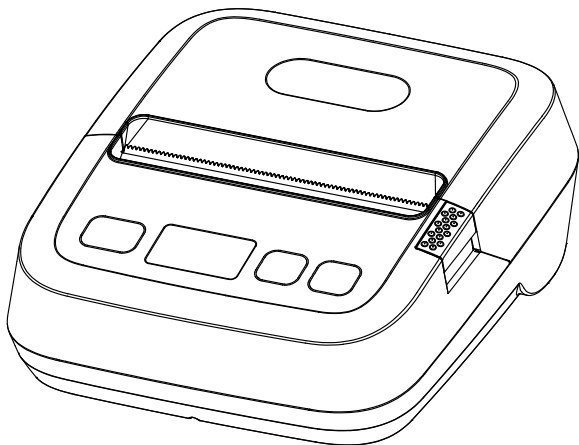


User Manual



VER 1.00

Beijing Spirit Technology Development Co.,Ltd

www.sprinter.com.cn

Content

NOTICE.....	1
Notice of Safety	1
Notice of Using	2
Notice of Storing	3
Chapter 1 Outer Appearance.....	4
Chapter 2 Characteristic Specification	5
2.1 Printing Specification	5
2.2 Physical Parameters.....	6
2.3 Environment Parameters	6
2.4 Other Specification.....	7
Chapter 3 Operation Method	8
3.1 Using Preparation	8
3.1.1 Battery Installation.....	8
3.1.2 Paper Roll Installation	9
3.2 Basic function usage.....	9
3.2.1 Switch On	10
3.2.2 Switch Off.....	10
3.2.3 Self-Test.....	10
3.2.4 Paper Feeding (Manual Feeding)	11
3.2.5 Hexadecimal Printing.....	11
3.2.6 Printer Parameters Setting.....	12
3.2.7 Battery Charging	13
3.2.8 Set Into Upgrading Mode	14
3.3 Printer Parameters Setting.....	14
3.4 Printer Interface Connection and Printing.....	15
3.4.1 Serial Port Connection.....	15

3.4.2 USB Connection	16
3.4.3 Bluetooth Connection	17
3.5 Buzzer	19
3.6 LCD indication	19
Chapter 4 Other Information	21
4.1 Command Programming Manual	21
4.2 Description of pre-printed Black Mark	21
Appendix A.....	23
Appendix B.....	26

NOTICE

Please read this manual carefully before using the printer!

Notice of Safety

Be sure to use the specified battery and power supply provided by our company. Otherwise it may cause fire, explosion or damage printer, meanwhile, the battery also may be damaged.

Don't put battery into the fire, don't disassemble or heat the battery, don't be short circuit, it may cause fire, explosion or damage printer; meanwhile, the battery also may be damaged.

If the printer would not be used for a long time, be sure to take off the battery, otherwise the battery may leak liquid which is corrosive liquid,

If improper operation causes battery leak liquid, and it paste in the skin or clothes, please rinse it by clean water, if paste in the eyes, please rinse them thoroughly by clean water and see a doctor.

Please do not open the paper case cover when it is printing or just when printing is finished, do not touch the printer head with hand or body, overheat may cause

scald.

Notice of Using

Please do not print the receipt with over 1m length. Otherwise, it may cause the damage of printing mechanism.

Water or other liquid should not be spilled into the printer, also the printer should not be appeared in the rain, or else may cause printer damage.

Please do not open the paper case cover when it is printing, otherwise the printer may work improperly.

If printer is using USB connection to work, should not unplug the USB cable, or else some printing data may be lost. When printer is using USB connection to work, the distance of communication should be within 10 meters, otherwise the printer doesn't print or prints rubbish codes.

Too high (45 ℃) or too low (5 ℃) environment temperature and too high (85%) or too low (20%) environment humidity both effect the printing quality.

The printer paper roll with poor quality or stored for too long time also may reduce the printing quality even damage the printer.

Under the black mark detecting mode, the printer requires that the pre-printed black mark is accordant with the printing rule of black mark (please refer to details in

Chapter 4.2), otherwise the black mark can not be detected correctly.

