Programming Manual
2D Fixed Mount Barcode Scanner HM-761A

Restore Default

Firmware version

Content

I. Product Introduction

This user guide is only suitable for 2D barcode scanner. The purpose is to know all knowledge with barcode identification equipment for customers. This manual is mainly for the software engineers and some customers who want to know the device in further.

This manual lists the main function of the scanner, including: barcode reading, supported barcode type, data edition, command setting and advance setting.

II Quick to use

2.1 Install method

For USB device, it is plug and play, no need extra power supply to identify HID device. That's convenient appropriate for Windows, Linux, Android and other system. Also, support Virtual COM port, just need an extra drive supply, which can be supported by this company or dealers to offer. The physical serial port conforms to standard RS-232 interfaces, which can directly communicate with standard RS232 device. Note ,in case of serial port, additional Power DC 5V is generally required. For details, please refer to the serial port function section.

Some of models support for KB interface. Need to power off the device and plug in the device with common keyboard, then power on again and start to communicate.

2.2 Quick to use

After connecting in a short time on device, the scanner will be on by itself, include interface, power on indicate, volume indicate, configuration, parameters setting. Normally, directly pressing the button can activate decoding. In additional, some models also support automation induction trigger, serial command trigger.

2.3 Settings method

There are two methods for set up.

One method is without parameter set up which scan one barcode is ok.

Example: “enable successful reading voice prompt”, or “enable Code 39”.

The other method needs to set up parameter.

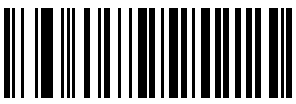
Example: set “98” as suffix. Setting steps: “custom suffix”, “3”, “9”, “3”, “8”,” Save”.

III Function settings

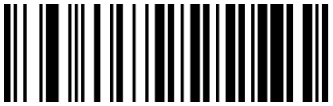
3.1 Basic Settings

The basic settings include default,1D and 2D all codes set up,etc.

Default



Version Information



Device Information

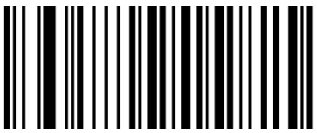
3.2 Interface selection

USB KB

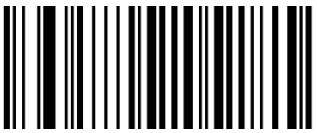
RS232

USB VCOM

3.3 Scan mode



Sense



Continuous

3.4 Sensitivity

Low

Medium

High

3.5 Keyboard function

The scanner is essentially an input device and can be understood as a keyboard device. Different countries use different keyboard layouts, and corresponding keyboard function.

3.5.1 Language settings

USA

Japan

Brazil

Czech

Denmark

Sweden

France

Italy

Norway

Spain

Slovakia

Turkey

UK

Germany

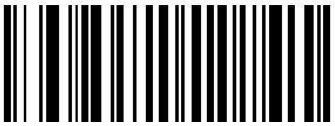
Greece

Hungary

Russia

Turkey (F)

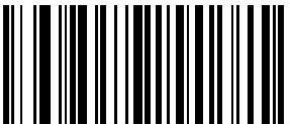
Finland



Netherlands

3.5.2 Case Conversion

No Conversion*



All convert to upper case

All convert to lower case

3.5.3 Number lock Function

This function can move the numeric keypad in the letter area to the keypad area and enter the numeric keypad with keypad.

Enable

Disable

Note: Before enabling this function, please make sure that the Number Lock of the host is turned on. If the "Alt Emulate Keyboard Mode" is turned on, this function will be invalid.

3.5.4 Character prompt

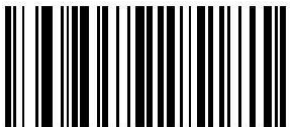
For non-visual characters, you can set the prompt tone, indicating that there are non-printable characters in the data.

Enable

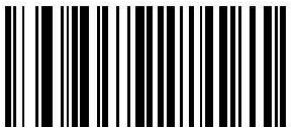
Disable

3.5.5 Character delay

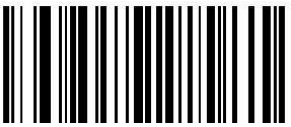
The time interval between key pressing during character input, from the last key release to the next key press.
Note: The default interval 5ms is to be compatible with hosts with different performance and operating systems and ensure data output stability. You need to set longer delay time if the data still lost due to slow running of system.



