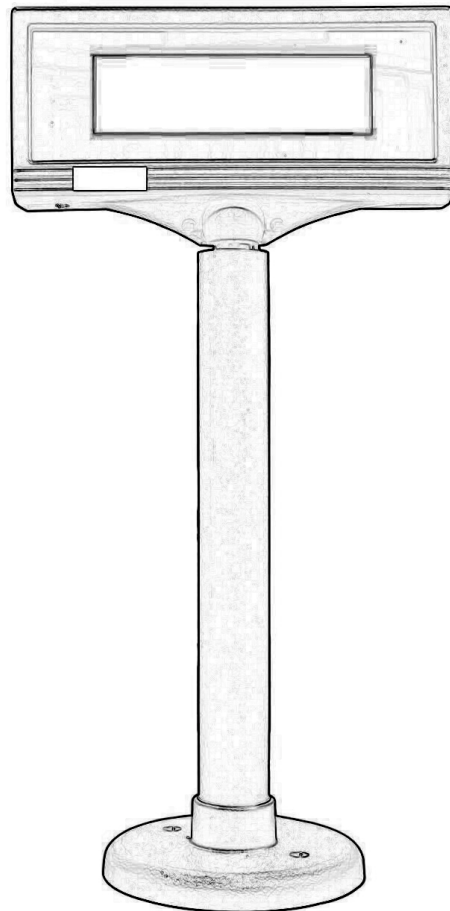


Customer Pole Display

SERIES 8013

Operation Manual

Version 1.0



This equipment has been tested and found to comply with the limits for Class A digital device. Pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and if not installed and used in accordance with the instructions may cause harmful interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on. The user is encouraged to try correct interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help. This booklet is available from the U.S. government Printing Office, Washington, DC 20402, Stock NO.004-000-00345-4.

CAUTION:

Any changes of modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received including interference that may cause undesired operation.

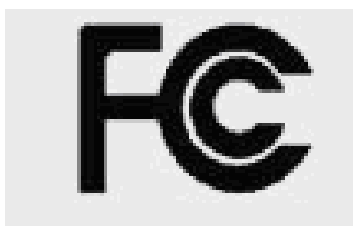
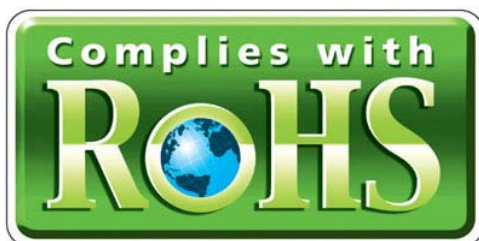


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Chapter 1 Introduction

The 8013, a Multi-Language LCD customer display, is an excellent tool for transmitting transactions, AD message, and customer greeting at POS systems. 8013 LCD customer display supports Multi-Languages (**Traditional Chinese/ English, Simplified Chinese/English, Europe/English, Russia/ English & Arabic/ English**), in order to meet your multilingual demand. 8013 can manually adjust brightness via setting button, and create your own individual style desktop under the size of 320 x 240 pixels. With ESC/POS command codes,8013 can work under any operating system and platform.

Features:

- With an easy to read blue background & white characters display
- Adjustable brightness setting button
- Individual desktop creation
- With a Multi-Languages support:
(**Traditional Chinese/ English, Simplified Chinese/ English,Europe/English, Russia/ English & Arabic/ English**)
- Supports both USB & RS232 Interface
- Built-in ESC/POS command codes
- OPOS (OLE for retail POS) Compatible

