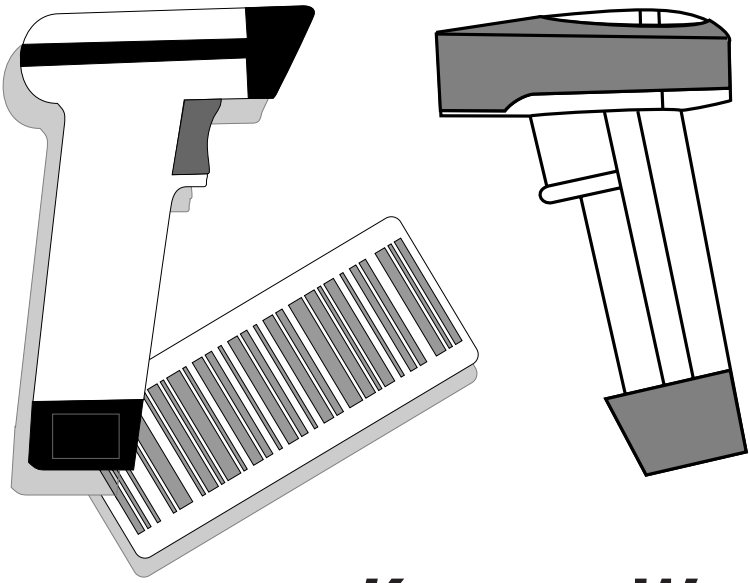
PSC®

HANDHELD LASER SCANNERS

SP400

QUICKSCAN™ 6000/6000plus



KEYBOARD WEDGE INTERFACE PROGRAMMING

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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 Scanning, Inc. reserves the right to change any specification at any time without prior notice.

Contents

KEYBOARD WEDGE INTERFACE PROGRAMMING

For your convenience, this guide provides minimal configuration and option settings for your scanner's Keyboard Wedge interface. For more detailed programming information and features, reference the *SP400 Programming Guide* (R44-1020) or the *QuickScan 6000/6000 Plus Programming Guide* (R44-1540), available from your dealer.

THE QUICKSCAN 6000/6000 PLUS INTERFACE (I/F) CABLE

To disconnect the I/F cable at the scanner, insert a bent paper clip or 0.050" hex driver into the opening marked CABLE RELEASE as shown in Figure 1, and push inward. Once the connector latch is released, continue to hold the latch in while carefully pulling the cable free.

Connect the QuickScan 6000/6000 Plus scanner to your system using ONLY the proper PSC approved QuickScan 6000/6000 Plus I/F cable.

WARNING

Connection using an unapproved cable can result in damage to the scanner. QuickScan 6000/6000 Plus cables can be identified by a cable I.D. code printed on a white label, approximately 1" in length, attached to them.

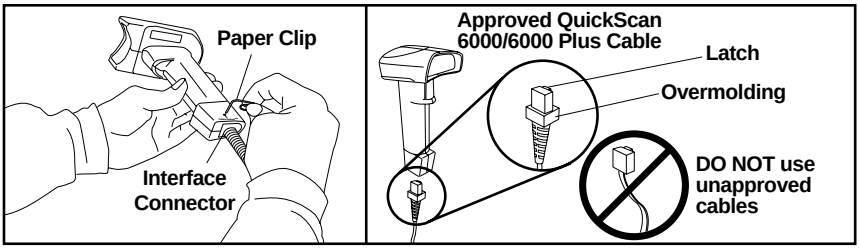


Figure 1. Disconnecting/Connecting the QuickScan 6000/6000 Plus I/F Cable

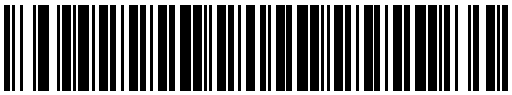
NOTE

QuickScan 6000 Plus I/F cables offer an enhanced capability that will automatically select the host-specific interface type when the cable is attached. For example, a scanner attached using an RS-232 cable will automatically communicate via RS-232; when attached using a Keyboard Wedge cable, it will automatically communicate with a Keyboard Wedge system.

Return to Factory Configuration

If, during a programming session, you wish to reset the scanner's configuration to its original factory settings, scan the Return to Factory label below. Use this label ONLY IF NECESSARY, since it will reset any changes made to this interface during any previous programming session.

