

POS-58

Receipt Printer

User Manual

All specifications are subjected to change without notice

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Notice:

This manual has been prepared for various models with same body that have built at Our Company. So some content of this manual may not use on your device.

1 INTRODUCTION

1.1 POS-58 Receipt Printer

POS-58 is designed for use for use with electronic instruments such as ECR,POS,banking equipment,computer peripheral equipment,etc.

1.2 Feature

- High Speed printing: 90mm per second
- Low noise thermal printing.
- Interface: RS-232(POS-58S),Parallel(POS-58P),USB(POS-58U)
- 12V or 24V cash drawer interface.
- Barcode printing is possible by using a barcode command.
- Different print densities can be selected by PC S/W

1.3 Outline

Printing Method:	Thermal
Paper Width:	57.5mm
Paper Diameter:	55mm
Resolution:	203DPI
Printing Speed:	Up to 90mm/s
Barcode Supported:	I25,UPC-A,UPC-E,EAN-8, EAN-13,Codebar,Code39, Code93,Code128,Code11,MSI
Font:	ASCII(12x24),(8x16))
Graphic printing:	Direct bitmap printing Page mode printing
Paper Sensor:	Photo-sensor
Head temperture detection:	Thermistor
Communication Interface:	RS232,PARALLEL,USB,ETHERNET optional
Cash drawer interace:	Support 12V/24V cash drawer
Power supply:	9V,3A
Power	<1W(Idle) 45W(printing)
Head Life:	50km
Printing width:	48mm
Operation condition:	5~45°C, 20~90%RH(40°C)
Storage condition:	-40~60°C, 20~93%RH(40°C)
Dimension:	168x108x81
Weight:	0.370kg

1.4 Caution

Some semiconductor devices are easily damaged by static electricity. You should turn the printer

“OFF”, before you connect or remove the cables on the rear side, in order to guard the printer against the static electricity. If the printer is damaged by the static electricity, you should turn the printer “OFF”.

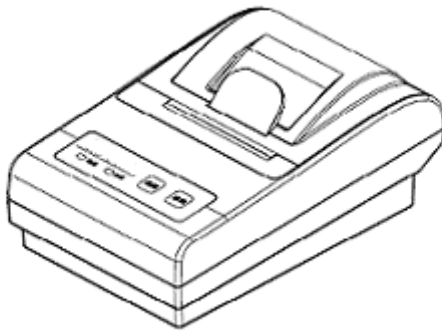
This Apparatus complies with class “A” limits for radio interference

2 SETTING UP THE PRINTER

2.1 Unpacking

Your printer box should include these items. If any items are damaged or missed, please contact your dealer for assistance.

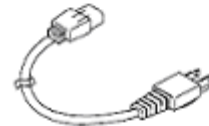
2.2. Main frame



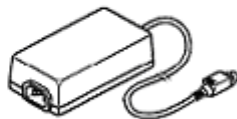
1-1 Printer



1-2 Paper roll



1-3 Power cord



1-4 Power adapter



1-5 Communication cable

2.3. Connecting the printer

According to the printer type, connect the correct communication cable to the printer.

POS-58-S	RS232
POS-58-L	PARALLEL
POS-58-U	USB
POS-58-E	ETHERNET

You can connect up the three cable to the printer. They all connect to the connector panel on

the back of the printer:

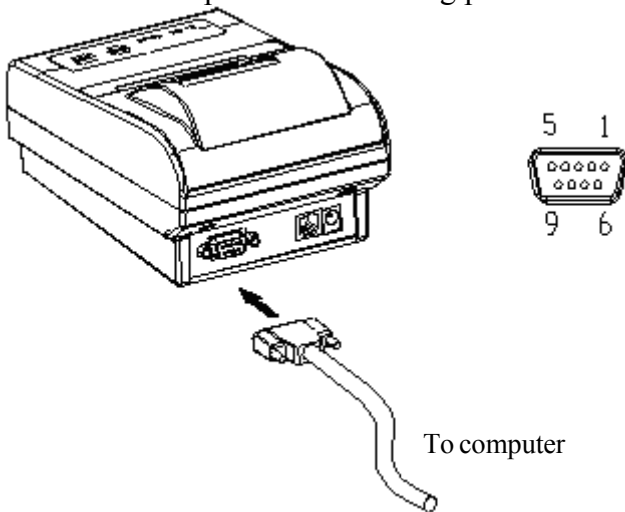
- Commucation cable
- Cash drawer cable
- Power supply connector

Note: Before connecting any of the cable, make sure that both the printer and the host are turned off.

2.3.1 RS232 INTERFACE

POS-58S use RS232 intreface to connect the printer and host computer. It use DB9 RS232 interface, support RTS/CTS, DSR/DTR, XON/XOFF flow control protocol.

