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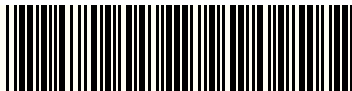
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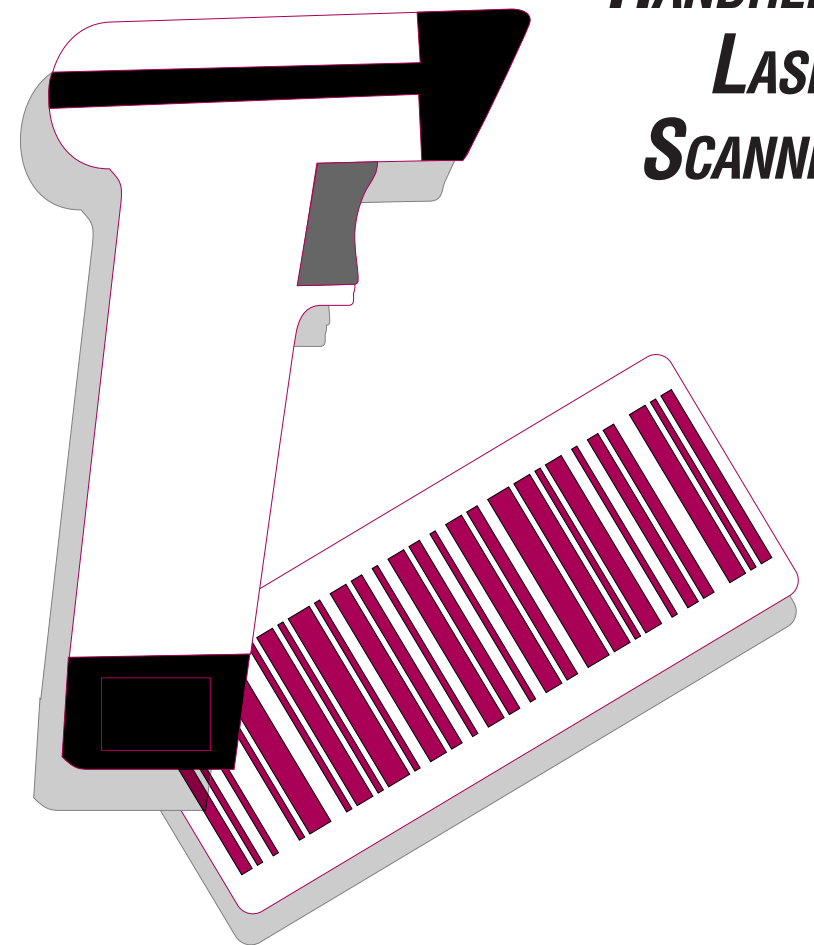


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SP400

**HANDHELD
LASER
SCANNER**



PROGRAMMING GUIDE

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Disclaimer

Reasonable measures have been taken to ensure that all information contained in this manual is complete and accurate. However, PSC reserves the right to change any specification at any time without prior notice.

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INTRODUCTION

This manual contains instructions for changing interfaces, barcodes for customizing the scanner's operation and listings of the standard factory settings for each standard interface. The organization is intended to support a variety of users while making it quick and easy to find the information you need. Look at the descriptions that follow to find where to go from here.

I NEED TO UNDERSTAND THE BASICS

If you do not regularly use barcode labels to configure (program) scanners, it will be very helpful to read the introductory portions of this manual prior to beginning your programming session. In addition to the information that follows, information of specific interest to you is titled:

- Programming Overview
- What is Programming Mode?
- How to Program Using Barcodes
- Scanner Response When in Programming Mode
- Where to Go From Here

I REGULARLY INTEGRATE PERIPHERALS INTO HOST SYSTEM

It is important that you understand that, although you can physically attach all the various SP400 interface cables to your scanner, the scanner must contain software that supports a specific interface in order to use that interface. Therefore, the first step is to review the information that immediately follows this introduction titled *Reading the Interface Codes*. It shows how to identify which model scanner you have, lists these scanner model numbers and shows the interface(s) supported by each model. Use this information to verify that the model scanner that you purchased supports the interface you wish to enable.

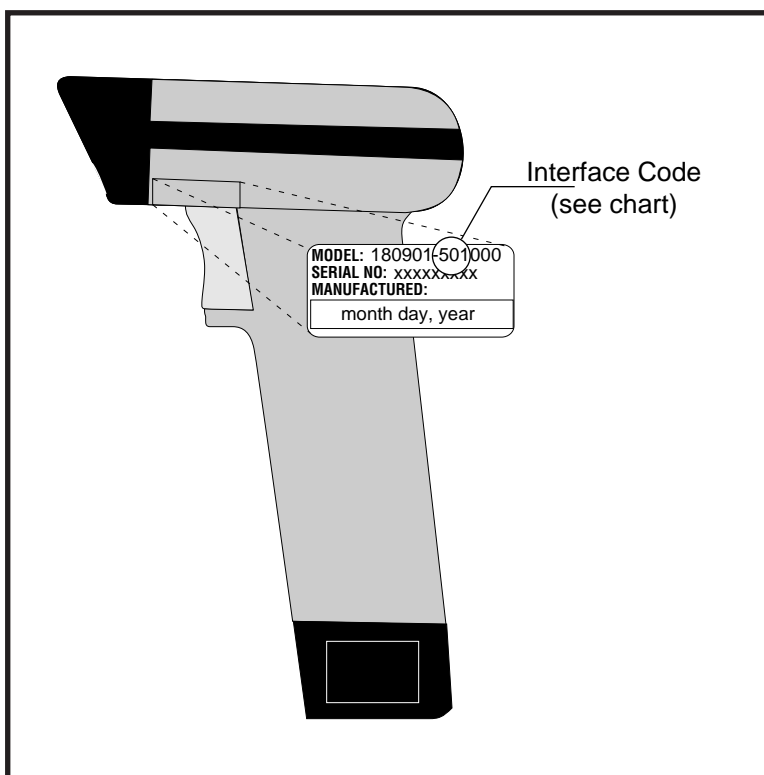
Next, turn to Appendix A, *Standard Factory Settings*, which contains complete listings of each interface's factory configuration and shows how to verify that your scanner contains this configuration. Assuming that your scanner is configured using the standard factory settings, use this list to identify any changes or additions you need to make.

Then, locate the programming labels you need and change the necessary settings. Once you have completed these steps, you can begin scanning.

READING THE INTERFACE CODES

Before describing how to actually program your scanner, understanding some of the information contained in the model number will help you to understand the contents of the table on following page. The interface code contained in the model number coincides with the table on the following page which shows what interfaces are supported by the model you have purchased.

The figure below shows where to find the model number label and which digits are the Interface Code.



INTERFACE(S) AVAILABLE

INTERFACE CODE	6-BIT	IBM 46xx	MDL	OCIA	KEYBOARD WEDGE	RS-232 (STANDARD)	UNDECODED (STANDARD)	WAND EMULATION
100 ¹							X	
101 ²						X		
102 ³				X				
103 ⁴		X						
104 ⁵								X
105 ⁶							(INTERMEC)	
106 ⁹						TTL		
107 ¹⁰						TTL(INVERTED)		
108 ¹¹	X							
109 ⁶			X					
110 ⁷					X			
201 ³				X		X		
202 ⁴		X				X		
203 ²						X		X
204 ²						X	X	
205 ³		X		X				
206 ³				X				X
207 ³				X			X	
208 ⁴		X						X
209 ⁴		X					X	
210 ⁵							X	X
211 ¹¹	X						X	
212 ¹¹	X							X
213 ¹¹	X					X		
214 ⁶			X		X			
215 ⁶			X				X	
216 ⁶			X			X		
217 ⁶			X					X
218 ⁶		X	X					
219 ⁷					X		X	
220 ⁷					X	X		
221 ⁷					X			X
222 ⁷		X			X			
301 ³		X		X		X		
302 ³				X		X		X
303 ³				X		X	X	
304 ⁴		X				X		X
305 ⁴		X				X	X	
306 ²						X	X	X
307 ³		X		X				X
308 ³		X		X			X	
309 ³				X			X	X
310 ⁴		X					X	X
311 ¹¹	X						X	X
312 ¹¹	X					X	X	
313 ¹¹	X					X		X
314 ⁶			X		X		X	
315 ⁶			X		X	X		
316 ⁶			X		X			X
317 ⁶		X	X		X			
318 ⁶			X			X	X	
319 ⁶			X				X	X
320 ⁶		X	X				X	
321 ⁶			X			X		X
322 ⁶		X	X			X		
323 ⁶		X	X					X
324 ⁷					X	X	X	
325 ⁷					X		X	X
326 ⁷		X			X		X	
327 ⁷					X	X		X
328 ⁷		X			X	X		
329 ⁷		X			X			X
401 ³		X		X		X		X
402 ³		X		X		X	X	
403 ³				X		X	X	X
404 ⁴		X				X	X	X
405 ³		X		X			X	X
406 ¹¹	X					X	X	X
407 ⁶			X		X	X	X	
408 ⁶			X		X		X	X
409 ⁶		X	X		X		X	
410 ⁶			X		X	X		X
411 ⁶		X	X		X	X		
412 ⁶		X	X		X			X
413 ⁶			X			X	X	X
414 ⁶		X	X			X	X	
415 ⁶		X	X			X		X
416 ⁶		X	X				X	X
417 ⁷					X	X	X	X
418 ⁷		X			X	X	X	
419 ⁷		X			X	X		X
420 ⁷		X			X		X	X
501 ³		X		X		X	X	X
502 ⁶			X		X	X	X	X
503 ⁶		X	X		X	X	X	
504 ⁶		X	X		X		X	X
505 ⁶		X	X		X	X		X
506 ⁷		X			X	X	X	X
507 ⁶		X	X			X	X	X
601 ⁶		X	X		X	X	X	X

Factory Default Interfaces (on Power-up):

Indicates the active default interface software in the scanner when shipped.

- 1 - Undecoded, standard
- 2 - RS-232
- 3 - OCIA
- 4 - IBM 46xx

- 5 - Wand Emulation
- 6 - Multidrop
- 7 - Keyboard Wedge
- 8 - Undecoded, Intermec

- 9 - RS-232 TTL, standard
- 10 - RS-232 TTL, inverted
- 11 - Six-Bit

CHANGING INTERFACES

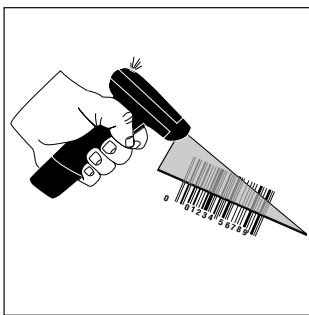
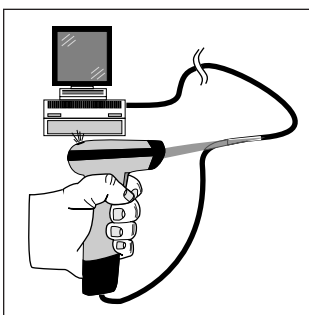
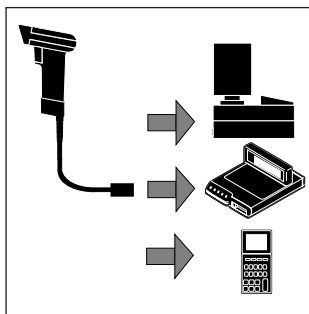
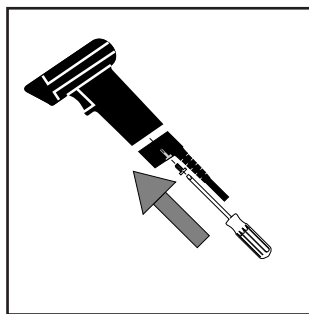
Changing a scanner's interface is simply a matter of changing the interface cable and enabling the new interface. Once you have changed interface cables and enabled the new interface with the appropriate programming label, the new interface becomes the default interface that is active whenever power is applied to the scanner.

NOTE

The SP400AR only supports undecoded, RS-232 and Wand Emulation interfaces ONLY.

Verify that your scanner supports the interface you want to enable. The Interface Code table indicates which interfaces your scanner model supports. The following steps describe the interface change procedure.

1. Replace the interface cable that is currently attached to the scanner handle with an interface cable that is for the new host system and attach the scanner cable to the proper port on your host.
2. Scan the interface barcode label that is affixed to the new interface cable or turn to the appropriate page in this manual and scan the interface enable programming label. This will enable the software for the new interface and disable the 'old' interface software.
3. Scan a barcode to verify that the scanner communicates correctly with the host system. If any changes to the scanner's factory settings are needed, use the instructions titled, *Customizing Your Scanner Operation*.



CUSTOMIZING YOUR SCANNER OPERATION

Every time you change the active interface, a new set of factory settings are enabled (refer to Appendix A, *Standard Factory Settings*, for a complete list) and any changes that you want to make must be made to that interface's factory settings. Previous changes made to other interface settings are stored as that specific interface's configuration settings for future use when you re-enable that interface. This allows the scanner to retain a special configuration file for each interface.

Once you have changed cables and enabled the new interface, it may be necessary to modify the standard factory settings to match your specific host system's communication and symbology requirements. Check with your system administrator to identify your host system's specific interface requirements to ensure that they match the new interface you have selected. Also, the scanner's operational features (e.g. speaker tone and volume) can be customized to match your unique requirements.

1. Use the labels in this manual to modify the standard configuration to match your specific interface requirements or user preference.
2. Enable any additional symbologies as required and exit Programming Mode.
3. Scan a regular barcode label and verify that the scanner and host communicate correctly.
4. You have completed the factory settings change procedure.

If you change the interface again, these settings will be saved as the default settings for this interface only.



If you experience difficulties, have questions or require additional information, contact your local distributor or PSC Customer Support Services at 1-800-547-2507.

PROGRAMMING OVERVIEW

This section describes how to set the scanner's programmable features. These features can be configured using the barcode labels contained in this manual or by using commands sent from the host. Refer to Appendix B, *Additional Information*, for host programming details. If you program the scanner using these barcodes, the scanner stores the changes until reprogrammed. Whenever you use these labels to change programmable features, you are changing these features for the active interface only.

WHAT IS PROGRAMMING MODE?

To change the scanner's programmed settings, it is necessary to place the scanner in Programming Mode. This ensures that the scanner only recognizes the special programming labels contained in this programming guide.

HOW TO PROGRAM USING BARCODES

The following pages contain special barcode labels that are used to change or enable the scanner's programmable options. All programming sessions follow this order:

1. **Scan the SET label at the top of the page.** The scanner will emit a low-to-high tone indicating it has read the label, and will then begin flashing the green lamp. As long as the scanner is flashing the green lamp, the scanner will only recognize and decode programming labels.
2. **Scan the feature label(s) for the programmable options you wish to enable.** The scanner will emit a low-to-high tone each time you scan a valid label indicating it has read and decoded the programming label. (All features are not available for all interfaces.)
3. **Scan the END label at the bottom of the page** to complete the programming session and exit Programming Mode.

You can scan any number of feature labels during a programming session before scanning the END label, but you must scan the END label to save changes and exit Programming Mode. The scanner will not exit Programming Mode unless the END label is scanned. Disconnecting power during Programming Mode, before scanning the END label, will cause the scanner to forget any programming labels scanned during the current programming session and will cause the scanner to return to its previous settings.

SCANNER RESPONSE WHEN IN PROGRAMMING MODE

While in Programming Mode, the scanner will not decode regular barcode labels and will only enable features supported by the currently active interface. Maintaining a good record of all changes made for each interface will help ensure that you know if the standard factory settings have been changed.

Scanning regular barcode labels — the scanner will not read the label and will not sound a tone.

Scanning a valid programming label —

- a. If the feature is supported by the active interface, the scanner will sound a low-to-high tone. This is the same tone that sounds when you enter Programming Mode.
- b. If the feature is not supported by the active interface, the scanner will sound a long low tone. For example, if the active interface is OCIA and you scan an RS-232 interface parameter (e.g. Baud Rate = 9600), the scanner will sound a long low tone.

IF YOU MAKE A MISTAKE...

If, during a programming session, you find that you are unsure of the scanner's settings or wish to re-set the scanner's configuration, use the Return to Factory Settings label on this page to return the scanner's configuration to the factory settings. Scanning this label only affects the interface that is currently active, and will reset any changes made to this interface during a previous programming session.

Appendix A contains a complete list of all standard factory settings.

RETURN TO FACTORY SETTINGS

Scan this label to return the scanner to the factory settings for the active interface.



WHERE TO GO FROM HERE

Programming is easy and straightforward if you follow these steps:

1. Turn to Appendix A and review the factory settings for the interface you will be using.
2. Scan the interface enable barcode label if you are changing interfaces.
3. Scan any feature labels that are unique to the interface you are currently programming. These interface specific programming labels immediately follow each interface selection label.
5. Turn to page 54 if you are going to change any barcode symbologies or modify any symbology related features.
6. Turn to page 79 if you wish to change or modify any of the scanner's general features.

Once the necessary changes have been made, and you have scanned the END label, you are ready to scan.

IBM 468x PORT 5B INTERFACE SELECTION

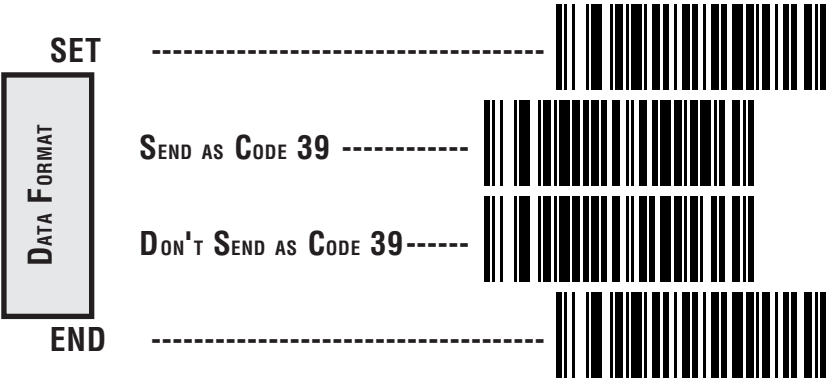
Scan this label to enable the IBM 468x Port 5B interface.



IBM 468x PORT 5B SETTINGS

Data Format: Send As Code 39 — converts barcode data (UPC-D, UPC/EAN, add-ons, Code 93, Standard 2 of 5, Codabar, MSI/Plessey and Code 128) into Code 39 format before sending the data to the host.

These settings are for IBM 468x Port 5B interface ONLY.



Go to the sections titled *Symbology Selection* and *General Features* in the back of this programming guide if you want to change any other factory settings for this interface.

IBM 468x/9x PORT 9B INTERFACE SELECTION

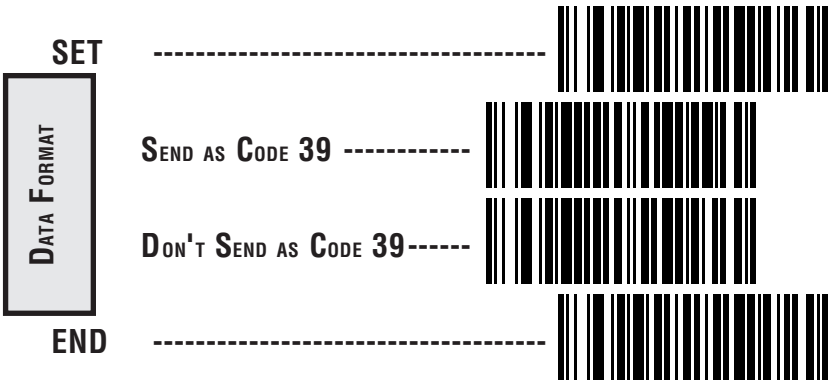
Scan this label to enable the IBM 468x/9x Port 9B interface.



