USER'S MANUAL

ZBX99030301

P/N : MUL-53221-04

USER'S MANUAL

Handheld laser scanner & High performance Long Rang Dual CCD scanner

Alpha-50 series: Laser scanner
Alpha-60 series: Laser scanner
Alpha-70 series: Long Rang scanner

The manual can be used as keyboard emulation, RS- 232C serial interface, CMOS serial interface and wand emulation.

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TABLE OF CONTENTS

1. INTRODUCTION

The series scanners can be configured by scanning a series of programming bar code labels. This allows decoding options and interface protocols to be tailored to a specific application. The configuration is stored in non-volatile memory and will not be lost by removing power from the scanner.

The scanner must be properly powered before programming. For RS-232C type scanners, an external power adapter must be used to supply DC power to the scanner. If a keyboard emulation type scanner is used with a IBM PC/XT/AT, PS/2 or any fully compatible computers, power will be drawn from the keyboard port. No external power adapter is required. If keyboard emulation type scanner is used with any other non IBM PC compatible computers, an external power adapter may be needed.

During the programming mode, the laser scanner will acknowledge a good and valid reading with a short beep. It will give long beeps for either an invalid or bad reading.

2. PROGRAMMING OPTIONS

Programmable options are divided into four groups. The first group includes the options that show the general behavior of the laser scanner. The second group of options governs the operation of RS-232C type serial ports. The third group selects the keyboard type that the keyboard emulation type will be emulated. The last group sets the decoding parameters for each bar code symbology.

3. DEFAULT PARAMETERS

This table gives the default settings of all the programmable parameters. The default settings will be restored whenever the "Reset" programming label is scanned and the laser scanner is in programming mode.

DEFAULT VALUES OF OPERATING PARAMETERS

Function	Default Values
Scanning Mode Selection	Trigger mode
Header and trailer	None
Inter-Message delay	Normal
Inter-Character delay	Normal
Message/Block mode selection	Message
Send command in block mode communication	Disable
Good read beeper tone selection	2.3KHz/50 mSec (for alpha-50) 2.7KHz/50 msec (for alpha-70)
Code identifier transmitting	Disable
Code 39 bar code identifier code	M
ITF 2 of 5 bar code identifier code	I
Chinese post code identifier code	H
UPC-E bar code identifier code	E
UPC-A bar code identifier code	A
EAN-13 bar code identifier code	F
EAN-8 bar code identifier code	FF
Codabar bar code identifier code	N
Code 128 bar code identifier code	K
Code 93 bar code identifier code	L
MSI bar code identifier code	P
MATRIX 25 bar code identifier code	G

DEFAULT VALUES OF KEYBOARD EMULATION PARAMETERS SETTING

Function	Default Values
Keyboard type selection	IBM PC/AT USA
Message terminator	Enter/ carriage return

DEFAULT VALUES OF RS-232C SERIAL COMMUNICATION PARAMETERS

Function	Default Values
Handshaking protocol	None
ACK/NAK response time setting	300 msec
Baud rate	9600
Data bit	8
Stop bit	1
Parity	Mark (None)
Message terminator selection	CR/LF

DEFAULT VALUES OF WAND EMULATION PARAMETERS

	Function	Default Values
¡	Wand emulation speed	Normal
¡	Wand emulation output	Black = High

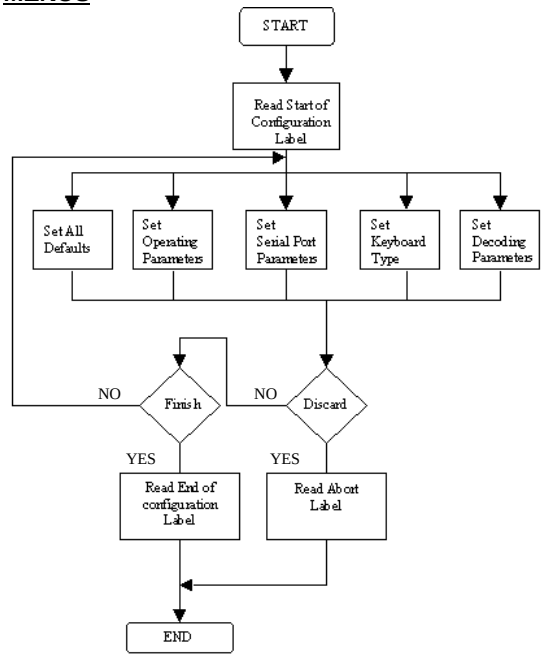
Note: For wand emulation, the configuration is only effective for the items with asterisk (¡)°

