User's Manual

P/N 066104-002

1551C Decoding Laser Scanner

Intermec

A UNOVA Company

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Outside U.S. and Canada: Contact your local Intermec service supplier.

Patents

The 1551C product is covered by one or more of the following U.S. Patents:

4,360,798; 4,369,361; 4,387,297; 4,460,120; 4,496,831; 4,593,186; 4,603,262; 4,607,156; 4,652,750; 4,673,805; 4,736,095; 4,758,717; 4,816,660; 4,845,350; 4,896,026; 4,897,532; 4,923,281; 4,933,538; 4,992,717; 5,015,833; 5,017,765; 5, 021,641;5,029,183; 5,047,617; 5,103,461; 5,113,445; 5,140,144; 5,142,550; 5,149,950; 5,517,687; 5,168,148; 5,168,149; 5,180,904; 5,229,591; 5,230,088; 5,235,167; 5,243,655; 5,247,162; 5,250,791; 5,250,792; 5,262,627;5,280,163; 5,280,164; 5,280,498; 5,304,786; 5,304,788; 5,321,246; 5,377,361; 5,367,151; 5,373,148; 5,378,882; 5,396,053; 5,396,055; 5,399,846; 5,408,081; 5,410,139; 5,410,140; 5,412,198; 5,418,812; 5,420,411; 5,436,440;5,444,231; 5,449,891; 5,449,893; 5,468,949; 5,479,000; 5,479,002; 5,479,441; 5,504,322; 5,528,621; 5,532,469; 5,543,610; 5,545,889; 5,552,592; 5,578,810; 5,589,680; 5,612,531.

Other U.S. and foreign patents pending.

Patents

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Section 4 Configuring Bar Code Symbologies

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Before You Begin

This section introduces you to standard warranty provisions, safety precautions, warnings and cautions, document formatting conventions, and sources of additional product information.

Warranty Information

To receive a copy of the standard warranty provision for this product, contact your local Intermec support services organization. In the U.S. call 1−800−755−5505, and in Canada call 1−800−688−7043.

Safety Summary

Your safety is extremely important. Read and follow all warnings and cautions in this book before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

Do not repair or adjust alone Do not repair or adjust energized equipment alone under any circumstances. Someone capable of providing first aid must always be present for your safety.

First Aid Always obtain first aid or medical attention immediately after an injury. Never neglect an injury, no matter how slight it seems.

Resuscitation Begin resuscitation immediately if someone is injured or stops breathing. Any delay could result in death. To work on or near high voltage, you should be familiar with approved industrial first aid methods.

Energized Equipment Never work on energized equipment unless authorized by a responsible authority. Energized electrical equipment is dangerous. Electrical shock from energized equipment can cause death. If you must perform authorized emergency work on energized equipment, be sure that you comply strictly with approved safety regulations.

Before You Begin

Warnings, Cautions, and Notes

The warnings, cautions, and notes in this manual use the following format.

Warning

Warning

A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.

Avertissement

Un avertissement vous avertit d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pout éviter l'occurrence de mort ou de blessures graves aux personnes manupulant l'équipment.

Caution

Caution

A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.

Conseil

Une précaution vous avertit d'une procédure de fontionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour empêcher l'endommagement ou la destruction de l'équipement, ou l'altération ou la perte de données.

Before You Begin

About This Manual

This manual contains all of the information necessary to install, operate, configure, troubleshoot, and maintain the decoding laser scanners.

What You Will Find in This Manual

This table summarizes the information in each chapter and appendix of this manual:

For Information On	Refer To
Connecting the scanner	Chapter 1 tells you how to connect the scanner to your terminal.
Operating the scanner	Chapter 2 explains how to operate, troubleshoot, and maintain the scanner.
Configuring the scanner	Chapter 3 describes how to configure the scanner.
Converting to hexidecimal	Appendix A contains an ASCII conversion chart.
Configuration commands	Appendix B has an alphabetical list of configuration commands by the command's two-letter bar code syntax.

Terms

"Scanner" refers to the decoding laser scanners.
"Reader" refers to a device that receives data sent from the scanner.
"Terminal" refers to the point-of-sale (POS) terminal, PC, laptop, pen-based terminal, or other device that receives data sent from the scanner.
For definitions of the technical terms used in this manual, see the glossary.

Conventions for Bar Codes

You can use your laser scanner to scan the bar codes listed in this manual to enter data or perform a command. In some cases you will simply scan the code that accompanies an explanation. For example, to change the baud rate from the default of 9600 bps to 19200, you would scan the 19200 bar code in the Baud Rate Selection section on page 3–10.

Some functions require you to scan a code and then scan a letter or number from the Programming Chart located on the inside of the back cover of this manual. For example, to add a terminal interface, you determine the two character Terminal ID and scan the characters on the Programming Chart after scanning the Program Terminal Interface bar code.

A default setting is indicated by an ✶ symbol next to the bar code.

Before You Begin

This chapter describes the different types of scanners and how to connect the scanners to a terminal.

Getting Started

Each type of decoding laser scanner is designed for collecting data for a specific type of terminal, as summarized in this list:

Scanner	Description of terminal
1551C02XX	Compatible with devices equipped with an RS-232 serial communications port and DEC VT Series.
1551C03XX	For use with an IBM 4683/4684/4693/4694 point-of-sale terminal. Also for the 1551C03XX scanner only: Can be used with an optical coupled interface adapter (OCIA) and Data Checker terminals. See the quick reference guide for your scanner or contact your local Intermec representative for a list of the specific terminals.
1551C07XX	Keyboard wedge interface for use with personal computers (PC) through a keyboard, or with a laptop through the auxiliary keyboard port.

All scanners can be used with a portable terminal in Wand Emulation mode (see Chapter 3), or with the scanner stand (see Chapter 2).

Unpacking the Scanner

The shipping box contains the laser scanner and a quick reference guide.

Note: *You must order the appropriate interface cables separately. See the quick reference guide for the cable that is appropriate for your scanner or call your local Intermec representative for help ordering cables.*

If any of these items are missing or damaged, please contact your local Intermec representative. Retain the shipping box in case you need to ship the scanner.

Connecting the Scanner

Installation Equipment

All scanners can be operated with this equipment:

- Connected to a terminal such as a point-of-sale terminal, personal computer, or fixed reader
- Used with a portable terminal for mobile applications
- Used with the scanner stand for hands-free operation

You must order the appropriate interface cables separately. See the quick reference guide for your scanner or call your local Intermec representative for help ordering cables.

Connecting the Scanner

1551C02XX Decoding Laser Scanner

The 1551C02XX is designed to interface with terminals equipped with RS-232 serial communication ports, as well as DEC VT220/320/420 Series terminals. The following sections explain how to connect the 1551C02XX to a RS232 port, DEC terminal, or a portable reader.

To connect the 1551C02XX scanner to a RS232 port

1. Connect the modular plug on the interface cable to the bottom of the scanner handle. Tighten the screw that secures the plug in the handle.
2. Make sure the terminal is turned off. If you are connecting to a serial port, connect the D-type connector end of the cable to the serial port.
3. Connect the external power supply cable to the side of the D-type connector or power pigtail on Y cables.
4. Plug the external power supply into an outlet or surge protector.
5. Turn on the power to the terminal.
6. Scan this bar code to set default values:

RS-232 Interface

*The bar code above **also** programs the following parameters:*

Programmable Option	**Setting**
Baud Rate	9600 bits per second
Parity	even
Data Format	7 data bits, parity bit, 1 stop bit (8 Bit Data)

Refer to Chapter 2 to learn basic scanning operation, scanning tips, and how to use with the scanner stand for hands-free scanning. To change the scanner configuration, refer to Chapter 3.

Connecting the Scanner

To connect the 1551C02XX scanner to a DEC VT220/320/420 Series Terminal

1. Connect the modular plug on the interface cable to the bottom of the scanner handle. Tighten the screw that secures the plug in the handle.
2. Make sure the terminal is turned off.
3. The DEC cable is a "Y" cable with a modular socket and a modular plug. Disconnect the keyboard connector from the DEC terminal and connect the plug to the terminal. Connect the socket to the keyboard.
4. Turn on the power to the terminal.
5. Scan the Program Terminal Interface bar code.

Program Terminal Interface

6. Scan the DEC terminal ID codes (0 and 4) to set default values:

0

4

See Chapter 2 to learn basic scanning operation, scanning tips, and how to use with the scanner stand for hands-free scanning. To change the scanner configuration, see Chapter 3.

Connecting the Scanner

To connect the 1551C02XX scanner to a Portable Reader

1. The unit is defaulted from the factory for wand emulation mode and can be connected to a portable reader with no configuration necessary. The following codes configure for wand emulation to use with a portable reader, if needed. To ensure that the correct cable is used, refer to the quick reference guide for your scanner.

2. Scan the appropriate wand emulation code, Code 39 or Same Code, to configure your scanner for use with a portable reader.

✶ Code 39 Wand Emulation

or

Scan the following for Same Code Wand Emulation.

Same Code Wand Emulation Selection †

† Supports Code 39, UPC, EAN, Code 128, Interleaved 2 or 5, and Codabar. All other codes output as Code 39.

Your scanner will default to these values:

Parameter	**Setting**
Bar Code Polarity	White high
Transmission Rate	40 inches per second
Bar Code Type	Code 39 Wand Emulation
Power Mode	Switched Power (Low power) ‡
Beeper Volume	Off

‡ For “Y” cable application see Power Consumption programming, page 1–20.

See Chapter 2 to learn basic scanning operation, scanning tips, and how to use with the scanner stand for hands-free scanning. To change the scanner configuration, see Chapter 3.

