Scanner Configuration Manager User Guide

(System Requirement: Windows PC)

unitech

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SCANNER CONFIGURATION MANAGER

Scanner Configuration Manager software is the simplest and most foolproof way to configure your scanner settings.

Start it Up

After loading and starting SCMSetup.exe the icon to the left will appear on your desktop:

Click on the SCM icon and the following screen will appear:

As you can see, you are presented with a blank work area and a row of icons across the top. Following is an explanation of each of the icons:
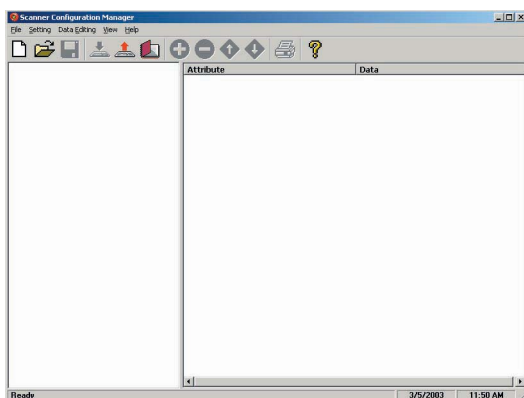
Above, from left to right, are the standard Windows icons for "New Document", Open File", and "Save File".
Scanner Configuration Manager saves scanner settings in .cfg files, so you can have access to a variety of different scanner configurations that you've set up.
To reset the scanner back to **factory default**, click on the "New Document" icon and download the unmanipulated setting to the scanner (see below).

The above icons, from left to right, represent download settings (from computer to scanner), and upload settings (from scanner to computer). The third icon opens a Test Pad where you can view the actual scanner output.

The above four icons are used in the "Data Editing" feature of SCM. From left to right they are the "Add a Formula" icon, the "Remove a Formula" icon, and the right-hand two are the "Move Formula" icons that move selected formulas up or down in relation to each other. For information on data editing, see page 26.

Click this icon to print a series of bar codes that you can scan in order to configure your scanner to the current SCM settings.
This option is especially useful if downloading to the scanner is not an option, as in the case of USB, Mac ADB, or RS232 interface, or if Win NT is your operating system.
If printing to a PDF file is an option (via Acrobat), this configuration can be sent via e-mail to different locations where they can be scanned from a printed PDF file.

Help is just a click away.

First Look

Click the upload icon (see page 1) and the following pop-up screen
will appear: (alternatively, you can click on the "New Document"
icon, page 1, in which case the second screen will appear)

Enter the scanner product
number (MS210, for
example).
Make sure the "By Key-
board Interface" radio
button is selected, and
click "OK".
The LED on the top of the
scanner will flash during
the upload process.
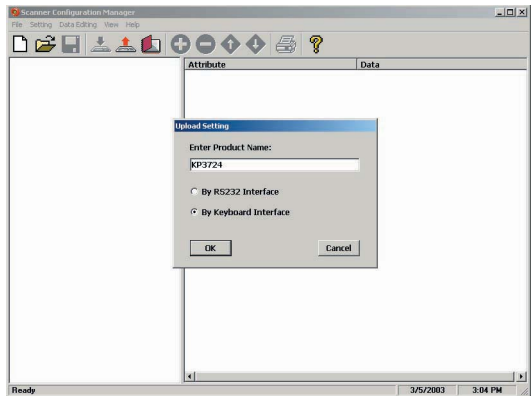
The screen to the left
appears. Click on any of
the selections under
"Current Settings" to view
its "Attributes".
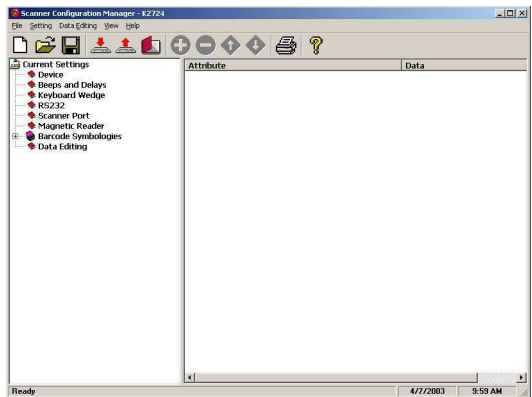
Double-click on any of
the "Attributes" to edit
that attribute. This is
done via a drop-down
menu.
After selecting your config-
uration settings, click on
the Download icon (see
page 1). The LED on the
top of the scanner will
flash during the download
process. Afterwards, you
will be prompted to do an optional "Quick Test".
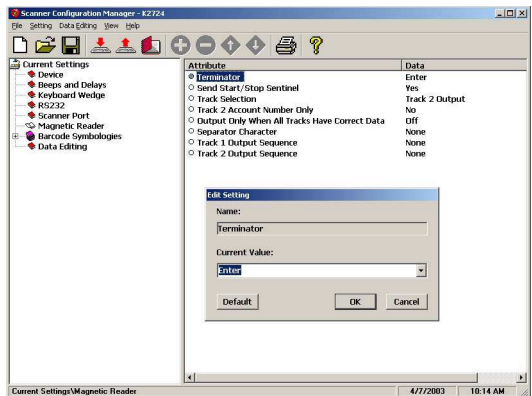
Settings

Following is a detailed discussion of each of the settings, their attributes, and the effects each of these will have on data output from your Unitech scanner.

Device

The only attribute for the "Device" setting is "Device ID", which defines the device to which the scanner is connected (usually a computer or terminal). Select the setting that most closely describes your device.
The default selection is "01 - IBM PC/AT, PS/2 MOD 40, 60, 80, USB", which is appropriate for most PCs.

Beeps and Delays

The three attributes for "Beeps and Delays" are: "Beep Tone", "Intercharacter Delay", and "Interblock Delay".