DEFAULT VALUES OF DECODING PARAMETERS

Function	Code	Default Value
Reading codes selection	Code 39	Enable
	ITF 2 of 5	Enable
	Chinese Post Code	Disable
	UPC/EAN/JAN	Enable
	Codabar	Enable
	¡ ° MSI	Disable
	Code 128	Enable
	Code 93	Enable
	¡ ° ITAT	Disable
	¡ ° EAN-128	Disable
	¡ ° MATRIX 25	Disable
	¡ ºItalian Pharmac	Disable
	ISSN/ ISBN	Disable
Code 39	Codes	Standard
	Start/stop characters	Not transmitting
	Check digit	Disabled
	Concatenation	Off
Interleaved 2 of 5	Length	6-32 digits
	Check digit	Disable
Chinese Post Code	Length	10~16 digits
	Check digit	Transmit
UPC/EAN/JAN	Format	All
	Addendum	Disable
	UPC-E=UPC-A	Disabled
	UPC-A leading digit	Transmit
	UPC-A check digit	Transmit
	UPC-E leading digit	Transmit
	UPC-E check digit	Transmit
Codabar	Type	Standard
	Start/stop characters	A,B,C,D
	Length	6~32 digits
Code 128	FNC 2 append	Disable
	Check digit	Disable
MSI	Length	Variable
	Check digit	Transmit
Italian Pharmac	Transmit "A" Character	Not transmitting
MATRIX 25	Length	Fix 10 digits
	Check digit	Disable

Note: The configuration of the items with asterisk (¡)ºis effective when being appointed in advance.

4. PROGRAM PROCEDURE USING BAR CODE MENUS



Start of Configuration

- The reading of the "RESET" label turns all the parameters back to default values.
- When you intend to turn your scanner back to default parameter, please scan the "Start of configuration" label first, then scan "RESET" label and finally scan the "End of configuration" label.

RESET

- The reading of the "ABORT" label discards all the parameters read prior to the "End of configuration".

ABORT

RS-232C

- The scanner remains in the last interface mode when the scanner is reset. The label below should be scanned if the scanner is configured the first time.

PC/AT

WAND EMULATION

- The reading of the "SHOW VERSION" label will be show firmware version.

SHOW VERSION

SCANNING MODE SELECTION(for laser scanner)

For series laser scanners, there are 3 scanning modes to suit your application requirements.

Trigger Mode

The scanner becomes inactive as soon as the data is transmitted. It must be triggered to become active again.

Turbo Trigger Mode

The scanner switch is pressed and double reading for the same bar code is permitted. The scanner will turn off when the trigger switch is released.

Without any scanning, the unit will enter a standby mode. To reactivate the unit, present an object in front of the IR sensor. (*Only for Alpha-60 series.)

Object detect Trigger

Note: To avoid hazardous exposure, all laser scanner are equipped with an internal cut-off security system which will turn off the laser beam after 5 seconds.

SCANNING MODE SELECTION (For Alpha-70 series)

The scanner becomes inactive as soon as the data is transmitted. It must be triggered to become active again.

Trigger mode

In auto scan mode, the scanner is still active after the data is transmitted, but the successive transmission of the same bar code is not allowed when the trigger switch is pressed again.

Auto scan mode

This scanner will light up when press the scanner trigger switch once. And, the scanner will turn off for next pressing.

Alternate mode

For testing the response of the scanner.

Repeat mode

For factory testing use only.

Testing mode

DATA REDUNDANT CHECK

The option allow you to set decoder data redundant check.

Enable

Disable

End of Configuration


Start of Configuration

HEADER AND TRAILER

This option allows you to append a header and/or a trailer to every message transmitted via the serial ports or the keyboard port. There is no restriction in selecting header or trailer characters as far as the sum of the lengths of header and trailer is not greater than 10 digits.


