User's Manual

Kiosk Printer

BK-T680

Shandong New Beiyang Information Technology Co., Ltd

Declaration

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Version 1.0

Trademark

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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 the following certifications:

ISO9001 Quality Control System

ISO14001 Environmental Management System

OHSAS18001 Occupational Health and Safety Management System

IECQ QC080000 Hazardous Substance Process Management System

Safety instructions

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

1. Safety warning

Warning Do not touch the cutter of the printer.

Warning 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 reasons of safety.

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

2. Cautions

1) Install the printer on a flat and stable surface;
2) Reserve adequate space around the printer so that convenient operation and maintenance can be performed;
3) Keep the printer far away from water source, and do not expose the printer to direct sunlight, strong light and heat;
4) Do not use or store the printer in a place exposed to high temperature, high humidity 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 the 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 safe and at hand for reference purpose.

Content

1 Overview

1.1 Introduction

BK-T680 printer is a high performance embedded 2-sided thermal printer equipped with cutter and presenter, it can accept up to 300mm paper roll. The maximum print width is 80mm. It can be widely used in various Kiosk applications like data communication terminal, test instrument terminal and information consulting terminal, etc.

The printer is configured with the following modules:

- 2-sided thermal (2ST) print unit
- Presenter
- Anti-jam module
- Control board
- Cutter

BK-T680 can be connected with other devices via serial interface, USB interface, parallel interface or Ethernet interface, etc. Drivers are available for WINDOWS2000/XP/2003/Vista/2008/Win7, WindowsXP Embedded operating systems and the software development kit based on DLL.

1.2 Main features

- Printing
  - ✧ High-speed printing

    1ST printing:

    Print speed of 203DPI model is 275mm/s;

    Print speed of 305DPI model is 180mm/s.

    2ST printing:

    Print speed of 203DPI model is 150mm/s;

    Print speed of 305DPI model is 100mm/s.
  - ✧ Low-noise thermal printing
- PRESENTER
  - ✧ Paper accommodation
  - ✧ Paper retraction
  - ✧ Paper holding
  - ✧ Paper ejection

  Note: Presenter is at the front end of the printer.
- High reliability
  - ✧ The cutter lifetime can be up to 1 million cuts (paper thickness: 65μm);
  - ✧ Print head lifetime is no less than 100km (duty ratio 12.5%);
  - ✧ MCBF: 37,000,000 lines (paper feeding)
- Applications
  - ✧ Command set is compatible with ESC/POS standard;
  - ✧ Characters processing: enlarge 1 to 6 times horizontally or vertically, rotation print (0°, 90°, 180°, 270°), black/white reverse, underline, upside-down print;

- ✧ Barcode print: print barcode by commands in horizontal and vertical directions;
- ✧ Character size (Font A or Font B) can be selected by commands;

➢ Printer maintenance

- ✧ Replace paper roll easily;
- ✧ Clean the print head conveniently
- ✧ Characteristics and parameters can be set by software;
- ✧ Cut paper automatically;
- ✧ Semi-auto paper loading;
- ✧ Mark identification and calibration;
- ✧ Printer firmware on-line update.

2 Main technical index

2.1 Technical specifications

Item		Parameter
Printing	Print method	Thermal
	Resolution	203/305DPI
	Paper width	48~82.5±0.5 mm
	Print width	Max.80mm (3.2 ")
		Max.640 dots
	Print height	Max: 450 mm Min: 70 mm
	Print speed	200DPI 1ST (Max): 275 mm/s 200DPI 2ST(Max): 150 mm/s 300DPI 1ST (Max): 180 mm/s 300DPI 2ST (Max): 100 mm/s
	RAM memory	SDRAM: 8 MB
	Flash memory	2MB/4MB (depends on the size of font library)
	Print head temperature detection	Thermal resistor
	Print head position detection	Micro switch
	Paper/mark detection	Photoelectric/Mechanical photoelectric sensor
	Paper near end detection	Photoelectric sensor
	Communication interface	USB, RS-232 (optional)
Barcode Character Image	Barcode	CODE128, ITF , UPC-A, UPC-E, EAN13, EAN8 CODE39, CODE93, CODABAR, PDF417, GS1, QR
	Character set	Standard characters, compressed characters Optional Asian character set (simplified Chinese, traditional Chinese, Japanese, Korea)
	Character processing	All characters can be enlarged 1 to 6 times vertical and horizontal respectively. Rotation print (0°, 90°, 180°, 270°); Emphasized, white/black reverse, underline.
	Image	BMP bitmap can be downloaded to RAM and FLASH; Support direct bitmap printing
Media	Paper type	Continuous paper/marked paper
	Paper roll OD	Max.300mm
	Core ID	ф18-60mm
	Paper thickness	60～150 um
	Thermal layer	Outward / Inward
Power consumption	+24V power supply, at room temperature, average value	1.9A(12.5% duty ratio)
PRESENTER	Paper out detection	Photoelectric sensor
	Paper out speed	1000mm/s
	Retraction detection	Photoelectric sensor
	Retraction speed	1000mm/s

	Paper out mode	Retraction/ holding /closing/ejection (optional)
Reliability	Print head lifetime	≥100Km
	Cutter lifetime	≥1, 000, 000(65μm thick thermal paper)
	MTBF	360,000 hours
Environmental requirements	Operating environment	0～50℃, 20～90%RH(40℃)
	Storage environment	-40～60℃, 20～93% RH(40℃)
Physical features	Overall size	161(L) X 123.2(W) X 120.9(H) (excluding paper holder, paper roll, including control board)
	Weight	About 2.1Kg (excluding paper roll)

Table 2.1-1technical specifications

Notes:

- ✧ DPI: dots per inch. (1 inch≈25.4 mm);
- ✧ The real print speed is related to data transmission speed, print darkness, print duty ratio, control commands and power supply voltage, etc. The print speed may be lower than the value in the above table.
- ✧ PRESENTER is a mechanism used to accommodate paper at the front end of the printer.

2.2 Paper specifications

- ➢ Paper type: continuous paper/marked paper
- ➢ Paper supply mode: paper roll
- ➢ Paper width: 48~82.5±0.5 mm
- ➢ Paper thickness: 60um～150um
- ➢ Thermal layer: outward / inward
- ➢ Paper roll specifications:

  Optional core ID: ф18-60mm

  Max. paper roll OD: ф300mm
- ➢ Recommended paper:

1) Recommended continuous paper specifications:

Paper model	Manufacturer
TF50KS－E2C	Nippon Paper Industries Co., Ltd
F240AC/F220-VP	Mitsubishi Paper Mill CO., LTD
KF060-FEAH	NEW OJI Paper CO., LTD.
F70NA	FUJI PHOTO FILM CO., LTD
FV230A1	MITSUBISHI PAPER MILL CO., LTD.

Table 2.2-1 Recommended paper

2) Recommended marked paper specifications:

The marked paper should not only meet the requirements for standard paper, but also meet the following requirements:

- ✧ Mark position

  User can select the position of mark (located on thermal layer/non-thermal layer);

- When selecting mark, it is recommended to use the following parameters:
  - ✓ L1 mark width: 8mm≤L1≤paper width
  - ✓ L2 mark height: 4mm≤L2≤8mm
  - ✓ L3 mark interval: 58mm≤L2≤305mm
- The reflectivity of marks is less than 10%; the reflectivity of other part of the ticket within mark width along paper feed direction is over 75%.There should be no character or pattern such as advertisement between two marks.

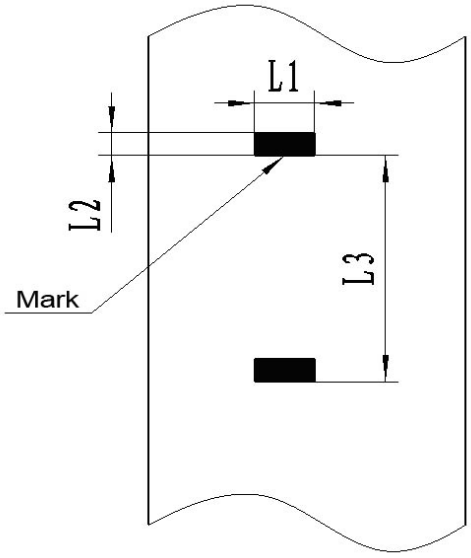


Figure 2.2-1 Schematic diagram of mark position

Note:

- Because of paper shaking in paper feeding and paper parameter difference, the mark position may have a tolerance of ±1mm;
- The mark height can be set by adjusting the printer configuration;

Caution:

- Please use the recommended paper or its equivalents. Using other types of paper may affect print quality and even reduce the print head lifetime;
- Do not stick the paper to the paper roll core;
- If the print paper is contaminated by chemical or oil, it may discolor or be less heat sensitive, which will greatly affect the print quality;
- Do not rub the paper surface with a nail or hard metal, otherwise it may discolor;
- When the temperature goes up to 70℃, paper will discolor. So please be careful of the effect of temperature, humidity and sunlight.

3 Structures and functions

3.1 Appearance

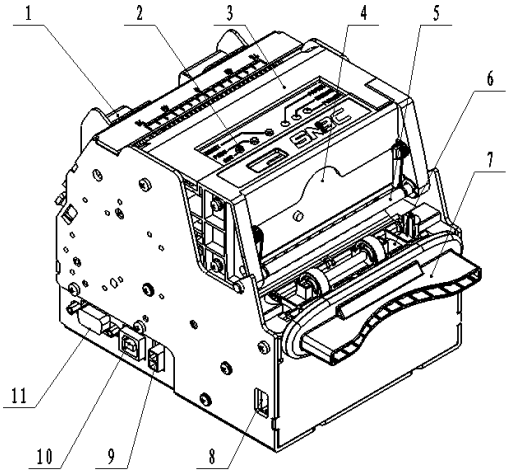
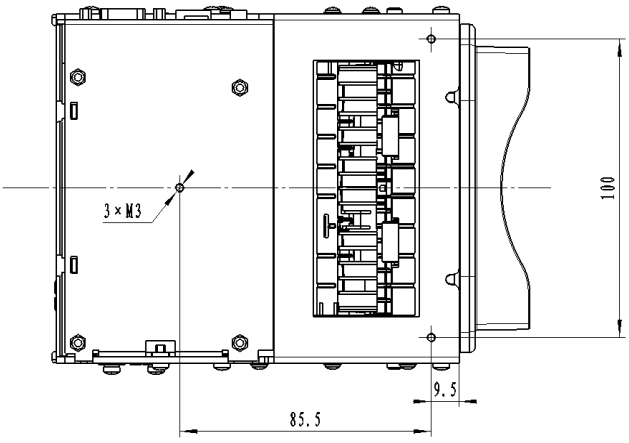
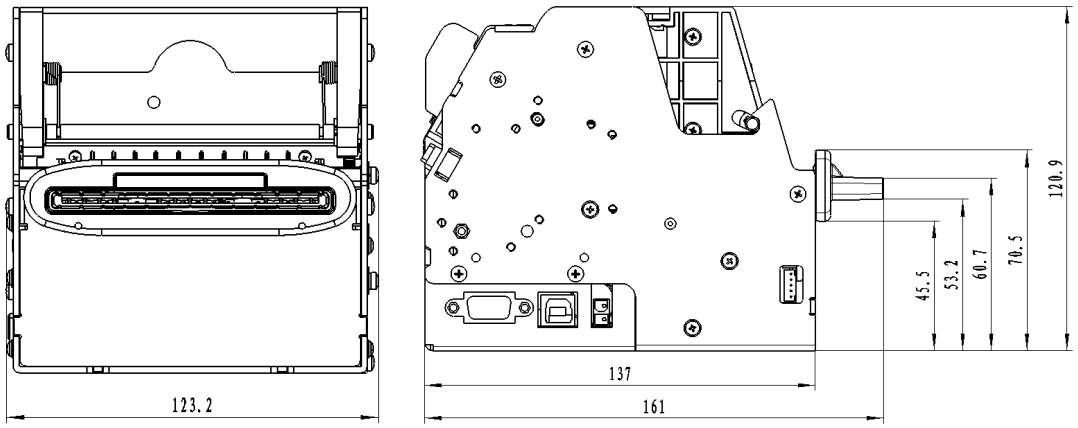