Connect the printer as following picture:



RS232 PIN definition:

PIN	SIGNAL	IO	DEFINITION
1	DCD	NC	
2	RxD	OUT	Send the printer status to PC
3	TxD	IN	Receive command and data from PC
4	DTR	NC	
5	GND	---	GND
6	DSR	OUT	ON: Paper is ready OFF: No Paper or No power
7	RTS	NC	
8	CTS	OUT	Clear to send
9	RI	NC	

2.3.2 PARALLEL INTERFACE

POS-58 use 8 bit standard parallelinterface. It use DB25 male socket.

Parallel pin definition:

PIN	SIGNAL	IO	DEFINITION
1	/STB	IN	Latch strobe pulse. The printer will latch the data at the position edge.
2	D1	IN	DATA BIT0(LSB)
3	D2	IN	DATA BIT1
4	D3	IN	DATA BIT2
5	D4	IN	DATA BIT3
6	D5	IN	DATA BIT4
7	D6	IN	DATA BIT5
8	D7	IN	DATA BIT6
9	D8	IN	DATA BIT7 (MSB)
10	/ACK	OUT	The printer acknology, indicate that the printer has finished one byte data reading.
11	BUSY	OUT	The printer busy signal , When it is high, the printer can not receive data from PC
12	PE	OUT	Paper error signal, When it is high, indication that the printer is out of paper.
13	SEL	OUT	Connect to 5V by a 47K resistor
14	NC	—	
15	ERR	OUT	ERROR, When it is low, the printer is in errorstatus. It can be caused by out of paper or the printer head tempreture
16-17	NC	---	
18-25	GND	---	

2.3.3 USB INTERFACE

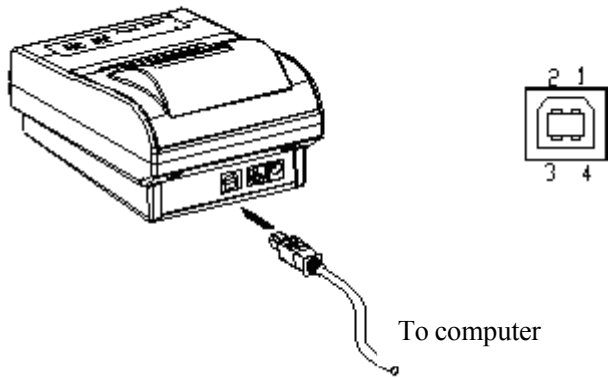
POS-58U use the B-Type USB interface as the followed picture.

In order to use the USB type, please install the USB driver first. When the driver is installed, the computer will add one virtual COM port, such COM3, COM4 etc.

It can be used the samle as RS232. The printer and computer must select the same RS232 COM parametres.

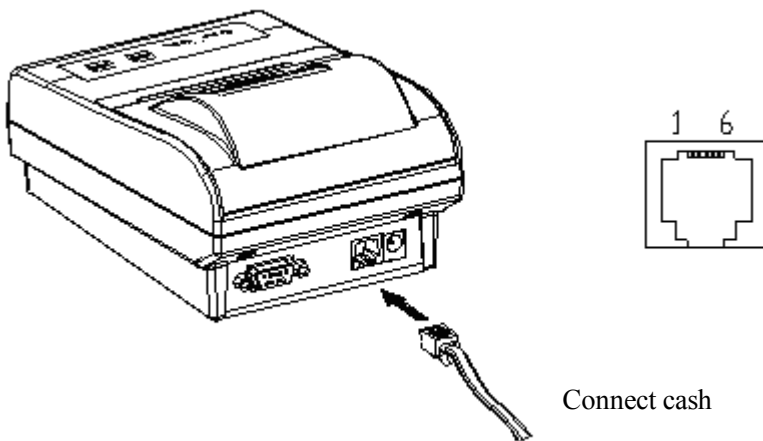
2.3.4 ETHERNET INTERFACE

POS-58E use RJ45 socket. The communication cable is not provided by the printer. The IP address of the printer can be setted up be PC S/W.



2.4 Connect the cash drawer

The printer use RJ-11 6line socket., support most 12V/24V cash drawer. Connecting the cash drawer as the followed picture:



Cash drawer socket definition:

PIN	DEFINITION	IO
1	GND	
2	Cash drawer open control	IN
3		
4	+24V	POWER
5	Cash drawer open control	IN
6		

NOTE:

Use a drawer the matches the printer specification. Using an improper drawer may damage the drawer as well as the printer.

Must not connect the telephone line to the cash drawer.

3 USING THE PRINTER

3.1 Control Panel

3.2 Online and Offtline

The “LINE” buttons will toggle the printer with on “online”, “offline” mode.

NOTE:

When powered up, the printer will stay in the “online” mode.

When in “online” mode, the printer receive and handle the data and command send by PC.