Connecting the Scanner

1551C03XX Decoding Laser Scanner

The 1551C03XX is designed to interface with IBM 4683/4684/4693/4694 point-of-sale (POS) terminals. The 1551C03XX can also be programmed for RS232 interfaces and optical coupled interface adapter (OCIA). See the quick reference guide for your scanner or contact your local Intermec representative for a list of the specific 1551C03XX terminals.

To connect the 1551C03XX scanner to an IBM 4683 Interface

1. Connect the modular plug on the cable to the bottom of the scanner handle. Tighten the screw that secures the plug in the handle.

Note: *The interface cable has either an 8-pin SDL (synchronous data link) connector for the 5B port on the POS terminal, or a 4-pin SDL connector for the 9A or 9B port.*

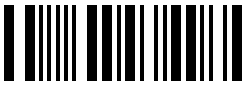
2. Make sure the power to the terminal is turned off. Then connect the other end of the cable to the port in the POS terminal.
3. Turn on the power to the terminal.

1551C03XX Decoding Laser Scanner, *continued*

4. Scan the appropriate bar code:

IBM 4683 Port 5B Interface

IBM 4683 Port 9B HHBCR–1 Interface



IBM 4683 Port 9B HHBCR–2 Interface

*These bar codes **also** program the following parameters which are required for the IBM protocol:*

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

See Chapter 2 to learn basic scanning operation, scanning tips, and how to use with the scanner stand for hands–free scanning. To change the scanner configuration, see Chapter 3.

Connecting the Scanner

To connect the 1551C03XX scanner to an OCIA, OCR, RS232 Interface, or Portable Reader

OCIA Interface

1. Insert the scanner end of the ten-position modular plug into the opening at the bottom of the scanner handle. Tighten the screw that secures the plug in the handle.
2. Make sure the power to the terminal is off. Then plug the other end into the receiving OCIA or OCR port in the terminal.
3. Turn on the power to the terminal.
4. Scan the appropriate bar code:

Spectra-Physics OCIA Interface

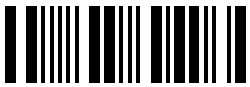
*The bar code above **also** programs the following parameters:*

Symbology	Suffix	Symbology	Prefix
EAN 8	06 06	UPC A	01
EAN 13	06	UPC E	05

NCR OCIA Short Form Format (Eight Bit) Interface

*The bar code above **also** programs the following parameters:*

Symbology	Suffix	Symbology	Prefix
EAN 8	0F 0F	UPC A	0A
EAN 13	0F	UPC E	0E



NCR OCIA Long Form Format (Nine Bit) Interface

*The bar code above **also** programs the following parameters:*

Symbology	Suffix	Symbology	Prefix
EAN 8	46 46	Code 39	42 31
EAN 13	46	I 2 of 5	42 32
UPC A	41	Code 128	42 33
UPC E	45		

Nixdorf OCIA Interface

*This bar code above **also** programs the following parameters:*

Symbology	Prefix
EAN/UPC with Addenda	44 4B
Code 39	44 49
I 2 of 5	44 48
2 of 5	44 47
Code 128	44 4A

RS232 Interface

RS-232 Interface

*The bar code above **also** programs the following parameters:*

Programmable Option	Setting
Baud Rate	9600 bits per second
Parity	even
Data Format	7 data bits, parity bit, 1 stop bit (8 Bit Data)

Connecting the Scanner

To connect the 1551C03XX scanner to a Portable Reader

1. Scan one of the following bar codes to configure the scanner for connection to an Intermec reader. To ensure that the correct cable is used, refer to the quick reference guide for your scanner.

2. Scan the appropriate wand emulation code, Code 39 or Same Code, to configure your scanner for use with a portable reader.

✶ Wand Emulation (Code 39 Format) Interface

or

Scan the following for Same Code Wand Emulation.

Wand Emulation (Same Code Format) Interface †

† Supports Code 39, UPC, EAN, Code 128, Interleaved 2 of 5, and Codabar. All other codes output as Code 39.

Your scanner will default to these values:

Parameter	Setting
Bar Code Polarity	White high
Transmission Rate	40 inches per second
Bar Code Type	Wand Emulation (Code 39 Format)
Power Mode	Switched Power ‡
Beeper Volume	Off

‡ For “Y” cable application see Power Consumption programming, page 1–20.

See Chapter 2 to learn basic scanning operation, scanning tips, and how to use with the scanner stand for hands-free scanning. To change the scanner configuration, see Chapter 3.

Connecting the Scanner

1551C07XX Decoding Laser Scanner

You can connect 1551C07XX scanner to a host terminal through the keyboard and operate in keyboard wedge mode or you can connect the scanner to an IBM laptop computer. The 155X07XX can also be programmed for RS232 interfaces.

To connect a wedge

1. Make sure the power to the terminal is turned off.
2. Connect the interface cable on the scanner cable to the bottom of the scanner handle. Tighten the screw that secures the plug in the handle.
3. Unplug the keyboard from the terminal and plug it into the short leg of the "Y" cable.
4. Plug the long leg of the "Y" cable into the terminal, where the keyboard was plugged in.

   If an external power supply is required, plug the power supply into the power pigtail of the cable. Then plug the other end of the power supply into an outlet or surge protector.
5. Turn on the power to the terminal. You hear a series of beeps that indicate power on reset (POR) routines.
6. Scan one of these bar codes to select your terminal type or refer to page 1–18 for additional interfaces:

IBM PC AT and Compatibles Interface
(also PS/2 30-286, 50, 55SX, 60, 70, 70-061, 70-121, 80)

IBM PS/2 and Compatibles Interface
(for PS/2 25, 30 models)

IBM PC XT and Compatibles Interface

*These bar codes **also** program a carriage return (CR) suffix.*

DEC VT510/520 PC/AT Style Keyboard

Connecting the Scanner

DEC VT510/520 LK−411 style keyboard

Connecting the Scanner

To connect the 1551C07XX scanner to a Portable Reader

1. The unit is defaulted from the factory for wand emulation mode and can be connected to a portable reader with no configuration necessary. The following codes configure for wand emulation to use with a portable reader, if needed. To ensure that the correct cable is used, refer to the quick reference guide for your scanner.

2. Scan the appropriate wand emulation code, Code 39 or Same Code, to configure your scanner for use with a portable reader.

✶ Wand Emulation (Code 39 Format) Interface

Wand Emulation (Same Code Format) Interface †

† Supports Code 39, UPC, EAN, Code 128, Interleaved 2 of 5, and Codabar. All other codes output as Code 39.

*These bar codes **also** program the following parameters:*

Programmable Option	**Setting**
Transmission Rate	40 inches per second
Output Polarity	White High
Bar Code Type	Wand Emulation Code 39 Format
Power Mode	Switched Power (Low Power) ‡
Beeper Volume	Off

‡ For “Y” cable application see Power Consumption programming, page 1–20.

Connecting the Scanner

To connect to a laptop or pen-based terminal

1. Make sure the power to the laptop or terminal is turned off.
2. Connect the interface cable on the scanner cable to the bottom of the scanner handle. Tighten the screw that secures the plug in the handle.
3. Connect the cable to the laptop external keyboard port.
4. Turn on the power to the laptop or terminal.
5. Scan a bar code to enable the laptop or terminal (US keypad).

Emulate External Keyboard

Note: *If your laptop or terminal has an international keyboard, see "Foreign Keyboard Selection" in Chapter 4 to enable a different language.*

Laptop with an integrated keyboard

Scan the following bar code if your laptop has an integrated keyboard. This bar code keeps the keyboard from becoming permanently disabled.

Automatic Direct Connect
Mode On

Keyboard Selections

Keyboard Style Selections

Keyboard Style Selections

This programming selection allows you to program special keyboard features, such as Caps Lock and Shift Lock.

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

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

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

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.

✶ Regular

Caps Lock

Automatic Caps Lock

Shift Lock

Keyboard Selections

Keyboard Style Modifiers

Keyboard Style Modifiers

This programming selection allows you to program special keyboard features, such as CTRL+ codes and Turbo Mode.

Default All – This sets all Keyboard Style Modifiers to their default states (Control + ASCII Mode Off, Turbo Mode Off, Numeric Keypad Mode Off).