Figure 3.1-1 BK-T680 printer appearance

1 —paper guide
2 —button
3 —print module
4 —cutter
5 —top cover locking axis
6 —Presenter
7 —LED paper outlet mouth
8 —paper near end sensor socket
9 —power interface
10 —USB interface
11 —serial interface

3.2 Overall size





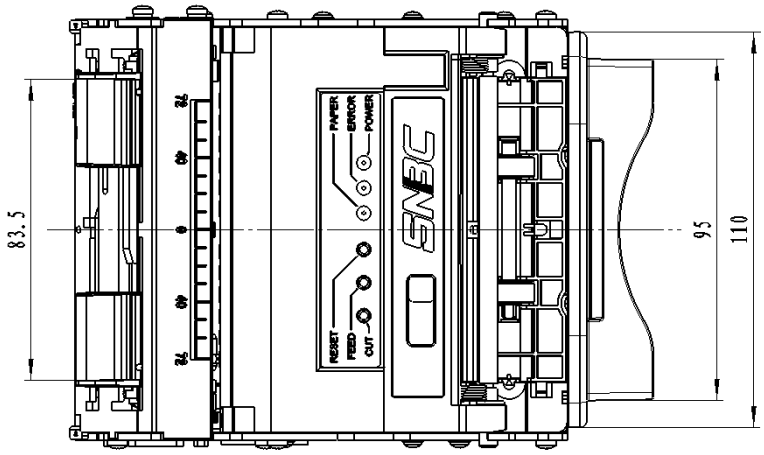


Figure 3.2-1 Overall size of the printer with presenter

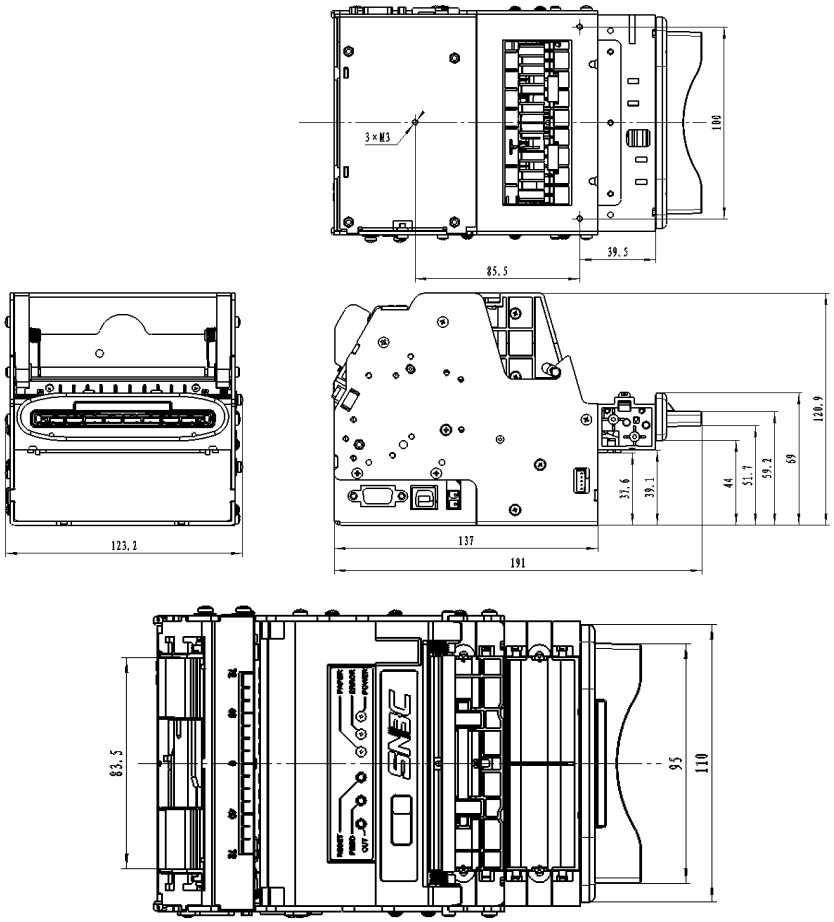


Figure 3.2-2 Overall size of the printer with presenter and anti-jam module

Note: The overall size of the printer only with anti-jam module is the same as that of figure 3.2-1.

3.3 Print module and controlling parts

The controlling parts include circuit board and the corresponding adjustment buttons, interfaces, etc.

3.3.1 Appearance of print module and controlling parts

Print module mainly consists of print mechanism, paper cutting mechanism, etc. Please refer to figure 3.3-1 for details:

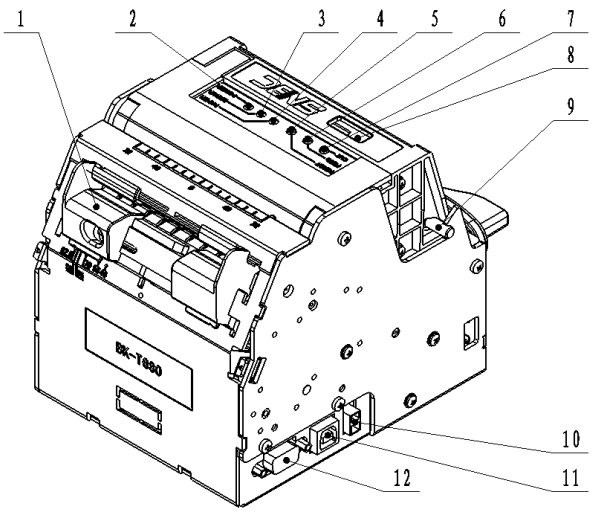


Figure 3.3-1 Appearance of print module and controlling parts

1 —paper guide	2 —POWER LED	3 —ERROR LED
4 —PAPER LED	5 —RESET button	6 —FEED button
7 —CUT button	8 —cutter	9 —top cover locking axis
10 —power socket	11 —USB interface	12 —serial interface

3.3.2 Print module description

- **Top cover locking axis**

  Press the top cover locking axis slightly to separate the print platen roller from print head so as to clear some errors.

- **CUTTON button**

  Press this button to cut paper in any status (no matter the printer alarms or not).

- **FEED button**
  - ✧ If the printer doesn't alarm, press down this button to feed paper;
  - ✧ Press this button continuously to feed long distance;
  - ✧ Pressing and holding the FEED button while powering on the printer for one second, the printer will start and print a self-test page, the printout of which depends on the printer configuration.

  Note: Make sure that there is paper in the printer and the print head is not uplifted before starting self-test (for self-test page, please refer to *Appendix 1 Self-test page*)

- **RESET button**

  When pressing down this button, the printer will execute its reset and the print data will be cleared

- **CUT button**

  Press this button to cut paper in any status (no matter the printer alarms or not).

- **PAPER LED (red)**

  When paper end or paper near end is detected, PAPER LED will be always on; if the paper is in normal status, PAPER LED will not be on.

- **ERROR LED (red)**

  Indicate different status of the printer. Normally, ERROR LED is not on; when errors occur (for

example, paper end), ERROR LED will flash to give alarms.

Note: ERROR LED flashes when the printer is executing macro definition.

- **POWER LED (green)**

  Indicate whether the power is on or not, and it is always on when the power is turned on.

Heating:

- Print head: The print head and motor generates heat in use; please do not touch them just after operation.

3.4 Presenter

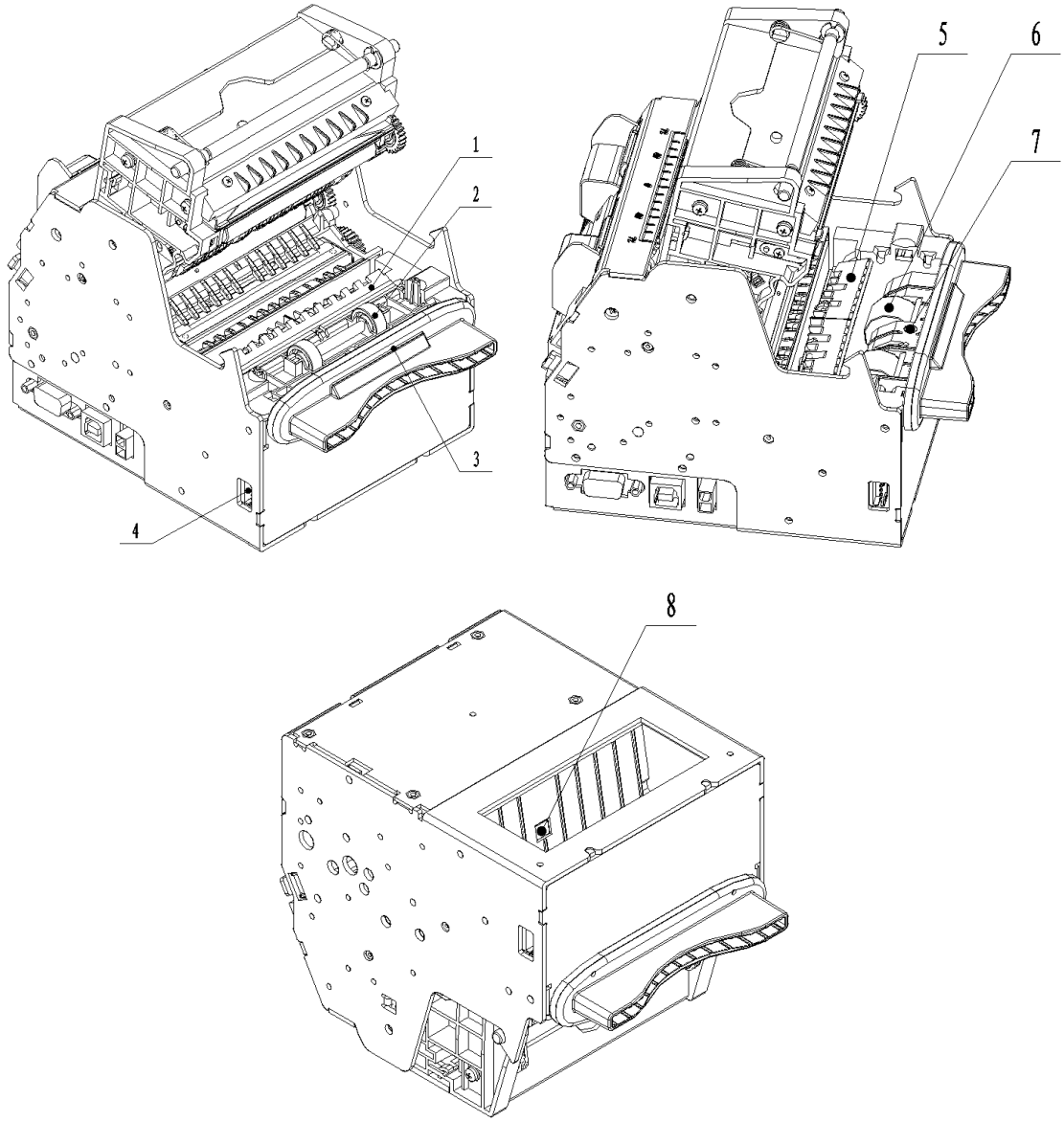


Figure 3.4-1 Presenter appearance

1. Presenter upper path
2. Presenter floating roller
3. LED paper outlet mouth
4. Paper near end sensor socket

5. Presenter turning board
6. Presenter drive roller
7. Paper out sensor: to detect paper status and determine whether it is taken away or not.
8. Retraction sensor: to detect whether paper is retracted correctly or not in the paper retraction process.

4 Installation and suggestion

4.1 Unpacking

Open the carton and check whether all items listed on the packing list are included or have any damages. In case of damages or missing items, please contact your dealer or the manufacture for assistance.

4.2 Adjusting paper guide

Open the carton and adjust the paper guide to meet different paper width before installing printer.

BK-T680 can use paper adjustable from 48 to 82.5mm. Adjust the paper guide to right position as showed in the following figure.

Three are six scale marks on bottom cover of paper guide: 82.5mm, 80 mm, 76 mm, 70 mm, 56 mm, 48mm. Remove the paper guide to adjust the gap be aligned with the dot of target scale mark.