Header


Trailer


Set

1. Select either header or trailer you are going to program by scanning the corresponding label
2. Scan the character(s) you want from the enclosed ASCII table to set as header or trailer (be sure to enable full ASCII code 39 option before you start).
3. Read the "Set" label to set your choice into memory.

INTER-MESSAGE DELAY

There series Laser scanners allow you to add a delay between two consecutive messages. This delay will be added before each data transmission. Start of Configuration label and then select the appropriate delay time to activate this feature.


None


100mSec


500 mSec


1 Second

INTER-CHARACTER DELAY

This option governs delay time between consecutive characters. The delay time can be altered by scanning the following labels.


None


10 mSec


20 mSec


50 mSec

MESSAGE/BLOCK MODE SELECTION

This option allows you to treat scanned data as either an independent message or a block message. In the message mode, the data scanned will be transmitted immediately. In block mode, the data scanned will be appended to the message buffer if the scanner is programmed in block mode. A block of message will only be transmitted after a "Send" command is entered. This mode is only available when the scanner is working with code 39 labels. You are free to choose any character as the " Send" command.


Message


Block


End of Configuration


Start of Configuration

SEND COMMAND IN BLOCK MODE COMMUNICATION

You can use this option to set your own "Send" command used in block mode communication.


Enable


Disable


Store


Set

GOOD READ BEEPER TONE SELECTION

You can use this option to set frequency and / or duration of the buzzer after successful reading.


Medium


Low


High


Disable

*For Alpha-70 only Medium and disable setting available.

SOUND DURATION


long(120ms)


Medium(50ms)


Short(20ms)


Very short(5ms)

BAR CODE IDENTIFIER CODE SELECTION

The series RS-232C and keyboard emulation types scanners can transmit max. 2 digits bar code identifier code for different types of bar codes. Use the labels to choose transmit or not transmit bar code identifier code:


Enable


Disable


End of Configuration

Start of Configuration

BAR CODE IDENTIFIER CODE SETTING

The series RS-232C and keyboard emulation type scanners can set max. 2 digits of bar code identifier code according to different bar code. The procedure is as following:

1. Scan "Start of configuration" label
2. Scan "Bar code identifier setting code" label.
3. Scan the new code mark from ASCII table (max. two digits). For example, if "AB" want for code mark then scan "A" and "B".
4. Scan "Set" label.
5. Scan " End of configuration" label.

UPC-E

UPC-A

EAN-13

EAN-8

Chinese post code

ITF 2 OF 5

Codabar

Code 39

Code 128

Code 93

MSI

MATRIX 25

Set

RS-232C SERIAL COMMUNICATION PARAMETERS SETTING

HANDSHAKING PROTOCOL

None

RTS/CTS

End of Configuration

Start of Configuration

HANDSHAKING PROTOCOL (Cont' d)

ACK/NAK

Xon/Xoff

ACK/NAK RESPONSE TIME SETTING

300 mSec

2 Sec

500 mSec

3 Sec

1 Sec

5 Sec

BUAD RATE

19200

9600

4800

2400

1200

600

DATA BIT

7

8

STOP BIT

1

2

End of Configuration

Start of Configuration

PARITY

Even

Odd

Mark

Space

MESSAGE TERMINATOR (FOR RS-232C TYPE ONLY)

None

CR/LF

CR

LF

H Tab

STX/ETX

EOT

KEYBOARD EMULATION PARAMETERS SETTING
KEYBOARD TYPE SELECTION

IBM AT

PS/2 30-80

IBM 5550

IBM 5295 Terminal

IBM XT

IBM 3477/3472 Terminal

IBM 5530-SC

End of Configuration

Start of Configuration

KEYBOARD TYPE SELECTION (Cont'd)

IBM 5530-ZC

NEC 9801

IBM 3196 Terminal

APPLE MAC II(¡)°

MOS SYS

PS2/30/56

IBM 3477 Terminal
(without break code)

NEC 5200(¡)°

Note: The configuration of the items with asterisk (¡)° is optional.