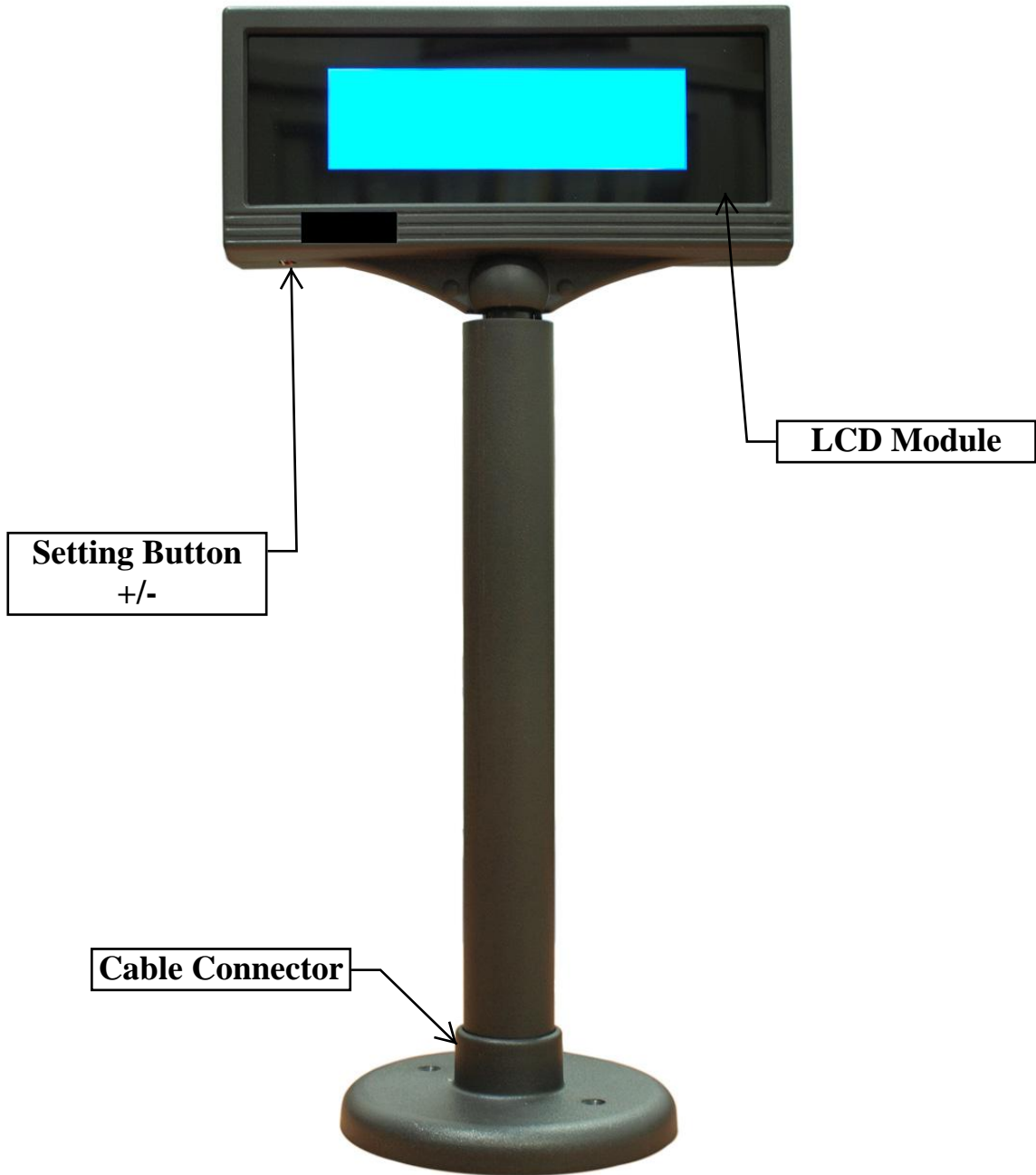
Additionally institute design 8013 OPOS(OLE for retail POS) firmware, not only accordance with Microsoft OPOS standard but also we developed various special function. We simultaneously simplify OPOS driver numerous install steps, let 8013 OPOS only need one step to complete the installment. In additional we also provide the 8013 OPOS test program, enable to operators easy learning and test each functions, save the learn start to use times and to carry out the compatibility problem. Let 8013 customer display can smoothly match with other OPOS demand environment.

OPOS Features:

- One step to installation
- Quick start
- Marquee show
- Blink light show
- Brightness adjustable

For It's high compatibility and convenience with integrated others hardware, it is suitable for applying into retail, hospitality, fast food, hotel, financial service and other industrial application. In the same time, we also provide the OEM/ODM optimized solution for clients.

