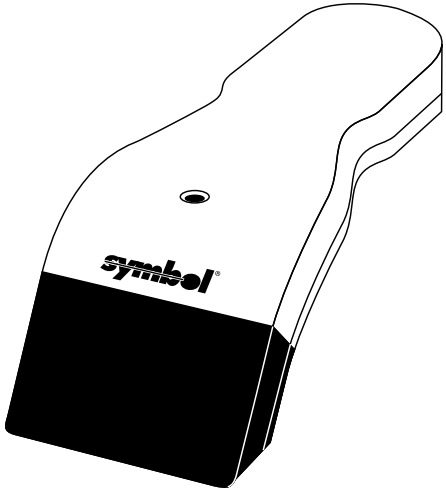
LT 1806 (Keyboard Wedge/Synapse) Product Reference Guide

Click on red text at any location in the manual to jump to the specified chapter, topic, or reference.



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symbol®

SYMBOL TECHNOLOGIES KNOW IT NOW

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FCC Information

This device complies with Part 15 of the FCC rules, and Canadian RSS:210. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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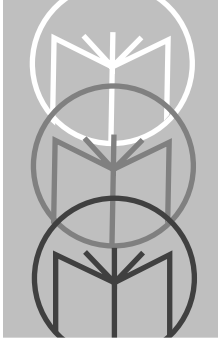


About This Manual

The *LT 1806 Product Reference Guide* provides general instructions for setup, operation, troubleshooting, maintenance, and programming.

Notational Conventions

The following conventions are used in this document:

- Bullets (•) indicate:
  - action items
  - lists of alternatives
  - lists of required steps that are not necessarily sequential
- Sequential lists (e.g., those that describe step-by-step procedures) appear as numbered lists.

Related Publications

- *LT 1850/1806 Quick Reference Guide* 70-31613-XX

Service Information

If you have a problem with your equipment, contact the Symbol Support Center. Before calling, have the model number, serial number, and several of your bar code symbols at hand.

Call the Support Center from a phone near the scanning equipment so that the service person can try to talk you through your problem. If the equipment is found to be working properly and the problem is symbol readability, the Support Center will request samples of your bar codes for analysis at our plant.

If your problem cannot be solved over the phone, you may need to return your equipment for servicing. If that is necessary, you will be given specific directions.

> ***Note:*** *Symbol Technologies is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty. If the original shipping container was not kept, contact Symbol to have another sent to you.*

Symbol Support Center

In the U.S.A, for service information, warranty information or technical assistance, call:

SYMBOL SUPPORT CENTER
1-800-653-5350

If you purchased your Symbol product from a Symbol Business Partner, contact that Business Partner for service.

Canada

Mississauga, Ontario
Canadian Headquarters
(905) 629-7226

Europe

Wokingham, England
European Headquarters
0734-771-222 (Inside UK)
+441-734-771222 (Outside UK)

Asia

Singapore
Symbol Technologies Asia, Inc.
337-6588 (Inside Singapore)
+65-337-6588 (Outside Singapore)

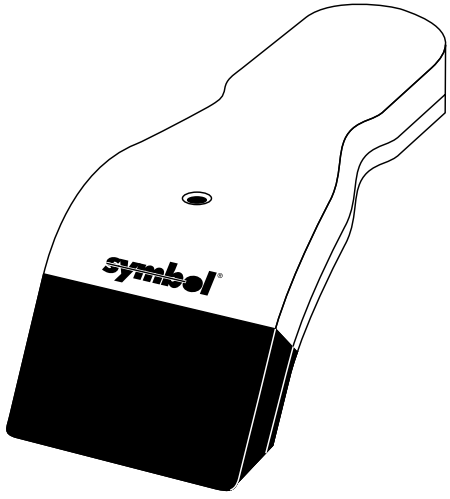
Chapter 1
Setting Up the LT 1806

Overview

LT 1806 provides the best all-around close range scanning performance, reliability, and value available. Its physical design, which combines a lightweight yet solid feel with excellent ergonomics for scanning, ensures comfortable use.

The LT 1806 hand-held scanner is based on the Visible Laser Diode (VLD) as a light source. Combined with our surface mount technology and patented resonating harmonic scan element, this state-of-the-art scanner provides solid state dependability.

Laser performance gives you accuracy and faster read rates on virtually any bar code substrate, including colors.



The LT 1806 weighs 6.0 ounces (170 gm) without the cable and is made from a durable, flame retardant plastic.

Set Up

The LT 1806 scanner is a keyboard "wedge" interface which adds efficient, reliable bar code reading to your terminal. Since entered scan data is transmitted as keystrokes, no software changes to the host system are necessary.

Unpacking

Remove the LT 1806 from its packing and inspect it for damage. If the scanner was damaged in transit, call the *Symbol Support Center* at one of the telephone numbers listed in *About This Manual*. **KEEP THE PACKING**. It is the approved shipping container and should be used if you ever need to return your equipment for servicing.

Connecting Your Scanner

The scanner contains on-board discrete keyboard wedge communications for connecting to asynchronous terminals and host systems. It can also accommodate any of the Synapse™ "Smart Cables" which allows you to connect to a wide variety of host systems. Some installations require one cable; others require additional adapters between the keyboard, the PC, and the y-cable.

1. Switch off the PC and unplug the keyboard connector.
2. Attach the modular connector of the Y-cable to the scanner port on the scanner.
3. Connect the round male DIN host connector of the Y-cable to the keyboard port on host device.
4. Connect the round female DIN keyboard connector of the Y-cable to the keyboard.
5. If needed, attach the optional power supply to the connector in the middle of the Y-cable.
6. Make sure that all the connections are secure.
7. Switch on your host system. You are now ready to read bar codes.

During scanning, PC compatible host terminals should be in the CAPS LOCK OFF mode.

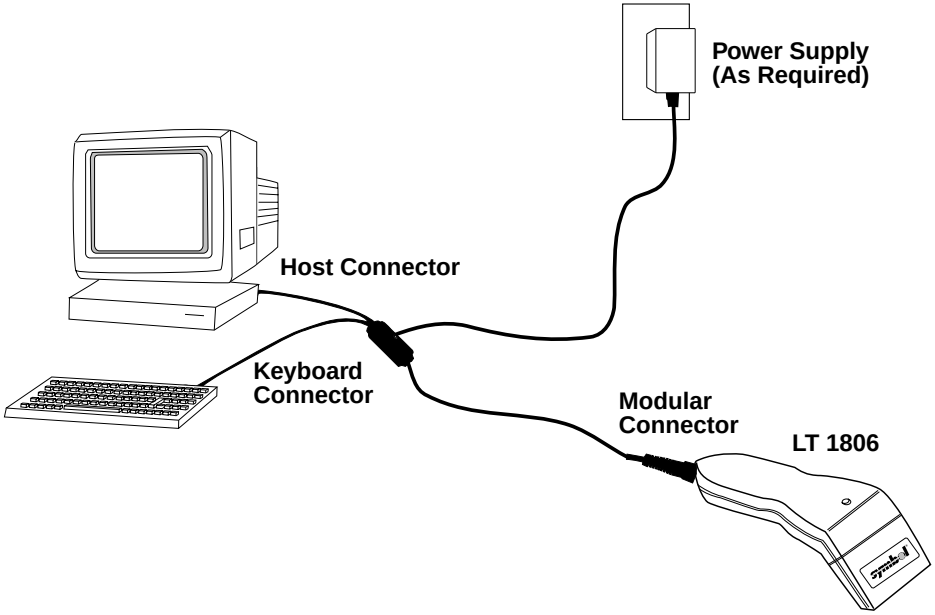


Figure 1-1. Keyboard Wedge Configuration with "Y" Cable

Synapse Configuration

See the *Synapse Interface Guide* provided with your Synapse cable for setup instructions.

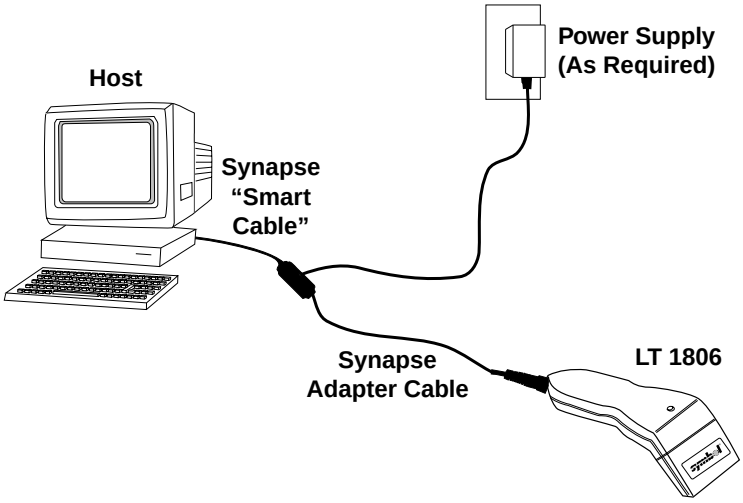
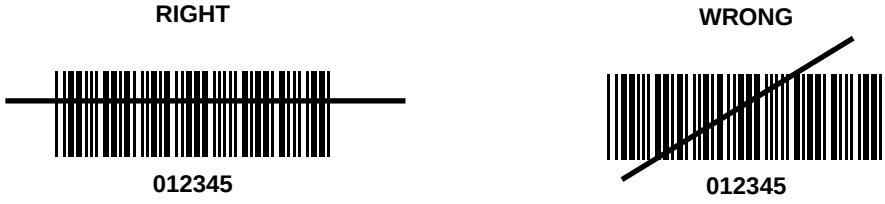


Figure 1-2. Synapse Configuration

Chapter 2
Scanning with the LT 1806

Scanning

- Make sure the scanner is connected to the controller or portable data terminal before you turn on the system.
- Make sure the symbol you want to scan is within the LT 1806 scanning range. (See *LT 1806 Decode Zone* on page 2-2.)
- If the scanner is in triggerless mode, simply bring the scanner to the bar code. The scan beam is in a constant blinking state which becomes steady when the scanner is decoding a bar code.
- If the scanner is in triggered mode, bring the scanner to the bar code and press the trigger. The scan beam (and red LED on the top of the scanner) illuminates for approximately 1 second, or until a successful decode.
- The scan beam must cross every bar and space on the symbol.