Control + ASCII Mode On – If you scan this selection, the scanner sends key combinations for ASCII control characters for values 00–1F. Refer to page 5–1 for CTRL+ Values. *Default = Off*

Turbo Mode – Selecting Turbo Mode On, (for the IBM AT only), programs the scanner to send characters to the terminal faster. *Default = Off*

Numeric Keypad Mode – Selecting Numeric Keypad Mode On sends numeric characters as if entered from a numeric keypad. *Default = Off*

Automatic Direct Connect – When Emulate External Keyboard has been selected (page 1–14), Automatic Direct Connect Mode keeps the integrated keyboard from becoming permanently disabled. *Default = Off*

Note: *This selection disabled the keyboard for the entire duration of the bar code transmission.*

Default All

Control + ASCII Mode On

✶ Control + ASCII Mode Off

Turbo Mode On

✶ Turbo Mode Off

Numeric Keypad Mode On

✶ Numeric Keypad Mode Off

✶ Automatic Direct Connect Mode Off

Keyboard Selections

Terminal		Keyboard Styles/Modifiers								
ID	Name	Regular	Caps Lock	Shift Lock	CTRL + ASCII	DirCon	AutoCaps	NumPad	Turbo	Auto DC
1	IBM XT	std	Yes	Yes	Yes	No	No	Yes	No	No
2	IBM PS/2	std	Yes	Yes	Yes	Yes	Yes	Yes	12/9	Yes
3	IBM AT	std	Yes	Yes	Yes	Yes	Yes	Yes	14/3	Yes
NA	DEC VT510	std	Yes	Yes	Yes	Yes	Yes	Yes	14/11	Yes
6	IBM Terminals w/102 keys	std	Yes	Yes	Yes	No	No	Yes	No	No
7	IBM Terminals w/122 keys	std	Yes	Yes	Yes	No	No	Yes	No	No
8	IBM Terminals w/122 keys	std	Yes	Yes	Yes	No	No	Yes	No	No
24	IBM Terminals w/122 keys	std	D/E	No	No	No	No	No	No	No
25	Telex w/88 keys	std	D/E	No	No	No	No	No	No	No
35	Bull	std	Yes	Yes	No	No	No	No	No	No
45	Telex w/102 keys	std	Yes	Yes	No	No	No	No	No	No
46	Telex w/102 keys	std	Yes	Yes	No	No	No	No	No	No
97	IBM Thinkpad	std	ob-solete	ob-solete	Yes	ob-solete	ob-solete	Yes	No	N/A
NA	DEC VT510 LK411	std	Yes	Yes	Yes	Yes	No	Yes	14/11	Yes

D/E = style of keyboard supported.

14/3 = Time (in seconds) with Turbo mode off versus on.

Terminal Interface Selections

If your terminal is not one of the interfaces on pages 1−3 − 1−14, you must program one of the terminal IDs listed below. To program the terminal interface, scan the Program Terminal Interface bar code below, then scan the appropriate two digit Terminal I.D. code from the Programming Chart on the inside back cover of this manual.

Program Terminal Interface

Supported Terminals

Terminal	Model(s)	Terminal I.D.
B02		
DEC	VT−220, 320, 330, 340 420	04
RS232 True		00
RS232 TTL		00
B07		
ADI	1496	72
Apple Desktop Bus ADB	MAC Classic, SE SE30, II (All)	49
Bull	BDS−7 (HDS−7)	35
Falco	5220	47
HP	700/44, 700/92, 700/94, 700/96, 700/98HP	20
HP	700/32, 700/60	79
WYSE	WY−30	13
WYSE ANSI	WY 60, 120, 150	15
WYSE ASCII	WY 60, 120, 150, 160	14
WYSE Enhanced PC	WY 60, 120, 150, 160	18
B03 and 07		
Esprit	200, 400	05
IBM	PC XT	01
IBM	PS/2 25, 30	02
IBM	AT, PS/2 30−286, 50, 55SX, 60, 70, 70−061, 70−121, 80	03
IBM 102 Key	3151, 3161, 3162, 3163, 3191, 3192, 3196, 3197, 3471, 3472, 3476, 3477	06
IBM 122 Key	3179−1, 3191, 3192, 3471, 3472, 3194	07
IBM 122 Key	3196, 3197, 3476, 3477, 3486, 3488, 3482	08

Terminal Interface Selections

Supported Terminals

Terminal	Model(s)	Terminal I.D.
B03 and 07, *continued*		
IBM 122 Key	3180	24
IDEAS	102 Key	84
	122 Key	71
Siemens 9758	(German Only)	34
Telex 88 Key	078A, 078, 79, 80, 191, 196, 1191, 1192, 1471, 1472, 1476	25
Telex 102 Key	078A, 078, 79, 80, 191, 196, 1191, 1192, 1471, 1472, 1476	45
Telex 122 Key	078A, 078, 79, 80, 191, 196, 1191, 1192, 1471, 1472, 1476	46

Power Consumption

Switched Power Mode Selections

When this feature is enabled, the unit consumes less than 50 uA from its power line when the trigger is not pulled. When the trigger is pulled, it consumes normal power. This feature is used for battery powered devices to save power. If power savings is not an issue and speed is, disable this feature for better performance.

✶ Switched Power (Low Power) Mode

Constant Power Mode

Note: *Switched Power supported by 1551C02XX and 1551C07XX only.*

Note: *Scanner must be programmed for Constant Power Mode when used with the "Y" cable accessory (part # 054364) and the 1700 keyboard, the T248X, or the 9560 with integrated badge scanner.*

This chapter provides basic operating procedures, troubleshooting, and maintenance guidelines.

General Instructions

Decoding laser scanners are easy to use and maintain, but you should read this chapter to become familiar with the safety and maintenance procedures and learn to get the most effective use out of your scanner.

Note: *Each scanner is shipped with a quick reference guide that provides the same operating procedures and safety instructions in this chapter. Keep that guide near your scanner for quick reference.*

Scanner Light

The light indicates the status of the scanner.

Color	Description
Yellow	The device is scanning.
Green	The bar code has been successfully scanned.
None	The device is not scanning.

Warning

Warning

Do not look directly into the window area or at a reflection of the laser beam while the laser is scanning. Long term exposure to the laser beam can damage your vision.

Avertissement

Ne regardez pas directement la réflexion d'un rayon laser ou dans la fenêtre du laser lorsque celui−ci est en opération. Si vous regardez trop longtemps un rayon laser, cela peut endommager votre vision.

Operating the Scanner

Scanner Beeps

The scanner emits these beeps to indicate either a successful scan or a situation that requires your attention.

Beep	Description
One medium beep	The bar code has been successfully read and you can continue scanning.
Two beeps (High – Low)	A command bar code has been scanned.
Two medium beeps	The scanner has been turned on.
Three medium beeps	Indicates an error. Refer to the Troubleshooting section for additional information.

Remote Beep

You can send a command to make the scanner beep. In Serial Mode, the scanner will beep when this command is sent from the host terminal:

STX BEL ETX or

02H 07H 03H in Hex command, or ^B^G^C through the keyboard.

Operating the Scanner

You can operated the scanner in two ways:

- As a hand–held device, using the trigger to initiate scanning.
- As a hands–free device, mounting in the scanner stand and scanning automatically.

Before you start scanning, make sure the power to the reader/terminal is on and all cable connections are secure.

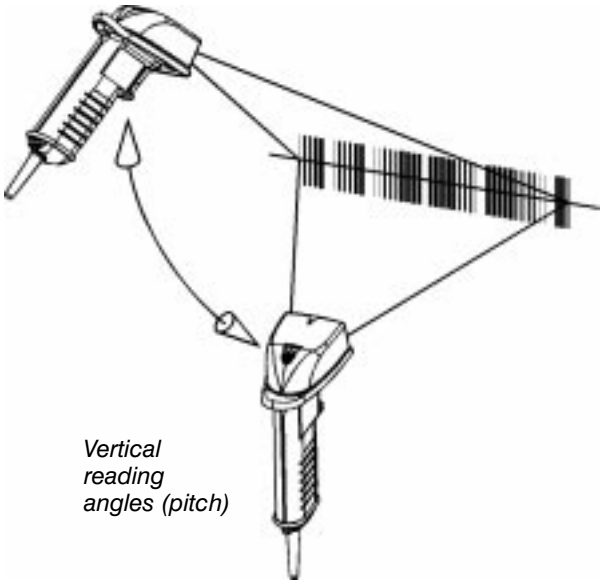
Hand–Held Scanning

1. Aim the scanner at a sight angle or pitch to the bar code and press the trigger.
2. When you get a successful read the laser beam turns off, the scanner beeps once, and the light turns green.

Operating the Scanner

Scanner Tips

Hold the scanner at a slight angle or pitch to the bar code.



Vertical reading angles (pitch)

Adjust the scanner distance to the bar code and the position of the laser beam to make sure every bar and space is scanned. The scanner does not always scan n better the closer you get to the code. Try moving the scanner away from the code.

Incorrect

Correct

Operating the Scanner

Hands–Free Scanning

You can use your laser scanner with a scanner stand for hands–free scanning. To order a scanner stand, contact your local Intermec representative. See scanner stand documentation to assemble the scanner stand and insert the scanner.

To Perform Hands–Free Scanning

1. Place the scanner into the scanner stand.
2. Align the scanner and adjust the column height so the scanner laser beam covers the entire label.
3. Place a bar code right-side up over the reflective label.

When the scanner emits a single beep and/or the scanner light turns green, the bar code has been successfully read. If you remove the scanner from the stand, you can scan bar codes by pressing the trigger. When you return the scanner to the stand, the scanner will scan bar codes placed over the label.

Switching Back to Hand–Held Scanning

1. Remove the scanner from the stand.
2. The scanner beam resets after 2 to 6 seconds.
3. Aim the scanner at a sight angle or pitch to the bar code and press the trigger.

Marker Beam Selection

When enabled, the scanner shows a marker or locator beam before the red scan line opens across a bar code and the scanning process begins. The marker beam, emitted by centering the optical scan mirror, appears as a bright spot of illumination that serves as an aiming guide when bar code targets are at a distance from the scanner. ***Note:*** *Applies to 1551CXX03 only.*

Warning: *Scanning this code with standard range model will reduce performance.*

On

* Off

Operating the Scanner

Troubleshooting

This table lists common scanner problems and their solutions.

