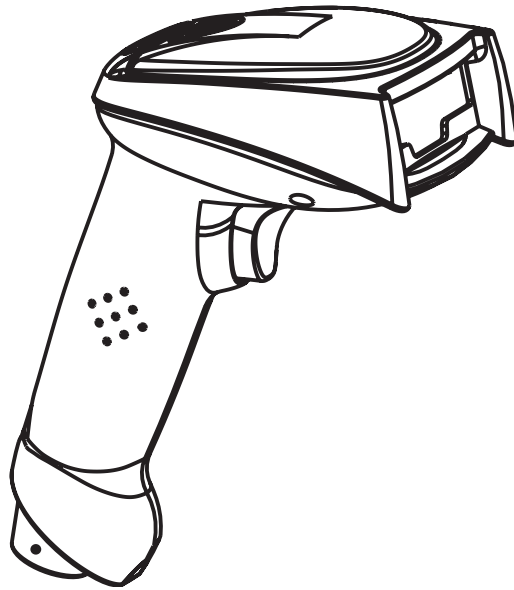


NCR RealScan 7838 Hand-Held Imager

Release 1.0

User's Guide



B005-0000-1528

Issue B

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Preface

Audience

This book is written for hardware installer/service personnel, system integrators, and field engineers.

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Statement of Agency Compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Class B Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Caution: Any changes or modifications made to this device that are not expressly approved by Hand Held Products, Inc. may void the user's authority to operate the equipment.

Note: To maintain compliance with FCC Rules and Regulations, cables connected to this device must be shielded cables, in which the cable shield wire(s) have been grounded (tied) to the connector shell.

Canadian Notice

This equipment does not exceed the Class B limits for radio noise emissions as described in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la classe B prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.



The CE mark on the product indicates that the system has been tested to and conforms with the provisions noted within the 89/336/ EEC Electromagnetic Compatibility Directive and the 73/23/EEC Low Voltage Directive.

Complies with:

EN55022:1998 (for ITE emissions)

EN55024:1998 (for ITE immunity), including CISPR 22B:1997

EN61000-4-2:1995

EN61000-4-3:1995

For further information please contact:

Hand Held Products, Inc.

Nijverheidsweg 9

5627 BT Eindhoven

The Netherlands

NCR shall not be liable for use of our product with equipment (i.e., power supplies, personal computers, etc.) that is not CE marked and does not comply with the Low Voltage Directive.

UL and cUL Statement

UL listed UL1950 and CSA 22.2 No.950. cUL listed UL1950 and CSA 22.2 No 950.

LED Safety Statement

This device has been tested in accordance with EN60825-1 LED safety, and has been certified to be under the limits of a Class 1 LED device.

TÜV Statement

TÜV or GS marked to EN60950 and EN60825-1.

C-Tick Statement

Conforms to AS/NZS 3548. C-Tick number: N10410.

Patents

Please refer to the RealScan 7838 packaging for a list of patents.

Solids and Water Protection

The RealScan 7838 has a rating of IP41, immunity of foreign particles and dripping water.

Disclaimer

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Revision Record

Issue	Date	Remarks
A	Jan 2004	First issue
B	Mar 2004	Added Chapter 9

Chapter 1: Getting Started

Introduction

The NCR 7838 Hand-Held Imager marks a new performance level for hand held area imagers. The RealScan 7838 hand held area imagers are powered by Adaptus™ technology. The performance of Adaptus technology delivers aggressive read rates and depths of field on 1D, stacked linear, and matrix codes. This aggressiveness applies even in challenging reading environments where low lighting conditions and poor quality might make it difficult to read bar codes. Adaptus technology ensures your investment continues to supply years of use by reading any bar codes you require, now or in the future.

Designed for today's demanding retail and commercial environments, the RealScan 7838 offers superior image quality, speed, durability, and the ability to read poor quality bar codes. The RealScan 7838 is comfortable to hold, easy to use, rugged, and excellent for retail applications, as well as for all general scanning and imaging applications.

About This Manual

This User's Guide provides installation and programming instructions for the RealScan 7838.

NCR's bar code imagers are factory programmed for the most common terminal and communications settings. If you need to change these settings, programming is accomplished by scanning the bar codes in this guide.

An asterisk (*) next to an option indicates the default setting.

Unpacking the Imager

After you open the shipping carton containing the RealScan 7838, take the following steps:

- Check to make sure everything you ordered is present.
- Save the shipping container for later storage or shipping.
- Check for damage during shipment. Report damage immediately to the carrier who delivered the carton.

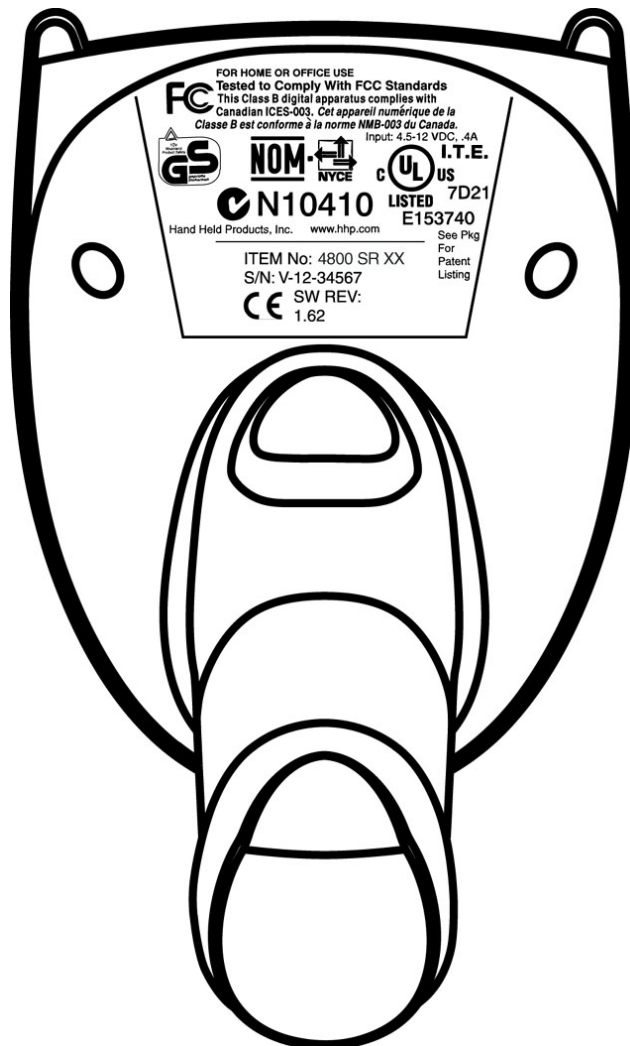
RealScan 7838 Models

There are two models of the RealScan 7838 imager, which may be used with many interfaces described in this manual.

- 7838-1000 - U.S. Postal Service model
- 7838-1001 - General Purpose model

Refer to Chapter 6 for programming information regarding secondary interfaces.

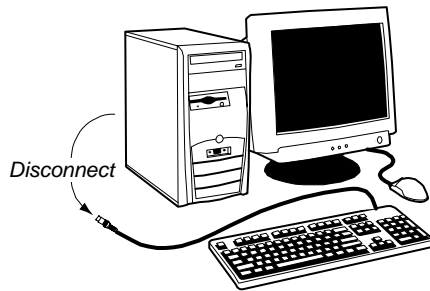
RealScan 7838 Imager Identification



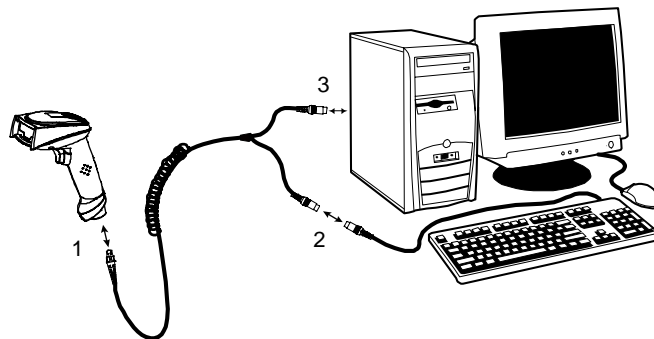
Connecting the Imager When Powered by Host (Keyboard Wedge)

A imager can be connected between the keyboard and PC as a “keyboard wedge,” plugged into the serial port, or connected to a portable data terminal in wand emulation or non decoded output mode. The following is an example of a keyboard wedge connection:

1. Turn off power to the terminal/computer.



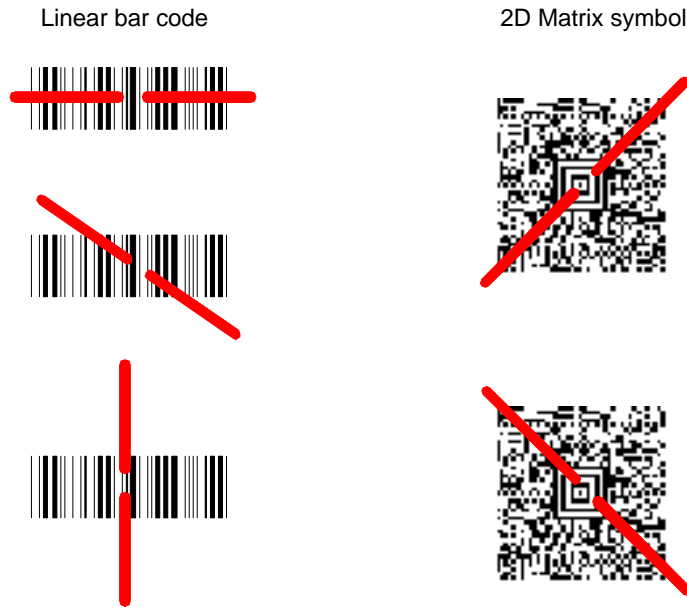
2. Disconnect the keyboard cable from the back of the terminal/ computer.
3. Connect the appropriate interface cable to the imager and to the terminal/computer.



4. Turn the terminal/computer power back on. The imager beeps.
5. Verify the imager operation by scanning a bar code from the Sample Symbols in the back of this manual. The imager beeps once.

Reading Techniques

The imager has a view finder that projects a bright red or green aiming beam that corresponds to the imager’s horizontal field of view. The aiming beam should be centered over the bar code, but it can be positioned in any direction for a good read.



The aiming beam is smaller when the imager is closer to the 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. To read single or multiple symbols (on a page or on an object), hold the imager at an appropriate distance from the target, pull the trigger, and center the aiming beam on the symbol. If the code being scanned is highly reflective (e.g., laminated), it may be necessary to tilt the code up 15° to 18° to prevent unwanted reflection.

Plug and Play

Plug and Play bar codes provide instant imager set up for commonly used interfaces.

Note: After you scan one of the codes, power cycle the host terminal to have the interface in effect.

Keyboard Wedge

Note: This interface applies to the RealScan 7838.

RealScan 7838 imagers are factory programmed for a keyboard wedge interface to an IBM PC AT with a USA keyboard. If this is your interface and you do not need to modify the settings, skip to Chapter 3 - Output.

If you programmed the imager for a different terminal interface and you want to change to an IBM PC AT and compatibles keyboard wedge interface, scan the bar code below.



IBM PC AT and Compatibles with CR Suffix

Laptop Direct Connect

Note: This interface applies to the RealScan 7838.

For most laptops, scanning the Laptop Direct Connect bar code permits operation of the scanner in parallel with the integral keyboard. The following Laptop Direct Connect bar code also programs a carriage return (CR) suffix, and turns on Emulate External Keyboard (see Chapter 2).



Laptop Direct Connect with CR suffix

RS-232

The **RS-232** Interface bar code is used when connecting to the serial port of a PC or terminal. The following RS-232 Interface bar code also programs a carriage return (CR) and a line feed (LF) suffix, baud rate, and data format as indicated below:

Option	Setting
Baud Rate	38400 bps
Data Format	8 data bits, no parity bit, 1 stop bit



RS-232 Interface

Wand Emulation Plug & Play

Note: The Wand Emulation interfaces apply to the RealScan 7838.

In Wand Emulation mode, the imager decodes the bar code then sends data in the same format as a wand imager. The Code 39 Format converts all symbologies to Code 39.

The Same Code Format transmits UPC, EAN, Code 128 and Interleaved 2 of 5 without any changes, but converts all other symbologies to Code 39. 2D symbologies are converted to Code 128.

The Wand Emulation Plug & Play Code 39 Format bar code below sets the terminal ID to 61. The Wand Emulation Plug & Play Same Code Format bar code sets the terminal ID to 64. These Plug & Play bar codes also set the Transmission Rate to 25 inches per second, Output Polarity to black high, and Idle State to high. (If you want to change the terminal ID *only*, without changing any other imager settings, please refer to Wand Emulation Connection (see Chapter 2.)



Wand Emulation
Plug & Play
(Code 39 Format)



Wand Emulation
Plug & Play
Same Code

IBM 4683 Ports 5B, 9B, and 17 Interface

Note: This interface applies to the RealScan 7838.

Scan one of the following “Plug and Play” codes to program the RealScan 7838SR050 for IBM 4683 Port 5B, 9B, or 17.

Note: After scanning one of these codes, you must power cycle the cash register



IBM 4683 Port 5B Interface



IBM 4683 Port 17 Interface



IBM 4683 Port 9B
HHBCR1 Interface

Each bar code above also programs the following suffixes for each symbology:

Symbology	Suffix
EAN-8	0C
EAN-13	16
UPC-A	0D
UPC-E	0A
Code 39	00 0A 0B
Interleaved 2 of 5	00 0D 0B
Code 128	00 0A 0B



IBM 4683 Port 9B
HHBCR1 Interface

The IBM 4683 Port 9B HHBCR-2 Interface bar code also programs the following suffixes for each symbology:

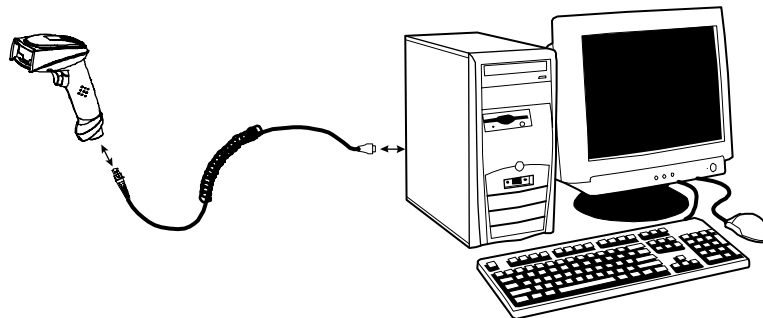
Symbology	Suffix
EAN-8	0C
EAN-13	16
UPC-A	0D
UPC-E	0A
Code 39	00 0A 0B
Interleaved 2 of 5	00 0D 0B
Code 128	00 18 0B

Connecting the Imager with USB

Note: This interface applies to the RealScan 7838.

A imager can be connected to the USB port of a computer.

1. Connect the appropriate interface cable to the imager and to the computer.



2. The imager beeps.
3. Verify the imager operation by scanning a bar code from the Sample Symbols in the back of this manual.

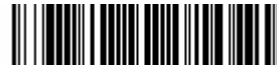
IBM SurePos

Scan one of the following “Plug and Play” codes to program the RealScan 7838 for IBM SurePos (USB Hand Held imager) or IBM SurePos (USB Tabletop imager).

Note: After scanning one of these codes, you must power cycle the cash register.



IBM SurePos
(USB Hand Held Imager)
Interface



IBM SurePos
(USB Tabletop Imager)
Interface

Each bar code above also programs the following suffixes for each symbology:

Symbology	Suffix
EAN-8	0C
EAN-13	16
UPC-A	0D
UPC-E	0A
Code 39	00 0A 0B
Interleaved 2 of 5	00 0D 0B
Code 128	00 18 0B

USB PC or Macintosh® Keyboard

Scan one of the following codes to program the RealScan 7838 for USB PC Keyboard or USB Macintosh Keyboard. Scanning these codes adds a CR and LF, along with selecting the terminal ID (USB PC Keyboard - 124, USB Macintosh Keyboard - 125).



USB Keyboard (PC)



USB Keyboard (Mac)

USB HID

Scan the following code to program the RealScan 7838 for USB HID bar code imagers. Scanning this code changes the terminal ID to 131.



USB HID Bar Code Imager

USB COM Port Emulation

Scan the following code to program the RealScan 7838 to emulate a regular RS-232-based COM port. If you are using a Microsoft® Windows® PC, you need to download a driver from the NCR website (www.NCR.com). The driver uses the next available COM port number. Apple® Macintosh computers recognize the imager as a USB CDC class device and automatically use a class driver. Scanning the code below changes the terminal ID to 130.



USB COM Port Emulation

Note: No extra configuration (e.g., baud rate) is necessary.

CTS/RTS Emulation



On



* Off

ACK/NAK Mode



On



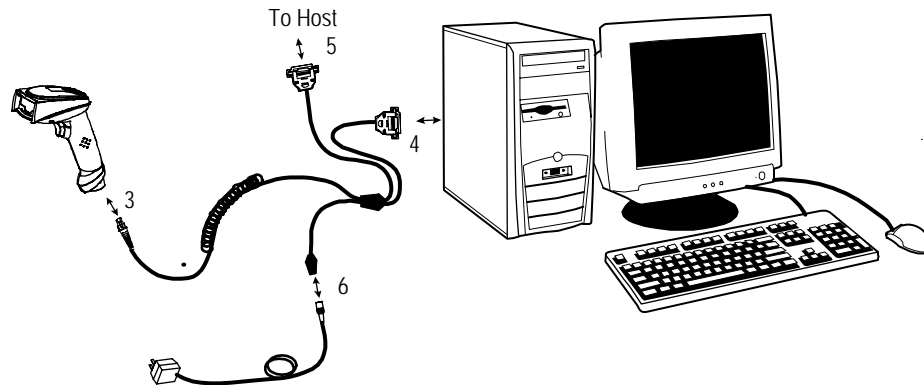
* Off

Connecting the Imager with Serial Wedge

The RealScan 7838 uses True and TTL signal levels to wedge into an RS-232 serial network. Use only RealScan 7838 serial wedge cables to prevent damage to the imager. Refer to Connectin the Imager with RS-232 Serial Port (see Chapter 2) to set the baud rate and communications protocol.

1. Turn off power to the computer.
2. Disconnect the existing serial cable from the computer.
3. Connect the appropriate interface cable to the imager.

Note: For the imager to work properly, you must have the correct cable for your type of computer.



4. Plug the serial connector into the serial port on your computer. Tighten the two screws to secure the connector to the port.
5. Plug the other serial connector into the host connection and tighten the two screws.
6. Plug the power pack cable into the receptor on the imager cable.
7. Plug the power pack into a power source.
8. Once the imager has been fully connected, power up the computer.

To set up the serial wedge terminal ID, use the serial terminal ID 050 and follow the instructions in Chapter 2. Set the port to which you want the scanned data to transmit. Port 1 corresponds to P1 on the output cable and Port 2 corresponds to P2 on the output cable. Choosing Both sends scanned data to P1 and P2. Default = P1.



*P1



Both P1 and P2



P2

Chapter 2: Terminal Interfaces

Terminal ID

If your interface is not a standard PC AT, refer to Supported Terminals, and locate the Terminal ID number for your PC. Scan the Terminal ID bar code below, then scan the numeric bar code(s) from the Programming Chart inside the back cover of this manual to program the imager for your terminal ID. Scan Save to save your selection.

For example, an IBM AT terminal has a Terminal ID of 003. You would scan the Terminal ID bar code, then 0, 0, 3 from the Programming Chart inside the back cover of this manual, then Save. If you make an error while scanning the digits (before scanning Save), scan the Discard code on the Programming Chart, scan the Terminal ID bar code, scan the digits, and the Save code again.



Terminal ID



Save

Note: After scanning one of these codes, you must power cycle your computer.

Supported Terminals

<u>Terminal</u>	<u>Model(s)</u>	<u>Terminal ID</u>
DDC	3496, 3497, 122 key	005
DDC	3496, 3497, 102 key	071
DEC	VT510, 520, 525 (PC style)	084
DEC	VT510, 520, 525 (DEC style LK411)	104
Esprit	200, 400	005
Heath Zenith	PC, AT	003
Heath Zenith		090
HP	Vectra	003
HP	Vectra	023
IBM	XT	001
IBM	PS/2 25, 30, 77DX2	002
IBM	AT, PS/2 30–286, 50, 55SX, 60, 70, 70–061, 70–121, 80	003 *
IBM 102 key	3151, 3161, 3162, 3163, 3191, 3192, 3194, 3196, 3197, 3471, 3472, 3476, 3477	006
IBM 122 key	3191, 3192, 3471, 3472	007
IBM 122 key	3196, 3197, 3476, 3477, 3486, 3482, 3488	008
IBM 122 key	3180	024
IBM 122 key	3180 data entry keyboard	114
IBM DOS/V 106 key	PC & Workstation	102
IBM SurePOS	USB Hand Held Imager	128***
IBM SurePOS	USB Tabletop Imager	129***
IBM Thinkpad	360 CSE, 340, 750	097
IBM Thinkpad		106
IBM Thinkpad	365, 755CV	003
I/O 122 key	2676D, 2677C, 2677D	008
ITT	9271	007
Lee Data	IIS	007
NEC	98XX Series	103
Olivetti	M19, M200	001
Olivetti	M240, M250, M290, M380, P500	003
RS-232 True		000**
RS-232 TTL		000
Serial Wedge		050
Silicon Graphics	Indy, Indigoll	005
Telex 88 key	078, 078A, 79, 80, 191, 196, 1191, 1192, 1471, 1472, 1476, 1477, 1483	025
Telex 88 key	Data Entry Keyboard	112

<u>Terminal</u>	<u>Model(s)</u>	<u>Terminal ID</u>
Telex 102 key	078, 078A, 79, 80, 191, 196, 1191,1192, 1471, 1472, 1476, 1477, 1483	045
Telex 122 key	078, 078A, 79, 80, 191, 196, 1191,1192, 1471, 1472, 1476, 1477, 1482, 1483	046
USB COM Port Emulation		130
USB PC Keyboard		124***
USB Mac Keyboard		125***
USB HID POS		131***
Wand Emulation (Code 39 Format)		061
Wand Emulation (Same Code Format)		064

* Default for RealScan 7838

Keyboard Country

Scan the appropriate country code below to program the keyboard for your country. As a general rule, the following characters are supported, but need special care for countries other than the United States:

@ | \$ # { } [] = / ' \ < > ~



* United States



Belgium



Brazil



Canada (French)



Czechoslovakia



Denmark



Finland (Sweden)



France



Germany/Austria



Greece



Hungary



Israel (Hebrew)



Italy



Latin America



Netherlands (Dutch)



Norway



Poland



Portugal



Romania



Russia



SCS



Slovakia



Spain



Sweden



Switzerland (German)



Turkey F



Turkey Q



U.K.

Keyboard Style

This programs keyboard styles, such as Caps Lock and Shift Lock. *Default = Regular.*

Regular is used when you normally have the Caps Lock key off.



* Regular

Caps Lock is used when you normally have the Caps Lock key on.



Caps Lock

Shift Lock is used when you normally have the Shift Lock key on (not common to U.S. keyboards).



Shift Lock

Automatic Caps Lock is used if you change the Caps Lock key on and off. The software tracks and reflects if you have Caps Lock on or off (AT and PS/2 only). This selection can only be used with systems that have an LED which notes the Caps Lock status.