- When the symbol has been decoded, you hear a short, high-tone beep, and the green decode LED lights.

LT 1806 Decode Zone

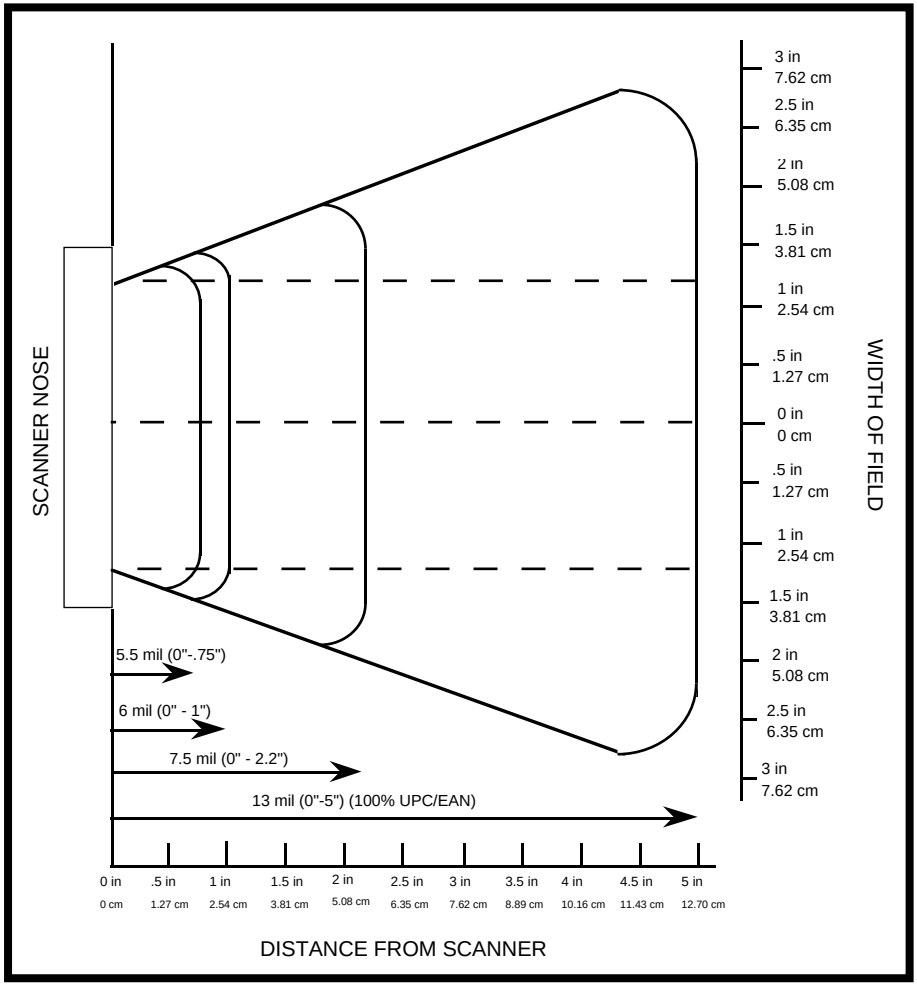
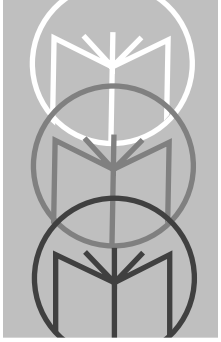


Figure 2-1. LT 1806 Decode Zone



Chapter 3
Maintenance and Specifications

Maintenance

Cleaning the exit window is the only maintenance required. A dirty window may affect scanning accuracy.

- Do not allow any abrasive material to touch the window.
- Remove any dirt particles with a damp cloth.
- Wipe the window using a tissue moistened with ammonia / water.
- Do not spray water or other cleaning liquids directly into the window.
- Do not remove the nose of the scanner.

What If...

Nothing happens when you follow the operating instructions.

You Should

- Check the system power.
- Make sure the scanner is programmed for the terminal in use.
- Make sure the controller is programmed to decode bar codes of the symbology you are scanning.
- Check for loose cable connections.
- Make sure the symbol is not defaced.
- Try scanning test symbols of the same code type.

Scanned data is incorrectly displayed on the terminal.

You Should

- Make sure that the system was programmed for the correct keyboard type.
- Make sure that the CAPS LOCK key is off.

Note: If after performing these checks the symbol still does not scan, contact your distributor or call the *Symbol Support Center* at one of the telephone numbers listed in *About This Manual*.

Accessories

Standard Accessories

Part Number	Description
70-32538-0X	LT 1806 Product Reference Guide
70-31613-0X	LT 1850/1806 Quick Reference Guide
50-11400-007	Shipping Box

Power Supply

Part Number	Description
50-14000-008	110V, 60Hz
50-14000-009	220V, 50Hz

Cables

Listed below are the cables required for each host:

Terminal/PC	Y-Cable	Power Supply?	Adapter Kit
IBM PS/2 25/30/30-386	25-31828-01	Yes	N/A
IBM PS/2 50/55SX/60/ 65SX/70/80*	25-31828-01	No	N/A
NCR 7052 K.W.	25-31828-01	Yes	N/A
IBM PC AT/XT and PC Clones	25-31828-01	No	KT-32903-01

*These PS/2 systems may require an external power supply if multiple peripheral devices or expansion cards are installed. The system needs to supply a minimum of 160 mA for proper LT 1806 operation.

Synapse Adapter Cables

Hosts using Synapse cables require one of the following Adapter Cables:

Part Number	Description
25-31617-01	6-foot Straight Cable

Optional Accessories

Part Number	Description
20-12769-01	Hands-Free Stand - Desk Mount (non-adjustable)
20-08414-01	Hands-Free Stand - Free Standing (adjustable)
20-08415-01	Hands-Free Stand - ECR Mount (adjustable)
21-08288-02	Desk-Mount Stand
23-08253-01	Wall-Mount Stand
20-08416-01	Holster / Belt Clip

Technical Specifications

ITEM	DESCRIPTION
Power Requirements	5 VDC ±10%; 120 mA average current (160 mA peak)
Decode Capability	The LT 1806 can be programmed to decode the following code types: UPC/EAN, Code 39, Code 39 Full ASCII, Codabar, Interleaved 2 of 5, Code 128, UCC/EAN 128, Discrete 2 of 5, and Code 93. Set code length(s) for any 2 of 5 code type. Full autodiscrimination as required.
Beeper Operation	User-selectable: Enable, Disable
Beeper Volume	User-selectable: Full Volume, Low Volume
Decode Depth of Field	Maximum typical working distance is 5.0 in. (12.70 cm) (100% UPC/EAN); minimum element width resolution is 5.5 mils
Scan Repetition Rate	40 (± 3) scans/sec (bidirectional)
Skew Tolerance	± 35˚ min. (from normal)
Pitch Tolerance	-20˚ to +60° (from normal)
Print Contrast Minimum	25% minimum reflectance differential, measured at 675 nm.
Ambient Light Immunity	Immune to direct exposure to normal office and factory lighting conditions, as well as direct exposure to sunlight.
Output Presentation	Host keystroke format
Durability	5 ft (152 cm) drops to concrete
Operating Temperature	32˚ to 104˚ F (0˚ to 40˚ C)
Storage Temperature	-40˚ to 140˚ F (-40˚ to 60˚ C)
Straight Cable Length	6 ft (183 cm)
Weight (without cable)	6.0 oz (170 gm)

LT 1806 Dimensions

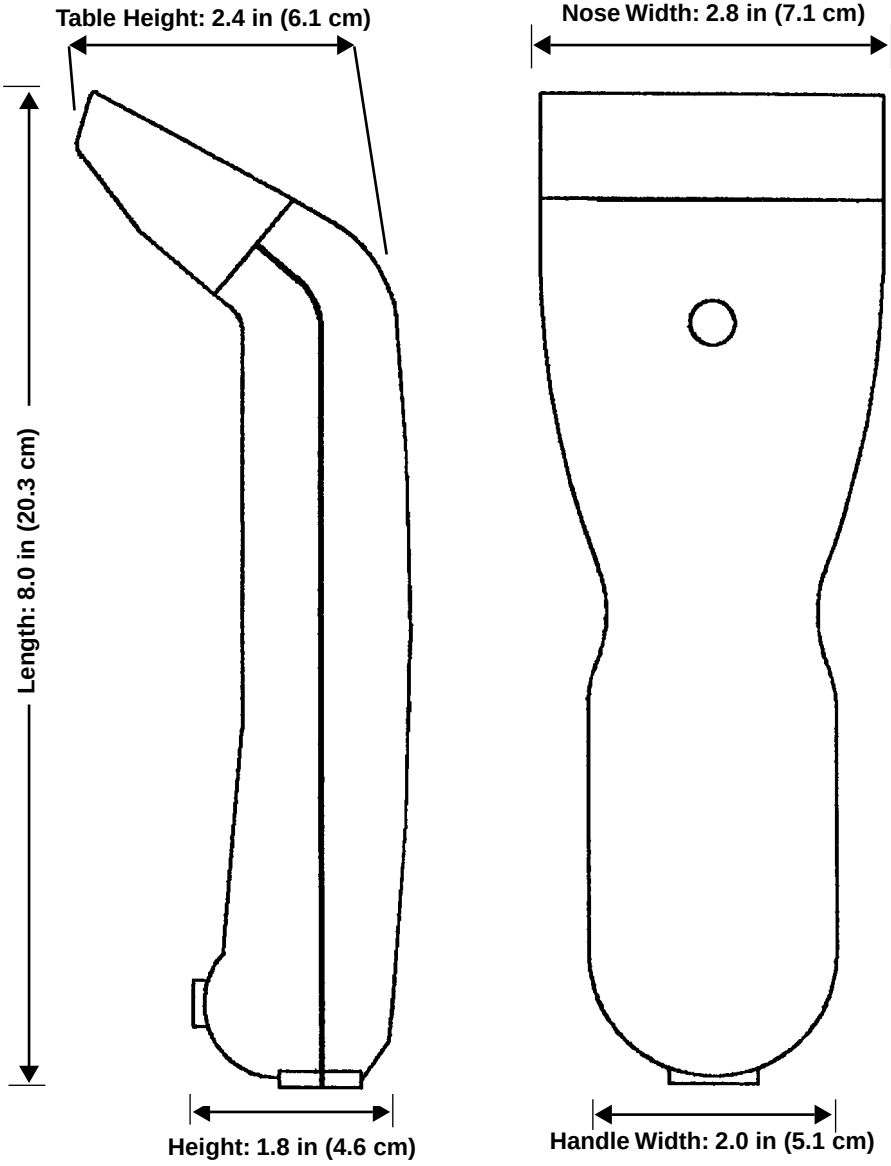
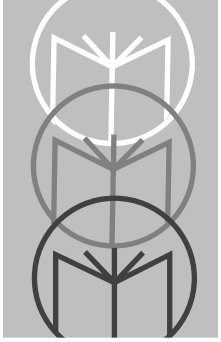


