SPRT®

POS Thermal printer user manual

（**SP-POS88**Ⅵ）

（**Ver 1.04**）

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Contents

Brief Introduction

SP-POS88VI printer is a new type line thermal printer, which features in fast speed print, low print noise, high reliability, perfect print quality and ribbon needless, avoiding the vexation of regular maintenance.
SP-POS88VI printer: small in outline dimension, simple operation, and extensive application, especially suitable for commercial cash register, PC POS, bank POS and all kinds of receipts print.

Warning

This is a class A product. In a domestic environment this product may cause radio
interference in which case the user may be
required to take adequate measures.

Chapter 1 Feature and Performance

1.1 Print Performance

- Print method: direct thermal
- Print paper width: 79.5±0.5mm
- Print density: 8 dots/mm, 576 dots/line
- Print speed: max 250mm／sec.
- Reliability
   (1)Print head life: 150km
        Using condition:
      * Print 12 × 24 ASCII characters, print 50 lines each time, intermittent print repeatedly
       * Use specified thermal paper
      (2)Cutter life: 1500,000 cuts.
- Valid print width: 72mm

1.2   Print Paper

● Thermal paper roll model：TF50KS－E（Japan paper co.ltd）
                                                                  AF50KS-E(JUJO THERMAL)
●Thermal paper roll: Width－－－ 79.5xφ80mm（max）
                                    Outer Diameter －－－ 80mm（max.）
                                    Inner Diameter－－－ 13mm（min.）
                                    Thickness －－－ 0.06mm～0.08mm

1.3 Print Font

● ANK Character Set :
      12×24 dots，1.5（W）×3.00（H）mm
●GB2312-80(Chinese):
      24×24 dots，3.00（W）×3.00（H）mm

1.4 Interface

●RS－232C Serial Interface：

      DB-25 socket (female), supports XON/XOFF and TR/DSR protocols.
      Baud rate: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200bps adjustable.
 Data structure: 1start bit + (7 or 8) data bits + 1 stop bit.
      Parity checking: no parity or odd, even parity optional.

●Parallel Interface：

      36-pin, 8-bit parallel interface, BUSY/ACK handshaking protocol, TTL signal level.

●Ethernet Interface：

      Standard Ethernet interface.

●USB Interface：：

 Standard USB interface

•Cash Drawer Control：

   DC24V，1A，6-pin RJ-11 socket.

1.5 Print Control Commands

•Character print commands: support double-width, double height print of ANK characters, user-defined characters and Chinese characters, the character line spacing is adjustable.

•Graphics print commands: support the print of bit-map graphics and download bit-map graphics with different density。

•GS bar code print commands: support UPC-A，UPC-E，EAN-13，EAN-8，CODE39，ITF，CODEBAR，CODE93，CODE128,PDF417,QR bar code print.

1.6 Power Supply

•DC24V±10％，2A，A-1009-3P power socket.