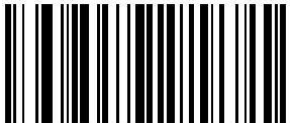
No delay



Delay 5 ms*



Delay 10 ms



Delay 20 ms

Delay 40 ms

3.5.6 Alt Emulate keyboard

In order to enable the scanner to input any ASCII characters (hexadecimal 0x00 to 0xFF) in any keyboard languages, the keyboard can be set to Alt Emulate Keyboard mode. When using this mode to send characters, the speed will be slow because more data to be sent.

Alt mode off *

Alt mode 1

<0x20 Alt mode 2 *

>0x20 Alt mode 3

3.5.7 Control Character Escape

The control characters escape output rules by this product cannot be recognized in some systems or software. You can achieve this function by setting the control character escape.
The following escape will be operated after successful decoding: Press and hold the "CTRL" key
Press the letter keys on the keyboard in sequence according to the character escape (check the appendix for details): Release the "CTRL" key

Control character escape off*

Control character escape on

3.5.8 Invisible Character Output

Example: The following QR code has 'CR' invisible character:

The default output data: 123

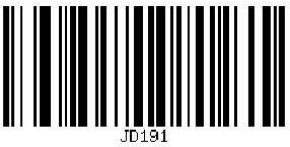
456

123«CR»456

Ignore invisible characters: 123456

Note: If the barcode contains 0x0A characters, LF cannot be displayed in WINDOWS. Please set 0x0A to replace 0x0D (Enter).

Don't ignore invisible characters*



Ignore invisible characters

3.5.9 Input Encoding Format

Select the encoding format for creating the code (if it is PDF417, QR Code, Data Matrix, etc.). After setting, the code can be correctly recognized. UTF-8 and Shift-JIS encoding format barcodes are automatically recognized as default.

UTF-8

GBK

Automatic*

KOI-8

BIG5

JIS

3.5.10 Output Encoding Format

If the data the host receiving does not display the correct characters, the barcode could be created by a different encoding format.

USA*

GBK

Unicode

Shift-JIS

UTF-8

BIG5

CP-852

3.5.11 GS Control Character Replacement

No replacement*

Replace GS to Ç

Replace GS to |

Replace GS to ^]

Replace GS to]

Replace GS to <GS>

Enable custom GS replacement

Custom GS replacement setting

Custom GS Replacement Instruction (replace to 10 characters at most)

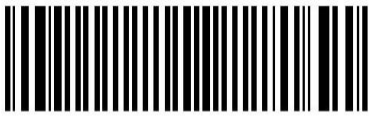
Example: Replace GS character to '#GS#'

1. Scan 'Enable custom GS replacement'
2. Scan 'Custom GS replacement setting'
3. Scan ASCII hex value codes of #GS#, ASCII hex value of #GS# are 0x23 0x47 0x53 0x23 in 'Appendix ASCII table', then scan '2' '3' '4' '7' '5' '3' '2' '3' barcodes in the 'Data Edit and Setting Parameter Barcodes' 4. Scan 'Save' in the 'Data Edit and Setting Parameter Barcodes'

3.5.12 GS1 AI Character

Read barcodes containing GS1 AI characters, such as GS1-128, GS1-DM, GS1-Databar, and medical UDI barcodes, and output AI characters containing brackets. For example:

(01) 0 0000123 00001 7 (17) 240601



(01) 0 0000123 00001 7

GS1-DM

GS1-128

No processing

Output including bracket

Output including bracket+LF

3.6 Serial Port function

The serial port supports the standard RS-232 interface and TTL-232 standard. The virtual serial port function is not affected by this section.

3.6.1 Baud rate

1200 bps

2400 bps

4800 bps

9600 bps

19200 bps

38400 bps

57600 bps

152000 bps

256000 bps

3.6.2 Parity

None

Even

Odd

3.6.3 Stop bits

1 Bit

2 Bit

3.6.4 Data bits

7 Bit

8 Bit

3.6.5 Control flow

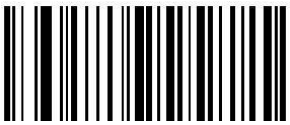
Off

On

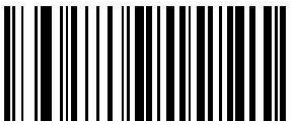
3.7 Data Edit

3.7.1 Prefix settings

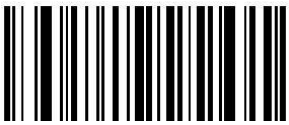
Example: set “a” as prefix (hexadecimal value of a is 61).
Step:
“Enable custom prefix setting”,
“Custom prefix setting”,
“6”, (data edit parameter table)
“1”, (data edit parameter table)
“Save”.(data edit parameter table)



