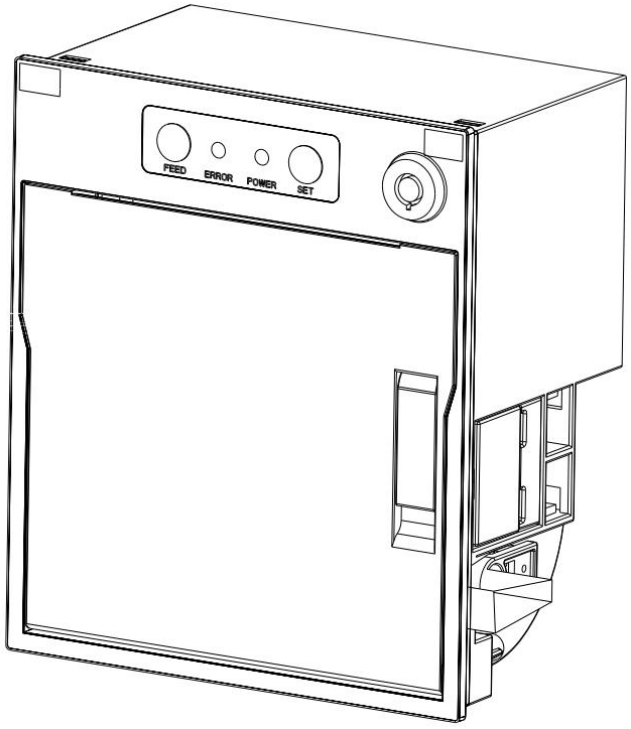
SPRT®

Thermal Receipt Printer User's Manual
SP-RME5



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Beijing Spirit Technology Development Co.,Ltd.

www.sprt-printer.com

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Introduction

SP-RME5 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.

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 170mm／sec.
- Reliability

(1)Print head life: 100km

Using condition:

＊Print 12 × 24 ANK characters, print 50 lines each time, intermittent print repeatedly

＊Use specified thermal paper

（2）Cutter life: 1000,000 cuts

●Using condition: less than 30 cuts/minute

● 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－－－ 79.5±0.5mm
Outer Diameter －－－ 60mm（max.）
Inner Diameter－－－ 13mm±0.5（min.）
Thickness －－－ 0.06mm～0.08mm

1.3 Print Font

● ANK Character Set
12×24 dots, 1.5（W）×3.00（H）mm
● GB18030(Chinese):
24×24 dots, 3.00（W）×3.00（H）mm.

1.4 Interface

● RS－232C Serial Interface:
IDC10 socket, supports XON/XOFF and DTR/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.
● USB Interface:
PH4 interface
● Parallel Interface:
IDC26 pin socket.
● Cash drawer control
DC24V, 1A, 6 cable RJ-11 socket.
● Bluetooth:
Dual mode Bluetooth and one-to-many Bluetooth

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 code, DATA Matrix bar code print.

1.6 Power Supply

● DC24V±10％，2A，2114s-02 power socket.

1.7 Operation Environment

● Operation temperature: 0～50℃; Operation humidity: 10～80％
● Storage temperature: -20～60℃; Storage humidity: 10～90℃

1.8 Outline Dimension

Installation size: 111.5mm×128.5mm(W×H)　　Depth: 77mm

Outline dimension: 115mm×132mm×82.5mm(W×H×D)

Please check outline dimension in the below picture 1-1:

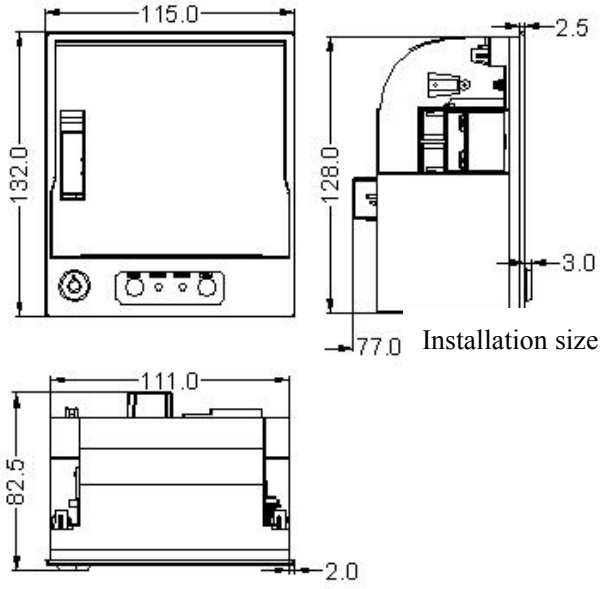
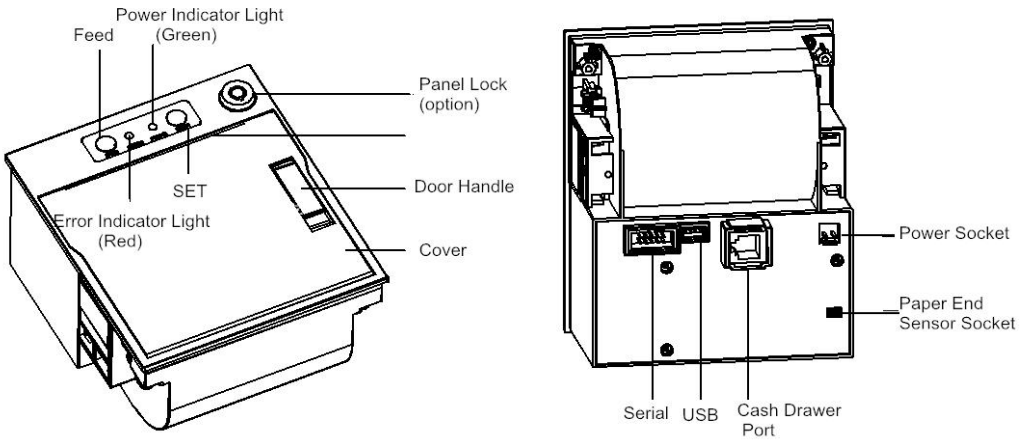


Fig.1-1 SP-RME5 outline dimensional drawing

Chapter 2 Operation Specification

2.1 Printer Appearance

About the name of each part of printer, please refer to picture 2-1:



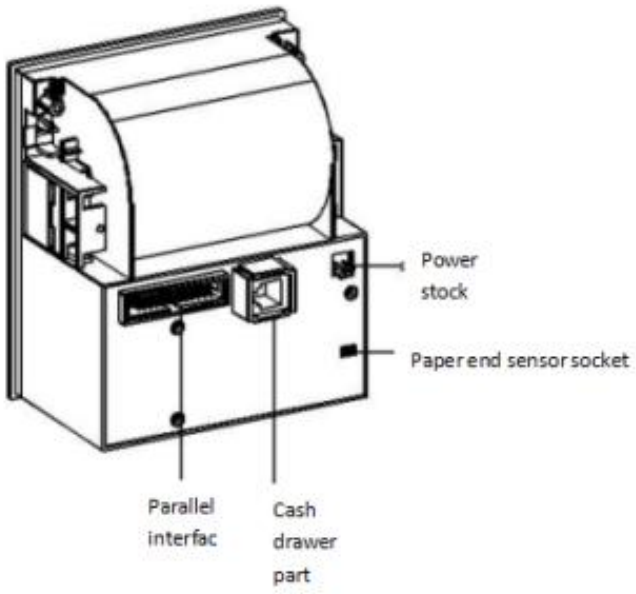


Fig.2-1 Printer Appearance

2.2 Installation of the printer

Embedded printer in the installing hole of customer's panel. open the printer paper cover, clockwise to tighten the two screws to complete the installation of the printer . Print installation shown in Figure 2-2.

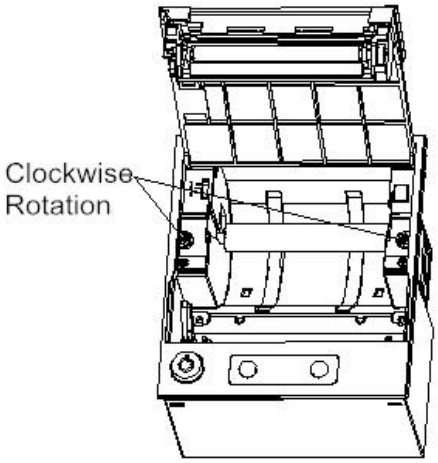


Fig. 2-2

2.3 Paper Installation

2.3.1 Paper Loading

SP-RME5 adopts 79.5mm±0.5mm 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, 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.