Automatic Caps Lock

Autocaps via NumLock bar code should be scanned in countries (e.g., Germany, France) where the Caps Lock key cannot be used to toggle Caps Lock. The NumLock option works similarly to the regular Autocaps, but uses the NumLock key to retrieve the current state of the Caps Lock.



Autocaps via NumLock

Emulate External Keyboard should be scanned if you do not have an external keyboard (IBM AT or equivalent).



Emulate External Keyboard

Note: After scanning the Emulate External Keyboard bar code, you must power cycle your computer.

Keyboard Modifiers

This modifies special keyboard features, such as CTRL+ ASCII codes and Turbo Mode.

Control + ASCII Mode On

The imager sends key combinations for ASCII control characters for values 00-1F. Refer to Keyboard Function Relationships in Chapter 9 for CTRL+ ASCII Values. *Default = Off*



Control + ASCII Mode On



Control + ASCII Mode Off

Turbo Mode

The imager sends characters to a terminal faster. If the terminal drops characters, do not use Turbo Mode. *Default = Off*



Turbo Mode On



* Turbo Mode Off

Numeric Keypad Mode

Sends numeric characters as if entered from a numeric keypad. *Default = Off*



Numeric Keyboard Mode On



* Numeric Keyboard Mode Off

Automatic Direct Connect Mode

This selection can be used if you have an IBM AT style terminal and the system is dropping characters. *Default = Off*



Automatic Direct
Connect Mode On



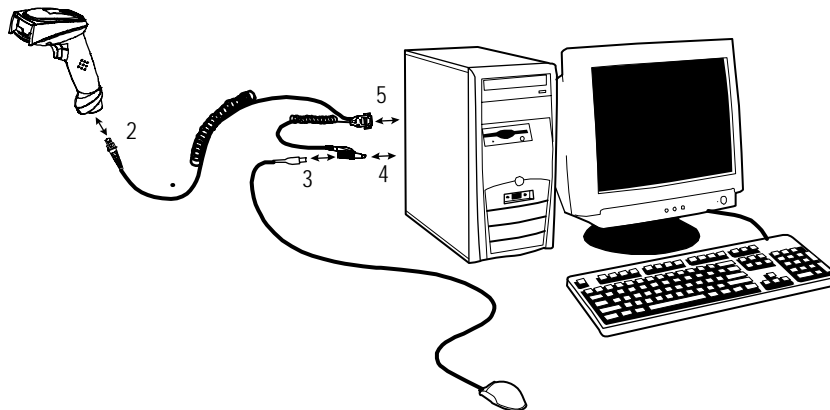
* Automatic Direct
Connect Mode On

Connecting the Imager with RS-232 Serial Port

Note: These instructions are for use with the RS-232 power stealer cable.

1. Turn off power to the terminal/computer.
2. Connect the appropriate interface cable to the imager.

Note: For the imager to work properly, you must have the correct cable for your type of terminal/computer.



3. Unplug the mouse or keyboard from the computer. Plug the mouse or keyboard into the power tap on the imager cable.
4. Plug the power tap into the mouse or keyboard port.
5. Plug the serial connector into the serial port on your computer. Tighten the two screws to secure the connector to the port.
6. Once the imager has been fully connected, power up the computer.

All communication parameters between the imager and terminal must match for correct data transfer through the serial port using RS-232 protocol. Scanning the RS-232 interface bar code, programs the imager for an RS-232 interface at 38,400 baud, parity–none, 8 data bits, 1 stop bit, and adds a suffix of a CR LF.



RS-232 Interface

RS-232 Baud Rate

Baud Rate sends the data from the imager to the terminal at the specified rate. The host terminal must be set for the same baud rate as the imager.

Default = 38,400.



300



600



1200



2400



4800



9600



19200



* 38,400



57,600



115,200

RS-232 Word Length: Data Bits, Stop Bits, and Parity

Data Bits sets the word length at 7 or 8 bits of data per character. If an application requires only ASCII hexadecimal characters 0 through 7F decimal (text, digits, and punctuation), select 7 data bits. For applications which require use of the full ASCII set, select 8 data bits per character. *Default = 8.*

Stop Bits sets the stop bits at 1 or 2. *Default = 1.*

Parity provides a means of checking character bit patterns for validity. *Default = None.*



7 Data, 1 Stop, Parity Even



7 Data, 1 Stop, Parity None



7 Data, 1 Stop, Parity Odd



7 Data, 2 Stop, Parity Even



7 Data, 2 Stop, Parity None



8 Data, 1 Stop, Parity Even



* 8 Data, 1 Stop, Parity None



8 Data, 1 Stop, Parity Odd

RS-232 Receiver Timeout

The unit stays awake to receive data until the RS-232 Receiver Timeout expires. A manual or serial trigger resets the timeout. When an RS-232 receiver is sleeping, a character may be sent to wake up the receiver and reset the timeout. A transaction on the CTS line also wakes up the receiver. The receiver takes 300 milliseconds to completely come up. Change the RS-232 receiver timeout by scanning the bar code below, then scanning digits from the inside back cover of this manual, then scanning Save. The range is 0 to 300 seconds. *Default = 0 seconds (no timeout - always on).*



RS-232 Receiver Timeout

RS-232 Handshaking

RS-232 handshaking is a set of rules concerning the exchange of data between serially communicating devices. Default = RTS/CTS, XON/XOFF and ACK/NAK OFF



RTS/CTS On



* RTS/CTS Off



* XON/XOFF Off



XON/XOFF On



* ACK/NAK Off



ACK/NAK On

Wand Emulation Connection

The Wand Emulation Connection bar codes should be used if you want to change the terminal ID *only*, without changing any other imager settings. We recommend using Wand Emulation Plug & Play bar codes to program your imager to emulate a wand reader. The Wand Emulation Plug & Play bar codes change other parameters, in addition to changing the terminal ID. Please refer to Wand Emulation Plug & Play for further information.

In Wand Emulation mode, the imager decodes the bar code then sends data in the same format as a wand imager. The Code 39 Format converts all symbologies to Code 39.

The Same Code Format transmits UPC, EAN, Code 128 and Interleaved 2 of 5 without any changes, but converts all other symbologies to Code 39. 2D symbologies are converted to Code 128.

The Code 39 Format bar code below sets the terminal ID to 61, and the Same Code Format bar code sets the terminal ID to 64. Default = Code 39 Format.



Code 39 Format



Same Code Format

Wand Emulation

Note: Changing primary wand emulation settings also changes the secondary wand emulation settings (see Secondary Code 39 Wand Emulation in Chapter 6).

Data Block Size

This transmits the data in smaller blocks to prevent buffer overflow. *Default = 60.*



20



* 60



40



80

Delay Between Blocks

This sets the delay time between data blocks. *Default = 50ms.*



5ms



150ms



* 50ms



500ms

Overall Checksum

When this option is turned on, a computed check character is added at the end of the entire message. The check character is the character which when Exclusive-OR'd with every preceding character of the message yields a result of 0x00 (00H). *Default = Off.*



On



* Off

Wand Emulation Transmission Rate

The Transmission Rate is limited by the terminal's ability to receive data without dropping characters. *Default = 25 inches/second.*



10



*25



40



80



120



150



200

Wand Emulation Polarity

The Polarity can be sent as standard with black bars high, or reversed with white bars high. *Default = Black High.*



* Black High



White High

Wand Emulation Idle

The idle describes the state of the imager when no data is being transmitted. When in Wand Emulation mode, you must set the imager's idle state to match the idle state for the device to which the imager is connected. *Default = Idle High.*



* Idle High



Idle Low

Chapter 3: Output

Good Read Indicators

Beeper – Good Read

The beeper may be programmed On or Off in response to a good read. Turning this option off, only turns off the beeper response to a good read indication. All error and menu beeps are still audible. Default = On.



* On



Off

Beeper Volume – Good Read

The beeper volume codes modify the volume of the beep the imager emits on a good read. Default = Medium for the RealScan 7838



Low



High



Medium



Off

Beeper Pitch – Good Read

The beeper pitch codes modify the pitch (frequency) of the beep the imager emits on a good read. Default = Medium.



Low (1600 Hz)



High (4200 Hz)



* Medium (3250 Hz)

Beeper Duration – Good Read

The beeper duration codes modify the length of the beep the imager emits on a good read. Default = Normal.



* Normal



Short Beep

LED – Good Read

The LED indicator can be programmed On or Off in response to a good read. Default = On.



* On



Off

Number of Beeps – Good Read

The number of beeps of a good read can be programmed from 1 - 9. The same number of beeps are applied to the beeper and LED in response to a good read. For example, if you program this option to have five beeps, there are five beeps and five LED flashes in response to a good read. The beeps and LED flashes are in sync with one another. To change the number of beeps, scan the bar code below and then scan a digit (1-9) bar code and the Save bar code on the Programming Chart inside the back cover of this manual. Default = One.



Number of Pulses

Delays

Re-read Delay

This sets the time period before the imager can read the *same* bar code a second time. Setting a reread delay protects against accidental rereads of the same bar code. Longer delays are effective in minimizing accidental rereads at POS (point of sale). Use shorter delays in applications where repetitive bar code scanning is required. *Default = Short.*

Reread Delay only works when in Presentation Mode.



Short (500 ms)



Long (1000 ms)



* Medium (750 ms)



Extra Long (2000 ms)

User-Specified Reread Delay

If you want to set your own length for the reread delay, scan the bar code below, then set the delay (from 0-30,000 milliseconds) by scanning digits from the inside back cover, then scanning Save.



User-Specified Reread Delay

Good Read Delay

This sets the minimum amount of time before the imager can read another bar code. *Default = No Delay.*



** No Delay*



Medium Delay (1000 ms)



Short Delay (500 ms)



Long Delay (1500 ms)

User-Specified Good Read Delay

If you want to set your own length for the good read delay, scan the bar code below, then set the delay (from 0-30,000 milliseconds) by scanning digits from the inside back cover, then scanning Save.



User-Specified Good Read Delay

Trigger Modes

Manual/Serial Trigger

You can activate the imager either by pressing the trigger, or using a serial trigger command (see Chapter 11). When in manual trigger mode, the imager scans until a bar code is read, or until the trigger is released.

When in serial mode, the imager scans until a bar code has been read or until the deactivate command is sent. In serial mode, the imager can also be set to turn itself off after a specified time has elapsed (see `Linksparatextefault ¶ Font`, which follows).



* Manual/Serial Trigger

Read Time Out

Use this selection to set a time out (in milliseconds) of the imager's trigger when using serial commands to trigger the imager, or if the imager is in manual trigger mode. Once the imager has timed out, you can activate the imager either by pressing the trigger or using a serial trigger command. After scanning the Read Time Out bar code, set the time out duration (from 0-300,000 milliseconds) by scanning digits from the inside back cover, then scanning Save. *Default = 0 (infinite, or no time out).*



Read Time Out

Manual Trigger, Low Power

The imager powers down until the trigger is pulled. When the trigger is pulled, the imager powers up and operates until there is no triggering for the time set with the Low Power Time Out bar code below. There is a delay of up to one second in operation when the imager is first triggered, but there is no delay when operating in low power time out mode.



Manual Trigger, Low Power

Note: Manual Trigger, Low Power cannot be used with keyboard wedge applications.

Low Power Time Out Timer

Scan the Low Power Time Out bar code to change the time out duration (in seconds). Then scan the time out duration (from 0-300 seconds) from the inside back cover, and Save. *Default = 120 seconds.*

If the unit remains idle during the low power time out interval, the unit goes into low power mode. Whenever the trigger is enabled, the low power time out timer is reset.



Low Power Time Out

Note: This time out does not begin until the imager time out setting has expired.

Scan Stand Mode

When a unit is in Scan Stand mode, it remains idle as long as it sees the Scan Stand symbol. (See Scan Stand Symbol that follows.) When a different code is presented, the Imager is triggered to read the new code.

Note: The imager automatically adjusts the illumination LEDs to the lowest light level possible to maintain a good lock on the Scan Stand symbol. When a symbol is presented, the imager's light levels adjust to the saved setting (see Chapter 3).



Scan Stand Mode

Scan Stand Symbol

Note: Scan Stand mode does not work when scanner is programmed for the HHLC interface.

When a unit is in Scan Stand mode, the LEDs shine at the Scan Stand symbol on the base of the stand which tells it to remain idle. When the Scan Stand symbol is covered, the imager turns the LEDs on at the configured power level (Default High) and attempts to find and decode bar codes in its field of view.



Scan Stand Symbol

Presentation Mode

Note: Presentation mode does not work when an imager is programmed for an HHLC interface.

This programs the imager to work in Presentation mode. The LEDs are either off or at the lowest power for ambient conditions until a bar code is presented to the imager. Then the LEDs turn on automatically to read the code. Presentation Mode uses ambient light to detect the bar codes. If the light level in the room is not high enough, Presentation Mode may not work properly.



Presentation Mode

Hands Free Time Out

The Scan Stand and Presentation Modes are referred to as “hands free” modes. If the imager’s trigger is pulled when using a hands free mode, the imager changes to manual trigger mode. You can set the time the imager should remain in manual trigger mode by setting the Hands Free Time Out. Once the time out value is reached, (if there have been no further trigger pulls) the imager reverts to the original hands free mode.

Scan the Hands Free Time Out bar code, then scan the time out duration (from 0-300,000 milliseconds) from the inside back cover, and Save. *Default = 5,000 ms.*



Hands Free Time Out

LED Power Level

This selection permits you to adjust LED and aimer brightness. *Off* is used when no illumination is needed. *Low* is used if low illumination is sufficient. *High* (the default) is the brightest setting.

If you have an aimer delay programmed, the aimer is at 100% power during the delay, regardless of the LED Power Level.

Note: If you scan the Off bar code, both the aimer and illumination lights turn off, making it impossible to scan bar codes in low light. To turn the LED Power Level back on, move to a brightly lit area and scan either the Low or the High bar code below.



Off



* High (100%)



Low (50%)

Illumination Lights

If you want the illumination lights on while reading a bar code, scan the **Lights On** bar code, below. However, if you want to turn just the lights off, scan the **Lights Off** bar code.

Note: This setting does not affect the aimer light. The aiming light can be set using Aim Mode.



* Lights On



Lights Off

Imager Time Out

Imager Time Out powers down the imager after the unit has been idle for the specified time. To prevent the imager from powering down, set this time out to 0. Scan the bar code below, then set the time out by scanning digits (from 0 - 999,999 ms) from the inside back cover, then scanning Save.



Imager Time Out

Aimer Delay

The aimer delay permits a delay time for the operator to aim the imager before the picture is taken. Use these codes to set the time between when the trigger is pulled and when the picture is taken. During the delay time, the aiming light appears, but the LEDs do not turn on until the delay time is over.



200 milliseconds



* Off (no delay)



400 milliseconds

Aimer Mode

This feature permits you to lower peak current during scanning by alternating the aimer and illumination LEDs. When the Interlaced bar code is scanned, the aimer and illumination LEDs are not permitted to be on at the same time. While this does limit peak current during scanning, the scanner performance may be slower. When the Concurrent bar code is scanned, the aimer and illumination LEDs are permitted to light at the same time. Select Off if you don't want to use either aimer mode.



Off



Interlaced

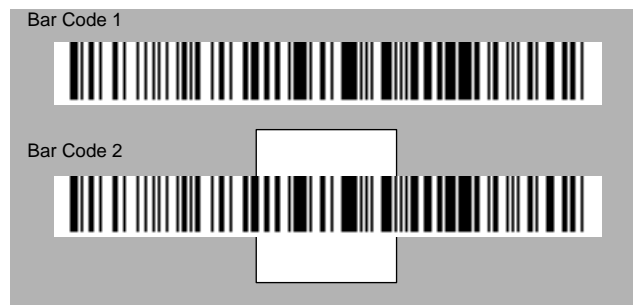


* Concurrent

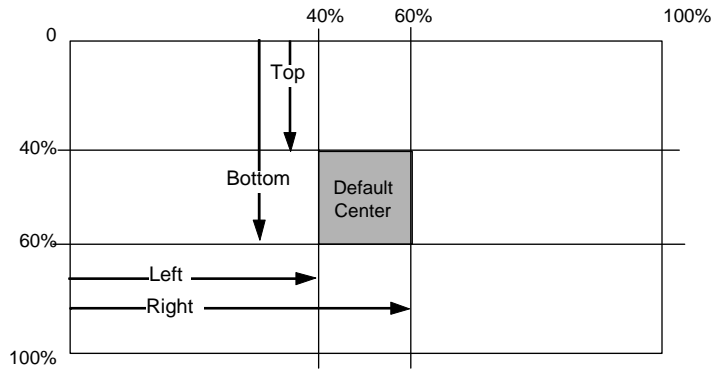
Centering

Use Centering to narrow the imager's field of view to make sure the imager reads only those bar codes intended by the user. For instance, if multiple codes are placed closely together, centering ensures that only the desired codes are read. (Centering can be used in conjunction with Aimer Delay, for the most error-free operation in applications where multiple codes are spaced closely together. Using the Aimer Delay and Centering features, the imager can emulate the operation of older systems, such as linear laser bar code imagers.)

In the example below, the gray area is the full imager field of view and the white area is the centering window. Bar Code 1 is not read, while Bar Code 2 is.



The default centering window is a 60 pixel square area in the center of the imager's field of view. The following diagram illustrates the default top, bottom, left, and right pixel positions, measured from the top and the left side of the imager's field of view, which is 640 by 480 pixels.



The centering window must intersect the center of the image. If a bar code is not within the predefined window, it is not decoded or output by the imager. If centering is turned on by scanning Centering On, the imager only reads codes that intersect the centering window you specify using the Top, Bottom, Left, or Right bar codes.

Scan Centering On, then scan one of the following bar codes to change the top, bottom, left, or right of the centering window. Then scan the percent you want to shift the centering window using digits on the inside back cover of this manual. Scan Save. *Default Centering = 40% for Top and Left, 60% for Bottom and Right.*



Centering On



** Centering Off*



Top of Centering Window



Bottom of Centering Window



Left of Centering Window



Right of Centering Window

Decode Search Mode

There are four selectable decode (scanning) modes:

Full Omnidirectional - Searches for bar code features beginning at the center of an image, and searches to the image's limits. This mode reads all symbologies (including OCR), in any orientation. The Full Omnidirectional search is very thorough which may slow performance time.

Note: This search mode is the default setting for the RealScan 7838.



Full Omnidirectional

Quick Omnidirectional - This is an abbreviated search for bar code features around the center region of an image. This mode quickly reads all symbologies in any orientation. The Quick Omnidirectional mode may miss some off-center symbols, as well as larger Data Matrix and QR Code symbols.



Quick Omnidirectional

Advanced Linear Decoding - Performs quick horizontal linear scans in a center band of the image. This mode is not omnidirectional, but does quickly read linear and stacked bar codes. Advanced Linear Decoding cannot read 2D, OCR, or Postal symbols.

Note: This search mode is the default setting for the RealScan 7838 point-and- shoot PDF imagers.



Advanced Linear Decoding

Output Sequence Overview

Require Output Sequence

When turned off, the bar code data is output to the host as the Imager decodes it.

When turned on, all output data must conform to an edited sequence or the Imager does not transmit the output data to the host device.

Note: This selection is unavailable when the Multiple Symbols Selection is turned on.

Output Sequence Editor

This programming selection permits you to program the Imager to output data (when scanning more than one symbol) in whatever order your application requires, regardless of the order in which the bar codes are scanned. Reading the *Default Sequence* symbol programs the Imager to the Universal values, shown below. These are the defaults. Be **certain** you want to delete or clear all formats before you read the *Default Sequence* symbol.

Note: To make Output Sequence Editor selections, you'll need to know the code I.D., code length, and character match(es) your application requires. Use the Alphanumeric symbols (inside back cover) to read these options.

To Add an Output Sequence

1. Scan the **Enter Sequence** symbol (see Multiple Symbols).
2. **Code I.D.**
On the Symbology Chart in Appendix A, find the symbology to which you want to apply the output sequence format. Locate the hexadecimal value for that symbology and scan the 2 digit hexadecimal value from the Programming Chart (inside back cover).
3. **Length**
Specify what length (up to 9999 characters) of data output is acceptable for this symbology. Scan the four digit data length from the Programming Chart. (Note: 50 characters is entered as 0050. 9999 is a universal number, indicating all lengths.)
4. **Character Match Sequences**
On the ASCII Conversion Chart in Appendix A, find the hexadecimal value that represents the character(s) you want to match. Use the Programming Chart to read the alphanumeric combination that represents the ASCII characters. (99 is the Universal number, indicating all characters.)

5. End Output Sequence Editor

Scan *FF* to enter an Output Sequence for an additional symbology, or *Save* to save your entries.

Other Programming Selections

- *Discard*

This exits without saving any Output Sequence changes.

Output Sequence Example

In this example, you are scanning Code 93, Code 128, and Code 39 bar codes, but you want the imager to output Code 39 1st, Code 128 2nd, and Code 93 3rd, as shown below.

Note: Code 93 must be enabled to use this example.



A - Code 39



B - Code 128



C - Code 93

You would set up the sequence editor with the following command line:

SEQBLK62999941FF6A999942FF69999943FF

The breakdown of the command line is shown below:

SEQBLK	sequence editor start command
62	code identifier for Code 39
9999	code length that must match for Code 39, 9999 = all lengths
41	start character match for Code 39, 41h = "A"
FF	termination string for first code
6A	code identifier for Code 128
9999	code length that must match for Code 128, 9999 = all lengths
42	start character match for Code 128, 42h = "B"
FF	termination string for second code
69	code identifier for Code 93
9999	code length that must match for Code 93, 9999 = all lengths
43	start character match for Code 93, 43h = "C"
FF	termination string for third code

Output Sequence Editor



Enter Sequence



Default Sequence

Require Output Sequence

When an output sequence is *Required*, all output data must conform to an edited sequence or the imager does not transmit the output data to the host device. When it's *On/Not Required*, the imager attempts to get the output data to conform to an edited sequence, but if it cannot, the imager transmits all output data to the host device as is.

When the output sequence is *Off*, the bar code data is output to the host as the imager decodes it.

Note: This selection is unavailable when the Multiple Symbols Selection is turned on.



Required



On/Not Required



Off

Multiple Symbols

Note: This feature does not work when the Imager is in Low Power mode.

When this programming selection is turned *On*, it permits you to read multiple symbols with a single pull of the Imager's trigger. If you press and hold the trigger, aiming the Imager at a series of symbols, it reads unique symbols once, beeping (if turned on) for each read. The imager attempts to find and decode new symbols as long as the trigger is pulled. When this programming selection is turned *Off*, the Imager only reads the symbol closest to the aiming beam.



On



* Off

No Read

With No Read turned *On*, the Imager notifies you if a code cannot be read. If using a Quick*View Scan Data Window, an "NR" appears when a code cannot be read. If No Read is turned *Off*, the "NR" does not appear.



On



* Off

If you want a different notation than "NR," for example, "Error," or "Bad Code," you can edit the output message using the Data Formatter (see Chapter 5). The hexadecimal code for the No Read symbol is 9C.

Print Weight

Print Weight is used to adjust the way the imager reads Matrix symbols. If an imager is seeing consistently heavily printed matrix symbols, then a print weight of 6 may improve the reading performance. For consistently light printing, a print weight of 2 may help. After scanning the Set Print Weight bar code, set the print weight (from 1-7) by scanning digits from the inside back cover, then scanning Save. *Default = 4.*



Set Print Weight



* Default

Video Reverse

Video Reverse is used to permit the imager to read bar codes that are inverted. The “Off” bar code below is an example of this type of bar code. If additional menuing is required, Video Reverse must be disabled to read the menu bar codes and then re-enabled after menuing is completed.

