

Index

Index	1
Introduction	3
Installation- Keyboard Wedge.....	3
RS-232	3
USB	3
Default Setting for each barcode shown as below:.....	4
Programming the MS320.....	5
Interface Selection.....	7
Keyboard wedge	8
RS-232.....	13
Scan.....	16
Indication.....	20
UPCA	22
UPCE	25
EAN-13.....	28
EAN-8	32
Code 39.....	39
Interleaved 2 of 5.....	39
Industrial 2 of 5.....	42
Matrix 2 of 5 Eur	44
Codabar	46
Code-128	49
Code-93	52
Code-11.....	54
MSI/plessey.....	56

UK/plessey	62
Telepen	60
Standard 2 of 5	62
China Post.....	64
Italian Pharmacy Code	66
PDF417	68
String setting	71
Transmission	74
Test Chart.....	78
CODABAR-PARA	78
CODE-11 PARA	78
CODE-128 PARA.....	78
CODE-39 PARA.....	78
CODE-93 PARA.....	78
EAN-13 PARA.....	78
STANDARD-25 PARA.....	79
EAN-8 PARA.....	79
INDUSTRIAL-25 PARA	79
UPCE PARA	79
INTERLEAVED-25 PARA.....	79
MATRIX 25 PARA	80
MSI/PLESSEY PARA.....	80
UPCA PARA	80
UK/PLESSEY PARA	80
PDF417	80
Parameter Setting List	82

Introduction

Installation- Keyboard Wedge

- 1) First of all, you must switch off power for the terminal/computer.
- 2) Disconnect the keyboard cable from the back of the terminal/computer.
- 3) Connect the appropriate interface cable to the scanner and to the terminal/computer.
- 4) Turn the terminal/computer power on.

RS-232

- 1) Disconnect power to the terminal/computer.
- 2) Connect the appropriate interface cable and external power supply (DC adapter) to the scanner.
- 3) Plug the serial connector into the serial port on the back of your computer/terminal. Tighten the two screws to secure the connector to the port.
- 4) Plug the power pack into power source.
- 5) Once the scanner has been fully connected, turn the terminal/computer power back on.

USB

– USB (Simulate with Keyboard wedge)

- 1) Connect the USB cable between scanner and PC.
- 2) Windows will automatically detect the USB device.

Note: If any of the above operation is incorrect, turn off the power immediately and checking any improper connections. Go through all above steps again.

Default Setting for each barcode shown as below:

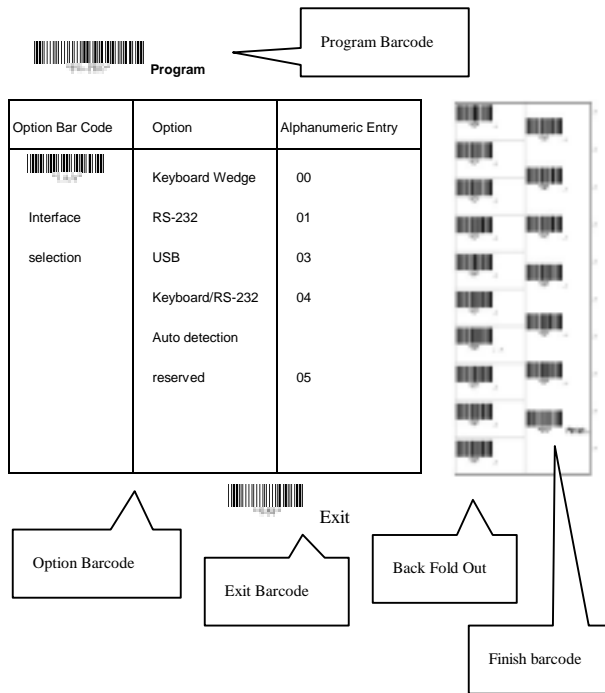
Code Type	Read Enable	Checksum Verification Enable	Checksum Transmission Enable	Code ID
	MS320			
UPC-A	V	V	V	A
UPC-E	V	V	V	E
EAN-13	V	V	V	F
EAN-8	V	V	V	FF
Code-39	V			
Interleaved 2 of 5	V	V		i
Industrial 2 of 5		-	-	i
Matrix 2 of 5				B
Codabar				%
Code-128	V	V		#
Code-93		V		&
Code-11		V One digit		O
MSI/Plessey		V		@
UK/Plessey		V		@
Telepen				S
Standard 2 of 5		-	-	i
China Post				t
Italian Pharmacy Code.				p
PDF417	V			

Programming the MS320

To program the MS320, you must scan a series of programming barcode in the correct order. Fold out the back cover of this manual. You will see a table of alphanumeric barcodes, which are used to program the various options presented.

To program each option, you must:

1. Scan the **Program barcode** on the parameter setting part.
2. Enter the option mode by scanning the **Option Bar Code** (also on the Parameter setting part).
3. To the right of the option barcode, the necessary alphanumeric inputs are listed. Scan these alphanumeric entries from the **back fold out** page. To confirm above steps, you must scan the **Finish barcode** on the back fold out page.
4. Once you have finished programming. Scan the **Exit** barcode, listed on the lower right hand corner of each parameter setting part.



Interface Selection

This decoder build-in scanner comes in one model and supports interfaces such as keyboard wedge, RS232 serial wedge, and the latest USB interface. In most of the cases, simply selecting an appropriate cable with a device code will work for a specific interface.

Interface selection: You can change factory interface default for other type interface. By plugging different cables, setting right interface, then the scanner will be changed to another interface. However, you must make sure which cable you need.

Keyboard/RS232/UBS Auto detection: By setting this function, it will automatically select the Keyboard wedge or RS-232 or UBS interface for user.