RETURN TO FACTORY



Programming Mode

The scanner must be placed in Programming Mode before its configuration can be altered using the bar codes in this guide. Enter programming mode by scanning the SET label found at the top of each label set. The scanner's green light will flash continuously, indicating the scanner is in Programming Mode.

While in Programming Mode, the scanner will recognize only specially formatted programming bar code labels like those contained in this guide, and will not decode bar code labels of any other type. Scan all programming bar code labels needed to set the scanner's features to the desired settings. The scanner will beep after each bar code label is scanned, indicating that the setting has been stored in memory. The scanner will emit a rejection tone if a scanned bar code programming label isn't valid.

To exit Programming Mode and save all changes made during the programming session, scan the END label located at the bottom of each label set. The scanner will return to normal operation.

Disconnecting power during Programming Mode will cause the scanner to return to its previous settings.

PC Keyboard Wedge Interface Selection

The scanner supports ten[1] 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	
G	IBM 3xxx w/122 keyboard	(QuickScan 6000 Plus ONLY)
H	IBM 3xxx w/102 keyboard	(QuickScan 6000 Plus ONLY)
I	PS/55 5530T w/104 keyboard	(QuickScan 6000 Plus ONLY)
J	NEC 9801	(QuickScan 6000 Plus ONLY)

NOTE

We recommend that you disconnect power before plugging/unplugging cables to avoid any possibility of equipment damage.

SET ----------

Interface (I/F) Type

A ----------

B ----------

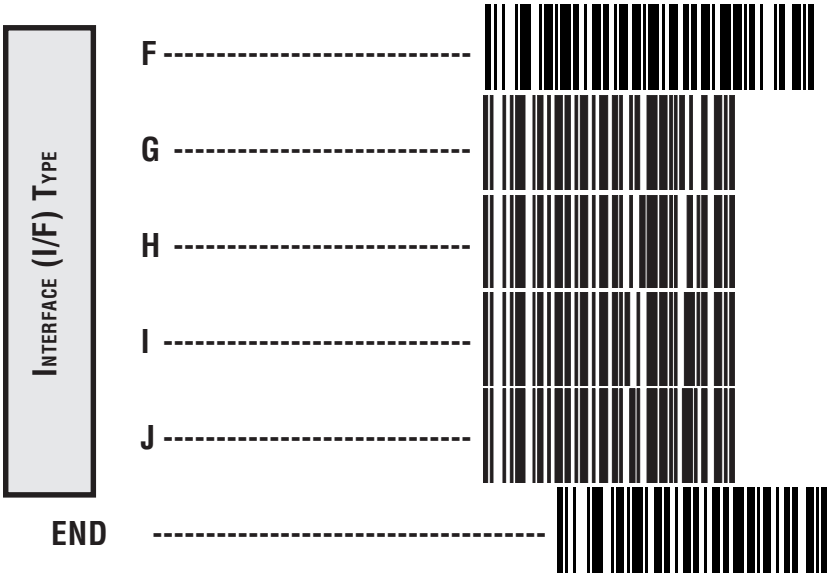
C ----------

D ----------

E ----------

1 Keyboard Wedge interfaces G through J are only supported by the QuickScan 6000 plus scanner.

PC Keyboard Wedge Interface Selection—continued



PC Keyboard Wedge – Connect to a Laptop/No Keyboard Attached

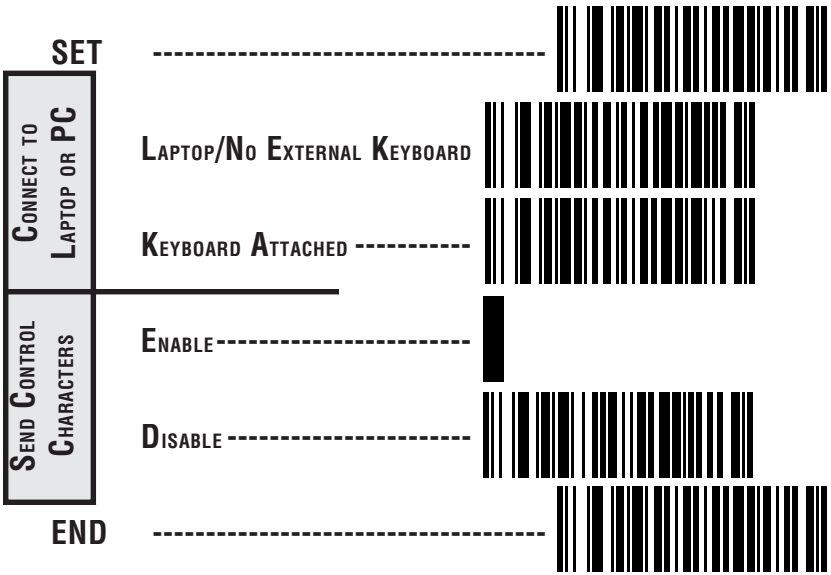
If no keyboard is attached, the scanner must provide the acknowledge signal to the PC. In this case, enable the "Laptop/No External Keyboard" mode. If a keyboard is attached, enable "Keyboard Attached".