Symptom	Solution
System is “jammed” and scanner will not operate.	The scanner could not process the information. Turn off the power to the terminal and then turn it on. The scanner will retain its configuration.
Scanner cannot read certain bar codes.	The scanner was not set up to read this type of bar code, or the bar code is damaged, covered up, or poor quality. Scan another bar code on a similar item. If it scans, clean the bar code giving you trouble. If you are still unable to scan the bar code, enable other bar code symbologies (see “Configuring Bar Code Symbologies” in Chapter 4.*).*
Scanner does not read the correct uppercase or lowercase letter, or number and symbol.	If you use the Caps Lock on your terminal, you must enable the Caps Lock command (page 1−15) for the scanner to read and correctly decode bar code labels with uppercase letters. If you use the Shift key on your terminal, you must enable the Shift Lock command (page 1−15) for the scanner to read and correctly decode bar code labels with symbols (for example: !@$%).
Scanner does not read bar codes quickly and sometimes requires multiple scans.	Clean the window with a cotton cloth moistened with an ammonia or water solution. Dry with a soft cotton cloth or allow to air dry. Make sure the bar code is free of dirt and grime. If it is damaged, try to repair. Scan at a slight angle or pitch to the bar code (see “Scanning Tips” earlier in this chapter). Try adjusting the scanning distance. Disable all bar code symbologies except for the bar code being scanned.

Troubleshooting, *continued*

Symptom	Solution
Scanner does not read “shiny” bar codes.	Scan at a slight angle or pitch to the bar code. (See “Scanning Tips” earlier in this manual.
Scanner emits three beeps.	Scanner does not recognize the programming code scanned. Make sure you are scanning the correct programming bar code and try again.
Scanner does not emit a beam and does not operate.	The scanner is not receiving power. Make sure the scanner cables are securely plugged in and the terminal is on. Replace damaged cables.
Scanner does not emit a beam and does not operate.	Scan at a slight angle or pitch to the bar code. Refer to “Scanning Tips” earlier in the manual.

If you continue to encounter problems with your scanner, contact your local Intermec representative.

Maintenance

Water or grime on the window of the scanner distorts the laser beam and impair performance. Moving from one temperature extreme to another causes condensation to form on the optical surfaces and also affects scanner performance.

Follow these guidelines to maintain the scanner:

- Clean the window with a cotton cloth and ammonia or water. Dry with a soft cotton cloth or allow to air dry.
- Do **not** use a dry tissue to wipe the window. This causes small scratches on the window.
- Do **not** immerse the unit in water.
- Operate and store store in an environment with 0% to 95% relative humidity.

Introduction

Use this chapter to program the output parameters for the Hand-Held Laser Scanner.

This programming section contains the following menuing selections:

- Factory Default Settings
- Status Check
- Quick Suffix Selection
- Output Parameters
- Serial Communication (RS-232)
- Data Formatter
- Wand Emulation
- Country Code

Configuring the Scanner

Scanning the ***Factory Default Settings*** bar code resets the scanner to the original factory settings as noted throughout this User's Manual with an asterisk (✶). Any programming changes you have made will be cleared.

Factory Default Settings

Status Check

Scan the ***Show Software Revision*** bar code to transmit the software revision level to the host terminal. The software revision will be printed out as "WA34310XXX." (The "X's" will vary according to the firmware ID.)

Show Software Revision

Quick Suffix Selections

If your application requires it, scan the ***Program Carriage Return Suffix*** bar code to program a carriage return (CR) suffix for all enabled bar code symbologies. **Scanning this bar code clears all previously programmed prefixes and suffixes.**

Scan the ***Clear Bar Code Suffix*** bar code to disable (or clear) all previously programmed prefixes and suffixes (e.g., the carriage return suffix).

Program Carriage Return Suffix

Clear Bar Code Suffix

Prefix / Suffix Selections

Primary Interface Prefix and Suffix

The scanner transmits a decoded message after every successful bar code read. Prefix and Suffix characters are data characters you may assign to be sent before and after the transmitted bar code data.

Transmitted data frame –>	Prefix	Bar Code Message	Suffix

Characters for the Prefix and Suffix are selected by their hexadecimal ASCII value, up to 12 ASCII characters each. Prefix and Suffix characters may be sent for a specific symbology, or may be sent with all bar code scans.
Default Prefix = none. Default Suffix = none.

Programming Steps to Add a Primary Interface Prefix / Suffix:

❶ To add a Prefix, scan the ***Add Primary Prefix*** programming bar code.
To add a Suffix, scan the ***Add Primary Suffix*** programming bar code.

❷ Refer to the Symbology Chart (page 3−6) to find the Hex value that represents the symbology(s) you want transmitted with one or more Prefixes or Suffixes. Scan the two digits on the Programming Chart (on the inside of the back cover of this menu).

❸ Refer to the Hex ASCII Chart (page 3−6) to find the Hex value that represents the ASCII characters you wish to transmit with the bar code data. Use the Programming Chart (inside back cover) to scan the alphanumeric combination that represents the ASCII characters.

❹ To complete Prefix / Suffix programming, scan either:

- ***Save Current Prefix or Suffix Changes***† programming bar code. This exits, saving the Prefix / Suffix selections you just assigned.
- ***Discard Current Prefix or Suffix Changes*** programming bar code. This exits without changing the Prefix / Suffix.

† You may also start scanning bar codes; your Prefix / Suffix selections will be saved.

Programming Steps to Clear (or Delete) One Prefix / Suffix Entry:

❶ To clear the Prefix entry for a specific symbology, scan the ***Clear One Primary Prefix*** programming bar code.
To clear the Suffix entry for a specific symbology, scan the ***Clear One Primary Suffix*** programming bar code.

❷ Refer to the Symbology Chart to find the Hex value representing the symbology's entry you want cleared. Scan the two digits on the Programming Chart (on the inside of the back cover of this menu).

❸ You don't need to scan ***Save Current ... Changes*** or ***Discard Current ... Changes*** programming bar codes to complete programming.

Other Programming Selections: Scanning the ***Clear All Primary Prefixes*** or ***Clear All Primary Suffixes*** bar code deletes all Primary Prefix or Suffix selections. You don't need to scan the ***Save Current ... Changes*** or ***Discard Current ... Changes*** programming bar code to complete programming.

Note: *Prefix / Suffix programming examples may be found on page 3−5.*

Prefix / Suffix Selections

Primary Interface Prefix Selection

Add Primary Prefix ‡

Clear All Primary Prefixes

Clear One Primary Prefix ‡

Primary Interface Suffix Selection

Add Primary Suffix ‡

Clear All Primary Suffixes

Clear One Primary Suffix ‡

Exit Selection for Prefix / Suffix

Save Current Prefix or Suffix Changes

Discard Current Prefix or Suffix Changes

‡ One or more two-digit numbers are required after scanning this programming bar code. Please scan your selection on the Programming Chart (inside back cover).

Prefix / Suffix Selections

Prefix and Suffix Examples

Example 1: Add Suffix for Specific Symbology

You want to send a CR (carriage return) Suffix for UPC only.

- Scan the ***Add Suffix*** Suffix Selection bar code.
- The Symbology Chart indicates that the Hex value of UPC is "63". Scan **6** and **3** on the Programming Chart (inside back cover).
- A "CR" is equivalent to "0D" (see the Hex ASCII Chart). Scan **0** and **D** on the Programming Chart.
- Scan the ***Save Current Suffix Changes*** Exit Selection bar code.

Example 2: Add Suffix for *ALL* Symbologies

You want to send a CR (carriage return) Suffix for all symbologies.

- Scan the ***Add Suffix*** Suffix Selection bar code.
- The Symbology Chart indicates that the Hex value for All Symbologies is "99". Scan **9** and **9** on the Programming Chart.
- A "CR" is equivalent to "0D". Scan **0** and **D** on the Programming Chart.
- Scan the ***Save Current Suffix Changes*** Exit Selection bar code.

Example 3: Add Prefix for Specific Symbology / Suffix for *ALL* Symbologies

You want to send a HT (tab) Prefix for UPC only and a CR / LF (carriage return / line feed) Suffix for all symbologies.

- Scan the ***Add Prefix*** Prefix Selection bar code.
- The Symbology Chart indicates that the Hex value of UPC is "63". Scan **6** and **3** on the Programming Chart.
- An "HT" is equivalent to "09". Scan **0** and **9** on the Programming Chart.
- Scan the ***Add Suffix*** Suffix Selection bar code.
- The Symbology Chart indicates that the Hex value for All Symbologies is "99". Scan **9** and **9** on the Programming Chart.
- A "CR" is equivalent to "0D" and an "LF" is "0A". Scan **0**, **D**, **0**, and **A** on the Programming Chart.
- Scan the ***Save Current Prefix / Suffix Changes*** Exit Selection bar code.

Example 4: To Clear a Specific Prefix Entry

You've programmed the scanner to send a CR / LF (carriage return / line feed) Prefix for all symbologies (Hex value, 99). This is one Prefix entry. You've also programmed a "*#*" Prefix for UPC (Hex, 63). You decide that you want to clear the UPC entry, but not the Prefix entry for all symbologies.

- Scan the ***Clear Specific Prefix*** Prefix Selection bar code.
- The Symbology Chart indicates that the Hex value for UPC is "63". Scan **6** and **3** on the Programming Chart.

Prefix / Suffix Selections

Symbology Chart					
Symbology	**Code ID †**	**Hex Value**	**Symbology**	**Code ID †**	**Hex Value**
Codabar	a	61	Code 11	h	68
Code 39	b	62	Code 93	i	69
UPC	c	63	Code 128	j	6A
EAN	d	64	Matrix 2 of 5	m	6D
Interleaved 2 of 5	e	65	Plessey	n	6E
Code 2 of 5	f	66	*All Symbologies*		99
MSI	g	67			

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

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

Note: *Adding a Prefix or a Suffix appends that Prefix / Suffix to any existing entries for the symbology(s) you've chosen. For example, if you've already programmed and saved a CR / LF (carriage return / line feed) and add a "#" Prefix, the "#" will be sent after the CR / LF.*

If you add a Prefix / Suffix but want existing entries cleared, you'll need to use the ***Clear Specific Prefix / Suffix*** *programming selection first. Then use the* ***Add Prefix / Suffix*** *programming selection to program your new Prefix / Suffix.*

Output Selections

✶ *Default All Output Settings* ✶

Beeper Volume Selection

Off

Low

✶ Medium

High

Output Delays Selection

This selection provides control of the time delays between data output by the scanner to the host terminal. The actual delay is 5 milliseconds multiplied by the programmed value (00 – 99). *Default = 00.*

Intercharacter Delay is the time delay between data characters output by the scanner to the host terminal.