KEYBOARD LANGUAGE SELECTION

USA

UK

Germany

French

Spainish

Italian

Swiss

Swedish

End of Configuration

Start of Configuration

MESSAGE TERMINATOR (FOR KEYBOARD WEDGE USE)

None

Return

Hor. TAB

Execute

KEYBOARD TYPE SELECTION

Scan Code Mode

Alt mode

BREAK CODE ON/ OFF SETTING (FOR IBM Terminals 31xx, 34xx, 37xx USE)

To select the interface for these IBM terminal, read the correct key transmission code.

ON

OFF

FUNTION KEY ACTIVE ON/ OFF (FOR IBM AT USE)

Function keys can be concatenated with input data as header and/or trailer. See page 40 table.

ON

OFF

CAPITAL LOCK ON/ OFF

Select the suitable code to match your keyboard caps lock status.

ON

OFF

RDADING CODE SELECTION

Code 39 Enable

Code 39 Disable

Codabar Enable

Codabar Disable

End of Configuration

Start of Configuration

RDADING CODE SELECTION (Cont' d)

UPC/ EAN/ JAN Enable

UPC/ EAN/ JAN Disable

ITF 2 of 5 Enable

ITF 2 of 5 Disable

Chinese post code Enable

Chinese post code Disable

Code 128 Enable

Code 128 Disable

MSI Enable

MSI Disable

Code 93 Enable

Code 93 Disable

IATA Enable

IATA Disable

EAN- 128 Enable

EAN-128 Disable

MATRIX 25 Enable

MATRIX Disable

Italian Pharmac Enable

Italian Pharmac Disable

End of Configuration

Start of Configuration

CODE 39 PARAMETERS SETTING

CHARACTER SET

Standard Code 39

Full ASCII Code 39

START/STOP CHARACTER TRANSMISSION

Yes

No

CHECK DIGIT

Calculate and Transmit

Calculate but not Transmit

NO

CONCATENATION

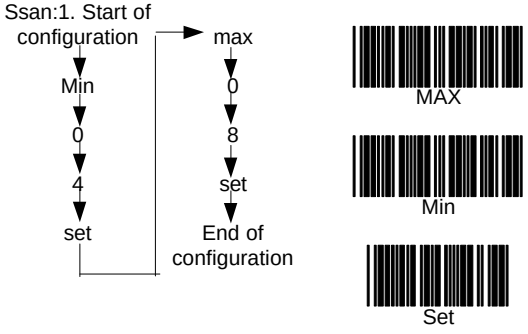
Enable

Disable

INTERLEAVED 2 OF 5 PARAMENTERS SETTING

Examples: Felting length 4 to 8 digits

LENTGTH



CHECK DIGIT

NO

Calculate and Transmit

Calculate but not Transmit

End of Configuration

Start of Configuration

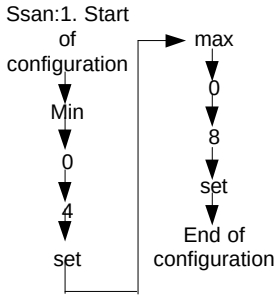
CHINESE POST CODE PARAMETERS SETTING

LENGTH

MAX

MIN

Set



CHECK DIGIT

NO

Calculate and Transmit

Calculate but not Transmit

UPC/EAN/JAN PARAMETERS SETTING

FORMAT

All

EAN-8 or EAN-13

UPC-A and EAN-13

UPC-A and UPC-E

UPC-A

UPC-E

EAN-13

EAN-8

ADDENDUM

NO

5 Characters

End of Configuration

Start of Configuration

UPC/EAN/JAN PARAMETERS SETTING (Cont'd)

2 Characters

2 or 5 Characters

FORCE UPC-E TO UPC-A FORMAT

Yes

No

FORCE UPC-A TO EAN-13 FORMAT

Yes

No

TRANSMIT UPC-A LEADING CHARACTER

Yes

No

TRANSMIT UPC-A CHECK DIGIT

Yes

No

TRANSMIT UPC-E LEADING CHARACTER

Yes

No

TRANSMIT UPC-E CHECK DIGIT

Yes

No

TRANSMIT EAN-13 CHECK DIGIT

Yes

No

End of Configuration

Start of Configuration

UPC/EAN/JAN PARAMETERS SETTING (Cont'd)

TRANSMIT EAN-8 CHECK DIGIT

Yes

No

CODABAR/ MONARCH PARAMETERS SETTING

START/ STOP CHARACTER TRANSMISSION

No

A, B, C, D

DC1~DC4

a/ t, b/ n, c/ *, d/ e

CONCATENATION

Enable

Disable

CODE 128 PARAMETERS SETTING

FNC 2 CONCATENATION

Enable

Disable

CHECK DIGIT

No

Calculate and Transmit

Calculate but not Transmit

UCC/EAN128 PARAMETERS SETTING

The character FNC1 can be transmitted or not using these codes.