Figure 3-1. LT 1806 Dimensions



Chapter 4
Programming the LT 1806

Before programming the scanner, follow the instructions in *Chapter 1: Setting Up the LT 1806*.

If the default values suit your requirements, scan the **SET DEFAULT** bar code. An LT 1806 is programmed for parameters other than default values by scanning sequences of bar codes. *Chapter 5: Parameter Menus* contain all the bar codes necessary to program the scanner for each parameter selection.

Scanning Sequences

A scanning sequence establishes a value for one parameter type. During a scanning sequence, scan bar codes for a parameter type, a parameter value, and **ENTER**. The *Scanning Sequence Flowchart* on page 4-3 illustrates the process.

Scanning Sequence Examples

To program the scanner for all default settings except for two parameters, **DECODE UPC ONLY** (NOT EAN) and **INTERCHARACTER DELAY**, first scan the **SET DEFAULT** bar code. The default for **DECODE UPC ONLY** (NOT EAN) is **DISABLE**; to **ENABLE** this, scan the three bar codes in the order listed below:

SCAN	***YOU WILL HEAR . . .***
1. **DECODE UPC ONLY (NOT EAN)**	Short high tone
2. **ENABLE**	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. See *Beeper Definitions* on page 4-13.

To set the **INTERCHARACTER DELAY** parameter scan a two digit numeric entry. Note that single digit entries must have a leading zero. The **INTERCHARACTER DELAY** default is 00 ms; in this example you want to set it to 2 ms. To program the scanner for a 2 ms **INTERCHARACTER DELAY** scan the four bar codes listed below.

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

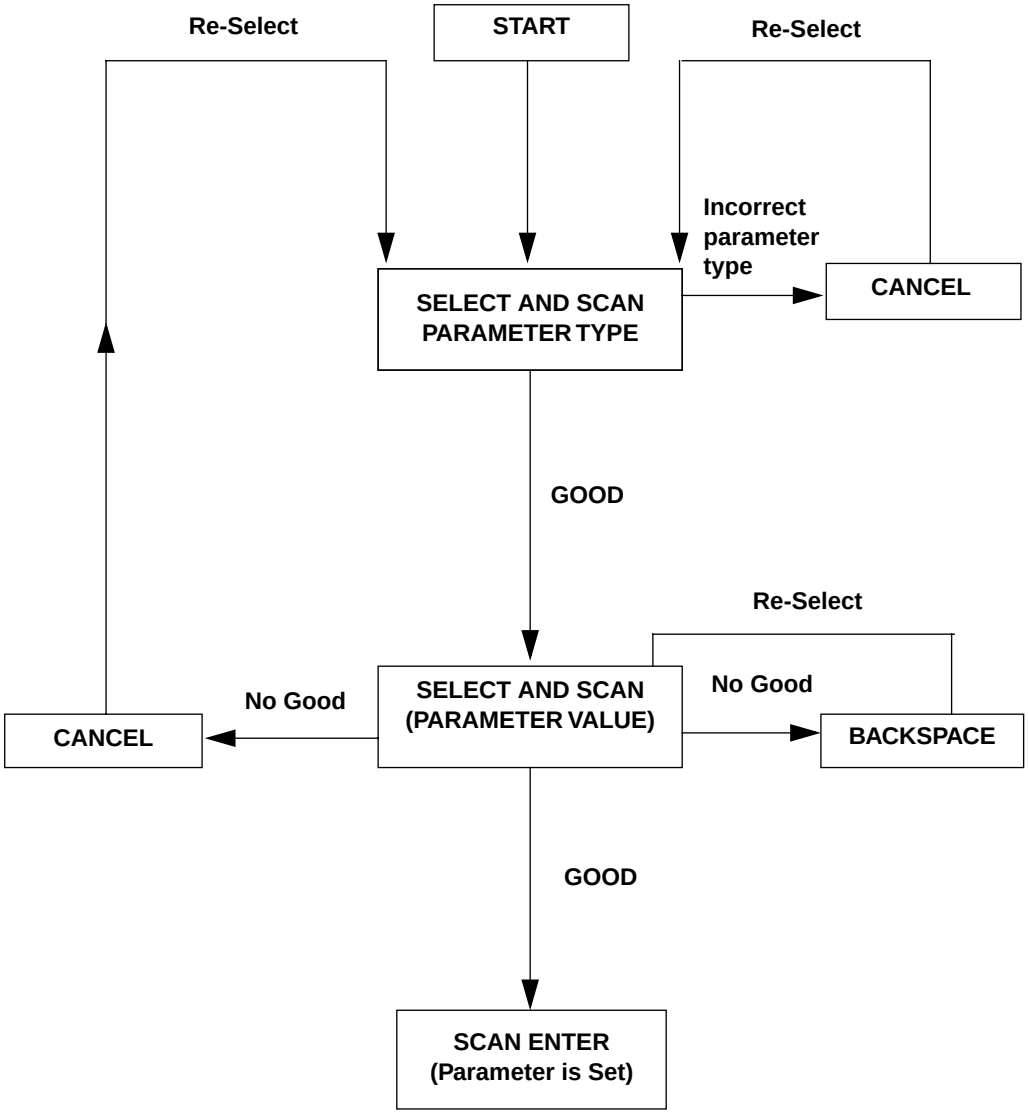


Figure 4-1. Scanning Sequence Flowchart

Parameter Descriptions

See *Standard Defaults* on page 4-11 for the range of values and default settings for each parameter type.

Set Parameter Defaults

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

Keyboard Type

Select the type of keyboard to be used with the LT 1806. *Even if default setting for all parameters is selected, a keyboard type must be selected, or the unit will not operate. Selecting a keyboard type automatically returns prefix and suffix settings to their default values.*

National Type

This option applies only to the IBM PC XT / AT / PS2. Other keyboard types are available via Synapse “Smart Cables”.

Use this option to select a national keyboard type. Options are:

National Type	Identifier	National Type	Identifier
U.K. English	0	Brazilian	5
French	1	Italian	6
German	2	Dutch	7
Spanish	3	U.S. English	8
Portuguese	4		

Note: PC / XT Brazilian and Portuguese layouts are not supported.

Numeric Keypad Emulation

This option applies only to the IBM PC XT / AT / PS2. If this is enabled, keystrokes are emulated by sending the ASCII code equivalent of the specific character using the ALTERNATE key and the numeric key pad.

When enabled, the unit:

- Emulates all national keyboards (the user does not have to select a **NATIONAL KEYBOARD** option.)
- Emulates all characters, regardless of the status of the CAPS LOCK key.
- Performs the emulation slower than in non-numeric key pad option, because it has to emulate several key strokes for each character.

Break Key Code Transmission

When this parameter is enabled, both “operate” (“make”) and “release” (“break”) key codes are transmitted. When it is disabled, only “operate” (“make”) key codes are sent. This parameter only affects scanned data, not the key codes passed through from the keyboard.

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 Full ASCII
- Discrete 2 of 5
- Code 128
- UCC/EAN 128
- Code 39
- Interleaved 2 of 5
- Code 93
- Codabar

The scanner autodiscriminates between all of the above code types, except for between Code 39 and Code 39 Full ASCII.

Select whether UPC/EAN is to be decoded with or without supplementals. See *Decode UPC/EAN Supplementals* on page 4-7 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 or two lengths (Length 1, Length 2) for either code type may be set, as needed.

If the default setting is satisfactory it need not be reset. Set one or both lengths, one per scanning sequence. **LENGTH 1** may range from 01-31 and **LENGTH 2** from 00-31.

Decode Options

Transmit UPC-E/UPC-A Check Digit

If enabled, decoded UPC-E or UPC-A symbols are transmitted with check digit.

Decode UPC Only (Not EAN)

If enabled, this option limits LT 1806 UPC/EAN decode capability to UPC versions only. It disables EAN decode capability.

Convert UPC-E to UPC-A

If enabled, this parameter converts UPC-E (zero suppressed) decoded data to UPC-A format before transmission. After conversion, the data is subject to UPC programming selections (e.g., Preamble, Check Digit).

Convert I 2 of 5 to EAN-13

This parameter converts a 14 character I 2 of 5 code into EAN-13 for transmission to the host. To enable this option, the I 2 of 5 code must be enabled, one length must be set to 14, and the code must have a leading zero and a valid EAN-13 check digit.

EAN Zero Extend

If selected, this parameter adds five leading zeros to decoded EAN-8 symbols to make them compatible in format to EAN-13 symbols.

