Intermec

User's Manual

Decoding Laser Scanner

P/N 063496-003

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

Manual Change Record

This page records the changes to this manual. The manual was originally released as version 001.

Version	Date	Description of Change
002	6/96	Revised and reorganized to include the 1551 scanners.
003	12/96	Revised to include international keyboards, caps lock, remote beep, and connecting to a laptop or pen-based terminal.

Contents

3 Configuring the Scanner

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 and 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.

Warnings, Cautions, and Notes

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

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 pour éviter l'occurrence de mort ou de blessures graves aux personnes manupulant l'équipement.

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 fonctionnement, 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.

Notes: *Notes are statements that either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.*

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 hexadecimal	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. The bar codes are Code 128. The bar code is listed along with the command name and syntax. For example:

Command	Syntax	Bar Code
Select 300 baud	DA	

Conventions for Input From a Keyboard or Keypad

When you need to press keys on your terminal or reader, they are emphasized in **bold**. For example, "press **Enter**" means you press the key labeled "Enter" on your keyboard or keypad.

Conventions for Commands

This example illustrates the format conventions used for commands:

To send serial commands, use this syntax (spaces have been added for clarity):

STX ESC *XX* [*optional parameters*] ETX

where:

STX	is the ASCII start of text command.
ESC	is the ASCII escape command.
XX	is the two-letter bar code syntax for the command.
ETX	is the ASCII end of text command.

Tthe conventions used in the example are:

Convention	Description
`Special font`	Commands appear in this monospaced font.
Italic text	Italics indicate a variable, which you must replace with a real value, such as a two-letter bar code syntax.
[ ]	Brackets enclose a parameter that you may omit from the command. Do not include the brackets in the command.
where	This word introduces a list of the command's parameters and explains the values you can specify for them.

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Connecting the Scanner

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
15XXX02	Compatible with devices equipped with an RS-232 serial communications port.
15XXX03	For use with an IBM 4683/4684/4693/4694 point-of-sale terminal.
	Also for the 1551X03 scanner only: Can be use 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.
15XXX07	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 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.

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

The procedures in this chapter prepare the decoding scanner for operation using these bar code symbologies:

	UPC-A	UPC-E (not expanded)	Code 39	Code 128
15XXX02	✓	✓	✓	✓
15XXX03	✓	✓	—	—
15XXX07	✓	✓	✓	✓

The scanner is automatically set up for scanning by hand and sending data directly to the terminal.

15XXX02 Decoding Laser Scanner

The 15XXX02 is designed to interface with terminals equipped with RS-232 serial communication ports. The interface cable used with the terminal has a modular plug that resembles a telephone connector and a D-type connector for the terminal serial port.

To connect the 15XXX02 scanner

1. Connect the modular plug on the interface cable to the bottom of the scanner handle. The 1551 models have a screw to tighten that secures the plug in the handle.
2. Make sure the terminal is turned off. Then 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.
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:

Reset to Default Values ZA 

The scanner is ready to be used as a hand-held scanner and will send data directly to the terminal. The default symbologies are:

- UPC-A
- UPC-E (not expanded)
- Code 39
- Code 128

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.

15XXX03 Decoding Laser Scanner

The 15XXX03 is designed to interface with IBM 4683/4684/4693/4694 point-of-sale (POS) terminals. The 1551X03 can also interface with 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 1551X03 terminals.

To connect the 15XXX03 scanner to an IBM 4683/4684/4693/4694

1. Connect the modular plug on the cable to the bottom of the scanner handle. The 1551 models have a screw to tighten 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.

   Note: *The scanner can function with either the 5B, 9A, or 9B ports. The terminal must be configured for the port attached to the scanner.*

3. Turn on the power to the terminal.

4. Scan this bar code:

   Select IBM 4683/4684/4693/4694 Configuration CS

5. Scan this bar code to reset to the default value communication mode for IBM 4683/4684/4693/4694:

   Reset to Default Values ZA

6. Scan a bar code to select the scanner emulation:

Select Laser Emulation*	BK	
Select CCD Emulation	BL	

* *Default when using the Reset Default Values (ZA) command.*

The scanner is ready to be used as a hand-held scanner and will send data directly to the terminal. The default symbologies are:

- UPC-A
- UPC-E (not expanded)

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.

To connect the 1551X03 scanner to an OCIA port

1. Insert the scanner end of the ten-position modular plug into the opening at the bottom of the scanner handle. The 1551 models have a screw to tighten that secures the plug in the handle.
2. Plug the other end into the receiving OCIA port in the terminal.
4. Scan this bar code to enable OCIA mode:

Select OCIA Configuration	CL	

5. Scan this bar code to reset to the default value, NCR "S" (short) Format:

Reset to Default Values	ZA	

6. Scan one of these bar codes to select an OCIA format:

NCR "S" (short) Format*	NH	
NCR "F" (full) Format	NI	
DTS Format	NR	
ICL Format	NW	
Nixdorf Format	NS	

***** *Default when using the Reset to Default Values (ZA) command.*

The scanner is ready to be used as a hand-held scanner and will send data directly to the terminal. The default symbologies are:

- UPC-A
- UPC-E (not expanded)

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.

15XXX07 Decoding Laser Scanner

You can connect 15XXX07 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.

To connect to 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. The 1551 models have a screw to tighten 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.

   To connect an external power supply, plug the power supply into the connector. 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 this bar code to reset to the default value:

   Reset to Default Values ZA 
7. Scan one of these bar codes to select your terminal type:

   Apple Mac ADB CN 

   DEC VT220/320/420 CI 

   DEC VT510 CF 

15XXX07 Terminal Type (continued)

IBM 3151	CH	
IBM 3477	CP	
IBM 317X / 8X / 9X	CT	
IBM PC / AT*, IBM PS / 2 model 50 / 60 / 80	CF	
IBM PC / XT	CG	
IBM PS2 Model 25 / 30 / 57	CY	

***** *Default when using the Reset Default Values (ZA) command.*

The scanner is ready to be used as a hand-held scanner and will send data directly to the terminal. The default symbologies are:

- UPC-A
- UPC-E (not expanded)
- Code 39
- Code 128

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. The 1551 models have a screw to tighten that secures the plug in the handle.
3. Connect the cable to the laptop or terminal auxiliary port.

4. Turn on the power to the laptop or terminal.
5. Scan a bar code to enable the laptop or terminal (US keypad).

   Note: *If your laptop or terminal has an international keyboard, see "International Keyboards" in Chapter 3 to enable a different language.*

IBM PS2 Model 57/25 laptop interface	C9	
IBM PC/AT laptop interface (ThinkPad)	\A	
Zenith CruisePAD*	CF	

***** *Default.*

6. (Laptops only.) Turn the laptop off and then back on to restart communications.

