127
Code 128 Quiet Zones	Auto		128

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
Code 128 Length Control	Variable		128
Code 128 Set Length 1	1		129
Code 128 Set Length 2	80		129
GS1-128			
GS1-128 Enable	Transmit in Code 128 Data Format		130
INTERLEAVED 2 of 5			
I 2 of 5 Enable/Disable	Disable		131
I 2 of 5 Check Character Calculation	Disable		132
I 2 of 5 Check Character Transmission	Send		133
I 2 of 5 Length Control	Variable		134
I 2 of 5 Set Length 1	6		134
I 2 of 5 Set Length 2	50		135
INTERLEAVED 2 of 5, FEBRABAN FORMAT (Desk Models Only)			
Interleaved 2 of 5, Febraban format Enable / Disable	Disable		136
INTERLEAVED 2 of 5 CIP HR			
Interleaved 2 of 5 CIP HR Enable/Disable	Disable		137
MATRIX 2 of 5			
Matrix 2 of 5 Enable/Disable	Disable		138
Matrix 2 of 5 Check Character Calculation	Enable		138
Matrix 2 of 5 Check Character Transmission	Don't Send		139
Matrix 2 of 5 Length Control	Variable Length		139
Matrix 2 of 5 Set Length 1	8 characters		140
Matrix 2 of 5 Set Length 2	50 characters		140
STANDARD 2 of 5			
Standard 2 of 5 Enable/Disable	Disable		141
Standard 2 of 5 Check Character Calculation	Disble		141
Standard 2 of 5 Check Character Transmission	Send		142

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
Standard 2 of 5 Length Control	Variable Length		142
Standard 2 of 5 Set Length 1	08 (8 characters)		143
Standard 2 of 5 Set Length 2	50 (50 characters)		143
COMPRESSED 2 of 5			
Compressed 2 of 5 Enable/Disable	Disable		144
Compressed 2 of 5 Check Character Calculation	Disable		144
Compressed 2 of 5 Check Character Transmission	Send		145
Compressed 2 of 5 Length Control	Variable Length		145
Compressed 2 of 5 Set Length 1	1 character		146
Compressed 2 of 5 Set Length 2	50 characters		146
DATALOGIC 2 OF 5			
Datalogic 2 of 5 Enable/Disable	Disable		147
Datalogic 2 of 5 Check Character Calculation	Disable		147
Datalogic 2 of 5 Check Character Transmission	Send		148
Datalogic 2 of 5 Length Control	Variable Length		148
Datalogic 2 of 5 Set Length 1	6 characters		149
Datalogic 2 of 5 Set Length 2	50 characters		149
INDUSTRIAL 2 of 5			
Industrial 2 of 5 Enable/Disable	Disable		150
Industrial 2 of 5 Check Character Calculation	Disable		150
Industrial 2 of 5 Check Character Transmission	Send		151
Industrial 2 of 5 Length Control	Variable		151
Industrial 2 of 5 Set Length 1	6 characters		152
Industrial 2 of 5 Set Length 2	50 characters		152
CODE IATA			
IATA Enable/Disable	Disable		153
IATA Check Character Transmission	Send		153

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
FOLLET 2 OF 5			
Follett 2 of 5 Enable/Disable	Disable		154
CODABAR			
Codabar Enable/Disable	Disable		155
Codabar Check Character Calculation	Disable		155
Codabar Check Character Transmission	Send		156
Codabar Start/Stop Character Transmission	Transmit		156
Codabar Start/Stop Character Set	abcd/abcd		157
Codabar Start/Stop Character Match	Don't Require Match		157
Codabar Quiet Zones	Quiet Zones on two sides		158
Codabar Length Control	Variable		159
Codabar Set Length 1	3 characters		159
Codabar Set Length 2	50 characters		160
ABC CODABAR			
ABC Codabar Enable/Disable	Disable		161
ABC Codabar Concatenation Mode	Static		161
ABC Codabar Dynamic Concatenation Timeout	200 msec		162
ABC Codabar Force Concatenation	Disable		162
ISBT-128			
ISBT 128 Concatenation	Disable		163
ISBT 128 Concatenation Mode	Static		163
ISBT 128 Dynamic Concatenation Timeout	200 msec		164
ISBT 128 Force Concatenation	Disable		165
ISBT 128 Advanced Concatenation Options	Disable		165
CODE 11			
Code 11 Enable/Disable	Disable		166
Code 11 Check Character Calculation	Check C and K		166

