TMP User Manual
Version 2.0
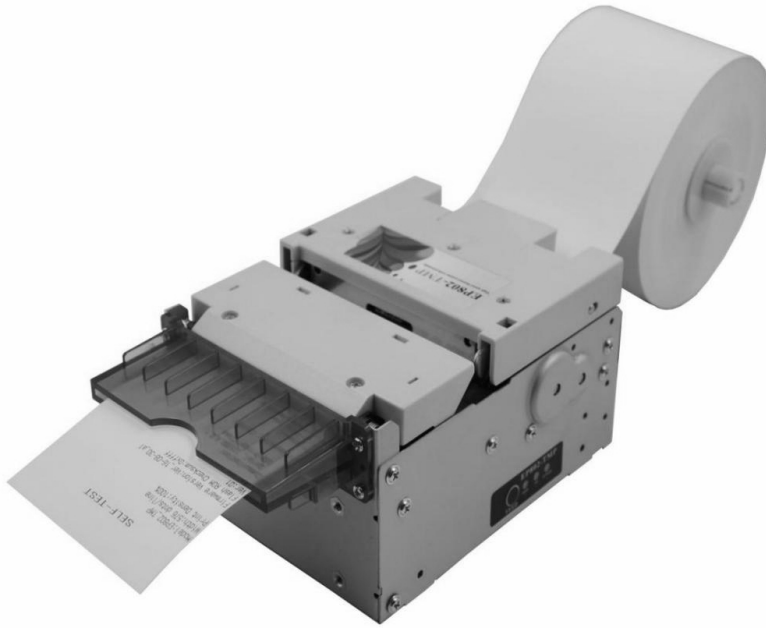
<mark>Change history</mark>

Rev V1.0 Initial release   Date: 26th April 2017
Rev v2.0 add "paper guide" part   Date: 12th JAN 2018

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Introduction

TMP is a fully integrated Kiosk Printer suitable for all your Kiosk, Gaming, Sports Betting & Parking terminal printing requirements. With a high maximum print speed of 250 mm per second, it has the benefit of fitting in smaller cabinet spaces where it provides an Easy paper roll replacement and rear paper feed with auto load and cut feature. Configurable Ticket Retract option allowing for secure and clean ticket handling for

specific requirements. A clean paper path ensuring reliable ticket presentation and delivery. Serial and USB Communication options standard in every printer, with a isolator power switch for easier and safe maintenance.

Key Features

- Fully integrated printer mechanism, presenter and PCB architecture
- Varying ticket lengths – to meet Sports Betting requirements.
- Independent Full-cut auto-cutter module
- Maximum Print Speed of 250mm per second.
- Resolution 203 dpi - 8 dots/mm.
- Special print scalable to 8x with reverse, underscore, italic, and bold print
- 48/64 characters per line for 80 mm paper width (12*24/9*17)
- Ticket with Face-up printing
- ASCII character encoding
- Ladder and fence barcode printing supporting UPC-A, UPC-E, EAN13, EAN8, Code39, ITF, CODABAR, Code93, Code 128, Code31
- Serial RS232C and USB interfaces built into main controller PCB
- Selectable baud rates
- Windows & Linux Driver Support
- 4 MB minimum flash memory and 64KB RAM (extensible 256kB RAM)

- EPSON emulation
- Power: 24 VDC
- Paper Out, Paper Cover-Open, Paper Low, Top-Of-Form, Jam Detection, Transport Ticket Taken, Head Temperature, and Ticket Retract sensors
- Ticket retract feature
- Power and error LED(s)
- Paper feed button
- Easy paper feed/loading with auto-cut
- Portrait or landscape mode
- Paper width Options: 80mm and 82.5mm
- RoHS Compliant
- Bezel assembly with LEDs (Colour Options available – subject to agreement)
- Universal paper roll spindle (80.0mm & 82.5mm.)
- Printer head easily accessed for quick and easy maintenance.
- Paper roll bracket to handle larger paper rolls

Options:

- 80mm paper guides
- Larger core spindle sleeve
- Front/Top Paper roll loading - kit
- Standard 3 way PSU/Serial/USB cable set
- Optional PSU/Serial or PSU/USB cable set (left or right)
- Yellow knob
- Paper roll holder
- LED bezel
- DC24V/2.5A power adaptor (with power cord)

Barcodes

The Following barcodes are available with the TMP printer.

