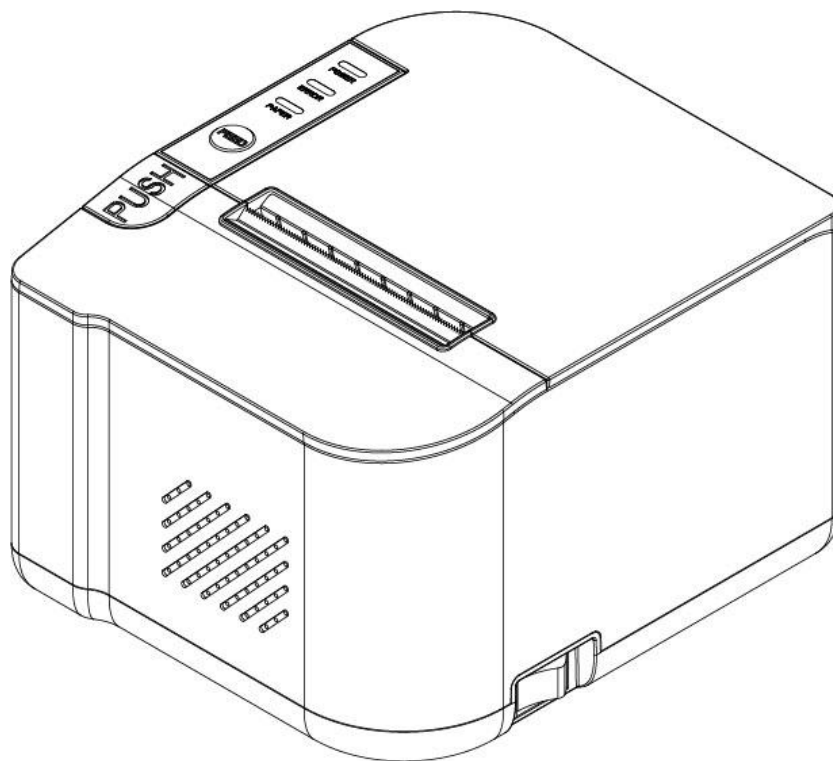


SPRT®

POS Thermal Receipt Printer (SP-R301)



User's Manual (Ver 1.01)

Beijing Spirit Technology Development Co.,Ltd.

www.sprt-printer.com

Content

Precautions	1
Safety Precautions	1
Precautions for storage	2
Brief introduction	2
Chapter 1 Feature and Performance	4
1.1 Printing performance	4
1.2 Printer paper	4
1.3 Print characters	5
1.4 Interfaces	5
1.5 Print control command	5
1.6 Power requirements	6
1.7 Working environment	6
1.8 Dimensions	6
1.9 Model classification	6
Chapter 2 Operation Specification	6
2.1 Printer Appearance	6
2.2 Paper Installation	7
2.2.1 Paper Loading	7
2.2.2 Solution to Paper Jam	7
2.3 Interface	8
2.3.1 Ethernet Interface	8
2.3.2 USB Interface	8
2.3.3 Wireless connection	9
2.3.4 Cash Drawer Interface	10
2.3.5 Power Connection	11
2.4 Buzzer, Buttons and Indicators	11
2.5 Normal Boot State	14
2.6 Self-test	14
2.7 Hexadecimal Printing	15
2.8 Parameter Setting	16
2.9 Enter the program upgrade mode	16
Appendix A	18

Precautions

Before using the printer, please read this chapter carefully!

Safety Precautions

- ◆ Do not touch the print head and its connected parts to avoid burns or damage to the print head due to static electricity.
- ◆ If the printer emits smoke, peculiar smell or abnormal noise, the machine must be turned off immediately. Continued use may cause fire. You should cut off the power immediately and contact the seller or customer service center to inquire about the solution.
- ◆ Do not disassemble the machine by yourself. Improper repairs are dangerous and will therefore lose the warranty commitment provided by the supplier.
- ◆ Please use the power adapter provided by the supplier or meet the specifications. An improper power adapter may damage the machine and cause a fire.
- ◆ Prevent foreign matter from entering the machine to avoid damage to the machine components, which may even cause fire and accidents in serious cases.
- ◆ If there is water or other liquid flowing into the machine, please cut off the power immediately, and get in touch with the seller immediately to inquire about the treatment method. Continued use may cause fire.

