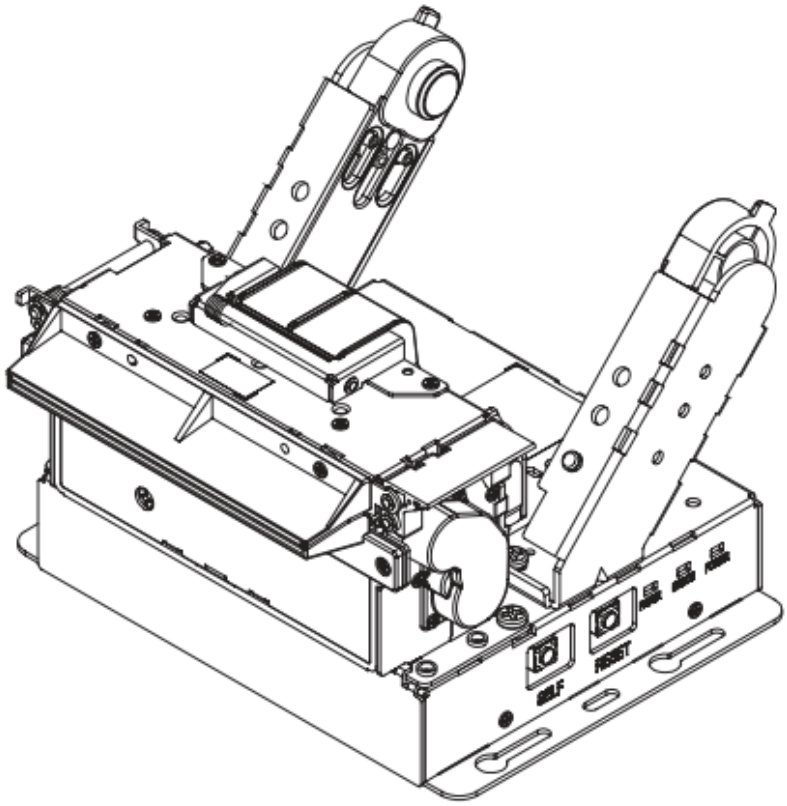
BIXOLON®

User's Manual

BK3-31

KIOSK PRINTER

Rev. 1.11



http://www.bixolon.com

Product Approval Sheet

Product Name	BK3-31
Manufacturer	BIXOLON
Product Specifications	BK3-31 User's Manual Rev.1.11
Customer	
Approved Date	
Signature	

※ Be sure to read the warnings and cautions (⚠) in the instruction manual.

Introduction

BK3-31 printers have been designed to be connected to various types of kiosk system.

※ The main features of the printer

1. KIOSK PRINTER
2. Thermal Receipt Printer
3. Maximum 250mm/s printing speed
4. External size
   - Diameter Φ 80: 130 x 130 x 91 (W x D x H)
   - Diameter Φ 102: 130 x 137 x 99 (W x D x H)
   - Diameter Φ 120: 130 x 144 x 105 (W x D x H)
   - Diameter Φ 150: 130 x 160 x 105 (W x D x H)
5. Serial/USB communication
6. Equipped with data buffer (receives print data even while printing)
7. Can print a range of barcodes
8. Range of printing density selectable(controlled with virtual memory switch management)

It is advisable to read the contents of this manual carefully before using the printer for the first time.

※ Use only authorized supplies that can be trusted!

- We are not responsible for quality and service for damage caused by the use of unauthorized products(or recycled ones).

Safety Information

⚠ ***Warning***: Warnings must be heeded carefully in order to prevent serious physical harm.

⚠ ***Caution***: Cautions must be heeded in order to prevent minor injuries, equipment damage, or data loss.

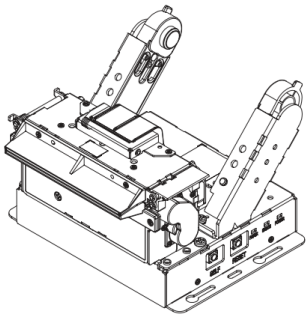
Table of Contents

1. Installing Printer and Getting Started

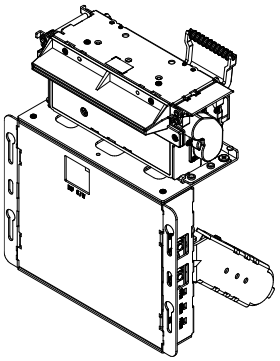
1-1 Unpacking

• Check the following contents list, and contact your dealer for assistance if any item is missing or incorrect.

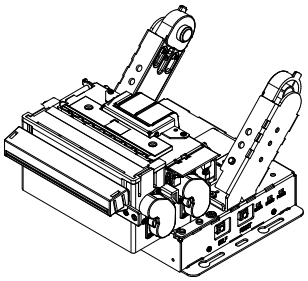
- Product



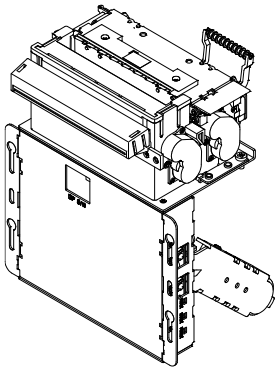
BK3-31



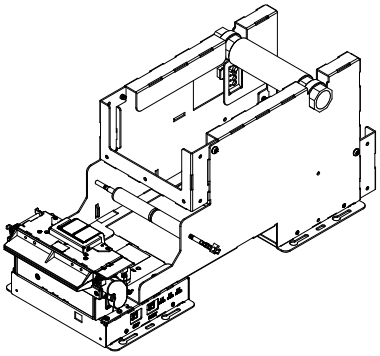
BK3-31V
(Vertical Type)



BK3P-31
(Presenter Type)

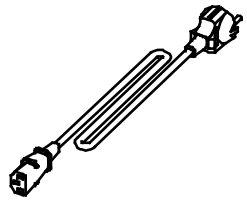


BK3P-31V
(Vertical Presenter Type)

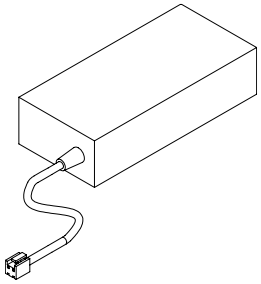


BK3-32
(Large Paper Supply Type)

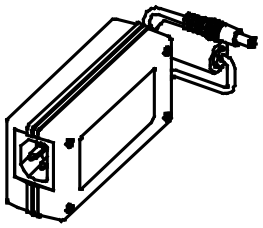
- Optional Components



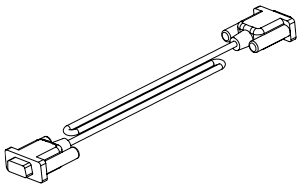
Power Cord



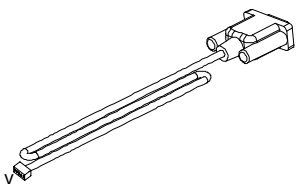
AC/DC Adaptor(2P)



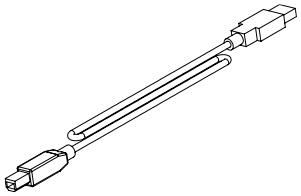
AC/DC Adaptor(DC-Jack)



Serial Cable
(9pin - 9pin)



Connecter Cable
(5pin – 9pin)



USB A-B Cable

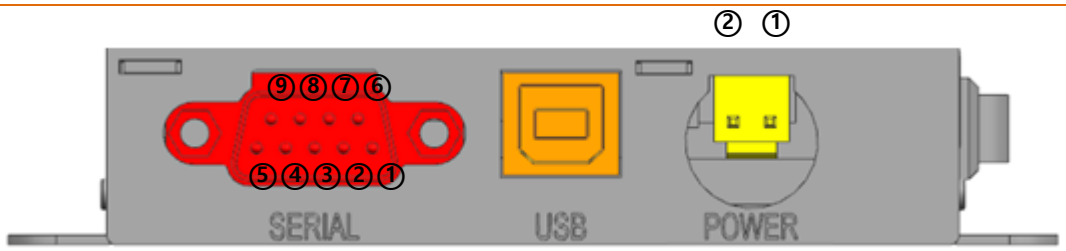
1-2 Interface and Power port

• Connect the printer to the host computer using the right interface cable that complies with the specifications of the interface

BK3-31a Model: DC Jack Power + Serial Dsub 9P + USB B

Serial Cable Port **USB Port** **Power Port**

BK3-31b Model: 2P Connector Power + Serial Dsub 9P + USB B

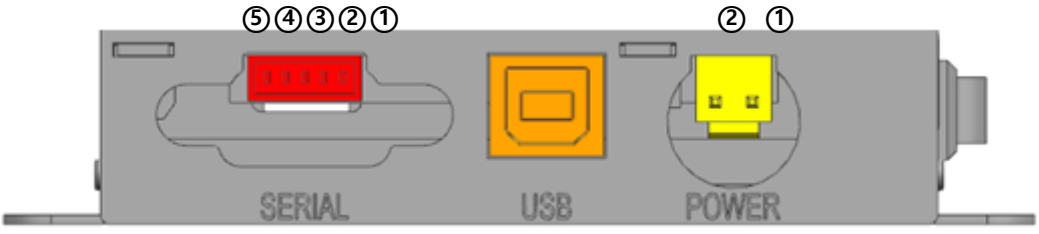


Serial Cable Port **USB Port** **Power Port**

BK3-31c Model: DC Jack Power + Serial 5P Connector + USB B

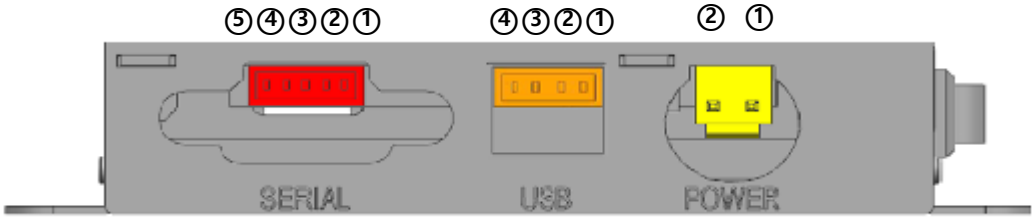
Serial Cable Port **USB Port** **Power Port**

BK3-31d Model: 2P Connector Power+ Serial 5P Connector + USB B



Serial Cable Port **USB Port** **Power Port**

BK3-31e Model: 2P connector Power + Serial 5P Connector + USB 4P Connector



Serial Cable Port **USB Port** **Power Port**

BK3-31z Model: DC Jack Power + Serial Dsub 9P + USB B + Ethernet

Serial Cable Port **USB Port** **Power Port** **Ethernet Port**

1-2-1 Serial Interface Signal Description(DSUB 9P Type)

Pin No	Signal	Direction	Function
1	NC	-	-
2	RxD	Input	Receive Data
3	TxD	Output	Transmit Data
4	DTR	Output	Data Terminal Ready
5	GND	-	Signal Ground
6	DSR	Input	Data Set Ready
7	RTS	Output	Ready To Send
8	CTS	Input	Clear To Send
9	NC	-	-

1-2-2 Serial Interface Signal Description(Connector 5P Type)
(Connector Part Number: 20017WR-05A00, Manufacturer : Yeonho Electronics)

Pin No	Signal	Direction	Function
1	CTS	Input	Clear To Send
2	RxD	Input	Receive Data
3	TxD	Output	Transmit Data
4	RTS	Output	Ready To Send
5	GND	-	Signal Ground

1-2-3 USB Interface Signal Description(Connector 4P Type)
(Connector Part Number: 20017WR-04, Manufacturer: Yeonho Electronics)

Pin No	Signal	Function
1	D-	Differential Data Line
2	D+	Differential Data Line
3	GND	Signal Ground
4	VBUS	Host Power: DC5[V] / 500[mA]

1-2-4 Ethernet Signal Description

Pin No	Signal	Function
1	TD+	Transmit+
2	TD-	Transmit-
3	NC	
4	NC	
5	NC	
6	NC	
7	RD+	Receive+
8	RD-	Receive-

* SELF TEST allows you to check the setting information of IP, Mac, etc.

