USER'S MANUAL

Thermal Printer

BT-UL80II

Shandong New Beiyang Information Technology Co., Ltd.

Declaration

Information in this document is subject to change without notice. SHANDONG NEW BEIYANG INFORMATION TECHNOLOGY CO., LTD. (hereinafter referred to as "SNBC") reserves the right to improve products as new technology, components, software, and hardware become available. If users need further data about these products, please feel free to contact SNBC or our local dealer.

No part of this document may be reproduced or transmitted in any form or by any means for any purpose without the express written permission of SNBC.

Copyright

Copyright © 2024 by SNBC

Printed in China

Version 1.0

Trademark

Our Registered trademark:

Warning and caution

Warning: Items shall be strictly followed to avoid injury or damage to body and equipment.

Caution: Items with important information and prompts for operating the printer.

SNBC has been approved by following certifications:

ISO9001 Quality Control System Certification

ISO14001 Environmental Management System Certification

ISO 45001 Occupational Health and Safety Management System Certification

IECQ QC 080000 Hazardous Substance Process Management System Certification

Safety Instructions

Before installing and using the printer, please read the following items carefully.

1 Safety warning

Do not touch the cutter of printer.

The print head is a thermal element and it is at a high temperature during printing or just after operation, therefore do not touch it or its peripherals for safety's sake.

The print head is an ESD-sensitive device. To prevent damage, do not touch either its printing parts or connecting parts.

2 Cautions

1) Install the printer in a flat and stable place;
2) Reserve adequate space around the printer so that the operation and maintenance can be performed conveniently;
3) Keep the printer far away from water source, and do not expose the printer to direct sunlight, strong light and heater;
4) Do not use or store the printer in a place exposed to heat of fire, moisture or serious pollution;
5) Do not place the printer in a place exposed to vibration or impact;
6) No condensation is allowed to the printer. In case of such condensation, do not turn on the power until it has completely gone away;
7) Connect the printer power to an appropriate grounding outlet. Avoid sharing one electrical outlet with large power motors or other devices that may cause the fluctuation of voltage;
8) Disconnect power when the printer is deemed to idle for a long time;
9) Don't spill water or other electric materials into the printer (e.g. metal). In case this happens, turn off the power immediately;
10) Do not allow the printer to start printing when there is no recording paper installed, otherwise the print head and platen roller will be damaged;
11) To ensure quality print and normal lifetime, use recommended paper or its equivalent;
12) Shut down the printer when connecting or disconnecting interfaces to avoid damages to control board;
13) Set the print darkness to a lower grade as long as the print quality is acceptable. This will help to keep the print head durable;
14) Do not disassemble the printer without permission of a technician, even for repairing purpose;
15) Keep this manual carefully in hand for usage and reference.

Contents

1 Overview ..... - 1 -

1.1 Introduction ..... - 1 -
1.2 Main features ..... - 1 -

2 Technical Specification ..... - 2 -

2.1 Main technical specifications ..... - 2 -
2.2 Cutter technical parameters ..... - 3 -
2.3 Paper specifications ..... - 3 -
2.3.1 Continuous thermal paper parameters ..... - 3 -
2.3.2 Marked paper parameters ..... - 3 -
2.4 Print position ..... - 4 -

3 Appearance and modules ..... - 5 -

3.1 Appearance and modules ..... - 5 -
3.2 LED ..... - 6 -

4 Printer installation ..... - 7 -

4.1 Unpacking ..... - 7 -
4.2 Printer installation ..... - 7 -
4.3 Power connection ..... - 7 -
4.4 Paper roll installation ..... - 8 -
4.4.1 Confirm the paper type ..... - 8 -
4.4.2 Paper roll installation/replacement ..... - 8 -
4.5 Paper near end position adjustment ..... - 9 -
4.6 Power on the printer ..... - 10 -

5 Routine maintenance ..... - 11 -

5.1 Cleaning platen roller ..... - 11 -
5.2 Cleaning mark sensor ..... - 11 -
5.3 Clearing paper jam ..... - 11 -

6 Interface signal ..... - 12 -

7 Troubleshooting ..... - 13 -

7.1 Printer doesn't work ..... - 13 -
7.2 LED alarm ..... - 13 -
7.3 Problems during printing ..... - 13 -
7.4 Cutter reset processing ..... - 13 -

1 Overview

1.1 Introduction

BT-UL80II is a high-performance thermal printer using STANKER, widely used in non domestic environment receipt printing fields such as lottery and retail. etc.