IBM 468x/9x PORT 9B SETTINGS

Data Format: Send As Code 39 — converts barcode data (UPC-D, UPC/EAN, add-ons, Code 93, Standard 2 of 5, Codabar, MSI/Plessey and Code 128) into Code 39 format before sending the data to the host.

These settings are for IBM 468x/9x Port 9B interface ONLY.



Go to the sections titled *Symbology Selection* and *General Features* in the back of this programming guide if you want to change any other factory settings for this interface.

IBM 468x PORT 17 INTERFACE SELECTION

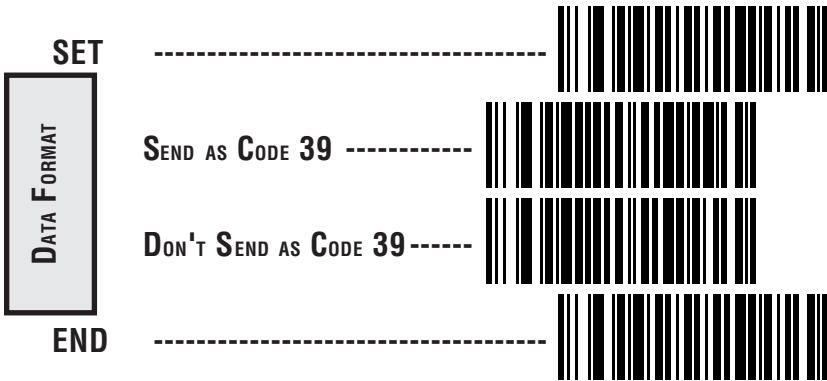
Scan this label to enable the IBM 468x Port 17 interface.



IBM 468x PORT 17 SETTINGS

Data Format: Send As Code 39 — converts barcode data (UPC-D, UPC/EAN, add-ons, Code 93, Standard 2 of 5, Codabar, MSI/Plessey and Code 128) into Code 39 format before sending the data to the host.

These settings are for IBM 468x Port 17 interface ONLY.



Go to the sections titled *Symbology Selection* and *General Features* in the back of this programming guide if you want to change any other factory settings for this interface.

IBM 468x/9x PORT E INTERFACE SELECTION

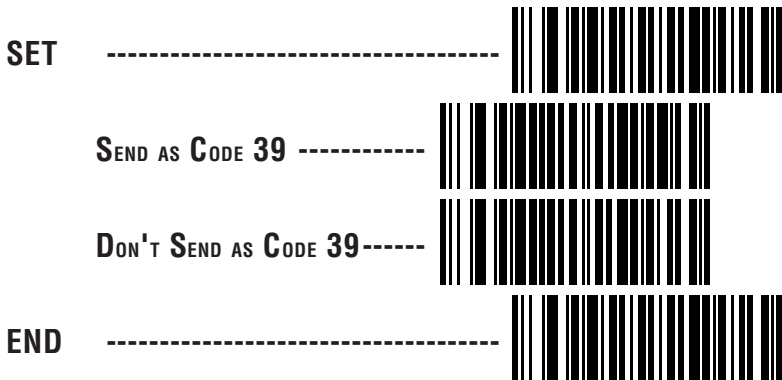
Scan this label to enable the IBM 468x/9x Port E interface.



IBM 468x/9x PORT E SETTINGS

Data Format: Send As Code 39 — converts barcode data (UPC-D, UPC/EAN, add-ons, Code 93, Standard 2 of 5, Codabar, MSI/Plessey and Code 128) into Code 39 format before sending the data to the host.

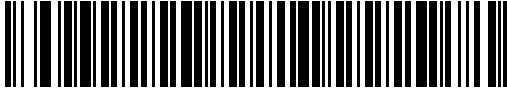
These settings are for IBM 468x/9x Port E interface ONLY.



Go to the sections titled *Symbology Selection* and *General Features* in the back of this programming guide if you want to change any other factory settings for this interface.

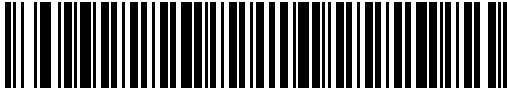
PSC OCIA INTERFACE SELECTION

Scan this label to enable the Spectra-Physics OCIA interface.



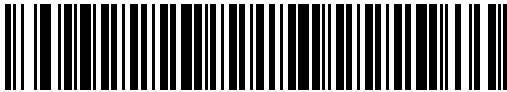
NCR OCIA EIGHT BIT (SHORT FORMAT) INTERFACE SELECTION

Scan this label to enable the NCR OCIA (short format) interface.



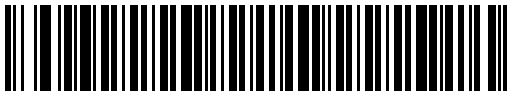
NCR OCIA NINE BIT (LONG FORMAT) INTERFACE SELECTION

Scan this label to enable the NCR OCIA Nine Bit (long format) interface.



SNI OCIA INTERFACE SELECTION

Scan this label to enable the SNI OCIA interface.



METROLOGIC OCIA INTERFACE SELECTION

Scan this label to enable the Metrologic OCIA interface.



Go to the sections titled *Symbology Selection* and *General Features* in the back of this programming guide if you want to change any other factory settings for these interfaces.

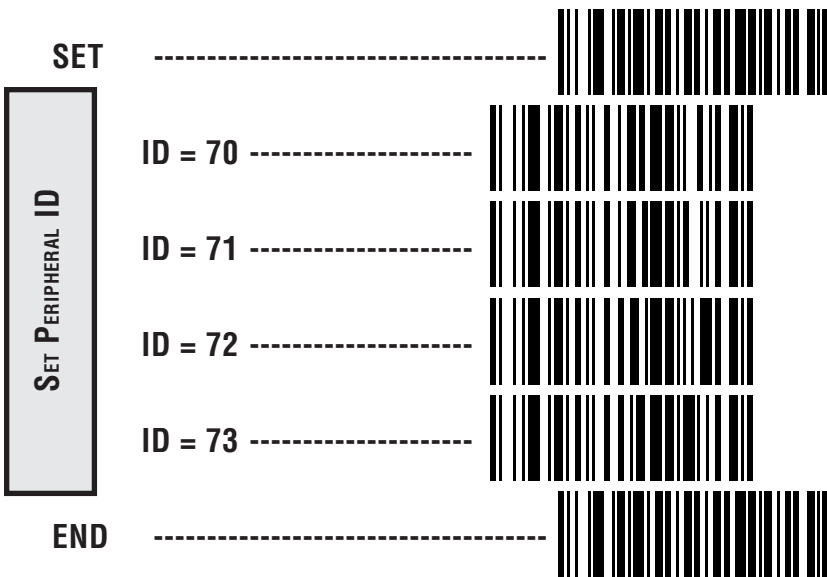
MULTIDROP INTERFACE SELECTION

Scan the Enable Interface label to select multidrop as the active interface. Your system configuration will determine which peripheral ID setting to select.

INTERFACE
MULTIDROP



MULTIDROP SETTINGS



Go to the sections titled Symbology Selection and General Features in the back of this programming guide if you want to change any other factory settings for this interface.

WAND EMULATION INTERFACE SELECTION

Scan this label to enable the Wand Emulation interface.



WAND EMULATION SETTINGS



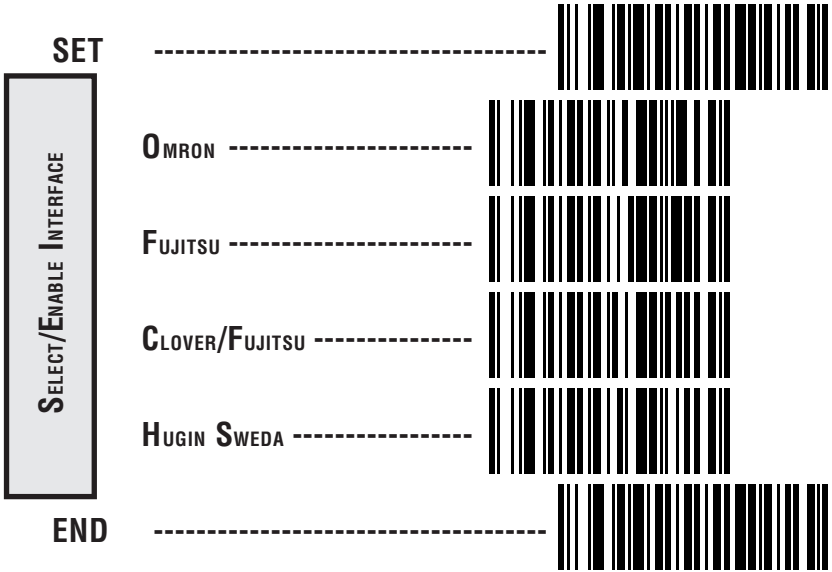
INTERFACE
WAND EMULATION

Go to the sections title Symbology Selection and General Features in the back of this programming guide if you want to change any other factory settings for this interface.

SIX-BIT INTERFACES

Scan the appropriate interface enable label to activate the scanner interface that matches your system type.

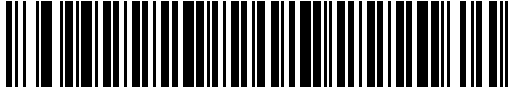
INTERFACE
Six-Bit



Go to the sections titled Symbology Selection and General Features in the back of this programming guide if you want to change any other factory settings for this interface.

RS-232 INTERFACE SELECTION

Scan this label to enable the RS-232 interface.



Turn to the following pages to set the RS-232 communication parameters.

Communication Parameter	Page #
Baud Rate -----	18
Parity -----	19
Stop Bit(s) -----	19
Data Bits -----	19
Hardware Handshaking (CTS/RTS) -----	20
Software Handshaking (Xon/Xoff) -----	20
UPC Data Format (Check Digit, Number System Digit) -----	21
EAN Data Format -----	22
Intercharacter Delay -----	23
Prefix and Suffix -----	25
Symbology Specific Identifiers -----	31

Go to the sections titled *Symbology Selection* and *General Features* in the back of this programming guide if you want to change any other factory settings for this interface.

BAUD RATE

Use the barcodes on this page to select the communications Baud Rate. Only one Baud Rate selection may be active at any one time. The last Baud Rate label you scan during a programming session will be the setting that is stored when you scan the END label.

INTERFACE
RS-232

BAUD RATE	SET -----	
	= 110 ² -----	
	= 300 -----	
	= 600 -----	
	= 1200 -----	
	= 2400 -----	
	= 4800 -----	
	= 9600 -----	
	= 19200 -----	

¹Only units manufactured after June 1, 1995 can use the 38,400 baud label below.

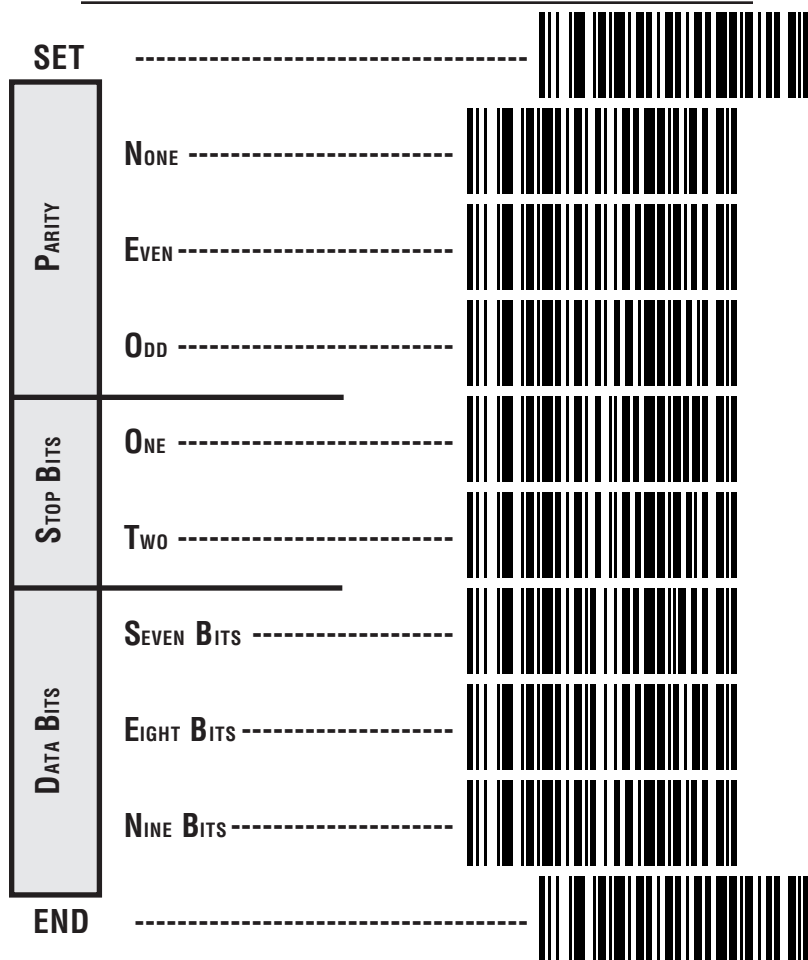
²To reset from 38,400 baud to 110 baud, use the "Reset 110 baud" label below.

38,400 BAUD	= 38,400 ¹ -----	
	= RESET 110 ² -----	
	END -----	

DATA FORMAT SETTINGS

There are many possible data format configurations for an RS-232 interface. Check your host system manual to find out your system's communications requirements. This table shows the acceptable format options.

Data Bits	Start Bit	Parity Bit(s)	Stop Bit(s)
Seven	1	0	2
Seven	1	1	1
Seven	1	1	2
Eight	1	0	1
Eight	1	0	2
Eight	1	1	1
Nine	1	0	1

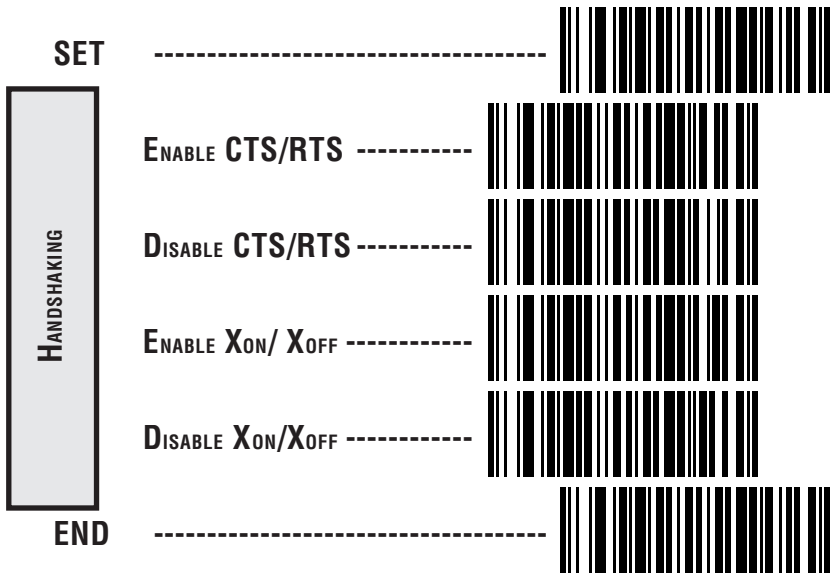


HANDSHAKING

Review your system documentation to identify system handshaking requirements, and use these labels to change the setting if required. The following brief descriptions explain each handshaking selection.

CTS/RTS — the scanner activates the RTS (Ready to Send) line when it is ready to send data to the host. The scanner waits for an active Clear to Send (CTS) signal from the host before transmitting data. The RTS line from the scanner is active during data transmission and returns to inactive when the data transmission has been completed. If the host deactivates the CTS line during data transmission, the host will receive no more than two additional characters.

XON/XOFF — this is software handshaking that allows the host to control data transmission. If the host sends an XOFF command to the scanner, the scanner will not send the barcode data until it receives an XON command from the host. If the host sends the XOFF command during data transmission, the host will receive no more than two additional characters.



UPC DATA FORMAT SETTINGS

These settings affect UPC data format ONLY when RS-232 is the active interface.



¹ NSD = Number System Digit. The NSD character is the character that precedes the UPC barcode. The NSD for regular UPC-A barcodes is a zero. Other commonly used Number System Digits used with UPC-A are:

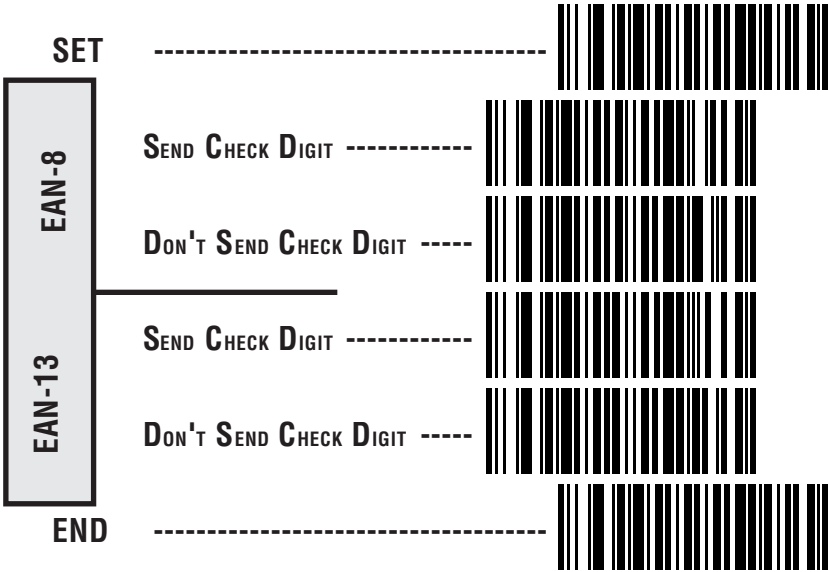
- 2 - used for random weight items such as meat and produce
- 3 - used for the drug and health items
- 4 - used for in-store non-food items
- 5 - used for coupons

² If UPC-E is expanded to UPC-A, the transmission of CD and NSD will be determined by the UPC-A settings on this page, not by these settings.

EAN DATA FORMAT SETTINGS

These settings affect EAN data format ONLY when RS-232 is the active interface.

INTERFACE
RS-232



HOST ECHO¹

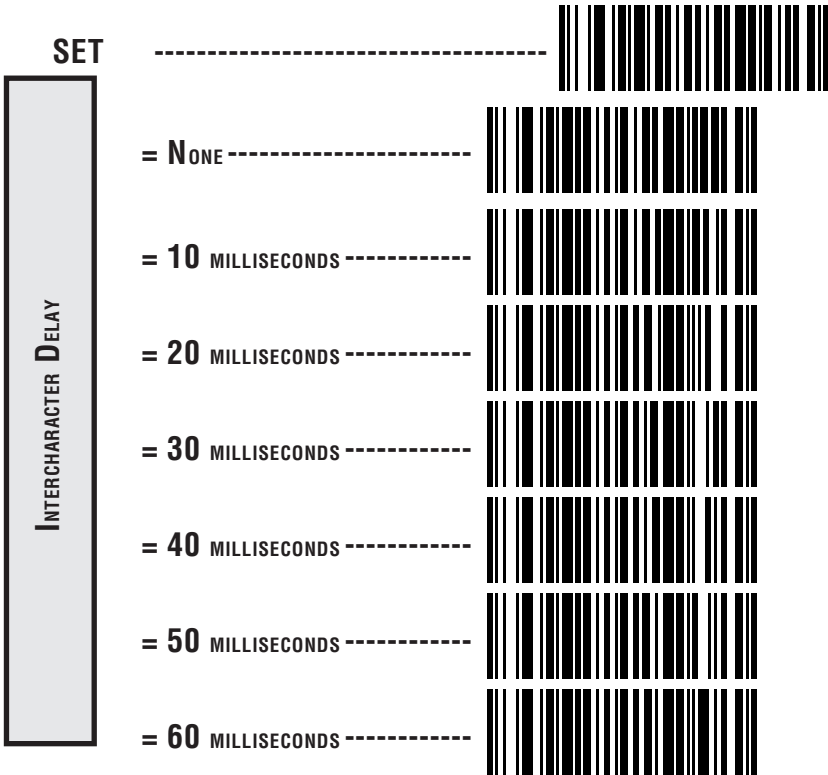
Host Echo allows a dumb terminal (Host) to transmit keyboard data through the scanner (Echo) to a main computer. Scanned label data will take priority over keyboard data.