Program

Option Bar Code	Option	Alphanumeric Entry
 Interface selection	Keyboard Wedge	00
	RS-232	01
	USB	03
	Keyboard	04
	/RS232/USB	
	Auto detection	
	Reserved	05

Note: -Default



Exit

Keyboard wedge


As a keyboard interface, the scanner supports most of the popular PCs and IBM terminals. The installation of the wedge is a fairly simple process without any changes of software or hardware.

Keyboard Type: Select keyboard type connector of your host computer. Scanner must be selected to the appropriate host interface cable converter.



56+PRO

Program

Option Bar Code	Option	Alphanumeric Entry
 *3111* Keyboard type	IBM AT, PS/2	00
	Reserved	01
	Reserved	02
	Reserved	03
	Reserved	04
	Reserved	05
	Reserved	06



455

Exit

Keyboard wedge

Keyboard Layout: The selecting of keyboard layout supports many country languages other than USA keyboard layout. First you need to confirm country language that you desire. In DOS, using command “keyb” to select the desirable keyboard layout or in WINDOWS entry “Control” then pops “Keyboard” to select country at “language” item. For details, please refer to your DOS or WINDOWS user’s manual.

Keyboard Speed: By selecting, you can change output speed of scanner to match with host computer. Generally, set 00 or 01 in working high speed. If some output characters of barcode have been lost, you may need to set 05 or 06 to match your host keyboard speed.





Function Key: Set Enable, scanner can output code as pressing function-key in your application program while the barcode datas contain ASCII value between 0116 to 1F16. Refer to ASCII table, page 94.

Numeric Key: The Keypad has to be selected if your application program is only keypad numeric code acceptable. So, scanner will output code as press numeric keypad when it read numeric digit. (The keypad is in the right side of keyboard, and Num Lock control key is also on.) If Alt+Keypad is selected, Caps Lock and output will be independent.



Program

Option Bar Code	Option	Alphanumeric Entry
-----------------	--------	--------------------

 Keyboard layout	USA	00
	Belgium	01
	Danish	02
	France	03
	Germany	04
	Italian	05
	Portuguese	06
	Spanish	07
	Swedish	08
	Switzerland	09
	UK	10
	Latin American	11
 Keyboard speed	0-8	00-08
	0 : high clock rate 8 : low clock rate	01
 Function key	Disable	00
	Enable	01
 Numeric key	Alphabetic key	00
	Numeric keypad	01
	(Num lock state only)	
	Alt+Keypad	02



Exit

Keyboard wedge

Caps Lock: By selecting ☐ Caps Lock or ☐ No Caps Lock, scanner can get Caps Lock status.





Power-on simulation: All of the PCs check the keyboard status during power-on selftest. It is recommended to ☐ Enable function if you are working without keyboard installation. It simulates keyboard timing and pass keyboard present status to the PC during power-on.

Inter-character delay: This delay is inserted after each data characters transmitted. If the transmission speed is too high, the system may not be able to receive all characters. Adjust it and try out suited delay to make system work properly.

Block transmission delay: It is a delay timer between barcode data output. The feature is used to transfer continually with shorter barcode data or multi-field scanning.



Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
 Caps lock	Caps lock"ON" Caps lock"OFF"	00 01
 Power-on simulation	Disable Enable	00 01
 Inter-character delay	00-99 msec	00-99 02
 Block transmission delay	00-99 10 msec	00-99 10



Exit

RS-232

CTS: Clear To Send (Hardware Signal)

RTS: Request To Send (Hardware Signal)

Xon: Transmit On (ASCII Code 11₁₆)

Xoff: Transmit Off (ASCII Code 13₁₆)

Flow control:

None-The communication only uses TxD and RxD signals without regard for any hardware or software handshaking protocol.

RTS/CTS-If the scanner wants to send the barcode data to host computer, it will issue the RTS signal first, wait for the CTS signal from the host computer, and then perform the normal data communication. If there is no replied CTS signal from the host computer after the timeout (Response Delay) duration, the scanner will issue a 5 warning beeps.

Xon/Xoff- When the host computer is unable to accept data, it sends a Xoff code to inform the scanner to suspend data transmission, and Xon to continue.

ACK/NAK- When the ACK/NAK protocol is used, the scanner waits for an ACK (acknowledge) or (not acknowledge) from the host computer after data transmission, and will resend in response to a NAK.

Inter-character delay: It is delay time between data character's data output. It is also same as Inter-char. delay of keyboard wedge.





Block transmission delay: It is a delay time between barcode data output. It is also same as Block transmission delay of keyboard wedge.

Response delay: This delay is used for serial communication of the scanner to waiting for handshaking acknowledgment from the host computer.



5%-PRO

Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
<div> *3AA*</div> <div>Flow control</div>	None RTS/CTS Xon/Xoff ACK/NAK	00 01 02 03
<div> *3AB*</div> <div>Inter-character delay</div>	00-99 (msec)	00-99 00
<div> *3AC*</div> <div>Block transmission delay</div>	00-99 (10 msec)	00-99 00
<div> *3AD*</div> <div>Response delay</div>	00-99 (100 msec)	00-99 20







5%-SS

Exit



56+PRO

Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
 *3AE* Baud rate	300 BPS 600 BPS 1200 BPS 2400 BPS 4800 BPS 9600 BPS 19200 BPS 38400 BPS	00 01 02 03 04 05 06 07
 *3AP* Parity	None Odd Even	00 01 02
 *3AG* Data bit	8 bits 7 bits	00 01
 *3AH* Stop bit	One bit Two bits	00 01



55

Exit

Scan

Scanning mode:

Good-read off-The trigger button must be pressed to activate scanning. The light source of scanner stops scanning when there is a successful reading or no code is decoded after the Stand-by duration elapsed.

Momentary-The trigger button acts as a switch. Press button to activate scanning and release button to stop scanning.

Alternate-The trigger button acts as a toggle switch. Press button to activate or stop scanning.

Timeout off-The trigger button must be pressed to activate scanning, and scanner stops scanning when no code is decoded after the Stand-by duration elapsed.