Be sure to use up the power of the battery before charge up it, as it can ensure the using life of the battery.

Notice of Storing

The printer should be placed in such an environment that the temperature is between -20 °C and 60 °C and the relative humidity is between 10% and 90%.

If the printer will be stored for a long time, please be sure to take out the battery, otherwise may damage the battery and printer.

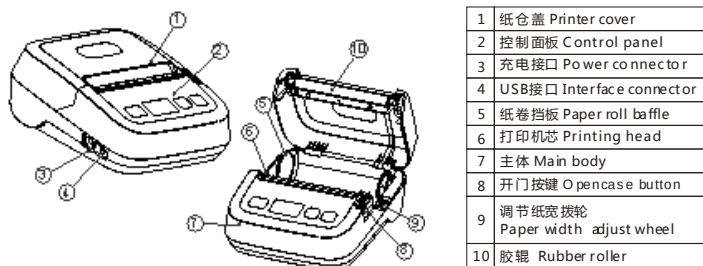
Declaration

It is A class product, which may cause radio interference in the living environment. In this situation, users need to take feasible and effective measures.

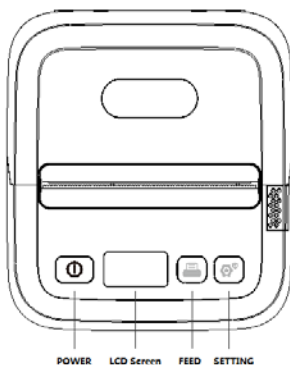
Chapter 1 Outer Appearance

1.1 Outer Appearance

SP-L51 thermal printer



Pic.1



Pic.2

1.2 Model Number

SP-L52 Support USB and Bluetooth Interface as default

Model No.	Interface
SP-L52US	USB+Serial port
SP-L52BTMM	Bluetooth (Android and IOS)+USB
SP-L52BTDM	Bluetooth (Android and IOS)+USB
SP-L52i	IOS 2.0 Bluetooth + USB
SP-L52U	USB

Chapter 2 Characteristic Specification

2.1 Printing Specification

Printing Method: Thermal line

Paper Width: 112mm±0.5mm;

104mm±0.5mm;

79.5mm±0.5mm;

58mm±0.5mm;

Effective Printing Width: 104mm; 100mm;72mm;

48mm;

Resolution: 8dots/mm (203dpi)

Dots in each line: 112mm: 832dots/line;

104mm: 800dots/line;

78mm: 576dots/line;

58mm: 384 dots/line;

Printing Speed: Max 80mm/s

Paper Thickness: 60~140μm

Printable Content:

Character set: GB18030(Chinese)

BIG5(traditional Chinese),

GB12345(traditional Chinese),

Shift+JIS(Japanese),

ASCII, Custom Charest, figure

Bar code:

1D:UPCA,UPCE,EAN13,EAN8,CODE3

9,ITF25,CODABAR,CODE93,CODE 128

2D: PDF417,QR CODE,DATA Matrix

2.2 Physical Parameters

Dimension (W×L×H): 69 (L) X 150.3(W) X70 (H) mm

Physical Weight: 624g (excluding roll paper)

Paper Roll Diameter: Max 58.0mm

Interface: USB, Bluetooth ,Serial port

2.3 Environment Parameters

Operating Temp: 0 °C~50°C

Operating Humidity: 10%~80%

Storage Temp: -20 °C~60°C

Storage Humidity: 10%~90%

2.4 Other Specification

- Paper Loading Method: drop-in easy paper loading (please refer to details in 3.1.2 Paper Roll Installation).

- Black Mark Location: available(details please see 4.2 pre-printed black mark manual).

- Printing Control Command: ESC/POS compatible command set/CPCL command set

(Refer to<Portable Printer Command Program Manual >).

- Power Supply: 7.4VDC/2300mAh rechargeable polymer lithium battery.

- Power Alarm: when the battery is low, the battery indicator on LCD blinks

- Battery Charging: quick charging, it will be charged full about 2 hours;

- Auto Sleep: printer will auto sleep when it have not received printing data or key operation in 5 seconds, press FEED button/MODE button/Power switch or printer receive any printing data in auto-sleep period will wake up the printer.