Precautions for use

- ◆ The printer should not be immersed in water or exposed to rain, otherwise it may cause damage to the printer.
- ◆ Do not open the paper compartment cover during printing, otherwise it may cause the printer to work abnormally.

◆When using the USB interface to print, the USB cable cannot be unplugged during the printing process, otherwise the print data may be incomplete. When using Bluetooth to print, the distance cannot exceed 10 meters during the printing process, otherwise it may cause garbled printing or failure to print.

◆Although the printer can work stably from 0°C to 50°C, too high ambient temperature (45°C) or too low ambient temperature (5°C) will cause the print quality to decrease.

◆Excessive environmental humidity (above 85% relative humidity) or low environmental humidity (below 20% relative humidity) will cause the print quality to decrease.

◆Using low-quality printing paper or printing paper that has been stored for a long time may reduce the printing quality and even damage the printer.

◆When the printer works in the black mark detection mode (when printing pre-printed receipts with black marks), the black mark pre-printed on the printing paper is required to comply with the black mark printing specifications (see 4.2 black mark detection instructions for details), otherwise it may cause The printer cannot accurately detect the black mark.

Precautions for storage

◆The printer should be stored in an environment with a temperature of -20°C to 60°C and a relative humidity of 10% to 90%.

Brief introduction

The SP-R301 printer is a new type of thermal line printer with fast printing speed, low noise, good reliability, high printing quality, no need for ribbon, and eliminates the trouble of daily maintenance.

The SP-R301 printer is small in size, easy to operate, and has a wide range of applications. It is especially suitable for commercial cash registers, PC-POS, bank POS, and various commercial fields that require document printing.

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 Printing performance

- Printing method: line thermal printing
- Printing paper width: 79.5±0.5mm
- Printing density: 8dots/mm, 576dots/line
- Printing speed: maximum printing speed 200mm/s (25% printing density)
- Reliability: (1) Print head life: 150km

Conditions of Use:

* Print 12 × 24 Western characters, print 50 lines at a time, and repeat printing intermittently.

* Use designated thermal paper

(2) Cutter life: 1500,000 times.

(3) Effective printing width: 72mm

1.2 Printer paper

- Thermal paper roll model: TF50KS-E (Japan paper co.ltd)

AF50KS-E(JUJO THERMAL)

- Thermal paper roll: paper type ----- ordinary thermal paper 79.5xφ80mm (maximum)

Inner diameter ----- φ13mm (minimum)

Paper thickness ----- 0.06mm~0.08mm

1.3 Print characters

- Western character set:

12×24 dots, 1.5 (width)×3.00 (height) mm

- Chinese characters:

24×24 dots, 3.00 (width) × 3.00 (height) mm

1.4 Interfaces

- Ethernet interface:

Standard Ethernet interface.

- USB interface:

Standard USB interface.

- Wireless interface:

WiFi, Bluetooth interface

- Cash drawer control:

DC24V, 1A, 6-wire RJ-11 socket.

1.5 Print control command

- Character printing command: supports double-width and double-height printing of ANK characters, custom characters and Chinese characters, and the character line spacing can be adjusted.

- Dot map printing command: support different density dot map and download graphics printing.

- GS barcode printing commands: support UPC-A, UPC-E, EAN-13, EAN-8, CODE39, ITF25, CODABAR, CODE93, CODE128, PDF417, QR Code, DATA Matrix barcode printing.

1.6 Power requirements

- DC24V±10%, 1.5A, A-1009-3P power socket

1.7 Working environment

- Operating temperature: 5°C~50°C Operating relative humidity: 10%~80%
- Storage temperature: -20°C~60°C Storage relative humidity: 10%~90%

1.8 Dimensions

- 174(L)mm×150(W)mm×118(H)mm

1.9 Model classification

model	interface	Speed (Max)
SP-R301UE	USB, 100M Ethernet	200mm/s
SP-R301UEVT	USB, 100MEthernet, voice	
SP-R301UEBT MM	USB, 100MEthernet, bluetooth	
SP-R301UEW	USB, 100MEthernet, WIFI	

Chapter 2 Operation Specification

2.1 Printer Appearance

The names of the various parts of the printer are shown in Figure 2-1.