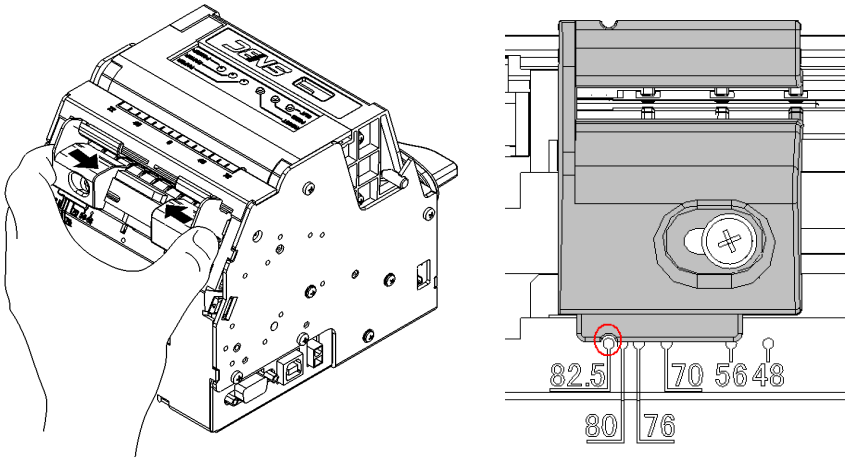


Figure 4.2-1 Adjusting paper guide

Note: Unscrew the screws that fix the paper guide in anticlockwise direction before removing the paper guide, and then tighten the screws after the paper guide reaching the right position.

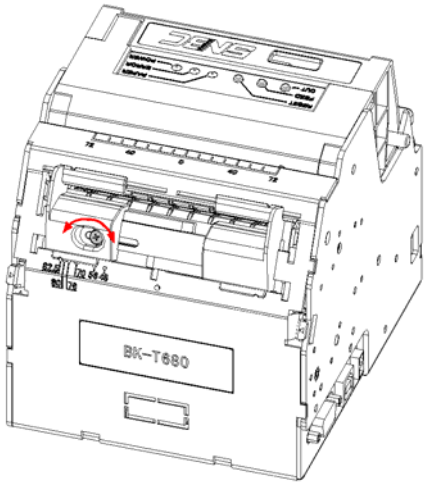


Figure 4.2-2 Adjust the paper guide fixing screws

4.3 Adjusting mark sensor

The position of mark sensor on BK-T680 printer can be adjusted to right or left side, thermal or non-thermal side. The mark sensor needs to be adjusted when following cases occur:

✧ The position of mark on paper is inconsistent with the position of mark sensor (including right/left side, thermal/non-thermal side).

Steps to adjust the position of mark sensor to right/left side:

1) Rotate the cross screw driver deep in the printer in the direction shown in the figure 4.3-1 to adjust the position of mark sensor;

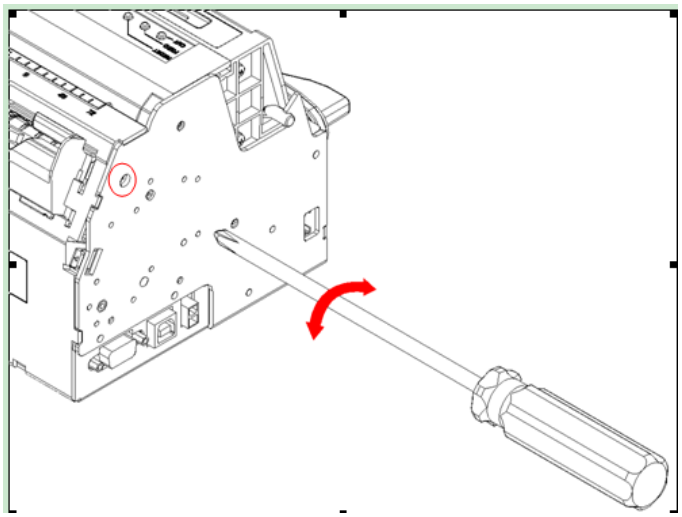


Figure 4.3-1 Adjusting mark sensor

2) The bulge that aligns with scale mark indicates the corresponding mark sensor position, as shown in the figure 4.3-2. Take out the cross screw driver when the sensor get to the right position;

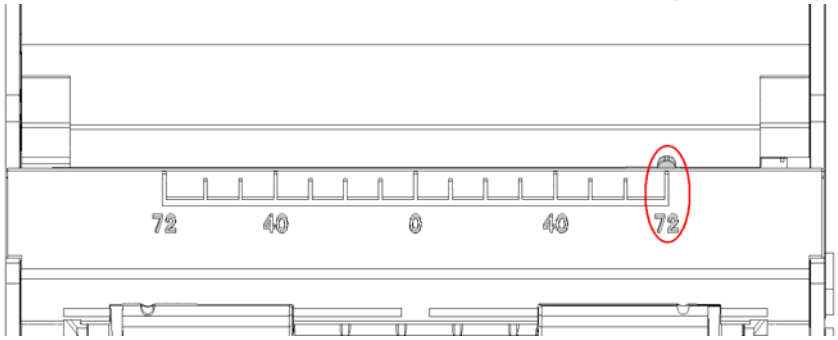


Figure 4.3-2 Adjusting mark sensor

Steps to adjust the position of mark sensor to thermal/non-thermal side:

1) Refer to step 1 in "5.1 cleaning mark sensor" to remove the paper guide module;
2) Refer to step 2 in "cleaning mark sensor" to remove the screw module of mark sensor, and exchange the upper and the lower screw modules of mark sensor, then the position of mark sensor (thermal/non-thermal side) is changed.

4.4 Grounding

To ensure the printer is well grounded, connect the grounding cable as showed in the figure 4.3-1.

Necessary tools: cross screw driver.

Fix the grounding cable to one of the fixing holes (11 pcs of M3 holes) shown in figure 4.4-1 when installing the printer, and complete the connection of grounding cable.

Note: The screw length is 4mm.

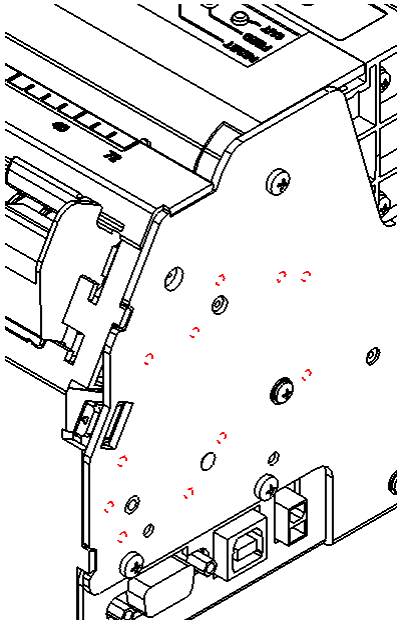


Figure 4.4-1 Grounding place

4.5 Connecting power adapter

1) Ensure the printer power is turned off;
2) Insert the power adapter cable into the power interface at the bottom of the printer as showing in figure 4.5-1.

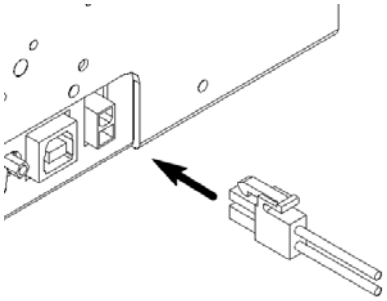


Figure 4.5-1 Connecting power adapter

3) Connect the input power supply of power adapter.

Caution:

- ✧ Use the recommended power adapter or the equalities.
- ✧ Connect power adapter connector at a right angle between pin and socket;
- ✧ When connecting or disconnecting the cable connector of power adapter, always hold the connecter shell and don't pull the cable forcibly.
- ✧ Avoid dragging or pulling the cable of AC adapter, otherwise the cable may be damaged or broken, and a fire and electric shocking may be caused accordingly.
- ✧ Avoid placing the power adapter near an overheating device, otherwise the surface of cable may melt and cause a fire or electric shock.
- ✧ If leaving the printer idle for a long time, please disconnect the power adapter of printer.

4.6 Connecting interface cable

1) Make sure that the printer has been shut down, (sign "O" in power switch is pressed down);
2) Connect the interface cable to the corresponding interface (refer to figure 4.6-1);
3) Connect the other end of the cable to PC.

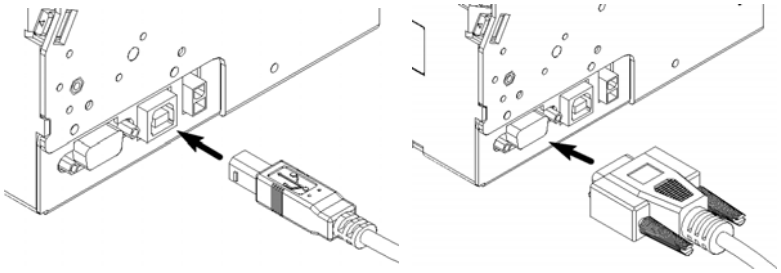


Figure 4.6-1 Connecting interface cable

Caution:

- ✧ Make sure the interface cable is connected in correct direction.
- ✧ When connect or disconnect the interface cable, make sure to hold the plug shell instead of dragging the cable forcibly.

4.7 Installing paper roll and loading paper

Before starting to load the paper roll, make sure the specification of paper roll is conformity with printer requirements (refer to 2.2 Paper specification).

4.7.1 Steps for installing paper roll

The paper roll installation of BK-T680 is quite easy, detail operations are as following:

1) Turn on power and place the paper head into the paper feeding path as shown in figure 4.7-1:

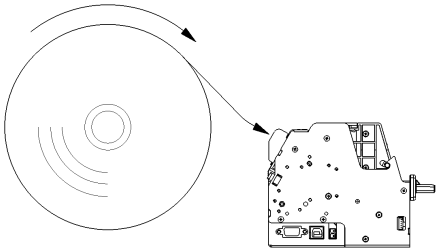


Figure 4.7-1 Paper loading

2) Roller starts rotating when paper sensor detects paper presence to finish semi-automatic paper feeding.

Note: Before loading paper, cut the paper head trimly as showed in the following figure.

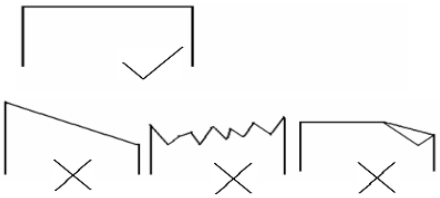


Figure 4.7-2 Paper head

4.7.2 Semi-automatic paper loading

1) Turn on the power and the LED flashes for alarming paper end;
2) Refer to figure 4.7-1, push the paper into paper inlet slightly for a certain distance, and release the hand when the platen roller starts to rotate and hold the paper;
3) Printer starts to feed paper and is possible to print when paper head stops at the normal printing position after printer stops feeding paper.

Caution:

✧ When push the paper into the feeding path, the strength should be well-distributed and gentle, try to make the front head of the paper parallel to the feeding paper path to avoid the paper decline.

4.8 Installing printer

BK-T680 embedded printer is a printer with easy and reliable operation, and it has good adaptability of installing and good maintenance. It adapts modularization design, active connection, flexible maintenance and operation station according to the embedded characters. Please refer to the content of this section when design the whole machine that the printer will be used for, to ensure the reliable and effective work of BK-T680 embedded printer.

4.8.1 Installation notice

- Install the printer on a flat and stable place. Recommend to use horizontal installation, the inclination angle shouldn't exceed ±15° (paper feeding direction). Inclination in other directions is strictly forbidden;
- the flatness of fixed surface should equal and less than 0.3mm;
- Keep the printer far away from water source.
- Do not place the printer in the place exposed to vibration and impact.
- Ground the printer safely;

4.8.2 Fixing printer

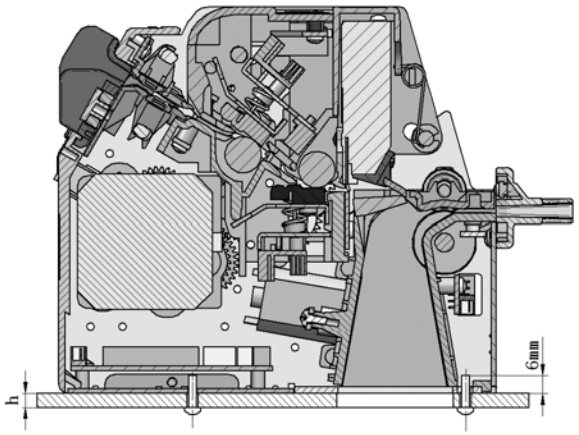


Figure 4.8-1 Fixing printer

- The printer fixing hole position please refer to figure 3.2-1 and figure 3.2-2 ;
- Screw length (H) ≤ bottom board thickness (h) + 6mm. For example, when the thickness of bottom board is 4mm, the length of screw should not exceed 10mm.

