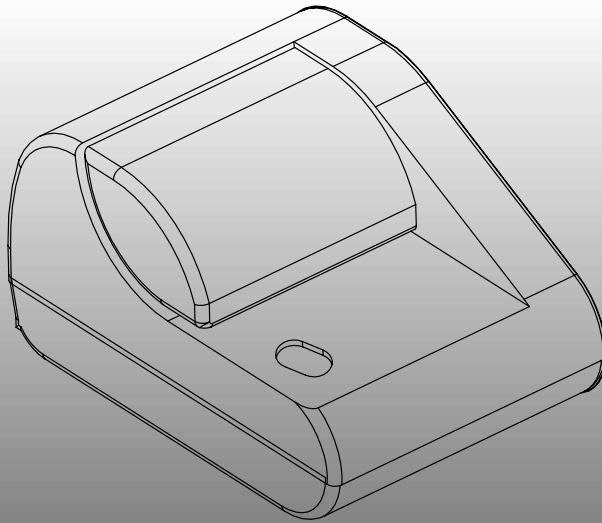


WelchAllyn[®]

SCANTEAM[®] 8310

MICR Check Reader



Programming Menu

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USE THIS PAGE

■ As a general overview of the programming menu. The programming menu consists of two basic components as shown below.

Programming Menu

**OUTPUT
PARAMETERS**

USE THIS PAGE

- To select menu page to be selected (*) value.
- To set beeper volume and tone.
- To program keyboard style and layout.
- To program delay functions.

	selections	variables	
BEEPER VOLUME/TONE	I		0000-FFFF (*0180)
KEYBOARD STYLE	II	Primary	A*
		Secondary	B
		Tertiary	C
		Quaternary	D
KEYBOARD LAYOUT III	III	Layout 1	A*
		Layout 2	B
		Layout 3	C
INTERCHARACTER DELAY	VII	x%ms	*0000-9999
INTERFUNCTION DELAY	VIII	x%ms	*0000-9999
INTERMESSAGE DELAY	IX	x%ms	*0000-9999

Notes:
 (1) * Designates DEFAULT selections.
 (2) The following are suggested Beeper Volume/Tone settings:
 High 0180
 Medium 00F0
 Low 0080
 Off 0000

Programming Menu

BAR CODE CHART

USE THIS PAGE

- To verify codes on this page correspond to symbols in shaded areas on adjoining menu pages. SCAN these bar codes in the sequence indicated on this page to program desired selections and variables.

ROMAN NUMERALS	LETTERS	DIGITS	OTHERS
I	A	0 (YES)	ESCAPE
II	B	1 (NO)	DEFAULT
III	C	2	EXIT
IV	D	3	
V	E	4	
VI	F	5	
VII	G	6	
VIII	H	7	
IX	I	8	
X	J	9	
XX			

MENU PAGE

- Each menu page represents one section of the programming menu. Use individual menu pages in combination with the bar code chart on the back page foldout, or MICR encoded programming checks, to program the decoder.
- **ENTER** – Each menu page has its own unique ENTER bar code; scan this bar code or feed through the equivalent programming check to activate desired menu page.
- **DEFAULT** – Most menu pages have a DEFAULT bar code/MICR encoded check which allows the user to independently default menu pages to asterisk (*) values without affecting, in any way, the rest of the programming menu. Default values can be easily selected from the desired menu pages by reading the bar code or MICR encoded check sequence ENTER, DEFAULT, EXIT. Individual defaults for a specific selection can be made by reading ENTER, ROMAN NUMERAL, DEFAULT, EXIT.
- **EXIT** – To move from one menu page to another, read the EXIT bar code or programming check. The EXIT bar code or programming check must be read to end programming selection on each menu page before beginning to program on a different menu page.
- **SELECTIONS/VARIABLES** – Lists all of the options available on each menu page. Following each option are symbols in shaded areas. These symbols correspond to both the bar codes on the adjoining bar code chart and to the MICR encoded programming checks.
- **NOTES** – are provided to call out any unusual situations and/or refer you to necessary information or examples elsewhere in the menu or manual.

MENU PAGE FACING (Not Shown)

- The page facing the menu is often used to supplement or clarify the material presented on the front of each menu page. The information and examples found here are specific to the individual menu page and contain, in some cases, charts and diagrams that must be used in order to determine the correct programming sequence.

BAR CODE DATA CHART/MICR ENCODED PROGRAMMING CHECKS

- The bar codes and MICR encoded programming checks are assigned to a ROMAN NUMERAL, DIGIT, LETTER or YES/NO symbol. These bar codes and checks correspond to the symbols in shaded areas on the menu pages and are read in various combinations to enter programming sequences to the decoder. Bar codes and programming checks are meaningless unless an ENTER bar code/programming check from one of the menu pages is first read. When an ENTER bar code/programming check is read, the bar code chart/programming checks become specific to that menu page and remain so until the EXIT bar code/programming check is read or another menu page is selected.

ESCAPE

- Scan the ESCAPE bar code or feed through the ESCAPE programming check to cancel the current programming sequence. All other parameters will remain as they were.

PROGRAMMING INSTRUCTIONS

8310 Series Programming Menu

Getting Started

The SCANTEAM 8310 can be programmed using several methods. You may use MICR (Magnetic Ink Character Recognition) encoded programming checks, or you can use a decoded output SCANTEAM RS-232 bar code reader such as a laser scanner or a wand.

The Programming Instructions walk you through the steps for programming the SCANTEAM 8310 using Plug-n-Play and single programming checks (beginning on page 5) and using SCANTEAM RS-232 bar code readers (page 7).

If you have multiple SCANTEAM 8310s, you can program one 8310, then download the programming to the other 8310s. This method is called "cloning" and is described on page 8.

