

Chapter 2 *Programmer's Guide*

Programming

Before programming the scanner, follow the instructions in the *Set Up* section of the *User's Guide*.

Consult the *parameter descriptions* beginning on page 2-5 for explanations of parameter types.

If the default values suit your requirements, all you need to do is scan the SET DEFAULT bar code. Parameters other than default values can be set by scanning sequences of bar codes. Parameter Menus contain all the bar codes necessary to program the controller for each parameter selection.

Scanning Sequence

A scanning sequence establishes a value for one parameter type. During a scanning sequence, you scan bar codes for a parameter type, a parameter value, and ENTER. The *Scanning Sequence Flowchart* on page 2-4 illustrates this process.

Parameter Menus contains all the bar codes needed to program the scanner.

Scanning Sequence Examples

Suppose you want to program the scanner for all default settings except for two parameters, **DECODE UPC ONLY** and **INTERCHARACTER DELAY**.

Since you want to keep most of the default settings, scan the **SET DEFAULT** bar code. The default for **DECODE UPC ONLY** is **DISABLED** – you need it **ENABLED**. Scan the three bar codes in the order listed below:

SCAN	YOU WILL HEAR. . .
1. DECODE UPC ONLY	Short high tone
2. ENABLED	Short high tone
3. ENTER	Hi/Lo/Hi/Lo warble

After the last scan in a successful scanning sequence (ENTER), the warble sound (i.e., hi/lo/hi/lo) indicates that the scanner has been successfully programmed for the selected parameter. *Beeper Definitions* are listed on page 2-14.

The **Intercharacter Delay** default is 10 msec; in this example you want to set it to 2 msec. To program the scanner for a 2 msec. Intercharacter Delay, scan the four bar codes listed below. There are four bar codes because this sequence includes a two digit entry; note that single digit entries must have a leading zero.

SCAN	YOU WILL HEAR. . .
1. INTERCHARACTER DELAY	Short high tone
2. 0	Short high tone
3. 2	Short high tone
4. ENTER	Hi/Lo/Hi/Lo warble

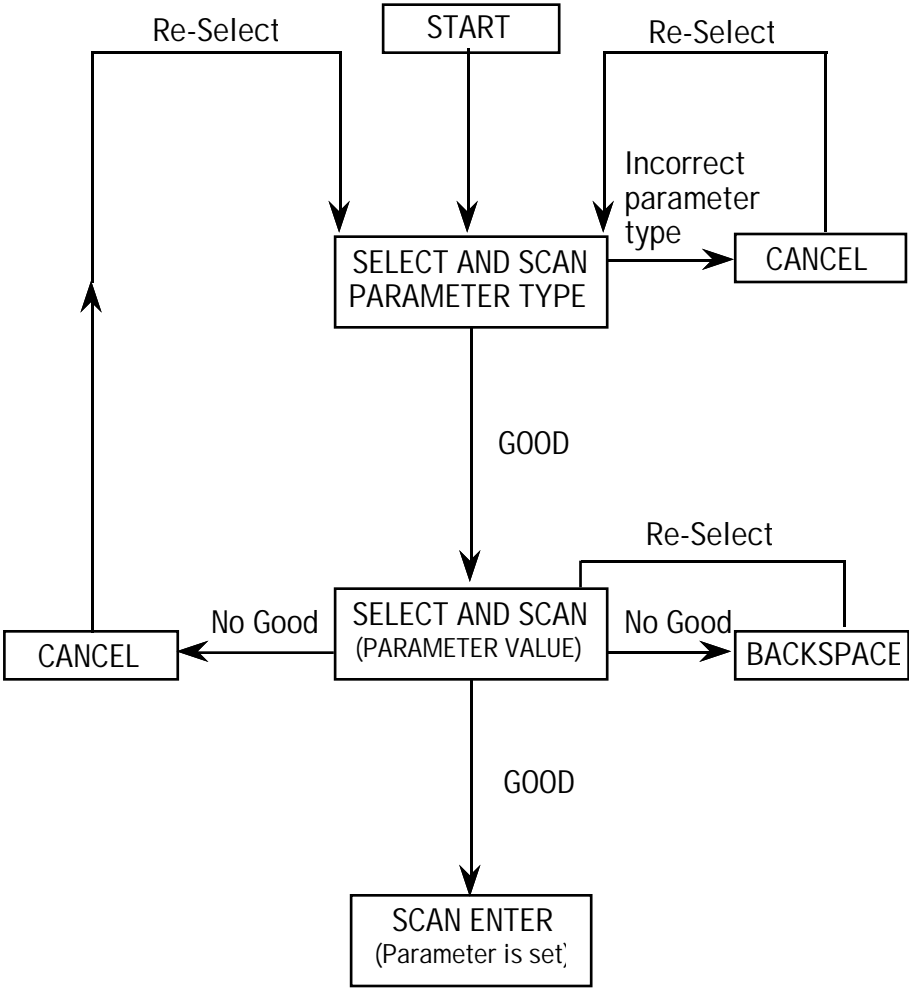
Errors While Scanning

Don't worry if you make an error during a scanning sequence. There are two special-purpose bar codes, **BACKSPACE** and **CANCEL**, to help you.