BT-UL80II is connected with other devices via USB interface, and can provide drivers for the operation systems such as Windows XP/Windows server 2003/Windows Vista/Windows server 2008/Windows 7/Windows 8/Windows 10/Windows 11.

1.2 Main features

- Low noise, high speed printing 250mm/s
- Easy paper loading
- Easy operation and maintenance
- Support continuous and marked paper
- Compatible with two paper widths
- Auto paper cutting
- With stacker
- Max. paper roll diameter 200mm

2 Technical Specification

2.1 Main technical specifications

Item	Parameter	
Print method	Direct thermal line	
Resolution	203DPI	
Print speed	250mm/s (Max.)	
Print width	Max. 80mm	
Paper type	Continuous paper, marked paper	
Barcode type	UPC-A, UPC-E, EAN-8, EAN-13, Coda bar, Code39, ITF, Code128, Code93, Pdf417	
Character	Standard ASCII (12×24), compressed ASCII (9×17) GB2312, GB18030, Korean, Japanese, traditional Chinese	
Character enlargement	All characters can be enlarged 1—6 times horizontally and vertically.	
Character rotation	Rotation printing in four directions (0°, 90°, 180°, 270°)	
Paper near end detection	Photoelectric sensor	
Paper detection	Mechanical photoelectric sensor	
Label detection	Photoelectric sensor	
Top cover position detection	Micro switch	
Print head temperature detection	Thermal resistance	
Image processing	Bitmap download	Direct bitmap printing
	Bitmap downloading mode, and the download buffer size is 1024 KB	Support bitmap mode and can realize fast image printing
Interface	USB interface	
Memory	RAM: 16MB, FLASH: 8MB	
Power supply	DC 24V±5%, 4A current	
Print head lifetime	150Km (Under normal temperature and humidity conditions, using recommended consumables, with a print duty ratio of 12.5%)	
Operating temperature and humidity	0～50℃, 10%～90% (40°C)	
Storage temperature and humidity	-25～60℃, 10%～90% (40℃)	
External dimensions	146 (W)×374(D)×243(H)mm	

2.2 Cutter technical parameters

Item	**Parameter**	**Remarks**
Cut method	Sliding blade	
Cut time	300ms	Time for one cut action
Cut interval	2s	30 cuts/minute (max.)
Applicable paper type	0.06～0.10mm	Thermal paper or paper of equal thickness
Operation voltage	24VDC	
Max. operation current	＜1.08A	24VDC
Cutter lifetime	2 million cuts	Full cut

2.3 Paper specifications

2.3.1 Continuous thermal paper parameters

- Paper type: thermal continuous paper, marked paper
- Paper supply mode: paper roll
- Paper width: 82.5±0.5 mm, 80±0.5 mm
- Paper thickness: 0.06mm-0.10mm
- Thermal layer: outward
- Paper roll specification: paper roll OD (Max): ф200 mm; paper roll ID (Min.): ф40mm
- Recommended paper:

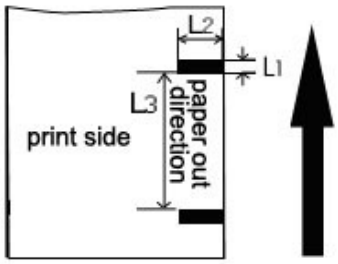
Paper type	**Manufacturer**
LSB130	Ricoh
TL300	Mitsubishi
KLS46	OJI paper

Caution:

- ✧ To ensure print quality and print head lifetime, please use the recommended paper or its equivalent;
- ✧ Paper cannot be stuck on the paper roll core;
- ✧ If the paper is contaminated by chemical substances or grease, the contaminated part may fade or be printed unclearly;
- ✧ To ensure print quality, do not let hard objects scratch the thermal layer of paper;
- ✧ When the temperature is above 70°C, the thermal layer may fade. Therefore, do not use or store the paper in a place exposed to high temperature, high humidity or strong light, etc.