Disable custom prefix setting*



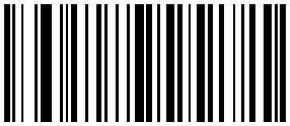
Enable custom prefix setting



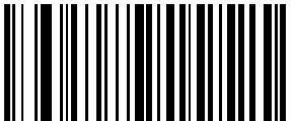
Custom prefix setting

3.7.2 Suffix Setting

Example: set “a” as suffix (hexadecimal value of a is 61).
Step:
“Enable custom suffix setting”,
“Custom suffix setting”,
“6”, (data edit parameter table)
“1”, (data edit parameter table)
“Save”. (data edit parameter table)



Disable custom suffix setting*



Enable custom suffix setting

Custom suffix setting

3.7.3 Terminator And Start Character Setting

The terminator is at the end of the data, and the start character is at the front of the data. The key value of the terminator ETX is End, and the key value of the start character STX is Home.

No terminator

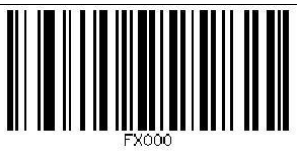
Terminator Enter* (0x0D)

Terminator (CR/LF) (0x0D 0x0A)

Terminator TAB

Terminator ETX

Terminator LF (0x0A)



No start character*

Start character STX

3.7.4 Data Cutting

Send full data*

Send start field of data

Send middle field of data

Send end field of data

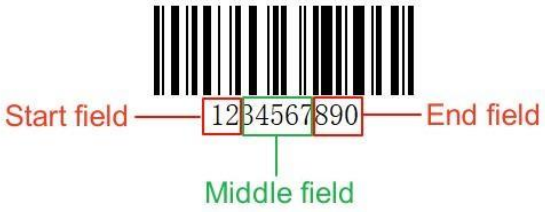
Send start+middle field of data

Send start+end field of data

Send middle+end field of data

3.7.5 Data Bit Setting

The data edit function can cut the barcode data into three fields: start/middle/end fields by configuring the data length of the start/end fields. Please set the length and sending of the start/end fields according to actual needs.
Note: Customized prefix and suffix, start character, terminator, CODE ID, AIM ID and other non-original data are not affected by the data edit function.



Example: Set the start field as 2 characters, set the end field as 3 characters, send middle field data.
Steps:

“Set start field length’’

“2”, (data edit parameter table)
“Save”.(data edit parameter table)
“Set end field length’’

“3”, (data edit parameter table)
“Save”.(data edit parameter table)
“Send middle field of data”

Set start field length

Set end field length

3.7.6 Barcode Data 0D 0A Line Feed Setting

Only 0A line feed

Only 0D line feed*

0A 0D both line feed

3.7.7 AIM Function

After turning on, reader generated 3-character ISO/IEC identifier (originally created by AIM), and gives information about the symbology of the barcode which was scanned. For details, please refer to AIM standard.

AIM Disable

AIM Enable

3.7.8 Code ID Prefix

After turning on Code ID, the corresponding Code ID prefix will appear in the output data. For details, please refer to the appendix.

Disable*

Enable

3.8 Sound Settings

3.8.1 Starting-up indicator

Off

On

3.8.2 Decode indicator

Off

On

3.8.2 Decoding Prompt Sound Volume

High

Medium

Low

3.8.3 Decode Indicate type

Type1

Type2

Type3

3.9 Advance function settings

3.9.1 White LED Fill Light Illumination

Enable

Disable

3.9.2 RED LED Aiming Light Setting

Only for special models with AIMing

Enable

Disable

3.9.3 Scan Delay Function

Delay one time

Parameter Setting

Delay Off

Delay on

3.9.4 Same barcode decode delay function

The scanner will delay read when it reading the same barcode, the delay time is calculated from scan window leaving the barcode.

200 ms*

500 ms

1 s

5 s

10 s

30 s

3.9.5 Anti-color code read - Inverse Color Barcode Reading

Only Read Black Code

Only Read Anti-color Code

Read Black And Anti-color Code Both

IV Barcode function settings

Overall Setting

Each type of barcode has its own unique features. The settings in this chapter can be used to adjust the scanner to adapt to these feature changes.

The fewer barcode types turned on "Enable Reading", the faster the scanner will read. Disabling some barcode types can improve reading performance.

