

Print Engine

PEX-2000 Series

Thermal Transfer • Direct Thermal

Series Models

PEX-2240L / PEX-2260L

PEX-2240R / PEX-2260R

PEX-2340L / PEX-2360L

PEX-2340R / PEX-2360R

PEX-2640L / PEX-2640R



User Manual

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1 Introduction

Thank you very much for purchasing TSC bar code printer.

TSC's innovative PEX-2000 Series print engine incorporates a robust die cast construction designed for years of reliability, ease of use, and cost-conscious serviceability. The PEX combines a precision print mechanism with high performance electronics to produce labels at up to 18 inches per second, the fastest in its class.

Designed for ease of integration, the PEX features a bolt-compatible construction with a commonly used GPIO interface and an easy to use color display. The PEX offers simple integration into both new and existing label application installations. It is ideal for manufacturing and logistic applications where high speed and high demand label printing is required.

This document provides an easy reference for operating the PEX-2000 series. TSC printers include the Windows labeling software for creating your label template. For system integration, the TSPL/TSPL2 printer programming manual or SDKs can be found on TSC website : <https://www.tscprinters.com>.

Applications

- Work In Process
- Product Marking
- Compliance Labeling
- Industrial-Duty Printing
- Packing
- Order Fulfillment
- Shipping/Receiving
- Inventory Management Retail
- Product Label
- Event Ticketing

1.1 Product Specification

Printer Item	6-INCH: PEX-2260L/ PEX-2260R 4-INCH: PEX-2240L/ PEX-2240R	6-INCH: PEX-2360L/ PEX-2360R 4-INCH: PEX-2340L/ PEX-2340R	4-INCH: PEX-2640L/ PEX-2640R
Print resolution	8 dots/mm (203 DPI)	12 dots/mm (300 DPI)	24 dots/mm (600 DPI/ 4-INCH only)
Printing method	Thermal transfer and direct thermal		
Max. print speed (4-INCH)	457mm (18")/ second	356mm (14")/ second	152mm (6")/ second
Max. print speed (6-INCH)	356mm (14")/ second	305mm (12")/ second	N/A
Max. print width	4-INCH: 104mm (4.09") 6-INCH: 168mm (6.61")		
Max. print length	4-INCH: 25,400mm (1000") 6-INCH: 14,732mm (580")	4-INCH: 11,430mm (450") 6-INCH: 6,604mm (260")	2,540mm (100")
1 st print position from label (includes liner, if any) edge	2.4mm +/-0.5		
Label (includes liner, if any) edge from mainframe	13.2mm		
Enclosure	Die-cast based print mechanism		
Dimension	4-INCH: 245mm (W) x 300mm (H) x 390mm (D) 6-INCH: 245mm (W) x 300mm (H) x 450mm (D)		
Weight	Net weight: 14.35kg (31.64 lbs.) Gross weight: 17.35kg (38.25 lbs.)		
Carton Dimension	4-INCH: 401mm x 365mm x 518mm 6-INCH: 401mm x 365mm x 573mm		
Ribbon capacity	600m long, max. O.D. 90mm, 1-inch core (ink coated outside or inside)		
Ribbon width	4-INCH: 25.4mm - 114.3mm (1" - 4.5") 6-INCH: 76mm - 180mm (3" - 7.1")		
Processor	32-bit RISC high performance processor (BGA 536MHz)		

Printer Item	6-INCH: PEX-2260L/ PEX-2260R 4-INCH: PEX-2240L/ PEX-2240R	6-INCH: PEX-2360L/ PEX-2360R 4-INCH: PEX-2340L/ PEX-2340R	4-INCH: PEX-2640L/ PEX-2640R
Memory	<ul style="list-style-type: none"> ■ 512MB Flash memory ■ 512MB DDR2 RAM memory ■ USB device memory (FAT32) ■ Micro SD card reader for memory expansion, up to 32GB 		
Interface	<ul style="list-style-type: none"> ■ RS-232 (Max. 115,200 bps) ■ USB 2.0 (High speed mode) ■ Internal Ethernet 10/100 Mbps ■ USB host *2 (front and rear side), connecting USB storage device ■ GPIO (DB15F) + Centronics 		
Power	<p>Auto sensing power supply (20% print ratio):</p> <ul style="list-style-type: none"> ■ Input: AC 100-240V, 4-2A, 50-60Hz ■ Output: DC 5V, 5A; DC 24V, 7A; DC 36V, 1.4A; Total 243W 		
LCD display	<ul style="list-style-type: none"> ■ Multi-language selectable ■ 3.5" IPS QVGA color display ■ 1 status indicator 		
Operation switch, button	<ul style="list-style-type: none"> ■ 6 operation buttons (Menu, Pause/Feed, Up, Down, Left, Right) 		
Sensors	<ul style="list-style-type: none"> ■ Gap transmissive sensor (Position adjustable, 1 mm - 98 mm) ■ Black mark reflective sensor (Bottom or Top black mark sensor switchable and position adjustable, 5 mm - 92 mm) ■ Ribbon end sensor (transmissive) ■ Ribbon encoder sensor ■ Head open sensor ■ Media cover open sensor ■ Label holder cover open sensor 		
Built-in font	<ul style="list-style-type: none"> ■ 8 alpha-numeric bitmap fonts ■ One Monotype Imaging® CG Triumvirate Bold Condensed scalable font ■ Built-in Monotype True Type Font engine 		

Printer Item	6-INCH: PEX-2260L/ PEX-2260R 4-INCH: PEX-2240L/ PEX-2240R	6-INCH: PEX-2360L/ PEX-2360R 4-INCH: PEX-2340L/ PEX-2340R	4-INCH: PEX-2640L/ PEX-2640R
Barcode	<ul style="list-style-type: none"> ■ 1D barcode: Code 11, Code 39, Code 49, Code 93, Code128UCC, Code128 subsets A.B.C, Codabar, Standard 2 of 5, Industrial 2 of 5, Interleave 2 of 5, EAN-8, EAN-13, EAN-14, EAN-128, ITF14, UPC-A, UPC-E, EAN and UPC 2(5) digits add-on, MSI, PLESSEY, PLANET, POSTNET, RSS-Stacked, GS1 DataBar, China Post, Telepen, LOGMARS ■ 2D barcode: PDF-417, Micro PDF 417, Maxicode, DataMatrix, QR code, Aztec, TLC 39, RSS, rMQR code 		
Font & barcode rotation	0, 90, 180, 270 degree		
Command set	TSPL-EZD (compatible to EPL, ZPL, ZPL II, DPL); Option for TSPL-EZS (compatible to EPL, ZPL, ZPL II, SBPL)		
Media type	Continuous, die-cut, black mark, fan-fold, notch		
Media wound type	Outside wound		
Media width (Label and Liner)	4-INCH: 16mm - 118mm (0.63" - 4.64") 6-INCH: 50.8mm - 180mm (2" - 7.09")		
Media thickness (Includes liner, if any)	<ul style="list-style-type: none"> ■ Standard (Default): 0.076 mm - 0.305 mm (2.99 mil - 12.01mil) ■ RFID tag: 0.076 mm - 1.2 mm (2.99 mil - 47.2mil), lift up the front gap sensor wall when thickness > 0.9mm ■ Ribbon saver: 0.076 mm - 0.3 mm (2.99 mil - 11.81 mil) 		
Label length (peel-off mode)	4-INCH: Standard mode: 12.7mm - 152mm (0.5" - 6") Small label mode: 5mm - 12.7mm (0.2" - 0.5", mode switchable on the display) 6-INCH: 25.4mm - 152mm (1" - 6")		
Label exit angle (peel-off mode)	Angle adjustable: 15°		
Media Pull-in/pull out force	<ul style="list-style-type: none"> ■ The maximum unwind force: 1,800g ■ The maximum rewind force: 2,400g The pulling forces in the label web must be applied evenly.		
Gap height	Min. 2mm (0.79")		
Black mark height	Min. 2mm (0.79")		

Printer Item	6-INCH: PEX-2260L/ PEX-2260R 4-INCH: PEX-2240L/ PEX-2240R	6-INCH: PEX-2360L/ PEX-2360R 4-INCH: PEX-2340L/ PEX-2340R	4-INCH: PEX-2640L/ PEX-2640R
Black mark width	Min. 8mm (0.31")		
RFID	RAIN UHF Passive (GS1 EPC Gen2 v2 / ISO 18000-63) Fixed Position Antenna Standard Minimum Label/Tag Pitch 0.625" (15.9mm)		
RTC and Buzzer	Standard		
Environment condition	Operation: -5 to 45°C, 25 to 85% non-condensing Storage: -40 to 60°C (-40 to 140°F), 10 to 90% non-condensing		
Accessories	<ul style="list-style-type: none"> ■ Quick start guide ■ USB port cable ■ Power cord 		
Factory option	<ul style="list-style-type: none"> ■ Internal Bluetooth 5.0 MFi 		
Dealer option	<ul style="list-style-type: none"> ■ Wi-Fi 802.11a/b/g/n/ac with Bluetooth 4.2 combo module ■ Internal Bluetooth ■ GPIO (DB25F) ■ UHF RFID ■ Ribbon saver 		

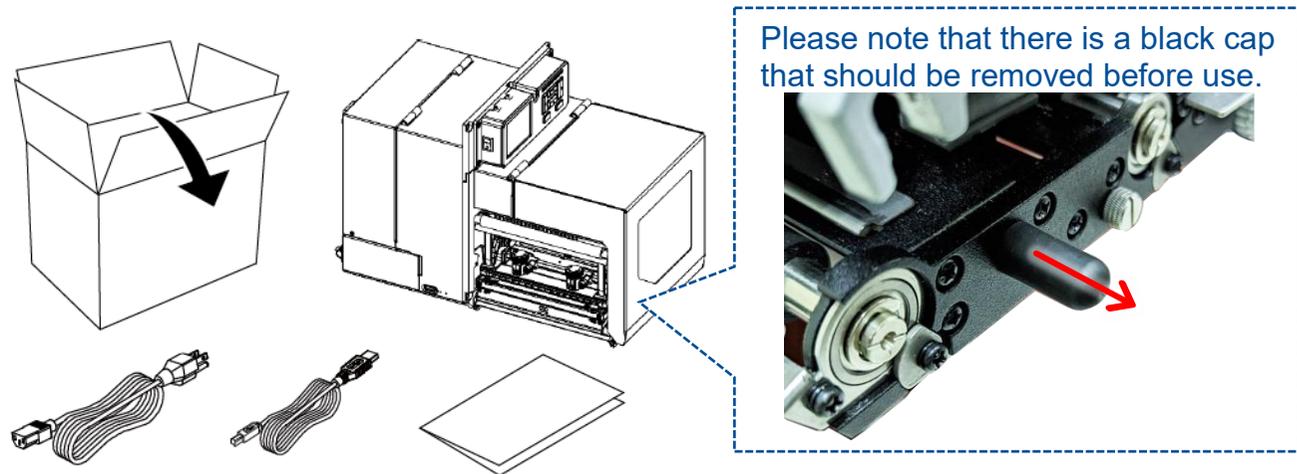
2 Operation Overview

2.1 Unpacking and Inspection

This printer has been specially packaged to withstand damage during shipping. Please carefully inspect the packaging and printer upon receiving the bar code printer. Please retain the packaging materials in case you need to reship the printer.

Unpacking the printer, the following items are included in the carton.

- 1 Printer unit
- 1 Quick installation guide
- 1 Power cord
- 1 USB interface cable



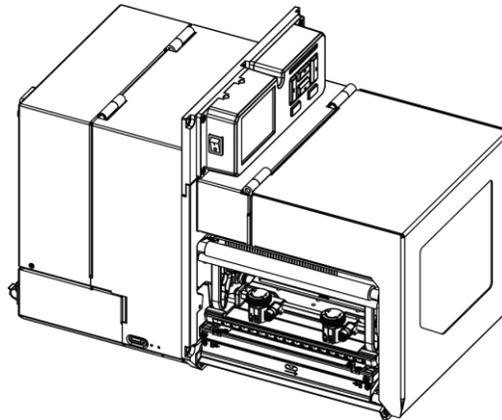
If any parts are missing, please contact the Customer Service Department of your purchased reseller or distributor.

2.2 Print Engine Orientation

The PEX-2000 series are available in a left-hand (4 inch/ 6 inch) configuration and a right-hand (4 inch/ 6 inch) configuration.

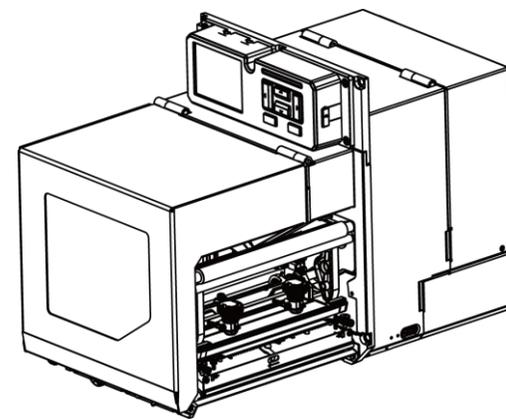
PEX-2XX0L series

Left-hand model



PEX-2XX0R series

Right-hand model



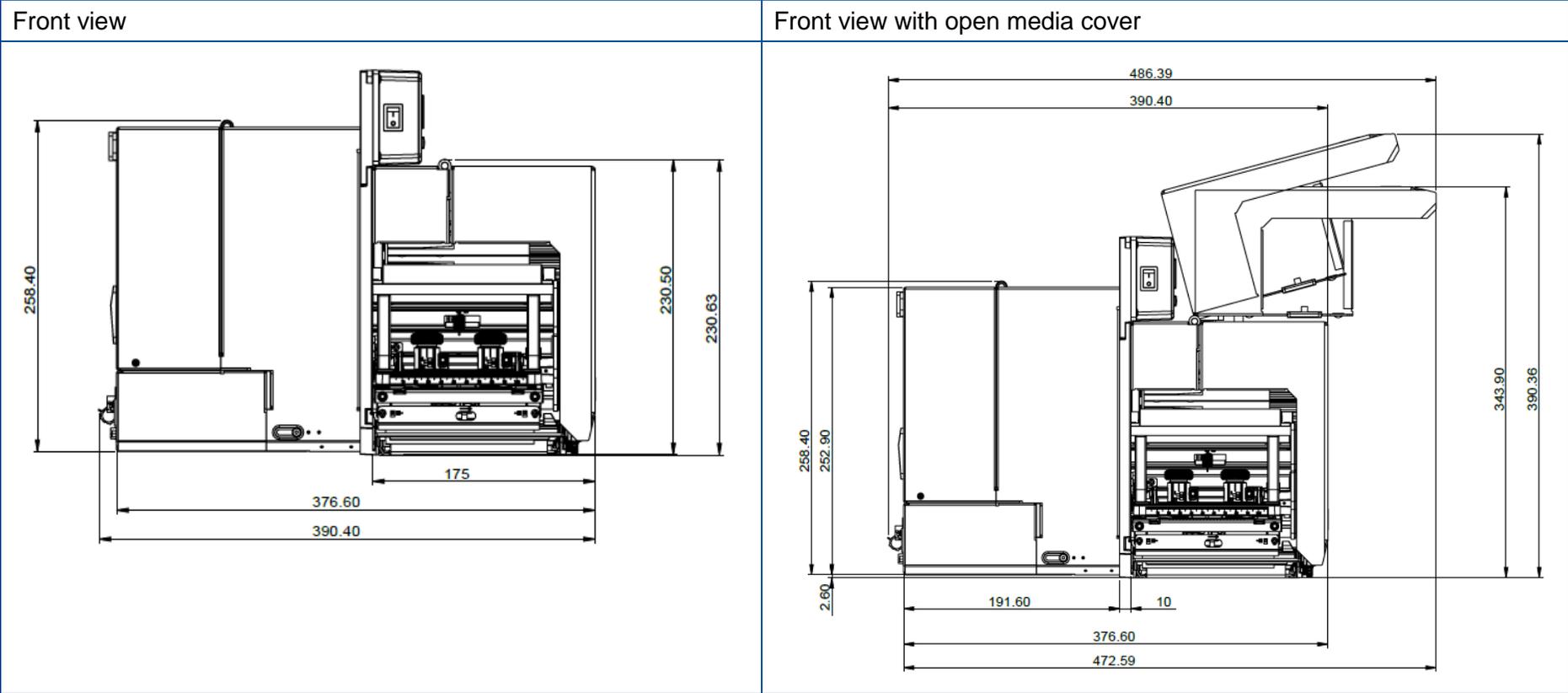
Note:

This document is going to show the components inside the media compartment of a left-hand print engine. A right-hand unit contains a mirror image of those components. Familiarize yourself with these components before continuing with the print engine setup procedure.

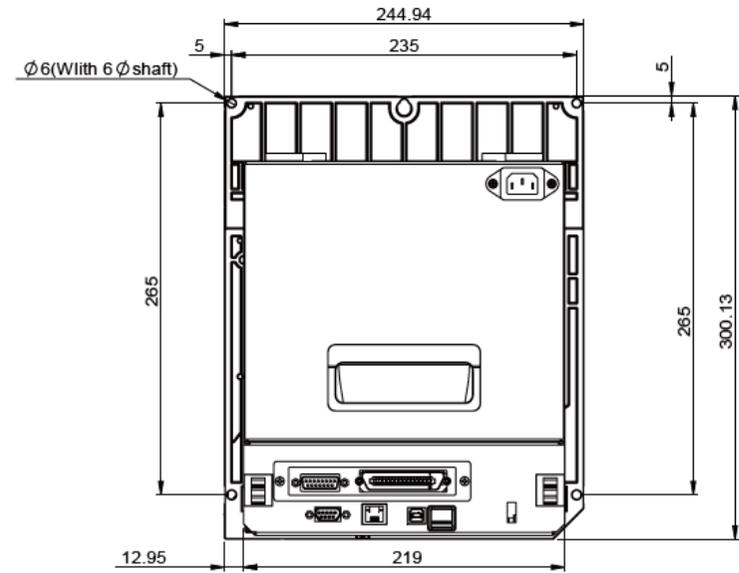
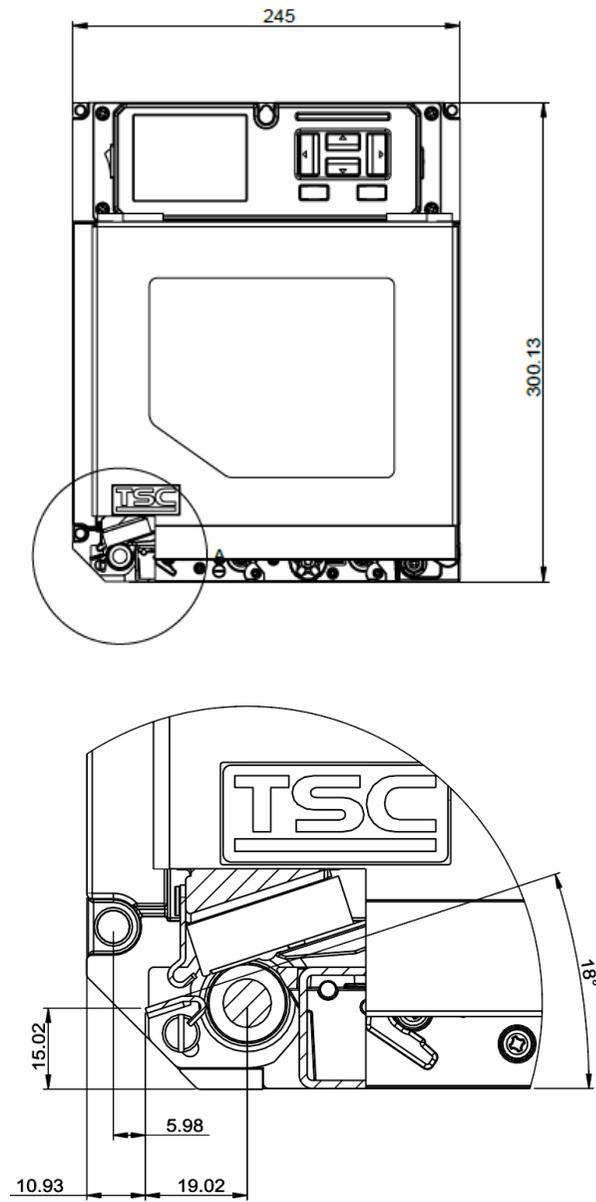
2.3 Checking the Installation Space

Please check the space for mounting the print engine into an applicator. Please refer to the dimensions in this section.

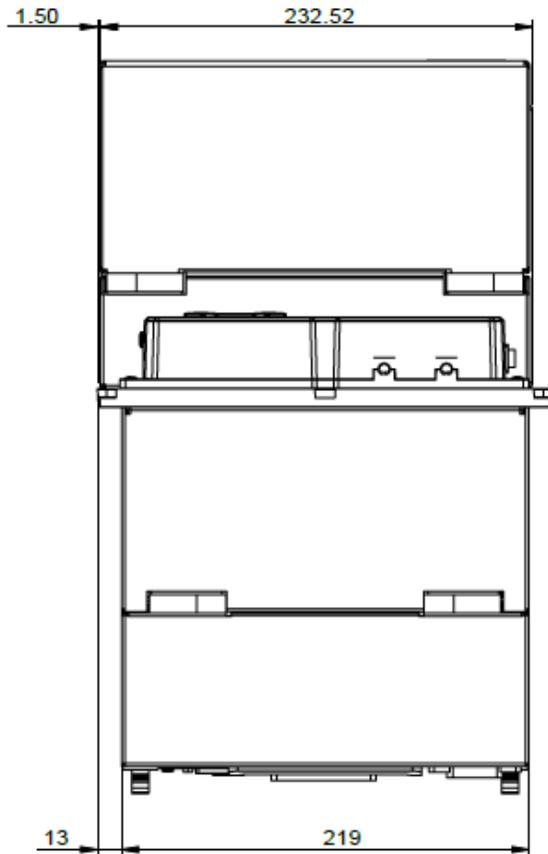
4-inch model



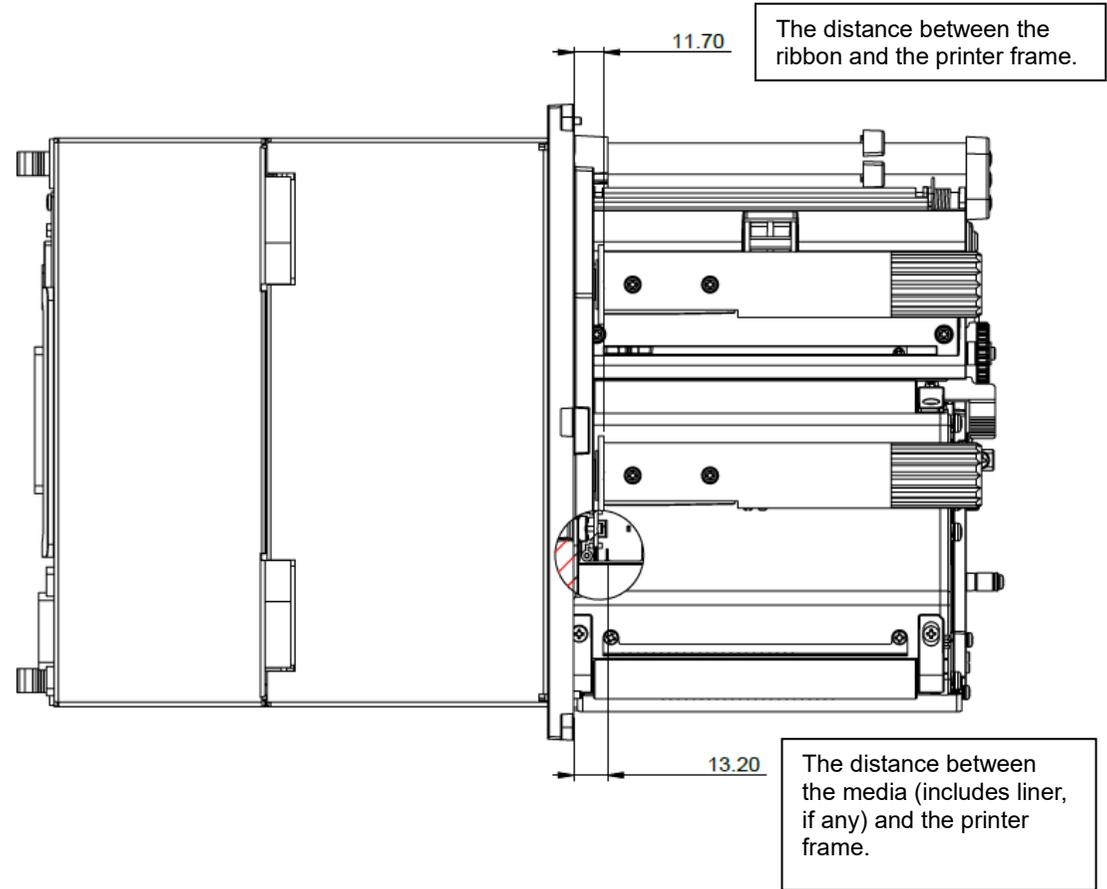
Side view



Top view

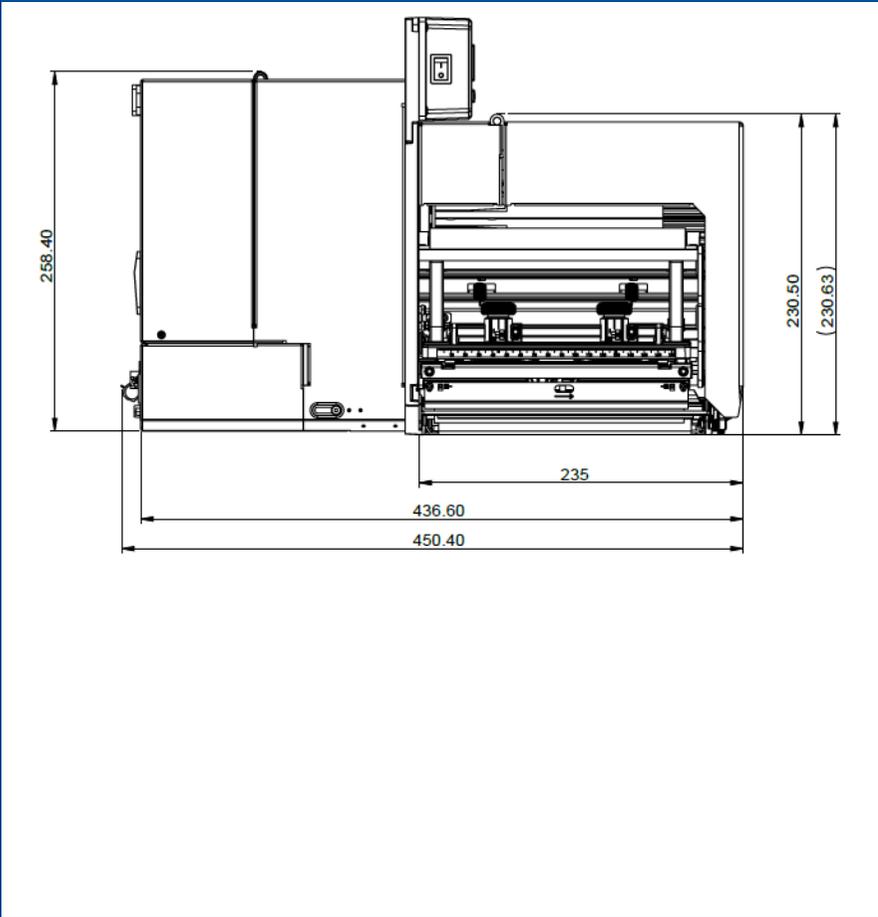


Top view without media cover

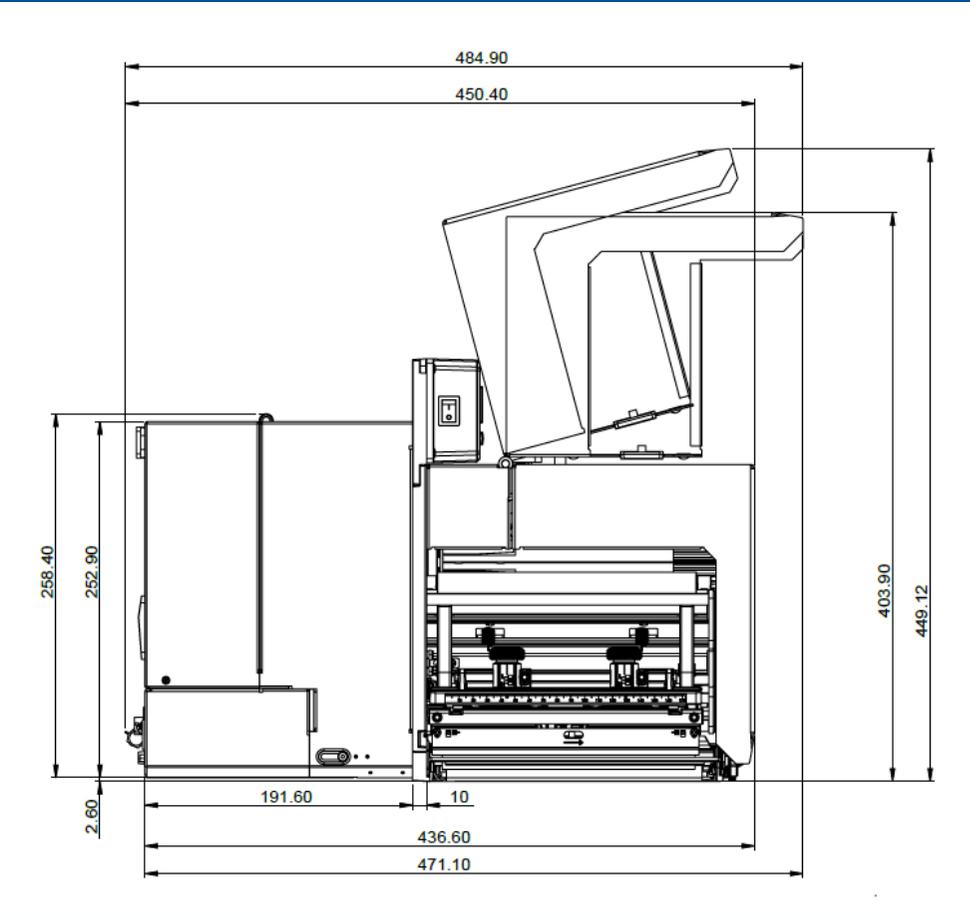


6-inch model

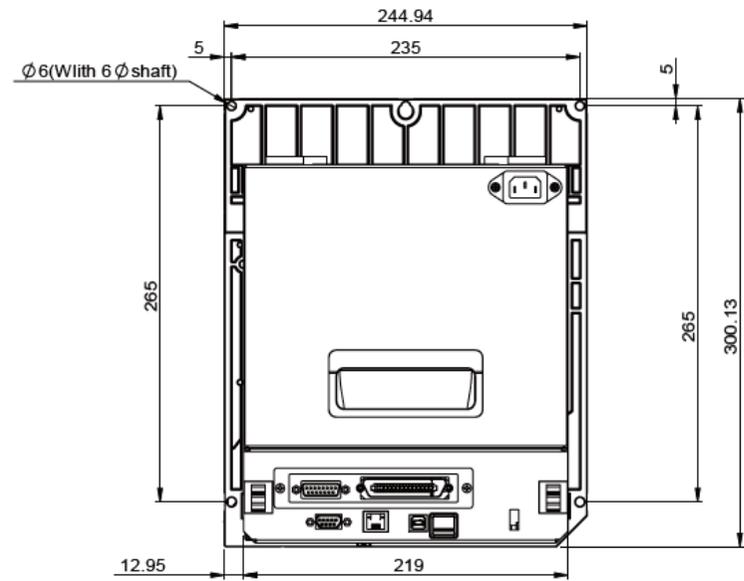
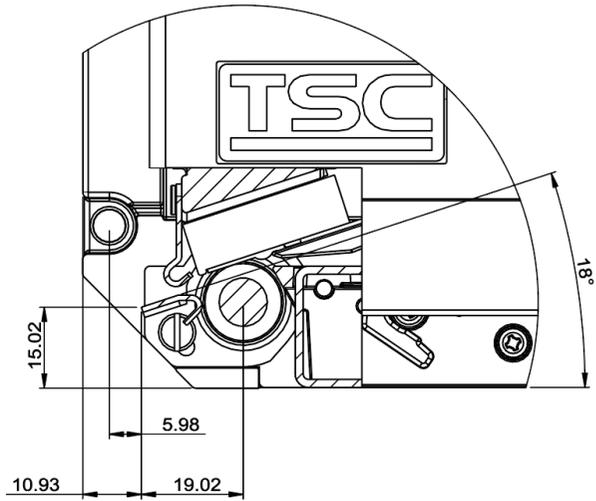
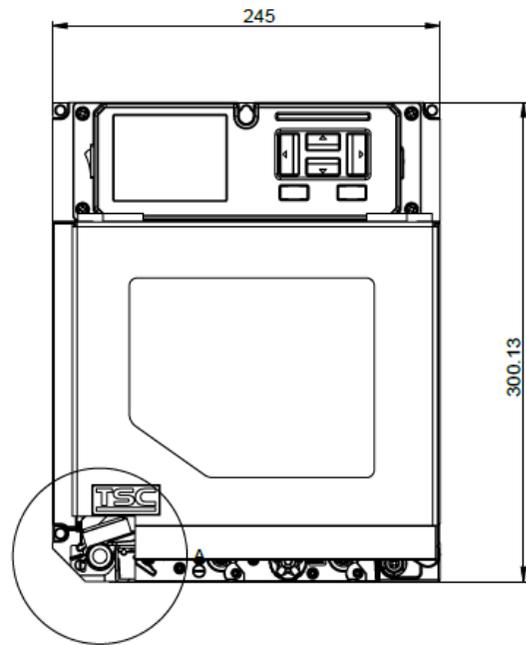
Front view