4.8.3 Operation space

- Open the top cover: push forward the open cover shaft to open the top cover as shown in the figure;

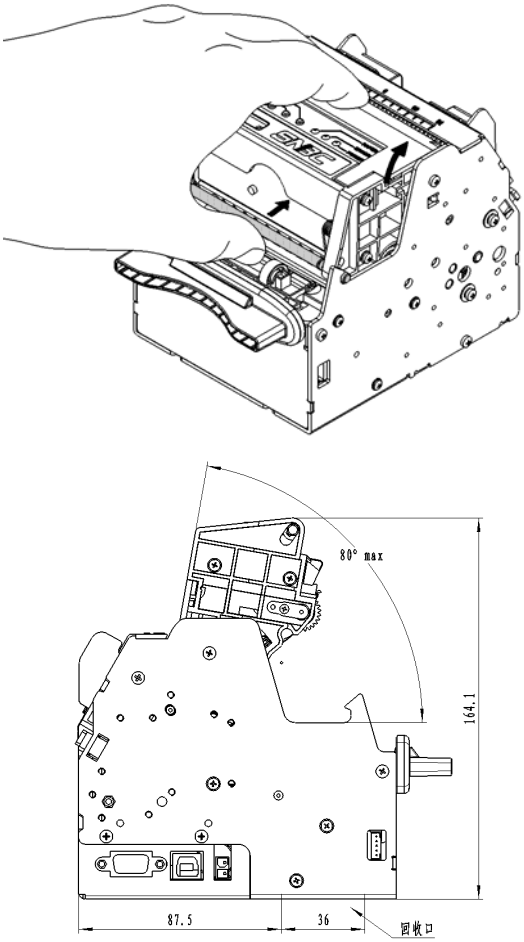


Figure 4.8-2 Printer space with standard paper holder

- Retraction space: Space to collect the receipt not taken away by customer.

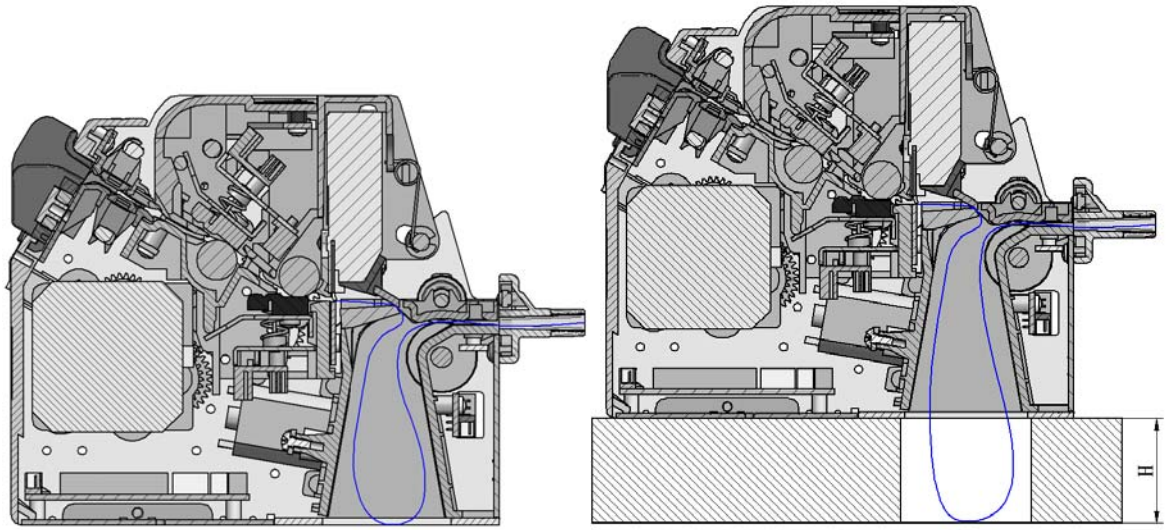


Figure 4.8-3 PRESENTER space

- PRESENTER space:PRESENTER space is inside the printer and its acceptable maximum length of receipt is 170mm. If the length of receipt exceeds 170mm, space needs to be reserved at the bottom of printer. Height of reserved space (H) ≥ (receipt length – 170mm) / 2.

4.9 Installing printer driver

BK-T680 printer provides driver for operation system as Windows 2000/ Windows XP/ Windows server 2003/Windows Vista/Windows Server 2008/Windows 7, and the installation includes typical installation and advanced installation.

4.9.1 Typical installation

Steps for typical installation are as following:

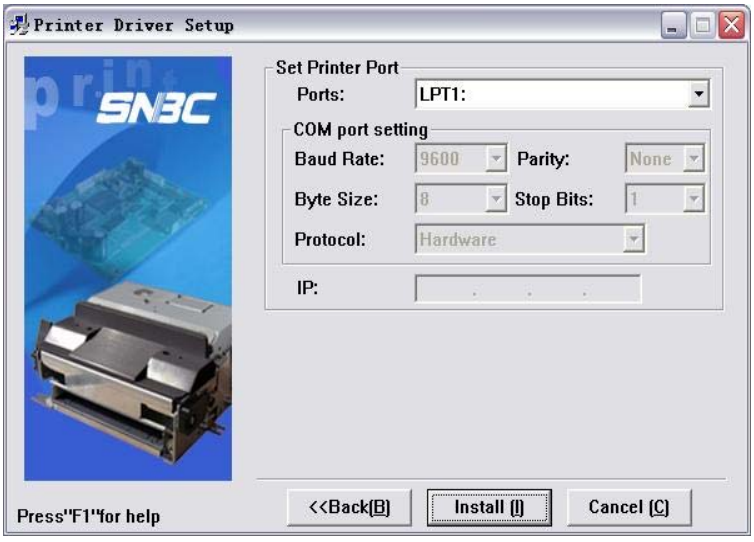
1) Run " Setup_BK-T680_EN V1.0\Setup.exe". Please read the legal agreement carefully. If you agree to the terms of this agreement, click on the "I Accept" button, and then click on "Next" button.

2) Select install module and the name of the printer that will be installed. If you want to set the current printer as the default printer, select "Set As Default Printer", and then click on "Next" button.

3) Select the setup type "Typical", and then click on "Next" button.

4) Select the current system, and then click on "Next" button. (Not support windows 2000 in 64bit OS)

5) Set printer port, select port "LPT1" as printer port, and then click on "Install" button to start the installation.



4.9.2 Advanced installation

Advanced installation is mainly used for the users who have special requests to the printer driver. Different to typical installation, it supports driver for printer with several USB ports and has the function to

set printer driving mode. Steps for advanced installation are as following:

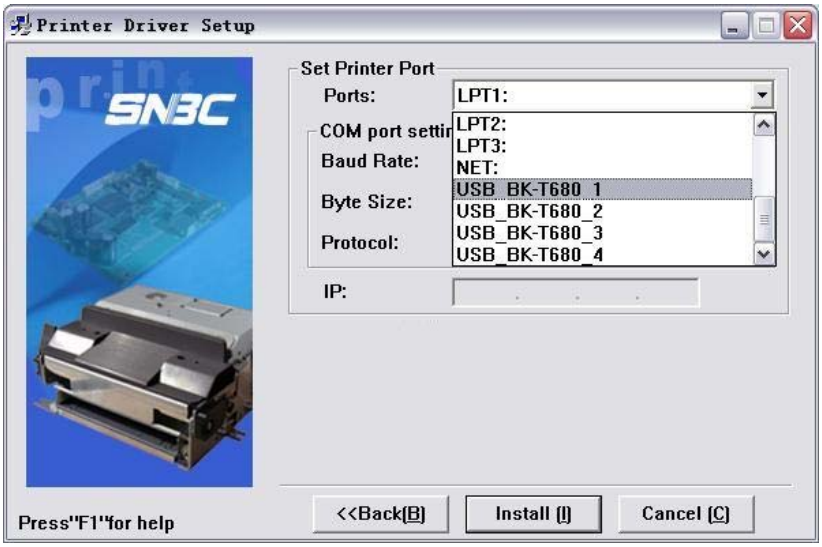
1) Run " Setup_BK-T680_EN V1.0\Setup.exe". Please read the legal agreement carefully. If you agree to the terms of this agreement, click on the "I Accept" button, and then click on "Next" button.

2) Select install module and the name of the printer that will be installed. If you want to set the current printer as the default printer, click on "Set As Default Printer", and then click on "Next" button.

3) Select the setup type: "Advanced", then click on "Next" button.

4) Select the current system, and then click on "Next" button. (Not support windows 2000 in 64bit OS).

5) Select printer port. The default print port is "LPT1". If the port is USB port, you can install Multi-USB printers. Click "Install" to start the installation.



5 Routine maintenance

Caution:

- ✧ Before starting routine maintenance for the printer, make sure the power is turned off.
- ✧ Do not touch the surface of print head with hands or metal. Do not use forceps so as to prevent print head, platen roller and sensors being scratched.
- ✧ Do not use organic solvent like gasoline, acetone and etc.
- ✧ When cleaning print head or sensors, please wait for pure alcohol to evaporate totally before starting printing.
- ✧ It is recommended to do routine maintenance per month.

5.1 Cleaning mark sensor

When the following cases occur, the ,mark sensor should be cleaned:

- ➢ The printer doesn't identify marks correctly.

Cleaning steps for mark sensor:

1) Slightly nip the latches on both sides of paper guide cover and pull outward the top of paper guide cover to remove the paper guide module.

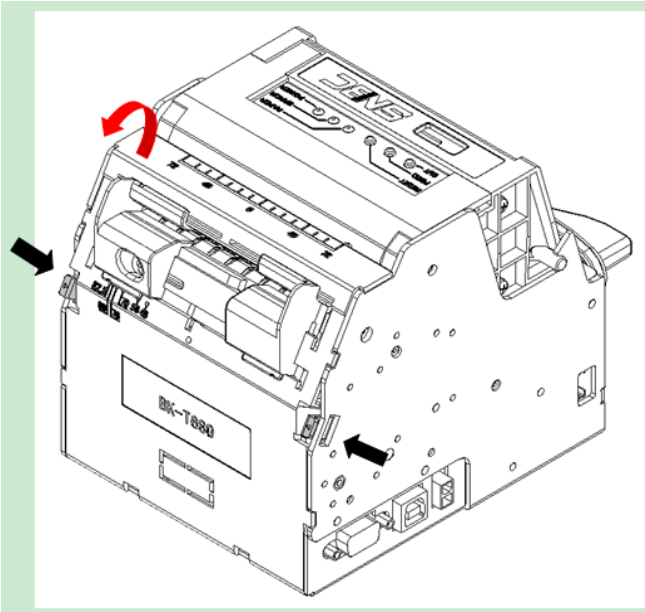


Figure 5.1-1 Cleaning mark sensor

Caution:

- ✧ The cable of sensor on paper guide module is connected with main control board, thus do not remove the paper guide module by force. Pull out the cable of sensor from the main control board after slowing opening the paper guide module as the above method.

2) Remove the thumb wheel shown in figure 5.1-2, and then remove the screw where the mark sensor is installed (refer to figure 5.1-2) and wipe off the dust or stains on the sensor surface with soft cotton cloth dipped with pure alcohol (it should be wrung out). Wait for 5 to 10 minutes until pure alcohol evaporates completely, and then assemble it in the reverse steps. Check the cable

connection after completing the assembly, and turn on the power if the cable is correctly connected.