Enable/Disable Reading 1D/2D Barcodes

Enable all 1D barcodes

Disable all 1D barcodes

Enable all 2D barcodes

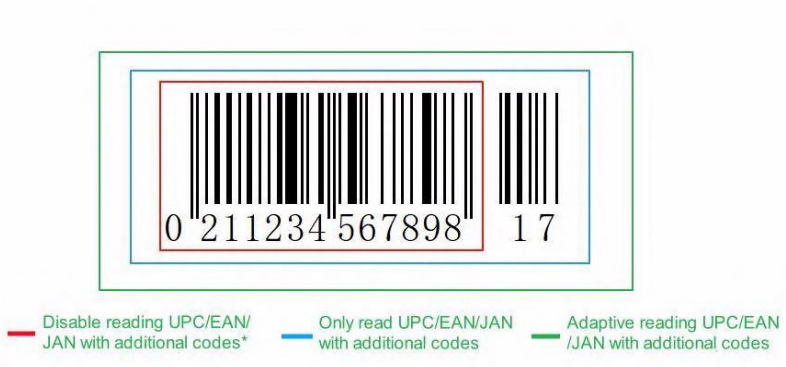
Disable all 2D barcodes

UPC/EAN/JAN Additional Code

Disable reading UPC/EAN/JAN with additional codes*

Adaptive reading UPC/EAN/JAN with additional codes

Only read UPC/EAN/JAN with additional codes



Codabar

Disable

Enable*

Codabar Check Bit Setting

Disable*

Enable but not send check bit

Enable & send check bit

Codabar Start/End Character Sending

Enable

Disable*

Set Reading Length Range For Codabar

Minimum length(0~50bits)

Maximum length(0~50bits)

Code 11

Disable*

Enable

Code 11 Check Bit Setting

Disable*

Enable but not send check bit

Enable & send check bit

1 check bit, MOD11

2 check bits, MOD10/MOD11

Set Reading Length Range For Code 11

Minimum length(0~50bits)

Maximum length(0~50bits)

Code 128

Disable

Enable*

Set Reading Length Range For Code 128

Minimum length(0~50bits)

Maximum length(0~50bits)

GS1 128

Disable*

Enable

Code 39

Disable

Enable*

Code 39 Check Bit Setting

Disable*

Enable but not send check bit

Enable & send check bit

Code 39 Start/End Character Sending

Disable*

Enable

Code 39 Full ASCII

Enable

Disable*

Set Reading Length Range For Code 39

Minimum length(0~50bits)

Maximum length(0~50bits)

Code 93

Disable*

Enable

Code 93 Check Bit Setting

Disable*

Enable but not send check bit

Enable & send check bit

Set Reading Length Range For Code 93

Minimum length(0~50bits)

Maximum length(0~50bits)

EAN 8

Disable

Enable*

EAN 8 Check Bit Sending

Disable

Enable*

EAN 8 Expand To EAN 13

Enable

Disable*

EAN 13

Disable

Enable*

EAN 13 Check Bit Sending

Disable

Enable*

UPC-A

Disable

Enable*

UPC-A Check Bit Sending

Disable

Enable*

UPC-A Prefix Character Output Setting

No prefix code

System character*

System character and country

UPC-E

Disable

Enable*

UPC-E Check Bit Sending

Disable

Enable*

UPC-E Prefix Character Output Setting

No prefix code

System character*

System character and country

UPC-E Expand To UPC-A

Disable*

Enable

Matrix 25

Disable

Enable*

Matrix Check Bit Setting

Disable*

Enable but not send check bit

Enable & send check bit

Set Reading Length Range For Matrix 25

Minimum length(0~50bits)

Maximum length(0~50bits)

RSS14

Disable

Enable*

RSS-Stack

Disable

Enable*

RSS-Expanded

Disable

Enable*

RSS-Expanded Stack

Disable

Enable*

RSS-Limited

Disable

Enable*

Code 32

Disable

Enable*

Code 32 Check Bit Setting

Disable*

Enable but not send check bit

Enable & send check bit

Code 32 Start Character Setting

Enable

Disable*

Interleaved 2 of 5

Disable

Enable*

Interleaved 2 of 5 Check Bit Setting

Disable*

Enable but not send check bit

Enable & send check bit

Set Reading Length Range For Interleaved 2 of 5

Minimum length(0~50bits)

Maximum length(0~50bits)

Industrial 25

Disable

Enable*

Industrial 25 Check Bit Setting

Disable

Enable but not send check bit

Enable & send check bit

Set Reading Length Range For Industrial 25

Minimum length(0~50bits)