CLSI Editing

If selected, this parameter inserts a space after the 1st, 5th, and 10th characters of a 14-character Codabar symbol. The symbol length does not include start and stop characters.

NOTIS Editing

If selected, this option strips the start and stop characters from decoded Codabar symbols.

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; K = UCC/EAN128.

Transmit "No Decode" Character

This feature gives you the option to transmit "NR" when a symbol does not decode. Prefixes and suffixes enabled are appended around this character. **Note:** This option is available in Triggered Mode only.

Decode UPC/EAN Supplementals

Select whether UPC/EAN is decoded with or without supplemental characters, or whether the unit autodiscriminates between the two. 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 is decoded and the supplemental characters ignored. If autodiscrimination is chosen, the LT 1806 will, after additional processing to ensure a good decode, transmit either.

Beep After Good Decode

If enabled, the unit beeper sounds 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. See *Beeper Definitions* on page 4-13.

Beeper Volume

Use this parameter to program the beeper for Full or Low volume.

Trigger Mode (for triggered models only)

Select whether you would like to use the scanner with the trigger (Triggered Mode), or if you'd like the laser to be in a constant blinking state (Triggerless Mode).

Decode Redundancy

Use this parameter to indicate whether the scanner must read a bar code one time (**LEVEL 0**), two times (**LEVEL 1**), or three times (**LEVEL 2**) before decoding it. A higher level of redundancy ensures the accuracy of a decode in, for example, poor quality symbols.

Scan Data Transmission Format

Options for scan data transmission formats can be selected by the user. This parameter is used in conjuction with the Prefix / Suffix parameters for both on-board hosts and Synapse configurations.

The following are standard selections:

Standard: <scan data>
Option 1: <scan data> <SUFFIX>
Option 2: <PREFIX> <scan data> <SUFFIX>
Option 3: <PREFIX> <scan data>

Prefix/Suffix (On-board hosts)

If desired, select an appropriate prefix (start-of-text character) / suffix to append to transmitted data. See Table 4-3 beginning on page 4-17.

Prefix/Suffix (Synapse)

When using Synapse, the prefix or suffix appended to scan data for data editing is set by scanning a 4-digit number (i.e., 4 bar codes) that corresponds to key codes for various terminals. See Table 4-4 beginning on page 4-18.

Communications Delays and Timeouts (Intercharacter Delay)

Select the intercharacter delay option matching host device requirements. Select from no delay to a 99 ms delay between the transmission of each character.

Prefix/Suffix Transmit Delay

This parameter specifies a delay period to occur after any prefix or suffix is transmitted. The proper delay period varies according to host terminal requirements. In some cases, no delay is necessary. The delay period can range from 00 to 9.9 seconds.

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.

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 *Code 39 Buffering (Scan and Store)* on page 4-26 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.

Standard Defaults

Table 4-1. Parameter Selections

PARAMETER	SELECTIONS AVAILABLE	DEFAULT
Keyboard Type	See list on page 5-2.	None
National Type	See list on page 4-4.	U.S. English
Numeric Keypad	Enable, Disable	Disable
Break Key Code	Enable, Disable	Enable
Add/Delete Code Types	Code 39, Code 39 Full ASCII, Discrete 2 of 5, Interleaved 2 of 5, Codabar, UPC/EAN, Code 128, UCC/EAN 128, Code 93, all code types.	All Code Types
First Length - Discrete 2 of 5	2 digit entry, ranging from 01-31.	12
Second Length - Discrete 2 of 5	2 digit entry, ranging from 00-31.	0
First Length - Interleaved 2 of 5	2 digit entry, ranging from 01-31.	14
Second Length - Interleaved 2 of 5	2 digit entry, ranging from 00-31.	0
Xmit UPC-A/E Check Digit	Enable, Disable	Enable
Decode UPC Only	Enable, Disable	Disable
Convert UPC-E to A	Enable, Disable	Disable
Convert I 2 of 5 to EAN-13	Enable, Disable	Disable
EAN Zero Extend	Enable, Disable	Disable
CLSI Editing	Enable, Disable	Disable
NOTIS Editing	Enable, Disable	Disable
Xmit Code Identifier	Enable, Disable	Disable

Table 4-1. Parameter Selections (Continued)

PARAMETER	SELECTIONS AVAILABLE	DEFAULT
Xmit "No Decode" Character	Enable, Disable	Disable
UPC/EAN Supplementals	No Supplemental, Supplemental Only, Autodiscriminate	No Supplemental
Beep After Good Decode	Enable, Disable	Enable
Beeper Volume	Low, Full	Full
Trigger Mode (triggered models only)	Triggered, Triggerless	Triggered
Decode Redundancy	Level 0, Level 1, Level 2	Level 0
Scan Data Transmission Format	Standard, Options 1 through 3	Standard
Prefix to Decoded Data (On-board hosts)	None, User's Choice (1 character)	None
Suffix to Decoded Data (On-board hosts)	None, User's Choice (1 character)	None
Prefix (Synapse)	Any ASCII Character	None
Suffix (Synapse)	Any ASCII Character	None
Intercharacter Delay (Communication Delays& Timeouts)	00 to 99 ms	None
UPC-E/UPC-A Preamble	System Character, System Character & Country Code, None	System Character
Buffer Code 39 Symbols (Scan and Store)	Enable, Disable	Disable

Note: Suffix and prefix selections are based on a chart of selectable characters. See Table 4-3 and Table 4-4.

Beeper Definitions

Standard Use

BEEPER SEQUENCE	INDICATION
1 Beep - short high tone	A symbol has been successfully decoded.
2 Beeps - long high tone	Data transmission not successful.
3 Beeps - short high tone	Power-up, or watchdog reset.

Parameter Menu Scanning

BEEPER SEQUENCE	INDICATION
1 Beep - short high tone	Successful entry of a bar code in a programming sequence.
1 Beep - warble sound	Parameter value has been entered successfully.
2 Beeps - long low tone	Incorrect programming sequence performed. Scan **CANCEL** and try program sequence again.

Code 39 Scan and Store

BEEPER SEQUENCE	INDICATION
1 Beep - hi/low tone	Indicates 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.
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.

Full ASCII Code 39

The LT 1806 can be programmed to interpret Code 39 in one of two ways: Code 39 Full ASCII and standard Code 39. The unit can not autodiscriminate between Code 39 and Code 39 Full ASCII.

The default is standard Code 39. To enable Code 39 Full ASCII, follow the instructions outlined in *Code Types* on page 5-13 for selecting code types.

Code 39 Full ASCII

The ASCII character set assigns a code to letters, punctuation marks, numerals, and most control keystrokes on the keyboard.

The first 32 codes are non-printable and are assigned to keyboard control characters such as BACKSPACE and RETURN. The other 96 are called printable codes because all but SPACE and DELETE produce visible characters.

Code 39 Full ASCII interprets the bar code control character ($ + % /) preceding a Code 39 symbol and assigns an ASCII character value. For example, when Code 39 Full ASCII is enabled and a +B is scanned, it is interpreted as b, %J as ?, and $H emulates the keystroke BACKSPACE. Scanning ABC$M outputs the keystroke equivalent of ABC ENTER.

Note that the keystroke depends on the keyboard in use. For example, $D is interpreted as END (IBM PC /XT, /AT, PS/2), or FLDADVANCE (TELEX 88). See Table 4-2 for keyboard output produced by embedded codes.

Standard Code 39

Code 39 transmits characters exactly as they are printed. For example +A is transmitted as +A, and ABC$M as ABC$M.

Table 4-2. Encoded Full ASCII Code 39 Characters & Keyboard Output

Keystroke ID	NCR 7052	All Others*	Keystroke ID	NCR 7052	All Others*
&U	None	None	/G	None	‘
$A	F1	None	/H	None	(
$B	F2	DEL	/I	None	)
$C	F3	PGUP	/J	None	*
$D	F4	END	/K	+	+
$E	F5	PGDN	/L	None	,
$F	F6	None	-	-	-
$G	F7	None	.	.	.
$H	F8	BKSPACE	/O	None	/
$I	F9	HORIZ TAB	0	0	0
$J	F10	None	1	1	1
$K	None	INS	2	2	2
$L	None	HOME	3	3	3
$M	ENTER	ENTER	4	4	4
$N	None	None	5	5	5
$O	None	None	6	6	6
$P	F11	None	7	7	7
$Q	F12	F1	8	8	8
$R	F13	F2	9	9	9
$S	F14	F3	/Z	None	:
$T	F15	F4	%F	None	;
$U	F16	F5	%G	None	<
$V	F17	F6	%H	None	=
$W	F18	F7	%I	None	>
$X	F19	F8	%J	None	?
$Y	None	F9	%V	None	@
$Z	None	F10	A-Z	A-Z	A-Z
%A	None	ESC	%K	None	None
%B	None	None	%L	None	\
%C	None	None	%M	None	None
%D	None	None	%N	None	None
%E	None	None	%O	None	_
SPACE	SPACE	SPACE	%W	None	‘
/A	None	!	+A-+Z	None	a-z
/B	None	‘	%P	None	{
/C	None	#	%Q	None	|
/D	None	$	%R	None	}
/E	None	%	%S	None	~
/F	None	&	%T	None	None

*”All Others” Include: IBM AT/XT, PS2/30, 50, 60, Compaq 386 and Deskpro, NCR PC4, Columbia PC, Tandy HD1200, Adds PC I/II, Leading Edge, ITT PC, Sperry PC, Pitney Bowes A2000, NCR PC8, Zenith 248, HP Vectra CS/ES

Prefixes and Suffixes

See Table 4-3 and Table 4-4 to identify the prefix / suffix values assigned to the keys on your keyboard.

The *Keyboard Identifier Maps* beginning on page 4-24 help you locate non-printable keyboard characters and identify the prefix / suffix value assigned.