When in “offline” mode, the printer receive and handle the command send by PC, discard the send by PC.

When the printer is out of paper, the printer will enter “offline”.

3.3 Feed paper

Pressing the “FEED” button, the printer will feed the paper by 20mm.

NOTE:

When the printer is out of paper, the printer will not feed the paper.

3.4 Setting the baudrate

Baudrate setting is only effective with POS-58S and POS-58U.

1. Install the paper roll. Power down.
2. Press the “LINK” button. Don’t release it.
3. Power on POS-58
4. Release the “LINK” button after POS-58 starting printing.
5. Press the “FEED” to toggle the baudrate. POS-58 support the follows baudrate:
4800,9600,19200,38400,57600,115200
6. Repower up the POS-58.

Note:

The default value is 9600.

3.5 Enter the test mode

The test mode use to test the printer printing function.

1. Power down.
2. Install the paper roll.
3. Press the “feed” button. Don’t release it.
4. Power up.

POS-58 will print the printing test page.

3.6 Enter the debug mode

Debug mode allow experienced users to see exactly what data is coming to the printer. This can useful in finding software problems. When you turn on the debug mode, the printer prints all commands and data in hexadecimal format along widht a guide section to help you find specific command.

1. Remove the paper roll. Power down
2. Press the “feed” button, Don’t release it.
3. Power up POS-58
4. Release the “feed” button.
5. Install the paper roll.

In debug mode, POS-58 will prints all commands and datas in hexadecimal format as follows:

```

1B21 001B 2602 4040 . ! . . & . @@
4040 020D 1B44 0A14 @@ . . . D . .
1E28 2828 0001 0A41 . ( ( ( . . . A
0D42 0A43 4343 4445 . B . CCCDE

```

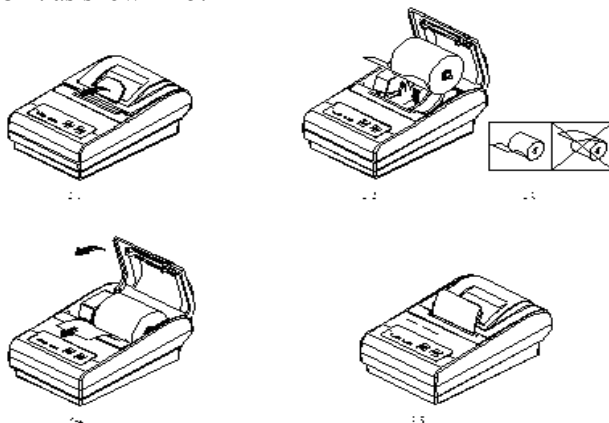
Note:

In debug mode, POS-58S, POS-58U will change the baudrate with “online” key. Make sure the baudrate is your want please.

3.7 Install the paper roll

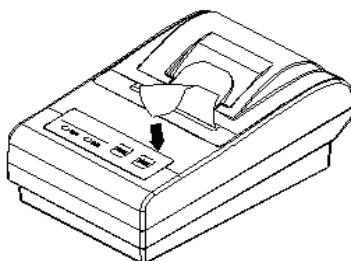
POS-58 has easy-loading paper mechanism. Installing or Replacing the paper roll as follows:

1. Open the paper roll cover by pulling up the fastener. see fig2-1
2. Remove the used paper roll core if there is one.
3. Insert the paper roll as shown 2-3, 2-2.
4. Be sure to note the correct direction that the paper comes off the roll.
5. Pull out a small amount of paper, as shown 2-4, Then close the cover.
6. Install OK. as shown 2-5.



3.8 Tear off paper

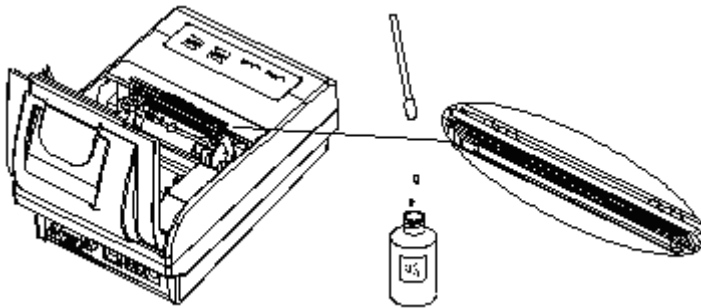
Tear off the paper as shown



3.9 Cleaning printing machine

When Thermal printing paper be added to thermal printing machine, some material in the paper will be residual in the machine. Residual degree is related to the printing density stetted and paper .The residual will affect the printing effect and the life of the machine. Please clean the printing machine regularly as follows:

1. open the cover
2. stick a little pure alcohol by cotton bud
3. Use the cotton bud to scrub the surface of thermal printing scale smoothly
4. be sure that the alcohol is volatilized before you use the machine again