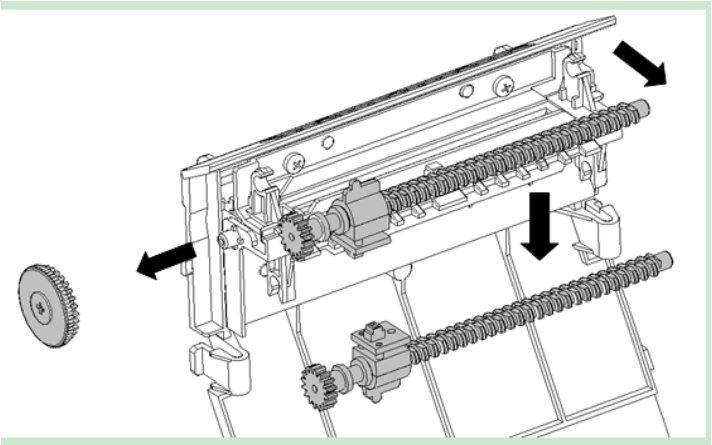


Figure 5.1-2 Cleaning mark sensor

5.2 Cleaning print head and platen roller

When the following cases occur, the print head and platen roller should be cleaned;

- Printout is not clear;
- Some columns on the page are not clear;
- Paper feeds or retracts with big noises.

Cleaning steps for print head and platen roller:

1) Turn off the printer power;
2) Slightly press the lock axis of top cover in the direction shown in the figure 5.2-1 to open the top cover module;

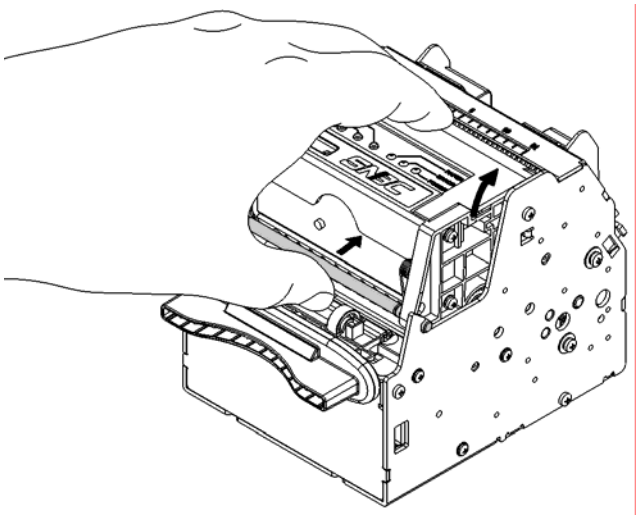


Figure 5.2-1 Cleaning print head

3) In figure 5.2-2, No.1 is platen roller and No.2 is print head. Clean the surface of print head with soft cotton cloth dipped with pure alcohol (it should be wrung out);

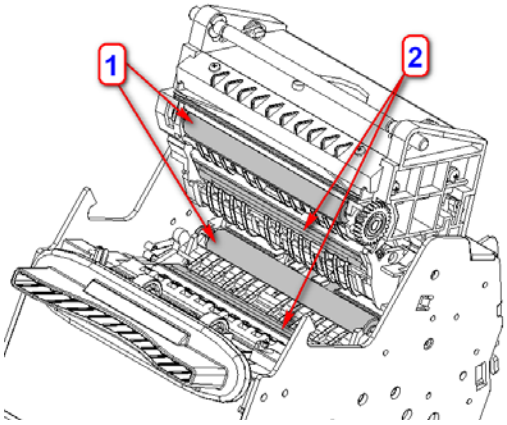


Figure 5.2-2 Cleaning print head

4) Wipe off dust and stains on the surface of the platen roller with soft cotton cloth dipped with neutral detergent (it should be wrung out);
5) Execute the assembly according to the reverse steps after the print head and platen roller are dry, and then check the connecting cable and turn on the power after ensuring the correct connection.

5.3 Cleaning paper out sensor

When any of the following case occurs, paper out sensor should be cleaned;

- ✧ The paper can't back to normal printing position during semi-automatic paper load;
- ✧ Motor for printing reverses backward for long time during semi-automatic paper load;
- ✧ PRESENTER can not hold paper normally;
- ✧ Not execute paper retraction after PRESENTER holding paper;

Cleaning steps for paper out sensor:

1) Turn off the printer power;
2) Slightly press down the clock axis of top cover in the direction shown in the figure 5.2-1 to open the top cover module;
3) Slightly press the latch on Presenter upper path in the direction shown in the figure 5.3-1, remove the Presenter upper path module, then the dustproof cover of paper out sensor located on Presenter path can be seen. Wipe off dust and stains on the surface of the dustproof cover with soft cotton cloth dipped with pure alcohol (it should be wrung out);

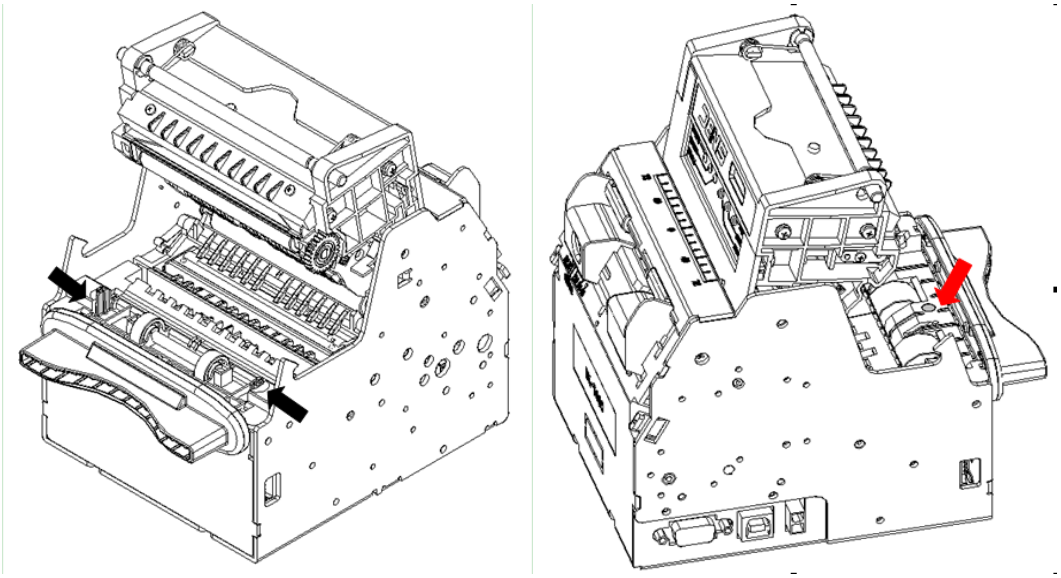


Figure 5.3-1 Cleaning paper out sensor

4) Wait for 5 to 10 minutes until pure alcohol evaporates completely, and then install the Presenter upper path module and turn on power.

5.4 Cleaning retraction sensor

When any of the following case occurs, retraction sensor should be cleaned;

- Presenter fails to transmit paper retraction information properly.

Cleaning steps for retraction sensor:

1) Turn off the power;
2) Shown as in Fig.5.4-1, you can view the retraction sensor at the retraction path of PRESENTER. Wipe off dust and stains on the sensor surface with soft cotton cloth dipped with pure alcohol (it should be wrung out);

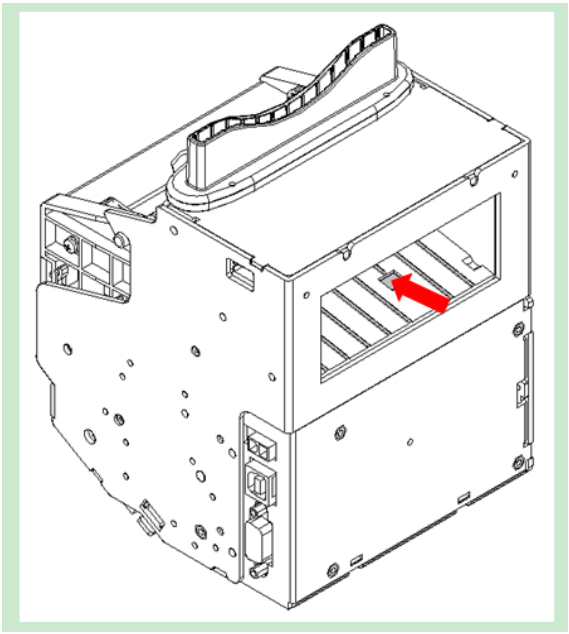


Figure 5.4-1 Cleaning retraction sensor

3) Wait for 5 to 10 minutes until pure alcohol evaporates completely, and turn on the power.

5.5 Clearing jammed paper in the cutter

When any of the following errors occurs, please remove jammed paper manually;

- Paper jams between platen roller and cutter;
- Paper accumulates at paper inlet of the cutter in the front of print head.
- The cutter can't cut off paper.

Remove jammed paper in the following steps:

1) Turn off the power;
2) Refer to steps 2 in "5.2 Cleaning print head and platen roller", slightly press down the lock axis of top cover in the direction shown in figure 5.2-1, and open the top cover module;
3) Check whether there is any wastepaper under the cutter blade and print head. If so, please take it out;
4) Close the top cover if there is no wastepaper;

⚠ Caution:

- Turn off the power before you remove the jammed paper.

5.6 Clearing jammed paper in the presenter

When any of the following errors occurs, please remove the paper manually:

- Paper is jammed into the path of presenter;
- Paper does not enter into paper out path of presenter;

Remove jammed paper in the following steps:

1) Refer to step 3 in "5.3 Cleaning paper out sensor", slightly press down the latch on Presenter upper path in the direction shown in figure 5.3-1, and then remove Presenter upper path module;
2) Remove the jammed paper.

6 Interface signal

6.1 RS-232 interface

6.1.1 Parameter

Data transfer mode: asynchronous serial communication

Handshake mode: RTS/CTS control

Voltage level:

MARK = -3 to -15 V: Logic "1"/ OFF

SPACE = +3 to +15 V: Logic "0"/ ON

Baud rate: 1200, 2400, 4800, 9600, 19200, 38400, 57600 bps

Data bit: 8 bit or 7 bit

Parity checkout: None, even, or odd

Stop bit: 1 bit

Connector: 9 pins serial connector (negative head)

Note: Serial baud rate, data bit, parity bit are set by EEPROM

6.1.2 Interface linking terminal distribution and signal function

Printer signal and status is described as the following table:

No.	Signal name	Signal direction	Function
1	NC	—	Not connected
2	TXD	Output	Transmit data
3	RXD	Input	Receive data
4	DSR	Input	Data set ready
5	GND	—	Signal ground
6	DTR	Output	Data terminal ready
7	CTS	Input	Clear to send
8	RTS	Output	Request to send
9	NC	—	

Table 6.1-1 Interface and pin explanation

6.1.3 Demonstration of interface connection

Host side Printer side

TXD----------RXD

RXD----------TXD

DSR----------DTR

CTS----------RTS

RTS----------CTS

DTR----------DSR

GND----------GND

Note: Please make sure the printer is turned on and wait for the end of initialization, then send data to the printer.

6.2 USB interface

USB interface is the standard interface of the printer, which meets USB 2.0 protocol standard, and work in full speed mode. Data transfer bit rate is 12Mbps.

6.2.1 Interface specification

Data transmission: Support USB 2.0 protocol

Connector (printer end): USB B series socket. Support and connect through USB HUB

6.2.2 Interface definition and functions

Pin No.	Signal name	Description
1	VBUS	+5V
2	DATA-	Data transmission negative end
3	DATA+	Data transmission positive end
4	GND	Grounding

Table 6.2-1 USB interface signal definition

6.2.3 Demonstration of USB interface connection

Host side **Printer side**

VBUS .....VBUS

DATA-..... DATA-

DATA+..... DATA+

GND ..... GND

6.2.4 Interface connector

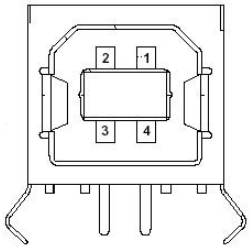


Figure 6.2-1 USB interface connector

6.3 Parallel interface

6.3.1 Parameter

Support IEEE1284 byte mode;

Handshake mode: Busy signal;

Signal voltage level: TTL;

6.3.2 Interface linking terminal distribution and signal function

Printer signal and status is described as the following table:

Pin	Source	Compatible mode
1	H	nStrobe
2		Signal Ground

Pin	Source	Compatible mode
3	H	Data 0
4		Signal Ground
5	H	Data 1
6		Signal Ground
7	H	Data 2
8	H	nSelectIn
9	H	Data 3
10		Signal Ground
11	H	Data 4
12	P	Peripheral Logic High
13	H	Data 5
14		Signal Ground
15	H	Data 6
16	P	nFault
17	H	Data 7
18		Signal Ground
19	P	nAck
20	H	nAutoFd
21	P	Busy
22		Signal Ground
23	P	Perror
24	H	nInit
25	P	Select
26		Signal Ground

Table 6.3-1 Pin list of interface module

6.3.3 Demonstration of interface connection

Interface connector: IDC26 (CH2.54) socket;

Use special parallel interface connecting wire with one end connecting with printer and the other end connecting with standard parallel interface communication cable (DB25M to CN36M). The standard parallel interface communication cable is connected with PC.