Note: Images downloaded from the unit are not reversed. This is a setting for decoding only.



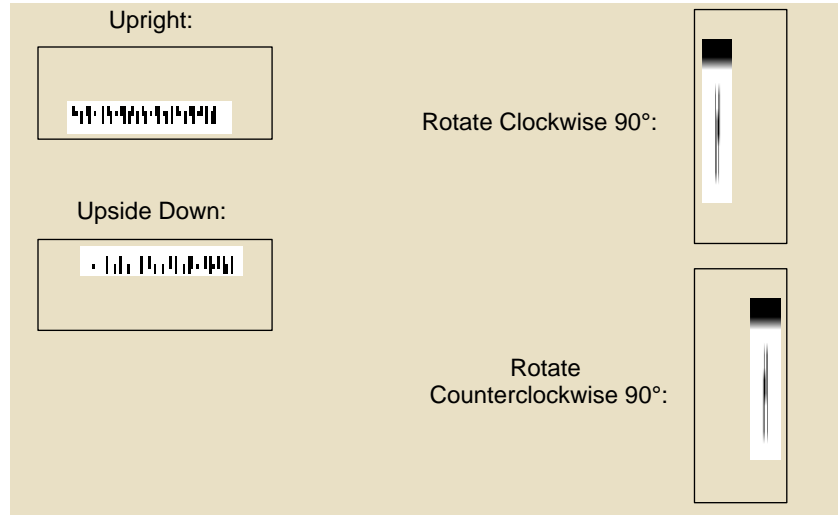
On



* Off

Working Orientation

Some bar codes are direction-sensitive. For example, KIX codes and OCR can misread when scanned sideways or upside down. Use the working orientation settings if your direction-sensitive codes are not usually presented upright to the scanner.



Default = Upright.



** Upright*



Upside Down



Rotate Clockwise 90°



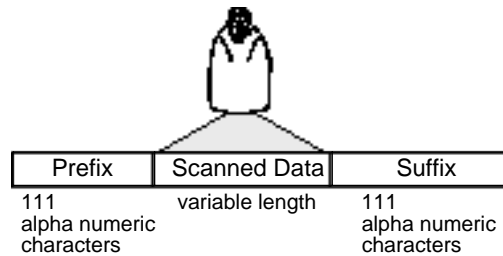
Rotate Counterclockwise 90°

Chapter 4: Data Editing

Prefix/Suffix Overview

When a bar code is scanned, additional information is sent to the host computer along with the bar code data. This group of bar code data and additional, user-defined data is called a “message string.” The selections in this section are used to build the user-defined data into the message string.

Prefix and Suffix characters are 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 illustration shows the breakdown of a message string:



Points to Keep In Mind

- It is not necessary to build a message string. The selections in this chapter are only used if you wish to alter the default settings. *Default prefix = None.* *Default suffix = None.*
- A prefix or suffix may be added or cleared from one symbology or all symbologies.
- You can add any prefix or suffix from the ASCII Conversion Chart in Appendix A, plus Code I.D. and AIM I.D.
- You can string together several entries for several symbologies at one time.
- Enter prefixes and suffixes in the order in which you want them to appear on the output.

To Add a Prefix or Suffix:

1. Scan the Add Prefix or Add Suffix symbol.
2. Determine the 2 digit hexadecimal value from the Symbology Chart (included in Appendix A) for the symbology to which you want to apply the prefix or suffix. For example, for Code 128, Code ID is “j” and hexadecimal ID is “6A”.
3. Scan the 2 hexadecimal digits from the Programming Chart inside the back cover of this manual or scan 9, 9 for all symbologies.
4. Determine the hexadecimal value from the ASCII Conversion Chart in Appendix A, for the prefix or suffix you wish to enter.
5. Scan the 2 digit hexadecimal value from the Programming Chart inside the back cover of this manual.
6. Repeat Steps 4 and 5 for every prefix or suffix character.
7. To add the Code I.D., scan 5, C, 8, 0.
To add AIM I.D., scan 5, C, 8, 1.
To add a backslash (\), scan 5, C, 5, C.

Note: To add a backslash (\) as in Step 7, you must scan 5C twice – once to create the leading backslash and then to create the backslash itself.

8. Scan Save to exit and save, or scan Discard to exit without saving.

Repeat Steps 1-6 to add a prefix or suffix for another symbology.

Example: Add a Suffix to a specific symbology

To send a CR (carriage return) Suffix for UPC only:

1. Scan Add Suffix.
2. Determine the 2 digit hexadecimal value from the Symbology Chart (included in Appendix A) for UPC.
3. Scan 6, 3 from the Programming Chart inside the back cover of this manual.
4. Determine the hexadecimal value from the ASCII Conversion Chart in Appendix A, for the CR (carriage return).
5. Scan 0, D from the Programming Chart inside the back cover of this manual.
6. Scan Save, or scan Discard to exit without saving.

To Clear One or All Prefixes or Suffixes:

You can clear a single prefix or suffix, or clear all prefixes/suffixes for a symbology. When you Clear One Prefix (Suffix), the specific character you select is deleted from the symbology you want. When you Clear All Prefixes (Suffixes), all the prefixes or suffixes for a symbology are deleted.

1. Scan the Clear One Prefix or Clear One Suffix symbol.
2. Determine the 2 digit hexadecimal value from the Symbology Chart (included in Appendix A) for the symbology from which you want to clear the prefix or suffix.
3. Scan the 2 digit hexadecimal value from the Programming Chart inside the back cover of this manual or scan 9, 9 for all symbologies.

Your change is automatically saved.

To Add a Carriage Return Suffix to all Symbologies

Scan the following bar code if you wish to add a carriage return suffix to all symbologies at once. This action first clears all current suffixes, then programs a carriage return suffix for all symbologies.



Add CR Suffix
All Symbologies

Prefix Selections



Add Prefix



Clear One Prefix



Clear All Prefixes

Suffix Selections



Add Suffix



Clear All Suffixes



Clear One Suffix

Function Code Transmit

When this selection is enabled and function codes are contained within the scanned data, the imager transmits the function code to the terminal. Charts of these function codes are provided in Supported Interface Keys (see Chapter 9). When the imager is in keyboard wedge mode, the scan code is converted to a key code before it is transmitted.



* Enable



Disable

Default = Enable.

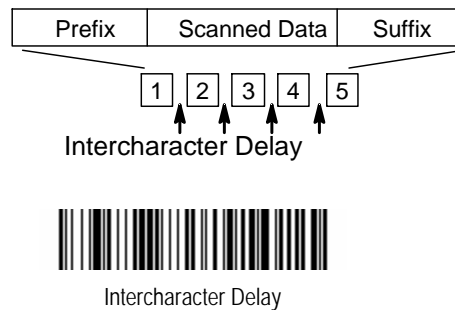
Intercharacter, Interfunction, and Intermesssage Delays

Some terminals drop information (characters) if data comes through too quickly. Intercharacter, interfunction, and intermessage delays slow the transmission of data, increasing data integrity.

Each delay is composed of a 5 millisecond step. You can program up to 99 steps (of 5 ms each) for a range of 0-495 ms.

Intercharacter Delay

An intercharacter delay of up to 495 milliseconds may be placed between the transmission of each character of scanned data. Scan the **Intercharacter Delay** bar code below, then scan the number of milliseconds and the **SAVE** bar code using the Programming Chart inside the back cover of this manual.



To remove this delay, scan the **Intercharacter Delay** bar code, then set the number of steps to 0. Scan the **SAVE** bar code using the Programming Chart inside the back cover of this manual.

User Specified Intercharacter Delay

An intercharacter delay of up to 495 milliseconds may be placed after the transmission of a particular character of scanned data. Scan the **Delay Length** bar code below, then scan the number of milliseconds and the **SAVE** bar code using the Programming Chart inside the back cover of this manual.

Next, scan the **Character to Trigger Delay** bar code, then the 2-digit hexadecimal value for the ASCII character that triggers the delay ASCII Conversion Chart in Appendix A.



Delay Length

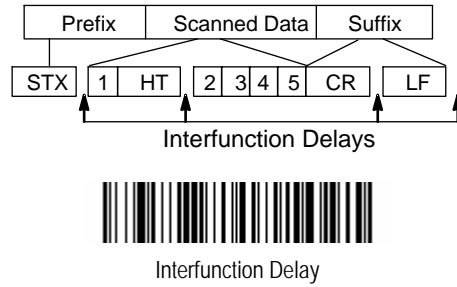


Character to Trigger Delay

To remove this delay, scan the **Delay Length** bar code, and set the number of steps to 0. Scan the **SAVE** bar code using the Programming Chart inside the back cover of this manual.

Interfunction Delay

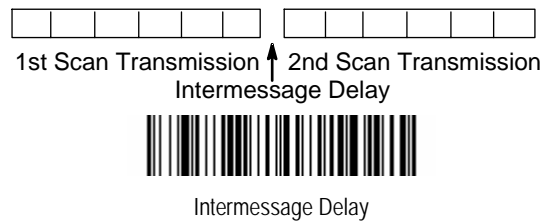
An interfunction delay of up to 495 milliseconds may be placed between the transmission of each segment of the message string. Scan the **Interfunction Delay** bar code below, then scan the number of milliseconds and the **SAVE** bar code using the Programming Chart inside the back cover of this manual.



To remove this delay, scan the **Interfunction Delay** bar code, then set the number of steps to 0. Scan the **SAVE** bar code using the Programming Chart inside the back cover of this manual.

Intermessage Delay

An intermessage delay of up to 495 milliseconds may be placed between each scan transmission. Scan the **Intermessage Delay** bar code below, then scan the number of milliseconds and the **SAVE** bar code using the Programming Chart inside the back cover of this manual.



To remove this delay, scan the **Intermessage Delay** bar code, then set the number of steps to 0. Scan the **SAVE** bar code using the Programming Chart inside the back cover of this manual.

Chapter 5: Data Formatting

Data Format Editor Introduction

You may use the Data Format Editor to change the imager's output. For example, you can use the Data Format Editor to insert characters at certain points in bar code data as it is scanned. The selections in the following pages are used only if you wish to alter the output. Default Data Format setting = None.

Normally, when you scan a bar code, it gets outputted automatically; however when you do a format, you must use a "send" command (see Send Commands) within the format program to output data.

Multiple formats may be programmed into the imager. They are stacked in the order in which they are entered. However, the following list presents the order in which formats are applied:

1. Specific Term ID, Actual Code ID, Actual Length
2. Specific Term ID, Actual Code ID, Universal Length
3. Specific Term ID, Universal Code ID, Actual Length
4. Specific Term ID, Universal Code ID, Universal Length
5. Universal Term ID, Actual Code ID, Actual Length
6. Universal Term ID, Actual Code ID, Universal Length
7. Universal Term ID, Universal Code ID, Actual Length
8. Universal Term ID, Universal Code ID, Universal Length

If you have changed data format settings, and wish to clear all formats and return to the factory defaults, scan the **Default Data Format** code.

To Add a Data Format

1. **Scan the Enter Data Format symbol.**
2. **Primary/Alternate Format**

Determine if this is your primary data format, or one of 3 alternate formats. (Alternate formats permit you “single shot” capability to scan one bar code using a different data format. After the one bar code has been read, the imager reverts to the primary data format.) If you are programming the primary format, scan **0** using the Programming Chart inside the back cover of this manual. If you are programming an alternate format, scan **1, 2, or 3**, depending on the alternate format you are programming.
3. **Terminal Type**

Refer to Supported Terminals in Chapter 2 and locate the Terminal ID number for your PC. Scan three numeric bar codes on the inside back cover to program the imager for your terminal ID (you must enter 3 digits). For example, scan **0 0 3** for an AT wedge.

Note: The wildcard for all terminal types is 099.
4. **Code I.D.**

In Appendix A, find the symbology to which you want to apply the data format. Locate the Hex value for that symbology and scan the 2 digit hex value from the Programming Chart inside the back cover of this manual.
5. **Length**

Specify what length (up to 9999 characters) of data is acceptable for this symbology. Scan the four digit data length from the Programming Chart inside the back cover of this manual. (Note: 50 characters is entered as 0050. 9999 is a universal number, indicating all lengths.)
6. **Editor Commands**

Refer to Data Format Editor Commands. Scan the symbols that represent the command you want to enter. 94 alphanumeric characters may be entered for each symbology data format.
7. **Scan Save** from the Programming Chart inside the back cover of this manual to save your entries.

Other Programming Selections

- **Clear One Data Format**
This deletes one data format for one symbology. If you are clearing the primary format, scan **0** from the Programming Chart inside the back cover of this manual. If you are clearing an alternate format, scan **1, 2, or 3**, depending on the alternate format you are clearing. Scan the Terminal Type and Code I.D. (see Supported Terminals in Chapter 2), and the bar code data length for the specific data format that you want to delete. All other formats remain unaffected.
- **Save** from the Programming Chart inside the back cover of this manual. This exits, saving any Data Format changes.
- **Discard** from the Programming Chart inside the back cover of this manual. This exits without saving any Data Format changes.

Data Format Editor Commands

Send Commands

- F1 Send all characters followed by "xx" key or function code, starting from current cursor position. **Syntax = F1xx** (xx stands for the hex value for an ASCII code, see ASCII Conversion Chart in Appendix A.)
- F2 Send "nn" characters followed by "xx" key or function code, starting from current cursor position. **Syntax = F2nnxx** (nn stands for the numeric value (00-99) for the number of characters and xx stands for the hex value for an ASCII code. See ASCII Conversion Chart in Appendix A.)
- F3 Send up to but not including "ss" character (Search and Send) starting from current cursor position, leaving cursor pointing to "ss" character followed by "xx" key or function code. **Syntax = F3ssxx** (ss and xx both stand for the hexadecimal values for ASCII codes, see ASCII Conversion Chart in Appendix A.)
- F4 Send "xx" character "nn" times (Insert) leaving cursor in current cursor position. **Syntax = F4xxnn** (xx stands for the hexadecimal value for an ASCII code, see ASCII Conversion Chart in Appendix A, and nn is the numeric value (00-99) for the number of times it should be sent.)
- E9 Send all but the last "nn" characters, starting from the current cursor position. **Syntax = E9nn** (nn is the numeric value (00-99) for the number of characters that are not sent at the end of the message.)

Move Commands

- F5 Move the cursor ahead "nn" characters from current cursor position. **Syntax = F5nn** (nn stands for the numeric value (00-99) for the number of characters the cursor should be moved ahead.)
- F6 Move the cursor back "nn" characters from current cursor position. **Syntax = F6nn** (nn stands for the numeric value (00-99) for the number of characters the cursor should be moved back.)
- F7 Move the cursor to the beginning of the data string. **Syntax = F7.**
- EA Move the cursor to the end of the data string. **Syntax = EA**

Search Commands

- F8 Search ahead for “xx” character from current cursor position, leaving cursor pointing to “xx” character. **Syntax = F8xx** (xx stands for the hexadecimal value for an ASCII code, see ASCII Conversion Chart in Appendix A.)
- F9 Search back for “xx” character from current cursor position, leaving cursor pointing to “xx” character. **Syntax = F9xx** (xx stands for the hexadecimal value for an ASCII code, see ASCII Conversion Chart in Appendix A.)
- E6 Search ahead for the first non “xx” character from the current cursor position, leaving cursor pointing to non “xx” character. **Syntax = E6xx** (xx stands for the hexadecimal value for an ASCII code, see ASCII Conversion Chart in Appendix A.)
- E7 Search back for the first non “xx” character from the current cursor position, leaving cursor pointing to non “xx” character. **Syntax = E7xx** (xx stands for the hexadecimal value for an ASCII code, see ASCII Conversion Chart in Appendix A.)

Miscellaneous Commands

- FB Suppress all occurrences of up to 15 different characters, starting at the current cursor position, as the cursor is advanced by other commands. When the FC command is encountered, the suppress function is terminated. The cursor is not moved by the FB command. **Syntax = FBnnxxyy . .zz** where nn is a count of the number of suppressed characters in the list and xxyy . . zz is the list of characters to be suppressed. (xx stands for the hexadecimal value for an ASCII code, see ASCII Conversion Chart in Appendix A.)
- FC Disables suppress filter and clear all suppressed characters. **Syntax = FC.**
- E4 Replaces up to 15 characters in the data string with user specified characters. Replacement continues until the E5 command is encountered. **Syntax = E4nnxx₁xx₂yy₁yy₂...zz₁zz₂** where nn is the total count of both characters to be replaced plus replacement characters; xx₁ defines characters to be replaced and xx₂ defines replacement characters, continuing through zz₁ and zz₂.
- E5 Terminates character replacement. **Syntax = E5.**
- FE Compare character in current cursor position to the character “xx.” If characters are equal, increment cursor. If characters are not equal, no format match. **Syntax = FExx** (xx stands for the hexadecimal value for an ASCII code, see ASCII Conversion Chart in Appendix A.)
- EC Check to make sure there is an ASCII number at the current cursor position. If character is not numeric, format is aborted. **Syntax = EC.**
- ED Check to make sure there is a non-numeric ASCII character at the current cursor position. If character is numeric, format is aborted. **Syntax = ED.**

Data Format Editor



Enter Data Format



* Default Data Format



Clear One Data Format



Clear All Data Formats



Save



Discard

Data Formatter

When Data Formatter is turned off, the bar code data is output to the host as read (including prefixes and suffixes). Choose one of the following options. *Default = Data Formatter On, but Not Required.*



Data Formatter On,
but Not Required



Data Formatter Off

When Data Formatter is required, all input data must conform to an edited format or the imager does not transmit the input data to the host device.



Data Format On, Format Required

Alternate Data Formats

Alternate formats permit you “single shot” capability to scan one bar code using a different data format than your primary format. When data formats are programmed, you must input whether you are programming the primary format, or an alternate format numbered 1, 2, or 3.

An alternate format is initiated by scanning one of the 3 alternate format bar codes below. The imager scans the next bar code, formatting the data with the selected alternate format, then revert immediately to the primary format.



Alternate Data Format 1



Alternate Data Format 3



Alternate Data Format 2

Chapter 6: Secondary Interface

By switching secondary interface cables, the RealScan 7838 imager can, for example, communicate with a portable data terminal (secondary interface) in addition to the host terminal (primary interface). This applies to all RealScan 7838 focal distances and decoding options.

Models	Primary	Secondary
7838	TTL Level 232	Lower Power HHLC
7838	True RS-232, True RS-232 serial wedge	True RS-232
7838	Keyboard wedge, TTL level 232, TTL level 232 serial wedge, IBM 4683, wand emulation, USB keyboard, USB HID, USB retail (IBM SurePOS)	Wand Emulation, TTL level 232

The secondary interface can be programmed at any time.

You can temporarily disable the secondary interface, but still retain the secondary interface settings in the imager’s memory by scanning the Disable bar code below. To re-enable the secondary interface, scan the Enable bar code. Default =Disable.



* Disable



Enable

Secondary RS-232 Connection

All communication parameters between the imager and terminal must match for correct data transfer through the serial port using RS-232 protocol.

RS-232 programmable selections are used by both the primary and secondary interfaces. Changing an RS-232 parameter (e.g., baud rate or parity), while in primary or secondary mode affects both interfaces. If you want to change the RS-232 settings, refer to Connecting the Imager with RD-232 Serial Port in Chapter 2.



RS-232 Interface

Secondary Code 39 Wand Emulation

In Wand Emulation mode, the imager decodes the bar code then sends data in the same format as a wand imager. The Code 39 Format converts all symbologies to Code 39. The Same Code Format transmits UPC, EAN, Code 128 and Interleaved 2 of 5 without any changes, but converts all other symbologies to Code 39. These codes set the transmission rate to 25 inches per second and the output polarity to black, high. Default = Code 39 Format.



Wand Emulation
Same Code Format



* Wand Emulation
Code 39 Format

Wand/Laser Emulation Multi Block

Note: Changing secondary wand emulation settings also changes the primary wand emulation settings (see Wand Emulation in Chapter 2).

Delay Between Blocks

This sets the delay time between data blocks. Default = 50ms.



5 ms



*50 ms



150 ms



500 ms

Overall Checksum

When this option is turned on, a computed check character is added at the end of the entire message. The check character is the character which when Exclusive-OR'd with every preceding character of the message yields a result of 0x00 (00H). Default = Off.



On



* Off

Wand Emulation Transmission Rate

The Transmission Rate is limited by the terminal's ability to receive data without dropping characters. Default = 25 inches/second.



10



* 25



40



80



120



150



200

Wand Emulation Polarity

The Polarity can be sent as standard with black bars high, or reversed with white bars high. Default = Black High.



* Black High



White High

Wand Emulation Idle

The idle describes the state of the imager when no data is being transmitted. When in Wand Emulation mode, you must set the imager's idle state to match the idle state for the device to which the imager is connected. Default = Idle High.



* Idle High



Idle Low

Data Block Size

This transmits the data in smaller blocks to prevent buffer overflow. Default = 60.



20



40



* 60



80

Secondary Laser Emulation

Use this selection when connecting to a secondary terminal with integral decoding. This also sets the transmission rate to 36 scans per second, the polarity to white high, and deletes all prefixes and suffixes.



Laser Emulation
Same Code Output

When you scan the Code 39 Output bar code, the scanner decodes and re-encodes the data and sends the data to the host as Code 39.



Laser Emulation
Code 39 Output

Laser Emulation Transmission Rate

The Transmission Rate is limited by the terminal's ability to receive data without dropping characters. Default = 36 scans/second.



* 36



100

Laser Emulation Polarity

The Polarity can be sent as standard with white bars high, or reversed with black bars high. Default = White High.



* White High



Black High

Laser Emulation Idle

The idle describes the state of the imager when no data is being transmitted. You must set the imager's idle state to match the idle state for the device to which the imager is connected. Default = Idle High.



Idle Low



* Idle High

Secondary Trigger Mode

Manual/Serial Trigger

You can activate the imager either by pressing the trigger, or using a serial trigger command (see Trigger Commands in Chapter 11). When in manual trigger mode, the imager scans until a bar code is read, or until the trigger is released.

When in serial mode, the imager scans until a bar code has been read or until the deactivate command is sent. In serial mode, the imager can also be set to turn itself off after a specified time has elapsed (see Read Time Out, which follows).



Manual/Serial Trigger

Read Time Out

Use this selection to set a time out (in milliseconds) of the imager's trigger when using serial commands to trigger the imager, or if the imager is in manual trigger mode. Once the imager has timed out, you can activate the imager either by pressing the trigger or using a serial trigger command. After scanning the Read Time Out bar code, set the time out duration (from 0-300,000 milliseconds) by scanning digits from the inside back cover, then scanning Save. Default = 0 (infinite, or no time out).



Read Time Out

Note: Programming Read Time Out in the secondary interface also programs it in the primary interface.

Manual Trigger, Low Power

The imager powers down until the trigger is pulled. When the trigger is pulled, the imager powers up and operates until there is no triggering for the time set with the Low Power Time Out bar code below. There is a delay of up to one second in operation when the imager is first triggered, but there is no delay when operating in low power time out mode.



Manual Trigger, Low Power

Note: Manual Trigger, Low Power cannot be used with keyboard wedge applications.