Barcodes supported are as follows:UPC-A/UPC-E/EAN-8/EAN-13 CODE39/INTERLEAVED 25/(ITF)/CODEBAR/CODE93/CODE128/PDF417/QR CODE

Ticket length and Transport looping

As ticket lengths are variable in many applications, like Sports Betting, our recommendation is to ensure that any long ticket length printed and buffered/looped between the print mechanism and the presenter the paper in the loop should not be allowed to interfere with any part of the cabinet interior, parts or cabling, that would unduly cause the paper to be restricted from its normal path and movement during printing.

Minimum Ticket length

With an integrated presenter, it requires that the tickets have a minimum length. This is determined by the distance between the cutter and the presenter and the length of the bezel. The minimum ticket length that can be printed is 82 mm.

Ticket Retract Feature

The TMP has the option to retract and drop/dispose the ticket below the printer. This feature may be activated by command or enabled/disabled by configuration.

General Specifications

Dimensions
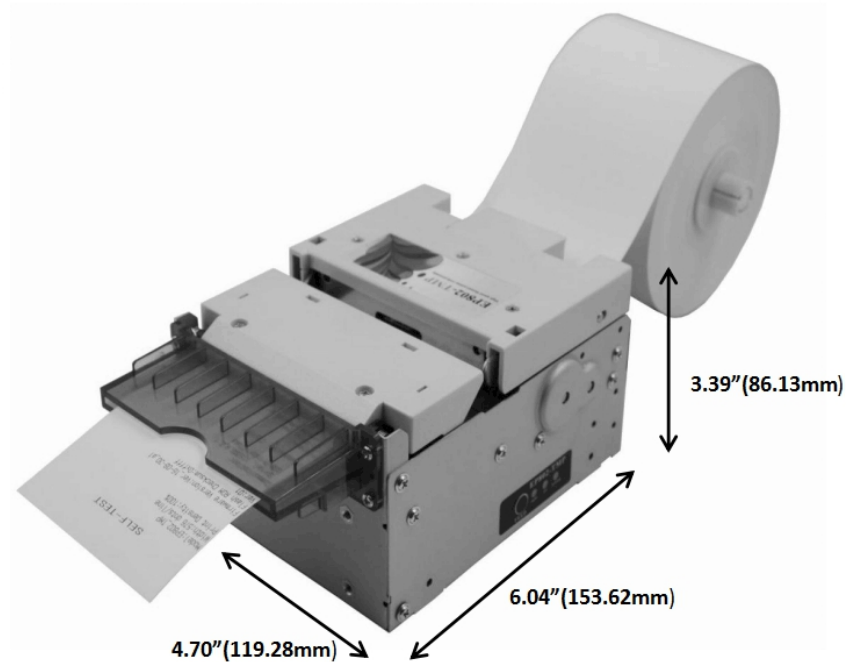
	Width	Depth	Height
General Dimensions	119.28mm	153.62mm	86.13mm
Drawings Available On request	2-D and 3-D		

Fully assembled as single unit

Design Envelope: Ticket Clearance
A minimum paper clearance distance of 2.36" (60mm) is required about the printer. Dimensions of the paper support depend on the specific configuration and are not included here.

Weight

Approximate 1.49kg (without paper roll)

Interface type

Bi-directional serial RS-232 and USB standard

Printer type

80 mm Thermal dot line

Printer Environmental Conditions

Operating Temperature Range: -10º - 60ºC (14ºF - 140ºF)
Shipping/Storage Temperature Range: -20º - 70ºC (-4ºF - 158ºF)
Operating Humidity Range: 20% - 80% non-condensing
Shipping/Storage Humidity Range: 10%-90%non-condensing

Reliability

Printer Life: 15,000,000 print lines

Print Head Life: Minimum 100Km.

Cutter Life: 1,000,000 cuts (Lower Grade 55gsm)

AC Power Requirements

90-264VAC at 47-63 Hz.

DC Power Requirements

Thermal Head printers require higher peak currents determined by the number of print elements are used and how often. Generally, the higher the print density the higher the current requirement. High density printing increases peak load on the power supply. These high peak currents can cause power supplies in extreme cases to shut down. Selecting the correct power source/supply will ensure the correct operation of the printer.

A suitable power supply for the TMP could have a wattage rating of 48 watts but unless it can provide peak currents of 3.2 amps (76.8 watts) and maintain 24VDC output, it will not function as expected.