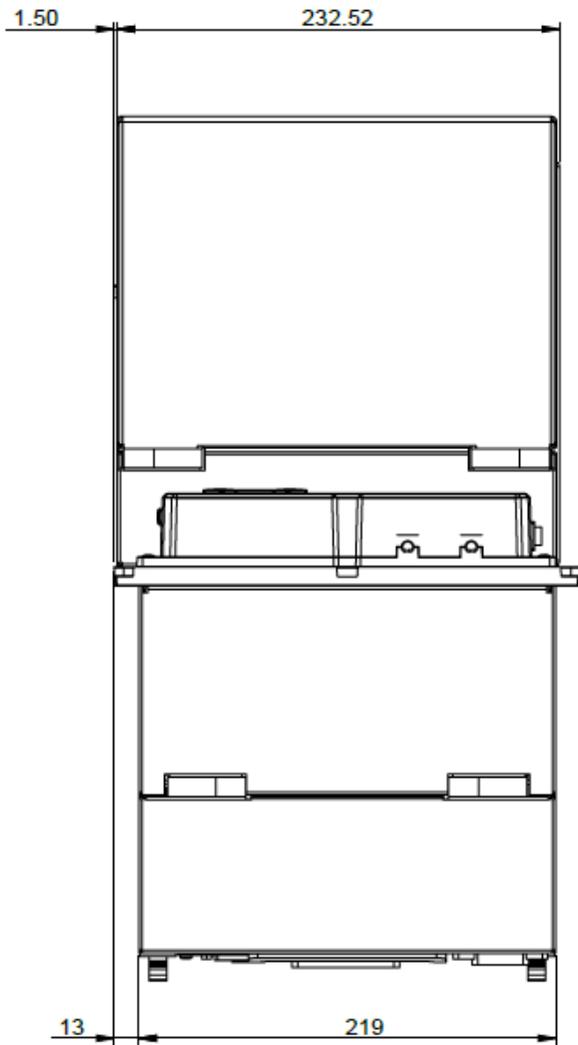
Front view with open media cover



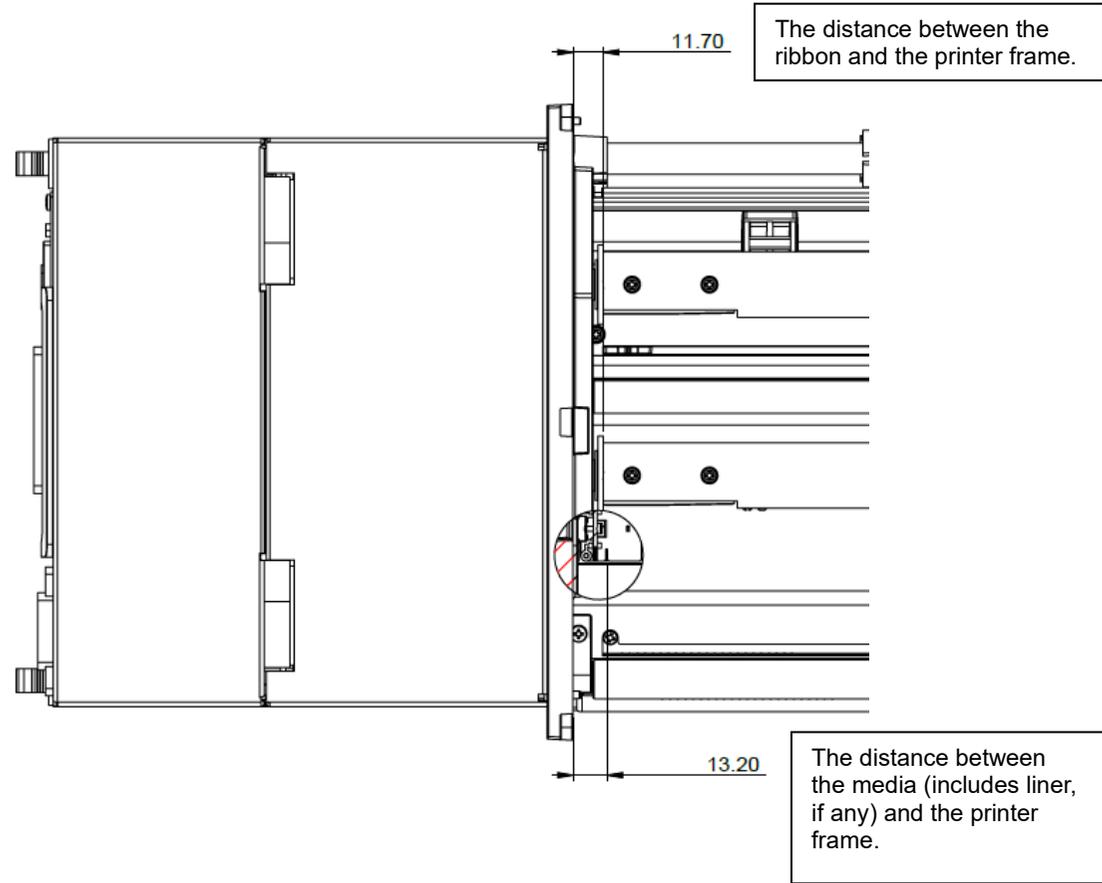
Side view



Top view

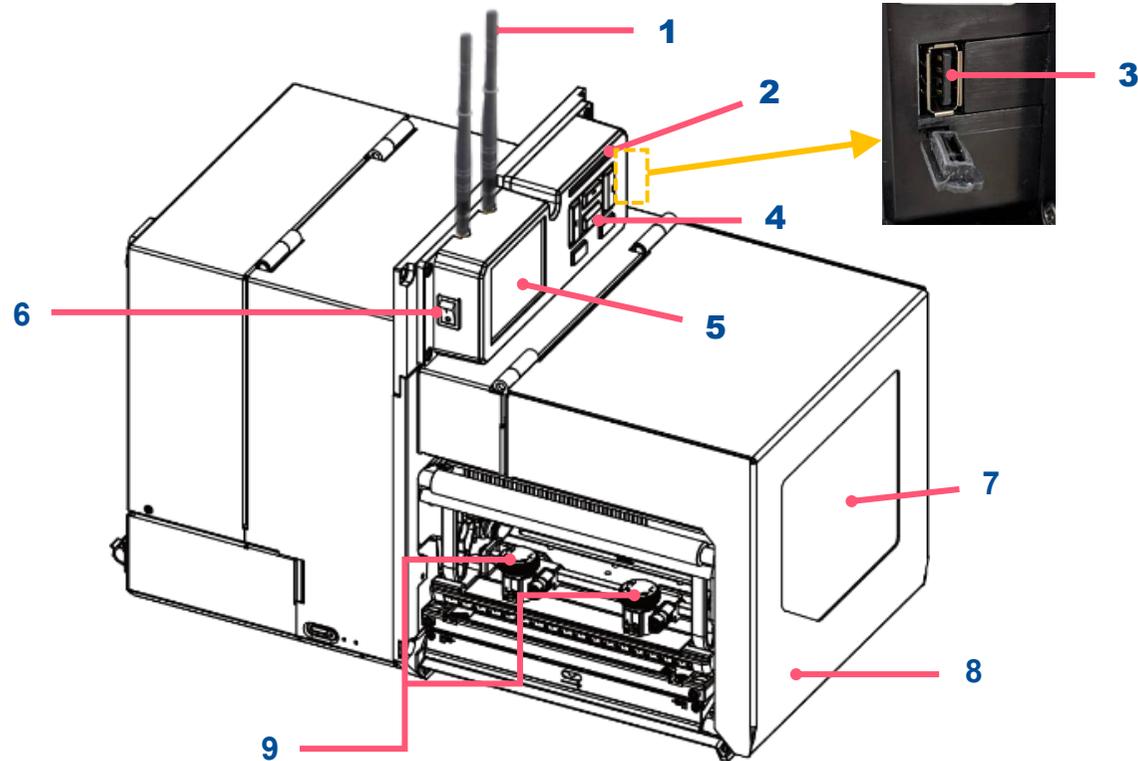


Top view without media cover



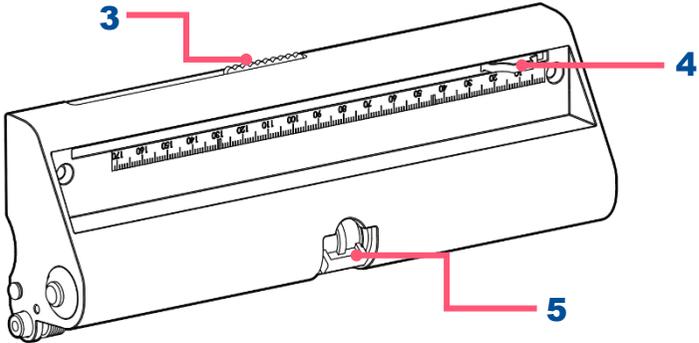
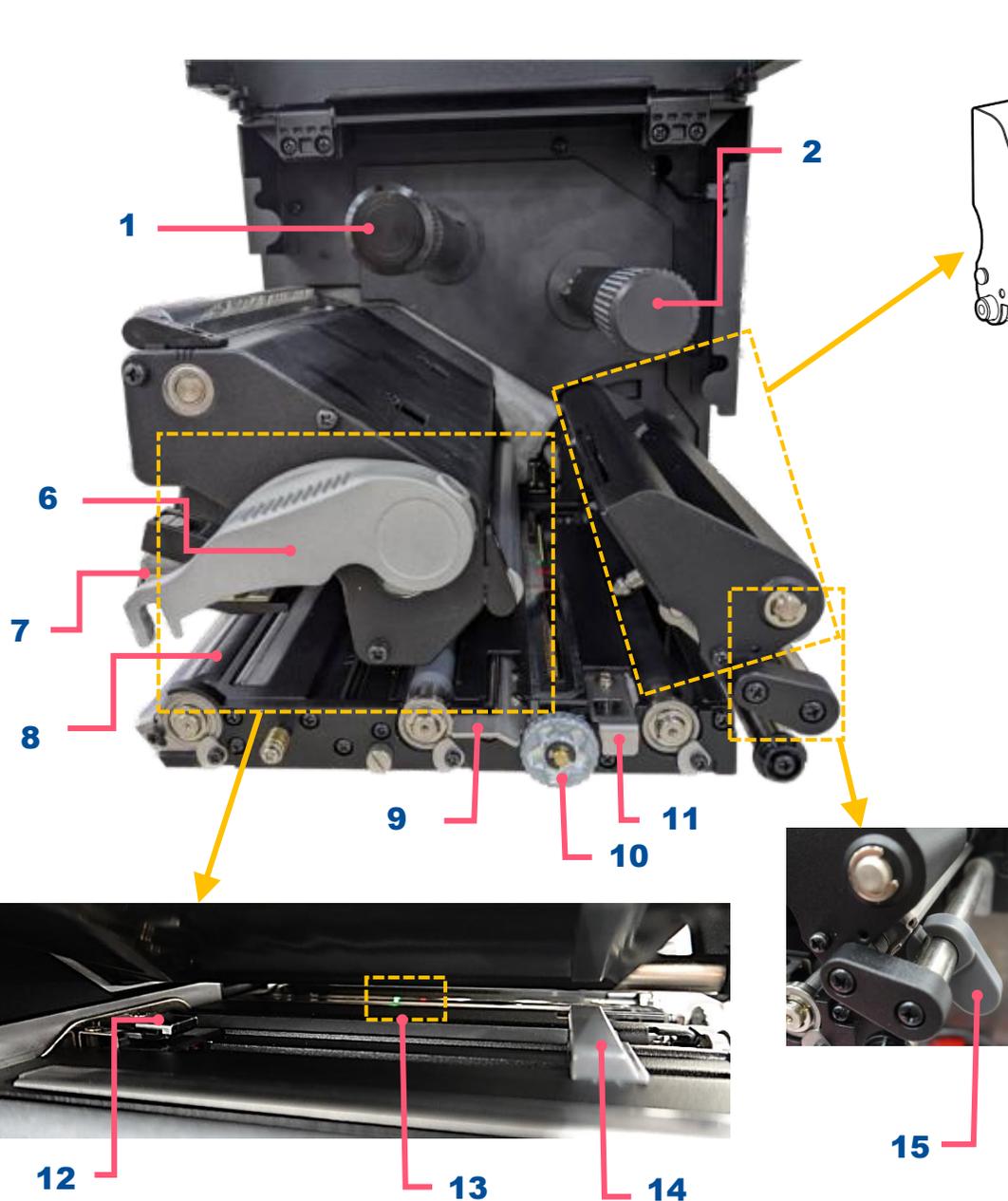
2.4 Printer Overview

2.4.1 Front View



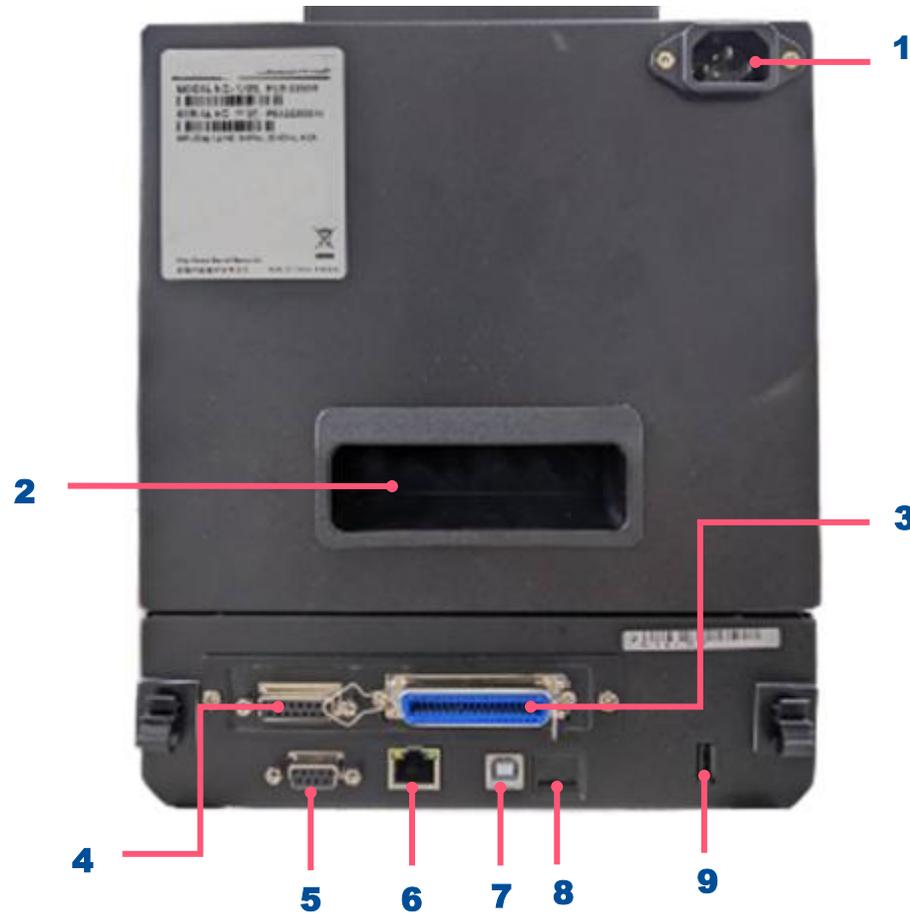
- 1.** Wi-Fi antenna (option)
- 2.** LED indicator
- 3.** USB host
- 4.** Soft keys
- 5.** LCD display
- 6.** Power switch
- 7.** Media view window
- 8.** Printer cover
- 9.** Printhead pressure adjustment knob(s)
(4-inch: 1 pc / 6-inch: 2 pcs)

2.4.2 Interior View



- 1.** Ribbon rewind spindle
- 2.** Ribbon supply spindle
- 3.** Rear gap sensor LED position adjustment bar (6-inch series only)
- 4.** Top black-mark sensor position adjustment bar
- 5.** Rear label holder lock
- 6.** Printhead release lever
- 7.** Printhead
- 8.** Platen roller
- 9.** Peel-off roller release lever
- 10.** Media sensor position adjustment knob
- 11.** Rear label release button
- 12.** Front gap sensor
- 13.** Media sensor LED indicator (Green = rear gap sensor/ Red = back black-mark sensor)
- 14.** Front label guide
- 15.** Rear label guide

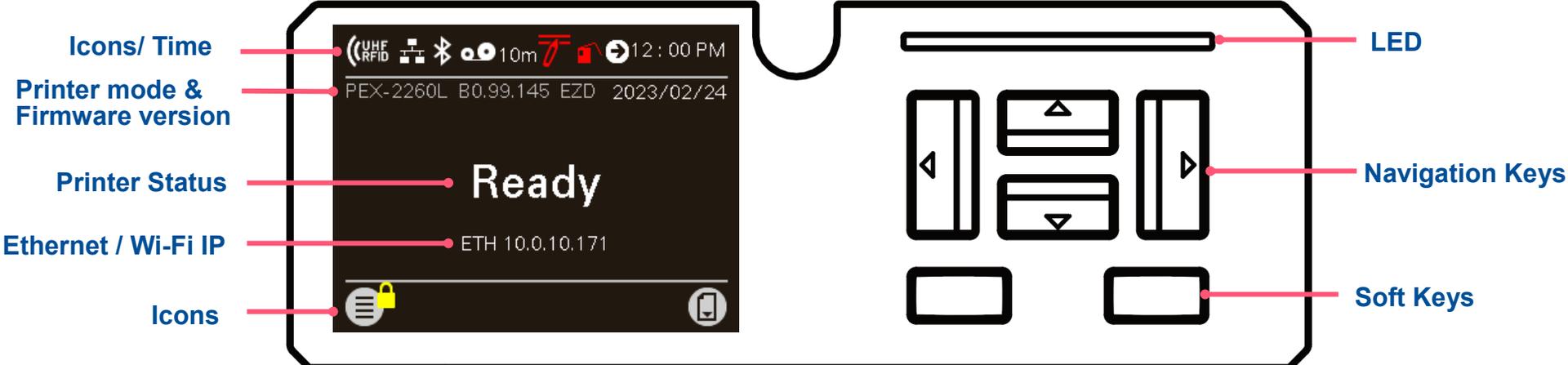
2.4.3 Rear View



1. Power cord socket
2. Rear cover handle
3. Centronics interface
4. GPIO interface (Applicator interface with DB15F connector +5V I/O)
5. RS-232C interface
6. Ethernet interface
7. USB interface
8. Micro SD card socket
9. USB host

Note:
The interface picture here is for reference only.
Please refer to the product specification for the
interfaces availability.

2.5 Operator Control

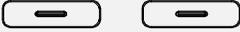
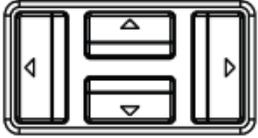


2.5.1 LED Indication and Keypads

LED color indication:

Color	Meaning
 (Green)	Solid: Power is on and ready to be used. Flash: System is downloading data or printer is paused.
 (Amber)	System is clearing data.
 (Red)	Solid: Printer head open, cutter error. Flash: Printing error, such as paper empty, paper jam, ribbon empty, or memory error etc.

Keys

Keypads form	Item name	Function
	Soft keys	The display will show the function for left and right key. The meaning of the soft keys will depend on the UI screen.
	Navigational keys	Select / Navigate

Main Page Icons

Icon	Indication
	Wi-Fi device is ready (option).
	Ethernet is connected.
	Bluetooth device is ready (option).
	Remaining amount of ribbon(m).
	Pending documents in the printer
	Security lock.
	Printhead cleaning notice
	Print engine cover open
	Enter the menu.
	Enter cursor (be marked in green) located option.
	Feed button (advance one label).

3 Setup

3.1 Setting up the Printer

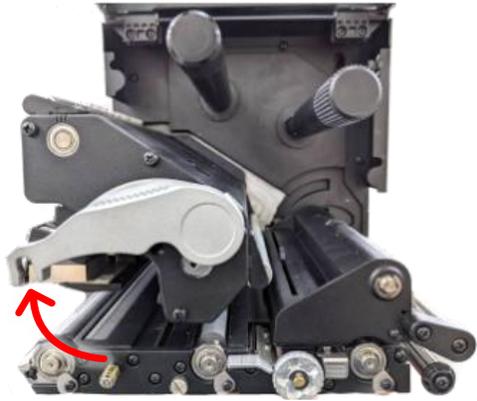
1. Refer to the section “Checking the Installation Space” to install the print engine to an applicator.
2. Make sure the power switch is off.
3. Connect the print engine to the computer with the provided USB cable or available connections.
4. Plug the power cord into the AC power cord socket at the rear of the print engine, and then plug the power cord into a properly grounded power outlet.

Note: Please switch OFF the printer before plugging in the power cord to printer power jack.

3.2 Loading the Ribbon

1. Open the media cover and the printhead mechanism.

Left-hand model

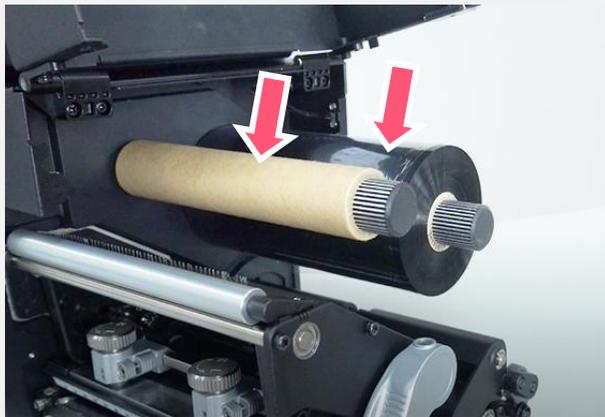


Right –hand model

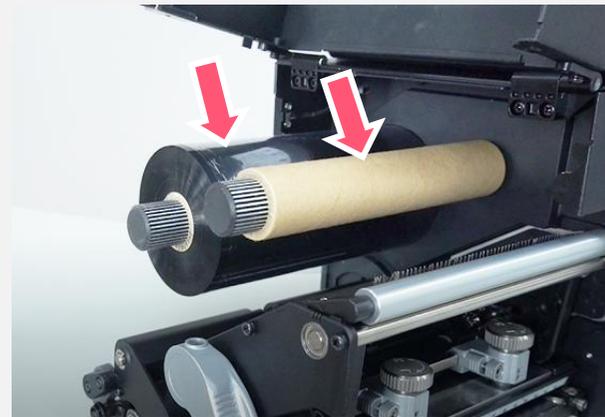


2. Install the ribbon and paper core onto ribbon supply spindle and ribbon rewind spindle.

Left-hand model

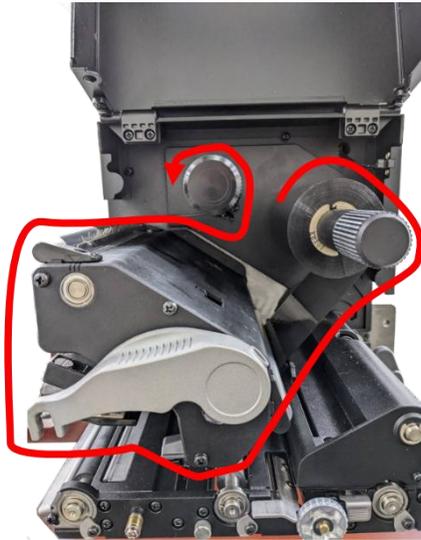


Right –hand model

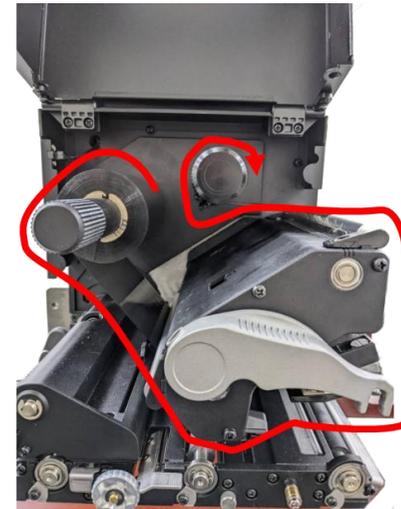


3. Thread ribbon above the ribbon guide bar and through ribbon sensor slot.

Left-hand model

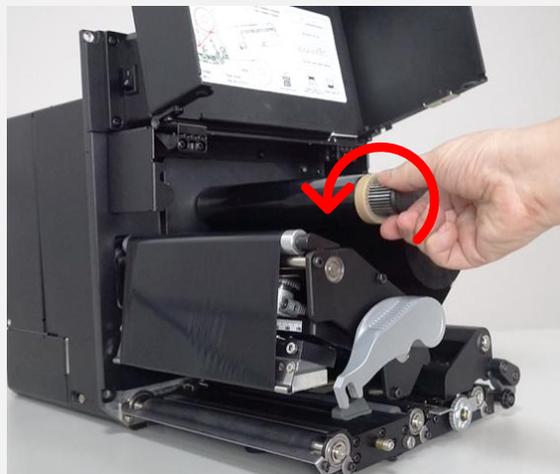


Right –hand model



4. Wind the ribbon rewind spindle roughly 3 to 5 circles until ribbon is smooth, properly stretched and wrinkle-free. (ink coated outside available)

Left-hand model



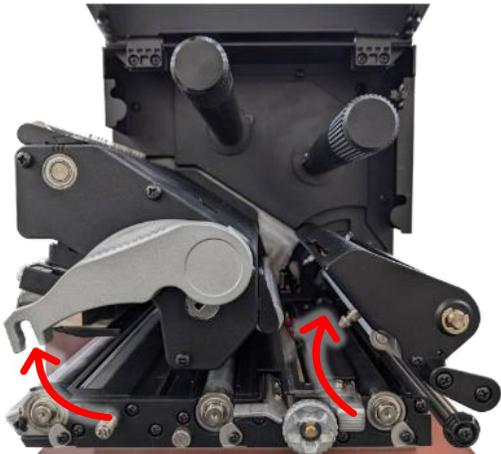
Right –hand model



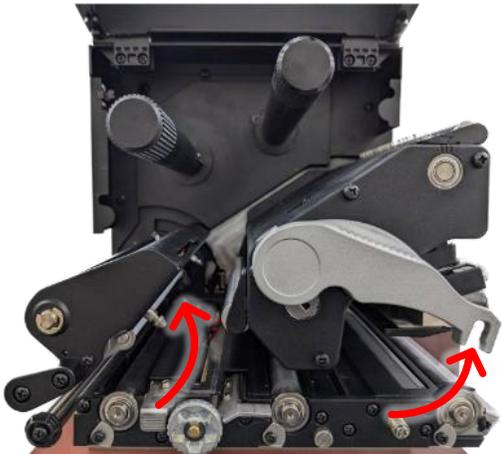
3.3 Loading the Media

- 1. Open the media cover and printhead mechanism. Open the label holder cover by pressing the rear label release button.

Left-hand model

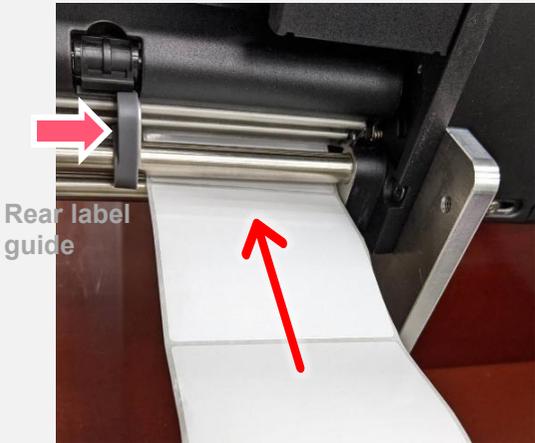


Right –hand model

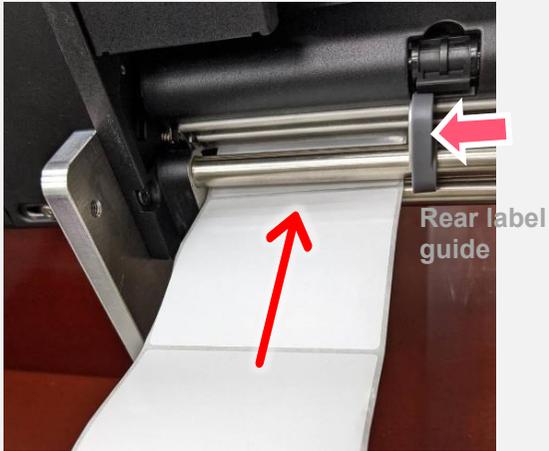


- 2. Thread the leading edge of the label through the media guide bar pass media sensor, then place the leading edge onto the platen roller. Adjust the rear label guide to fit the label width.

Left-hand model

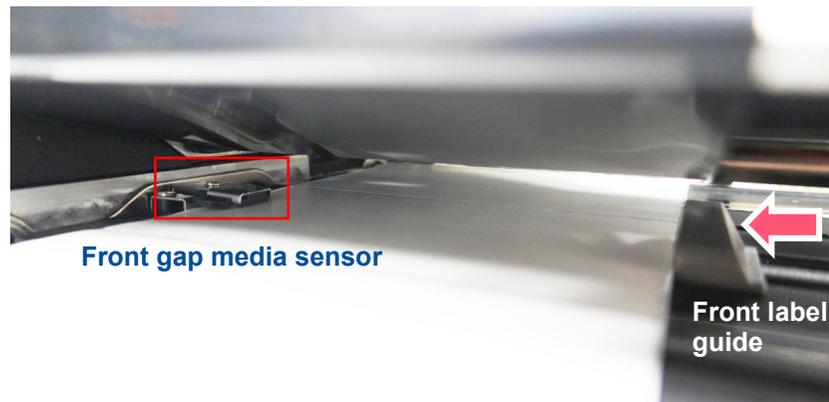


Right –hand model

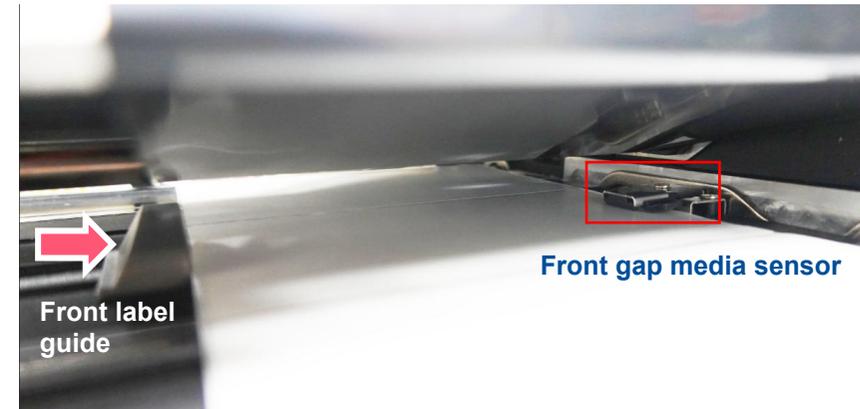


3. Adjust the front label guide to fit the label width. Make sure the label through the front gap media sensor.

Left-hand model

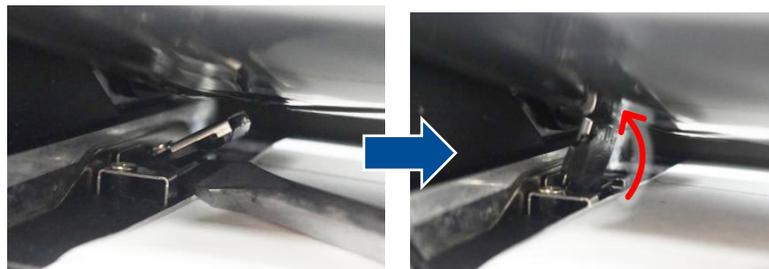


Right-hand model

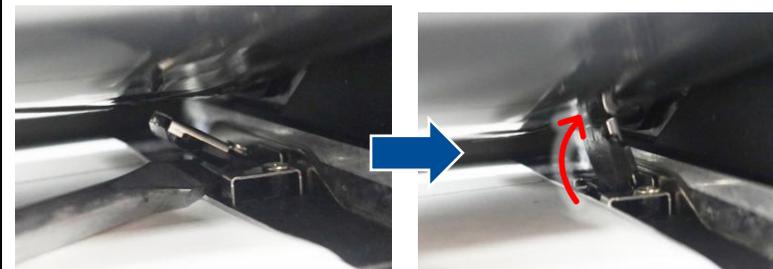


When using the thick media (0.9 mm to 1.2 mm) , you can use a tool to lift up the front gap media sensor to facilitate the media installation.

Left-hand model



Right-hand model

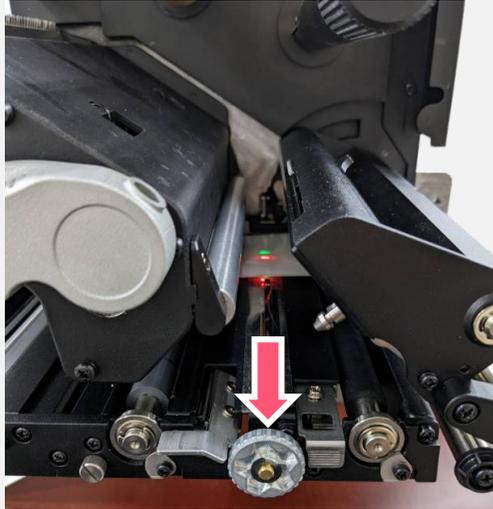


The printer's default gap media sensor setting is on the label holder cover (back), with the green media sensor LED. If you want to use the front gap sensor, enter the operation menu list. Select [Sensor] and then set the [Gap Location] from [Back] to [Front].

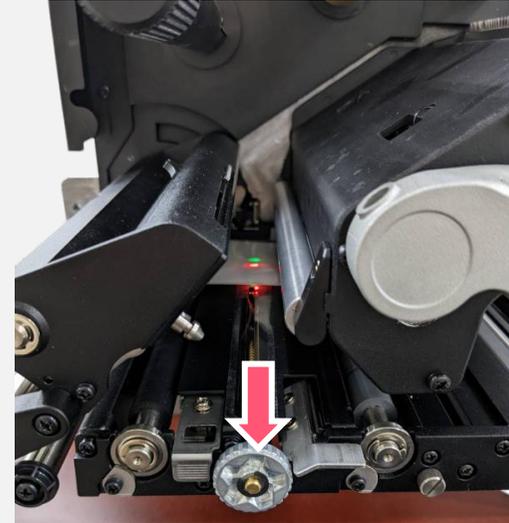
Please refer to the section "Sensor" for more information.