Note: *Welch Allyn distributes firmware throughout Web site. Access the Web site at <http://dcd.welchallyn.com>. Click on the **Support** button, then click on the **Software Download** button. When prompted, enter the user name: **pumpkin** and the password: **pie**. New firmware may be loaded into a SCANTEAM 8310 through Welch Allyn's PC-based software tool called "Quick*Load™." Quick*Load may also be used to transfer parameters from one SCANTEAM 8310 to another. Please refer to your Quick*Load User's Guide for complete directions on using Quick*Load with your 8310.*

Regardless of the method you use to program your SCANTEAM 8310, you will need the following items:

- SCANTEAM 8310 Check Reader
- Power Source (PS120/9V wall transformer if the SCANTEAM 8310 is *not* powered by the host)

Note: *Please refer to page 9 for a listing of Welch Allyn part numbers for products mentioned in these instructions.*

If you are going to program your SCANTEAM 8310 using programming checks, you will need one or both of the following items:

- SCANTEAM 8310 Plug-n-Play checks.
- SCANTEAM 8310 Programming Checks.

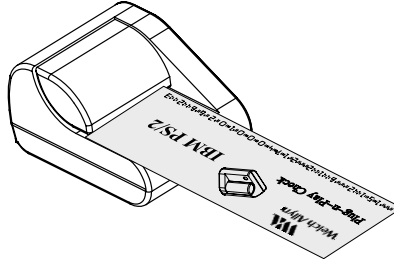
If you are going to program your SCANTEAM 8310 using a decoded output SCANTEAM RS-232 bar code reader, you will need the following items:

- Any Welch Allyn RS-232 bar code reader (i.e., wand or laser scanner) which is terminated in a DB-9 female type host connector and includes an external power (EP) connector.
- 8310 Bar Code Programming Adapter cable which converts a DB-9 connector to a DB-15 connector.
- Power pack for the bar code reader. (If a Welch Allyn #6180/B-25Q5N wand is used, the power pack is not required.)

If you are going to clone the firmware (including any programmed parameters) from one SCANTEAM 8310 to another 8310, you will need the following items:

- Cloning cable and Clone Check. (The Clone Check is included in the packet of 8300/PC-2 programming checks.)

Using Plug-n-Play Checks



Plug-n-Play checks are the large blue checks which note the Terminal ID and programming parameters on the check face.

If you use one of the following interfaces, you can use a Plug-n-Play check to program the Terminal ID and parameters required to communicate with your interface:

IBM PS/2
 IBM PC, XT
 IBM PC, AT or Compatibles
 RS-232
 Wand Emulation Code 3 of 9
 Wand Emulation Code 128

Note: *If your interface is not listed above, you must use the single programming checks to program the Terminal ID and all other parameters (see page 6). You cannot use a Plug-n-Play check.*

To add more detailed programming, you must use the single programming checks or a SCANTEAM RS-232 bar code reader.

Note to CMC-7 users: *If the SCANTEAM 8310 has been programmed to decode only CMC-7 characters, you must first set it to decode the E-13B characters on the Plug-n-Play Check. To do so, feed through the "CMC-7 Conversion" check from the 8300/PC-2 programming check packet. The SCANTEAM 8310 temporarily decodes E-13B characters until the Plug-n-Play check has been read, then the SCANTEAM 8310 reverts to decoding only CMC-7 characters.*

Note: *If you are using a SCANTEAM 8310 which has already been programmed for one interface and you wish to re-program it for a different interface, you must first clear all existing parameters. To clear all parameters, feed through the **Master Default** check from the 8310/PC-1 Plug-n-Play check packet. After the parameters have been cleared, you may program the new interface using the following steps.*

1. If you are programming the SCANTEAM 8310 using a Plug-n-Play check, select the check which lists your interface (e.g., IBM PS/2).
2. Feed the Plug-n-Play check into the check reader.

2 beeps followed by 2 low tone beeps means the programming was successful.

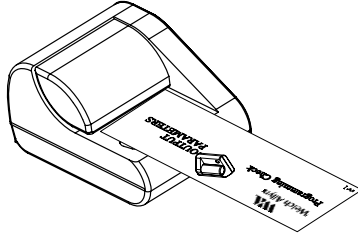
3. Turn the power to the check reader off and then back on.

PROGRAMMING INSTRUCTIONS

Continued

8310 Series Programming Menu

Using Single Programming Checks



The single programming checks (from the 8300/PC-2 programming check packet) are used in conjunction with the programming pages which follow these instructions. The single programming checks take the place of scanning bar codes with an RS-232 bar code reader, described on page 7.

Programming Example

The following is an example of programming the 8310 to output a Carriage Return suffix using programming checks.

Note to CMC-7 users: *If the SCANTEAM 8310 has been programmed to decode only CMC-7 characters, you must first set it to decode the E-13B characters on the Programming Checks. To do so, feed through the "CMC-7 Conversion" check. The SCANTEAM 8310 temporarily decodes E-13B characters until the End Programming check has been read, then the SCANTEAM 8310 reverts to decoding only CMC-7 characters.*

1. Turn to page 13 and review the Output Parameters programming table.

Note that every option in the Programming Menu begins with an "Enter" bar code. Page 13 shows the Output Parameters Enter bar code. The programming check with the option name (e.g., Output Parameters Enter) is your "Enter" code.

To program a carriage return suffix, you must use the ENTER, XI, 7, 4, 0, D, F, F, and EXIT checks.

2. Have available the programming checks for OUTPUT PARAMETERS ENTER, XI, 7, 4, 0, D, F, Exit, and End Programming.
3. Feed the OUTPUT PARAMETERS ENTER check into the check reader.

After you hear 2 beeps and the LED displays a solid light, the SCANTEAM 8310 is ready to accept the variables for your output parameters.

4. Feed through the XI, 7, 4, 0, and D checks.

Note: *Each time a variable check is fed through, you should hear a single beep from the reader. If an error occurs during programming, you will not get an error beep sequence (2 beeps) until the End of Programming check has been read.*

5. Feed the F check through two times.
6. Feed through the Exit check.
7. Feed through the End Programming check.

A single beep followed by 2 low tone beeps means the programming was successful.

If you hear 2 beeps after feeding through the End Programming check, a programming error has occurred. Begin the programming again, starting with the Output Parameters check.