4 TROUBLE REMOVAL

1. Trouble: the printing word isn't clear
 .Handle method: a. clean the print head
 b. re-set the print density for the Thermal printing paper in bad quality
2. Trouble: print blank
 .Handle method: a. make sure it is thermal printing paper and the paper is in right direction
 b. make sure the thermal print head is in good condition
3. Trouble: the self check is ok, but can't print
 Handle method: a. be sure the printer in good connection and in printing state
 b. be sure the PC software in correct setting
 c. be sure the baud rate is right
4. Trouble: the self check is ok, but print disorderly
 Handle method: adjust setting parameter for the serial port of printer isn't match with computer's
5. Trouble: the vertical parts can't be print correctly
 Handle method: a. make sure there isn't any dirty thing in the thermal printing machine
 b. make sure there isn't any damage in the thermal printing machine
 c. make sure there isn't stoppage in motherboard and thermal printing machine
6. Trouble: the printer can't work
 Handle method: a. it doesn't connect with power supply or the battery is in bad condition
 b. the power supply for the printer is error
7. Trouble : the printer can start up normally, but can't print
 Handle method: a. make sure the thermal printing head is in good manner
 b. make sure the voltage of power supply is correct
 c. make sure the thermal printing paper install

5 ESC/POS PRINTING COMMAND SET

5.1 Set of Command

Type	Command	Name
Print Command	LF	Print and line feed
	ESC J	Print and Feed n dots paper
Line spacing Command	ESC 2	Select default line spacing
	ESC 3 n	Set line spacing
	ESC a n	Select justification
Character Command	ESC ! n	Select print mode(s)
	ESC S0	Turn double width on
	ESC DC4	Turn double width off
	ESC { n	Turn upside-down printing mode on/off
	ESC B n	Turn inverting printing mode on/off
	ESC % n	Select/Cancel user-defined characters
	ESC &	Define user-defined characters
	ESC ?	Cancel user-defined characters
	ESC R n	Select and international character set
Bit Image Command	ESC t n	Select character code table
	ESC *	Select bit-image mode
	GS *	Define downloaded bit image
Cash drawer command	GS /	Print downloaded bit image
	ESC p	Generate cash drawer control pulse
Key Control Command	ESC c 5	Enable/disable panel buttons
Init Command	ESC @	Initialize printer
Status Command	ESC v n	Transmit paper sensor status
	ESC u	Transmit peripheral device status
	GS a	Enable/Disable AutomaticStatus Back(ASB)
	ESC = n	Set printer online status
Status Command	ESC v	Transmit paper sensor status
	ESC u	Transmit peripheral device status
	GS a	Enable/Disable AutomaticStatus Back(ASB)
Bar Code Command	GS H	Select printing position of human readable characters
	GS h	Set bar code height
	GS w	Set bar code width
	GS k	Print bar code
Print Position and Page Command	ESC L	Select page mode
	FF	Print and return to standard mode(in page mode)
	ESC FF	Print data in page mode
	CAN	Cancel print data in page mode

	ESC W ...	Set printing area in page mode
	ESC \$ nL nH	Set absolute print X position
	GS \$ nL nH	Set absolute print Y position
	ESC \ nL nH	Set relative print X position
	GS \ nL nH	Set relative print Y position
	GS L nL nH	Set left margin
	GS W nL nH	Set printing area width

5.2 Command detail

POS-58 printer use ESC/POS command set.

The printing command is described as followed format:

CMD	Function
Format	ASCII List by ASCII characters Decimal List by decimal characters Hexadecimal List by hexadecimal characters
Description	Command function description
Example	Command use example

5.2.1 Print Commands

LF	Print and line feed
Format	ASCII LF Decimal 10 Hexadecimal 0A
Description	LF prints the data in the print buffer and feeds one line. When the print buffer is empty, LF feeds one line.
ESC J n	Print and feed paper
Format	ASCII ESC J n Decimal 27 74 n Hexadecimal 1B 4A n
Description	n = 0-255. ESC J prints the data in the print buffer and feeds n dots. The command will not change the setting set by command ESC 2, ESC 3.