4. Move the rear media sensor by adjusting the media sensor position adjustment knob, make sure the sensor is able to sense the black-mark (back side) or gap on media. (Green = gap sensor/ Red = black-mark sensor)

Left-hand model



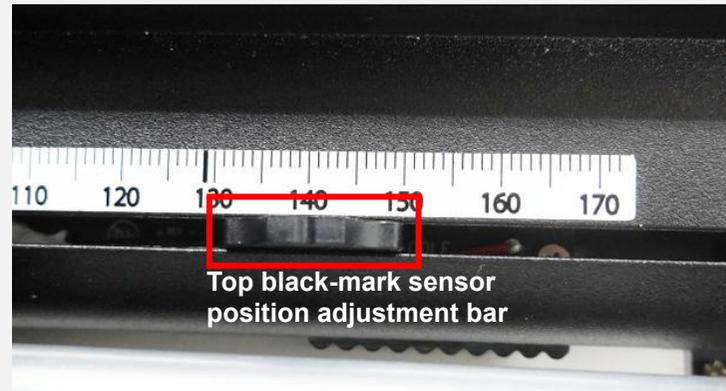
Right-hand model



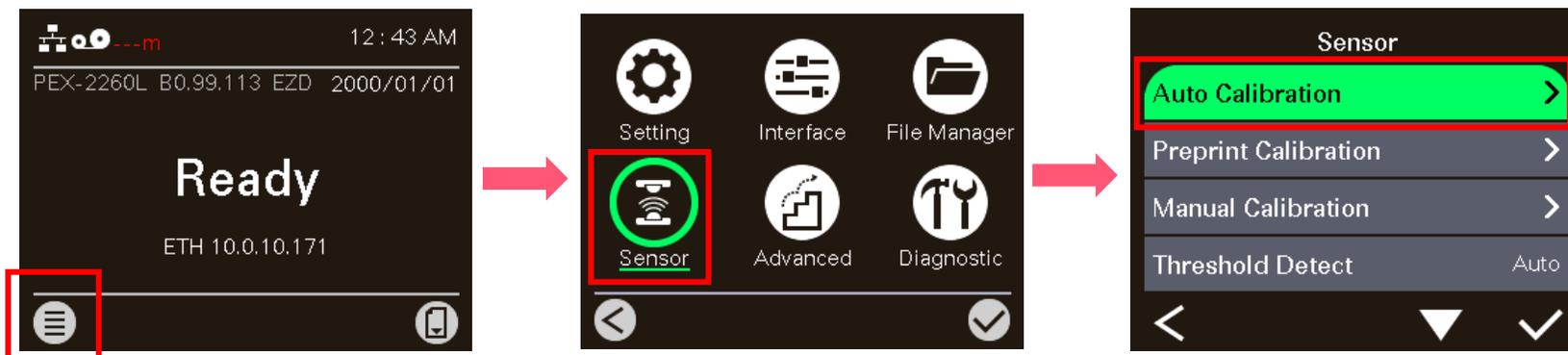
If the width of the gap is greater than 4 inches (6" series printer only), you need to adjust the rear gap sensor LED position adjustment bar (as shown below) so that the sensor can align with the green LED.



If you use the media with black mark on the print side, you need to adjust the position of the black mark sensor. (as shown below) In the operation menu, select [Sensor] and then set the [Black Mark Location] to [Print Side]. After finishing the configuration, adjust the top black mark sensor so that the sensor can align with the black mark on the print side.



5. Close the printhead mechanism, label holder cover and media cover.
6. Enter the operation menu list. Go to [Sensor] → [Auto Calibration] to calibrate the media sensor.

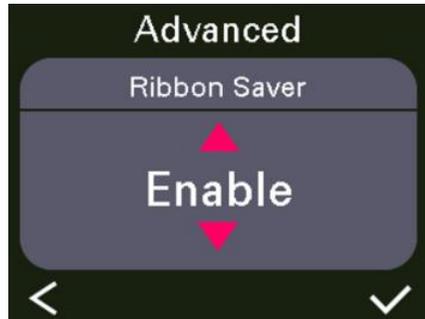


Note: Please calibrate the gap/black mark sensor when changing media.

3.3.1 Loading Media with the Ribbon Saver Mode (Option)

Ribbon Saver helps you save the ribbon when printing. The printhead will lift up after finishing printing until the next label comes in.

1. Go to **LCD Menu > Advanced > Turn Ribbon Saver to Enable**. (Default is disable)



2. Another instruction image will pop up, please release the **Label Holder Cover** and make sure your **Label Holder Lock** has been switched to the position as shown.

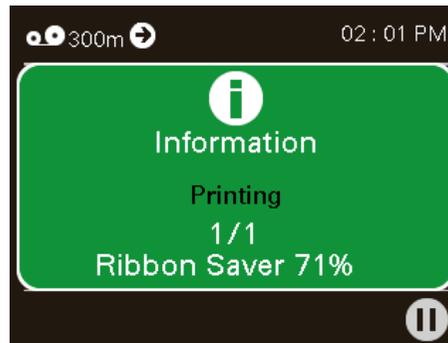


3. Remove the mylar that covers the air ventilation slots.



4. Close the **Label Holder Cover**.

When **Ribbon Saver** is set to **Enable**, the message indicating the ribbon saver efficiency will appear on the LCD display when printing.



NOTE: To stop Ribbon Saver Mode, go to **LCD Menu > Advanced > Disable Ribbon Saver > Release the Label Holder Cover** and switch the **Label Holder Lock** to the original position.

3.4 Loading Media in Peel-off Mode

1. Open the media cover and refer to the section “Loading the Media” to load the media.

Left-hand model



Right –hand model



2. Open printhead release lever and label guide bar release lever to thread the label through the front of the print engine and remove several labels.

Left-hand model



Right –hand model

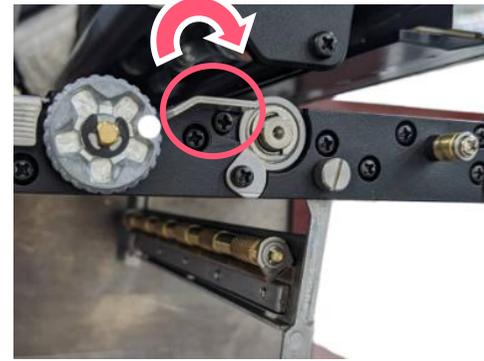


3. Open the peel-off roller release lever.

Left-hand model

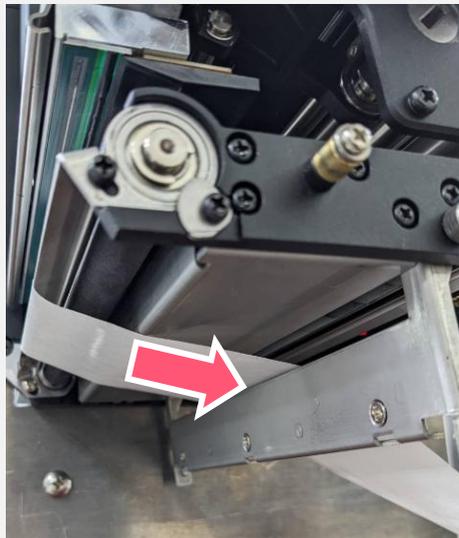


Right-hand model

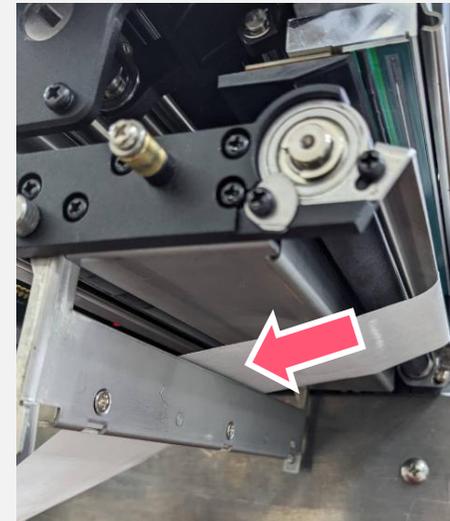


4. Feed the leading edge of liner through the peel-off roller.

Left-hand model



Right-hand model



5. Press the roller to close the peel-off roller release lever.

Left-hand model



Right –hand model

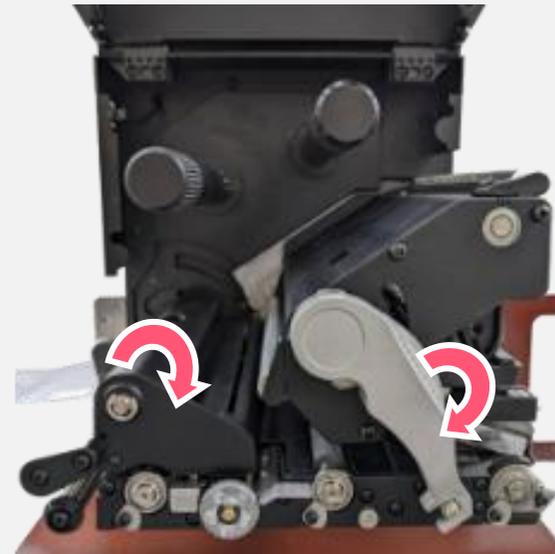


6. Close printhead release lever and label guide bar release lever and press **Feed** button to test.

Left-hand model



Right –hand model



3.5 Setting up the RFID (Option)

3.5.1 Reference Notes

Smart labels are based on an EEPROM technology that requires some time to be programmed. You may notice this minor pause between labels. This time is necessary to better ensure consistent quality and improved reliability.

When dealing with smart labels, it is possible that an occasional RFID tag may need to be written and verified more than once (retry) before being considered acceptable. In this event each retry time will be added to the inter-label pause.

Static electricity can damage the smart labels. Open the media cover of the printer and touch an unpainted metal part of the printer before you handle smart labels. This will discharge any static electricity that may have built up on your hands.

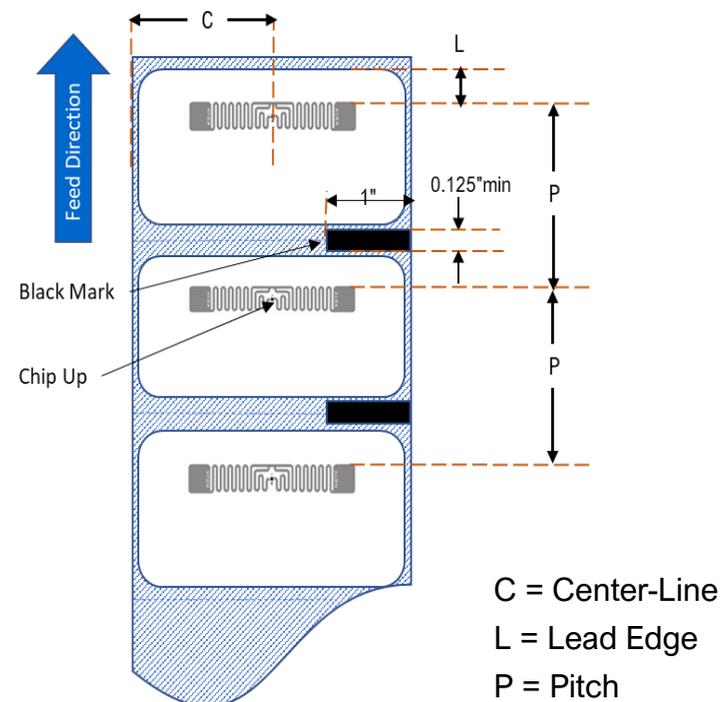
The printers are equipped with an *Auto-Calibration* feature for easy setup eliminating the need to specify exact inlay placement or RFID power settings. The calibration routine has been tested with most major inlays embedded in typical label sizes and will work with many other inlays as well.

Referring to the diagram at right:

Inlays should be centered horizontally across the media (dimension "C"). Consistent, tag-to-tag placement of the inlays is more important than how close to center the inlays are actually placed.

The pitch (overall distance from inlay to inlay) is shown as dimension "P". On-pitch tags and tags with pitch less than 1" may require the printer to back-feed during the encoding and printing process, thus slowing the throughput of the printer. The pitch should be greater than 1", if possible to avoid this condition.

The inlay should be set back from the lead edge of the media (dimension "L") a constant distance tag to tag. For labels longer than 1" this distance should be greater than 0.5" to avoid back-feeding.



IMPORTANT:

Always test RFID media on your printer before purchasing large quantities of media.

Disclaimer:

The guidelines and suggestions for developing converted RFID labels, are provided by TSC Auto ID on an "as is" basis and without warranty, expressed or implied. TSC Auto ID disclaims any implied warranty of merchantability or fitness for a particular purpose. TSC Auto ID will not be liable under any circumstances for any damages or losses related in any way to use of these guidelines, specifications or other information, including damages which may be incurred as a result of labels not working properly in a specific application. All specifications are subject to change without notice. Testing of the converted labels in the printer is strongly recommended prior to production quantities.

3.5.2 RFID Calibration

The PEX-2000 printer has an **RFID** antenna coupler design that supports a wide variety of tag types.

Left-hand model

Right –hand model



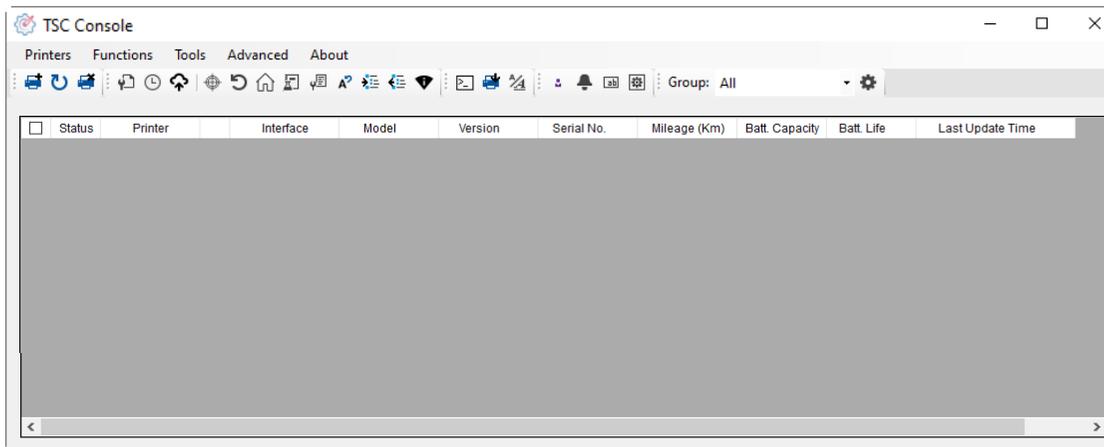
1. Refer to the section “Loading the Media” to load the RFID media.
2. Enter the operation menu list. Go to [Sensor] → [Auto Calibration] or [Preprint Calibration] to calibrate the media sensor first.
Note: For RFID with gap type media, it is recommended to use this [Preprint Calibration] item for sensor calibration.
3. Then enter the menu list. Go to [Interface] → [RFID] → [Tag Calibration] → [Do RFID Calibrate] to calibrate the FRID media.
4. Depending on the tag type and tag length, the calibration can take several minutes. At the end of calibration either a Green or Red window pops up. A green window signifies successful calibration and a red window means calibration has failed.
5. If calibration fails, you will see a red screen. Press the key to clear the failure notice. In some cases, it may be due to an incompatibility between the tag and the reader. After calibration is complete, press the key to continue, the RFID calibration values will be preserved. For more information, please refer to the section “RFID (Option)”.

4 TSC Console

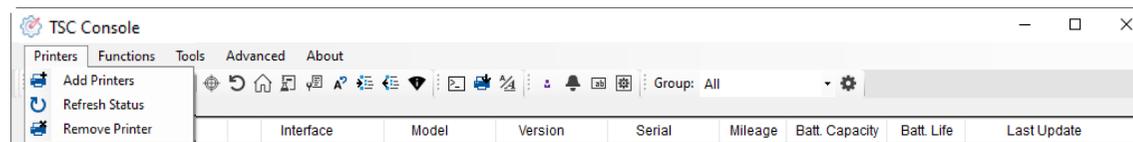
TSC Console is a management tool combining the Printer Management, Diagnostic Tool, CommTool and Printer Webpage settings, which enables you to adjust printer's settings/status; change printers' settings; download graphics, deploy fonts, graphics, label templates or upgrade the firmware to the group of printers, and send additional commands to printers at the same time.

4.1 Start TSC Console

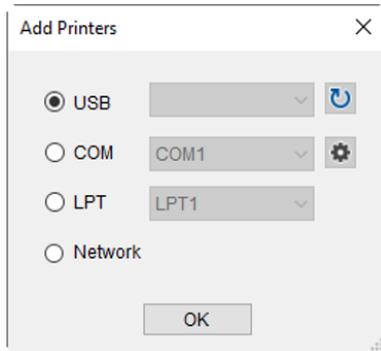
1. Double click TSC Console icon to start the software.



2. Manually add the devices by clicking **Printer > Add Printers**.



3. Select the current interface of the printer.



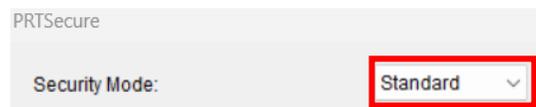
NOTE:

In order to comply with the Radio Equipment Directive (RED) in the European Union (EU), the printer's network connectivity is disabled prior to shipment within the EU and without the user's permission, the network connectivity is not allowed to enable.

As a result, users that purchase the printers in the EU must manually enable the network connectivity before the device can be connected to a network.

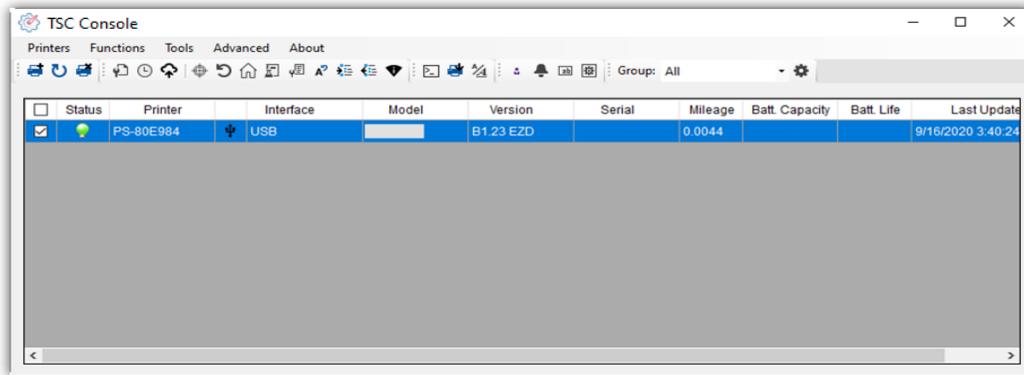
To enable network connectivity for the printer, please follow the steps below:

- (1) Connect the printer to your computer via the supplied USB cable.
- (2) Launch the TSC Console utility on your computer.
- (3) Go to **Functions > PRTSecure > Security Mode**, and switch the security mode to **Standard** before connecting the printer to the network.



Alternatively, if the printer features the LCD, you can go to **Menu > Advanced > PRTSecure** and then directly switch the security mode to **Standard**.

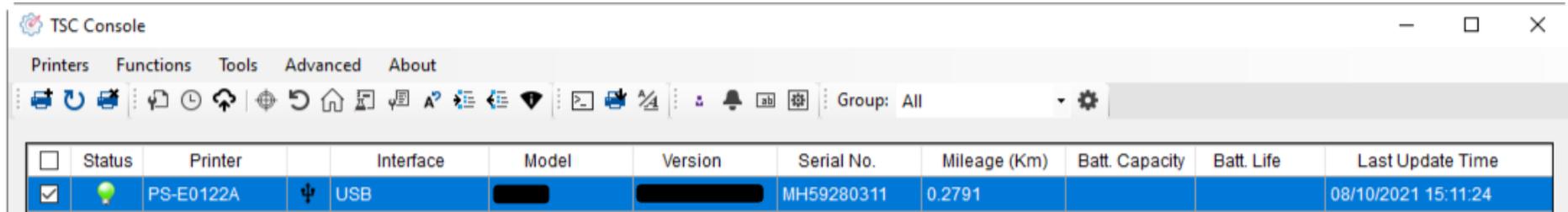
4. The printer will be added to **TSC Console**'s interface.
5. Select the printer and set the settings.



- For more information, please refer to **TSC Console User Manual**.

4.2 Set Ethernet Interface

1. Use **USB** or **COM** to establish the interface on **TSC Console**. (If using the Wi-Fi interface before, Refer to section 5.5 to set the network interface to Ethernet.)



The screenshot shows the TSC Console application window. The title bar reads "TSC Console". Below the title bar is a menu bar with "Printers", "Functions", "Tools", "Advanced", and "About". Underneath the menu bar is a toolbar with various icons. Below the toolbar is a table with the following columns: Status, Printer, Interface, Model, Version, Serial No., Mileage (Km), Batt. Capacity, Batt. Life, and Last Update Time. The table contains one row of data for a printer with the following values: Status (checked), Printer (PS-E0122A), Interface (USB), Model (redacted), Version (redacted), Serial No. (MH59280311), Mileage (Km) (0.2791), Batt. Capacity (redacted), Batt. Life (redacted), and Last Update Time (08/10/2021 15:11:24).

<input type="checkbox"/>	Status	Printer	Interface	Model	Version	Serial No.	Mileage (Km)	Batt. Capacity	Batt. Life	Last Update Time
<input checked="" type="checkbox"/>		PS-E0122A	USB			MH59280311	0.2791			08/10/2021 15:11:24

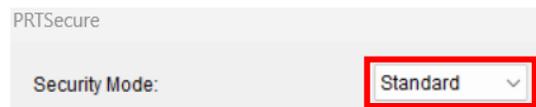
NOTE:

In order to comply with the Radio Equipment Directive (RED) in the European Union (EU), the printer's network connectivity is disabled prior to shipment within the EU and without the user's permission, the network connectivity is not allowed to enable.

As a result, users that purchase the printers in the EU must manually enable the network connectivity before the device can be connected to a network.

To enable network connectivity for the printer, please follow the steps below:

- (1) Connect the printer to your computer via the supplied USB cable.
- (2) Launch the TSC Console utility on your computer.
- (3) Go to **Functions > PRTSecure > Security Mode**, and switch the security mode to **Standard** before connecting the printer to the network.



Alternatively, if the printer features the LCD, you can go to **Menu > Advanced > PRTSecure** and then directly switch the security mode to **Standard**.

2. Double click to enter the **Printer Configuration Page** > Click **Ethernet** tab > Check the **IP Address**.

The screenshot shows the 'Printer Configuration' window with the 'Ethernet' tab selected and highlighted with a red box. The window contains various printer settings and a sidebar with navigation buttons.

Printer Function	Printer Configuration
Calibration	Version: [Redacted]
RTC Setup	Serial No.: MH59280311
Factory Default	Checksum: 09B5C28C
Reset Printer	Ribbon Remaining: [] m
Print Test Page	Label Count: 1422
Configuration Page	Cutting Counter: 18
Dump Text	Mileage (Km): 0.2791
Ignore AUTO.BAS	
Exit Line Mode	
Enter Line Mode	
Wi-Fi Default	
Get Status	

Printer Configuration Settings:

Common	RS-232	Bluetooth	Wi-Fi	Ethernet	SMTP	SNTP
Speed:	5					
Density:	8					
Paper Width:	4.00					
Paper Height:	4.00					
Media Sensor:	GAP					
Gap:	0.12	0.00				
Post-Print Action:	TEAR					
Reference:	0	0				
Direction:	0	0				
Offset:	0					
Shift X:	0					
Shift Y:	0					
Code Page:	850					
Country Code:	001					



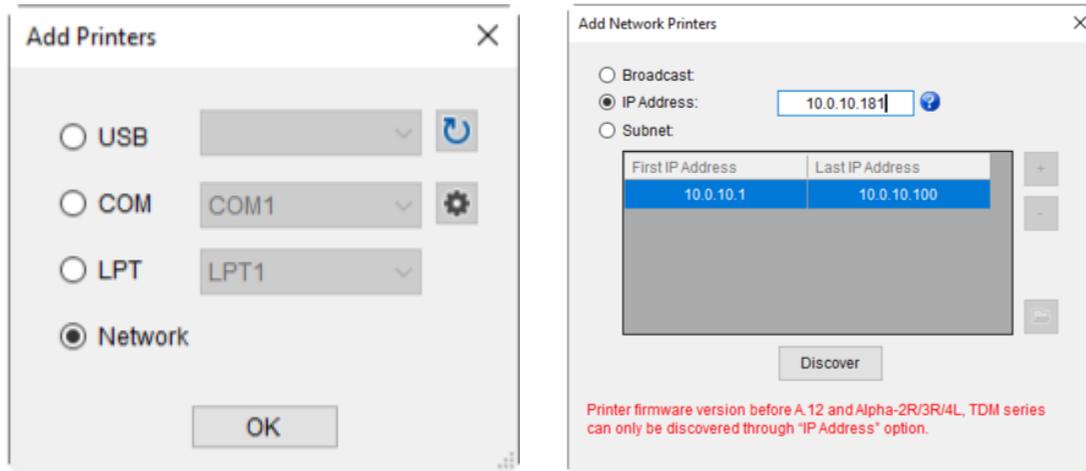
The screenshot shows the 'Ethernet' configuration window with the 'DHCP' radio button selected. The IP address is set to 10.0.10.181, Subnet Mask to 255.255.255.0, Gateway to 10.0.10.251, and MAC Address to 00-1B-82-E0-12-2A. The 'Set' button is highlighted.

Common	RS-232	Bluetooth	Wi-Fi	Ethernet	SMTP	SNTP
<input checked="" type="radio"/> DHCP <input type="radio"/> Static IP						
IP Address:		10.0.10.181		Set		
Subnet Mask:		255.255.255.0		Set		
Gateway:		10.0.10.251		Set		
MAC Address:		00-1B-82-E0-12-2A		Set		
Primary DNS IP:		[]		Set		
Secondary DNS IP:		[]		Set		
Printer Name:		PS-E0122A		Set		
Raw Port:		9100		Set		

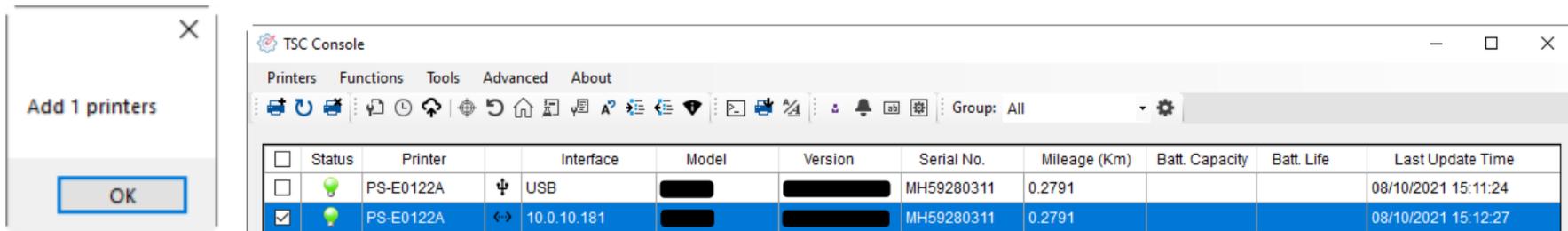
- Return to **TSC Console** main page > Click **Add Printer** on the top left of the window.



- Choose **Network** > Key in the **IP Address** > Click **Discover** to establish the Ethernet interface.



- The notification will pop up > Click **OK** to close the window > The Ethernet interface will be shown on **TSC Console**.



4.3 Set Wi-Fi Interface

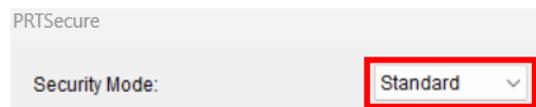
NOTE:

In order to comply with the Radio Equipment Directive (RED) in the European Union (EU), the printer's network connectivity is disabled prior to shipment within the EU and without the user's permission, the network connectivity is not allowed to enable.

As a result, users that purchase the printers in the EU must manually enable the network connectivity before the device can be connected to a network.

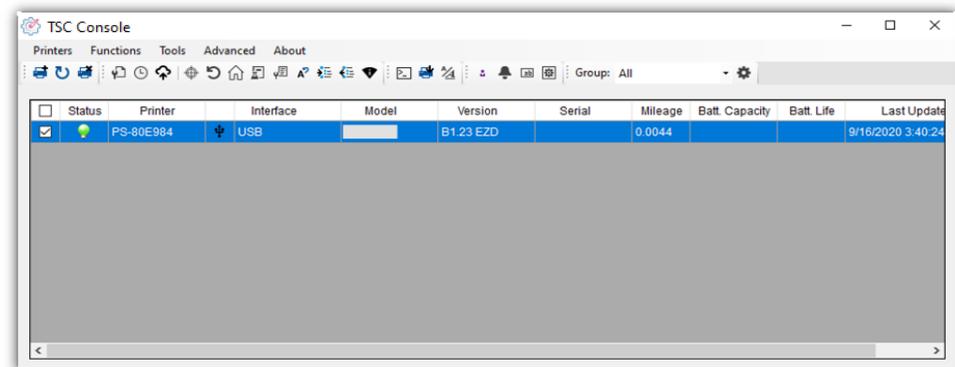
To enable network connectivity for the printer, please follow the steps below:

- (1) Connect the printer to your computer via the supplied USB cable.
- (2) Launch the TSC Console utility on your computer.
- (3) Go to **Functions > PRTSecure > Security Mode**, and switch the security mode to **Standard** before connecting the printer to the network.



Alternatively, if the printer features the LCD, you can go to **Menu > Advanced > PRTSecure** and then directly switch the security mode to **Standard**.

1. Refer to the section "Advanced" to set the network interface to Wi-Fi.
2. Use **USB** or **COM Port** to set up the interface. You may refer to the section "Start TSC Console".
3. Double click to enter the printer configuration page.



4. Click **Get** to receive printer's information.
5. Click **Wi-Fi** to the wi-fi setting page.

Printer Configuration

Printer Configuration Emulation TPH Care Smart Battery Unit: inch

Printer Function

Printer Configuration

Version: Alpha-40L Version: B1.03.101 EZC

Serial No.: AR4-00002 TPH Serial Number: N/A

Checksum: 1347F833 TPH Odometer: N/A

Ribbon Remaining: % Cutter Serial Number: N/A

Label Count: 664

Cutting Counter: 0 0 Reset

Mileage (Km): 0.1835 0.1835 Reset

Common RS-232 Bluetooth **Wi-Fi** Ethernet SMTP SNTP

Speed: 3 2 Ribbon: OFF

Density: 8 Ribbon Sensor: OFF

Paper Width: 2.96 inch Ribbon Encoder Err.: OFF

Paper Height: 3.70 inch Head-up Sensor: ON

Media Sensor: Continuous Reprint After Error: ON

Gap: 0.00 0.00 inch Maximum Length: 6.00 inch

Post-Print Action: TEAR Gap Inten.: 7

Reference: 0 0 Bline Inten.: 7

Direction: 0 0 Continuous Inten.: 4

Offset: 0 dot Threshold Detection: AUTO

Shift X: 0 dot Print Quality: STANDARD

Shift Y: 0 dot Standby Time: 120 secs

Code Page: 850 Sleep Time: 0 mins

Country Code: 001 (10-65534, 0: OFF)

Save Load Set **Get**

For WPA-Personal

- I. Fill-in the **SSID**.
- II. Select the Encryption option to **WPA-Personal**.
- III. Fill-in the Key.
- IV. Select **DHCP** to **ON**. (For **OFF** option, please fill-in the IP Address, Subnet Mask and Gateway)
- V. After setting, click the **Set** button.

Note:

Before setting, the entered field will be shown in yellow for reminding.

On DHCP, user can change the printer name by another model name in "Printer Name" field.

User also can change the raw port in "Raw Port" field.

Common RS-232 Bluetooth Wi-Fi Ethernet SMTP SNMP

Built-in Wi-Fi Module

SSID: SSID_1 EAP Type: [v]

WLAN Encryption: WPA-Personal Username: []

Key: ***** Password: []

DHCP: ON File Name Browse

IP Address: [] CA Certificate: []

Subnet Mask: 0.0.0.0 Client Certificate: []

Gateway: [] Private Key: []

Primary DNS IP: [] EAP-FAST PAC: []

Secondary DNS IP: []

Raw Port: 9100

Printer Name: PS-FF153C Wi-Fi Version: 3.7.1.0R6

MAC Address: 00:1B:82:FF:15:3C RSSI: 0

Set Get

For WPA-Enterprise

- I. Fill-in the **SSID**.
- II. Select the Encryption option to **WPA-Enterprise**.
- III. Select DHCP to **ON** (For **OFF** option, please fill-in the IP Address, Subnet Mask and Gateway)
- IV. Select the **EAP Type** option. (For **EAP-TLS** option, please upload the CA and Key for mutual authentication, integrity-protected cipher suite negotiation, and key exchange between two endpoints.)
- V. After setting, click the **Set** button.

Note:

Before setting, the entered field will be shown in yellow for reminding.

On DHCP, user can change the printer name by another model name in "Printer Name" field.

User also can change the raw port in "Raw Port" field.