1.7 Operation Environment

•Operation temperature: 5～50℃; Relative humidity: 10～80％

● Storage temperature: -20～55℃; Relative humidity: 10～90%

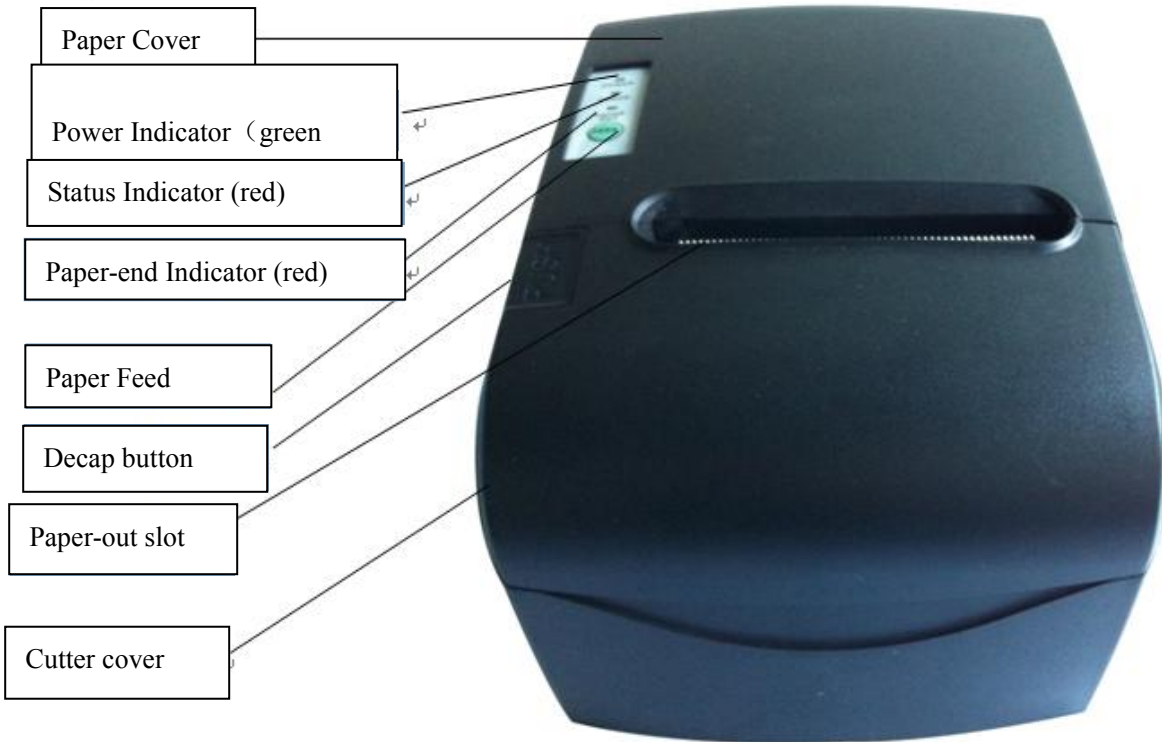## 1.8　Outline Dimension and Weight

● Dimension: 212（L）mm×150（W）mm×135（H）mm
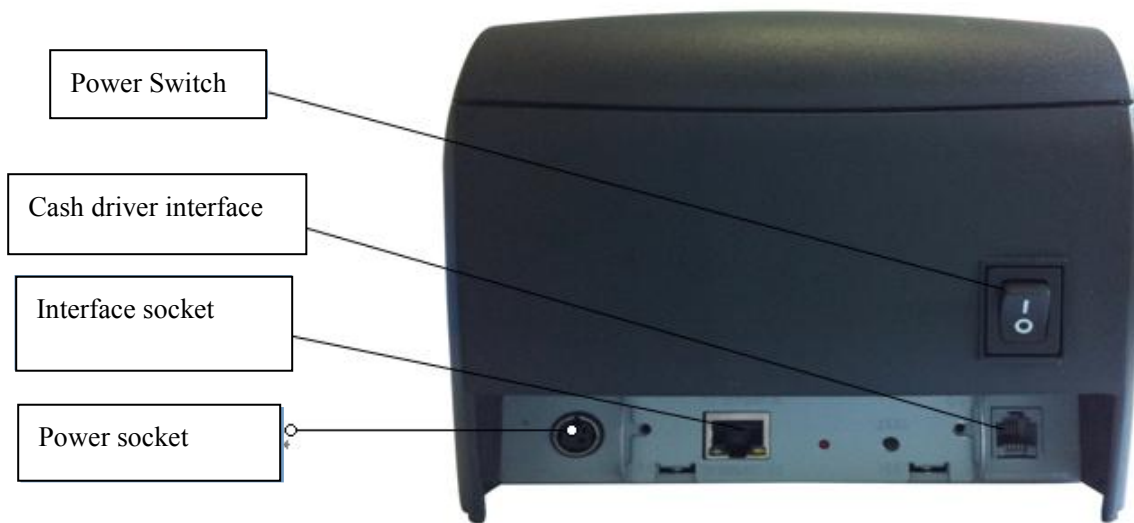● Weight: 1456g (not including paper roll)