Scanning the **BACKSPACE** bar code erases the value of the previous bar code scanned but keeps you within the scanning sequence for a parameter type.

Scanning **CANCEL** removes you from the current sequence so that you can start again.

Scanning Sequence Flowchart



Set Parameter Defaults

Scanning the **SET DEFAULT** bar code returns all parameters to the default values listed in the **Default Table**.

Code Types

The bar code menu selections enable the scanner to decode any or all of the following symbologies.

- UPC Versions A and E (EAN 8 and 13)
- Code 39
- Interleaved 2 of 5
- Code 93
- Codabar
- Discrete 2 of 5
- Code 128
- Code 39 Full ASCII

The scanner will autodiscriminate between all of the above symbologies, except for Code 39 and Code 39 Full ASCII.

If UPC/EAN with supplemental characters is selected, UPC/EAN without supplemental characters is ignored. See [page 2-7](#) for details.

If you want to add Discrete 2 of 5 or Interleaved 2 of 5, check the previously enabled lengths. To set lengths for these codes, see the **Fixed Lengths For Code 2 of 5** section of the parameter menus.

Fixed Lengths For Code 2 of 5

Select one or two lengths for the Interleaved or Discrete 2 of 5 codes. Determine the number of characters represented in each code type by counting the number of printed (i.e., human readable) digits that represent a bar code label. One length (Length 1) or two lengths (Length 2) for either code type may be set, as needed.

If any default setting is in effect and is an appropriate length, it need not be reset. Set one or both lengths, one per scanning sequence. **LENGTH 1** may range from 01-31 and **LENGTH 2** may range from 00-31.

Decode Options

Transmit UPC-E/UPC-A Check Digit

Select if decoded UPC-E or UPC-A symbols are transmitted with or without the check digit.

Decode UPC Only (Not EAN)

If selected, this option limits the scanner's decode capability to UPC versions only. It disables EAN decode capability.

Convert UPC-E to UPC-A

Use this parameter to convert UPC-E (zero suppressed) decoded data to UPC-A format before transmission. After conversion, data will follow UPC format and be affected by UPC programming selections (e.g., Preamble, Check Digit).

Beeper Enable/Disable

Determine if the unit beeper will sound during normal scanning. Usually it is desirable to operate the unit with the beeper enabled. In all cases, the beeper operates during parameter menu scanning and indicates error conditions.

Beeper Definitions are on page 2-14.

Transmit Code ID Character

A code ID character identifies the code type of a scanned bar code. This may be useful when the scanner is decoding more than one code type. In addition to any single-character prefix already selected, the code ID character is appended as a prefix to the decode. Code ID characters are: A = UPC-A, UPC-E, EAN-13, or EAN-8; B = Code 39; C = Codabar; D = Code 128; E = Code 93; F = Interleaved 2 of 5; G = Discrete 2 of 5 or Discrete 2 of 5 IATA.

EAN Zero Extend

This parameter adds five leading zeros to decoded EAN-8 symbols to make them compatible in format to EAN-13 symbols.

NOTIS Editing

This option strips the start and stop characters from decoded Codabar symbols.

Decode Options (Contd)

CLSI Editing

Use this parameter to insert a space after the 1st, 5th, and 10th characters of a 14-character Codabar symbol. The symbol length includes start and stop characters.

Decode UPC/EAN Supplemental

Select whether UPC/EAN is decoded with or without supplemental characters. Supplementals are additionally appended characters, according to specific code format conventions (e.g., UPC A+2, UPC E+2, EAN 8+5). If UPC/EAN with supplemental characters is selected, UPC/EAN symbols without supplemental characters won't be decoded. If UPC/EAN without supplemental characters is selected and the scanner is presented with a UPC/EAN plus supplemental symbol, the UPC/EAN will be decoded and the supplemental characters ignored.

Scan and Store (Code 39 Buffering)

When you select the scan and store option, all Code 39 symbols having a leading space as a first character are temporarily buffered in the unit to be transmitted later. The leading space is not buffered.

Decode of a valid Code 39 symbol with no leading space causes transmission in sequence of all buffered data in a first-in first-out format, plus transmission of the “triggering” symbol. See [page 2-15 to 2-16](#) for further details.

When the scan and transmit option is selected, decoded Code 39 symbols without leading spaces are transmitted without being stored in the buffer.

Scan and Store affects Code 39 decodes only. If you select Scan and Store, it is recommended that you configure the scanner to decode Code 39 symbology only.

Baud Rate

Baud rate is the number of bits of data transmitted per second. The unit's baud rate setting should match the data rate setting of the host device. If not, data may not reach the host device or may reach it in distorted form.

Parity

A parity check bit is the most significant bit of each ASCII coded character. If you select ODD parity, the parity bit will have a value 0 or 1, based on data, to ensure that an odd number of 1 bits are contained in the coded character.

If you select EVEN parity, the parity bit will have a value, 0 or 1, to ensure that an even number of 1 bits are contained in the coded character. Select MARK parity and the parity bit will always be 1. Select SPACE parity and the parity bit will always be 0. Select the parity type according to host device requirements.