- Battery Duration: under25% printing density, at least 200 meters, the standby time is over 6 days. These parameters are just for reference; long term usage will cause the capacity decline, and cannot ensure the time

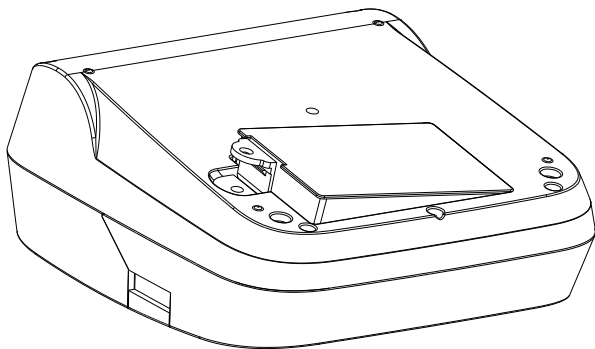
of printing.

Chapter 3 Operation Method

3.1 Using Preparation

3.1.1 Battery Installation

1. Put the battery into the battery slot from the side with pins and press the other side into case. (as below Pic.3)

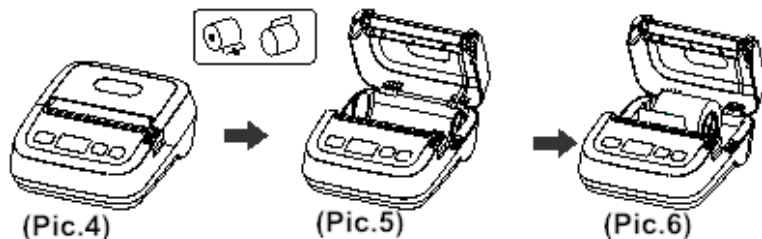


Pic.3

3.1.2 Paper Roll Installation

Installation procedures:

- ◆ Press cover open button 8, open paper cover (Pic.1) .
- ◆ Push wheel 9 forward, put a new paper roll in(Pic.2).
- ◆ Push wheel 9 backwards, keep the paper baffle against the end of the paper roll and cover the paper cover (Pic.3).



3.2 Basic function usage

Paper Type: Thermal paper, Black mark paper and Label paper.

Standard Mode: 112mm, 104mm, 80mm and 58mm; Standard 44mm mode. Under Standard mode, paper type is thermal paper as default.

Set the print mode and paper type by Setting Tool.

3.2.1 Switch On

Press **【POWER】** button then you will hear 'one low one high 'prompt tone. The LCD shows "Loading...", then the printer turns into work mode when loosen the **【POWER】** button. The LCD shows printer parameter.

3.2.2 Switch Off

Under status of switch on, the printer will send out the prompt tone of 'one high one low ' after pressed the **【POWER】** button, the LCD turns off, then loosen the **【POWER】** button, the printer is off.

3.2.3 Self-Test

After receiving the printer, users can check its current setting and status at anytime. Self-test method is as below: Power off, then hold down the **【FEED】** button and press the power button at the same time. Then loosen the **【FEED】** button and Power button after you hear 'one low one high 'prompt tone, the current setting and status will be printed out.

3.2.4 Paper Feeding (Manual Feeding)

Under power on status and using the thermal receipt paper, press **【FEED】** button, the paper feeding begins, and stop when loosen **【FEED】** button. When the printer uses black mark paper and label paper, press **【FEED】** button, the printer begins to feed paper and stops over the position of black mark or label spacing. If the paper is not the black mark or label paper, the printer stops automatically after feeds paper for 26cm. And also alarm the error if under label paper mode.

3.2.5 Hexadecimal Printing

The function of hexadecimal printing is to print the information received from host machine by hexadecimal numbers and corresponding characters. It will be convenient to debug application.

Enter into hexadecimal printing: Power off, hold the **【MODE】** button and press the power button, then loosen the power button and press the **【FEED】** button after you hear 'one low one high' prompt tone of power on. After that you may loosen the **【MODE】** button and **【FEED】** button. The printer enters into hexadecimal printing mode, LCD shows hexadecimal mode and print hexadecimal mode prompt message.

