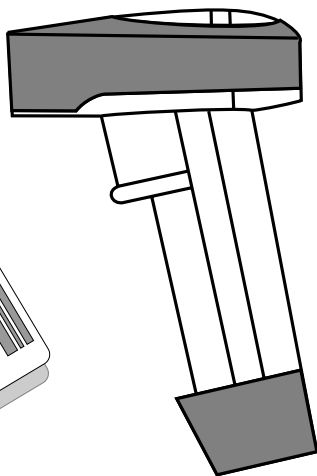
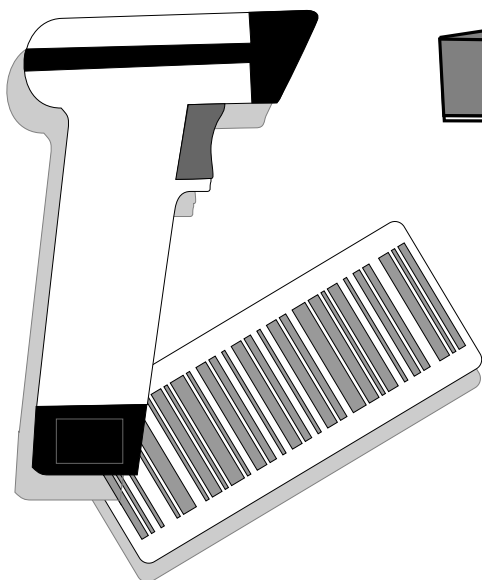

PSC[®]

HANDHELD
LASER SCANNERS

SP400

QUICKSCAN™
6000/6000 plus



IBM
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.

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NOTES

IBM INTERFACE PROGRAMMING

This guide contains minimal configuration and option settings for your scanner's IBM 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.

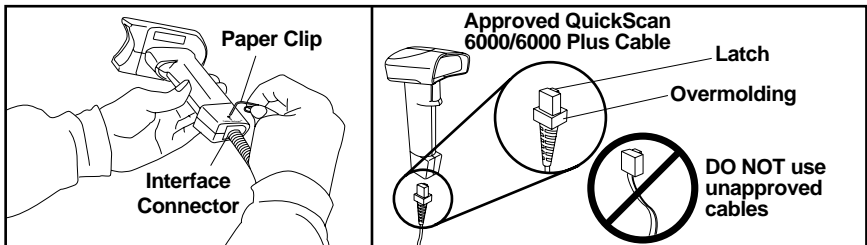


Figure 1. Disconnecting/Connecting the QuickScan 6000/6000 Plus I/F Cable

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.

PROGRAMMING MODE

The scanner must be placed in Programming Mode before its configuration can be altered using the bar codes in this guide. To enter Programming Mode, scan the SET label at the top of the page. The scanner's green light will flash continuously, indicating the scanner is in Programming Mode.

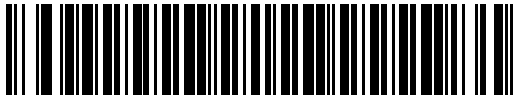
While in Programming Mode, the scanner recognizes only specially formatted programming bar code labels like those in this guide, and will not decode bar code labels of any other type. Scan all programming bar code labels needed to set the scanner's features to their desired settings. The scanner will 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. The scanner will return to normal operation.

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

RETURN TO FACTORY CONFIGURATION

If, during a programming session, you wish to reset the scanner's configuration to its original factory setting, 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.



DATA FORMATS

Send As Code 39 – identifies bar code data (UPC-D, UPC/EAN, add-ons, Code 93, Standard 2 of 5, Codabar, MSI/Plessey and Code 128) as Code 39 format before sending the data to the host.

Limit Command Set – an option that causes the scanner to ignore 'disable scanner' commands sent from the host..

Transmit Unsolicited Status – when enabled, this option causes the scanner to transmit a status message to the host upon receipt of a Set Normal Response Mode (SNRM) command, and after scanner transmission of a Non Sequenced Acknowledge (NSA) response.

