CONFIGURATION MANUAL

ST LASER series
Bar Code Scanner
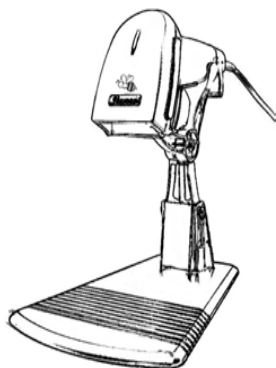
0 12345 67890 5

Configuration Commands

START

To begin the configuration procedures

END

To finish the configuration procedures and save new parameters in memory.
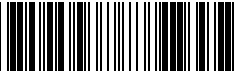
ABORT

To give up all parameters that you have just selected.

SET

To make all parameters back to default settings with * in this manual.

Configuration Commands

START

To begin the configuration procedures

END

To finish the configuration procedures and save new parameters in memory.

ABORT

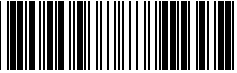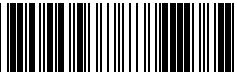To give up all parameters that you have just selected.

SET

To make all parameters back to default settings with * in this manual.
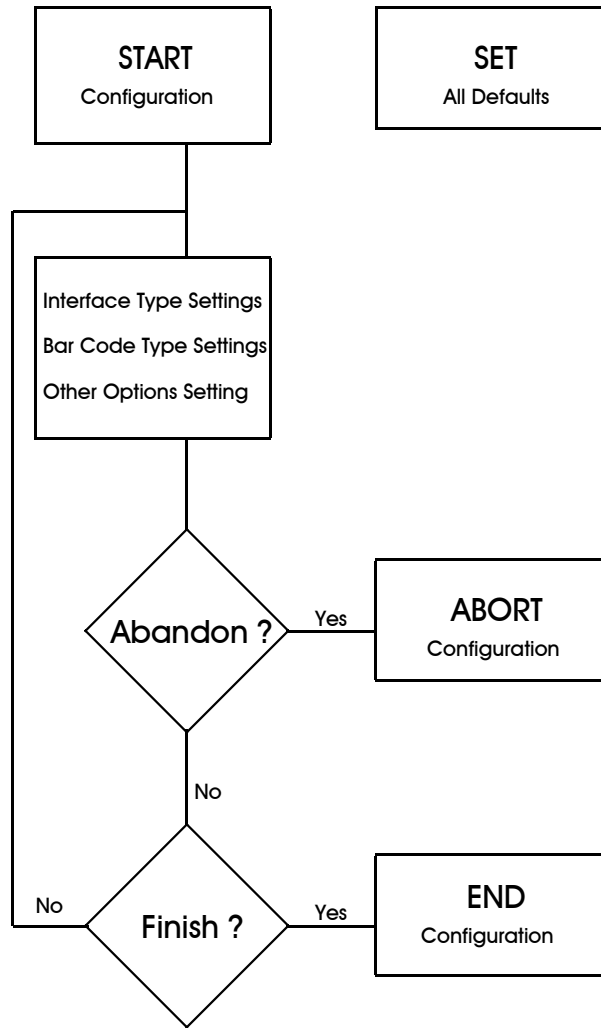
Configuration Procedures

Fig. 1 - Flow Chart of Configuration Procedures

IMPORTANT NOTICE

Each standard package contains main unit, interface cable and user's manual. The user's manual gives you an overall review and information about the scanner only. For those who can do the configuration by themselves, please contact your dealer for separate configuration manual.

To avoid any misuse or misunderstanding, we strongly suggest and recommend that the configuration manual should be used by either your dealer or your software consultant for proper set-up and custom configuration.