¹This feature not available on units manufactured before Mar. 1, 1995.

INTERCHARACTER DELAY

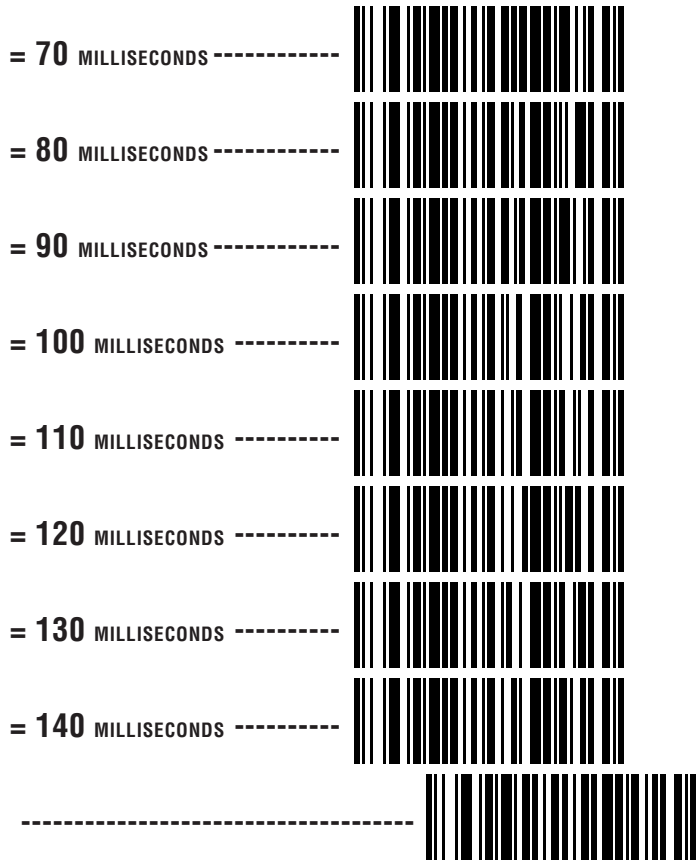
Intercharacter Delay refers to the pause, if any, between each character before it is sent to the host. This time delay is used to control the flow of data from the scanner, but it should not be required for most applications. Use these labels to select the desired Intercharacter Delay.



INTERCHARACTER DELAY (continued)

INTERFACE
RS-232

INTERCHARACTER DELAY



PREFIX & SUFFIX

If you need to send information in addition to label data, the scanner can be configured to transmit prefixes and/or suffixes as well as symbology specific identifier characters. As the examples below show, none, one or two symbology specific ASCII characters can be added to the beginning of label in addition to multiple prefix and suffix characters.

NOTE

Using this feature requires a thorough understanding of your specific system requirements.

The seven options available using this feature are:

- symbology specific (0 - 2) characters + label data
PP + label data
- non-symbology specific characters (1-2) as a prefix + label data
 $C_p C_p$ + label data
- label data + non-symbology specific characters (0-2) as a suffix
label data + $C_s C_s$
- non-symbology specific characters (1-2) as a prefix + symbology specific characters (0-2) + label data
 $C_p C_p$ + PP + label data
- symbology specific characters (0-2) + label data + non-symbology specific characters (1-2) as a suffix
PP + label data + $C_s C_s$
- non-symbology specific characters (1-2) as a prefix + label data + non-symbology specific characters (1-2) as a suffix
 $C_p C_p$ + label data + $C_s C_s$
- non-symbology specific characters (1-2) as a prefix + symbology specific characters (0-2) + label data + non-symbology specific characters (1-2) as a suffix
 $C_p C_p$ + PP + label data + $C_s C_s$

PP = symbology specific characters

$C_p C_p$ = non-symbology specific ASCII characters used as prefixes

$C_s C_s$ = non-symbology specific ASCII characters used as suffixes

SETTING NON-SYMBOLGY SPECIFIC PREFIX(ES)

These characters will be added to the standard label format when your host system has specific and unique requirements for information added to the barcode label data before it is sent to the host. Identify your specific system requirements before adding or modifying these settings, then...

1. Look at the ASCII chart shown on page 30 and identify the ASCII character(s) and the corresponding Hex Code(s) for the ASCII characters you will use as prefixes.

For example, if you are going to send two prefix characters as 'STX' (start transmit) and 'SP' (Space). The ASCII chart shows that 'STX' equals 02_{hex} and 'SP' equals 20_{hex}.

2. Scan the SET label.
3. Scan the Set Prefix label on this page.
4. Scan the digits that correspond to the Hex Values.

For the example in step four, scan 0, 2, 2, 0.

5. Scan END.

You have added a two character prefix to all label data, regardless of label symbology, that will be added to the label data before it is sent to the host.

SET



SET PREFIX



GO TO PAGE 28 AND SCAN THE APPROPRIATE CHARACTERS BEFORE SCANNING THE END LABEL TO EXIT PROGRAMMING SESSION.

SETTING NON-SYMBOLGY SPECIFIC SUFFIX(ES)

These characters will be added to the standard label format when your system has specific and unique requirements for information added to the barcode label data before it is sent to the host. Suffix characters follow the label data.

Identify your specific system requirements before adding or modifying these settings, then...

1. Look at the ASCII chart shown on page 30 and identify the ASCII character(s) and the corresponding Hex Code(s) for the ASCII characters you will use as suffixes.

For example, if you are going to send two suffix characters as 'BEL' (sound host tone) and 'ETX' (end transmission). The ASCII chart shows that 'BEL' equals 07_{hex} and 'ETX' equals 03_{hex}.

2. Scan the SET label.
3. Scan the Set Suffix label on this page.
4. Scan the digits that correspond to the Hex Values.

For the example in step five, scan 0, 7, 0, 3.

5. Scan END.

You have added a two character suffix to all label data, regardless of label symbology, that will be added to the label data before it is sent to the host.



GO TO PAGE 28 AND SCAN THE APPROPRIATE CHARACTERS BEFORE SCANNING THE END LABEL TO EXIT PROGRAMMING SESSION.

SETTING A SINGLE CHARACTER PREFIX OR SUFFIX

To set one ASCII character as a prefix or suffix, follow steps one through four on page 26 or 27, then...

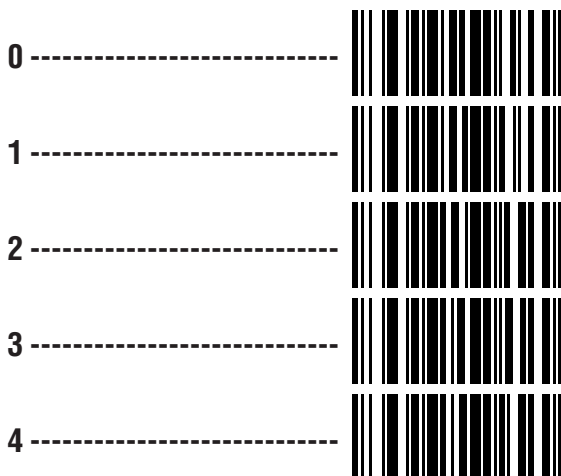
1. Scan the two digit Hex Code for that character.
(e.g. 03, 8F, ...FF)
2. Scan the One Character Only label on page 29.
3. Scan the END label.

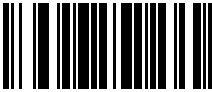











You have set a single character prefix or suffix.

SETTING PREFIX AND/OR SUFFIX CHARACTERS

NOTE

You must scan the SET label and either the Set Prefix or Set Suffix label before using the labels on this page.



5	-----	
6	-----	
7	-----	
8	-----	
9	-----	
A	-----	
B	-----	
C	-----	
D	-----	
E	-----	
F	-----	
ONE CHARACTER ONLY	-----	

END ----- 

ASCII CHARACTER SET

The table on this page shows a set of ASCII characters and their corresponding Hex Values. The Hex Values in this table are needed for setting symbol-ology specific label identifiers, as well as enabling custom prefix and suffix characters.

ASCII CHAR.	HEX VALUE	ASCII CHAR.	HEX VALUE	ASCII CHAR.	HEX VALUE	ASCII CHAR.	HEX VALUE
nul	00	sp	20	@	40	`	60
soh	01	!	21	A	41	a	61
stx	02	"	22	B	42	b	62
etx	03	#	23	C	43	c	63
eot	04	\$	24	D	44	d	64
enq	05	%	25	E	45	e	65
ack	06	&	26	F	46	f	66
bel	07	'	27	G	47	g	67
bs	08	(	28	H	48	h	68
ht	09	)	29	I	49	i	69
lf	0A	*	2A	J	4A	j	6A
vt	0B	+	2B	K	4B	k	6B
ff	0C	,	2C	L	4C	l	6C
cr	0D	-	2D	M	4D	m	6D
so	0E	.	2E	N	4E	n	6E
si	0F	/	2F	O	4F	o	6F
dle	10	0	30	P	50	p	70
dc1	11	1	31	Q	51	q	71
dc2	12	2	32	R	52	r	72
dc3	13	3	33	S	53	s	73
dc4	14	4	34	T	54	t	74
nak	15	5	35	U	55	u	75
syn	16	6	36	V	56	v	76
etb	17	7	37	W	57	w	77
can	18	8	38	X	58	x	78
em	19	9	39	Y	59	y	79
sub	1A	:	3A	Z	5A	z	7A
esc	1B	;	3B	[	5B	{	7B
fs	1C	<	3C	\	5C	|	7C
gs	1D	=	3D	]	5D	}	7D
rs	1E	>	3E	^	5E	~	7E
us	1F	?	3F	_	5F	del	7F

SETTING SYMBOLOGY SPECIFIC IDENTIFIERS

These characters identify what symbology is being sent to the host. If you need to change any of these defaults:

1. Look at the ASCII chart shown on page 30 and identify the ASCII character(s) and the corresponding Hex Code(s) for the ASCII characters you will use as the symbology specific identifiers.
2. Scan the SET label on page 33.
3. Scan the label identifier label for the symbology identifier that you are going to change on pages 33 and 34.

As an example, assume that you want to change the label identifier for UPC-A to A1. Scan the Set Symbology Specific Identifier barcode for UPC-A.

4. Identify the hex values that correspond to the ASCII characters you will use.

For example, if you are going to set the new symbology identifier to A1. 'A' equals 41_{hex} and '1' equals 31_{hex}.

5. Scan the barcodes values. For the example in step five, scan 4, 1, 3, 1.
6. Scan END.

You have changed the default label identifier for UPC-A from 'A' to 'A1'.

FACTORY SET SYMBOLOGY LABEL IDENTIFIERS

This table shows the preset industry standard label identifiers that are contained in your scanner software.

UPC-A ----- 'A'	UPC-E (5 Add-on) ----- 'E'
UPC-E ----- 'E'	EAN-8 (2 add-on) ----- 'FF'
EAN-8 ----- 'FF'	EAN-8 (5 Add-on) ----- 'FF'
EAN-13 ----- 'F'	EAN-13 (2 add-on) ----- 'F'
UPC-D1 ----- 'D1'	EAN-13 (5 Add-on) ----- 'F'
UPC-D2 ----- 'D2'	Code 39 ----- '*'
UPC-D3 ----- 'D3'	Codabar ----- '%'
UPC-D4 ----- 'D4'	Interleaved.2 of 5 ----- 'i'
UPC-D5 ----- 'D5'	Standard. 2 of 5 ----- '!
UPC-A (2 add-on) ----- 'A'	Code 93 ----- '&'
UPC-A (5 Add-on) ----- 'A'	Code 128 ----- '#'
UPC-E (2 add-on) ----- 'E'	MSI/Plessey ----- '@'
Code 49 ----- 'T'	Code 16K ----- 'K'

HOW TO SET SINGLE CHARACTER SYMBOLOGY IDENTIFIERS

If you only want a single character identifier, follow this modified procedure for setting label identifier.

1. Look at the ASCII chart shown on page 30 and identify the ASCII character and the corresponding Hex Code for the ASCII character you will use as the symbology specific identifier.
2. Scan the SET label.
3. Scan the label identifier label for the symbology identifier that you are going to change.

As an example, assume that you want to change the label identifier for EAN-8 from the default setting FF to the ASCII value 8. Scan the Set Symbology Specific Label Identifier barcode for EAN-8.

5. Identify the hex value that correspond to the ASCII character.

In this example '8' equals 38_{hex} .

Simply follow the hex value for '8' (38_{hex}) with the One Character Only label. This tells the scanner that '8' is a single digit label identifier.

6. Scan the barcodes values.

For the example in step five, scan 3, 8, One Character Only on pages 35 - 36.

7. Scan the END label.

You have changed the default label identifier for EAN-8 from 'FF' to '8'.

DISABLING INDIVIDUAL SYMBOLOGY IDENTIFIERS

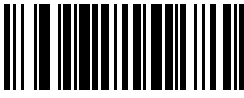
This procedure is the same as setting a single character symbology identifier, except you should scan two zeros and the One Character Only labels before scanning the END label.

SET



SET SYMBOLOGY SPECIFIC LABEL IDENTIFIER FOR:

UPC-A -----



UPC-A w/2 DIGIT ADD-ON ----



UPC-A w/5 DIGIT ADD-ON ----



UPC-D1 -----



UPC-D2 -----



UPC-D3 -----



UPC-D4 -----



UPC-D5 -----



UPC-E -----



UPC-E w/2 DIGIT ADD-ON ----



UPC-E w/5 DIGIT ADD-ON ----



EAN-8 -----

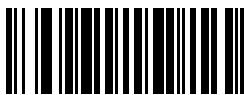


EAN-8 w/2 DIGIT ADD-ON ----



SET SYMBOLGY SPECIFIC LABEL IDENTIFIER FOR:

EAN-8 w/5 DIGIT ADD-ON -----



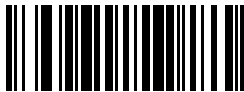
EAN-13 -----



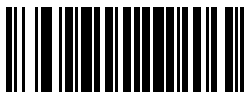
EAN-13 w/2 DIGIT ADD-ON ---



EAN-13 w/5 DIGIT ADD-ON ---



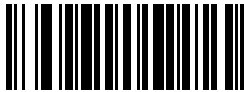
CODE 39 -----



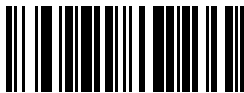
CODABAR -----



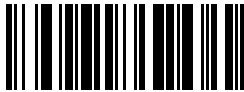
INTERLEAVED 2 OF 5 -----



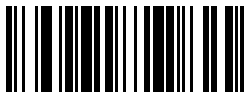
STANDARD 2 OF 5 -----



CODE 93 -----



CODE 128 -----



MSI/PLESSEY -----



CODE 16K -----



CODE 49 -----


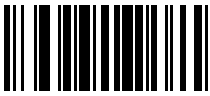
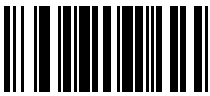

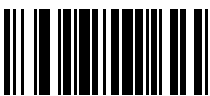







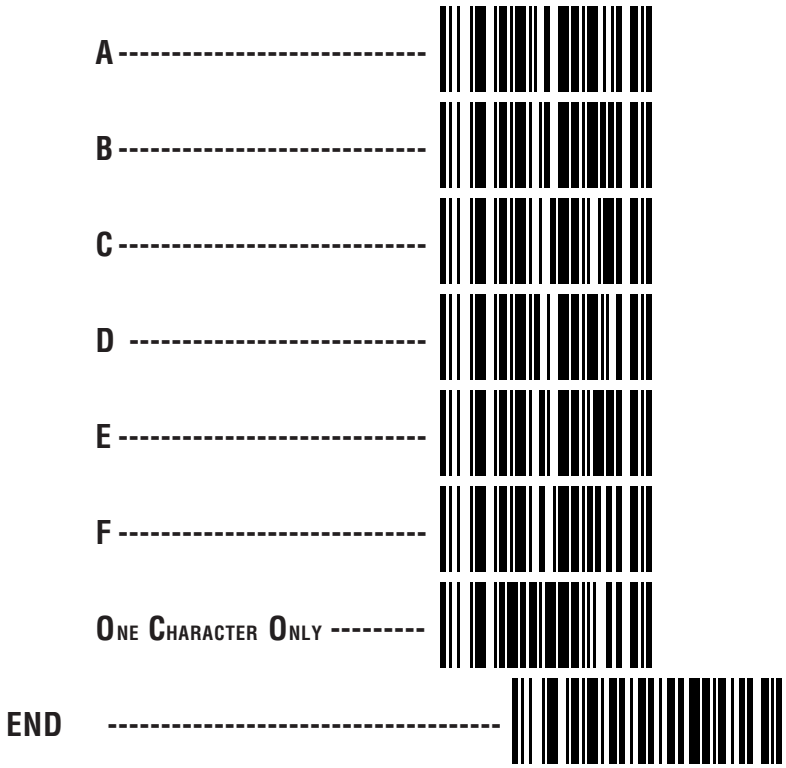
END -----



SYBOLOGY SPECIFIC LABEL IDENTIFIERS CHARACTERS

Use the labels on this page to change or modify symbology identifiers.

0	-----	
1	-----	
2	-----	
3	-----	
4	-----	
5	-----	
6	-----	
7	-----	
8	-----	
9	-----	



Turn to the following pages to set the PC Keyboard Wedge communication parameters.

Communication Parameter	Page #
Interface Selection -----	38
Connect to Laptop -----	39
Intercharacter Delay -----	40
Prefix and Suffix -----	42
Symbology Specific Identifiers -----	48

Go to the sections title Symbology Selection and General Features in the back of this programming guide if you want to change any of the factory settings.

PC KEYBOARD WEDGE INTERFACE SELECTION

The SP400 supports six PC Keyboard Wedge interfaces. The table below defines the different interface selections.

I/F Type	PCs Supported
A	PC/XT w/foreign keyboard
B	AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/foreign keyboard
C	PS/2 25 and 30 w/foreign keyboard
D	PC/XT w/US keyboard
E	AT, PS/2 25-286, 30-286, 50, 50Z, 60, 70, 80, 90 & 95 w/US keyboard
F	PS/2 25 and 30 w/US keyboard

INTERFACE
KEYBOARD WEDGE

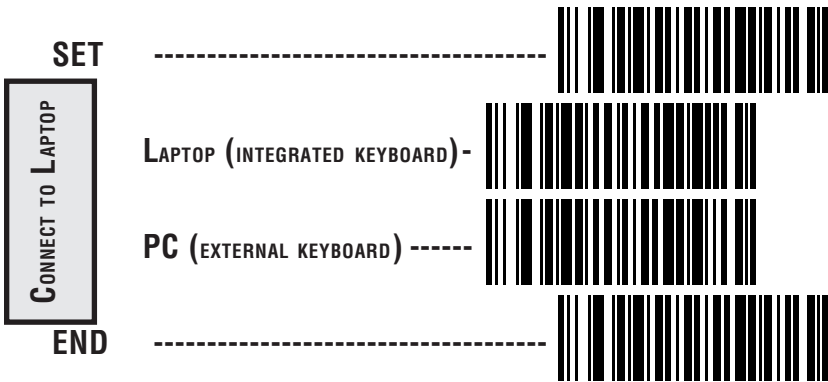


PC KEYBOARD WEDGE – CONNECT TO A LAPTOP

When the SP400 is connected to a standard PC, the PC requires an acknowledge signal from the keyboard when processing data. A laptop computer, on the other hand, does not require this signal and it is necessary to disable the keyboard acknowledge signal.