Check Parity

Select whether the parity of received characters is checked. The type of parity used is selectable through the *PARITY* parameter.

Hardware Handshaking

Hardware handshaking allows you to check the readiness of the receiving device before data is transmitted. If the receiving device is periodically occupied with other tasks, hardware handshaking is needed to prevent loss of transmitted data.

Select whether the scan data is to be transmitted as soon as it is available or whether transmission follows the RTS/CTS procedure. See the *Communications Protocols* section on page 2-17 to 2-18 for more details.

Software Handshaking

This parameter offers control of the data transmission process in addition to, or instead of, that offered by hardware handshaking. These options may be combined, for example ACK/NAK with ENQ.

1. No Software Handshaking
2. ACK/NAK Only

The ACK/NAK option checks the success or failure of transmission. The scanner expects one of the following host responses after a data transmission:

<ACK> - Acknowledges a valid and successful transmission.

<NAK> - Indicates a problem with the transmission.

Whenever a <NAK> is received, the unit retransmits the same data and awaits an ACK/NAK response. After three unsuccessful attempts to transmit the same data, the scanner aborts any further communication attempts of that message.

3. ENQ ONLY

The ENQ option needs the host to request data before it is transmitted to the host. This ensures that data transmission occurs only when the host is ready to receive.

When you select the wait for ENQ option, the scanner waits for an ENQ, Enquire character from the host before it transmits data; otherwise, the unit transmits data without waiting for an ENQ character from the host. With ENQ enabled, the scanner must receive an ENQ from the host within a 2 second period after the last activity or a transmission error will occur.

4. ACK/NAK with ENQ

This combines both handshaking options.

Stop Bit Select

The stop bit(s) at the end of each transmitted character marks the end of transmission of one character and prepares the receiving device for the next character in the serial data stream. The number of stop bits (one or two) selected depends on the number the receiving terminal is programmed to accommodate. Set the number of stop bits to match host device requirements.

Transmit “No Decode” Message

This feature gives you the option to transmit “NR” when a symbol does not decode. Prefixes and suffixes enabled will be appended around this character.

Prefix

The scanner will add one of the following start-of-text characters to transmitted data.

- None
- Start-of-text <STX>
- One user-defined prefix (can be any ASCII character).

Suffix

Select one or two end-of-text characters to be added to transmitted data:

- None
- CR (Carriage Return) - Returns the cursor to the same position on the line after each decode.
- LF (Line Feed) - Moves the cursor down a line after each decode.
- CR & LF - Allow you to select where the cursor on a display terminal returns to after it displays each decoded symbol. Selecting both CR & LF, returns the cursor to the same position on successive lines after each decode. If you select no control code, the cursor remains where it stopped after the last transmission.
- End-of-text <ETX>.
- One or two characters, user-defined.

Intercharacter Delay

Select the intercharacter delay option matching host device requirements. The intercharacter delay gives the host system time to service its receiver and perform other tasks between characters. Select from no delay to a 99 msec. delay between the transmission of each character.

UPC A and E Preamble(s)

Three options are given for the lead-in characters of decoded UPC-A or UPC-E symbols transmitted to the host device. Select one preamble for UPC-A decodes and one for UPC-E decodes. These lead-in characters are considered part of the symbol itself. The three options are:

- a system character only
- the country code and system character
- no preamble

The system character is the digit printed to the extreme left of a UPC symbol. The country code for UPC is always zero, and it cannot be transmitted without the system character.

Data Format

This parameter sets the transmit data format. The options are 7 Data Bits (with Parity), 8 Data Bits (with Parity), and 8 Data Bits (without Parity). The PARITY parameter applies only to the 7 Data Bits (with Parity), and 8 Data Bits (with Parity) options. The default is 7 Data Bits (with Parity).

Transmission Direction

This parameter determines:

1. Through which port (MPC and/or SEC) the scanner will transmit decoded data.
2. Through which port (MPC or SEC) the scanner can receive software handshaking signals. (Note: Software handshaking can be used with one port only.)

To determine which port the scanner should transmit through, the user must be aware of the communication mode of the host system (i.e., Full Duplex, Half Duplex, or Block Mode).

Table 2-1. shows the options for a typical configuration, assuming that the MPC is connected to the host and the SEC cable is attached to the local device.

The first two columns show how transmission direction is related to the communication mode of the host system. Columns 3 and 4 show how software handshaking further determines transmission direction.

Table 2-2. shows the options for a typical configuration when the SEC cable is connected to the host device, and the MPC is connected to the terminal.

Beep on <BEL>

When this parameter is enabled, the scanner will issue a beep when a <BEL> character is detected on the RS-232C serial data line. <BEL> is used to gain the users attention to indicate an illegal entry or other important event.