1.9 Model classification

Model	Interface
SP-POS88ⅥSF SP-POS88ⅥS	RS－232C Serial Interface
SP-POS88ⅥPF SP-POS88ⅥP	Parallel Interface
SP-POS88ⅥEF SP-POS88ⅥE	Ethernet Interface
SP-POS88ⅥUF SP-POS88ⅥU	USB Interface
SP-POS88VIWF	WIFI Interface,USB Interface, Ethernet Interface
SP-POS88VIMF	RS－232C Serial Interface, USB Interface, Ethernet Interface
SP-POS88VIBTF	USB Interface, Blutooth2.0
SP-POS88VIBT4F	USB Interface, Blutooth4.0

Chapter 2 Operation instruction

2.1 Printer Appearance

Paper Cover

Power Indicator（green

Status Indicator (red)

Paper-end Indicator (red)

Paper Feed

Decap button

Paper-out slot

Cutter cover

Power Switch

Cash driver interface

Interface socket

Power socket

2.2 Paper Installation

2.2.1 Paper Loading

POS88Ⅵ adopts 79.5mm width thermal paper roll.
Steps of Loading Thermal Paper Are as below:
Hold down the upper cover button on the left side, open the movable upper cover and put the paper roll into it, draw a certain length of the paper roll, put the paper end on the print head, close the upper cover and press it downwards lightly.

⚠**Caution!**

1.Pay attention to the direction of loading paper,make the printing surface face to the print head.
2.Please don't feed or draw the paper forwards or backwards with hands.
3.Keep clean of the print head, avoid to influence the printing quality.

2.2.2 Solution to Paper Jam

If cutter jam, turn off the power, and turn on again, the cutter will be back to original

position. If paper jam, open the paper storage cover, and take out the paper. If the cutter can not be back to the original position, open the cover of it, and turn the white plastic gear by the direction suggestive on the cutter by hand to make the cutter be back to the original position.

If cutter jam, but hope no loss of data in printer, can't turn off the power. It has to get the cutter back to the original position by the above mentioned method by hand. Then open the paper storage cover and take out the paper, close the paper storage cover. The printer will recover automatically from Cutting Error.

2.3 Interface

2.3.1 Serial Interface

The serial interface of SP-POS88VI printer is compatible with RS-232C, supports DTR/DSR and XON/XOFF handshaking protocols, uses DB25 socket (female). The pin order of the serial port is as Fig.2-2 shows:
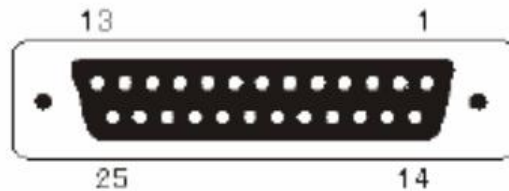

Fig.2-2 Pin Order of Serial Port

The pin assignment of serial interface is shown in Fig. 2-3:

Pin No.	Signal Name	Signal Direction	Source	Description
1	FG	——	——	Cover ground
2	TXD	Output	Printer	Printer transmits control code X-ON/X-OFF and data to host
3	RXD	Input	Host	Printer receives data from host
4	RTS	Output	Printer	The same with 20pins DTR signal
6	DSR	Input	Host	Signal "MARK" means the host is busy and can not receive data.Signal "SPACE" means the

				host is ready to receive data.
7	GND	——	——	Signal Ground
20	DTR	Output	Printer	Signal "MARK" means the host is busy and can not receive data.Signal "SPACE" means the host is ready to receive data.

Fig. 2-3 The pin assignment of serial interface

Note: (1)"Source" denotes the source that signal come from;

(2)Logical signal level is EIA.

The baud rate and data structure in serial interface mode is 9600bps, 8-bit data bits, no parity bit and 1 stop bit.