Voltage under line, load and environmental conditions	24V DC ±10%
Typical Load current	0A min 1.5A continuous 3.2 A Peak Note: this load current does not include the optional bezel drive requirement
Over voltage protection	None (standard input : DC24V±10%）

Printer Ground Requirements

Adequate frame ground is expected to be used for this printer to meet ESD immunity standards. Printer installation mounting is normal to a metal chassis with the system "frame" or "safety" ground. In other cases, a sufficient separate ground strap is expected to be provided and connected to the printer main metal using a suitable low impedance, this is the responsibility of the integrator.

left vision(looking at the back of the printer

Right vision (looking at the back of the printer)
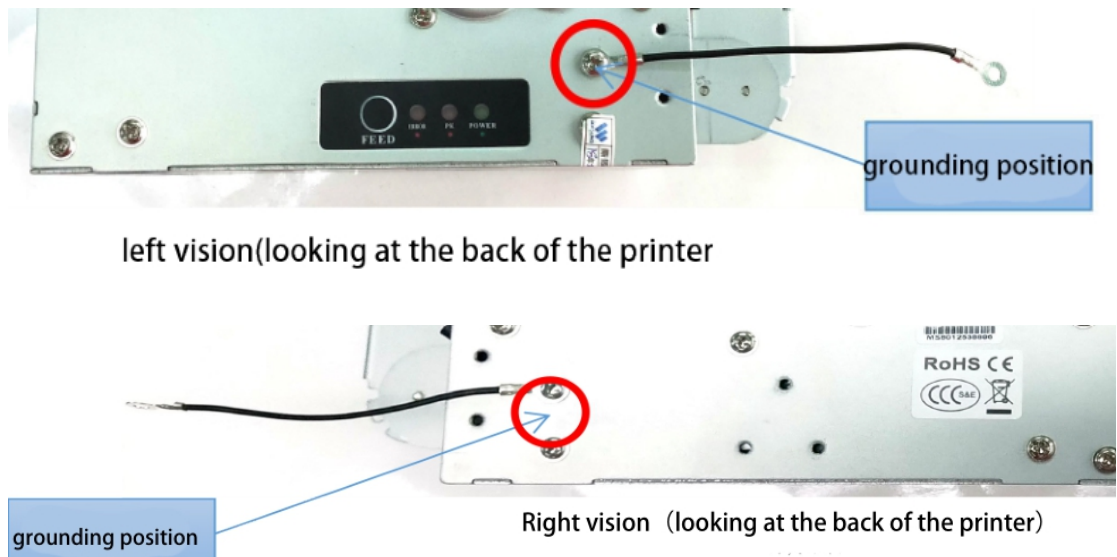
Power Supply Connection

① Ensure that the printer power switch is in the "off" position before connecting or disconnecting the power supply. (Please verify the input voltage and make sure it is within the specified range).

② If the power supply is correct, you can connect the printer to the power supply.

③ Turn printer power switch (back of printer) on.

④ Printer will initialize and Green LED light will be Steady "On"

⑤ If this fails please switch power off immediately and check all connections and power supply unit.

Note：Always turn off printer power switch when connecting the printer to the power supply.

Technical Specifications

These technical specifications are reference to TMP printing module

Module		TMP	
Control board		02_3	
Printing	Printing method	Thermal dot line	
	Dots	640dots	
	Speed	250mm/s	
	Printing width	80mm (max)	
	Paper loading	Easy loading (horizontal 180°)	
	Cutting method	Full	
	Print head life	100KM	
	Printing format	inverse、underline、italic、bold	
	Cutter life	60μm paper	1,000,000 cuts
		200μm paper	750,000 cuts
	Baud rate	9600、19200、38400、115200	
Font	ASCII	9*17、12*24	
	Chinese	24*24dots	
Detection	TPH temperature	Temperature sensor	
	Mechanism open detection	Micro switch	
	Paper presence detection	Mechanical sensor	
	Ticket out detection		
	Paper low detection	Photo-interrupter	
	Black mark detection		
	Paper cutting detection		
	Paper retracting detection		
Conditions	Power supply	DC24±10% V	
	Load current	1.5A continuous 61mA Standby 3.2 A Peak	
	Interfaces	RS232、USB 2.0	
	Paper roll	Paper type	Thermal paper roll