Scan the Laptop (integrated keyboard) label below when the scanner is connected to a laptop computer.

If you move the scanner to a standard PC, change the setting to PC (external keyboard).



INTERCHARACTER DELAY

Intercharacter Delay refers to the pause, if any, between each character before it is sent to the host. This time delay is used to control the flow of data from the scanner, but it should not be required for most applications. Use these labels to select the desired Intercharacter Delay.

INTERFACE
KEYBOARD WEDGE

INTERCHARACTER DELAY	SET	-----	
	= NONE	-----	
	= 5 MILLISECONDS	-----	
	= 10 MILLISECONDS	-----	
	= 15 MILLISECONDS	-----	
	= 20 MILLISECONDS	-----	
	= 25 MILLISECONDS	-----	
	= 30 MILLISECONDS	-----	
	= 35 MILLISECONDS	-----	
	= 40 MILLISECONDS	-----	
	= 45 MILLISECONDS	-----	
	= 50 MILLISECONDS	-----	

INTERCHARACTER DELAY (continued)

INTERCHARACTER DELAY



INTERFACE
KEYBOARD WEDGE

PREFIX & SUFFIX

If you need to send information in addition to label data, the scanner can be configured to transmit prefixes and/or suffixes as well as symbology specific identifier characters. As the examples below show, none, one or two symbology specific ASCII characters can be added to the beginning of label in addition to multiple prefix and suffix characters.

NOTE

Using this feature requires a thorough understanding of your specific system requirements.

The seven options available using this feature are:

- symbology specific characters (0 - 2)
+ label data
 $PP + \text{label data}$
- non-symbology specific characters as a prefix (1 or 2)
+ label data
 $C_p C_p + \text{label data}$
- label data
+ non-symbology specific characters as a suffix (0 - 2)
 $\text{label data} + C_s C_s$
- non-symbology specific characters as a prefix (1 - 2)
+ symbology specific characters (0 - 2)
+ label data
 $C_p C_p + PP + \text{label data}$
- symbology specific characters (0 - 2)
+ label data
+ non-symbology specific characters as a suffix (1 - 2)
 $PP + \text{label data} + C_s C_s$
- non-symbology specific characters as a prefix (1 - 2)
+ label data
+ non-symbology specific characters as a suffix (1 - 2)
 $C_p C_p + \text{label data} + C_s C_s$
- non-symbology specific characters as a prefix (1 - 2)
+ symbology specific characters (0 - 2)
+ label data
+ non-symbology specific characters as a suffix (1 - 2)
 $C_p C_p + PP + \text{label data} + C_s C_s$

PP = symbology specific characters

$C_p C_p$ = non-symbology specific ASCII characters used as prefixes

$C_s C_s$ = non-symbology specific ASCII characters used as suffixes

SETTING NON-SYMBOLGY SPECIFIC PREFIX(ES)

These characters will be added to the standard label format when your host system has specific and unique requirements for information added to the barcode label data before it is sent to the host. Identify your specific system requirements before adding or modifying these settings, then...

1. Look at the ASCII chart shown on page 47 and identify the ASCII character(s) and the corresponding Hex Code(s) for the ASCII characters you will use as prefixes.

For example, if you are going to send two prefix characters as 'STX' (start transmit) and 'SP' (Space). The ASCII chart shows that 'STX' equals 02_{hex} and 'SP' equals 20_{hex}.

2. Scan the SET label.
3. Scan the Set Prefix label on this page.
4. Scan the digits that correspond to the Hex Values.

For the example in step four, scan 0, 2, 2, 0.

5. Scan END.

You have added a two character prefix to all label data, regardless of label symbology, that will be added to the label data before it is sent to the host.



GO TO PAGE 45 AND SCAN THE APPROPRIATE CHARACTERS BEFORE SCANNING THE END LABEL TO EXIT PROGRAMMING SESSION.

SETTING NON-SYMBOLGY SPECIFIC SUFFIX(ES)

These characters will be added to the standard label format when your system has specific and unique requirements for information added to the barcode label data before it is sent to the host. Suffix characters follow the label data.

Identify your specific system requirements before adding or modifying these settings, then...

1. Look at the ASCII chart shown on page 47 and identify the ASCII character(s) and the corresponding Hex Code(s) for the ASCII characters you will use as suffixes.

For example, if you are going to send two suffix characters as 'BEL' (sound host tone) and 'ETX' (end transmission). The ASCII chart shows that 'BEL' equals 07_{hex} and 'ETX' equals 03_{hex}.

2. Scan the SET label.
3. Scan the Set Suffix label on this page.
4. Scan the digits that correspond to the Hex Values.

For the example in step five, scan 0, 7, 0, 3.

5. Scan END.

You have added a two character suffix to all label data, regardless of label symbology, that will be added to the label data before it is sent to the host.



GO TO PAGE 45 AND SCAN THE APPROPRIATE CHARACTERS BEFORE SCANNING THE END LABEL TO EXIT PROGRAMMING SESSION.

SETTING A SINGLE CHARACTER PREFIX OR SUFFIX

To set one ASCII character as a prefix or suffix, follow steps one through four on page 43 or 44, then...

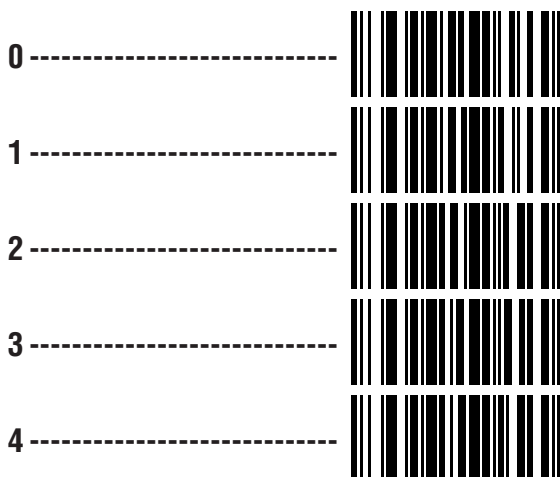
1. Scan the two digit Hex Code for that character.
(e.g. 03, 8F, ...FF)
2. Scan the One Character Only label on page 46.
3. Scan the END label.

You have set a single character prefix or suffix.

SETTING PREFIX AND/OR SUFFIX CHARACTERS

NOTE

You must scan the SET label and either the Set Prefix or Set Suffix label before using the labels on this page.



(continued on next page)



ASCII CHARACTER SET

The table on this page shows a set of ASCII characters and their corresponding Hex Values. The Hex Values in this table are needed for setting symbology specific label identifiers, as well as enabling custom prefix and suffix characters.

ASCII CHAR.	HEX VALUE	ASCII CHAR.	HEX VALUE	ASCII CHAR.	HEX VALUE	ASCII CHAR.	HEX VALUE
nul	00	sp	20	@	40	`	60
soh	01	!	21	A	41	a	61
stx	02	"	22	B	42	b	62
etx	03	#	23	C	43	c	63
eot	04	\$	24	D	44	d	64
enq	05	%	25	E	45	e	65
ack	06	&	26	F	46	f	66
bel	07	'	27	G	47	g	67
bs	08	(	28	H	48	h	68
ht	09	)	29	I	49	i	69
lf	0A	*	2A	J	4A	j	6A
vt	0B	+	2B	K	4B	k	6B
ff	0C	,	2C	L	4C	l	6C
cr	0D	-	2D	M	4D	m	6D
so	0E	.	2E	N	4E	n	6E
si	0F	/	2F	O	4F	o	6F
dle	10	0	30	P	50	p	70
dc1	11	1	31	Q	51	q	71
dc2	12	2	32	R	52	r	72
dc3	13	3	33	S	53	s	73
dc4	14	4	34	T	54	t	74
nak	15	5	35	U	55	u	75
syn	16	6	36	V	56	v	76
etb	17	7	37	W	57	w	77
can	18	8	38	X	58	x	78
em	19	9	39	Y	59	y	79
sub	1A	:	3A	Z	5A	z	7A
esc	1B	;	3B	[	5B	{	7B
fs	1C	<	3C	\	5C	|	7C
gs	1D	=	3D	]	5D	}	7D
rs	1E	>	3E	^	5E	~	7E
us	1F	?	3F	_	5F	del	7F

SETTING SYMBOLOGY SPECIFIC IDENTIFIERS

These characters identify what symbology is being sent to the host. If you need to change any of these defaults:

1. Look at the ASCII chart shown on page 47 and identify the ASCII character(s) and the corresponding Hex Code(s) for the ASCII characters you will use as the symbology specific identifiers.
2. Scan the SET label on page 50.
3. Scan the label identifier label for the symbology identifier that you are going to change on pages 50 and 51.

As an example, assume that you want to change the label identifier for UPC-A to A1. Scan the Set Symbology Specific Identifier barcode for UPC-A.

4. Identify the hex values that correspond to the ASCII characters you will use.

For example, if you are going to set the new symbology identifier to A1. 'A' equals 41_{hex} and '1' equals 31_{hex}.

5. Scan the barcodes values. For the example in step five, scan 4, 1, 3, 1.
6. Scan END.

You have changed the default label identifier for UPC-A from 'A' to 'A1'.

FACTORY SET SYMBOLOGY LABEL IDENTIFIERS

This table shows the preset industry standard label identifiers that are contained in your scanner software.

UPC-A -----	'A'	UPC-E (5 Add-on) -----	'E'
UPC-E -----	'E'	EAN-8 (2 add-on) -----	'FF'
EAN-8 -----	'FF'	EAN-8 (5 Add-on) -----	'FF'
EAN-13 -----	'F'	EAN-13 (2 add-on) -----	'F'
UPC-D1 -----	'D1'	EAN-13 (5 Add-on) -----	'F'
UPC-D2 -----	'D2'	Code 39 -----	'*'
UPC-D3 -----	'D3'	Codabar -----	'%'
UPC-D4 -----	'D4'	Interleaved.2 of 5 -----	'i'
UPC-D5 -----	'D5'	Standard. 2 of 5 -----	'!'
UPC-A (2 add-on) -----	'A'	Code 93 -----	'&'
UPC-A (5 Add-on) -----	'A'	Code 128 -----	'#'
UPC-E (2 add-on) -----	'E'	MSI/Plessey-----	'@'

HOW TO SET SINGLE CHARACTER SYMBOLOGY IDENTIFIERS

If you only want a single digit identifier, follow this modified procedure for setting label identifier.

1. Look at the ASCII chart shown on page 47 and identify the ASCII character and the corresponding Hex Code for the ASCII character you will use as the symbology specific identifier.
2. Scan the SET label.
3. Scan the label identifier label for the symbology identifier that you are going to change.

As an example, assume that you want to change the label identifier for EAN-8 from the default setting FF to the ASCII value 8. Scan the Set Symbology Specific Label Identifier barcode for EAN-8.

5. Identify the hex value that correspond to the ASCII character.

In this example '8' equals 38_{hex} .

Simply follow the hex value for '8' (38_{hex}) with the One Character Only label. This tells the scanner that '8' is a single digit label identifier.

6. Scan the barcodes values.

For the example in step five, scan 3, 8, One Character Only on pages 52 - 53.

7. Scan the END label.

You have changed the default label identifier for EAN-8 from 'FF' to '8'.

DISABLING INDIVIDUAL SYMBOLOGY IDENTIFIERS

This procedure is the same as setting a single character symbology identifier, except you should scan two zeros and the One Character Only labels before scanning the END label.

SET SYMBOLLOGY SPECIFIC LABEL IDENTIFIER FOR:

SET

UPC-A -----

UPC-A w/2 DIGIT ADD-ON ----

UPC-A w/5 DIGIT ADD-ON ----

UPC-D1 -----

UPC-D2 -----

UPC-D3 -----

UPC-D4 -----

UPC-D5 -----

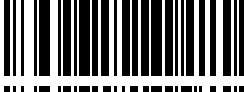
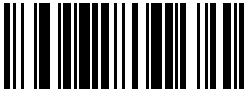
UPC-E -----

UPC-E w/2 DIGIT ADD-ON ----

UPC-E w/5 DIGIT ADD-ON ----

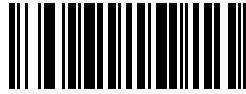
EAN-8 -----

EAN-8 w/2 DIGIT ADD-ON ----



SET SYMBOLOGY SPECIFIC LABEL IDENTIFIER FOR:

EAN-8 w/5 DIGIT ADD-ON -----



EAN-13 -----



EAN-13 w/2 DIGIT ADD-ON ---



EAN-13 w/5 DIGIT ADD-ON ---



CODE 39 -----



CODABAR -----



INTERLEAVED 2 OF 5 -----



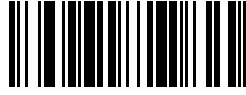
STANDARD 2 OF 5 -----



CODE 93 -----



CODE 128 -----



MSI/PLESSEY -----



CODE 16K -----



CODE 49 -----









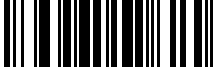
END -----

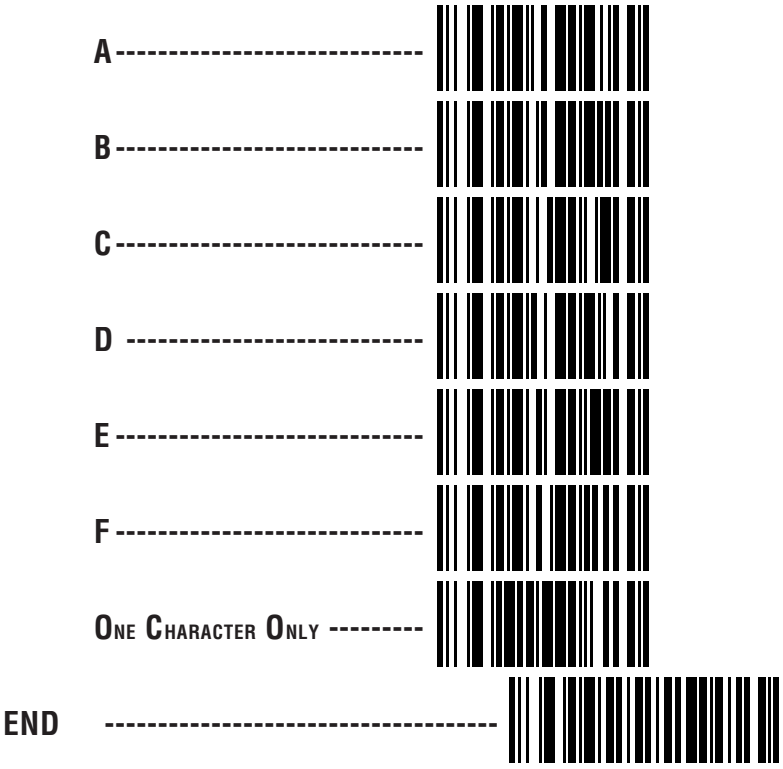


INTERFACE
KEYBOARD WEDGE

SYMBOLGY SPECIFIC LABEL IDENTIFIERS CHARACTERS

Use the labels on this page to change or modify symbology identifiers.

0	-----	
1	-----	
2	-----	
3	-----	
4	-----	
5	-----	
6	-----	
7	-----	
8	-----	
9	-----	



SYMBOLOGIES

Symbology selection (barcode type) determines which symbologies the scanner will decode. The chart below shows the symbologies that are supported by each interface. Once you have identified the symbologies you wish to enable, turn to the following pages, enable those symbologies and set the data format options (e.g. check digit, start/stop characters) required by your host system for each symbology type. You must enable the symbology format options settings that are compatible with your host system.

The factory settings for each interface were chosen to meet the standard industry requirements and in most cases you will not need to change the symbology format settings. If you are unsure of your system requirements, test the scanner using the factory settings before making any changes.

SYMBOLOGIES SUPPORTED *

INTERFACE TYPE	UPC/EAN	Code 39	Inter. 2 of 5	Std. 2 of 5	Codabar	Code 93	Code 128	MSI/Plessey
IBM Port 5B	●	●	●	●	●	●	●	●
IBM Port 9B	●	●	●	●	●	●	●	●
IBM Port 17	●	●	●	●	●	●	●	●
IBM Port E	●	●	●	●	●	●	●	●
NCR OCIA (8 bit)	●							
NCR OCIA (9 bit)	●	●	●				●	
PSC OCIA	●	●	●	●	●	●	●	●
SNI OCIA	●	●	●		●	●	●	
Metrologic OCIA	●	●	●	●	●	●	●	●
Wand Emulation	●	●	●	●	●	●	●	●
RS-232	●	●	●	●	●	●	●	●
Keyboard Wedge	●	●	●	●	●	●	●	●
Omron six-bit	●	●	●	●	●	●	●	●
Fujitsu six-bit	●	●	●	●	●	●	●	●
Fujitsu-Clover six-bit	●	●	●	●	●	●	●	●
Hugin-Sweda six-bit	●	●	●	●	●	●	●	●
Multidrop	●							

* Code 5 is supported in selected models ONLY.

Code 49 and Code 16K are in High Density models only.

SYMBOLGY OPTIONS OVERVIEW

Enable All Symbologies — allows the scanner to auto-discriminate between all the symbologies in this list. Use this selection only if you must constantly read a wide variety of symbologies. Turn to the following pages for enabling additional symbology specific options.

Disable All Symbologies — disables all symbologies. The scanner will only recognize the programming labels contained in this manual while you are in Programming Mode.

Enable UPC/EAN — tells the scanner to recognize UPC-A, UPC-E, EAN-8, and EAN-13. If you enable this symbology, additional options for symbology expansion and reading add-ons are available. Turn to pages 61 to 63 for selection expansion and add-on options.

Enable UPC-D — enables UPC-D1 through D5 as a separate symbology from UPC-A and UPC-E.

Enable Code 39 — selects Code 39 as an active symbology. Turn to pages 64 to 65 to select Check Digit, Start/Stop and Single Digit options.

Enable Italian Code 39 — selects Italian Code 39 as an active symbology. When Italian Code 39 is selected, standard Code 39 is automatically disabled. Turn to pages 64 to 65 to select Check Digit, Start/Stop.

Enable Interleaved 2 of 5 — selects Interleaved 2 of 5 as an active symbology. Turn to pages 66 to 69 if you need to change Check Digit or label format (fixed or variable length) options.

Enable Standard 2 of 5 — selects Standard 2 of 5 as an active symbology. Turn to pages 70 to 73 if you need to change Check Digit or label format (fixed or variable length) options.

Enable Codabar — selects Codabar as an active symbology. Turn to pages 74 to 78 if you need to change Check Digit, Start/Stop character and format, or label format (fixed or variable length) options.

Enable Code 93 — selects Code 93 as an active symbology. The scanner is preset to recognize all Code 93 barcodes that have between 2 and 50 characters. Code 93 has no user selectable options.

Enable Code 128 — selects Code 128 as an active symbology. The scanner is preset to recognize all Code 128 barcodes that have between 2 and 50 characters. Code 128 has no user selectable options.