INFORMATION

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Safety Requirements

The scanner passes and complies with the following tests and regulations.
A) Emission: EN55022 Class B
B) Emission: EN55022 Class B which includes
       1) IEC801-2 (ESD) Class B
       2) IEC801-3 (RS) Class A
       3) IEC801-4 (EFT) Class B
C) CDRH class II and IEC class 2 laser product
D) UL, CSA and TUV

Manual P/No: SCCM - 80S-01A
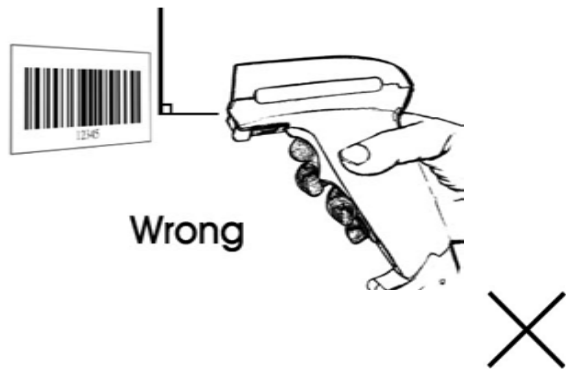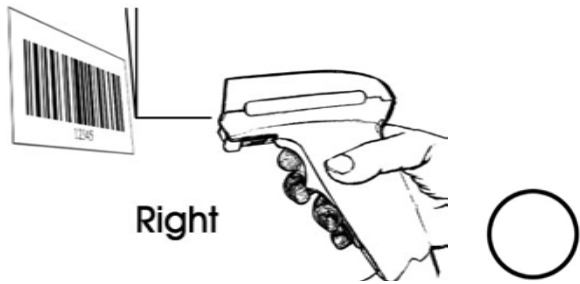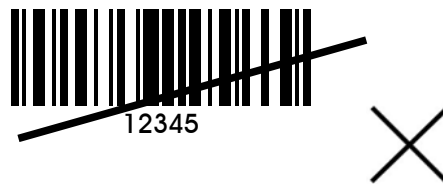Released Date: July 11, 2006

TABLE OF CONTENTS

Aiming at barcode

hold for an angle

Right ◯

Wrong ✕

Scan the Entire barcode

12345 ◯

12345 ✕

CHAPTER 1   INTRODUCTION

This manual provides all useful information regarding configuration, custom configuration and configuration procedure. You are suggested to read all information containing herein before starting to configure your scanner. As stated, we recommend that configuration, especially custom configuration, better to be performed
by experienced users, your dealer or your software consultant.

1.1. Default Configuration

The operation parameters of the scanner are set to defaults at the factory in order to suit for the most popular bar code data collection applications.

All default parameters are marked with an asterisk "*" in this manual. Generally, the defaults set in the factory are:
  * Emulation as keyboard wedge
  * IBM PC AT, PS/2 series computers
  * US keyboard layout
  * Data transmitted in lower case
  * Reading mode: Trigger on/good read off
  * Good reading beep active
  * Keyboard data terminator : CR
  * Keyboard number key: Alphanum
  * Red LED light on

1.2 Custom Configuration

The scanner can be re-configured at any time for your different application. You can change one or several default parameters by scanning the labels provided in this manual to fit our applications. For entering our own custom configuration, please refer to Chapter 2,3,4 and appendixes of this manual for details. Please, however, note that once the configuration is re-programmed, the desired parameters will be saved in the memory even after the power is turned off.

1.3 Configuration Procedure

One or more parameters of the scanner can be reconfigured to meet your need. The basic steps of customs configuration are as under :

  1) Scan " START " label
  2) Scan desired parameters
  3) Scan " EXIT" label, otherwise proceed to the next
     step
  4) Scan " END" label

In order to have a better idea about all configuration procedures, please refer to the Fig. 1, Flow Chart of Configuration Procedure, which is on the overleaf of the front cover of this manual.

Important configuration commands:

START - Scan START label to initiate your custom configuration procedure.

ABORT - Scan ABORT label to abadon all parameters you have just selected.

END - Scan END label to finish the configuration and save the new parameters in memory.

EXIT - "EXIT" is specially for ending the setup of "Hex-Label" printed in Appendix D.

CHAPTER 2   INTERFACE SETTING

The scanner has 2 modes of communication, keyboard wedge, and RS-232C, (CCD WAND and OCIA are options.)