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
Code 11 Check Character Transmission	Send		167
Code 11 Length Control	Variable		167
Code 11 Set Length 1	4 characters		168
Code 11 Set Length 2	50 characters		168
CODE 93			
Code 93 Enable/Disable	Disable		169
Code 93 Check Character Calculation	Enable Check C and K		169
Code 93 Check Character Transmission	Disable		170
Code 93 Length Control	Variable		170
Code 93 Set Length 1	1 character		171
Code 93 Set Length 2	50 characters		171
Code 93 Quiet Zones	Auto		172
MSI			
MSI Enable/Disable	Disable		173
MSI Check Character Calculation	Calculate Mod 10		173
MSI Check Character Transmission	Send		174
MSI Length Control	Variable		174
MSI Set Length 1	1 character		175
MSI Set Length 2	50 characters		175
PHARMACODE			
Pharmacode Enable/Disable	Disable		176
Pharmacode Label Direction	Horizontal left to right		176
Pharmacode Length Control	Variable Length		177
Pharmacode Set Length 1	02 characters		177
Pharmacode Set Length 2	06 characters		178
PLESSEY			
Plessey Enable/Disable	Disable		179
Plessey Check Character Calculation	Plessey std check char. verification		179
Plessey Check Character Transmission	Send		180

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
Plessey Length Control	Variable		180
Plessey Set Length 1	1 character		181
Plessey Set Length 2	50 characters		181
BC412			
BC412 Enable/Disable	Disable		182
BC412 Check Character Calculation	Calculate		182
BC412 Length Control	Variable		183
BC412 Set Length 1	1 character		184
BC412 Set Length 2	50 characters		184
CODE SELECTION - 2D SYMBOLOGIES			
2D Maximum Decoding Time	350 msec		187
2D Structured Append	Disable		188
2D Normal/Inverse Symbol Control	Normal		188
AZTEC CODE			
Aztec Code Enable / Disable	Enable		189
Aztec Code Length Control	Variable		189
Aztec Code Set Length 1	1 character		188
Aztec Code Set Length 2	3,832 characters		190
CHINA SENSIBLE CODE			
China Sensible Code Enable / Disable	Disable		191
China Sensible Code Length Control	Variable		191
China Sensible Code Set Length 1	1 character		192
China Sensible Code Set Length 2	7,827 characters		192
DATA MATRIX			
Data Matrix Enable / Disable	Enable		193
Data Matrix Square/Rectangular Style	Both Square and Rectangular Style		193
Data Matrix Length Control	Variable		194
Data Matrix Set Length 1	1 character		194
Data Matrix Set Length 2	3,116 characters		195
GS1 DOTCODE			

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
DotCode Enable	Disable		196
DotCode High Resolution Enable	Enable		196
DotCode Position-based Decoding	Disable		197
MAXICODE			
Maxicode Enable / Disable	Disable		198
Maxicode Primary Message Transmission	Disable		198
Maxicode Length Control	Variable		199
Maxicode Set Length 1	1 character		199
Maxicode Set Length 2	0145 characters		200
PDF417			
PDF417 Enable / Disable	Enable		201
PDF417 Length Control	Variable		201
PDF417 Set Length 1	1 character		202
PDF417 Set Length 2	2,710 characters		202
MICRO PDF417			
Micro PDF417 Enable / Disable	Enable		203
Micro PDF417 Code 128 GS1-128 Emulation	Micro PDF AIM ID and label type		203
Micro PDF417 Length Control	Variable		204
Micro PDF417 Set Length 1	1 character		204
Micro PDF417 Set Length 2	0366 characters		205
QR CODE			
QR Code Enable / Disable	Enable		206
QR Code Length Control	Variable		206
QR Code Set Length 1	1 character		207
QR Code Set Length 2	7,089 characters		207
MICRO QR CODE			
Micro QR Code Enable / Disable	Enable		208
Micro QR Code Length Control	Variable		208
Micro QR Code Set Length 1	1 character		209
Micro QR Code Set Length 2	0035 characters		209