Continue-The scanner always keeps reading, and it does not matter when trigger button is pressed or duration is elapsed.





Same Barcode delay time: If the barcode has been scanned twice, then only the first barcode will be accepted.

Double confirm: If it is enabled, the scanner will require a several times successful decoding to confirm the barcode data. The more confirming times required the more inhibitive miss-reading code will be shown. If you set Double confirm, the Multi field scan Enable function won't be able to work.



\$%+PRO

Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
 *TAA* Scanning mode	Good-read off Momentary Alternate Timeout off Continue	00 01 02 03 04
 *TAB*	01-99 (second)	00-99 10
 *TAC*	01-99 (10 msec)	01-99 50
 *TAD*	00-99 (00: no double confirm)	00-09 00



SS

Exit

Scan

Multi field scan: The scanner can be read many sets of barcode data on the same scanning line at the same time, even if they are different kinds of barcode symbology.

Global min./max. code length: Global Minimum and Maximum length can be set to qualify data entry. The length is defined as the actual barcode data length to be sent. Label with length exceeds these limits will be rejected. Make sure that the Minimum length setting is no greater than the Maximum length setting, or otherwise the labels of the symbology will not be readable. In particular, you can set the same value for both Minimum and Maximum reading length to force the fixed length barcode decoded. The values of setting have no effect on certain symbologies with fixed length.

Notes 1): Please set the min/max length if you have special demand for individual barcode.

2): Include the Check sum digits if you want to set Global min/max code length.

Inverted image scan:. Set Enabled the scanner will scan both black/white barcode with white/black background.







CTS trigger: This operation enabled an external device to control scanning. The CTS trigger is controlled by apply an external trigger signal to the CTS input. When active, this signal causes scanning to begin as the scanner's trigger was depressed.

Position indication: This function can indicate the specific location before scanning. You can also set up the time of indication(except AS-8110).



Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>

 *7AE* Multi field scan	Disable Enable	00 01
 *7AP* Global min. code length	00-63	00-63 04
 *7AG* Global max.code length	00-63	04-63 63
 *7AH* Inverted image scan	Disable Enable	00 01
 *7AI* CTS trigger	Disable Enable	00 01
 *7AK* Position indication	Disable 30 second 60 second 90 second 120 second 150 second 180 second Continue	00 01 02 03 04 05 06 07



Exit

Indication

Exit

Power on alert: After power-on the scanner it will generate an alert signal to indicate a successful self-test.

LED indication: After each successful reading, the LED above the scanner will light up to indicate a good barcode reading.







Buzzer indication: After each successful reading, the scanner will beep buzzer to indicate a good barcode reading, and its Beep loudness, Beep tone freq. and Beep tone duration are adjustable.

Beep loudness/Beep tone freq./Beep tone duration: You can adjust Beep Loudness, Beep tone and Beep duration for a good reading upon favorite usage.



56+PRO

Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
 *5AA* Power on alert	Disable Enable	00 01
 *5AB* LED indication	Disable Enable	00 01
 *5AC* Buzzer indication	Disable Enable	00 01
 *5AD* Beep loudness	00-07	00-07 07
 *5AE* Beep tone freq.	00-99 (100Hz)	00-99 26
 *5AF* Beep tone duration	00-99 (10 msec)	00-99 10



555

Exit

UPCA

Read: Format

Leading Zero	Data Digits (11 Digits)	Check Digit
-----------------	----------------------------	----------------

Check-sum transmission: By setting Enable, checks sum will be transmitted.

Truncate leading/ending: The leading or ending digits of barcode data characters can be truncated when these values are set to non-zero. It will beep instead of reading anything when the truncate value is more than the barcode data digits or the value of Truncate Leading is overlapped with that of the Ending. The maximum value of truncate digits is 15.

Code ID setting: Code ID setting is a character used to represent the symbol upon a succeeding reading. A Code ID setting is prefixed to the data begin or end transmitted if the feature is selected. If you want application to transmit Code ID, you must set Code ID transmission to Enable first. Refer to Code ID transmission.









Insertion group selection: The scanner offer one or two insertion group for own symbology. By setting one or two digits to indicate which insertion group you want to insert. You may refer to Character insertion.

Example: Group 2 → set 02 or 20.
Group 1 and 4 → set 14 or 41.



Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
 Read	Disable Enable	00 01

 *NAB* Check-sum verification	Disable Enable	00 01
 *NAC* Check-sum transmission	Disable Enable	00 01
 *NAD* Max.code length	00-64	00-64 64
 *NAE* Min.code length	00-64	00-64 01
 *NAP* Truncate leading	0-15	00-15 00
 *NAG* Truncate ending	0-15	00-15 00
 *NAH* Code ID setting	00-ffH ASCII code	00-ffH < A >
 *NAI* Insert group selection	00-44	00-44 00



UPCA

Supplement digits: The Supplement digits barcode is the supplemental 2 or 5 characters for WPC code.



Format

Leading Zero	Data Digits (11 Digits)	Check Digit	Supplement Digits 2 or 5 or UCC / EAN 128
-----------------	----------------------------	----------------	---

Truncate Leading zero: The leading “0” digits of UPCA data characters can be truncated when the function is enabled.



Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
 Supplement digits	None	00
	2 digits	01
	5 digits	02
	UCC/EAN 128	03
	Auto detection	04
 Truncate Leading zero	Disable	00
	Enable	01



Exit

UPCE

Read: Format

Leading Zero	Data Digits (6 Digits)	Check Digits
-----------------	---------------------------	-----------------

Check-sum verification: The checksum of EAN-13 is optional and made as the sum of the numerical value of the data digits.

Check-sum transmission: By setting Enable, checks sum will be transmitted.



Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
<div></div> <div>Read</div>	Disable Enable	00 01
<div></div> <div>Check-sum verification</div>	Disable Enable	00 01
<div></div> <div>Check-sum transmission</div>	Disable Enable	00 01



25

Exit

UPCE

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.

Supplement digits:

Format

Leading Zero	Data Digits (6 Digits)	Check Digit	Supplement Digits 2 or 5 or UCC/EAN 128
-----------------	---------------------------	----------------	---

Truncate Leading zero: Refer to Truncate Leading zero of UPCA.

Expansion: The expansion function is used only for UPCE and EAN-8 code reading. It extends to 13-digits with "0" digits when the feature is enabled.







Example: Barcode "0123654"

Output: "0012360000057"



Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
 Truncate leading	0-15	00-15 00

 *OAG* Truncate ending	0-15	00-15 00
 *OAH* Code ID setting	00-ffH ASCII code	00-ffH < E >
 *OAI* Insert group selection	00-44	00-44 00
 *OAJ* Supplement digits	None 2 digits 5 digits UCC/EAN 128 Auto detection	00 01 02 03 04
 *OAK* Truncate Leading zero	Disable Enable	00 01
 *OAL* Expansion	Disable Enable	00 01



Exit

EAN-13

Read: Format

Data Digits (12 Digits)	Check Digits
-------------------------	--------------

Check-sum verification: The checksum of EAN-13 is optional and made as the sum of the numerical value of the data digits.

Check-sum transmission: By setting **Enable**, checks sum will be transmitted.

Max./Min. code length: Each symbology has own Max./Min. Code Length. They can be set to qualify data entry. If their Max./Min. Code Length is zero, the Global Min./Max. Code Length is in effect. The length is defined as to the actual barcode data length to be sent. Label with length exceeds these limits will be rejected. Make sure that the Minimum length setting is no greater than the Maximum length setting, or otherwise all the labels of the symbology will not be readable. In particular, you can see the same value for both Minimum and Maximum reading length to force the fixed length barcode decoded.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.



Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
	Disable	00
Read	Enable	01

 *GAB* Check-sum verification	Disable Enable	00 01
 *GAC* Check-sum transmission	Disable Enable	00 01
 *GAD* Max.code length	00-64	00-64 64
 *GAE* Min.code length	00-64	00-64 01
 *GAP* Truncate leading	0-15	00-15 00
 *GAG* Truncate ending	0-15	00-15 00



Exit

EAN-13

Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.

Supplement digits:

Format

Data Digits (12 Digits)	Check Digits	Supplement Digits 2 or 5 or UCC / EAN 128
----------------------------	-----------------	---

ISBN/ISSN: The ISBN (International Standard Book Number) and ISSN (International Standard Serial Number) are two kinds of barcode for book and magazines. The ISBN is 10 digits with leading "978" and the ISSN is 8 digits with leading "977" of the "EAN-13" symbolology.



Example: Barcode "9789572222720" - Output: "9572222724"

Example: Barcode "9771019248004" - Output: "10192484"



Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
<p>Code ID setting</p>	00-ffH ASCII code	00-ffH < F >
<p>Insert group</p>	00-44	00-44 00

selection		
 Supplement digits	None	00
	2 digits	01
	5 digits	02
	UCC/EAN 128	03
	Auto detection	04
 ISBN/ISSN conversion	Disable	00
	Enable	01



Exit

EAN-8

Read: Format

Data Digits (7 Digits)	Check Digits
---------------------------	-----------------

Check-sum verification: The checksum of EAN-8 is optional and made as the sum of the numerical value of the data digits.

Check-sum transmission: By setting Enable, checks sum will be transmitted.

Max./Min. code length: Refer to Max./Min. code length of EAN-13.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.








Code Id setting: Refer to Code ID setting of UPCA

Insertion group selection: Refer to Insertion group selection of UPCA.



Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
 Read	Disable Enable	00 01
 Check-sum verification	Disable Enable	00 01

 *FAC* Check-sum transmission	Disable Enable	00 01
 *FAD* Max.code length	00-64	00-64 64
 *FAE* Min.code length	00-64	00-64 01
 *FAP* Truncate leading	0-15	00-15 00
 *FAC* Truncate ending	0-15	00-15 00
 *FAH* Code ID setting	Two characters 00-ffH ASCII code	00-ffH, 00-ffH < FF >
 *FAI* Insert group selection	00-44	00-44 00



Exit

EAN-8

Supplement digits: Format




Data Digits (7 Digits)	Check Digits	Supplement Digits 2 or 5 or UCC/EAN 128
---------------------------	-----------------	---

Truncate Leading zero: Refer to Truncate Leading zero of UPCE.

Expansion: Refer to Expansion of UPCE.



Program

Option Bar Code	Option	Alphanumeric Entry
 Supplement digits	None 2 digits 5 digits UCC/EAN 128 Auto detection	00 01 02 03 04
 Truncate Leading zero	Disable Enable	00 01
 Expansion	Disable Enable	00 01



Exit

Code 39

Read: Format

Start “★”	Data Digits (Variable)	Checksum (Optional)	End “★”
--------------	----------------------------	------------------------	------------

Check-sum verification: The checksum of Code-39 is optional and made as the sum module 43 of the numerical value of the data digits.

Check-sum transmission: By setting Enable, checksum and will be transmitted.



Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
<div></div> <div>Read</div>	Disable Enable	00 01
<div></div> <div>Check-sum verification</div>	Disable Enable	00 01
<div></div> <div>Check-sum transmission</div>	Disable Enable	00 01



Code 39

Max./Min. code length: Each symbology has own Max./Min. Code Length. They can be set to qualify data entry. If their Max./Min. Code Length is zero, the Global Min./Max. Code Length is in effect. The length is defined as to the actual barcode data length to be sent. Label with length exceeds these limits will be rejected. Make sure that the Minimum length setting is no greater than the Maximum length setting, or otherwise all the labels of the symbology will not be readable. In particular, you can see the same value for both Minimum and Maximum reading length to force the fixed length barcode decoded.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code Id setting: Refer to Code ID setting of UPCA.