The serial interface of SP-POS88VI can be connected to standard RS-232C interface. When it is connected to IBM PC or its compatible machine, connection can accord to Fig.2-4.
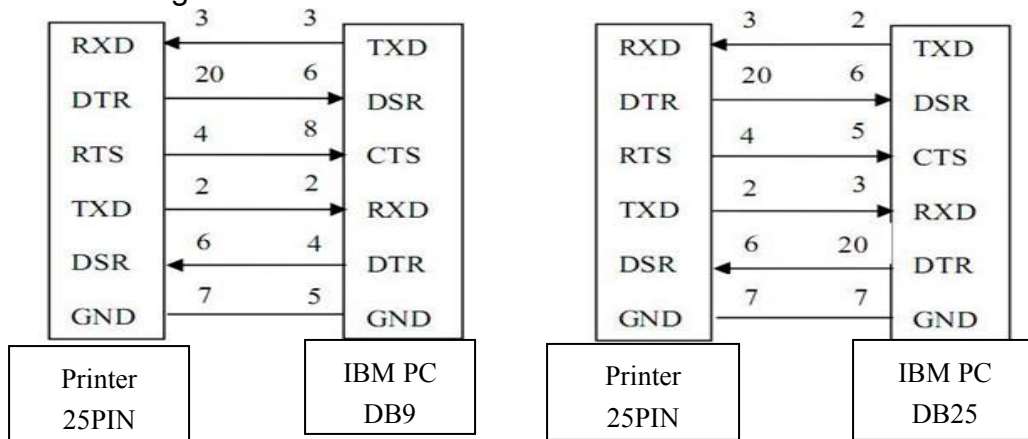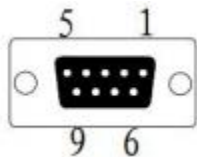

Fig.2-4 Connection between SP-POS88VI and IBM PC Serial Interface Sketch Map

The pin assignment of DB9 interface is as below shows:

Pin No.	Signal Name	Source	Description
2	TXD	Printer	Printer transmits control code X-ON/X-OFF and data to host

|			
3	RXD	Host	Printer receives data from host
6	DSR	Printer	The same as CTS
8	CTS	Printer	When this is "MARK" status, it means the printer is "busy" and can't receive the data. When this is "SPACE" status, it means the printer is "ready" to receive the data.
5	GND	——	Signal Ground

2.3.2 Parallel Interface

The parallel interface of POS88VI printer is compatible with CENTRONICS, supports BUSY or ACK handshaking protocol,

The pin assignment of 36PIN parallel interface is as Fig. 2-5 shows:

Pin No.	Signal	Direction	Description
1	STROBE	In	Strobe pulse to latch data, Reading occurs at falling edge.
2	D1	In	These signals represent the 1st bit to 8th bit of the parallel data respectively, each signal is at HIGH level when data is logic 1, and LOW when data is logic 0.
3	D2	In	
4	D3	In	
5	D4	In	
6	D5	In	
7	D6	In	
8	D7	In	
9	D8	In	

10	ACK	Out	Answer pulse, LOW level signal indicates that data have already been received and the printer gets ready to receive the next data.
11	BUSY	Out	HIGH level signal indicates that the printer is BUSY and can not receive data.
12	PE	Out	HIGH level signal indicates that paper is end.
13	SEL	Out	Pulling up to HIGH level signal by a resistor
17	FG	---	Signal Cover
18	Logic-H	---	Logic "1" level
32	nFault	Out	Low level means the printer is at fault
14,15,17, 18,34,36	NC	---	No connection
16,19~30, 33	GND	---	Grounding logical 0 level
35	+5V	---	+5V power