2.3.2 Marked paper parameters

BT-UL80II supports marked paper printing, and can set the cut and initial print position accurately. The marked paper should not only meet the parameters for thermal paper roll, but also meet the following requirements:



Marked paper schematic diagram

L1 mark height: 3mm≤L1≤10mm

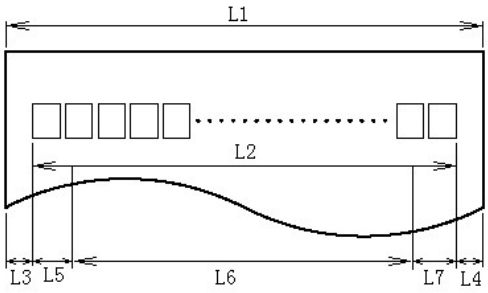
L2 mark length: L2≥12mm

L3 mark spacing: 50mm≤L3<300mm

Mark sensor position: Mark sensor is set on the left side of top cover.

Reflectivity: The reflectivity of marked part should not be higher than 15%, and the reflectivity of the other parts should be higher than 85%. There should be no pattern between two marks, such as the advertisement, poster, etc.

2.4 Print position



L1 paper cabinet width: 83.5+0/-0.5mm

L2 effective print width: 80mm

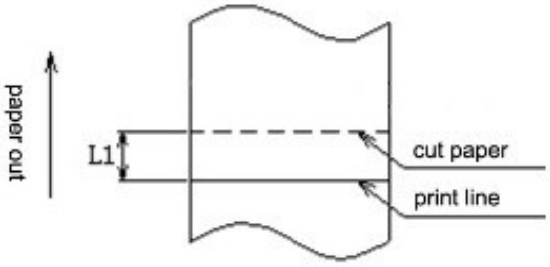
L3 distance from print head to left side of paper cabinet (fixed width): 1.8±0.3mm

L4 distance from print head to right side of paper cabinet (fixed width): 1.8±0.3mm

L5 left margin: The default value is 0mm.

L6 print area width: It is set by command (refer to Programming Manual), default value: 80mm.

L7 right margin: Default value is 0mm.

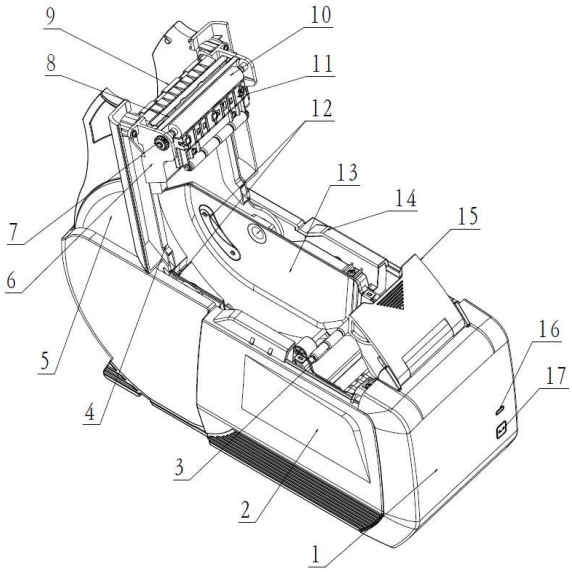


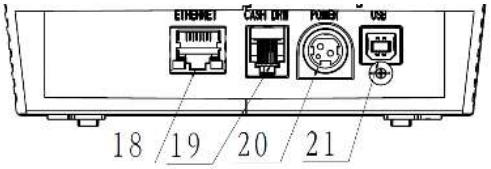
L_1: about 12.5mm

3 Appearance and modules

3.1 Appearance and modules

1—front cover	2— left cover	3—buffer shaft
4—wire cover	5—top cover	6—platen roller holder
7—platen roller gear	8—cutter	9—stacker roller
10—print platen roller	11—sensor holder	12—paper guide
13—paper cabinet	14—right cover	15—cover open lever
16—LED	17—button	18—Ethernet interface (optional)
19—Cash drawer interface	20—Power interface	21—USB interface





Function of some modules:

a) Paper guide

Place the paper guide in the slot or taking it out will allow the printer to use different paper widths respectively: 82.5±0.5 mm and 80±0.5mm

b) Power LED

Indicates power status and printer status.

⚠ Caution:

✧ The paper guide is an indispensable part of the printer and should be kept safely.

3.2 LED

LED function

LED name	Status	Explanation
Power LED (green)	Always on	Printer is powered on.
	Off	Printer is powered off.
Error LED (red)	Off	Printer is in normal status.
	Flash	Printer is in error status.