Beep Tone
Select a value from "None" to "High" to set the loudness of the tone, or select "Low to High" or "High to Low" to set the characteristic of the tone.
Default is "Medium".

Interblock Delay
Interblock delay is the time duration that can be inserted between one block of data and another. This function is analogous to the time duration required between dialing a phone number's country code and the phone number itself. The interblock delay can be inserted via SCM's Data Editing function (see page 26).
Default is "10 ms".

Intercharacter Delay
Intercharacter Delay is the time duration between data characters sent from the scanner to the computer. Intercharacter delay is usually inserted when the data flow must be slowed down for the benefit of a slower computer.
Default is "1 ms".

Keyboard Wedge

Your Unitech keyboard contains a built in data decoder or "wedge" that translates raw bar code input into Keyboard Scan Code, with the result that bar code data exits the scanner as if you had typed the text.
Seven keyboard wedge parameters are listed below:

Function Code
Function Code determines how function code characters from the scanner is output.
- If **Yes** is selected, then scanned function codes will output the same as if their corresponding function keys were pressed. Scanning an F1 label will pop-up a "Help" box, F3 a "Find" pop-up box, etc.
- If **No** is selected, the scanned function codes will output special character strings defined by Unitech for non-print character output.
Default is "Yes".

Caps-Lock
The Caps Lock function determines how the Caps Lock key controls the case of alphabetical characters. The three options below are available:
- **Auto Trace** automatically determines the Caps Lock key status and informs the decoder accordingly.
- **Lower Case** manually coordinates the physical state of the Caps Lock key with the Caps Lock state of the decoder. For example, if the Caps Lock light is not on, then "Lower Case" should be selected.
- **Upper Case** is the same as Lower Case (above) except that it applies to the upper case state. If the Caps Lock is on, then Upper Case should be selected.
Default is "Auto Trace".

Language

Your Unitech scanner can output characters using eleven different language sets, including:

Danish	French	Norwegian	Swiss
U.S. English	German	Swedish	Alt Key Mode
U.K. English	Italian	Spanish	

Default is "U.S."

Wand Emulation Output

Wand emulation refers to raw, undecoded bar code data - 0s and 1s. The choice here is whether to assign a 1 (high) to the dark bar and a 0 (low) to the white space - or vice-versa.

Bar with High / Space with Low

Bar with Low / Space with High

Default is "Bar with High / Space with Low".

Level Duration of Minimal Width

This adjustment refers to the amount of time the wand scanner requires to recognize an individual bar in a bar code. The choices are 200 µs (microseconds) or 600 µs.
Default is "200 µs".

Polarity of Idle Condition

The polarity of the idle condition (while it has no input) of the wand scanner can be either high or low.
Default is "Low".

Use Numeric Keypad

The ASCII code for numeric input from the keypad part of the keyboard is different from that of the upper row of the keyboard proper. Some accounting programs require keypad input, and for that reason, the keyboard decoder can output scanned or read numbers as either keypad or keyboard (upper row) output.
Default is "No".

RS232

Baud Rate
Baud Rate (bits per second) refers to the speed of the data through the RS232 port. If the data error rate is unacceptably high, setting the baud rate lower should help.
Default is "9600 Baud".

Parity
A technique used to detect data transmission errors by adding an extra bit to each character. This scheme has been supplanted in modern communication devices by "error correction".
Default (and the current universal standard) is "No Parity".

Data Bit
Number of bits per byte that are dedicated to data (minus start/stop bits).
Default (and the current universal standard) is "8 Data Bits".

Handshaking
Handshaking is the mechanism that controls the speed of data flow so that a slower receiver of data is not overwhelmed by a faster sender of data. Selections are: "Ignore", "RTS (request to send) Enabled at Power Up", and "RTS Enabled in Communication".
Default is "Ignore"

ACK/NAK
Data characters that are sent from the receiver to the sender in order to "acknowlege" or "not acknowlege" the receipt of the data without error. Rarely used these days.
Default is "No".

BCC Character
Block Check Character. An error checking character added for data integrity.
Default is "No".

RS232, continued

Time Out
The ACK/NAK function (see page 7) can be given a limited (ranging from 1 second to 10 seconds) or unlimited amount of time to operate. Default is "1 Second".

Data Direction
Three options are available for data direction: "Send to Host", "Send to Host & Terminal", and "Send to Terminal".
Default is "Send to Host".

Receive Terminator
A user-definable Receive Terminator can be inserted at the end of bar code data. Pre-defined receive terminators include:
- <t>: Tab
- <r>: Carriage Return
- <n>: Line Feed
- <d>: Any Digit
- <a>: Any Letter
- <*>: Interblock Delay
- <">: " (quotation marks)
- <dd>: character in hexadecimal notation
- <<>: <
- <>>: >

The above special characters must be bracketed by < > symbols as shown.
Function codes (F keys, cursor up, Enter, etc.) can also be inserted via hexadecimal code (accessible in a linked menu) and must include surrounding brackets (<>).
Letters and numbers should be entered directly by keyboard input without surrounding brackets (<>).
Default is "None".

Scanner Port

Terminator, Use Code ID, Double Verification, Scanning Mode, Label Type, Aim Function for Long-Range Engine, Aim Time for Long-Range Engine, Preamble, and Postamble are the parameters for Scanner Port configuration.

Terminator
The Terminator is a command that follows the input of bar code data. Four different terminators can be selected here: "Enter", "Return (on numeric keypad)", "Field Exit or Right Control", or "None". Alternative terminators (such as Tab) can be be configured via the Postamble function (see page 11).
Default is "Enter"

Use Code ID
The Code ID function can be used to identify the type of bar code that is being scanned by inserting an identifying letter (refer to chart at right) at the beginning of the bar code output.
For example, if the Code ID function is on, and a bar code string of "54321" was output as "M54321", the bar code would thus be identified as type Code 39.
Default is "No".