6.4 Ethernet interface

6.4.1 Parameter

- Support 10BASE-T/100BASE-TX communication
- Compatible with Ethernet II standard frame type
- Indicator shows network connecting status and data transmission status
- Support 9100 port print
- Support status back
- Support parameter configuration
- Support firmware update on-line
- Support HTTP service, configure printer and detect status via embedded web page.

6.4.2 Interface linking terminal distribution and signal function

Interface adopts 10BASE-T/100BASE-TX standard in accordance with IEEE 802.3/802.3u. The interface signal is defined as below:

PIN	Signal Name	Instruction
1	TX+	Data transmission +
2	TX-	Data transmission -
3	RX+	Data receiving +
4	NC	Reserve
5	NC	Reserve
6	RX-	Data receiving -
7	NC	Reserve
8	NC	Reserve

Table 6.1-1 Pin list of interface module

6.4.3 Interface connector

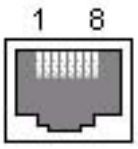


Figure 6.4-1 Socket of interface module

6.5 Power interface

Power connector is used to connect printer and external power supply device.

6.5.1 Pin distribution

Reference connector type: molex/39-01-2020

Reference socket type: molex/39-30-7025

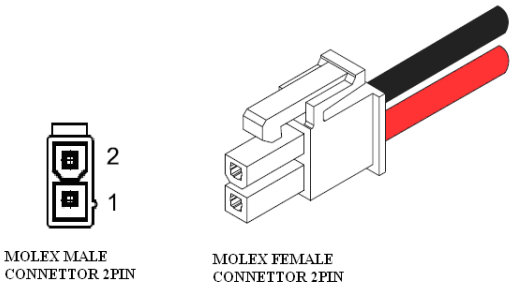


Figure 6.5-1 Power socket and connector

Pin definition of power interface:

Pin	Signal definition	Cable color
1	+24V	Red
2	GND	Black

Table 6.5-2 Pin list of power interface

6.5.2 Power supply requirements

Voltage supplied: +24 VDC ±10%

Average current (24V, room temperature, 12.5% duty ratio sample): 2.5A

7 Troubleshooting and maintenance

In case of printer fault, consult this section for solutions and advice.

If you do not find a solution in this section, please contact your local dealer for assistance.

7.1 Error type and settlement

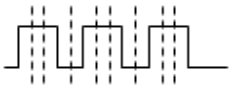
Error	Description	Display mode of error LED 	Recovery
Print head overheating	Temperature of print head is too high.		Automatic recovery after temperature falling down.
Print head uplifting	Print head is uplifted.		Automatic recovery after putting down the print head.
Paper end	Paper sensor detects paper end.		Automatic recovery after reloading paper.
Cutter error or paper jam	Paper jams or cutter can't work normally.		Remove the jammed paper and press CUT button to cut paper.

Table 7.1-1 Error index

Note: Under printer default configuration, printer will not stop printing when paper near end, and user could change the printer configuration as stop printing when paper near end via KIOSKUtility software.

Printer executes the follows activities when errors occur:

- Stop printing;
- Busy signal is available;
- Error LED flashes;

7.2 Solution for common errors

7.2.1 Problems during paper loading

Problem	Possible reasons	Solution
Paper roll can't be loaded into paper holder	The core ID of paper roll does not match the printer.	Replace paper.
The printer can't feed paper automatically	Paper head is irregular; paper jams; The paper out sensor is not covered by paper head; Dust and wastepaper covers the Paper out sensor.	Dispose the paper head as requirements; Remove jammed paper; Check the front head of paper to confirm that the paper out sensor is covered fully; Clean the paper out sensor.
Paper not stops at the normal printing position after automatically paper feeding	Dust or wastepaper covers the paper out sensor	Clean the paper out sensor.

Table 7.2-1 Problems during paper loading

7.2.2 Problems during printing

Problems	Possible reasons	Solution
The receipt can't be ejected out smoothly.	Paper jams	Check paper path, remove wastepaper and reload paper.
Printout is not clear	The paper is loaded in wrong direction or its quality is poor; Print head needs cleaning; Printing darkness is too low; Input voltage is too low.	Make sure the paper roll is loaded correctly; Use recommended paper or its equivalents; Clean the print head; Adjust print darkness(＊); Use the power supply that meets requires.
Cutter works abnormally	Paper jams in cutter; Cutter is broken	Check if there are sundries in cutter path(＊); Contact with SNBC or your local distributor.
Printing data is lost and no printing	The top cover module is not closed; Paper jams.	Close top cover module properly; Remove jammed paper.

Table 7.2-2 Problems during printing

＊To adjust print darkness, contact with our distributors or SNBC;

＊If paper jams in cutter, please remove the jammed paper first, and then press CUT button to reset the cutter.

7.2.3 Problems during paper out

Problems	Possible reasons	Solution
The printer stops printing and warns errors during printing.	Paper is end; Paper jams in cutter; Dust or wastepaper covers the paper near end sensor; Paper near end (Printer is set to stop printing when paper near end).	Install a new paper roll; Check if there are sundries in cutter path; Clean the paper near end sensor.

Table 7.2-3 Problems during paper out

Note: Contaminated paper may cause detection failure.

7.2.4 Other problems

Problem	Possible reasons	Solution
LED isn't light and printer doesn't work	The printer is not connected with the power correctly; The printer isn't turned on.	Connect the printer with the power correctly; Turn on the printer.
The printer doesn't work after receiving commands	Printer is in error status; The communication cable is not connected well; Interface setting is wrong.	Remove all errors(＊); Make sure the communication cable is connected correctly; Print a self-test page and set the interface again according to information on it.

Table 7.2-4 Other problems

Appendix

Appendix 1 Self-test page

Print self test page in the following steps: Turn off printer power, and then press down the FEED button for at least 3 second while turning on the printer. The printer will start to print a self-test page.

*****BK-T680 TEST FORM*****

Boot Firmware	:FV1.000
Main Firmware	:FV1.000
H/W Parameters	
Flash Memory Size	:4M Bytes
Flash Logos Size	: 1536k Bytes
Resolution	:203×203DPI
Print Width(Max)	:80mm
Fixed LeftMargin	:2mm
Fixed RightMargin	:0mm
PrintSpeed(MAX)	:275mm/s
Dark Scale	:100
Cutter	:Enabled
CR Command	:Disable
Current Code Pages	:PC437
Communication Interface	
Interface Type1	:RS232
Baud Rate	:38400
Data Bits	:8
Stop Bits	:1
Parity	:None
Handshanking	:DTR/DSR
Data Received Error	:Ignored
Interface Type2	:USB_BK-T680(U)_1
Interface Mode	:API Mode
Rx Buffer Size	:4K Bytes
Resident Fonts	
Code Pages	
	:PC437,PC8580
	:PC852,PC858
	:PC860,PC863

	:PC865,PC866
	:1252,katakana
	:More in Feed button configuration
International Character	
	:U.S.A.
	:France
	:German
	:U.K.
	:Denmart I
	:Sweden
	:Italy
	:Spain
	:Japan
	:Norway
	:Denmark II
	:Spain II
	:Latin America
Bar Code Available	
	:UPC-A
	:UPC-E
	:EAN-8
	:EAN-13.
	:CODE 39
	:CODE 93
	:ITF
	:CODABAR
	:CODE128
	:PDF417
	:GS1
	:QR-CODE
	:MAXICODE

Statistic Data:

Printed paper length :xxxxxxxx

Tph(Upside):	
Printed lines(Total)	:xxxxxxxx
Printed lines(Actual)	:xxxxxxxx
Tph(Downside):	
Printed lines(Total)	:xxxxxxxx
Printed lines(Actual)	:xxxxxxxx
Number of Cuts(Toatal)	:xxxxxxxx
Number of Cuts(Actual)	:xxxxxxxx
Power On time	:xxxxxxxx

Notes: xxxxxxxx indicates the detail contents or values of items to be printed.

Explanation of self-test page

Boot Firmware:	Printer BOOTLOADER version
Main Firmware:	Printer monitor program version
H/W Parameters:	Printer parameter setting
Flash Memory Size:	Printer FLASH capability
Flash Logos Size:	Flash size for bitmap downloading
Resolution:	Printer resolution
Fixed LeftMargin:	Printer fixed left margin
Fixed RightMargin:	Printer fixed right margin
Print Width(Max):	Maximum printable width
Dark Scale:	Print darkness
PrintSpeed(MAX):	Print speed
Cutter:	Enable or disable auto cutter
CR Command:	Enable or disable CR command
Current Code Pages:	PC437
Communication Interface:	Communication interface setting
Interface Type1:	Name of interface 1
Baud Rate:	baud rate
Data Bits:	Data bit
Stop Bits:	Stop bit
Parity:	Parity
Handshanking:	Handshake
Data Received Error:	Data receiving failure settlement
Interface Type2:	Name of interface 2
Interface Mode:	Mode
Rx Buffer Size:	Receiving buffer size
Resident Fonts:	Font setting

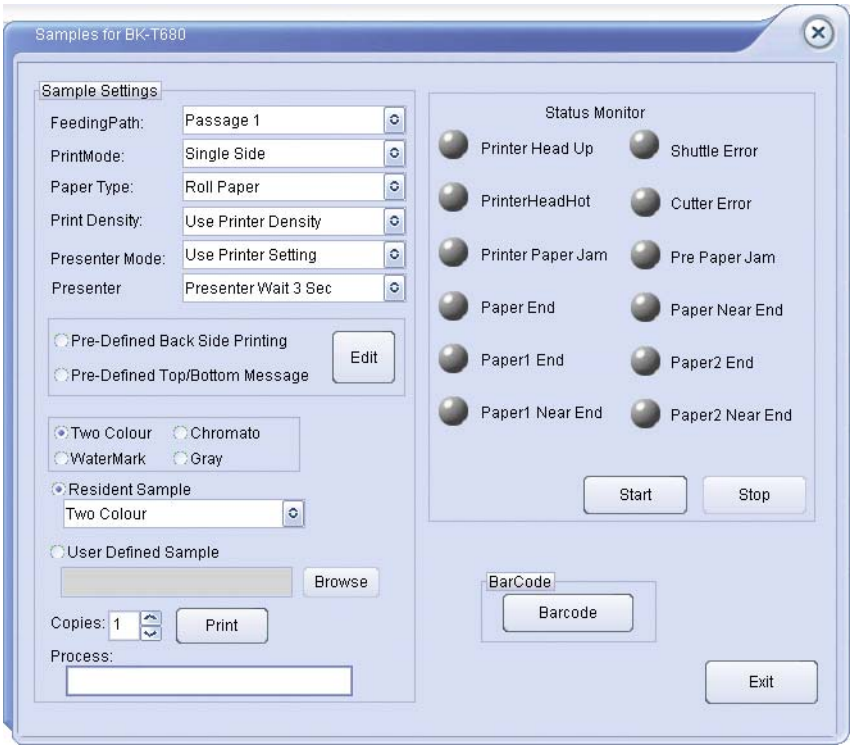
Code Pages:	Printable code pages
International Character:	International character set
BarCode Avaliable:	Printable barcode type
Statistics :	Historical data
Printed paper length:	Printer feed paper length (total)
Tph(Upside) :	Print head parameter (upside)
Printed lines(Total) :	Printer printed lines (total)
Printed lines(Actual) :	Printer printed lines of current print head
Tph(Downside):	Print head parameter (downside)
Printed lines(Total):	Printer printed lines (total)
Printed lines(Actual) :	Printer printed lines of current print head
Number of Cuts(Toatal):	Printer total cut numbers
Number of Cuts(Toatal) :	Printer total cut numbers of current cutter
Power On time:	Printer powers on time

Note: Different printer configuration, different self-test page contents.