2.4 Interface

2.4.1 Serial Interface

The serial interface of SP-RME5 printer is compatible with RS-232C, supports DTR/DSR and XON/XOFF handshaking protocols, uses IDC10 socket. The pin order of the serial port is as Fig.2-3 shows:

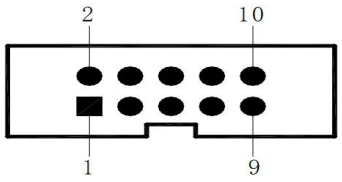


Fig.2-3 Pin Order of Serial Port

The pin assignment of serial interface is shown in Fig. 2-4:

Pin No.	Signal Name	Signal Direction	Source	Description
2	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.
3	TXD	Output	Printer	Printer transmits control code X-ON/X-OFF and data to host
4	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.
5	RXD	Input	Host	Printer receives data from host
6	RTS	Output	Printer	Same with Pin No.2 DTR Signal
9	GND	----------	----------	Signal Ground

Fig. 2-4 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-RME5 can be connected to standard RS-232C interface. When it is connected to IBM PC or its compatible machine, connection can accord to Fig.2-5.

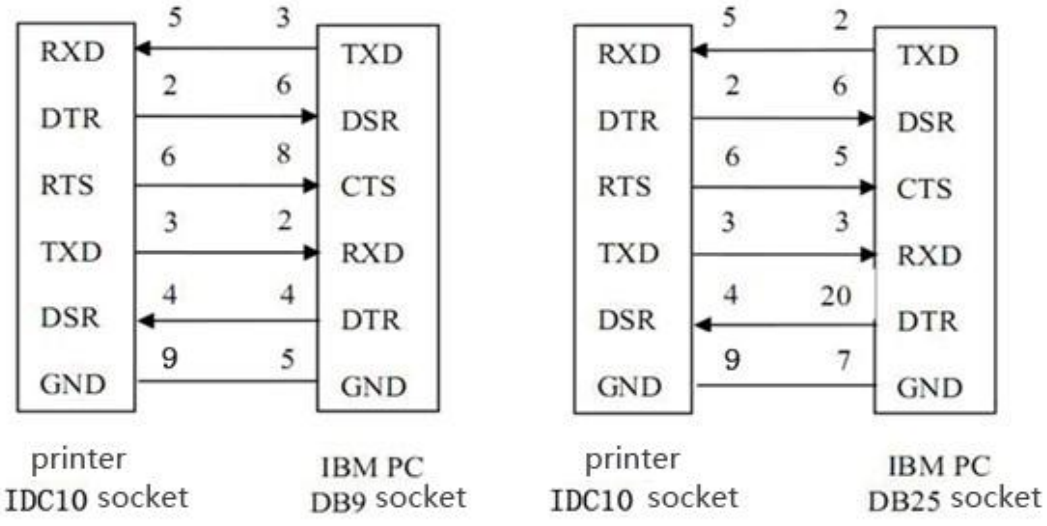
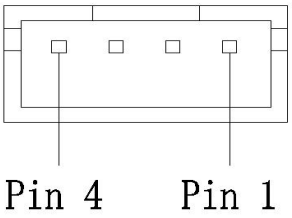


Fig.2-5 Connection between SP-RME5 and IBM PC Serial Interface

2.4.2 USB interface

The USB interface of the SP-RME5 printer is PH-4A interface, outer appearance and pin assignment is shown in Figure 2-6:

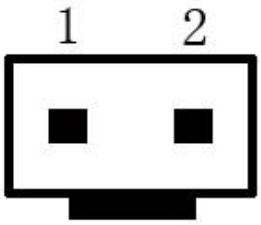


PIN Assignment	Function	Reference
1	V BUS	Power + 5V
2	Data-	Data -
3	Data+	Data +
4	GND	Ground