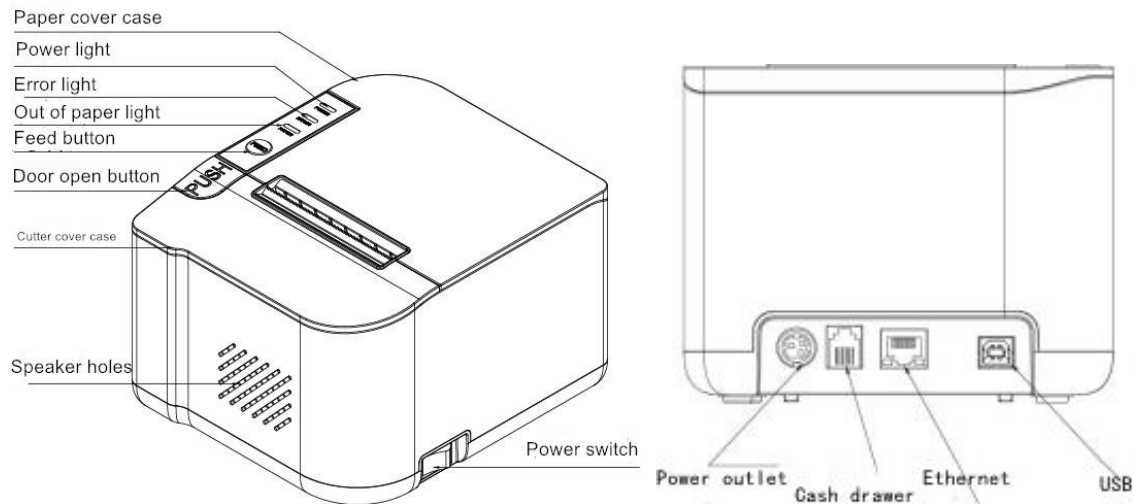


Figure 2-1 The name of each part of the printer

2.2 Paper Installation

2.2.1 Paper Loading

The thermal paper installation steps are as follows:

Press the left open button to open the paper compartment cover, put the thermal paper roll into the paper compartment of the paper machine, pull out a section from the paper roll, then put the paper end on the machine head, and close the paper compartment cover. Gently press down.

Notice

1. Pay attention to the direction of loading the paper roll so that the printing side faces the machine head.
2. Do not use your hand to walk forward or backward.
3. The machine head should be kept clean to avoid affecting the print quality

2.2.2 Solution to Paper Jam

If the cutter is jammed, turn off the power switch and re-energize the cutter to return to its original position. If there is a paper jam, open the paper compartment cover and

take out the paper. If the cutter cannot return to its original position after powering on again, the upper cover can be opened to expose the cutter. Pull the plastic gear on the cutter by hand to return the cutter to its original position.

If the cutter is jammed, and hope that the data in the printer will not be lost. You can't turn off the power, you can only use the above manual method to return the cutter to its original position. Then open the paper compartment cover, remove the jammed paper, and close the paper compartment cover. The printer will automatically recover from paper cut errors.

2.3 Interface

2.3.1 Ethernet Interface

The model with Ethernet interface use RJ45 Network socket. The appearance is as Fig.2-3 shows:

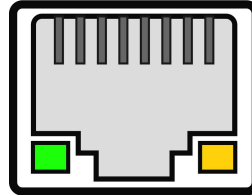


Fig2-3 Ethernet Interface

2.3.2 USB Interface

The standard accessories of SP-R301 printer includes a Mini USB cable with D Type connector which connects printer and main device. The USB type belongs to the slave device type (DEVICE). Pins description of Mini-USB as Fig.2-3 below:



Fig.2-4 USB interface

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

2.3.3 Wireless connection

Wifi connection

1. Press and hold the 【FEED】 button and open the paper compartment cover to turn on the machine. After turning on the button, do not release the button. Release the 【FEED】 button after the status indicator and the out of paper indicator flash alternately. Press the 【FEED】 button seven times again, close the paper compartment cover, the printer enters the intelligent network configuration mode, and the network configuration QR code will be printed out, and the network configuration operation can be performed at this time.
2. Make sure that the mobile phone is connected to the router and the network is normal. Use the mobile phone WeChat to scan the QR code printed out by the printer to enter the network configuration interface, and click the "Start Network Configuration" button.
3. Enter the password of the router connected to the mobile phone, and then click the "Connect" button. The printer will start network configuration. After the network configuration is successful, the printer will automatically connect to the router and print out the IP address. In the local area network, the IP address can be used to send data to the printer.
4. If the printer has completed the network configuration, the network configuration information will be automatically saved, and the next time the printer is turned on, it will automatically connect. After the connection is successful, [ERROR] will flash with blue lights at 1s intervals.

Bluetooth connection

Hand-held device, laptop and other information terminal devices with Bluetooth can drive SP-R301 to print by the Bluetooth interface. SP-R301 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 R301 BT Printer, the initial password is '1234'; users can change the

printer name and password by using < Setting Tools> software. Please see the details in help file of < Setting Tools>.

Before working, 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 R301 BT Printer,
4. Enter the password '1234';
5. Pairing finished. If a connection is established, 【ERROR】 will flash in blue.

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

When pairing, the printer must be switched on.

Note: If the user has not changed the device name of the printer, please do not turn on multiple printers at the same time during pairing, otherwise it may not be possible to determine which printer is successfully paired.

2.3.4 Cash Drawer Interface

The cash drawer interface of SP-R301 adopts RJ-11 6-pin socket, as Fig.2-5 shows:

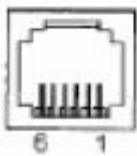


Fig.2-4 Cash Drawer Interface

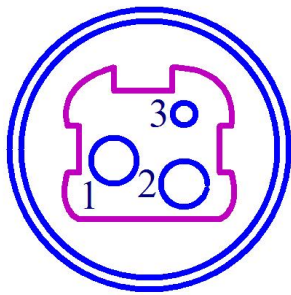
The pin assignment is as below:

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	—

2.3.5 Power Connection

The standard external power supply adopter is 24V±10%, the rated current is 1.5A. And the power socket is A-1009-3P model, as Fig. 2-6 shows:



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

Fig.2-6 Definition of power socket and pin

2.4 Buzzer, Buttons and Indicators

There is one button, one inner buzzer, one sounder (optional) and three indicators.

【FEED】 is paper feeding button, the function of its enabling or disabling the button on/off can be set by print command, when the button is enabled, press 【FEED】 button, then the paper presenting driver starts up and paper fed into the printer; release 【FEED】 button, paper feeding stops.

The buzzer indicates the error status type, which can be set to enabling error alarm or disabling by parameter setting. Error status type is the same as error indicator.

The green POWER indicator is the power indicator. The POWER indicator lights, it indicate that the printer is turned on.

The red PAPER indicator is the paper status indicator. The indicator light indicates that the printer is out of paper.

The red ERROR indicator is error status indicator. The indicator light indicates the error happened, such as opening case cover. The details can be found in “Error Indicates Table”.

ERROR indicator is red/blue double color indicator. It is used to indicate ERROR/receipts checking/wireless connection status. The red indicator is dark when printer work normally; the error occurs while it flashes. When it lights for a long time, it means paper case opened in the printing process. The blue indicator flashes reminds that printer has received document or wireless connected.

The sounder reminds the printer status by the sound, for example, the paper case cover is open, the paper is out, the printing mechanism is too hot, the voltage is high/low, receipts received, etc.

When the receipt is received, the indicator will flash, and the buzzer will ring for three times.


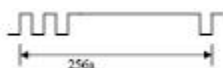



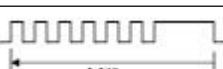


When the error indicator flashes and the buzzer rings, it means there is an error in the printer.