Common RS-232 Bluetooth Wi-Fi Ethernet SMTP SNMP

Built-in Wi-Fi Module

SSID: SSID_2 EAP Type: [v]

WLAN Encryption: WPA-Enterprise Username: []

Key: ***** Password: []

DHCP: ON File Name Browse

IP Address: [] CA Certificate: []

Subnet Mask: 0.0.0.0 Client Certificate: []

Gateway: [] Private Key: []

Primary DNS IP: [] EAP-FAST PAC: []

Secondary DNS IP: []

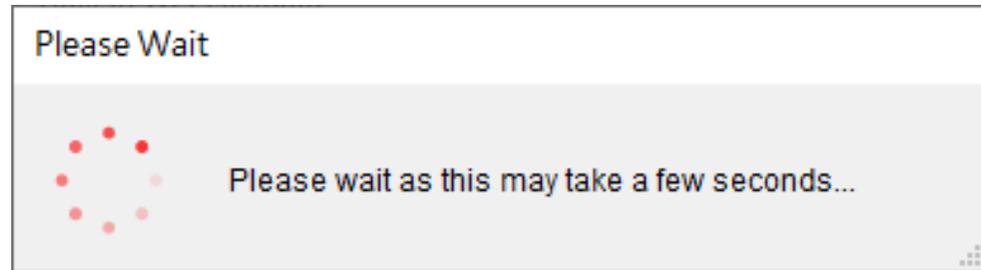
Raw Port: 9100

Printer Name: PS-FF153C Wi-Fi Version: 3.7.1.0R6

MAC Address: 00:1B:82:FF:15:3C RSSI: 0

Set Get

6. After clicking **Set** button, it'll pop-up the window tip as below shown.

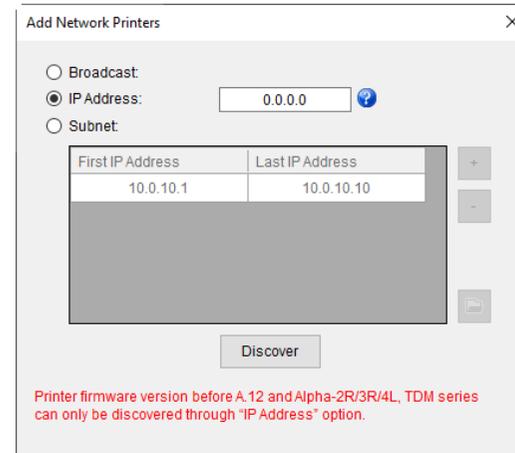


7. IP address will be shown in the "IP address" field and the Wi-Fi logo and IP address will be displayed on the LCD control panel.

Note:

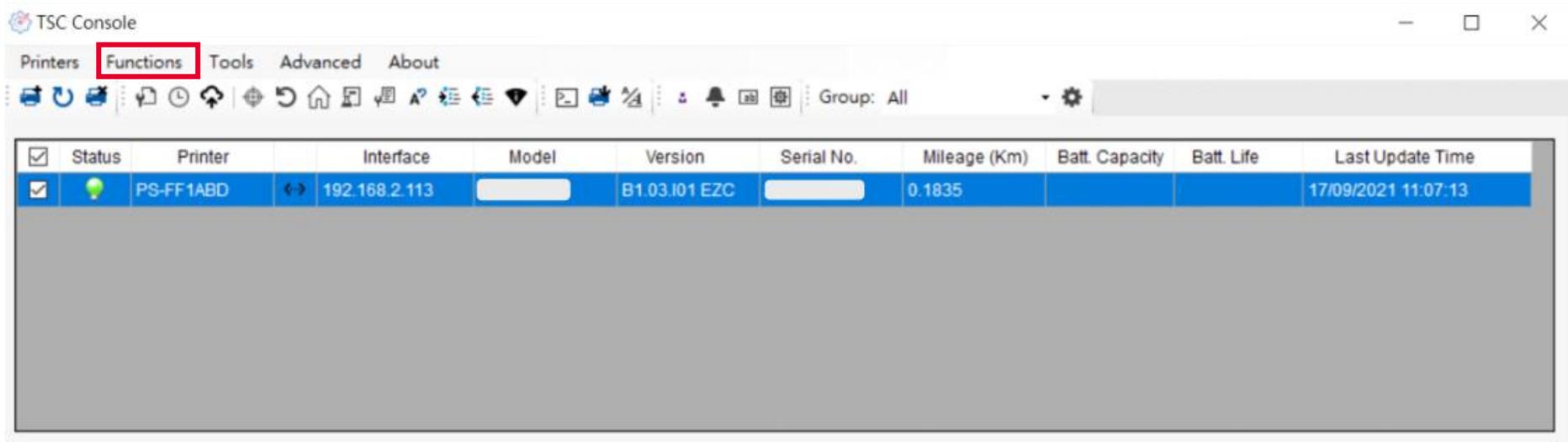
IP address should be shown within about 5 to 15 seconds after printer turn on. If not, please refer to steps below to initialize the printer Wi-Fi module settings then to setup it again.

8. Remove the cable between the computer and the printer.
9. Go to main page, click **Add Printer** to add the printer via **Network**.
10. Select the printer and enter the setting page by double clicking the printer.
11. Click the **Print Test Page** button to print the test page via Wi-Fi interface.

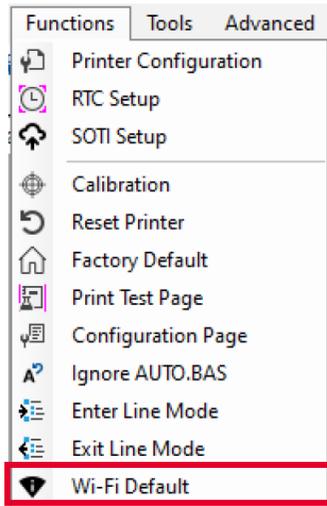


4.4 Initialize the Printer Wi-Fi Setting

1. Return to the main page of TSC Console.



2. Click **Functions** to expand the page.
3. Click **Wi-Fi Default** to initialize the printer Wi-Fi module setting to factory default setting.



4.5 TPH Care

TPH Care provides users to check the condition of the printhead and be able to set the dot failure threshold for indicating errors when the threshold is triggered.

This option is used to enable (ON)/ disable (OFF) the TPH care function.

This option is used to check the numbers of unhealthy TPH dot element.

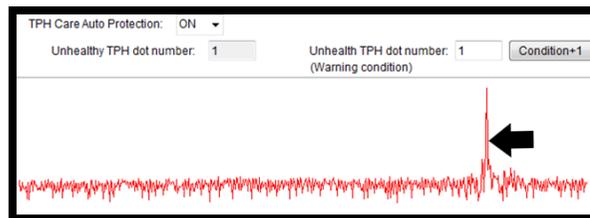
This option is used to detect the unhealthy TPH dot.

This option is used to set the threshold for unhealthy TPH dot number.

This image is used to check the relative position of the unhealthy TPH dot.

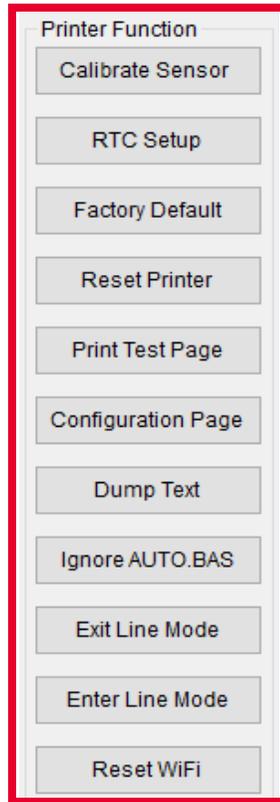
This option is used to print a TPH test image to check the TPH printing result.

1. Enable the TPH Care function. (Note: The default is disabled/OFF.) Then click "Get TPH care profile" button and a diagram will show in the area above.
2. If the profile is flat, it means that the printhead is good. Check "Unhealthy TPH dot number". If the result is zero (0), that means the printhead is good.
3. Bad dots are presented as a spike in the profile. The arrow in the image below indicates the presence of potentially damaged dots and printer will stop printing.



4.6 Printer Function

Printer Function could be found in Printer Configuration. "Printer Function" will be shown on the left side of the window.



Functions	Description
Calibrate Sensor	Detect media types and the size of the label
RTC Setup	Synchronize printer with Real Time Clock on PC
Factory Default	Initialize the printer to default settings
Reset Printer	Reboot printer
Print Test Page	Print test page according to the specified label size and sensor type.
Configuration Page	Print printer configurations
Dump Text	Activate the printer to dump mode
Ignore AUTO.BAS	Ignore AUTO.BAS file when printer boot up.
Exit Line Mode	Exit the line mode to page mode
Enter Line Mode	Leave page mode and enter line mode
Reset Wi-Fi	Restore the Wi-Fi settings to defaults.

4.7 Setting Post-Print Action

When the printer is equipped with other optional kits, ex: cutter, peeler, rewinder, please select the mode after finishing the calibration. Follow below procedure to set the post action for the printing:

Refer the section 4.1 to Connect the printer with TSC Console > Double click the printer > The Printer Configuration Page will pop up > Click Get to load information > Go to Common Tab > Find Post-Print Action > Select the mode depends on users' application > Click Set.

Printer Configuration

Printer Configuration Emulation TPH Care Smart Battery Unit: mm

Printer Function

Calibration

RTC Setup

Factory Default

Reset Printer

Print Test Page

Configuration Page

Dump Text

Ignore AUTO.BAS

Exit Line Mode

Enter Line Mode

Wi-Fi Default

Get Status

Save Load

Printer Configuration

Version: []

Serial No.: [] TPH Serial Number: N/A

Checksum: 1344B9B1 TPH Odometer: N/A

Ribbon Remaining: [] % Cutter Serial Number: N/A

Label Count: 553

Cutting Counter: 0 0 Reset

Mileage (Km): 0.0913 0.0913 Reset

Common RS-232 Bluetooth Wi-Fi Ethernet SMTP SNTP

Speed: 3 Ribbon: OFF

Density: 8 Ribbon Sensor: OFF

Paper Width: 104.00 mm Ribbon Encoder Err.: OFF

Paper Height: 74.05 mm Head-up Sensor: ON

Media Sensor: Black Mark Reprint After Error: ON

Gap: 1.99 0.00 mm Maximum Length: 152.25 mm

Post-Print Action: [] Gap Inten.: 7

Reference: OFF Bline Inten.: 7

Direction: TEAR Continuous Inten.: 4

Offset: PEEL Threshold Detection: AUTO

Shift X: CUTTER Print Quality: STANDARD

Shift Y: REWIND Standby Time: 120 secs

Code Page: 850 Sleep Time: 0 mins

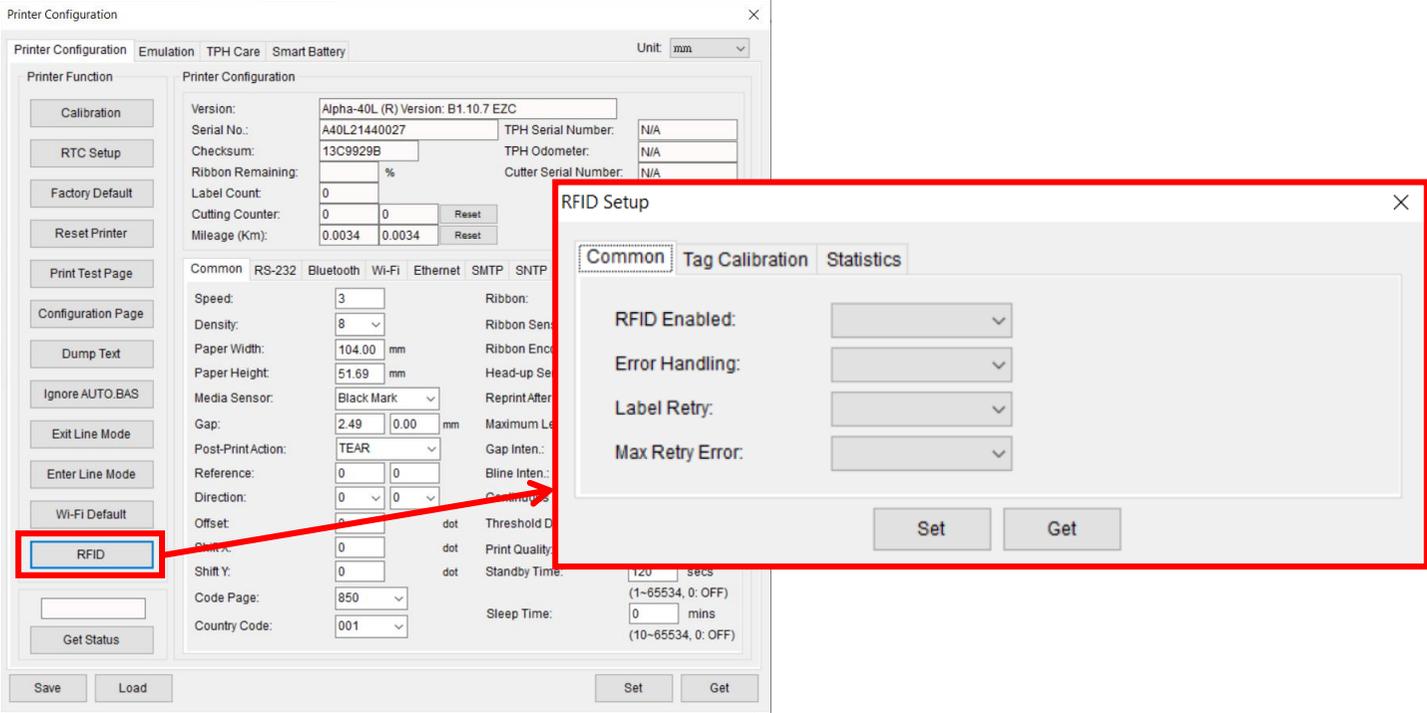
Country Code: 001 (1~65534, 0: OFF)

(10~65534, 0: OFF)

Set Get

4.8 Setting RFID

Press **[RFID]** button from **Printer Function** to enter the RFID menu on TSC Console. Here provides users to set the RFID common settings, RFID calibration and checking statistics.



Tab	Item	Description
<div style="border: 1px dashed gray; padding: 2px; display: inline-block;">Common</div>	RFID Enabled:	OFF/ ON Select ON/OFF to enable/disable the RFID encoder module.
	Error Handling:	OFF/ STOP/ OVERSTRIKE This menu item selects the error handling mode for RFID failures.
	Label Retry:	1 - 10 This menu item selects the number of label retries that the RFID encoder will attempt before declaring a fault.

	Max Retry Error:	OFF/ ON	This menu item determines if errors are declared when the <i>Label Retry</i> count is exceeded.
Tag Calibration	Tag Position:	232 dot	RFID Calibration
	Write Power:	18	
	Read Power:	16	<p>This RFID button is used to do RFID calibration, and get the three parameters through RFID calibration.</p> <p>Note: Before performing an RFID calibration, you will first need to select the right sensor for your RFID labels and run a media sensor calibration.</p>
Statistics	Tag Write Count	0	
	Tag Failed Count	0	
	Tag Read Count	0	
			<p>It is read-only and used to show the number of tags attempted to be written/ failed/ read RFID tags since the last Clear Tag Stat operation has been initiated.</p> <p>Press “Reset Counter” button to Clear Tag Stat.</p>

Note: Please refer to Ch.5.5.7 for more information.

5 Menu Function

5.1 Menu Overview

There are 6 categories on the menu. Users can easily set the settings of the printer without connecting the computer. Please refer to following sections for more details.



Setting: To set up the printer settings for TSPL & ZPL2.



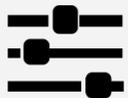
Advanced: To set LCD, initialization, cutter type,...etc.



Sensor: To calibrate the selected media sensor.



File Manager: To check and manage printer's memory storage.



Interface: To set the printer interface settings.



Diagnostic: To check printer and help users to troubleshoot the problems.

5.2 Setting

Press the right soft key to switch the TSPL, ZPL2, and SBPL. Select the item by navigational key and press right soft key to enter the selected item.

Note:

TSPL is TSC® printer language.

ZPL2 is an emulation of Zebra® printer language.

SBPL is an emulation of Sato® printer language.

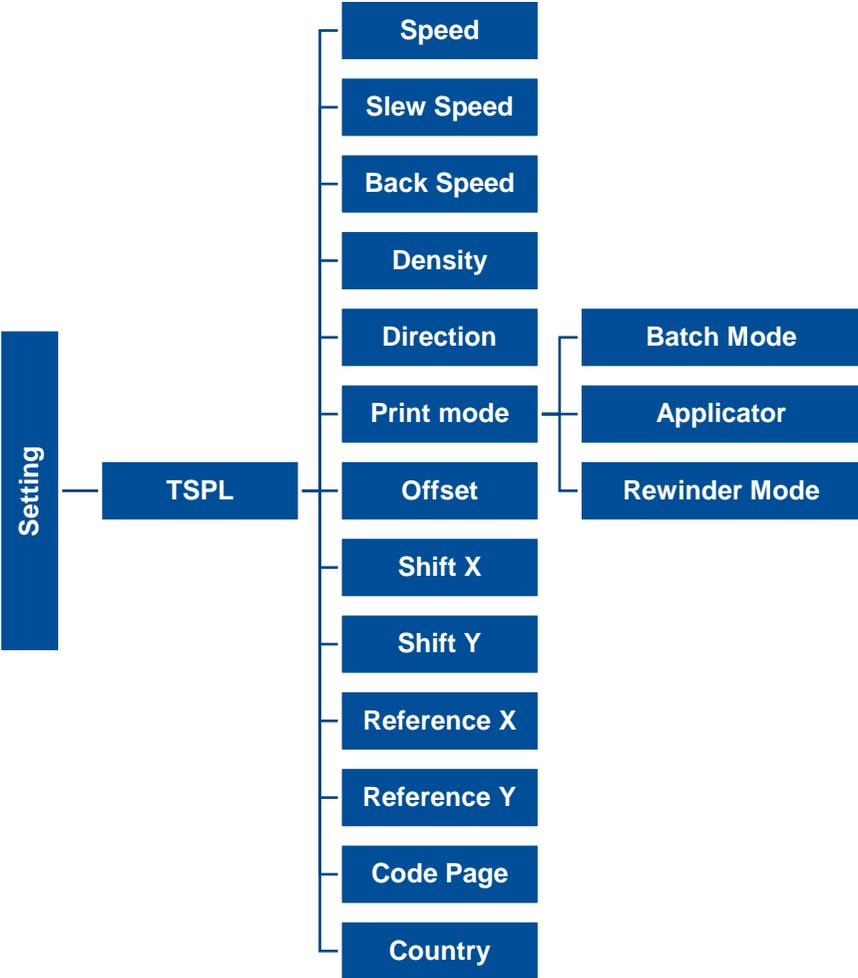
Command Set		TSPL
Speed	8 ips	
Density	13	
Direction	0	

Command Set		ZPL2
Darkness	16	
Print Speed	6 ips	
Tear Off	0 dot	

Command Set		SBPL
Print Type	Dispenser	
Print Darkness	3	
Print Speed(S)	3 ips	

5.2.1 TSPL

TSPL category can set up the printer settings for TSPL.

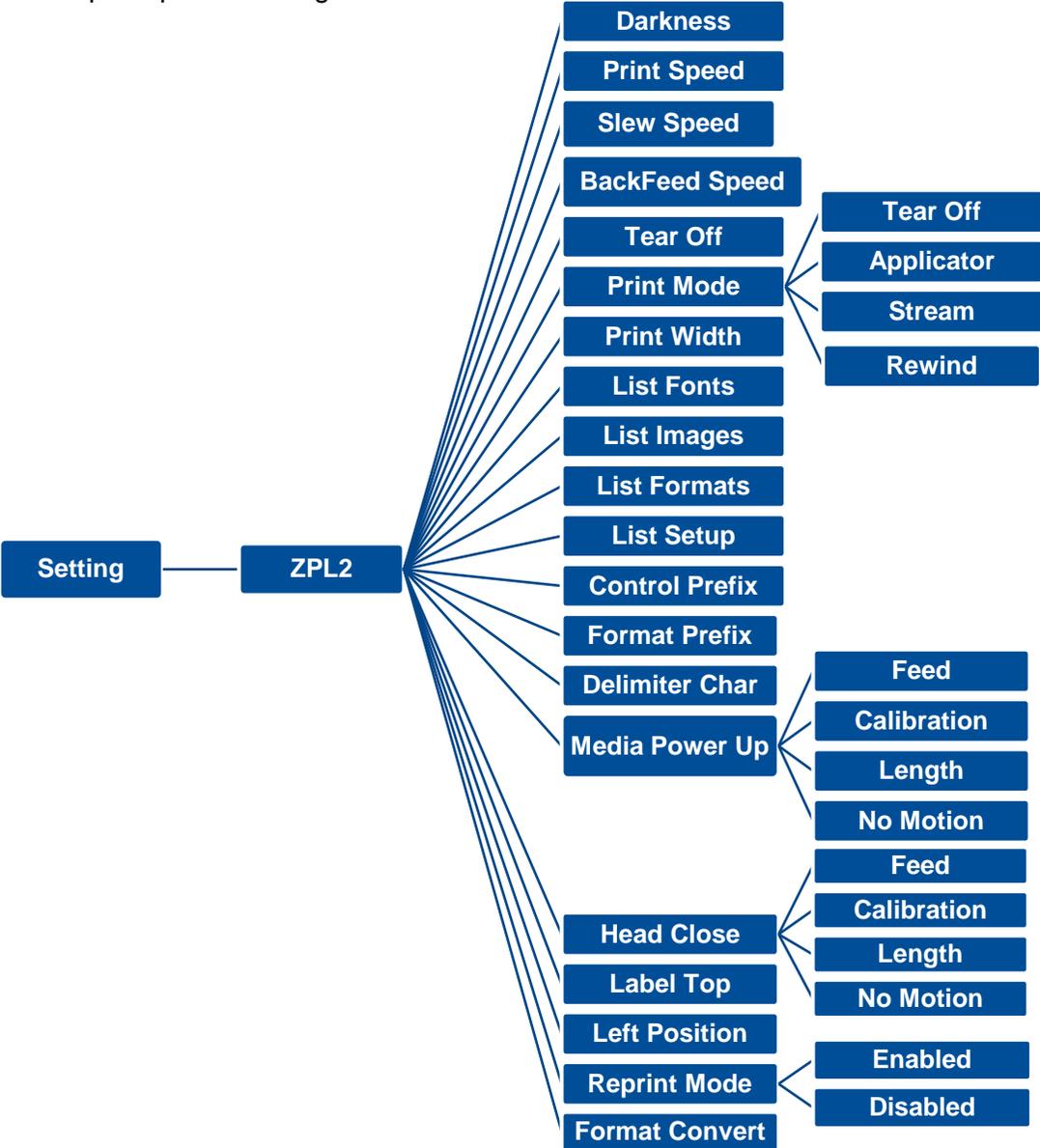


Item	Description	Default
Speed	Set the print speed. Setting range: 2 - 18 for 203dpi; 2 – 14 for 300dpi; 1.5 - 6 for 600dpi.	203 dpi: 8 300 dpi: 6 600 dpi: 4
Slew Speed	Set feed speed	203 dpi: 8 300 dpi: 6 600 dpi: 4
Back Speed	Set back speed	2
Density	Set printing darkness. Setting range: 0 to 15, and the step is 1.	8
Direction	Set the printout direction. Setting Value: 0 and 1. Direction 0: <input type="text" value="Direction"/> Direction 1: <input type="text" value="Direction"/>	0
Print mode	Set the print mode. There are 3 modes in total: Batch Mode: Once finishing the printing process, label will be fed to the tear plate location. Applicator: The printer prints a label when it receives a signal from the applicator. Rewinder Mode: Enable the label rewinder mode.	Applicator
Offset	Adjust media stop location. Available value setting range: -999 dots to 999 dots.	0 dot
Shift X	Adjust print position. Available value setting range: -999 dots to 999 dots.	0 dot
Shift Y		0 dot
Reference X	Set the origin of printer coordinate system horizontally and vertically. Available setting range: 0 dot to 999 dots.	0 dot
Reference Y		0 dot
Code page	Set the code page of international character set.	850
Country	Set the country code. Available setting value range: 1 to 358.	001

Note: If printing from enclosed software/driver, the software/driver will send out the commands, which will overwrite the settings set from the panel.

5.2.2 ZPL2

This "ZPL2" category can set up the printer settings for ZPL2.

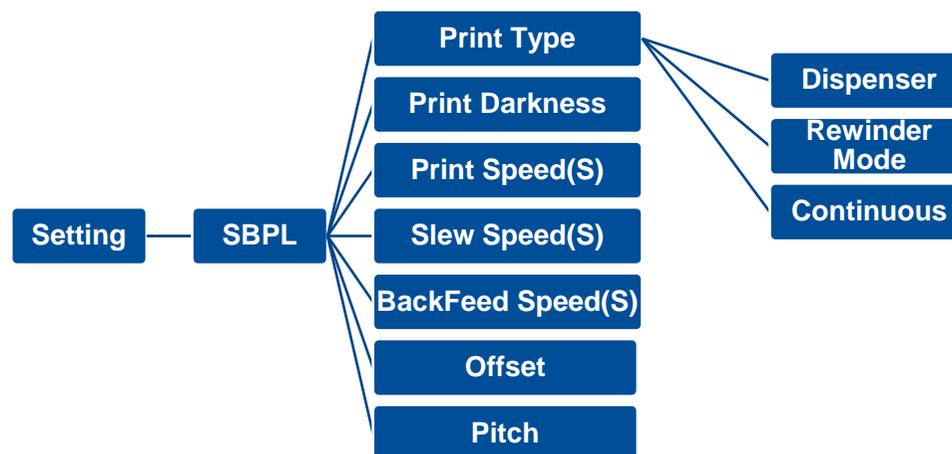


Item	Description	Default
Density	Set the printing darkness. Available setting range: 0 to 30.	16
Print Speed	Set the print speed. Available setting range: 2 -18 for 203dpi; 2 - 14 for 300dpi; 1.5 - 6 for 300dpi.	203 dpi: 6 300 dpi: 4 600 dpi: 3
Slew Speed	Set feed speed.	203 dpi: 6 300 dpi: 4
BackFeed Speed	Set back speed.	2
Tear Off	Adjust media stop location. Available setting value range: -120 to 120 dots.	0 dot
Print mode	Set the print mode. There are 4 modes in total: Tear Off: Once finishing the printing process, label will be fed to the tear plate location. Applicator: The printer prints a label when it receives a signal from the applicator. Stream: The print engine prints a batch of labels with backfeed occurring only at the start and end of the batch instead of between individual labels. Rewind: Enable the label rewinder mode.	Tear Off
Print Width	Set the print width. Available setting range: 2 to 999 dots.	812
List Fonts	Print the current fonts list from the memory devices to the label.	N/A
List Images	Print current printer available images list stored at the memory device to the label.	N/A
List Formats	Print current printer available formats list from the memory devices to the label.	N/A
List Setup	Print current printer configuration to the label.	N/A
Control Prefix	Set control prefix character.	N/A
Format Prefix	Set format prefix character.	N/A
Delimiter Char	Set delimiter character.	N/A

Media Power Up	<p>Set the action of the media when turning on the printer.</p> <p>Feed: Printer will advance one label.</p> <p>Calibration: Printer will make calibration.</p> <p>Length: Printer determine length and feed label.</p> <p>No Motion: Printer will not move media.</p>	No Motion
Head Close	<p>Set the action of the media when closing the printhead.</p> <p>Feed: Printer will advance one label.</p> <p>Calibration: Printer will make calibration.</p> <p>Length: Printer determine length and feed label.</p> <p>No Motion: Printer will not move media.</p>	No Motion
Label Top	Adjust print position vertically on the label. Value range: -120 to +120 dots.	0
Left Position	Adjust print position horizontally on the label. Value range:-9999 to +9999 dots.	0
Reprint Mode	Reprint the last label by pressing  button on printer's control panel.	Disabled
Format Convert	Select the bitmap scaling factor. The first number is the original dots per inch (dpi) value; the second the dpi which you would like to scale.	None

Note: printing from other software/drive will overwrite the settings set from the panel.

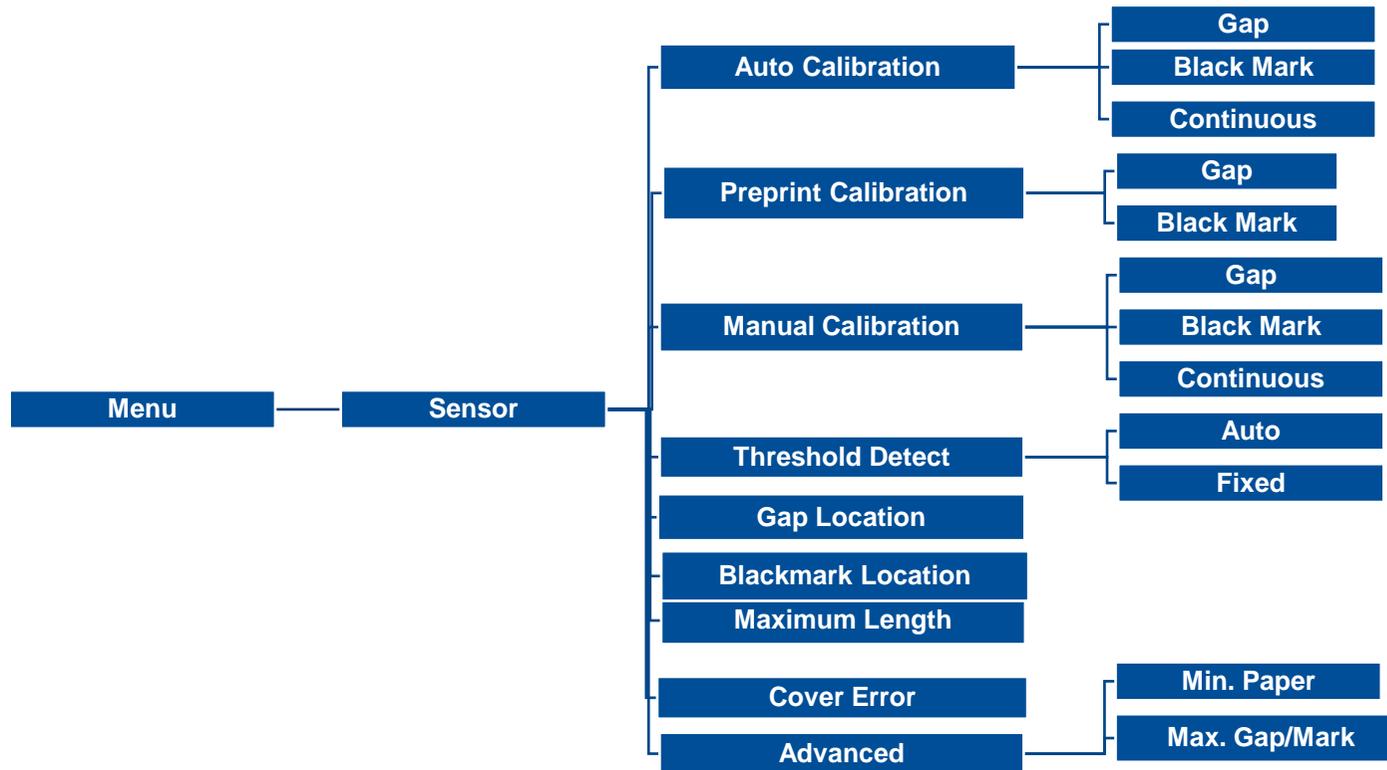
5.2.3 SBPL (Only available on EZS version firmware)



Item	Description	Default
Print Type	This item is used to set the print mode. There are three modes as below,	
	Dispenser	Once printer complete printing 1 label, it will wait for being removed.
	Rewinder mode	The print engine prints without pausing between labels. The media is wound onto a core after printing.
	Continuous	Print the specified number of media
		Dispenser
Print Darkness	Use this item to setup printing darkness. The available setting range is from 0 to 10. You may need to adjust your density based on selected media.	3
Print Speed	Use this item to setup print speed. Available setting range: 2 - 18 for 203dpi; 2 - 14 for 300dpi; 1.5 - 6 for 600dpi.	203 dpi: 6 ips 300 dpi: 4 ips 600 dpi: 3 ips
Slew Speed	Use this item to setup feed speed. Setting value is up to 8 ips.	203 dpi: 6 ips 300 dpi: 4 ips 600 dpi: 3 ips
BackFeed Speed	Use this item to setup back feed speed. Setting value is up to 6 ips.	2 ips
Offset	Use this item to adjust the offset position. Offset adjusts the back/feed/stop position for Tear-off/Cut/Dispense operation.	0 dot
Pitch	Use this item to adjust the leading edge of media position thus effects the vertical print position placement.	0 dot

5.3 Sensor

This option is used to calibrate the selected sensor. We recommend calibrate the sensor before printing when changing the media.