Chapter 2 Appearance



JD-8013

Chapter 3 Before You Install

This manual describes functions and usage of the Model 8013 customer pole display. The 8013 is a 4x30 alphanumeric customer pole display designed with multi-languages for retail and other environments. Its outstanding features include high quality liquid crystal display in blue & white color, USB interface, easy to use and powerful programming features. The 8013 also can combine with any brand of serial receipt printer.

Step 1: Turn Off Your Computer

By shutting off your computer, you will prevent any accidental damage to the pole display and computer.

Step 2: Review Packing List

Please ensure that your pole display shipment is complete.

Model 8013 includes:

- 1 pcs 8013 pole display
- 1 pcs operation manual
- 1 pcs +12V DC power plate with internal power cable
- 1 pcs DC cable
- 1 pcs RS-232 cable or USB cable
- 1 pcs pole

NOTE: The last character of "GC-8013BYW" indicates Cable's color.

Ex: W=White; B=Black

Chapter 4 Installing Model 8013

This chapter describes the procedures for installing the 8013 pole display by using RS-232 & USB interface.

4-1 RS-232 Interface

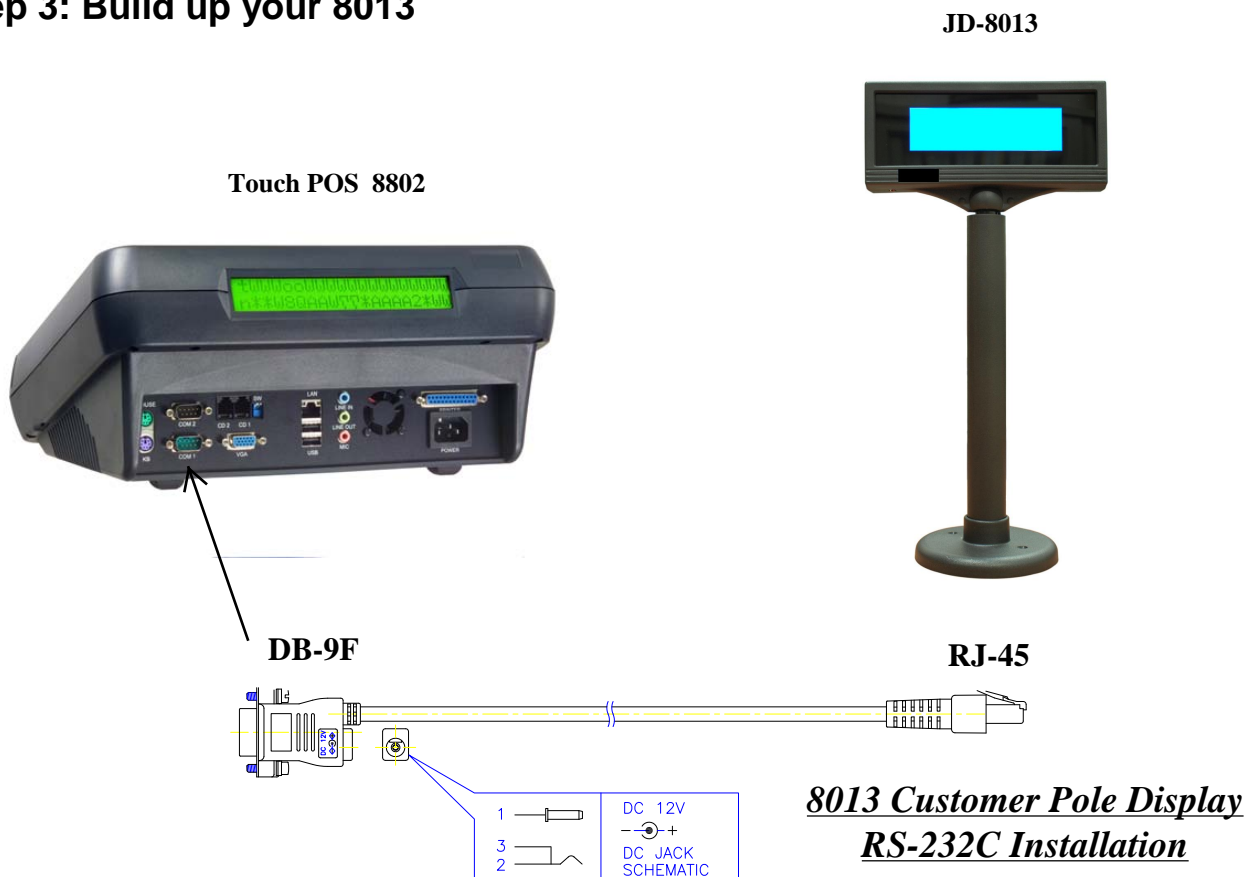
Step 1: Turn off your computer

If you have not already done so, turn off your computer to avoid any accidental damage to the pole display and computer.

Step 2: Decide on baud rate, character set and command type