UPC-A	A
UPC-E	E
EAN-13	F
EAN-8	FF
I 2 of 5	I
S 2 of 5	H
Code 39	M
Codabar	N
Code 93	L
Code 128	K
UCC/EAN128	]C1
MSI	O
Code 32	T
Plessey Code	P
Label Code IV, V	B
Toshiba Code	C
Code 11 / Telpen	J
Delta Code	D

Double Verification
Double Verification enables the scanner to verify the accuracy of the output by outputting only after a specified number (from 0 to 7) of identical results. For instance, if 3 is selected, the scanner will not output the bar code data until it's obtained 4 identical scan results. Because the scanner normally scans at a rate of 33 scans per second (unless it's a wand), this process should take less than a fraction of a second, even for higher values.
Default is "0-Off"

Scanning Mode
Actual bar code scanning can occur in six different ways:
- **Trigger** scan causes the scanner light to remain on as long as the trigger is depressed, whether the bar code is recognized or not.
- **Flashing** causes the scanner to flash continuously after the trigger is pressed until it detects a bar code and outputs the data. The scanner light will remain on in anticipation of another bar code for approximately 12 seconds, after which it will begin flashing again. A second trigger press stops the scanning.
- **Multiscan** allows multiple scans while holding down the trigger.
- **One Press One Scan** causes the scanner light to remain on after the trigger is briefly depressed until a bar code is detected and output.
- **Test** is similar to the Flash setting except that the scanner out-puts bar code data in a rapid-fire manner as long as a bar code is presented to the scanner.
- **Old Laser Flash** causes the scanner to flash continuously after the trigger is pressed and will scan each bar code only once per presentation. A second trigger press stops the scanning.
- **Continuous** causes the scanner light to remain on and scan bar codes as they are presented. Bar codes can be "double scanned" only after a short interval.

Default is "Trigger"

Label Type
Toggle between reading only Positive and both Positive and Negative bar codes. Reading both positive and negative bar codes can be useful in the graphics industry when negative images must be proofed.
Default is "Positive".

Aim Function for Long Range Engine
The Aim Function causes a laser scanner to output a "pin-point" aiming aid for a specified period of time (see below) to enable the user to more easily scan distant bar code labels. This function can be toggled on or off.
Default is "No".

Aiming Time for Long Range Engine
The Aiming Time function specifies the duration of the Aim Function
(see previous page). Length of duration can be specified from
500ms to 2 seconds, in half-second increments.
Default is "1 second".

Preamble
Insert a string of characters prior to the actual scanned data.
Pre-defined characters include:
- <t>: Tab
- <r>: Carriage Return
- <n>: Line Feed
- <d>: Any Digit
- <a>: Any Letter
- <*>: Interblock Delay
- <">: " (quotation marks)
- <dd>: character in hexadecimal notation
- <<>: <
- <>>: >

The above special characters must be bracketed by < > symbols as
shown.
Function codes (F keys, cursor up, Enter, etc.) can also be inserted
via hexadecimal code (accessible in a linked menu) and must
include surrounding brackets (<>).
Letters and numbers should be entered directly by keyboard input
without surrounding brackets (<>).
Default is "None"

Postamble
Identical to Preamble (above), but characters are inserted after
scanned data. A common postamble would be to insert a "Tab" in
lieu of an "Enter" terminator (see page 9).
Default is "None"

Magnetic Reader

The Magnetic Stripe Reader configuration parameters differ from the Scanner Port mainly in that magnetic cards adhere to only one standard defined by ANSI and ISO/IEC, while there are over a dozen different symbologies for bar codes.

Each magnetic stripe can contain three distinct parallel tracks, each 0.110" (2.794mm) wide. Each track's unique characteristics are described below.

Track 1

The recording density of Track 1 is defined as 210 bits per inch. The character configuration (encoding) is 6 bits plus 1 parity (odd) bit, which yields 64 unique **alphanumeric** and symbolic characters. The maximum information content is 79 characters, with the format defined by the Format Code letter:

- **A** is defined by the card issuer and is for their exclusive use.
- **B** developed by the International Air Transportation Association (IATA) contains alphanumeric information for banking and finance. The standard sequence for format B is listed below.
- **C-M** are reserved for use by ANSI Subcommittee X3B10.
- **N-Z** are available for use by individual card issuers.

Following is track 1 output and an explanation of the components.

`%B987654321012300^UNITECH/JOE^0512896745280?`

% B PAN ^ CC NAME ^ DATE SC PVV DD ? LRC

%	*Start Sentinel* - 1 character - always "%" for Track 1
B	*Format Code* - 1 alphabetical character - in this case, "B"
PAN	*Primary Account Number* - up to 19 digits
^	*Separator* - 1 character - always "^" for Track 1
CC	*Country Code* - 3 digits (only for MasterCard)
NAME	*Cardholder Name* - 2 to 26 alphabetical characters - normally last name, then first name, separated by a "/"
^	*Separator* - 1 character - always "^" for Track 1
DATE	*Expiration Date* - 4 digits - YYMM format
SC	*Service Code* - 3 digits - defines transaction requirements
PVV	*PIN Verification Value* - 0 to 5 digits
DD	*Discretionary Data* - additional characters to fill out maximum record length
?	*End Sentinel* - 1 character - always "?" for all tracks
LRC	*Longitudinal Redundancy Check* - 1 check character

Track 2

The recording density of Track 2 is defined as 75 bits per inch. The character configuration (encoding) is 4 bits plus 1 parity (odd) bit, which yields 16 unique characters (10 **numeric** digits plus 6 symbolic characters :;<=>?).