8. Turn the power to the check reader off and then back on.

PROGRAMMING INSTRUCTIONS Continued

Using the method just described, program the parameters necessary for your SCANTEAM 8310. Begin at page 11 if you need to program the Terminal ID, or at page 12 if you programmed your Terminal ID with a Plug-n-Play check.

Programming the SCANTEAM 8310 Using a SCANTEAM RS-232 Bar Code Reader

Setting Up a SCANTEAM 6180 Wand



If you are using a SCANTEAM 6180 wand to program the check reader, you will need the bar code programming adapter cable and the SCANTEAM 6180 Programming Menu. (The cable automatically sets the baud rate and parity of the SCANTEAM 8310 to 9600, E, 7, 1.) The Code ID prefix and the Carriage Return suffix for the 6180 wand must be removed before using the wand to program the 8310 check reader.

Note: *If you are using any other SCANTEAM wand, skip this procedure and go to the programming example below.*

Using the following steps, remove the Code ID prefix and the Carriage Return suffix.

1. With the power off, connect the programming cable to the SCANTEAM 8310.
2. Connect the 6180 wand to the programming cable and power up the SCANTEAM 8310.

During the programming sequence, the wand will emit single beeps. If at any time during programming the 6180 wand detects an error, you will hear 3 beeps. To correct, simply begin scanning the variable bar codes once more in proper sequence.

3. Scan the Enter bar code in the Input/Output Parameters Format section.
4. Scan the Default bar code.
5. Scan the III and IV bar codes from the fold-out page in the back cover.
6. Scan the Exit bar code.
7. Turn the power to the check reader off and then back on.

Two low tone beeps from the wand means the programming was successful, and the Code ID prefix and the Carriage Return suffix for the wand have been removed.

Using a SCANTEAM Wand to Program the 8310 Check Reader Programming Example

The following is an example of using a SCANTEAM wand to program the SCANTEAM 8310 to output a Carriage Return suffix for E-13B symbology only. (To program a Carriage Return suffix for *all* symbologies, please see Example #2 on page 14.)

1. Turn to page 13.
2. Scan the Enter code.

After you hear 2 beeps and the LED displays a solid light, the SCANTEAM 8310 is ready to accept the variables for your output parameters.

3. Open the fold-out page in the back cover. Scan the bar codes for XI, 7, 4, 0(yes), then D.

PROGRAMMING INSTRUCTIONS Continued

8310 Series Programming Menu

During the programming sequence, the wand will emit single beeps. If at any time during programming the SCANTEAM wand detects an error, you will hear 3 beeps. To correct, simply begin scanning the variable bar codes once more in proper sequence.

4. Scan the F bar code two times.
5. Scan the Exit bar code.
6. Turn the power to the check reader off and then back on.

Two low tone beeps from the wand means the programming was successful, and a carriage return suffix has been added to the 8310 output parameters.

Using the method just described, program the parameters necessary for your SCANTEAM 8310 using the SCANTEAM wand.

Using Other SCANTEAM RS-232 Bar Code Readers

Any other SCANTEAM RS-232 bar code reader used to program the SCANTEAM 8310 must be defaulted to RS-232 protocol. It also must use an external power (EP) cable and an EP power pack, dedicated to supplying power only to the scanner. You must also use the 8310 bar code programming adapter cable to convert the DB-9 connector to a DB-15 connector.

Once these requirements have been met, you may follow the Programming Example on page 7. The beep sequence for correct scans and errors is the same as for a SCANTEAM wand.

Cloning Instructions

The SCANTEAM 8310 check reader includes a cloning capability which provides a way to download the memory contents from a "source" 8310 to any additional ("destination") SCANTEAM 8310s.

1. Program the SCANTEAM 8310 source reader using any programming method.
2. Connect the cloning cable (part number 42205383-01) to the 15 pin port on the 8310 source reader.
3. Power up the 8310 source reader.
4. Plug the other end of the cloning cable into the 8310 destination reader.

The power will be carried through the cable to power up the destination SCANTEAM 8310 automatically.

Note to CMC-7 users: *If the SCANTEAM 8310 has been programmed to decode only CMC-7 characters, you must first set it to decode the E-13B characters on the Clone Check. To do so, feed through the "CMC-7 Conversion" check. The SCANTEAM 8310 temporarily decodes E-13B characters until the Clone Check has been read, then the SCANTEAM 8310 reverts to decoding only CMC-7 characters.*

5. Feed the **Clone Check** through the 8310 source reader.

The 8310 source reader will emit a single beep. The source 8310 sends (512) 64 byte blocks of information followed by a block check character. This takes approximately 15 seconds. After 15 seconds, you will hear 3 beeps from the 8310 source and a single beep from the 8310 destination reader. This indicates the programming was received by the 8310 destination reader. Disconnect the cable from the 8310 destination reader which is now ready for operation.

Note: *ROM and RAM tests are performed in the destination reader. If the destination 8310 fails the ROM and/or RAM tests, you will hear three beeps (five if both tests fail).*

PROGRAMMING INSTRUCTIONS Continued

If you have additional SCANTEAM 8310 check readers to clone, you do not have to disconnect the 8310 source. Simply connect an 8310 destination reader to the cloning cable and run the Clone Check through the 8310 source reader. This method may be used to copy memory from the source reader to each destination reader.

Welch Allyn Part Numbers

Item	Welch Allyn Part #
SCANTEAM 8310 Plug-n-Play Checks	8310/PC-1
SCANTEAM 8310 Programming Checks	8300/PC-2
8310 Bar Code Programming Adapter Cable, DB9 to DB15	42205384-01
8310 to 8310 Cloning Cable, DB-15M to DB-15M	42205383-01
SCANTEAM 6180 Power Pack (not necessary if using a 6180/B-25Q5N wand)	PS5/C
Quick*Load User's Guide	QL/UG
SCANTEAM 6180 Programming Menu	6180/PM
8300 & 8310 Bootstrap Download Adapter Cable, DB-15M to DB-15F	42205385-01
6180 Wand Scanner	6180/B-25Q5N

TERMINAL SELECTION

8310 Series Information and Examples

TERMINAL SELECTION

Use the bar codes on the following page to program the SCANTEAM 8310 to work with your terminal.