Table 2-1. Transmission Direction with MPC to Host and SEC to Local Device

Communication Mode	Transmit Through Port	Software Handshaking	Transmission Direction Selection
Full Duplex only	MPC only	With Host	Talk & Receive MPC
Half Duplex	MPC & SEC	With Host	Talk to MPC & SEC Receive MPC only
	With Local Device	Talk to MPC & SEC	Receive SEC only
Block Mode only	SEC only	With Local Device	Talk & Receive SEC

Table 2-2. Transmission Direction with SEC to Host and MPC to Local Device

Communication Mode	Transmit Through Port	Software Handshaking	Transmission Direction Selection
Full Duplex only	SEC only	With Host	Talk & Receive SEC
Half Duplex	MPC & SEC	With Host	Talk to MPC & SEC Receive SEC only
	With Local Device		Talk to MPC & SEC Receive MPC only
Block Mode only	MPC only	With Local Device	Talk & Receive MPC

Beeper Definitions

Standard Use

Beeper Sequence	Indication
1 Beep - short high tone	A symbol has been successfully decoded.
4 Beeps - long low tone	Error in transmission; loss of last data scanned. Scan last data again.
4 Beeps - short high tone	Low power indication; no further scanning is possible. Change or recharge battery.

Parameter Menu Scanning

Beeper Sequence	Indication
1 Beep- short high tone	Appropriate menu within the scanning sequence has been read.
1 Beep- warble sound	Parameter value entered successfully.
2 Beeps- long low tone	Parameter not entered or incorrect sequence performed. Scan CANCEL and restart the scanning sequence

Code 39 Scan and Store

Beeper Sequence	Indication
1 Beep - hi/lo tone	New data being entered into the buffer.
1 Beep - short lo/hi/lo tone	The buffer has been erased, or there was an attempt to transmit an empty buffer. When the buffer was empty, the scanner read a command to clear or to transmit a Code 39 buffer.
3 Beeps- long high tone	Code 39 Buffer is full.
4 Beeps - long low tone	Error in transmitting stored buffer data.
1 Beep - lo/hi tone	Transmission of stored buffer data is good.

Code 39 Buffering (Scan & Store)

While there is data in the transmission buffer, deleting Code 39 buffering capability via the parameter menu is not allowed.

To allow disabling of Code 39 buffering, first force the buffer transmission (see *Transmit Buffer*) or clear the buffer.

Buffer Data

- To buffer data, Code 39 buffering must be enabled, and a symbol must be read with a space immediately following the start pattern.
- Unless symbol overflows the transmission buffer, unit gives a lo/lo beep to indicate successful decode and buffering. See *Overfilling Transmission Buffer*.
- Unit adds the message, excluding the leading space to the transmission buffer.
- No transmission will occur.

Clear Transmission Buffer

To clear the transmission buffer, read a symbol which contains only a start character, a dash (minus), and a stop character.

- Unit issues a short lo/hi/lo beep to signal that the transmission buffer has been erased, and no transmission has occurred.
- Unit erases the transmission buffer.
- No transmission will occur.



Transmit Buffer

To transmit the buffer, read a symbol containing either the first or second condition:

1. Only a start character, a plus (+), and a stop character.
 - The unit signals that the transmission buffer has been sent (a hi/lo/hi beep).
 - Unit sends the buffer.
 - Unit clears the buffer.



2. A Code 39 bar code with leading character other than a space.
 - The unit signals a good decode and buffering of that decode has occurred by giving a lo/lo beep.
 - Unit transmits the buffer.
 - Unit signals that the buffer has been transmitted with a hi/lo/hi beep.

Overfilling Transmission Buffer

If the symbol just read will result in an overflow of the transmission buffer:

- Unit indicates that the symbol has been rejected by issuing a lo/lo/hi beep.
- No transmission will occur. Data in buffer is not affected.

Attempt to Transmit an Empty Buffer

If the symbol just read was the transmit buffer symbol and the Code 39 buffer is empty:

- A short lo/hi/lo beep signals that the buffer is empty.
- No transmission occurs.
- The buffer remains empty.

Communications Protocols

Hardware Handshaking

The data interface consists of an RS-232C port. See *Interface Cable Pin-outs* in the *User's Guide*. The port has been designed to operate either with or without hardware handshaking lines, RTS, Request to Send, and CTS, Clear to Send.

If RTS/CTS handshaking has not been selected, scan data will be transmitted as it becomes available. If optional RTS/CTS handshaking has been selected, the DTR signal is hardwired active, and the unit proceeds as follows:

- Examine CTS. If CTS is not asserted by the host, RTS will be asserted by the scanner. If CTS is asserted by the host, the scanner will wait up to 2 seconds for CTS to be negated.
- When the host asserts CTS in response to, and within 2 seconds of the scanner's RTS, data will be transmitted.
- The scanner will negate RTS after sending the last character.
- The host should respond by negating CTS. The scanner will not wait for this negation, but rather will check before, the next transmission, as above.

If the above communication attempt should fail for any reason, the data will be lost and will have to be rescanned.

Software Handshaking

The scanner also provides two software handshaking options, ENQ and ACK/NAK, selected by parameter menus.