There are some functions such as baud rate, character set and command types are selected by Dip switch. Please refer to Appendix I: Specification to set the 8013 to meet your requirement.

Step 3: Bulid up your 8013



Step 4: Decide on power access

The RS-232 connection requires power +12V DC. This may be provided through an internal connection in your computer or through an external connection to a 110/220V adapter. The components for an internal connection are provided. If you are using an external connection, be sure that your adaptor confirms with the specifications listed in Appendix I.

Step 5: Using internal power source

Refer to the installation diagram as below. Remove the access cover to your computer. Mount the +12V DC power plate on an available expansion slot in the back of your computer. Attach the 4-pin male connector to the open female connector of the same type in your computer. Alternatively, an internal power source may be available already if the com port on your computer or terminal matches the 8013 pin assignment (see Specifications in Appendix I).

Step 6: Connect to your computer

Connect the RS-232 connector to the male equivalent com port on your computer or terminal. Provide power to the DC jack on the DB9F connector using either a cable connection to the +12V DC power plate or an external adapter.

Step 7: Turn on your computer

Turn on your computer. It should boot up normally.

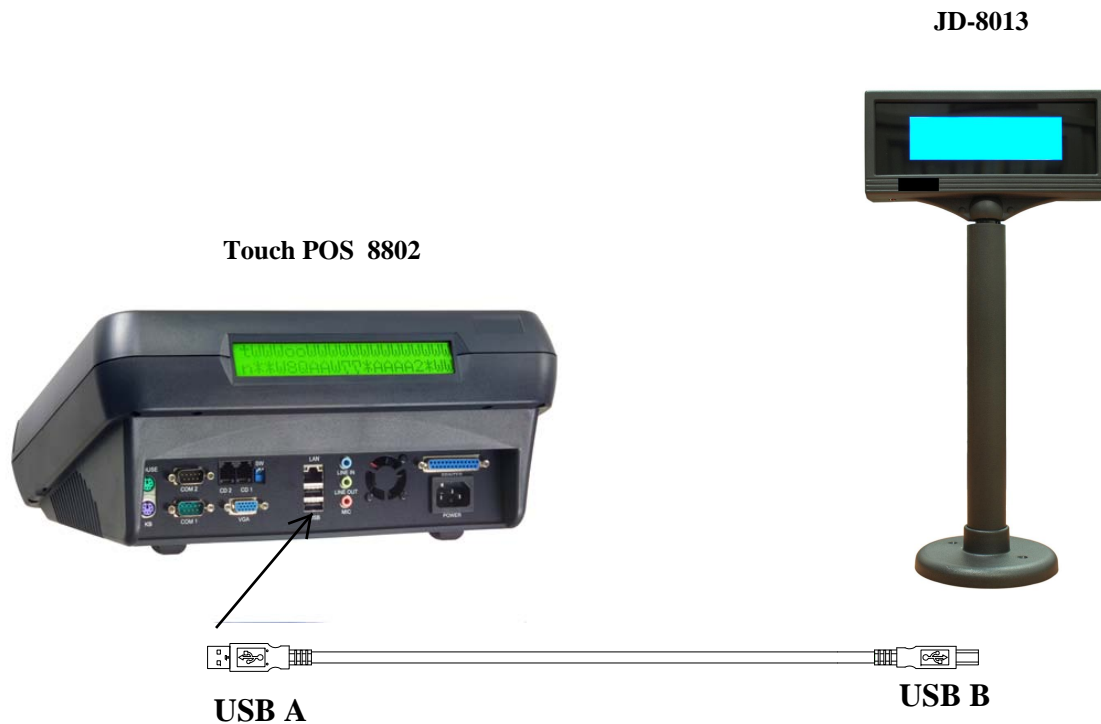
The pole display will show a self-diagnostic status and then the display will be blank.