The scanner is ready to be used. The default symbologies are:

- UPC-A
- UPC-E (not expanded)
- Code 39
- Code 128

2

Operating the 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.

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

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.

Scanner Beeps

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

Beep	Description
One short, high beep	The bar code has been successfully read and you can continue scanning.
Two beeps	A command bar code has been scanned.
High-low-high-low beep sequence or, low-medium-high beep sequence	The scanner has been turned on and is in Continuous Power mode. See "Power Consumption" in Chapter 3.
Three medium beeps	The bar code information has not been sent to the terminal successfully. See "Troubleshooting" later in this chapter.

You can also send a command to make the scanner beep. See "Remote Beep" in Chapter 3.

Operating the Scanner

You can operate 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.

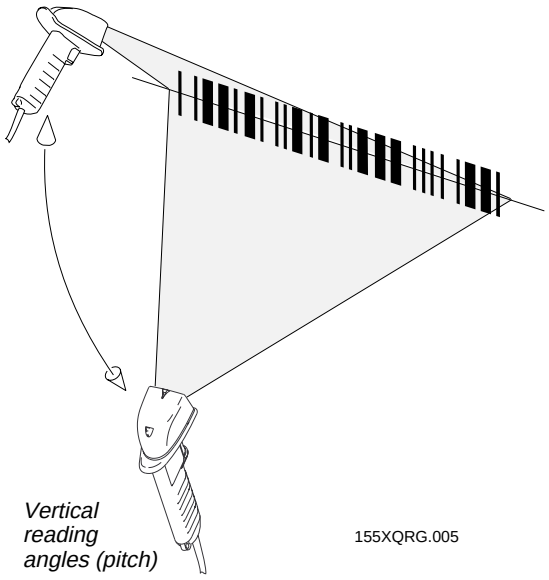
Before you start scanning, make sure the power to the reader / terminal is on and all cable connections are secure.

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.

Scanning Tips

Hold the scanner at a slight angle or pitch to the bar code. The scanner's Automatic Laser Power Control adjusts the beam to be the brightest and scan the quickest at an angle. If the bar code is on a reflective surface or you are scanning straight at (perpendicular to) the bar code, the beam temporarily dims or disappears but the scanner can still read the bar code.



Vertical reading angles (pitch)

155XQRG.005

Adjust the scanner distance to the bar code and the position of the laser beam to make sure every bar and space is scanned.

INCORRECT CORRECT

155XQRG.006

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.

Configure the scanner to enable the Stand mode before inserting the scanner into the stand.

To scan bar code using the scanner stand

1. Scan this bar code to enable Stand mode.

   Enable Stand 

2. Place the scanner into the scanner stand.
3. Align the scanner and adjust the column height so the scanner laser beam covers the entire reflective label.
4. 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 reflective 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.

If you use the scanner for extended hand-held scanning, disable the Stand mode to conserve power. Scan this bar code:

Disable Stand 

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 reader/terminal 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 3.).
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 Shift Alphabetic Characters (EO) command 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 (ES) command 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).

Symptom	Solution
Laser beam dims and sometimes disappears when scanning at different angles.	It is normal for the laser beam brightness to vary. If the bar code is on a reflective surface or you are scanning straight at the bar code (perpendicular to), the beam disappears but the scanner still reads the bar code. Scan at a slight angle or pitch to the bar code (see "Scanning Tips" earlier in this chapter).
Scanner emits three beeps and the item scanned does not appear on the terminal.	Make sure the cables are securely connected and the terminal is ready to receive data. Turn the terminal off, then turn it on.
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.

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 in an environment with 5% to 95% relative humidity.

3

Configuring the Scanner

This chapter describes how to configure your scanner for different bar code symbologies, bar code parameters, operating parameters, serial parameters. This chapter also describes how to configure wand emulation for use with a portable reader.

About Configuring the Scanner

There are two ways to configure the scanner parameters: scanning bar codes and configuring from a host using the two-letter bar code syntax.

Configuring by Scanning Bar Codes

You can scan the bar codes in this chapter to configure the scanner parameters. If you are use the 15XXX02 with a portable reader you **must** scan the bar codes. When the 15XXX02 is used with a portable reader all serial communications functions are disabled. (Serial communications parameters and portable reader parameters are activated with the same components and cannot be implemented simultaneously.)

The bar codes are listed along with the command name and the two-letter syntax. For example:

Command	Syntax	Bar Code (Code 128)
Select 300 baud	DA	

Configuring the Scanner From a Host Terminal

If you have a 15XXX02 scanner in Serial mode (CA), you can configure the scanner from a host terminal using the two-letter syntax provided with the bar code.

Note: *Do* ***not*** *mix configuring from a host and configuring by scanning a bar code. The scanner does not resolve conflicts between the two methods and gives priority to commands from the host.*

Commands are active as soon as they are received. For this reason, configure communications parameters last so they do not disrupt your scanner operation.

To send a serial commands, use this syntax (spaces have been added for clarity):

STX ESC *XX* [*optional parameters*] ETX

where:

STX	is the ASCII start of text command.
ESC	is the ASCII escape command.
XX	is the two-letter bar code syntax for the command.
ETX	is the ASCII end of text command.

If a parameter is required (such as values for minimum length), use the two-letter bar code for the command. For example:

Command*	**Function**
STX ESC PC ETX	Enable I 2 of 5 with check digit
STX ESC PD12 ETX	Set I 2 of 5 minimum length to 12
STX ESC PE14 ETX	Set I 2 of 5 maximum length to 14
STX ESC KB31323334 ETX	Set preamble to 1234
STX ESC LB61626364 ETX	Set postamble to abcd

* *Spaces added for clarity*.

Note: *The ASCII codes STX (02H), ESC (1BH), and ETX (03H) can be generated with ASCII control characters. To create STX press* ***Ctrl B****, to create ETX press* ***Ctrl C****. See the conversion chart in Appendix A for a complete list of hex codes and control characters.*

For specific help downloading the commands to the scanner, see the manual for your host terminal.

Waking Up the Scanner to Process Commands

If the scanner is programmed for Standby Power mode during idle times, transmit an extra space before STX to "wake up" the scanner (the space is ignored). Include a pause of 150 to 200 ms to allow the CPU to initialize, accept, and process commands.

Remote 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.

Acknowledging Commands Between Host and Scanner

The scanners use ACK/NAK protocol during serial programming to acknowledge receiving commands. When the scanner receives a correctly formatted command, it sends a confirmation back to the host followed by an ACK (06H). If the scanner receives an unknown command, an improperly formatted command, or a command accompanied by incorrect parameters, it sends a NAK (15H) code. NAK prevents down-loading commands faster than the scanner can receive them.