Figure 2-6: USB socket and pin definitions

2.4.3 Power Connection

SP-RME5 printer uses the external power supply adopter as 24V±10％、2A, power socket is 2114S-02 model, as Fig. 2-7 shows:

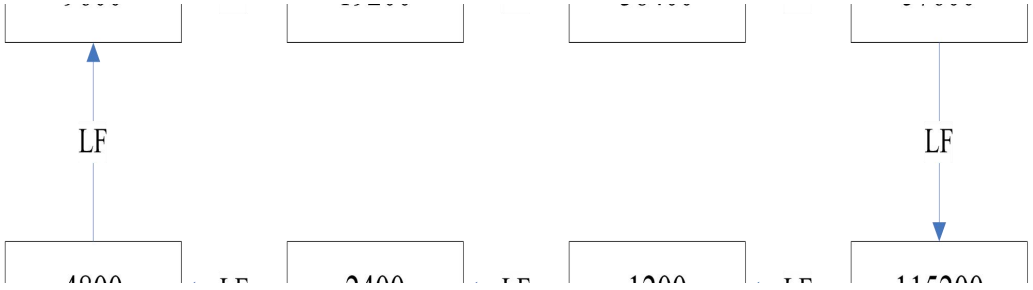


PIN NO	signal
1	24+VCD
2	ground

Fig.2-7: Power Socket

2.4.4 Parallel interface connection

The parallel interface of SP-RME5is compatible with CENIRONICS standard，and the interface socket is 26-pin flat cable socket,or its substitute for connecting with it .the pin order if parallel port is showed as below:



Pin No.	Signal	Direction	Explanation
1	/STB	in	Strobe pulse to latch date reading occurs at rising edge.
3	DATA1	In	These signals represent the 1st bit 8th bit of the parallel date representative ,each signal is at HIGH level when data is logic1,and LOW when data is logic 0
5	DATA2	In	
7	DATA3	In	
9	DATA4	In	
11	DATA5	In	
13	DATA6	In	
15	DATA7	In	
17	DATA8	In	
19	/ACK	Out	Answering pulse ,LOW level signal indicated that data have already been received and the printer gets ready to receive the next data
21	BUSY	OUT	HIGH level signal indicates that the printer is BUSY and can not receive data .
23	/PE	OUT	HIGH means printer is out of paper ; LOW means there is paper .
25	SEL	---	It is raised to “HIGH” level through electric resistance and means the printer is ONLINE .
4	/ERR	OUT	HIGH means trouble free
2、6、8	NC	---	Unconnected
10、12、14、16、18、20、22、24	GND	---	Ground-connected .The logic is “0” level .

Notice: ① “in” means sending into the printer. Out means sending out from printer.
② The logic electrical level if signal is TTL electrical level .

2.4.5 Bluetooth Connection

Hand-held device, laptop and other information terminal devices with Bluetooth can drive SP-RME5 to print by the Bluetooth interface. SP-E5 portable printer is compatible with Bluetooth2.0 standard. Power class is CLASS 2, effective communication distance is 10 meters. The Bluetooth of the printer belongs to the

slave device. The initial name of the printer is E5 BT Printer, the initial password is '1234'; users can change the printer name and password by using<SP-E5 Setting Tools> software. Please see the details in help file of <SP-RME5 Setting Tools>.

Before working, SP-RME5 Printer needs to be paired with primary device. Pairing begins from the host device. Usual pairing course is as below:

1. Power on printer;
2. Host device searches for the outer Bluetooth device;
3. If there are other Bluetooth devices, please select E5 BT Printer;
4. Enter the password '1234';
5. Pairing finished.

Please see details in primary device Bluetooth function instruction for reference.