Laptop (integrated keyboard) — Scan the "Laptop/No External Keyboard" label below when the scanner is connected to a laptop computer or when the scanner is operated with no external keyboard attached.

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

Send Control Characters — When this feature is disabled, all ASCII characters except NUL (00h) are transmitted. Enabling this feature limits transmission of ASCII characters to the following:

- Only ASCII characters between 20h..127h, plus…
  - Carriage Return (CR=0Dh)
  - BackSpace (BS=08h)
  - Right Tab (HT=09h)
  - Left Tab (0Bh)
  - Esc (1Bh)



PC Keyboard Wedge - Intercharacter Delay

Intercharacter Delay refers to the pause between each character before it is sent to the host. A time delay controls the flow of data from the scanner. Use these labels to enable/disable a 20 mSec Intercharacter Delay if needed.

SET ----------

Intercharacter Delay

= None (Default) ----------

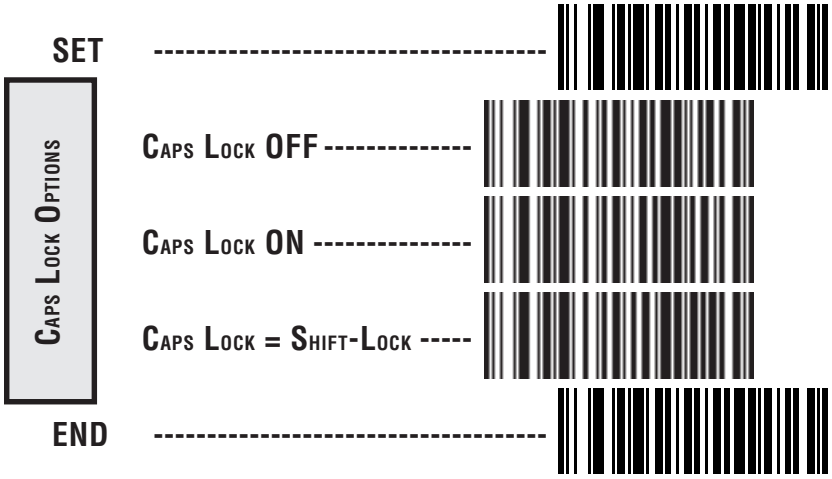
= 20 milliseconds ----------

END ----------

CAPS LOCK (QUICKSCAN 6000 PLUS ONLY)

Three caps lock settings are available for the QuickScan 6000 Plus scanner. These are:

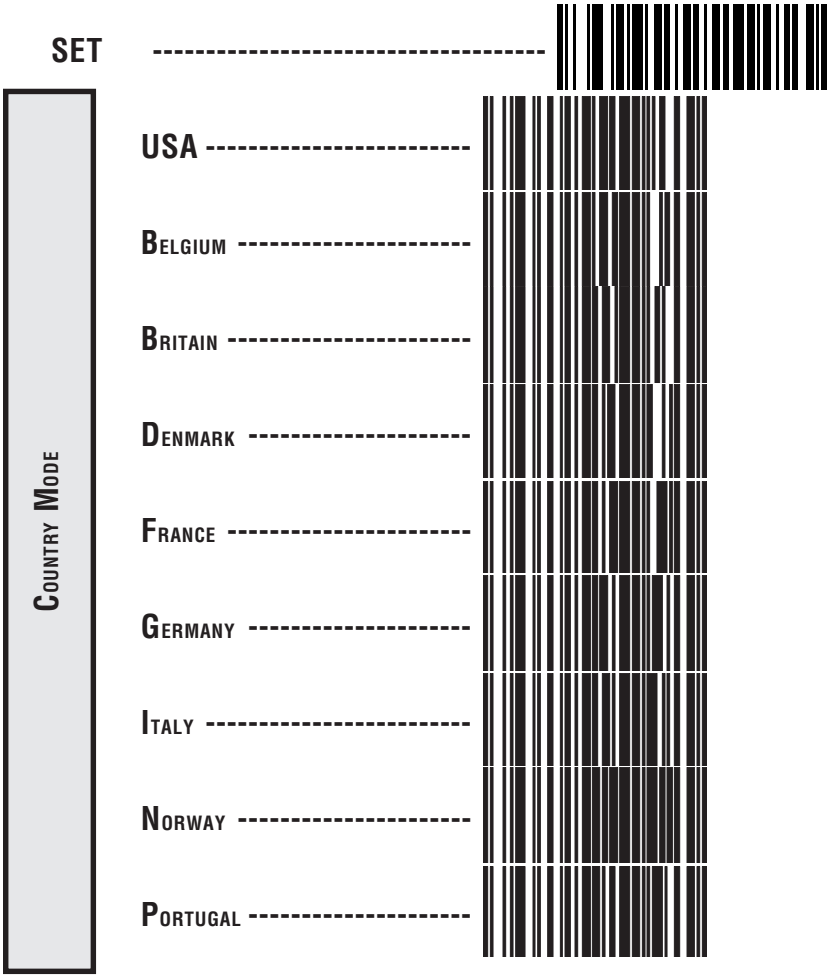
- Caps Lock Off — to send character data (to the host)in normal format.
- Caps Lock On — to send character data (to the host) in reverse case:
  (a…z) = (A…Z)
  (A…Z) = (a…z)
  Use this feature if your caps lock is on.
- Caps Lock = Shift-Lock — to send character data (to the host) in shifted case. Use this feature if your shift lock is on. **For use with interface type G (122-keyboard) ONLY**.



Country Mode (QuickScan 6000 Plus ONLY)

The following country/languages can be selected for the QuickScan 6000 Plus scanner:

- USA
- Belgium
- Britain
- Denmark
- France
- Germany
- Italy
- Norway
- Portugal
- Spain
- Sweden
- Switzerland
- Japanese 106-Key



COUNTRY MODE

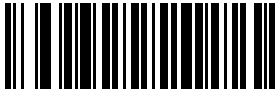
SPAIN ----------

SWEDEN ----------

SWITZERLAND ----------

JAPANESE 106-KEY ----------

END ----------



Setting Prefix and/or Suffix Characters (Preamble/Postamble)

To set the prefix or suffix, identify your specific system requirements for modification of the settings, then follow these steps:

1. Look at the ASCII chart on the inside back cover of this manual and identify the ASCII character and the corresponding Hex Code you will use as the prefix or suffix.
2. Scan the SET label below.
3. Scan either the SET PREFIX or SET SUFFIX label.
4. Scan the Hex Code for that character. (e.g. 03, 8F, ...FF)

NOTE

If you make a mistake, or lose your place while setting this option, scan the END label to exit Programming Mode. The scanner will sound an error tone to indicate that programming was incomplete, and the setting will remain as it was before entering Programming Mode.

5. If setting a single character, scan the ONE CHARACTER ONLY label on the second page following.
6. Scan the END label.

You have set the prefix or suffix.

SET ----------

Set Prefix ----------

Set Suffix ----------

Setting Prefix and/or Suffix Characters

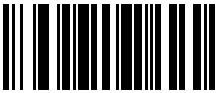
NOTE

You must scan the SET label and either the SET PREFIX or SET SUFFIX label before using the labels on this page.

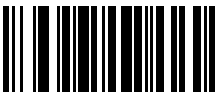
0 ----------

1 ----------

2 ----------

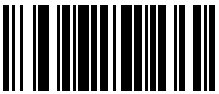


3 ----------

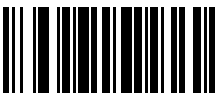


4 ----------

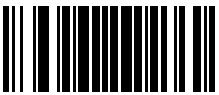
5 ----------



6 ----------

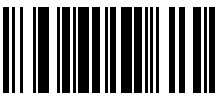


7 ----------



8 ----------

9 ----------



NOTE

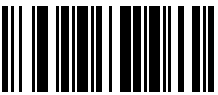
You must scan the SET label and either the SET PREFIX or SET SUFFIX label before using the labels on this page.