		Paper width	79.5±0.5 mm(3.13±0.02 inches) Or 82.0±0.5 mm(3.23±0.02 inches)
		Roll diameter	160 mm (6.2 ")
		Paper thickness	0.06~0.2 mm (0.002 ~0.007 inches)
		Recommended paper type	KANZAN KF50 KP460 MITSUBISHIPG5075 TL4000
Environment	operating temperature		-10~60℃（no condensation）
	operating humidity		20%~80%RH（40℃,85%RH）
	Storage temperature		-20~70℃（no condensation）
	Storage humidity		10%~90%RH（50℃,90%RH）
Dimension	Paper holder 45° upward （150mm paper roll)		L*W*H=328*122.3*163 mm
	Paper holder horizontal (150 mm paper roll)		L*W*H=355*122.3*288 mm
	Paper roll vertical (150 mm paper roll)		L*W*H=196*122.3*288 mm
	Weight		Approx 1.49kg(without paper roll）

Auto cutter position

Cutter type: guillotine

Media width: 82.5 mm

Media thickness range: 0.06~0.2 mm

Cutter life: 1,000,000 cuts（Lower grade - 55gsm)

Cut time: >500 milliseconds

Paper out
A ticket out sensor is provided as a standard. Approx 5 inches length of paper is left

Printer Interfaces
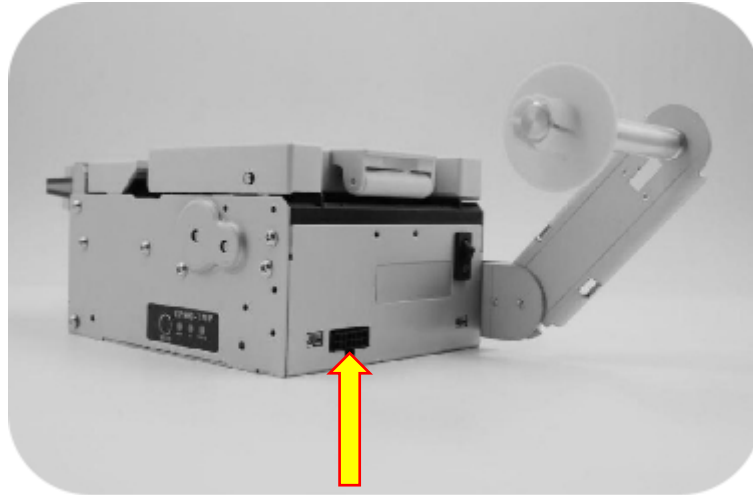
Pin Out (power supply+ RS-232C)	Definition
1、2	+24V(DC)
3、7	GND
5	TXD
6	RXD
8	DTR
4	NC

Pins(power supply+USB)	Definition
1、2	+24V(DC)
3、11	GND
9	DATA-
10	DATA+
12	VCC(USB)
4	NC

RS-232C connector interface
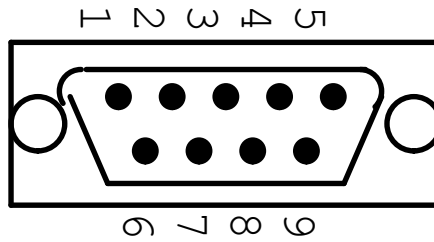
EPRINTER RS-232C cable for printer is full cross cable, pins are defined as below:

Pins	Definition
2	RXD
3	TXD
4、7	DTR
5	GND
1、6、8、9	NC

USB connector interface

Standard USB port support USB2.0. Printer cannot be powered through USB port .
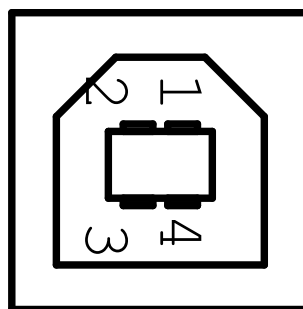
USB interfaces	Definition
1	VCC(+5V)
2	DATA-
3	DATA+
4	GND

Power supply port
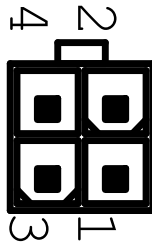
Pins	Definition
1	24V(DC)
2	GND
3	GND
4	NC