Fig.2-6 Signal Timing Chart of Parallel Interface：
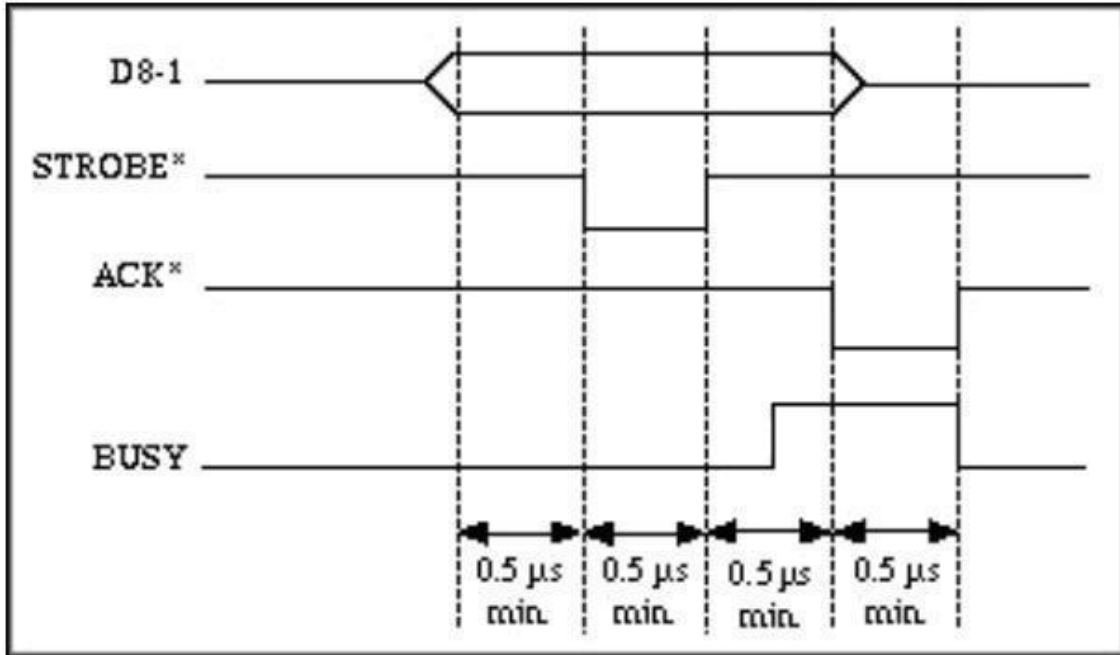
2.3.3 Cash Drawer Interface

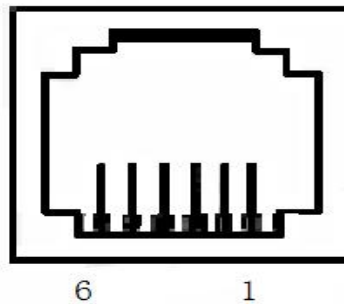The cash drawer interface of POS-POS88VI adopts RJ-11 6-pin socket, as Fig.2-7 shows:
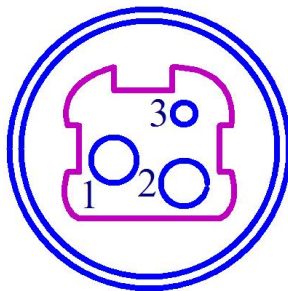

Fig.2-7   Cash Drawer Interface

The pin assignment is as below：

Pin No.	Signal	Direction
1	Chassis Ground	——
2	Cash drawer driver signal 1	Out
3	Cash drawer on/off status signal	In
4	+24VDC	——

5	Cash drawer driver signal 2	Out
6	Signal ground	——

2.3.7 Power Connection

SP-POS88Ⅵ uses the external power supply adopter as 24V±10％、2A, power socket is A-1009-3P model, as Fig. 2-10 shows:

Pin No.	Signal
1	+24VDC
2	Ground
3	NC

The pin assignment is as above：

2.4 Indicator, buzzer and button

There is one button, one buzzer and three indicators on POS88VI printer.
【FEED】is paper feed button. The function of this button is on/off can be set by print command. When the function of this button is on, press【FEED】button to feed paper; release【FEED】button to stop feeding button.
The buzzer can indicate the error and cutter status. Through parameters setting, the buzzer can be set into error alarm, paper-cut indicating or both above. The types of error status are same as ERROR indicator.
The green POWER light is the power indicator. POWER indicator lighting means the printer is power on.
The red PAPER OUT light indicate the paper status. It means printer lack paper when it lights.

The red ERROR light is error status indicator. It is off when the printer works normally; while it flashes, the printer has abnormal alarm.