PARAMETERS	DEFAULT	YOUR SETTING	PAGE NUMBER
UCC COMPOSITE			
UCC Optional Composite Timer	Timer Disabled		210
Postal Code Selection	Disable All Postal Codes		211
Postnet BB Control	Disable		212
OCR DECODING			
OCR Decoding Predefined Templates	Disable OCR Function		214
MOTION FEATURES			
High Motion Immunity	Disable		216
Motion Aiming Control	Disable		216

DEFAULT EXCEPTIONS

Table 22 - Default Exceptions by Interface Type

PARAMETER	DEFAULT EXCEPTION
Interfaces: USB-OEM	
Global Suffix	No Global Suffix
Double Read Timeout	500 msec
Interfaces: USB Keyboard	
No unique settings	
Interface: RS232-WN	
Expand UPC-A to EAN-13	Enable
UPC-E Check Character Transmission	Disable
Parity	Odd Parity
Handshaking Control	RTS/CTS
Transmission Label ID Code	Prefix
GS1-128 AIM ID	Disable
UPCE Label ID Character(s)	C
EAN 8 Label ID Character(s)	B
EAN 13 Label ID Character(s)	A
Code ISBN Label ID Character(s)	A
Code 39 Label ID Character(s)	M
MInterleaved 2of5 Label ID Character(s)	I
Code Standard 2/5 Label ID Character(s)	H
Codabar Label ID Character(s)	N
Code 128 Label ID Character(s)	K
GS1-128 Label ID Character(s)	P
Datalogic 2 of 5 Label ID Character(s)	H
ISBT 128 Label ID Character(s)	K
UPCE P2 Label ID Character(s)	C
UPCE/P5 Label ID Character(s)	C
UPCE/GS1-128 Label ID Character(s)	C
EAN8/P2 Label ID Character(s)	B
EAN8/P5 Label ID Character(s)	B
EAN8/GS1-128 Label ID Character(s)	B
EAN13/P2 Label ID Character(s)	A
EAN13/P5 Label ID Character(s)	A
EAN13/GS1-128 Label ID Character(s)	A

PARAMETER	DEFAULT EXCEPTION
GS1 DataBar 14 (Omnidirectional) Label ID Character(s)	E
GS1 DataBar Expanded Label ID Character(s)	E
GS1 DataBar Limited Label ID Character(s)	E
Character Conversion	CR to `
Interface: RS232-OPOS	
Baud Rate	115200 Baud
Transmission Label ID Code	Prefix
GS1-128 AIM ID	Disable
UPCA Label ID Character(s)	C
UPCE Label ID Character(s)	D
EAN 8 Label ID Character(s)	A
EAN 13 Label ID Character(s)	B
Code ISBN Label ID Character(s)	@
Code 39 Label ID Character(s)	V
Code 32 Label ID Character(s)	X
Interleaved 2of5 Label ID Character(s)	N
Code Standard 2/5 Label ID Character(s)	P
Codabar Label ID Character(s)	R
Code 11 Label ID Character(s)	b
Code 128 Label ID Character(s)	T
GS1-128 Label ID Character(s)	k
UPCA/P2 Label ID Character(s)	F
UPCA/P5 Label ID Character(s)	G
UPCA/GS1-128 Label ID Character(s)	Q
UPCE P2 Label ID Character(s)	H
UPCE/P5 Label ID Character(s)	I
EAN8/P2 Label ID Character(s)	J
EAN8/P5 Label ID Character(s)	K
EAN8/GS1-128 Label ID Character(s)	*
EAN13/P2 Label ID Character(s)	L
EAN13/P5 Label ID Character(s)	M
EAN13/GS1-128 Label ID Character(s)	#
GS1 DataBar 14 (Omnidirectional) Label ID Character(s)	u
GS1 DataBar Expanded Label ID Character(s)	t
GS1 DataBar Limited Label ID Character(s)	v