The maximum information content, defined by the American Bankers Association (ABA), is 40 characters arranged in the format below.

Following is track 2 output and an explanation of the components.

```
;987654321012300=05121208967428?
```

;	PAN	=	CC	DATE	SC	PVV	DD	?	LRC

;	*Start Sentinel* - 1 character - always ";" for Track 2
PAN	*Primary Account Number* - up to 19 digits
=	*Separator* - 1 character - always "=" for Track 2
CC	*Country Code* - 3 digits (only for MasterCard)
DATE	*Expiration Date* - 4 digits - YYMM format
SC	*Service Code* - 3 digits - defines transaction requirements
PVV	*PIN Verification Value* - 0 to 5 digits
DD	*Discretionary Data* - additional characters to fill out maximum record length
?	*End Sentinel* - 1 character - always "?" for all tracks
LRC	*Longitudinal Redundency Check* - 1 check character

Track 3

The recording density of Track 3 is defined as 210 bits per inch. The character configuration (encoding) is 4 bits plus 1 parity (odd) bit, which yields 16 unique characters (10 **numeric** digits plus 6 symbolic characters :;<=>?).

The maximum information content, defined by the Thrift Industry (THRIFT-TTS), is 107 characters arranged in the format below.

```
; FC PAN = CC CuC CE AA AR CB CL RC PINCP IC PANSR FSANSR
   SSANSR DATE CSN CScN FSAN = SSAN = RM CCD DD ? LRC
```

;	*Start Sentinel* - 1 character - always ";" for Track 3
FC	*Format Code* - 2 alphabetical characters
PAN	*Primary Account Number* - up to 19 digits
=	*Separator* - 1 character - always "=" for Track 3
CC	*Country Code* - 3 digits
CuC	*Currency Code* - 3 digits
CE	*Currency Exponent* - 1 digit
AA	*Amount Authorized Per Cycle* - 4 digits
AR	*Amount Remaining This Cycle* - 4 digits
CB	*Cycle Begin (Validity Date)* - 4 digits - YYMM format
CL	*Cycle Length* - 2 digits
RC	*Retry Count* - 1 digit - number of remaining PIN tries
PINCP	*PIN Control Parameters* - 6 digits
IC	*Interchange Control* - 1 digit
PANSR	*PAN Service Restriction* - 2 digits - describes the account
FSANSR	*FSAN Service Restriction* - 2 digits - see FSAN below
SSANSR	*SSAN Service Restriction* - 2 digits - see SSAN below
DATE	*Expiration Date* - 4 digits - YYMM format
CSN	*Card Sequence Number* - 1 digit
CScN	*Card Security Number* - 9 digits
FSAN	*First Subsidiary Account Number* - variable number of digits
=	*Separator* - 1 character - always "=" for Track 3
SSAN	*Second Subsidiary Account Number* - variable number of digits
=	*Separator* - 1 character - always "=" for Track 3
RM	*Relay Marker* - 1 digit
CCD	*Crypto Check* - 1 digit
DD	*Discretionary Data* - additional characters to fill out maximum record length
?	*End Sentinel* - 1 character - always "?" for all tracks
LRC	*Longitudinal Redundancy Check* - 1 check character

Setting Magnetic Reader Parameters

Keyboard Configuration Manager, shown left and outlined in detail below, enables the output from the keyboard's magnetic stripe reader to be modified to the user's requirements.

In a POS environment, normally only Track 2 is selected.
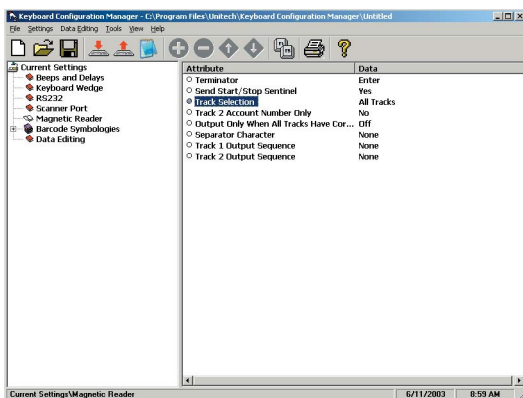
Terminator

The Terminator is a command that follows after the bar code data. Four different terminators can be selected here: "Enter", "Return (on numeric keypad)", "Field Exit or Right Control", or "None". To define a different terminator, use the "Data Editing" function (see page 26) Default is "Enter".

Send Start/Stop Sentinel

Each magnetic stripe track begins with a start character and ends with a stop character (and an LRC character).

The start character for track 1 is a **%** (percent sign), and for tracks 2 and 3 is a **;** (semi colon).

The stop character for all three tracks is a **?** (question mark). Selecting the "No" option for this parameter strips the start/stop sentinels for each track from the output data.

Default is "Yes"

Track Selection

Select only one, all, or any combination of the available tracks. Selections include:

- All Tracks
- Track 1 and Track 2
- Track 1 and Track 3
- Track 2 and Track 3
- Track 1 Output
- Track 2 Output
- Track 3 Output

Default is "All Tracks".

Track 2 Account Number Only

If only track 2 is enabled (see previous page), only the account number from track 2 and the start/stop sentinels are output.
If tracks other than track 2 are enabled, this parameter actually outputs all the other track's data, the account number from track 2, and their start/stop sentinels.
Default is "No".

Output Only When All Tracks Have Correct Data

A useful function for insuring data integrity, this function can cause trouble when the card reader tries to read more tracks than are on the card.
Default is "No".