Low Power Time Out Timer

Scan the Low Power Time Out bar code to change the time out duration (in seconds). Then scan the time out duration (from 0-300 seconds) from the inside back cover, and Save. Default = 120 seconds.

If the unit remains idle during the low power time out interval, the unit goes into low power mode. Whenever the trigger is enabled, the low power time out timer is reset.



Low Power Time Out Timer

Note: This time out does not begin until the imager time out setting has expired.

Note: Programming Low Power Time Out in the secondary interface also programs it in the primary interface.

Scan Stand Mode

When a unit is in Scan Stand mode, it remains idle as long as it sees the Scan Stand symbol. (See Scan Stand Symbol that follows.) When a different code is presented, the Imager is triggered to read the new code.

Note: Note: The imager automatically adjusts the illumination LEDs to the lowest light level possible to maintain a good lock on the Scan Stand symbol. When a symbol is presented, the imager's light levels adjust to the saved setting (see LED Power Level in Chapter 3).



Scan Stand Mode

Scan Stand Symbol

Note: Scan Stand mode does not work when scanner is programmed for the HHLC interface.

When a unit is in Scan Stand mode, the LEDs shine at the Scan Stand symbol on the base of the stand which tells it to remain idle. When the Scan Stand symbol is covered, the imager turns the LEDs on at the configured power level (Default High) and attempts to find and decode bar codes in its field of view.



Scan Stand Symbol

Presentation Mode

This programs the imager to work in Presentation mode. The LEDs are either off or at the lowest power for ambient conditions until a bar code is presented to the imager. Then the LEDs turn on automatically to read the code. Presentation Mode uses ambient light to detect the bar codes. If the light level in the room is not high enough, Presentation Mode may not work properly.



Presentation Mode

Chapter 7: Symbologies

This programming section contains the following menu selections. Refer to Chapter 11 for settings and defaults.

- All Symbologies
- Codabar
- Code 39
- Interleaved 2 of 5
- Code 93
- Code 2 of 5
- IATA Code 2 of 5
- Matrix 2 of 5
- Code 11
- Code 128
- Telepen
- UPC A
- UPC-A/EAN-13 with Extended Coupon Code
- EAN/JAN 13
- EAN/JAN 8
- MSI
- Plessey Code
- RSS-14
- RSS Limited
- RSS Expanded
- PosiCode A and B
- Codablock F
- Code 16K
- Code 49
- PDF417
- MicroPDF417
- EAN•UCC Composite Codes
- TCIF Linked Code 39 (TLC39)
- Postnet
- Planet Code
- British Post
- Canadian Post
- Kix (Netherlands) Post
- Australian Post
- Japanese Post
- China Post
- Korea Post
- QR Code
- Data Matrix
- MaxiCode
- Aztec Code
- Code 16K
- Test Menu

All Symbologies

If you want to decode all the symbologies permitted for your imager, scan the All Symbologies On code. If on the other hand, you want to decode only a particular symbology, scan All Symbologies Off followed by the On symbol for that particular symbology.



All Symbologies On



All Symbologies Off

Message Length Description

You are able to set the valid reading length of some of the bar code symbologies. If the data length of the scanned bar code doesn't match the valid reading length, the imager issues an error beep. You may wish to set the same value for minimum and maximum length to force the imager to read fixed length bar code data. This helps reduce the chances of a misread.

EXAMPLE: Decode only those bar codes with a count of 9-20 characters.

Min. length = 09

Max. length = 20

EXAMPLE: Decode only those bar codes with a count of 15 characters.

Min. length = 15

Max. length = 15

For a value other than the minimum and maximum message length defaults, scan the bar codes included in the explanation of the symbology, then scan the digit value of the message length and Save bar codes on the Programming Chart inside the back cover of this manual. The minimum and maximum lengths and the defaults are included with the respective symbologies.

Codabar



<Default All Codabar Settings>

Codabar



*On



Off

Codabar Start/Stop Characters

Start/Stop characters identify the leading and trailing ends of the bar code. You may either transmit, or not transmit Start/Stop characters.

Default = Don't Transmit.



Transmit



* Don't Transmit

Codabar Check Character

Codabar check characters are created using different “modulos.” You can program the imager to read only Codabar bar codes with Modulo 16 check characters. *Default = No Check Character.*

No Check Character indicates that the imager reads and transmits bar code data with or without a check character.

When Check Character is set to Validate and Transmit, the imager only reads Codabar bar codes printed with a check character, and transmits this character at the end of the scanned data.

When Check Character is set to Validate, but Don't Transmit, the unit only reads Codabar bar codes printed *with* a check character, but does not transmit the check character with the scanned data.

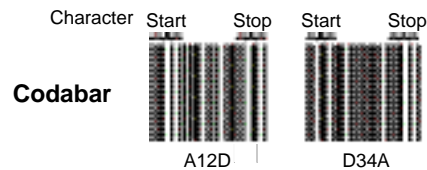


No Check Character

Validate Modulo 16
and TransmitValidate Modulo 16 but
Don't Transmit

Codabar Concatenation

Codabar supports symbol concatenation. When you enable concatenation, the imager looks for a Codabar symbol having a “D” start character, adjacent to a symbol having a “D” stop character. In this case the two messages are concatenated into one with the “D” characters omitted. *Default = On.*



Select Require to prevent the imager from decoding a single “D” Codabar symbol without its companion. This selection has no effect on Codabar symbols without Stop/Start D characters.



* On



Off



Require

Codabar Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 2-60. Minimum Default = 4, Maximum Default = 60.



Minimum Message Length



Maximum Message Length

Code 39



< Default All Code 39 Settings >

Code 39



* On



Off

Code 39 Start/Stop Characters

Start/Stop characters identify the leading and trailing ends of the bar code. You may either transmit, or not transmit Start/Stop characters. *Default = Don't Transmit.*



Transmit



* Don't Transmit

Code 39 Check Character

No Check Character indicates that the imager reads and transmits bar code data with or without a check character.

When Check Character is set to Validate, but Don't Transmit, the unit only reads Code 39 bar codes printed with a check character, but does not transmit the check character with the scanned data.

When Check Character is set to Validate and Transmit, the imager only reads Code 39 bar codes printed with a check character, and transmits this character at the end of the scanned data. *Default = No Check Character.*



No Check Character



Validate and Transmit



Validate, but Don't Transmit

Code 39 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 0-48. Minimum Default = 0, Maximum Default = 48.



Minimum Message Length



Maximum Message Length

Code 39 Append

This function permits the imager to append the data from several Code 39 bar codes together before transmitting them to the host computer. When this function is enabled, the imager stores those Code 39 bar codes that start with a space (excluding the start and stop symbols), and does not immediately transmit the data. The imager stores the data in the order in which the bar codes are read, deleting the first space from each. The imager transmits the appended data when it reads a Code 39 bar code that starts with a character other than a space. *Default = Off.*



On



* Off

Code 32 Pharmaceutical (PARAF)

Code 32 Pharmaceutical is a form of the Code 39 symbology used by Italian pharmacies. This symbology is also known as PARAF.

Note: Trioptic Code must be turned off while scanning Code 32 Pharmaceutical codes.



On



* Off

Full ASCII

If Full ASCII Code 39 decoding is enabled, certain character pairs within the bar code symbol are interpreted as a single character. For example: \$V is decoded as the ASCII character SYN, and /C is decoded as the ASCII character #. *Default = Off.*

NUL %U	DLE \$P	SP	0	0	@	%V	P	P	'	%W	p	+P	
SPACE													
SOH \$A	DC1 \$Q	!	/A	1	1	A	A	Q	Q	a	+A	q	+Q
STX \$B	DC2 \$R	"	/B	2	2	B	B	R	R	b	+B	r	+R
ETX \$C	DC3 \$S	#	/C	3	3	C	C	S	S	c	+C	s	+S
EOT \$D	DC4 \$T	\$	/D	4	4	D	D	T	T	d	+D	t	+T
ENQ \$E	NAK \$U	%	/E	5	5	E	E	U	U	e	+E	u	+U
ACK \$F	SYN \$V	&	/F	6	6	F	F	V	V	f	+F	v	+V
BEL \$G	ETB \$W	'	/G	7	7	G	G	W	W	g	+G	w	+W
BS \$H	CAN \$X	(	/H	8	8	H	H	X	X	h	+H	x	+X
HT \$I	EM \$Y	)	/I	9	9	I	I	Y	Y	i	+I	y	+Y
LF \$J	SUB \$Z	*	/J	:	/Z	J	J	Z	Z	j	+J	z	+Z
VT \$K	ESC %A	+	/K	;	%F	K	K	[	%K	k	+K	{	%P
FF \$L	FS %B	,	/L	<	%G	L	L	\	%L	l	+L	|	%Q
CR \$M	GS %C	-	-	=	%H	M	M	]	%M	m	+M	}	%R
SO \$N	RS %D	.	.	>	%I	N	N	^	%N	n	+N	~	%S
SI \$O	US %E	/	/O	?	%J	O	O	_	%O	o	+O	DEL	%T

Character pairs /M and /N deode as a minus sign and period respectively.
Character pairs /P through /Y decode as 0 through 9.



Full ASCII On



* Full ASCII Off

Code 39 Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see Code Page Mapping of Printed Bar Codes in Appendix A, and scan the value and the Save bar code from the Programming Chart on the inside the back cover of this manual. The data characters should then appear properly.



Code 39 Code Page

Interleaved 2 of 5



< Default All Interleaved 2 of 5 Settings >

Interleaved 2 of 5



On



*Off

Check Digit

No Check Digit indicates that the imager reads and transmits bar code data with or without a check digit.

When Check Digit is set to Validate, but Don't Transmit, the unit only reads Interleaved 2 of 5 bar codes printed with a check digit, but does not transmit the check digit with the scanned data.

When Check Digit is set to Validate and Transmit, the imager only reads Interleaved 2 of 5 bar codes printed with a check digit, and transmits this digit at the end of the scanned data. *Default = No Check Digit.*



* No Check Digit



Validate and Transmit



Validate, but Don't Transmit

Interleaved 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 80.



Minimum Message Length



Maximum Message Length

Code 93



< Default All Code 93 Settings >

Code 93



* On



Off

Code 93 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 0-80. Minimum Default = 0, Maximum Default = 80.



Minimum Message Length



Maximum Message Length

Code 93 Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see Code Page Mapping of Printed Bar Codes in Appendix A, and scan the value and the Save bar code from the Programming Chart on the inside the back cover of this manual. The data characters should then appear properly.



Code 93 Code Page

Code 2 of 5



<Default All Code 2 of 5 Settings>

Code 2 of 5



On



* Off

Code 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-48. Minimum Default = 4, Maximum Default = 48.



Minimum Message Length



Maximum Message Length

IATA Code 2 of 5



<Default All Code IATA 2 of 5 Settings>

IATA Code 2 of 5



On



* Off

IATA Code 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-48. Minimum Default = 4, Maximum Default = 48.



Minimum Message Length



Maximum Message Length

Matrix 2 of 5



<Default All Matrix 2 of 5 Settings>

Matrix 2 of 5



On



* Off

Matrix 2 of 5 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-80. Minimum Default = 4, Maximum Default = 80.



Minimum Message Length



Maximum Message Length

Code 11



<Default All Code 11 Settings>

Code 11



On



* Off

Check Digits Required

This option sets whether 1 or 2 check digits are required with Code 11 bar codes.
Default = Two Check Digits



One Check Digit



* Two Check Digits.

Code 11 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-80.
Minimum Default = 4, Maximum Default = 80.



Minimum Message Length



Maximum Message Length

Code 128



<Default All Code 128 Settings>

Code 128



* On



Off

ISBT 128 Concatenation

In 1994 the International Society of Blood Transfusion (ISBT) ratified a standard for communicating critical blood information in a uniform manner. The use of ISBT formats requires a paid license. The ISBT 128 Application Specification describes 1) the critical data elements for labeling blood products, 2) the current recommendation to use Code 128 due to its high degree of security and its space-efficient design, 3) a variation of Code 128 that supports concatenation of neighboring symbols, and 4) the standard layout for bar codes on a blood product label. Use the bar codes below to turn concatenation on or off. *Default =Off.*



On



* Off

Code 128 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 0-80. Minimum Default = 0, Maximum Default = 80.



Minimum Message Length



Maximum Message Length

Code 128 Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, scan the bar code below, select the code page with which the bar codes were created (see Code Page Mapping of Printed Bar Codes in Appendix A, and scan the value and the Save bar code from the Programming Chart on the inside the back cover of this manual. The data characters should then appear properly.



Code 128 Code Page

Telepen



<Default All Telepen Settings>

Telepen



On



* Off

Telepen Output

Using AIM Telepen Output, the imager reads symbols with start/stop pattern 1 and decodes them as standard full ASCII (start/stop pattern 1). When Original Telepen Output is selected, the imager reads symbols with start/stop pattern 1 and decodes them as compressed numeric with optional full ASCII (start/stop pattern 2). *Default = AIM Telepen Output.*



* AIM Telepen Output



Original Telepen Output

Telepen Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-60. Minimum Default = 1, Maximum Default = 60.



Minimum Message Length



Maximum Message Length

UPC-A



<Default All UPC-A Settings>

UPC-A



* On



Off

UPC-A Check Digit

This selection permits you to specify whether the check digit should be transmitted at the end of the scanned data or not. *Default = On.*



* On



Off

UPC-A Number System

The numeric system digit of a U.P.C. symbol is normally transmitted at the beginning of the scanned data, but the unit can be programmed so it does not transmit it. *Default = On.*



* On



Off

UPC-A Addenda

This selection adds 2 or 5 digits to the end of all scanned UPC-A data. *Default = Off for both 2 Digit and 5 Digit Addenda.*



2 Digit Addenda On



* 2 Digit Addenda Off



5 Digit Addenda On



5 Digit Addenda Off

UPC-A Addenda Required

When Required is scanned, the imager only reads UPC-A bar codes that have addenda. You must then turn on a 2 or 5 digit addenda listed on. *Default = Not Required.*



Required



* Not Required

UPC-A Addenda Separator

When this feature is on, there is a space between the data from the bar code and the data from the addenda. When turned off, there is no space. *Default = On.*



* On



Off

UPC-A/EAN-13 with Extended Coupon Code

Use the following codes to enable or disable UPC-A **and** EAN-13 with Extended Coupon Code. *Default = On.*



* On



Off

UPC-E0



<Default All UPC-E Settings>

UPC-E0

Most U.P.C. bar codes lead with the 0 number system. For these codes, use the UPC-E0 selection. If you need to read codes that lead with the 1 number system, use Linksparatextefault ¶ Font(page -26). *Default = On.*



*UPC-E0 On



UPC-E0 Off

UPC-E0 Expand

UPC-E Expand expands the UPC-E code to the 12 digit, UPC-A format. *Default = Off.*



On



* Off

UPC-E0 Addenda Required

When Addenda Required is set to on, the imager only reads UPC-E bar codes that have addenda. *Default = Not Required.*



Required



* Not Required

UPC-E0 Addenda Separator

When this feature is on, there is a space between the data from the bar code and the data from the addenda. When turned off, there is no space.

Default = On.



* On



Off

UPC-E0 Check Digit

Check Digit specifies whether the check digit should be transmitted at the end of the scanned data or not. *Default = On.*



* On



Off

UPC-E0 Number System

The numeric system digit of a U.P.C. symbol is normally transmitted at the beginning of the scanned data, but the unit can be programmed so it does not transmit it. *Default = On.*



* On



Off

UPC-E0 Addenda

This selection adds 2 or 5 digits to the end of all scanned UPC-E data.
Default = Off for both 2 Digit and 5 Digit Addenda.



2 Digit Addenda On



5 Digit Addenda On



* 2 Digit Addenda Off



* 5 Digit Addenda Off

UPC-E1

Most U.P.C. bar codes lead with the 0 number system. For these codes, use Linksparatextefault ¶ Font(page -23). If you need to read codes that lead with the 1 number system, use the UPC-E1 selection. *Default = Off.*



UPC-E1



UPC-E1

EAN/JAN-13



<Default All EAN/JAN Settings>

EAN/JAN-13



* On



Off

EAN/JAN-13 Check Digit

This selection permits you to specify whether the check digit should be transmitted at the end of the scanned data or not. *Default = On.*



* On



Off

EAN/JAN-13 Addenda

This selection adds 2 or 5 digits to the end of all scanned EAN/JAN-13 data.
Default = Off for both 2 Digit and 5 Digit Addenda.



2 Digit Addenda On



* 2 Digit Addenda Off



5 Digit Addenda On



* 5 Digit Addenda Off

EAN/JAN-13 Addenda Required

When Addenda Required is set to on, the imager only reads EAN/JAN-13 bar codes that have addenda. *Default = Not Required.*



Required



* Not Required

EAN/JAN-13 Addenda Separator

When this feature is on, there is a space between the data from the bar code and the data from the addenda. When turned off, there is no space.
Default = On.



* On



Off

Note: If you want to enable or disable EAN13 with Extended Coupon Code, refer to UPC-A/EAN-13 with Extended Coupon Code.

ISBN Translate

This selection causes EAN-13 Bookland symbols to be translated into their equivalent ISBN number format. *Default = Off.*



On



* Off

EAN/JAN-8



<Default All EAN/JAN-8 Settings>

EAN/JAN-8



* On



Off

EAN/JAN-8 Check Digit

This selection permits you to specify whether the check digit should be transmitted at the end of the scanned data or not. *Default = On.*



* On



Off

EAN/JAN-8 Addenda

This selection adds 2 or 5 digits to the end of all scanned EAN/JAN-8 data.
Default = Off for both 2 Digit and 5 Digit Addenda.



2 Digit Addenda On



* 2 Digit Addenda Off



5 Digit Addenda On



* 5 Digit Addenda Off

EAN/JAN-8 Addenda Required

When Addenda Required is set to on, the imager only reads EAN/JAN-8 bar codes that have addenda. *Default = Not Required.*



Required



* Not Required

EAN/JAN-8 Addenda Separator

When this feature is on, there is a space between the data from the bar code and the data from the addenda. When turned off, there is no space.
Default = On.



* On



Off

MSI



<Default All MSI Settings>

MSI



On



* Off

MSI Check Character

Different types of check characters are used with MSI bar codes. You can program the imager to read MSI bar codes with Type 10 check characters. *Default = Validate Type 10, but Don't Transmit.*

When Check Character is set to Validate and Transmit, the imager only reads MSI bar codes printed with the specified type check character, and transmits this character at the end of the scanned data.

When Check Character is set to Validate, but Don't Transmit, the unit only reads MSI bar codes printed with the specified type check character, but does not transmit the check character with the scanned data.



* Validate Type 10, but Don't
Transmit



Validate Type 10 and Transmit

MSI Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 4-48.
Minimum Default = 4, Maximum Default = 48.



Minimum Message Length



Maximum Message Length

Plessey Code



<Default All Plessey Code Settings>

Plessey Code



On



* Off

Plessey Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 4-48. Minimum Default = 4, Maximum Default = 48.



Minimum Message Length



Maximum Message Length

RSS-14



< Default All RSS-14 Settings >

RSS-14



* On



Off

RSS Limited



< Default All RSS Limited Settings >

RSS Limited



* On



Off

RSS Expanded



< Default All RSS Expanded Settings >

RSS Expanded



* On



Off

RSS Expanded Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 0-80. Minimum Default = 4, Maximum Default = 74.



Minimum Message Length



Maximum Message Length

PosiCode



<Default All PosiCode Settings>



* On



Off

PosiCode A and B

You have to have PosiCode A and B on to read any of the PosiCode symbologies.



A and B On
(No Limited)



A and B and Limited B On
(Limited A Off)



A and B and Limited A On
(Limited B Off)

PosiCode Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 48.



Minimum Message Length



Maximum Message Length

Trioptic Code

Note: If you are going to scan Code 32 Pharmaceutical codes, Trioptic Code must be off.

Trioptic Code is used for labeling magnetic storage media.



On



* Off

Codablock F



<Default All Codablock F Settings>

Codablock F



On



* Off

Codablock F Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-2048. Minimum Default = 1, Maximum Default = 2048.



Minimum Message Length



Maximum Message Length

Code 16K



<Default All Code 16K Settings>

Code 16K



On



* Off

Code 16K Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 0-160. Minimum Default = 1, Maximum Default = 160.



Minimum Message Length



Maximum Message Length

Code 49



<Default All Code 49 Settings>

Code 49



* On



Off

Code 49 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-81. Minimum Default = 1, Maximum Default = 81.



Minimum Message Length



Maximum Message Length

PDF417



< Default All PDF417 Settings >

PDF417



* On



Off

PDF417 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-2750. Minimum Default = 1, Maximum Default = 2750.



Minimum Message Length



Maximum Message Length

MicroPDF417



< Default All MicroPDF417 Settings >

MicroPDF417



* On



Off

MicroPDF417 Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-366. Minimum Default = 1, Maximum Default = 366.



Minimum Message Length



Maximum Message Length

EAN•UCC Composite Codes

Linear codes are combined with a unique 2D composite component to form a new class called EAN•UCC Composite symbology. EAN•UCC Composite symbologies permit for the co-existence of symbologies already in use.



On



* Off

UPC/EAN Version

Scan the UPC/EAN Version On bar code to decode EAN•UCC Composite symbols that have a UPC or EAN linear component. (This does not affect EAN•UCC Composite symbols with a UCC/EAN-128 or RSS linear component.)



UPC/EAN Version On



* UPC/EAN Version Off

EAN•UCC Composite Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-2435. Minimum Default = 1, Maximum Default = 2435.



Minimum Message Length



Maximum Message Length

EAN.UCC Emulation

The imager can automatically format the output from any EAN•UCC data carrier to emulate what would be encoded in an equivalent UCC/EAN-128 or RSS and Composite symbol. EAN•UCC data carriers include UPC-A and UPC-E, EAN-13 and EAN-8, ITF-14, UCC/EAN-128, and EAN•UCC RSS and Composites. Data from 2D symbols such as Aztec Code, Data Matrix, or QR Code, which encode a leading FNC1, also invoke EAN•UCC emulation. If UCC/EAN-128 Emulation is selected, the AIM Symbology Identifier is reported as “]C1”. If RSS Emulation is selected, the AIM Symbology Identifier is reported as “]e0.” Any application that accepts EAN•UCC data can be simplified since it only needs to recognize one data carrier type. Default = No Emulation.



RSS Emulation



EAN UCC Emulation Off



128 Emulation

TCIF Linked Code 39 (TLC39)

This code is a composite code since it has a Code 39 linear component and a MicroPDF417 stacked code component. All bar code readers are capable of reading the Code 39 linear component. The MicroPDF417 component can only be decoded if TLC39 On is selected. The linear component may be decoded as Code 39 even if TLC39 is off.



On



*Off

Postal Codes

Note: For best performance when reading a postal symbology, all other postal symbologies should be turned off. The following postal codes can only be read by a 2D Imager.

Postnet



On



*Off

Planet Code



On



*Off

British Post



On



*Off

Canadian Post



On



*Off

Kix (Netherlands) Post

Note: Kix code can misread when scanned sideways or upside down. Use Working Orientation in Chapter 3, if your Kix codes are not usually presented upright to the scanner.



On



*Off

Australian Post

On



*Off

Japanese Post

On



*Off

China Post



<Default All China Post Settings>

China Post



On



*Off

China Post Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 0-80. Minimum Default = 4, Maximum Default = 80.



Minimum Message Length



Maximum Message Length

Korea Post



<Default All Korea Post Settings>

Korea Post



On



* Off

Korea Post Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 2-80. Minimum Default = 4, Maximum Default = 48.