TERMINAL SELECTION

8310



selections	variables	scan
IBM	PS/2, 25, 30, 55SX, 70	02
	AT, PS/2 30-286, 50, 55SX, 60, 70, 80	03
102 key	3151, 3161, 3162, 3163, 3191, 3192, 3196, 3197, 3471, 3472, 3476, 3477, 3482, 3486, 3488	06
122 key	3179-1, 3191, 3192, 3471, 3472, 3194	07
	3196, 3197, 3476, 3477, 3482, 3486, 3488	08
	3180	24
HARRIS	H180, H191	09
NCR	7052 Wedge	48
RS-232 (PC COMM PORT)		50
WAND EMULATION	Code 3 of 9 Output	61
WAND EMULATION	Code 128 Output	64



OUTPUT PARAMETERS

BEEPER VOLUME/TONE

This selection allows you to set the beeper volume. The following settings may be used:

- High: 0190
- Medium: 00F0
- Low: 0080
- Off: 0000

KEYBOARD STYLE 8310

If you are using one of the terminals listed below, you may program an alternate keyboard style. For example, if you have an NCR 7052 terminal with a 56 key keyboard, you would program the Keyboard Style as "B."

Terminal	Style A	Style B	Style C	Style D
IBM PC/AT	AT	CAPS LOCK		
IBM PS2 (50-80)	NORM	CAPS LOCK		
IBM 3180 (122 Key)	T/W	D/E		
NCR 7052	34 Key	56 Key	122 Key Caps On	122 Key Caps Off

NUMBER KEY LAYOUT

You can program the type of numeric keypad layout for your keyboard.

Telephone Keypad:

1	2	3
4	5	6
7	8	9

 Calculator Keypad:

7	8	9
4	5	6
1	2	3

Main Keyboard:

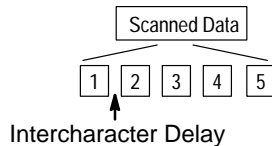
1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

INTERCHARACTER, INTERFUNCTION, AND INTERMESSAGE DELAYS

Some terminals drop information (characters) if data comes through too quickly. Intercharacter, interfunction, and intermessage delays slow the transmission of data, which increases data integrity.

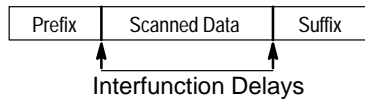
Intercharacter Delay:

An intercharacter delay is a delay of up to 9999 milliseconds (in multiples of 5) which is placed between the transmission of each character of scanned data.



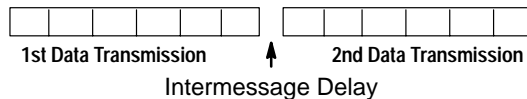
Interfunction Delay:

An interfunction delay is a delay of up to 9999 milliseconds (in multiples of 5) which is placed between the transmission of each segment of the message string.



Intermessage Delay:

An intermessage delay is a delay of up to 9999 milliseconds (in multiples of 5) which is placed between each data transmission.



OUTPUT PARAMETERS

8310 Series Programming Menu



selections	scan	variables	scan
BEEPER VOLUME/TONE	I		0000–FFFF *(0190)
KEYBOARD STYLE	II	Style A	A*
		Style B	B
		Style C	C
		Style D	D
KEYBOARD LAYOUT	III	Telephone Keypad	A*
		Calculator Keypad	B
		Main Keyboard	C
INTERCHARACTER DELAY	VII	x5ms	*0000–9999
INTERFUNCTION DELAY	VIII	x5ms	*0000–9999
INTERMESSAGE DELAY	IX	x5ms	*0000–9999

* Designates default selections.

**OUTPUT
PARAMETERS
continued**

PREFIX/SUFFIX

Prefixes and suffixes are characters added by the 8310 to MICR and bar code data. Prefixes and suffixes are assigned to specific symbologies. Use the Symbology Chart below to program the symbology for for which you're adding the prefix/suffix. Use the HEX-ASCII table below to find the ASCII value to be used for programming a particular prefix or suffix.

EXAMPLE: 1) To program a carriage return suffix for UPC-A symbology only, scan:

**OUTPUT PARAMETERS ENTER, XI, 7, 4, 0, D, F, F, EXIT,
END PROGRAMMING**

Where: OUTPUT PARAMETERS ENTER enters the programming mode
 XI enters suffix programming
 74 selects E13-B symbology (see Symbology Chart, below)
 0D designates Carriage Return (see Hex-ASCII chart, below)
 FF terminates suffix programming
 EXIT, END PROGRAMMING leaves the programming mode

EXAMPLE: 2) To program a carriage return suffix for ALL symbologies, scan:

**OUTPUT PARAMETERS ENTER, XI, 9, 9, 0, D, F, F, EXIT,
END PROGRAMMING**

Where: OUTPUT PARAMETERS ENTER enters the programming mode
 XI enters suffix programming
 99 selects ALL symbologies (see Symbology Chart, below)
 0D designates Carriage Return (see the HEX-ASCII chart, below)
 FF terminates suffix programming.
 EXIT, END PROGRAMMING leaves the programming mode