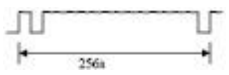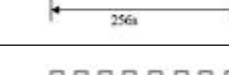If ERROR indicator flashes and the buzzer sounds, it means the printer has error. According to different flashing types, the different errors of printer are indicated:

1. Unrecoverable error: the times of indicator flashing and buzzer sound indicate the error type, then indicator persistently light.

2. Recoverable error: the times of indicator flashing and buzzer sound indicate the error type, then indicator is persistently off.

3. Automatic recoverable error: the indicator flashes and the buzzer sounds continuously.

4. Paper out: the indicator lights and the buzzer sounds persistently.

The details are as below,

a. Unrecoverable error, the indicator flashes several times, then persistently lights. Then cycle. The times of flashing means the error type.

Error type	Description	Types of ERROR flashing
Unrecoverable error	LED flashes once : Memory read - write errors	
	LED flash twice: Over-voltage	
	LED flashes three times: the voltage is lack	
	LED flashes four times : CPU Execution error (wrong address)	
	LED flashes five times : UIB error	
	LED flashes eight times : temperature detection of circuit is wrong	

b. Recoverable error: the indicator continuously flashes and persistently off for a period.

Error type	Prescription	Type of flash
Recoverable error	LED flashes once .the place of cutter is wrong	

c. Automatic recoverable error: the indicator flashes continuously.

Error type	Description	Type of flash

Automatic recoverable error	LED continues flashing ： the temperature of printing head is over high and the cover is wrong	

2.5 Turn on the printer

When the printer is off and paper case cover is closed, press the POWER button to turn on the printer. The status indicator and Paper Out indicator flashes twice alternatively, then indicator off. The printer enters into the normal working mode.

2.6 Self-test

The self-test will check the condition of printer, if the printer prints out the self-test receipt correctly, it means the printer works normally except interface with host. Otherwise it needs to repair.

The self-test will print out: Manufacturer name, printer model, software version, interface type, default value of printer parameters, 96 ANK characters in ASCII code, content of default code-page (if language is set English) or name of Chinese character library (if the language is set Chinese), bar code type.

Way of self-test: hold down 【FEED】button and turn on the printer, At this time, printer will print out self-test receipt.

2.7 Hexadecimal Printing

Turn on the printer according to the steps below, it will enter the mode of Hexadecimal Printing

  1.Open the cover；

  2.Hold down【FEED】button，and connect with power；

  3.Close the cover, the printer will print out 3 lines as below:

   Hexadecimal Dump

   To terminate hexadecimal dump,

   Press FEED button three times.

This means the printer has entered hexadecimal printing mode, and under this mode, all of the input will be printed out as hexadecimal number, feed one line with single-click of "FEED" button, after 3 times, it will print out "***　Completed ***",and exit hexadecimal printing mode.

2.8 Printer parameter Settings

This function is for the setup of parameters.

Steps for setting parameters: When printer power is off, open paper case cover firstly, then press the 【FEED】 button and turn on the printer. After status indicator and paper out indicator flash twice alternatively, press 【FEED】 button twice, then close pape case cover. Printer enters into parameter setting mode and print out the first set parameter and its default value. The details method of setting parameter can refer to Appendix A.

Steps for exiting of parameter setup: open paper case cover and press the【FEED】 button; then close paper case cover and release the 【FEED】 button. The printer will save the setup of parameters, exit setting mode and enter the normal working mode.

The data will not be saved if turn off the printer directly.