Quit hexadecimal printing: Switch off the printer or press the **【FEED】** button three times and enter into normal working mode. The printer will also print the presentation which shows that the printer have quit hexadecimal printing mode.

3.2.6 Printer Parameters Setting

Set simple printing parameters according button operation. There are two methods of entering into parameter setting mode, which can set different parameters.

A. Under the state of power off, hold down **【MODE】** button then press **【POWER】**. Then loosen the **【POWER】** button and **【MODE】** button orderly when you hear 'one low and one high' prompt tone, the printer turns into parameters setting mode. Press **【FEED】** button or **【MODE】** button, LCD shows the first parameter which can be set and the current numerical value. (Refer to Appendix A.)

Quitting parameter setting:hold **【MODE】** button, press **【FEED】** button, then loosen **【MODE】** button and **【FEED】** button. Saving the set parameter and exiting the parameter setting mode. The setting parameters won't be saved if you directly press the **【POWER】** button to turn off the printer.

B. Under the state of standby mode, press **【MODE】** button to enter into parameter setting mode. Use the **【MODE】** button and **【FEED】** button in combination, press **【MODE】** button to select the setting parameter item, and use the **【FEED】** button to select the sub-menu of parameter item.(Refer to Appendix B.)

Wait for 5 seconds to save parameters value and quit setting mode automatically.

3.2.7 Battery Charging

The battery will run out after a period of usage. When it nearly runs out, printer will give a alarm through the battery indicator flashing on LCD, at this time, users need to charge up the battery.

The charging method is as following: connecting the adapter to the power socket with 220V, 50HZ, then plug the power charging plug to the power socket of the printer, so the power charging begins. During the course of power charging, the charging indicator **【CHARGE】** goes red, and **【CHARGE】** turns to green when the charging is full.

Please don't use printer when it's charging.

3.2.8 Set Into Upgrading Mode

In the status of power off, press the **【MODE】** button and **【FEED】** button, then press the Power button, hear 'one low one high' prompt tone, loose all the button immediately, then the printer enters upgrading mode, the LCD shows upgrading mode.

Please note: USB and serial interfaces can support online program upgrading.

3.3 Printer Parameters Setting

Users can set more parameters by using the specified <SP-L52 Setting Tools> software through computer. The setting includes: language、font、printing density、default code page、Bluetooth device name and password, printing mode etc. About the setting method please refer to the <SP-L52 Setting Tools Software Help>, offered with the software together.

3.4 Printer Interface Connection and Printing

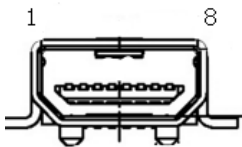
3.4.1 Serial Port Connection

The optional configuration of SP-L52 includes one 9 holes/MINUSB 8P(the other end is the MINUSB 8P plug, connected with printer).

The serial port of printer is Uart asynchronous serial Interface, which can work under the Baudrate of 1200bps、2400bps、4800bps、9600bps、19200bps、38400bps 57600bps、115200bps.The outer appearance and pins are as below picture:

PIN NO	FUNCTION	REMARKS
1, 2	VCC	POWER+
3	CTS	When the signal is 'Mark', it means printer is too busy to receive data, when the signal is 'SPACE', it means printer is ready to receive data
4	RXD	Printer receive data from main engine
5	DSR	When the signal is 'SPACE', it means the status of printer is online

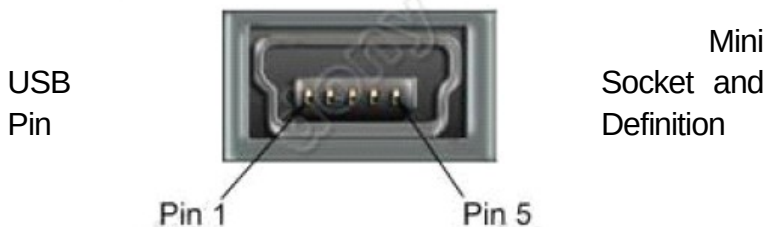
6	TXD	Printer send data for main engine, when use X-ON/X-OFF handshake Protocol, printer send control code X-ON/X-OFF for printer
7, 8	GND	GND, POWER-