Enable MSI/Plessey — selects MSI/Plessey as an active symbology. MSI/Plessey has no user selectable options.

Enable Code 5 — selects Code 5 as an active symbology. Code 5 has no user selectable options.

Enable Code 49 — selects Code 49 as an active symbology. Code 49 is a high density symbology and can only be read by the SP400HD (High Density) scanner. Code 49 has no user selectable options.

Enable Code 16K — selects Code 16K as an active symbology. Code 16K is a high density symbology and can only be read by the SP400HD (High Density) scanner. Code 16K has no user selectable options.

SYMBOLGY SELECTION

The labels on this page allow you to enable or disable all symbologies. If you enable a symbology that has additional features that should be set, turn to the pages that support that symbology and its programmable features.

NOTES

CODE 16K AND CODE 49

These two high density symbologies can only be read by the SP400HD (High Density).

ITALIAN CODE 39

Enabling this symbology automatically deselects standard Code 39. The reverse is also true.

All symbology specific settings are identical for both versions of Code 39 except Italian Code 39 does not read single digit labels.

CHANGING INTERFACES

If you change interfaces, the symbology selection process must be repeated for the new interface.

SET -----



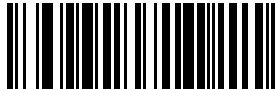
ENABLE ALL SYMBOLOGIES -----
(ALSO SEE PAGES 61 TO 78)



DISABLE ALL SYMBOLOGIES -----



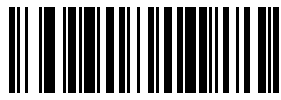
ENABLE UPC/EAN -----
(ALSO SEE PAGES 61 TO 63)



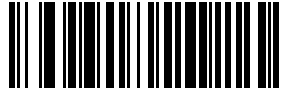
DISABLE UPC/EAN -----



ENABLE UPC-D -----



DISABLE UPC-D -----



ENABLE CODE 39-----
(ALSO SEE PAGES 64 TO 65)



DISABLE CODE 39-----



ENABLE ITALIAN CODE 39 -----
(ALSO SEE PAGES 64 TO 65)



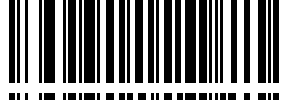
DISABLE ITALIAN CODE 39 -----



ENABLE INTERLEAVED 2 OF 5 ---
(ALSO SEE PAGES 66 TO 69)



DISABLE INTERLEAVED 2 OF 5---



ENABLE STANDARD 2 OF 5 -----
(ALSO SEE PAGES 70 TO 73)



DISABLE STANDARD 2 OF 5 -----



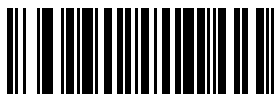
ENABLE CODABAR -----
(ALSO SEE PAGES 74 TO 78)



DISABLE CODABAR -----



ENABLE CODE 93-----



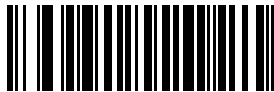
DISABLE CODE 93-----



ENABLE CODE 128-----



DISABLE CODE 128-----



ENABLE MSI/PLESSEY-----



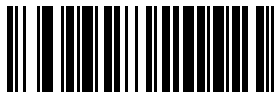
DISABLE MSI/PLESSEY-----



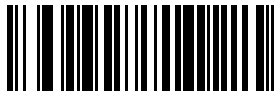
ENABLE CODE 5-----



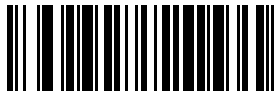
DISABLE CODE 5-----



ENABLE CODE 49-----
(SP400HD ONLY)



DISABLE CODE 49-----
(SP400HD ONLY)



ENABLE CODE 16K-----
(SP400HD ONLY)



DISABLE CODE 16K-----
(SP400HD ONLY)



END-----



UPC/EAN OPTIONS

The information below provides a brief description of the programmable UPC/EAN features included on the following pages.

Expand UPC-A to EAN-13 — adds a leading zero to a UPC-A label which 'expands' the label to the EAN-13 data format. Selecting this feature also changes the symbology ID to match those required for EAN-13.

Expand UPC-E to UPC-A — expands UPC-E labels to UPC-A data format. Selecting this feature also changes the symbology ID to match those required for UPC-A.

If this feature and Expand UPC-A to EAN-13 are both enabled, label data will be sent to the host in EAN-13 label format.

Expand UPC-E to EAN-13 — requires that **both** *Expand UPC-E to UPC-A* and *Expand UPC-A to EAN-13* are enabled. Selecting this feature also changes the symbology ID to match those required for EAN-13.

Expand EAN-8 to EAN-13 — adds five zeros in front of an EAN-8 label. Data is sent in EAN-13 data format. Selecting this feature also changes the symbology ID to match those required for EAN-13.

UPC-A or UPC-E and EAN-8 or EAN-13 Two and Five Digit Add-Ons

Required — UPC/EAN barcodes must have add-on or label will not be read.

Optional — scanner will read UPC/EAN barcodes with or without add-ons.

Disable — scanner will not recognize/read add-on portion of UPC/EAN labels, but will read the main body of the label.

UPC/EAN EXPANSION

Use these labels to enable or disable:

- Expand UPC-A to EAN-13
- Expand UPC-E to UPC-A
- Expand EAN-8 to EAN-13



1 When any expansion feature is enabled, the transmission of the Prefix, Suffix, Check Digit and Number System Digit (NSD) are controlled by your selections for the symbology 'expanded to' rather than the symbology 'expanded from'. For example, if you expand UPC-E to UPC-A, settings for UPC-A determine how the scanner sends a barcode's contents.

UPC/EAN ADD-ONS

If you need to scan UPC or EAN labels that include Add-on codes, the selections on this page set the scanner's Add-on feature. There are three Add-on read modes available: optional, required and disabled.

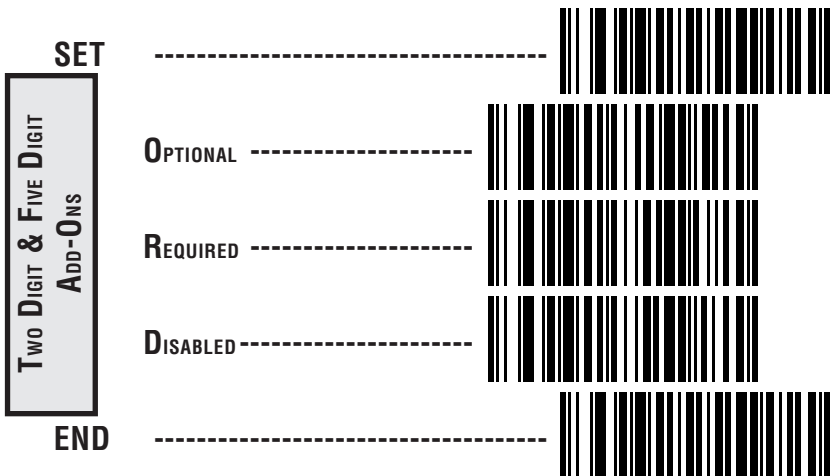
Optional — the scanner will recognize UPC barcodes with or without Add-ons.

NOTE

Due to the structure of Add-on codes, selecting the Optional setting makes it impossible to ensure that the scanner will always read the Add-on portion of the label. PSC makes no guarantee, either written or implied, that the scanner with optional Add-on decoding enabled will perform with the speed and accuracy required for any given application.

Required — the scanner will not recognize or decode any UPC/EAN labels that do not contain an Add-on segment.

Disabled — the scanner will not recognize or decode any Add-on segment of UPC/EAN labels. The scanner will read and decode the standard UPC/EAN portion of the label.



CODE 39 OPTIONS

The Code 39 symbology has the following programmable features:

Check Digit — calculate the Check Digit to verify that the Check Digit contained in the barcode label is correct. If you enable this feature, your barcodes must contain a Check Digit.

You may also choose to transmit or not transmit the Check Digit independent of whether the Check Digit is calculated by the scanner. If you choose to *Transmit Check Digit*, but not calculate, the scanner sends the Check Digit encoded in the barcode without verifying its accuracy. If you choose *Don't Transmit Check Digit*, the scanner will remove the Check Digit's contents before sending the barcode data to the host.

Start/Stop Characters — you can choose either Send or Don't Send depending on your host's interface requirement.

Read Single Digit Labels — enable or disable reading one character labels. Unless your system regularly uses single digit labels, this feature should be set to ignore single digit labels to reduce the possibility that a segment of a good label is incorrectly seen as a single digit label.

NOTE

Italian Code 39 DOES NOT read single digit labels.

Code 39 Full ASCII — enable or disable Full ASCII Mode.

CODE 39 (CONTINUED)

Use these labels to change the Code 39 programmable features.

	SET -----	
CHECK DIGIT	DON'T COMPUTE -----	
	COMPUTE -----	
	DON'T TRANSMIT -----	
	TRANSMIT -----	
START/STOP	DON'T TRANSMIT -----	
	TRANSMIT -----	
SINGLE DIGIT LABELS	DON'T DECODE -----	
	DECODE -----	
CODE 39 FULL ASCII	ENABLE -----	
	DISABLE -----	
	END -----	

INTERLEAVED 2 OF 5

The Interleaved 2 of 5 symbology has the following programmable features:

Check Digit — calculate the Check Digit to verify that the Check Digit contained in the barcode label is correct. If you enable this feature, your barcodes must contain a Check Digit.

You may also choose to transmit or not transmit the Check Digit independent of whether the Check Digit is calculated by the scanner. If you choose to *Transmit Check Digit*, but not calculate, the scanner sends the Check Digit encoded in the barcode without verifying its accuracy. If you choose *Don't Transmit Check Digit*, the scanner will remove the Check Digit's contents before sending the barcode data to the host.

Label Format — provides the selection between fixed or variable length labels. If your application has labels with specific fixed lengths, we recommend selecting fixed lengths to improve read rate and avoid short reads.

You can select any valid number of digits for reading specific length labels only. Read the following details for specific Interleaved 2 of 5 limits.

INTERLEAVED 2 OF 5 LABEL LENGTHS

If you select variable length, the scanner will recognize labels with an even number of digits between 04 and 50 digits.

If you select fixed length, there are three labels for programming your scanner to read either one or two fixed lengths. The labels are:

Set First Fixed Length — use this label to instruct the scanner that the next two programming labels you scan will define the first fixed label length. This setting can be any even number of digits between 04 and 50 digits.

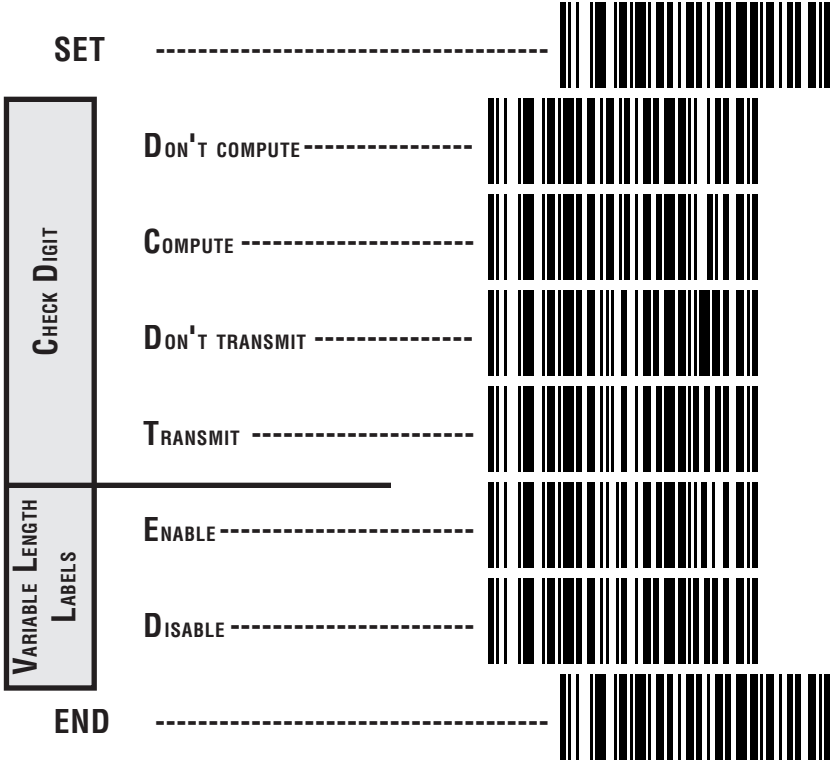
Set Second Fixed Length — use this label to instruct the scanner that the next two programming labels you scan will define the second fixed label length. Again, this setting can be any even number of digits between 04 and 50 digits.

No Second Fixed Length — scan this label after setting the first fixed length to instruct the scanner to recognize only the label length chosen as the first fixed length.

INTERLEAVED 2 OF 5

These programming labels determine whether you compute and send the check digit contents.

If you want to set the scanner to read only fixed length labels, follow the procedures on pages 68 and 69.



INTERLEAVED 2 OF 5 FIXED LENGTH

All interfaces that are shipped with the standard factory configuration are set to read variable length labels. If you switch from variable to fixed length labels, the default fixed label lengths are 14 digits and 8 digits. Follow the steps below to change these defaults. All fixed length settings for Interleaved 2 of 5 must be an even number.

SET FIXED



1. Identify the fixed length settings you want to make.
2. Scan the SET label.
3. Scan the *Enable First Fixed* barcode.

SETTING LENGTHS

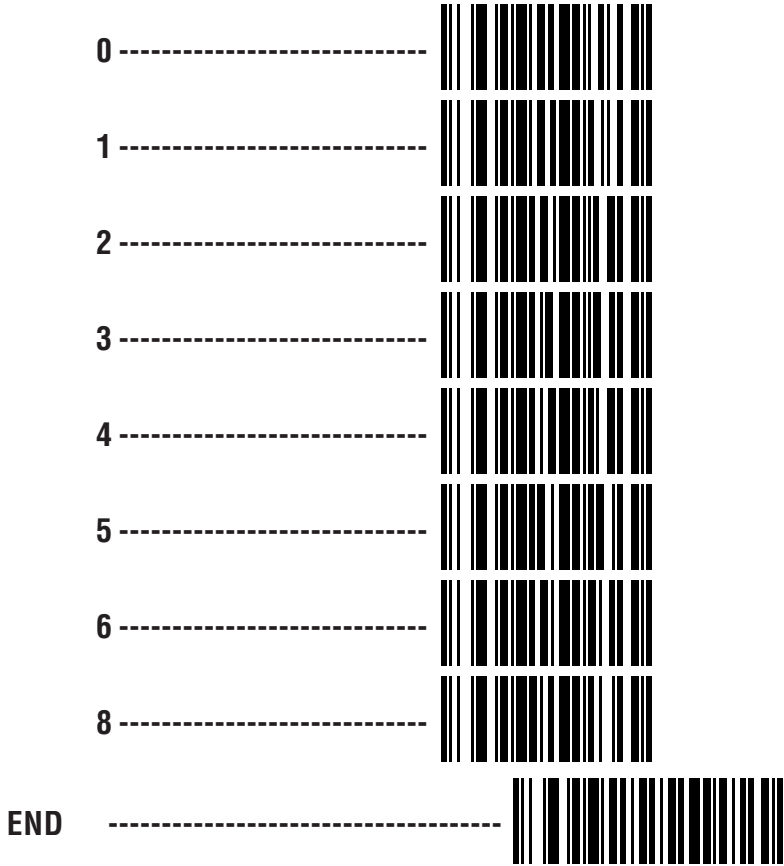
If you are setting a length less than ten, you must scan a zero first and then the length digit (04, 06, 08).

4. Set the first fixed label length by scanning the correct digits from the next page.

If you need to set a second fixed length, continue with step five. If you do not need to set a second fixed length scan the *No 2nd Fixed Length* on this page and skip to step seven.

INTERLEAVED 2 OF 5	SET -----	
	SET 1ST FIXED LENGTH -----	
	SET 2ND FIXED LENGTH -----	
	NO 2ND FIXED LENGTH -----	

5. Scan the *Set Second Fixed* label.
6. Set the second fixed label length by scanning the correct digits from this page.
7. Scan the END label to complete the procedure.



STANDARD 2 OF 5

The Standard 2 of 5 symbology has the following programmable features:

Check Digit — calculate the Check Digit to verify that the Check Digit contained in the barcode label is correct. If you enable this feature, your barcodes must contain a Check Digit.

You may also choose to transmit or not transmit the Check Digit independent of whether the Check Digit is calculated by the scanner. If you choose to *Transmit Check Digit*, but not calculate, the scanner sends the Check Digit encoded in the barcode without verifying its accuracy. If you choose *Don't Transmit Check Digit*, the scanner will remove the Check Digit's contents before sending the barcode data to the host.

Label Format — provides the selection between fixed or variable length labels. If your application has labels with specific fixed lengths, we recommend selecting fixed lengths to improve read rate.

You can select any valid number of digits for reading specific length labels only. Read the following details for specific Standard 2 of 5 limits.

STANDARD 2 OF 5 LABEL LENGTHS

If you select variable length, the scanner will recognize labels with between 4 and 38 digits.

If you select fixed length, there are three labels for programming your scanner to read either one or two fixed lengths. The labels are:

Set First Fixed Length — use this label to instruct the scanner that the next two programming labels you scan will define the first fixed label length. This setting can be any number of digits between 04 and 38 digits.

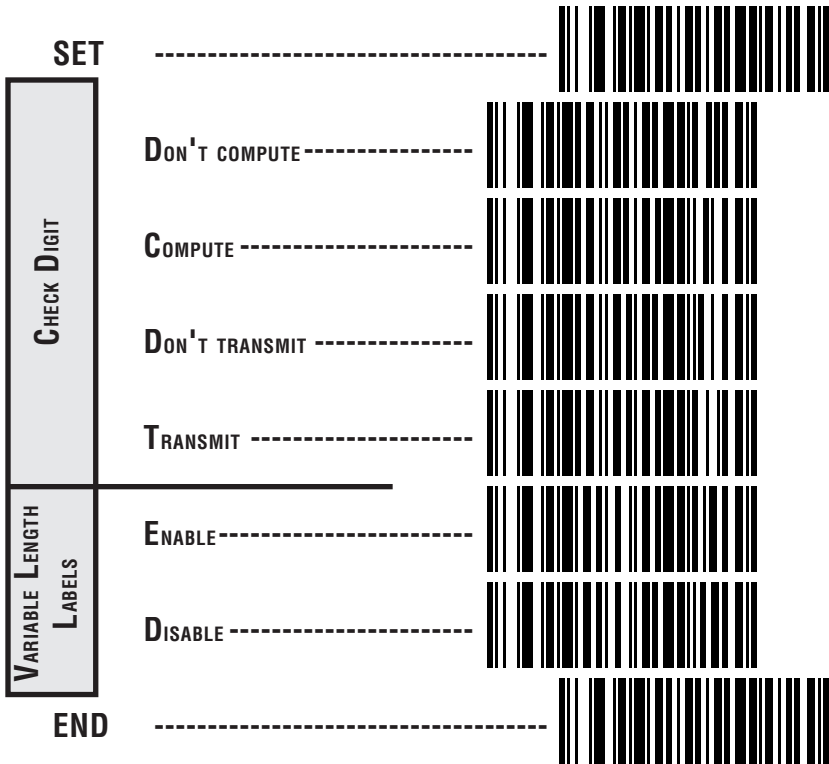
Set Second Fixed Length — use this label to instruct the scanner that the next two programming labels you scan will define the second fixed label length. Again, this setting can be any number of digits between 04 and 38 digits.

No Second Fixed Length — scan this label after setting the first fixed length to instruct the scanner to recognize only the label length chosen as the first label length.