Interfunction Delay is the time delay between function (key) codes output by the scanner to the host terminal.

Intermessage Delay is the time delay between data messages or records output by the scanner to the host terminal.

Example: You need a 45 millisecond delay. Scan the ***Intercharacter Delay*** bar code. Then scan "0" and "9" on the Programming Chart (09 x 5ms = 45 ms).

Intercharacter Delay (x5mS) ‡

Interfunction Delay (x5mS) ‡

Intermessage Delay (x5mS) ‡

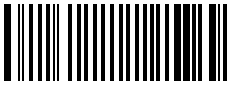
‡ A two-digit number is required after scanning this programming bar code. Please scan your selection on the Programming Chart (inside back cover).

Output Selections

Reread Delay Selection

This selection allows you to set a time period that must pass before the scanner can read the *same* bar code again. 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) terminals. Use shorter delays in applications where repetitive bar code scanning is required.

✶ Low (175 milliseconds)



Medium (450 milliseconds)

High (1.0 second)

Extra High (2.0 seconds)

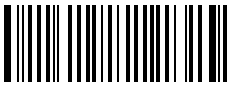
Good Read Delay Selection

This selection allows you to set a time period that must pass before the scanner can read another bar code. Some terminals require a slower read rate. By setting a good read delay, you can ensure a good read.

✶ None

Low (500 milliseconds)

Medium (1.0 second)



High (1.5 second)

Laser Voting Selection

When Laser Voting is enabled, the scanner requires three (3) identical, consecutive scans before the bar code data will be accepted and transmitted to the terminal. When this selection is disabled, the bar code data will be transmitted following one (1) valid scan.

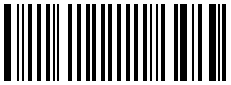
Enable

✶ Disable

Output Selections

Buffered Scans Selection

When enabled, this selection allows the scanner to accept a second scan while the current scan is transmitted to the host terminal (buffering of scanned data). When disabled, the scanner cannot accept additional scans until the current scan is transmitted to the host. *Default = Enable.*



✶ Enable

Disable

Code I.D. Transmit Selection

This allows you to enable or disable transmission of a Code I.D. before the decoded bar code symbology. (See the Symbology Chart on page 3−6 for the single character code that identifies each symbology.)

Enable

✶ Disable

AIM I.D. Transmit Selection

This selection allows you to enable or disable transmission of an AIM I.D. before the decoded bar code symbology. (See AIM Guidelines on Symbology Identifiers for more information on the AIM symbology ID characters.) *Default = Disable.*

Enable

✶ Disable

Function Code Transmit Selection

When this selection is enabled, and function codes are contained within the scanned data, the scanner transmits the key code (which corresponds to the decoded ASCII function code) to the terminal. ASCII function codes are represented by the HEX values 00−1F. (Charts of these function codes are shown in Section 6, Supported Interface Keys.)

✶ Enable

Disable

Serial Communication Settings

✶ *Default All Serial Communication Settings* ✶

CTS Check Selection

This selection allows you to select the software programming feature that checks for a CTS signal, if your application does not have a CTS I/O line. *Default = Disable.*

Enable

✶ Disable

Baud Rate Selection

This selection sets the baud rate from 300 bits per second to 38,400 bits per second. Programming baud rate causes the data to be sent at the specified rate. The host terminal must be set up for the same baud rate as the scanner, to ensure reliable communication. *Default = 9600 bps.*

300

600

1200

2400

4800

✶ 9600

19200

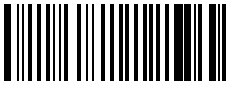
38400

Serial Communication Settings

RS-232 Word Length Selection

This selection allows you to set the RS-232 word length at seven or eight bits of data per character. The number of start and stop bits is fixed at one each. If an application requires only ASCII Hex characters 0 through 7F decimal (text, digits, and punctuation), select 7 data bits. For applications requiring use of the full ASCII set, select 8 data bits per character.

✶ 7 Data, 1 Stop

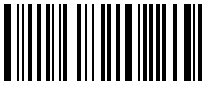


7 Data, 2 Stop

8 Data, 1 Stop

Parity Selection

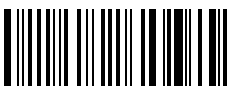
This selection provides a means of checking character bit patterns for validity. The scanner can be configured to operate under Even, Odd, Mark / None, or Space parity options. The host terminal must be set up for the same parity as the scanner, to ensure reliable communication.



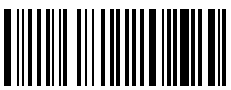
None

Mark

Space



Odd



✶ Even

Serial Communication Settings

Protocol Selection

This selection allows you to program the scanner for the protocol required by your application. The protocol is a set of rules concerning the exchange of data between serially communicating devices. The scanner supports Record, Xon / Xoff, and Ack / Nak protocols when receiving data from an RS-232 device.

✶ Record

Xon / Xoff

Ack / Nak

Data Formatter Selections

Data Format Editor

This selection provides editing of all input (scanned) data. All Industrial and Retail symbologies can be formatted. You may scan the ***Clear Data Format*** bar code if you are **certain** you want to delete or clear all formats.

To make Data Format Editor selections, you must know the terminal type, code I.D., code length, and editor commands your application requires. Use the Alpha-numeric bar codes (inside back cover) to scan these options.

Use the Data Format Editor by following the steps below:

❶ Scan the ***Enter Data Format*** bar code.

❷ **Terminal Type**
Scan two bar codes that represent the terminal type (00-99†, see page 1−18 for Terminal I.D. list.)

❸ **Code I.D.**
Refer to the Symbology chart (page 3−6), then scan two bar codes from the "Hex Value" column that represent the Code I.D. of the symbology you want formatted.

❹ **Length**
Scan two numeric bar codes (inside back cover) for the bar code length you require (00-99†). Be sure to include spaces.

❺ **Editor Command Sequences**
Refer to the Format Editor Commands chart (page 3−15). Scan two bar codes that represent the command you need.

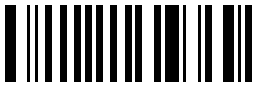
❻ **End Format (FF)**
Scan "F" ***twice*** to end Data Format Editor programming.

† 99 is the Universal number, indicating all symbologies and all code lengths.

Data Formatter Selections

Status Check

Scan the ***Show Formats*** bar code to transmit the existing Data Format Editor formats. One format per line will be printed out.



Show Formats

Require Data Format

When disabled, the bar code data will be output to the host as scanned (including prefixes and suffixes). When enabled, all input data must conform to an edited format or the scanner will not transmit the input data to the host device.

Enable

✶ Disable

Data Format Editor

See pages 3–13 and 3–15 through 3–16 for a description of this selection and examples.

Enter Data Format

Clear All Data Formats

Data Formatter Selections

Format Editor Commands Chart

Send Commands

F1 Send all characters followed by "XX" key or function code, starting from current cursor position. ***Syntax = F1XX*** *(XX = HEX ASCII character or function code 00−FE HEX).*

F2 Send "NN" characters followed by "XX" key or function code, starting from current cursor position. ***Syntax = F2NNXX*** *(NN = number of characters 00−99 DEC, XX = HEX ASCII character or function code 00−EF HEX).*

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 = HEX ASCII Character 00−7F HEX, XX = HEX ASCII character 00−7F HEX).*

F4 Send "XX" character "NN" times (Insert) leaving cursor in current cursor position. ***Syntax = F4XXNN*** *(XX = HEX ASCII character 00−7F HEX, NN = number of characters 00−99 DEC).*

Move Commands

F5 Move cursor ahead "NN" characters from current cursor position. ***Syntax = F5NN*** *(NN = number of characters 00−99 DEC).*

F6 Move cursor back "NN" characters from current cursor position. ***Syntax = F6NN*** *(NN = number of characters 00−99 DEC).*

F7 Move cursor to the beginning of the data string. ***Syntax = F7.***

Search Commands

F8 Search ahead for "XX" character from current cursor position, leaving cursor pointing to "XX" character. ***Syntax = F8XX*** *(XX = HEX ASCII character 00−7F).*

F9 Search back for "XX" character from current cursor position, leaving cursor pointing to "XX" character. ***Syntax = F9XX*** *(XX = HEX ASCII character 00−7F).*

Miscellaneous Commands

FA Leading zero suppress on. Suppress leading zeroes from current cursor position until first non−zero character. ***Syntax = FA.***

FB Suppress "XX" character(s) (up to three) starting from current cursor position until suppress disable command "FC" or end of format. ***Syntax = FBXXFB, FBXXXXFB, FBXXXXXXFB*** *(XX = ASCII character 00−7F).*

FC Disable suppress filter and clear all suppressed characters. ***Syntax = FC.***

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 = HEX ASCII character 00 −7F).*

Data Formatter Selections

Data Formatter Example

You are using an IBM PC AT and are scanning a UPC A bar code with a five digit addenda (shown below). The bar code has a total of 18 characters, including the number system, the check digits, and a space between the main bar code data and the addenda bar code data.