Insertion group selection: Refer to Insertion group selection of UPCA.

Format: The Full ASCII Code-39 is an enhanced set of Code-39 that is the data with total of 128 characters to represent Full ASCII code. It is combined one of the digits +, %, \$ and/ with one of the alpha digits (A to Z).



Program

Option Bar Code	Option	Alphanumeric Entry
-----------------	--------	--------------------

 *BAD* Max. code length	00-64	00-64 00
 *BAE* Min. code length	00-64	00-64 00
 *BAF* Truncate leading	0-15	00-15 00
 *BAG* Truncate ending	0-15	00-15 00
 *BAH* Code ID setting	00-ffH ASCII code	00-ffH < >
 *BAI* Insert group selection	00-44	00-44 00
 *BAJ* Format	Standard Full ASCII	00 01



Exit



Code 39

Append: This function allows several symbols to be concatenates and be treat as one single data entry. The scanner will not transmit the embedded appending code (space for Code-39). If Enable and other symbols were read again with the appended code, then codes will be transmitted without Code ID, Preamble and Prefix. When a symbol was decoded without the appended code, the data will be transmitted without Code ID and Prefix, but the Postamble Suffix codes are appended. This function is used when the first number of code 39 is a space. Example: □123456.

Start/end transmission: The start and end characters of Code-39 are“★”. You can transmit all data digits including two “★”.



Program

Option Bar Code	Option	Alphanumeric Entry
<div> Append</div>	Disable Enable	00 01
<div> Start/end transmission</div>	Disable Enable	00 01



Exit

Interleaved 2 of 5

Read: Format

Data Digits (Variable)	Checksum (Optional)
---------------------------	------------------------

Check-sum verification: The checksum is made as the sum module 10 of the numerical values of all data digits.

Check-sum transmission: By setting Enable, checksum and will be transmitted.



Program

Option Bar Code	Option	Alphanumeric Entry
<div></div> <div>Read</div>	Disable Enable	00 01
<div></div> <div>Check-sum verification</div>	Disable Enable	00 01
<div></div> <div>Check-sum transmission</div>	Disable Enable	00 01



Interleaved 2 of 5

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code Id setting: Refer to Code ID setting of UPCA.



Insertion group selection: Refer to Insertion group selection of UPCA.



56+PRO

Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
 Max. code leading	00-64	00-64 00
 Min. code leading	00-64	00-64 00
 Truncate leading	0-15	00-15 00
 Truncate ending	0-15	00-15 00

 *IAH* Code ID setting	00-ffH ASCII code	00-ffH < i >
 *IAI* Insert group selection	00-44	00-44 00



Exit

Industrial 2 of 5

Read: Format

Data Digits (Variable)	Checksum (Optional)
---------------------------	------------------------

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.





Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.



Program

<i>Option Bar Code</i>	<i>Option</i>	<i>Alphanumeric Entry</i>
 Read	Disable Enable	00 01
 Max. code length	00-64	00-64 00
 Min. code length	00-64	00-64 00

 *HAP* Truncate leading	0-15	00-15 00
 *HAG* Truncate ending	0-15	00-15 00
 *HAH* Code ID setting	00-ffH ASCII code	00-ffH < i >
 *HAI* Insert group selection	00-44	00-44 00



Exit

Matrix 2 of 5 Eur

Read: Format

Data Digits (Variable)	Checksum (Optional)
---------------------------	------------------------

Checksum Verification: The checksum is made as the sum module 10 of the numerical values of all data digits.

Checksum Transmission: By setting Enable, checksum and will be transmitted.

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.








Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.



Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable Enable	00 01
 Checksum Verification	Disable Enable	00 01

 *PAC* Checksum Transmission	Disable Enable	00 01
 *PAD* Max. code length	00-64	00-64 00
 *PAE* Min. code length	00-64	00-64 00
 *PAP* Truncate leading	0-15	00-15 00
 *PAE* Truncate ending	0-15	00-15 00
 *PAH* Code ID setting	00-ffH ASCII code	00-ffH < B >
 *PAI* Insert group selection	00-44	00- 44 00



Exit

Codabar

Read: Format

Start	Data Digits (Variable)	Checksum (Optional)	End
-------	------------------------	---------------------	-----

Checksum Verification: The checksum is made as the sum module 16 of the numerical values of all data digits.

Checksum Transmission: By setting Enable, checksum and will be transmitted.



Max./Min. code length: Refer to Max./Min. code length of Code-39.



Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code Id setting: Refer to Code ID setting of UPCA.



Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable Enable	00 01
 Checksum Verification	Disable Enable	00 01

 *EAC* Checksum Transmission	Disable Enable	00 01
 *EAD* Max. code length	00-64	00-64 00
 *EAE* Min. code length	00-64	00-64 00
 *EAF* Truncate leading	0-15	00-15 00
 *EAG* Truncate ending	0-15	00-15 00
 *EAH* Code ID setting	00-ffH ASCII code	00-ffH < % >



Exit

Codabar

Insertion group selection: Refer to Insertion group selection of UPCA.

Start/End type: The Codabar has four pairs of Start/End pattern; you may select one pair to match your application.

Start/End Transmission: Refer to Start/End Transmission of Code 39.



Option Bar Code	Option	Alphanumeric Entry
 Insert group selection	00-44	00-44 00
 Start/End type	ABCD/ABCD abcd/abcd ABCD/TN*E Abcd/tn*e	00 01 02 03
 Start/End transmission	Disable Enable	00 01



Code-128

Read: Format

Data Digits (Variable)	Checksum (Optional)
---------------------------	------------------------

Checksum Verification: The checksum is made as the sum module 103 of all data digits.

Checksum Transmission: By setting Enable, checksum and will be transmitted.