Keyboard Wedge

2.1 Keyboard Wedge Parameters

The keyboard wedge is convenient for most applications. First of all, select one of the computer type from labels below for keyboard interface.

Computer Type
*PC/AT & PS-50,60,70,80
PC/XT
IBM5550
PS-55
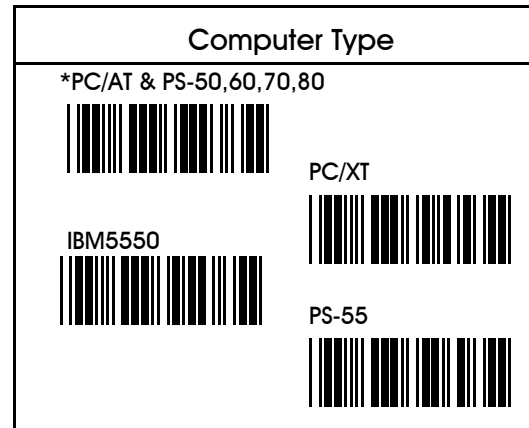
Keyboard parameters include:

1. Keyboard layout
2. Keyboard speed
3. Keyboard character delay
4. keyboard upper/lower case
5. keyboard number keys
6. keyboard data terminator

1. Keyboard Layout
* US
France
Germany
Spain
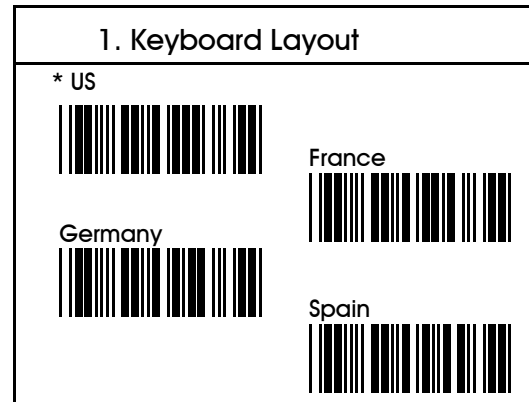
2. Keyboard Speed of PC/AT

* Normal

Turbo

3. Keyboard Character Delay

Min. to Max:(00-99)
Define char. delay=??

Note: For setting up, please refer to the examples in
Chapter 5.

4. Keyboard Upper/Lower Case

* Lower

Upper

Auto
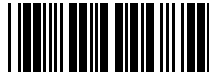
5. Keyboard Number Keys

* Alphanum

Numeric Pad

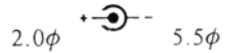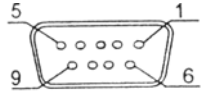## 6. Keyboard Data Terminator

* CR

None

SPACE

TAB

ESC

Ctrl + C

2.2 RS-232C Parameters

The scanner also provides RS-232C interface to meet your application . Scan the label below for RS-232C interface.

RS - 232C

RS-232 Pin Assignment:

DUSB-9P Female

1 ——————N/C (=no connection)
2 ——————TXD
5 ——————GND
7 ——————CTS
8 ——————RTS
9 ——————VCC (+5V)

2.0ϕ 5.5ϕ

DC Adapter
+5v +- 10%
150mA (min.)

RS-232C parameters include:

1. Baud rate
2. Data bits
3. Parity
4. Handshaking protocol
5. Character delay
6. Data terminator

1. Baud Rate (bps)

19200

300

600

1200

2400

4800

*9600

38400

2. Data Bits

* 8 Bits

7 Bits

3. Parity

* None

Odd

Even

4. Handshaking

* None

RTS/CTS

Xon/Xoff

5. Character Delay

Min. to Max.:(00-99)
Define char. delay=??

6. Data Terminator

* CR

None

LF

CR+LF

SPACE

TAB

ESC

Ctrl + C

STX/ETX

Xon/Xoff

CHAPTER 3 BAR CODE SETTING

The scanner can read almost all popular symbologies in the world. Scan one or more codes from the following labels to meet your applications.