Scanning the bar codes representing a three-digit value in column 1 of the table assigns a keyboard character as a prefix or suffix.

Note that entering a prefix or suffix value with no corresponding keyboard value assigned results in no suffix or prefix being sent.

Table 4-3. Prefix/Suffix Keystroke Identifiers

Keystroke ID	NCR 7052	All Others*	Keystroke ID	NCR 7052	All Others*
000	None	None	039	None	‘
001	F1	None	040	None	(
002	F2	DEL	041	None	)
003	F3	PGUP	042	*	*
004	F4	END	043	+	+
005	F5	PGDN	044	None	,
006	F6	None	045	-	-
007	F7	CTL G	046	.	.
008	F8	BKSPACE	047	None	/
009	F9	HORIZ TAB	048	0	0
010	F10	CTL J	049	1	1
011	None	INS	050	2	2
012	None	HOME	051	3	3
013	ENTER	ENTER	052	4	4
014	None	None	053	5	5
015	None	None	054	6	6
016	F11	None	055	7	7
017	F12	F1	056	8	8
018	F13	F2	057	9	9
019	F14	F3	058	None	:
020	F15	F4	059	None	;
021	F16	F5	060	None	<
022	F17	F6	061	None	=
023	F18	F7	062	None	>
024	F19	F8	063	None	?
025	None	F9	064	None	@
026	None	F10	065-090	A-Z	A-Z
027	None	ESC	091	None	[
028	None	UP ARROW	092	None	\
029	None	DN ARROW	093	None	]
030	None	LFT ARROW	094	None	^
031	None	RT ARROW	095	None	_
032	None	SPACE	096	None	‘
033	None	!	097-122	a-z	a-z
034	None	“	123	None	{
035	None	#	124	None	|
036	None	$	125	None	}
037	None	%	126	None	~
038	None	&	127	None	None**

*”All Others” include: IBM AT/XT, PS2/30, 50, 60, Compaq 386 and Deskpro, NCR PC4, Columbia PC, Tandy HD1200, Adds PC I/II, Leading Edge, ITT PC, Sperry PC, Pitney Bowes A2000, NCR PC8, Zenith 248, HP Vectra CS/ES

Table 4-4. Synapse ASCII Conversion Table

ASCII Value	Full ASCII Code 39 Encode Char	Keystroke	ASCII Value	Full ASCII Code 39 Encode Char	Keystroke
1000	%U	CTRL 2	1024	$X	CTRL X
1001	$A	CTRL A	1025	$Y	CTRL Y
1002	$B	CTRL B	1026	$Z	CTRL Z
1003	$C	CTRL C	1027	%A	CTRL [
1004	$D	CTRL D	1028	%B	CTRL \
1005	$E	CTRL E	1029	%C	CTRL]
1006	$F	CTRL F	1030	%D	CTRL 6
1007	$G	CTRL G	1031	%E	CTRL -
1008	$H	CTRL H	1032	Space	Space
1009	$I	CTRL I	1033	/A	!
1010	$J	CTRL J	1034	/B	‘
1011	$K	CTRL K	1035	/C	#
1012	$L	CTRL L	1036	/D	$
1013	$M	CTRL M	1037	/E	%
1014	$N	CTRL N	1038	/F	&
1015	$O	CTRL O	1039	/G	‘
1016	$P	CTRL P	1040	/H	(
1017	$Q	CTRL Q	1041	/I	)
1018	$R	CTRL R	1042	/J	*
1019	$S	CTRL S	1043	/K	+
1020	$T	CTRL T	1044	/L	,
1021	$U	CTRL U	1045	-	-
1022	$V	CTRL V	1046	.	.
1023	$W	CTRL W	1047	/	/

Table 4-4. Synapse ASCII Conversion Table (Continued)

ASCII Value	Full ASCII Code 39 Encode Char	Keystroke	ASCII Value	Full ASCII Code 39 Encode Char	Keystroke
1048	0	0	1073	I	I
1049	1	1	1074	J	J
1050	2	2	1075	K	K
1051	3	3	1076	L	L
1052	4	4	1077	M	M
1053	5	5	1078	N	N
1054	6	6	1079	O	O
1055	7	7	1080	P	P
1056	8	8	1081	Q	Q
1057	9	9	1082	R	R
1058	/ Z	:	1083	S	S
1059	%F	;	1084	T	T
1060	%G	<	1085	U	U
1061	%H	=	1086	V	V
1062	%I	>	1087	W	W
1063	%J	?	1088	X	X
1064	%V	@	1089	Y	Y
1065	A	A	1090	Z	Z
1066	B	B	1091	%K	[
1067	C	C	1092	%L	\
1068	D	D	1093	%M	]
1069	E	E	1094	%N	^
1070	F	F	1095	%O	_
1071	G	G	1096	%W	‘
1072	H	H	1097	+A	a

Table 4-4. Synapse ASCII Conversion Table (Continued)

ASCII Value	Full ASCII Code 39 Encode Char	Keystroke	ASCII Value	Full ASCII Code 39 Encode Char	Keystroke
1098	+B	b	1113	+Q	q
1099	+C	c	1114	+R	r
1100	+D	d	1115	+S	s
1101	+E	e	1116	+T	t
1102	+F	f	1117	+U	u
1103	+G	g	1118	+V	v
1104	+H	h	1119	+W	w
1105	+I	i	1120	+X	x
1106	+J	j	1121	+Y	y
1107	+K	k	1122	+Z	z
1108	+L	l	1123	%P	{
1109	+M	m	1124	%Q	|
1110	+N	n	1125	%R	}
1111	+O	o	1126	%S	~
1112	+P	p	1127		Undefined

Table 4-4. Synapse ASCII Conversion Table (Continued)

ALT Keys	Keystroke	ALT Keys	Keystroke	ALT Keys	Keystroke
2064	ALT 2	2075	ALT K	2086	ALT V
2065	ALT A	2076	ALT L	2087	ALT W
2066	ALT B	2077	ALT M	2088	ALT X
2067	ALT C	2078	ALT N	2089	ALT Y
2068	ALT D	2079	ALT O	2090	ALT Z
2069	ALT E	2080	ALT P	2091	ALT [
2070	ALT F	2081	ALT Q	2092	ALT \
2071	ALT G	2082	ALT R	2093	ALT]
2072	ALT H	2083	ALT S	2094	ALT 6
2073	ALT I	2084	ALT T	2095	ALT -
2074	ALT J	2085	ALT U		
Misc. Key	**Keystroke**	**Misc. Key**	**Keystroke**	**Misc. Key**	**Keystroke**
3001	PA 1	3009	CMD 7	3017	°
3002	PA 2	3010	CMD 8	3018	1/2
3003	CMD 1	3011	CMD 9	3019	¶
3004	CMD 2	3012	CMD 10	3020	§
3005	CMD 3	3013	¥	3021	|
3006	CMD 4	3014	£	3022	0/00
3007	CMD 5	3015	¤		
3008	CMD 6	3016	¬		

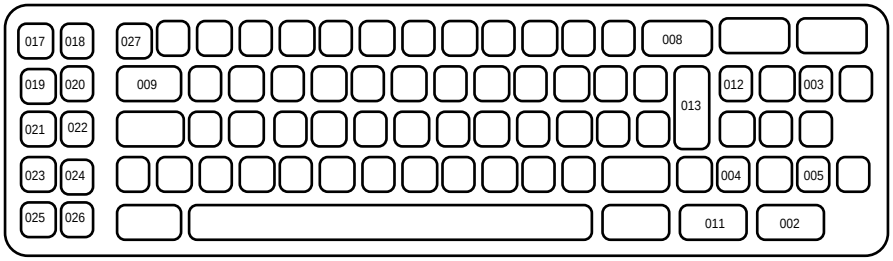
Table 4-4. Synapse ASCII Conversion Table (Continued)

PF Keys	Keystroke	PF Keys	Keystroke	PF Keys	Keystroke
4001	PF 1	4009	PF 9	4017	PF 17
4002	PF 2	4010	PF 10	4018	PF 18
4003	PF 3	4011	PF 11	4019	PF 19
4004	PF 4	4012	PF 12	4020	PF 20
4005	PF 5	4013	PF 13	4021	PF 21
4006	PF 6	4014	PF 14	4022	PF 22
4007	PF 7	4015	PF 15	4023	PF 23
4008	PF 8	4016	PF 16	4024	PF 24
F Keys	**Keystroke**	**F Keys**	**Keystroke**	**F Keys**	**Keystroke**
5001	F 1	5014	F 14	5027	F 27
5002	F 2	5015	F 15	5028	F 28
5003	F 3	5016	F 16	5029	F 29
5004	F 4	5017	F 17	5030	F 30
5005	F 5	5018	F 18	5031	F 31
5006	F 6	5019	F 19	5032	F 32
5007	F 7	5020	F 20	5033	F 33
5008	F 8	5021	F 21	5034	F 34
5009	F 9	5022	F 22	5035	F 35
5010	F 10	5023	F 23	5036	F 36
5011	F 11	5024	F 24	5037	F 37
5012	F 12	5025	F 25	5038	F 38
5013	F 13	5026	F 26	5039	F 39

Table 4-4. Synapse ASCII Conversion Table (Continued)

Numeric Keypad	Keystroke	Numeric Keypad	Keystroke	Numeric Keypad	Keystroke
6042	*	6049	1	6056	8
6043	+	6050	2	6057	9
6044	Undefined	6051	3	6058	Enter
6045	-	6062	4	6059	Num Lock
6046	.	6063	5	6060	00
6047	/	6064	6		
6048	0	6065	7		
Extended Keypad	**Keystroke**	**Extended Keypad**	**Keystroke**	**Extended Keypad**	**Keystroke**
7001	Break	7008	Backspace	7015	Up Arrow
7002	Delete	7009	Tab	7016	Dn Arrow
7003	Pg Up	7010	Print Screen	7017	Left Arrow
7004	End	7011	Insert	7018	Right Arrow
7005	Pg Dn	7012	Home	7019	Back Tab
7006	Pause	7013	Enter		
7007	Scroll Lock	7014	Escape		