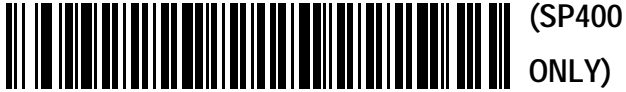
NOTATION CONVENTIONS

The type style (Normal, *Italics* or **Bold**) used in the DATA FORMAT section indicates the applicable scanner model, SP400 and/or QuickScan 6000/6000 Plus.

TYPE STYLE	FEATURE IS USED WITH THESE SCANNER MODEL(s) ONLY
Bold	SP400, QuickScan 6000 and QuickScan 6000 Plus.
<i>Italics</i>	QuickScan 6000 and QuickScan 6000 Plus ONLY.
Normal	SP400 ONLY

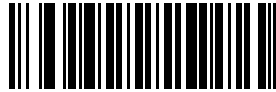
IBM 4683/84 • 4693/94 PORT 5B INTERFACE SELECTION

Scan this label to enable the IBM 468x Port 5B interface and enable transmission of Unsolicited Status.

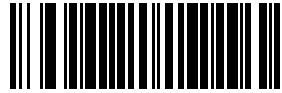


IBM 4683/84 • 4693/94 PORT 5B SETTINGS

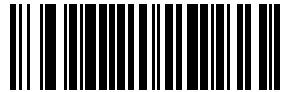
SET



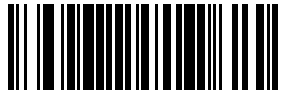
SEND AS CODE 39 -----



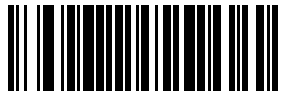
DON'T SEND AS CODE 39 -----



ENABLE LIMIT COMMAND SET -----



DISABLE LIMIT COMMAND SET -----



TRANSMIT UNSOLICITED STATUS -----
(QuickScan 6000/6000 Plus ONLY)



DON'T TRANSMIT UNSOLICITED STATUS ---
(QuickScan 6000/6000 Plus ONLY)



END



DATA FORMAT

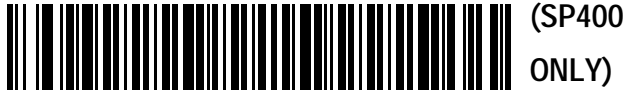
Bold = SP400 and QuickScan 6000/6000 Plus

Italics = QuickScan 6000/6000 Plus ONLY

Normal = SP400 ONLY

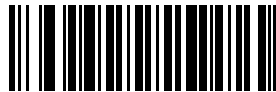
IBM 4683/84 • 4693/94 PORT 9A, 9B, 9C, 9E I/F SELECTION

Scan this label to enable the IBM 468x/9x Port 9x interface and enable transmission of Unsolicited Status.

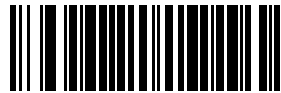


IBM 4683/84 • 4693/94 PORT 9A, 9B, 9C, 9E SETTINGS

SET -----



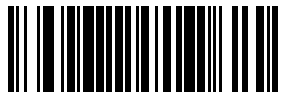
SEND AS CODE 39 -----



DON'T SEND AS CODE 39 -----



ENABLE LIMIT COMMAND SET -----



DISABLE LIMIT COMMAND SET -----



TRANSMIT UNSOLICITED STATUS -----
(QuickScan 6000/6000 Plus ONLY)



DON'T TRANSMIT UNSOLICITED STATUS ---
(QuickScan 6000/6000 Plus ONLY)



END -----



DATA FORMAT

Bold = SP400 and QuickScan 6000/6000 Plus

Italics = QuickScan 6000/6000 Plus ONLY

Normal = SP400 ONLY

IBM 468x PORT 17 INTERFACE SELECTION (SP400 ONLY)