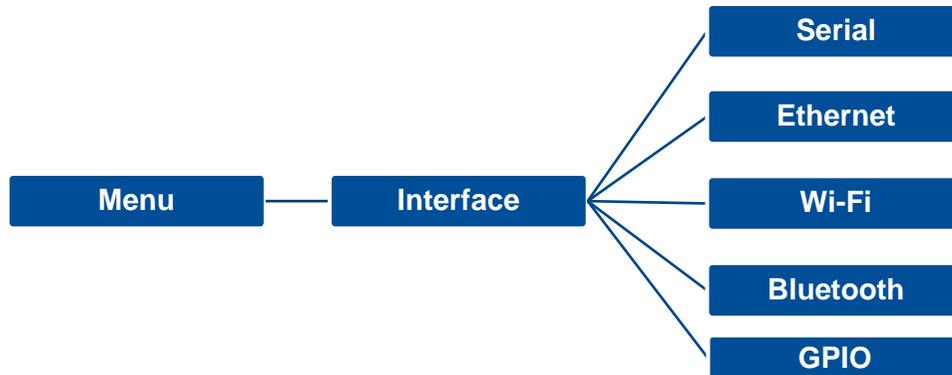


Item	Description	Default
Auto Calibration	Set the media sensor type and calibrate the selected sensor automatically.	N/A
Preprint Calibration	Calibrate the preprint labels.	N/A
Manual Calibration	In case Auto Calibration does not work, please use “Manual” function to set the paper length and gap or black mark size to complete the calibration setting.	N/A
Threshold Detect	Set sensor sensitivity in fixed or auto.	Auto
Maximum Length	Set the maximum length for label calibration.	761mm
Gap Location	Determine which gap sensor as the main gap sensor.	Rear

Black Mark Location	This option is used to set the upper or lower black mark sensor as the primary transmitter. Please set it according to the position of the black marker on the media (Back side/ Print side)	Back side
Cover Error	Enable pop up the error when opening the media cover	Disable
Advanced	Set the minimum paper length and maximum gap or black mark length for auto-calibration.	0 mm

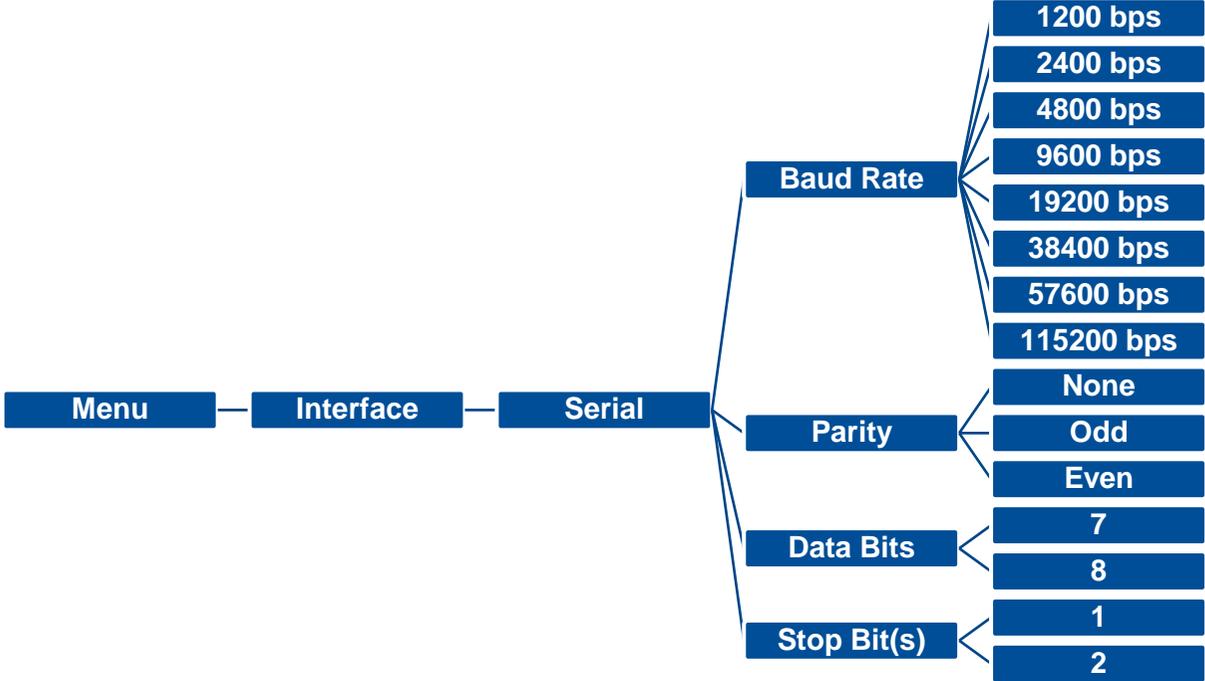
5.4 Interface

Interface can set the printer interface settings.



5.4.1 Serial Comm

Serial comm can set the printer RS-232 settings.



Item	Description	Default
Baud Rate	Set the RS-232 baud rate.	9600
Parity	Set the RS-232 parity.	None
Data Bits	Set the RS-232 Data Bits.	8
Stop Bit(s)	Set RS-232 Stop Bits.	1

5.4.2 Ethernet

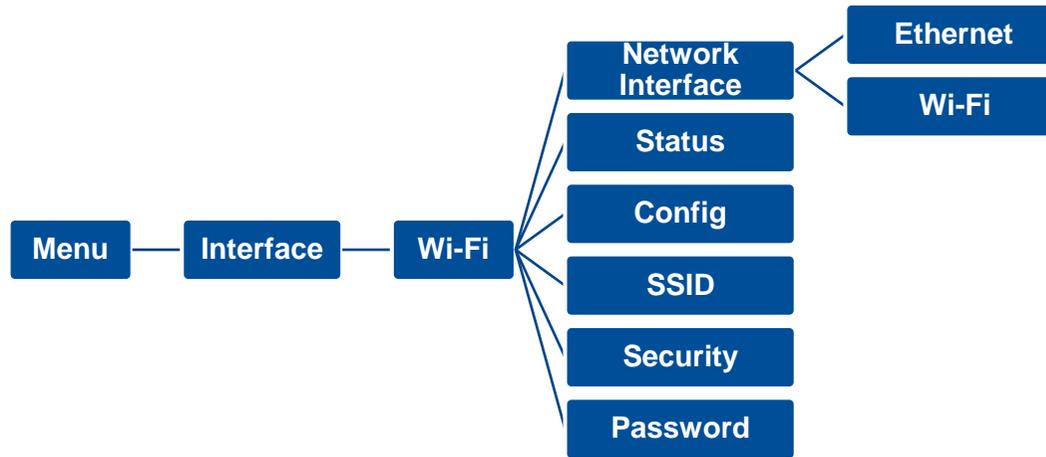
Ethernet configures internal Ethernet configuration and checks the printer's Ethernet module status, and reset the Ethernet module.



Item	Description	Default
Network Interface	Select the network interface by Wi-Fi or Ethernet.	N/A
Status	Check the Ethernet IP address and MAC setting status.	N/A
Configure	DHCP: On or OFF the DHCP (Dynamic Host Configuration Protocol) network protocol. Static IP: Use this menu to set the printer's IP address, subnet mask and gateway.	DHCP

5.4.3 Wi-Fi

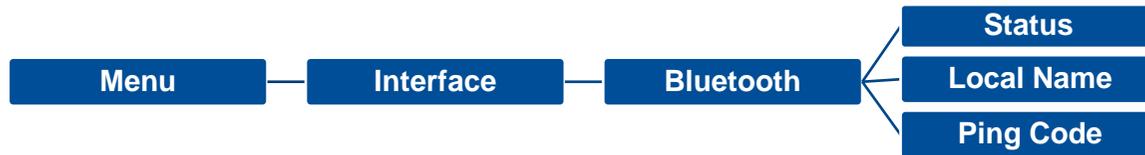
Wi-Fi can set the printer Wi-Fi settings.



Item	Description	Default
Network Interface	Select the network interface by Wi-Fi or Ethernet.	N/A
Status	Check the Wi-Fi IP address, MAC setting status,...etc.	N/A
Config.	DHCP: ON/OFF the DHCP (Dynamic Host Configuration Protocol) network protocol. Static IP: Set the printer's IP address, subnet mask and gateway.	DHCP
SSID	Set Wi-Fi SSID.	N/A
Security	Set Wi-Fi security.	Open
Password	Set Wi-Fi password.	N/A

5.4.4 Bluetooth

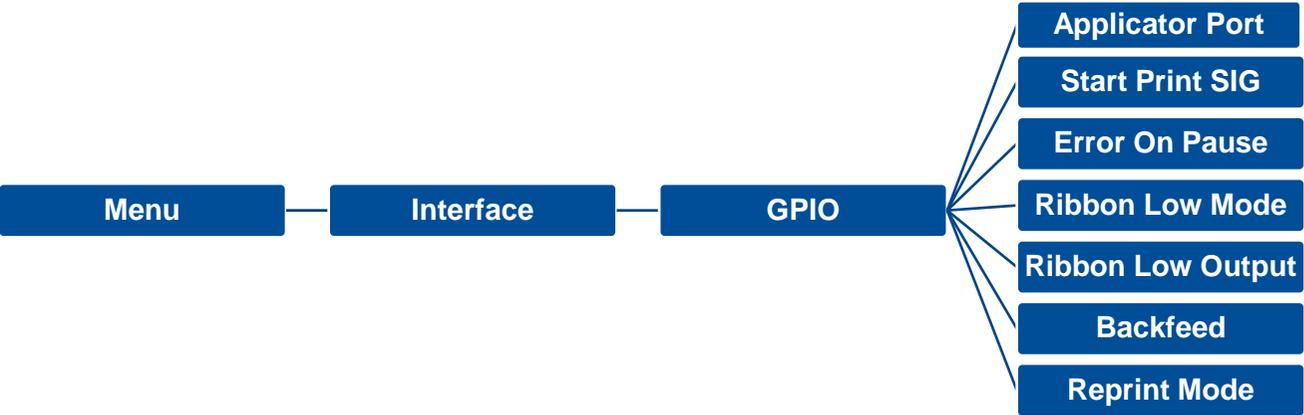
Bluetooth can set the printer Bluetooth settings.



Item	Description	Default
Status	Check the Bluetooth status.	N/A
Local Name	Set the local name for Bluetooth.	RF-BHS
Ping Code	Set the local ping code for Bluetooth.	

5.4.5 GPIO

This option is used to set the print engine GPIO settings. (Applicator interface with DB15F connector +5V I/O)



Item	Description	Default																												
Applicator Port	<p>This option is used to set the GPO_3 signal when PRINT END.</p>	Off																												
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th data-bbox="443 272 640 331" style="width: 20%;">Selections</th> <th data-bbox="640 272 1785 331">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="443 331 640 411" style="text-align: center;">Off</td> <td data-bbox="640 331 1785 411">The applicator port is off.</td> </tr> </tbody> </table>		Selections	Description	Off	The applicator port is off.																								
	Selections		Description																											
Off	The applicator port is off.																													
Mode 1	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th data-bbox="663 544 786 730"></th> <th data-bbox="786 544 936 730">Label format sent</th> <th data-bbox="936 544 1104 730">Label format processed</th> <th data-bbox="1104 544 1238 730">Waiting for start print signal</th> <th data-bbox="1238 544 1429 730">Label prints</th> <th data-bbox="1429 544 1559 730">Ready for next label</th> <th data-bbox="1559 544 1727 730"></th> </tr> </thead> <tbody> <tr> <td data-bbox="663 730 786 922">Data ready (Pin 14, GPO_6)</td> <td colspan="2" data-bbox="786 730 936 922"></td> <td data-bbox="1104 730 1238 922"></td> <td data-bbox="1238 730 1429 922"></td> <td data-bbox="1429 730 1559 922"></td> <td data-bbox="1559 730 1727 922">Not ready Ready</td> </tr> <tr> <td data-bbox="663 922 786 1114">Print start (Pin 3, GPI_1)</td> <td colspan="2" data-bbox="786 922 936 1114"></td> <td data-bbox="1104 922 1238 1114"></td> <td data-bbox="1238 922 1429 1114"></td> <td data-bbox="1429 922 1559 1114"></td> <td data-bbox="1559 922 1727 1114">Do not start Start</td> </tr> <tr> <td data-bbox="663 1114 786 1321">Print End (Pin 11, GPO_3)</td> <td colspan="2" data-bbox="786 1114 936 1321"></td> <td data-bbox="1104 1114 1238 1321"></td> <td data-bbox="1238 1114 1429 1321"></td> <td data-bbox="1429 1114 1559 1321"></td> <td data-bbox="1559 1114 1727 1321">Do not end End</td> </tr> </tbody> </table>		Label format sent	Label format processed	Waiting for start print signal	Label prints	Ready for next label		Data ready (Pin 14, GPO_6)						Not ready Ready	Print start (Pin 3, GPI_1)						Do not start Start	Print End (Pin 11, GPO_3)						Do not end End	
	Label format sent	Label format processed	Waiting for start print signal	Label prints	Ready for next label																									
Data ready (Pin 14, GPO_6)						Not ready Ready																								
Print start (Pin 3, GPI_1)						Do not start Start																								
Print End (Pin 11, GPO_3)						Do not end End																								

Mode 2

	Label format sent	Label format processed	Waiting for start print signal	Label prints	Ready for next label	
Data ready (Pin 14, GPO_6)						Not ready Ready
Print start (Pin 3, GPI_1)						Do not start Start
Print End (Pin 11, GPO_3)						Do not end End

Mode 3

	Label format sent	Label format processed	Waiting for start print signal	Label prints	Ready for next label	
Data ready (Pin 14, GPO_6)						Not ready Ready
Print start (Pin 3, GPI_1)						Do not start Start
Print End (Pin 11, GPO_3)						Do not end End

Mode 4

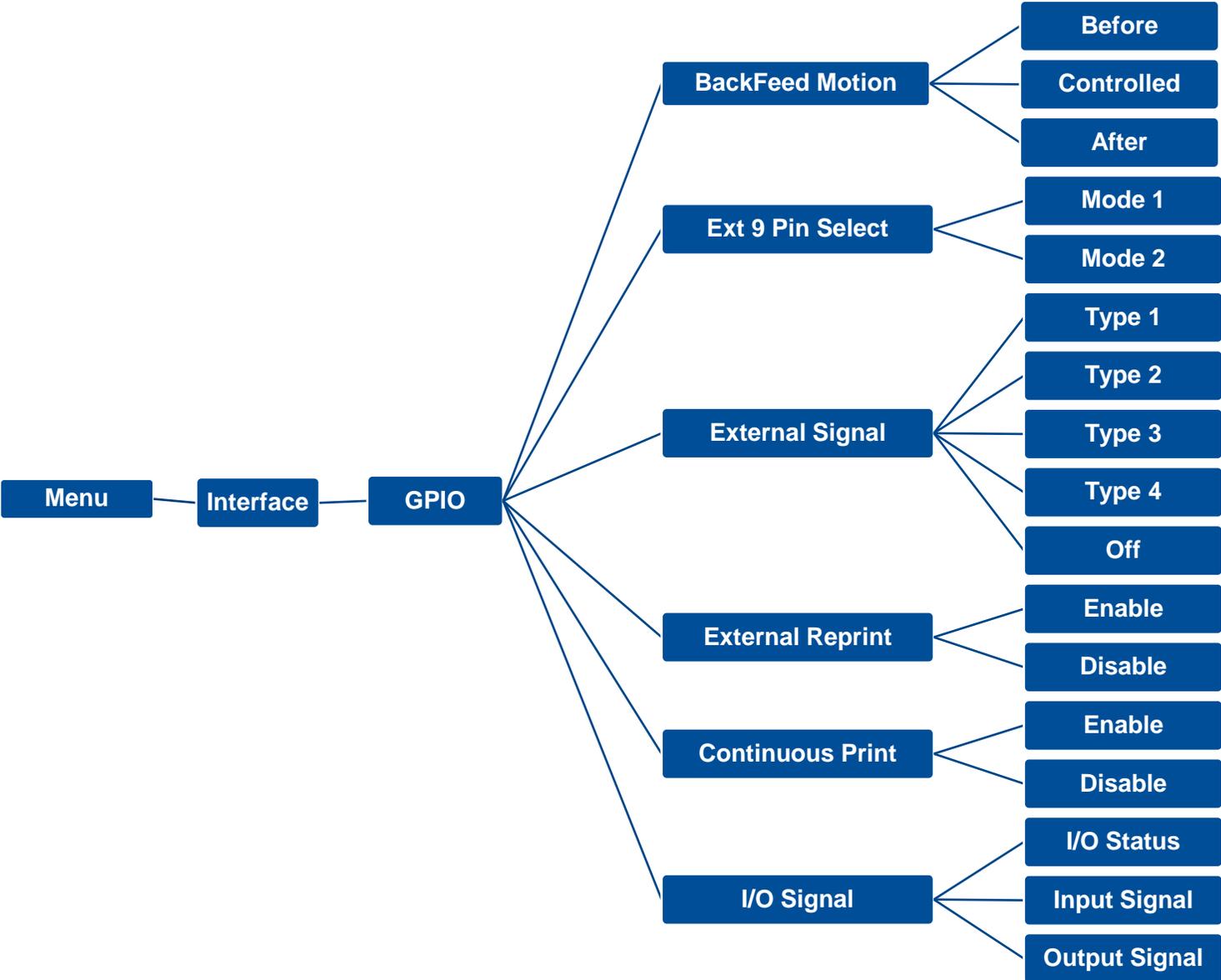
	Label format sent	Label format processed	Waiting for start print signal	Label prints	Ready for next label	
Data ready (Pin 14, GPO_6)						Not ready Ready
Print start (Pin 3, GPI_1)						Do not start Start
Print End (Pin 11, GPO_3)						Do not End End

Customized

Use GPIO setting commands for customized settings. For GPIO command, please refer to TSPL/TSPL2 programming manual.

Start Print SIG	This determines the trigger conditions for the printer to control GPI 1 and GPI4.	Level mode
Error On Pause	When this option is enabled and the printer is paused, the error signal (GPO_2) is LOW.	Enable
Ribbon Low Mode	When this option is enabled and the printer is Low Ribbon (GPO_1), the printer will generate a warning.	Enable
Ribbon Low Output	When the Ribbon Low Mode feature is enabled, this parameter determines if the output signal on Pin 9 (GPO_1) is HIGH or LOW.	Active High
Backfeed	This determines the timing of pullback.	Default
Reprint Mode	When this option is disabled, the printer reprint function (GPI_4) will be invalid.	Disable

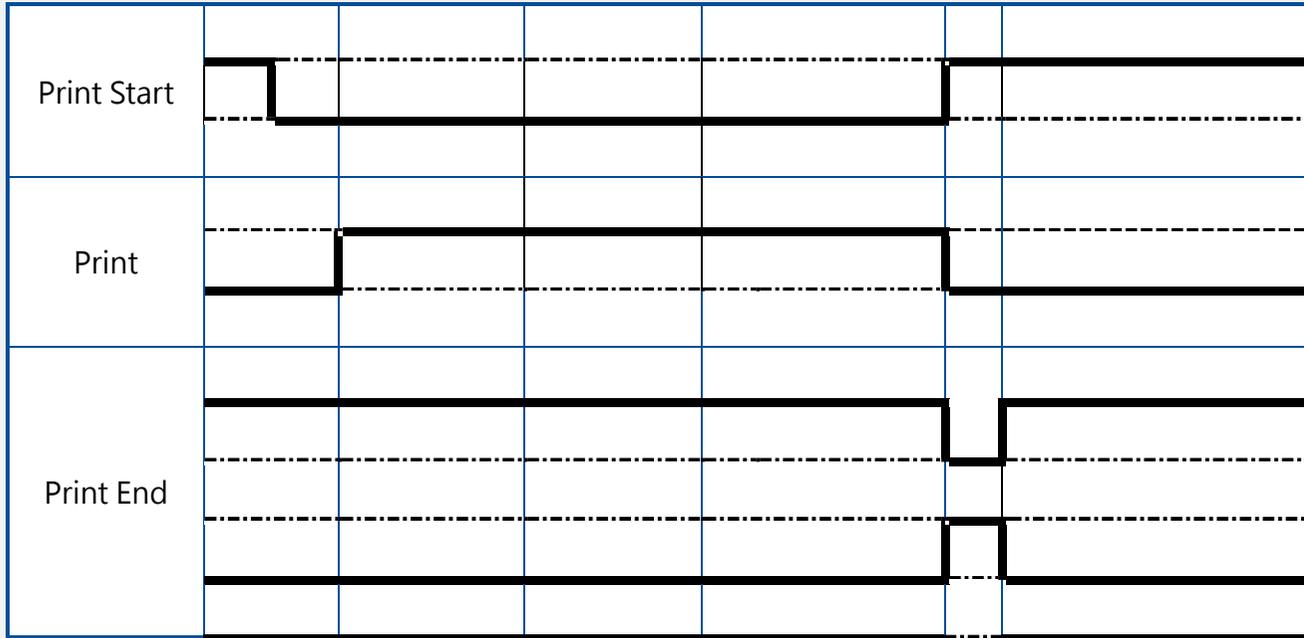
5.4.6 GPIO-DB25 (Option/ Available on EZS Version firmware)



Item	Description	Default
BackFeed Motion	Set the Backfeed motion in dispenser mode BEFORE: Backfeed the media to the printhead position before printing AFTER: Backfeed the label after dispensing CONTROLLED: Backfeed motion will be controlled by external signal	Before
Ext 9 Pin Select	Set the output mode of the external signal pin 6 when using a 25-pin connector MODE1: Outputs the signal when the product has/does not have remaining print data. MODE2: Outputs the signal if the product is in online or offline mode. (offline Is ERROR status)	Mode 1
External Signal	Enable or disable the external signal function OFF: Disable the external signal function TYPE 1: The Print End signal is High before label printing, and it becomes Low after print completion. The signal level becomes High after 20 msec. TYPE 2: The Print End signal is Low before label printing, and it becomes High after print completion. The signal level becomes Low after 20 msec. TYPE 3: The Print End signal is High before label printing, and it becomes Low from the start to the end of print, and it becomes High again after print completion TYPE 4: The Print End signal is Low before label printing, and it becomes High from the start to the end of print, and it becomes Low again after print completion	Off

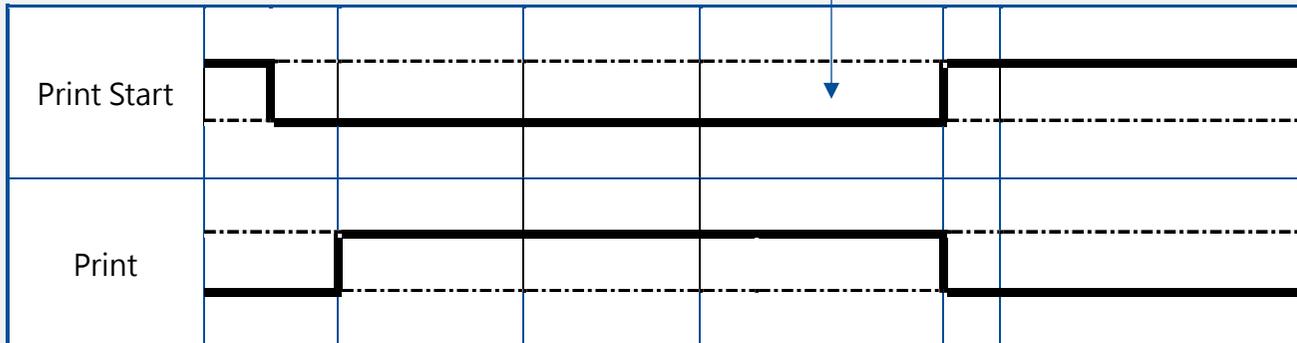
Type 1,2

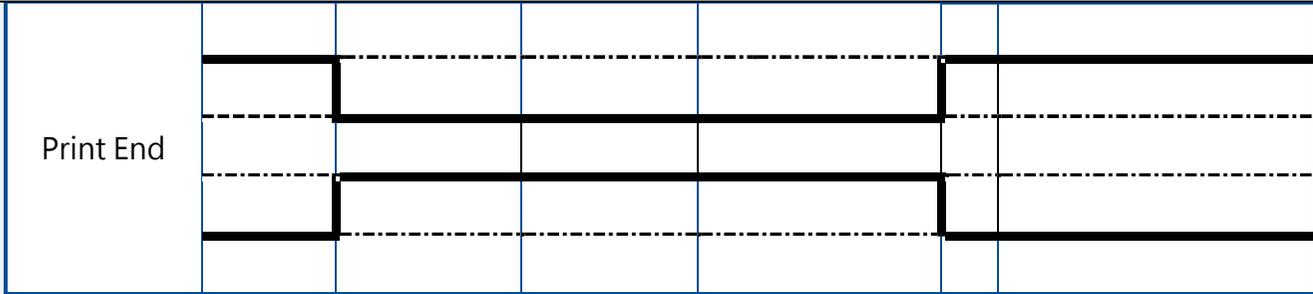
First label complete



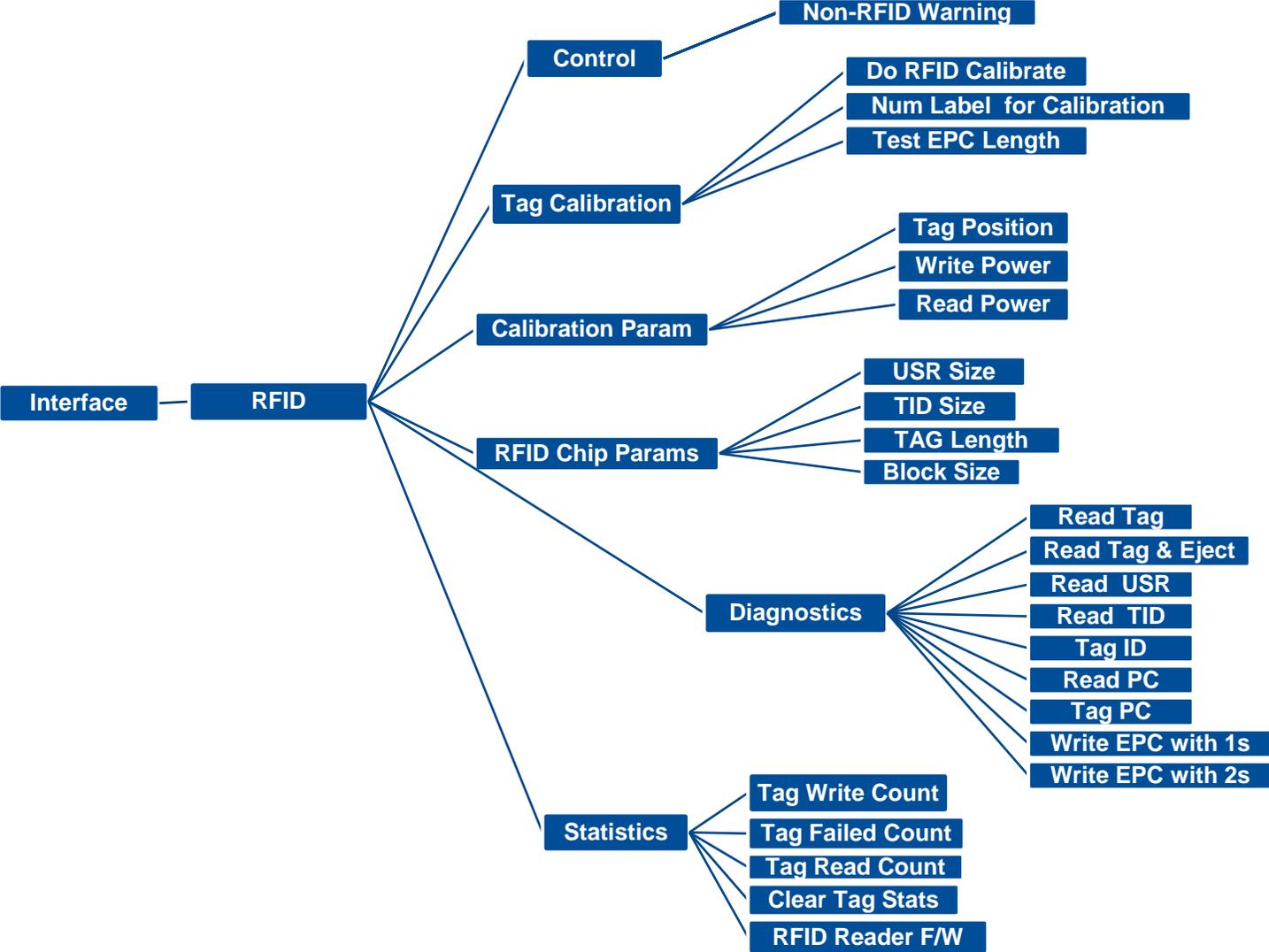
Type 3,4

First label complete



		
External Reprint	Use external signal to trigger the reprint signal to access reprint function ENABLE: Enable the reprint DISABLE: Disable the reprint	Disable
Continuous Print	Use external signal to trigger the Print start signal to access reprint function ENABLE: Enable the continuous print DISABLE: Disable the continuous print	Disable
I/O Signal	Check the I/O Signal status and set the input and output pin settings Input signal: Set the Print Start Pin Output signal: Set the Print End Pin	-

5.4.7 RFID (Option)



Item		Description	Default										
Wi-Fi	Status	Check the Wi-Fi status	N/A										
	Configure	Set the Wi-Fi configure	DHCP										
	SSID	Set the SSID	N/A										
	Security	Set the security	Open										
	Password	Set the security key	N/A										
Bluetooth	Status	Check the Bluetooth status	N/A										
	Local Name	Set the local name for Bluetooth	N/A										
RFID	Control	<p>RFID Active: Select ON/OFF to enable/disable the RFID encoder module.</p> <p>Error Handling: This menu item selects the error handling mode for RFID failures.</p> <table border="1"> <tr> <td>Overstrike (Default)</td> <td>Each failed label prints with the Overstrike pattern and the form retries on a new label until the Label Retry count is exhausted. Whether or not an error message will display or the failed label will reprint depends upon the <i>Max Retry Error</i> setting.</td> </tr> <tr> <td>None</td> <td>No specific action is taken when a tag fails to be programmed.</td> </tr> <tr> <td>Stop</td> <td>The printer will halt and display the error message "RFID Error: Check Media." The label is discarded and reprinting of the label (if desired) must be initiated from the host. When the error is cleared, the label with the failed tag moves forward until the next label is in position to be printed.</td> </tr> </table> <p>Label Retry: This menu item selects the number of label retries that the RFID encoder will attempt before declaring a fault. This may indicate a problem with the RFID encoder, the coupler assembly, the printer setup, or the label stock.</p> <table border="1"> <tr> <td>Minimum</td> <td>1</td> </tr> <tr> <td>Maximum</td> <td>10 (Default)</td> </tr> </table> <p>Max Retry Error: This menu item determines if errors are declared when the <i>Label Retry</i> count is exceeded.</p> <p>EPC Write Ctrl: This option controls how the printer encodes the RFID tag EPC field.</p> <p>Non-RFID Warning: This menu item enables a warning to appear if the printer receives a print job that does not contain any RFID commands when RFID media is installed in the printer.</p>	Overstrike (Default)	Each failed label prints with the Overstrike pattern and the form retries on a new label until the Label Retry count is exhausted. Whether or not an error message will display or the failed label will reprint depends upon the <i>Max Retry Error</i> setting.	None	No specific action is taken when a tag fails to be programmed.	Stop	The printer will halt and display the error message "RFID Error: Check Media." The label is discarded and reprinting of the label (if desired) must be initiated from the host. When the error is cleared, the label with the failed tag moves forward until the next label is in position to be printed.	Minimum	1	Maximum	10 (Default)	
Overstrike (Default)	Each failed label prints with the Overstrike pattern and the form retries on a new label until the Label Retry count is exhausted. Whether or not an error message will display or the failed label will reprint depends upon the <i>Max Retry Error</i> setting.												
None	No specific action is taken when a tag fails to be programmed.												
Stop	The printer will halt and display the error message "RFID Error: Check Media." The label is discarded and reprinting of the label (if desired) must be initiated from the host. When the error is cleared, the label with the failed tag moves forward until the next label is in position to be printed.												
Minimum	1												
Maximum	10 (Default)												

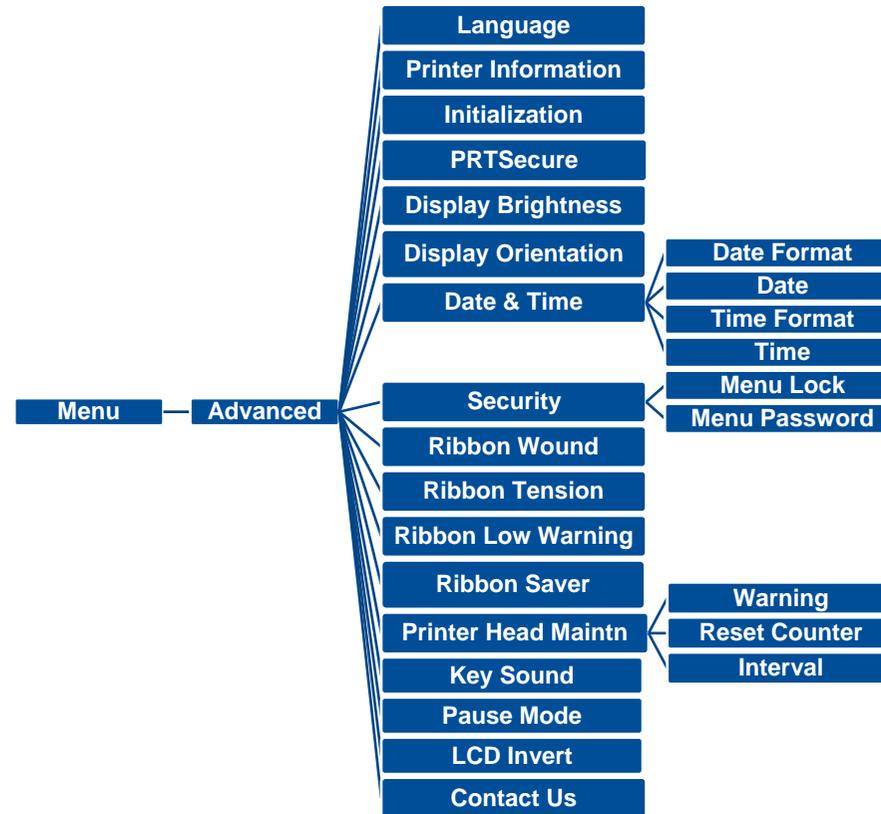
RFID	Tag Calibration	<p>This submenu is used to do RFID calibration. The user must do the tag calibration when installing a new tag in the printer. RFID calibration operation determines the RFID chip type, the write/read power, program position, length of the EPC/User field.</p> <table border="1"> <tr> <td>Do RFID Calibrate</td> <td> <p>The executable item performs RFID calibration. This item should be executed when changing the RFID tag type.</p> <p>Note: Before performing an RFID calibration, you will first need to select the right sensor for your RFID labels and run a media sensor calibration. Please refer to the section “RFID Calibration” for more information.</p> </td> </tr> <tr> <td>Num Label for Calibration</td> <td> <p>The menu item determines how many tags to use for calibration. However, this value does not include tags moved when seeking gaps during the calibration process. Depending on the difficulty in calibrating the installed tags, the number of labels used could be more or less, but generally, the larger number chosen in this menu, the more tags that will be averaged together to determine the calibration result. Usually, this value should be left at the default value.</p> <table border="1"> <tr> <td>Minimum</td> <td>3 (Default)</td> </tr> <tr> <td>Maximum</td> <td>7</td> </tr> </table> </td> </tr> <tr> <td>Test EPC Length</td> <td> <p>The menu item determines the size of the EPC data that will be used to perform the RFID Calibration. This menu can be increased to improve the accuracy of the RFID Calibration, but it should not be increased to a value greater than the maximum EPC length that the current Tag Type can support.</p> <table border="1"> <tr> <td>Minimum</td> <td>16</td> </tr> <tr> <td>Maximum</td> <td>256</td> </tr> <tr> <td>Default</td> <td>96</td> </tr> </table> </td> </tr> </table>	Do RFID Calibrate	<p>The executable item performs RFID calibration. This item should be executed when changing the RFID tag type.</p> <p>Note: Before performing an RFID calibration, you will first need to select the right sensor for your RFID labels and run a media sensor calibration. Please refer to the section “RFID Calibration” for more information.</p>	Num Label for Calibration	<p>The menu item determines how many tags to use for calibration. However, this value does not include tags moved when seeking gaps during the calibration process. Depending on the difficulty in calibrating the installed tags, the number of labels used could be more or less, but generally, the larger number chosen in this menu, the more tags that will be averaged together to determine the calibration result. Usually, this value should be left at the default value.</p> <table border="1"> <tr> <td>Minimum</td> <td>3 (Default)</td> </tr> <tr> <td>Maximum</td> <td>7</td> </tr> </table>	Minimum	3 (Default)	Maximum	7	Test EPC Length	<p>The menu item determines the size of the EPC data that will be used to perform the RFID Calibration. This menu can be increased to improve the accuracy of the RFID Calibration, but it should not be increased to a value greater than the maximum EPC length that the current Tag Type can support.</p> <table border="1"> <tr> <td>Minimum</td> <td>16</td> </tr> <tr> <td>Maximum</td> <td>256</td> </tr> <tr> <td>Default</td> <td>96</td> </tr> </table>	Minimum	16	Maximum	256	Default	96	
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Maximum	256																		
Default	96																		
	Calibration Param	<p>It will contain the settings used for optimal tag encoding. These parameters can be obtained automatically through RFID Calibration.</p> <table border="1"> <tr> <td>Tag Position</td> <td>This menu determines how far the RFID tag encoding position of the currently installed tag should be offset from Top of Form.</td> </tr> <tr> <td>Write Power</td> <td> <p>This menu item selects the write power level to be used in the RFID encoder. Normally, this value is set automatically by the RFID calibration process and should not be changed.</p> <table border="1"> <tr> <td>Minimum</td> <td>1</td> </tr> <tr> <td>Maximum</td> <td>25</td> </tr> </table> </td> </tr> <tr> <td>Read Power</td> <td> <p>This menu item selects the read power level to be used in the RFID encoder. Normally, this value is set automatically by the RFID calibration process and should not be changed.</p> <table border="1"> <tr> <td>Minimum</td> <td>1</td> </tr> <tr> <td>Maximum</td> <td>25</td> </tr> </table> </td> </tr> </table>	Tag Position	This menu determines how far the RFID tag encoding position of the currently installed tag should be offset from Top of Form.	Write Power	<p>This menu item selects the write power level to be used in the RFID encoder. Normally, this value is set automatically by the RFID calibration process and should not be changed.</p> <table border="1"> <tr> <td>Minimum</td> <td>1</td> </tr> <tr> <td>Maximum</td> <td>25</td> </tr> </table>	Minimum	1	Maximum	25	Read Power	<p>This menu item selects the read power level to be used in the RFID encoder. Normally, this value is set automatically by the RFID calibration process and should not be changed.</p> <table border="1"> <tr> <td>Minimum</td> <td>1</td> </tr> <tr> <td>Maximum</td> <td>25</td> </tr> </table>	Minimum	1	Maximum	25			
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Maximum	25																		