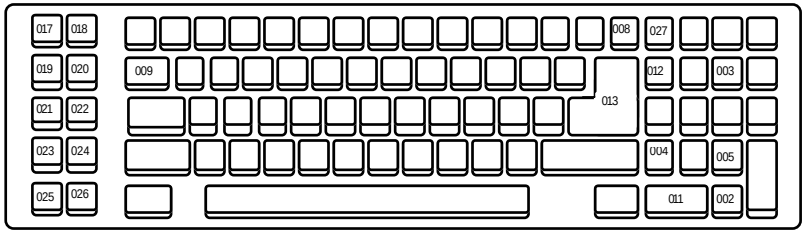
Keyboard Identifier Maps



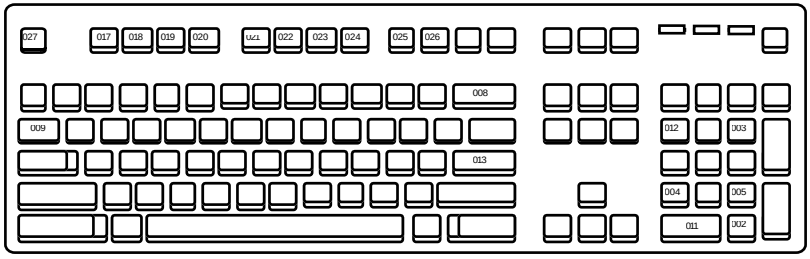
IBM PC/XT
NCR PC4
COMPAQ DESKPRO
COLUMBIA PC

TANDY HD 1200
ADDS PC I/II
LEADING EDGE PC
HP VECTRA CS

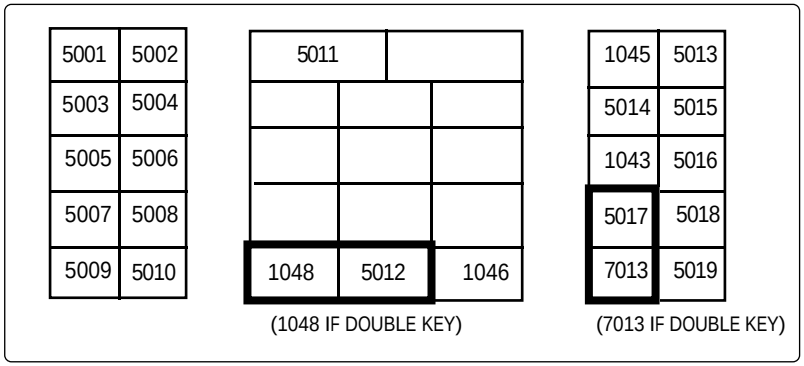
ITT PC
SPERRY PC
PITNEY BOWES A2000



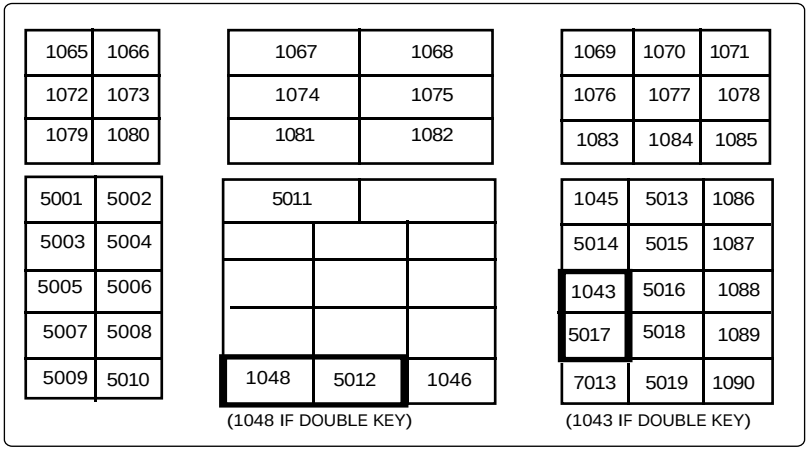
IBM PC/AT **NCR PC8** **ZENITH 248**



IBM PS/2 **COMPAQ 386**



NCR 7052 32-KEY



NCR 7052 58-KEY

Code 39 Buffering (Scan and Store)

You cannot delete Code 39 buffering capability while there is data in the transmission buffer.

To allow disabling of Code 39 buffering, first force the buffer transmission (see *Transmit Buffer* on page 4-27) 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 the symbol overflows the transmission buffer, the unit gives a hi / lo beep to indicate a successful decode and buffering. See *Overfilling Transmission Buffer* on page 4-27.
- The unit adds the message, excluding the leading space to the transmission buffer.
- No transmission of data occurs.

Clear Transmission Buffer

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

- The unit issues a short lo / hi / lo beep to signal that the transmission buffer has been erased, and no transmission has occurred.
- The unit erases the transmission buffer.
- No transmission of data occurs.

CLEAR TRANSMISSION BUFFER

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 (such as the bar code below).
   - The unit signals that the transmission buffer has been sent (a lo / hi beep).
   - The unit sends the buffer.
   - The unit clears the buffer.

TRANSMIT BUFFER

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

Overfilling Transmission Buffer

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

- The unit indicates that the symbol has been rejected by issuing three long, high beeps.
- No transmission of data occurs.

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 of data occurs.
- The buffer remains empty.

Chapter 5
Parameter Menus

Set Default

To select the **SET DEFAULT** parameter, scan the **SET DEFAULT** bar code. Scanning this automatically reconfigures the value of each parameter to its default value shown in *Standard Defaults* on page 4-11.

SET DEFAULT

Keyboard Types and Identifiers

Keyboard Type	Identifier
ADDS PC I/II	01
Columbia PC	01
Compaq Deskpro	01
Compaq 386	02
HP Vectra CS	01
IBM AT Compatible	02
IBM XT Compatible	01
IBM PS/2 Model 30	06
IBM PS/2 Model 30-286	02
IBM PS/2 Model 50	02
IBM PS/2 Model 60	02
ITT PC	01
Leading Edge PC	01
NCR 7052	07
NCR PC4	01
NCR PC8	02
Pitney Bowes (A2000)	01
Sperry PC	01
Tandy HD 1200	01
Zenith 248	02

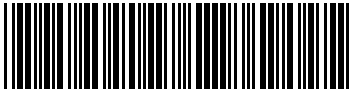
Caution

Installing an LT 1806 to any PC or terminal other than those combinations defined above may damage your LT 1806 and/or terminal.

Keyboard Type

1. Scan the **KEYBOARD TYPE** bar code.
2. To select a keyboard, scan two bar codes corresponding to the keyboard identifier (See page 5-2). The first label scanned should signify the most significant digit.
3. Scan **ENTER**.

A keyboard type must be selected even if using all the default parameter settings. Selecting a keyboard type returns prefix and suffix settings to the default values. Use this option to select an RS-232 host type.
Note: Synapse hosts are autodetected; this option does not need to be set for hosts using Synapse.



KEYBOARD TYPE

0

1

2

Keyboard Type (Continued)

3

4

5

6

7

Keyboard Type (Continued)

8

9

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.

BACKSPACE

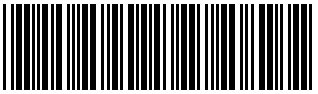
ENTER

CANCEL

National Type

1. Scan the **NATIONAL TYPE** bar code.
2. Scan a bar codes corresponding to the National Type identifier.
3. Scan **ENTER**.

NATIONAL TYPE



U.K. ENGLISH
0

FRENCH
1

GERMAN
2

National Type (Continued)

SPANISH
3

PORTUGUESE
4

BRAZILIAN
5

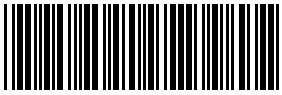
ITALIAN
6

National Type (Continued)

DUTCH
7

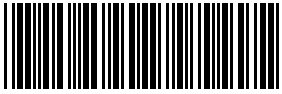
U.S. ENGLISH
8

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.



BACKSPACE

ENTER



CANCEL

Numeric Keypad Emulation

To enable or disable this option:

1. Scan the **NUMERIC KEYPAD EMULATION** bar code.
2. Scan the **ENABLE** or **DISABLE** option bar code.
3. Scan **ENTER**.

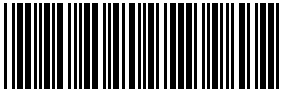
NUMERIC KEYPAD EMULATION

ENABLE

DISABLE

Numeric Keypad Emulation (Continued)

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.



BACKSPACE

ENTER

CANCEL

Break Key Code Transmission

To enable or disable this option:

1. Scan the **BREAK KEY CODES** bar code.
2. Scan the **ENABLE** or **DISABLE** option bar code.
3. Scan **ENTER**.

BREAK KEY CODES

ENABLE

DISABLE

Break Key Code Transmission (Continued)

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.

BACKSPACE

ENTER

CANCEL

Code Types

These two options either add or delete a code type.

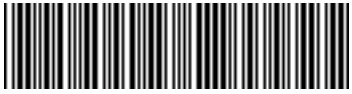
To add a code:

1. Scan the **ENABLE** bar code.
2. Scan the bar code corresponding to the code type to be added.
3. Scan **ENTER**.

To delete a code:

1. Scan the **DISABLE** bar code.
2. Scan the bar code corresponding to the code type to be deleted.
3. Scan **ENTER**.

ENABLE



DISABLE

CODE 39

CODE 39 FULL ASCII

Code Types (Continued)

CODE 93

CODE 128

UCC/EAN 128

INTERLEAVED 2 OF 5

DISCRETE 2 OF 5

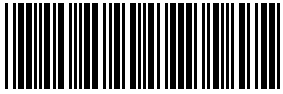
Code Types (Continued)

UPC/EAN

CODABAR

ALL CODES

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.