Kiosk Terminal power connector standard reference, as below

Power connector

Housing — Molex, 4 Position Mini-Fit Jr, p/n: 39-01-2040
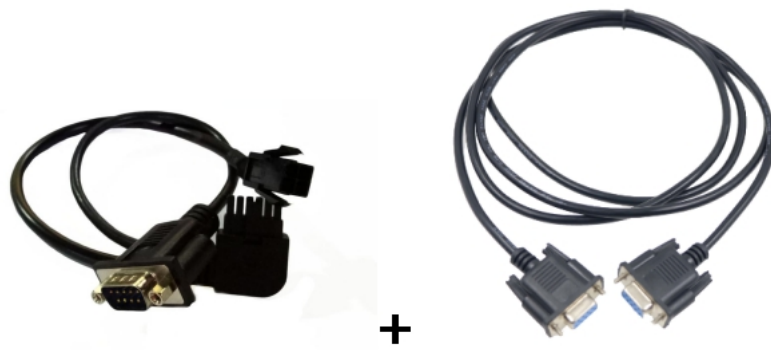Terminal — pin, 18-24 AWG, Molex p/n: 39-00-0059
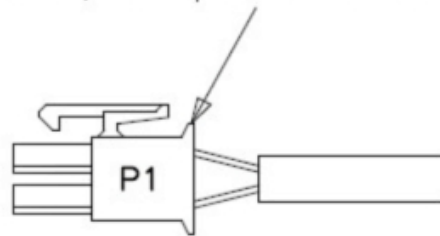
Terminal power connector picture
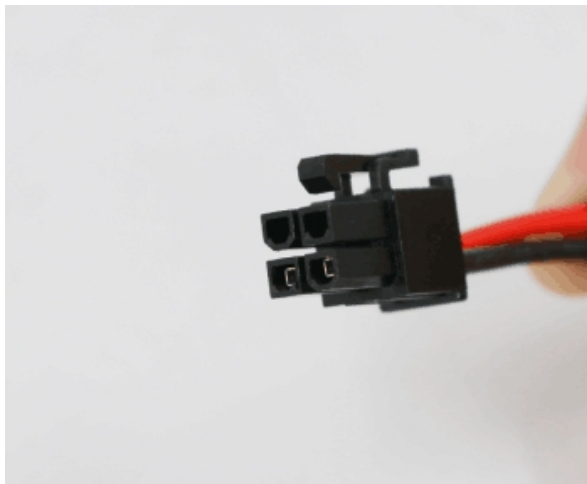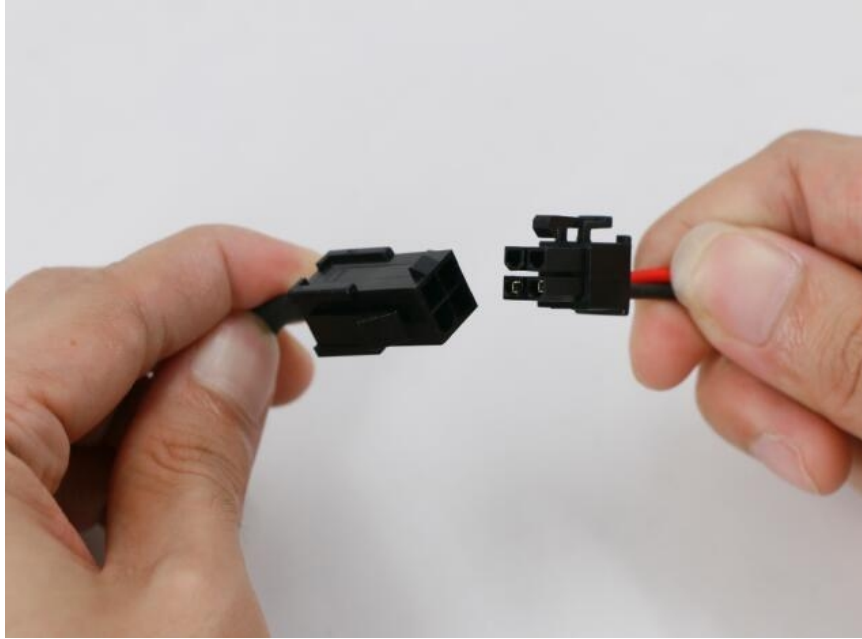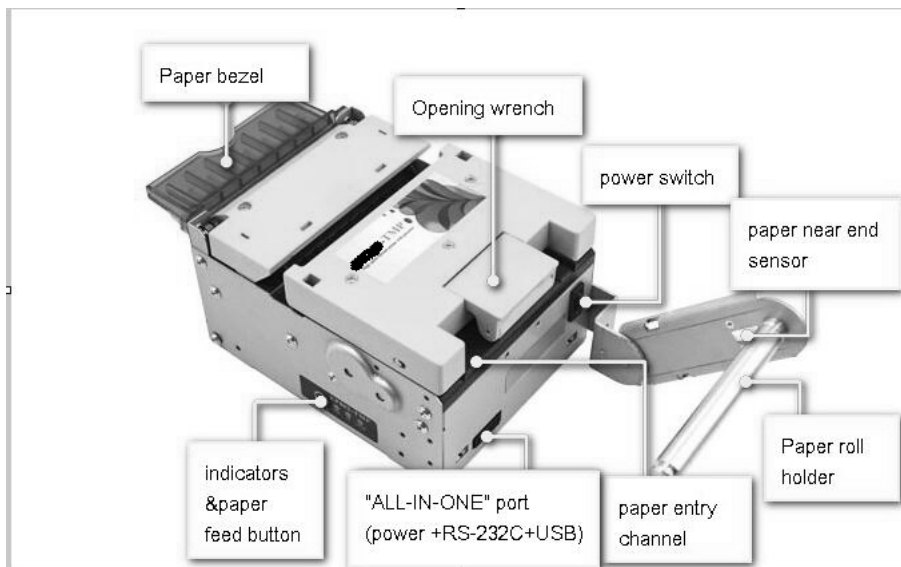
Note: Optional 2-way Connector cables available.