A ----------

B ----------

C ----------

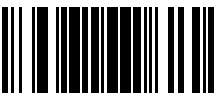
D ----------



E ----------

F ----------

ONE CHARACTER ONLY ---------



END ----------

SETTING SYMBOLOGY SPECIFIC LABEL IDENTIFIERS (LABEL I.D.)

Symbology-specific label identifiers comprise one or two ASCII characters that can precede or follow bar code label data as it is transmitted to the host. The host uses these characters as a means of distinguishing between symbologies.

Industry standards have been established for symbology-specific label identifiers, and are listed in the table below. Most scanners will have factory default identifiers preset to these standards.

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

TABLE 1. INDUSTRY STANDARD LABEL IDENTIFIERS (ALL ARE PREFIXES)

To set symbology-specific label identifiers:

1. Look at the ASCII chart on the inside back cover and identify the ASCII character(s) and the corresponding Hex Code(s) for the ASCII characters you will use as identifiers. You will also need to determine whether the character(s) will need to be sent as a prefix or a suffix.

   For example: You need to change the label identifier prefix for UPC-A to 'A1'.

2. Scan the SET label below.
3. Scan either the TRANSMIT LABEL I.D. AS PREFIX or TRANSMIT LABEL I.D. AS SUFFIX, depending on your requirements.

   For our example, the 'transmit as prefix' label would be scanned.

Setting Symbology Specific Label Identifiers (Label I.D.) Continued

4. Scan the label from the following two pages representing the symbology whose label identifier you wish to modify.

   In our example (previous page), we would scan the 'UPC-A' symbology label.

5. Identify and scan the characters from pages 15-16 that correspond to the Hex Values.

   The hex values from the ASCII chart that correspond to 'A1' from our example are as follows: 41_{hex} = 'A', and 31_{hex} = '1'. Thus, we would scan digit programming labels in this order: 4, 1, 3, 1.

6. Scan the END label.

   In our example (previous page), you have changed the default label identifier prefix for UPC-A from 'A' to 'A1'.

SET ----------

Disable Label I.D. Control ----

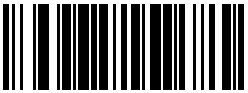
Transmit Label I.D. as Prefix -

Transmit Label I.D. as Suffix -

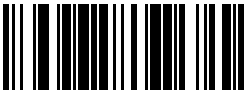
Label I.D. Symbology Selection

Set Symbology Specific Label Identifier for:

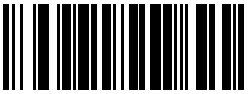
UPC-A ----------



UPC-A w/2 digit add-on ----

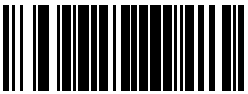


UPC-A w/5 digit add-on ----

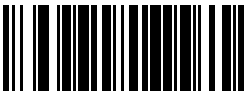


UPC-A w/C128 add-on -----

UPC-E ----------



UPC-E w/2 digit add-on ----

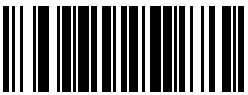


UPC-E w/5 digit add-on ----

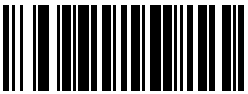
UPC-E w/C128 add-on -----

EAN-8 ----------

EAN-8 w/2 digit add-on -----



EAN-8 w/5 digit add-on -----



EAN-8 w/C128 add-on -----

EAN-13 ----------

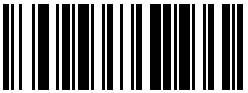
Label I.D. Symbology Selection
Continued

Set Symbology Specific Label Identifier for:

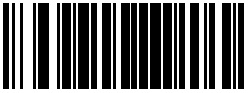
EAN-13 w/2 digit add-on ---

EAN-13 w/5 digit add-on ---

EAN-13 w/C128 add-on ---

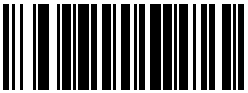


Code 39 ----------

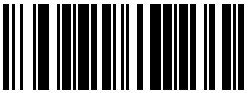


Codabar ----------

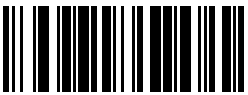
Interleaved 2 of 5 ----------



Standard 2 of 5 ----------



Code 93 ----------



Code 128 ----------

MSI/Plessey ----------

END ----------

How to Set Single Character Label I.D.