STANDARD 2 OF 5

These programming labels determine whether you compute and send the check digit contents.

If you want to set the scanner to read only fixed length labels, follow the procedures on pages 72 and 73.



STANDARD 2 OF 5 FIXED LENGTH

All interfaces shipped with the standard factory settings are set to read variable length labels Standard 2 of 5. If you switch from variable to fixed length labels, the default fixed label lengths are 14 digits and 8 digits. Follow the steps below to change these defaults.

SET FIXED

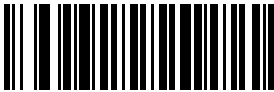
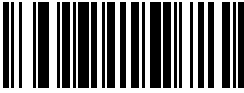


1. Identify the fixed length settings you want to make.
2. Scan the SET label.
3. Scan the *Enable First Fixed* barcode.

SETTING LENGTHS

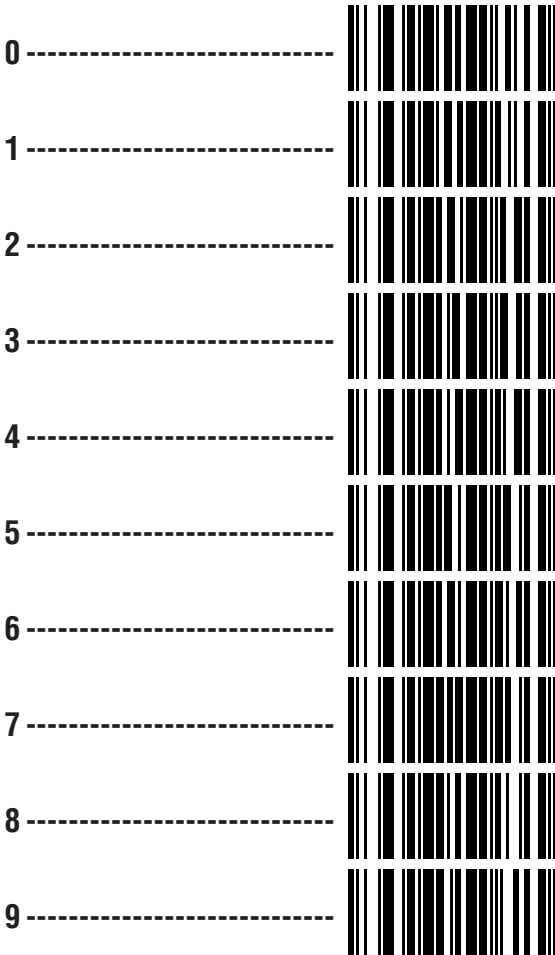
If you are setting a length less than ten, you must scan a zero first and then the length digit (04, 05, ..., 09).

4. Set the first fixed label length by scanning the correct digits from the next page.

If you need to set a second fixed length, continue with step five. If you do not need to set a second fixed length scan the *No 2nd Fixed Length* label below and skip to step seven.

STANDARD 2 OF 5	SET -----	
	SET 1ST FIXED LENGTH -----	
	SET 2ND FIXED LENGTH -----	
	NO 2ND FIXED LENGTH -----	

5. Scan the *Set Second Fixed* label.
6. Set the second fixed label length by scanning the correct digits from this page.
7. Scan the END label to complete the procedure.



CODABAR OPTIONS

The Codabar symbology has the following programmable features:

Check Digit — calculate the Check Digit to verify the labels contents have been read correctly. If you enable this feature, your barcodes must include a Check Digit. You may also choose to transmit or not transmit the Check Digit.

Start/Stop Characters — you can choose either Send or Don't Send depending on your host's interface requirement.

Start/Stop Format — if you need to send the Start/Stop characters, there are four standard format options that you can select from; ABCD/TN*E, ABCD/ABCD, abcd/tn*e, or abcd/abcd. This setting must match your system requirements. If you select one of these options, it determines how the ASCII characters A, B, C, D that are used for Start/Stop characters, will be translated before being sent to the host.

Start/Stop Match — the requirement that the Start and Stop characters must match (be identical) can be enabled or disabled.

Label Format — provides the selection between fixed or variable length labels. If your application has labels with specific fixed length, we recommend selecting fixed lengths to improve read rate.

If you select variable length, the scanner will recognize labels with between 2 and 47 digits (not including the optional check digit).

Set First Fixed Length — if you select fixed length, use this feature to set a first fixed label length to a setting between 2 and 47 digits.

Set Second Fixed Length — if you select fixed length, use this feature to set a second fixed label length to a setting between 2 and 47 digits.

No Second Fixed Length — scan this label after setting the first fixed length to instruct the scanner to recognize only the label length chosen as the first label length.

Gap Check — allows the scanner to combine two label halves printed in close proximity to each other that may have been printed at different times and perhaps different locations.

CODABAR CHECK DIGIT & VARIABLE LENGTH

These programming labels determine whether you compute and send the check digit contents and enables variable length.

If you want to set the scanner to read only fixed length labels, follow the procedures on pages 77 and 78.



CODABAR START/STOP CHARACTER

These barcodes allow you to set the Start/Stop character format and transmission. Refer to your host user's manual to identify your system requirements, then use these labels to select which characters are transmitted.

SYMBOLGY
SELECTION



¹ Choosing Transmit *Start/Stop* characters requires selecting one of these four data format selections: ABCD/TN*E, abcd, tn*e, ABCD/ABCD, or abcd/abcd. Refer to Appendix A, *Standard Factory Settings*, to identify the default setting for your scanner's interface type.

CODABAR FIXED LENGTH

All interfaces that are shipped with the standard factory settings are set to read variable length labels for Codabar. If you switch from variable to fixed length labels, the factory set fixed label lengths are 14 and 8. Follow the steps below to change these defaults.

ENABLE FIXED

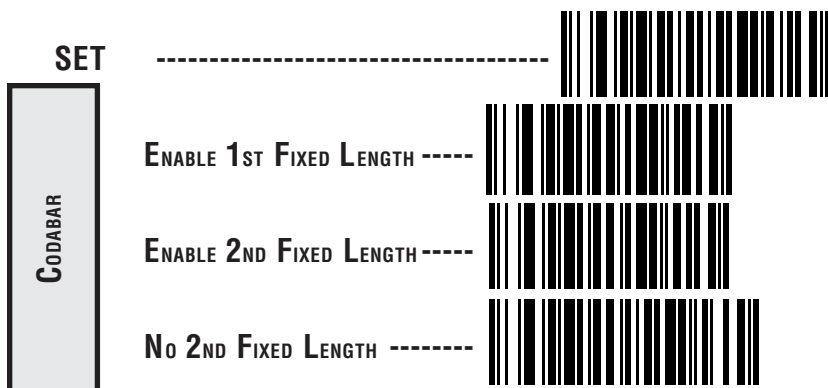
1. Identify the fixed length settings you want to make.
2. Scan the SET label.
3. Scan the *Enable First Fixed Length* label.

SETTING LENGTHS

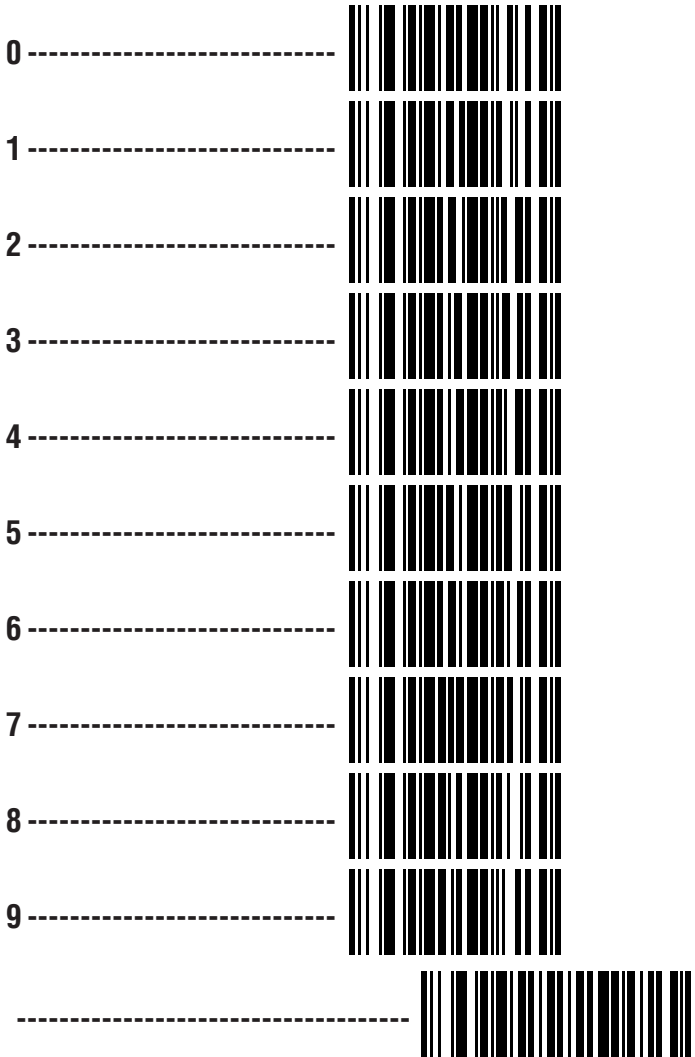
If you are setting a length less than ten, you must scan a zero first and then the length digit (02, ...09).

4. Set the first fixed length label by scanning the correct digits from the next page.

If you need to set a second fixed length, continue with step five. If you do not need to set a second fixed length scan the *No 2nd Fixed Length* label below and skip to step seven.



5. Scan the *Enable Second Fixed Length* label.
6. Set the second fixed label length by scanning the correct digits from this page.
7. Scan the END label to complete the procedure.



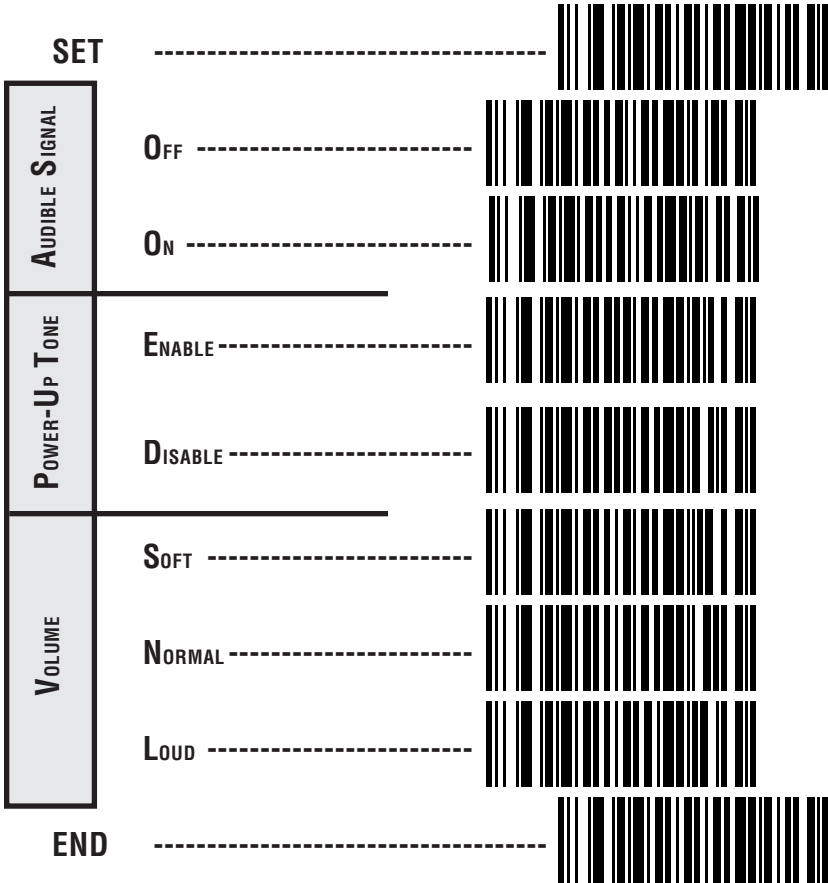


NOTES

GENERAL FEATURES

The following section contains the general features that are common to all interfaces. These features provide a flexible, user configurable interface that accommodates user preferences.

AUDIBLE SIGNAL ON/OFF, POWER-UP TONE & VOLUME



GOOD READ TONE SETTINGS

The *Tone Selection* labels provide four options for frequency (tone). These selections are useful to help distinguish individual scanners when multiple scanners are used in close proximity.

The *Sound Tone...* labels provide the option of either sounding the tone when the scanner has read and decoded the label or waiting until the decoded data has been transmitted to the host before sounding the good read tone.

TONE SELECTION	SET	-----	
	TONE A (512 Hz)	-----	
	TONE B (1024 Hz)	-----	
	TONE C (2048 Hz)	-----	
	TONE D (4096 Hz)	-----	
TONE DURATION	SHORT	-----	
	MEDIUM	-----	
	LONG	-----	
SOUND TONE...	WHEN BARCODE IS READ ¹	-----	
	AFTER DATA IS SENT TO HOST	----	
END	-----		

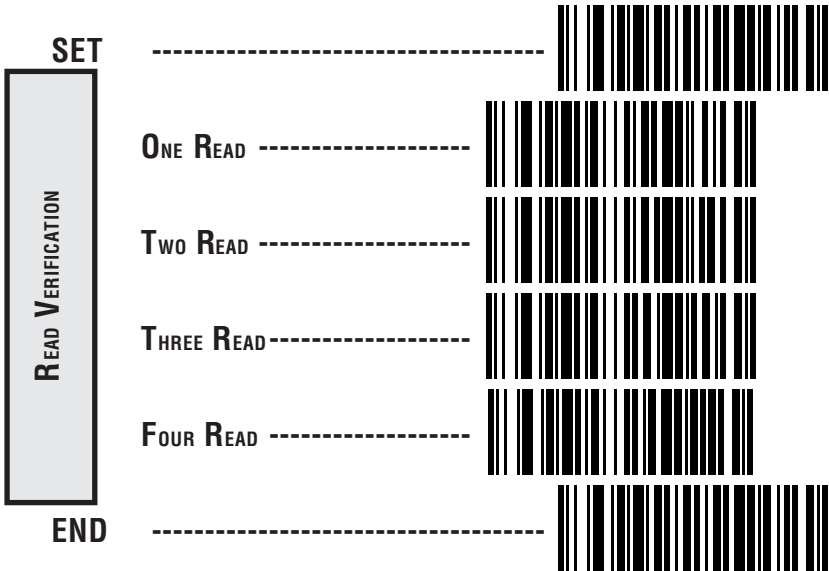
¹ If you are using the SNI OCIA interface, this feature cannot be changed. The only valid setting for this interface is 'Sound Tone after the data is sent to the host'.

READ VERIFICATION

When a Read Verification selection other than One Read is made, the scanner must read and decode the same label data between two and four times. Only when all data are identical, are the contents of the barcode label sent to the host. This feature is helpful when reading poor quality labels that may result in erroneous data being read and transmitted.

NOTE

The more times the scanner is required to read and compare the barcode data, the longer it will take to complete a good read cycle.



APPENDIX A

STANDARD FACTORY SETTINGS

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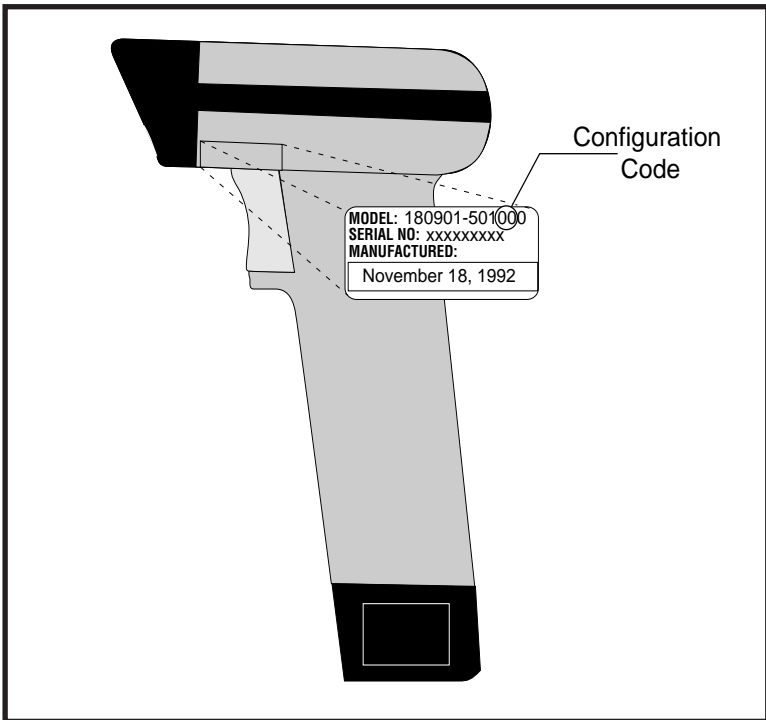
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------------------------	------------

This appendix includes detailed listings of the standard factory settings for each interface. Unless your scanner had custom interface or operation settings loaded at the factory, these tables show how your scanner is set up for operation. To check if your scanner includes these standard defaults, check the configuration code by checking the model number label affixed to the scanner's interface cable.

Configuration Code — 00 indicates that the scanner has the PSC standard factory settings installed which corresponds to the default listing shown with each interface. Any number other than 00 indicates that a special configuration file replaces the standard configuration. **If anything other than 00 is present, the tables in this appendix that show the factory settings for each interface do not apply to your scanner's settings.**



IBM (PORT 5B)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these settings have not been changed in a previous programming session.

SYMBOLGY SELECTION

UPC/EAN

Symbology -----	ENABLE	Disable	
Expand UPC-A to EAN-13 -----	Enable	DISABLE	
Expand UPC-E to UPC-A -----		Enable	DISABLE
Expand UPC-E to EAN-13 -----	Enable	DISABLE	
UPC-D -----	Enable	DISABLE	
Add-Ons -----	Required	Optional	DISABLE

CODE 39

Symbology -----	ENABLE	Disable	
Check Digit -----	Calculate	DON'T CALCULATE	
Check Digit -----	SEND	Don't Send	
Start/Stop Character -----	Send	DON'T SEND	
Read One Character Label -----	Enable	DISABLE	

INTERLEAVED 2 OF 5

Symbology -----	ENABLE	Disable	
Check Digit -----	Calculate	DON'T CALCULATE	
Check Digit -----	SEND	Don't Send	
Label Format -----	Fixed	VARIABLE LENGTH	
Set 1st Fixed Length -----	<u>14</u>		
Set 2nd Fixed Length -----	<u>8</u>		

STANDARD 2 OF 5

Symbology -----	Enable	DISABLE	
Check Digit -----	Calculate	DON'T CALCULATE	
Check Digit -----	SEND	Don't Send	
Label Format -----	Fixed	VARIABLE LENGTH	
Set 1st Fixed Length -----	<u>14</u>		
Set 2nd Fixed Length -----	<u>8</u>		

ITALIAN CODE 39

Symbology -----	Enable	DISABLE	
-----------------	--------	----------------	--

CODE 5

Symbology -----	Enable	DISABLE	
-----------------	--------	----------------	--

CODE 49 (SP400HD MODELS ONLY)

Symbology-----Enable **DISABLE**

CODE 16K (SP400HD MODELS ONLY)

Symbology-----Enable **DISABLE**

CODABAR

Symbology-----Enable **DISABLE**

Check Digit -----Calculate **DON'T CALCULATE**

Check Digit -----**SEND** Don't Send

Start/Stop Character -----**SEND** Don't Send

Start/Stop Format -----ABCD/TN*E **ABCD/ABCD**

abcd/tn*e abcd/abcd

Start/Stop Match -----Enable **DISABLE**

Label Format -----Fixed **VARIABLE LENGTH**

Set 1st Fixed Length -----14

Set 2nd Fixed Length -----8

Gap Check -----Enable **DISABLE**

CODE 93

Symbology-----Enable **DISABLE**

CODE 128

Symbology-----Enable **DISABLE**

MSI/PLESSEY

Symbology-----Enable **DISABLE**

SEND AS CODE 39¹

Symbology-----**ENABLE** Disable

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker -----**ENABLE** Disable

Good Read Tone -----Tone A Tone B

TONE C Tone D

Duration -----**SHORT** Medium Long

Volume -----Low **MEDIUM** High

Sounds -----**WHEN LABEL IS READ**

After data sent to host

READ VERIFICATION

----- **1 READ** 2 read 3 read 4 read

¹ Converts UPC-D, UPC/EAN Add-ons, Code 128, Code 93, Standard 2 of 5, Codabar and MSI/Plessey barcode data into Code 39 format before sending data to host.