Caution:

✧ Printer uses thermal resistor to detect the temperature of print head. If the print head is overheating, the protective circuit will shut off the power to print head and the printer will stop printing. The printer stops printing when the print head reaches 65℃.

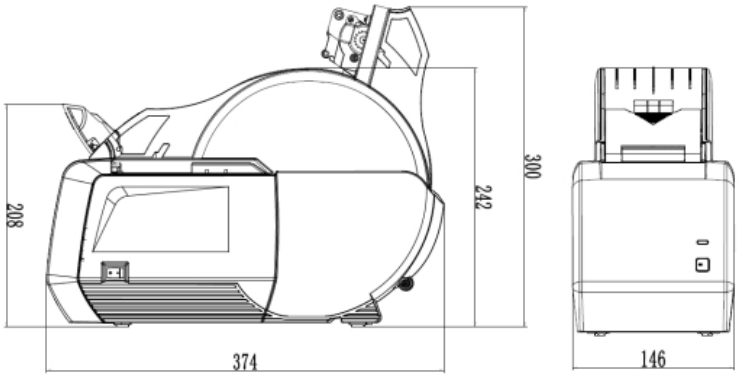
4 Printer installation

4.1 Unpacking

When unpacking the packaging, check if all the articles listed in the packing list are here and in good condition. If any problem, please contact the dealer.

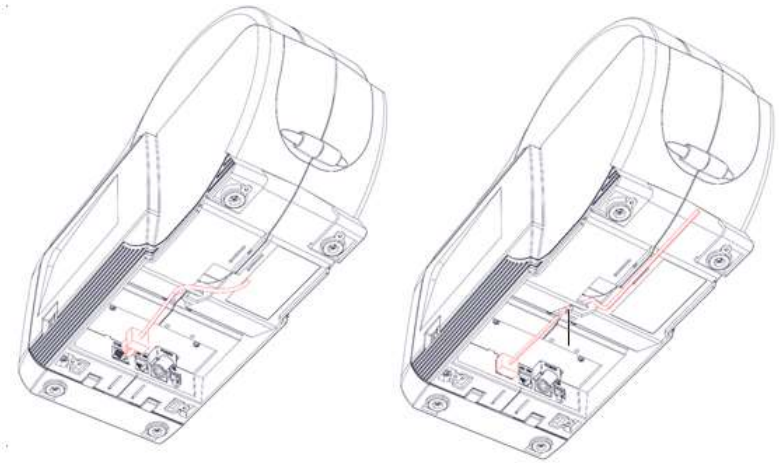
4.2 Printer installation

1) The printer should be installed on a flat and stable place without slant;
2) Keep the printer far away from water source;
3) Do not place the printer in a place exposed to vibration or impact;
4) Printer should be grounded safely;
5) Reserve adequate space around the printer so that the operation and maintenance can be performed conveniently.



4.3 Power connection

1) Plug the cable into the interface at the back of the printer;
2) Insert the cable into the slot.



Caution:

✧ Disconnect the cable when the printer is deemed to idle for a long time.