According to the different flicker types, the different error types are as below:

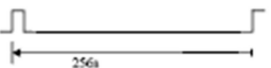
1. Non-recoverable error, the times of indicator flickering and buzzer sounding mean the error type, then persistent lighting.
2. Recoverable error, the times of indicator flickering and buzzer sounding mean the error type, then persistent indicator-off.
3. Auto-recoverable error, the indicator flashes and the buzzer sounds persistently.
4. Paper out, PAPER OUT indicator lights and the buzzer sounds persistently. When the paper case cover is open, whether the paper is out or not will not be tested, but just testing whether there is paper in printer.

The details are as below:

- ①.. Non-recoverable error, the indicator flashes several times, then persistent lighting. The times of flickering means the error type,


ERROR Type	ERROR Description	ERROR Indicator Flickering Type
Non-recoverable error	LED flashes once: Internal memory reading and writing error	
	LED flashes twice: over-voltage	
	LED flashes three times: under-voltage	
	LED flashes four times: CPU execution error (wrong address)	
	LED flashes five times: UIB error	
	LED flashes six times: FLASH writing error	
	LED flashes seven times: parameter writing error	
	LED flashes eight times: Temperature testing circuit error	

②. Recoverable error, indicator flashes constantly, then persistent off for one period.

ERROR Type	ERROR Description	ERROR Indicator Flickering Type
Recoverable error	LED flashes once: Cutter position error	

③. Auto-recoverable error, indicator flashes constantly, including printing head over-heat error and upper case cover opening error during printing.

ERROR Type	ERROR Description	ERROR Indicator Flickering Type

Auto-recoverable error	LED flashes constantly: printing head over-heat; upper case cover opening error during printing	
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2.5 Normal Boot State

In the power off state, with the paper cover closed, turn on the printer. The error indicator and the out of paper indicator flash alternately twice, and then go out, and the printer enters 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 the name of manufacturer, printer type, software version, interface type and printer defaulted parameter, 96 characters in ASCII and defaulted Code page content(the language is English) or the name of Chinese characters library(if the language is Chinese) and Bar code type.

Way of self-test: hold down **【FEED】** button and turn on the power, self-test begins automatically at this moment. Different model of the printer have a little different parameters on self-test. SP-POS891US model printer self-test as Fig.2-7 shows



Figure 2-7 self test

2.7 Hexadecimal Printing

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

- 1.Open the cover;
- 2.Hold down **【FEED】** button,and connect with power; wait for the alarm and close the paper cover.

3.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 Parameter Setting

There are two ways to set printer parameters:

1. Use the setting tool to set up on the PC.
2. Set by pressing the buttons, the specific operation method is as follows.

In the shutdown state, first open the paper cover, press and hold the 【FEED】 button, then turn on the power switch, and release the 【FEED】 button after the status indicator and the out of paper indicator flash alternately. Press the 【FEED】 button twice, and then close the paper cover. The printer enters the parameter setting mode, and prints out the first settable parameter and its current set value. Please refer to Appendix A for detailed setting methods.

Exit the parameter setting method: first open the [paper compartment cover], then press and hold the 【FEED】 button, then close the [paper compartment cover] and release the 【FEED】 button to save the set parameter value and exit the parameter setting mode. Enter normal working mode.

If the printer is turned off directly, the set parameter values will not be saved.

2.9 Enter the program upgrade mode

In the shutdown state, first open the paper cover, press and hold the 【FEED】 button, then turn on the power switch, and release the 【FEED】 button after the status indicator and the out of paper indicator flash alternately. Then press the 【FEED】 button five times (USB interface support, the network port is directly upgraded in web

mode), and then close the [paper compartment cover]. The printer enters the program upgrade mode. At this time, the status indicator flashes at a rate of about 1 second.

Quick access method: In the shutdown state, first open the [paper compartment cover], press and hold the **【FEED】** button, turn on the power switch, and then quickly release the **【FEED】** button. The printer enters the program upgrade mode. At this time, the status indicator flashes at a rate of about 1 second.