5.2.2 Line spacing setting command

ESC 2	Select default line spacing
Format	ASCII ESC 2 Decimal 27 50 Hexadecimal 1B 32
Description	ESC 2 sets the line space to default value (30dots)

ESC 3 n	Set line spacing
----------------	-------------------------

Format	ASCII ESC 3 n Decimal 27 51 n Hexadecimal 1B 33 n	
---------------	--	--

Description	n = 0-255 ESC 3 n sets the line spacing to n dots. The default value is 30
--------------------	--

ESC a n	Select align mode
----------------	--------------------------

Format	ASCII ESC a n Decimal 27 97 n Hexadecimal 1B 61 n	
---------------	--	--

Description	The command is only used in the standard mode. $0 \leq m \leq 2$ or $48 \leq m \leq 50$ Align left: n=0, 48 Align middle: n=1, 49 Align right: n=2, 50
--------------------	--

5.2.3 Character command

ESC ! n	Select print mode
----------------	--------------------------

Format	ASCII ESC ! n Decimal 27 33 n Hexadecimal 1B 21 n	
---------------	--	--

Description	The default value is 0. This command is effective for all characters. BIT0: 0:Character font 12x24 selected 1:Character font 8x16 selected BIT1: BIT2: BIT3: 1:Emphasized mode selected 0:Emphasized mode not selected BIT4: 1:Double Height mode selected 0:Double Height mode not selected BIT5: 1:Double Width mode selected 0:Double Width mode not selected BIT6: BIT7: 1:Underline mode selected 0:Underline mode not selected
--------------------	---

ESC S0	Select Double Width mode
---------------	---------------------------------

Format	ASCII ESC S0 Decimal 27 14 Hexadecimal 1B 0E	
---------------	---	--

Description	Select Double Width mode To turn double width off, use LF or DC4 command.
--------------------	--

d2	d4	d6					d16
----	----	----	--	--	--	--	-----

ESC ? n Disable user-defined character

Format	ASCII	ESC ? n
	Decimal	27 37 n
	Hexadecimal	1B 25 n

Description
 ESC ? n disable user-defined characters, printer will use the internal character.

ESC R n Select an internal character set

Format	ASCII	ESC R n
	Decimal	27 82 n
	Hexadecimal	1B 52 n

Description
 Select an internal character set n as follows:

0:USA	5:Sweden	10:Denmark II
1:France	6:Italy	11:Spain II
2:Germany	7:Spain1	12:Latin America
3:U. K.	8:Japan	13:Korea
4:Denmark 1	9:Norway	

ESC t n Select character code table

Format	ASCII	ESC t n
	Decimal	27 116 n
	Hexadecimal	1B 74 n

Description
 Select a page n from the character code table as follows::

0:437	4:860	8:862
1:850	5:861	254.Persian
2:852	6:863	255.Chinese
3:857	7:858	

POS-58 Support only 0, 1, 256

5.2.4 Bit Image Command

ESC * m nL nH d1 d2...dk Select bit-image mode

Format	ASCII	ESC * m nL nH d1 d2 ... dk
	Decimal	27 42 m nL nH d1 d2 ... dk
	Hexadecimal	1B 2A m nL nH d1 d2 ... dk

Description
 This command selects a bit image mode using m for the number of dots specified by (nL+nH*256)
 m =0, 1, 32, 33.
 nL=0-255
 nH=0-3

dx=0-255

k = nL+256*nH (m=0, 1)

k = (nL+256*nH)*3 (m=32, 33)

The modes selected by m are as follows:

0: 8dots single density, 102dpi

1: 8dots double density, 203dpi

31:24 dots single density, 102dpi

32:24 dots double density, 203dpi

The bit image format is the same as user-defined character.

GS / n

Print downloaded bit image

Format	ASCII	GS / n
	Decimal	29 47 n
	Hexadecimal	1D 2F n

Description

This command prints a downloaded bit image using the mode specified by n as specified in the chart. In standard mode, this command is effective only when there is no data in the print buffer. This command is ignored if a downloaded bit image has not been defined.

n=0-3, 48-51: Specify bit image mode

n	Bit Image Mode	Vertical DPI	Horizontal DPI
0, 48	Normal	203DPI	203DPI
1, 49	Double width	203DPI	101DPI
2, 50	Double height	101DPI	203DPI
3, 51	Quadruple	101DPI	101DPI

n=65-68: Print logo 1-4

GS * x y d1...dk

Define downloaded bit image

Format	ASCII	GS * x y d1 ... dk
	Decimal	29 42 x y d1 ... dk
	Hexadecimal	1D 2A x y d1 ... dk

Description This command defines a downloaded bit image by using x*8 dots in the horizontal direction and y*8 dots in the vertical direction. Once a downloaded bit image has been define, it is available until

- Another definition is made
- ESC & or ESC @ is executed
- The power is turned off
- The printer is reset

x=1~48(width), y=1~255(height), x×y < 2304, k=x×y×8

5.2.5 Cash drawer control command

ESC p m n1 n2

Generate pulse

Format	ASCII	ESC p m n1 n2
	Decimal	27 112 m n1 n2

Hexadecimal 1B 70 m n1 n2

Description

Send a pulse to the specified connector pin. It is used to open the cash drawer.

m: special the pin the pulse is send to. 0:pin2, 1:pin5
 n1,n2:pulse on & off time. (unit:2ms)

5.2.6 Key control command

ESC c 5 n Enable/Disable the panel key

Format ASCII ESC c 5 n
 Decimal 27 99 53 n
 Hexadecimal 1B 63 35 n

Description n=1, Disable the panel key
 n=0, Enable the panel key(Default)

5.2.7 Init command

ESC @ Initialize the printer

Format ASCII ESC @
 Decimal 27 64
 Hexadecimal 1B 40

Description Initializes the printer.