Step 8: Turn to Chapter 5

You are now ready for operation; please refer to Chapter 5 for programming to meet the specific requirement of your application environment.

4-2 USB Interface

Step 1: Bulid up your 8013



8013 Customer Pole Display USB Installation

Step 2: Connect to your computer

Connect the USB connector to the usb port on your computer.

Step 3: Refer to RS-232 configuration

Please refer to RS-232 configuration step 3 and following steps.
(USB 2.0 user access 8013 via virtual com port)

Chapter 5

Programming Commands

There are four programming modes available for model 8013 which are ESC/POS mode, UTC standard mode and UTC w/pass through mode. In this Chapter, we will all use the command codes for other modes, please refer to Appendix II. For multi-languages, please refer to Appendix III and IV for details.

The basic function of the 8013 display is comparable to the display programming by your software should be as easy. You only need open the COM-port on which the display has been connected from you. Then, you just need send the character what you want to display on 8013 directly via the COM interface. Please following the USB parameters to use as below:

9600 Baud, No Parity, 8 Data Bits, 1 Stop bit

In Basic, you would initialize the interface as follows:

OPEN "COMx: 9600, N, 8, DS0" FOR OUTPUT AS #1

(x=number of the COM port you are using for the display)

And you would print something to the display using the PRINT command:

PRINT#1, "Hello World!"

In the end, you can close the interface:

CLOSE #1

In other programming languages, the commands for serial output shall be different, but they will work in a similar way. For some compilers, you will need an extra toolbox, that offers you USB routines. Please refer to your compilers/interpreters manual for more details.

Example:

OPEN "COMx: 9600, N, 8, 1, DS0" FOR OUTPUT AS #1

PRINT #1, "Hello World!"

CLOSE #1

Programming using DOS routines

You can also generate a display output using the simple DOS routines.

Example:

MODE COMx: 9600, N, 8, 1

ECHO Hello! >COMx:

Control characters and special functions

For special display functions, there are some commands which will be explained in this chapter. Some of the commands consist of one ASCII-CTRL-code, others are command strings, introduced by ESC.

If a command needs additional parameters, please do not forget to use ASCII format for the parameter. That means, if the parameter is 0 (zero), then you have to transmit the ASCII code "0" (=CHR\$(48) in Basic; 48 is the decimal position of the "0" character in the ASCII code table). But please consider that only ONE byte is allowed for each parameter. That is why you cannot transmit two digit numbers. In this case, just add the number you want to transmit as parameter 48 and transmit the corresponding character. For example, if you want to transmit the parameter 11, you have to send CHR\$(11+48)=CHR\$(59)=";". Attention: For some other commands, only BYTE values are allowed as parameter. For those, you directly send the corresponding character code without adding 48 (e.g. CHR\$(11) for 11). For details, please refer to the individual command code descriptions.

Example: Set the cursor to the last position in the display area

WRONG:

PRINT #1, CHR\$(27)+"="; :REM command ESC =

PRINT #1, 19;1 :REM parameter column 19, line 1

CORRECT:

PRINT #1, CHR\$(27)+"=";

PRINT #1, CHR\$(48+19)+"1" :REM or CHR\$(48+19)+CHR\$(48+1)

Below is a list of command sequences for user to design an interface to the 8013 customer pole display.