Avoid these commands when configuring serial parameters:

CB	Portable Reader, Code 39 output
CC	Portable Reader, same code output
YA	Portable Reader, 5 inches per second
YB	Portable Reader, 10 inches per second
YC	Portable Reader, 15 inches per second
YD	Portable Reader, 20 inches per second
YE	Portable Reader, 30 inches per second
YF	Portable Reader, 50 inches per second
YG	Portable Reader, 70 inches per second

They cause the scanner to enter Portable Reader mode and disable serial communications without sending ACK or NAK.

Displaying Current Configuration

You can display the current parameter settings for your scanner by scanning these bar codes (will not work in Wand mode or with a 1551X03):

Note: *The Display Current Configuration option (ZB) may interfere with terminal software, depending on the application.*

Display Current Configuration ZB 

Transmit Program Version ZC 

Transmit Program Version number displays as two decimal places followed by commands for carriage return and line feed.

Resetting Default Values

The default bar code symbologies for the scanners are:

	UPC-A	UPC-E (not expanded)	Code 39	Code 128
15XXX02	✓	✓	✓	✓
15XXX03	✓	✓	—	—
15XXX07	✓	✓	✓	✓

You can enable or disable any symbology as well as UPC supplements, EAN supplements, Interleaved 2 of 5 (I 2 of 5) with check digit, and Code 39 modulo 43 check digit.

The minimum label lengths are set to one character, except for I 2 of 5, which is set to 14 characters, and standard 2 of 5, which is set to 4 characters. If maximum length is not programmed, the scanner will limit the bar code length to 32 characters.

To reset your scanner to default values, scan this bar code:

Reset to Default Values ZA

To set up Intermec default values, scan this bar code:

Intermec Default Z5
Wand emulation: white high, 50 ips
Communications: 9600, e, 7, 1

Configuring Bar Code Symbologies

You can configure these symbologies on your scanner:

- UPC-A
- EAN/JAN
- Standard 2 of 5
- Code 128
- Code 93
- UPC-E
- Code 39
- Interleaved 2 of 5
- Codabar
- Code 11

Configure only the symbologies you will use and disable any symbologies you will not use. This will help increase scanning speed. For example, if you are using a 15XXX02 scanner, four symbologies including Code 39 are automatically activated. If you will not scan Code 39 bar codes, disable the Code 39 symbology by scanning the Disable Code 39 (OA) bar code command found later in this section or in Appendix B.

UPC-A and UPC-E

Scan the appropriate bar code to enable or disable UPC symbology. When enabled, the UPC codes, with or without a supplement, can be scanned. Enabling the supplement (2 or 5 digits) lets the scanner read the supplement as well.

Enable UPC-A and UPC-E Supplement allowed	QB	
Enable UPC-A and UPC-E Supplement disabled*	QC	
Enable Expanded UPC-E	QI	
Disable Expanded UPC-E	QH	
Enable Transmit UPC-A as EAN-13	QJ	
Disable Transmit UPC-A as EAN-13**	QK	
Disabled (A and E)	QA	

* *Default for all scanners.*
** *Default for all modes.*

Continue to the next section to configure a number system digit and a check digit.

UPC Number System Digit

Scan the appropriate bar code to enable or disable the number system digit (the first character in a UPC symbol).

Enable UPC Transmit of Number System Digit	QE	
Disable UPC Transmit of Number System Digit	QD	

UPC Check Digit

Scan a bar code to enable or disable the check digit (the last character in a UPC symbol).

Enabled*	QG	
Disabled	QF	

***** *Default for all modes.*

EAN/JAN

Scan the appropriate code to enable or disable EAN 8 digit and 13 digit. When EAN / JAN is enabled, all EAN / JAN codes, with or without a supplement, can be scanned. Enabling the supplement (2 or 5 digits) lets the scanner read the supplement as well.

Disabled - both 8 and 13 digit*	RA	
Enabled - Supplement enabled (2 or 5 digit)	RB	
Enabled - Supplement disabled (2 or 5 digit)	RC	

Continue to the next section to configure a number system digit and a check digit.

EAN/JAN Number System Digit

Scan the appropriate bar code to enable or disable the number system digit (the first character in a UPC symbol).

Disable Number System Digit	RD	
Enable Number System Digit*	RE	

EAN/JAN Check Digit

Scan a bar code to enable or disable the check digit (the last character in a UPC symbol).

Enable Check Digit*	RG	
Disable Check Digit	RF	

* *Default for all modes.*

Code 39

These bar codes configure your scanner for Code 39 scanning capabilities.

Disable	OA	
Enable Standard Code 39*	OB	
Full ASCII Code 39	OC	
Disable Modulo 43 Check Character**	OD	
Enable Modulo 43 Check Character	OE	
Transmit START and STOP Characters	OG	
Do not transmit START and STOP Characters**	OF	

***** *Default for 15XXX02 and 15XXX07 scanners.*
****** *Default for all modes.*

To set the bar code length (optional)

1. Scan the appropriate bar code below.

Minimum Length	OH	
Maximum Length	OI	

2. Enter a length between 01 and 32 using the conversion chart in Appendix A.

Standard 2 of 5

These bar codes configure your scanner for 2 of 5 scanning capabilities.

Enable	PG	
Disable*	PF	

* *Default for all modes.*

To set the bar code length (optional)

1. Scan the appropriate bar code below.

Minimum Length	PH	
Maximum Length	PI	

2. Enter a length between 01 and 32 using the conversion chart in Appendix A.

Interleaved 2 of 5

These bar codes configure your scanner for I 2 of 5 scanning capabilities.

Disable*	PA	
Enable with Check Digit	PC	
Enable without Check Digit	PB	

***** *Default for all modes.*

To set the bar code length (optional)

1. Scan the appropriate bar code below.

Minimum Length	PD	
Maximum Length	PE	

2. Enter a length between 02 and 32 using the conversion chart in Appendix A.

Code 128

These bar codes configure your scanner for Code 128 scanning.

Enable*	TB	
Disable	TA	

* *Default for 15XXX02 and 15XXX07 scanners.*

To set the bar code length (optional)

1. Scan the appropriate bar code below.

Minimum Length	TC	
Maximum Length	TD	

2. Enter a length between 01 and 32 using the conversion chart in Appendix A.

Codabar

These bar codes configure your scanner for Codabar scanning capabilities.