RFID	RFID Chip Param	It is used to configure the system when support of custom RFID tags is required.					
		USR Size	<p>This menu item selects the size in bytes of the USR block within the RFID tag memory. Normally, this value is set automatically by the RFID calibration process and should not be changed.</p> <table border="1"> <tr> <td>Minimum</td> <td>0 (Default)</td> </tr> <tr> <td>Maximum</td> <td>256</td> </tr> </table> <p>Note: This value will be hidden if Higgs3 tags are detected, and the Higgs 3 USR Len menu will be unhidden instead.</p>	Minimum	0 (Default)	Maximum	256
		Minimum	0 (Default)				
		Maximum	256				
		TID Size	<p>This menu item indicates the size of the memory block within the RFID tag memory that contains the Tag ID. Normally, this value is set automatically by the RFID calibration process and should not be changed.</p> <table border="1"> <tr> <td>Minimum</td> <td>0</td> </tr> <tr> <td>Maximum</td> <td>12</td> </tr> <tr> <td>Default</td> <td>8</td> </tr> </table>	Minimum	0	Maximum	12
Minimum	0						
Maximum	12						
Default	8						
Higgs 3 USR Len	<p>Higgs 3 tags differ from other RFID tags in that its memory bank size is not fixed. To accommodate EPC lengths longer than 96 bits, Higgs 3 borrows memory from the USR bank. This display only menu indicates the size in bits of the USR block within the RFID tag memory.</p> <table border="1"> <tr> <td>Minimum</td> <td>128</td> </tr> <tr> <td>Maximum</td> <td>512 (Default)</td> </tr> </table> <p>Note: This menu will only be shown if a Higgs 3 tag is detected. Otherwise, it will be hidden.</p>	Minimum	128	Maximum	512 (Default)		
Minimum	128						
Maximum	512 (Default)						
Higgs 3 EPC Len	<p>Higgs 3 tags differ from other RFID tags in that its memory bank size is not fixed. To accommodate EPC lengths longer than 96 bits, Higgs 3 borrows memory from the USR bank. This menu item selects the number of bits dedicated to the EPC block within the RFID tag memory.</p> <table border="1"> <tr> <td>Minimum</td> <td>96</td> </tr> <tr> <td>Maximum</td> <td>480</td> </tr> <tr> <td>Default</td> <td>96</td> </tr> </table> <p>Note: This menu will only be shown if a Higgs 3 tag is detected. Otherwise, it will be hidden.</p>	Minimum	96	Maximum	480	Default	96
Minimum	96						
Maximum	480						
Default	96						
TAG Length	<p>This menu item selects the number of bytes in the EPC block within the RFID tag memory. Normally, this value is set automatically by the RFID calibration process and should not be changed.</p> <table border="1"> <tr> <td>Minimum</td> <td>8</td> </tr> <tr> <td>Maximum</td> <td>64</td> </tr> <tr> <td>Default</td> <td>12</td> </tr> </table> <p>Note: This value will be hidden if Higgs3 tags are detected, and the Higgs 3 EPC Len menu will be unhidden instead.</p>	Minimum	8	Maximum	64	Default	12
Minimum	8						
Maximum	64						
Default	12						

		<p>Block Size This menu item selects the maximum number of bytes written to the USR block within the RFID tag memory at one time. Normally, this value is set automatically by the RFID calibration process and should not be changed.</p> <table border="1" data-bbox="696 201 1216 300"> <tr> <td>Minimum</td> <td>0</td> </tr> <tr> <td>Maximum</td> <td>32</td> </tr> <tr> <td>Default</td> <td>8</td> </tr> </table>	Minimum	0	Maximum	32	Default	8											
Minimum	0																		
Maximum	32																		
Default	8																		
	<p>Diagnostics</p>	<p>It is used to run test procedures to help determine the accuracy and troubleshoot the RFID system.</p> <table border="1" data-bbox="504 437 1823 1465"> <tr> <td data-bbox="504 437 689 616">Read Tag</td> <td data-bbox="689 437 1823 616"> <p>This executable menu reads the tag in range of the internal RFID coupler and reports the tag data to the debug port and momentarily displays it on the control panel's LCD. It is primarily intended for development verification by checking that the system is working.</p> <p>Note: This menu item does not position the RFID tag over the coupler. Make sure to position the tag over the coupler to receive an accurate reading.</p> </td> </tr> <tr> <td data-bbox="504 616 689 762">Read Tag & Eject</td> <td data-bbox="689 616 1823 762"> <p>This executable menu works exactly the same as <i>Read Tag</i> executable, except that after the printer reads the tag, it feeds the label to the next top-of-form.</p> <p>Note: This menu item does not position the RFID tag over the coupler. Make sure to position the tag over the coupler to receive an accurate reading.</p> </td> </tr> <tr> <td data-bbox="504 762 689 938">Read USR</td> <td data-bbox="689 762 1823 938"> <p>This executable menu reads the User Memory bank of the tag in range of the internal RFID coupler and reports the data to the debug port and momentarily displays it on the control panel's LCD. It is primarily intended for development verification by checking that the system is working.</p> <p>Note: This menu item does not position the RFID tag over the coupler. 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If no tag is in range of the internal RFID coupler, "Unknown" displays.</p> </td> </tr> <tr> <td data-bbox="504 1177 689 1321">Read PC</td> <td data-bbox="689 1177 1823 1321"> <p>This executable menu reads the PC (Protocol Control) field from an RFID tag in range of the internal RFID coupler and displays the value read in the Tag PC menu.</p> <p>Note: This menu item does not position the RFID tag over the coupler. Make sure to position the tag over the coupler to receive an accurate reading.</p> </td> </tr> <tr> <td data-bbox="504 1321 689 1385">Tag PC</td> <td data-bbox="689 1321 1823 1385"> <p>This menu item displays the last PC (Protocol Control) field read from an RFID tag. If no tag is in range of the internal RFID coupler, "Unknown" displays.</p> </td> </tr> <tr> <td data-bbox="504 1385 689 1465">Write EPC with 1s</td> <td data-bbox="689 1385 1823 1465"> <p>This executable menu writes all ones to the tag in range of the internal RFID coupler. It is primarily intended for development verification by checking that the system is working.</p> <p>Note:</p> </td> </tr> </table>	Read Tag	<p>This executable menu reads the tag in range of the internal RFID coupler and reports the tag data to the debug port and momentarily displays it on the control panel's LCD. It is primarily intended for development verification by checking that the system is working.</p> <p>Note: This menu item does not position the RFID tag over the coupler. Make sure to position the tag over the coupler to receive an accurate reading.</p>	Read Tag & Eject	<p>This executable menu works exactly the same as <i>Read Tag</i> executable, except that after the printer reads the tag, it feeds the label to the next top-of-form.</p> <p>Note: This menu item does not position the RFID tag over the coupler. 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	<p>Statistics</p>	<p>It is general read-only and used to gather and report statistics on how the RFID system is reporting on print jobs sent to the printer.</p> <table border="1"> <tr> <td data-bbox="506 450 685 513"> <p>Tag Write Count</p> </td> <td data-bbox="685 450 1827 513"> <p>This menu item displays on the LCD the number of tags attempted to be written since the last Clear Tag Stat operation has been initiated.</p> </td> </tr> <tr> <td data-bbox="506 513 685 577"> <p>Tag Failed Count</p> </td> <td data-bbox="685 513 1827 577"> <p>This menu item displays on the LCD the number of failed RFID tags since the last Clear Tag Stat operation has been initiated.</p> </td> </tr> <tr> <td data-bbox="506 577 685 641"> <p>Tag Read Count</p> </td> <td data-bbox="685 577 1827 641"> <p>This menu item displays the number of tags read since the last Clear Tag Stat operation.</p> </td> </tr> <tr> <td data-bbox="506 641 685 705"> <p>Clear Tag Stat</p> </td> <td data-bbox="685 641 1827 705"> <p>This executable menu item clears the Count menu items in this submenu.</p> </td> </tr> <tr> <td data-bbox="506 705 685 769"> <p>RFID Reader F/W</p> </td> <td data-bbox="685 705 1827 769"> <p>Shows the RFID firmware version installed in the encoder.</p> </td> </tr> <tr> <td data-bbox="506 769 685 865"> <p>RFID Reader Hd/W</p> </td> <td data-bbox="685 769 1827 865"> <p>Shows the RFID hardware version installed in the encoder.</p> </td> </tr> </table>	<p>Tag Write Count</p>	<p>This menu item displays on the LCD the number of tags attempted to be written since the last Clear Tag Stat operation has been initiated.</p>	<p>Tag Failed Count</p>	<p>This menu item displays on the LCD the number of failed RFID tags since the last Clear Tag Stat operation has been initiated.</p>	<p>Tag Read Count</p>	<p>This menu item displays the number of tags read since the last Clear Tag Stat operation.</p>	<p>Clear Tag Stat</p>	<p>This executable menu item clears the Count menu items in this submenu.</p>	<p>RFID Reader F/W</p>	<p>Shows the RFID firmware version installed in the encoder.</p>	<p>RFID Reader Hd/W</p>	<p>Shows the RFID hardware version installed in the encoder.</p>	
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<p>RFID Reader Hd/W</p>	<p>Shows the RFID hardware version installed in the encoder.</p>														

5.5 Advanced



Item	Description	Default
Language	Switch the language on display.	English
Printer Information	Check the printer's serial number, printed mileage (m), printed labels (pcs) and cutting counter.	N/A
Initialization	Restore printer settings to defaults.	N/A

Item	Description	Default
PRTSecure	<p>Configures the PRTSecure function.</p> <ul style="list-style-type: none"> • Strict: When selected, network setup and network configuration via network is blocked. • Standard: When selected, network setup and network configuration is allowed. <p>If you want to connect to network under Strict Mode, please refer to TSC Network Security Manual for more details. Alternatively, you can also scan the QR code below to access the manual.</p> 	Strict (network blocked for units shipped to the EU.)
Display Brightness	Set the brightness for display. Range: 0 - 100.	50
Display Orientation	Sets the display's orientation. Options: 0 / 180	0
Date & Time	Setup the date and time on display.	N/A
Security	Set the password for locking the menu or favorites. The default password is 8888.	Disable
Ribbon Wound	Set the ribbon wound direction.	Ink Side Out
Ribbon Tension	Set the ribbon tension.	Medium
Ribbon Low Warning	Set the warning for ribbon low. For example, if setting value is 30m, when ribbon capacity was lower than 30m, the  will be shown in red.	30M
Ribbon Saver	Enables the Ribbon Saver Mode.	Disable

Item	Description	Default
Printer Head Maintn	<p>Check printhead status and to set the settings for printhead care.</p> <p>Warning: Enable/disable the printhead clean warning. If enable this feature, once printhead has been reached the setting mileage then the warning icon will be shown on printer UI for reminding user to clean the printhead. The default setting is disable.</p> <p>Reset Counter: Reset the printhead clean warning mileage after cleaning printhead.</p> <p>Interval: This item is used to set the expected mileage for reminding user to clean the printhead. You have to enable the “TPH warning lock” for use. The default setting is 1 km.</p>	N/A
Key Sound	This item is used to enable/disable the sound of front panel buttons.	ON
Pause Mode	This item is used to enable/disable the printer into pause mode (Off line). After selecting “enable”, press the down arrow key and the printer will pause all actions.	Disable
LCD Invert	Depending on the printer orientation, the display can be set to 0° (standard) or 180°. (Yes/ No)	NO
Contact Us	Check the contact information for tech support service.	N/A

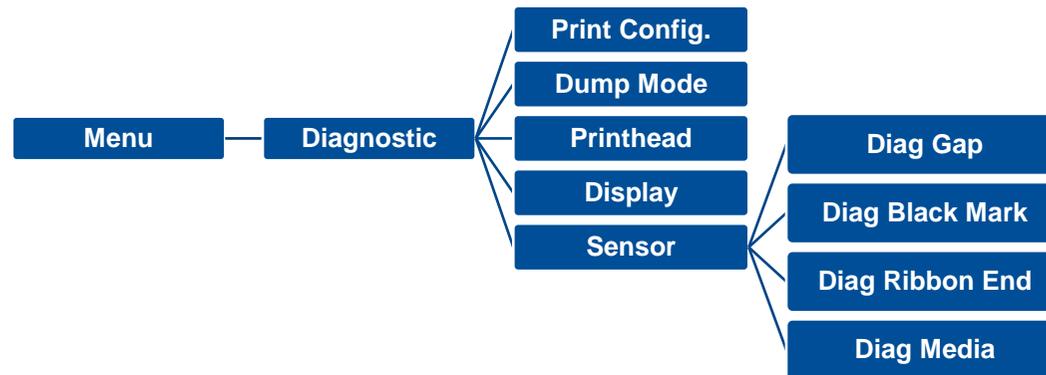
5.6 File Manager

File Manager is used to check the printer available memory, show the files list, delete the files or run the files that saved in the printer DRAM/Flash/Card memory.



Item	Description
DRAM	Use this menu to show, delete and run (.BAS) the files saved in the printer DRAM memory.
FLASH	Use this menu to show, delete and run (.BAS) the files saved in the printer Flash memory.
CARD	Use this menu to show, delete and run (.BAS) the files saved in the SD card on printer. Note: This subsection will only be visible when the SD card installed.

5.7 Diagnostic



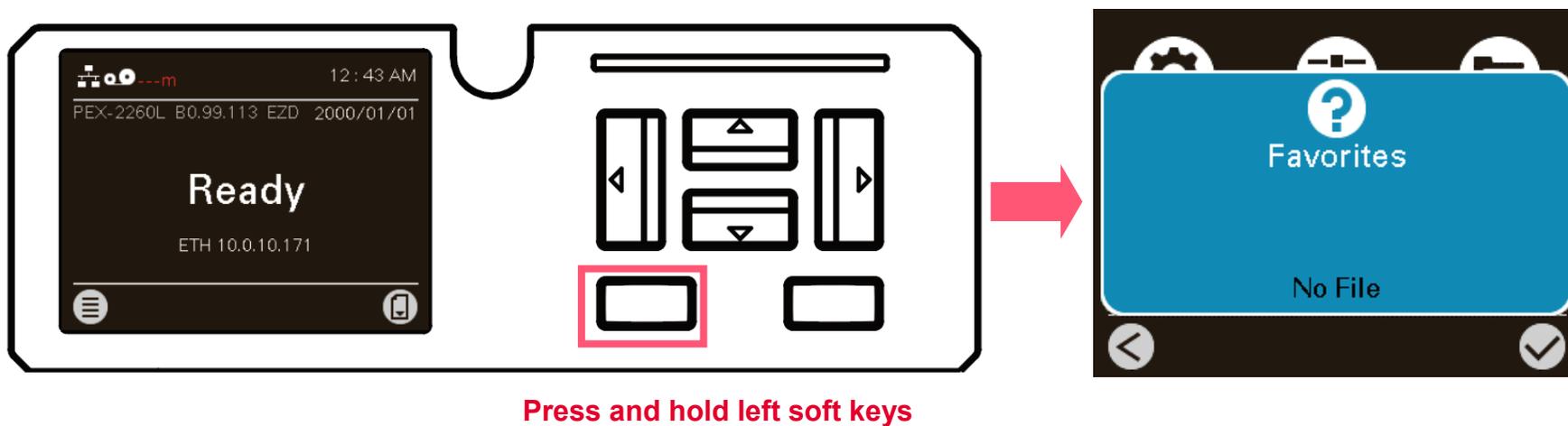
Item	Description
Print Config.	Print current printer configuration to the label. The configuration printout contains printhead test pattern, which is useful for checking the dot damage on the printhead heater.
Dump Mode	Captures the data from the communications port and prints out the data received by printer. In the dump mode, all characters will be printed in 2 columns. The left side characters are received from your system and right side data are the corresponding hexadecimal value of the characters. It allows users or engineers to verify and debug the program. Dump mode requires 4" width paper.
Printhead	Check printhead's temperature and bad dots.
Display	Check LCD's color state.
Sensor	Check sensors intensity and reading state.

5.8 Favorites

This feature can create customized menu list. You can organize the commonly used setting options to the Favorites list.

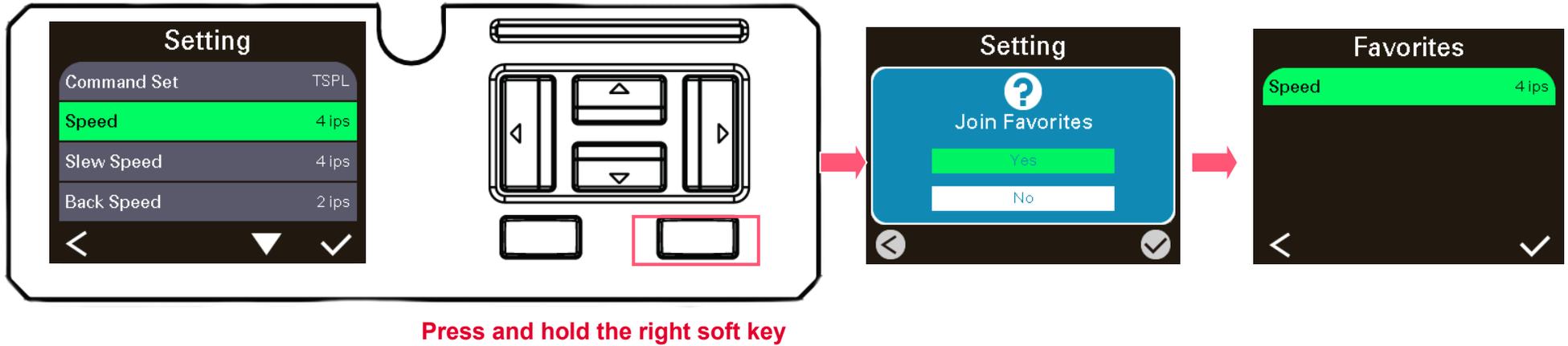
Enter Favorites List

1. Press and hold the left side soft key on Ready mode to enter **Favorites**. (Default: No items in the list)



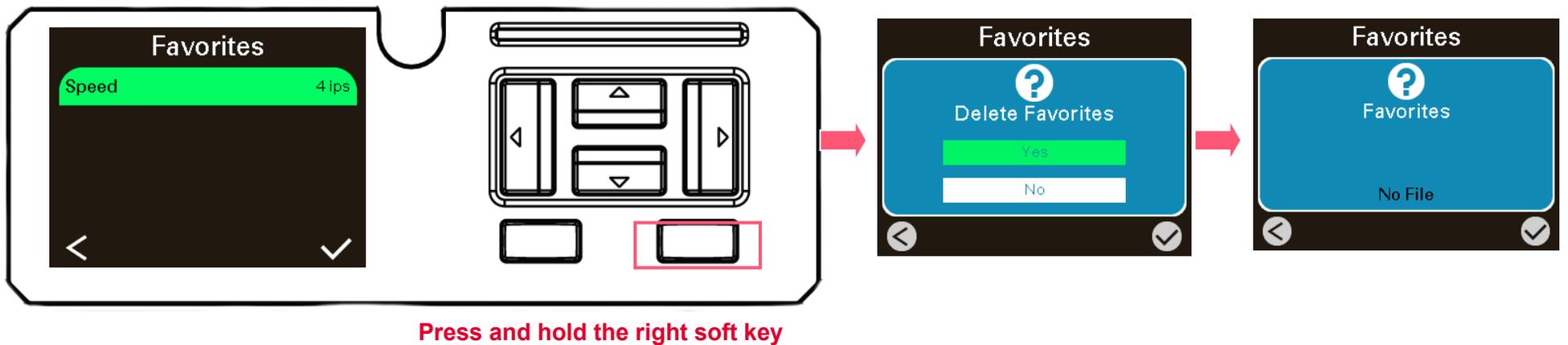
Add List to Favorite

1. Select one option item, and press and hold the right soft key until **Join Favorites** window pops up. Select “Yes” to add the item to Favorites list.



Delete Items From Favorite

2. Select one option item, and press and hold the right soft key until **Delete Favorites** window pops up. Select “Yes” to remove the item from Favorites list.



6 Command Settings

6.1 SET GPO

Description

Use this command to send out the GPIO signals by the printer.

Syntax

SET GPO*n* **signal state, delay0, pulse0, delay1, pulse1, function condition**

<u>Parameter</u>	<u>Description</u>								
<i>n</i>	<i>n</i> = 1 - 7 Seven dedicated outputs are available for the desired function conditions.								
Signal state	<table border="1"><tr><td>HIGH</td><td>Goes the high level signal when the following function condition is detected.</td></tr><tr><td>LOW</td><td>Goes the low level signal when the following function condition is detected.</td></tr><tr><td>POS</td><td>Goes the positive pulse signal when the following function condition is detected.</td></tr><tr><td>NEG</td><td>Goes the negative pulse signal when the following function condition is detected.</td></tr></table>	HIGH	Goes the high level signal when the following function condition is detected.	LOW	Goes the low level signal when the following function condition is detected.	POS	Goes the positive pulse signal when the following function condition is detected.	NEG	Goes the negative pulse signal when the following function condition is detected.
HIGH	Goes the high level signal when the following function condition is detected.								
LOW	Goes the low level signal when the following function condition is detected.								
POS	Goes the positive pulse signal when the following function condition is detected.								
NEG	Goes the negative pulse signal when the following function condition is detected.								
Delay0	After detecting the following function condition, the printer will wait this period of time before sending out the “true” output signal. Unit: millisecond. Maximum: 32000.								
Pulse0	Pulse width corresponding to the function condition becoming “true”. (Ignored for level-type signals.) Unit: millisecond. Maximum: 32000.								
Delay1	After detecting the following function condition, the printer will wait this period of time before sending out the “false” output signal. Unit: millisecond. Maximum: 32000.								

Pulse1

Pulse width corresponding to the function condition becoming "false". (Ignored for level-type signals.)
Unit: millisecond. Maximum: 32000.

Function
condition
(warning, error,
control...)

FAULT	Printer fault.
FAULT RIBBON	Ribbon error is occurred.
FAULT PAPER	Paper empty or paper jam is occurred.
FAULT CARRIAGE	Carriage is open.
FAULT MEMORY	Out of memory is occurred.
FAULT CUTTER	Cutter error is occurred.
FAULT OVERHEAT	Stepping motor or printhead is over heat.
PAUSE	Pause status is occurred.
TAKELABEL	Take label is occurred.
IDLE	Printer is idle.
PRINT	Printer is printing.

Sample Code

Example

```
SET GPO1 HIGH,100,0,100,0,FAULT RIBBON  
SET GPO2 LOW,100,0,100,0,FAULT PAPER  
SET GPO3 POS,100,100,100,100,PAUSE  
SET GPO4 NEG,100,50,100,50,IDLE
```

6.2 SET GPI

Description

Use this command to receive the GPIO signals from external controlling devices.

Syntax

SET GPI n signal, pulse, function

<u>Parameter</u>	<u>Description</u>																				
n	n = 1 - 4 Four dedicated inputs are available for the desired control functions.																				
Signal state	<table border="1"><tr><td>HIGH</td><td>When a high level signal received, will activate the following printer control functions.</td></tr><tr><td>LOW</td><td>When a low level signal received, will activate the following printer control functions.</td></tr><tr><td>POS</td><td>When a positive pulse signal received, will activate the following printer control functions.</td></tr><tr><td>NEG</td><td>When a negative pulse signal received, will activate the following printer control functions.</td></tr></table>	HIGH	When a high level signal received, will activate the following printer control functions.	LOW	When a low level signal received, will activate the following printer control functions.	POS	When a positive pulse signal received, will activate the following printer control functions.	NEG	When a negative pulse signal received, will activate the following printer control functions.												
HIGH	When a high level signal received, will activate the following printer control functions.																				
LOW	When a low level signal received, will activate the following printer control functions.																				
POS	When a positive pulse signal received, will activate the following printer control functions.																				
NEG	When a negative pulse signal received, will activate the following printer control functions.																				
Pulse	Filter pulse width. Ignored for level-type signals. Unit: millisecond. Maximum: 32000.																				
Function (control)	<table border="1"><tr><td>PAUSE</td><td>Toggle pause status.</td></tr><tr><td>PAUSE ON</td><td>Enter pause status.</td></tr><tr><td>PAUSE OFF</td><td>Cancel pause status.</td></tr><tr><td>PRINT</td><td>Print batch of labels.</td></tr><tr><td>PRINT n</td><td>n is numerical. Specify how many labels to print. Maximum: 32000.</td></tr><tr><td>CUT</td><td>Cut immediately.</td></tr><tr><td>FEED n</td><td>n is numerical and the unit is dot. Specify the feeding length. Maximum: 32000.</td></tr><tr><td>BACKFEED n</td><td>n is numerical and the unit is dot. Specify the backfeed length. Maximum: 32000.</td></tr><tr><td>FORMFEED</td><td>Feeding an empty label.</td></tr><tr><td>INPUT n</td><td>n is text or command. The n will be triggered to printer.</td></tr></table>	PAUSE	Toggle pause status.	PAUSE ON	Enter pause status.	PAUSE OFF	Cancel pause status.	PRINT	Print batch of labels.	PRINT n	n is numerical. Specify how many labels to print. Maximum: 32000.	CUT	Cut immediately.	FEED n	n is numerical and the unit is dot. Specify the feeding length. Maximum: 32000.	BACKFEED n	n is numerical and the unit is dot. Specify the backfeed length. Maximum: 32000.	FORMFEED	Feeding an empty label.	INPUT n	n is text or command. The n will be triggered to printer.
PAUSE	Toggle pause status.																				
PAUSE ON	Enter pause status.																				
PAUSE OFF	Cancel pause status.																				
PRINT	Print batch of labels.																				
PRINT n	n is numerical. Specify how many labels to print. Maximum: 32000.																				
CUT	Cut immediately.																				
FEED n	n is numerical and the unit is dot. Specify the feeding length. Maximum: 32000.																				
BACKFEED n	n is numerical and the unit is dot. Specify the backfeed length. Maximum: 32000.																				
FORMFEED	Feeding an empty label.																				
INPUT n	n is text or command. The n will be triggered to printer.																				