- The print buffer is cleared.
- Reset the param to default value.
- return to standard mode
- Delete user-defined characters

5.2.8 Status Command

ESC v Transmit paper sensor status

Format ASCII ESC v n
 Decimal 27 118 n
 Hexadecimal 1B 76 n

Description Transmits the status of the paper sensor as 1 byte of data.
 POS-58P not supports this command. Only in serial type printer effective.
 The status byte definition(n=1):

Bit	Function	Value
0		
1		
2	NO PAPER	1
3	MECHANISM ERROR	1
4	0	0
5		
6	PRINTER TEMPERAUTRE OVER	1
7		

GS a n Enable/Disable Automatic Status Back(ASB)

Format ASCII GS a n
 Decimal 29 97 n
 Hexadecimal 1D 61 n

Description POS-58P don't support this command, Only in serial type printer effective.
 n definition as follows:

Bit	Function	Value	
		0	1
0	0		
1			
2	Disable/Enable ASB	Disable	Enable
3-4			
5	Disable/Enable set busy when in ERROR status RTS=BUSY	Disable	Enable
6-7			

When ASB is enabled, the printer will send the changed status to PC automatically.

ESC u Transmit peripheral devices status

Format ASCII ESC u
 Decimal 27 117
 Hexadecimal 1B 75

Description POS-58P don't support this command, Only in serial type printer effective..
 Return status bytes definetion:
 bit0: Drawer status.
 bit4: 0
 POS-58 always return 0 back.

ESC = n Transmit peripheral devices status

Format ASCII ESC = n
 Decimal 27 61 n
 Hexadecimal 1B 3D n

Description n=0, offline; n=1, online

5.2.9 Bar Code Command

GS H n Select printing position of human readable characters

Format ASCII GS H n
 Decimal 29 72 n
 Hexadecimal 1D 48 n

Description $0 \leq n \leq 3$
 $48 \leq n \leq 51$
 This command selects the printing position for human readable characters when printing a barcode. The default is $n=0$. Human readable characters are printed using the font specified by GS fn. Select the printing position as follows:
 n Printing Position
 0,48: Not printed
 1,49: Above the barcode
 2,50: Below the barcode
 3,51: Both above and below the barcode

GS h n Set bar code height

Format ASCII GS h n
 Decimal 29 104 n
 Hexadecimal 1D 68 n

Description This command selects the height of a barcode. n specifies the number of dots in the vertical direction. The default value is 50
 $1 \leq n \leq 255$

GS w n Set bar code width

Format ASCII GS w n
 Decimal 29 119 n
 Hexadecimal 1D 77 n

Description This command selects the horizontal size of a barcode.
 $n = 2, 3$
 The default value is 3

GS k m d1 d2 ... dk NUL Print barcode symbology

GS k m n d1 d2 ... dn

Format 1 ASCII GS k m d1 d2 ... dk NUL
 Decimal 29 107 m d1 d2 ... dk 0
 Hexadecimal 1D 6B m d1 d2 ... dk 00
 al

Format 2 ASCII GS k m n d1 d2 ... dn
 Decimal 29 107 m n d1 d2 ... dn
 Hexadecimal 1D 6B m n d1 d2 ... dn
 al

Description m: barcode type
 Format 1: $0 \leq m \leq 10$
 Format 2: $65 \leq m \leq 75$
 n: barcode length

m	Bar code system	Number of characters	Remarks
0, 65	UPC-A	11, 12	48-57
1, 66	UPC-E	11, 12	48-57

2, 67	EAN13	12, 13	48-57
3, 68	EAN8	7, 8	48-57
4, 69	CODE39	>1	32, 36, 37, 43, 45-57, 65-90
5, 70	I25	>1 even number	48-57
6, 71	CODEBAR	>1	36, 43, 45-58, 65-68
7, 72	CODE93	>1	0-127
8, 73	CODE128	>1	0-127
9, 74	CODE11	>1	48-57
10, 75	MSI	>1	48-57

If materials are illegal characters, printer will not print the barcode

If the bar code more than effective print width, the printer results unknown.

The command, according to bar code printer will set the print bar code, and line spacing have nothing to do

5.2.10 Print Posiiton and Page Command

ESC L Select page mode

Format ASCII ESC L
 Decimal 27 76
 Hexadecimal 1B 4C

Description This command set the printer into page mode.
 Reset the current positioni to (0,0)
 Page width is 384 ,height is 512.