1-2-5 Power Signal Description (Connector 2P Type)

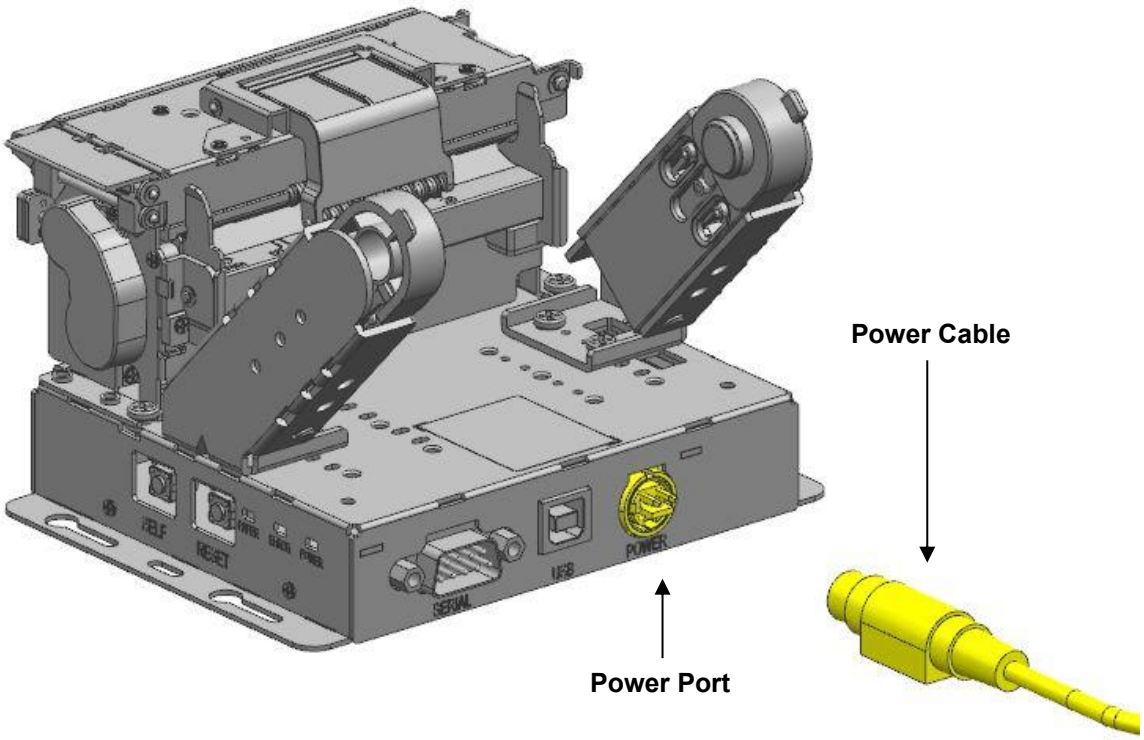
(Connector Part Number: YH396-02, Manufacturer: Yeonho Electronics)

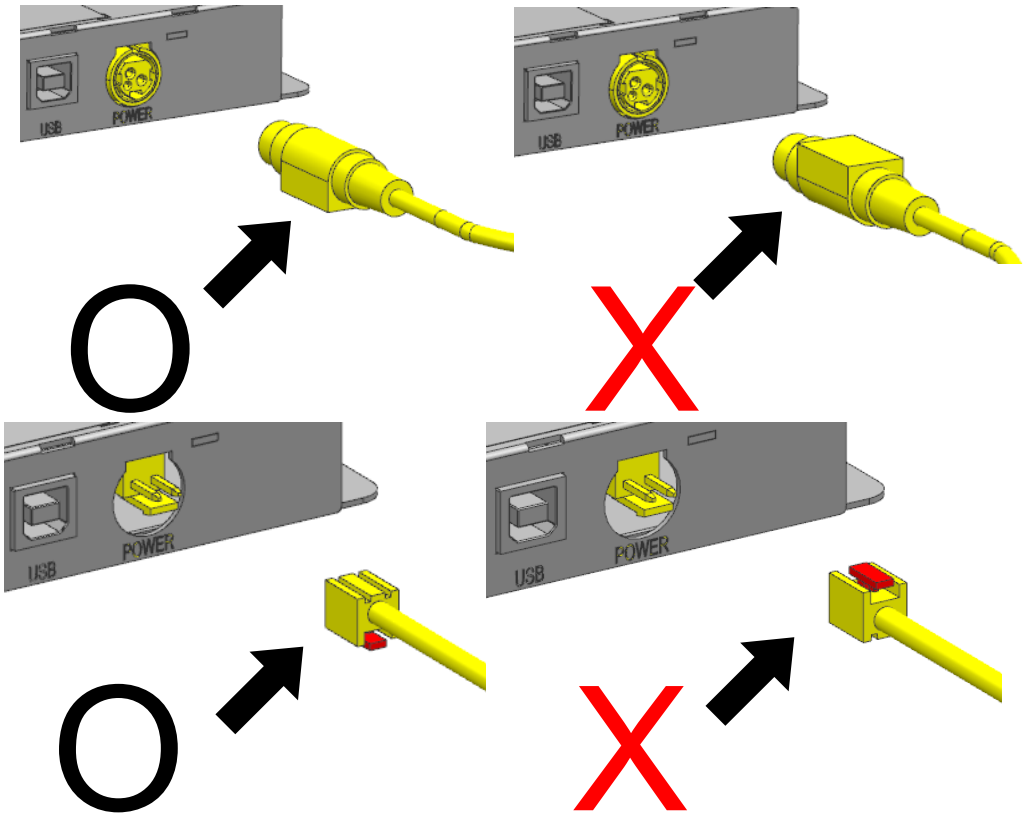
Pin No	Signal	Function
1	VCC	Power(24Vdc)
2	GND	Frame Ground

1-3 Power Supply Port and Connecting Power Supply

1) Make sure the product is turned off before connecting the power supply.

2) Connect the power cable with the flat side pointing downward of the printer, as shown in the diagram below.



⚠ ***Caution***	- Only use a power supply provided by Bixolon. Bixolon shall bear no responsibility for damage caused by using a third-party power supply. - Check the power supply's label to check its electronic specs. - When removing the power supply, make sure you have a firm grasp of the plug terminal of the power cable and the printer and pull horizontally. - When connecting or disconnecting power, make sure to remove the power supply from the power outlet before removing. - Pay attention to the direction in which you insert the power cable. 
⚠ ***Warning***	**Do not connect a voltage out of the specifications of the power supply. It can cause damage to the product or a fire.**

1-4 Reconfiguration of Printer

• This product supports dip switch. In order to change the product settings, change the dip switch setting or use the virtual memory switch utility. Use virtual memory switch management function for self-diagnosis.

1-4-1 DIP Switch 1

Switch	Function	ON	OFF	Default
1-1	Baud rate selection (bps)	* Refer to following Table 1		OFF
1-2				OFF
1-3	Ticket mode	Enable	Disable	OFF
1-4	Black mark mode	Enable	Disable	OFF

* Table 1 – Baud rate (bps) selection

Baud rate (bps)	1-2	1-1	Default
115,200	OFF	OFF	115,200
38,400	OFF	ON	
19,200	ON	OFF	
9,600	ON	ON	

* Flow control, data length, and parity bits can be changed via virtual memory switch settings. (Refer to MSW 8).
* Presenter model does not support ticket mode.

1-4-2 MSW (Memory Switch)

1) MSW 1

Switch	Function	ON	OFF	Default
1-1	Select print speed	* Refer to following Table 2		OFF
1-2				OFF
1-3				OFF
1-4	-	-	-	OFF
1-5	-	-	-	OFF
1-6	Select print density	* Refer to following Table 3		OFF
1-7				OFF
1-8				OFF

* Table 2 – Print speed selection

Print speed		1-3	1-2	1-1	Default
Receipt mode	Ticket mode				
250mm/s	130mm/s	OFF	OFF	OFF	Receipt : 250mm/s Ticket : 130mm/s
230mm/s		OFF	OFF	ON	
200mm/s		OFF	ON	OFF	
170mm/s		OFF	ON	ON	
150mm/s		ON	OFF	OFF	
130mm/s		ON	OFF	ON	
120mm/s	120mm/s	ON	ON	OFF	
100mm/s	100mm/s	ON	ON	ON	

* Table 3 – Print Density Selection

Print Density		1-8	1-7	1-6	Default
Receipt mode	Ticket mode				
-	Density Level 6 (Darkest)	ON	OFF	ON	Density Level 4
-	Density Level 5	ON	OFF	OFF	
Density Level 4 (Darkest)	Density Level 4	OFF	OFF	OFF	
Density Level 3	Density Level 3	OFF	OFF	ON	
Density Level 2	Density Level 2	OFF	ON	OFF	
Density Level 1	Density Level 1	OFF	ON	ON	

2) MSW 2

Switch	Function	ON	OFF	Default
2-1	Specification for destination	Double byte country	Single byte country	OFF
2-2	-	-	-	OFF
2-3	Code page selection	* Refer to following Table 4		OFF
2-4				OFF
2-5				OFF
2-6				OFF
2-7				OFF
2-8				OFF

* Table 4 – Code page selection

2-8	2-7	2-6	2-5	2-4	2-3	Character Table
OFF	OFF	OFF	OFF	OFF	OFF	Page 0 437 (USA, Standard Europe)
OFF	OFF	OFF	OFF	ON	OFF	Page 1 Katakana
OFF	OFF	OFF	ON	OFF	OFF	Page 2 850 (Multilingual)
OFF	OFF	OFF	ON	ON	OFF	Page 3 860 (Portuguese)
OFF	OFF	ON	OFF	OFF	OFF	Page 4 863 (Canadian-French)
OFF	OFF	ON	OFF	ON	OFF	Page 5 865 (Nordic)
OFF	OFF	ON	ON	OFF	OFF	Page 16 1252 (Latin I)
OFF	OFF	ON	ON	ON	OFF	Page 17 866 (Cyrillic #2)
OFF	ON	OFF	OFF	OFF	OFF	Page 18 852 (Latin 2)
OFF	ON	OFF	OFF	ON	OFF	Page 19 858 (Euro)
OFF	ON	OFF	ON	OFF	OFF	Page 21 862 (Hebrew DOS code)
OFF	ON	OFF	ON	ON	OFF	Page 22 864 (Arabic)
OFF	ON	ON	OFF	OFF	OFF	Page 23 Thai42
OFF	ON	ON	OFF	ON	OFF	Page 24 1253 (Greek)
OFF	ON	ON	ON	OFF	OFF	Page 25 1254 (Turkish)
OFF	ON	ON	ON	ON	OFF	Page 26 1257 (Baltic)
ON	OFF	OFF	OFF	OFF	OFF	Page 27 Farsi
ON	OFF	OFF	OFF	ON	OFF	Page 28 1251 (Cyrillic)
ON	OFF	OFF	ON	OFF	OFF	Page 29 737 (Greek)
ON	OFF	OFF	ON	ON	OFF	Page 30 775 (Baltic)
ON	OFF	ON	OFF	OFF	OFF	Page 31 Thai14
ON	OFF	ON	OFF	ON	OFF	Page 32 Hebrew Old code
ON	OFF	ON	ON	OFF	OFF	Page 33 1255 (Hebrew New code)
ON	OFF	ON	ON	ON	OFF	Page 34 Thai11
ON	ON	OFF	OFF	OFF	OFF	Page 35 Thai18
ON	ON	OFF	OFF	ON	OFF	Page 36 855 (Cyrillic)
ON	ON	OFF	ON	OFF	OFF	Page 37 857 (Turkish)
ON	ON	OFF	ON	ON	OFF	Page 38 928 (Greek)
ON	ON	ON	OFF	OFF	OFF	Page 39 Thai16
ON	ON	ON	OFF	ON	OFF	Page 40 1256 (Arabic)
ON	ON	ON	ON	OFF	OFF	Page 41 1258 (Vietnam)
ON	ON	ON	ON	ON	OFF	Page 42 Khmer (Cambodia)
OFF	OFF	ON	OFF	OFF	ON	Page 47 1250 (Czech)
OFF	OFF	ON	ON	ON	ON	Page 49 TCVN-3
OFF	ON	OFF	OFF	OFF	ON	Page 50 TCVN-3 (Capital)
OFF	ON	OFF	OFF	ON	ON	Page 51 VISCII

3) MSW 3

Switch	Function	ON	OFF	Default
1	Select emulation	* Refer to following Table 5		OFF
2				OFF
3				OFF
4	-	-	-	OFF
5	Printing mode for Thai character	3 PASS	1 PASS	OFF
6~8	-	-	-	OFF

* Table 5 – Emulation selection

Emulation	3-3	3-2	3-1	Remark
Emulation 1	OFF	OFF	OFF	
Emulation 2	OFF	OFF	ON	BXL / POS
Emulation 3	OFF	ON	OFF	
Emulation 4	OFF	ON	ON	
Emulation 5	ON	OFF	OFF	

* Supports all BIXOLON software only when set to Emulation 2 (BXL / POS).

4) MSW 4

Switch	Function	ON	OFF	Default
1	Swap font B and C	Enable	Disable	OFF
2	Printer buffer initialization	Enable	Disable	OFF
3	Single byte font selection (Default font)	* Refer to following Table 6		OFF
4				OFF
5~8	-	-	-	OFF

* Table 6 – Single byte Font Selection

Single byte font selection	4-4	4-3	Default
Font A (12 x 24)	OFF	OFF	Font A
Font B (9 x 17)	OFF	ON	
Font C (9 x 24)	ON	OFF	
-	ON	ON	

* The printer buffer initialization function works when the printer cover is opened and closed.

5) MSW 5

Switch	Function	ON	OFF	Default
1	Auto cutter selection	* Refer to following Table 7		OFF
2				OFF
3	Paper save mode	* Refer to following Table 8		OFF
4				OFF
5	Paper save mode cutting correction	Enable	Disable	OFF
6	Auto line feed (CR mode)	Enable (LF)	Disable (Ignore)	OFF
7	-	-	-	OFF
8	Near-end sensor	Disable	Enable	OFF

* Table 7 – Auto Cutter Selection

Auto Cutter Selection	5-2	5-1	Remark
Full cut	OFF	OFF	Default
Partial cut	OFF	ON	
Programmable cut	ON	OFF	
No cut	ON	ON	

* Programmable cut is operated according to the parameters of GS V command, while others operate as partial cut.
* Regardless of settings, only Full-Cut is supported for Ticket-mode or Presenter mode.

* Table 8 – Paper save mode

Paper save mode	5-4	5-3	Remark
Disable	OFF	OFF	Default
Level 1	OFF	ON	
Level 2	ON	OFF	
Level 3	ON	ON	

6) MSW 6

Switch	Function	ON	OFF	Default
1~8	-	-	-	OFF

7) MSW 7

Switch	Function	ON	OFF	Default
1	Print width selection	* Refer to following Table 9		OFF
2				OFF
3	-	-	-	OFF
4	-	-	-	OFF
5	-	-	-	OFF
6	-	-	-	OFF
7	Black mark sensor selection			OFF
8				OFF

* Table 9 – Print width selection

Print width	7-2	7-1	Default
72mm (576dot)	OFF	OFF	72mm
54mm (432dot)	OFF	ON	
48mm (384dot)	ON	OFF	
12mm (96dot)	ON	ON	

* Table 10 – Black mark sensor selection

Black mark sensor	7-8	7-7	Default
Left	OFF	OFF	Left
Right	OFF	ON	
Center	ON	OFF	

* Black mark sensor selection applies only when DIP switches 1-4 are ON.
* Select sensor from paper exit as standard.