3.4.2 USB Connection

The standard accessories of SP-L52 printer includes Mini USB cable which connects printer and main device. The USB type belongs to the slave device type. Pins description of Mini-USB as below:

Pin	Function	Notes
1	V Bus	Power +5V
2	Data-	Data-
3	Data+	Data-
4		Blank
5	GND	Ground



3.4.3 Bluetooth Connection

Hand-held device, laptop and other information terminal devices with Bluetooth can drive SP-L52 to print by the Bluetooth interface. SP-L52 portable printer is compatible with Bluetooth2.0 standard. Power class is CLASS 2, effective communication distance is 10meters. The Bluetooth of the printer belongs to the slave device. The initial name of the printer is L52 BT Printer, the initial password is '1234'; users can change the printer name and password by using<SP-L52 Setting Tools> software. Please see the details in help file of <SP-L52 Setting

Tools>.

Before working, SP-L52 Portable Thermal 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 L52BT 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-L52 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-L52 printer switch on.
2. Once the Bluetooth of SP-L52 paired with the host Bluetooth device successfully, it can't be paired with other Bluetooth device until it unconnected with the host

device.

3. Bluetooth Icon on printer LCD shows the connection status after paired successfully.

3.5 Buzzer

There is also a buzzer to indicate various status of the printer. The meanings are as below:

One low one high: power on;

One high one low: power off;

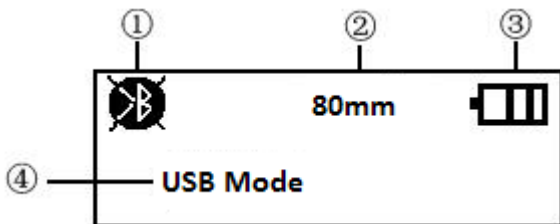
Circulation continuous two lows: printer at error status.

3.6 LCD indication

Turn on the printer, the LCD shows “Loading...”, and shows the relevant information after printer initialization. If printer didn't receive any data or connect with any device within 5seconds, the display will turn off showing automatically. But it'll show again

until printer receive data or connect with device.

1. Standard mode:



① When the icon is  , it means there's no Bluetooth connection; When the icon is  , it means the Bluetooth is on connecting state.

② It shows the different paper type, 112mm, 104mm, 80mm、58mm

③ The current capacity level of printer battery icon. The different icons    shows the current battery level. When it comes to low battery level, it'll become to show this icon  with flickering.

④ Text indication display. Printer current state is showed by text.

It shows USB mode when the printer have not connected with external device.

It shows USB connected when the printer connect with main device via USB.

It shows USB communicating when the printer received data via USB connection.

It shows serial communicating when the printer received data via serial port.

It shows Bluetooth connected when the printer connect with main device via Bluetooth and open the corresponding port.

It shows USB and Bluetooth connected when the printer connect with main device via both Bluetooth and USB.

It shows Bluetooth communicating when the printer received data via Bluetooth connection.

Chapter 4 Other Information

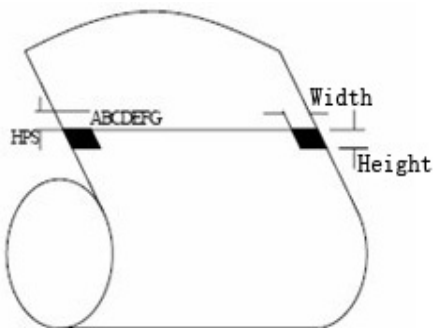
4.1 Command Programming Manual

<SP-L52 Technical Manual> is a technical manual for engineer to develop printer utility, and users can claim our company for it.

4.2 Description of pre-printed Black Mark

If user use pre-printed black mark to locate the receipt, please be sure to abide by the following pre-printed black mark regulation when print the black mark paper. Otherwise, it will cause that the printer cannot identify the black mark.