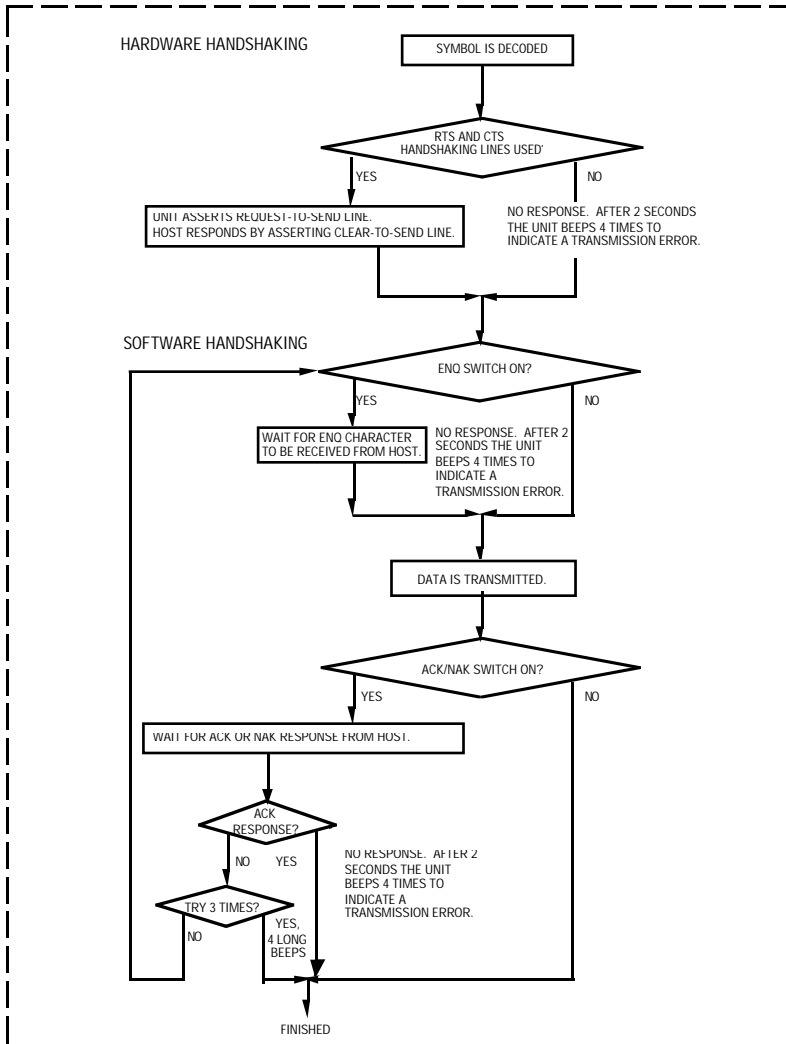
These software handshaking options operate in addition to, and are subordinate to, the hardware handshaking. They can be used separately, in conjunction with each other, or not at all. They operate in the following manner:

- When the ENQ is enabled, the scanner waits for an ENQ, Enquire, character from the host before it transmits data. The host must respond in approximately 2 seconds or a transmission error will occur, and the last scanned data will be lost.
- When the ACK/NAK is enabled, after the scanning unit has transmitted data, it looks for one of the following responses:
 - <ACK> acknowledging a valid accepted transmission, or
 - <NAK> indicating a problem with the transmission.

The scanner then will retransmit the data. After three unsuccessful transmission attempts, the unit will abort any further communication attempts on the current message.

Handshaking Sequence

Hardware and Software Handshaking Sequence



ASCII Character Set

CHARACTER	HEXADECIMAL	DECIMAL	CHARACTER	HEXADECIMAL	DECIMAL
NUL	00	0	SP	20	32
SOH	01	1	!	21	33
STX	02	2	"	22	34
ETX	03	3	#	23	35
EOT	04	4	\$	24	36
ENQ	05	5	%	25	37
ACK	06	6	&	26	38
BEL	07	7	'	27	39
BS	08	8	(28	40
HT	09	9)	29	41
LF	0A	10	*	2A	42
VT	0B	11	+	2B	43
FF	0C	12	,	2C	44
CR	0D	13	-	2D	45
SO	0E	14	.	2E	46
SI	0F	15	/	2F	47
DLE	10	16	0	30	48
DC1	11	17	1	31	49
DC2	12	18	2	32	50
DC3	13	19	3	33	51
DC4	14	20	4	34	52
NAK	15	21	5	35	53
SYN	16	22	6	36	54
ETB	17	23	7	37	55
CAN	18	24	8	38	56
EM	19	25	9	39	57
SUB	1A	26	:	3A	58
ESC	1B	27	;	3B	59
FS	1C	28	<	3C	60
GS	1D	29	=	3D	61
RS	1E	30	>	3E	62
US	1F	31	?	3F	63

ASCII Character Set (Contd)