Separator Character

Insert one character between each track's output.
Pre-defined characters include:
- <t>: Tab
- <n>: Line Feed
- <d>: Any Digit (not applicable to this function)
- <a>: Any Letter (not applicable to this function)
- <*>: Interblock Delay (not applicable to this function)
- <">: " (quotation marks)
- <dd>: character in hexadecimal notation
- <<>: <
- <>>: >

The above special characters must be bracketed by < > symbols as shown.
Function codes (F keys, Cursor up, Enter, etc.) can also be inserted via hexadecimal code (accessible in a linked menu) and must include surrounding brackets (<>).
Letters and numbers should be entered directly by keyboard input without surrounding brackets (<>).
Default is "None".

Magnetic Reader, continued

Track 1 Output Sequence

Track 1 output sequence can be easily re-arranged to whatever
sequence the user requires. Track 1 parameters include:
- Account Number
- Last Name
- First Name
- Expiration Year
- Expiration Month
- Discretionary Data
- All Information
- Delimiter / Text

Default is "None".

Highlight a parameter (such as "Account Number") in the
"Sources Available" area and click on the top horizontal arrow
(shown right) to move it to the "Actual Output" area. Use the
lower horizontal arrow to remove selections from the Actual
Output area.

Use the up and down arrows to move selected parameters up
or down in relation to the other parameters.

When the selected parameters are in the desired sequence,
click the "OK" button.

Track 2 Output Sequence

Track 2 output sequence is arranged in the same manner as the
Track 1 output sequence (above). Track 2 parameters include:
- Account Number
- Expiration Year
- Expiration Month
- Discretionary Data
- All Information
- Delimiter / Text

* Note that track 2 does not contain last name and first name data.

Default is "None".

Bar Code Symbologies

Modify the output characteristics of 16 of the most popular bar code symbologies in current use. Following are the bar code symbologies and their modifiable parameters.

Code 39
- *Enabled* toggles the ability for the keyboard/scanner to read Code 39 on or off. Default is "Yes".
- *Code ID (Standard)* is a user-definable identification letter for Standard Code 39, which is referred to in the "Use Code ID" function (see page 9). Default is letter "M".
- *Code ID (Full ASCII)* is the same as Code ID (Standard), above, except that the symbology is Full ASCII Code 39. Default letter is also the letter "M".
- *Type* toggles Code 39 between Standard and Full ASCII. Default is "Full ASCII".
- *Check Digit* defines whether or not a check digit (to insure data accuracy) is calculated, and if so, whether it should be sent or not. Default is "Not Calculate".
- *Send Start/Stop* toggles sending or not sending start/stop sentinels (* in the case of Code 39). Default is "No Send".
- *Minimum Length* defines the minimum length the user will accept for a valid bar code. Default is "0".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code. Default is "48".

Bar Code Symbologies, continued

Interleaved 2 of 5
- *Enabled* toggles the ability for the keyboard/scanner to read I 2 of 5 on or off. Default is "Yes".
- *Code ID* is a user-definable identification letter for I 2 of 5, which is referred to in the "Use Code ID" function (see page 9). Default is letter "I".
- *Fix Length (by first 3 reads)* fixes the length of acceptable subsequent bar code reads from the first three bar codes read. Useful as a data verification if all bar codes are of a consistent length. Default is "No".
- *Check Digit* defines whether or not a check digit (to insure data accuracy) is calculated, and if so, whether it should be sent or not. Default is "Not Calculate".
- *Suppress Digit* suppresses the output of the first or last bar code digit. Default is "Not Suppressed".
- *Minimum Length* defines the minimum length the user will accept for a valid bar code. Default is "10".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code. Default is "64".

Standard 2 of 5 / Toshiba Code (China Postal Code)
- *Enabled* toggles the ability for the keyboard/scanner to read S 2 of 5 / Toshiba Code on or off. Default is "No".
- *S25 Code ID* is a user-definable identification letter for S 2 of 5, which is referred to in the "Use Code ID" function (see page 9). Default is letter "H".
- *Toshiba Code ID* is the same as S25 Code ID (above), but instead applicable to Toshiba Code. Default is letter "C".
- *Fix Length (by first 3 reads)* fixes the length of acceptable subsequent bar code reads from the first three bar codes read. Useful as a data verification if all bar codes are of a consistent length. Default is "No".
- *Check Digit* defines whether or not a check digit (to insure data accuracy) is calculated, and if so, whether it should be sent or not. Default is "Not Calculate".
- *Minimum Length* defines the minimum length the user will accept for a valid bar code. Default is "4".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code. Default is "48".

Bar Code Symbologies, continued

Code 32

- *Enabled* toggles the ability for the keyboard/scanner to read Code 32 on or off. Default is "No".
- *Code ID* is a user-definable identification letter for Code 32, which is referred to in the "Use Code ID" function (see page 9). Default is letter "T".
- *Send Leading Character* toggles sending or not sending a leading ("start bar code") character. Default is "Send".
- *Send Tailing Character* toggles sending or not sending a tailing ("stop bar code") character. Default is "Send".

EAN 128

- *Enabled* toggles the ability for the keyboard/scanner to read EAN 128 on or off. Default is "No".
- *Code ID* is a user-definable identification letter for EAN 128, which is referred to in the "Use Code ID" function (see page 9). Default is "None".
- *Enable Code ID* determines whether or not to assign a Code ID. Default is "No".
- *Field Separator* is a user-definable character to insert between fields. Default is "None".

Code 128

- *Enabled* toggles the ability for the keyboard/scanner to read Code 128 on or off. Default is "Yes".
- *Code ID* is a user-definable identification letter for Code 128, which is referred to in the "Use Code ID" function (see page 9). Default is letter "K".
- *Minimum Length* defines the minimum length the user will accept for a valid bar code. Default is "1".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code. Default is "64".