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



IBM 468x PORT 17 SETTINGS

DATA FORMAT	SET	-----	
	SEND AS CODE 39	-----	
	DON'T SEND AS CODE 39	-----	
	ENABLE LIMIT COMMAND SET	-----	
	DISABLE LIMIT COMMAND SET	-----	
	END	-----	

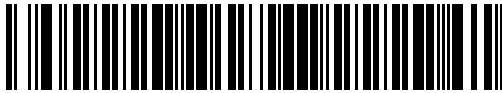
Bold = SP400 and QuickScan 6000/6000 Plus

Italics = QuickScan 6000/6000 Plus ONLY

Normal = SP400 ONLY

IBM 4682/92 PORT E INTERFACE SELECTION

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



IBM 468x/9x PORT E SETTINGS

DATA FORMAT	SET -----	
	SEND AS CODE 39 -----	
	DON'T SEND AS CODE 39 -----	
	ENABLE LIMIT COMMAND SET -----	
	DISABLE LIMIT COMMAND SET -----	
	<i>TRANSMIT UNSOLICITED STATUS</i> ----- <i>(QuickScan 6000/6000 Plus ONLY)</i>	
	<i>DON'T TRANSMIT UNSOLICITED STATUS</i> --- <i>(QuickScan 6000/6000 Plus ONLY)</i>	
	END -----	

Bold = SP400 and QuickScan 6000/6000 Plus

Italics = QuickScan 6000/6000 Plus ONLY

Normal = SP400 ONLY

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 SYMBOLOGIES¹



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.

SYMBOLGY SELECTION

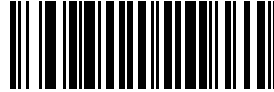
The bar code programming labels on the following pages allow you to enable or disable individual symbolgies.

SYMBOLGY SELECTION	SET -----	
	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. Enabling PharmaCode 39 will convert Code 39 data to PharmaCode format whenever possible.

SYMBOLGY SELECTION

DISABLE STANDARD 2 OF 5 ----



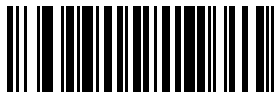
ENABLE IATA³ -----



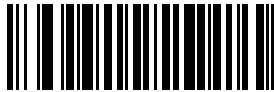
DISABLE IATA -----



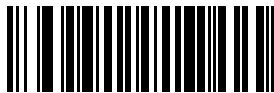
ENABLE CODABAR -----



DISABLE CODABAR -----



ENABLE CODE 93 -----



DISABLE CODE 93 -----



ENABLE CODE 128 -----



DISABLE CODE 128⁴ -----



ENABLE MSI/PLESSEY -----



DISABLE MSI/PLESSEY -----



END



- 3 Standard 2 of 5 must first be enabled before IATA can be enabled, however, the scanner will not read Standard 2 of 5 labels when IATA is 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).