\$%-PRO

Program

Option Bar Code	Option	Alphanumeric Entry
 DAA Read	Disable Enable	00 01
 DAB Checksum Verification	Disable Enable	00 01
 DAC Checksum Transmission	Disable Enable	00 01



\$%\$

Exit

Code-128

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.

Format: The Code-128 can be translated to UCC/EAN-128 format if it starts with FNC1 character. The first FNC1 will be translated to "JC1", and next to be a field separator code as <GS>(1D16).

JC1	Datas	<GS>	Datas	Checksum
-----	-------	------	-------	----------









Append: When the function is enabled, it won't show the data immediately if scanner read the barcode includes FNC2 code. It will show all data until it read the barcode, which doesn't have FNC2 code.

Field separator code: This feature is only used for UCC/EAN-128 format. This Field separator code means you can reassign second or after a FNC1 for your usage. The default of ASCII code is <GS>(1D16).



Program

Option Bar Code	Option	Alphanumeric Entry
<p>*DAD*</p> <p>Max. code length</p>	00-64	00-64 00
<p>*DAE*</p> <p>Min. code length</p>	00-64	00-64 00

 *DAF* Truncate leading	0-15	00-15 00
 *DAG* Truncate ending	0-15	00-15 00
 *DAH* Code ID setting	00-ffH ASCII code	00-ffH < # >
 *DAI* Insert group selection	00-44	00-44 00
 *DAJ* Format	Standard UCC/EAN-128	00 01
 *DAK* Append	Disable Enable	00 01
 *DAL* UCC/EAN-128 ID setting	00-ffH ASCII code	00-ffH < # >
 *DAM* Field separator code	00-ffH ASCII code	00-ffH 1DH



Code-93

Read: Format

Data Digits (Variable)	Checksum1 (Optional)	Checksum2 (Optional)
---------------------------	-------------------------	-------------------------

Checksum Verification: The checksum is made as the sum module 47 of the numerical values of all data digits.

Checksum Transmission: By setting Enable, checksum and will be transmitted.

Max./Min. code length: Refer to Max./Min. code length of Code-39.



Truncate leading/ending: Refer to Truncate leading/ending of UPCA.


Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.



Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable Enable	00 01
 Checksum Verification	Disable Enable (two digits)	00 01

 *CAG* Checksum Transmission	Disable Enable	00 01
 *CAD* Max. code length	00-64	00-64 00
 *CAE* Min. code length	00-64	00-64 00
 *CAF* Truncate leading	0-15	00-15 00
 *CAG* Truncate ending	0-15	00-15 00
 *CAI* Code ID setting	00-ffH ASCII code	00-ffH < & >
 *CAI* Insert group selection	00-44	00-44 00



Exit

Code-11

Read: Format

Data Digits (Variable)	Checksum1 (Optional)	Checksum2 (Optional)
---------------------------	-------------------------	-------------------------

Checksum Verification: The checksum is presented as the sum module 11 of all data digits.

Checksum Transmission: By setting Enable, checksum1 and checksum2 will be transmitted upon your selected checksum verification method.

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.






Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.



Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable Enable	00 01
 Checksum Verification	Disable One digit Two digits	00 01 02

 *AAC* Checksum Transmission	Disable Enable	00 01
 *AAD* Max. code length	00-64	00-64 00
 *AAE* Min. code length	00-64	00-64 00
 *AAF* Truncate leading	0-15	00-15 00
 *AAG* Truncate ending	0-15	00-15 00
 *AAH* Code ID setting	00-ffH ASCII code	00-ffH < O >
 *AAI* Insert group selection	00-44	00-44 00



Exit

MSI/plessey

Read: Format

Data Digits (Variable)	Checksum1 (Optional)	Checksum2 (Optional)
---------------------------	-------------------------	-------------------------

Checksum Verification: The MSI/Plessey has one or two optional checksum digits. The checksum is presented 3 kinds of method Mod10, Mod10/10 and Mod 11/10. The checksum1 and checksum2 will be calculated as the sum module 10 or 11 of the data digits.

Checksum Transmission: By setting Enable, checksum1 and checksum2 will be transmitted upon your selected checksum verification method.

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.







Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.



Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable Enable	00 01
 Checksum Verification	Disable Mod 10 Mod 10/10 Mod 11/10	00 (8110) 01 (8150/8210) 02 03

 *KAC* Checksum Transmission	Disable Enable	00 01
 *KAD* Max. code length	00-64	00-64 00
 *KAE* Min. code length	00-64	00-64 00
 *KAF* Truncate leading	0-15	00-15 00
 *KAG* Truncate ending	0-15	00-15 00
 *KAH* Code ID setting	00-ffH ASCII code	00-ffH < @ >
 *KAI* Insert group selection	00-44	00-44 00



Exit

UK/plessey

Read: Format

Data Digits (Variable)	Checksum1+2 (Optional)
---------------------------	---------------------------

Checksum Verification: The UK/Plessey has one or two optional checksum digits. The checksum1 and checksum2 will be calculated as the sum module 10 or 11 of the data digits.

Checksum Transmission: By setting Enable, checksum will be transmitted.

Max./Min. code length: Refer to Max./Min. code length of Code-39.



Truncate leading/ending: Refer to Truncate leading/ending of UPCA.







Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.



Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable Enable	00 01
 Checksum Verification	Disable Enable	00 01

 *LAC* Checksum Transmission	Disable Enable	00 01
 *LAD* Max. code length	00-64	00-64 00
 *LAE* Min. code length	00-64	00-64 00
 *LAP* Truncate leading	0-15	00-15 00
 *LAG* Truncate ending	0-15	00-15 00
 *LAH* Code ID setting	00-ffH ASCII code	00-ffH < @ >
 *LAI* Insert group selection	00-44	00-44 00



Exit

Telepen

Read: IATA (International Air Transport Association).