Please note that pole display is default with **9600 bps baud rate, no parity, 8 data bits, 1 stop bit.**

Command codes explanation(control sequences)

Note: They are with switch 7' 8 OFF(Refer Appendix I:Dip switch setting)

Appendix I Specifications

NO	Item	Descriptions
1	Display method	Liquid crystal display
2	LCD type	STN Blue mode
3	Backlight mode	LED backlight
4	Brightness	25~30 cd/m ²
5	Display color	Blue (back color) and White (character color)
6	Adjustable angle	Swivels 360° and Tilt 45° Angles
7	Viewing angle	0– 45 degrees
8	Numberof character	30 columns x 4 lines
9	Character size	8.47 mm x 4.24 mm(16x8 dot matrix) 8.47 mm x 8.47 mm(16x16 dot matrix)
10	Character font	8 x 16 dot matrix by alpha numeric 16 x 16 dot matrix by Chinese character
11	Language	Traditional Chinese/ English Simplified Chinese/ English Russia/ English Europe/ English Arabic/ English
12	Interface	USB 2.0 user access 8013 via virtual Comport RS-232 with DC jack
13	Software Programming	Command ESC/POS OPOS (OLE for Retail POS) Ultimate mode
14	Power Requirement	5V DC from HOST USB port 12V DC from RS232 port
15	Panel dimensions	184 (W) x65 (H) x16(D) mm
16	Total dimensions	184 (W) x65 (H) x36(D) mm
17	Optional Pole Height	140mm or 280mm
18	Approximate Weight	950g
19	Material	ABS Plastic & ABS Plastic with Metal
20	Colors	Dark Gray or White
21	Operating temperature	5 - 45°C
22	Operating Humidity	30% - 85%
23	Storage Temperature	-10 - 55°C
24	Storage Humidity	10% - 85%

Appendix II Interface

1. INTERFACE CONNECTOR

NO	SYMBOL	FUNCTION
1	CN1	WAFER
2	CN2	Contrast/OSD Control
3	CN3	RJ45
4	CN4	CCFL Connect
5	CN5	ON/OFF SWITCH
6	CN6	No use
7	CN7	No use
8	LCD1	Connect to LCD

2. WAFER SPECIFICATIONS

Pin	Signal	Direction	FUNCTION
1	Vin	-	I2Vcc
2	DTR	Display to PC	Display/printer signal
3	DSR	Printer to display	Printer signal
4	RXD	PC to display	transmit
5	TXD	Display to printer	Receive
6	GND	-	GND

3. RS232 PROTOCOL

Data transmission:	Serial
Synchronization:	Asynchronous
Handshaking:	DTR / DSR
Signal level:	MARK = -3 to -15 V (logic "0") SPACE = +3 to +15 V (logic "1")
Baud rates:	38400,19200,9600,4800bps
Parity:	None
Bit length:	8 bits
Stop bits:	1 or more

Appendix III Device Setting

1. Brightness adjustment:

Please using the "+" & "-" button to adjust the screen brightness.

2. Device configure:

2-1. RS-232 Baud rate set:

Please hold down the "+" button then connect to the power, it will be show the first setting screen. Please use the "-" button to adjust options, then using the "+" button to enter the next set.

```
RS-232 Baud rate set:
  1) 38400          2) 19200          N
  ★3) 9600          4) 4800          Y
```

2-2. Select command mode:

Please use the "-" button to adjust options, then using the "+" button to enter the next set.

```
Select command mode:
  1) ESC qX, uX Mode      N
  ★2) ESC/POS Mode       Y
```

2-3. Display turn on frame select:

Please use the "-" button to adjust options, then using the "+" button to enter the next set.

```
Display turn on frame select:
  1) Default              N
  ★2) User define        Y
  3) Space
```

2-4. Set complete:

Please use the "-" button to adjust options, then using the "+" button to choose save/no save or reset.

```
Set complete:
  ★1) Reset              N
  2) Quit - No save     Y
  3) Quit - Save
```