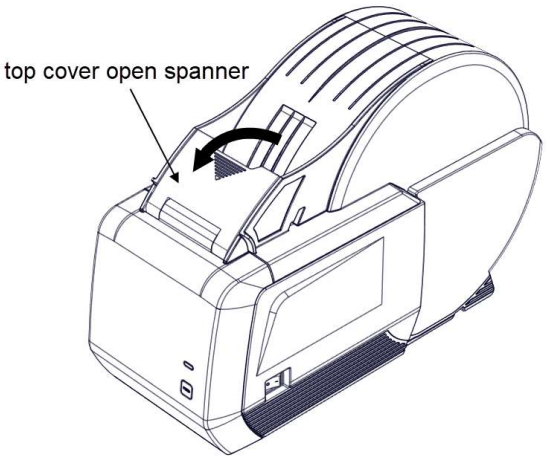
4.4 Paper roll installation

4.4.1 Confirm the paper type

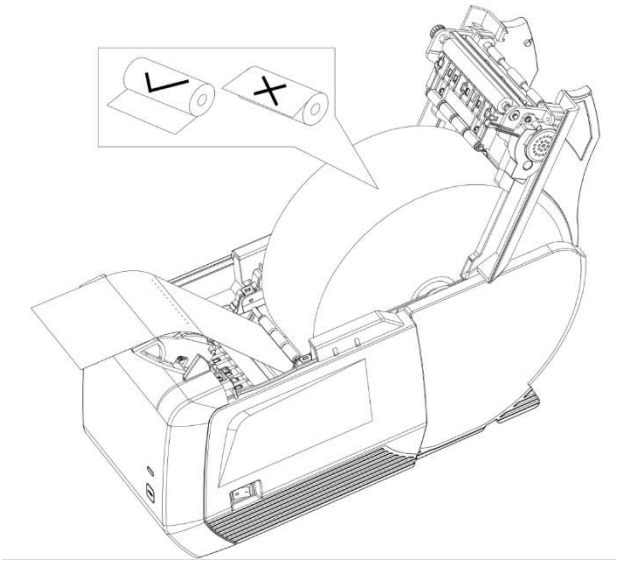
After connecting the transmission cable, install the media and start printing. Confirm the paper type used by the printer before printing.

4.4.2 Paper roll installation/replacement

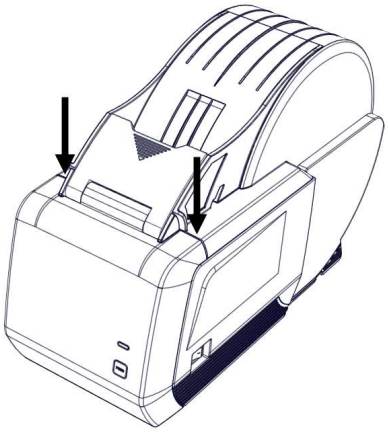
1) Pull the cover open lever forward to open the top cover;



2) Place the paper roll into the paper cabinet;



3) Press down the top cover as shown in the figure to close the top cover of printer.



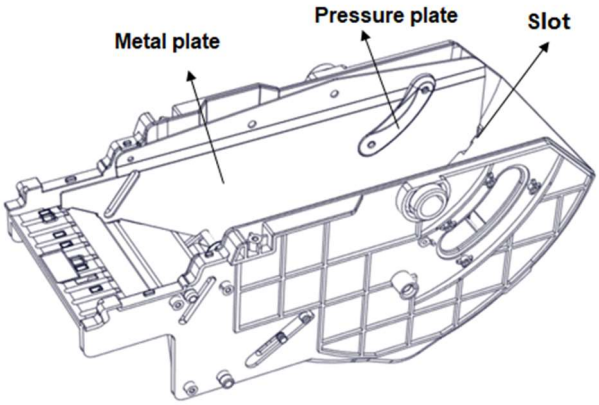
Caution:

✧ Decide to use the paper guide or not according to the paper width: hold the hole at the back of paper guide and rotate it upward to take it off; insert the paper guide vertically into the suitable position according to the paper width; the paper roll should be rolled in the direction based on printer requirements;

Note:

Without paper guide: 82.5±0.5mm

With paper guide: 80±0.5mm

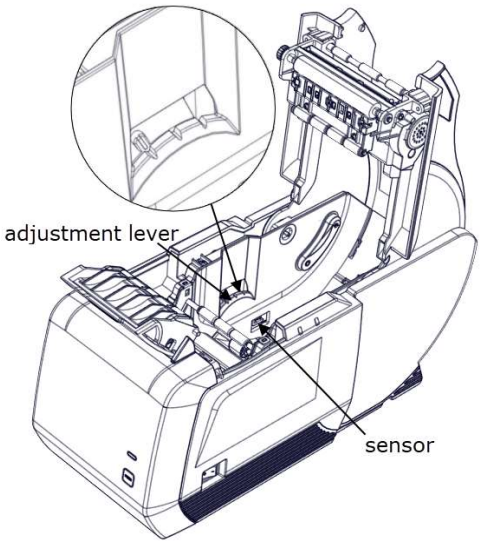


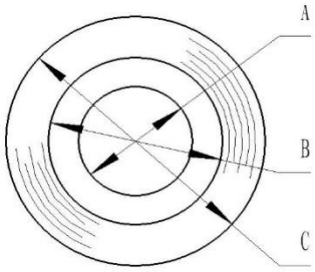
✧ Ensure the paper roll is rolled tightly; otherwise paper jam or other malfunction may occur;

✧ To ensure print quality, paper roll should be placed into the paper cabinet stably without slant.

4.5 Paper near end position adjustment

Move the paper near end adjustment lever to match the different core of paper roll. The remaining paper amount reaches the minimum value when the adjustment lever is set to near the paper exit. The following paper near end data is based on the default outer diameter 40mm of paper roll core shaft.