Enable	VB	
Disable*	VA	
Transmit START and STOP characters	VD	
Do not transmit START and STOP characters	VC	

* *Default for all scanners.*

To set the bar code length (optional)

1. Scan the appropriate bar code below.

Minimum Length	VE	
Maximum Length	VF	

2. Enter a length between 01 and 32 using the conversion chart in Appendix A.

Code 93

These bar codes configure your scanner for Code 93 scanning capabilities.

Disable*	UA	
Enable Code 93	UB	
Standard Code 93	UC	
Enable Full ASCII Code 93	UD	

* *Default for 15XXX02 and 15XXX07 scanners.*

To set the bar code length (optional)

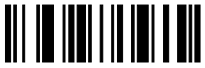
1. Scan the appropriate bar code below.

Minimum Length	UE	
Maximum Length	UF	

2. Enter a length between 01 and 32 using the conversion chart in Appendix A.

Code 11

These bar codes configure your scanner for Code 11 scanning capabilities.

Disable Code 11	SA	
Enable Code 11 With One Check Digit	SB	
Enable Code 11 With Two Check Digits	SC	
Disable Transmit of Code 11 Check Digits	SD	
Enable Transmit of Code 11 Check Digits	SE	

To set the bar code length (optional)

1. Scan the appropriate bar code below.

Minimum Length	SF	
Maximum Length	SG	

2. Enter a length between 01 and 32 using the conversion chart in Appendix A.

Configuring Bar Code Parameters

You can configure these bar code parameters (not available for 15XXX03):

- Prefix
- Suffix
- Terminal ID
- Bar code ID
- Preamble
- Postamble

Prefix

The prefix identifies the start of a data string and is represented by a code that is determined by an industry standard. The prefixes available are STX (start of transmission code) and SOH (start of header code).

Scan a bar code to enable the prefix used by your system (not available for 15XXX03).

No Prefix*	IA	
STX	IB	
SOH	IC	

***** *Default*

Suffix

The suffix marks the end of a data string and, like the prefix, it is assigned a specific ASCII code that conforms to a standard. The available suffixes are CR (carriage return), LF (line feed), CR and LF, ETX (end of transmission), and HT (horizontal tab).

Scan a bar code to enable the suffix used with your system (not available for 15XXX03).

No suffix*	MA	
ETX	MB	
CR	MC	
LF	MD	
HT	ME	
CR and LF**	MF	

***** *Default for Keyboard Wedge mode.*
****** *Default for Serial mode.*

Terminal ID

Terminal IDs are used to identify individual scanners for host systems that interface with many scanners. Two digits (01 to 99) are used for terminal IDs.

To configure terminal ID

1. Scan a bar code (not available for 15XXX03):

Terminal ID Disabled*	JA	
Terminal ID	JB	

* *Default.*

2. If you scan "Terminal ID," enter two digits between 01 and 99 using the conversion chart in Appendix A.

Bar Code ID

If your system uses different types of bar code symbologies, it may require a bar code ID. The ID is a single character that is transmitted with each message identifying the bar code scanned. ID characters are:

Code 39	a	UPC/EAN/JAN	d
Interleaved 2 of 5	b	Code 128	f
Standard 2 of 5	c	Codabar	h

To configure a bar code ID

Scan one of these bar codes to enable or disable the bar code ID (not available for 15XXX03):

Disable Bar Code ID*	FA	
Enable Bar Code ID	FB	

* *Default.*

Preamble and Postamble

Preambles and postambles are character strings that precede and follow the actual message. Each preamble and postamble consists of four ASCII characters, each is represented by two hexadecimal numbers.

If they are used in your system, only those codes with the correct preamble and postamble are accepted.

To configure a preamble or a postamble

1. Scan one of these bar codes (not available for 15XXX03):

No Preamble*	KA	
No Postamble*	LA	
Enter Preamble	KB	
Enter Postamble	LB	

* *Default.*

2. If you scanned "Enter Preamble" or "Enter Postamble," enter four characters using the conversion chart in Appendix A.

Configuring Operating Parameters

You can configure these scanner operating parameters:

- Power consumption
- Beeper volume
- Laser redundancy
- Spotter beam
- External trigger
- Reading Uppercase Letters
- Reading Special Characters
- International Keyboards

Power Consumption

Power consumption parameters determine if the scanner reverts to standby when not scanning. With standby enabled, the scanner draws very little power between scans and conserves power.

Scan a bar code to select the type of power consumption for your scanner (not available for 15XXX03):

Continuous Full Power*	@A	
Standby Enabled**	@B	

** Default for 1551X03 and 15XXX07 scanners.*
*** Default for 15XXX02 scanners.*

Beep Volume

Scan one of these bar codes to set the scanner beep volume (not available for 15XXX03):

Off (no beeper)	AA	
Softest	AB	
Medium	AC	
Loudest*	AD	

***** *Default.*

Laser Redundancy

Laser redundancy checks each scan by creating a duplicate scan and comparing the information, which must match for a successful read. This feature increases the integrity of the scanners since it creates an automatic error check.

Scan a bar code to enable or disable laser redundancy (not available for 15XXX03):

Disabled*	BC	
Enable (2X)	BD	
Enable (4X)	BE	

***** *Default.*

Spotter Beam

The spotter beam lets you see where the laser beam will scan before a bar code is actually read. With the spotter beam enabled, you can press the scanner trigger and have a small laser dot appear (for a preset time) where the full laser beam will scan, and then the scanner will read that bar code.

Use the spotter beam if you have trouble scanning bar codes that are far away, in a group of closely printed bar codes (for example, Appendix B), in a bright environment, or in a glass showcase.

To configure spotter beam

1. Scan a bar code to enable or disable the spotter beam:

Disable Spotter Beam	NP	
Enable Spotter Beam	NQ	

2. If you scan "Enable Spotter Beam," enter a spotter beam duration between 0 and 9 using the conversion chart in Appendix A.

External Trigger

The external trigger lets you program your scanner to be enabled from a computer or other external device. Unlike the scanner stand, which activates the scanner when the beam path is interrupted, the external trigger responds to a signal at the CTS input. This signal starts the scan and continues until the label is decoded, or the signal times out (approximately 6 seconds).

The external trigger can be activated as External Trigger (+), which activates scanning when the CTS input is high, or External Trigger (-), which activates scanning when the CTS input is low. When CTS is not connected, it is treated as if it

were a high input (for both settings). See the modular connector for the voltage levels.