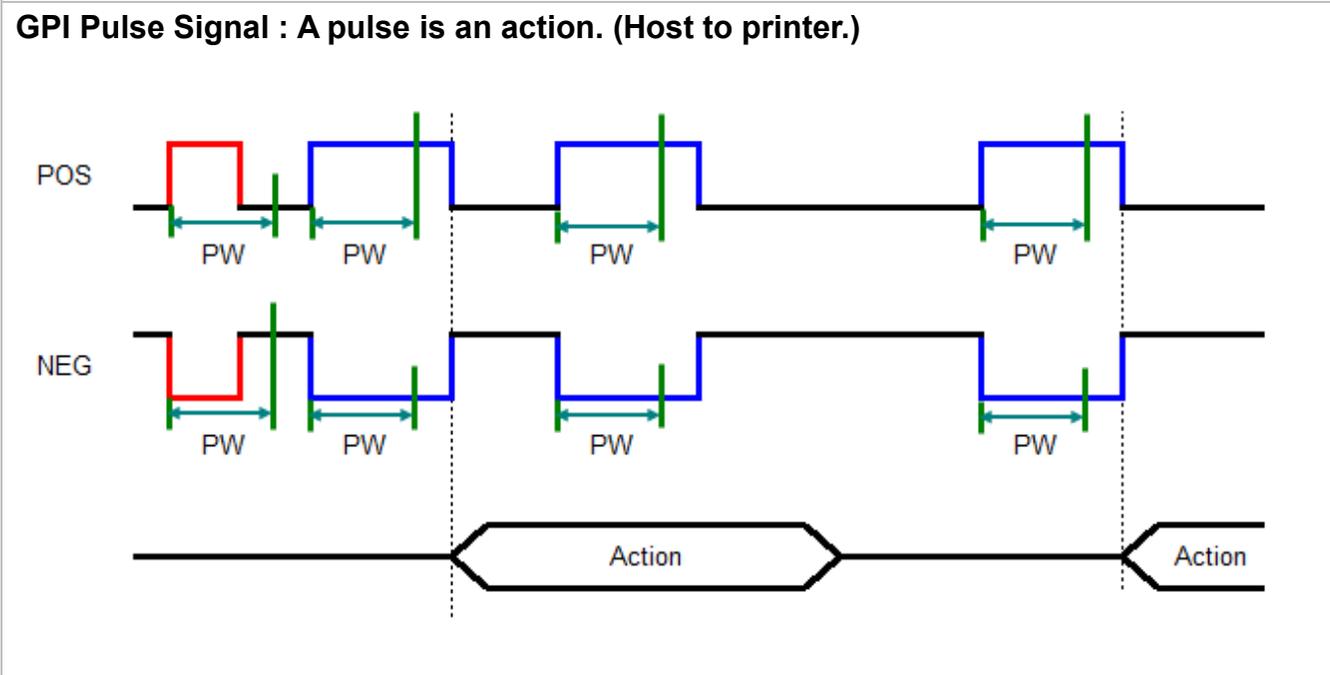
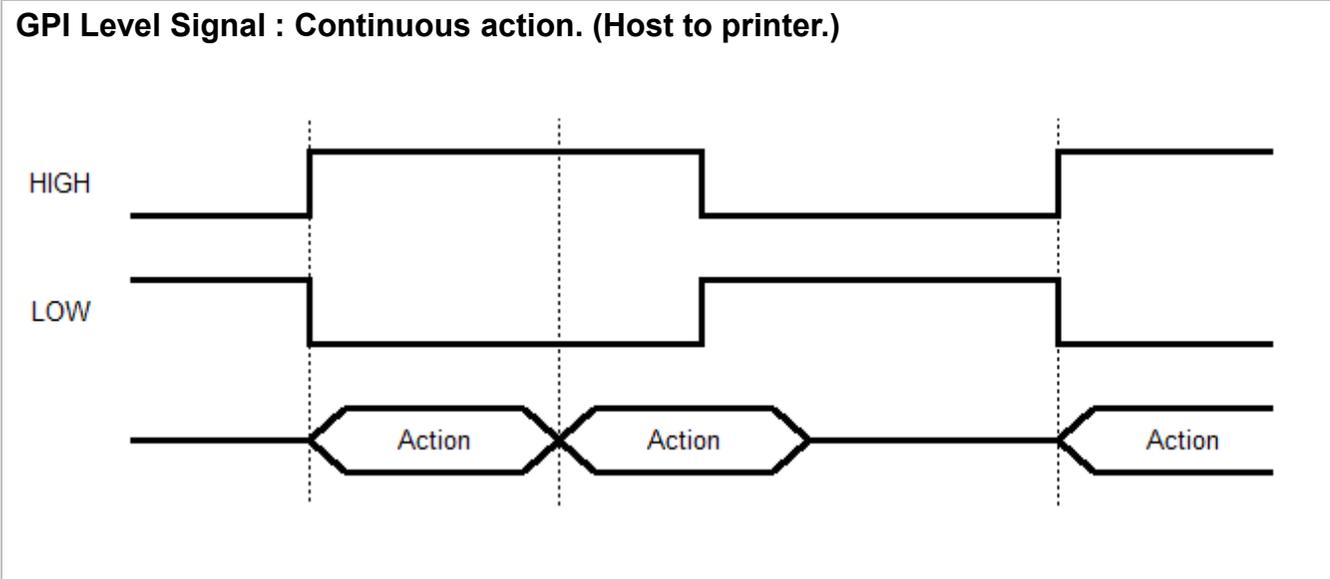
Sample Code

Example

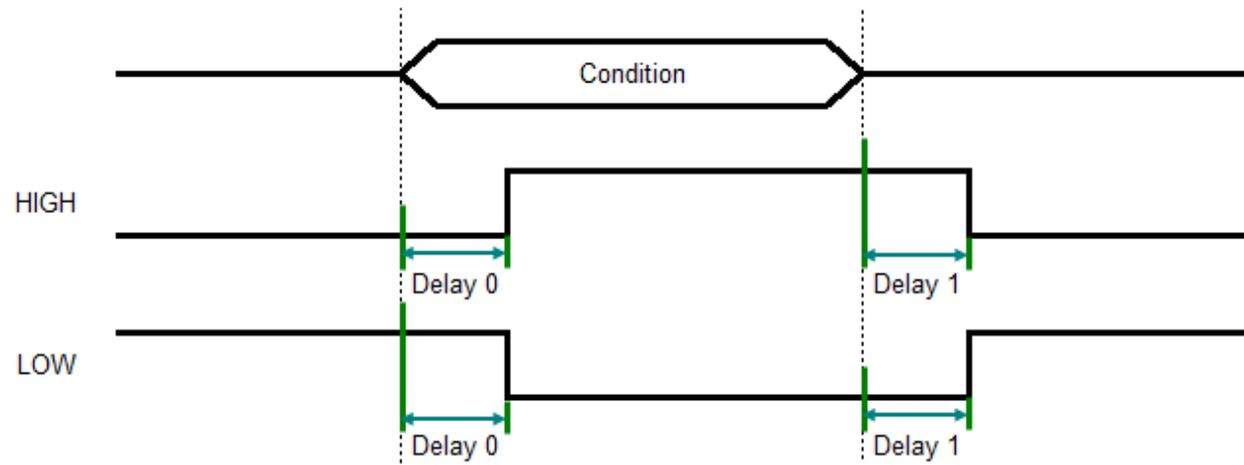
```
SET GPI1 HIGH,0,PAUSE  
SET GPI2 LOW,0,PAUSE ON  
SET GPI3 POS,100,PAUSE OFF  
SET GPI4 NEG,100,CUT
```

```
SET GPI1 NEG,100,INPUT "TEST.BAS"+CHR$(13)+CHR$(10)
```

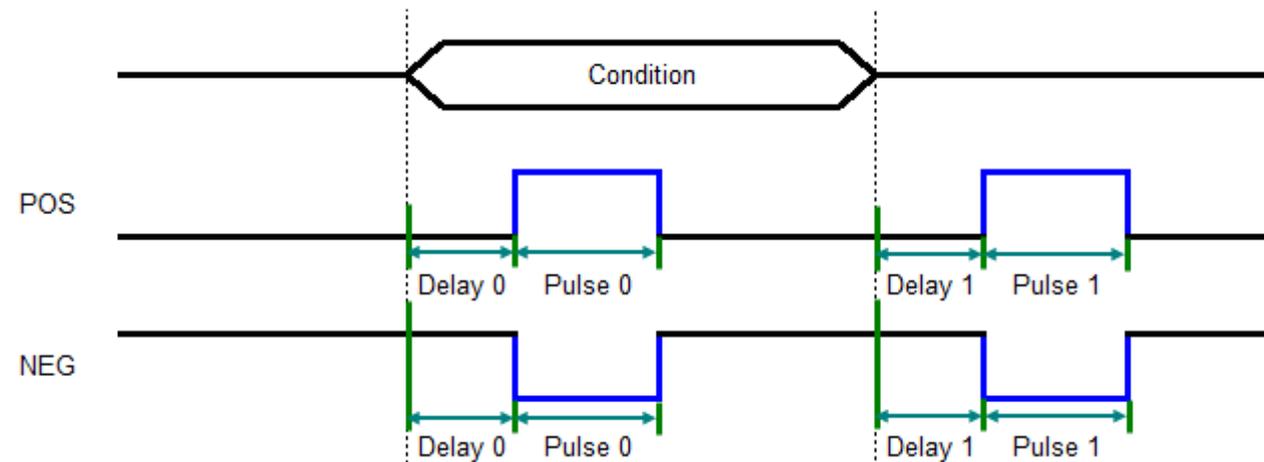
GPIO Waveform



GPO Level Signal : Continuous condition. (Printer to host.)



GPO Pulse Signal : A pulse is a condition. (Printer to host.)

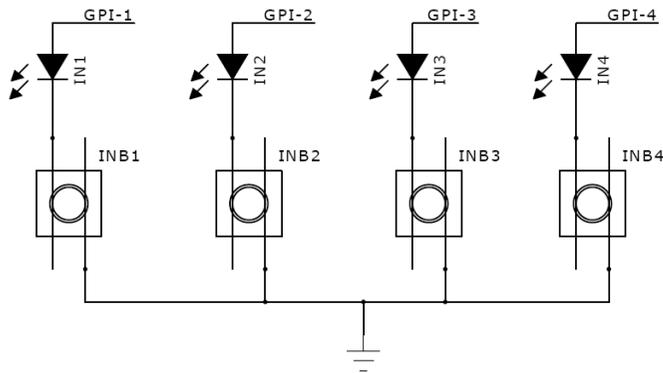


GPO pin no. 1 - 7 application example:

Since we connect GPO pin no. 1 - 7 with seven individual LED, the output signal from GPO will light the individual LED on or off.

*NPN output specification.

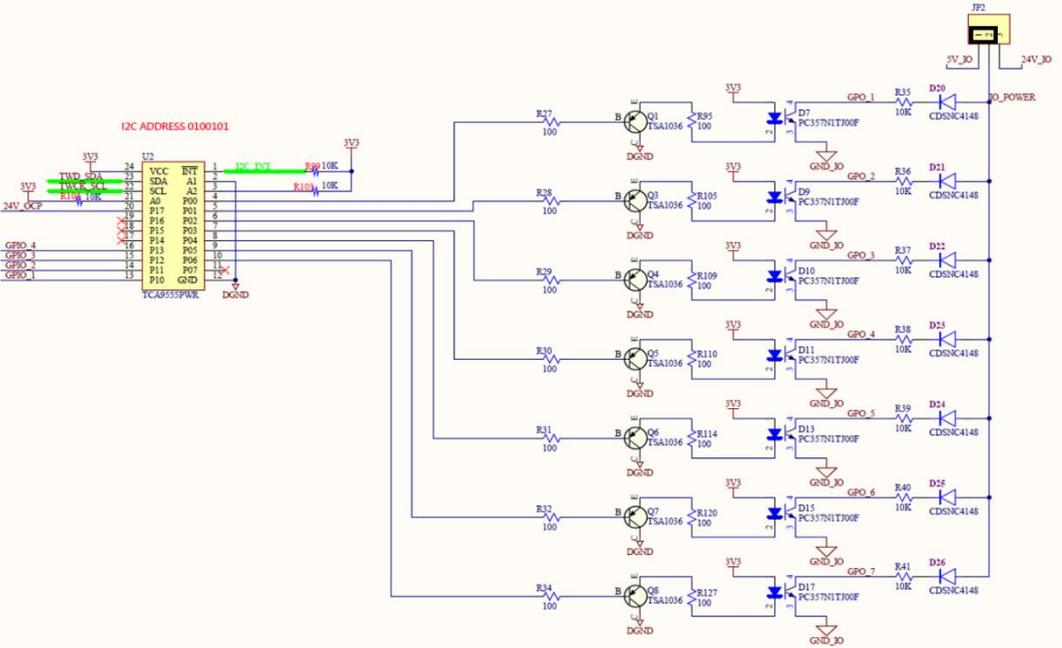
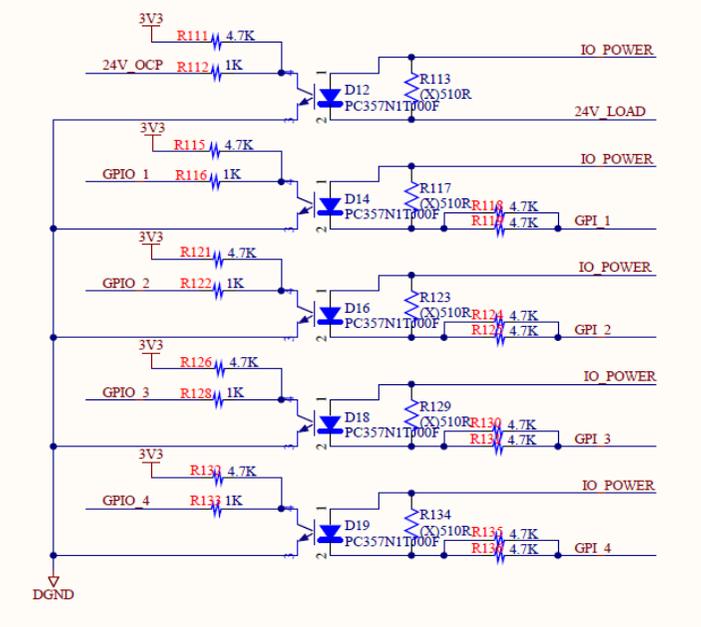
Collector-emitter voltage	V_{CEO}	35 V
Emitter-collector voltage	V_{CEO}	6 V
Collector current	I_c	Max. 50 mA
*1 Collector power dissipation	P_c	150 mW



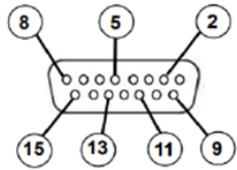
GPI pin no. 1 - 4 application example:

Since we connect GPI pin no. 1 - 4 with four individual button keys to control the desired printer functions. The input signal current suggests 20 mA.

6.3 Applicator I/O Interface (DB15F) Circuit Diagram

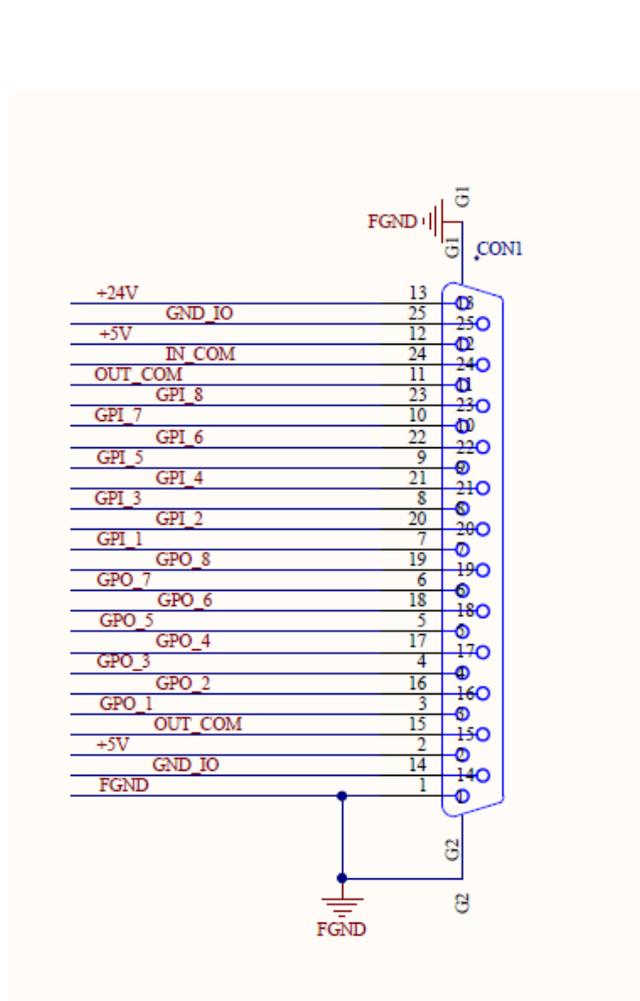
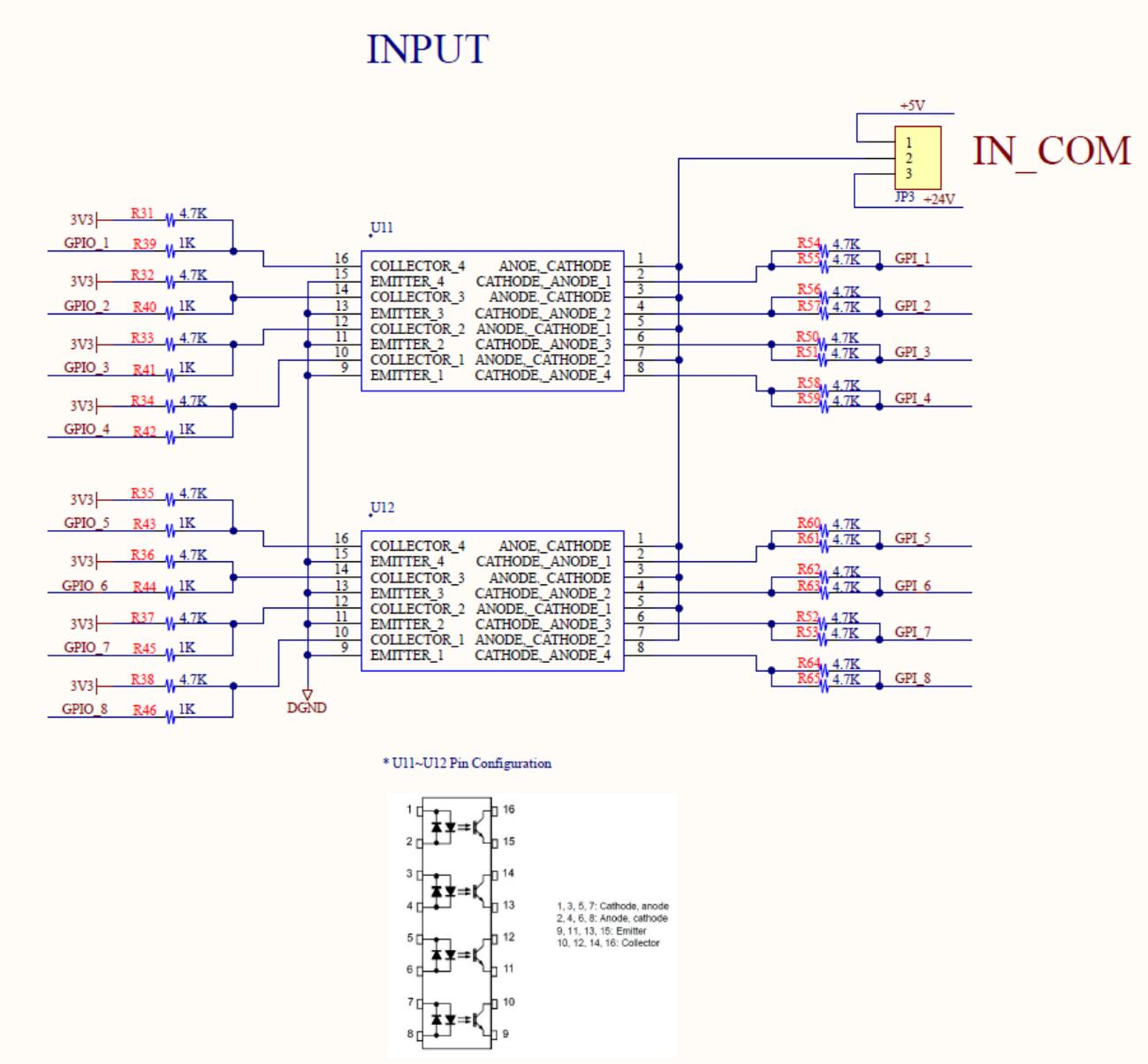


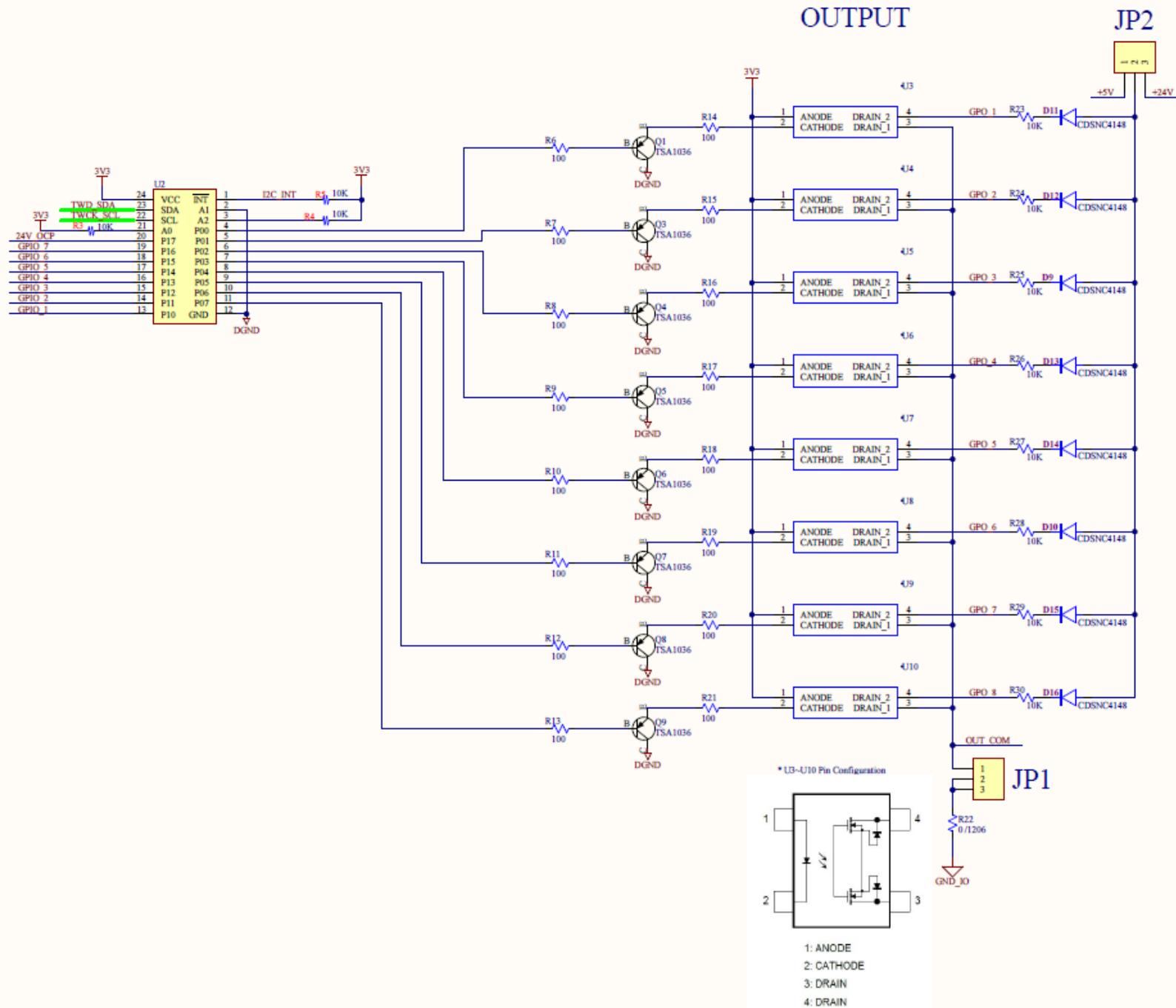
PEX-1000 series



PIN	CONFIGURATION	SIGNAL NAME	SIGNAL TYPE
1	GND	I/O SIGNAL GROUND	I/O Signal Ground
2	5V(JP2 short)	I/O SIGNAL POWER	Power
3	GPI_1	PRINT START	Input
4	GPI_2	FORMFEED	Input
5	GPI_3	PAUSE	Input
6	GPI_4	REPRINT	Input
7	24V	(+) 24V	Power
8	GND	GROUND	Power Ground
9	GPO_1	LOWRIBBON	Output
10	GPO_2	FAULT	Output
11	GPO_3	PRINT END	Output
12	GPO_4	FAULT PAPER	Output
13	GPO_5	FAULT RIBBON	Output
14	GPO_6	DATA READY	Output
15	GPO_7	Dummy	Output

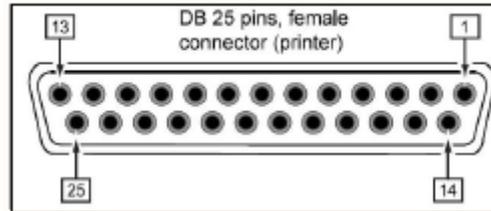
6.4 Applicator I/O Interface (DB25F) Circuit Diagram (optional)





Below table's emulation will only be applied when users are using GPIO-DB25 with the **External Signal** function turned on (Type 1/2/3/4).

Please follow the procedures to turn on the function: **Menu > Interface > GPIO > External Signal (Default:Off) > Type1/2/3/4.**



Pin	CONFIGURATION	SIGNAL NAME	SIGNAL TYPE	LEVEL
1	FGND	FG (Frame Ground)	-	-
2	+5V	+5V	-	-
3	GPO_1	Start Print	Output	Low
4	GPO_3	Machine Error	Output	Low
5	GPO_5	Print Completed	Output	Low
6	GPO_7	Online	Output	Low
7	GPI_1	Label Near End	Input	Low
8	GPI_3	Reprint	Input	Low
9	GPI_5	Backfeed Order	Input	Low
10	GPI_7	Reverse	Input	-
11	OUT_COM	OUT_COM	-	-
12	+5V	+5V	-	-
13	+24V	+24V	-	-
14	GND	GND(Signal Ground)	-	-
15	OUT_COM	OUT_COM	-	-
16	GPO_2	Fault Ribbon	Output	Low
17	GPO_4	Fault Paper	Output	Low

18	GPO_6	Low Ribbon	Output	High
19	GPO_8	Reverse	Output	-
20	GPI_2	Start Print	Input	Low
21	GPI_4	Formfeed	Input	Low
22	GPI_6	Reverse	Input	-
23	GPI_8	Reverse	Input	-
24	IN_COM	IN_COM	Input	-
25	GND	GND(SIGNAL GROND)	-	-

7 Troubleshooting

7.1 Common Problems

Problem	Possible Cause	Recovery Procedure
Power indicator does not illuminate	<ul style="list-style-type: none"> * The power cord is not properly connected. 	<ul style="list-style-type: none"> * Plug the power cord in print engine and outlet. * Switch the power on.
Carriage Open	<ul style="list-style-type: none"> * The printhead carriages are open. 	<ul style="list-style-type: none"> * Please close the print carriages.
Not Printing	<ul style="list-style-type: none"> * Check if interface cable is well connected to the interface connector. * Check if wireless or Bluetooth device is well connected between host and print engine. * The port specified in the Windows driver is not correct. 	<ul style="list-style-type: none"> * Re-connect cable to interface or change a new cable. * Please reset the wireless device setting. * Select the correct print port in the driver. * Clean the printhead. * Printhead's harness connector is not well connected with printhead. Turn off the power and plug the connector again. * Check your program if there is a command PRINT at the end of the file and there must have CRLF at the end of each command line.
No print on the label	<ul style="list-style-type: none"> * Label or ribbon is loaded not correctly. * Use wrong type paper or ribbon 	<ul style="list-style-type: none"> * Follow the instructions in loading the media and ribbon. * Ribbon and media are not compatible. * Verify the ribbon-inked side. * The print density setting is incorrect.
No Ribbon	<ul style="list-style-type: none"> * Running out of ribbon. * The ribbon is installed incorrectly. 	<ul style="list-style-type: none"> * Supply a new ribbon roll. * Please refer to the steps in user's manual to reinstall the ribbon.
No Paper	<ul style="list-style-type: none"> * Running out of label. * The label is installed incorrectly. * Gap/black mark sensor is not calibrated. 	<ul style="list-style-type: none"> * Supply a new label roll. * Please refer to the steps in user's manual to reinstall the label roll. * Calibrate the gap/black mark sensor.
Paper Jam	<ul style="list-style-type: none"> * Gap/black mark sensor is not set properly. * Make sure label size is set properly. * Labels may be stuck inside the print engine mechanism. 	<ul style="list-style-type: none"> * Calibrate the media sensor. * Set media size correctly. * Remove the stuck label inside the print engine mechanism.
Can't downloading the file to memory (FLASH / CARD)	<ul style="list-style-type: none"> * The space of memory is full. 	<ul style="list-style-type: none"> * Delete unused files in the memory.

SD card is unable to use	<ul style="list-style-type: none"> * SD card is damaged. * SD card doesn't insert correctly. * Use the non-approved SD card manufacturer. 	<ul style="list-style-type: none"> * Use the supported capacity SD card. * Insert the SD card again.
Poor Print Quality	<ul style="list-style-type: none"> * Ribbon and media is loaded incorrectly * Dust or adhesive accumulation on the printhead. * Print density is not set properly. * Printhead element is damaged. * Ribbon and media are incompatible. * The printhead pressure is not set properly. 	<ul style="list-style-type: none"> * Reload the supply. * Clean the printhead. * Clean the platen roller. * Adjust the print density and print speed. * Run self-test and check the printhead test pattern if there is dot missing in the pattern. * Change proper ribbon or proper label media. * Adjust the printhead pressure adjustment knob. * The release lever does not latch the printhead properly.
Missing printing on the left or right side of label	<ul style="list-style-type: none"> * Wrong label size setup. 	<ul style="list-style-type: none"> * Set the correct label size.
Gray line on the blank label	<ul style="list-style-type: none"> * The printhead is dirty. * The platen roller is dirty. 	<ul style="list-style-type: none"> * Clean the printhead. * Clean the platen roller.
Irregular printing	<ul style="list-style-type: none"> * The print engine is in Hex Dump mode. * The RS-232 setting is incorrect. 	<ul style="list-style-type: none"> * Turn off and on the print engine to skip the dump mode. * Re-set the Rs-232 setting.
Label feeding is not stable (skew) when printing	<ul style="list-style-type: none"> * The media guide does not touch the edge of the media. 	<ul style="list-style-type: none"> * If the label is moving to the right side, please move the label guide to left. * If the label is moving to the left side, please move the label guide to right.
Skip labels when printing	<ul style="list-style-type: none"> * Label size is not specified properly. * Sensor sensitivity is not set properly. * The media sensor is covered with dust. 	<ul style="list-style-type: none"> * Check if label size is setup correctly. * Calibrate the sensor by Auto Gap or Manual Gap options. * Clear the GAP/Black mark sensor by blower.
Wrinkle Problem	<ul style="list-style-type: none"> * Printhead pressure is incorrect. * Ribbon installation is incorrect. * Media installation is incorrect. * Print density is incorrect. * Media feeding is incorrect. 	<ul style="list-style-type: none"> * Please refer to the next chapter. * Please set the suitable density to have good print quality. * Make sure the label guide touch the edge of the media guide.
RTC time is incorrect when reboot the print engine	<ul style="list-style-type: none"> * The battery has run down. 	<ul style="list-style-type: none"> * Check if there is a battery on the main board.

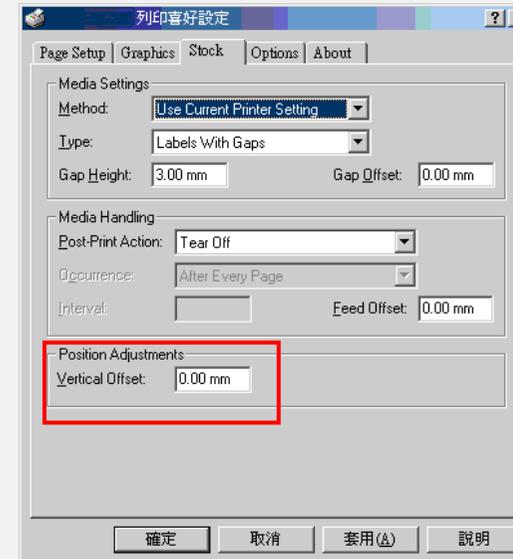
The left side printout position is incorrect

- * Wrong label size setup.
- * The parameter Shift X in LCD menu is incorrect.

- * Set the correct label size.
- * Press [MENU] → [SELECT] x 3 → [DOWN] x 5 → [SELECT] to fine tune the parameter of Shift X.
- * Calibrate the sensor sensitivity again.
- * Set the correct label size and gap size.
- * Enter LCD menu (or via TSC Console) to fine tune the parameter of Shift Y.
- * If using the software BarTender, please set the vertical offset in the driver.

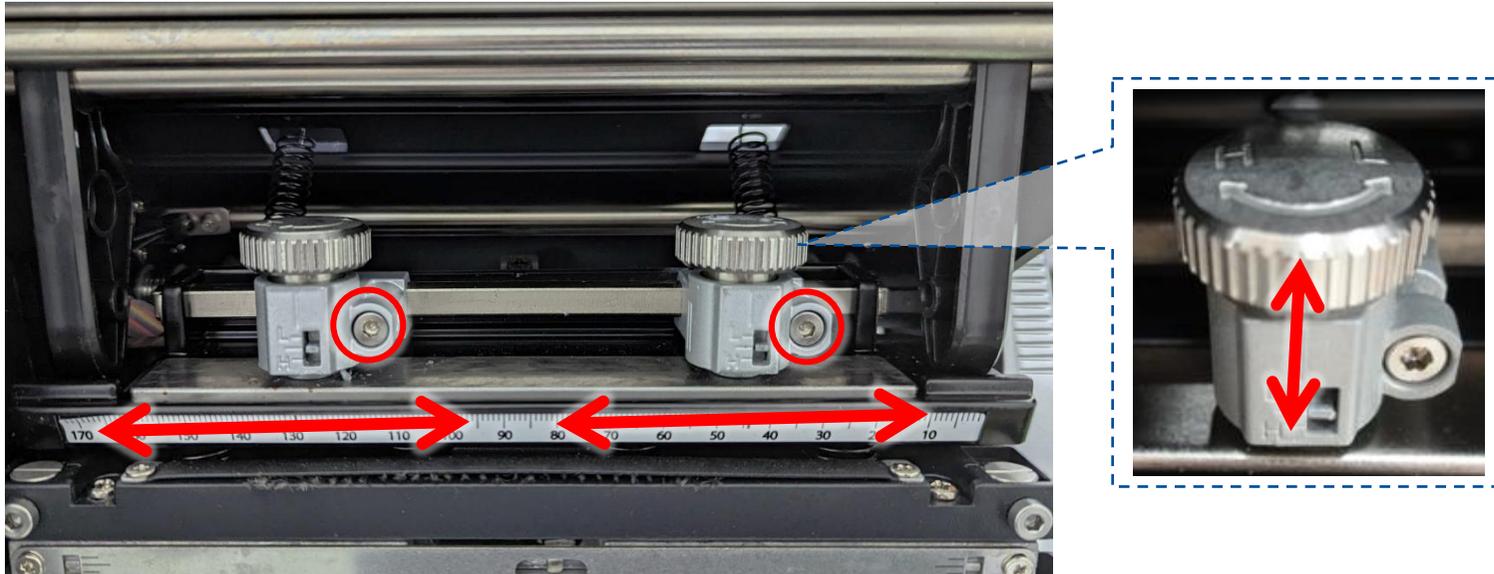
The printing position of small label is incorrect

- * Media sensor sensitivity is not set properly.
- * Label size is incorrect.
- * The parameter Shift Y in the LCD menu is incorrect.
- * The vertical offset setting in the driver is incorrect.



7.2 Printing Adjustments

7.2.1 Moveable Printhead Pressure Adjustment



The **Moveable Printhead Pressure Adjustment** has High/Low pressure adjustment.

Because the printer's paper alignment is located on the inboard side of the mechanism, different media widths require different pressure to print correctly. As a result, adjustment of pressure knob may be required to get your best print quality.

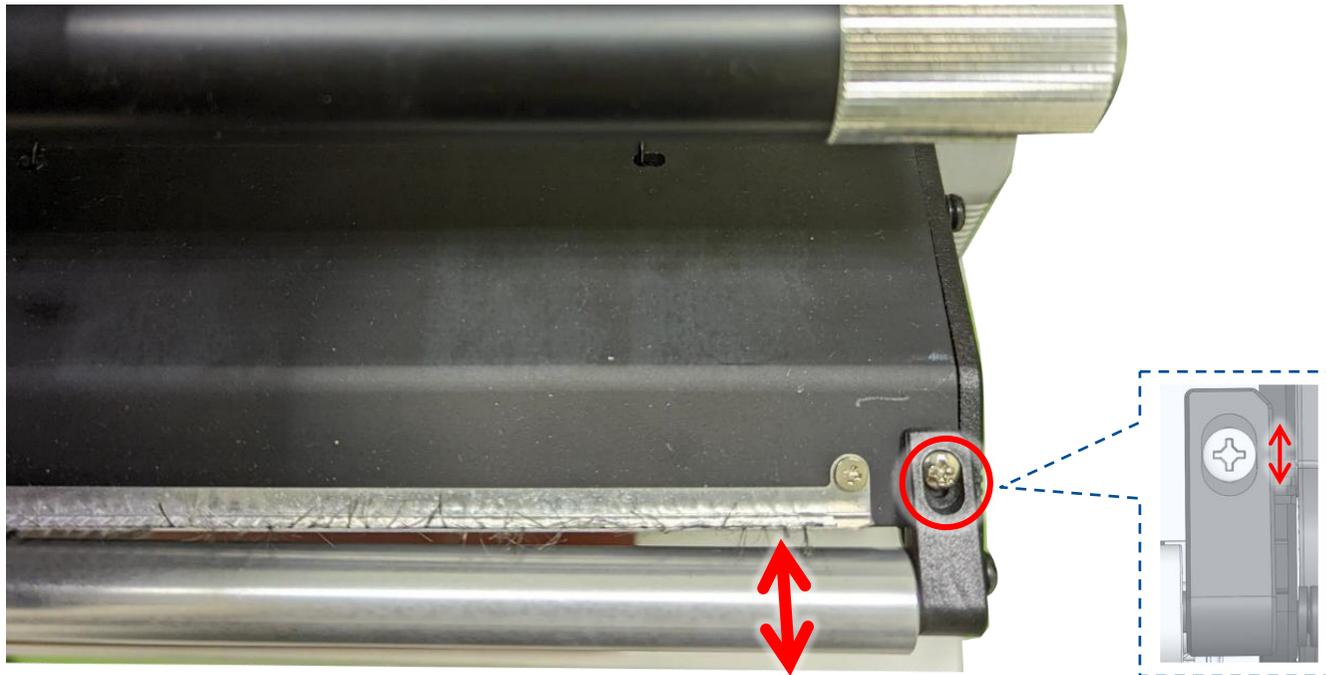
There is one pressure knob for 4 inch series model and there are two pressure knobs for 6 inch series model.