Checksum Verification: The checksum is presented as the sum module 10 or 11 of the data digits.

Checksum Transmission: By setting Enable, checksum will be transmitted.




Max./Min. code length: Refer to Max./Min. code length of Code-39.








Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.



Option Bar Code	Option	Alphanumeric Entry
 Read	Disable Enable	00 01
 Checksum Verification	Disable Enable	00 01
 Checksum	Disable Enable	00 01

Transmission		
 *MAD* Max. code length	00-64	00-64 00
 *MAE* Min. code length	00-64	00-64 00
 *MAF* Truncate leading	0-15	00-15 00
 *MAG* Truncate ending	0-15	00-15 00
 *MAH* Code ID setting	00-ffH ASCII code	00-ffH < S >
 *MAI* Insert group selection	00-44	00-44 00
 *MAJ* Format	Numeric only Full ASCII only	00 01



Exit

Standard 2 of 5

Read: Format

Data Digits (Variable)	Checksum1 (Optional)
---------------------------	-------------------------

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.





Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.



Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable Enable	00 01
 Max. code length	00-64	00-64 00
 Min. code length	00-64	00-64 00

 Truncate leading	0-15	00-15 00
 Truncate ending	0-15	00-15 00
 Code ID setting	00-ffH ASCII code	00-ffH < i >
 Insert group selection	00-44	00-44 00



Exit

China Post

Read: Format

Data Digits (Variable)	Checksum1 (Optional)
---------------------------	-------------------------

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.





Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.



Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable Enable	00 01
 Max. code length	00-64	00-64 11
 Min. code length	00-64	00-64 11

 *SAF* Truncate leading	0-15	00-15 00
 *SAG* Truncate ending	0-15	00-15 00
 *SAH* Code ID setting	00-ffH ASCII code	00-ffH < t >
 *SAI* Insert group selection	00-44	01-44 00



Exit

Italian Pharmacy Code

Read: Format

Data Digits (Variable)	Checksum1 (Optional)
---------------------------	-------------------------

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.



Code Id setting: Refer to Code ID setting of UPCA.






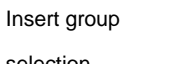
Insertion group selection: Refer to Insertion group selection of UPCA.

Leading “A”: If this function is enabled, each prefix of data shall be A.



Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable Enable	00 01
 Max. code length	00-64	00-64 10

 *WAE* Min. code length	00-64	00-64 09
 *WAF* Truncate leading	0-15	00-15 00
 *WAG* Truncate ending	0-15	00-15 00
 *WAH* Code ID setting	00-ffH ASCII code	01-ffH < p >
 *WAI* Insert group selection	00-44	00-44 00
 *WAJ* Leading "A"	Disable Enable	00 01



Exit




PDF-417

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.



5%-PRO

Program

Option Bar Code	Option	Alphanumeric Entry
<div> *QAA*</div> <div>Read</div>	Disable Enable	00 01
<div> *QAP*</div> <div>Truncate leading</div>	0-15	00-15 00
<div> *QAG*</div> <div>Truncate ending</div>	0-15	00-15 00



\$\$\$

Exit

PDF-417




Only the 8250 / 8312 can decode PDF-417.

Code Id setting: Refer to Code ID setting of UPCA.

Insertion group selection: Refer to Insertion group selection of UPCA.



Program

Option Bar Code	Option	Alphanumeric Entry
<div> Code ID setting</div>	00-ffH ASCII code	00-ffH < >
<div> Insert group selection</div>	00-44	00-44 00
<div> Escape sequence transmit</div>	Disable Enable	00 01



Exit

String setting

Prefix characters: Up to 22 ASCII characters may be sent before data digits.

Prefix	Data Digits	Suffix
--------	-------------	--------

Suffix characters: Up to 22 ASCII characters may be sent after data digits.

Preamble/ Postamble characters: They are appended to the data automatically when each barcode is decoded.

Example:

Add a prefix/suffix or preamble/postamble for all symbologies.

In this example, you are sending a \$ symbol as a prefix for all symbologies.







Steps:

- 1) Scan **Programming** and **Prefix characters setting** barcode.
- 2) Use the ASCII code table to find the value of \$→24.
- 3) Scan **2** and **4** from the barcode on the fold out back page.
- 4) Scan **Finish** from the barcode on the fold out page.
- 5) Scan **Exit** barcode.



Program

Option Bar Code	Option	Alphanumeric Entry
 Prefix characters setting	None 1-22 characters	00 00-ffH ASCII code
 Suffix characters setting	None 1-22 characters	0D 00-ffH ASCII code

 *8AC* Preamble characters setting	None 1-22 characters	00 00-ffH ASCII code
 *8AD* Postamble characters setting	None 1-22 characters	00 00-ffH ASCII code
 *8AE* Insert G1 characters setting	None 1-22 characters	00 00-ffH ASCII code
 *8AP* Insert G2 characters setting	None 1-22 characters	00 00-ffH ASCII code
 *8AG* Insert G3 characters setting	None 1-22 characters	00 00-ffH ASCII code
 *8AH* Insert G4 characters setting	None 1-22 characters	00 00-ffH ASCII code



String setting

Insert G1/G2/G3/G4 character setting: The scanner offer 4 positions and 4 characters to insert among the symbol.

Example: Barcode "1 2 3 4 5 6".

Output- Barcode "1 2 A B 3 4 C D 5 6".



Steps:

- 1) Scan **Programming** and **Insert G1 characters setting** barcode.
- 2) Use the ASCII code table to find the value of A→41,B→42.
- 3) Scan **4, 1** and **4, 2** from the barcode on the fold out back page.
- 4) Scan **Finish** from the barcode on the fold out page.
- 5) Repeat the same procedure in **Insert G2 characters setting**.
- 6) Scan **Exit** barcode.
- 7) Insert data group 1-4 position. Please refer to Chapter-Transmission, page 65 and in specific barcode that you want to use.