Note: *The trigger must be deactivated for a minimum of 50 ms between scans to verify trigger cycling. Forcing the signal to active at all times does not create continuous scanning and decoding.*

Scan a bar code below to set the external trigger (not available if using 15XXX03 or 1551X07):

Disabled*	HA	
External Trigger (+)	HE	
External Trigger (-)	HF	

* *Default.*

Reading Uppercase Letters

When the Caps Lock key is used on the reader/terminal, you must also configure the scanner to read and decode the uppercase letters in a bar code. Scan the Shift Alphabetic Characters bar code (EO) to configure the scanner to read all uppercase letters. Scan the Normal Alphabetic Character (EP) to return to reading lowercase letters. (Not available for 15XXX02 and 15XXX03.)

Note: *To use the symbols above the number keys (for example: !@#$%^&*), see the next section "Reading Symbols."*

Shift Alphabetic Characters	EO	
Normal Alphabetic Characters	EP	

Reading Symbols

When the Shift key is used on the reader/terminal, you must also configure the scanner to read and decode the symbols (for example: !@#$%^&*) in a bar code. Scan a bar code to enable or disable shift lock (not available for 15XXX02 and 15XXX03):

Enable Shift Lock	ES	
Disable Shift Lock	ET	

Note: *To read uppercase letters, see the previous section "Reading Uppercase Letters."*

International Keyboards

Scan a bar code to configure a 15XXX07 for one of these keyboards (not available on 15XXX02 and 15XXX03):

PC/AT German	CV	
PC/AT French	CW	
PC/AT United Kingdom	CX	
PC/AT Belgian	\B	
PC/AT Swiss	\C	
PC/AT Danish	\D	

International Keyboards (continued)

PC/AT Spanish	\F	
PC/AT Swedish	\G	
PC/AT Portuguese	\H	
DEC VT 220/320/420 German Keyboard Wedge	\L	
DEC VT 220/320/420 French Keyboard Wedge	\M	

Using an International Keyboard With a Laptop

If you use a laptop with an international keyboard you need to enable the keyboard. Scan a bar code to enable or disable the keyboard:

Enable Execution of Keyboard POR (Power on Reset)	\J	
Disable Execution of Keyboard POR (Power on Reset)	\M	

Configuring the 15XXX02 Serial Parameters

You can configure these serial communications parameters for a 15XXX02 scanner:

- Baud rate
- Intercharacter delay
- Data bits
- Protocol
- Label buffer

Note: *If you are using your 15XXX02 scanner with a portable reader, you* ***must*** *configure the scanner by scanning the bar codes in this manual. If you are configuring the scanner from a host terminal see "Configuring the Scanner From a Host Terminal" earlier in this chapter.*

Baud Rate

The baud rate is the rate at which information reaches the terminal in data bits per second.

Scan one of these bar codes to set the baud rate:

300	DA	
600	DB	
1200	DC	
2400	DD	

Baud Rate in Data Bits per Second (continued)

4800	DE	
9600*	DF	
19200	DG	

***** *Default for Serial mode.*

Intercharacter Delay

Some host terminals require an intercharacter delay to process information properly. The intercharacter delay simulates keystroke input by inserting a delay between transmission of characters. The delay is a certain number of milliseconds, set separately when you enable this parameter.

To set the intercharacter delay

1. Scan a bar code:

No Intercharacter Delay	GA	
Set Intercharacter Delay	GB	

2. If you select "Set Intercharacter Delay," enter the number of milliseconds using the conversion chart in Appendix A.

   Note*: Intercharacter Delay cannot exceed 99 ms.*

Label Buffer

The label buffer controls the operation of the transmit queue by determining how labels are placed in the scanner memory before transmission and how long you must wait before scanning the next label. The buffering methods are:

Full buffer Each label is read entirely and then placed in the transmit queue. Labels are transmitted immediately (unless prevented by the protocol), and you may scan the next label without waiting for the previous label to be transmitted.

No buffer You cannot scan the next label until the previous one has been completely transmitted.

One label buffer You can scan ahead one label only.

Scan a bar code for the buffering method of your system:

Full Label Buffer*	NE	
No Label Buffer	NF	
One Label Buffer	NG	

***** *Default.*

Setting Up the Bar Code Data String

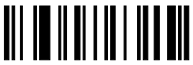
Each bar code is a string of data that consists of these elements:

- 1 start bit
- 7 or 8 data bits
- 1 or 2 stop bits
- Parity bits for error checking (optional)

Each system and application requires different combinations of data string elements. For example, some systems require a prefix in front of the data while others do not.

Scan a bar code for the data string setup used with your system.

Data Setup: 1 start bit, 7 data bits, 1 stop bit

Odd Parity	ED	
Even Parity	EC	
Mark Parity	EB	
Space Parity*****	EA	

***** *Default for Serial mode.*

Data Setup: 1 start bit, 7 data bits, 2 stop bit

Odd Parity	EH	
Even Parity	EG	
Mark Parity	EF	
Space Parity	EE	

Data Setup: 1 start bit, 8 data bits, 2 stop bits

No Parity	EN	

Data Setup: 1 start bit, 8 data bits, 1 stop bit

No Parity	EM	
Odd Parity	EL	
Even Parity	EK	
Mark Parity	EJ	
Space Parity	EI	

Selecting a Protocol

Protocol controls data flow between the scanner and the host terminal and determines acknowledgment of data transmission between the two devices. The available protocols are:

XON/XOFF Terminal sends the ASCII XON character to the scanner when it is ready to receive data, and sends the XOFF character when the buffer is full and cannot accept data. No additional hardware is needed; only transmit, receive, and signal ground are required.

Clear to send (CTS) The host uses a signal that informs the scanner when it is ready to accept data. CTS (+) causes the scanner to wait for a high input level to send data. CTS (-) causes the scanner to wait for a low input level to send data.

Request to send (RTS) RTS has three different operating modes: scanner sends an RTS when it is ready to receive data; RTS is set to remain fixed; and RTS sent when scanner has data to transmit.

Scan a bar code for the protocol for your system.

XON / XOFF	HB	
CTS (-)	HC	
CTS (+)	HD	
CTS = None. RTS high when scanner ready to receive. *	HA	

Note: *CTS may be programmed independently of RTS, however the polarities must match. You cannot select CTS (+) and fix RTS (-).*

RTS low when scanner ready to receive	HI	
RTS high when scanner ready to transmit	HJ	
RTS low when scanner ready to transmit	HK	
RTS always high	HG	
RTS always low	HH	

***** *Default.*

Configuring the Scanner for Wand Emulation to Use With a Portable Reader

You can configure your scanner for wand emulation to use it with a portable reader.