Readable Code Setting		
Code 39	*On	
	Off	
ITF 2/5	On	
	* Off	
IND 2/5	On	
	* Off	
MTX 2/5	On	
	*Off	
CODABAR	*On	
	Off	

Readable Code Setting (Cont'd)

EAN-13/UPC-A	*On ▐� barcode▐ Off ▐barcode▐
EAN-8	* On ▐barcode▐ Off ▐barcode▐
UPC-E	* On ▐barcode▐ Off ▐barcode▐
UPC/EAN Add-on 2/5	On ▐barcode▐ * Off ▐barcode▐
Code 128	*On ▐barcode▐ Off ▐barcode▐
Code 14	On ▐barcode▐ Off ▐barcode▐

Standard readable codes include Code 93, Code 11, Code IV, MSI/Plessy, China Postage and ISBN/ISSN listed in page 25.

3.1 CODE 39 Parameters

These parameters include:

1. Character set
2. Verify check digit
3. Transmit check digit
4. Transmit start/stop digit

1. Character Set

* Standard Code ▐barcode▐

Full ASCII code ▐barcode▐

2. Verify Check Digit

* No ▐barcode▐

Yes ▐barcode▐

3. Transmit Check Digit

* Yes ▐barcode▐

No ▐barcode▐

4. Transmit Start/Stop Digit

* No ▐barcode▐

Yes ▐barcode▐

3.2 Interleave 2 of 5 Parameters

1. Verify check digit

2. Transmit check digit

3. Code length

1. Verify Check Digit

* No

Yes

2. Transmit Check Digit

* No

Yes

3. Code Length

* Variable length
  Min.=?? Max.=?? (4 - 48)

Fixed length
Custom define=???

Note: 1. Default is set to various length with minimum 4

   and maximum 48.

   2. In order to suit your routine application, you

   may also re-define as fixed length up to 3.

   3. You may see examples in Chapter 5 for

   re-definition.

3.3. Industrial 2 of 5 Parameters

1. Verify check digit

2. Transmit check digit

3. Code length

1. Verify Check Digit

* No

Yes

2. Transmit Check Digit

* No

Yes

3. Code Length

* Variable length
  Min.=?? Max.=?? (2-24)

Fixed length
Custom define=???

Note: See examples in Chapter 5 for re-definition.

3.4 Matrix 2 of 5 Parameters

1. Verify check digit

2. Transmit check digit

3. Code length

```
┌─────────────────────────────────────┐
│        1. Verify Check Digit          │
├─────────────────────────────────────┤
│ * No                                  │
│ ||||||||||||||                         │
│                 Yes                    │
│                 |||||||||||||          │
│                                        │
└─────────────────────────────────────┘
```

```
┌─────────────────────────────────────┐
│        2. Transmit Check Digit        │
├─────────────────────────────────────┤
│ * No                                  │
│ ||||||||||||||                         │
│                 Yes                    │
│                 |||||||||||||          │
│                                        │
└─────────────────────────────────────┘
```

```
┌─────────────────────────────────────┐
│           3.Code Length               │
├─────────────────────────────────────┤
│ * Variable length                     │
│   Min.= ?? Max.= ?? ( 2-40)           │
│ ||||||||||||||                         │
│                 Fixed length           │
│                 Custom define=???      │
│                 |||||||||||||          │
└─────────────────────────────────────┘
```

Note: See examples in Chapter 5 for re-definition.

3.5 Codabar Parameters

1. Transmit start/stop characters

2. Type of start/stop characters

```
┌─────────────────────────────────────┐
│   1. Transmit Start/Stop Characters   │
├─────────────────────────────────────┤
│ * No                                  │
│ ||||||||||||||                         │
│                 Yes                    │
│                 |||||||||||||          │
│                                        │
└─────────────────────────────────────┘
```

```
┌─────────────────────────────────────┐
│   2. Type of Start/Stop Characters    │
├─────────────────────────────────────┤
│ * abcd/abcd                           │
│ ||||||||||||||                         │
│                 ABCD/ABCD              │
│                 |||||||||||||          │
│ ABCD/TN*E                              │
│ ||||||||||||||                         │
│                 abcd/tn*e              │
│                 |||||||||||||          │
└─────────────────────────────────────┘
```