Note:

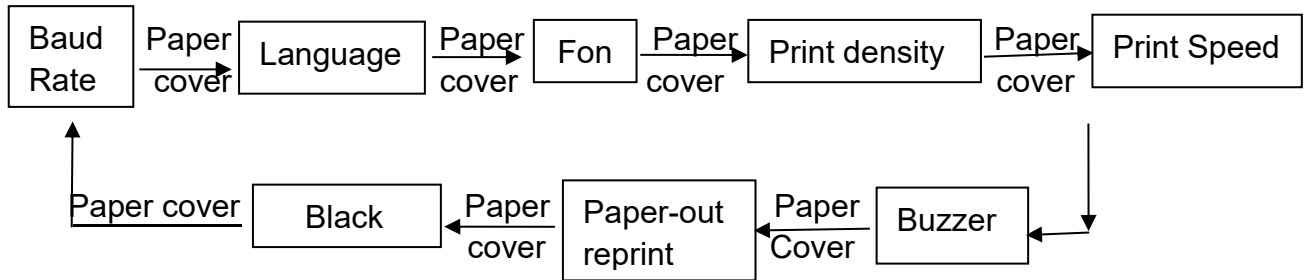
When entering the upgrade mode, the out of paper indicator light is on to indicate that the interface cannot be upgraded.

Appendix A

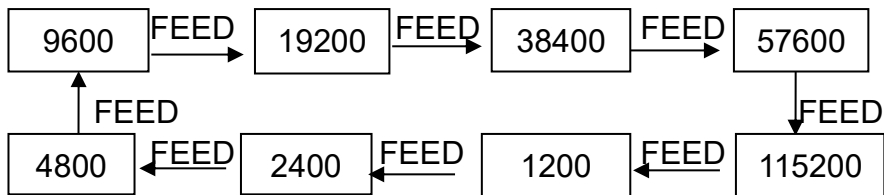
This appendix is the method to set the printer parameter according to button operation.

Setting introduction: use the Paper cover to choose setting, when open and shut 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.

General Setting:



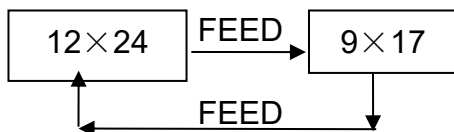
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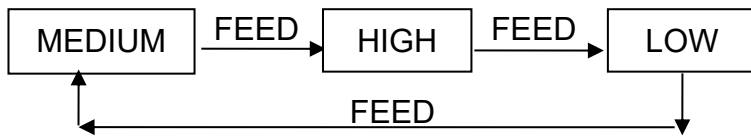
Language:



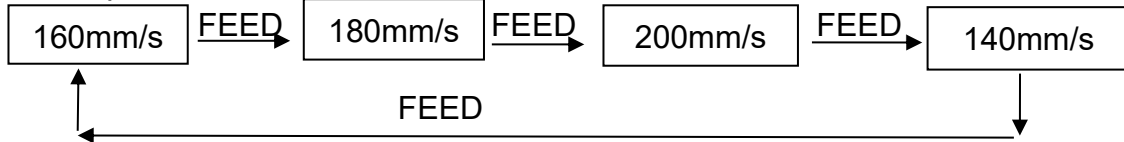
Font:



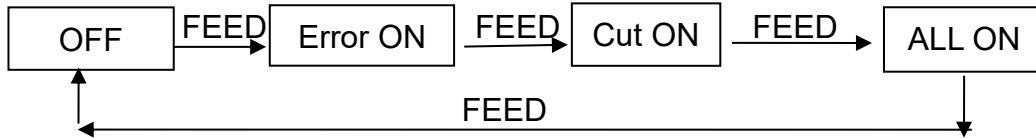
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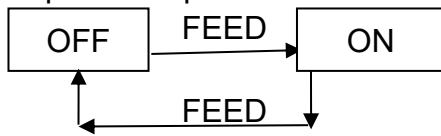
Print speed:



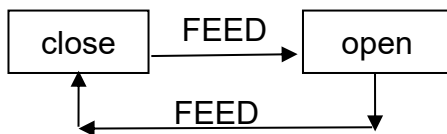
Buzzer:



Paper-out reprint:



Black mark mode:.



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