Appendix 2 Software Tools

KIOSKDemo

This tool is designed for KIOSK serial printers. With it, you can update the firmware of the printer, edit and download logos, edit and download code page, print samples and so on.



KIOSKUtility

This tool is designed to configure and control kiosk printer.

Appendix 3 Optional parts

Appendix 3.1: Cantilever paper holder

Cantilever paper holder is optional for BK-T680 printer, in order to support paper roll with maximum diameter of 300mm.

- The cantilever paper holder is packed separately from printer mechanism and needs user itself to assemble. The cantilever paper holder package includes 6 pcs of M3 screw for fixing.
- There are 8 fixing positions between cantilever paper holder and printer mechanism, which can be chosen according to the space needs.

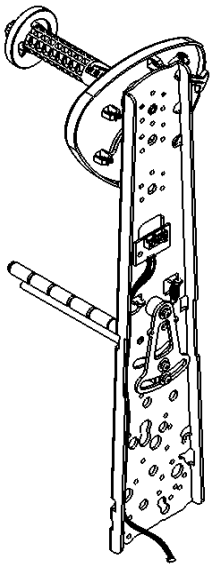


Figure appendix 3.1-1 Cantilever paper holder

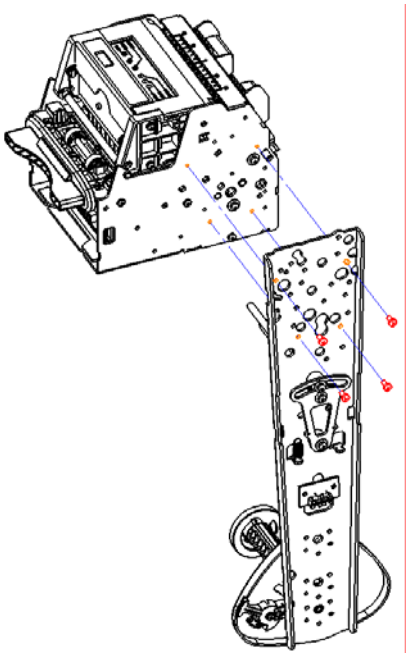


Figure appendix 3.1-2 Cantilever paper holder installed on the right (-90°)

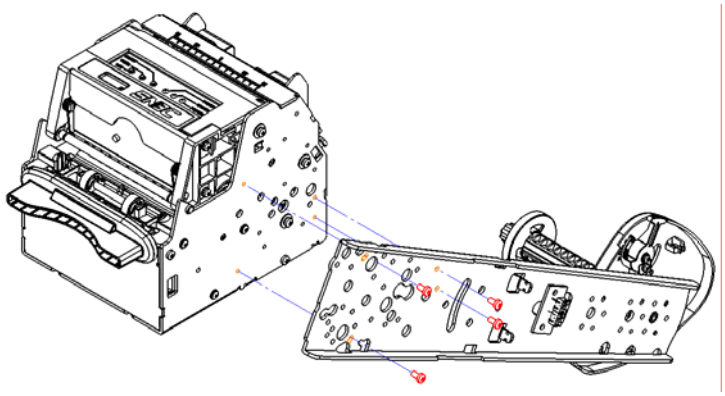


Figure appendix 3.1-3 Cantilever paper holder installed on the right (-45°)

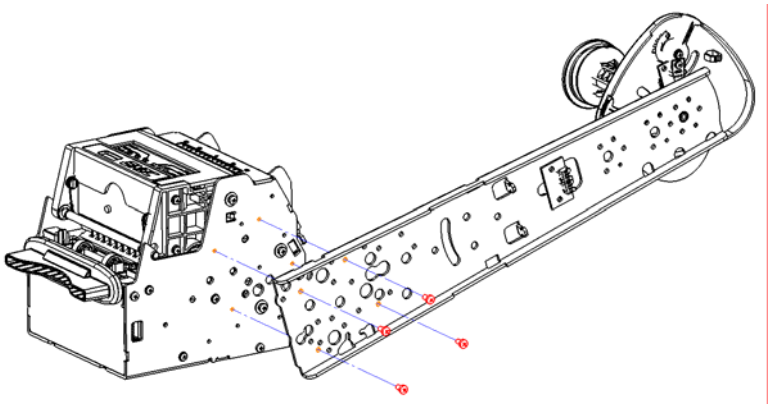


Figure appendix 3.1-4 Cantilever paper holder installed on the right (15°)

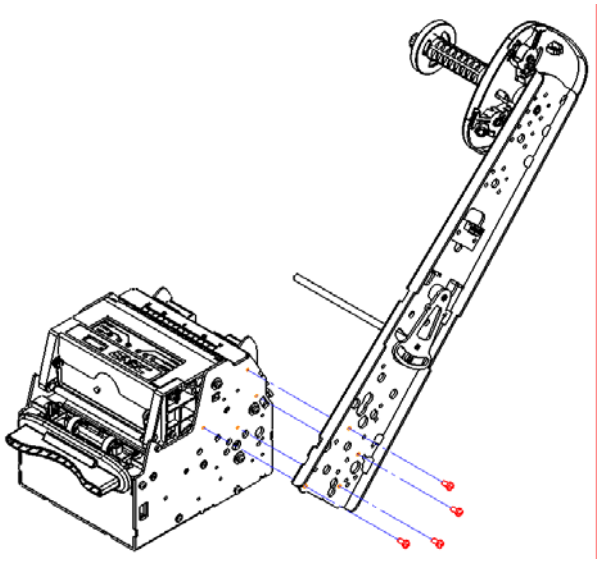


Figure appendix 3.1-5 Cantilever paper holder installed on the right (60°)

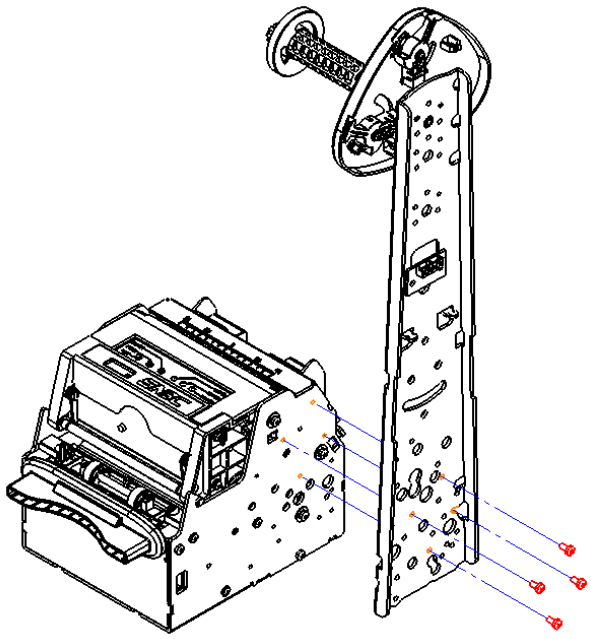


Figure appendix 3.1-6 Cantilever paper holder installed on the right (90°)

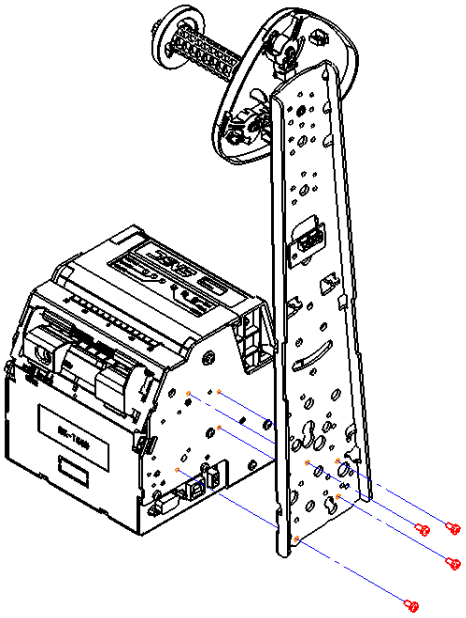


Figure appendix 3.1-7 Cantilever paper holder installed on the left (90°)

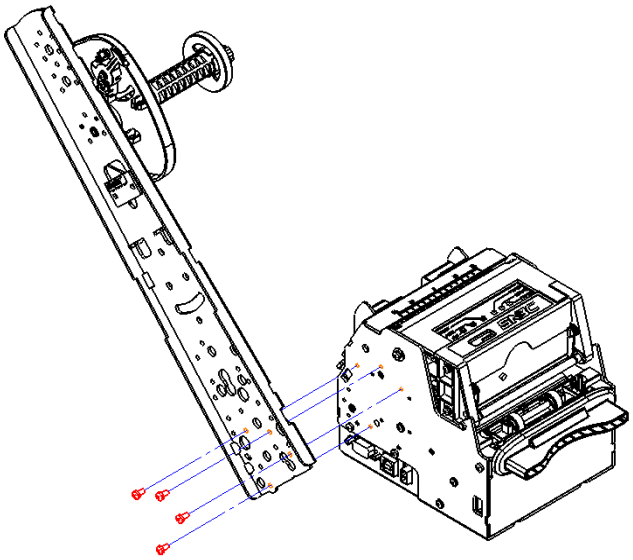


Figure appendix 3.1-8 Cantilever paper holder installed on the left (60°)

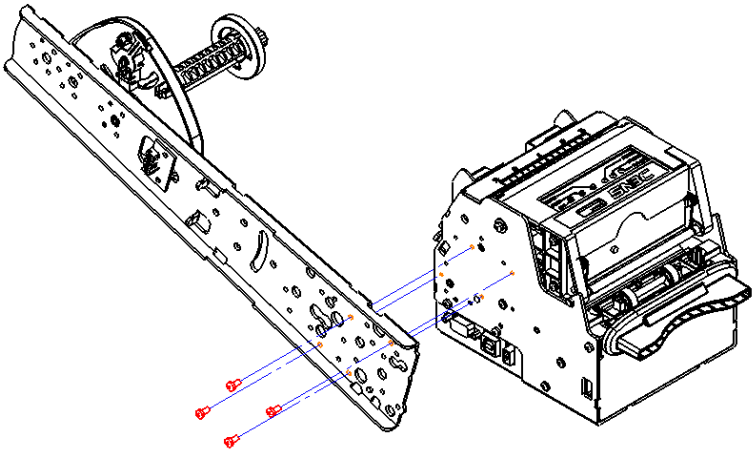


Figure appendix 3.1-9 Cantilever paper holder installed on the left (15°)

- After installing cantilever paper holder, insert the plug of paper near end sensor into the socket of printer mechanism.
- Overall size of printer after installing cantilever paper holder is as following:

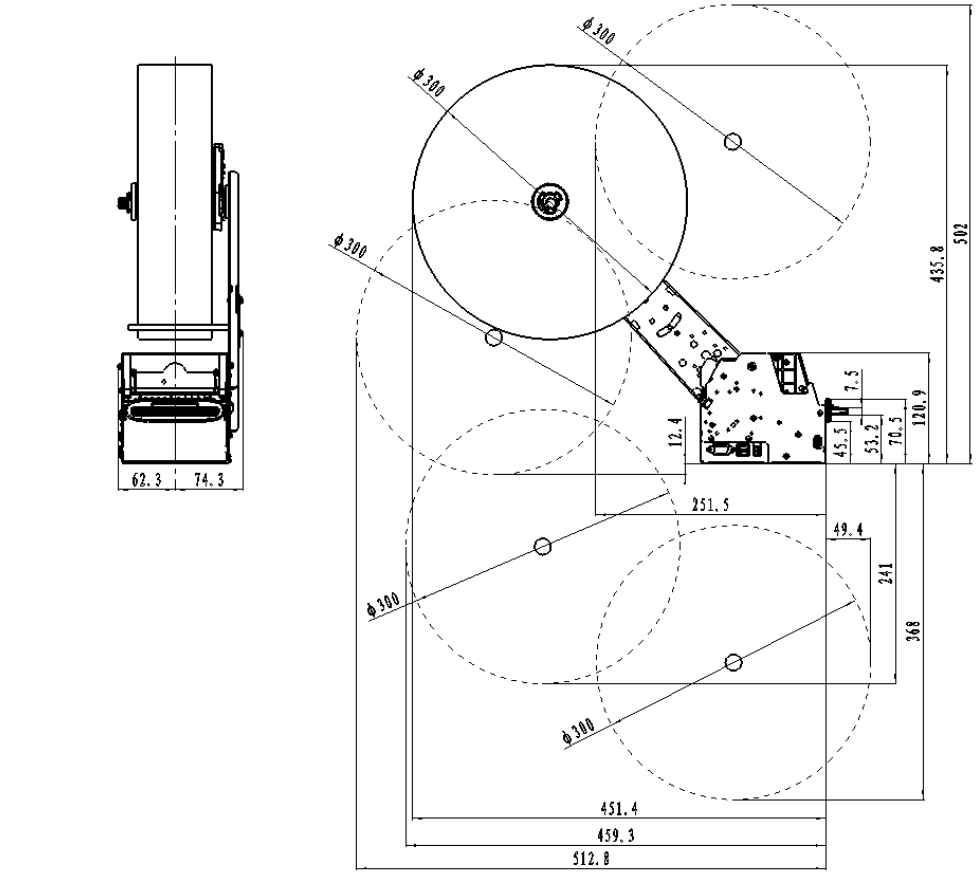


Figure appendix 3.1-10 Installing cantilever paper holder at right side

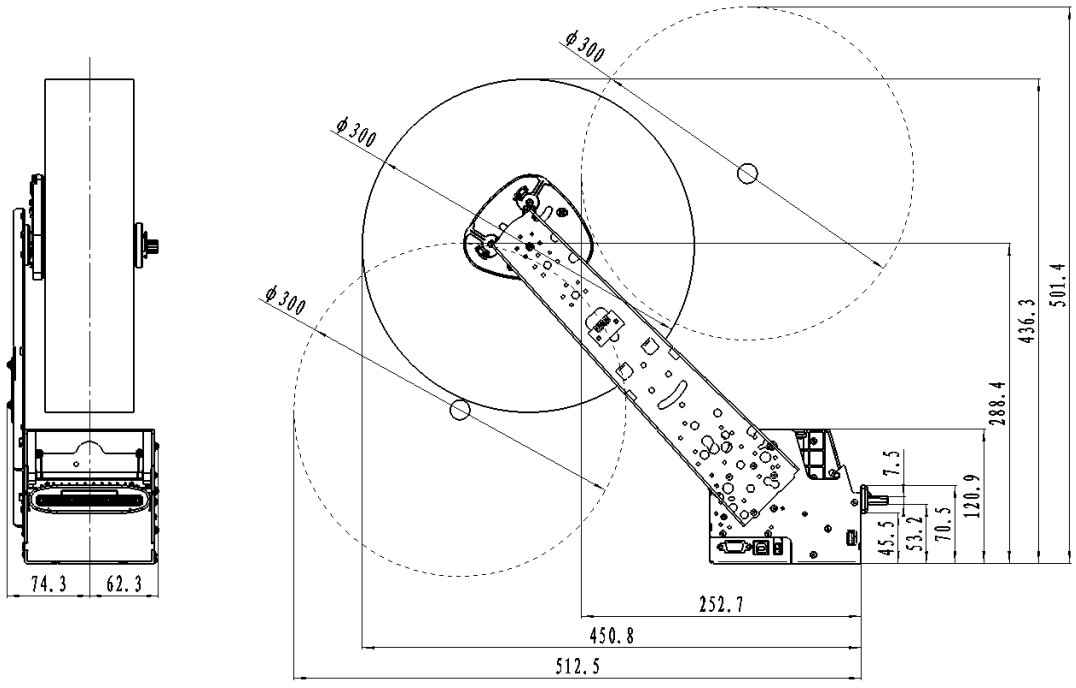


Figure appendix 3.1-11 Installing cantilever paper holder at left side

- Refer to the following figure, the paper guide of cantilever paper holder can rotate around the paper roll shaft. Make sure the arrowhead on paper guide is upward after installing the cantilever paper holder.

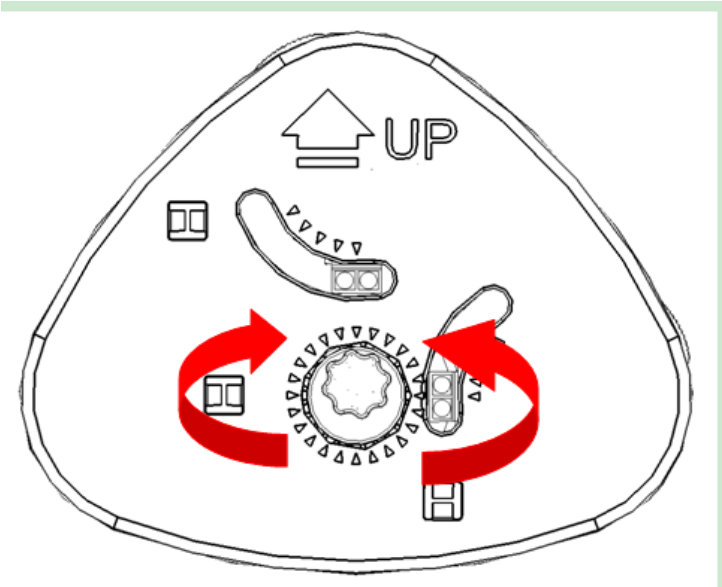


Figure appendix 3.1-12 Installing cantilever paper holder at left side

- Refer to the following figure, the paper guide of cantilever paper holder can be adjusted to meet paper of width from 48mm to 82.5mm via rotating the thumb wheel.

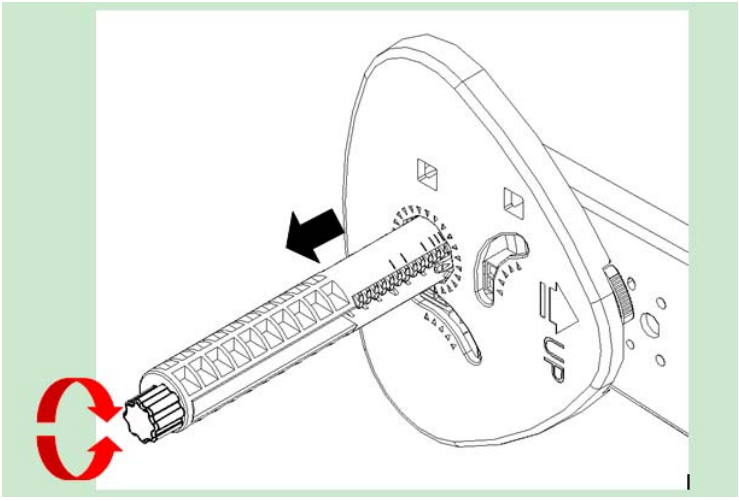


Figure appendix 3.1-13 Adjusting paper width

There are scale marks on paper roll shaft of cantilever paper holder, and the scale mark position where paper guide locates indicates the corresponding paper width. In the following figure, it indicates the corresponding paper width is 82.5mm.

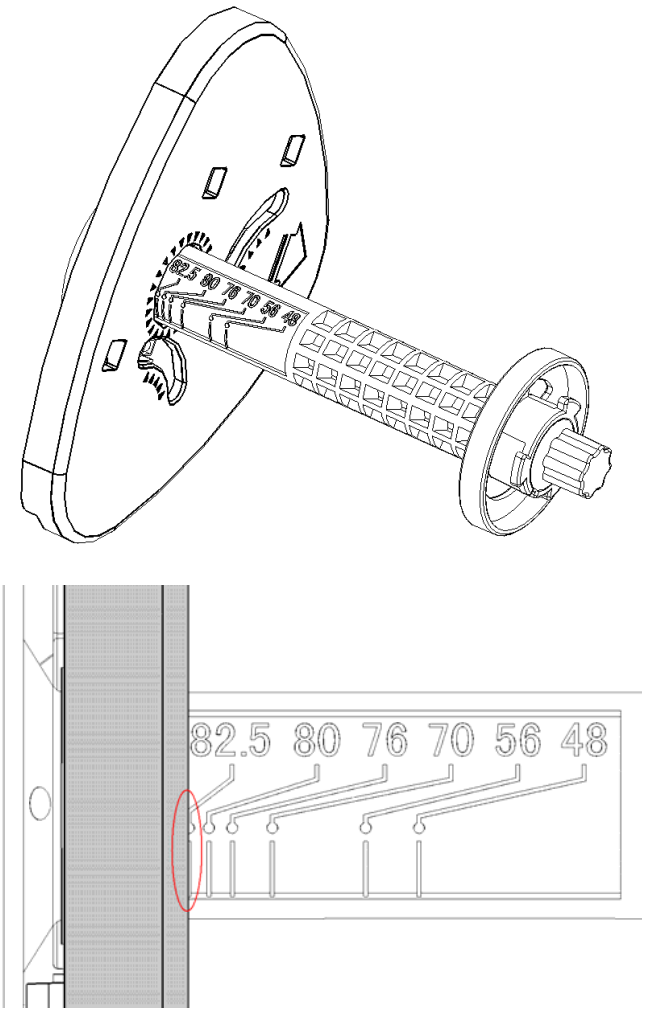


Figure appendix 3.1-14 Scale marks on paper roll shaft of cantilever paper holder

- Refer to following figure, turn the spanner of paper near end sensor to adjust the position of paper near end sensor and weekend paper near end sensor.

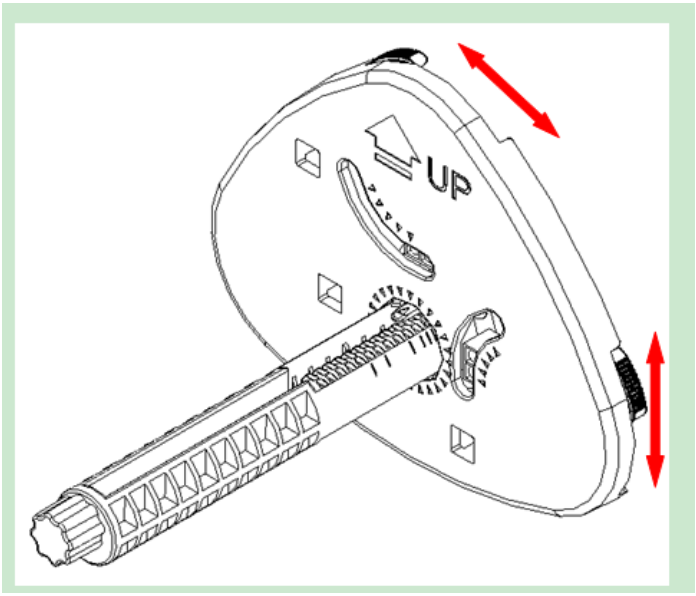


Figure appendix 3.1-15 Adjusting paper near end senor on cantilever paper holder

- Refer to following figure, to replace the paper roll.

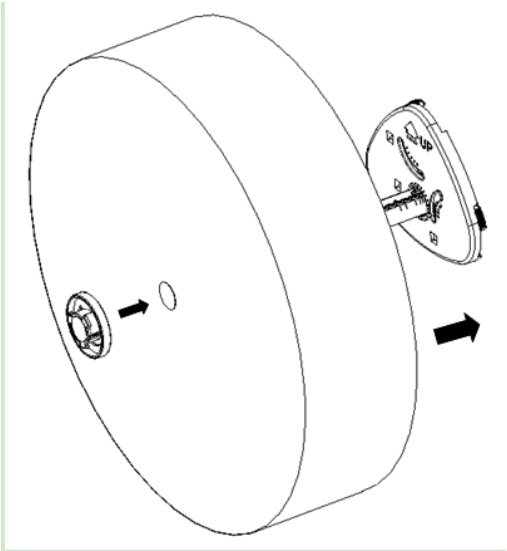


Figure appendix 3.1-16 Replacing paper roll