Bar Code Symbologies, continued

MSI / Plessey Code
- *Enabled* toggles the ability for the keyboard/scanner to read MSI / Plessey Code on or off. Default is "Yes".
- *MSI Code ID* is a user-definable identification letter for MSI Code, which is referred to in the "Use Code ID" function (see page 9). Default is letter "O".
- *Plessey Code ID* is the same as MSI Code ID (above), but instead applicable to Plessey Code. Default is the letter "P".
- *Send Check Digit* toggles whether or not to send a check digit. Default is "No Send".
- *Check Digit Formula* defines the formula to calculate the check digit. Options are: "Double Module 10", Module 11 Plus 10", and "Single Module 10". Default is "Double Module 10".
- *Minimum Length* defines the minimal length the user will accept for a valid bar code. Default is "1".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code. Default is "16".

Code 93
- *Enabled* toggles the ability for the keyboard/scanner to read Code 93 on or off. Default is "Yes".
- *Code ID* is a user-definable identification letter for Code 93, which is referred to in the "Use Code ID" function (see page 9). Default is letter "L".
- *Minimum Length* defines the minimal length the user will accept for a valid bar code. Default is "1".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code. Default is "48".

Bar Code Symbologies, continued

Codabar
- *Enabled* toggles the ability for the keyboard/scanner to read Codabar on or off. Default is "No".
- *Code ID* is a user-definable identification letter for Codabar, which is referred to in the "Use Code ID" function (see page 9). Default is letter "N".
- *Send Start/Stop* toggles sending or not sending start/stop sentinels. Default is "No Send".
- *Check Digit* defines whether or not a check digit (to insure data accuracy) is calculated, and if so, whether it should be sent or not. Default is "Not Calculate".
- *CLSI Format* deletes the start and stop sentinels and outputs the data with spaces inserted after the 1st, 5th, and 10th characters. Default is "No".
- *Minimum Length* defines the minimum length the user will accept for a valid bar code. Default is "3".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code. Default is "48".

UPC-A
- *Enabled* toggles the ability for the keyboard/scanner to read UPC-A on or off. Default is "Yes".
- *Code ID* is a user-definable identification letter for UPC-A, which is referred to in the "Use Code ID" function (see page 9). Default is letter "A".
- *Send Leading Digit* toggles sending or not sending a leading ("start bar code") digit. Default is "Send".
- *Send Check Digit* toggles whether or not to send a check digit. Default is "Send".

Scanner Configuration Manager

Bar Code Symbologies, continued

UPC-E
- *Enabled* toggles the ability for the keyboard/scanner to read UPC-E on or off. Default is "Yes".
- *Code ID* is a user-definable identification letter for UPC-E, which is referred to in the "Use Code ID" function (see page 9). Default is letter "E".
- *Send Leading Digit* toggles sending or not sending a leading ("start bar code") digit. Default is "Send".
- *Send Check Digit* toggles whether or not to send a check digit. Default is "No Send".
- *Zero Expansion* adds 0s to the bar code output to change the output format to UPC-A. Default is "No".
- *Enable NSC=1* allows the output of a UPC-E bar code with a first digit of "1".   Default is "No".

EAN-13
- *Enabled* toggles the ability for the keyboard/scanner to read EAN-13 on or off. Default is "Yes".
- *Code ID* is a user-definable identification letter for EAN-13, which is referred to in the "Use Code ID" function (see page 9). Default is letter "F".
- *Send Leading Digit* toggles sending or not sending a leading ("start bar code") digit. Default is "Send".
- *Send Check Digit* toggles whether or not to send a check digit. Default is "Send".
- *Bookland EAN* toggles whether or not to send the EAN-13 bar code data in Bookland EAN (ISBN) format. Default is "No".

EAN-8
- *Enabled* toggles the ability for the keyboard/scanner to read EAN-8 on or off. Default is "Yes".
- *Code ID* is a user-definable identification letter for EAN-8, which is referred to in the "Use Code ID" function (see page 9). Default is letters "FF".
- *Send Leading Digit* toggles sending or not sending a leading ("start bar code") digit. Default is "Send".
- *Send Check Digit* toggles whether or not to send a check digit. Default is "Send".

Bar Code Symbologies, continued

Code 11
- *Enabled* toggles the ability for the keyboard/scanner to read Code 11 on or off. Default is "No".
- *Code ID* is a user-definable identification letter for Code 11, which is referred to in the "Use Code ID" function (see page 9). Default is letter "J".
- *Check Digit Number* defines the check digit correct result to be either "1" or "2". Default is "2".
- *Send Check Digit* toggles whether or not to send a check digit. Default is "No Send".
- *Minimum Length* defines the minimum length the user will accept for a valid bar code. Default is "1".
- *Maximum Length* defines the maximum length the user will accept for a valid bar code. Default is "48".

Delta Code
- *Enabled* toggles the ability for the keyboard/scanner to read Delta Code on or off. Default is "No".
- *Code ID* is a user-definable identification letter for Delta Code, which is referred to in the "Use Code ID" function (see page 9). Default is letter "D".
- *Calculate Check Digit* toggles whether or not to calculate a check digit. Default is "Yes".
- *Send Check Digit* toggles whether or not to send a check digit. Default is "Send".

Supplement Code (for UPC-E, ISBN, EAN-13)
- *Two Supplement Code* toggles whether the two digit supplemental bar code is to be recognized. Default is "No".
- *Five Supplement Code* toggles whether the five digit supplemental bar code is to be recognized. Default is "No".
- *Must Present* toggles whether or not the supplemental bar code must be present in order to output data. Default is "Yes".
- *Insert Space Separator* toggles whether or not to output a space between the main and supplemental bar codes. Default is "No".

Label Code IV and V

- *Enabled* toggles the ability for the keyboard/scanner to read Label Code IV and V on or off. Default is "No".
- *Code ID* is a user-definable identification letter for Code IV and V, which is referred to in the "Use Code ID" function (see page 9). Default is letter "B".
- *Send Check Digit* toggles whether or not to send a check digit. Default is "Send".