SYMBOLGY CHART

SYMBOLGY	Primary	CODE ID
HOST PORT	71	q
E13-B	74	t
CMC-7	75	u
Universal	99	

HEX — ASCII CHART

NUL 00	DLE 10	SP 20	0 30	@ 40	P 50	' 60	p 70
SOH 01	DC1 11	! 21	1 31	A 41	Q 51	a 61	q 71
STX 02	DC2 12	" 22	2 32	B 42	R 52	b 62	r 72
ETX 03	DC3 13	# 23	3 33	C 43	S 53	c 63	s 73
EOT 04	DC4 14	\$ 24	4 34	D 44	T 54	d 64	t 74
ENQ 05	NAK 15	% 25	5 35	E 45	U 55	e 65	u 75
ACK 06	SYN 16	& 26	6 36	F 46	V 56	f 66	v 76
BEL 07	ETB 17	' 27	7 37	G 47	W 57	g 67	w 77
BS 08	CAN 18	(28	8 38	H 48	X 58	h 68	x 78
HT 09	EM 19) 29	9 39	I 49	Y 59	i 69	y 79
LF 0A	SUB 1A	* 2A	: 3A	J 4A	Z 5A	j 6A	z 7A
VT 0B	ESC 1B	+ 2B	; 3B	K 4B	[5B	k 6B	{ 7B
FF 0C	FS 1C	, 2C	< 3C	L 4C	\ 5C	l 6C	7C
CR 0D	GS 1D	- 2D	= 3D	M 4D] 5D	m 6D	} 7D
SO 0E	RS 1E	. 2E	> 3E	N 4E	^ 5E	n 6E	~ 7E
SI 0F	US 1F	/ 2F	? 3F	O 4F	_ 5F	o 6F	DEL 7F

OUTPUT PARAMETERS continued

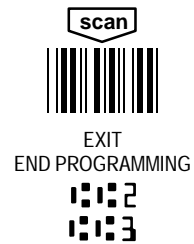


selections	scan	variables	scan	scan
PREFIX	X	Symbology or 99 Universal (ALL) Prefix(es) (2,3,4,5)	(See Chart Pg. 12) *00-7F	FF
SUFFIX	XI	Symbology or 99 Universal (ALL) Suffix(es) (2,3,4,5)	(See Chart Pg. 12) *00-7F	FF



Notes:

- (1) * Designates DEFAULT selections.
- (2) Scan FF to terminate a prefix or suffix.
- (3) To clear a prefix or suffix of a particular symbology, scan the symbology and FF.
- (4) Default clears all prefixes and suffixes of all symbologies.



OUTPUT PARAMETERS continued

OUTPUT MODES

Code ID Transmit: This selection allows you to send characters that identify each symbology.

Error Code Transmit: If you wish to transmit error codes, select “Yes.”

Ignore Error in Amount Field: If programmed with a “Yes,” when the 8310 is unable to read an amount field post-processed on a check, the reader will ignore the amount field, but capture all other MICR fields. If programmed with a “No,” the reader will reject all fields if it cannot read the amount field.

Track 1 Preferred: This will program the 8310 to read only track 1 of a magnetic stripe under normal operation. If track 1 cannot be read, the 8310 will then read track 2. (This feature can be used only if the 8310 is programmed to read both tracks 1 and 2. See MSR Track Selection on page 22.)

**OUTPUT
PARAMETERS
continued**

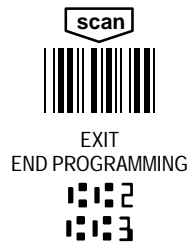


selections	scan	variables	scan	scan
OUTPUT MODES	XII	Drivers License ID MSR	B	Yes/No*
		Code ID Transmit	C	Yes/No*
		Error Code Transmit	D	Yes/No*
		Track 1 Preferred	E	Yes/No*
		Ignore Error in Amount Field	I	Yes/No*
		WAND EMULATION Transmission Rate (inches per second)	XV	10
	25	B*		
	40	C		
	80	D		
	120	E		
	150	F		
	200	G		
WAND EMULATION	XVI	Black Hi	A*	
		Black Lo	B	



Notes:

- (1) * Designates DEFAULT selections.
- (2) Scan FF to terminate a prefix or suffix.
- (3) To clear a prefix or suffix of a particular symbology, scan the symbology and FF.
- (4) Default clears all prefixes and suffixes of all symbologies.



MAIN PORT CONFIGURATION Output

8310 Series Information and Examples

BAUD RATE

The baud rate is programmable from 300 bits per second to 38,400 bits per second.

PARITY

Parity provides a means of checking data bit patterns for validity. The parity should be programmed to match the parity of the terminal being used. If the parity is not set correctly, the resulting data may be incorrect.

DATA BITS

The data bits selection must match the requirements of the terminal being used.

PROTOCOL

A set of rules governing the exchange of data between communications devices. See Appendix A of the **SCANTEAM 8300 Technical Manual** for complete descriptions of supported protocols.

END OF RECORD

Marks the end of an incoming data record from the Main Port. Use the HEX ASCII chart on page 14 to find the alpha-numeric codes used for programming a particular End of Record. The 8310 does not send End of Record characters to the terminal.

MAIN PORT CTS CHECK

If programmed on (Yes), the 8310 will not transmit data until the CTS input is positive.

MAIN PORT CONFIGURATION



selections	scan	variables	scan
MAIN PORT CONFIGURATION	I	PC COM PORT	D*
MAIN PORT BAUD RATE	II	300	A
		600	B
		1200	C
		2400	D
		4800	E
		9600	F*
		19200	G
		38400	H
MAIN PORT PARITY	III	None	A
		Mark	B
		Space	C
		Odd	D
		Even	E*
MAIN PORT DATA BITS	IV	Seven	A*
		Eight	B
		One	C
		Two	D
MAIN PORT PROTOCOL	V	End of Record	A
		60 mS Timeout	B*
		TRANZ 330 Protocol	C
		ZON JR Protocol	D
MAIN PORT END OF RECORD	VI	0D-7F	0D*
MAIN PORT CTS CHECK	VII		Yes/No*

* Designates default selections.

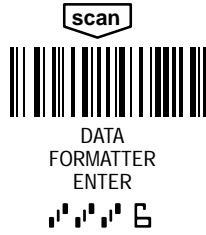
DATA FORMATTER COMMANDS

8310 Series Information and Examples

Note: For function code mapping, refer to page 32.