2.9 Enter the program upgrade mode

When printer power is off，open paper case cover, hold down the【FEED】 button, then turn on the printer. After the status indicator and paper out indicator flash alternatively, release【FEED】 button. Then press 【FEED】 button five times and printer enters into the program upgrading mode. At this time, the indicator flashes once each second.
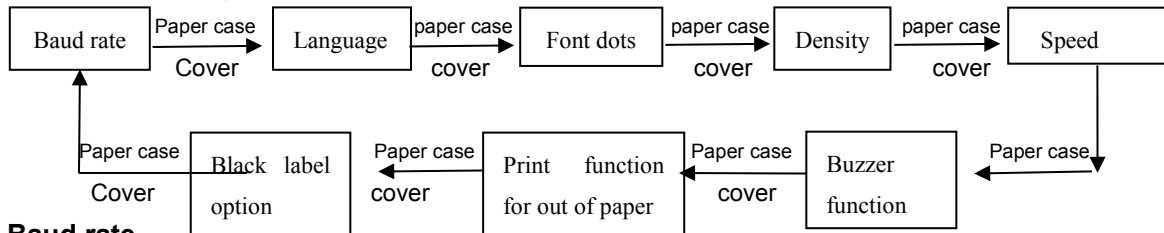
Quick method of entering this mode: when printer power is off, open paper case cover, hold down the【FEED】 button, then turn on the printer and release the 【FEED】 button. Printer enters into the program upgrading mode. At this time, the indicator flashes once each second.

Notice: After printer enters into Program Upgrading Mode, if paper out indicator lights, it means this interface can't support program upgrading. Only serial interface or USB interface can support program upgrading online.
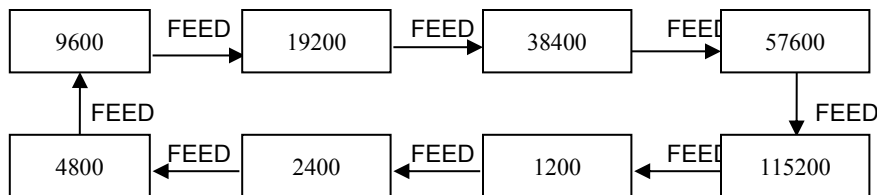
Appendix A: Parameter setting

This appendix is the method to set default parameters of printer by buttons.
Setup instruction: use the button of【paper case cover】to choose the setting items, change the item by press the button【paper case cover】, and print out the current value. Use the button of 【FEED】to set the parameter, the parameter will be changed by press the 【FEED】 button.
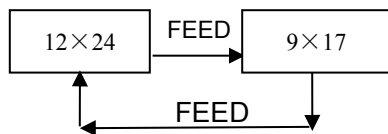
Summary setting：

| Baud rate | →Paper case Cover→ | Language | →paper case cover→ | Font dots | →paper case cover→ | Density | →paper case cover→ | Speed |

↑Paper case Cover | Black label option | ←Paper case cover← | Print function for out of paper | ←Paper case cover← | Buzzer function | ←Paper case← | ↓

Baud rate：

| 9600 | →FEED→ | 19200 | →FEED→ | 38400 | →FEED→ | 57600 |

↑FEED

| 4800 | ←FEED← | 2400 | ←FEED← | 1200 | ←FEED← | 115200 ↓FEED

Language：

| China | →FEED→ | China-BIG5 | →FEED→ | English |

←FEED

Font dots：

| 12×24 | →FEED→ | 9×17 |

FEED

Print Density ：

| Middle | →FEED→ | High | → | Low |

FEED

Print speed：

| 220mm/s | →FEED→ | 250mm/s | →FEED→ | 150mm/s | →FEED→ | 200mm/s |

FEED

Buzzer：

```
        ←─────────────────────────────────────

  ┌──────────┐  FEED  ┌──────────┐ FEE ┌──────────┐ FEED ┌──────────┐
  │   OFF    │──────→ │ Error ON │────→│  Cut ON  │────→ │  ALL ON  │
  └──────────┘        └──────────┘     └──────────┘      └──────────┘
       ↑                      FEED                              │
       └──────────────────────────────────────────────────────┘
```

Re-printing lack of paper：

```
  ┌──────────┐  FEED  ┌──────────┐
  │   OFF    │──────→ │    ON    │
  └──────────┘        └──────────┘
       ↑       FEED         │
       └────────────────────┘
```

Black label mode：

```
  ┌──────────┐  FEED  ┌──────────┐
  │   off    │──────→ │    on    │
  └──────────┘        └──────────┘
       ↑       FEED         │
       └────────────────────┘
```