CHARACTER	HEXADECIMAL	DECIMAL	CHARACTER	HEXADECIMAL	DECIMAL
@	40	64	`	60	96
A	41	65	a	61	97
B	42	66	b	62	98
C	43	67	c	63	99
D	44	68	d	64	100
E	45	69	e	65	101
F	46	70	f	66	102
G	47	71	g	67	103
H	48	72	h	68	104
I	49	73	i	69	105
J	4A	74	j	6A	106
K	4B	75	k	6B	107
L	4C	76	l	6C	108
M	4D	77	m	6D	109
N	4E	78	n	6E	110
O	4F	79	o	6F	111
P	50	80	p	70	112
Q	51	81	q	71	113
R	52	82	r	72	114
S	53	83	s	73	115
T	54	84	t	74	116
U	55	85	u	75	117
V	56	86	v	76	118
W	57	87	w	77	119
X	58	88	x	78	120
Y	59	89	y	79	121
Z	5A	90	z	7A	122
[5B	91	{	7B	123
\	5C	92		7C	124
]	5D	93	}	7D	125
^	5E	94		7E	126
-	5F	95	DEL	7F	127

Default Table

Parameter	Default
Code Types	All
Code Lengths	
D 2 of 5 Length 1	12
D 2 of 5 Length 2	0
I 2 of 5 Length 1	14
I 2 of 5 Length 2	0
Decode Options	
Transmit UPC-A Check Digit	Enabled
Transmit UPC-E Check Digit	Enabled
Decode UPC Only	Disabled
Convert UPC-E to UPC-A	Disabled
Beep After Good Decode	Enabled
Transmit Code ID Character	Disabled
EAN Zero Extend	Disabled
CLSI Editing	Disabled
NOTIS Editing	Disabled
Decode UPC/EAN Supplementals	No Supplementals
Buffer Code 39	Disabled
Baud Rate	9600
Parity	Even
Check Parity of Received Data	Enabled

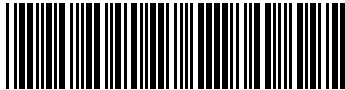
Parameter	Default
Hardware Handshaking	None
Software Handshaking	None
Stop Bit Select	Two
Transmit "No Decode" Message	No Message
Prefix	None
Suffix	CR/LF
Intercharacter Delay	None
UPC-E Preamble	System Character
UPC'A Preamble	System Character
Transmission Direction	Talk & Receive MPC only
Beep on <BEL>	Disabled
Data Format	7 Data Bits (with Parity)

Parameter Menus

Set Default	page 2-25
Code Types	page 2-26 to 2-27
Code Lengths	page 2-28 to 2-29
Decode Options	page 2-30 to 2-31
UPC/EAN Supplementals	page 2-32
Buffer Code 39	page 2-33
Baud Rate	page 2-34 to 2-35
Parity	page 2-36
Check Parity of Received Data	page 2-37
Hardware Handshaking	page 2-38
Software Handshaking	page 2-39
Stop Bit Select	page 2-40
Transmit "No Decode" Message	page 2-41
Prefix	page 2-42 to 2-43
Suffix	page 2-44 to 2-45
Intercharacter Delay	page 2-46 to 2-47
UPC-E & UPC-A Preamble	page 2-48 to 2-49
Transmission Direction	page 2-50
Data Format	page 2-51
Beep on BEL	page 2-52

Set Defaults

To set all parameters to their default settings, scan the bar code below.

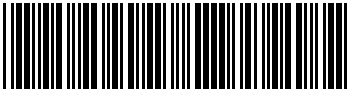


SET DEFAULT

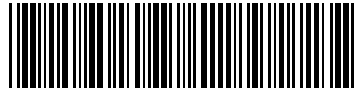
Code Types

These options add or delete a code type.

1. Scan the **ADD** or **DELETE** bar code.
2. Scan the bar code corresponding to the code type to be added or deleted.
3. Scan **ENTER**.



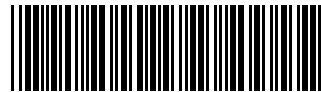
ADD



DELETE



CODE 39

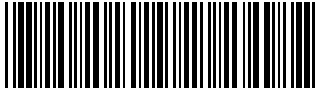


CODE 39 FULL ASCII

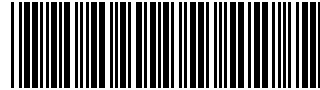


CODE 93

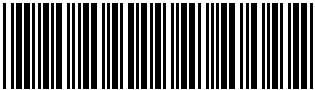
Code Types (Contd)



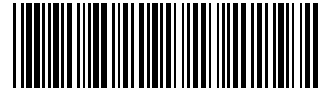
UPC/EAN



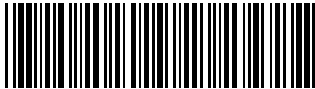
INTERLEAVED 2 OF 5



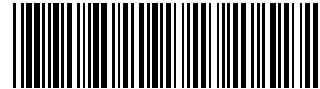
DISCRETE 2 OF 5



CODE 128



ALL CODES



CODABAR

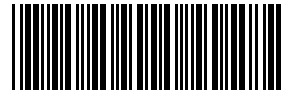
BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

Fixed Lengths For A Code 2 of 5

To set the fixed lengths for a Code 2 of 5:

1. Scan the **FIXED LENGTH** bar code corresponding to the length to be changed.
2. To enter the length, scan two bar codes from the next page; the first bar code scanned should signify the most significant digit.
3. Scan **ENTER**.