Maximum length(0~50bits)

Standard 25

Disable

Enable*

Standard 25 Check Bit Setting

Disable*

Enable but not send check bit

Enable & send check bit

Set Reading Length Range For Standard 25

Minimum length(0~50bits)

Maximum length(0~50bits)

MSI

Disable*

Enable

MSI Check Bit Setting

Disable*

Enable but not send check bit

Enable & send check bit

1 Check Bit MOD10

2 Check Bits MOD10

MOD10/MOD11 Both

Set Reading Length Range For MSI

Minimum length(0~50bits)

Maximum length(0~50bits)

Plessey

Disable*

Enable

Plessey Check Bit Setting

Disable*

Enable but not send check bit

Enable & send check bit

Set Reading Length Range For Plessey

Minimum length(0~50bits)

Maximum length(0~50bits)

DataMatrix

Disable

Enable*

Set Reading Length Range For DataMatrix

Minimum length(0~50bits)

Maximum length(0~50bits)

QR

Disable

Enable*

URL Link QR Code Reading

Enable*

Disable

Set Reading Length Range For QR

Minimum length(0~50bits)

Maximum length(0~50bits)

Micro QR

Disable*

Enable

PDF 417

Disable

Enable*

Set Reading Length Range For PDF 417

Minimum length(0~50bits)

Maximum length(0~50bits)

Micro PDF

Disable*

Enable

Maxicode

Disable*

Enable

Set Reading Length Range For Maxicode

Minimum length(0~50bits)

Maximum length(0~50bits)

Aztec

Disable*

Enable

Set Reading Length Range For Aztec

Minimum length(0~50bits)

Maximum length(0~50bits)

Han Xin Code

Disable*

Enable

Set Reading Length Range For Han Xin Code

Minimum length(0~50bits)

Maximum length(0~50bits)

Appendix I Factory Defaults Table

Default function parameter setting					
TYPES	**Read**	**Verify check**	**Transmit checking dig**	**Mininum length**	**Maximun length**
Code128	YES	YES	YES	1	255
EAN-8	YES	YES	YES	8	8
EAN-13	YES	YES	YES	13	13
UPC-E	N	YES	YES	7	7
UPC-A	YES	YES	YES	12	12
Interleave 2 5	YES	YES	YES	6	255
MatriX2 5	N	YES	YES	6	255
Code39	YES	YES	YES	1	255
Code32	NO	NO	NO	8	8
Codabar	YES	YES	YES	4	255
Code93	YES	YES	NO	1	255
RSS	YES	NO	NO	1	255
Industrial 2 5	YES	YES	YES	6	255
Standard 2 5	YES	NO	NO	6	255
Plessey	NO	NO	NO	4	60
MSI	NO	NO	NO	6	32
QR	YES	NO	NO		
PDF417	YES	NO	NO		
DM	YES	NO	NO		

Appendix II Code ID

When the setting parameter turns on the function of CODE ID, the corresponding barcode data will be preceded by CID CODE, as shown below:

Code Type	CODE ID	Code Type	CODE ID
UPC-A	c	INDU-25	D
UPC-E	c	STANDARD-25	d
EAN-8	d	CODABAR	a
EAN-13	d	MSI	m
ISSN	n	PLESSEY	n
ISBN	B	RSS LIM	y
CODE-128	j	RSS EXP	y
GS1-128	j	RSS EXP	y
ISBT-128	j	RSS ST	y
CODE-39	j	QR	Q
CODE-93	i	Micro QR	Q
CODE-32	j	Micro PDF417	S
ITF-25	e	PDF417	r
ITF-6	e	DM	u
ITF-14	e	MAXICODE	x
INT-25	e	AZTEC	z
MATRIX-25	v	Han Xin CODE	h
CODE-11	H		

Appendix III AIM ID Table

Code type	AIM ID	Description
Codabar	]Fm	m：0~1
Code128	]C0	m：0，1，2，4
Code32	]A0	
Code93	]G0	
Code39	]Am	m：0，1，3，4，5，7
Code11	]Hm	m：0，1，3，8，9
EAN-13 / EAN-8	]Em	m：0，1，3，4
GS1 DataBar	]e0	
GS1-128 (EAN-128)	]C1	
Interleaved 2 of 5	]Im	m：0，1，3
Matrix 2 of 5	]X0	
Industry 2 of 5	]S0	
UPC-A/ UPC-E	]Em	m：0，3