3.6 EAN-13 Parameters

1. Transmit first digit

2. Transmit second digit

3. Transmit check digit

```
+-------------------------------------------+
|        1. Transmit First Digit            |
|                                           |
|  * Yes                                    |
|  ||||||||||||||||||                        |
|                      No                   |
|                      |||||||||||||||||||    |
+-------------------------------------------+
```

```
+-------------------------------------------+
|        2. Transmit Second Digit           |
|                                           |
|  *Yes                                     |
|  ||||||||||||||||||                        |
|                      No                   |
|                      |||||||||||||||||||    |
+-------------------------------------------+
```

```
+-------------------------------------------+
|        3. Transmit Check Digit            |
|                                           |
|  * Yes                                    |
|  ||||||||||||||||||                        |
|                      No                   |
|                      |||||||||||||||||||    |
+-------------------------------------------+
```

3.7 UPC-A Parameters

1. Transmit first digit
2. Transmit second digit
3. Transmit check digit

```
+-------------------------------------------+
|        1. Transmit First Digit            |
|                                           |
|  * Yes                                    |
|  ||||||||||||||||||                        |
|                      No                   |
|                      |||||||||||||||||||    |
+-------------------------------------------+
```

```
+-------------------------------------------+
|        2. Transmit Second Digit           |
|                                           |
|  * Yes                                    |
|  ||||||||||||||||||                        |
|                      No                   |
|                      |||||||||||||||||||    |
+-------------------------------------------+
```

```
+-------------------------------------------+
|        3. Transmit Check digit            |
|                                           |
|  * Yes                                    |
|  ||||||||||||||||||                        |
|                      No                   |
|                      |||||||||||||||||||    |
+-------------------------------------------+
```

3.8 EAN-8 Parameters

1. Transmit first digit

2. Transmit check digit

1. Transmit First Digit

* Yes

No

2. Transmit Check Digit

* Yes

No

3.9 UPC-E Parameters

1. Transmit first digit

2. Transmit check digit

1. Transmit First Digit

* Yes

No

2. Transmit Check Digit

* Yes

No

CHAPTER 4 OPTIONAL SETTING

This chapter provides you instructions for selecting optional parameters in order to fit your special requirements. These options include reading modes, code mark, pre-amble, post-amble, buzzer pitch, buzzer duration, power-up tone, and LED indicator.

Reading Mode Parameters

* Trigger on/good read off

* Trigger on/good read off delay=??sec.

Trigger on/off

Continuous/LED always on

Continuous/trigger off

Continuous/trigger off delay=??sec.

Continuous/no trigger

Reading Mode Parameter
* Auto

Testing

4.1.1 Mode 1 - Trigger on/good read off

Press thye trigger and LED (of the reading window) will be turned on then scan a bar code label. The beep sounds for a good read, then, LED turns off automatically. If a good read does not occur, LED also turns off after THE DEFAULT 3 SECOND.

4.1.2 Mode 2 - Trigger on/good read off But Define delay time=??

This mode is almost the same as mode 1, but you can define delay time for turning off LED. For example, you can set to 07 seconds. (The default is 3 second.) You can use the provided Decimal and Hex-Lable Tables for your own setup.

4.1.3 Mode 3 - Trigger on/off

This mode is a little bit different from above 2 modes, which is that trigger dominate the on/off the Led. This means LED will be turned off when you release the trigger and there will be no delay time..

4.1.4 Mode 4 - Continuous LED always on

This mode provides you to read bar code labels continuously with the LED always on. But note that this mode will also enable LED always on when you are not reading the bar code labels. You will have to switch off the power to turn off LED.

4.1.5 Mode 5 - Continuous/trigger off

This mode is much the same as mode 4 except you can turn off the LED by releasing the trigger.

4.1.6 Mode 6 - Continuous/trigger off But delay =??

As above mode 5 except you can define the delay time to control the LED off after releasing the trigger. For instance, you may define the delay time as 05 seconds. You may untilize Decimal & Hex-Label Tables for your own setup.