Paper roll OD (when paper near end alarms)	Level 1	Level 2	Level 3
Ø（Approx.）, 82.5mm wide	Ø 56±5	Ø 50±5	Ø 46±5
Ø（Approx.）, 80mm wide	//	//	Ø 46±5

⚠Caution:

- ✧ The factory default of the paper near end sensor is set to position 1.
- ✧ When a paper roll core of different diameter is used at the same position, the paper remains is different at the time of paper near end alarm.
- ✧ As for the 80mm wide configuration, the paper near end sensor is fixed at Level 3 and is not adjustable.

4.6 Power on the printer

1) Ensure that the printer is connected to the power supply;
2) Printer feeds paper, indicating that the printer is powered on.

⚠Caution:

- ✧ Only when the cable is connected correctly can the printer be powered on normally.

5 Routine maintenance

Caution:

- ✧ Before starting routine maintenance for the printer, make sure the power is turned off.
- ✧ Do not use organic solvent like gasoline, acetone, etc.
- ✧ When cleaning the sensor, please wait for pure alcohol to evaporate totally before turning on the printer.
- ✧ The maintenance cycle is recommended to be no longer than one month.

5.1 Cleaning platen roller

The cleaning steps for print platen roller are as follows:

- ➢ Turn off the printer power;
- ➢ Open the top cover of printer;
- ➢ With the top cover open, wipe off dust and stains on the surface of the platen roller with soft cotton cloth dipped with pure alcohol (it should be wrung out);
- ➢ Wait until pure alcohol evaporates completely, and close the top cover.

5.2 Cleaning mark sensor

When the printer cannot recognize marks effectively, the mark sensor should be cleaned. The cleaning steps are as follows:

1) Turn off the printer power;
2) Open the top cover of printer;
3) Wipe off the dust and stains on the sensor surface with soft cotton cloth dipped with pure alcohol (it should be wrung out);
4) Wait until pure alcohol evaporates completely, and close the top cover.

5.3 Clearing paper jam

When any of the following cases occurs, please clear paper jam:

- ➢ Paper cannot exit from printer normally;
- ➢ The printer feeds paper with abnormal noise.

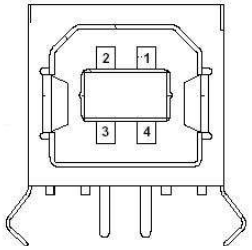
Steps for clearing paper jam are as follows:

1) Turn off the printer power;
2) Open the top cover of printer;
3) Check if there is jammed paper in the paper path. If any, please take away the jammed paper or wastepaper and trim the paper head;
4) Close the top cover.

6 Interface signal

BT-UL80II adopts USB interface, and supports USB2.0 high speed mode. The definition and function of interface signal are as follows:

Pin No.	Signal Name	Function
1	VBUS	Reserved UBS insertion detection function
2	DATA-	Data transmit -
3	DATA+	Data transmit +
4	GND	Ground



USB interface connector

7 Troubleshooting

7.1 Printer doesn't work

Problem	Possible reason	Solution
LED is off and printer does not work.	Printer has no power supply.	Connect printer to power.
	Circuit board is damaged.	Contact your local dealer or manufacturer.
	Printer interface cable is not correctly connected.	Correctly connect the printer interface cable.

7.2 LED alarm

Problem	Possible reason	Solution
Error LED flashes.	Abnormal input voltage	Turn off the printer power and check input voltage.
	Overheated print head	Turn off the printer power and wait until the temperature of print head returns to normal.
	Print head lift-up	Press down the print head
	Paper jam	Clear paper jam
	Cutter error	Reset cutter
	Paper end	Replace paper roll
	Cannot find marks or calibration error	Replace with suitable marked paper

7.3 Problems during printing

Problem	Possible cause	Solution
Printout is not clear.	Print head is damaged.	Replace print head
Printout is not clear or dirty.	Print head or feed platen roller is dirty.	Clean print head and feed platen roller
Paper cannot be outputted normally.	Paper jam	Open top cover, check paper path and clear jammed paper.

7.4 Cutter reset processing

When the sliding blade cannot be reset, open the top cover, and connect the printer to power supply, then the sliding blade will reset automatically; if it still cannot be reset, please consult your local dealer or manufacturer.