APPENDIX D

SAMPLE BARCODES

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

SAMPLE BARCODES

1D Barcodes

UPC-A



EAN-13



Code 39



Code 128



Interleaved 2 of 5



Code 32



Codabar



Code 93



Code 11



GS1 Databar™ (RSS)

GS1 DataBar™ variants must be enabled to read the barcodes below (see "GS1 DataBar™ Omnidirectional" on page 112).

GS1 DataBar™ Expanded Stacked



10293847560192837465019283746029478450366523

GS1 DataBar™ Expanded



1234890hjjio9900mnb

GS1 DataBar™ Limited



08672345650916

GS1 Databar™ (-14)

GS1 DataBar™ Omnidirectional Truncated



55432198673467

GS1 DataBar™ Omnidirectional Stacked



90876523412674

GS1 DataBar™ Omnidirectional Stacked



78123465709811

2D Barcodes

Aztec



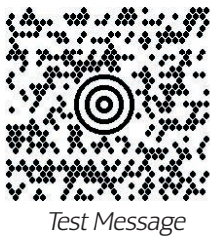
Data Matrix



China Sensible



MaxiCode



PDF417



ABCabc

Micro PDF 417



BV17453

QR Code

35900G9

2D Barcodes (continued)**Micro QR Code**

123456

UCC Composite

(17) 050923 (10) ABC123



(01) 0 4012345 67890 1 1

APPENDIX E

KEYPAD

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



1



2



3



4



5



6



7



1



2



3



4



5



6



7



8



9

APPENDIX F

RESERVED CHARACTERS

RESERVED CHARACTERS	HEX VALUE	NOTES
[SOH]	0x01	
[BEL]	0x07	
#	0x23	
\$	0x24	
0	0x30	
3	0x33	
B	0x42	
D	0x44	
E	0x45	
F	0x46	
R	0x52	
S	0x53	
h	0x68	
i	0x69	
s	0x73	
t	0x74	
[FF]	0xFF	
Reserved Strings		
C<up to 36 chars>[CR]	0x43 <xxx> 0x0D	C can be used without [CR] or inside a string (not the first character)
01[CR]	0x30 0x31 0x0D	
34[CR]	0x33 0x34 0x0D	

APPENDIX G

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 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 289](#)).

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 USB-KEYBOARD OR USB-KEYBOARD FOR APPLE

Table 23. 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 CAN C(S)+X	HT TAB EM C(S)+Y	LF C(S)+J SUB C(S)+Z	VT C(S)+K ESC Esc	FF C(S)+L FS C+]	CR Enter GS C+]	SO C(S)+N RS C+^	SI C(S)+O US C(S)+_
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								
2x	SP	!	"	#	\$	%	&	'	()	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
6x	,	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	Del
8x	€	Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	↑	↓	←	→	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓
Ax	Cr↑		'	<i>f</i>	"	...	†	‡	ˆ	%	Š	ˆ	Š	ˆ	œ	
Bx	°	±	²	³	´	µ	¶	·	,	ı	°	»	¼	½	¾	ı
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 USB-KEYBOARD OR USB-KEYBOARD FOR APPLE (CONTINUED)

Table 24. 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	”	…	†	‡	^	% ₀₀	Š	◀	Š	◁	Œ	
9x		,	,	“	”	•	—	—	~	™	š	▶	œ		ž	ÿ
Ax	NBSP	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı
Bx	°	±	²	³	´	µ	¶	·	,	ı	°	»	¼	½	¾	¿
Cx	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Dx	Ð	Ñ	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 USB-KEYBOARD ALT MODE