UPC A with 5 digit addenda

For your application, you don't want the space between the main bar code data and the addenda bar code data transmitted. You also want the bar code data followed by a carriage return (CR).

Refer to the Format Editor Commands Chart on page 3−15 to format the following example. The programming bar codes on pages 3−14, and the alpha-numeric bar codes on the inside back cover are used to program the data formatter.

- Scan the ***Enter Data Format*** bar code (page 3−14).
- Scan the ***03*** bar codes for PC AT Terminal Type.
- Scan the ***63*** bar codes, the Hex value for UPC symbology.
- Scan the ***18*** bar codes for the bar code length.

The following are the Editor Command Sequences:

- Scan the ***FB*** (suppress characters command) bar codes, scan ***20*** (the Hex value for a space), and then scan ***FB*** to frame (complete) the command.
- Scan the ***F7*** bar codes to move the cursor back to the beginning of the bar code data.
- Scan the ***F1*** and ***0D*** bar codes to send all the characters followed by a carriage return (CR= 0D in Hex value).
- Scan the ***FF*** bar codes to end Format Editor selection.

Wand Emulation Selections

Transmission Rate Selection

This programming selection sets the transmission rate from 10 ips (inches per second) to 300 ips if the scanner is in Wand Emulation mode. Programming the transmission rate causes the data to be sent at the specified rate. The programmed transmission rate must be compatible with the device receiving the bar code data. *Default = 40 ips (inches per second).*

10

25

★ 40

80

120

150

200

300

Wake Up Pulse Selection

This selection provides a "wake up" pulse on the sync line from the scanner to a portable terminal. This feature extends battery life of the portable terminal by waking up the terminal only when data is ready to be sent. Bar code data follows the wake up pulse after a 0.2 second delay. *Default = Disable.*

Enable

★ Disable

Output Polarity Selection †

This selection allows you to set the output logic convention for the digital output. The choices are White High ("Laser" output) and Black High.
Default = White High.

★ White High

Black High

Wand Emulation Selections

Quiescent State Idle Selection

The following bar codes determine the state of the video signal in idle mode. Note that the scanner must be in Constant Power mode.

✶ Quiescent State High

Quiescent State Low

Note: *95XX must use Quiescent State High.*

Country Code Selections

Foreign Keyboard Selection

This programming selection allows you to re-map the keyboard layout for the selected country. As a general rule, the following characters are not supported by the scanner for countries other than the United States:

@ | $ # { } [ ] = / ‘ \ < > ~

✶ United States

Belgium

Denmark, Finland, Norway, Sweden

France

Germany, Austria

Italy

Switzerland

United Kingdom

Denmark (*Wyse only*)

Norway (*Wyse only*)

Keyboard Selections

NCR 7052 Keypad Selection †

This selection allows you to program the scanner to transmit the proper keycodes when interfacing with a telephone, calculator, or PC AT type numeric keypad layout. Choose the keypad layout that defines your keypad layout. *Default = Layout 1 (Telephone).*

Note: *NCR 7052 Keypad applies to the 1551C03XX model only.*

✶ Layout 1 (Telephone)

Layout 2 (Calculator)

Layout 3 (PC AT)

† NCR 7052 applies to 1551C03XX units only.

Introduction

Use this chapter to program the Hand-Held Laser Scanner for Industrial and Retail Symbology selections.

This programming section contains the following menuing selections:

- Codabar Selections.
- Code 39 Selections.
- Code 93 Selections.
- Interleaved 2 of 5 Selections.
- Code 2 of 5 Selections.
- Matrix 2 of 5 Selections.
- Code 11 Selections.
- Code128 Selections.
- Code 16K Selections.
- Code 49 Selections.
- EAN Selections.
- UPC Selections.
- MSI Selections.
- Plessey Selections.

Industrial Symbology Selections

✶ *Default All Codabar Settings* ✶

Codabar Selection

✶ On

Codabar

Off

Transmit

Start / Stop Characters

✶ Don't Transmit

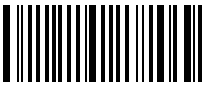
✶ Adaptive

Decoding

Traditional

Minimum ‡

Message Length



Maximum ‡

‡ A two-digit number is required after scanning this programming bar code. Scan your selection on the Programming Chart (inside back cover).

Programming Tip: If a symbology will not be used, we recommend turning it off to minimize the chance of misreads and to increase the snappiness of the scanner.

Industrial Symbology Selections

Codabar Selection, *continued*

Check Character

✶ No Check Character

Validate, But Don't Transmit

Validate, And Transmit

Concatenation

Codabar supports symbol concatenation. When you ***Allow*** concatenation, the reader will look 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.

Select ***Require*** to prevent the reader from decoding a lone Codabar symbol.

Concatenation

Don't Allow (Concatenation Off)

✶ Allow

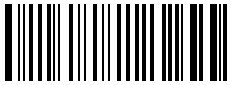
Require

Programming Tip: If a symbology will not be used, we recommend turning it off to minimize the chance of a misreads and to increase the snappiness of the scanner.

Industrial Symbology Selections

✶ *Default All Code 39 Settings* ✶

Code 39 Selection



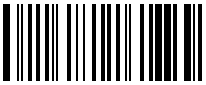
✶ On

Code 39

Off

Transmit

Start / Stop Characters



✶ Don't Transmit

✶ Enable

Full ASCII

Refer to the Full ASCII Chart on page 4–6.

Disable

Enable

Append

✶ Disable

Append

When the Append option is enabled, the scanner identifies Code 39 messages whose leading character is a SPACE as Append 39 symbols. The leading SPACE is discarded and the remaining message characters are stored in a buffer. When a non–Append 39 symbol is scanned, all data is transmitted in the order it was scanned. *Default = Disable.*

Programming Tip: If a symbology will not be used, we recommend turning it off to minimize the chance of misreads and to increase the snappiness of the scanner.

Industrial Symbology Selections

Code 39 Selection, *continued*

✶ Adaptive

Decoding

Traditional

Decoding

The scanner uses industry standard decoding algorithms to ensure data integrity. Adaptive decoding employs a more aggressive decoding algorithm that is more tolerant when bar code symbols do not conform to the symbology specifications and that results in "snappier" scanning. *Default = Adaptive.*

Minimum ‡

Message Length

Maximum ‡

Check Character

✶ No Check Character

Validate, But Don't Transmit

Validate, And Transmit

‡ A two-digit number is required after scanning this programming bar code. Scan your selection on the Programming Chart (inside back cover).

Programming Tip: If a symbology will not be used, we recommend turning it off to minimize the chance of misreads and to increase the snappiness of the scanner.

Industrial Symbology Selections

✶ *Default All Code 93 Settings* ✶

Code 93 Selection

✶ On

Code 93

Off

Minimum ‡

Message Length

Maximum ‡

FULL ASCII CHART †

NUL	%U	DLE	$P	SP	SPACE	0	0	@	%V	P	P	‘	%W	p	+P
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

† This chart is used for encoding the above characters in Full ASCII when using Code 39 bar codes. For example, to get a “<”, encode %G (which is 25 47 on the Hex ASCII chart in the Prefix / Suffix Programming section).

‡ A two-digit number is required after scanning this programming bar code. Scan your selection on the Programming Chart (inside back cover).

Industrial Symbology Selections

✶ *Default All Interleaved 2 of 5 Settings* ✶

Interleaved 2 of 5 Selection

✶ On

Interleaved 2 of 5

Off

✶ Adaptive

Decoding

Traditional

Decoding

The scanner uses industry standard decoding algorithms to ensure data integrity. Adaptive decoding employs a more aggressive decoding algorithm that is more tolerant when bar code symbols do not conform to the symbology specifications and that results in "snappier" scanning. *Default = Adaptive.*

Minimum ‡

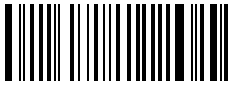
Message Length

Maximum ‡

Check Digit

✶ No Check Digit

Validate, But Don't Transmit



Validate, And Transmit

‡ A two-digit number is required after scanning this programming bar code. Scan your selection on the Programming Chart (inside back cover).

Programming Tip: If a symbology will not be used, we recommend turning it off to minimize the chance of misreads and to increase the snappiness of the scanner.

Industrial Symbology Selections

✶ *Default All Matrix / Code 2 of 5 Settings* ✶

Code 2 of 5 Selection

✶ On

Code 2 of 5

Off

Minimum ‡

Message Length

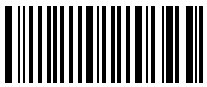
Maximum ‡

Matrix 2 of 5 Selection

✶ On

Matrix 2 of 5

Off



Minimum ‡

Message Length

Maximum ‡

‡ A two-digit number is required after scanning this programming bar code. Scan your selection on the Programming Chart (inside back cover).

Programming Tip: If a symbology will not be used, we recommend turning it off to minimize the chance of misreads and to increase the snappiness of the scanner.

Industrial Symbology Selections

✶ *Default All Code 11 / Code 128 Settings* ✶

Code 11 Selection

Code 11

✶ On

Off

Check Digits Required

✶ 2 Check Digits

1 Check Digit

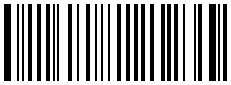
Message Length

Minimum ‡

Maximum ‡

Code 128 Selection

Code 128



✶ On

Off

Message Length

Minimum ‡

Maximum ‡

‡ A two-digit number is required after scanning this programming bar code. Scan your selection on the Programming Chart (inside back cover).