8) MSW 8

Switch	Function	ON	OFF	Default
1	Data length	7 bit	8 bit	OFF
2	Parity check	YES	NO	OFF
3	Parity selection	EVEN	ODD	OFF
4	Data receive error	Ignore	Print “?”	OFF
5	Baud rate selection	* Refer to following Table 11		OFF
6				OFF
7				OFF
8	Serial interface selection	Memory Switch	DIP Switch	OFF

* The memory switch setting for 8-5 to 7 (Baud rate selection) applies only when memory switch 8-8 is ON.
* The setting for DIP switch is not considered when memory switch 8-8 is ON.

* Table 11 - Baud rate selection

Baud rate	8-7	8-6	8-5	Default
115,200bps	OFF	OFF	OFF	115,200bps
57,600bps	OFF	OFF	ON	
38,400bps	OFF	ON	OFF	
19,200bps	OFF	ON	ON	
9,600bps	ON	OFF	OFF	
4,800bps	ON	OFF	ON	
2,400bps	ON	ON	OFF	
115,200bps	ON	ON	ON	

9) MSW 9

Switch	Function	ON	OFF	Default
1	Serial communication flow control	* Refer to following Table 12		OFF
2				OFF
3~8	-	-	-	OFF

* Table 12 - Serial communication flow control

Serial communication flow control	9-2	9-1	Default
Hardware(DTR/DSR)	OFF	OFF	Hardware (DTR/DSR)
Software(XON/XOFF)	OFF	ON	
None	ON	OFF	
Hardware(DTR/DSR)	ON	ON	

10) MSW 10

Switch	Function	ON	OFF	Default
1~2	-	-	-	OFF
3	Feed motor back feeding	Enable	Disable	OFF
4~6	-	-	-	OFF
7	Print column selection	* Refer to following Table 13		OFF
8				OFF

* Table 13 – Print column selection

Print column	10-8	10-7	Default
48 column	OFF	OFF	48 column
42 column	OFF	ON	
44 column	ON	OFF	
-	ON	ON	

* The print column sets the number of characters that can be printed on one line based on FONT A (12x24).
(Valid only when the print width is set to 72mm)

11) MSW 11

Switch	Function	ON	OFF	Default
1~8	-	-	-	OFF

12) MSW 12

Switch	Function	ON	OFF	Default
1	Select double byte country	* Refer to following Table 14		OFF
2				OFF
3				OFF
4				OFF
5				OFF
6~8	-	-	-	OFF

* Table 14 - Select double byte country

Select double byte country	12-5	12-4	12-3	12-2	12-1	Remark
STD	OFF	OFF	OFF	OFF	OFF	Single byte font
KOR	OFF	OFF	OFF	OFF	ON	KS5601
CHN	OFF	ON	OFF	ON	OFF	BIG5
CHN	ON	OFF	OFF	ON	OFF	GB2312
JPN	OFF	OFF	OFF	ON	ON	SHIFT-JIG

13) MSW 13

Switch	Function	ON	OFF	Default
1	Select presenter mode	Enable	Disable	OFF
2	Select presenter auto eject mode	Enable	Disable	OFF
3	-	-	-	OFF
4	Select presenter back feeding initialize	Disable	Enable	OFF
5	Select bezel LED control	* Refer to following Table 15		OFF
6				OFF
7				OFF
8	-	-	-	OFF

* If Auto eject mode is Disable, Presenter eject operates by command.
* If Auto eject mode is Enabled, Presenter eject automatically operates after cutting.
* Presenter related functions are only supported by presenter models.

* Table 15 - Select bezel LED control

13-7	13-6	13-5	Bezel LED control	Remark
OFF	OFF	OFF	Bezel LED output OFF	Default
OFF	OFF	ON	Bezel LED output ON	While printing(*a)
OFF	ON	OFF	Bezel LED output ON	During an error
OFF	ON	ON	Bezel LED output ON	While printing, or an error
ON	OFF	OFF	Bezel LED output ON	While taken paper (When presenter model) (*b)
ON	OFF	ON	Bezel LED output ON	While printing(*c), or while taken paper (When presenter model)
ON	ON	OFF	Bezel LED output ON	While taken paper, or an error (When presenter model)
ON	ON	ON	Bezel LED output ON	While printing(*c), or while taken paper, or an error (When presenter model)

* a) When printing starts, the LED flashes, and when the cutting command is completed, the LED turns off..
* b) After the paper discharge is completed in the presenter, the LED flashes, and the paper is transferred to the presenter When you pick it up, the LED turns off.
* c) When printing starts, the LED turns on and changes status when the paper is ejected from the presenter.

14) MSW 14

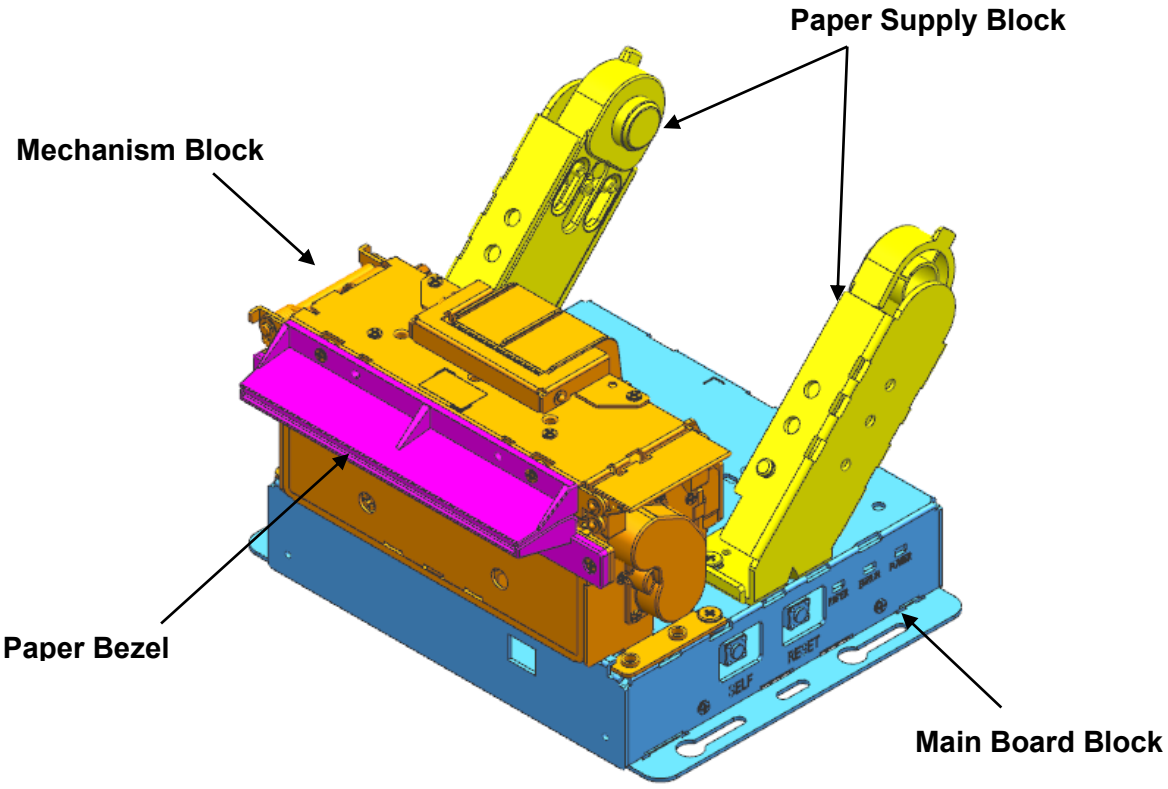
Switch	Function	ON	OFF	Default
1~8	-	-	-	OFF

⚠ ***Note***	- Use unified utility or self-test mode to change the virtual memory switch setting. - Refer to the utility and service manual for more information.

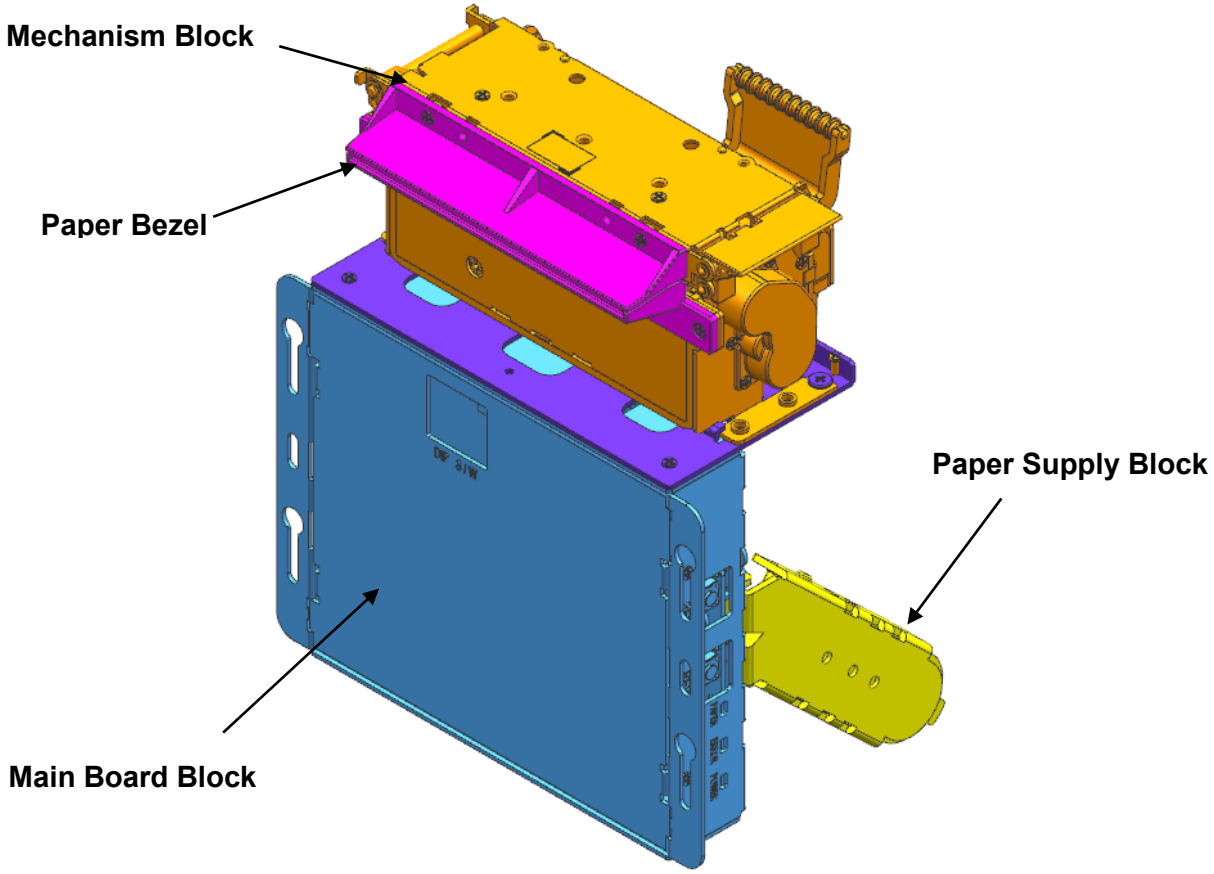
⚠ ***Caution***	Make sure to turn the printer off and on again after using the virtual memory switch utility to adjust the settings of the product. To change the DIP switch setting, turn off the printer power. Changing the DIP switch setting while the power is on may cause a short circuit and result in printer malfunction. Supports all BIXOLON software only when set to Emulation 2 (BXL / POS).