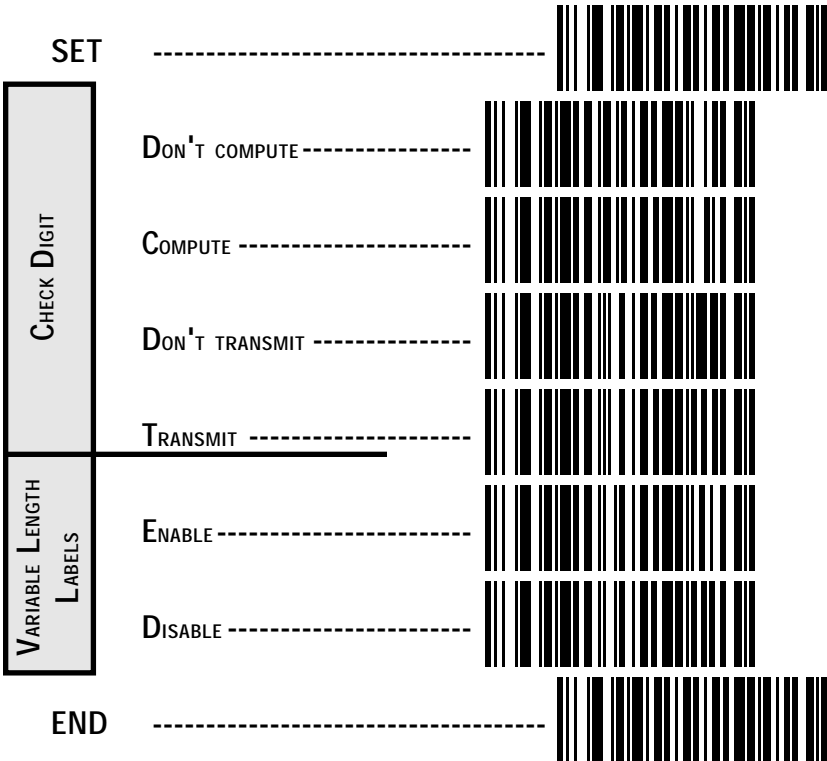
INTERLEAVED 2 OF 5

The Interleaved 2 of 5 (I 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 digits between 04 and 50 digits¹.



1. The scanners will decode up to 50 characters, but the actual readable length will vary depending upon bar code size and quality. The *QS6000/6000 Plus* scanner is limited to 32 character labels when using the IBM POS interface.

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 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 SET 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

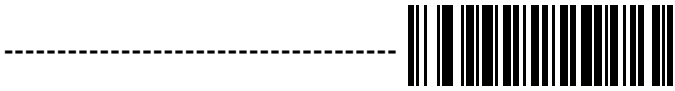
1. Identify the minimum length setting you want to make. The selectable range is 04 to 50 characters¹.
3. Scan the SET MINIMUM LABEL LENGTH barcode.

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 scanners will decode up to 50 characters, but the actual readable length will vary depending upon bar code size and quality. The *QS6000/6000 Plus* scanner is limited to 32 character labels when using the IBM POS interface.

SET



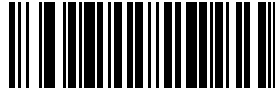
SET FIRST FIXED LENGTH



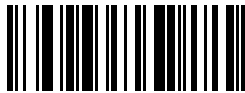
SET SECOND FIXED LENGTH



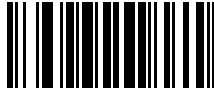
NO SECOND FIXED LENGTH



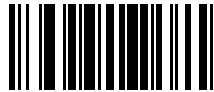
SET MINIMUM LABEL LENGTH



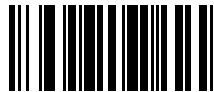
0



1



2



3



4



6



8



END



INTERLEAVED 2 OF 5 FIXED AND MINIMUM LABEL LENGTHS

CODABAR CHECK DIGIT & VARIABLE LENGTH

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

Check Digit — (See Interleaved 2 of 5 Check Digit.)

Variable Length — If variable length is disabled, only labels of two specified lengths can be read. The two fixed lengths are configurable.

Gap Check — If Gap Check is enabled, the scanner verifies the uniformity of the gaps between characters.



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

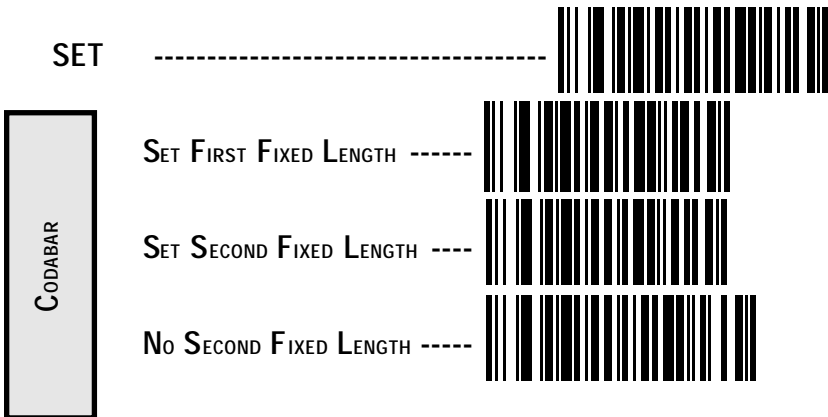
1. Identify the fixed length settings you want to make.
2. Scan the SET label.
3. Scan the SET FIRST FIXED LENGTH label.