To use the scanner with a portable reader

1. Scan this bar code to disable using the scanner stand:

   Disable Stand NN 

2. Turn off the power to the terminal before you disconnect the scanner (or remove it from the scanner stand). Otherwise, your terminal may register a scanner failure or you may cause damage to the terminal or the scanner.
3. Connect the scanner to the reader using the cables for your scanner. For help see your scanner quick reference guide.
4. Scan this bar code to set parameters:

   Intermec Default Z5 
   Wand emulation: white high 50 ips
   Communications: 9600, e, 7, 1

5. Scan a bar code to configure portable reader use:

   Select Same Code CC 
   Wand Emulation

   Your scanner now has these default values:

Parameter	Setting
Transmitted symbology	Same code and length
Bar code polarity	White
Transmission rate	50 inches per second

Or,

Select Code 39 Wand Emulation CB 

Continue to next sections to configure for bar code conversion to Code 39 before transmission, bar code polarity, and transmission rates.

Scanning Unreadable Symbologies

If the portable reader cannot process a bar code symbology, you can configure your scanner to convert to Code 39 before it transmits the data to the portable reader.

To convert to Code 39 (full ASCII) before transmitting, scan this code:

Transmit Code 39 only CB 

Configuring Bar Code Polarity

Select one of these options for bar code polarity:

Black High WA 

White High* WB 

* *Default.*

Configuring the Transmission Rate

Select the transmission rate (in inches per second) for your portable reader by scanning one of these bar codes:

5 ips YA 

Configuring the Transmission Rate (continued)

10 ips	YB	
15 ips	YC	
20 ips	YD	
30 ips	YE	
50 ips*	YF	
70 ips	YG	

* *Default.*

Switching Back to a Terminal

To start scanning at the terminal again, scan this bar code:

Note for 15XXX07 users*: If your scanner is interfaced through a keyboard, scanning CA will enable Serial mode. Scan CE (next bar code) before reconnecting your scanner to the keyboard.*

Cancel Wand Emulation	CA	
Wedge Mode Enable (for 15XXX07 scanners)	CE	

Connect your scanner to the terminal or place it in the scanner stand and turn on the terminal power.

If your scanner does not work when you reconnect it, you may have forgotten to turn off the terminal before removing the scanner. With some terminals, this records a failure and the scanner is deactivated. To reactivate the scanner, leave it attached to the terminal, and then turn off the terminal and turn it back on again.

Configuring the Scanner for Use With an Intermec 94XX and 95XX Reader

These steps are a quick way to enable wand emulation to an Intermec 94XX or 95XX reader when the scanner is connected with a "smart" cable (a cable that causes the scanner to automatically switch to Wand Emulation mode).

To use the scanner with an Intermec 94XX or 95XX reader

1. Scan this bar code to reset the scanner:

   Reset to Default Values ZA 

2. Scan this bar code to enable wand emulation:

   Wand Emulation, White High WB 

3. Scan this bar code to increase the beeper volume:

   Beeper Volume Control (Loud) AD 

A

Hexadecimal Conversion Chart

This appendix contains the hexadecimal conversion chart and instructions for converting ASCII characters to hexadecial characters.

Hexadecimal Conversion Chart

Use the hexadecimal chart in this appendix to find the hexadecimal equivalents to ASCII characters and control characters. Use this chart to set preambles and postambles, and to program your computer using serial commands.

To enter the hexadecimal equivalent for ASCII characters

1. Find the ASCII character within the table.
2. Locate the number at the top of the table, in bold, for the column containing the character.
3. Scan the bar code for that number. This number **must** be scanned first.
4. Locate the number or letter at the left of the table, in bold, for the row containing the character.
5. Scan the bar code for that number or letter.

For example, the hexadecimal number for “Q” is 51, which is in the column under 5 and in the row next to 1. To enter “Q” as a character, scan the bar code for 5 and then 1.

To enter a digit less than ten, scan a zero first. For example, 01 is 30 and then 31.

Entering Control Codes

When programming from a host, you can generate the characters listed in column 0 by pressing **Ctrl** and then the character listed in column 4. For example, to create STX, press **Ctrl** and then **B**. You must always use a 4-character hex representation for preambles and postambles even when programming from a host terminal. For example, if you want a two-character preamble, pad the preamble with two null characters.

Hexadecimal Conversion Table

0

1

2

3

4

5

6

7

	0	**1**	**2**	**3**
0	NUL	DLE	SP	0
1	SOH	DC1	!	1
2	STX	DC2	"	2
3	ETX	DC3	#	3
4	EOT	DC4	$	4
5	ENQ	NAK	%	5
6	ACK	SYN	&	6
7	BEL	ETB	'	7
8	BS	CAN	(	8
9	HT	EM	)	9
A	LF	SUB	*	:
B	VT	ESC	+	;
C	FF	FS	,	<
D	CR	GS	-	=
E	SO	RS	.	>
F	SI	US	/	?

8

9

	4	**5**	**6**	**7**
0	@	P	‘	p
1	A	Q	a	q
2	B	R	b	r
3	C	S	c	s
4	D	T	d	t
5	E	U	e	u
6	F	V	f	v
7	G	W	g	w
8	H	X	h	x
9	I	Y	i	y
A	J	Z	j	z
B	K	[	k	{
C	L	\	l	|
D	M	]	m	}
E	N	^	n	~
F	O	–	o	DEL

A

B

C

D

E

F

B

Configuration Command List

This appendix lists all the configuration commands for the 15XX decoding laser scanner.

Summary of Commands

This table lists all of the configuration commands available for the decoding laser scanners. You can scan bar codes, or you can program the scanners from a host terminal with a 15XXX02 scanner in Serial mode using the two-letter bar code syntax. See "Configuring the Scanner" in Chapter 3.

The commands are listed in alphabetic order by syntax.

Command	Syntax	Bar Code
Continuous Power	@A	
Power Conservation	@B	
Transmit Program ID	@C	
Select Intermec Wedge Function Key Table	@Q	
Emulate Compsee Wedge Function Key Table	@R	
Disable Bypass Command Label	@Z	
IBM PC / AT laptop interface	\A	

Commands \B to \M are international keyboard commands.