The black mark pre-print regulations are as below:



Printing Position: As the picture above, the black mark should be printed on the right edge of the side of words (both sides of the paper is available).

Width range: $\text{width} \geq 7\text{mm}$

Height range: $4\text{mm} \leq \text{height} \leq 6\text{mm}$

Reflectivity of infrared ray : $< 10\%$ (infrared ray reflectivity of other parts of the black mark paper is $> 65\%$)

HPS: It is the distance between edges of black mark and loading position.

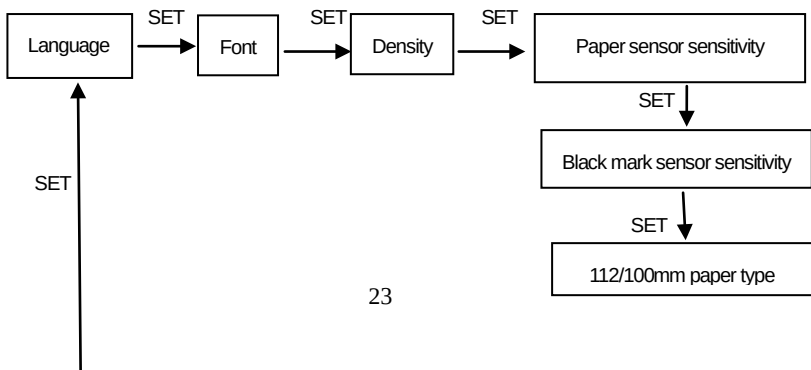
$4.5\text{mm} \leq \text{Hps} \leq 6.5\text{mm}$

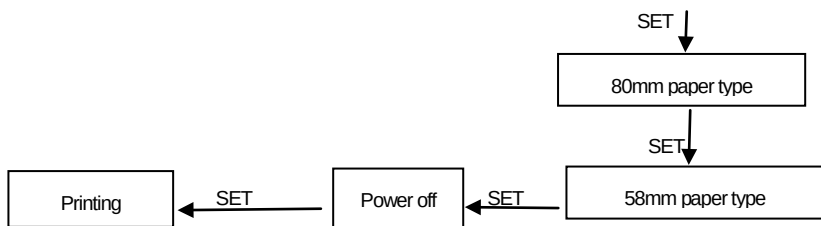
Appendix A

Setting introduction: Press【MODE】button to choose setting, when press it once, the set become the next one and it will print the present set value; use 【FEED】 button to set the set value, when press it once, the set become the next one and it will print the present set value.

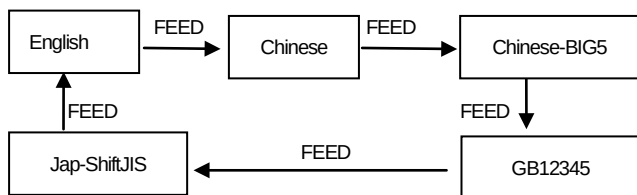
After setting, press 【MODE】 and 【FEED】 button together, it'll save the current value and printer enters into normal operation state. Otherwise it won't save the value.

General Setting:

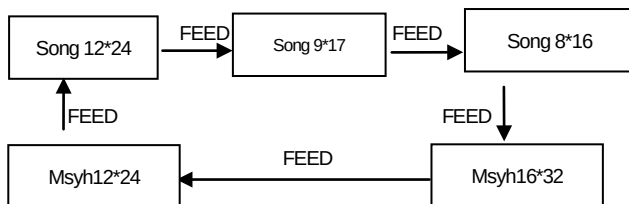




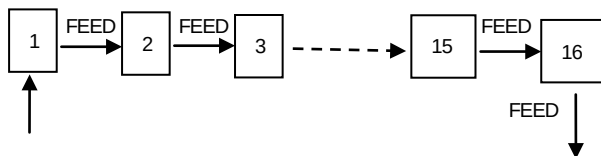
Languages:

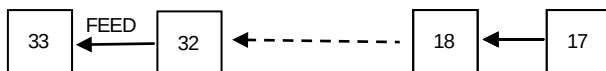


Font:

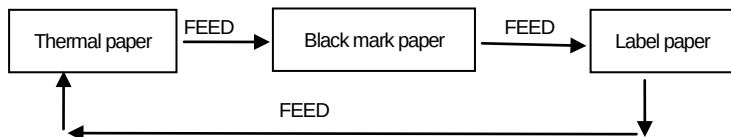


Paper Sensor Sensitivity:

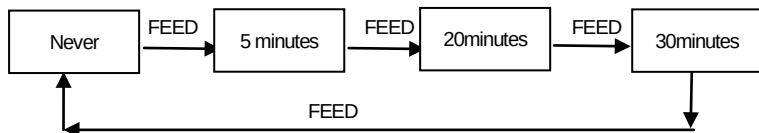




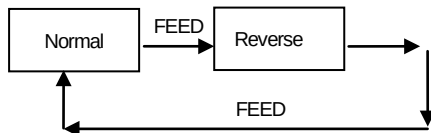
(112/100mm)/80mm/58mm Paper Type:



Power off Mode:



Printing Direction:

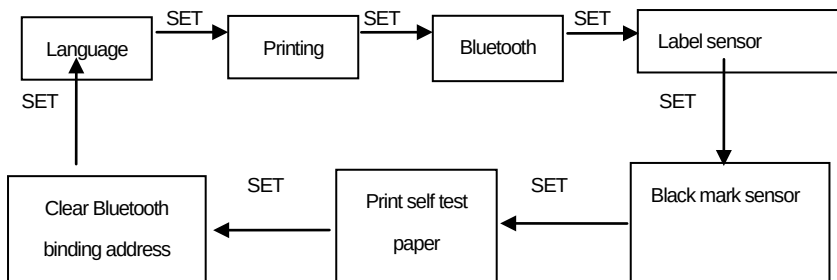


Appendix B

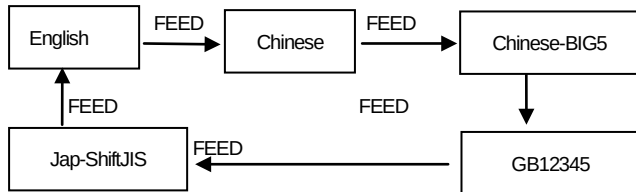
Setting introduction: Press【MODE】button to choose setting, when press it once, the set become the next one and it will shows the present set value; use【FEED】button to set the set value, when press it once , the set become the next one and it will print the present set value.

After setting, it'll quit the Setting mode automatically and save the current value after 5 seconds.

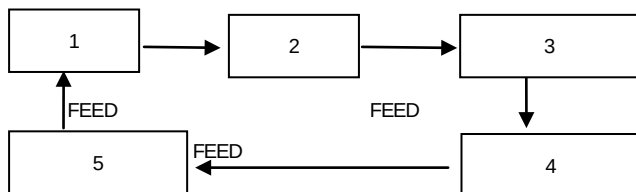
General Setting:



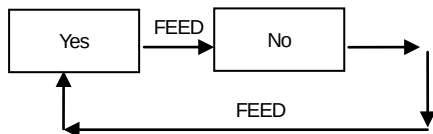
Languages:



Print Density:



Bluetooth visible:



Label Sensor Setting:

Under standard mode, set as label paper under paper mode. Press **【MODE】** button, adjust the setting items to label sensor setting, then press **【FEED】** button, the printer will feed paper by 260mm, and print out the self-test paper for max power voltage, min voltage, set

threshold voltage and the voltage difference value between the max and min voltage. It'll save the value after 5 seconds.

Black Mark Sensor Setting:

Under standard mode, set as black mark paper under paper mode, put black mark paper into printer, (press **【MODE】** button, adjust the setting items to black mark sensor setting, then press **【FEED】** button, the printer will feed paper by 260mm automatically, and print out the self-test paper for max power voltage, min voltage, set threshold voltage and the voltage difference value between the max and min voltage. It'll save the value after 5 seconds.

Manufacture has right to amend the content of the instruction without prior announcement!

FCC Caution:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B 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 can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that 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 to correct the 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.