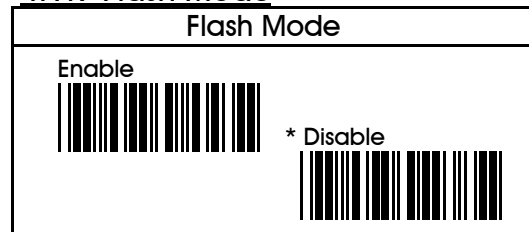### 4.1.7 Mode 7 - Continuous/ no trigger

This mode means the LED is controlled by system power. When system is on, the LED is on and vise versa. The trigger, therefore, is off no use.

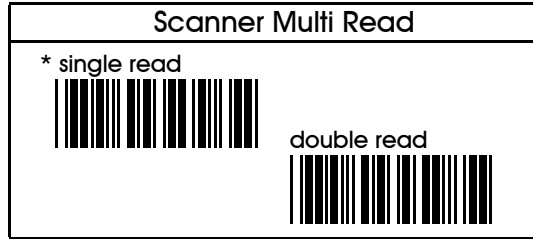### 4.1.8 Reading mode Parameter - Auto

This mode is ST laser new function. While you don't use Laser, the laser will automatically turn off, and when you need to use it, when you focus on barcode, it will automaticaaly turn on, without using any trigger.

This mode is idifferent from Mode 3, mode 3 could non-stop scanning barcode without pushing trigger and it is always on turn-on. But this mode could save more power but on waste enegry while user dosn't use it.
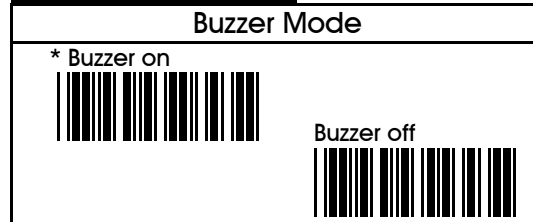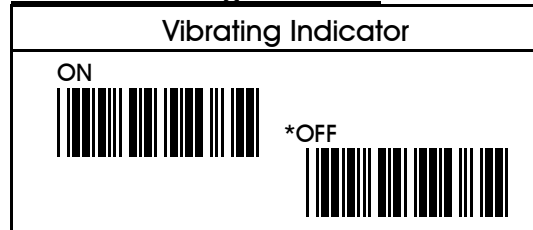
4.1.9 Flash Mode

Flash Mode
Enable
* Disable

4.1.10 Scanner Multi Read

Scanner Multi Read

* single read

double read

4.1.11 Buzzer Mode

Buzzer Mode

* Buzzer on

Buzzer off

4.1.12 Vibrating Indicator

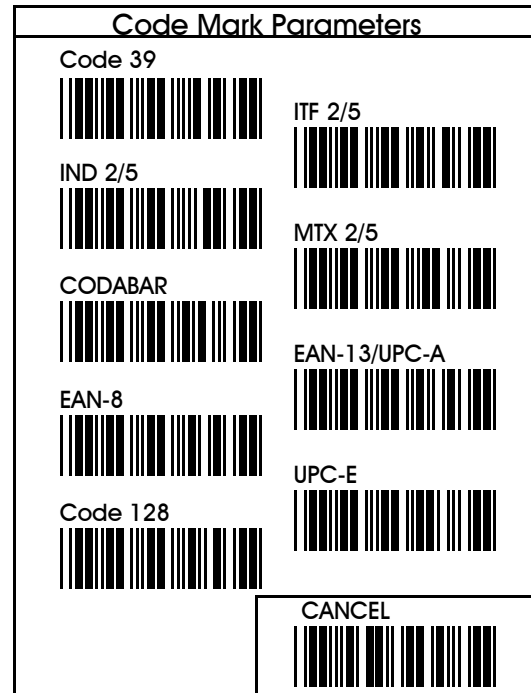**Vibrating Indicator**

ON

*OFF

4.2 Code Mark (Code ID) Parameters

You may use the example listed below to define the code mark for your own applications.