1-5 Product Part Names

1-5-1 Standard/Vertical Model

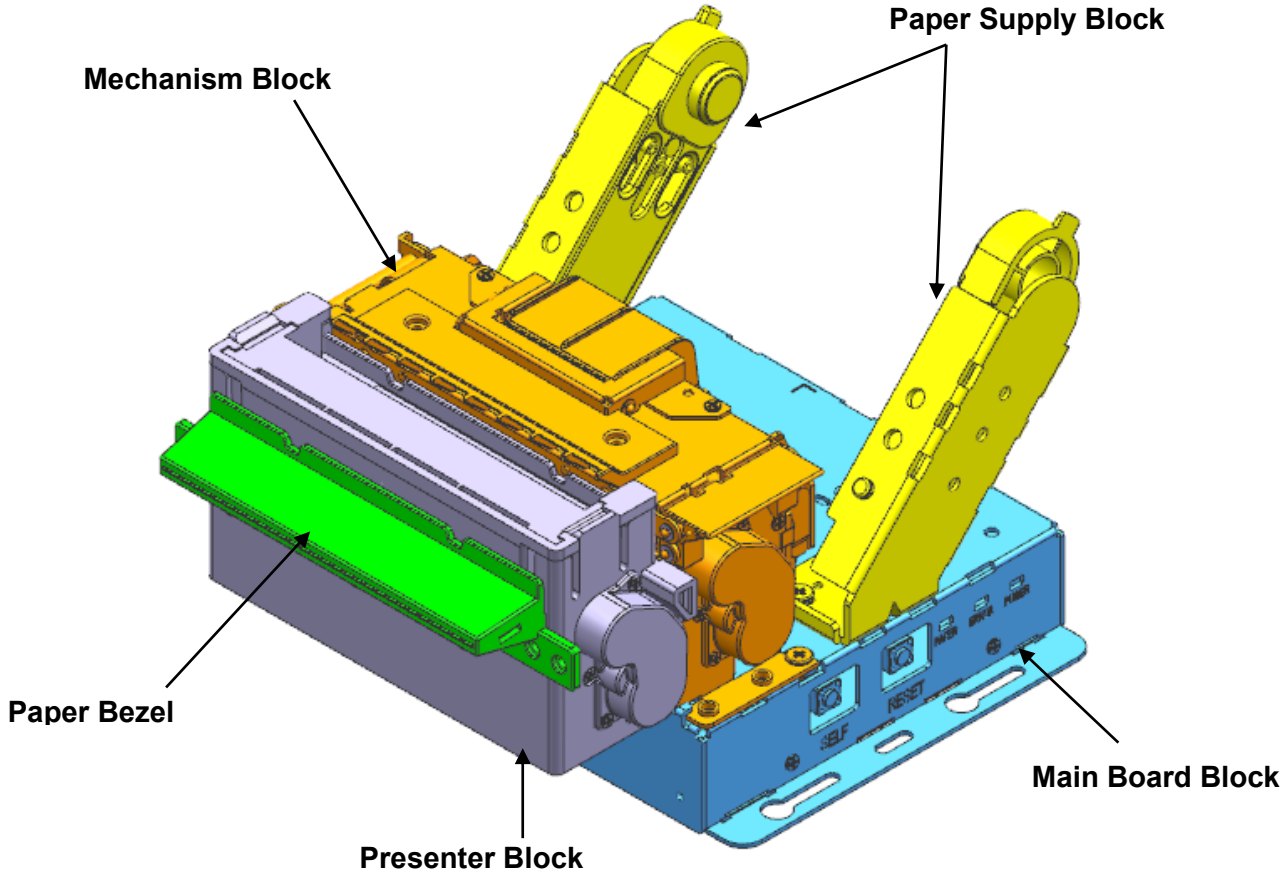


Horizontal Standard Type

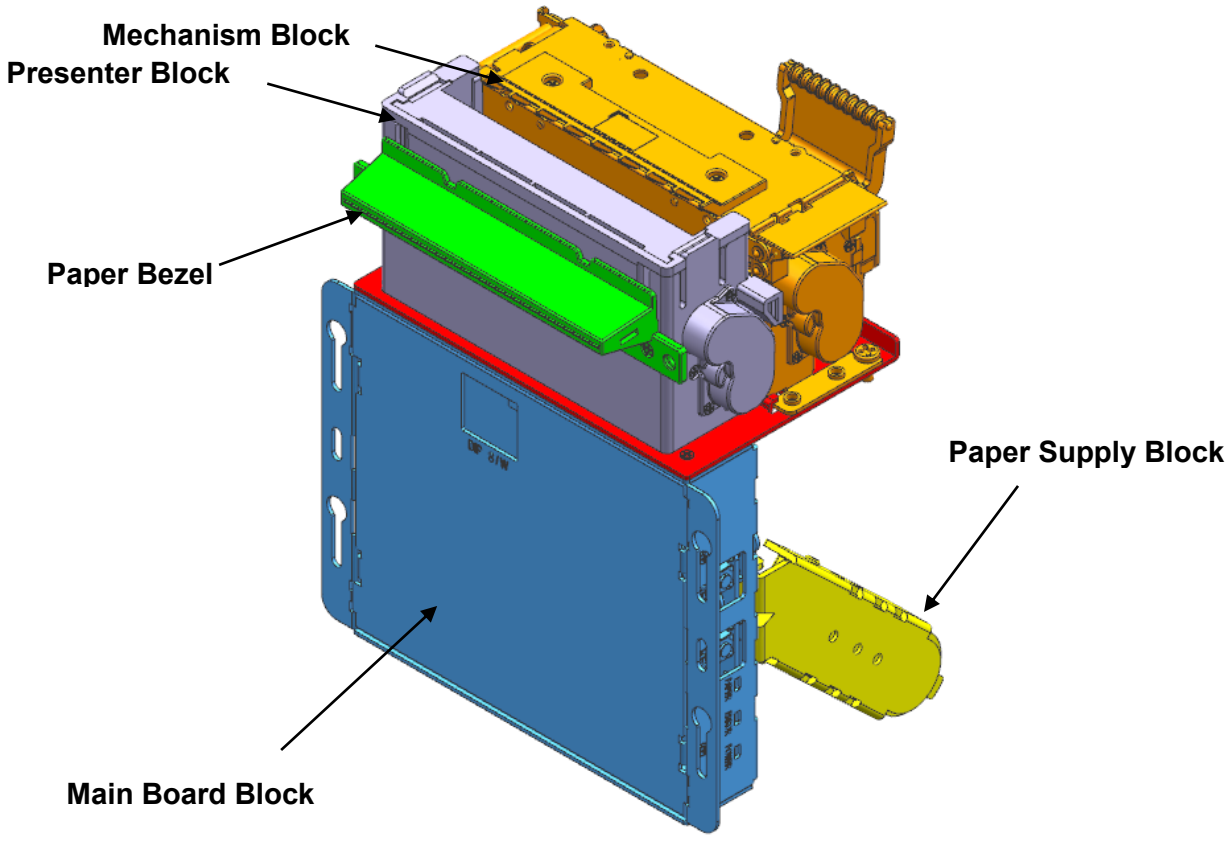


Vertical Type

1-5-2 Presenter Model

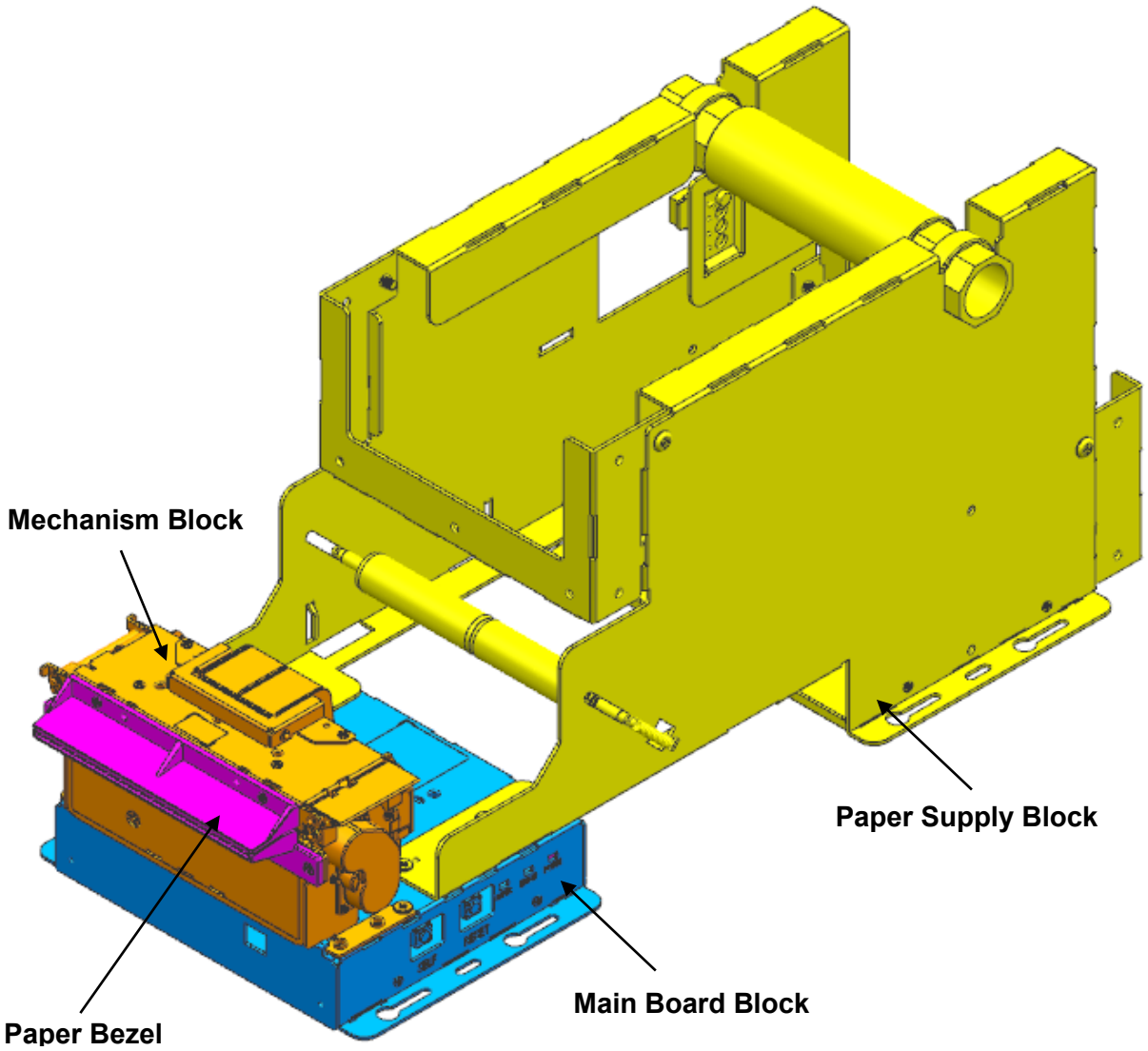


Horizontal Presenter Type



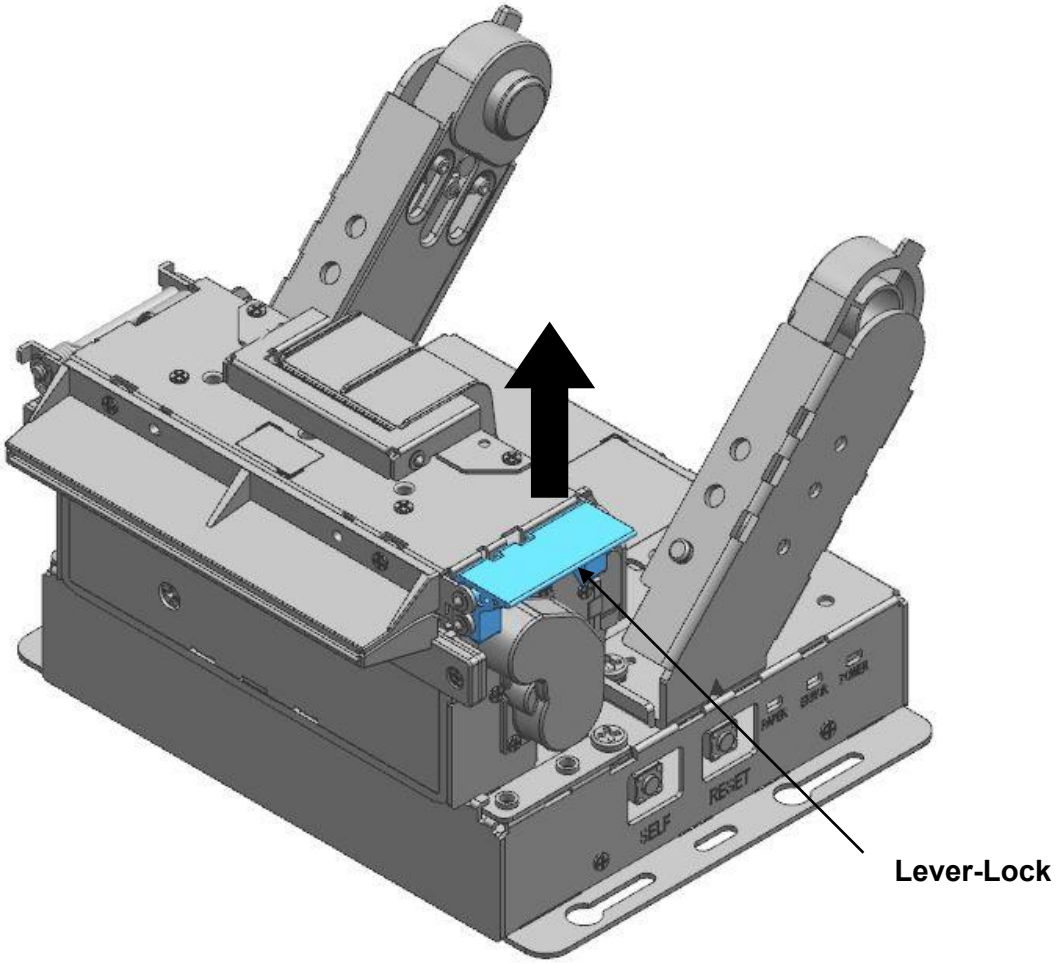
Vertical Presenter Type

1-5-3 Large Paper Holder Model



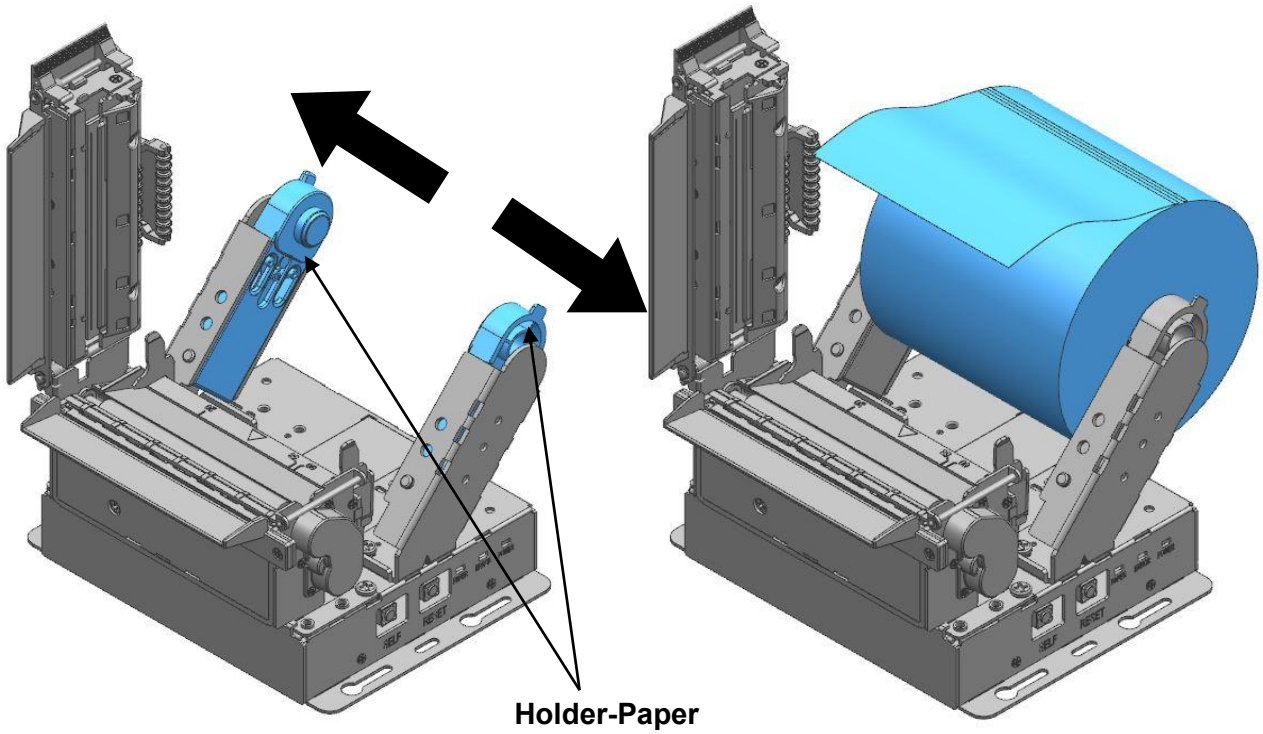
1-6 Installing & Replacing Paper

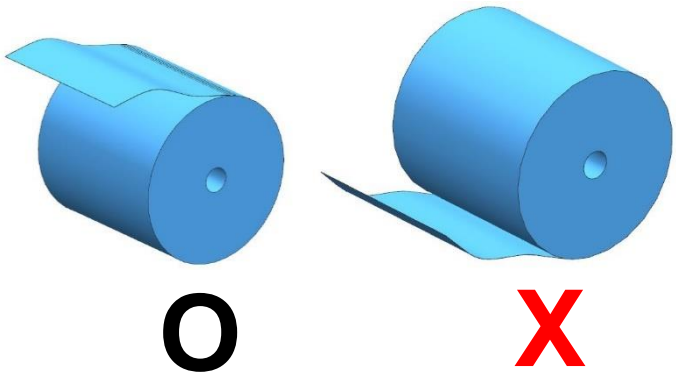
1) Open the print cover by pulling the Lever-Lock.