FNC1 Character Transmitted

FNC1 not Transmitted

End of Configuration

Start of Configuration

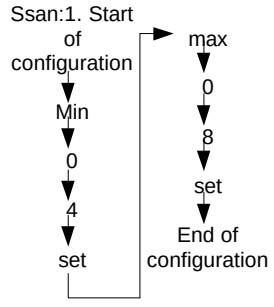
MATRIX 25 PARAMETERS SETTING

LENGTH

MAX

MIN

Set



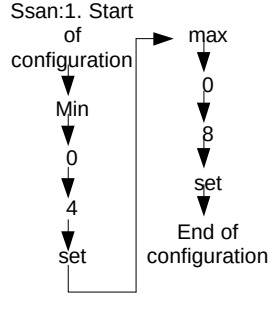
MSI/PLESSY PARAMETERS SETTING

Length

MAX

MIN

SET



Double Check digit

Calculate but not Transmitted

No

MSI/PLESSY PARAMETERS SETTING (Cont' d)

Calculate but only first one Transmitted

Calculated and both Transmitted

Single Check digit

Calculated but not Transmitted

Calculated and transmitted

Plessy code setting

Calculated and transmitted

Calculate but not transmitted

CHECK DIGHT

No

Calculate and Transmit

Calculate but not Transmit

End of Configuration

Start of Configuration

ITALIAN PHARMAC PARAMETERS SETTING

TRANSMIT "A" CHARACTER

Yes

No

BAR CODE LENGTH SETTING

CODE 39 LENGTH SETTING

MAX

MIN

CODE 93 LENGTH SETTING

MAX

MIN

CODE 128 LENGTH SETTING

MAX

MIN

Set

CODABAR LENGTH SETTING

MAX

MIN

ISBN/ ISSN CONVERSION

The function convents the UPC/EAN codes appearing on books and magazine not ISBN/ISSN format.

ACTIVE ISBN/ ISSN

INACTIVE ISBN/ ISSN

End of Configuration

Start of Configuration

WAND EMULATION PARAMETERS SETTING
EMULATION SPEED SELECTION

Low

Medium

Normal

High

Higher

EMULATION DATA OUTPUT SELECTION

The decoded data output logic level can be set to befit the external decoder.

Black = High

Black = Low

WNAD EMULATION NARROW/WIDE RATIO

1:2

1:3

End of Configuration

APPENDIX A

CODE 39 FULL ASCII CODE TABLE

ASCII	CODE 39	VALEUR HEXA.	ASCII	CODE 39	VALEUR HEXA.
NUL	%U	00	%	/E	25
SOH	$A	01	&	/F	26
STX	$B	02	'	/G	27
ETX	$C	03	(	/H	28
EOT	$D	04	)	/I	29
ENQ	$E	05	*	/J	2A
ACK	$F	06	+	/K	2B
BEL	$G	07	,	/L	2C
BS	$H	08	-	-	2D
HT	$I	09	.	.	2E
LF	$J	0A	/	/	2F
VT	$K	0B	0	0	30
FF	$L	0C	1	1	31
CR	$M	0D	2	2	32
SO	$N	0E	3	3	33
SI	$O	0F	4	4	34
DLE	$P	10	5	5	35
DC1	$Q	11	6	6	36
DC2	$R	12	7	7	37
DC3	$S	13	8	8	38
DC4	$T	14	9	9	39
NAK	$U	15	:	/Z	3A
SYN	$V	16	;	%F	3B
ETB	$W	17	<	%G	3C
CAN	$X	18	=	%H	3D
EM	$Y	19	>	%I	3E
SUB	$Z	1A	?	%J	3F
ESC	%A	1B	@	%V	40
FS	%B	1C	A	A	41
GS	%C	1D	B	B	42
RS	%D	1E	C	C	43
US	%E	1F	D	D	44
SP	SP	20	E	E	45
!	/A	21	F	F	46
"	/B	22	G	G	47
#	/C	23	H	H	48
$	/D	24	I	I	49