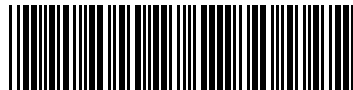
DISCRETE 2 OF 5 LENGTH 1
(Range 01-31)



DISCRETE 2 OF 5 LENGTH 2
(Range 00-31)



INTERLEAVED 2 OF 5
(Range 01-31)



INTERLEAVED 2 OF 5
(Range 00-31)

Fixed Lengths For A Code 2 of 5 (Contd)



BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER

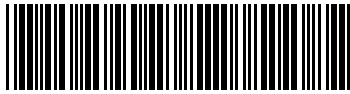


CANCEL

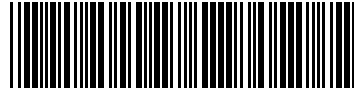
Decode Options

To select one of the decode options:

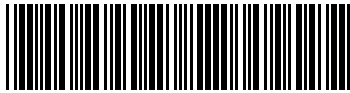
1. Scan the desired **DECODE OPTION** bar code.
2. Scan the **ENABLE** or **DISABLE** option bar code.
3. Scan **ENTER**.



TRANSMIT UPC-E CHECK DIGIT



TRANSMIT UPC-A CHECK DIGIT



CONVERT UPC-E TO UPC-A



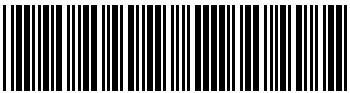
DECODE UPC ONLY



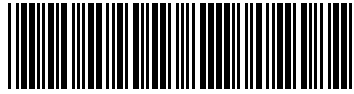
TRANSMIT CODE IDENTIFIER



BEEP AFTER GOOD DECODE



CLSI EDITING



EAN ZERO EXTEND



NOTIS EDITING

Decode Options (Contd)



ENABLED



DISABLED

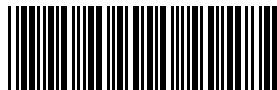
BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

UPC/EAN Supplementals Option

To select a UPC/EAN supplementals option:

1. Scan the **UPC/EAN SUPPLEMENTALS** bar code.
2. Scan the desired option.
3. Scan **ENTER**.



UPC/EAN SUPPLEMENTALS



NO SUPPLEMENTALS



SUPPLEMENTALS ONLY

BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER

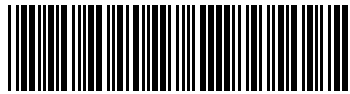


CANCEL

Buffer Code 39

To select a Code 39 buffer option:

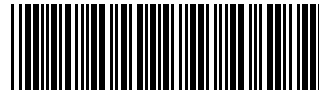
1. Scan the **BUFFER CODE 39** bar code.
2. Scan the desired option.
3. Scan **ENTER**.



BUFFER CODE 39



ENABLED



DISABLED

BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

Baud Rate

To select a baud rate:

1. Scan the **BAUD RATE** bar code.
2. Scan the bar code corresponding to the desired value.
3. Scan **ENTER**.



Baud Rate (Contd)

BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

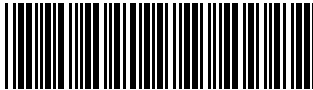
Parity

To enter parity:

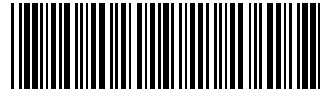
1. Scan the **PARITY** bar code.
2. Scan the desired option bar code.
3. Scan **ENTER**.



PARITY



ODD



EVEN



MARK



SPACE

BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

Check Parity

To select check parity option:

1. Scan the **CHECK PARITY** bar code.
2. Scan the **ENABLE** or **DISABLE** bar code.
3. Scan ENTER.



**CHECK PARITY OF
RECEIVED CHARACTERS**



ENABLE



DISABLE

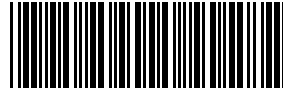
BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

Hardware Handshaking

To select a hardware handshaking protocol:

1. Scan the **HARDWARE HANDSHAKING** bar code.
2. Scan the desired option.
3. Scan **ENTER**.



BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

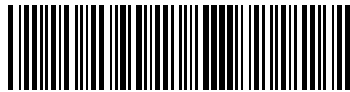
ENTER - stores and enters the new change.



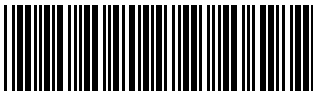
Software Handshaking

To select a software handshaking protocol:

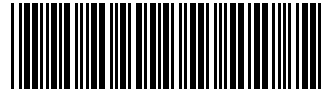
1. Scan the **SOFTWARE HANDSHAKING** bar code.
2. Scan the desired option.
3. Scan **ENTER**.



SOFTWARE HANDSHAKING



NONE



ACK/NAK WITH ENQ



ACK/NAK ONLY



ENQ ONLY

BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

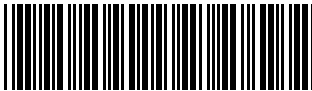
Stop Bit Select

To select the number of communications stop bits:

1. Scan the **STOP BIT SELECT** bar code.
2. Scan the option bar code corresponding to the required value.
3. Scan **ENTER**.