PC / AT Belgian	\B	
PC / AT Swiss	\C	
PC / AT Danish	\D	
PC / AT Italian	\E	
PC / AT Spanish	\F	

Command	Syntax	Bar Code
Commands |B to |M are international keyboard commands (continued)		
PC / AT Swedish	\G	
PC / AT Portuguese	\H	
Enable Execution of Keyboard POR (Power On Reset)	\J	
Disable Execution of Keyboard POR (Power On Reset)	\K	
DEC VT220 / 320 / 420 / German Keyboard Wedge	\L	
DEC VT220 / 320 / 420 / French Keyboard Wedge	\M	
Beeper Volume Control (Off)	AA	
Beeper Volume Control (Low)	AB	
Beeper Volume Control (Medium)	AC	
Beeper Volume Control (Loud)	AD	
Enable Parameter Messages	BA	
Disable Parameter Messages	BB	
Disable LASER Redundancy	BC	
Enable LASER Redundancy (2X)	BD	
Enable LASER Redundancy (4X)	BE	
Set 6 Second Software Timeout	BH	
Set 4 Second Software Timeout	BI	
Set 2 Second Software Timeout	BJ	

Command	Syntax	Bar Code
Select 4683 LASER Emulation	BK	
Select 4683 CCD Emulation	BL	
Enable Redundant Transmit Feature (used with LASER redundancy)	BM	
Disable Redundant Transmit Feature	BN	
Set Software Timeout to 1 Second	BO	
IBM PS2 Model 57/25 laptop interface	C9	
Select Primary Communications Port/Cancel Wand Emulation	CA	
Select Wand Emulation (Code 39, Full ASCII)	CB	
Select Wand Emulation (Same Code Emulation)	CC	
Inverted Serial Communications	CD	
Wedge Mode Enable	CE	
Select AT Keyboard and Wedge Mode	CF	
Select XT Keyboard and Wedge Mode	CG	
Select IBM 3151 Terminal	CH	
Select DEC VT220 Terminal	CI	
Select IBM Primary Table of Key Code	CQ	
Select IBM Secondary Table	CR	
Select IBM 317X, IBM 318X, IBM 319X	CT	
PC/AT German Keyboard	CV	

Command	Syntax	Bar Code
PC / AT French Keyboard	CW	
PC / AT United Kingdom	CX	
Select IBM PS / 2 Mod 57 / 25	CY	
Select Data General D216 / D217 Terminal	CZ	
Select NEC Powermate SX20 Keyboard	C0	
Select IBM 3151 With Break Codes	C1	
Select Sperry PC With Keytronics Keyboard	C4	
Select Unisys B26 Keyboard Wedge	C6	
Enable Fast PC-AT Keyboard (Hong Kong)	C7	
Enable Link 125 Terminal	C8	
Select 300 baud	DA	
Select 600 baud	DB	
Select 1200 baud	DC	
Select 2400 baud	DD	
Select 4800 baud	DE	
Select 9600 baud	DF	
Select 19200 baud	DG	

Command	Syntax	Bar Code
Commands EA to EN are serial data word commands.		
7,Low,1	EA	
7,High,1	EB	
7,Even,1	EC	
7,Odd,1	ED	
7,Low,2	EE	
7,High,2	EF	
7,Even,2	EG	
7,Odd,2	EH	
8,Low,1	EI	
8,High,1	EJ	
8,Even,1	EK	
8,Odd,1	EL	
8, no parity,1	EM	
8, no parity,2	EN	

Command	Syntax	Bar Code
Enable Shift Alphanumeric Keys in Wedge Mode	EO	
Disable Shift Alphanumeric Keys in Wedge Mode	EP	
Enable Shift Lock	ES	
Disable Shift Lock	ET	
Turn Off the Intercharacter Delay	GA	
Set the Intercharacter Delay. Two digit argument is the delay time in milliseconds (00-99).	GB	
Turn Off the Interlabel Delay	GC	
Set the Interlabel Delay. Two digit argument is the delay time in 100 milliseconds intervals (00-99).	GD	

HA to HK are serial communication commands

Turn Off All Protocols	HA	
Enable XON / XOFF Protocol. All CTS protocols are disabled.	HB	
Enable CTS High to Transmit. XON / XOFF is disabled.	HC	
Enable CTS Low to Transmit. XON / XOFF is disabled.	HD	
Enable External Trigger +. XON / XOFF is disabled	HE	
Enable External Trigger -. XON / XOFF is disabled	HF	
RTS Always High	HG	

Command	Syntax	Bar Code
HA to HK are serial communication commands (continued)		
RTS Always Low	HH	
RTS Low = Ready to Receive	HI	
RTS High = Transmit Ready	HJ	
RTS Low = Transmit Ready	HK	
Disable Prefix	IA	
Set Prefix to STX	IB	
Set Prefix to SOH	IC	
Disable Unit ID	JA	
Enable Unit ID. The arguments are a two digit unit ID number ID's are in the range (01-99).	JB	
Disable Preamble	KA	
Set Four Character Preamble. Unused characters are set to Null. The four character hex value is contained in the arguments.	KB	
Disable Postamble	LA	
Set Four Character Postamble. Unused characters are set to Null. The four character hex value is contained in the arguments.	LB	
Set Suffix to None	MA	
Set Suffix to ETX	MB	
Set Suffix to CR	MC	

Command	Syntax	Bar Code
Set Suffix to LF	MD	
Set Suffix to HT	ME	
Set Suffix to CR/LF	MF	
Set Suffix to ETB/NULL	MI	
Set User Programmable Suffix Character	MJ	
Select Full Duplex	NA	
Select Half Duplex	NB	
Disable Label Buffering	NC	
Enable Label Buffering and Power Conservation. Clear the label buffer.	ND	
Enable Full Serial Buffering	NE	
Enable No Serial Buffering	NF	
One Label Buffer	NG	
Select Wide (Normal) Scan Angle	NL	
Select Narrow (Reduced) Scan Angle	NM	
Disable Stand Mode	NN	
Enable Stand Mode	NO	
Disable Spotter Beam	NP	
Enable Spotter Beam. Single digit argument is the marker duration.	NQ	
Enable "No Read" Message Option	NX	
Disable "No Read" Message Option	NY	

Command	Syntax	Bar Code
Commands OA to OK are for Code 39 only.		
Disable Code 39	OA	
Enable Standard Code 39	OB	
Enable Full ASCII Code 39	OC	
Disable Modulo 43 Check Character	OD	
Enable Modulo 43 Check Character	OE	
Disable Transmit of The Start / Stop Characters	OF	
Enable Transmit of The Start / Stop Characters	OG	
Set Minimum Length. Two digit argument is the length (01-32)	OH	
Set Maximum Length. Two digit argument is the length (01-32)	OI	
Enable Transmit of Check Character. This command and the next are responsible for controlling the transmission of the check character in Code 39 ONLY when the check character is required for decode. If the Modulo 43 check character is NOT enabled (with command OE), the check character is simply part of the label and is always transmitted.	OJ	
Disable Transmit of Check Character	OK	
Disable Interleaved 2 of 5	PA	
Enable Interleaved 2 of 5 Without Check Digit	PB	