IBM (PORT 9B)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these settings have not been changed in a previous programming session.

SYMBOLGY SELECTION

UPC/EAN

Symbology -----	ENABLE	Disable	
Expand UPC-A to EAN-13 -----	Enable	DISABLE	
Expand UPC-E to UPC-A -----		Enable	DISABLE
Expand UPC-E to EAN-13 -----	Enable	DISABLE	
UPC-D -----	Enable	DISABLE	
Add-Ons -----	Required	Optional	DISABLE

CODE 39

Symbology -----	ENABLE	Disable	
Check Digit -----	Calculate	DON'T CALCULATE	
Check Digit -----	SEND	Don't Send	
Start/Stop Character -----	Send	DON'T SEND	
Read One Character Label -----	Enable	DISABLE	

INTERLEAVED 2 OF 5

Symbology -----	Enable	DISABLE	
Check Digit -----	Calculate	DON'T CALCULATE	
Check Digit -----	SEND	Don't Send	
Label Format -----	Fixed	VARIABLE LENGTH	
Set 1st Fixed Length -----	<u>14</u>		
Set 2nd Fixed Length -----	<u>8</u>		

STANDARD 2 OF 5

Symbology -----	Enable	DISABLE	
Check Digit -----	Calculate	DON'T CALCULATE	
Check Digit -----	SEND	Don't Send	
Label Format -----	Fixed	VARIABLE LENGTH	
Set 1st Fixed Length -----	<u>14</u>		
Set 2nd Fixed Length -----	<u>8</u>		

ITALIAN CODE 39

Symbology -----	Enable	DISABLE	
-----------------	--------	----------------	--

CODE 5

Symbology -----	Enable	DISABLE	
-----------------	--------	----------------	--

IBM (PORT 17)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these settings have not been changed in a previous programming session.

SYBOLGY SELECTION

UPC/EAN

Symbology -----	ENABLE	Disable	
Expand UPC-A to EAN-13 -----	Enable	DISABLE	
Expand UPC-E to UPC-A -----		Enable	DISABLE
Expand UPC-E to EAN-13 -----	Enable	DISABLE	
UPC-D -----	Enable	DISABLE	
Add-Ons -----	Required	Optional	DISABLE

CODE 39

Symbology -----	ENABLE	Disable	
Check Digit -----	Calculate	DON'T CALCULATE	
Check Digit -----	SEND	Don't Send	
Start/Stop Character -----	Send	DON'T SEND	
Read One Character Label -----	Enable	DISABLE	

INTERLEAVED 2 OF 5

Symbology -----	Enable	DISABLE	
Check Digit -----	Calculate	DON'T CALCULATE	
Check Digit -----	SEND	Don't Send	
Label Format -----	Fixed	VARIABLE LENGTH	
Set 1st Fixed Length -----	<u>14</u>		
Set 2nd Fixed Length -----	<u>8</u>		

STANDARD 2 OF 5

Symbology -----	Enable	DISABLE	
Check Digit -----	Calculate	DON'T CALCULATE	
Check Digit -----	SEND	Don't Send	
Label Format -----	Fixed	VARIABLE LENGTH	
Set 1st Fixed Length -----	<u>14</u>		
Set 2nd Fixed Length -----	<u>8</u>		

ITALIAN CODE 39

Symbology -----	Enable	DISABLE	
-----------------	--------	----------------	--

CODE 5

Symbology -----	Enable	DISABLE	
-----------------	--------	----------------	--

CODE 49 (SP400HD MODELS ONLY)

Symbology ----- Enable **DISABLE**

CODE 16K (SP400HD MODELS ONLY)

Symbology ----- Enable **DISABLE**

CODABAR

Symbology ----- Enable **DISABLE**

Check Digit ----- Calculate **DON'T CALCULATE**

Check Digit ----- **SEND** Don't Send

Start/Stop Character ----- **SEND** Don't Send

Start/Stop Format ----- ABCD/TN*E **ABCD/ABCD**

abcd/tn*e abcd/abcd

Start/Stop Match ----- Enable **DISABLE**

Label Format ----- Fixed **VARIABLE LENGTH**

Set 1st Fixed Length ----- 14

Set 2nd Fixed Length ----- 8

Gap Check ----- Enable **DISABLE**

CODE 93

Symbology ----- Enable **DISABLE**

CODE 128

Symbology ----- Enable **DISABLE**

MSI/PLESSEY

Symbology ----- Enable **DISABLE**

SEND AS CODE 39¹

Symbology ----- **ENABLE** Disable

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker ----- **ENABLE** Disable

Good Read Tone ----- Tone A Tone B

TONE C Tone D

Duration ----- **SHORT** Medium Long

Volume ----- Low **MEDIUM** High

Sounds ----- **WHEN LABEL IS READ**

After data sent to host

READ VERIFICATION

----- **1 READ** 2 read 3 read 4 read

¹ Converts UPC-D, UPC/EAN Add-ons, Code 128, Code 93, Standard 2 of 5, Codabar and MSI/Plessey barcode data into Code 39 format before sending data to host.

IBM (PORT E)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these settings have not been changed in a previous programming session.

SYMBOLGY SELECTION

UPC/EAN

Symbology -----	ENABLE	Disable	
Expand UPC-A to EAN-13 -----	Enable	DISABLE	
Expand UPC-E to UPC-A -----		Enable	DISABLE
Expand UPC-E to EAN-13 -----	Enable	DISABLE	
UPC-D -----	Enable	DISABLE	
Add-Ons -----	Required	Optional	DISABLE

CODE 39

Symbology -----	ENABLE	Disable
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Start/Stop Character -----	Send	DON'T SEND
Read One Character Label -----	Enable	DISABLE

INTERLEAVED 2 OF 5

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	

STANDARD 2 OF 5

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	

ITALIAN CODE 39

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 5

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 49 (SP400HD MODELS ONLY)

Symbology ----- Enable **DISABLE**

CODE 16K (SP400HD MODELS ONLY)

Symbology ----- Enable **DISABLE**

CODABAR

Symbology ----- Enable **DISABLE**

Check Digit ----- Calculate **DON'T CALCULATE**

Check Digit ----- **SEND** Don't Send

Start/Stop Character ----- **SEND** Don't Send

Start/Stop Format ----- ABCD/TN*E **ABCD/ABCD**

 abcd/tn*e abcd/abcd

Start/Stop Match ----- Enable **DISABLE**

Label Format ----- Fixed **VARIABLE LENGTH**

Set 1st Fixed Length ----- 14

Set 2nd Fixed Length ----- 8

Gap Check ----- Enable **DISABLE**

CODE 93

Symbology ----- Enable **DISABLE**

CODE 128

Symbology ----- Enable **DISABLE**

MSI/PLESSEY

Symbology ----- Enable **DISABLE**

SEND AS CODE 39¹

Symbology ----- **ENABLE** Disable

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker ----- **ENABLE** Disable

Good Read Tone ----- Tone A Tone B

TONE C Tone D

Duration ----- **SHORT** Medium Long

Volume ----- Low **MEDIUM** High

Sounds ----- **WHEN LABEL IS READ**

After data sent to host

READ VERIFICATION

----- **1 READ** 2 read 3 read 4 read

¹ Converts UPC-D, UPC/EAN Add-ons, Code 128, Code 93, Standard 2 of 5, Codabar and MSI/Plessey barcode data into Code 39 format before sending data to host.

OCIA (PSC)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

SYMBOLGY SELECTION

UPC/EAN

Symbology-----	ENABLE	Disable	
Expand UPC-A to EAN-13-----	Enable	DISABLE	
Expand UPC-E to UPC-A-----		Enable	DISABLE
Expand UPC-E to EAN-13-----	Enable	DISABLE	
UPC-D-----	Enable	DISABLE	
Add-Ons-----	Required	Optional	DISABLE

CODE 39

Symbology-----	Enable	DISABLE
Check Digit-----	Calculate	DON'T CALCULATE
Check Digit-----	SEND	Don't Send
Start/Stop Character-----	SEND	Don't Send
Read One Character Label-----	Enable	DISABLE

INTERLEAVED 2 OF 5

Symbology-----	Enable	DISABLE
Check Digit-----	Calculate	DON'T CALCULATE
Check Digit-----	SEND	Don't Send
Label Format-----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length-----	<u>14</u>	
Set 2nd Fixed Length-----	<u>8</u>	

STANDARD 2 OF 5

Symbology-----	Enable	DISABLE
Check Digit-----	Calculate	DON'T CALCULATE
Check Digit-----	SEND	Don't Send
Label Format-----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length-----	<u>14</u>	
Set 2nd Fixed Length-----	<u>8</u>	

ITALIAN CODE 39

Symbology-----	Enable	DISABLE
----------------	--------	----------------

CODE 5

Symbology-----	Enable	DISABLE
----------------	--------	----------------

CODE 49 (SP400HD MODELS ONLY)

Symbology ----- Enable **DISABLE**

CODE 16K (SP400HD MODELS ONLY)

Symbology ----- Enable **DISABLE**

CODABAR

Symbology ----- Enable **DISABLE**

Check Digit ----- Calculate **DON'T CALCULATE**

Check Digit ----- **SEND** Don't Send

Start/Stop Character ----- **SEND** Don't Send

Start/Stop Format ----- ABCD/TN*E **ABCD/ABCD**

abcd/tn*e abcd/abcd

Start/Stop Match ----- Enable **DISABLE**

Label Format ----- Fixed **VARIABLE LENGTH**

Set 1st Fixed Length ----- 14

Set 2nd Fixed Length ----- 8

Gap Check ----- Enable **DISABLE**

CODE 93

Symbology ----- Enable **DISABLE**

CODE 128

Symbology ----- Enable **DISABLE**

MSI/PLESSEY

Symbology ----- Enable **DISABLE**

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker ----- **ENABLE** Disable

Good Read Tone ----- Tone A Tone B

TONE C Tone D

Duration ----- **SHORT** Medium Long

Volume ----- Low **MEDIUM** High

Sounds ----- **WHEN LABEL IS READ**

After data sent to host

READ VERIFICATION

----- **1 READ** 2 read 3 read 4 read

OCIA NCR SHORT FORMAT (EIGHT BIT)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

SYBBOLOGY SELECTION

UPC/EAN

Symbology -----	ENABLE	Disable	
Expand UPC-A to EAN-13 -----	Enable	DISABLE	
Expand UPC-E to UPC-A -----		Enable	DISABLE
Expand UPC-E to EAN-13 -----	Enable	DISABLE	
UPC-D -----	Enable	DISABLE	

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker -----	ENABLE	Disable	
Good Read Tone -----	Tone A	Tone B	
	TONE C	Tone D	
Duration -----	SHORT	Medium	Long
Volume -----	Low	MEDIUM	High
Sounds -----	WHEN LABEL IS READ		
	After data sent to host		

READ VERIFICATION

-----	1 READ	2 read	3 read	4 read
-------	---------------	--------	--------	--------

OCIA NCR LONG FORMAT (NINE BIT)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

SYMBOLGY SELECTION

UPC/EAN

Symbology -----	ENABLE	Disable	
Expand UPC-A to EAN-13 -----	Enable	DISABLE	
Expand UPC-E to UPC-A -----		ENABLE	DISABLE
Expand UPC-E to EAN-13 -----	Enable	DISABLE	

CODE 39

Symbology -----	Enable	DISABLE	
Check Digit -----	Calculate	DON'T CALCULATE	
Check Digit -----	SEND	Don't Send	
Start/Stop Character -----	SEND	Don't Send	
Read One Character Label -----	Enable	DISABLE	

INTERLEAVED 2 OF 5

Symbology -----	Enable	DISABLE	
Check Digit -----	Calculate	DON'T CALCULATE	
Check Digit -----	SEND	Don't Send	
Label Format -----	Fixed	VARIABLE LENGTH	
Set 1st Fixed Length -----	<u>14</u>		
Set 2nd Fixed Length -----	<u>8</u>		

CODE 128

Symbology -----	Enable	DISABLE	
-----------------	--------	----------------	--

ITALIAN CODE 39

Symbology -----	Enable	DISABLE	
-----------------	--------	----------------	--

CODE 5

Symbology -----	Enable	DISABLE	
-----------------	--------	----------------	--

CODE 49 (SP400HD MODELS ONLY)

Symbology -----	Enable	DISABLE	
-----------------	--------	----------------	--

CODE 16K (SP400HD MODELS ONLY)

Symbology -----	Enable	DISABLE	
-----------------	--------	----------------	--

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker -----	ENABLE	Disable	
Good Read Tone -----	Tone A	Tone B	
-----	TONE C	Tone D	
Duration -----	SHORT	Medium	Long
Volume -----	Low	MEDIUM	High
Sounds -----	WHEN LABEL IS READ		
	After data sent to host		

READ VERIFICATION

-----	1 READ	2 read	3 read	4 read
-------	---------------	--------	--------	--------

APPENDIX A
STD. DEFAULTS

OCIA (SNI)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

SYMBOLGY SELECTION

UPC/EAN

Symbology -----	ENABLE	Disable	
Expand UPC-A to EAN-13 -----	Enable	DISABLE	
Expand UPC-E to UPC-A -----		Enable	DISABLE
Expand UPC-E to EAN-13 -----	Enable	DISABLE	
UPC-D -----	Enable	DISABLE	
Add-Ons -----	Required	Optional	DISABLE

CODE 39

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Start/Stop Character -----	SEND	Don't Send
Read One Character Label -----	Enable	DISABLE

INTERLEAVED 2 OF 5

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	

ITALIAN CODE 39

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 5

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 49 (SP400HD MODELS ONLY)

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 16K (SP400HD MODELS ONLY)

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODABAR

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Start/Stop Character -----	SEND	Don't Send
Start/Stop Format -----	ABCD/TN*E abcd/tn*e	ABCD/ABCD abcd/abcd
Start/Stop Match -----	Enable	DISABLE
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	
Gap Check -----	Enable	DISABLE

CODE 93

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 128

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker -----	ENABLE	Disable	
Good Read Tone -----	Tone A	Tone B	
	TONE C	Tone D	
Duration -----	SHORT	Medium	Long
Volume -----	Low	MEDIUM	High
Sounds -----	When label is read		
	AFTER DATA SENT TO HOST		

READ VERIFICATION

-----	1 READ	2 read	3 read	4 read
-------	---------------	--------	--------	--------

OCIA (METROLOGIC)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

SYMBOLGY SELECTION

UPC/EAN

Symbology -----	ENABLE	Disable	
Expand UPC-A to EAN-13 -----	Enable	DISABLE	
Expand UPC-E to UPC-A -----		Enable	DISABLE
Expand UPC-E to EAN-13 -----	Enable	DISABLE	
UPC-D -----	Enable	DISABLE	
Add-Ons -----	Required	Optional	DISABLE

CODE 39

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Start/Stop Character -----	SEND	Don't Send
Read One Character Label -----	Enable	DISABLE

INTERLEAVED 2 OF 5

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	

CODABAR

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Start/Stop Character -----	SEND	Don't Send
Start/Stop Format -----	ABCD/TN*E	ABCD/ABCD
	abcd/tn*e	abcd/abcd
Start/Stop Match -----	Enable	DISABLE
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	
Gap Check -----	Enable	DISABLE

ITALIAN CODE 39

Symbology ----- Enable **DISABLE**

CODE 5

Symbology ----- Enable **DISABLE**

CODE 49 (SP400HD MODELS ONLY)

Symbology ----- Enable **DISABLE**

CODE 16K (SP400HD MODELS ONLY)

Symbology ----- Enable **DISABLE**

CODE 93

Symbology ----- Enable **DISABLE**

CODE 128

Symbology ----- Enable **DISABLE**

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker -----	ENABLE	Disable	
Good Read Tone -----	Tone A	Tone B	
	TOPE C	Tone D	
Duration -----	SHORT	Medium	Long
Volume -----	Low	MEDIUM	High
Sounds -----	WHEN LABEL IS READ		
	After data sent to host		

READ VERIFICATION

----- **1 READ** 2 read 3 read 4 read

WAND EMULATION

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

INTERFACE SPECIFIC SETTINGS

The following settings are unique to Wand Emulation.

POLARITY

----- **SPACE LOW, BAR HIGH**
 ----- Space High, Bar Low

SIGNAL SPEED

----- **LOW (660µs)** High (330µs)

DATA FORMAT

----- **NORMAL** Send as Code 39

IDLE STATE

----- **LOW** High

SYBOLGY SELECTION

UPC/EAN

Symbology-----	ENABLE	Disable	
Expand UPC-A to EAN-13-----	Enable	DISABLE	
Expand UPC-E to UPC-A-----		Enable	DISABLE
Expand UPC-E to EAN-13-----	Enable	DISABLE	
UPC-D-----	Enable	DISABLE	
Add-Ons-----	Required	Optional	DISABLE

CODE 39

Symbology-----	ENABLE	Disable	
Check Digit-----	Calculate	DON'T CALCULATE	
Check Digit-----	SEND	Don't Send	
Read One Character Label-----	Enable	DISABLE	

INTERLEAVED 2 OF 5

Symbology-----	ENABLE	Disable	
Check Digit-----	Calculate	DON'T CALCULATE	
Check Digit-----	SEND	Don't Send	
Label Format-----	Fixed	VARIABLE LENGTH	
Set 1st Fixed Length-----	<u>14</u>		
Set 2nd Fixed Length-----	<u>8</u>		

STANDARD 2 OF 5

Symbology-----	ENABLE	Disable	
Check Digit-----	Calculate	DON'T CALCULATE	

Check Digit -----	SEND	Don't Send
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	

CODABAR

Symbology -----	ENABLE	Disable
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Start/Stop Match -----	Enable	DISABLE
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	
Gap Check -----	Enable	DISABLE

ITALIAN CODE 39

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 5

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 49 (SP400HD MODELS ONLY)

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 16K (SP400HD MODELS ONLY)

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 93

Symbology -----	ENABLE	Disable
-----------------	---------------	---------

CODE 128

Symbology -----	ENABLE	Disable
-----------------	---------------	---------

MSI/PLESSEY

Symbology -----	ENABLE	Disable
-----------------	---------------	---------

SEND AS CODE 39¹

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker -----	ENABLE	Disable	
Good Read Tone -----	Tone A	Tone B	
	TONE C	Tone D	
Duration -----	SHORT	Medium	Long
Volume -----	Low	MEDIUM	High
Sounds -----	WHEN LABEL IS READ		
	After data sent to host		

READ VERIFICATION

-----	1 READ	2 read	3 read	4 read
-------	---------------	--------	--------	--------

¹ Converts UPC-D, UPC/EAN Add-ons, Code 93, 1 2 of 5, and MSI/Plessey barcode data into Code 39 format before sending data to host.