Turn the knob to L (Decreasing pressure) or H (Increasing pressure) to adjust the printhead pressure.

Use 3 mm hex key to loosen the knob to adjust the printhead pressure position.

Continue to adjust the printhead pressure or position and test print as necessary until the printed image is clear. After adjustment, tighten the screw.

7.2.2 Ribbon Tension Adjustment



The **Ribbon Tension Adjustment** can adjust the ribbon tension level.

Because the ribbon is aligned to the inward side of the printer mechanism, different ribbon or media widths may require different ribbon tension to print correctly. Therefore, it may be necessary to adjust the ribbon tension using the adjustment to avoid ribbon wrinkle and get the best print quality.

Loosen the ribbon tension screw to move the ribbon tension bar forward (Increasing tension) or backward (Decreasing tension) to adjust the ribbon tension level. For scuffing issues, try decreasing the ribbon tension. After adjustment, tighten the screw.

7.2.3 Ribbon Peeling Angle Adjustment



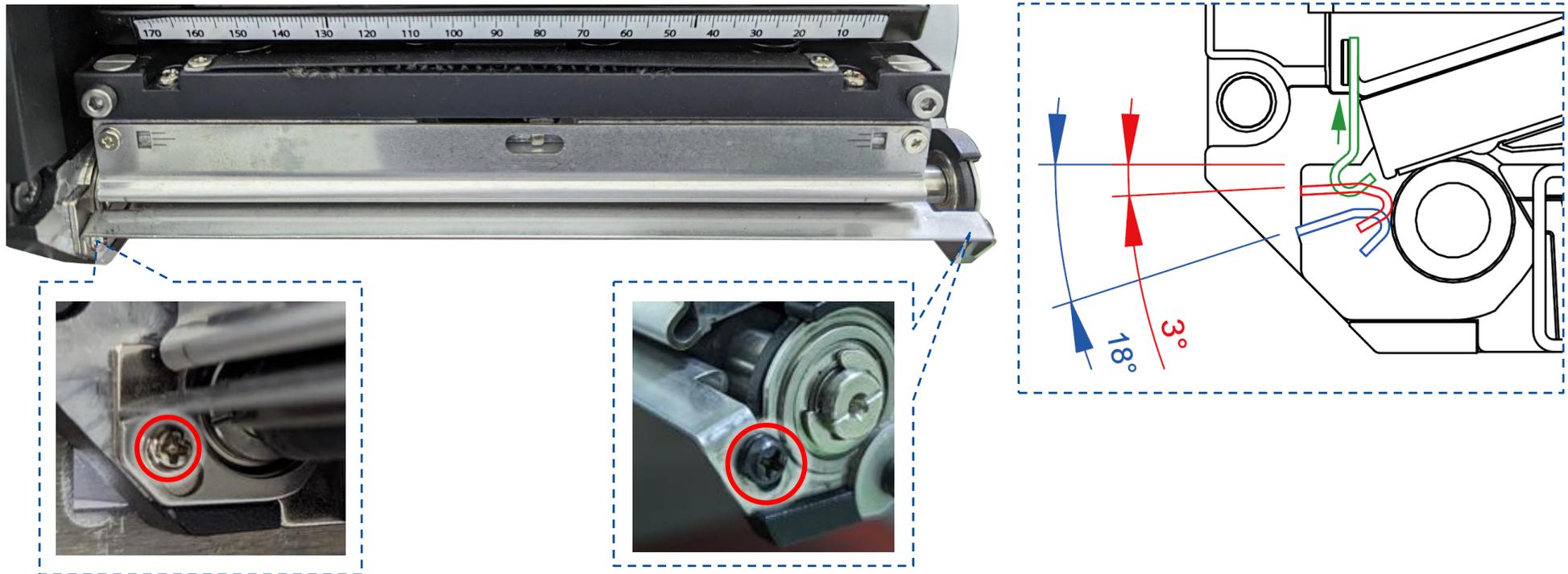
The **Ribbon Peeling Angle Adjustment** can adjust the ribbon peeling angle with media.

When the print quality is not good, the peeling angle can be changed to get the best print quality.

Loosen two ribbon peeling angle screws to move the ribbon peeling plate up (Increasing angle) or down (Decreasing angle) for adjusting the ribbon peeling angle.

In general, reducing the ribbon peeling angle could be increased the printing intensity. After adjustment, tighten the screws.

7.2.4 Tear Bar Angle Adjustment



The media tearing angle can be adjusted -18 to -3 degree by moving the **Tear Bar**.

When you want to change the angle of the label exit in peel off mode or tear off mode, you can adjust the tear bar to get the best result.

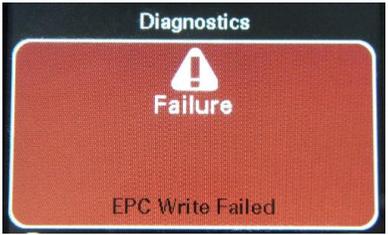
Loosen two screws on tear bar to move the tear bar up for increasing paper tearing ability. After adjustment, tighten the screws.

Move the ribbon peeling plate (as shown in green) up if necessary.

7.3 RFID Errors Message

The RFID encoder can detect a number of errors. When one of these errors occurs, the RFID encoder alerts the printer to perform the currently selected error action and display the appropriate error message on the control panel's LCD.

You may refer to the TSPL/TSPL2 Programming Manual when configuring the RFID function for your printer. You can download this manual from TSC website: <https://www.tscprinters.com>.

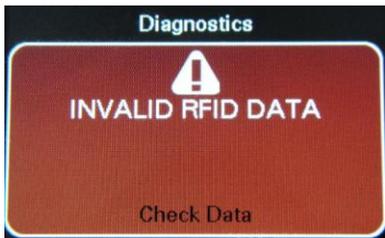
Error Message	Possible Cause	Recovery Procedure
 <p>The image shows a red LCD screen with a white warning icon at the top. The text reads: "Tag Calibration" at the top, "RFID Is Disabled" in the center, and "Enable To Run" at the bottom.</p>	<ul style="list-style-type: none"> RFID is disabled. 	<ul style="list-style-type: none"> Please go to RFID > Control > RFID Active to enable the RFID.
 <p>The image shows a red LCD screen with a white warning icon at the top. The text reads: "Diagnostics" at the top, "Failure" in the center, and "EPC Write Failed" at the bottom.</p>	<ul style="list-style-type: none"> The EPC tag write failed via Diagnostics > Write EPC with 1s or Write EPC with 2s. 	<ul style="list-style-type: none"> The label could be misaligned. Perform the Sensor > Auto Calibration procedure to ensure the label is at top-of-form. Perform the FRID > Control > Tag Calibration > RFID Calibrate. Make sure the media are smart labels with RFID tags located in the correct position. The RFID tag could be defective. Try another tag. Make sure the application does not send too few or too many digits to the RFID tag.
 <p>The image shows a red LCD screen with a white warning icon at the top. The text reads: "Tag Calibration" at the top, "RFID Calibrate" in the center, and "Write Tag Failed" at the bottom.</p>	<ul style="list-style-type: none"> Tag calibration has failed. 	<ul style="list-style-type: none"> The label could be misaligned. Perform the Sensor > Auto Calibration procedure to ensure the label is at top-of-form. Make sure the media are smart labels with RFID tags located in the correct position. The RFID tag could be defective. Try another tag.



- The RFID command is sent to the printer, but RFID is disabled.
- Please go to RFID > Control > RFID Active to enable the RFID.
- Then process RFID commands.



- When the "Non- RFID warning" option is "ON" (RFID > Control > Non- RFID Warning), the printer will display this warning message once the printer has obtained the non-RFID data.
- N/A



- The tag data sent does not match the settings.
- Please check the tag data of the RFID commands.



- The tag length size (the size parameter of RFID command) sent does not match the setting.
- Please check the data length size of the RFID commands.



- The tag cannot be written.

- The label could be misaligned. Perform the Sensor > Auto Calibration procedure to ensure the label is at top-of-form.
- Perform the FRID > Control > Tag Calibration > RFID Calibrate.
- Make sure the media are smart labels with RFID tags located in the correct position.
- The RFID tag could be defective. Try another tag.
- Make sure the application does not send too few or too many digits to the RFID tag.
- Check RFID commands are correct.



- The tag cannot be read.

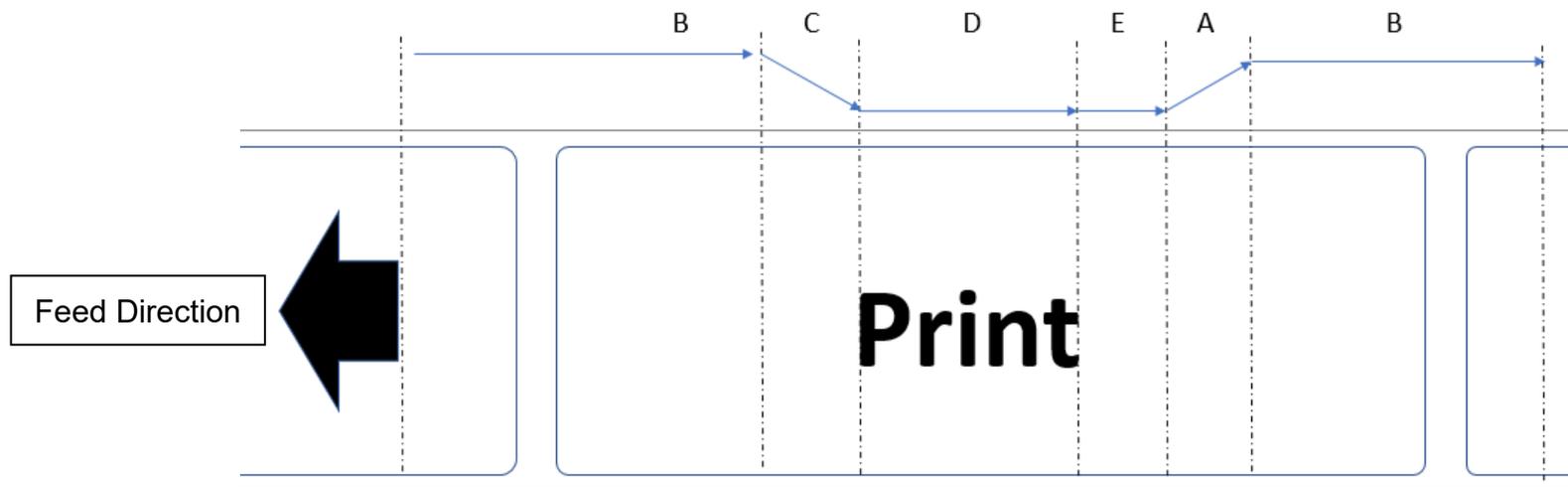
- Make sure the media are smart labels with RFID tags located in the correct position.
- The RFID tag could be defective. Try another tag.

8 Ribbon Saver Function (Optional)

Ribbon saver is a function that enables the printer to save ribbon consumption when processing print job. The ribbon saver function is only available when the ribbon saver kit is installed.

8.1 Ribbon Saver Operation

The drawing below illustrates the media/ribbon feed direction and the printhead position when the ribbon saver function is activated.

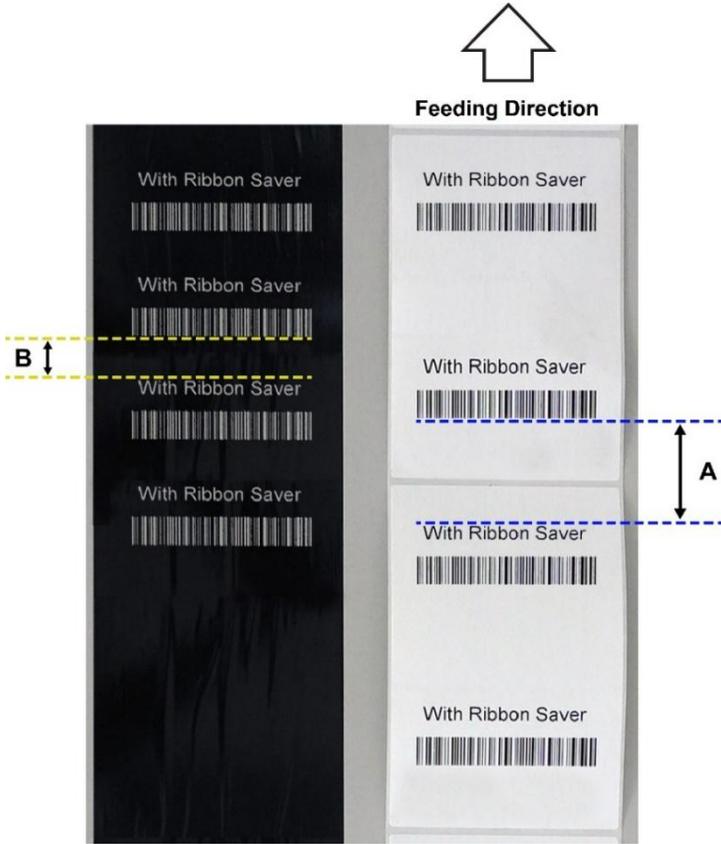


- A: The printhead is ascending.
- B: The printhead keeps up.
- C: The printhead is descending.
- D: The printhead keeps down and prints data on the label.
- E: The printhead still keeps down. To optimize the print quality, the printhead cannot ascend immediately after the D phase.

- To enable the ribbon saver function, go to **Menu > Advanced > Ribbon Saver**, select **Enable**.
- The print accuracy is ± 1.5 mm when the ribbon saver function is activated.
- Set the printer to **Applicator Mode** when using the ribbon saver function.

8.2 Calculation of Ribbon Consumption

Instance 1:



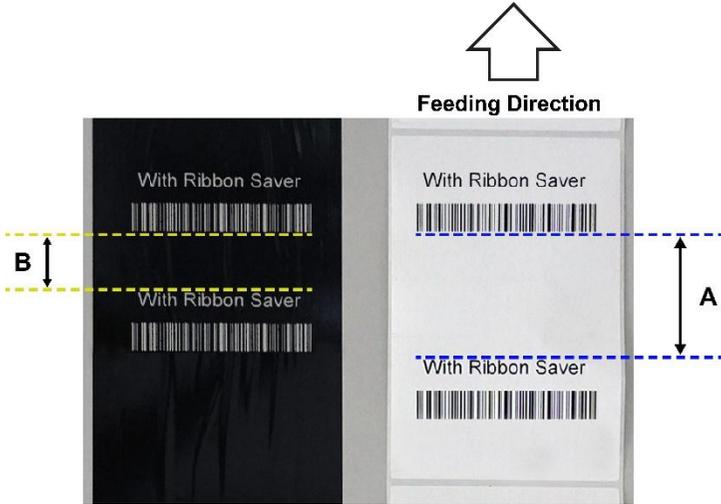
Print Speed (ips)	6-inch Series		4-inch Series	
	Minimum Distance (mm) (A)	Ribbon Consumption (mm) (B)	Minimum Distance (mm) (A)	Ribbon Consumption (mm) (B)
2	19	14	23	12
3	25	14	25	12
4	27	14	29	12
5	31	16	35	12
6	37	18	35	14
7	39	22	41	16
8	41	27	43	16
9	43	27	47	16
10	45	27	49	19
11	47	29	53	19
12	53	30	57	19
13	55	30	61	20
14	57	30	65	20
15	--	--	67	20
16	--	--	69	20

(A) indicates the distance required in order to support the configured print speed.

(B) indicates the ribbon consumption based on the configured print speed.

(A) minus (B) is equal to the saved ribbon.

Instance 2:



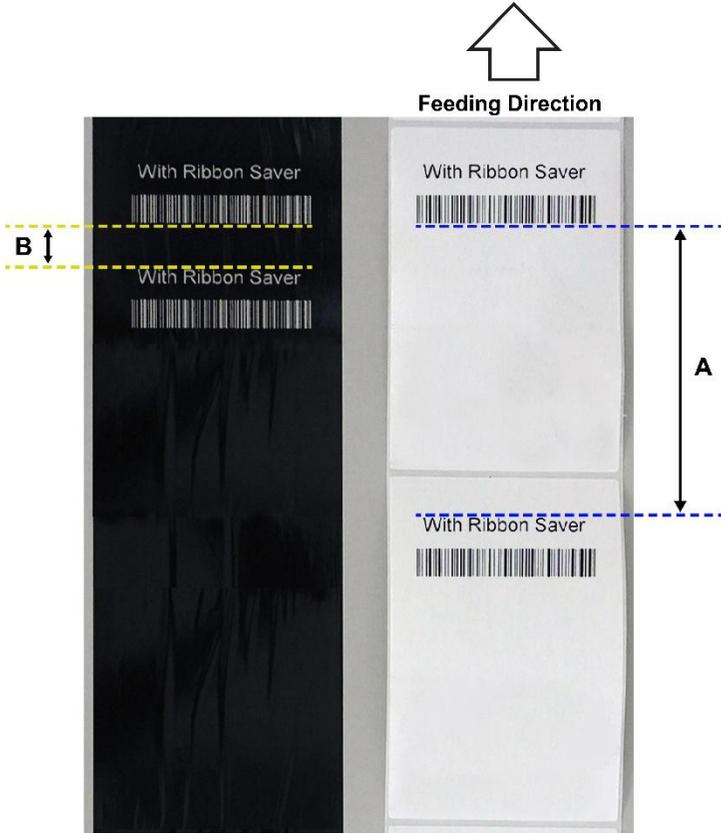
Print Speed (ips)	6-inch Series		4-inch Series	
	Minimum Distance (mm) (A)	Ribbon Consumption (mm) (B)	Minimum Distance (mm) (A)	Ribbon Consumption (mm) (B)
2	15	10	15	7
3	19	14	19	7
4	25	14	21	8
5	29	17	25	10
6	33	20	29	11
7	37	20	33	12
8	39	27	33	18
9	43	32	37	18
10	45	36	41	19
11	53	38	45	19
12	55	38	49	25
13	61	38	53	27
14	65	39	57	29
15	--	--	--	--
16	--	--	--	--

(A) indicates the distance required in order to support the configured print speed.

(B) indicates the ribbon consumption based on the configured print speed.

(A) minus (B) is equal to the saved ribbon.

Instance 3:



Print Speed (ips)	6-inch Series		4-inch Series	
	Minimum Distance (mm) (A)	Ribbon Consumption (mm) (B)	Minimum Distance (mm) (A)	Ribbon Consumption (mm) (B)
2	11	8	11	7
3	11	8	11	7
4	11	8	11	7
5	11	8	11	8
6	11	9	11	8
7	11	10	11	9
8	11	10	11	10
9	13	11	11	10
10	13	11	11	10
11	15	13	13	10
12	15	13	13	12
13	15	14	13	12
14	17	15	15	12
15	--	--	15	12
16	--	--	17	14

- (A) indicates the distance required in order to support the configured print speed.
- (B) indicates the ribbon consumption based on the configured print speed.
- (A) minus (B) is equal to the saved ribbon.

8.3 Ribbon and Label Specification for Ribbon Saver Function

Item	Description
Ribbon Width	<ul style="list-style-type: none">• 6-inch models: 60 mm or more.• 4-inch models: 40 mm or more.
Ribbon Length	<p>Guaranteed operational speed:</p> <ul style="list-style-type: none">• Print distance should be equal or greater than 10 mm required for the ribbon saver function. The printer will calculate the length of the remaining ribbon when the print distance is greater than 140 mm. Knowing the length of the remaining ribbon helps the printer adjust the backfeed speed.• When installing a new ribbon roll, wind the ribbon on an empty rewinder paper core. Winding the ribbon on the used ribbon will affect the calculation and efficiency of the ribbon saver function.• To optimize the ribbon saver function, a preliminary test is strongly recommended to find the best combination of the ribbon type, operating environment, and your application.
Label Width	<ul style="list-style-type: none">• 6-inch models: 50.8 mm or more.• 4-inch models: 25.4 mm or more.
Label Pitch*	<ul style="list-style-type: none">• 6-inch models: 33 mm or more in the backfeed mode.• 4-inch models: 25.4 mm or more in the backfeed mode.

NOTE: Label pitch is the distance between the leading edge of two adjacent labels.

9 Maintenance

This session presents the clean tools and methods to maintain the printer.

■ For Cleaning

Depending on the media used, the printer may accumulate residues (media dust, adhesives, etc.) as a by-product of normal printing. To maintain the best printing quality, you should remove these residues by cleaning the printer periodically. Regularly clean the printhead and supply sensors once change a new media to keep the printer at the optimized performance and extend printer life.

■ For Disinfecting

Sanitize your printer to protect yourself and others and can help prevent the spread of viruses.

■ Important

- Set the printer power switch to O (Off) prior to performing any cleaning or disinfecting tasks. Leave the power cord connected to keep the printer grounded and to reduce the risk of electrostatic damage.
- Do not wear rings or other metallic objects while cleaning any interior area of the printer.
- Use only the cleaning agents recommended in this document. Use of other agents may damage the printer and void its warranty.
- Do not spray or drip liquid cleaning solutions directly into the printer. Apply the solution on a clean lint-free cloth and then apply the dampened cloth to the printer.
- Do not use canned air in the interior of the printer as it can blow dust and debris onto sensors and other critical components.
- Only use a vacuum cleaner with a nozzle and hose that are conductive and grounded to drain off static build up.
- All reference in these procedures for use of isopropyl alcohol requires that a 99% or greater isopropyl alcohol content be used to reduce the risk of moisture corrosion to the printhead.
- Do not touch printhead by hand. If you touch it carelessly, please use 99% Isopropyl alcohol to clean it.
- Always taking personal precaution when using any cleaning agent.

Cleaning Tools

- Cotton swab
- Lint-free cloth
- Brush with soft non-metallic bristles
- Vacuum cleaner
- 75% Ethanol (for disinfecting)
- 99% Isopropyl alcohol (for printhead and platen roller cleaning)
- Genuine printhead cleaning pen
- Mild detergent (without chlorine)

Cleaning Process:

Printer Part	Method	Interval
Printhead	<ol style="list-style-type: none"> I. Always turn off the printer before cleaning the printhead. II. Allow the printhead to cool for at least one minute. III. Use a cotton swab and 99% Isopropyl Alcohol or genuine printhead cleaning pen to clean the printhead surface. 	Clean the printhead when changing a new label roll.
Platen Roller	<ol style="list-style-type: none"> I. Turn off the printer. II. Rotate the platen roller and wipe it thoroughly with the lint-free 99% Isopropyl Alcohol. 	Clean the platen roller when changing a new label roll
Peel Bar	Use the lint-free cloth with 99% Isopropyl Alcohol to wipe it.	As needed
Sensor	Use brush with soft non-metallic bristles or a vacuum cleaner, to remove paper dust. Clean upper and lower media sensors to ensure reliable Top of Form and Paper Out sensing.	Monthly
Exterior	Clean the exterior surfaces with a clean, lint-free cloth (water-dampened cloth). If necessary, use a mild detergent or desktop cleaning solution then use the 75% Ethanol to wipe it.	As needed
Interior	Clean the interior of the printer by removing any dirt and lint with a vacuum cleaner, as described above, or use a brush with soft non-metallic bristles then use the 75% Ethanol to wipe it.	As needed

10 Agency Compliance and Approvals



EN 55032: Class A
EN 55024
EN 55035
EN 61000
EN 60950-1
EN 62368-1

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC part 15B, Class A
ICES-003, Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.



This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



AS/NZS CISPR 32, Class A



UL 62368-1
CAN/CSA-C22.2 NO. 62368-1



KS C 9832
KS C 9835
KC62368-1

이 기기는 업무용(A 급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.



GB 17625.1-2022;
GB 4943.1-2022;
GB/T 9254.1-2021 (classA)

警告：在居住环境中·运行此设备可能会造成无线电干扰。



Energy Star for Imaging Equipment Version 3.0



TP TC 004
TP TC 020



CNS15598-1
CNS15936
CNS 15663



IS 13252(Part 1)/
IEC 60950-1

Note: There may have certification differences in the series models, please refer to product label for accuracy.

Important safety instructions:

1. Read all of these instructions and keep them for later use.
2. Follow all warnings and instructions on the product.
3. Disconnect the power from the AC inlet before cleaning or if fault happened. Do not use liquid or aerosol cleaners. Using a damp cloth is suitable for cleaning.

4. The mains socket shall be installed near the equipment and easily accessible.
5. The unit must be protected against moisture.
6. Ensure the stability when installing the device, Tipping or dropping could cause damage.
7. Make sure to follow the correct power rating and power type indicated on marking label provided by manufacture.
8. Please refer to user manual for maximum operation ambient temperature.

Informations de sécurité importantes :

1. Lire attentivement et conserver ces instructions pour un usage ultérieur.
2. Bien respecter les avertissements et instructions sur le produit.
3. Débrancher l'alimentation de l'entrée CA avant de procéder au nettoyage ou en cas de dysfonctionnement. Ne pas utiliser de nettoyant liquide ou d'aérosol. Nettoyer simplement à l'aide d'un chiffon humide.
4. La prise électrique doit être installée à proximité de l'appareil et être facilement accessible.
5. L'appareil doit être protégé de l'humidité.
6. Assurez-vous que l'unité est installée de manière stable pour un usage et une manipulation sans risque de chute.
7. Respecter le type d'alimentation et la puissance nominale indiqués par le fabricant.
8. Se reporter au mode d'emploi pour vérifier les températures maximum d'utilisation recommandées.



WARNING:

Moving parts. Keep finger or body away from moving parts.

IMPORTANT :

Pièces mobiles. Maintenir vos doigts et votre corps à l'écart des pièces mobiles.

CAUTION:

(For equipment with RTC (CR2032) battery or rechargeable battery pack)

Risk of explosion if battery is replaced by an incorrect type.

Dispose of used batteries according to the Instructions as below.

1. DO NOT throw the battery in fire.
2. DO NOT short circuit the contacts.
3. DO NOT disassemble the battery.
4. DO NOT throw the battery in municipal waste.
5. The symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

ATTENTION :

(Pour les appareils équipés d'une batterie RTC (CR2032) ou de batteries rechargeables)

Risque d'explosion en cas de remplacement de la batterie par une référence non conforme.

La batterie usagée :

1. NE DOIT PAS être mise au feu.
2. NE DOIT PAS être mise en court-circuit.
3. NE DOIT PAS être ouverte ou démontée.
4. NE DOIT PAS être jetée avec les ordures ménagères.
5. L'icône de poubelle barrée indique que la batterie ne doit pas être jetée avec les ordures ménagères.



Caution: Hot surface for printhead.

Do not touch the printhead before it cooling.

ATTENTION : Surface de la tête d'impression chaude.

Ne pas toucher la tête d'impression avant qu'elle ait refroidi.

WARNING:

Remove the power from AC inlet before opening the media cover for cleaning or repairing faults. After cleaning or fixing faults, media cover closing before power connecting to AC inlet.

IMPORTANT :

Retirer l'alimentation de l'entrée CA avant d'ouvrir le capot des consommables pour procéder au nettoyage ou à la réparation de l'appareil.. Après avoir effectué le nettoyage ou corrigé les dysfonctionnements, fermez le capot des consommables avant de brancher l'alimentation à l'entrée CA.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

CE Statement:

This equipment complies with EU radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

All operational modes:

2.4GHz: 802.11b, 802.11g, 802.11n (HT20), 802.11n (HT40)

5GHz: 802.11a,

The frequency, mode and the maximum transmitted power in EU are listed below:

2400 MHz – 2483.5 MHz: 19.88 dBm (EIRP)

5150 MHz – 5250 MHz: 17.51 dBm (EIRP)

5150-5350MHz for Only indoor use

5470-5725MHz for indoor/outdoor use

Restrictions In AZE

National restrictions information is provided below

Frequency Band	Country	Remark
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5150-5350MHz	Azerbaijan	No license needed if used indoor and power not exceeding 30mW
5470-5725MHz		

Hereby, TSC Auto ID Technology Co., Ltd. declares that the radio equipment type [Wi-Fi] IEEE 802.11 a/b/g/n is in compliance with Directive 2014/53/EU

The full text of the EU declaration of conformity is available at the following internet address: [http:// www.tscprinters.com](http://www.tscprinters.com)

RF exposure warning (Wi-Fi)

This equipment must be installed and operated in accordance with provided instructions and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be providing with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

SAR Value: 0.736 W/公斤

RF exposure warning (For Bluetooth)

The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment.

The equipment must not be co-located or operating in conjunction with any other antenna or transmitter.

Canada, Industry Canada (IC) Notices

This Class B digital apparatus complies with Canadian ICES-003 and RSS-210.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Radio Frequency (RF) Exposure Information

The radiated output power of the Wireless Device is below the Industry Canada (IC) radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

This device has been evaluated for and shown compliant with the IC Specific Absorption Rate (“SAR”) limits when installed in

specific host products operated in portable exposure conditions. **(For Wi-Fi)**

This device has also been evaluated and shown compliant with the IC RF Exposure limits under portable exposure conditions. (Antennas are less than 20 cm of a person's body). **(For Bluetooth)**

Canada, avis de l'Industry Canada (IC)

Cet appareil numérique de classe B est conforme aux normes canadiennes ICES-003 et RSS-210.

Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toute interférence, nota 毫米 ent les interférences qui peuvent affecter son fonctionnement.

Informations concernant l'exposition aux fréquences radio (RF)

La puissance de sortie émise par l'appareil sans fil est inférieure à la limite d'exposition aux fréquences radio de l'Industry Canada (IC). Utilisez l'appareil sans fil de façon à minimiser les contacts humains lors du fonctionnement normal.

Ce périphérique a été évalué et démontré conforme aux limites SAR (Specific Absorption Rate – Taux d'absorption spécifique) par l'IC lorsqu'il est connecté à des dispositifs hôtes spécifiques opérant dans des conditions d'utilisation mobile. **(Pour le Wi-Fi)**

Ce périphérique a également été évalué et démontré conforme aux limites d'exposition radio-fréquence par l'IC pour des utilisations par des opérateurs mobiles (les antennes sont à moins de 20 cm du corps d'une personne). **(Pour le Bluetooth)**

NCC 警語:

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。(即低功率電波輻射性電機管理辦法第十二條)

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。(即低功率電波輻射性電機管理辦法第十四條)

限用物質含有情況標示聲明書/ Declaration of the Presence Condition of the Restricted Substances Marking

設備名稱：熱轉式/熱感式條碼印表機 / Barcode Printer 主型號： PEX-2000-6 系列型號	
Equipment name	Type designation (Type)
單元Unit	限用物質及其化學符號 Restricted substances and its chemical symbols
	鉛Lead (Pb) 汞Mercury (Hg) 鎘Cadmium (Cd) 六價鉻 Hexavalent chromium (Cr ⁺⁶) 多溴聯苯 Polybrominated biphenyls (PBB) 多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
內外塑膠件	○ ○ ○ ○ ○ ○
內外鐵件	- ○ ○ ○ ○ ○
滾輪	○ ○ ○ ○ ○ ○
電路板	- ○ ○ ○ ○ ○
晶片電阻	- ○ ○ ○ ○ ○
積層陶瓷表面黏著電容	○ ○ ○ ○ ○ ○
集成電路-IC	- ○ ○ ○ ○ ○
電源供應器	○ ○ ○ ○ ○ ○
印字頭	- ○ ○ ○ ○ ○
插座	- ○ ○ ○ ○ ○
線材	- ○ ○ ○ ○ ○

備考1. “超出0.1 wt %” 及 “超出0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值。
 Note 1 : “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.

備考2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。
 Note 2 : “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.

備考3. “-” 係指該項限用物質為排除項目。
 Note 3 : The “-” indicates that the restricted substance corresponds to the exemption.

Revision History

Date	Content	Editor
2023/01/06	First Release for the 6-inch models.	Camille Pao
2023/05/09	<ul style="list-style-type: none"> • Added 4-inch models' specifications into the "Product Specification" section from page 4 to 7. • Added "MFi Bluetooth 5.0" into the "Product Specification" section on page 7. • Added "Ribbon Saver mode" on page 6 and 7. • Added the "Loading Media in Ribbon Saver Mode" section on page 29 and 30. • Added "Display Orientation" and "Ribbon Saver" in the "Advanced" section on page 81 and 82. 	Peter Yao
2023/05/22	Added the Ribbon Saver message screen on page 30.	Peter Yao
2023/08/24	Added the Ribbon Saver Function (Optional) section from page 123 to 128.	Peter Yao
2023/12/01	<ul style="list-style-type: none"> • Modified the default setting for the print speed function, page 54. • Removed Chapter 7 RFID Setting Commands. You may refer to the TSPL/TSPL2 Programming Manual when configuring the RFID function for your printer. You can download the manual from TSC website: https://www.tscprinters.com. 	Peter Yao
2025/07/08	<ul style="list-style-type: none"> • Added liability statements, page I to II. • Added "rMQR code" to the supported 2D barcode types. 	Peter Yao
2025/07/30	Updated CCC information.	Peter Yao
2025/10/30	Updated the Media Pull-in/pull out force info. on "Product Specification" section	Camille Pao
2025/11/05	<ul style="list-style-type: none"> • Added RED information to the "TSC Console" chapter. • Added RED information to the "Advanced" section. 	Peter Yao



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