Command	Syntax	Bar Code
Enable Interleaved 2 of 5 With Check Digit	PC	
Set Minimum Length for Interleaved 2 of 5. Two digit argument is the length (02-32). Length must be a multiple of two. Round all entries up to the next even number. Becomes 1st fixed length for 3 fixed length option.	PD	
Set Maximum Length for Interleaved 2 of 5. Two digit argument is the length (02-32). Length must be a multiple of two. Round all entries up to the next even number. Becomes 2nd fixed length for 3 fixed length option.	PE	
Disable Standard 2 of 5	PF	
Enable Standard 2 of 5	PG	
Set Minimum Length for Standard 2 of 5. Two digit argument is the length (01-32).	PH	
Set Maximum Length for Standard 2 of 5. Two digit argument is the length (01-32).	PI	
Disable Interleaved 2 of 5 Check Digit Transmission	PO	
Enable Interleaved 2 of 5 Check Digit Transmission	PP	
Transmit All Characters of I 2 of 5 Labels	PR	
Transmit Only First Eight Characters of I 2 of 5 Labels	PS	

Command	Syntax	Bar Code
Disable UPC	QA	
Enable UPC With Supplements	QB	
Enable UPC Without Supplements	QC	
Disable UPC Transmit of Number System Digit	QD	
Enable UPC Transmit of Number System Digit	QE	
Disable Transmit of The UPC Check Digit (UPC-A and UPC-E only).	QF	
Enable Transmit of the UPC Check Digit. (UPC-A and UPC-E only)	QG	
Disable Expansion of UPC-E	QH	
Enable Expansion of UPC-E	QI	
Enable EAN Emulation by UPC-A Symbols. Forces UPC-A to be decoded as EAN13.	QJ	
Disable EAN Emulation by UPC-A Symbols	QK	
Enable UPC-E Only	QL	
Disable Second Beep on Supplements	QN	
Enable Second Beep on Supplements	QO	
Set Up Supplement Retry Counter	QP	
Disable UPC-E Transmission of Check Character	QR	
Enable UPC-E Transmission of Check Character	QS	

Command	Syntax	Bar Code
Disable UPC-E Transmission of The Number System Digit	QT	
Enable UPC-E Transmission of The Number System Digit	QU	
Disable UPC-E	QV	
Enable UPC-E With Supplements	QW	
Enable UPC-E Without Supplements	QX	
Disable Supplement Delimiter	QY	
Enable Supplement Delimiter	QZ	
Disable Mandatory Supplements for UPC/ EAN	Q0	
Enable Mandatory Supplements for UPC / EAN	Q1	
Disable UPC-E1 Symbology	Q2	
Enable All UPC Symbologies (UPC-A, UPC-E0 and -E1)	Q3	
Disable EAN	RA	
Enable EAN With Supplements	RB	
Enable EAN Without Supplements	RC	
Disable EAN Transmit of Number System Digit	RD	
Enable EAN Transmit of Number System Digit	RE	
Disable Transmit of The EAN Check Digit	RF	

Command	Syntax	Bar Code
Enable Transmit of The EAN Check Digit	RG	
Disable Stacked EAN-13. Stacked EAN-13 is not a true stacked bar code function. When enabled, you can read two EAN-13 (and / or UPC-A) bar codes on one trigger pull. The scanner will decode the two dissimilar bar codes of EAN-13 or UPC-A, turn off the laser, and transmit the labels one after the other. ***Note:*** *These bar codes will not be concatenated upon transmit.*	RH	
Enable Stacked EAN-13	RI	
Disable EAN-8 Transmission of Check Character	RJ	
Enable EAN-8 Transmission of Check Character	RK	
Disable EAN-8 Transmission of The Number System Digit	RL	
Enable EAN-8 Transmission of The Number System Digit	RM	
Disable EAN-8	RN	
Enable EAN-8 With Supplements	RO	
Enable EAN-8 Without Supplements	RP	
Disable Code 11	SA	
Enable Code 11 With One Check Digit	SB	
Enable Code 11 With Two Check Digits	SC	

Command	Syntax	Bar Code
Disable Transmit of Code 11 Check Digits	SD	
Enable Transmit of Code 11 Check Digits	SE	
Set Minimum Length for Code 11. Two digit argument is the length (01-32).	SF	
Set Maximum Length for Code 11. Two digit argument is the length (01-32).	SG	
Disable Code 128	TA	
Enable Code 128	TB	
Set Minimum Length for Code 128. Two digit argument is the length (01-32).	TC	
Set Maximum Length for Code 128. Two digit argument is the length (01-32).	TD	
Disable Code 93	UA	
Enable Code 93	UB	
Standard Code 93	UC	
Enable Full ASCII Code 93	UD	
Set Minimum Length for Code 93. Two digit argument is the length (01-32).	UE	
Set Maximum Length for Code 93. Two digit argument is the length (01-32).	UF	

Command	Syntax	Bar Code
Disable Codabar	VA	
Enable Codabar	VB	
Disable Transmit of Codabar Start / Stop Characters	VC	
Enable Transmit of Codabar Start / Stop as Uppercase Characters	VD	
Set Minimum Length for Codabar. Two digit argument is the length (01-32).	VE	
Set Maximum Length for Codabar. Two digit argument is the length (01-32).	VF	
Enable Transmit of Codabar Start / Stop as Lowercase Characters	VG	
Wand Emulation, Black High	WA	
Wand Emulation, White High	WB	
Wand Emulation, White High, Quiescent High (Intermec)	WC	

Commands YA to YG are wand emulation transmission speeds in inches per second

5 ips	YA	
10 ips	YB	
15 ips	YC	
20 ips	YD	
30 ips	YE	

Command	Syntax	Bar Code
50 ips	YF	
70 ips	YG	
Disable Control and Command Keys	YI	
Enable Command Key	YJ	
Enable Control Key	YK	
Reset to Primary Communications Defaults	ZA	
Dump Status, Serial Communications Models Only.	ZB	
Dump Version, Serial Communications Models Only.	ZC	
Scan and Transmit Label, Serial Communications Models Only. Requires a two digit argument.	ZD	
Reset to Wand Emulation Defaults	ZR	
Intermec Default. Wand emulation: white high, 50 ips. Communications: 9600, e, 7 ,1	Z5	

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Glossary

Glossary G

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.

EEPROM
Electrically Erasable Programmable Read-Only Memory. A form of semiconductor memory in which the entire contents can be erased with electrical signals and reprogrammed.

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.

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 communicaitons port.

serial programming
A method of configuring the 15XXX02 scanner by downloading commands from a PC through a serial communications port rather than by scanning the configuration bar codes.

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

start and stop characters
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

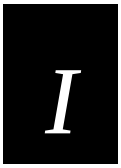
transmission rate
The speed at which information is transferred. With a portable reader, the transmission rate is in inches per second and is used when a scanner replaces a wand.

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/XOFF
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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