Illustration:

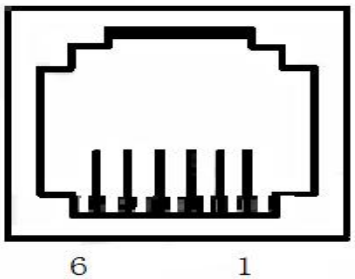
The Bluetooth of SP-E5 divided into dual mode Bluetooth, one-to-many Bluetooth and IOS Bluetooth. Dual mode Bluetooth supports Android device and one IOS 4.0 device, and only one device can connect with the printer at the same time. One-to-many Bluetooth supports seven Android devices and one IOS device connect printer simultaneously. IOS Bluetooth supports IOS 2.0 device.

Notice:

1. When pairing, please make SP-E5 printer switch on.
2. Once the Bluetooth of SP-E5 paired with the host Bluetooth device successfully, it can't be paired with other Bluetooth device until it unconnected with the host device.

2.4.6 Cash Drawer Interface

The cash drawer interface of RME5 printer is RJ-11, 6 pin socket as below:



The pin assignment of the cash drawer interface is as follows:

Pin No.	Signal	Direction
1	Chassis Ground	——
2	Cash drawer driver	Out

3	Cash drawer on/off status signal	In
4	+24VDC	——
5	NC	——
6	Cash drawer on/off status signal ground	——

2.5 Buttons and Indicators

There are two buttons, one inner buzzer and two indicators for RME5.

【SET】is setting button,【SET】is used with【FEED】button to set parameters.

【FEED】is paper feeding button,Print command can be used to enable or disable the button switch function, in the allowed button control state, press【FEED】button, the printer will feed paper, loose 【FEED】 button, then stop.

The lock it used to lock button and paper cover, When the printer is locked, the paper cover will be opened normally, and all the button will not be operated;

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 ERROR light is error status indicator. It is off when the printer works normally; while it flashes or persistently lights when the printer has abnormal alarm.

If ERROR indicator flashes or persistent lights 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.

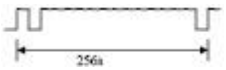
2. Recoverable error: the times of indicator flashing and buzzer sound indicate the error type, then indicator is persistently off.

3. Automatically 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 flashes 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. Automatically recoverable error: the indicator flashes continuously.

Error type	Description	Type of flash
Automatically recoverable error	LED continues flashing ： the temperature of printing head is over high and the cover is wrong	

2.6 Turn on the printer

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

2.7 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.

Self-test method: In the off state, [paper cover] closes and ensures that the printer has paper, press and hold the [FEED] button and turn on the power.

At this time, the red indicator will flash at the frequency of 1s flashing, and the [FEED] button will be released within 3 times of the indicator flashing.

The printer will prints a self-check receipt. Self-test can detect whether the printer is working properly, if it can print out the self-test spline correctly, then means except for the interface with the host, the printer is all normal, otherwise it needs to be overhaul.

The content is as below picture 2-7:

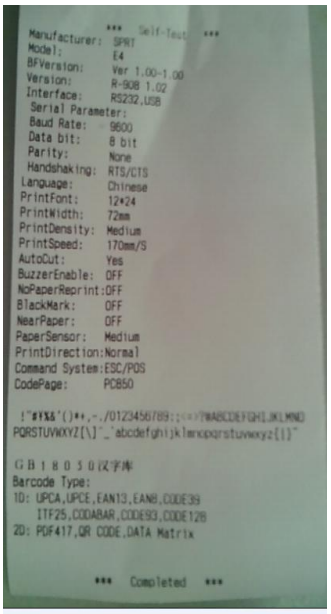


Fig. 2-7

2.8 Hexadecimal Printing

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

In the off state, when the [paper cover] is open, press and hold the [FEED] button, power on, close the paper 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. Paper will feed one line with single-click of “FEED” button, after 3 times, it will print out “*** Completed ***”, and exit hexadecimal printing mode.

2.9 Setup of printer parameter

This function is for the setup of parameters.

Steps for setting parameters: Power off, press【SET】button and power on, release 【SET】after error indicator light flickers, press 【FEED】 twice, press 【SET】once again, printer will enter into parameter setup mode. Printer will print the first parameter which can be set and its current setup; Details can be checked on attached Appendix A.

Steps for exiting of parameter setup: Press 【SET】 button and【FEED】

button at the same time to save the setup of parameter and exit, the printer will enter into normal mode.

If power off directly, parameters will not be saves.