Program

Option Bar Code	Option	Alphanumeric Entry
 Insert G1 characters setting	None 1-22 characters	00 00-ffH ASCII code
 Insert G2 characters	None 1-22 characters	00 00-ffH ASCII code

setting		
 *8AG* Insert G3 characters setting	None 1-22 characters	00 00-ffH ASCII code
 *8AH* Insert G4 characters setting	None 1-22 characters	00 00-ffH ASCII code



Exit

Transmission

Preamble transmission: By setting Enable, Preamble will be appended before the data transmitted.



Postamble transmission: By setting Enable, Postamble will be appended after the data is transmitted.





Insert data group 1-4 position: The scanner offers 4 positions to insert among the symbol. The position default value is "00" to indicate no character insertion. Beside, make sure insertion positions are not greater than the symbols; otherwise the insertion data is not effective.

Code ID position: Upon your usage, the transmitting position of Code ID can be selected to place Before Code Data or After Code Data when it is transmitted.



Program

Option Bar Code	Option	Alphanumeric Entry
 Preamble transmission	Disable Enable	00 01
 Postamble transmission	Disable Enable	00 01

 Insert data group 1 position	00-64 (00: no insertion)	00-64 00
 Insert data group 2 position	00-64 (00: no insertion)	00-64 00
 Insert data group 3 position	00-64 (00: no insertion)	00-64 00
 Insert data group 4 position	00-64 (00: no insertion)	00-64 00
 Code ID position	Before code data After code data	00 01



Exit

Transmission


Code ID transmission: If your application is needed to transmit Code ID, you must set this to Proprietary ID or AIM ID.




Code length transmission: A number of data digits can be transmitted before the code data when Enable is selected. The total length of the barcode is the number of barcode data except Truncate Leading/Ending Digits. And the length is a number with two digits.

Code name transmission: This function is to show unknown barcode symbologies that include all readable symbologies of the scanner. When Enable is selected, Code Name will be transmitted before code data, you will know what kind of barcode symbology is.

Case conversion: Under the barcode, you can set the alphabet in either upper case or lower case.



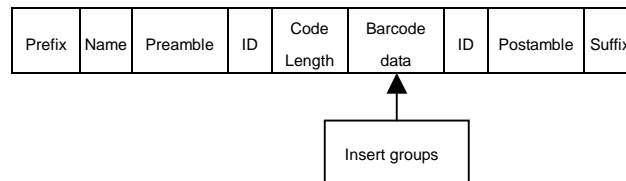
Option Bar Code	Option	Alphanumeric Entry
 Code ID transmission	Disable Proprietary ID AIM ID	00 01 02

 *6AJ* Code length transmission	Disable	00
	Enable	01
 *6AJ* Code name transmission	Disable	00
	Enable	01
 *6AK* Case conversion	Disable	00
	Upper case	01
	Lower case	02
	*For barcode data only	



Exit

Format of barcode data transmission:



Test Chart

CODABAR-PARA



a154987a

CODE-11 PARA



654215

CODE-128 PARA



258963

CODE-39 PARA



741258

CODE-93 PARA



951263

EAN-13 PARA



7 534539 789813

STANDARD-25 PARA



65978

EAN-8 PARA



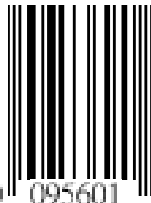
9456 2156

INDUSTRIAL-25 PARA



04976

UPCE PARA



0 095601 1

INTERLEAVED-25 PARA



46820

MATRIX 25 PARA



MSI/PLESSEY PARA



UPCA PARA



UK/PLESSEY PARA




PDF417



Unitech best performing long range CCD scanner
MS-320
3-year warranty

ASCII Code Table

Note:  For keyboard wedge only.

L \ H	0	1	0	1
0	Null		NUL	DLE
1	Up	F1	SOH	DC1
2	Down	F2	STX	DC2
3	Left	F3	ETX	DC3
4	Right	F4	EOT	DC4
5	PgUp	F5	ENQ	NAK
6	PgDn	F6	ACK	SYN
7		F7	BEL	ETB
8	Bs	F8	BS	CAN
9	Tab	F9	HT	EM
A		F10	LF	SUB
B	Home	Esc	VT	ESC
C	End	F11	FF	FS
D	Enter	F12	CR	GS
E	Insert	Ctrl+	S0	RS
F	Delete	Alt+	SI	US

L \ H	2	3	4	5	6	7
0	SP	0	@	P	`	p
1	!	1	A	Q	a	q
2	“	2	B	R	b	r
3	#	3	C	S	c	s
4	\$	4	D	T	d	t
5	%	5	E	U	e	u
6	&	6	F	V	f	v
7	‘	7	G	W	g	w
8	(	8	H	X	h	x
9	)	9	I	Y	i	y
A	★	:	J	Z	j	z
B	+	;	K	[	k	▪
C	,	<	L	\	l	•
D	-	=	M	]	m	▪
E	.	>	N	^	n	~
F	/	?	O	_	o	DEL

Parameter Setting List



Program



Barcode standard parameter setting list

If you wish to display the current configuration of your [MS-320](#), scanner over the host terminal/computer, scan the Barcode standard parameter setting list bar code.



Unique parameter list

If you wish to display the unique parameter setting list, scan the unique parameter list bar code



System parameter setting list

If you wish to display the product information and revision number for your [MS-320](#) scanner over the host terminal/computer, scan the System parameter setting list bar code.



String setting list

If you wish to display the string format list, scan the String setting list bar code.



Firmware version list

If you wish to display the firmware version, scan the Firmware version list.



WARNING: Default value initialization

If you wish to return the [MS-320](#) to all the factory default settings, scan the Default value initialization bar code.



Exit



0



1



2



3



4



5



6



7



8



9



A



B



C



D



E



F



Finish