Please note that each code mark you define has to follow the steps as example shown below . You may also refer to Chapter 5 for details.

For example: to define " Z " as code mark for code 39. , the steps will be as under :

a) Scan " Start " label.
b) Scan Code 39 label as below.
c) Refer to Appendix A. ASCII Code Table where shows " 5" "A" stand for " Z".
d) From Appendix D. Hex-Label to scan " 5" "A" labels.
e) Scan " EXIT" label also from Hex-Label Table.
f) Scan " END" to complete your definition

Code Mark Parameters

Code 39

ITF 2/5

IND 2/5

MTX 2/5

CODABAR

EAN-13/UPC-A

EAN-8

UPC-E

Code 128

CANCEL

Note: 1. Read code type and then CANCEL label.

2. Please follow the rule for cancellation step by step, i.e.: to read one code type and then scan CANCEL label.

4.3 Pre-amble and Post-amble

Pre-amble & Post-amble

Pre-amble=??
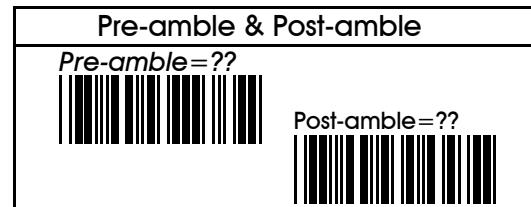
Post-amble=??

Note: 1. You can define maximum 10 characters/digits for each pre-/post-amble.
2. Please refer to examples in Chapter 5.

Cancellation of Pre-amble & Post-amble

Pre-amble
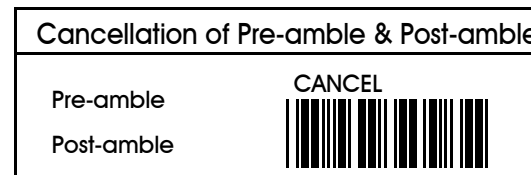
CANCEL

Post-amble

Note: Read pre-amble for post-amble first and then CANCEL label afterwards.

4.4 Buzzer Parameters

Buzzer parameters include buzzer pitch (buzzer frequency) and buzzer duration.

Buzzer Pitch & Duration

Buzzer pitch=?? (0-22)

Buzzer duration=?? (0-127)

4.5 Other parameters

These parameters include power up tone and LED indicator.

Power up Tone

* On

Off

LED Indicator

* LED on
Good read off

LED off
Good read on

4.6 Code(S) Single or Double Read

Code(S)

Single Read

Double Read

CHAPTER 5   USEFUL EXAMPLES

Here we list examples concerning configuration steps for your reference. We have illustrated the steps for defining code mark. Now we try others and you will see that it's very important and very useful of our ASCII Code Table and Decimal Table shown in Appendix A and Appendix B respectively.

Please do remember one thing , that is - everytime before setting up your own definition, you will have to write down the order of characters/digits that you find out from ASCII Code Table/Decimal Table first. This important step will minimize mistakes when you proceed configuration procedures.

Example 1. To setup pre-amble, let's say AjX, of any code

Now simply follow the following steps:
1) From Appendix A. ASCII Code Table you may find out that:
   - " 4" & " 1" stand for A
   - "6" & "A" stand for j
   - " 5" & " 8 " stand for X
   Please take note, in orders, "4", "1", "6", "A", "5", "8"
2) Scan " START" label printed in the front cover of manual.
3) Scan the provided pre-amble label.
4) Follow the order of "4", "1", "6", "A", "5", "8" to scan the bar code in the Appendix D. Hex-Label Table.
5) Then scan " EXIT" label also printed in Appendix D. Hex-Label Table.
6) Finally, scan "END" label printed in the front cover in order to complete your own configuration.