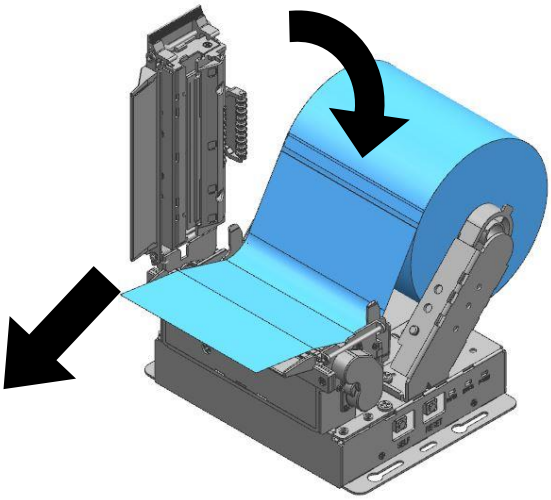
⚠ *Caution*	Do not open the print cover while the printer is operating, otherwise the printer may be damaged.

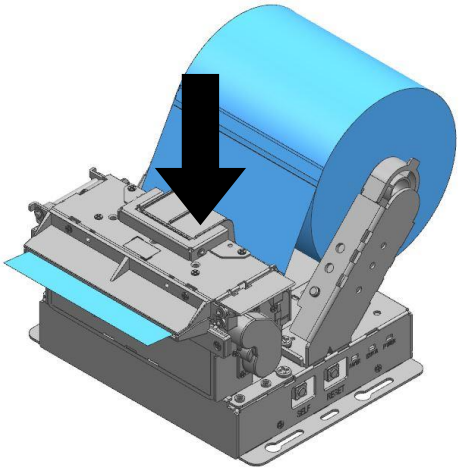
2) Install and change paper by adjusting the holder-paper as shown below.



⚠ ***Caution***	Check the orientation of the roll paper when inserting it into the printer. 

3) Pull out a small amount of paper as shown in the picture, and close the cover.

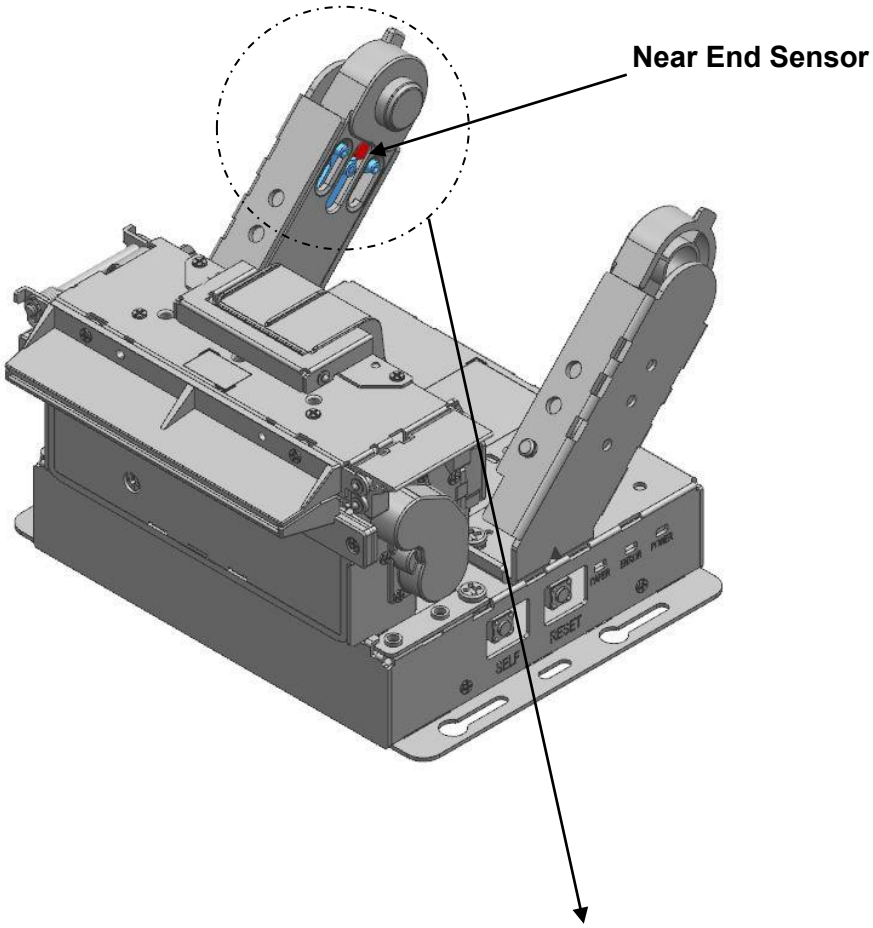


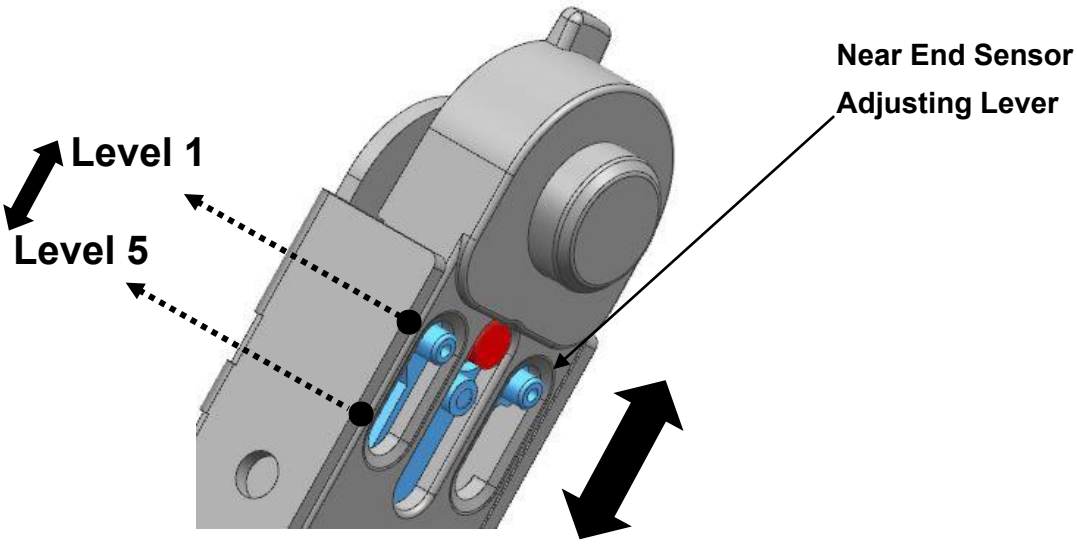


⚠ ***Caution***	- When closing the cover, hold down the center of printer cover firmly so that paper roll is loaded correctly. - Use paper suitable for the standards. - Change paper when the printer does not receive data. Otherwise, data loss can be caused.

1-7 Adjusting Near End Sensor

As each paper tube has a different point of detecting near end sensor, use the printer by adjusting the near end level. When adjusting the position of near end sensor, move the lever in the direction of the arrow. The adjustment level is composed of five levels; adjust the level to level 5 for a bigger outer diameter, while moving to level 1 for a smaller outer diameter (Refer to the figure below).





1-8 Removing Paper Jam

1-8-1 Standard Type

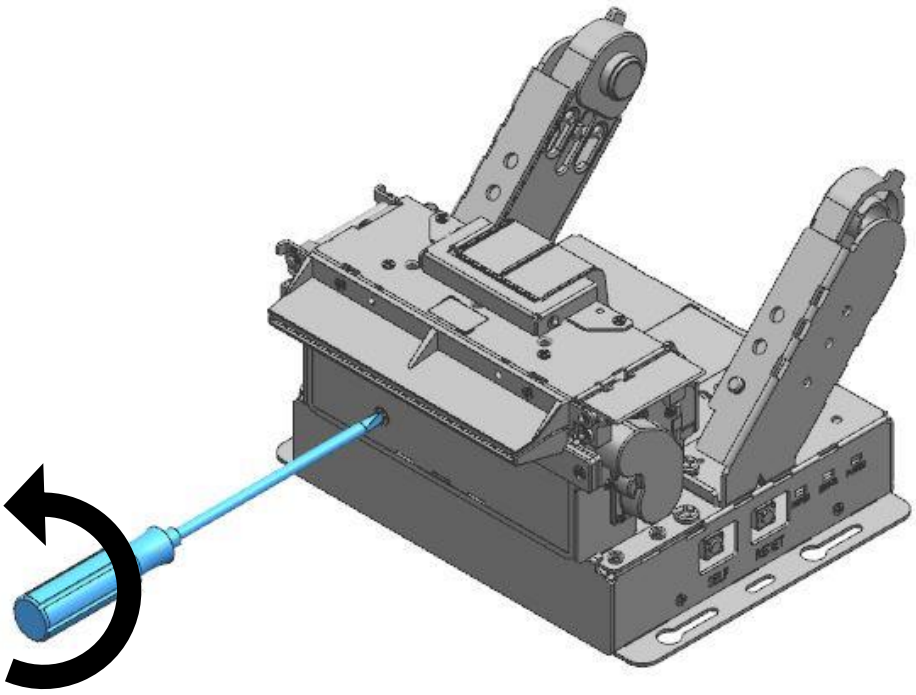
1) If a jam occurs, turn off the printer and pull out the Lever-Lock to open the cover and remove the crumpled paper as shown below. If the blade still does not return to its original position, follow the instructions below.

2) Turn the printer off.

3) As shown in the figure below, turn the gear part by using a screwdriver and add a projected blade.

4) Turn the printer on and use it.

⚠ ***Caution***	- Placing your hand above the printer outlet may cause a paper jam. - When designing a kiosk, Paper outlet space must be at least 5mm. (Refer to 3) External Size in 5. Specifications) - If the cover will not open due to a minor paper jam, turning the power OFF → ON will automatically return the blade to its original position.
⚠ ***Warning***	**If the cover does not open, do not forcibly open it. It may result in poor paper cutting or printer damage.**



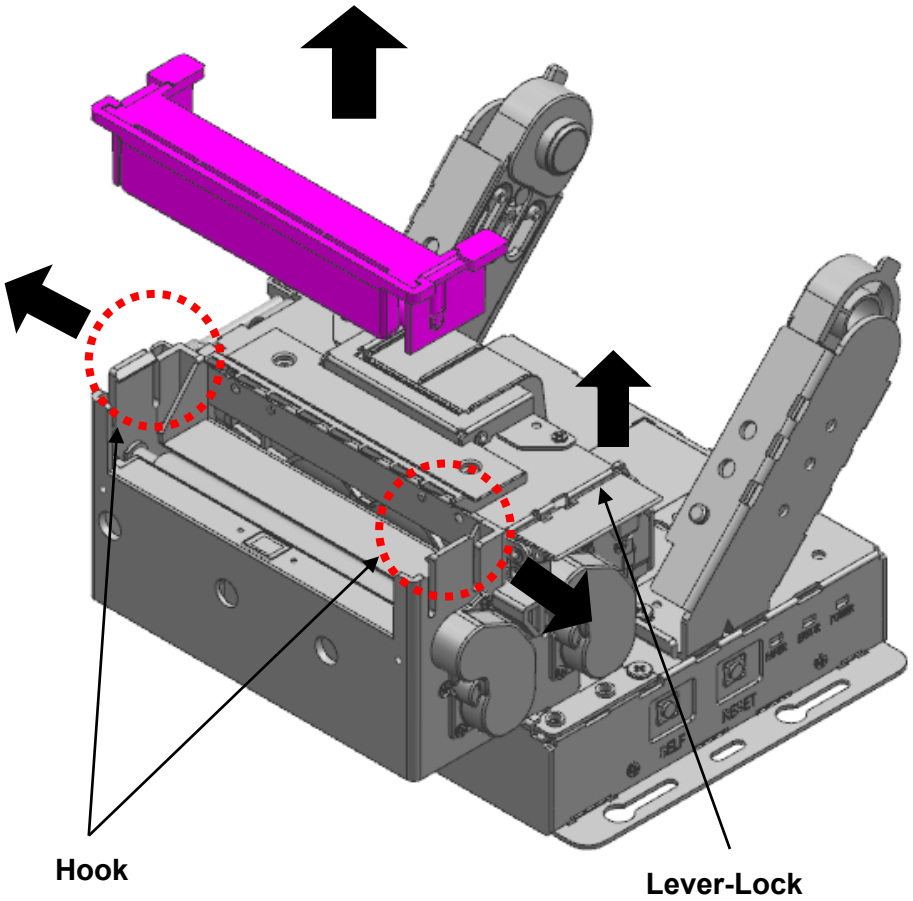
1-8-2 Presenter Type

1) In case of jam, turn off the printer power and remove the presenter cover by opening the hook part to the outside as shown in the figure below.