Programming Tip: If a symbology will not be used, we recommend turning it off to minimize the chance of misreads and to increase the snappiness of the scanner.

Industrial Symbology Selections

Code 128 ISBT Concatenation Selection

Scan the following codes to Enable or Disable Code 128 ISBT Concatenation.

✶ Enable

Disable

Code 128 Function Character Selection

When Code 128 Function Character is enabled, the scanner can substitute a <GS> for function character 1. To enable the <GS> substitution, you must scan the Code 128 Function Character On bar code, and the <GS> Substitution On bar code.

Note: For complete Code 128 support, the AIM ID Transmit selection should also be enabled. Refer to page 3–9.

On

Code 128 Function Character

✶ Off

On

<GS> Substitution

✶ Off

Retail Symbology Selections

✶ *Default All EAN / UPC Settings* ✶

EAN Selection

✶ On

EAN / JAN 13

Off

✶ On

EAN / JAN 8

Off

✶ Transmit

Check Digit

Don't Transmit

Enable

ISBN

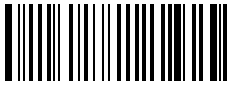
✶ Disable

Programming Tip: If a symbology will not be used, we recommend turning it off to minimize the chance of misreads and to increase the snappiness of the scanner.

Retail Symbology Selections

✶ *Default All UPC / EAN Settings* ✶

UPC Selection



✶ On

UPC A

Off

✶ On

UPC E0

Off

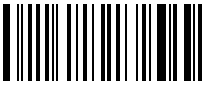
On

UPC E1

✶ Off

✶ Transmit

Check Digit



Don't Transmit

✶ Transmit

Number System

Don't Transmit

Expand

Version E Expand

✶ Don't Expand

Programming Tip: If a symbology will not be used, we recommend turning it off to minimize the chance of misreads and to increase the snappiness of the scanner.

Retail Symbology Selections

Require

EAN / UPC Addenda

✶ Don't Require

No Space

EAN / UPC Addenda Format

✶ Space

EAN Addenda Selection

Enable

Two Digit Addenda

✶ Disable

Enable

Five Digit Addenda

✶ Disable

UPC Addenda Selection

Enable

Two Digit Addenda

✶ Disable

Enable

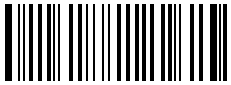
Five Digit Addenda

✶ Disable

Retail Symbology Selections

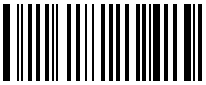
✶ *Default All MSI & Plessey Settings* ✶

MSI Selection



On

MSI



✶ Off

Minimum ‡

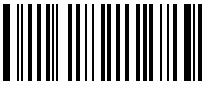
Message Length

Maximum ‡

Plessey Selection

On

Plessey



✶ Off

Minimum ‡

Message Length

Maximum ‡

‡ A two-digit number is required after scanning this programming bar code. Scan your selection on the Programming Chart (inside back cover).

Programming Tip: If a symbology will not be used, we recommend turning it off to minimize the chance of misreads and to increase the snappiness of the scanner.

Keyboard Function Relationships

The following Keyboard Function Code, Hex/ASCII Value, and Full ASCII "CTRL"+ relationships apply to all terminals that can be used with the Hand-Held Decoded Output Laser scanner.

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
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	Codes				
United States	[	\	]	6	-
Belgium	[	<	]	6	-
Scandinavia	8	<	9	6	-
France	^	8	$	6	=
Germany		Ã	+	6	-
Italy		\	+	6	-
Swiss		<	··	6	-
United Kingdom	[	'	]	6	-
Denmark	8	\	9	6	-
Norway	8	\	9	6	-
Spain	[	\	]	6	-

Interface Keys

Supported Interface Keys

Supported Interface Keys		IBM AT/XT and PS/2 Compatibles, WYSE PC/AT	IBM XTs and Compatibles	IBM, Memorex Telex
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
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), Harris

Interface Keys

Supported Interface Keys

Supported Interface Keys		IBM, Memorex Telex (102)*	Memorex Telex (88)**	DEC VT, WYSE***
NUL	00	Reserved	Reserved	Reserved
SOH	01	Enter	Enter	Enter
STX	02	F11	PF10	PF1
ETX	03	F12	PF11	PF2
EOT	04	F13	PF12	PF3
ENQ	05	F14	Reserved	PF11
ACK	06	F15	Reserved	PF12
BEL	07	New Line	New Line	New Line
BS	08	F16	Field Forward	PF4
HT	09	F17	Field Forward	TAB
LF	0A	F18	Reserved	F13
VT	0B	Tab/Field Forward	Field Forward	F14
FF	0C	Delete	Delete	Remove
CR	0D	Field Exit	New Line	New Line
SO	0E	Insert	Insert	Insert Here
SI	0F	Clear	Erase	Cursor Up
DLE	10	Error Reset	Error Reset	Cursor Left
DC1	11	Home	Reserved	Cursor Down
DC2	12	Print	Print	Cursor Right
DC3	13	Back Space	Back Space	Delete
DC4	14	Back Tab	Back Field	Print
NAK	15	F19	Reserved	F15
SYN	16	F1	PF1	F1
ETB	17	F2	PF2	F2
CAN	18	F3	PF3	F3
EM	19	F4	PF4	F4
SUB	1A	F5	PF5	F5
ESC	1B	F6	PF6	F6
FS	1C	F7	PF7	F7
GS	1D	F8	PF8	F8
RS	1E	F9	PF9	F9
US	1F	F10	Home	F10

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

** Memorex Telex with 88 key keyboards

*** DEC VT 220/320/340/420 (only available on 1551C02XX

Interface Keys

Supported Interface Keys

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

Interface Keys

Supported Interface Keys

Supported Interface Keys		Bull BDS−7	HP 700/92	WYSE WY−60/150 (ASCII/ANSI keyboards)
NUL	00	Reserved	Reserved	Reserved
SOH	01	Transmit	Enter	Enter
STX	02	Reserved	Caps	PF1
ETX	03	Reserved	Reserved	PF2
EOT	04	Reserved	Reserved	PF3
ENQ	05	Backtab	Reserved	PF11
ACK	06	Reserved	Reserved	PF12
BEL	07	Carriage Return	Reserved	New Line
BS	08	Back Space	Back Space	PF4
HT	09	Tab	Tab	TAB
LF	0A	F11	Reserved	F13
VT	0B	F12	Reserved	F14
FF	0C	Delete Character	Reserved	Remove
CR	0D	Carriage Return	Return	New Line
SO	0E	Insert	Reserved	Insert Here
SI	0F	Clear	Reserved	Cursor Up
DLE	10	Error Reset	Home	Cursor Left
DC1	11	Home	Reserved	Cursor Down
DC2	12	Delete Line	Reserved	Cursor Right
DC3	13	Erase EOP	Reserved	Delete
DC4	14	Erase EOF	Reserved	Print
NAK	15	Insert Line	Clear Screen	F15
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	Escape	F6
FS	1C	F7	F6	F7
GS	1D	F8	F7	F8
RS	1E	F9	F8	F9
US	1F	F10	Reserved	F10

Interface Keys

Supported Interface Keys

Supported Interface Keys		**WYSE WY−30**
NUL	00	Reserved
SOH	01	Enter
STX	02	Reserved
ETX	03	Reserved
EOT	04	Reserved
ENQ	05	Reserved
ACK	06	Reserved
BEL	07	Return
BS	08	Reserved
HT	09	Tab
LF	0A	Line Feed
VT	0B	Reserved
FF	0C	Reserved
CR	0D	Return
SO	0E	Reserved
SI	0F	Cursor Up
DLE	10	Cursor Left
DC1	11	Cursor Down
DC2	12	Cursor Right
DC3	13	Back Space
DC4	14	Reserved
NAK	15	Reserved
SYN	16	F1
ETB	17	F2
CAN	18	F3
EM	19	F4
SUB	1A	F5 (CTRL F1)
ESC	1B	F6 (CTRL F2)
FS	1C	F7 (CTRL F3)
GS	1D	F8 (CTRL F4)
RS	1E	F9 (SHIFT F2)
US	1F	F10 (SHIFT F3)

Default Chart

Serial Interface Menu Defaults

The following chart lists the factory default Serial Interface Menu settings (indicated by a "✶" on the programming menu pages).

Parameter Name	*Default Setting*	*Page Reference*
Keyboard Selections		
Keyboard Style	Software Rev 2.0–Regular	Page 1–15
Keyboard Style Modifiers	Numeric Keypad Mode Off	Page 1–16
Prefix / Suffix Selections		
Primary Prefix	None	Page 3–4
Primary Suffix	None	Page 3–4
Output Selections		
Beeper Volume	Medium	Page 3–7
Output Delays Intercharacter Delay	00 (x5mS)	Page 3–7
Interfunction Delay	00 (x5mS)	Page 3–7
Intermessage Delay	00 (x5mS)	Page 3–7
Reread Delay	Low (175mS)	Page 3–8
Good Read Delay	None	Page 3–8
Laser Voting	Disable	Page 3–8
Buffered Scans	Enable	Page 3–9
Code I.D. Transmit	Disable	Page 3–9
AIM I.D. Transmit	Disable	Page 3–9
Function Code Transmit	Enable	Page 3–9
Serial Communication Selections		
CTS Check	Disable	Page 3–10
Baud Rate	9600	Page 3–10
RS-232 Word Length	7 Data Bits, 1 Stop Bit	Page 3–11
Parity	Even	Page 3–11
Protocol	Record	Page 3–12
Data Formatter Selections		
Require Data Format	Disable	Page 3–14

Default Chart

General Operating Menu Defaults

The following chart lists the factory default General Operating Menu settings (indicated by a "✶" on the programming menu pages).