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

1. Look at the ASCII chart shown on the inside back cover of this manual 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 on page 15.
3. Scan the appropriate label for setting either TRANSMIT LABEL I.D. AS PREFIX or SUFFIX.
4. Scan the label identifier label from pages 16-17 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 bar code 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 character label identifier.

6. Scan the bar code values.

   For the example in step five, scan 3, 8, One Character Only on the following two pages.

NOTE

If you make a mistake, or lose your place while setting this option, scan the END label to exit Programming Mode. The scanner will sound an error tone to indicate that programming was incomplete, and the setting will remain as it was before entering Programming Mode.

7. Scan the END label.

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

Disabling Label I.D. for a Specific Symbology

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.

Symbology Specific Label Identifiers Characters

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

Setting Label I.D. Characters

0 ----------

1 ----------

2 ----------

3 ----------

4 ----------

5 ----------

6 ----------

7 ----------

8 ----------

9 ----------

Symbology Specific Label Identifiers Characters—continued

Setting Label I.D. Characters

A ----------

B ----------

C ----------

D ----------

E ----------

F ----------

One Character Only ---------

END ----------

UNIVERSAL SYMBOLOGY SELECTION

To set the scanner to read all symbologies, scan the ENABLE ALL SYMBOLOGIES bar code below.

NOTE

DO NOT scan a SET/END bar code when programming universal symbology features. Programming mode is automatically entered and exited when one of the two special bar codes below are scanned.

ENABLE ALL SYMBOLOGIES

DISABLE ALL SYMBOLOGIES[1]

1 Code 128 is always active for the purpose of reading programming bar code labels, however, the scanner does not transmit data to the host when in Programming Mode.

SYMBOLOGY SELECTION

The bar code programming labels on the following pages allow you to enable or disable individual symbologies.

SET ----------

SYMBOLOGY SELECTION

ENABLE UPC/EAN ----------

DISABLE UPC/EAN ----------

ENABLE CODE 39----------

DISABLE CODE 39----------

ENABLE PHARMACODE[2] 39 -----

DISABLE PHARMACODE 39 -----

ENABLE INTERLEAVED 2 OF 5 ---

DISABLE INTERLEAVED 2 OF 5---

ENABLE STANDARD 2 OF 5 -----

2 Code 39 must first be enabled for the scanner to read PharmaCode 39 labels.

Symbology Selection

Disable Standard 2 of 5 ----

Enable IATA[3] ----------

Disable IATA ----------

Enable Codabar ----------

Disable Codabar ----------

Enable Code 93 ----------

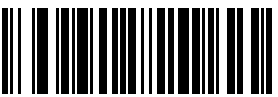
Disable Code 93 ----------

Enable Code 128 ----------

Disable Code 128[4] ----------

Enable MSI/Plessey ---------

Disable MSI/Plessey --------



END ----------

3 Standard 2 of 5 must first be enabled before IATA can be enabled.

4 Code 128 is always active for the purpose of reading programming bar code labels. Scanning the DISABLE ALL SYMBOLOGIES or the DISABLE CODE 128 labels disables Code 128 transmission to the host (disables decoding of all C128 non-programming labels).