2) Close the printer cover and attach the presenter cover.

3) Turn on the printer and reuse it.

⚠ ***Caution***	-Putting your hands on the outlet may cause paper jam. -If the cover does not open due to a minor paper jam, the blade will return to its original position automatically when the power is turned off. -Do not forcibly open the presenter cover. The hook part supporting the cover may be deformed.
⚠ ***Warning***	**If the cover does not open, do not open the cover by force. This may result in poor paper cutting or damage to the printer.**



1-9 Using Printer Functions

○ POWER
Green light will be on when the power is supplied to printer.

○ ERROR
Red light will be on in various error conditions (e.g. no paper, cover open, etc.)

○ PAPER
Red LED will be lit when the paper roll is running low. The LED keeps blinking when the printer is in self-test standby mode or macro execution standby mode.

○ RESET
Press the RESET button once to restart the printer.

○ SELF
Press the SELF button once to conduct self-test printing.
If necessary, press the SELF button and conduct setting virtual memory or hexadecimal dump mode after checking the printed contents for self-testing.

2. Self-Test

• The self-test checks whether the printer has any problems. If the printer does not function properly, contact your dealer. The self-test procedure is as follows:

1) Make sure paper roll has been installed properly.

2) Turn on the power while holding down the SELF button and the self-test begins.

3) The self-test prints the current status of the printer including control ROM version.

4) After printing the current printer status, the printer wait for the next step after printing the following lines. (The paper signal light keeps blinking.)

Press the button continuously with below number,
You can enter the mode what you want.
(Procedure off If no touching over 2 sec)

1: Memory switch configuration mode
2: Hexadecimal dump mode
3 or more: End

5) Press the SELF button once for the memory switch configuration mode and twice for the hexadecimal dump mode.
   - The self-test ends by pressing the SELF button three times.
   - The self-test automatically ends two seconds after self-test printing without the need for pressing the SELF button

(1) If you select “VMSM Selection”

① When entering the memory switch configuration mode, the following message is printed.

**** VMSM Selection ****
0: Exit and reboot printer
1: Print current settings
2: Set Serial Interface
3: Set Print Density
4: Set Print Speed
5: Set Cutting mode
6: Set Print width
7: Set Print column
8: Factory Reset
9 or more: None

② To execute the above function, operate the SELF button as follows.
   - Step 1 (selecting desired item): Press the button as many times as the number displayed before each menu to select the desired setting menu.
   - Step 2 (entering setting item): Press and hold the button for 1 second to apply the selected item.

③ Execute the "0: Save settings and exit" function to apply the changed settings. When “Save settings and exit” mode is active, the above message will be displayed and the printer will reboot.

***** COMPLETED *****

(2) If you select “hexadecimal dump mode”

① When entering the hexadecimal dump mode, the following message is printed.

Hexadecimal dumping
To terminate hexadecimal dump
press SELF button three times

② Execute the program to send data to the printer.
Printing is conducted by dividing all data into two rows.
The first row indicates hexadecimal code.
The second row indicates ASCII characters corresponding to the hexadecimal code.

```
1B 21 00 1B 26 02 40 40 40 40    . ! . . & . @ @ @ @
02 0D 1B 44 0A 14 1E 28 28 28    . . . D . . . . ( ( (
00 01 0A 41 0D 42 0A 43 43 43    . . . A . B . C C C
```

- When there is no corresponding ASCII code, a period (.) is printed.
- All commands cannot be used in the state of hexadecimal printing mode.

③ When the hexadecimal dump completes, press SELF button three times.

④ As the hexadecimal dump code ends, the following message is printed.

Hexadecimal Dump Completed.

⚠ ***Note***	With self-test, you can check that the printer is operating normally, the print quality, ROM version, and memory switch setting.
⚠ ***Caution***	The self-test automatically ends two seconds after self-test printing without the need for pressing the SELF button. When the “0: Save settings and exit” function is not executed in the memory switch configuration mode, setting information is not saved in the printer. When it is impossible to enter the hexadecimal dump mode, please contact the customer center.

3. Automatic calibration of Black-mark sensor

A printer is designed to detect most of Black-mark types. However it might fail to detect few special cases. In the event of such a failure, we would like you to do as follows

1) Turn off the printer and remove a paper roll.

2) Press ‘Self button ‘, while turning on the printer.

- Hold down ‘Self button’ till both Paper LED and Error LED are blinking.
- Both LED blinking indicates that ‘Automatic Black-mark recognition mode’ is on.

3) Open the cover and load a paper roll then close the cover.

4) Black-mark calibration commences.

- A printer begins with recognizing the gap of each black-mark.

5) A printer will be rebooted, after the calibration is successfully done.

* Necessary conditions for Automatic Black-mark recognition.
  - Initial Installation
  - Changing with new paper rolls
  - In the event, a printer does not stop at the point of a black-mark

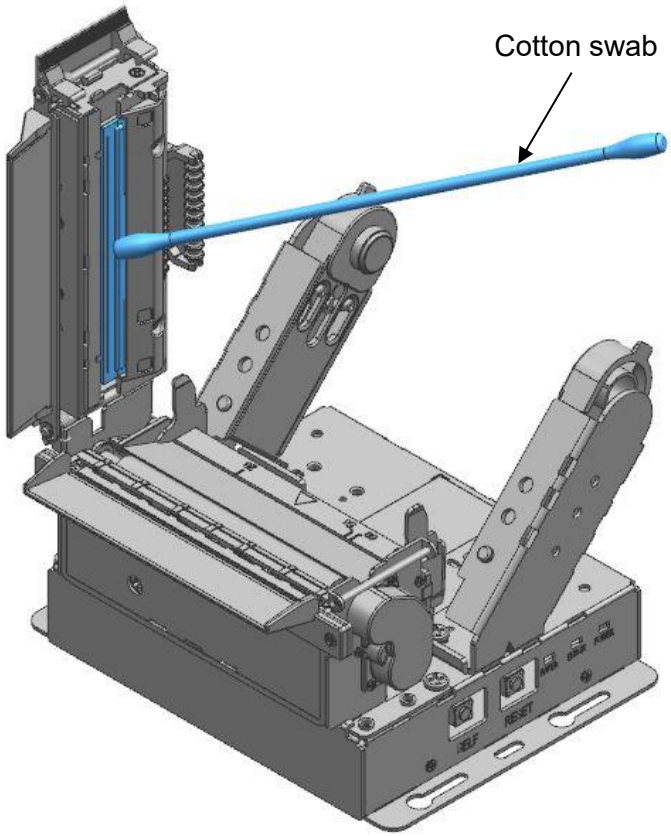
⚠ ***Remark***	Automatic calibration mode works, provided that Black-mark mode is on.

4. Cleaning Printer

Paper dust inside the printer may lower the print quality.
In this case clean the printer as follows:

1) Open the printer cover and remove the paper currently in use.

2) Residue or contamination of printer head should be wiped out by ethanol or IPA.



3) Clean the paper sensor and paper roller with a cotton swab or a dry cloth.

4) Insert a paper roll and close the printer cover.

⚠ ***Caution***	When cleaning the printer head, make sure that cleaning solutions such as ethanol or IPA do not penetrate the printer.
⚠ ***Warning***	**While the printer is operating, the print-head gets very hot, so turn off the power and let it cool down completely. The hot print-head can cause serious burns.**

5. Specifications

1) Normal Specifications

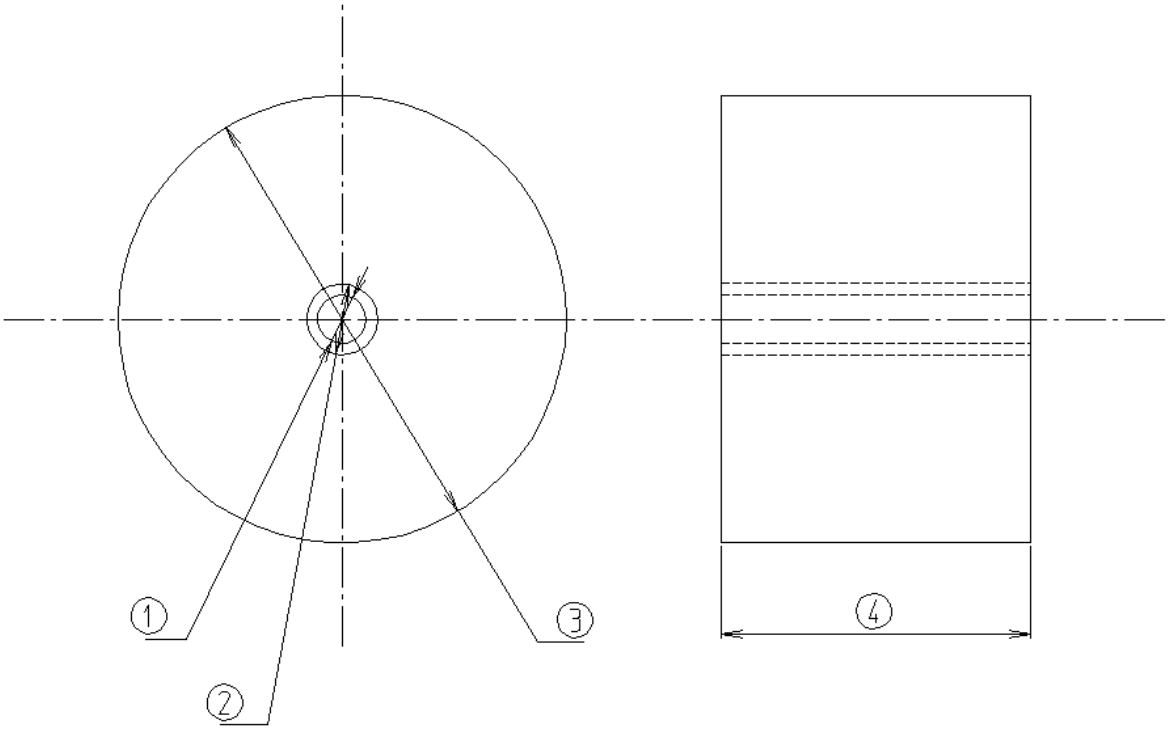
Printing Method		Thermal printing				
Dot Density		203 dpi (8dots/mm)				
Paper Width		83mm / 80mm		60mm	58mm	20mm
Printing Width		72mm		54mm	48mm	12mm
No. of Characters per Line (Default Value)	Font A (12x24)	48 characters		36 characters	32 characters	8 characters
	Font B (9x17)	64 characters		48 characters	42 characters	10 characters
	Font C (9x24)	64 characters		48 characters	42 characters	10 characters
Printing Speed (Max)	Receipt	250mm/s		250mm/s	250mm/s	100mm/s
	Ticket	-		130mm/s	-	-
Presenter	Paper Length	50 ~ 250 mm				-
	Eject Speed	Max. 250 mm/s				-
Font Size	Font A(12x24)	1.50 x 3.00mm				
	Font A (9x17)	1.13 x 2.13mm				
	Font A (9x24)	1.13 x 3.00mm				
Number of Character		Alphanumeric Characters: 95				
		Extended Characters: 128 x 37 Page (Including one space page)				
		International Characters: 32				
Barcode	1 Dimension	UPC-A, UPC-E, JAN13(EAN), JAN8(EAN), CODE39, ITF, CODABAR, CODE93, CODE128, GS1-128, GS1 DataBar Omni-direction, Truncated, Limited				
	2 Dimension	PDF417, QR code(model 1/2), Data Matrix , GS1 Databar Stacked, Stacked Omni-directional				
Auto cutter		Full / Partial cut (selectable by command, Ticket model: Full cut)				
Interface	SERIAL	RS232C compliance				
	USB	V2.0 Full speed compliance				
Receiving Buffer Size		30K bytes				
SMPS Specification	Input Voltage	100~240 VAC				
	Frequency	50/60 Hz				
	Output Voltage	24 VDC				
	Output Current	Continuous: 2.5A, Peak: 11A(@ Min. 0.1ms)				
Environment Condition	Temperature	Operating: -20 ~ 60 ℃ (*1) Storage: -20 ~ 60 ℃				
	Humidity	Operating: 10 ~ 95 % RH Storage: 10 ~ 95 % RH (non-condensing) excluding paper				
Life Span	Printer Head *)	100 Km (Ticket model: 50 Km)				
	Auto Cutter	1,500,000 cuts (Ticket model: 300,000 cuts)				

*1) Print quality and product lifespan are guaranteed only at 0 ~ 40 ℃, and the product's life may be shortened if it is operated for a long time in the range outside of 0 ~ 40 ℃.

*2) The specifications were determined based on operation at normal temperature using designated paper on default settings. They are subject to change depending on temperature or printing level.

⚠ ***Caution***	Printing speed may become slightly slower depending on the data transmission speed and the combination of commands.
⚠ ***Warning***	If you do not use an SMPS that meets the above ratings, problems may occur with the product and quality, and we are not responsible for any problems that occur.