ISBN	]X0	
ISSN	]X0	
Aztec Code	]z0	
DataMatrix	]dm	m: 0~6
PDF417 / Micro PDF417	]Lm	m: 0~5
QR Code / Micro QR Code	]Qm	m: 0~6

Appendix IV ASCII Table

DEC	HEX	Character	DEC	HEX	Character	DEC	HEX	Character
32	20	<SPACE>	64	40	@	96	60	`
33	21	!	65	41	A	97	61	a
34	22	“	66	42	B	98	62	b
35	23	#	67	43	C	99	63	c
36	24	$	68	44	D	100	64	d
37	25	%	69	45	E	101	65	e
38	26	&	70	46	F	102	66	f
39	27	‘	71	47	G	103	67	g
40	28	(	72	48	H	104	68	h
41	29	)	73	49	I	105	69	i
42	2A	*	74	4A	J	106	6A	j
43	2B	+	75	4B	K	107	6B	k
44	2C	,	76	4C	L	108	6C	l
45	2D	-	77	4D	M	109	6D	m
46	2E	.	78	4E	N	110	6E	n
47	2F	/	79	4F	O	111	6F	o
48	30	0	80	50	P	112	70	p
49	31	1	81	51	Q	113	71	q
50	32	2	82	52	R	114	72	r
51	33	3	83	53	S	115	73	s
52	34	4	84	54	T	116	74	s
53	35	5	85	55	U	117	75	u
54	36	6	86	56	V	118	76	v
55	37	7	87	57	W	119	77	w
56	38	8	88	58	X	120	78	x
57	39	9	89	59	Y	121	79	y
58	3A	:	90	5A	Z	122	7A	z
59	3B	;	91	5B	[	123	7B	{
60	3C	<	92	5C	\	124	7C	|
61	3D	=	93	5D	]	125	7D	}
62	3E	>	94	5E	^	126	7E	~
63	3F	?	95	5F	_			

Appendix V Control Character Table(USB-KBW Mode)

DEC	HEX	Key Value(Disable Control Character Escape)	Key Value(Enable Control Character Escape)
0	00	Reserve	Ctrl+@
1	01	Insert	Ctrl+A
2	02	Home	Ctrl+B
3	03	End	Ctrl+C
4	04	Delete	Ctrl+D
5	05	PageUp	Ctrl+E
6	06	PageDown	Ctrl+F
7	07	ESC	Ctrl+G
8	08	Backspace	Ctrl+H
9	09	Tab	Ctrl+I
10	0A	Enter(Output will be influenced by CR/LF settings)	Ctrl+J
11	0B	Caps Lock	Ctrl+K
12	0C	Print Screen	Ctrl+L
13	0D	Enter(Output will be influenced by CR/LF settings)	Ctrl+M
14	0E	Scroll Lock	Ctrl+N
15	0F	Pause/Break	Ctrl+O
16	10	F11	Ctrl+P
17	11	Direction Key↑	Ctrl+Q
18	12	Direction Key↓	Ctrl+R
19	13	Direction Key←	Ctrl+S
20	14	Direction Key→	Ctrl+T
21	15	F12	Ctrl+U
22	16	F1	Ctrl+V
23	17	F2	Ctrl+W
24	18	F3	Ctrl+X
25	19	F4	Ctrl+Y
26	1A	F5	Ctrl+Z
27	1B	F6	Ctrl+[
28	1C	F7	Ctrl+\
29	1D	F8	Ctrl+]
30	1E	F9	Ctrl+^
31	1F	F10	Ctrl+_

Appendix VI Data EditAnd Setting Parameter Barcodes

0

1

2

3

4

5

6

7

8

9

A

B

C

D

E

F

Save

Cancel 1 data of current setting

Cancel all data of current setting

Examples For Setting

Example of barcode reading length setting

When setting the minimum reading length of a barcode, you need to ensure that the minimum length you set is

not longer than the current maximum length setting, otherwise an error will be prompted. Similarly, when setting the maximum reading length of a barcode, you need to ensure that the maximum length you set is not less than the current minimum length setting.

Ex1: Set the reading length of Code128 as 4-12 characters

“Minimum length(0~50bits)”----------Set Reading Length Range For Code 128 “4”----------Data EditAnd Setting Parameter Barcodes “Save”----------Data EditAnd Setting Parameter Barcodes

“Maximum length(0~50bits)”----------Set Reading Length Range For Code 128 “1”----------Data EditAnd Setting Parameter Barcodes “2”----------Data EditAnd Setting Parameter Barcodes “Save”----------Data EditAnd Setting Parameter Barcodes