COMMAND	ACTION
F1	Send all characters followed by "XX" key or function code, starting from current cursor position. ** Syntax = F1XX where XX = HEX ASCII character or function code 00–FE HEX
F2	Send "NN" characters followed by "XX" key or function code, starting from current cursor position, leaving cursor pointing to character "NN" + 1. ** Syntax = F2NNXX NN = No. of Characters 00–99 DEC. where XX = HEX ASCII character or function code 00–FE HEX
F3	Send up to but not including "SS" character, (** Search and Send**) Starting from current cursor position, leaving cursor pointing to "SS" Char. followed by "XX" key or function code. ** Syntax = F3SSXX SS = HEX ASCII Character 00–7F HEX. where XX = HEX ASCII character 00–7F HEX.
F4	Send "XX" character "NN" times, (**INSERT**) Leaving cursor in current cursor position. ** Syntax = F4XXNN where XX = HEX ASCII character 00–7F HEX NN = No. of characters 00–99 DEC.
F5	Move cursor ahead "NN" characters from current cursor position. ** Syntax = F5NN NN = No. of characters 00–99 DEC.
F6	Move cursor back "NN" characters from current cursor position. ** Syntax = F6NN NN = No. of characters 00–99 DEC.
F7	Move cursor to the beginning of the data string. ** Syntax = F7
F8	Search ahead for "XX" character from current cursor position, leaving cursor pointing to "XX" char. ** Syntax = F8XX where XX = HEX ASCII character 00–7F.
F9	Search back for "XX" character from current cursor position, leaving cursor pointing to "XX" char. ** Syntax = F9XX where XX = HEX ASCII character 00–7F.
FA	Leading zero suppress on Suppress leading zeroes from current cursor position until first non-zero character, leaving cursor pointing to 1st non-zero character. ** Syntax = FA
FB	Suppress "XX" character(s) up to 4 starting from current cursor position until suppress disable command "FC" or end of format. ** Syntax = FBXXFB, FBXXXXFB, FBXXXXXXFB where XX = HEX ASCII character 00–7F.
FC	Disable suppress filter and clear all suppressed characters. ** Syntax = FC
FD	DCA mode ON/OFF (Toggle) Convert characters to DCA starting from current cursor position until next "FD" command or end of format. ** Syntax = FD
FE	Compare character in current cursor position to the character "XX." If characters are equal, increment cursor. If characters are not equal, no format match. ** Syntax = FEXX where XX = HEX ASCII Character 00–7F
E8	Find last (rightmost) occurrence of character and replace with RR, leaving the cursor pointing to RR. **Syntax = E8XXRR
E9	Replace up to 4 characters with RR. **Syntax = E9XXXXXXXXXE9RR where XX = HEX ASCII Character 00–7F
EA	Clear – Replace Table.
EE	Leading space suppress on. Suppress leading spaces from current cursor position until first non-space character, leaving cursor pointing to first non-space character. ** Syntax = EE
EF	Delay function. **Syntax = EFXXXX where XXXX = 0000–FFFF x 5ms delay.

DATA FORMATTER

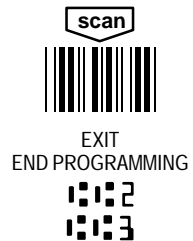


selections	scan	variables	scan		
FORMAT REQUIRED?	I		Yes/No*		
scan	scan	scan	scan	scan	scan
	Terminal Type (2)	Code ID	Length	Editor Command Sequences	End Format
II	(*)	()	(*)	()	(FF)
* You may use Universal Number of 99.					



Notes:

- (1) * Designates default selections.
- (2) For terminal selection, see page 11.



DATA FORMATTER COMMANDS continued

8310 Series Information and Examples

MSR DATA

Start/Stop Character Transmit: Start/Stop characters identify the leading and trailing ends of the MSR data. You may either transmit, or not transmit Start/Stop characters.

LRC Character Transmit: This setting will enable or disable the transmission of a check digit for mag stripe data.

MSR TRACK SELECTION

Use this selection if you wish to enable or disable tracks 1, 2, and/or 3.

MSR PRE-EDITED DATA FORMATS

These selections allow you to program the 8310 to transmit magnetic stripe data in a variety of formats which can include the account number, date, customer name, and any of the key code variables.

Note: *Choosing a pre-edited MSR Data Format results in default selections for MSR Data (III). Therefore, Start/Stop Character Transmit and LRC Character Transmit will default to Yes.*

KEY CODE ASSIGNMENT

Key Codes are variables used to represent values in MSR data formats. Use this selection to assign values to the key codes.

Note: *Assignable delimiter or function codes all default to "0D."*

DELETE TERMINAL/CODE SPECIFIC

Use this selection to delete any formats which are specific to certain terminal and code ID combinations.

DATA FORMATTER



selections	scan	variables	scan	scan
MSR DATA	III	Start/Stop Char. Transmit	A	*Yes/No
		LRC Char. Transmit	B	*Yes/No
MSR TRACK SELECTION	IV	Track 1 Enable	A	*Yes/No
		Track 2 Enable	B	*Yes/No
		Track 3 Enable	C	*Yes/No
MSR TRACK 2 PRE-EDITED DATA FORMATS	V	Clear Pre-edited Data Format	A	
		Acct # + Key-Code 1	B	
		Acct # + Key-Code 1 + YYMM + Key-Code 2	C	
		Acct # + Key-Code 1 + MMY Y + Key-Code 2	D	
MSR TRACK 1 PRE-EDITED DATA FORMATS	VI	Clear Pre-edited Data Format	A	
		Acct # + Key-Code 1 + YYMM + Key-Code 2 + Name + Key-Code 3	B	
		Acct # + Key-Code 1 + MMY Y + Key-Code 2 + Name + Key-Code 3	C	
KEY-CODE 1-4 ASSIGNMENT	VII	Key-Code 1 (E0H)	A	00-FE *0D
		Key-Code 2 (E1H)	B	00-FE *0D
		Key-Code 3 (E2H)	C	00-FE *0D
		Key-Code 4 (E3H)	D	00-FE *0D
DELETE TERMINAL/CODE SPECIFIC	XIX		Terminal Type (*)	Code ID (*)
DELETE ALL FORMATS	XX	Are You Sure?		Yes/No

* Designates default selections.



Notes:

The space below may be used for notes. ...



A series of 20 horizontal lines spaced evenly down the page, providing a template for writing notes.