Appendix IV Command List

1. Esc/pos Command List

Command	Code (hex)	Function description
ESC_n	1B 5F n n=1,0	Select/cancel display cursor.
HT	09	Move cursor right.
BS	08	Move cursor left.
US LF	1F 0A	Move cursor up.
LF	0A	Move cursor down.
ESC | C	1B 5B 43	Move cursor right.
ESC | D	1B 5B 44	Move cursor left.
ESC | A	1B 5B 41	Move cursor up.
ESC | B	1B 5B 42	Move cursor down.
HOM	0B	Move cursor to home position.
US CR	1F 0D	Move cursor to right-most position.
CR	0D	Move cursor to left-most position.
US B	1F 42	Move cursor to bottom position.
ESC | H	1B 5B 48	Move cursor to home position.
ESC | R	1B 5B 52	Move cursor to right-most position.
ESC | L	1B 5B 4C	Move cursor to left-most position.
ESC | K	1B 5B 4B	Move cursor to bottom position.
US \$ x y	1F 24 x y 0<x<30,1<y<4	Move cursor to specified position.
ESC l x y	1F 6C x y 0<x<30,1<y<4	Move cursor to specified position.
CLR	0C	Clear display screen.
ESC @	1B 40	Initialize display.
US r n	1F 72 n n=1,0	Select/cancel reverse character.
US T h m	1F 54 h m 0<=h<=17 0<=m<=3b	Set time h=hour ,m=minute
US U	1F 55	Display time continuously
SO	0E	Set double-width character mode .
DC4	14	Cancel double-width character mode .

1.1 Extra command:

GS q A	1D 71 41 [datax30] 0D	Show string data 30 bytes to display line 1.
GS q B	1D 71 42 [datax30] 0D	Show string data 30 bytes to display line 2.
GS q C	1D 71 43 [datax30] 0D	Show string data 30 bytes to display line 3.
GS q D	1D 71 44 [datax30] 0D	Show string data 30 bytes to display line 4.
GS q E	1D 71 45 [datax30] 0D	Show double-height string data 30 bytes to display line 1 and line 2.
GS q F	1D 71 46 [datax30] 0D	Show double-height string data 30 bytes to display line 3 and line 4.
GS r A	1D 72 41 [datax46] 0D	Marquee on line 1.
GS r B	1D 72 42 [datax46] 0D	Marquee on line 2.
GS r C	1D 72 43 [datax46] 0D	Marquee on line 3.
GS r D	1D 72 44 [datax46] 0D	Marquee on line 4.
GS r E	1D 72 45 [datax46] 0D	Double-width marquee on line 1 and line 2.
GS r F	1D 72 46 [datax46] 0D	Double-width marquee on line 3 and line 4.
ESC s	1B 73	Store the use define pattern

2. SD-304 Standard Mode Command List

Command	Code (hex)	Name and description
ESC q A	1B 71 41 [datax30] 0D	Show string data 30 bytes to display line 1.
ESC q B	1B 71 42 [datax30] 0D	Show string data 30 bytes to display line 2.
ESC q C	1B 71 43 [datax30] 0D	Show string data 30 bytes to display line 3.
ESC q D	1B 71 44 [datax30] 0D	Show string data 30 bytes to display line 4.
ESC q E	1B 71 45 [datax30] 0D	Show double-height string data 30 bytes to display line 1 and line 2.
ESC q F	1B 71 46 [datax30] 0D	Show double-height string data 30 bytes to display line 3 and line 4.
ESC q G	1B 71 47 [datax46] 0D	Marquee on line 1.
ESC q H	1B 71 48 [datax46] 0D	Marquee on line 2.
ESC q I	1B 71 49 [datax46] 0D	Marquee on line 3.
ESC q J	1B 71 4A [datax46] 0D	Marquee on line 4.
ESC q K	1B 71 4B [datax46] 0D	Double-width marquee on line 1 and line 2.
ESC q L	1B 71 4C [datax46] 0D	Double-width marquee on line 3 and line 4.
US	1F	Clear display screen.
FF	0C	Clear display screen.
SO	0E	Set double-width character mode .
DC4	14	Cancel double-width character mode .
ESC s	1B 73	Store the use define pattem
ESC q t	1B 71 74 h m 0<=h<=17 0<=m<=3b	Set time h=hour ,m=minute.