FF Print the page buffer data and return to standard mode

Format ASCII FF
 Decimal 255
 Hexadecimal FF

Description Print the page buffer data, and return to standard mode.

ESC FF Print the page buffer data

Format ASCII ESC FF
 Decimal 27 255
 Hexadecimal 1B FF

Description Print the page buffer data

CAN Clear page buffer data

Format ASCII CAN
 Decimal 24
 Hexadecimal 18

Description Reset the page buffer data to zero.

ESC W sxL sxH syL syH wxL wxH wyL wyH Set page params

Format ASCII ESC W sxL sxH syL syH wxL wxH wyL wyH

Decimal 27 87 sxL sxH syL syH wxL wxH wyL wyH
 Hexadecimal 1B 57 sxL sxH syL syH wxL wxH wyL wyH

Description Set the page size and margin
 Left margin: sxL+256*sxH
 Top margin: syL+256*syH
 Width: wxL+256*wxH
 Height : wyL+256*wyH
 Default Value: Left:0 Top:0 Width:384 Height:512

ESC \$ nL nH Set absolute X position

Format ASCII ESC \$ nL nH
 Decimal 27 36 nL nH
 Hexadecimal 1B 24 nL nH

Description Set absolute X position

GS \$ nL nH Set absolute Y position

Format ASCII GS \$ nL nH
 Decimal 29 36 nL nH
 Hexadecimal 1D 24 nL nH

Description Set absolute Y position

ESC \ nL nH Set relative X position

Format ASCII ESC \ nL nH
 Decimal 27 92 nL nH
 Hexadecimal 1B 5C nL nH

Description Set relative X position

GS \ nL nH Set relative Y position

Format ASCII GS \ nL nH
 Decimal 29 92 nL nH
 Hexadecimal 1D 5C nL nH

Description Set relative Y position

GS L nL nH Set left margin

Format ASCII GS L nL nH
 Decimal 29 76 nL nH
 Hexadecimal 1D 4C nL nH

Description Set left margin

GS W nL nH Set page width

Format ASCII GS W nL nH
 Decimal 29 87 nL nH
 Hexadecimal 1D 57 nL nH

Description Set page width

6 Sample Programming

The following sample suggest that "putchar(ch)" send one byte ch to the PD02.

Sample:

```

putchar(27); putchar('='); putchar(1);           // set printer online
putchar(27); putchar('t'); putchar(0);          // code page PC 437
putchar(29); putchar('/'); putchar(65);         // print logo 1
putchar(27); putchar('!'); putchar(0);         // set print font
putchar(27); putchar('a'); putchar(0);         // set align left
putchar(27); putchar('a'); putchar(27);        // line height 27/8mm
.....
putchar(27); putchar('J'); putchar(120);        // Feed 15mm
putchar(27), putchar('0'); putchar(0); putchar(0); putchar(0);
                                                    // open drawer
putchar(27); putchar('='); putchar(0);         // set printer offline
    
```

note:

- ✓ Logo command is necessary.
- ✓ Logo is used to printer the bitmap which is downloaded by LinkPd02 first.
- ✓ Make sure the baudrate is the correct.

APPENDIXA: CODE PAGE

PC437

	0	0	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	Ç	ü	é	â	ä	à	á	ç	ê	ë	è	ì	î	ï	Ä	Å
9	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	¢	£	¥	€	f
A	á	í	ó	ú	ñ	Ñ	ª	º	¿	¬	½	¼	¡	«	»	
B	█	█	█		┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘
C	L	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└
D	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘
E	α	β	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F	≡	±	≥	≤			÷	≈	°	·	·	√	ª	²	█	

PC850

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	Ç	ü	é	â	ä	à	á	ç	ê	ë	è	ì	î	ï	Ä	Å
9	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	×	f
A	á	í	ó	ú	ñ	Ñ	ª	º	¿	©	¬	½	¼	¡	«	»
B	█	█	█		┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘
C	L	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└
D	ø	Ð	È	È	È	I	Í	Î	Ï	┌	┐	└	┘	┌	┐	└
E	ó	β	ô	ò	ö	õ	μ	þ	ƒ	Ú	Û	Ü	ý	Ý	ˆ	˙
F	-	±	=	¾	¶	§	÷	,	°	ˆ	˙	ˆ	˙	ˆ	˙	█

PC852

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	Ç	ü	é	â	ä	ú	ó	ç	ì	ë	Ö	ó	í	ì	Ä	Ć
9	É	Í	Í	ô	ö	Ł	I	Š	ś	Œ	Ů	Ť	ţ	Ł	x	č
A	á	í	ó	ú	À	a	Ž	ž	È	ę	¬	ž	Č	š	«	»
B	█	█	█		┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘
C	L	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└
D	đ	Đ	Ǿ	È	đ	Ń	í	î	ë	┌	┐	└	┘	┌	┐	└
E	ó	β	ô	ń	ń	ň	š	ś	ř	ú	ř	Ů	ý	Ý	ţ	