2) Paper Specifications



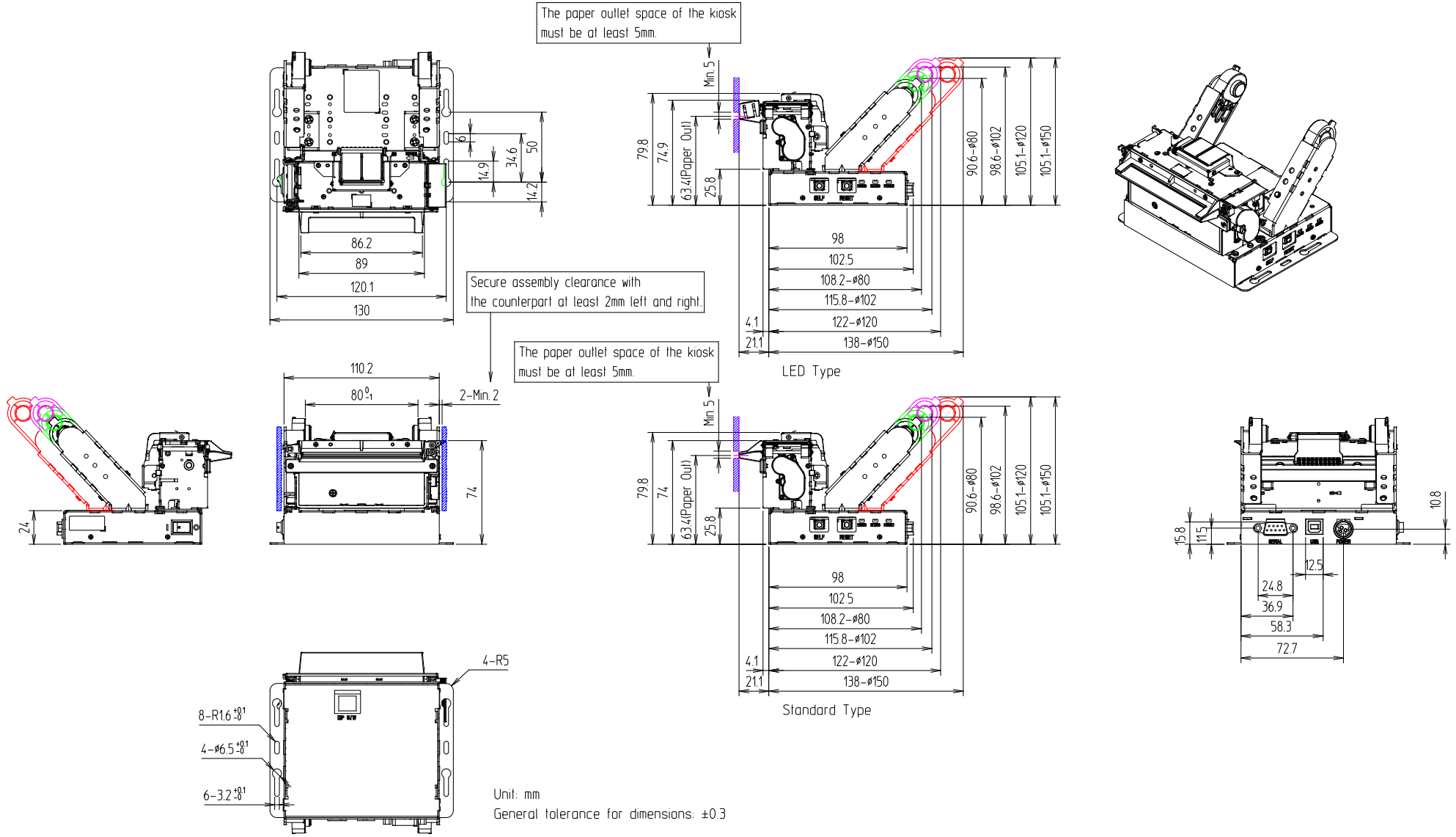
1. Roll Core Inside Diameter (mm)	Φ11 $^{+3,0}$ ※ Holder Paper Phi25(Option Parts) applied: Φ25 $^{+3,0}$ ※ Large Paper Holder Model: Φ25 $^{+3,0}$
2. Roll Core Out Diameter (mm)	Standard Model, Ticket Model: Φ18 (Min), Presenter Model: Φ31.4 (Min)
3. Outer Diameter (mm)	Φ150 (Max) ※ Large Paper Holder Model: Φ250 (Max)
4. Width (mm)	Standard Model: 83 $^{0,-1}$ / 80 $^{0,-1}$ / 60 $^{0,-1}$ / 58 $^{0,-1}$ / 20 $^{0,-1}$ Presenter Model: 80 $^{0,-1}$ Ticket Model: 60 $^{0,-1}$
5. Thickness (mm)	Standard Model: 0.05 ~ 0.12 Presenter Model: 0.05 ~ 0.10 Ticket Model: 0.05 ~ 0.15

Recommended Papers
- TF50KS-E (Paper Thickness: 65μm): Nippon Paper Industries Co., Ltd.
- PD 150R (Paper Thickness: 75μm): New Oji Paper Mfg, Co., Ltd.
- PD 160R (Paper Thickness: 75μm): New Oji Paper Mfg, Co., Ltd.
- P350 (Paper Thickness: 62μm): Kansaki Specialty Paper, Inc. (USA)
- P220AG (Paper Thickness: 65μm): Mitsubishi Paper Mills Limited
- P220A (Paper Thickness: 65μm): Mitsubishi Paper Mills Limited
- F5041 (Paper Thickness: 65μm): Mitsubishi HitecPaper Flensburg Gmbh
- P5047 (Paper Thickness: 60μm): Mitsubishi Paper Mills Limited

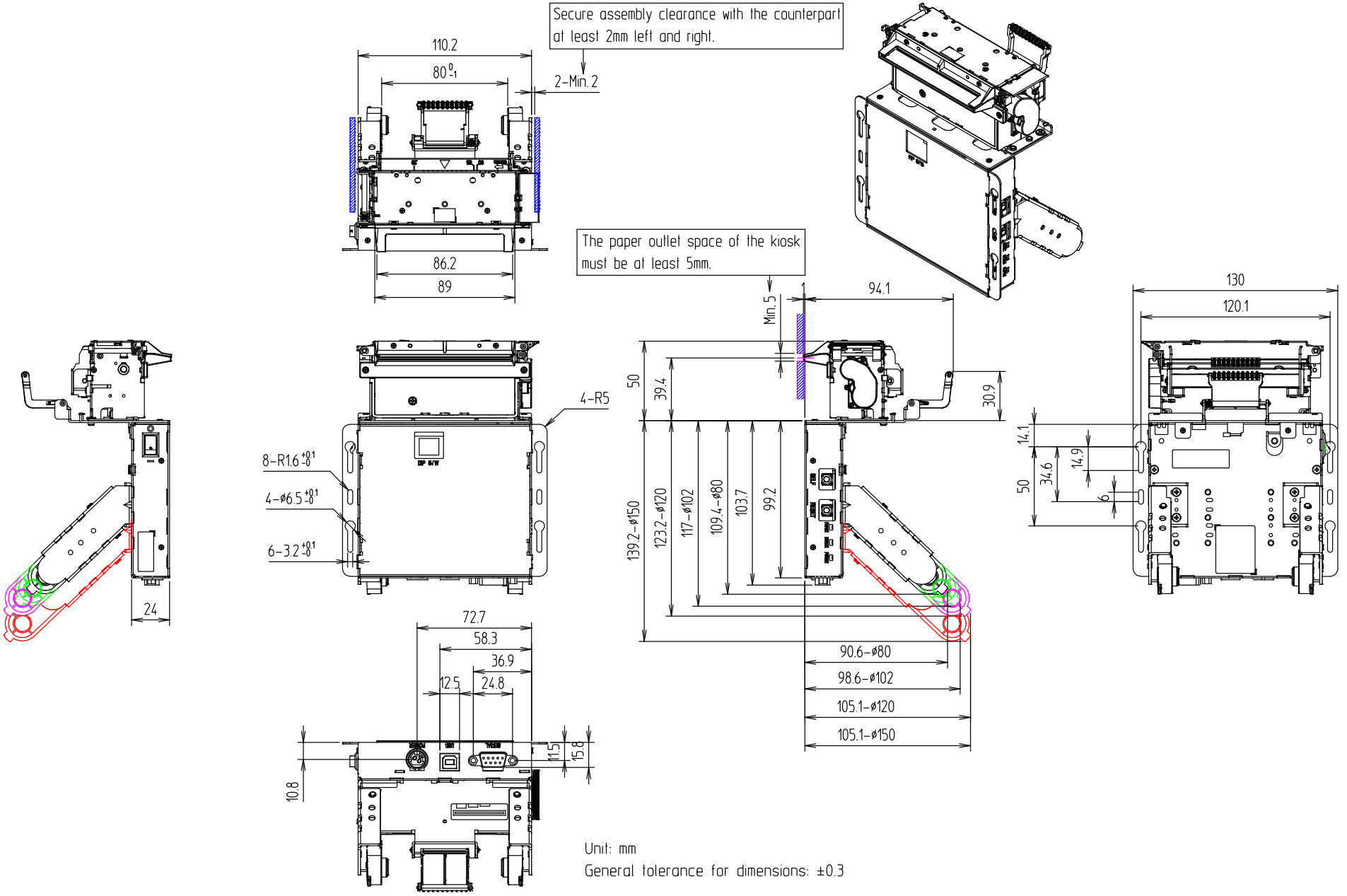
⚠ ***Caution***	- Use of papers other than those recommended above may damag e TPH or degrade the printing quality and our company Is not responsible for the damage caused by non-recommended papers. - If you have to use other products, we recommend that you use papers with a similar level of quality to the recommended ones. - **If a sticking phenomenon (a phenomenon where feeding with TPH and paper does not occur) occurs due to the characteristics of the paper, be sure to adjust the printing density and speed.**

3) External Size

(1) BK3-31 (Horizontal Type)



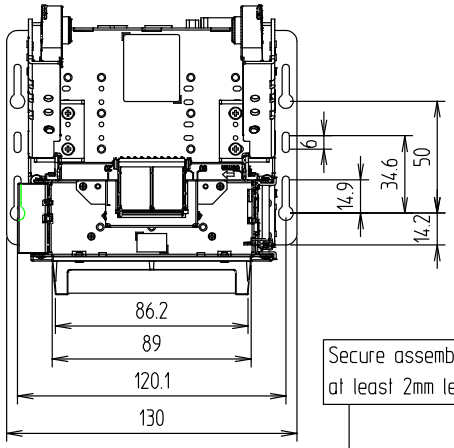
(2) BK3-31V (Vertical Type)

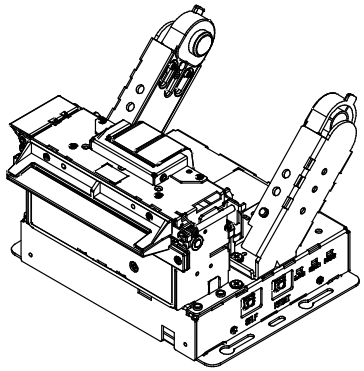


Unit: mm

General tolerance for dimensions: ±0.3

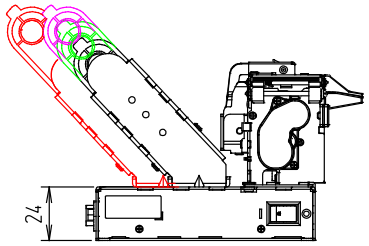
(3) BK3-L31 (Horizontal Lever-Open Left Type)

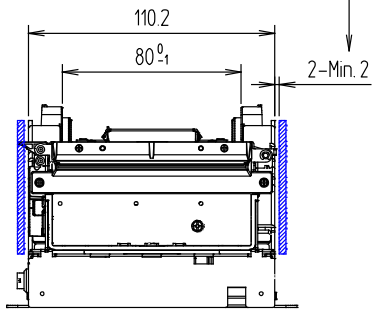


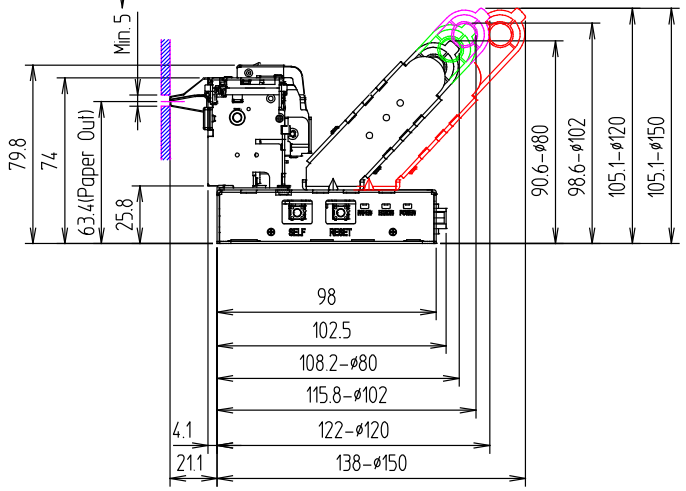


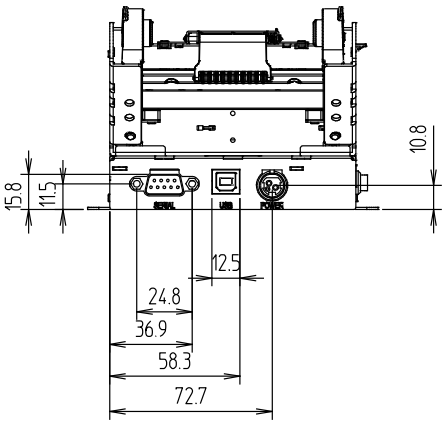
Secure assembly clearance with the counterpart at least 2mm left and right.