Table 25. 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 USB-KEYBOARD ALT MODE (CONTINUED)

Table 26. 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 27. 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 28. Scancode Set When Control Character is 02

	X0	X1	X2	X3	X4	X5	X6	X7	X8	X9	xA	xB	xC	xD	xE	xF
0x					Cl↓	Cl↑			BS	Tab	à	S+ Tab	Enter Keypd	Enter	Ins	
1x			←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Space	!	“	#	\$	%	&	'	()	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
6x	,	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{		}	~	Del

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Table 29. 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 30. 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 Keyupd	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F1	F2	F3	F4	F5	F5	ESC	F7	F8	F9	F10
2x	Space	!	“	#	\$	&	,	()	*	+	+	,	-	.	/
3x	0	1	2	3	4	6	7	8	9	:	;	;	<	=	>	?
4x	@	A	B	C	D	F	G	H	I	J	K	K	L	M	N	O
5x	P	Q	R	S	T	V	W	X	Y	Z	[[\]	^	_
6x	,	a	B	c	d	f	g	h	i	j	k	k	l	m	n	o
7x	p	q	R	s	t	v	w	x	y	z	{	{	|	}		Del

Table 31. 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↑	Alt↓	Alt↑	Cl↓	Cl↑	Cr↓
Ax	Cr ↑															

Table 32. 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

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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	PS 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	• 20A2	ƒ 201A	£ 0132	„ 201E	… 2026	† 2020	‡ 2021	ˆ 02C5	‰ 2030	Š 0160	< 2038	€ 0162	• 017D	ž 017D	• 017D
90	• 2018	ˆ 2019	˜ 201C	˘ 201D	• 2022	– 2013	— 2014	ˆ 02DC	™ 2122	Š 0161	› 203A	€ 0163	• 017E	ž 017E	Ÿ 0178	• 0178
A0	NEBP 00A0	ı 00A1	ı̇ 00A2	£ 00A3	¤ 00A4	¥ 00A5	ı̇ 00A6	ı̈ 00A7	ı̈ 00A8	ı̈ 00A9	ı̈ 00AA	ı̈ 00AB	ı̈ 00AC	ı̈ 00AD	ı̈ 00AE	ı̈ 00AF
B0	° 00B0	± 00B1	² 00B2	³ 00B3	´ 00B4	µ 00B5	¶ 00B6	· 00B7	¸ 00B8	¹ 00B9	º 00BA	» 00BB	¼ 00BC	½ 00BD	¾ 00BE	¿ 00BF
C0	À 00C0	Á 00C1	Â 00C2	Ã 00C3	Ä 00C4	Å 00C5	Æ 00C6	Ç 00C7	È 00C8	É 00C9	Ê 00CA	Ë 00CB	Ì 00CC	Í 00CD	Î 00CE	Ï 00CF
D0	Ð 00D0	Ñ 00D1	Ò 00D2	Ó 00D3	Ô 00D4	Õ 00D5	Ö 00D6	× 00D7	Ø 00D8	Ù 00D9	Ú 00DA	Û 00DB	Ü 00DC	Ý 00DD	Þ 00DE	ß 00DF
E0	à 00E0	á 00E1	â 00E2	ã 00E3	ä 00E4	å 00E5	æ 00E6	ç 00E7	è 00E8	é 00E9	ê 00EA	ë 00EB	ì 00EC	í 00ED	î 00EE	ï 00EF
F0	ð 00F0	ñ 00F1	ò 00F2	ó 00F3	ô 00F4	õ 00F5	ö 00F6	÷ 00F7	ø 00F8	ù 00F9	ú 00FA	û 00FB	ü 00FC	ý 00FD	þ 00FE	ÿ 00FF

APPENDIX H

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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