RS-232

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

COMMUNICATION PARAMETERS

BAUD RATE

-----	110	300	600	1200
-----	2400	4800	9600	19200

PARITY

-----	NONE	Even	Odd
-------	-------------	------	-----

STOP BITS

-----	ONE	Two
-------	------------	-----

DATA BITS

-----	Seven	EIGHT	Nine
-------	-------	--------------	------

HARDWARE HANDSHAKING (CTS/RTS)

-----	Enable	DISABLE
-------	--------	----------------

SOFTWARE HANDSHAKING (XON/XOFF)

-----	ENABLE	Disable
-------	---------------	---------

INTERCHARACTER DELAY

-----	NONE	10ms	20ms	30ms
-----	40ms	50ms	60ms	70ms
-----	80ms	90ms	100ms	110ms
-----	120ms	130ms	140ms	

CTS SCAN CONTROL

-----	Enable	DISABLE
-------	--------	----------------

PREFIX/SUFFIX

Prefix -----	NONE
Suffix -----	SEND AS CARRIAGE RETURN

SYMBOLGY SELECTION

UPC/EAN

Symbology -----	ENABLE	Disable	
Expand UPC-A to EAN-13 -----	Enable	DISABLE	
Expand UPC-E to UPC-A -----		ENABLE	DISABLE
Expand UPC-E to EAN-13 -----	Enable	DISABLE	
UPC-D -----	Enable	DISABLE	
Add-Ons -----	Required	Optional	DISABLE
UPC-E Check Digit -----	SEND	Don't Send	
UPC-E Number System Digit -----	SEND	Don't Send	
UPC-A Check Digit -----	SEND	Don't Send	
UPC-A Number System Digit -----	SEND	Don't Send	

CODE 39

Symbology -----	ENABLE	Disable
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Start/Stop Character -----	SEND	Don't Send
Read One Character Label -----	Enable	DISABLE

INTERLEAVED 2 OF 5

Symbology -----	ENABLE	Disable
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	

STANDARD 2 OF 5

Symbology -----	ENABLE	Disable
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	

CODABAR

Symbology -----	ENABLE	Disable
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Start/Stop Character -----	SEND	Don't Send
Start/Stop Format -----	ABCD/TN*E	ABCD/ABCD
-----	abcd/tn*e	abcd/abcd
Start/Stop Match -----	Enable	DISABLE
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	
Gap Check -----	Enable	DISABLE

ITALIAN CODE 39

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 5

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 49 (SP400HD MODELS ONLY)

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 16K (SP400HD MODELS ONLY)

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 93

Symbology -----	ENABLE	Disable
-----------------	---------------	---------

CODE 128

Symbology -----	ENABLE	Disable
-----------------	---------------	---------

MSI/PLESSEY

Symbology -----	ENABLE	Disable
-----------------	---------------	---------

RS-232

GENERAL FEATURES

These features can be used to customize the user interface features.

AUDIBLE INDICATOR SETTINGS

Speaker -----	ENABLE	Disable	
Good Read Tone -----	Tone A	Tone B	
	TONE C	Tone D	
Duration -----	SHORT	Medium	Long
Volume -----	Low	MEDIUM	High
Sounds -----	WHEN LABEL IS READ		
	After data sent to host		

READ VERIFICATION

----- **1 READ** 2 read 3 read 4 read

DEFAULT SYMBOLOGY IDENTIFIERS

UPC-A -----	Don't Send	SEND AS 'A'
UPC-E -----	Don't Send	SEND AS 'E'
EAN-8 -----	Don't Send	SEND AS 'FF'
EAN-13 -----	Don't Send	SEND AS 'F'
UPC-D1 -----	Don't Send	SEND AS 'D1'
UPC-D2 -----	Don't Send	SEND AS 'D2'
UPC-D3 -----	Don't Send	SEND AS 'D3'
UPC-D4 -----	Don't Send	SEND AS 'D4'
UPC-D5 -----	Don't Send	SEND AS 'D5'
UPC-A (2 add-on) -----	Don't Send	SEND AS 'A'
UPC-A (5 Add-on) -----	Don't Send	SEND AS 'A'
UPC-E (2 add-on) -----	Don't Send	SEND AS 'E'
UPC-E (5 Add-on) -----	Don't Send	SEND AS 'E'
EAN-8 (2 add-on) -----	Don't Send	SEND AS 'FF'
EAN-8 (5 Add-on) -----	Don't Send	SEND AS 'FF'
EAN-13 (2 add-on) -----	Don't Send	SEND AS 'F'
EAN-13 (5 Add-on) -----	Don't Send	SEND AS 'F'
Code 39 -----	Don't Send	SEND AS '*'
Codabar -----	Don't Send	SEND AS '%'
Ind.2 of 5 -----	Don't Send	SEND AS 'i'
Std. 2 of 5 -----	Don't Send	SEND AS 'I'
Code 93 -----	Don't Send	SEND AS '&'
Code 128 -----	Don't Send	SEND AS '#'
MSI/Plessey -----	Don't Send	SEND AS '@'
Code 49 -----	NONE	
Code 16K -----	NONE	

PC KEYBOARD WEDGE

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

COMMUNICATION PARAMETERS

INTERCHARACTER DELAY

-----	NONE	5ms	10ms	15ms
-----	20ms	25ms	30ms	35ms
-----	40ms	45ms	50ms	55ms
-----	60ms			

PREFIX/SUFFIX

Prefix-----	SET TO NUL
Suffix-----	SEND AS CARRIAGE RETURN

SYBOLGY SELECTION

UPC/EAN

Symbology-----	ENABLE	Disable	
Expand UPC-A to EAN-13-----	Enable	DISABLE	
Expand UPC-E to UPC-A-----		ENABLE	DISABLE
Expand UPC-E to EAN-13-----	Enable	DISABLE	
UPC-D-----	Enable	DISABLE	
Add-Ons-----	Required	OPTIONAL	Disable

CODE 39

Symbology-----	ENABLE	Disable
Check Digit-----	Calculate	DON'T CALCULATE
Check Digit-----	SEND	Don't Send
Start/Stop Character-----	Send	DON'T SEND
Read One Character Label-----	Enable	DISABLE

PC KEYBOARD WEDGE (CONT.)

INTERLEAVED 2 OF 5

Symbology -----	ENABLE	Disable
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	

STANDARD 2 OF 5

Symbology -----	ENABLE	Disable
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	

CODABAR

Symbology -----	ENABLE	Disable
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	Send	DON'T SEND
Start/Stop Character -----	Send	DON'T SEND
Start/Stop Format -----	ABCD/TN*E	ABCD/ABCD
	abcd/tn*e	abcd/abcd
Start/Stop Match -----	Enable	DISABLE
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	
Gap Check -----	Enable	DISABLE

ITALIAN CODE 39

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 5

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 49 (SP400HD MODELS ONLY)

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 16K (SP400HD MODELS ONLY)

Symbology -----	Enable	DISABLE
-----------------	--------	----------------

CODE 93

Symbology -----	ENABLE	Disable
-----------------	---------------	---------

CODE 128

Symbology -----	ENABLE	Disable
-----------------	---------------	---------

MSI/PLESSEY

Symbology -----	ENABLE	Disable
-----------------	---------------	---------

PC KEYBOARD WEDGE

GENERAL FEATURES

These features can be used to customize the user interface features.

AUDIBLE INDICATOR SETTINGS

Speaker -----	ENABLE	Disable	
Good Read Tone -----	Tone A	Tone B	
	TONE C	Tone D	
Duration -----	SHORT	Medium	Long
Volume -----	Low	MEDIUM	High
Sounds -----	WHEN LABEL IS READ		
	After data sent to host		

READ VERIFICATION

----- **1 READ** 2 read 3 read 4 read

DEFAULT SYMBOLOGY IDENTIFIERS

UPC-A -----	NONE
UPC-E -----	NONE
EAN-8 -----	NONE
EAN-13 -----	NONE
UPC-D1 -----	NONE
UPC-D2 -----	NONE
UPC-D3 -----	NONE
UPC-D4 -----	NONE
UPC-D5 -----	NONE
UPC-A (2 add-on) -----	NONE
UPC-A (5 Add-on) -----	NONE
UPC-E (2 add-on) -----	NONE
UPC-E (5 Add-on) -----	NONE
EAN-8 (2 add-on) -----	NONE
EAN-8 (5 Add-on) -----	NONE
EAN-13 (2 add-on) -----	NONE
EAN-13 (5 Add-on) -----	NONE
Code 39 -----	NONE
Codabar -----	NONE
Ind.2 of 5 -----	NONE
Std. 2 of 5 -----	NONE
Code 93 -----	NONE
Code 128 -----	NONE
MSI/Plessey -----	NONE
Code 49 -----	NONE
Code 16K -----	NONE

SIX-BIT (OMRON)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

SYMBOLGY SELECTION

UPC/EAN

Symbology-----	ENABLE	Disable	
Expand UPC-A to EAN-13-----	Enable	DISABLE	
Expand UPC-E to UPC-A-----		Enable	DISABLE
Expand UPC-E to EAN-13-----	Enable	DISABLE	
UPC-D-----	Enable	DISABLE	
Add-Ons-----	Required	Optional	DISABLE

CODE 39

Symbology-----	Enable	DISABLE
Check Digit-----	Calculate	DON'T CALCULATE
Check Digit-----	SEND	Don't Send
Start/Stop Character-----	SEND	Don't Send
Read One Character Label-----	Enable	DISABLE

INTERLEAVED 2 OF 5

Symbology-----	Enable	DISABLE
Check Digit-----	Calculate	DON'T CALCULATE
Check Digit-----	SEND	Don't Send
Label Format-----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length-----	<u>14</u>	
Set 2nd Fixed Length-----	<u>8</u>	

CODABAR

Symbology-----	Enable	DISABLE
Check Digit-----	Calculate	DON'T CALCULATE
Check Digit-----	SEND	Don't Send
Start/Stop Character-----	SEND	Don't Send
Start/Stop Format-----	ABCD/TN*e	ABCD/ABCD
	abcd/tn*e	abcd/abcd
Start/Stop Match-----	Enable	DISABLE
Label Format-----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length-----	<u>14</u>	
Set 2nd Fixed Length-----	<u>8</u>	
Gap Check-----	Enable	DISABLE

ITALIAN CODE 39

Symbology ----- Enable **DISABLE**

CODE 5

Symbology ----- Enable **DISABLE**

CODE 49 (SP400HD MODELS ONLY)

Symbology ----- Enable **DISABLE**

CODE 16K (SP400HD MODELS ONLY)

Symbology ----- Enable **DISABLE**

CODE 93

Symbology ----- Enable **DISABLE**

CODE 128

Symbology ----- Enable **DISABLE**

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker -----	ENABLE	Disable	
Good Read Tone -----	Tone A	Tone B	
	TONE C	Tone D	
Duration -----	SHORT	Medium	Long
Volume -----	Low	MEDIUM	High
Sounds -----	WHEN LABEL IS READ		
	After data sent to host		

READ VERIFICATION

-----	1 READ	2 read	3 read	4 read
-------	---------------	--------	--------	--------

SIX-BIT (FUJITSU)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

SYMBOLGY SELECTION

UPC/EAN

Symbology-----	ENABLE	Disable	
Expand UPC-A to EAN-13-----	Enable	DISABLE	
Expand UPC-E to UPC-A-----		Enable	DISABLE
Expand UPC-E to EAN-13-----	Enable	DISABLE	
UPC-D-----	Enable	DISABLE	
Add-Ons-----	Required	Optional	DISABLE

CODE 39

Symbology-----	Enable	DISABLE
Check Digit-----	Calculate	DON'T CALCULATE
Check Digit-----	SEND	Don't Send
Start/Stop Character-----	SEND	Don't Send
Read One Character Label-----	Enable	DISABLE

INTERLEAVED 2 OF 5

Symbology-----	Enable	DISABLE
Check Digit-----	Calculate	DON'T CALCULATE
Check Digit-----	SEND	Don't Send
Label Format-----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length-----	<u>14</u>	
Set 2nd Fixed Length-----	<u>8</u>	

CODABAR

Symbology-----	Enable	DISABLE
Check Digit-----	Calculate	DON'T CALCULATE
Check Digit-----	SEND	Don't Send
Start/Stop Character-----	SEND	Don't Send
Start/Stop Format-----	ABCD/TN*E abcd/tn*e	ABCD/ABCD abcd/abcd
Start/Stop Match-----	Enable	DISABLE
Label Format-----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length-----	<u>14</u>	
Set 2nd Fixed Length-----	<u>8</u>	
Gap Check-----	Enable	DISABLE

ITALIAN CODE 39

Symbology ----- Enable **DISABLE**

CODE 5

Symbology ----- Enable **DISABLE**

CODE 49 (SP400HD MODELS ONLY)

Symbology ----- Enable **DISABLE**

CODE 16K (SP400HD MODELS ONLY)

Symbology ----- Enable **DISABLE**

CODE 93

Symbology ----- Enable **DISABLE**

CODE 128

Symbology ----- Enable **DISABLE**

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker -----	ENABLE	Disable	
Good Read Tone -----	Tone A	Tone B	
	TONE C	Tone D	
Duration -----	SHORT	Medium	Long
Volume -----	Low	MEDIUM	High
Sounds -----	WHEN LABEL IS READ		
	After data sent to host		

READ VERIFICATION

-----	1 READ	2 read	3 read	4 read
-------	---------------	--------	--------	--------

SIX-BIT (FIJITSU-CLOVER)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

SYBOLGY SELECTION

UPC/EAN

Symbology -----	ENABLE	Disable	
Expand UPC-A to EAN-13 -----	Enable	DISABLE	
Expand UPC-E to UPC-A -----		Enable	DISABLE
Expand UPC-E to EAN-13 -----	Enable	DISABLE	
UPC-D -----	Enable	DISABLE	
Add-Ons -----	Required	Optional	DISABLE

CODE 39

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Start/Stop Character -----	SEND	Don't Send
Read One Character Label -----	Enable	DISABLE

INTERLEAVED 2 OF 5

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	

CODABAR

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Start/Stop Character -----	SEND	Don't Send
Start/Stop Format -----	ABCD/TN*E abcd/tn*e	ABCD/ABCD abcd/abcd
Start/Stop Match -----	Enable	DISABLE
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	
Gap Check -----	Enable	DISABLE

ITALIAN CODE 39Symbology ----- Enable **DISABLE****CODE 5**Symbology ----- Enable **DISABLE****CODE 49 (SP400HD MODELS ONLY)**Symbology ----- Enable **DISABLE****CODE 16K (SP400HD MODELS ONLY)**Symbology ----- Enable **DISABLE****CODE 93**Symbology ----- Enable **DISABLE****CODE 128**Symbology ----- Enable **DISABLE****GENERAL FEATURES****AUDIBLE INDICATOR SETTINGS**

Speaker -----	ENABLE	Disable	
Good Read Tone -----	Tone A	Tone B	
	TONE C	Tone D	
Duration -----	SHORT	Medium	Long
Volume -----	Low	MEDIUM	High
Sounds -----	WHEN LABEL IS READ		
	After data sent to host		

READ VERIFICATION

-----	1 READ	2 read	3 read	4 read
-------	---------------	--------	--------	--------

SIX-BIT (HUGIN SWEDA)

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

SYBOLGY SELECTION

UPC/EAN

Symbology -----	ENABLE	Disable	
Expand UPC-A to EAN-13 -----	Enable	DISABLE	
Expand UPC-E to UPC-A -----		Enable	DISABLE
Expand UPC-E to EAN-13 -----	Enable	DISABLE	
UPC-D -----	Enable	DISABLE	
Add-Ons -----	Required	Optional	DISABLE

CODE 39

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Start/Stop Character -----	SEND	Don't Send
Read One Character Label -----	Enable	DISABLE

INTERLEAVED 2 OF 5

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	

CODABAR

Symbology -----	Enable	DISABLE
Check Digit -----	Calculate	DON'T CALCULATE
Check Digit -----	SEND	Don't Send
Start/Stop Character -----	SEND	Don't Send
Start/Stop Format -----	ABCD/TN*e	ABCD/ABCD
	abcd/tn*e	abcd/abcd
Start/Stop Match -----	Enable	DISABLE
Label Format -----	Fixed	VARIABLE LENGTH
Set 1st Fixed Length -----	<u>14</u>	
Set 2nd Fixed Length -----	<u>8</u>	
Gap Check -----	Enable	DISABLE

ITALIAN CODE 39

Symbology----- Enable **DISABLE**

CODE 5

Symbology----- Enable **DISABLE**

CODE 49 (SP400HD MODELS ONLY)

Symbology----- Enable **DISABLE**

CODE 16K (SP400HD MODELS ONLY)

Symbology----- Enable **DISABLE**

CODE 93

Symbology----- Enable **DISABLE**

CODE 128

Symbology----- Enable **DISABLE**

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker -----	ENABLE	Disable	
Good Read Tone -----	Tone A	Tone B	
	TONE C	Tone D	
Duration -----	SHORT	Medium	Long
Volume -----	Low	MEDIUM	High
Sounds -----	WHEN LABEL IS READ		
	After data sent to host		

READ VERIFICATION

----- **1 READ** 2 read 3 read 4 read

MULTIDROP

Text formatted in **BOLD** type indicates the standard factory configuration setting. These settings are valid if the configuration code indicates standard PSC factory settings and these setting have not been changed in a previous programming session.

SYMBOLGY SELECTION

UPC/EAN

Symbology -----	ENABLE	Disable	
Expand UPC-A to EAN-13 -----	Enable	DISABLE	
Expand UPC-E to UPC-A -----		Enable	DISABLE
Expand UPC-E to EAN-13 -----	Enable	DISABLE	
UPC-D -----	Enable	DISABLE	
Add-Ons -----	Required	Optional	DISABLE

GENERAL FEATURES

AUDIBLE INDICATOR SETTINGS

Speaker -----	ENABLE	Disable	
Good Read Tone -----	Tone A	Tone B	
	TONE C	Tone D	
Duration -----	SHORT	Medium	Long
Volume -----	Low	MEDIUM	High
Sounds -----	WHEN LABEL IS READ		
	After data sent to host		

READ VERIFICATION

-----	1 READ	2 read	3 read	4 read
-------	---------------	--------	--------	--------

PERIPHERAL ID SETTING

-----	70	71	72	73
-------	----	----	----	-----------

APPENDIX B

ADDITIONAL INFORMATION

HOST PROGRAMMING

Some interfaces and host systems include the ability to configure the scanner by sending commands to the scanner.

CREATING MULTIFUNCTION LABELS

The term, multifunction label, describes a programming label that contains multiple programming features in one programming label. These labels can be created with label making software that supports Code 128.

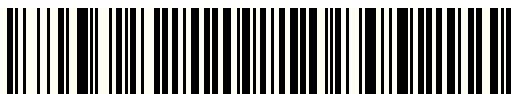
NEED MORE INFORMATION

If you require more information about using your host system to change the scanner's programmable features or detailed instructions about creating multifunction labels, contact your local dealer or distributor or call (in the U.S. or Canada) PSC Technical Support at 1-800-547-2507.

APPENDIX C

SAMPLE BARCODES

CODE 128



Code 128.Test

CODE 39



Code 39.Test

INTERLEAVED 2 OF 5



0123456789

CODABAR



\$99.95

CODE 93



Code 93.Test

UPC-A



0

00112123344

UPC-A w/2 DIGIT ADD-ON



UPC-A w/ 5 DIGIT ADD-ON



UPC-E



EAN-8



EAN-13