3. SD-8240 Mode Command List

Command	Code (hex)	Name and description
ESC q A	1B 51 41 [datax30] 0D	Show string data 30 bytes to display line 1.
ESC q B	1B 51 42 [datax30] 0D	Show string data 30 bytes to display line 2.
ESC q C	1B 51 43 [datax30] 0D	Show string data 30 bytes to display line 3.
ESC u A	1B 75 41 [datax30] 0D	Show string data 30 bytes to display line 1.
ESC u B	1B 75 42 [datax30] 0D	Show string data 30 bytes to display line 2.
ESC u C	1B 75 43 [datax30] 0D	Show string data 30 bytes to display line 3.
ESC u D	1B 75 44 [datax46] 0D	Marquee on line 1.
ESC u J	1B 75 4A [datax46] 0D	Marquee on line 2.
ESC u K	1B 75 4B [datax46] 0D	Marquee on line 3.
CLR	0C	Clear display screen.
US T h m	1B 75 45 h m 0<=h<=17 , 0<=m<=3b	Set time h=hour ,m=minute.

Appendix V

Font Table

5-1. ASCII (20H – 7EH) for SD-240B series

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0	SP	0	@	P	`	p								
1	!	1	A	Q	a	q								
2	“	2	B	R	b	r								
3	#	3	C	S	c	s								
4	\$	4	D	T	d	t								
5	%	5	E	U	e	u								
6	&	6	F	V	f	v								
7	‘	7	G	W	g	w								
8	(	8	H	X	h	x							
9	)	9	I	Y	I	y							
A	‡	:	J	Z	j	z								
B	+	;	K	[	k	{							
C	,	<	L	\	l	|								
D	-	=	M	]	m	}							
E	.	>	N	^	n	~								
F	/	?	O	_	o	SP								

Chinese character

5-2. Standard Europe (80H – FFH) for SD-240B2

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
80H	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
90H	É	æ	Æ	ô	ö	ò	û	ù	ÿ	ö	Ü	ñ	Ñ	ã	õ	ı
A0H	á	í	ô	ú	ø	£	¥	¤	f	ı	Ã	£	Õ	õ	Ø	ø
B0H	§	´	·	±	‚	½	¼	×	÷	Dø	ø	«	»	±	||	-
C0H	¶		ö	þ	ı	ı	λ	DZ	h	q	¬	Nj	ö	°	®	©
D0H	‘	ö	‘					л				Г		ψ		
E0H				ε	ζ	η		ι	κ	λ	μ	ξ	π	ρ	ς	σ
F0H		ν		Χ	Ψ	ω	ι	υ	ó	ú	ı	φ	-	©		σ

5.3 PC-850 (80H – FFH) for SD-240B2

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
80H	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
90H	É	æ	Æ	ô	ö	ò	û	ù	ÿ	ö	Ü	ø	£	Ø	×	f
A0H	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
B0H	§	´	·	±	¸	Á	Â	À	©	Dz	¢	«	»	œ	¥	-
C0H	¶		ð	þ	ı	ı	á	Ã	h	ŋ	¬	Nj	ö	°	®	□
D0H	ð		È	Ë	É	|	í	î	ï	dz	Ć	ġ	Hu	ρ	Ñ	ñ
E0H	Ó		ô	Ò	ô	õ	μ	þ	þ	Ú	Û	Ü		Ý	-	´
FOH	-	±	||	¾	¶	§	÷	´	°	ˆ	,	1	3	2	‡	|

5.3.1 PC850 support country

Character set	Code table (80H-FFH)
FRANCE	PC-850(multilingual)
GERMANY	PC-850(multilingual)
U.K.	PC-850(multilingual)
DENMARK I	PC-850(multilingual)
SWEDEN	PC-850(multilingual)
ITALY	PC-850(multilingual)
SPAIN	PC-850(multilingual)
NORWAY	PC-850(multilingual)
DENMARK II	PC-850(multilingual)