BACKSPACE

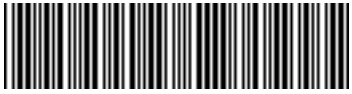
ENTER

CANCEL

Fixed Lengths For Code 2 of 5

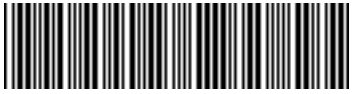
To set the fixed length for a Code 2 of 5:

1. Scan the **LENGTH** bar code for the code type and length to be changed.
2. To enter the length, scan two bar codes from following pages; 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 Code 2 of 5 (Continued)

0

1

2

3

4

Fixed Lengths For Code 2 of 5 (Continued)

5

6

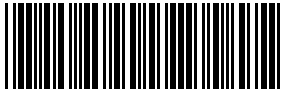
7

8

9

Fixed Lengths For Code 2 of 5 (Continued)

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.



BACKSPACE

ENTER

CANCEL

Decode Options

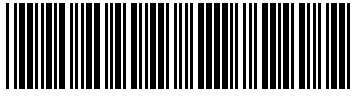
To select one of the decode options:

1. Scan the bar code representing the desired decode option.
2. Scan the **ENABLE** or **DISABLE** bar code.
3. Scan **ENTER**.

TRANSMIT UPC-E CHECK DIGIT

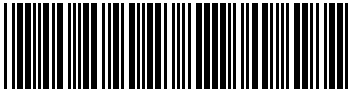
TRANSMIT UPC-A CHECK DIGIT

CONVERT UPC-E TO UPC-A



DECODE UPC ONLY

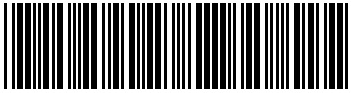
Decode Options (Continued)



CONVERT I 2 OF 5 TO EAN-13

EAN ZERO EXTEND

TRANSMIT CODE IDENTIFIER



TRANSMIT “NR” (NO DECODE CHARACTER)

CLSI EDITING

NOTIS EDITING

Decode Options (Continued)

ENABLE

DISABLE

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.

BACKSPACE

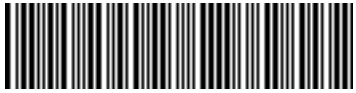
ENTER

CANCEL

UPC/EAN Supplementals Option

To select a UPC/EAN supplementals option:

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



UPC/EAN SUPPLEMENTALS

NO SUPPLEMENTALS

DECODE SUPPLEMENTALS

AUTODISCRIMINATE

UPC/EAN Supplementals Option (Continued)

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.

BACKSPACE

ENTER

CANCEL

Beep After Good Decode

To enable or disable this option:

1. Scan the **BEEP AFTER GOOD DECODE** bar code.
2. Scan the **ENABLE** or **DISABLE** option bar code.
3. Scan **ENTER**.

BEEP AFTER GOOD DECODE

ENABLE

DISABLE

Beep After Good Decode (Continued)

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.

BACKSPACE

ENTER

CANCEL

Beeper Volume

To set the volume of the beeper:

1. Scan the **BEEPER VOLUME** bar code.
2. Scan either the **FULL VOLUME** or **LOW VOLUME** bar code.
3. Scan **ENTER**.

BEEPER VOLUME

FULL VOLUME

LOW VOLUME

Beeper Volume (Continued)

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.

BACKSPACE

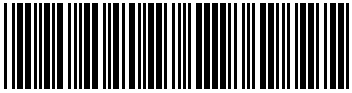
ENTER

CANCEL

Trigger Mode (for triggered models only)

To select a trigger mode:

1. Scan the **TRIGGER MODE** bar code.
2. Scan either the **TRIGGERLESS** or **TRIGGERED** bar code.
3. Scan **ENTER**.



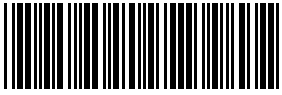
TRIGGER MODE

TRIGGERLESS

TRIGGERED

Trigger Mode (Continued)

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.



BACKSPACE

ENTER

CANCEL

Decode Redundancy

To set the decode redundancy level:

1. Scan the **DECODE REDUNDANCY** bar code.
2. Scan either **LEVEL 0, LEVEL 1** or **LEVEL 2**.
3. Scan **ENTER**.

DECODE REDUNDANCY

LEVEL 0

LEVEL 1

LEVEL 2

Decode Redundancy (Continued)

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.

BACKSPACE

ENTER

CANCEL

Scan Data Transmission Format

To select a scan data transmission format:

1. Scan the **SCAN DATA OPTIONS** bar code.
2. Scan the bar code corresponding to the desired converted data format.
3. Scan **ENTER**.

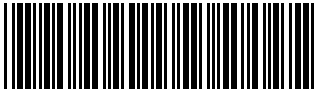
Note: If you select an option using a prefix and / or suffix, see the following Prefix / Suffix parameters to set the prefix and / or suffix value(s).

SCAN DATA OPTIONS

STANDARD: <SCAN DATA>

OPTION 1: <SCAN DATA> <SUFFIX>

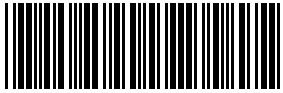
Scan Data Transmission Format (Continued)



OPTION 2: <PREFIX> <SCAN DATA> <SUFFIX>

OPTION 3: <PREFIX> <SCAN DATA>

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.



BACKSPACE

ENTER

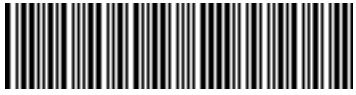
CANCEL

Prefix/Suffix (On-board hosts)

To enter a prefix or suffix in an on-board host configuration:

1. Scan the **PREFIX** or **SUFFIX** bar code.
2. Scan three bar codes from the following pages in the range of 000-127. See Table 4-3 on page 4-17 and *Keyboard Identifier Maps* on page 4-24.
3. Scan **ENTER**.

PREFIX



SUFFIX

0

1

Prefix/Suffix (On-board hosts) (Continued)

2

3

4

5

Prefix/Suffix (On-board hosts) (Continued)

6

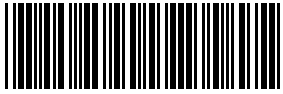
7

8

9

Prefix/Suffix (On-board hosts) (Continued)

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.



BACKSPACE

ENTER

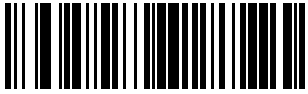
CANCEL

Prefix/Suffix (Synapse)

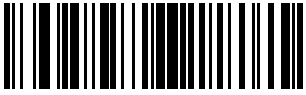
To append a prefix or suffix to scan data in a Synapse configuration:

1. Scan the **PREFIX** or **SUFFIX** bar code below.
2. Scan four numeric bar codes from the following pages representing the desired terminal's key code. See Table 4-4 beginning on page 4-18 for the Synapse ASCII Conversion Table.

If you make an error or wish to change your selection, scan **DATA FORMAT CANCEL**.



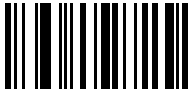
PREFIX



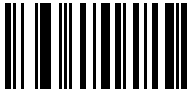
SUFFIX

DATA FORMAT CANCEL

Prefix/Suffix (Synapse) (Continued)



0



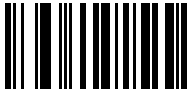
1

2

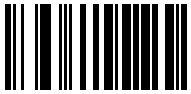
3

4

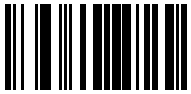
Prefix/Suffix (Synapse) (Continued)



5



6



7

8

9

CANCEL

Communications Delays and Timeouts

To enter a new delay or timeout 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 ms range.
3. Scan **ENTER**.

INTERCHARACTER DELAY
(Range = 00-99 ms)

0

1

2

Communications Delays and Timeouts (Continued)

3

4

5

6

7

Communications Delays and Timeouts (Continued)

8

9

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.

BACKSPACE

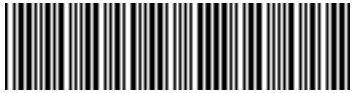
ENTER

CANCEL

Prefix/Suffix Transmit Delay

To select a prefix / suffix transmit delay:

1. Scan the **PREFIX/SUFFIX TRANSMIT DELAY** bar code.
2. Enter the new value by scanning two bar codes in sequence. The first one corresponds to the most significant digit.
3. Scan **ENTER**.



PREFIX/SUFFIX TRANSMIT DELAY
(Range 00-9.9 sec)

0

1

2

Prefix/Suffix Transmit Delay (Continued)

3

4

5

6

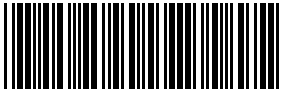
7

Prefix/Suffix Transmit Delay (Continued)

8

9

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.



BACKSPACE

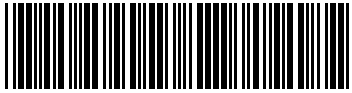
ENTER

CANCEL

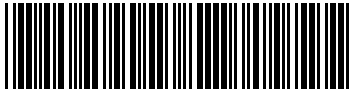
UPC-E/UPC-A Preamble

To select one of the preamble options:

1. Scan either the **UPC-E PREAMBLE** or **UPC-A PREAMBLE** bar code.
2. Scan the bar code corresponding to the desired option.
3. Scan **ENTER**.



UPC-E PREAMBLE



UPC-A PREAMBLE

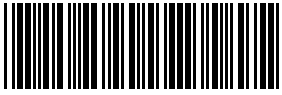
NONE

UPC-E/UPC-A Preamble (Continued)

SYSTEM CHARACTER

SYSTEM CHARACTER AND COUNTRY CODE

BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.



BACKSPACE

ENTER

CANCEL

Code 39 Scan and Store

To select a scan and store option:

1. Scan the **SCAN AND STORE** bar code.
2. Scan the **ENABLE** or **DISABLE** bar code to enable or disable the option.
3. Scan **ENTER**.