Data Editing

Data Editing is a powerful function that can give you tremendous control over how data is exported from the scanner.

After clicking on "Data Editing" the data editing icons become active. Click on the icon with the blue circle and white plus sign.

The "Define Formula" pop-up box to the right appears, which is divided into two sections: "Qualifier" and "Modifier".

Qualifier

The Qualifier section defines the conditions that must be present for the bar code to be modified, such as what type of bar code it must be (Code 39, EAN-13, etc.), what length the bar code must be, or what characters (defined by a match string) the bar code must contain. When the conditions of the Qualifier are met, the bar code is then modified according to the rules defined in the "Modifier", below.

Modifier

The Modifier section contains three selections: "**From Original**", "**Add New**", and "**Delete**".

From Original extracts the desired data from the existing bar code. The **Start Parameter** defines the beginning of the string of data that is to be output. The start parameter can either be defined by position starting from the beginning ("From Position"), or a specific number of characters from the end of the string ("From Last Position"), or a specified number of characters before or after a user-defined character string ("After Matching").

The **End Parameter** defines the end of the string of data that is to be output. Three options are available: "Number Of Characters To Output", "All Remaining", and "After Matching". The first two are self-explanatory. "After Matching" defines the end as a specified number of characters before or after a user-defined character string.

Data Editing, continued

Even if the original bar code data is not modified, if additional characters are to be added (see "Add New", below) the original Start Parameter must be defined as From Position "1" and the End Parameter defined as "All Remaining", otherwise, none of the original data will be output.

Add New adds characters (printing and non-printing) to the data output from the scanner/ reader. These characters can be added before and/or after the actual scanned data (see "Move Up / Move Down", below). Pre-defined characters include:

- <t>: Tab
- <r>: Carriage Return
- <n>: Line Feed
- <d>: Any Digit (data editing)
- <a>: Any Letter (data editing)
- <*>: Interblock Delay (data editing)
- <">: " (quotation marks)
- <dd>: character in hexadecimal notation
- <<>: < (less than)
- <>>: > (greater than)

Characters must be bracketed by < > symbols.

Letters and numbers should be represented in hexadecimal format (accessible in a linked menu). For instance, the lower-case letter "t" should be entered as <74> and the numeral 5 should be entered as <35>.

Function codes (F keys, Cursor up, Enter, etc.) can also be inserted via hexadecimal code (accessible in a linked menu).
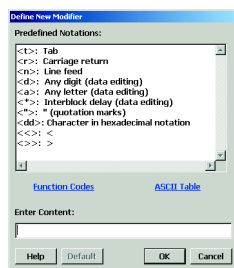
Delete deletes existing modifier strings.

Move Up / Move Down moves the modifiers up and down in relation to each other. The top modifier will be performed first and each one down the list will be performed in sequence. The original data (modified or unmodified) will be output according to its position in the modifier sequence.

Data Editing, continued

Arrange Formulas

After the formulas have been created, they must be arranged in the optimum sequence by selecting formulas and using the "Move Formula" icons (see page 3). This sequence is usually according to their qualifier - from least likely to occur to most likely to occur.

In the example pictured above, a series of formulas are designed to output all the data in a bar code that follows a series of "0"s. For instance, if the actual bar code is "000045678", the desired output would be "45678" (the original minus all the 0s occurring at the beginning of the string). If there are six 0s (Formula 1), then the output starts at the seventh position. If there are five 0s (Formula 2), then the output starts at the sixth position, etc.

If, instead, we were to place the qualifier for two 0s above (before) the qualifier for six 0s, then the formula stipulating two 0s would activate even if there were six 0s in the bar code because the qualifier would stop looking for 0s after it had found two. In this case, all qualifiers with three or more 0s would be disregarded, which would not be a desirable result.
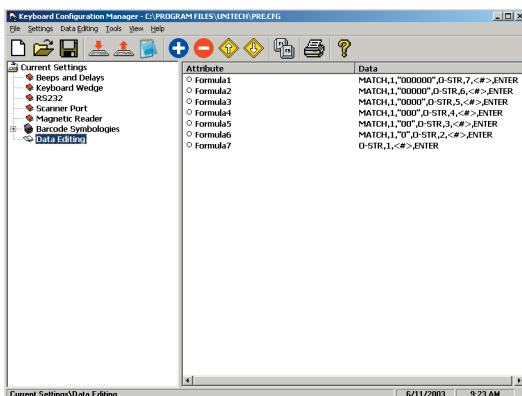
The "Everything Else" Formula

If a formula is entered into the Data Editing area, then all scanned bar codes will be evaluated according to this formula. If the scanned bar code does not satisfy the requirements of the Qualifier (see page 26), then no data is output. Practically speaking, the scanner has been set up to scan only bar codes that are defined by the Qualifier. You will not be able to scan other types of bar codes. The answer to this problem is to end the sequence of formulas with a formula that has no Qualifier and whose Modifier includes all the scanned data (starts at position 1 and outputs "all remaining"). An example of this can be seen as Formula 7 above.