Parameter Name	*Default Setting*	*Page Reference*
Wand Emulation Selections		
Transmission Rate	40 ips	Page 3–17
Wake Up Pulse	Disable	Page 3–17
Output Polarity	White High	Page 3–17
Bar Code Type	Code 39 1551C02XX 1551C03XX 1551C07XX	 Page 1–5 Page 1–10 Page 1–13
Power Consumption Mode	Low Power Continuous (1551C03 only)	Page 1–20
Country Code Selections		
Foreign Keyboards	United States	Page 3–19
NCR 7052 Keyboard Selection		
NCR 7052 Keypad	Layout 1 (Telephone)	Page 3–20

Default Chart

Symbology Menu Defaults – Industrial

The following chart lists the factory default Industrial Symbology Menu settings (indicated by a "✶" on the programming menu pages).

Parameter Name	*Default Setting*	*Page Reference*
Codabar Selections		
Codabar	On	Page 4–2
Start / Stop Characters	Don't Transmit	Page 4–2
Decoding	Adaptive	Page 4–2
Message Length	Min = 4, Max = 60	Page 4–2
Check Character	No Check Character	Page 4–3
Concatenation	Allow	Page 4–3
Code 39 Selections		
Code 39	On	Page 4–4
Start / Stop Characters	Don't Transmit	Page 4–4
Full ASCII	Enable	Page 4–4
Append	Disable	Page 4–4
Decoding	Adaptive	Page 4–5
Message Length	Min = 0, Max = 48	Page 4–5
Check Character	No Check Character	Page 4–5
Code 93 Selections		
Code 93	On	Page 4–6
Message Length	Min = 0, Max = 64	Page 4–6
Interleaved 2 of 5 Selections		
Interleaved 2 of 5	On	Page 4–7
Decoding	Adaptive	Page 4–7
Message Length	Min = 4, Max = 80	Page 4–7
Check Digit	No Check Digit	Page 4–7
Code 2 of 5 Selections		
Code 2 of 5	On	Page 4–8
Message Length	Min = 4, Max = 48	Page 4–8
Matrix 2 of 5 Selections		
Matrix 2 of 5	On	Page 4–8
Message Length	Min = 4, Max = 80	Page 4–8

Default Chart

Symbology Menu Defaults – Industrial

The following chart lists the factory default Industrial Symbology Menu settings (indicated by a "✶" on the programming menu pages).

Parameter Name	*Default Setting*	*Page Reference*
Code 11 Selections		
Code 11	On	Page 4–9
Check Digits Required	2 Check Digits	Page 4–9
Message Length	Min = 4, Max = 80	Page 4–9
Code 128 Selections		
Code 128	On	Page 4–9
Message Length	Min = 0, Max = 80	Page 4–9
Code 128 ISBT Concatentation Selection		
Code 128 ISBT Concatenation	Enable	Page 4–10
Code 128 Function Character Selection		
Code 128 Function Character	Off	Page 4–10
<GS> Substitution	Off	Page 4–10

† Not in standard product. Contact your local Intermec representative.

Default Chart

Symbology Menu Defaults – Retail

The following chart lists the factory default Retail Symbology Menu settings (indicated by a "✶" on the programming menu pages).

Parameter Name	*Default Setting*	*Page Reference*
EAN Selections		
EAN / JAN 13	On	Page 4–11
EAN / JAN 8	On	Page 4–11
Check Digit	Transmit	Page 4–11
ISBN	Disable	Page 4–11
UPC Selections		
UPC A	On	Page 4–12
UPC E0	On	Page 4–12
UPC E1	Off	Page 4–12
Check Digit	Transmit	Page 4–12
Number System	Transmit	Page 4–12
Version E Expand	Don't Expand	Page 4–12
EAN / UPC Addenda Selections		
EAN / UPC Addenda	Don't Require	Page 4–13
EAN / UPC Addenda Format	Space	Page 4–13
EAN Addenda Two Digit Addenda	Disable	Page 4–13
Five Digit Addenda	Disable	Page 4–13
UPC Addenda Two Digit Addenda	Disable	Page 4–13
Five Digit Addenda	Disable	Page 4–13
MSI Selections		
MSI	Off	Page 4–14
Message Length	Min = 4, Max = 48	Page 4–14
Plessey Selections		
Plessey	Off	Page 4–14
Message Length	Min = 4, Max = 48	Page 4–14

Default Chart

This glossary contains definitions for terms specific to this manual and the decoding laser scanners.

ASCII chart

A chart containing ASCII (American Standard Code for Information Interchange) characters and their equivalent hexadecimal numbers and control characters.

bar code

A printed machine–readable code that consists of parallel bars of varied width and spacing.

bar code scanner

See scanner.

baud rate

The rate at which information is transmitted from one device to another. The number of bits, symbols, or digits per second that are transmitted.

check digit

A bar coded character in some UPC symbols that follows the bar coded information and serves as an error check.

Codabar

A numeric symbology most commonly used in libraries, blood banks, and air parcel express applications, developed in 1972.

Code 2 of 5

A straightforward numeric symbology developed in the late 1960's. It has been used for warehouse sorting systems, photofinishing envelope identification, and for tracking sequentially numbered airline tickets.

Code 39

The first alphanumeric symbology ever developed, used mostly by the automobile and medical industries.

Code 128

A very high density, alphanumeric symbology, introduced in 1981. It is a variable length, continuous code that employs multiple element widths.

configuration

The current parameter settings that determine the characteristics of the scanner.

decode

To translate information encoded in a bar code format.

EAN

European Article Numbering system (abbreviated as EAN) that is a numeric superset of UPC. EAN has both a version that uses 8 digits and a version that uses 13 digits.

hand–held scanning

A scanning method that requires the scanner to be held by the operator while scanning.

hands–free scanning
A scanning method that uses a special stand to hold the scanner while scanning.

host terminal
The device used to receive and process information collected through the scanner. Point–of–sale terminals, cash registers and personal computers are examples of host terminals.

Interleaved 2 of 5
A high density, self checking, continuous numeric symbology, used in the distribution industry.

keyboard wedge mode
An operating method for the scanner that lets it be connected to a PC by attaching it to the keyboard. This mode is useful for PCs that do not have an extra serial communication port.

laser redundancy
A feature that checks each scan by creating a duplicate scan and comparing the information.

laser scanner
See scanner.

modulo 43
A character within a string of data that performs a mathematical check to ensure the accuracy of the data.

number system digit
The character in some UPC symbols that precedes the bar coded information.

OCIA
Optical Coupled Interface Adapter. A type of interface that allows the scanner to transmit bar code data to cash registers.

OCR
Optical Character Recognition. A process in which a machine processes scanned information in an optical character format.

operating parameter
An adjustable operating feature. Examples of operating parameters are bar code symbology and baud rate.

parameter
See operating parameter.

portable reader
A hand–held device that lets the user move around with the scanner to scan items. The scanned information is stored in the reader and transferred later to a terminal.

Glossary, continued

protocol
The type of communications between two devices (such as a scanner and a host terminal) that controls data flow.

RS–232
A widely used standard interface for connections between data communication equipment.

scan
To read a bar code by scanning with a laser scanner, that converts optical information into electrical signals.

scannable
A bar code that can be successfully scanned and correctly decoded.

scanner
Also Bar Code Scanner, Laser Scanner. A device that can capture an image, such as a bar code, and convert the pattern into a unique set of electrical signals that can be read by a host terminal.

scanner holder
A plastic holder that is used to hold the scanner when it is not being used, or when it is used with the Scanner Stand.

scanner stand
A device that holds the scanner. With the stand, the scanner trigger can be enabled automatically when a a bar code is placed beneath the scanner window.

serial communications mode
An operating method for the 15XXX02 scanner that you connect the scanner to a PC through the serial communications port.

serial programming
An operating method for the 15XXX02 scanner that you connect the scanner to a PC through the serial communications port.

standby mode
A configuration that lowers power consumption when the scanner is idle.

start and stop character
Special bar code characters at the beginning and end of a bar code that instruct the scanner when to start and stop reading and well as indicate the scanning direction.

symbology
A type of bar code. UPC, Code 39, Interleaved 2 of 5, and Codabar are examples of different symbologies.

terminal
See host terminal.

Glossary, continued

transmission rate

The speed at which information is transferred. With a portable reader, the transmission rate is in inches per second and is used when a scanner replaces a wand.

transmitted symbology

The bar code symbology that is transmitted from the scanner to the terminal or portable reader.

TTL

Transistor–transistor logic. A widely used family of integrated circuits whose principle switching components are bipolar transistors

UPC

Universal Product Code, used in the supermarket industry since 1973. A fixed–length, numeric, continuous symbology employing four element widths. Version A encodes 12 digits and Version E encodes 6 digits.

XON/XOF

A protocol in which the terminal sends a character to the scanner to indicate when it can receive data and when it cannot.

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Sample Bar Codes

Code 39

TEST–SHEET

Matrix 2 of 5

6543210

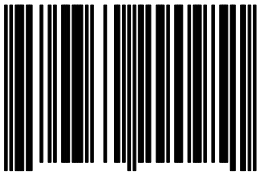
Code 128

CODE 128

Code 93

123456–9$

EAN 13



9 780330 290951

Code 2 of 5

123456

Interleaved 2 of 5

1234567890

UPC A with 5 digit addenda

56098

0 12345 67890 5

11210680 Rev (b)