Minimum Message Length



Maximum Message Length

QR Code

Note: QR Code can only be read by a RealPrice 7838 2D imager.



< Default All QR Code Settings >

QR Code



On



* Off

QR Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-3500. Minimum Default = 1, Maximum Default = 3500



Minimum Message Length



Maximum Message Length

Data Matrix

Note: Data Matrix can only be read by a RealPrice 7838 2D imager.



< Default All Data Matrix Settings >

Data Matrix



*On



Off

Data Matrix Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-1500. Minimum Default = 1, Maximum Default = 1500



Minimum Message Length



Maximum Message Length

MaxiCode

Note: MaxiCode can only be read by a RealPrice 7838 2D imager.



< Default All MaxiCode Settings >

MaxiCode



On



* Off

MaxiCode Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-150. Minimum Default = 1, Maximum Default = 150.



Minimum Message Length



Maximum Message Length

Aztec Code

Note: Aztec Code can only be read by a RealPrice 7838 2D imager.



< Default All Aztec Code Settings >

Aztec Code



On



Off

Aztec Code Message Length

Scan the bar codes below to change the message length. Refer to Message Length Description for additional information. Minimum and Maximum lengths = 1-3750. Minimum Default = 1, Maximum Default = 3750.



Minimum Message Length



Maximum Message Length

Aztec Runes

Select Enable Runes if you are scanning Aztec runes, which are the smallest type of Aztec Code symbol with the ability to encode a very short license plate message.



Enable Runes



* Disable Runes

OCR

Default All OCR Settings turns off all OCR capability in the imager, so the imager is able to scan linear, stacked, matrix, and composite bar codes, but not OCR fonts. In addition, any OCR templates you have created are erased. The 8 digit default templates are reinstated for any future use of the OCR On codes listed below.



< Default All OCR Settings >

OCR

Note: OCR symbols can misread when scanned sideways or upside down. Use Working Orientation in Chapter 3, if your OCR symbols are not usually presented upright to the scanner.

Only one OCR symbology can be read at a time.

OCR-A On permits you to scan characters in the OCR-A font. The default setting permits you to scan any 8 digit combination. If you have created an OCR template, character combinations that fit the template can be scanned (see Creating an OCR Template).



OCR-A On

OCR-B On permits you to scan characters in the OCR-B font. The default setting permits you to scan any 8 digit combination. If you have created an OCR template, character combinations that fit the template can be scanned (see Creating an OCR Template).



OCR-B On

U.S. Currency

U.S. Currency On permits you to scan characters in the font used on U.S. currency. The default setting permits you to scan any 8 digit combination. If you have created an OCR template, character combinations that fit the template can be scanned (see Creating an OCR Template).



U.S. Currency On

MICR E13 B

MICR E13 B On permits you to scan MICR characters on a bank check. The default setting permits you to scan any 8 digit combination. If you have created an OCR template, character combinations that fit the template can be scanned (see Creating an OCR Template).



MICR E13 B On

SEMI Font

SEMI Font On permits you to scan the SEMI font used in the semiconductor industry.



SEMI Font On

All OCR Off turns off all OCR capability in the imager, so the imager is able to scan linear, stacked, matrix, and composite bar codes, but not OCR fonts. However, any OCR templates you have created are retained in memory.



* All OCR Off

Creating OCR Templates

You can create a custom “template,” or character string that defines the length and content of OCR strings that are read with your imager. There are several choices when creating a custom template for your application. You can create a template for a single format, you can string together several formats, and you can create a template for a user-defined variable. These choices are described in detail below.

Creating an OCR Template

A single template permits you to program the imager to read any combination of characters in the order you specify. Refer to examples that follow the Template Characters table below.

Template Characters

a	represents any alphanumeric character (digit or letter)
c	represents a check character position
d	represents any digit
e	represents any available OCR character
g	represents character from user-defined variable “g”
h	represents character from user-defined variable “h”
l	represents any uppercase letter
t	marks the start of a new template
r	multi row indicator
All other characters represent themselves. Spaces can be used.	

To Add an OCR Template

1. *Begin building the template.*
Scan the Enter OCR Template symbol.
2. Scan the characters for the string.
Use the Template Characters chart above to determine what characters you need to create your format. Use the OCR Programming Chart (after the Sample Codes in the back of this manual) to scan the characters for your template.

Example A: You need to read any combination of 8 digits. The template would be:

ddddddd

To create this template, you would scan the Enter OCR Template symbol, then scan the d from the OCR Programming Chart after the Sample Codes in the back of this manual 8 times. Scan Save OCR Template. This would let you read any string of 8 digits, for example:


37680981

3. Character Match Sequences

On the ASCII Conversion Chart in Appendix A, find the hexadecimal value that represents the character(s) you want to match. Use the Programming Chart (inside the back cover) to scan the numbers that represent these characters.

Example B: You need to read 3 digits, 3 specific characters (ABC), 3 digits. The template would be:

ddd414243ddd


 hex codes for
 letters A, B, and C

To create this template, you would scan the Enter OCR Template symbol, scan the d from the Sample Symbols 3 times, scan 414243 from the inside back cover (the hexadecimal characters for "A," "B," and "C"), then scan the d from the inside back cover 3 more times. Scan Save OCR Template. This would let you read any string of 3 digits, "ABC," then any string of 3 digits, for example:


551ABC983

4. Adding Spaces

You may also need to put spaces in your template.

Example C: You need to read 3 digits, space, 3 specific characters (ABC), space, 3 digits. The template would be:

ddd2041424320ddd


 hex code for a space

To create this template, you would scan the Enter OCR Template symbol, scan the d from the OCR Programming Chart after the Sample Codes in the back of this manual 3 times, scan 2041424320 from the Programming Chart inside back cover (the hexadecimal characters for "space," "A," "B," "C," "space"), then scan the d from the inside back cover 3 more times. Scan Save OCR Template. This would let you read any string of 3 digits, space, "ABC," space, then any string of 3 digits, for example:

551 ABC 983

Note: If using Quick*View to program, use the space bar to designate a space and not the hexadecimal value of 20.

5. Exit OCR Template Editor

Scan Save OCR Template to save your entries. Discard OCR Template exits without saving any OCR Template changes.

Stringing Together Multiple Formats

You may want to program the imager to accept many OCR formats. To do this, you would string together each format with a "t." This tells the imager to read optical characters that match any one of the formats in the template.

Example D: You need to read any combination of 8 digits, or a combination of 4 digits, 2 uppercase letters, and 2 digits. The template would be:

```
dddddddtdddlldd
```

To create this template, you would scan the Enter OCR Template symbol, scan the d from the OCR Programming Chart after the Sample Codes in the back of this manual 8 times, then scan the t to create the "or" statement. Then you would scan the characters for the 2nd template. Scan the d 4 times, scan l 2 times, then scan d 2 more times. Scan Save OCR Template. This would let you read either type of format, for example:

```
99028650
      or
9902XZ50
```

You can string together as many templates as you need.

Creating a User-Defined Variable

You can create up to two of your own user variables for an OCR template. These variables represent any OCR readable characters. The user-defined variables are stored under the letters "g" and "h." Creating a user variable follows the same steps as creating a template, but instead of scanning the Enter OCR Template symbol, you scan the Enter User-Defined Variable symbol. The letters g and h can then be used in an OCR template to define the variable you specified.

Example E: You need a variable to represent the letters "A," "B," or "C." The template for this variable would be:

```
414243
```

To create this template, you would scan the Enter User-Defined Variable g symbol. Scan 414243 from the inside back cover (the hexadecimal characters for "A," "B," and "C"). Scan Save OCR Template. This permits you to read either A or B or C in any position where you place the g. For example, you could create the following template:

```
ddddddggg
```

This template would then let you read data that began with 6 digits, and had an A, B, or C trailing. So you would be able to read:

654321ABC

or

654321BAC

or

654321CCC

Reading Multi-Row OCR

The RealScan 7838 is capable of decoding multi-row OCR text. Consider the following example. This example shows serial commands as would be entered using Quick*View.

Example G: You need to read multiple rows of OCR data as shown below:

12345678

ABCDEFGHIH

To read the first row of OCR data, you would menu the following template:

OCRTEMP"ddddddd".

This template is the default OCR template. If you wanted to read the second line of data, you would use the following template:

OCRTEMP"IIIIII".

To read both lines of OCR at one time, use the variable r to indicate the start of a new row. All of the other templating variables for the individual rows work the same as previously described. For instance, in the above example, you would use the following template to read both rows:

OCRTEMP"dddddddrIIIIII".

To read the three rows below, you would use the template command "OCRTEMP"dddddddrIIIIIIrIIIIddd".

12345678

ABCDEFGHIH

ABCD1234

Adding an OCR Check Character

You may want to print and verify a check character in order to enhance the security of your OCR application. The RealScan 7838 can be programmed for almost any type of check character. A number of presets are provided for common check character uses (e.g., modulo 10 and modulo 36).

Scan the OCR Modulo 10 or OCR Modulo 36 Check Character bar code to specify the type of check character used in the OCR strings you're scanning. The imager then only reads OCR character strings with a valid check character. The RealScan 7838 transmits the OCR data without the check character data. You must specify the location of the check character in the template with a c.

Example F: You need to read any combination of 7 digits, with a modulo 10 check character in the 8th position. The template would be:

dddddddc

To create this template, you would scan the Modulo 10 Check Character symbol. Then scan the Enter OCR Template symbol, scan the d from the inside back cover 7 times, and scan the c once. Scan Save OCR Template. This template permits you to read any combination of 6 digits with a correct check character after. (If the check character is invalid, the imager issues an error beep.) For example, the following string could be scanned:

01234569

and the output would be: 0123456

OCR Modulo 10 Check Character

Scan this symbol to program the OCR template for a simple modulo 10 checksum of the digits 0 through 9.



OCR Modulo 10 Check Character

OCR Modulo 36 Check Character

Scan this symbol to program the OCR template for a simple modulo 36 checksum of the digits 0 through 9 and the letters A through Z.



OCR Modulo 36 Check Character

OCR Template Codes

Note: Reading more than three rows of OCR is not recommended. Contact the factory if you have an application that requires reading 4 or more rows of OCR.



Enter OCR Template †



Enter User-Defined
Variable "g"†



Enter User-Defined
Variable "h"†

† One or more two-digit numbers and Save are required after reading this programming symbol. Refer to the Programming Chart on the inside the back cover of this manual.

Exit Selections



Save OCR Template



Discard OCR Template

Chapter 9: Visual Menu

Introduction

Visual Menu provides the ability to configure a scanning device by connecting the scanner to the com port of a PC. Visual Menu permits you to download upgrades to a scanner's firmware, change programmed parameters, and create and print programming bar codes. Using Visual Menu, you can even set up the configuration for a scanner which is not attached to your PC. This enables one expert user to establish the configuration settings for all the devices your company uses, then save these configuration files for others. A configuration file can be e-mailed or, if you prefer, an expert user can create a bar code (or series of bar codes) which contains all the customized programming parameters, and mail or fax the bar code(s) to any location. Users in other locations can scan the bar code(s) to load in the customized parameters.

- To communicate with a scanner, Visual Menu requires that the PC have at least one available serial communication port and an RS-232 cable to connect the port to the device. A power supply, which plugs into the cable, is also required.

Visual Menu Operations

The Visual Menu program performs the following operations:

- Displays all configuration data, and saves the information to a file on your PC.
- Configures the device to meet your specific requirements. Visual Menu has all the programming parameters which are available via programming bar codes in this User's Guide.
- Creates and prints a clone bar code which contains the program and configuration data from one device. This bar code can then be used to program additional devices with the same parameters.
- Selects a device from a list, then performs offline or online file configuration for that device.

Temporary Visual Menu Configuration

For quick download communication configuration, scan the **Visual Menu** bar code to temporarily configure the scanner for Visual Menu settings.



Visual Menu

1. Access the HHP web site at www.hhp.com.
2. Click in the **Quick Search** text box and enter **Visual Menu**.
3. Click on **Search Now**.
4. Click on the entry for Visual Menu.
5. When prompted, select **Save File**, and save the files to the **c:\windows\temp** directory.
6. Once you have finished downloading the file, exit the web site.
7. Using Explorer, go to the **c:\windows\temp** file.
8. Double click on the **Visualmenu.exe** file. Follow the screen prompts to install the Visual Menu program.
9. To start Visual Menu, from the Start Menu click on **Programs, Visual Menu, Visual Menu**.

Note: If you wish, you can create a shortcut to the Visual Menu executable on your desktop.

Upgrading USB Firmware

After you use Visual Menu to upgrade your scanner's firmware, you need to scan the following bar code to upgrade the USB firmware. You must have the USB interface selected. The upgrade takes about 10 seconds, during which a busy tone is generated.



Upgrade EZUSB Firmware

Chapter 10: Interface Keys

Keyboard Function Relationships

The following Keyboard Function Code, hexadecimal/ASCII Value, and Full ASCII “CTRL”+ relationships apply to all terminals that can be used with the imager. Refer to Chapter 2 enable Control + ASCII mode.

Function Code	HEX/ASCII Value	Full ASCII “CTRL” +
NUL	00	2
SOH	01	A
STX	02	B
ETX	03	C
EOT	04	D
ENQ	05	E
ACK	06	F
BEL	07	G
BS	08	H
HT	09	I
LF	0A	J
VT	0B	K
FF	0C	L
CR	0D	M
SO	0E	N
SI	0F	O
DLE	10	P
DC1	11	Q
DC2	12	R
DC3	13	S
DC4	14	T
NAK	15	U
SYN	16	V
ETB	17	W
CAN	18	X

Function Code	HEX/ASCII Value	Full ASCII "CTRL" +
EM	19	Y
SUB	1A	Z
ESC	1B	[
FS	1C	\
GS	1D]
RS	1E	6
US	1F	-

The last five characters in the Full ASCII "CTRL"+ column ([\] 6 -), apply to US only. The following chart indicates the equivalents of these five characters for different countries.

Country	Caution: Codes				
United States	[	\	\]	6	-
Belgium	[	<	]	6	-
Scandinavia	8	<	9	6	-
France	^	8	\$	6	=
Germany		Ã	+	6	-
Italy		\	+	6	-
Switzerland		<	..	6	-
United Kingdom	[	ø	]	6	-
Denmark	8	\	9	6	-
Norway	8	\	9	6	-
Spain	[	\	\]	6	-

Supported Interface Keys

ASCII	HEX	IBM AT/XT and PS/2 Compatibles, WYSE PC/AT Support Keys	IBM XTs and Compatibles Support Keys	IBM, DDC, Memorex, Telex, Harris* Support Keyd
NUL	00	Reserved	Reserved	Reserved
SOH	01	Enter (KP)	CR/Enter	Enter
STX	02	Cap Lock	Caps Lock	F11
ETX	03	ALT make	Reserved	F12
EOT	04	ALT break	Reserved	F13
ENQ	05	CTRL make	Reserved	F14
ACK	06	CTRL break	Reserved	F15
BEL	07	CR/Enter	CR/Enter	New Line
BS	08	Reserved	Reserved	F16
HT	09	Tab	Tab	F17
LF	0A	Reserved	Reserved	F18
VT	0B	Tab	Tab	Tab/Field Forward
FF	0C	Delete	Delete	Delete
CR	0D	CR/Enter	CR/Enter	Field Exit/New Line
SO	0E	Insert	Insert	Insert
SI	0F	Escape	Escape	F19
DLE	10	F11	Reserved	Error Reset
DC1	11	Home	Home	Home
DC2	12	Print	Print	F20
DC3	13	Back Space	Back Space	Back Space
DC4	14	Back Tab	Back Tab	Backfield/Back Tab
NAK	15	F12	Reserved	F21
SYN	16	F1	F1	F1
ETB	17	F2	F2	F2

ASCII	HEX	IBM AT/XT and PS/2 Compatables, WYSE PC/AT Support Keys	IBM XTs and Compatibles Support Keys	IBM, DDC, Memorex, Telex, Harris* Support Keyd
CAN	18	F3	F3	F3
EM	19	F4	F4	F4
SUB	1A	F5	F5	F5
ESC	1B	F6	F6	F6
FS	1C	F7	F7	F7
GS	1D	F8	F8	F8
RS	1E	F9	F9	F9
US	1F	F10	F10	F10

* IBM 3191/92, 3471/72, 3196/97, 3476/77, Telex (all models)

Supported Interface Keys

ASCII	HEX	IBM, Memorex Telex (102)**Supported Keys	Memorex Telex (88)**Supported Keys
NUL	00	Reserved	Reserved
SOH	01	Enter	Enter
STX	02	F11	PF10
ETX	03	F12	PF11
EOT	04	F13	PF12
ENQ	05	F14	Reserved
ACK	06	F15	Reserved
BEL	07	New Line	New Line
BS	08	F16	Field Forward
HT	09	F17	Field Forward
LF	0A	F18	Reserved
VT	0B	Tab/Field Forward	Field Forward
FF	0C	Delete	Delete
CR	0D	Field Exit	New Line
SO	0E	Insert	Insert
SI	0F	Clear	Erase
DLE	10	Error Reset	Error Reset
DC1	11	Home	Reserved
DC2	12	Print	Print
DC3	13	Back Space	Back Space
DC4	14	Back Tab	Back Field
NAK	15	F19	Reserved
SYN	16	F1	PF1

ASCII	HEX	IBM, Memorex Telex (102)**Supported Keys	Memorex Telex (88)**Supported Keys
ETB	17	F2	PF2
CAN	18	F3	PF3
EM	19	F4	PF4
SUB	1A	F5	PF5
ESC	1B	F6	PF6
FS	1C	F7	PF7
GS	1D	F8	PF8
RS	1E	F9	PF9
US	1F	F10	Home

* IBM 3196/97, 3476/77, 3191/92, 3471/72, Memorex Telex (all models)
with 102 key keyboards

** Memorex Telex with 88 key keyboards

Supported Interface Keys

ASCII	HEX	Esprit 200, 400 ANSI Supported Keys	Esprit 200, 400 ASCII Supported Keys	Esprit 200, 400 PC Supported Keys
NUL	00	Reserved	Reserved	Reserved
SOH	01	New Line	New Line	New Line
STX	02	N/A	N/A	N/A
ETX	03	N/A	N/A	N/A
EOT	04	N/A	N/A	N/A
ENQ	05	N/A	N/A	N/A
ACK	06	N/A	N/A	N/A
BEL	07	New Line	New Line	New Line
BS	08	N/A	N/A	N/A
HT	09	Tab	Tab	Tab
LF	0A	N/A	N/A	N/A
VT	0B	Tab	Tab	Tab
FF	0C	N/A	N/A	Delete
CR	0D	New Line	New Line	New Line
SO	0E	N/A	N/A	Insert
SI	0F	Escape	Escape	Escape
DLE	10	F11	F11	F11
DC1	11	Insert	Insert	Home
DC2	12	F13	F13	Print
DC3	13	Back Space	Back Space	Back Space
DC4	14	Back Tab	Back Tab	Back Tab
NAK	15	F12	F12	F12
SYN	16	F1	F1	F1
ETB	17	F2	F2	F2
CAN	18	F3	F3	F3
EM	19	F4	F4	F4
SUB	1A	F5	F5	F5
ESC	1B	F6	F6	F6
FS	1C	F7	F7	F7
GS	1D	F8	F8	F8
RS	1E	F9	F9	F9

ASCII	HEX	Esprit 200, 400 ANSI Supported Keys	Esprit 200, 400 ASCII Supported Keys	Esprit 200, 400 PC Supported Keys
US	1F	F10	F10	F10

Supported Interface Keys

ASCII	HEX	Apple Mac/iMac Supported Keys
NUL	00	Reserved
SOH	01	Enter/Numpad Enter
STX	02	CAPS
ETX	03	ALT make
EOT	04	ALT break
ENQ	05	CNTRL make
ACK	06	CNTRL break
BEL	07	RETURN
BS	08	APPLE make
HT	09	TAB
LF	0A	APPLE break
VT	0B	TAB
FF	0C	Del
CR	0D	RETURN
SO	0E	Ins Help
SI	0F	ESC
DLE	10	F11
DC1	11	Home
DC2	12	Prnt Scrn
DC3	13	BACKSPACE
DC4	14	LSHIFT TAB
NAK	15	F12
SYN	16	F1
ETB	17	F2
CAN	18	F3
EM	19	F4
SUB	1A	F5
ESC	1B	F6

ASCII	HEX	Apple Mac/iMac Supported Keys
FS	1C	F7
GS	1D	F8
RS	1E	F9
US	1F	F10
DEL	7F	BACKSPACE

Chapter 11: Utilities

To Add a Test Code I.D. Prefix to All Symbologies

This selection permits you to turn on transmission of a Code I.D. before the decoded symbology. (See the Symbology Chart, included in Appendix A) for the single character code that identifies each symbology.) This action first clears all current prefixes, then programs a Code I.D. prefix for all symbologies. This is a temporary setting that is removed when the unit is power cycled.



Add Code I.D. Prefix to
All Symbologies (Temporary)

Show Software Revision

Scan the bar code below to output the current software revision, unit serial number, and other product information.



Show Software Revision

Show Data Format

Scan the bar code below to show current data format settings.



Data Format Settings

Resetting the Standard Product Defaults

If you aren't sure what programming options are in your imager, or you've changed some options and want the standard product default settings restored, scan the *Standard Product Default Settings* bar code below.



Standard Product Default Settings

The Menu Commands in Chapter 11 lists the standard product default settings for each of the commands (indicated by an asterisk (*) on the programming pages).

Test Menu

When you scan the Test Menu *On* code, then scan a programming code in this manual, the imager displays the content of a programming code. The programming function still occurs, but in addition, the content of that programming code is output to the terminal.

Note: This feature should not be used during normal imager operation.



On



Off

Visual Menu 2003

Visual Menu 2003 provides the ability to configure an imaging device by connecting the imager to the com port of a PC. Visual Menu 2003 permits you to download upgrades to a imager's firmware, change programmed parameters, and create and print programming bar codes. Using Visual Menu 2003, you can even set up the configuration for a imager which is not attached to your PC. This enables one expert user to establish the configuration settings for all the devices your company uses, then save these configuration files for others. A configuration file can be e-mailed or, if you prefer, an expert user can create a bar code (or series of bar codes) which contains all the customized programming parameters, and mail or fax the bar code(s) to any location. Users in other locations can scan the bar code(s) to load in the customized parameters.

To communicate with a imager, Visual Menu 2003 requires that the PC have at least one available serial communication port and an RS-232 cable to connect the port to the device. A power supply, which plugs into the cable, is also required.

Note: If you already have a copy of Visual Menu, please note that older versions of Visual Menu do not work with the RealScan 7838. You must use Visual Menu 2003 with the RealScan 7838.

Visual Menu 2003 Operations

The Visual Menu 2003 program performs the following operations:

- Displays all configuration data, and saves the information to a file on your PC.
- Configures the device to meet your specific requirements. Visual Menu 2003 has all the programming parameters that are available via programming bar codes in this User's Guide.

- Creates and prints a clone bar code which contains the program and configuration data from one device. This bar code can then be used to program additional devices with the same parameters.
- Selects a device from a list, then performs offline or online file configuration for that device.

Temporary Visual Menu 2003 Configuration

For quick download communication configuration, scan the **Visual Menu 2003** bar code to temporarily configure the imager for Visual Menu 2003 settings.