STOP BIT SELECT



1 STOP BIT



2 STOP BITS

BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

Transmit “No Decode” Message

To enable/disable transmission of the “NR” message:

1. Scan the **TRANSMIT “NR”** bar code.
2. Scan either the **ENABLED** or **DISABLED** bar code.
3. Scan **ENTER**.



**TRANSMIT “NR”
(NO DECODE CHARACTER)**



ENABLED



DISABLED

BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

Prefix

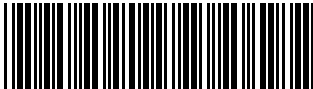
To enter a prefix:

1. Scan the **PREFIX** bar code.
2. Scan the option bar code that corresponds to the option desired.
3. Scan **ENTER**.

If USER'S CHOICE is scanned, then scan the appropriate 3 digit (leading zeros are required) decimal of the ASCII character(s) to be entered, using the bar codes on the next two pages.



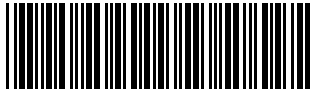
PREFIX



NONE



STX



USER'S CHOICE
1 CHARACTER

Prefix (Contd)



0



5



1



6



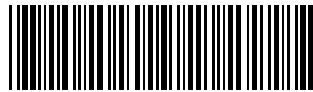
2



7



3



8



4



9

BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

Suffix

To enter a suffix:

1. Scan the **SUFFIX** bar code.
2. Scan the option bar code that corresponds to the option desired.
3. Scan **ENTER**.



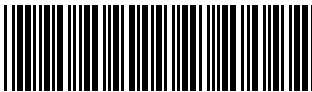
SUFFIX



NONE



CR



LF



CR,LF



ETX



**USER'S CHOICE
1 CHARACTER**



**USER'S CHOICE
2 CHARACTERS**

Suffix (Contd)



0



5



1



6



2



7



3



8



4



9

BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

Intercharacter Delay

To enter a new delay or time-out value:

1. Scan the **INTERCHARACTER DELAY** bar code.
2. Enter the new value by scanning two bar codes. The first bar code scanned corresponds to the most significant digit; the second bar code corresponds to the least significant digit. The value entered must be within the 00-99 msec. range.
3. Scan **ENTER**.



INTERCHARACTER DELAY
(Range = 00-99 ms)

Intercharacter Delay (Contd)



BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

UPC-E/UPC-A Preamble

To select one of the preamble options:

1. Scan the bar code corresponding to the **PREAMBLE** option desired.
2. Scan a bar code on the next page to enable or disable the decode option.
3. Scan **ENTER**.



UPC-E/UPC-A Preamble (Contd)



SYSTEM CHARACTER



**SYSTEM CHARACTER
AND COUNTRY CODE**



NONE

BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER

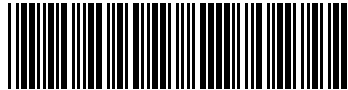


CANCEL

Transmission Direction

To select the desired transmission direction:

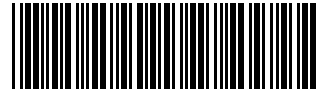
1. Scan the **TRANSMISSION DIRECTION** bar code
2. Scan the desired option.
3. Scan **ENTER**.



TRANSMISSION DIRECTION



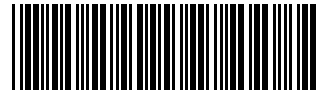
TALK & RECEIVE MPC ONLY



**TALK TO MPC & SEC
RECEIVE FROM MPC ONLY**



TALK & RECEIVE SEC ONLY



**TALK TO MPC & SEC
RECEIVE FROM SEC ONLY**

BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL

Data Format

To select an RS-232C transmission protocol:

1. Scan the **DATA FORMAT** bar code.
2. Scan the desired option.
3. Scan **ENTER**.



DATA FORMAT



7 DATA BITS (WITH PARITY)



8 DATA BITS (WITH PARITY)



8 DATA BITS (WITHOUT PARITY)

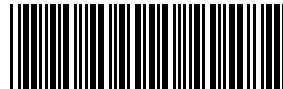
BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER

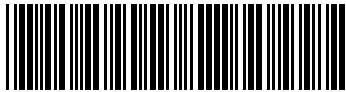


CANCEL

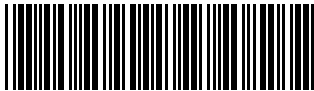
Beep on <BEL>

To enable or disable this parameter:

1. Scan the **BEEP ON BEL** bar code.
2. Scan the bar code that corresponds to the desired option.
3. Scan **ENTER**.



BEEP ON BEL



DISABLED



ENABLED

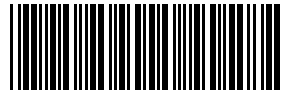
BACKSPACE - deletes the last bar code scanned.

CANCEL - deletes entire change and returns you to the decode mode.

ENTER - stores and enters the new change.



BACKSPACE



ENTER



CANCEL