F	-	"	´	˘	˙	§	÷	,	°	¨	·	ú	ř	ř	■	
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--

PC857

0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	Ç	ü	é	â	à	à	â	ç	ê	ë	è	í	î	ï	Ä	Å
9	É	æ	Æ	ô	ö	ù	û	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
A	á	í	ó	ú	ñ	Ñ	Ĝ	ğ	ı	®	¬	½	¼	ı	«	»
B	■	■	■			Á	Â	À	©	¬		¬	¬	ç	¥	¬
C	L	└	└	└	└	+	ã	Ã	L	└	└	└	└	└	+	□
D	°	ª	È	È	È	Ç	Í	Î	Ï	└	└	■	■		ì	■
E	ó	ß	Ô	Ò	õ	Õ	µ	Ç	×	Û	Û	Û	ı	ÿ	-	'
F	-	±	Ç	¼	¶	§	÷	,	°	¨	·	ı	¾	²	■	

PC860

0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	Ç	ü	é	â	ã	à	Á	ç	ê	Ë	è	í	ô	ı	Ä	Å
9	É	À	È	ô	ö	ó	ú	ù	ì	Ï	Û	ç	£	Û	£	ó
A	á	í	ó	ú	ñ	Ñ	ª	°	ı	Ö	¬	½	¼	ı	«	»
B	■	■	■													
C	L	└	└	└	└	+	└	└	L	└	└	└	└	└	+	└
D	└	└	└	L	L	+	+	+	L	└	└	■	■	■	■	■
E	α	ß	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F	≡	±	≥	≤		J	÷	≈	°	·	·	√	n	²	■	

PC861

0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	Ç	ü	é	â	à	à	â	ç	ê	ë	è	ı	ı	ı	Ä	Å
9	É	æ	Æ	ô	ö	þ	û	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
A	á	í	ó	ú	Á	Í	Ó	Û	ı	¬	¬	½	¼	ı	«	»
B	■	■	■													
C	L	└	└	└	└	+	└	└	L	└	└	└	└	└	+	└
D	└	└	└	L	L	+	+	+	L	└	└	■	■	■	■	■
E	α	ß	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F	≡	±	≥	≤		J	÷	≈	°	·	·	√	n	²	■	

PC863

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	Ç	ü	é	â	À	à	¶	ç	ê	ë	è	ı	ı	ı	Ä	Å
9	É	È	È	ô	È	İ	û	ù	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
A	ı	ı	ó	ú	¨	,	³	-	î	¬	¬	½	¼	¾	«	»
B	■	■	■													
C	L	└	└	└	└	+	└	└	L	└	└	└	└	└	+	└
D	└	└	└	L	L	+	+	+	L	└	└	■	■	■	■	■
E	α	ß	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F	≡	±	≥	≤		J	÷	≈	°	·	·	√	n	²	■	

PC858

0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	Ç	ü	é	â	à	à	â	ç	ê	ë	è	ı	ı	ı	Ä	Å
9	É	æ	Æ	ô	ö	ù	û	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ	ÿ
A	á	í	ó	ú	ñ	Ñ	ª	°	ı	®	¬	½	¼	ı	«	»
B	■	■	■			Á	Â	À	©	¬		¬	¬	ç	¥	¬
C	L	└	└	└	└	+	ã	Ã	L	└	└	└	└	└	+	□
D	ø	Ð	È	È	È	€	í	î	ï	└	└	■	■		ì	■
E	Ó	ß	Ô	Ò	õ	Õ	µ	þ	þ	Û	Û	Û	ÿ	ÿ	-	'
F	-	±	-	¾	¶	§	÷	,	°	¨	·	ı	¾	²	■	

APPENDIXB: International characters

	Country	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
0	U.S.A	#	\$	@	[\]	^	'	{		}	~
1	France	#	\$	à	°	ç	š	^	'	é	ù	è	¨
2	Germany	#	\$	š	Ä	Ö	Ü	^	'	ä	ö	ü	ß
3	U.K.	&	\$	@	[\]	^	'	{		}	~
4	Denmark I	#	\$	@	Æ	Ø	Å	^	'	æ	ø	å	~
5	Sweden	#	□	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
7	Spain I	Pt	\$	@	í	Ñ	¿	^	'	¨	ñ	}	~
8	Japan	#	\$	@	[¥]	^	'	{		}	~
9	Norway	#	□	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
10	Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
11	Spain II	#	\$	á	í	Ñ	¿	é	'	ì	ñ	ó	ú
12	Latin America	#	\$	á	í	Ñ	¿	é	ü	ì	ñ	ó	ú
13	Korea	#	\$	@	[₩]	^	'	{		}	~