Note: If you have a unit capable of keyboard wedge mode, scan the bar code below and the unit communicates in RS-232 mode, permitting it to work with Visual Menu 2003. To convert the imager back to keyboard wedge communication, cycle the power.



Visual Menu 2003

Note: If you download new software into a unit, the user-programmed parameters are retained. If you need to discard user-programmed settings, see Resetting the Standard Product Defaults.

Installing Visual Menu 2003 from the Web

1. Access the NCR web site at www.ncr.com.
2. Click on the **Search** text box and enter **Visual Menu 2003**.
3. Click on **Search**. Select **Software**.
4. Click on **Visual Menu 2003**.
5. When prompted, select **Save File**, and save the files to the **c:\windows\temp** directory.
6. Once you have finished downloading the file, exit the web site.
7. Using Explorer, go to the **c:\windows\temp** file.
8. Double click on the **Visualmenu2003.exe** file. Follow the screen prompts to install the Visual Menu 2003 program.
9. To start Visual Menu 2003, from the Start Menu click on **Programs, Visual Menu 2003, Visual Menu 2003**.

Note: If you wish, you can create a shortcut to the Visual Menu 2003 executable on your desktop.

Quick*View

Quick*View is a Microsoft Windows[™] program that displays decoded symbol messages and captures images (for instance, ID photographs) from the RealScan 7838. Bar code information and images are displayed in the Quick*View window.

Installing Quick*View from the Web

1. Access the NCR web site at www.ncr.com.
2. Click on **Search** and enter **Quick*View**.
3. Click on **Search**.
4. Click on the entry for Software. Select **Quick*View Software Utility**.
5. When prompted, select **Save**, and save the files to the **c:\windows\temp** directory.
6. Once you have finished downloading the file, exit the web site.
7. Using Explorer, go to the **c:\windows\temp** file.
8. Double click on the **Quickview.exe** file. Follow the screen prompts to install the Quick*View program.
9. To start Quick*View, from the Start Menu click on **Programs, Quick*View, Quick*View**.

Note: If you wish, you can create a shortcut to the Quick*View executable on your desktop.

Temporary Quick*View Configuration

For a quick download communication configuration, scan the Quick*View bar code and the imager is temporarily configured for Quick*View settings.

Note: If you have a unit capable of keyboard wedge mode, scan the bar code below and the unit communicates in RS-232 mode, permitting it to work with Quick*View. To convert the imager back to keyboard wedge communication, cycle the power.



Quick*View

Chapter 12: Serial Programming Commands

The serial programming commands can be used in place of the programming bar codes. Both the serial commands and the programming bar codes program the RealScan 7838. For complete descriptions and examples of each serial programming command, refer to the corresponding programming bar code in this manual.

The device must be set to an RS-232 interface (see Chapter 1). The following commands can be sent through a PC COM port using terminal emulation software.

Conventions

The following conventions are used for menu and query command descriptions:

- parameter A label representing the actual value you should send as part of a command.
- [option] An optional part of a command.
- {Data} Alternatives in a command.
- bold** Names of menus, menu commands, buttons, dialog boxes, and windows that appear on the screen.

Menu Command Syntax

Menu commands have the following syntax (spaces have been used for clarity only):

**Prefix Tag SubTag {Data} [, SubTag {Data}] [; Tag SubTag {Data}] [...]
Storage**

Prefix	Three ASCII characters: SYN M CR (ASCII 22,77,13).
Tag	A 3 character case-insensitive field that identifies the desired menu command group. For example, all RS-232 configuration settings are identified with a Tag of 232 .
SubTag	A 3 character case-insensitive field that identifies the desired menu command within the tag group. For example, the SubTag for the RS-232 baud rate is BAD .
Data	The new value for a menu setting, identified by the Tag and Sub-Tag.
Storage	A single character that specifies the storage table to which the command is applied. An exclamation point (!) performs the command's operation on the device's volatile menu configuration table. A period (.) performs the command's operation on the device's non-volatile menu configuration table. Use the non-volatile table only for semi-permanent changes you want saved through a power cycle.

Query Commands

Special characters are used to query the device about its settings.

- ^ What is the default value for the setting(s).
- ? What is the device's current value for the setting(s).
- * What is the range of possible values for the setting(s). (The device's response uses a dash (-) to indicate a continuous range of values. A pipe (|) separates items in a list of non-continuous values.)

Tag Field Usage

When a query is used in place of a Tag field, the query applies to the entire set of commands available for the particular storage table indicated by the Storage field of the command. In this case, the SubTag and Data fields should not be used because they are ignored by the device.

SubTag Field Usage

When a query is used in place of a SubTag field, the query applies only to the subset of commands available that match the Tag field. In this case, the Data field should not be used because it is ignored by the device.

Data Field Usage

When a query is used in place of the Data field, the query applies only to the specific command identified by the Tag and SubTag fields.

Concatenation of Multiple Commands

Multiple commands can be issued within one Prefix/Storage sequence. Only the Tag, SubTag, and Data fields must be repeated for each command in the sequence. If additional commands are to be applied to the same Tag, then the new command sequence is separated with a comma (,) and only the SubTag and Data fields of the additional command are issued. If the additional command requires a different Tag field, the command is separated from previous commands by a semicolon (;).

Responses

The device responds to serial commands with one of three responses:

ACK Indicates a good command has been processed.

ENQ Indicates an invalid Tag or SubTag command.

NAK Indicates the command was good, but the Data field entry was out of the allowable range for this Tag and SubTag combination. For example, an entry for a minimum message length of 100 when the field only accepts 2 characters.

When responding, the device echoes back the command sequence with the status character inserted directly before each of the punctuation marks (the period, exclamation point, comma, or semicolon) in the command.

Examples of Query Commands

In the following examples, a bracketed notation [] depicts a non-displayable response.

Example 1: What is the range of possible values for Codabar Coding Enable?

Enter: cbrena*.

Response: CBRENA0-1[ACK]

This response indicates that Codabar Coding Enable (CBRENA) has a range of values from 0 to 1 (off and on).

Example 2: What is the default value for Codabar Coding Enable?

Enter: cbrena^.

Response: CBRENA1[ACK]

This response indicates that the default setting for Codabar Coding Enable (CBRENA) is 1, or on.

Example 3: What is the device's current setting for Codabar Coding Enable?

Enter: cbrena?.

Response: CBRENA1[ACK]

This response indicates that the device's Codabar Coding Enable (CBRENA) is set to 1, or on.

Example 4: What are the device's settings for all Codabar selections?

Enter: cbr?.

Response: CBRENA1[ACK],

SSX0[ACK],

CK20[ACK],

CCT1[ACK],

MIN2[ACK],

MAX60[ACK],

DFT[ACK].

This response indicates that the device's Codabar Coding Enable (CBRENA) is set to 1, or on;

the Start/Stop Character (SSX) is set to 0, or Don't Transmit;

the Check Character (CK2) is set to 0, or Not Required;

concatenation (CCT) is set to 1, or Enabled;

the Minimum Message Length (MIN) is set to 2 characters;

the Maximum Message Length (MAX) is set to 60 characters;

and the Default setting (DFT) has no value.

Trigger Commands

You can activate and deactivate the imager with serial trigger commands. First, the imager must be put in Manual/Serial Trigger Mode either by scanning the Manual/Serial Trigger Mode bar code or by sending the Manual/Serial Menu Command. Once the imager is in serial trigger mode, the trigger is activated and deactivated by sending the following commands:

Activate: **SYN T CR**

Deactivate: **SYN U CR**

The imager scans until either a bar code has been read, the deactivate command is sent, or the serial time out has been reached (see "Read Time Out" in Chapter 3 for a description).

Setting the Standard Product Defaults

If you are not sure what programming options are in your imager or you have changed some options and want the factory settings restored, scan the **Standard Product Default Settings** bar code below.



Standard Product Default Settings

The chart on the following pages lists the factory default settings for each of the menu commands (indicated by an asterisk (*) on the programming pages).

Menu Commands

Selection	Setting *Indicates default	Serial Command # Indicates a numeric entry	Chapter
Factory Default Settings	Default	DEFAULT	11

Terminal Interfaces

Selection	Setting *Indicates default	Serial Command # Indicates a numeric entry	Chapter
Terminal ID	000 (<i>RealScan 7838 models</i>)	TERMINID###	2

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Program Keyboard Country	*U.S.A.	KBDCTY0	2
	Belgium	KBDCTY1	2
	Brazil	KBDCTY16	2
	Canada (French)	KBDCTY18	2
	Czechoslovakia	KBDCTY8	2
	Denmark	KBDCTY15	2
	Finland (Sweden)	KBDCTY2	2
	France	KBDCTY3	2
	Germany/Austria	KBDCTY4	2
	Greece	KBDCTY17	2
	Hungary	KBDCTY19	2
	Israel (Hebrew)	KBDCTY12	2
	Italy	KBDCTY5	2
	Latin America	KBDCTY14	2
	Netherlands (Dutch)	KBDCTY11	2
	Norway	KBDCTY9	2
	Poland	KBDCTY20	2
Portugal	KBDCTY13	2	
Romania	KBDCTY25	2	

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
	Russia	KBDCTY26	2
	SCS	KBDCTY21	2
Program Keyboard Country	Slovakia	KBDCTY21	2
	Spain	KBDCTY10	2
	Sweden	KBDCTY23	2
	Switzerland (German)	KBDCTY6	2
	Turkey F	KBDCTY27	2
	Turkey Q	KBDCTY24	2
	U.K.	KBDCTY7	2
Keyboard Style	*Regular	KBDSTY0	2
	Caps Lock	KBDSTY1	2
	Shift Lock	KBDSTY2	2
	Automatic Caps Lock	KBDSTY6	2
	Emulate External Keyboard	KBDSTY5	2
Keyboard Modifiers	Control + ASCII On	KBDCAS1	2
	*Turbo Mode Off	KBDTMD0	2
	Turbo Mode On	KBDTMD1	2
	*Numeric Keypad Off	KBDNPS0	2
	Numeric Keypad On	KBDNPS1	2
	*Auto Direct Conn. Off	KBDADC0	2
	Auto Direct Conn. On	KBDADC1	2
Serial Port Connection	RS-232	PAP232	2

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Baud Rate	300 BPS	232BAD0	2
	600 BPS	232BAD1	2
	1200 BPS	232BAD2	2
	2400 BPS	232BAD3	2
	4800 BPS	232BAD4	2
	9600 BPS	232BAD5	2
	19200 BPS	232BAD6	2
	*38400 BPS	232BAD7	2
	57600 BPS	232BAD8	2
	115200 BPS	232BAD9	2
Word Length: Data Bits, Stop Bits, and Parity	7 Data, 1 Stop, Parity Even	232WRD3	2
	7 Data, 1 Stop, Parity None	232WRD0	2
	7 Data, 1 Stop, Parity Odd	232WRD6	2
	7 Data, 2 Stop, Parity Even	232WRD4	2

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Word Length: Data Bits, Stop Bits, and Parity	7 Data, 2 Stop, Parity None	232WRD1	2
	7 Data, 2 Stop, Parity Odd	232WRD7	2
	8 Data, 1 Stop, Parity Even	232WRD5	2
	*8 Data, 1 Stop, Parity None	232WRD2	2
	8 Data, 1 Stop, Parity Odd	232WRD8	2
RS-232 Receiver Timeout	Range 0 - 300 seconds	232LPT###	2
RS-232 Handshaking	*RTS/CTS Off	232CTS0	2
	RTS/CTS On	232CTS1	2
	*XON/XOFF Off	232XON0	2

	XON/XOFF On	232XON1	2
	*ACK/NAK Off	232ACK0	2
	ACK/NAK On	232ACK1	2
Wand Emulation Connection	Same Code Format	WNDPAT0	2
	*Code 39 Format	WNDPAT1	2
Data Block Size	20	WNDBLK0	2
	40	WNDBLK1	2
Data Block Size	*60	WNDBLK2	2
	80	WNDBLK3	2

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Delay Between Blocks	5ms	WNDDLY0	2
	*50ms	WNDDLY1	2
	150ms	WNDDLY2	2
	500ms	WNDDLY3	2
Overall Checksum On	WNDCHK1		2
	*Off	WNDCHK0	2
Wand Emulation Transmission Rate	10	WNDSPD0	2
	*25	WNDSPD1	2
	40	WNDSPD2	2
	80	WNDSPD3	2
	120	WNDSPD4	2
	150	WNDSPD5	2
	200	WNDSPD6	2
Wand Emulation Polarity	*Black High	WNDPOL0	2
	White High	WNDPOL1	2
Wand Emulation Idle	Idle Low	WNDIDL0	2
	*Idle High	WNDIDL1	2

Output Selections

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Beeper - Good Read	Off	BEPBEP0	3
	*On	BEPBEP1	3
Beeper Volume – Good Read	Off	BEPLVL0	3
	Low	BEPLVL1	3
	*Medium (default for RealScan 7838)	BEPLVL2	3
	*High (default for IT4800)	BEPLVL3	3
Beeper Pitch – Good Read (Frequency)	Low (1600) (min 400Hz)	BEPFQ11600	3
	*Medium (3250)	BEPFQ13250	3
	High (4200) (max 9000Hz)	BEPFQ14200	3
Beeper Duration – Good Read	*Normal Beep	BEPBIP0	3
	Short Beep	BEPBIP1	3
LED - Good Read	Off	BEPLD0	3
	*On	BEPLD1	3
Number of Beeps – Good Read	*1	BEPRPT1	3
	Range 1 - 9	BEPRPT#	3

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Reread Delay	*Short (500 ms)	DLYRRD500	3
	Medium (750 ms)	DLYRR750	3
	Long (1000 ms)	DLYRRD1000	3
	Extra Long (2000 ms)	DLYRRD2000	3
User-Specified Reread Delay	Range 0 - 30,000 ms	DLYRRD#####	3
Good Read Delay	*No Delay	DLYGRD0	3
	Short Delay (500 ms)	DLYGRD500	3
	Medium Delay (1000 ms)	DLYGRD1000	3
	Long Delay (1500 ms)	DLYGRD1500	3
User-Specified Good Read Delay	Range 0 - 30,000 ms	DLYGRD#####	3
Trigger Mode	*Manual/Serial Trigger	TRGMOD0	3
	Read Time Out (0 - 30,000 ms) *0	TRGSTO####	3
	Manual Trigger, Low Power	TRGMOD2	3
	Low Power Time Out Timer (0 - 300 seconds) *120	TRGLPT###	3
	Automatic Trigger	TRGMOD1	3
Scan Stand	Scan Stand Mode	TRGMOD4	3
	Scan Stand Symbol	FNC3	3
Presentation	Presentation Mode	TRGMOD3	3

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Hands Free Time Out	Range 0 - 300,000 ms	TRGPTO#####	3
LED Power Level	Off	PWRLDC0	3
	Low (50%)	PWRLDC50	3
	*High (100%)	PWRLDC100	3
Illumination Lights	*Lights On	SCNLED1	3
	Lights Off	SCNLED0	3

Imager Time Out Range	0 - 240,000 ms	SCNADR#####	3
Aimer Delay	200 milliseconds	SCNDLY200	3
	400 milliseconds	SCNDLY400	3
	*Off (no delay)	SCNDLY0	3
Aimer Mode	Off	SCNAIM0	3
	*Concurrent	SCNAIM1	3
	Interlaced	SCNAIM2	3

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Centering	Centering On	DECWIN1	3
	*Centering Off	DECWIN0	3
	Top of Centering Window (*40%)	DECTOP	3
	Bottom of Centering Window (*60%)	DECBOT	3
	Left of Centering Window (*40%)	DECLFT	3
	Right of Centering Window (*60%)	DECRGT	3
Decode Search Mode	Full Omnidirectional	DECMOD0	3
	Quick Omnidirectional (Default for 2D imagers)	DECMOD1	3
	Advanced Linear Decoding (Default for PDF imagers)	DECMOD2	3
	Tornado	DECMOD3	3
Output Sequence Editor	Enter Sequence	SEQBLK	3
	Default Sequence	SEQDFT	3
Require Output Sequence	Required	SEQ_EN2	3
	On/Not Required	SEQ_EN1	3
	Off	SEQ_EN0	3
Multiple Symbols	On	SHOTGN1	3
	*Off	SHOTGN0	3

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
No Read	On	SHWNRD1	3
	*Off	SHWNRD0	3
Print Weight	Set Print Weight (1-7)	PRTWGT	3
	*Default (4)	PRTWGT4	3
Video Reverse	On	VIDREV1	3
	*Off	VIDREV0	3
Working Orientation	*Upright	ROTATN0	3
	Rotate Clockwise 90°	ROTATN1	3
	Upside Down	ROTATN2	3
	Rotate Counterclockwise 90°	ROTATN3	3

Prefix/Suffix Selections

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Add CR Suffix to All Symbolologies		VSUFCR	4
Prefix	Add Prefix	PREBK2##	4
	Clear One Prefix	PRECL2	4
	Clear All Prefixes	PRECA2	4
Suffix	Add Suffix	SUFBK2##	4
	Clear One Suffix	SUFCL2	4
	Clear All Suffixes	SUFCA2	4
Function Code Transmit	*Enable	RMVFNC0	4
	Disable	RMVFNC1	4
Intercharacter Delay	Range 0 - 495 ms	DLYCHR##	4
User Specified Intercharacter Delay	Delay Length (0 - 495 ms)	DLYCRX##	4
	Character to Trigger Delay	DLY_XX###	4
Interfunction Delay	Range 0 - 495 ms	DLYFNC##	4
Intermessage Delay	Range 0 - 495 ms	DLYMSG##	4

Data Formatter Selections

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Data Format Editor	*Default Data Format (None)	DFMDF3	5
	Enter Data Format	DFMBK3##	5
	Clear One Data Format	DFMCL3	5
	Clear All Data Formats	DFMCA3	5
Data Formatter	Off	DFM_EN0	5
	*On, but Not Required	DFM_EN1	5
	On, Required	DFM_EN2	5
Alternate Data Formats	1	VSAF_1	5
	2	VSAF_2	5
	3	VSAF_3	5

Secondary Interface Selections

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Disabling the Secondary Interface	*Disable	2IF_EN0	6
	Enable	2IF_EN1	6
Wand Emulation Connection	Same Code Format	2IFTYP64	6
	*Code 39 Format	2IFTYP61	6
Secondary RS-232 Connection	RS-232 Interface	2IFTYP0	6
Secondary Laser Emulation	Laser Emulation Same Code Output	PAPHLC	6
	Laser Emulation Code 39 Output	PAP087	6
Laser Emulation Transmission Rate	*36	HLCSPD0	6
	100	HLCSPD1	6
Laser Emulation Polarity	Black High	HLCPOLO	6
	*White High	HLCPOL1	6
Laser Emulation Idle	Low	HLCIDL0	6
	*High	HLCIDL1	6
Secondary Trigger Mode	*Manual/Serial Trigger	2IFTRG0	6
	Read Time Out (0 - 300,000 ms) *0	TRGSTO####	6
	Manual Trigger, Low Power	2IFTRG2	6

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Secondary Trigger Mode	Low Power Time Out (0 - 120 seconds) *120	2IFLPT###	6
	Automatic Trigger	2IFTRG1	6
Scan Stand	Scan Stand Mode	2IFTRG4	6
	Scan Stand Symbol	FNC3	6
Presentation	Presentation Mode	2IFTRG3	6

Symbologies

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
All Symbologies	All Symbologies Off	ALLENA0	7
	All Symbologies On	ALLENA1	7
Codabar	Default All Codabar Settings	CBRDFT	7
Codabar	Off	CBRENA0	7
	*On	CBRENA1	7
Codabar Start/Stop Char.	*Don't Transmit	CBRSSX0	7
	Transmit	CBRSSX1	7
Codabar Check Char.	*No Check Char.	CBRCK20	7
	Validate, But Don't Transmit	CBRCK21	7
	Validate, and Transmit	CBRCK22	7
Codabar Concatenation	Off	CBRCCT0	7
	*On	CBRCCT1	7
	Require	CBRCCT2	7
Codabar Message Length	Minimum (2 - 60) *4	CBRMIN##	7
	Maximum (2 - 60) *60	CBRMAX##	7
Code 39	Default All Code 39 Settings	C39DFT	7
Code 39	Off	C39ENA0	7
	*On	C39ENA1	7

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Code 39 Start/Stop Char.	*Don't Transmit	C39SSX0	7
	Transmit	C39SSX1	7
Code 39 Check Char.	*No Check Char.	C39CK20	7
	Validate, But Don't Transmit	C39CK21	7
	Validate, and Transmit	C39CK22	7
Code 39 Message Length	Minimum (0 - 48) *0	C39MIN##	7
	Maximum (0 - 48) *48	C39MAX##	7
Code 39 Append	*Off	C39APP0	7
	On	C39APP1	7
Code 32 Pharmaceutical (PARAF)	*Off	C39B320	7
	On	C39B321	7
Code 39 Full ASCII	*Off	C39ASC0	7
	On	C39ASC1	7
	Code 39 Code Page	C39DCP	7
Interleaved 2 of 5	Default All Interleaved 2 of 5 Settings	I25DFT	7
Interleaved 2 of 5	Off	I25ENA0	7
	*On	I25ENA1	7

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Interleaved 2 of 5 Check Digit	*No Check Char.	I25CK20	7
	Validate, But Do not Transmit	I25CK21	7
	Validate, and Transmit	I25CK22	7
Interleaved 2 of 5 Message Length	Minimum (2 - 80) *4	I25MIN##	7
	Maximum (2 - 80) *80	I25MAX##	7
Code 93	Default All Code 93 Settings	C93DFT	7
Code 93	Off	C93ENA0	7
	*On	C93ENA1	7
Code 93 Message Length	Minimum (0 - 80) *0	C93MIN##	7
	Maximum (0 - 80) *80	C93MAX##	7
	Code 93 Code Page	C93DCP	7
Code 2 of 5	Default All Code 2 of 5 Settings	R25DFT	7
Code 2 of 5	*Off	R25ENA0	7
	On	R25ENA1	7

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Code 2 of 5 Message Length	Minimum (1 - 48) *4	R25MIN##	7
	Maximum (1 - 48) *48	R25MAX##	7
IATA Code 2 of 5	Default All IATA Code 2 of 5 Settings	A25DFT	7
IATA Code 2 of 5	*Off	A25ENA0	7
	On	A25ENA1	7
IATA Code 2 of 5 Message Length	Minimum (1 - 48) *4	A25MIN##	7
	Maximum (1 - 48) *48	A25MAX##	7
Matrix 2 of 5	Default All Matrix 2 of 5 Settings	X25DFT	7
Matrix 2 of 5	*Off	X25ENA0	7
	On	X25ENA1	7
Matrix 2 of 5 Message Length	Minimum (1 - 80) *4	X25MIN##	7
	Maximum (1 - 80) *80	X25MAX##	7
Code 11	Default All Code 11 Settings	C11DFT	7
Code 11	*Off	C11ENA0	7
	On	C11ENA1	7
Code 11 Check Digits Required	1 Check Digit	C11CK20	7
	*2 Check Digits	C11CK21	7
Code 11 Message Length	Minimum (1 - 80) *4	C11MIN##	7
	Maximum (1 - 80) *80	C11MAX##	7
Code 128	Default All Code 128 Settings	128DFT	7
Code 128	Off	128ENA0	7
	*On	128ENA1	7
ISBT Concatenation	*Off	ISBENA0	7
	On	ISBENA1	7
Code 128 Message Length	Minimum (0 - 80) *0	128MIN##	7
	Maximum (0 - 80) *80	128MAX##	7
	Code 128 Code Page	128DCP	7