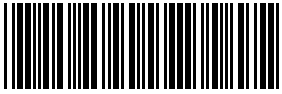
SCAN AND STORE

ENABLE

DISABLE

Code 39 Scan and Store (Continued)

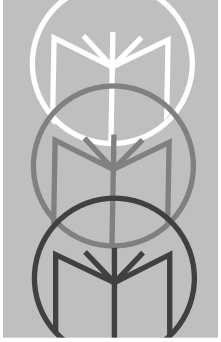
BACKSPACE - deletes the last bar code scanned.
CANCEL - deletes the entire change and returns the user to the decode mode.
ENTER - stores and enters the new change.



BACKSPACE

ENTER

CANCEL



Glossary

Aperture	The opening in an optical system defined by a lens or baffle that establishes the field of view.
ASCII	American Standard Code for Information Interchange. A 7 bit-plus-parity code representing 128 letters, numerals, punctuation marks, and control characters. It is a standard data transmission code in the U.S.
Autodiscrimination	The ability of an interface controller to determine the code type of a scanned bar code. After this determination is made, the information content can be decoded.
Bar	The dark element in a printed bar code symbol.
Bar Code Density	The number of characters represented per unit of measurement (e.g., characters per inch).
Bar Height	The dimension of a bar measured perpendicular to the bar width.
Bar Width	Thickness of a bar measured from the edge closest to the symbol start character to the trailing edge of the same bar.
Baud Rate	A measure of the data flow or number of signaling events occurring per second. When one bit is the standard "event," this is a measure of bits per second (bps). For example, a baud rate of 50 means transmission of 50 bits of data per second.
Bit	Binary digit. One bit is the basic unit of binary information. Generally, eight consecutive bits compose one byte of data. The pattern of 0 and 1 values within the byte determines its meaning.
Byte	On an addressable boundary, eight adjacent binary digits (0 and 1) combined in a pattern to represent a specific character or numeric value. Bits are numbered from the right, 0 through 7, with bit 0 the low-order bit. One byte in memory can be used to store one ASCII character.

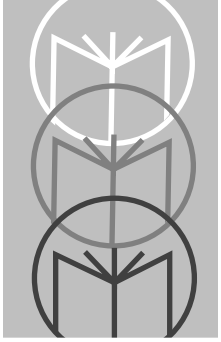
CDRH	Center for Devices and Radiological Health. A federal agency responsible for regulating laser product safety. This agency specifies various laser operation classes based on power output during operation.
CDRH Class 1	This is the lowest power CDRH laser classification. This class is considered intrinsically safe, even if all laser output were directed into the eye's pupil. There are no special operating procedures for this class.
CDRH Class 2	No additional software mechanisms are needed to conform to this limit. Laser operation in this class poses no danger for unintentional direct human exposure.
Character	A pattern of bars and spaces which either directly represents data or indicates a control function, such as a number, letter, punctuation mark, or communications control contained in a message.
Character Set	Those characters available for encodation in a particular bar code symbology.
Check Digit	A digit used to verify a correct symbol decode. The scanner inserts the decoded data into an arithmetic formula and checks that the resulting number matches the encoded check digit. Check digits are required for UPC but are optional for other symbologies. Using check digits decreases the chance of substitution errors when a symbol is decoded.
Codabar	A discrete self-checking code with a character set consisting of digits 0 to 9 and six additional characters: (- $: / , +).
Code 128	A high density symbology which allows the controller to encode all 128 ASCII characters without adding extra symbol elements.
Code 3 of 9 (Code 39)	A versatile and widely used alphanumeric bar code symbology with a set of 43 character types, including all uppercase letters, numerals from 0 to 9, and 7 special characters (- . / + % $ and space). The code name is derived from the fact that 3 of 9 elements representing a character are wide, while the remaining 6 are narrow.
Code 93	An industrial symbology compatible with Code 39 but offering a full character ASCII set and a higher coding density than Code 39.
Code Length	Number of data characters in a bar code between the start and stop characters, not including those characters.
Continuous Code	A bar code or symbol in which all spaces within the symbol are parts of characters. There are no intercharacter gaps in a continuous code. The absence of gaps allows for greater information density.

Dead Zone	An area within a scanner's field of view, in which specular reflection may prevent a successful decode.
Decode	To recognize a bar code symbology (e.g., UPC/EAN) and then analyze the content of the specific bar code scanned.
Decode Algorithm	A decoding scheme that converts pulse widths into data representation of the letters or numbers encoded within a bar code symbol.
Depth of Field	The range between minimum and maximum distances at which a scanner can read a symbol with a certain minimum element width.
Discrete Code	A bar code or symbol in which the spaces between characters (intercharacter gaps) are not part of the code.
Discrete 2 of 5	A binary bar code symbology representing each character by a group of five bars, two of which are wide. The location of wide bars in the group determines which character is encoded; spaces are insignificant. Only numeric characters (0 to 9) and START/STOP characters may be encoded.
EAN	European Article Number. This European/International version of the UPC provides its own coding format and symbology standards. Element dimensions are specified metrically. EAN is used primarily in retail.
Element	Generic term for a bar or space.
Encoded Area	Total linear dimension occupied by all characters of a code pattern, including start/stop characters and data.
Host Computer	A computer that serves other terminals in a network, providing such services as computation, database access, supervisory programs, and network control.
IEC	International Electrotechnical Commission. This international agency regulates laser safety by specifying various laser operation classes based on power output during operation.
IEC (825) Class 1	This is the lowest power IEC laser classification. Conformity is ensured through a software restriction of 120 seconds of laser operation within any 1000 second window and an automatic laser shutdown if the scanner's oscillating mirror fails.
Intercharacter Gap	The space between two adjacent bar code characters in a discrete code.

Interleaved Bar Code	A bar code in which characters are paired together, using bars to represent the first character and the intervening spaces to represent the second.
Interleaved 2 of 5	A binary bar code symbology representing character pairs in groups of five bars and five interleaved spaces. Interleaving provides for greater information density. The location of wide elements (bar / spaces) within each group determines which characters are encoded. This continuous code type uses no intercharacter spaces. Only numeric (0 to 9) and START / STOP characters may be encoded.
LASER - Light Amplification by Stimulated Emission of Radiation	The laser is an intense light source. Light from a laser is all the same frequency, unlike the output of an incandescent bulb. Laser light is typically coherent and has a high energy density.
Laser Diode	A gallium-arsenide semiconductor type of laser connected to a power source to generate a laser beam. This laser type is a compact source of coherent light.
LED Indicator	A semiconductor diode (LED - Light Emitting Diode) used as an indicator, often in digital displays. The semiconductor uses applied voltage to produce light of a certain frequency determined by the semiconductor's particular chemical composition.
MIL	1 mil = 1 thousandth of an inch.
Misread (Misdecode)	A condition which occurs when the data output of a reader or interface controller does not agree with the data encoded within a bar code symbol.
Nominal	The exact (or ideal) intended value for a specified parameter. Tolerances are specified as positive and negative deviations from this value.
Nominal Size	Standard size for a bar code symbol. Most UPC / EAN codes can be used over a range of magnifications (e.g., from 0.80 to 2.00 of nominal).
Parameter	A variable that can have different values assigned to it.
Percent Decode	The average probability that a single scan of a bar code would result in a successful decode. In a well-designed bar code scanning system, that probability should approach near 100%.

Print Contrast Signal (PCS)	Measurement of the contrast (brightness difference) between the bars and spaces of a symbol. A minimum PCS value is needed for a bar code symbol to be scannable. PCS = (RL - RD) / RL, where RL is the reflectance factor of the background and RD the reflectance factor of the dark bars.
Programming Mode	The state in which a scanner is configured for parameter values. See SCANNING MODE.
Quiet Zone	A clear space, containing no dark marks, which precedes the start character of a bar code symbol and follows the stop character.
Reflectance	Amount of light returned from an illuminated surface.
Resolution	The narrowest element dimension which can be distinguished by a particular reading device or printed with a particular device or method.
Scan Area	Area intended to contain a symbol.
Scanner	An electronic device used to scan bar code symbols and produce a digitized pattern that corresponds to the bars and spaces of the symbol. Its three main components are: 1.Light source (laser or photoelectric cell) - illuminates a bar code. 2.Photodetector - registers the difference in reflected light (more light reflected from spaces). 3.Signal conditioning circuit - transforms optical detector output into a digitized bar pattern.
Scanning Mode	The scanner is energized, programmed, and ready to read a bar code.
Scanning Sequence	A method of programming or configuring parameters for a bar code reading system by scanning bar code menus.
Self-Checking Code	A symbology that uses a checking algorithm to detect encoding errors within the characters of a bar code symbol.
Space	The lighter element of a bar code formed by the background between bars.
Specular Reflection	The mirror-like reflection of light from a surface, which can “blind” a scanner.
Start/Stop Character	A pattern of bars and spaces that provides the scanner with start and stop reading instructions and scanning direction. The start and stop characters are normally to the left and right margins of a horizontal code.
Substrate	A foundation material on which a substance or image is placed.

Symbol	A scannable unit that encodes data within the conventions of a certain symbology, usually including start / stop characters, quiet zones, data characters, and check characters.
Symbol Aspect Ratio	The ratio of symbol height to symbol width.
Symbol Height	The distance between the outside edges of the quiet zones of the first row and the last row.
Symbol Length	Length of symbol measured from the beginning of the quiet zone (margin) adjacent to the start character to the end of the quiet zone (margin) adjacent to a stop character.
Symbology	The structural rules and conventions for representing data within a particular bar code type (e.g. UPC / EAN, Code 39).
Tolerance	Allowable deviation from the nominal bar or space width.
UPC	Universal Product Code. A relatively complex numeric symbology. Each character consists of two bars and two spaces, each of which can be any of four widths. The standard symbology for retail food packages in the United States.
Visible Laser Diode (VLD)	A solid state device which produces visible laser light. Laser light emitted from the diode has a wavelength of 670 to 680 nanometers.



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