Function Codes (Code 39)

(Characters in parentheses represent Code 39 bar code printing)

F1 (%VA)	F2 (%VB)	F3 (%VC)
F4 (%VD)	F5 (%VE)	F6 (%VF)
F7 (%VG)	F8 (%VH)	F9 (%VI)
F10 (%VJ)	F11 (%VK)	F12 (%VL)
Esc (/FK)	Cursor Up (/FE)	Del (/FX)
TAB (/FI)	Cursor Down (/FF)	Left Enter (/FL)
Back Tab (/FJ)	Cursor Left (/FD)	Right Enter (/FM)
Shift Make (/FP)	Cursor Right (/FC)	PgUp (/FG)
Shift Break (/FS)	Ins (/FW)	PgDn (/FH)
Ctrl Make (/FQ)	Alt Make (/FR)	Right Ctrl (/FO)
Ctrl Break (/FT)	Alt Break (/FU)	

ASCII Chart

(Characters in parentheses represent Code 39 bar code printing)

NUL (%U)	VT ($K)	SYN ($V)
SOH ($A)	FF ($L)	ETB ($W)
STX ($B)	CR ($M)	CAN ($X)
ETX ($C)	SO ($N)	EM ($Y)
EOT ($D)	SI ($O)	SUB ($Z)
ENQ ($E)	DLE ($P)	ESC (%A)
ACK ($F)	DC1 ($Q)	FS (%B)
BEL ($G)	DC2 ($R)	GS (%C)
BS ($H)	DC3 ($S)	RS (%D)
HT ($I)	DC4 ($T)	US (%E)
LF ($J)	NAK ($U)	SP

ASCII Chart, continued

(Characters in parentheses represent Code 39 bar code printing)

! (/A)	**,** (/L)	7
" (/B)	-	8
# (/C)	.	9
$	/	**:** (/Z)
%	0	**;** (%F)
& (/F)	1	< (%G)
' (/G)	2	= (%H)
((/H)	3	> (%I)
) (/I)	4	? (%J)
* (/J)	5	@ (%V)
+	6	A
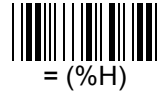
ASCII Chart, continued

(Characters in parentheses represent Code 39 bar code printing)

B	M	X
C	N	Y
D	O	Z
E	P	**[** (%K)
F	Q	**** (%L)
G	R	**]** (%M)
H	S	**^** (%N)
I	T	_ (%O)
J	U	' (%W)
K	V	a (+A)
L	W	b (+B)

ASCII Chart, continued

(Characters in parentheses represent Code 39 bar code printing)

c (+C)	m (+M)	w (+W)
d (+D)	n (+N)	x (+X)
e (+E)	o (+O)	y (+Y)
f (+F)	p (+P)	z (+Z)
g (+G)	q (+Q)	{ (%P)
h (+H)	r (+R)	| (%Q)
i (+I)	s (+S)	} (%R)
j (+J)	t (+T)	~ (%S)
k (+K)	u (+U)	DEL (%T)
l (+L)	v (+V)	

TROUBLE SHOOTING

Most problems that you might encounter with your scanner can be solved by using the following procedures:

- **Try scanning other bar codes.** If your scanner can scan other types of bar code symbologies, but cannot scan your bar codes, first check to see if your bar code is enabled. If it is, try the scanner on the same bar code type in the Bar Code Test Chart in the back of this manual. Then, insure that your bar codes are crisp and clear.

- **Reset to factory default.** While the SCM program is active, click the "new file" icon (see page 1) and the "download to scanner" icon (see page 1) to reset your scanner back to factory default.
  Please note that the factory default interface is specified as PS2/AT/USB. If you have a different interface, then you will need to configure that also (see page 4) and then download to the scanner.
  Caution: this procedure will erase special configurations that you would have created.

- **Test the scanner on other ports.** Unitech scanners are built to the highest standards, and a perceived scanner malfunction may actually be a malfunction in the host computer.
  Test the scanner on the host's other ports if possible or, if necessary, on other systems to verify that the problem is in the scanner and not in the host computer.

Problems and Solutions

Problem: Scanner doesn't scan.
If the scanner does not emit a light when the trigger is depressed, check the interface.
Unplug the scanner and plug it back in.
Try the scanner on another port if possible.
Re-boot the computer.
If the scanner still doesn't scan, try the scanner on another computer to insure that the fault isn't in the original computer.

Problem: Scanner lights up but doesn't beep.
If the scanner emits a light, but doesn't beep while scanning a bar code, try bar codes of different symbologies. If other types of bar codes scan properly, then it might be that the scanner is not configured to scan your particular symbology.
If the scanner can scan other bar codes of the same symbology, then other parameters (such as minimum/maximum length, etc.) may have to be adjusted.

Problem: No output from scanner.
If the scanner appears to scan (emits light and beeps), but does not output data, try scanning into a word processor or Notepad session to see if it's a software problem.
If the scanner is connected by RS232 interface, make sure that the correct com port is selected.

Problem: SCM cannot upload or download.
SCM can currently upload and download only in the Windows operating system (NT excluded).
If you have a different OS or the download function otherwise doesn't work, prepare your scanner's configuration in SCM in the usual manner. Then, instead of downloading, click the printer icon (see page 2) to print a series of bar codes that you can then scan into the scanner to configure it.

BAR CODE TEST CHART

A2 2 3 5 7 0 0 0 5 9 9 8 7 6 B
Codabar

123456789-0
Code 11

AO23399013
Code 32

W E D G E
Code 39

UNITECHE
Code 39 with Check Digit

123ABC
Code 93

Unitech 128
Code 128

0123456
Delta Code

8 0 1 2 3 4 5 3
EAN-8

BAR CODE TEST CHART

3 045214 834123
EAN-13

(01)054123456789(01)659344
EAN 128

0987654321
Interleaved 2 of 5

0 0 2 7 0

9 789576 302398
ISBN 957-630-239-0

10017
Label Code IV

1234558
MSI Code

1122334455
Standard 2 of 5

20132000400
Toshiba Code

9 9

0 47669 13716 6
UPC-A

0 123457 2
UPC-E

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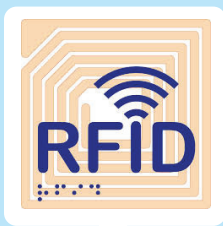## Solutions for: Industry • Consumer • Mobility Transportation and Logistics • Retail • Health

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