SETTING LENGTHS

If you are setting a length less than ten, you must scan a zero first and then the length digit (03, ...09).

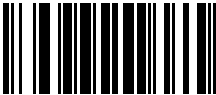
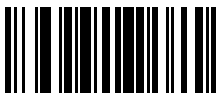









4. Set the first fixed length label by scanning the correct digits from the next page. The selectable range is from 03 to 50 digits¹.

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 scanners will decode up to 50 characters, but the actual readable length will vary depending upon bar code size and quality. The *QS6000/6000 Plus* scanner is limited to 32 character labels when using the IBM POS interface.

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 digits¹.
7. Scan the END label to complete the procedure.

CODABAR SET FIXED LENGTHS	0	-----	
	1	-----	
	2	-----	
	3	-----	
	4	-----	
	5	-----	
	6	-----	
	7	-----	
	8	-----	
	9	-----	
	END	-----	

1. The scanners will decode up to 50 characters, but the actual readable length will vary depending upon bar code size and quality. The *QS6000/6000 Plus* scanner is limited to 32 character labels when using the IBM POS interface.

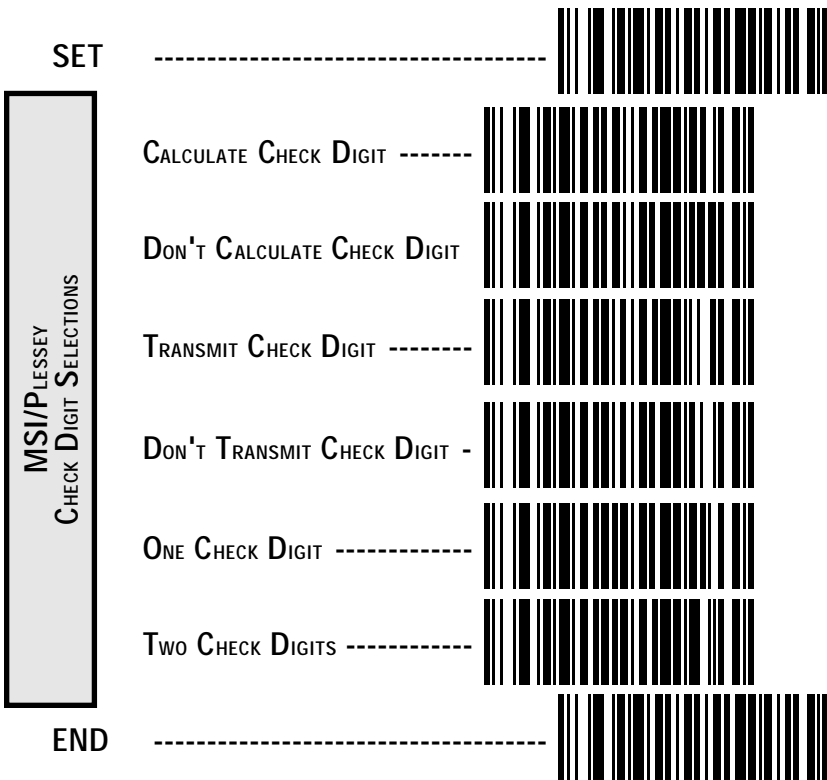
MSI/PLESSEY CHECK DIGIT

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.



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