MICR DATA FORMATTER

MINIMUM AND MAXIMUM MICR SIGNAL LEVEL

These selections allow you to set the range for acceptable MICR signals.

SELECT MICR OUTPUT FORMAT

Use the following selections with the programming choices on page 29 to program a custom MICR Data Format.

MICR Field Name	MICR ID #
Entire MICR Line	00
Auxiliary On Us	01
External Processing Code (EPC)	02
Routing	03
ONUS	04
Amount	05
Check #	06
Account #	07
Process Control Code	08

MICR Field Length	Selection
Zero (Field Disabled)	00
Fixed Length	XX (where XX is the HEX ASCII Representation 00–7F)
Variable Length	99

MICR Field Fill	Selection
Any character	XX (where XX is the HEX ASCII Representation 00–7F)





Note: MICR field length must be programmed for fixed length when using Field Fill.

MICR Field Justify	Selection
Left Justify	00
Right Justify	01

Note: MICR field length must be programmed for fixed length when using Field Justify.

MICR PROGRAMMING CHECKS - EQUIVALENTS TO BAR CODES

Roman Numerals		Roman Numerals		Letters		Digits		Others	
I	t1	XI	o1	A	a1	0 (YES)	d0	ESCAPE	tt0
II	t2	XII	o2	B	a2	1 (NO)	d1	DEFAULT	tt1
III	t3	XIII	o3	C	a3	2	d2	EXIT	tt2
IV	t4	XIV	o4	D	a4	3	d3	END PROG	tt3
V	t5	XV	o5	E	a5	4	d4		
VI	t6	XVI	o6	F	a6	5	d5		
VII	t7	XVII	o7	G	a7	6	d6		
VIII	t8	XVIII	o8	H	a8	7	d7		
IX	t9	XIX	o9	I	a9	8	d8		
X	t0	XX	o0	J	a0	9	d9		

where: t =  (transit symbol) a =  (amount symbol)
 o =  (On Us symbol) d =  (dash symbol)

MICR DATA FORMATTER continued

8310 Series Information and Examples

MICR OUTPUT FORMAT #10

When Output Format 10 is selected, the following Return Codes are sent to the host terminal:

	Return Code	Description	Search Order
bad checks	09	No MICR	1
	10	Low signal	2
	06	Bad data/unreadable character	3
	11	Parsing error/Non-North American format	4
	05	Invalid ABA check digit	5
good checks	00	Good personal check	6
	01	Canadian check	7
	03	No account number	8
	08	Business check (unless Canadian)	9
	12	Travelers check	10
	02	No sequence number (unless Travelers check)	11
	15	Serial number is less than 300	12

Note: If the SCANTEAM 8310 detects more than one Return Code for a good check, the last Return Code encountered in the search order appears on the host display. For example, if a check is Canadian (code 01) but has no account number (code 03), the 03 code is displayed on the host terminal. This is because the no account number (code 03) is 8th in the search order and the Canadian check (code 01) is 7th in the search order. Please refer to Appendix A of the 8300 Technical Manual for further information.

MICR Data Example #1 Custom Format

Scenario: Output a known check format where 0001 is the check number.

Check Data: t123456789t987-654321o-0001

Desired custom output: <transit #>T<check #>S<account #>A

Solution: Scan the following series:

MICR DATA FORMATTER ENTER

```

IV          01                               (custom format)
V           03 FB 74 FB F1 54 FF             (format routing buffer)
V           07 F1 41 FF                       (format account # buffer)
V           06 F1 53 FF                       (format check # buffer)
VI          03 99 00 00 FF                   (routing buffer variable length)
VI          07 99 00 00 FF                   (account # buffer variable length)
VI          06 99 00 00 FF                   (check # buffer variable length)
VII         03 06 07 FF                       (order of buffer output)
EXIT
END PROGRAMMING

```

MICR DATA FORMATTER



selections	scan	variables	scan
MICR DECODING	I	Auto Discrimination	A
		E13-B Only	B*
		CMC-7 Only	C
MINIMUM MICR SIGNAL LEVEL	II	Default = \$00 (test disabled)	\$00-\$FE
MAXIMUM MICR SIGNAL LEVEL	III	Default = \$00 (test disabled)	\$00-\$FE
SELECT MICR OUTPUT FORMAT 02-10 Pre-canned	IV	<ENTIRE MICR LINE UN-EDITED (RAW MICR)> NO EXCEPTIONS – includes spaces and symbols – field format rules not verified	00*
		Custom Format (See V, VI, VII)	01
		<TRANSIT #>T<ACCOUNT #>A <CHECK SERIAL #> – account #: no symbols	02
		<TRANSIT #>T<14 DIGIT ACCOUNT #>A<6 DIGIT CHECK SERIAL #> – account #: No spaces or symbols, zero filled, right justified – check #: zero filled, right justified	03
		<TRANSIT #>T<ACCOUNT #>A <CHECK SERIAL #> – account #: includes spaces and symbols	04
		<DIGITS ONLY (except check serial number)> – symbols and spaces not transmitted – digits taken from rightmost On Us symbol to rightmost Transit symbol	05
		<DIGITS ONLY> – symbols and spaces not transmitted – digits taken from the ten positions to the left of the rightmost On Us symbol	06
		<DIGITS ONLY> – symbols and spaces replaced as zeroes – digits taken from the eleven positions to the left of the rightmost On Us symbol	07
		<DIGITS ONLY> – symbols and spaces replaced as zeroes – digits taken from the fourteen positions to the left of the rightmost On Us symbol	08
		<TRANSIT #><ADDITIONAL DIGITS ONLY> – transit #: symbols and spaces not sent – add'l digits: – symbols, spaces, and check number not sent – digits taken from the positions to the left of the rightmost On Us symbol	09
<TRANSIT #><18 DIGIT ACCOUNT #><5 DIGIT CHECK SERIAL #><2 DIGIT ERROR CODE> – account #: No spaces or symbols, zero filled, right justified – check #: zero filled, right justified	10		
<ENTIRE MICR LINE UN-EDITED (RAW MICR)> – includes spaces and symbols – field format rules verified	98		
<ENTIRE MICR LINE UN-EDITED (RAW MICR)> – includes spaces and symbols – field format rules not verified – a question mark (?) will be sent for unreadable characters	99 Test Mode		

Note:
ASCII characters transmitted in place of E13-B symbols:
t = Transit symbol
o = On Us symbol
a = amount symbol
d = dash symbol

* Designates default selections.