2.10 Entering program upgrading mode

When printer powers off, press【FEED】and【SET】buttons, power on and release the buttons. Printer will enter into upgrading mode, status indicator light will flicker every one second.

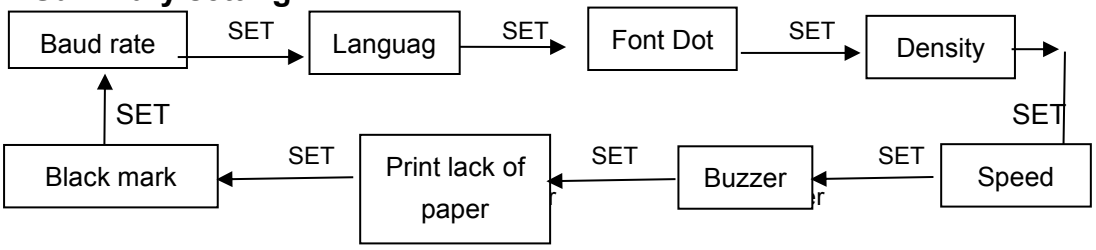
Notice: Serial interface, USB interface and parallel interface can support program upgrading online.

APPENDIX A: Parameters Setting

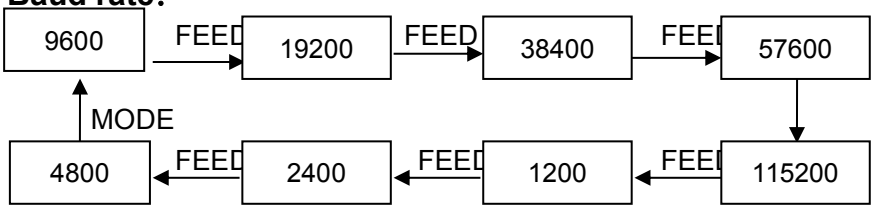
This appendix is the method of setting default parameters of printer by buttons.

Setting instruction: Using 【SET】 button to choose setting item. Pressing this button once, the setting item will go to the next and also print out the current value of this item. Using 【FEED】button to choose the setting value of item. Press the button once, the setting value will go to the next.

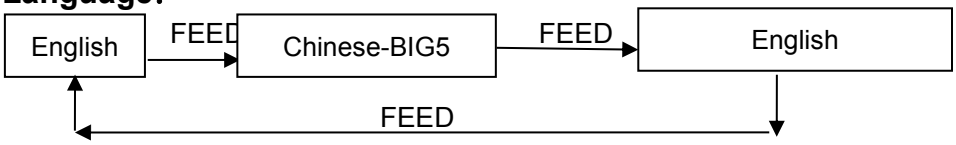
Summary setting:



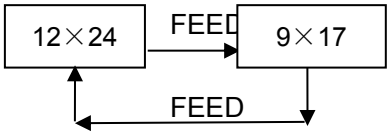
Baud rate：



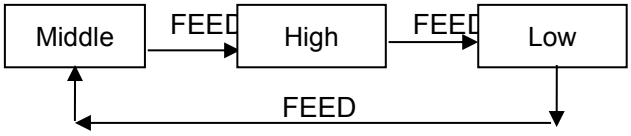
Language：



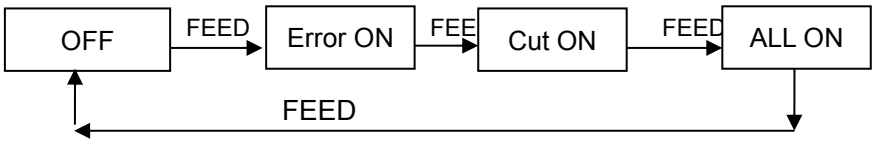
Font：



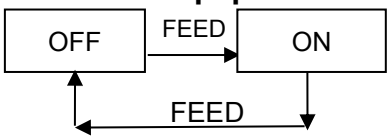
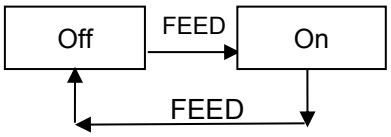
Density：



Buzzer:



Print lack of paper:



Black mark：