APPENDIX A

CODE 39 FULL ASCII CODE TABLE

ASCII	CODE 39	VALEUR HEXA.	ASCII	CODE 39	VALEUR HEXA.
J	J	4A	e	+E	65
K	K	4B	f	+F	66
L	L	4C	g	+G	67
M	M	4D	h	+H	68
N	N	4E	i	+I	69
O	O	4F	j	+J	6A
P	P	50	k	+K	6B
Q	Q	51	l	+L	6C
R	R	52	m	+M	6D
S	S	53	n	+N	6E
T	T	54	o	+O	6F
U	U	55	p	+P	70
V	V	56	q	+Q	71
W	W	57	r	+R	72
X	X	58	s	+S	73
Y	Y	59	t	+T	74
Z	Z	5A	u	+U	75
[	%K	5B	v	+V	76
\	%L	5C	w	+W	77
]	%M	5D	x	+X	78
^	%N	5E	y	+Y	79
_	%O	5F	z	+Z	7A
`	%W	60	{	%P	7B
a	+A	61 |	%Q	7C
b	+B	62	}	%R	7D
c	+C	63	~	%S	7E
d	+D	64	DEL	%T	7F

FUNCTION KEY EMULATION

FUNCTION KEY	ASCII	CODE 39		FUNCTION KEY	ASCII	CODE 39
Ins	$A	01		F1	$Q	11
Del	$B	02		F2	$R	12
Home	$C	03		F3	$S	13
End	$D	04		F4	$T	14
Up	$E	05		F5	$U	15
Down	$F	06		F6	$V	16
Left	$G	07		F7	$W	17
Backspace	$H	08		F8	$X	18
TAB	$I	09		F9	$Y	19
Enter(num)	$J	0A		F10	$Z	1A
Right	$K	0B		F11	%A	1B
PgUp	$L	0C		F12	%B	1C
Enter	$M	0D		ESC	%C	1D
PgDn	$N	0E		Ctl(L)	%D	1E
shift	$O	0F		Alt(L)	%E	1F
5 (num)	$P	10				

CURSOR PAD WORK AT NUMLOCK


ON


OFF

APPENDIX B

CODE 39 FULL ASCII BAR CODE TABLE


Start of Configuration


NUL


ENQ
(Up)


SOH
(Ins)


ACK
(Down)


STX
(Del)


BEL
(Left)


ETX
(Home)


BS
(Backspace)


EOT
(End)


HT
(TAB)


End of Configuration

CODE 39 FULL ASCII BAR CODE TABLE


Start of Configuration


LF
(Enter)(num)


VT
(Right)


FF
(PgUp)


CR
(Enter)


SO
(PgDn)


SI
shift(L)


DLE
5 (num)


DC1
(F1)


DC2
(F2)


DC3
(F3)


DC4
(F4)


NAK
(F5)

CODE 39 FULL ASCII BAR CODE TABLE


SYN
(F6)


ETB
(F7)


CAN
(F8)


EM
(F9)


SUB
(F10)


ESC
(F11)


FS
(F12)


GS
(ESC)


RS
Ctl (L)


US
Alt (L)


SP

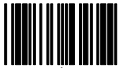

!


"


#


End of Configuration


Start of Configuration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End of Configuration

APPENDIX B
CODE 39 FULL ASCII BAR CODE TABLE

Start of Configuration

B

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APPENDIX B
CODE 39 FULL ASCII BAR CODE TABLE

P

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End of Configuration

CODE 39 FULL ASCII BAR CODE TABLE

Start of Configuration

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a

b

c

d

e

f

g

h

i

j

k

CODE 39 FULL ASCII BAR CODE TABLE

l

m

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q

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s

t

u

v

w

x

y

End of Configuration

APPENDIX B

CODE 39 FULL ASCII BAR CODE TABLE

Start of Configuration

z

}

{

~

|

DEL

End of Configuration