MICR DATA FORMATTER

continued

8310 Series Examples

MICR Data Example #2 Exception Table Parsing

Scenario: Output a check with exception table entry where 0001 is the check number.

Check Data: t123456789t987-654321o2220001
Desired output: <transit #>T<account #>A<check #>

Solution: Scan the following series:

```
MICR DATA FORMATTER ENTER
IX          1 2 3 4 5 6 7 8 F2 14 5A F2 04 5A F1 00 FF
EXIT
END PROGRAMMING
```

MICR Data Example #3 Custom Format plus Data Formatter

Scenario: Output only the account number from a check, followed by a carriage return.

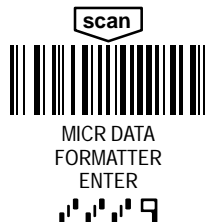
Solution: Scan the following series:

```
MICR DATA FORMATTER ENTER
IV          02                      (Transit t, Account a)
EXIT
END PROGRAMMING
```

```
DATA FORMATTER ENTER
II          99                      (terminal)
           74                      (code ID - MICR)
           99                      (variable length)
           F8 54 F5 01 F3 41 0D FF
EXIT
END PROGRAMMING
```

MICR DATA FORMATTER

continued



selections	scan	variables	scan
CUSTOM MICR FORMAT FIELD EDIT	V	scan Field ID scan Editor Command Sequence scan \$FF	None*
CUSTOM MICR FORMAT FIELD ATTRIBUTE(S)	VI	scan Field ID scan Field Length (HEX Value) scan Field Justify scan \$FF scan Field Fill	None*
CUSTOM MICR FORMAT FIELD OUTPUT ORDER	VII	scan Order of Output 00-08 scan \$FF	None*
ACTIVATE EXCEPTION TABLE PARSING	VIII		*Yes/No
EXCEPTION TABLE PARSING	IX	scan Transit Number scan Editor Command Sequence scan \$FF	None*
DELETE SPECIFIC EXCEPTION TABLE	IX	scan Transit Number scan D0 scan \$FF	None*
DELETE ALL EXCEPTION TABLE PARSING ENTRIES	X	Are you sure?	Yes/No

(1) * Designates DEFAULT selections.

(2) Exception table parsing is activated in the event that the canned format or custom MICR format does not correctly parse a particular Bank's On Us field.

(3) Refer to MICR example #2 on page 28. Exception Table Parsing will be invoked only on those checks where the routing (transit) numbers match the transit number in the format.

STATUS CHECK


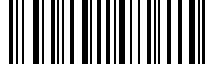
8310 Series Programming Menu

The Formats selection, choice C, lists the existing formats entered using the Data Formatter Programming page. Each format will be followed by a CR (carriage return) as listed.


STATUS CHECK



USE THIS PAGE



■ To output the current programming status of menu pages to either the terminal or the auxiliary port.

STATUS
CHECK
ENTER



selections		variables	
TO TERMINAL	1	Formats	C
		Software Revision	D

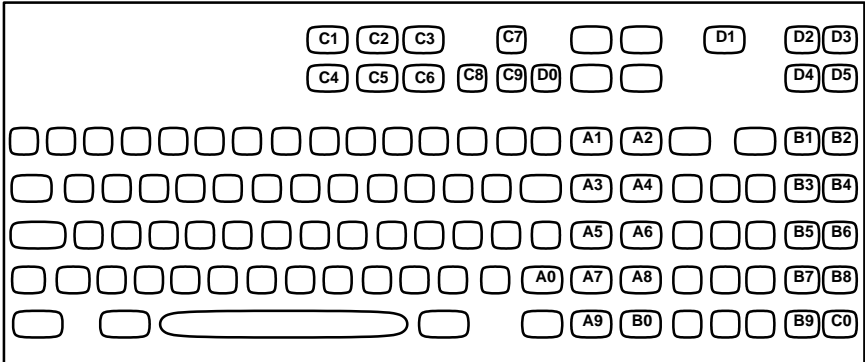
EXIT
END PROGRAMMING



KEYBOARD LAYOUTS

NCR 7052/32–Key and 56–Key

C2	C5	C8	D1	D4	D7	E0
C3	C6	C9	D2	D5	C8	E1
C4	C7	D0	D3	D6	D9	E2
A0	A5	B0	B1	B2	B7	E3
A1	A6			B3	B8	E4
A2	A7			B4	B9	E5
A3	A8			B5	C0	E6
A4	A9			B6	C1	E7



NCR 7052 122 Keyboard

The FO delimiter translates to the following:
 NCR 7052, 32/56 key layout ENTER KEY = B6
 NCR 7052, 122 Big Ticket ENTER KEY = B9

USE THIS PAGE

- In combination with the adjoining menu pages to program the 8310.
- The bar codes on this page correspond to symbols in shaded areas on adjoining menu pages. SCAN these bar codes in the sequence indicated on menu page to program desired selections and variables.

ROMAN NUMERALS



I



XI



II



XII



III



XIII



IV



XIV



V



XV



VI



XVI



VII



XVII



VIII



XVIII



IX



XIX



X



XXI



XXII



XXIII



XXIV



XXV



XXVI



XXVII



XXVIII



XXIX



XXX



XXXI



XXXII



XXXIII



XXXIV



XXXV



XXXVI



XXXVII



XXXVIII



XXXIX

LETTERS



A



B



C



D



E



F



G



H



I



J

DIGITS



0 (YES)



1 (NO)



2



3



4



5



6



7



8



9

OTHERS



ESCAPE



DEFAULT



EXIT

WelchAllyn®

8310/PM Rev C