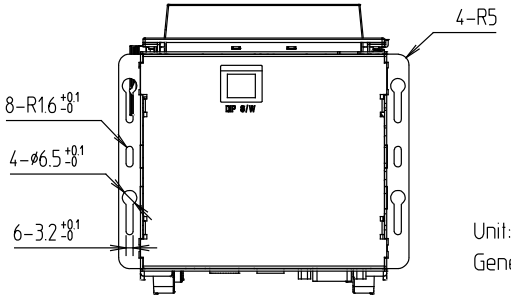
The paper outlet space of the kiosk must be at least 5mm.







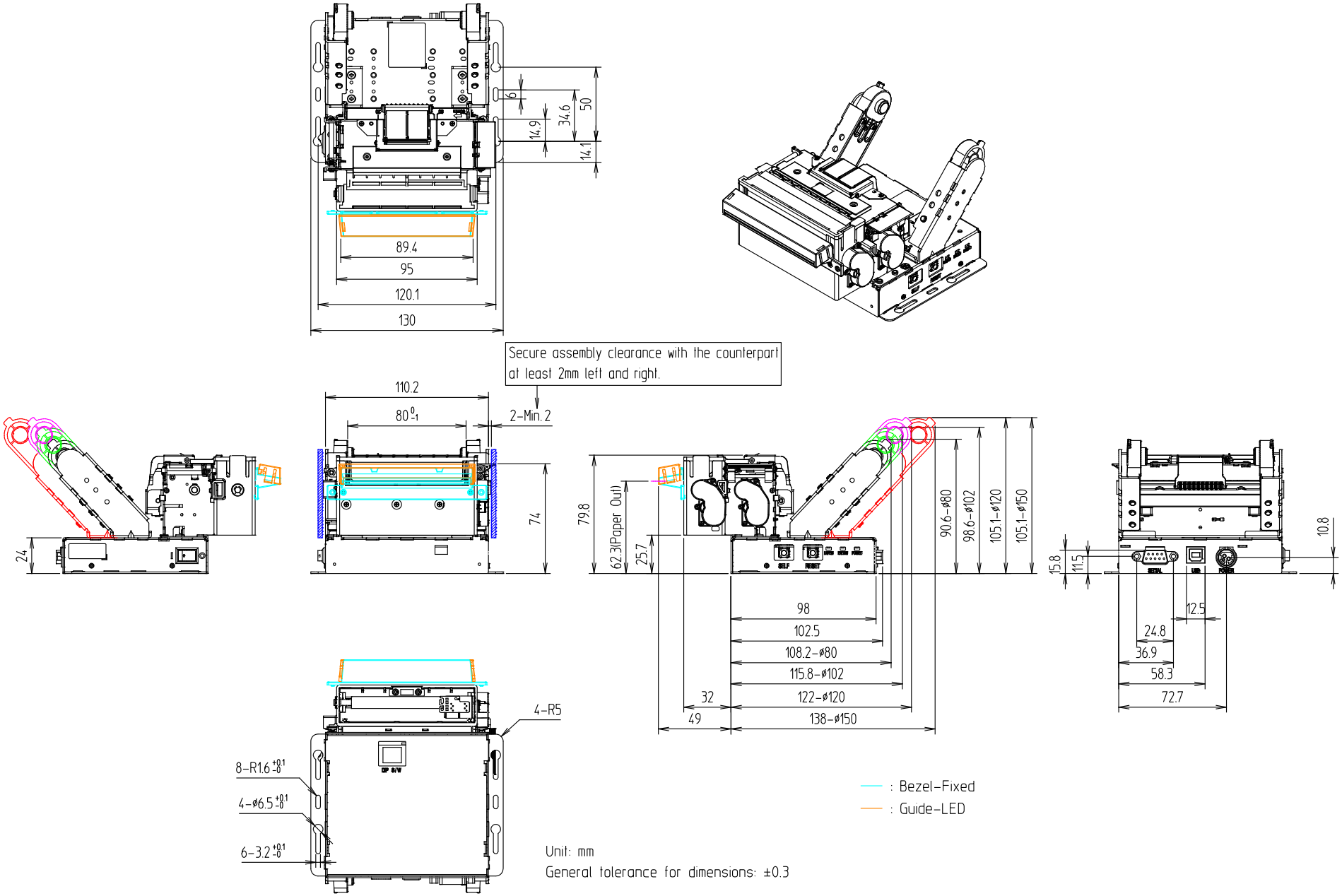




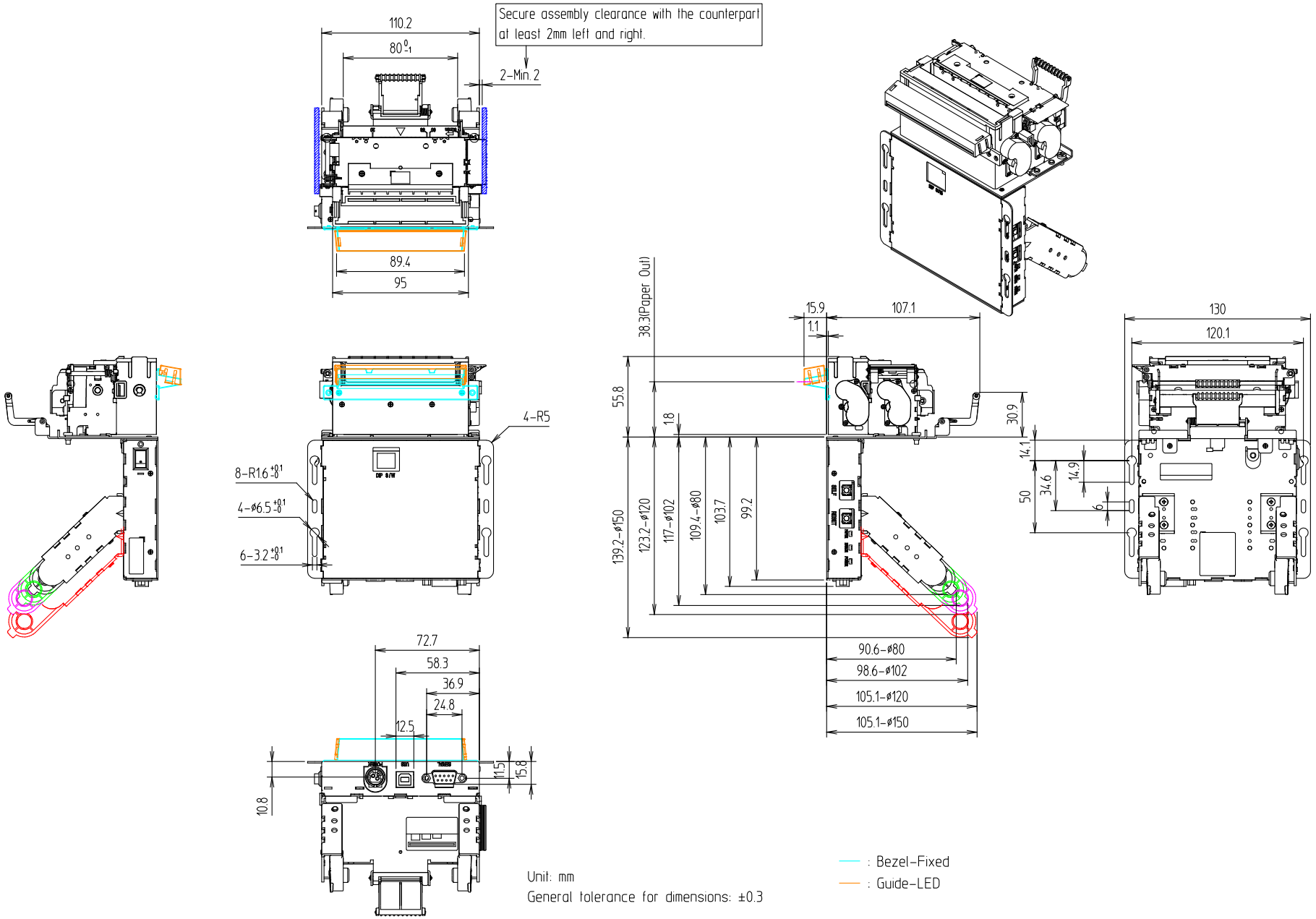
Unit: mm

General tolerance for dimensions: ±0.3

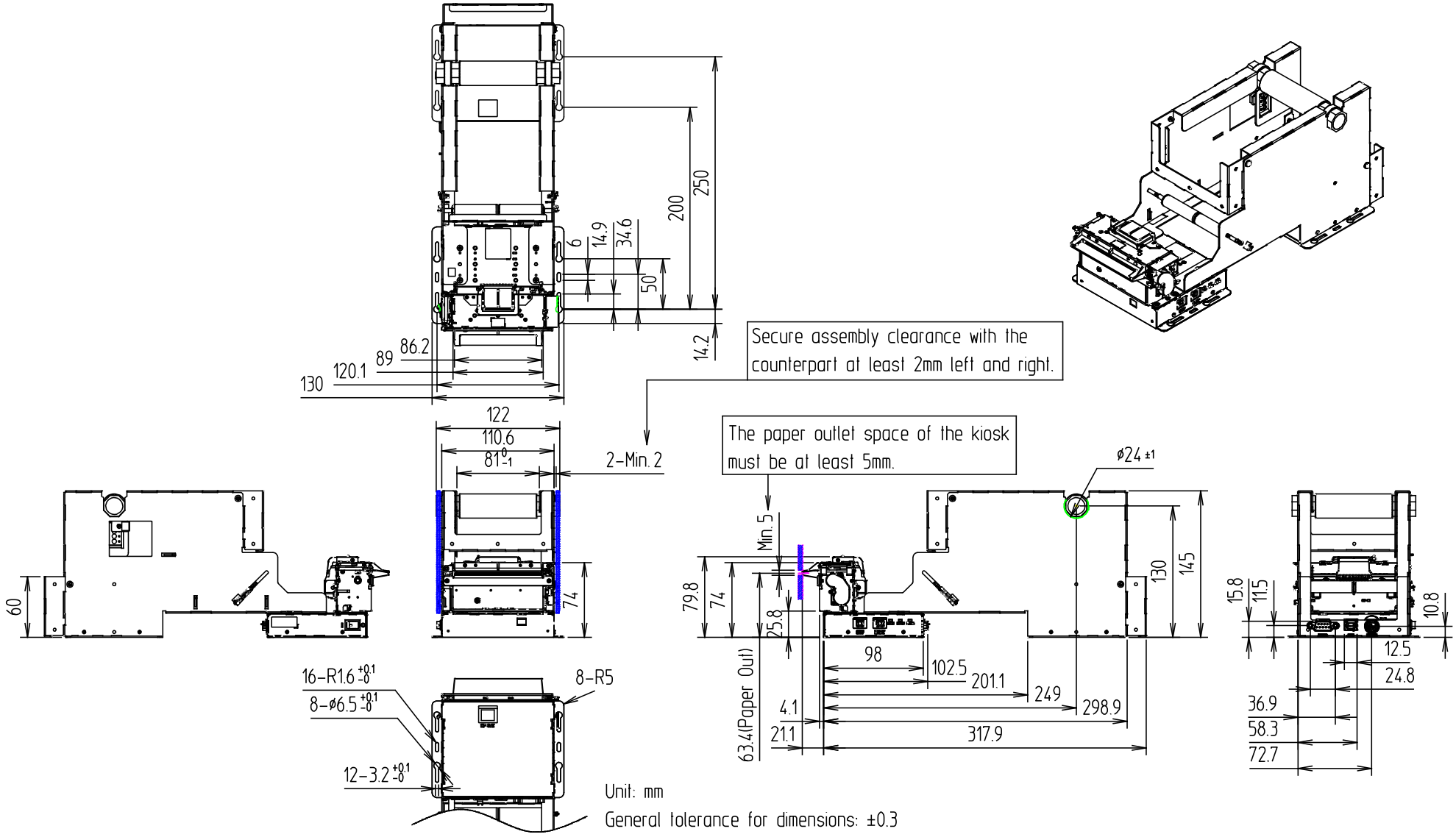
(4) BK3P-31 (Presenter Type)



(5) BK3P-31V (Vertical Presenter Type)



(6) BK3-32 (Large Paper Holder Type)



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BIXOLON maintains ongoing efforts to enhance and upgrade the functions and quality of all our products.
In the following, product specifications and/or user manual content may be changed without prior notice.

Caution

Some semiconductor devices are easily damaged by static electricity. You should turn the printer “OFF”, before you connect or remove the cables on the rear side, in order to guard the printer against the static electricity. If the printer is damaged by the static electricity, you should turn the printer “OFF”.

Revision history

Rev.	Date	Description
1.00	03.12.19	New
1.01	06.24.19	1. Added ticket model. 2. Added black mark sensor auto calibration function.
1.02	11.06.19	1. Added customer approved signature line. 2. Added part number of interface and power connector. 3. Added SMPS rating modifications and caution statements. 4. Added paper caution statement. 5. Added BK3-31V and BK3-L31 outline dimensions. 6. Added emulation 5 and caution statement.
1.03	12.31.19	1. Added interface and part number. 2. Added Presenter, Bezel accessory. 3. Added memory switch 13,14 function. 4. Added outline Dimensions.
1.04	04.03.20	1. Modified the specification of Bezel LED. 2. Fixed the specification of Paper width, Printing width. 3. Modified the paper specification.
1.05	11.16.20	1. Added print column selection.
1.06	06.08.21	1. Added vertical presenter model. 2. Added ticket paper specification.
1.07	09.17.21	1. Added the dimension of counterpart assembly space.
1.08	02.16.22	1. Added Large Paper Holder model.
1.09	07.06.22	1. Added Holder Paper Phi25(Option Parts).
1.10	10.11.22	1. Added Paper external size Φ 150. 2. Added text ‘When use Bezel-fixed, Empty space~’ 3. Modified external size drawings.
1.11	06.29.23	1. Modified the black mark sensor selection function. 2. Added feed motor back feeding selection function. 3. Modified the 2-byte font selection function. 4. Modified the bezel LED setting function.