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Telegen	Default All Telegen Settings	TELDFT	7
Telegen	*Off	TELENA0	7
	On	TELENA1	7
Telegen Output	*AIM Telegen Output	TELOLD0	7
	Original Telegen Output	TELOLD1	7
Telegen Message Length	Minimum (1 - 60) *1	TELMIN##	7
	Maximum (1 - 60) *60	TELMAX##	7
UPC A	Default All UPC A Settings	UPADFT	7
UPC A	Off	UPAENA0	7
	*On	UPAENA1	7
UPC A Check Digit	Off	UPACKX0	7
	*On	UPACKX1	7
UPC A Number System	Off	UPANSX0	7
	*On	UPANSX1	7
UPC A 2 Digit Addenda	*Off	UPAAD20	7
	On	UPAAD21	7

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
UPC A 5 Digit Addenda	*Off	UPAAD50	7
	On	UPAAD51	7
UPC A Addenda Required	*Not Required	UPAARQ0	7
	Required	UPAARQ1	7
UPC A Addenda Separator	Off	UPAADS0	7
	*On	UPAADS1	7
UPC-A/EAN-13 with Extended Coupon Code	*On	CPNENA1	7
	Off	CPNENA0	7
UPC E0	Default All UPC E Settings	UPEDFT	7
UPC E0	Off	UPEEN00	7
	*On	UPEEN01	7
UPC E0 Expand	*Off	UPEEXP0	7
	On	UPEEXP1	7
UPC E0 Addenda Required	Required	UPEARQ1	7
	*Not Required	UPEARQ0	7
UPC E0 Addenda Separator	*On	UPEADS1	7
	Off	UPEADS0	7
UPC E0 Check Digit	Off	UPECKX0	7
	*On	UPECKX1	7
UPC E0 Number System	Off	UPENSX0	7
	*On	UPENSX1	7

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
UPC E0 Addenda	2 Digit Addenda On	UPEAD21	7
	*2 Digit Addenda Off	UPEAD20	7
	5 Digit Addenda On	UPEAD51	7
	*5 Digit Addenda Off	UPEAD50	7
UPC E1	*Off	UPEEN10	7
	On	UPEEN11	7
EAN/JAN 13	Default All EAN/JAN Settings	E13DFT	7
EAN/JAN 13	Off	E13ENA0	7
	*On	E13ENA1	7
EAN/JAN 13 Check Digit	Off	E13CKX0	7
	*On	E13CKX1	7
EAN/JAN 13 2 Digit Addenda	2 Digit Addenda On	E13AD21	7
	*2 Digit Addenda Off	E13AD20	7
	5 Digit Addenda On	E13AD51	7
	*5 Digit Addenda Off	E13AD50	7
EAN/JAN 13 Addenda Required	*Not Required	E13ARQ0	7
	Required	E13ARQ1	7
EAN/JAN 13 Addenda Separator	Off	E13ADS0	7
	*On	E13ADS1	7

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
MSI Message Length	Minimum (4 - 48) *4	MSIMIN##	7
	Maximum (4 - 48) *48	MSIMAX##	7
Plessey Code	Default All Plessey Settings	PLSDFT	7
Plessey Code	*Off	PLSENA0	7
	On	PLSENA1	7
Plessey Message Length	Minimum (4 - 48) *4	PLSMIN##	7
	Maximum (4 - 48) *48	PLSMAX##	7
RSS-14	Default All RSS-14 Settings	RSSDFT	7
RSS-14	Off	RSEENA0	7
	*On	RSEENA1	7
RSS Limited	Default All RSS-14 Limited Settings	RSLDFT	7
RSS Limited	Off	RSEENA0	7
	*On	RSEENA1	7
RSS Expanded	Default All RSS-14 Expanded Settings	RSEDFT	7
RSS Expanded	Off	RSEENA0	7
	*On	RSEENA1	7
RSS Expanded Msg. Length	Minimum (0 - 80) *4	RSEMIN##	7
	Maximum (0 - 80) *74	RSEMAX##	7
PosiCode	Default All PosiCode Settings	POSDFT	7

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
PosiCode	Off	POSENA0	7
	*On	POSENA1	7
	A and B On	POSLIM0	7
	A and B and Limited A On	POSLIM1	7
	*A and B and Limited B On	POSLIM2	7
PosiCode Msg. Length	Minimum (2 - 80) *4	POSMIN##	7
	Maximum (2 - 80) *48	POSMAX##	7
Trioptic Code	*Off	TRIENA0	7
	On	TRIENA1	7
Codablock F	Default All Codablock F Settings	CBFDFT	7
Codablock F	*Off	CBFENA0	7
	On	CBFENA1	7
Codablock F Msg. Length	Minimum (1 - 2048) *1	CBFMIN####	7
	Maximum (1 - 2048) *2048	CBFMAX####	7
Code 16K	Default All Code 16K Settings	16KDFT	7

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
Code 16K	*Off	16KENA0	7
	On	16KENA1	7
Code 16K Msg. Length	Minimum (0 - 160) *1	16KMIN###	7
	Maximum (0 - 160) *160	16KMAX###	7
Code 49	Default All Code 49 Settings	C49DFT	7
Code 49	Off	C49ENA0	7
	*On	C49ENA1	7
Code 49 Msg. Length	Minimum (1 - 81) *1	C49MIN##	7

	Maximum (1 - 81) *81	C49MAX##	7
PDF417	Default All PDF417 Settings	PDFDFT	7
PDF417	*On	PDFENA0	7
	Off	PDFENA1	7
PDF417 Msg. Length	Minimum (1-2750) *1	PDFMIN	7
	Maximum (1-2750) *81	PDFMAX	7
MicroPDF417	Default All Micro PDF417 Settings	MPDDFT	7
MicroPDF417	*On	MPDENA0	7
	Off	MPDENA1	7
MicroPDF417 Msg. Length	Minimum (1-366) *1	MPDMIN	7
	Maximum (1-366) *366	MPDMAX	7
EAN •UCC Composite Codes	On	COMENA1	7
	*Off	COMENA0	7

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
EAN •UCC Composite Codes Msg. Length	Minimum (1-2435) *1	COMMIN	7
	Maximum (1-2435) *2435	COMMAX	7
EAN•UCC Emulation	RSS Emulation	EANEMU2	7
	EAN •UCC-128 Emulation	EANEMU1	7
	*EAN•UCC Emulation Off	EANEMU0	7
TCIF Linked Code 39 (TLC39)	On	T39ENA1	7
	*Off	T39ENA0	7
Postnet	On	NETENA1	7
	*Off	NETENA0	7
Planet Code	On	PLNENA1	7
	*Off	PLNENA0	7
British Post	On	BPOENA1	7
	*Off	BPOENA0	7
Canadian Post	On	CANENA1	7
	*Off	CANENA0	7
Kix (Netherlands) Post	On	KIXENA1	7
	*Off	KIXENA0	7
Australian Post	On	AUSENA1	7
	*Off	AUSENA0	7
Japanese Post	On	JAPENA1	7
	*Off	JAPENA0	7
China	Post Default All China Post Settings	CPCDFT	7

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
China Post	*Off	CPCENA0	7
	On	CPCENA1	7
China Post Msg. Length	Minimum (0 - 80) *4	CPCMIN##	7
	Maximum (0 - 80) *80	CPCMAX##	7
Korea	Post Default All Korea Post Settings	KPCDFT	7
Korea Post	*Off	KPCENA0	7
	On	KPCENA1	7
Korea Post Msg. Length	Minimum (2 - 80) *4	KPCMIN##	7
	Maximum (2 - 80) *48	KPCMAX##	7
QR Code	Default All QR Code Settings	QRCDFT	7
QR Code	On	QRCENA1	7
	*Off	QRCENA0	7
QR Code Msg. Length	Minimum (1-3500) *1	QRCMIN	7
	Maximum (1-3500) *3500	QRCMAX	7
Data Matrix	Default All Data Matrix Settings	IDMDFT	7
Data Matrix	*On	IDMENA1	7
	Off	IDMENA0	7
Data Matrix Msg. Length	Minimum (1-1500) *1	IDMMIN	7
	Maximum (1-1500) *1500	IDMMAX	7
MaxiCode	Default All MaxiCode Settings	MAXDFT	7

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
MaxiCode	On	MAXENA1	7
	*Off	MAXENA0	7
MaxiCode Msg. Length	Minimum (1-150) *1	MAXMIN	7
	Maximum (1-150) *150	MAXMAX	7
Aztec Code	Default All Aztec Code Settings	AZTDFT	7
Aztec Code	*On	AZTENA1	7
	Off	AZTENA0	7
Aztec Code Msg. Length	Minimum (1-3750) *1	AZTMIN	7
	Maximum (1-3750) *3750	AZTMAX	7
Aztec Runes	Enable Runes	AZTRUN1	7
	*Disable Runes	AZTRUN0	7
Test Menu	On	TSTMNU1	7
	*Off	TSTMNU0	7

OCR Selections

Selection	Setting * Indicates default	Serial Command # Indicates a numeric entry	Chapter
OCR	Default All OCR Settings	OCRDFT	10
	OCR-A On	OCRENA1	10
	OCR-B On	OCRENA2	10
	U.S. Currency On	OCRENA3	10
	MICR E 13 B On	OCRENA4	10
	* All OCR Off	OCRENA0	10
OCR Templates	Enter OCR Template	OCRTMP	10
	Enter User-Defined Variable g	OCRGPG	10
	Enter User-Defined Variable h	OCRGPH	10
	OCR Modulo 10 Check Character	OCRCHKMOD10	10
	OCR Modulo 36 Check Character	OCRCHKMOD36	10

Imaging Commands

Image Commands Help File

If you send the IMGCMD command to the imager, the imager sends out an ASCII “help file” that describes the available imager capture commands. Explanations of the most commonly used imager capture commands follow.

Image Ship - IMGSHIP

An image is taken whenever the trigger of the RealScan 7838 is pressed. The last image is always stored in memory. You may “ship” the image by using the IMGSHIP command.

IMGSHIP Modifiers

The image ship command has many different modifiers that can be used to change the look of the image output by the scanner. Modifiers affect the image that is transmitted but do not affect the image in memory. Modifiers always begin with numbers and end with a letter (case insensitive). Any number of modifiers may be appended to the IMGSHIP command. For example, to get a full-sized JPEG image from the device with pixel compensation, use the following command (spaces optional):

IMGSHIP 1C 6F 1S

Where:

C - Compensation: Flattens the image to account for variations in illumination across the image.

0C Compensation disabled (default)

1C Compensation enabled

D - Pixel Depth: Indicates the number of bits per pixel in the transmitted image.

8D 8 bits per pixel, grayscale image (default)

1D 1 bit per pixel, black and white image

E - Edge Sharpen: Causes the transmitted image to be convolved with an edge-sharpening filter. Available only with KIM grayscale format.

0E Don't sharpen edges (default)

1E Sharpen edges

F - File Format: Indicates the type of file format in which to save the image.

0F KIM format (default)

1F TIFF binary

- 2F TIFF binary group 4, compressed
- 3F TIFF grayscale
- 4F Uncompressed Binary
- 5F Uncompressed grayscale
- 6F JPEG image
- 7F Outlined image
- 8F BMP format

H - Histogram Stretch: Increases the contrast of the transmitted image. Not available with some image formats. Available only with KIM and BMP grayscale formats.

- 0H No stretch (default)
- 1H Histogram stretch

I - Invert Image: Used to rotate the image around the X or Y axis in fixed mount applications where the imager is mounted upside down.

- 1IX Invert around the X axis (flips picture upside down)
- 1IY Invert around the Y axis (flips picture left to right)

J - JPEG Image Quality: Sets the desired quality when the JPEG image format is selected. Higher numbers result in higher quality. Smaller numbers result in greater amounts of lossy compression, faster transmission times, and lower quality. (Default = 80) nJ Image is compressed as much as possible while preserving quality factor of n (n = 1 - 100)

- 1J worst quality
- 100J best quality

K - Gamma Correction: The way the imager responds to light levels is matched to the way the human eye responds to light levels.

- 0K Ship image without gamma correction
- 1K Ship image with gamma correction

L, R, T, B, M - Image Cropping: Ship a window of the image by specifying the left, right, top, and bottom pixel coordinates. Device columns are numbered 0 through 640, and device rows are numbered 0 through 480.

nL The left edge of the shipped image corresponds to column n of the image in memory. Range: 000 - 640. (Default = 0)

nR The right edge of the shipped image corresponds to column n - 1 of the image in memory. Range: 000 - 640. (Default = all rows)

nT The top edge of the shipped image corresponds to row n of the image in memory. Range: 000 - 480. (Default = 0)

nB The bottom edge of the shipped image corresponds to row $n - 1$ of the image in memory. Range: 000 - 480. (Default = all rows)

Alternately, specify the number of pixels to cut from the outside margin of the image; thus only the center pixels are transmitted.

nM Margin: cut n columns from the left, $n + 1$ columns from the right, n rows from the top, and $n + 1$ rows from the bottom of the image. Ship the remaining center pixels. Range: 1 - 239. (Default = full image)

P - Protocol: Used for shipping an image. Protocol covers two features of the image data being sent to the host. It addresses the protocol used to send the data (Hmodem, which is an xmodem 1K variant that has additional header information), and the format of the image data that is sent.

- 0P None (raw data)
- 2P None (default for USB)
- 3P Hmodem (default for RS-232)
- 4P Hmodem compressed

S - Pixel Ship: Can be used to decimate the image by shipping only certain, regularly spaced pixels. For example, **4S** would transmit every fourth pixel from every fourth line. The smaller number of pixels shipped, the smaller the image. However, after a certain point, the image becomes unusable.

- 1S ship every pixel (default)
- 2S ship every 2nd pixel, both horizontally and vertically (default)
- 3S ship every 3rd pixel, both horizontally and vertically

U - Sharpen Edges: Sharpens the edges of the transmitted image. Available only with KIM grayscale format.

- 0U Don't sharpen edges (default)
- 1U Sharpen edges

V - Blur Image: Causes the transmitted image to be blurred. Available only with KIM grayscale format.

- 0V Don't blur (default)
- 1V Blur

Close Image Capture - IMGCAP

Using IMGCAP, the imager captures and ships an image the next time the imager trigger is pulled. The IMGSHIP modifiers are also used with the IMGCAP command. These modifiers change the look of the image output by the scanner. When using the IMGCAP command, the imager is optimized to capture images of close objects (for example, signatures, address labels). The default image file format used by IMGCAP is a grayscale KIM.

Distant Image Capture - IMGGET

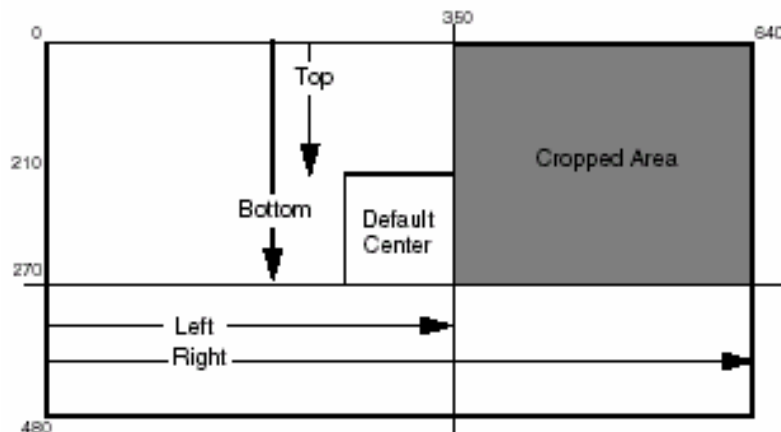
IMGGET works the same way as the IMGCAP command, except the imager is set up for capturing images of scenes, similar to a digital camera. The allowable exposure times that the imager uses are longer than those for IMGCAP to account for the fact that the imager's LEDs have little effect at longer distances. The default image file format used by IMGGET is JPEG.

Image Cropping/Shipping Example:

The figure below illustrates the cropping of an area of an image. The cropped area (shaded) is shipped and stored as a one bit, black and white JPEG. The cropped area is 270 pixels by 290 pixels with the following designations:

Top = 000; Bottom = 270; Left = 350; Right = 640. The command string is:

```
IMGSHIP000T270B350L640R6F1D
```



Intelligent Signature Capture - IMGBOX

Intelligent signature capture ships only part of an image to the host application. This method reduces transfer time and file size while simplifying signature capture.

Below is an example of an intelligent signature capture application. In this example, the operator reads the bar code which is then transmitted to the host application. Upon the receipt of the bar code data, the host application sends the IMGBOX command which informs the scanner to output only the area of the image corresponding to the signature capture box. The scanner also automatically adjusts for aspect ratio and distortion issues that arise due to scanner skew with respect to the bar code.



An important aspect of intelligent signature capture is that all dimensions used in the application are measured as multiples of the minimum element size of the bar code. Using this method, intelligent signature capture always outputs the correct image size and resolution, no matter the distance at which the scanner is held from the bar code, assuming that the entire signature capture area is within the scanner's field of view.

The intelligent signature capture command string for this application is:

```
IMGBOX40S0X70Y190W100H1R0F
```

IMGBOX Modifiers

D - Pixel Depth: Indicates the number of bits per pixel in the transmitted image.

- 8D 8 bits per pixel, grayscale image
- 1D 1 bit per pixel, black and white image

F - File Format: Indicates the type of file format in which to save the image.

- 0F KIM format (default)
- 1F TIFF binary
- 2F TIFF binary group 4, compressed
- 3F TIFF grayscale
- 4F Uncompressed Binary
- 5F Uncompressed grayscale
- 6F JPEG image
- 7F Outlined image
- 8F BMP format

H - Height of Signature Capture Area: In the example, the height of the area to be captured is 1 inch, resulting in a value of $H = 1/0.01 = 100$. The value for H is slightly larger to accommodate some extra image capture area outside of the signature capture box.

R - Resolution of Signature Capture Area: The number of pixels that the imager outputs per each minimum bar width. The higher the value for R, the higher the quality of the image but also the larger the file size.

S - Bar Code Aspect Ratio: The ratio of the bar code height to the narrow element width. In the example, the narrow element width is .010 inches and the bar code height is 0.400 inches, resulting in a value of $S = 0.4/0.01 = 40$.

W - Width of Signature Capture Area: In the example, the width of the area to be captured is 1.90 inches, resulting in a value of $W = 1.9/0.01 = 190$. The value for W is slightly larger, to accommodate some extra image capture area outside of the signature capture box.

X - Horizontal Bar Code Offset: The horizontal ratio offset of the center of the signature capture area, in multiples of the minimum bar width. In the example, the horizontal offset is 0.

Y - Vertical Bar Code Offset: The vertical offset of the center of the signature capture area, in multiples of the minimum bar width. Negative numbers indicate that the signature capture is above the bar code and positive numbers indicate that the area is below the bar code. In the example, the horizontal offset is 0.70 inches, resulting in a value for $Y = 0.7/0.01 = 70$.

Image Snap - IMGSNP

Image Snap is the command processor for image capture. There are three styles:

Decoding: This is similar to the current format for decoding, however, this processing permits a few frames to be taken until the exposure parameters are met. Then the last frame is available for further use.

Photo: This attempts to mimic a simple digital camera and results in a visually optimized image.

Manual: This is an advanced style and should not normally be used. It permits you the most freedom to set up the imager and has no auto-exposure.

IMGSNP Modifiers

P - Imaging Style: Sets the Image Snap style (see above).

0P Decoding Style

1P Photo Style (default)

2P Manual Style

A - Aimer State: Not available when using Decoding Style.

- 0A No aimer
- 1A Between frames
- 2A Always on

D - Delta for Acceptance: The target for the white value setting (see “W” modifier). Delta is only available when using Photo Style. (Default = 10)

nD Range: 0 - 255.

L - LED State: Determines if the LEDs should be on or off and when. LED State is not available when using Decoding Style.

- 0L Use ambient illumination, not the LEDs (default)
- 1L LEDs on during frame
- 2L LEDs always on

U - Update Tries: The maximum number of frames the imager should take to reach the Delta for Acceptance. Update Tries is only available when using Photo Style. (Default = 4)

nU Range: 1 - 5

W - Target White Value: Sets the target for the median grayscale value in the captured image. For capturing close-up images of high contrast documents, a lower setting, like 75, is recommended. Higher settings result in longer exposure times and brighter images but if the setting is too high, the image may be overexposed. Target White Value is only available when using Photo Style. (Default = 140)

nW Range: 0 – 255

Chapter 13: Product Specifications

RealScan 7838 Product Specifications

<i>Parameter</i>	<i>Specification</i>
Dimensions (Typical):	
Height	6.2 inches (15.7 cm)
Length	5.3 inches (13.5 cm)
Width	3.2 inches (8.1 cm)
Weight	6.5 ounces (184.3 g)
Aimer:	626nm +30nm
Illumination LEDs	626nm +30nm
Aiming LEDs	
Image	VGA, 640x480. Binary, TIFF, or JPEG output.
Scan Rate	270 scans per second in most usages
Skew Angle	±45 degrees
Pitch Angle	±45 degrees
Horizontal Velocity	2 inches (5 cm) per second
Scan Contrast	45% minimum for Matrix codes, 37.5% minimum for all others
Voltage Requirements	4.5 - 12 VDC at imager
Current Draw (Max):	ScanningStandbyInrushLow Power
RealScan 7838 @5Vdc:	325mA46mA225mA100µA
ALD	255mA46mA225mA100µA
Normal	
RealScan 7838 @12Vdc:	150mA37mA
ALD	130mA37mA
Normal	
Power Supply:	Maximum 100mV peak to peak, 10 to 100 kHz
Noise Rejection	
Temperature Ranges:	