Example 2. To set variable length for code ITF 2/5

The defaults of minimum and maximum length are 4 and 48 respectively. If you want to set 8 for minimum and 20 for maximum, the steps will be as below:

1) Refer to Appendix B. Decimal Table you may find that :
   - " 08 " stands for 8
   - " 14 " stands for "20"
   Please take note, in orders, "0", "8", "1", "4"
2) Scan " START" label printed in the front cover of manual.
3) Scan the provided variable length of bar code label.
4) Follow the orders you write down to scan bar code labels from Appendix D. Hex-Label Table..
5) Scan " EXIT" label also printed in Appendix D. Hex-Label Table.
6) Scan " END" label printed in front cover to complete your configuration.

Chapter 6. USB Connection (Optional)

Scan the following command codes to complete USB setting:

SET

START

USB Setting

END

APPENDICES

APPENDIX A. ASCII CODE TABLE

H / L	0	1	2	3	4	5	6	7
0	NUL	DLE	SP	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	,	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	【	k	{
C	FF	FS	,	<	L	\	l	|
D	CR	GS	-	=	M	】	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL
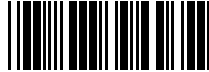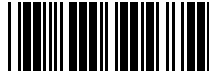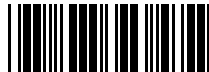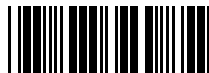
APPENDIX B. DECIMAL TABLE

H / L	0	1	2	3	4	5	6	7
0	0	16	32	48	64	80	96	112
1	1	17	33	49	65	81	97	113
2	2	18	34	50	66	82	98	114
3	3	19	35	51	67	83	99	115
4	4	20	36	52	68	84	100	116
5	5	21	37	53	69	85	101	117
6	6	22	38	54	70	86	102	118
7	7	23	39	55	71	87	103	119
8	8	24	40	56	72	88	104	120
9	9	25	41	57	73	89	105	121
A	10	26	42	58	74	90	106	122
B	11	27	43	59	75	91	107	123
C	12	28	44	60	76	92	108	124
D	13	29	45	61	77	93	109	125
E	14	30	46	62	78	94	110	126
F	15	31	47	63	79	95	111	127
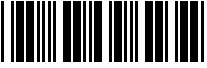
APPENDIX C. OTHER OPTIONS

In this appendix, we also list some optional parameters regarding computer types and keyboard layout of the keyboard wedge, readable codes and parameters for these readable codes, general parameters.

A)

Computer Type

IBM 3196/97,3476/77

NEC N5200

NEC PC-98

ACER 7300

Sun Type 4/5/5C

ADI CC-III

MAC SE

LC-6533

IBM 4714

B)

Keyboard Layout	
Switzerland	Sweden/Finland
Italy	Belgium
U.K.	Denmark
Portugal	Norway
Latin America	Japan
Poland	Holland

C)

Readable Code		
Code 93	On	
	* Off	
Code 11	On	
	* Off	
MSI/Plessy	On	
	* Off	
China Postage	On	
	* Off	
Code IV	On	
	* Off	
ISBN/ISSN	On	
	*Off	
GTIN14	* Off	
	ON	
Ean-128	* Off	
	ON	

D) Code 11 Parameters :

1. Number of Check Digit

One

Two

2. Transmit Check Digit

Yes

No

E)Code 93 Parameters

Concatenation

On

Off
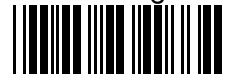
F) China Postage Parameters

1. Code Length

Variable Length
Min=? Max=?(2-40)

Fixed length
Custom Define=???

2. Verify Check Digit

Yes

No

3. Transmit Check Digit

Yes

No

G) General Parameters- Code Mark

Code Mark Parameters

Code 93

Code 11

MSI/Plessy

China Postage

Code IV

CANCEL

Note: 1. Read code type (just once a time) and then
CANCEL label afterwards.
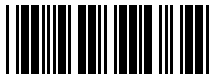
H) General Parameters

Bar ——— Space Invert to Read

Yes

No

I) K/B Control Code Emulation F1-F12

K/B Control Code Emulation F1-F12

Disable

Enable

APPENDIX D. HEX-LABEL TABLE

0

1

2

3

4

5

6

7

8

9

A

B

C

D

E

F

EXIT