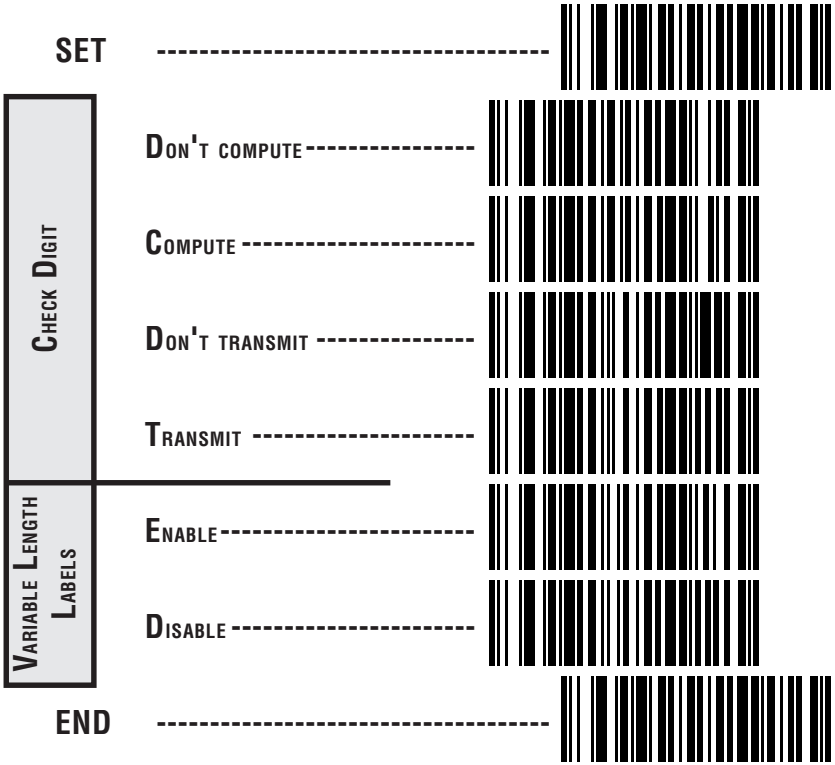
INTERLEAVED 2 OF 5

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 bar code label is correct. If you enable this feature, your bar codes 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. *Transmit Check Digit* will have no effect unless the *Compute Check Digit* feature is enabled. If you choose *Don't Compute Check Digit*, the scanner sends the Check Digit encoded in the bar code without verifying its accuracy. If you choose both *Compute Check Digit* and *Don't Transmit Check Digit*, the scanner will remove the Check Digit's contents before sending the bar code data to the host.

Variable Length — If you select variable length, the scanner will recognize labels with an even number of characters between the minimum length set (see the following section) and 50[1] characters.



Setting Interleaved 2 of 5 Fixed and Minimum Label Lengths

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 (by disabling variable lengths on the previous page), the default fixed label lengths are 14 characters and 8 characters. 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 Fixed 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 two pages.

   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 SECOND FIXED LENGTH below and skip to step seven.

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.

Setting Minimum Label Length

1. Identify the minimum length setting you want to make. The selectable range is 04 to 50[1] characters.
2. Scan the SET label.
3. Scan the SET MINIMUM LABEL LENGTH barcode.

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 minimum label length by scanning the correct digits from the next two pages
5. Scan the END label.

---

1 The scanner will decode up to 50 characters, but the actual length read will vary depending upon bar code size and quality. The IBM POS interface is limited to 32 character labels.