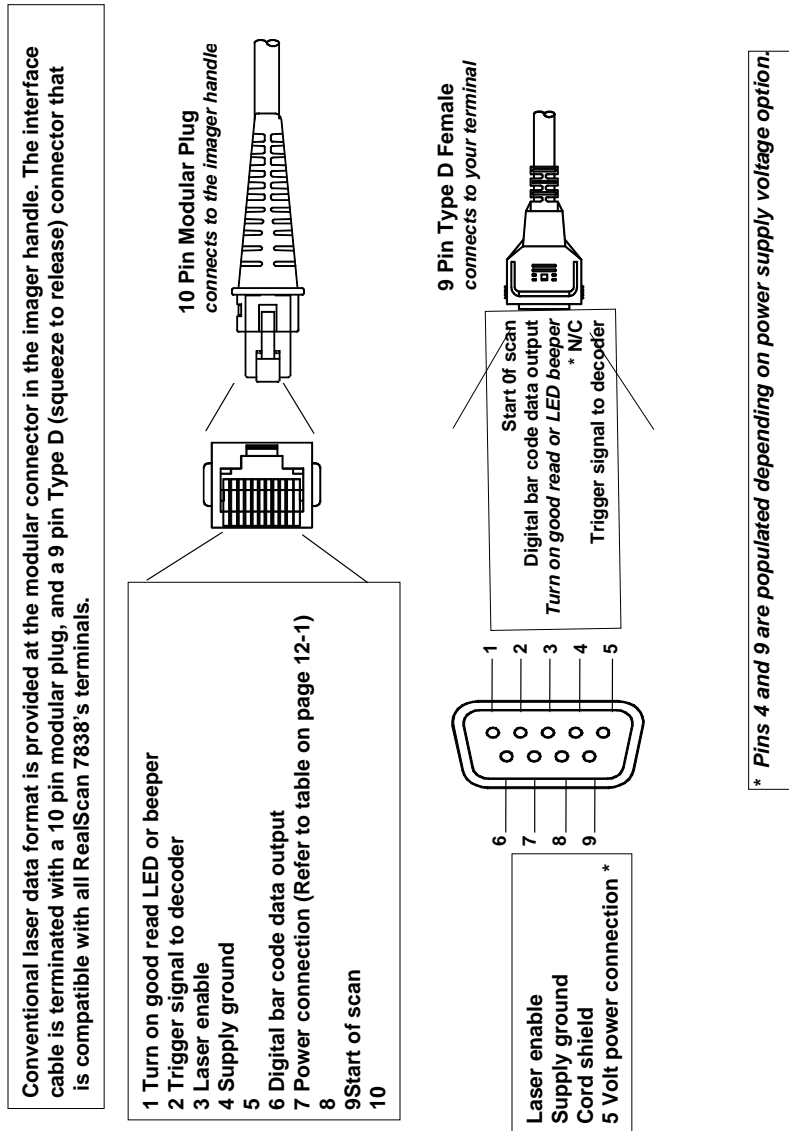
<i>Parameter</i>	<i>Specification</i>
Operating	32° F to +122° F (0° C to +50° C)
Storage	-40° F to +140° F (-40° C to +60° C)
Humidity	0 to 95% noncondensing
Mechanical Drop	Operational after 50 drops from 6 feet (1.8 m) to concrete
Vibration	Withstands 5G peak from 22 to 300 Hz
ESD Sensitivity	15 kV to any external surface
Agency Compliance	FCC Class B, CE EMC Class B, CE Low Voltage Directive, IEC60825-1 LED Safety: Class 1, UL, cUL listed, TÜV
MTBF	per MIL-HDBK-217F Ground Benign exceeds 100,000 hours

Depth of Field- RealScan 7838

Minimum Bar Width	Maximum Near Field	Minimum Far Field (no ambient lighting)
8 mil Linear (.020 cm)	2.9 in (7.4 cm)	7 in (17.8 cm)
10 mil PDF417 (.025 cm)	2.5 in. (6.4 cm)	8.4 in. (21.3 cm)
13 mil UPC (.033 cm)	1.9 in. (4.8 cm)	11.9 in (30.2 cm)
15 mil PDF417 (.038 cm)	2.4 in (6.1 cm)	12.4 in (31.5 cm)
15 mil Data Matrix (.038 cm)	3.1 in (7.9 cm)	5.9 in (15 cm)
35 mil MaxiCode (.089 cm)	1.4 in (3.6 cm)	12.4 in (31.5 cm)

Standard Cable Pinouts

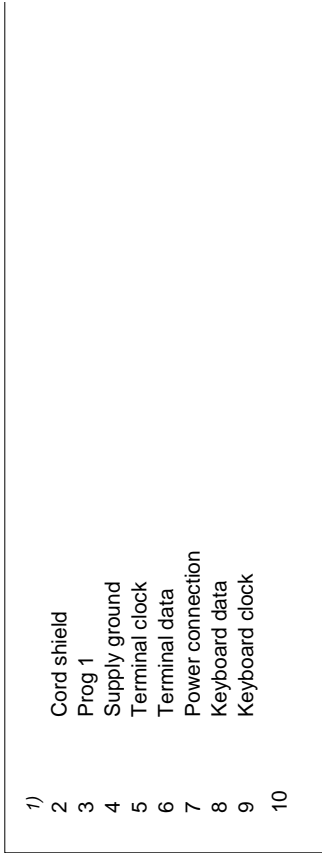
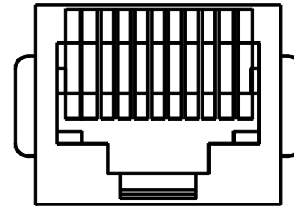
Laser Output Only (Laser Compatible Bar Image)



Standard Cable Pinouts

Keyboard Wedge

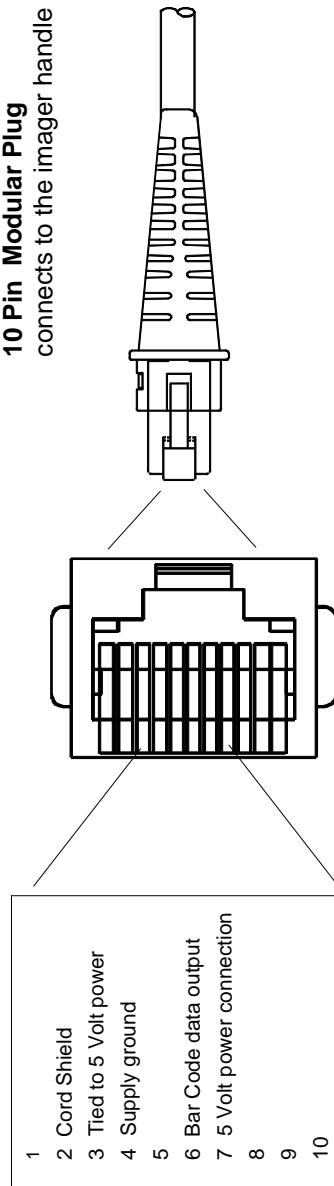
10 Pin RJ41 Modular Plug
connects to the imager handle



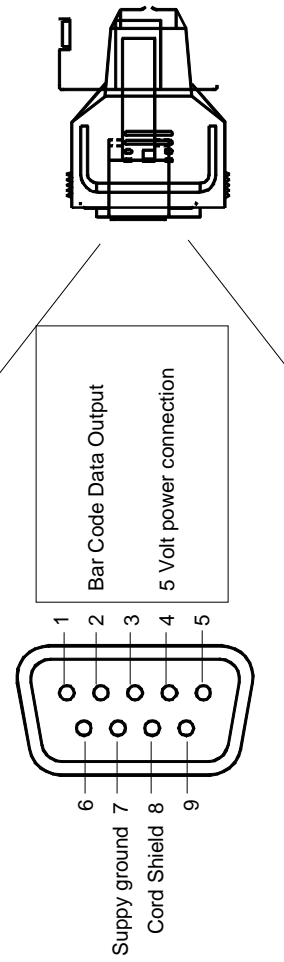
Standard Cable Pinouts

Wand Emulation

10 Pin Modular Plug
connects to the imager handle

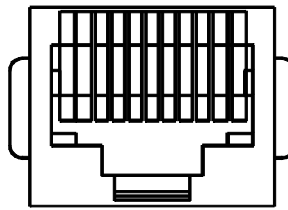


9 Pin Type D
connects to your terminal



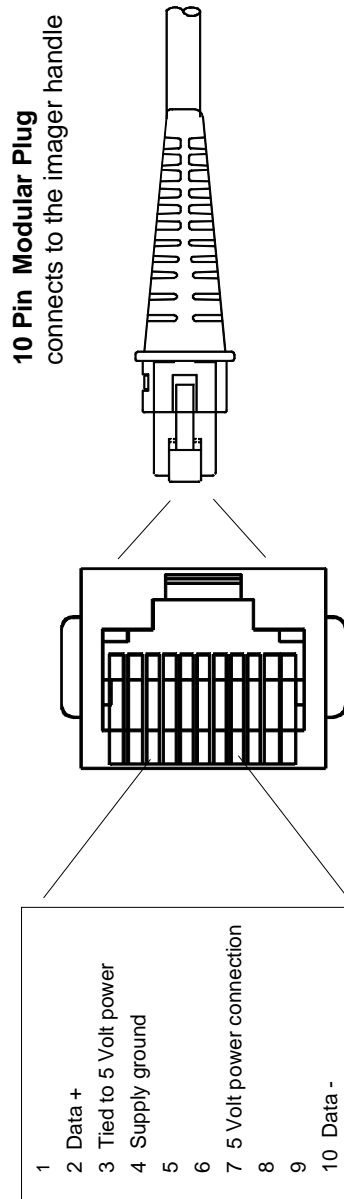
Standard Cable Pinouts (Primary Interface Cables) Serial Output

10 Pin RJ41 Modular Plug
connects to the imager handle



1	
2	Cord shield
3	Tied to 5 Volt power
4	Supply ground
5	Receive data - Serial data to imager
6	Transmit data - Serial data from imager
7	5 Volt power connection
8	Request to send data
9	Clear to send data
10	

Standard Cable Pinouts USB



Chapter 14: Maintenance

Repairs

Repairs and/or upgrades are not to be performed on this product. These services are to be performed only by an authorized service center.

Maintenance

The RealScan 7838 provides reliable and efficient operation with a minimum of care. Although specific maintenance is not required, the following periodic checks ensure dependable imager operation:

Cleaning the Imager's Window

Reading performance may degrade if the imager's window is not clean. If the window is visibly dirty, or if the imager isn't operating well, clean the window with a soft cloth or lens tissue dampened with water (or a mild detergent- water solution). If a detergent solution is used, rinse with a clean lens tissue dampened with water only.

The imager's housing may also be cleaned the same way.



Caution:

Do not submerge the scanner in water. Do not use abrasive wipes or tissues on the scanner's window – abrasive wipes may scratch the window.

Never use solvents (alcohol or acetone) on the housing or window – solvents may damage the finish or the window.

Inspecting Cords and Connectors

Inspect the imager's interface cable and connector for wear or other signs of damage. A badly worn cable or damaged connector may interfere with imager operation. Contact your NCR distributor for information about cable replacement. See Cable Replacement instructions.

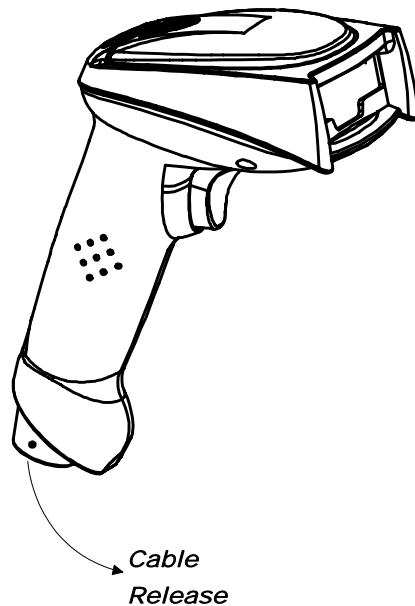
Replacing the Interface Cable

The standard interface cable is attached to the imager with an 10-pin modular connector. When properly seated, the connector is held in the RealScan 7838 imager's handle by a flexible retention tab. The interface cable is designed to be field replaceable.

- Order replacement cables from RealScan 7838 or from an authorized distributor.
- When ordering a replacement cable, specify the cable part number of the original interface cable.

To Replace the RealScan 7838 Interface Cable:

1. Turn the power to the host system OFF.



2. Disconnect the imager's cable from the terminal or computer.
3. Locate the small hole on the side of the imager's handle. This is the cable release.
4. Straighten one end of a paper clip.
5. Insert the end of the paper clip into the small hole and press in. This depresses the retention tab, releasing the connector. Pull the connector out while maintaining pressure on the paper clip, then remove the paper clip.
6. Replace with the new cable.
Insert the connector into the opening and press firmly. The connector is keyed to go in only one way, and clicks into place.

Troubleshooting

The imager automatically performs self-tests whenever you turn it on. If your imager is not functioning properly, review the following Troubleshooting Guide to try to isolate the problem.

Is the power on? Is the red aiming illumination line on?

If the red aiming illumination line isn't illuminated, check that:

- The cable is connected properly.
- The host system power is on (if external power isn't used).
- The trigger works.

Is the imager having trouble reading your symbols?

If the imager isn't reading symbols well, check that the symbols:

- Aren't smeared, rough, scratched, or exhibiting voids.
- Aren't coated with frost or water droplets on the surface.
- Are enabled in the imager or in the decoder to which the imager connects.

Is the bar code displayed but not entered?

The bar code is displayed on the host device correctly, but you still have to press a key to enter it (the Enter/Return key or the Tab key, for example).

You need to program a suffix. Programming a suffix enables the imager to output the bar code data plus the key you need (such as "CR") to enter the data into your application. Refer to Prefix/Suffix Overview in Chapter 4 for further information.

Does the imager read the bar code incorrectly?

If the imager reads a bar code, but the data is not displayed correctly on the host screen:

- The imager may not be programmed for the appropriate terminal interface. For example, you scan "12345" and the host displays "@es%."

Reprogram the imager with the correct Plug and Play or Terminal selection bar code. See Chapter 1 and Chapter 2.

- The imager may not be programmed to output your bar code data properly. For example, you scan "12345" and the host displays "A12345B."

Reprogram the imager with the proper symbology selections. See Chapter 7.

The imager won't read your bar code at all.

1. Scan the sample bar codes in the back of this manual. If the imager reads the sample bar codes, check that your bar code is readable. Verify that your bar code symbology is enabled (see Chapter 7).

2. If the imager still can't read the sample bar codes, scan All Symbologies (see Chapter 7).

If you aren't sure what programming options have been set in the imager, or if you want the factory default settings restored, scan Standard Product Default settings in Chapter 11.

Appendix A: Charts

Symbology Chart

Symbology	ID	Possible AIM ID Modifiers (<i>m</i>)	HHP Code ID (hex)
All Symbologies			(0x99)
Australian Post	JX0		A (0x41)
Aztec Code	jzm	0-9, A-C	z (0x7A)
British Post	JX0		B (0x42)
Canadian Post	JX0		C (0x43)
China Post	JX0		Q (0x51)
Codabar	JFm	0-1	a (0x61)
Codablock F	JOm	0, 1, 4, 5, 6	q (0x71)
Code 11	JH3		h (0x68)
Code 128	JCm	0, 1, 2, 4	j (0x6A)
Code 16K	JKm	0, 1, 2, 4	o (0x6F)
Code 32 Pharmaceutical (PARAF)	JX0		< (0x3C)
Code 39	JAm	0, 1, 3, 4, 5, 7	b (0x62)
Code 49	JTm	0, 1, 2, 4	l (0x6C)
Code 93 and 93i	JGm	0-9, A-Z, a-m	i (0x69)
Data Matrix	jdm	0-6	w (0x77)
EAN- 13	JE0		d (0x64)
EAN- 8	JE4		D (0x44)
EAN•UCC Composite	jem	0-3	y (0x79)
EAN-13 with Extended Coupon Code	JE3		d (0x64)
Interleaved 2 of 5	JIm	0, 1, 3	e (0x65)
Japanese Post	JX0		J (0x4A)
KIX (Netherlands) Post	JX0		K (0x4B)
Korea Post	JX0		? (0x3F)
Matrix 2 of 5	JX0		m (0x6D)
MaxiCode	JUm	0-3	x (0x78)
MICR E-13B	JZE		" (0x22)

Symbology	ID	Possible AIM ID Modifiers (<i>m</i>)	HHP Code ID (hex)
MicroPDF417	JLm	3-5	R (0x52)
MSI	JMm	0	g (0x67)
OCR-A	Jo1		O (0x4F)
OCR-B	Jo2		O (0x4F)
OCR US Money Font	Jo3		O (0x4F)
SEMI Font	Jo3		O (0x4F)
PDF417	JLm	0-2	r (0x72)
Planet Code	JX0		L (0x4C)
Plessey Code	JP0		n (0x6E)
PosiCode	Jpm	0, 1, 2	W (0x57)
Postnet	JX0		P (0x50)
QR Code	JQm	0-6	s (0x73)
Reduced Space Symbology (RSS-14, RSS Limited, RSS Expanded)	Jem	0	y (0x79)
Straight 2 of 5 IATA (two-bar start/stop)	JRm	0, 1, 3	f (0x66)
TCIF Linked Code 39 (TLC39)	JL2		T (0x54)
Telepen	JBm	0, 1, 2, 4	t (0x74)
Trioptic Code	JX0		= (0x3D)
UCC/EAN-128	JC1		l (0x49)
UPC-A	JE0		c (0x63)
UPC-A with Extended Coupon Code	JE3		c (0x63)
UPC-E	JE0		E (0x45)
VeriCode	JX0		v (0x76)

Note: “m” represents the AIM modifier character. Refer to International Technical Specification, Symbology Identifiers, for AIM modifier character details.

Note: Prefix/Suffix entries for specific symbologies override the universal (All Symbologies, 99) entry.

Refer to Data Editing (see Chapter 4) and Data Formatting (see Chapter 5) for information about using Code ID and AIM ID.

ASCII Conversion Chart (Code Page 1252)

Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char
1	00	NUL	1	20		1	40	@	1	60	'
2	01	SOH	2	21	!	2	41	A	2	61	a
3	02	STX	3	22	"	3	42	B	3	62	b
4	03	ETX	4	23	#	4	43	C	4	63	c
5	04	EOT	5	24	\$	5	44	D	5	64	d
6	05	ENQ	6	25	%	6	45	E	6	65	e
7	06	ACK	7	26	&	7	46	F	7	66	f
8	07	BEL	8	27	'	8	47	G	8	67	g
9	08	BS	9	28	(	9	48	H	9	68	h
10	09	HT	10	29	)	10	49	I	10	69	i
11	0A	LF	11	2A	*	11	4A	J	11	6A	j
12	0B	VT	12	2B	+	12	4B	K	12	6B	k
13	0C	FF	13	2C	,	13	4C	L	13	6C	l
14	0D	CR	14	2D	-	14	4D	M	14	6D	m
15	0E	SO	15	2E	.	15	4E	N	15	6E	n
16	0F	SI	16	2F	/	16	4F	O	16	6F	o
17	10	DLE	17	30	0	17	50	P	17	70	p
18	11	DC1	18	31	1	18	51	Q	18	71	q
19	12	DC2	19	32	2	19	52	R	19	72	r
20	13	DC3	20	33	3	20	53	S	20	73	s
21	14	DC4	21	34	4	21	54	T	21	74	t
22	15	NAK	22	35	5	22	55	U	22	75	u
23	16	SYN	23	36	6	23	56	V	23	76	v
24	17	ETB	24	37	7	24	57	W	24	77	w
25	18	CAN	25	38	8	25	58	X	25	78	x
26	19	EM	26	39	9	26	59	Y	26	79	y
27	1A	SUB	27	3A	:	27	5A	Z	27	7A	z
28	1B	ESC	28	3B	;	28	5B	[	28	7B	{
29	1C	FS	29	3C	<	29	5C	\	29	7C	|
30	1D	GS	30	3D	=	30	5D	]	30	7D	}
31	1E	RS	31	3E	>	31	5E	^	31	7E	~
32	1F	US	32	3F	?	32	5F	_	32	7F	

Dec.	Hex	Char	Dec.	Hex	Char	Dec.	Hex	Char	Dec.	Hex	Char
128	80	1	1	A0		1	C0	À	1	E0	à
129	81		2	A1	í	2	C1	Á	2	E1	á
130	82	í	3	A2		3	C2	Â	3	E2	â
131	83	í	4	A3		4	C3	Ã	4	E3	ã
132	84	í	5	A4	ä	5	C4	Ä	5	E4	ä
133	85	í	6	A5		6	C5	Å	6	E5	å
134	86		7	A6	ǿ	7	C6	Æ	7	E6	æ
135	87		8	A7	§	8	C7	Ç	8	E7	ç
136	88	í	9	A8	ˆ	9	C8	È	9	E8	è
137	89	‰	10	A9	©	10	C9	É	10	E9	é
138	8A	Š	11	AA	–	11	CA	Ê	11	EA	ê
139	8B	‹	12	AB	«	12	CB	Ë	12	EB	ë
140	8C	Œ	13	AC	¬	13	CC	Ì	13	EC	ì
141	8D		14	AD	–	14	CD	Í	14	ED	í
142	8E	–	15	AE	®	15	CE	Î	15	EE	î
143	8F		16	AF	–	16	CF	Ï	16	EF	ï
144	90		17	B0	°	17	D0	Ð	17	F0	ð
145	91	´	18	B1	±	18	D1	Ñ	18	F1	ñ
146	92	´	19	B2	²	19	D2	Ò	19	F2	ò
147	93	“	20	B3	³	20	D3	Ó	20	F3	ó
148	94	”	21	B4	´	21	D4	Ô	21	F4	ô
149	95		22	B5	µ	22	D5	Õ	22	F5	õ
150	96		23	B6	¶	23	D6	Ö	23	F6	ö
151	97		24	B7	·	24	D7	×	24	F7	÷
152	98	˘	25	B8	¸	25	D8	Ø	25	F8	ø
153	99	™	26	B9	¹	26	D9	Ù	26	F9	ù
154	9A	š	27	BA	º	27	DA	Ú	27	FA	ú
155	9B	›	28	BB	»	28	DB	Û	28	FB	û
156	9C	œ	29	BC	¼	29	DC	Ü	29	FC	ü
157	9D		30	BD	½	30	DD	Ý	30	FD	ý
158	9E	–	31	BE	¾	31	DE	Þ	31	FE	þ
159	9F	ÿ	32	BF	¿	32	DF	ß	32	FF	ÿ

Code Page Mapping of Printed Bar Codes

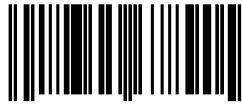
Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the bar code being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, select the code page with which the bar codes were created. The data characters should then appear properly.

Note: The Code Page option is available for Code 39, Code 93, and Code 128.

Code Page	Standard	Description
1	CP ISO646	
2	ISO 2022	Automatic National Replacement Characters
3	CP Binary	
82	ISO 2022 11 Swe	Swedish Replacement Characters
83	ISO 2022 69 Fra	French/Belgium Replacement Characters
81	ISO 2022 25 Fra	French/Belgium Replacement Characters
84	ISO 2022 11 Ger	German Replacement Characters
85	ISO 2022 11 Ita	Italian Replacement Characters
86	ISO 2022 11 Swi	Swiss Replacement Characters
87	ISO 2022 11 UK	British Replacement Characters
88	ISO 2022 11 Dan	Danish Replacement Characters
89	ISO 2022 11 Nor	Norwegian Replacement Characters
90	ISO 2022 11 Spa	Spanish Replacement Characters

Appendix B: Sample Symbols

UPC-A



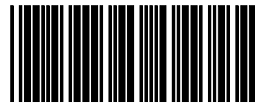
0 123456 7890

Code 128



Code 128

Code 39



BC321

Code 93



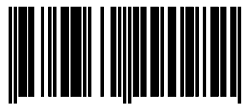
123456-9\$

Interleaved 2 of 5



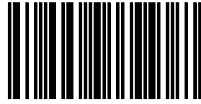
1234567890

EAN-13



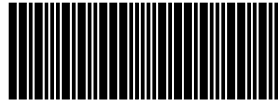
9 780330 290951

Codabar



A13579B0

Code 2 of 5



123456



6543210

PDF417



Car Registration

Code 49



1234567890

QR Code



Numbers

RSS-14



(01)00123456789012

Postnet



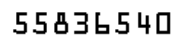
Zip Code

Data Matrix



Test Symbol

OCR-A Sample



OCR-B Sample

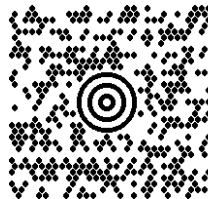


Aztec



Package Label

MaxiCode



Test Message

Micro PDF417



Test Message

Appendix C: Programming Chart



a



c



d



e



g



h



l



r



t



Save



Discard



A



B



C



D



E



F



0



1



2



3

Note: If you make an error while scanning the letters or digits (before scanning Save), scan Discard, scan the correct letters or digits, and **Save** again.