SET ----------

Interleaved 2 of 5 Fixed and Minimum Label Lengths

Set First Fixed Length ------

Set Second Fixed Length ----

No Second Fixed Length -----

Set Minimum Label Length---

0 ----------

1 ----------

2 ----------

3 ----------

4 ----------

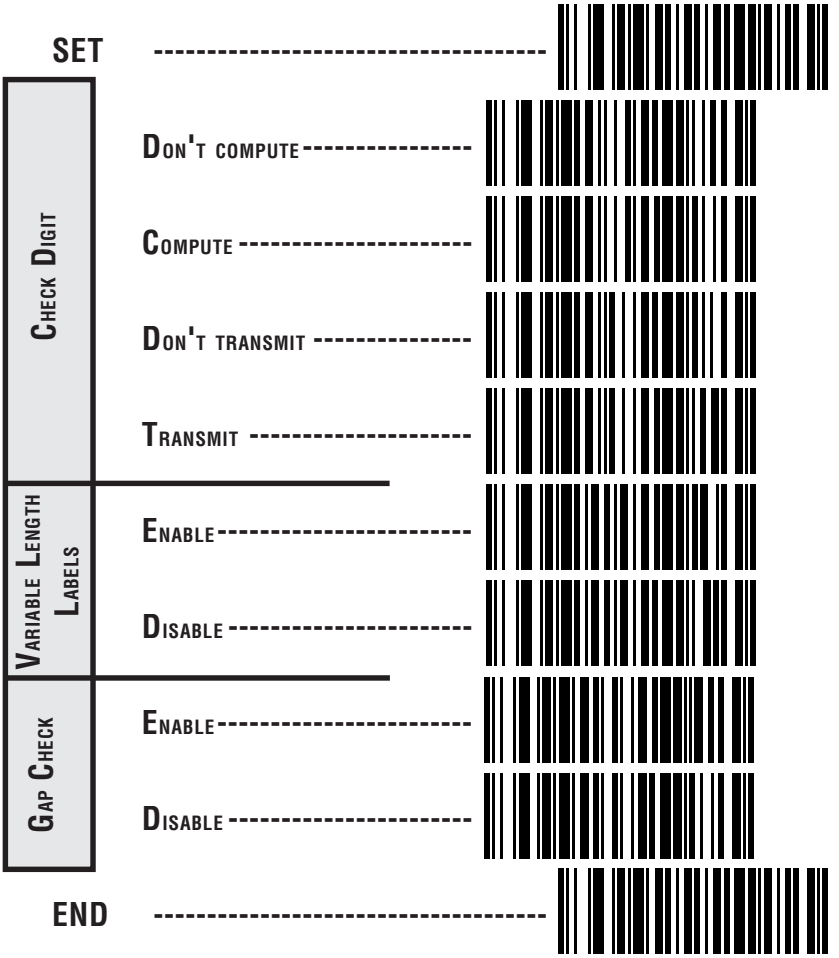
6 ----------

8 ----------

END ----------

Codabar Check Digit & Variable Length

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



Codabar Fixed Length

Most scanners shipped from the factory are set to read variable length labels for Codabar. If you switch from variable to fixed length labels (by disabling variable lengths on the previous page), the factory set fixed label lengths are 14 and 08. 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 SET 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. The selectable range is from 03 to 50[1].

   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 SECOND FIXED LENGTH label below and skip to step seven.

1 The scanner will decode up to 50 characters, but the actual length read will vary depending upon bar code size and quality. The IBM POS interface is limited to 32 character labels.

5. Scan the SET SECOND FIXED LENGTH label.
6. Set the second fixed label length by scanning the correct digits from this page. The selectable range is from 03 to 50[1].
7. Scan the END label to complete the procedure.

1 The scanner will decode up to 50 characters, but the actual length read will vary depending upon bar code size and quality. The IBM POS interface is limited to 32 character labels.

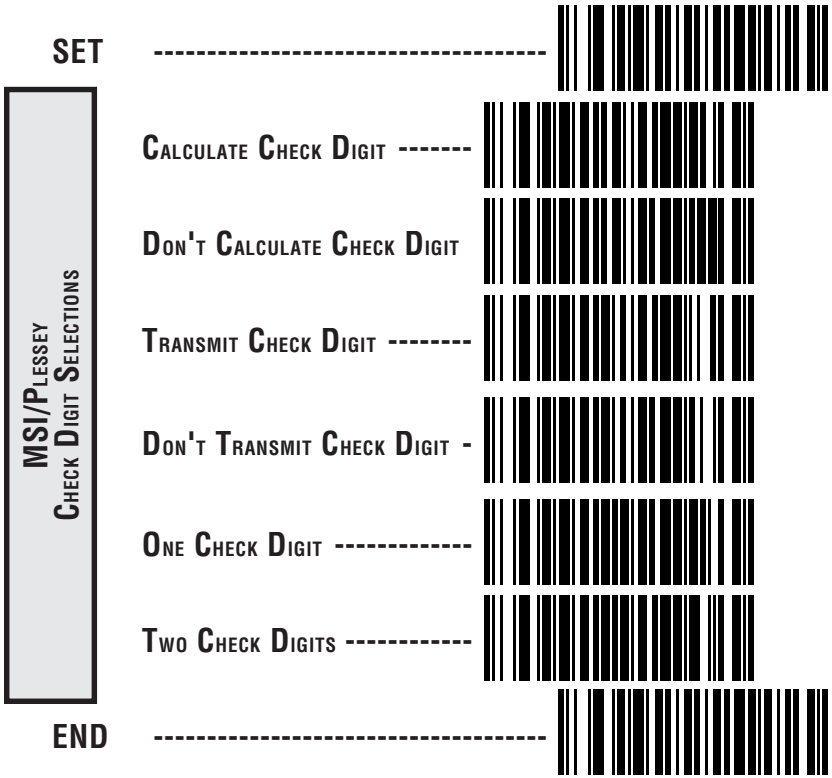
MSI/Plessey Check Digit

MSI/Plessey Check Digit options include:

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

Transmit Check Digit — enable or disable transmission of MSI/Plessey Check Digit(s).

Number of Check Digits — specify either one or two Check Digits.



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

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