 +

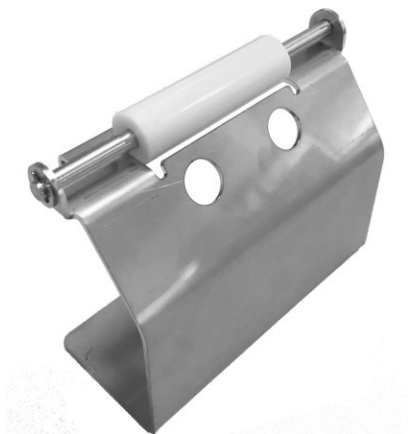**Option 1:** 2-Way Connector Cable – Power & RS-232C

Option 2: 2-Way Connector Cable – Power & USB
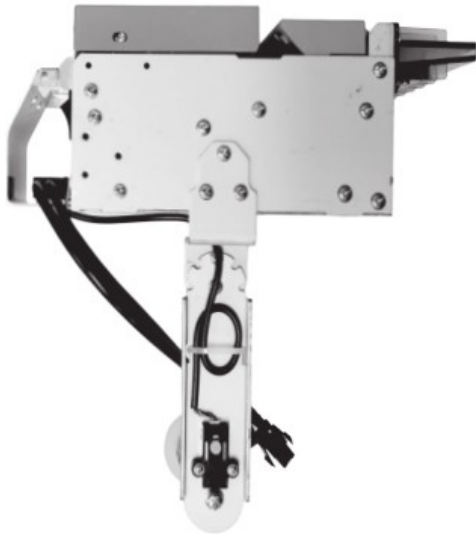
Printer Component Diagram

Optional part: paper guide

Notice: this part is designed for that user installed printer paper roll holder

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LED Indicators

There are three indicators showing printer status:

ERROR	PE	Status
off	off	Normal
off	on	Paper near end ; Paper at the ticket out position; Paper jam
off	flash	Paper end
on	off	Printer mechanism open
flash	off	Black mark error; Cutter error
flash	flash	Power supply voltage incorrect
on	on	Off-line; Mechanism is over temperature; Mechanism is not

		connected well .
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Self test

Printing Self-Test Ticket:

① Load paper into printer and turn power off. Press paper feed button and hold for 5 seconds and turn on printer power again. Printer will go with "self-test page" as below picture. (notice: please press button with suitable force)
② Please send command "**1D 28 41 02 00 00 02**" for self-test. Set the next line as a starting position after the printing.

Self-Test page is as below：

```
            SELF_TEST

Model:          TMP
Width:576 dots/line
Print Density:130%


Firmware Version:Ver_17-02-14_a1
Flash ROM Checksum:0xffff
Ver:01

Communication:
    serial,115200,N,8,1
    USB:Printer Class

Handshaking  CTS/RTS

Peripheral:
Auto Cutter:yes
Auto Loading Paper:yes

Exterm ROM:2M Bytes
Style:GB18030
ASCII Font Size : 9*17 & 12*24

Print Speed Choose:
MAX 250mm/S

Paper near end:
 DISENABLE

Anti-paper jam system:
 DISENABLE

Black Mark:
 DISENABLE

Presenter unit working modes:
 Retracting function:ENABLE
    Discharge ticket when setting time is over
    Presenter setting  waiting time : 6 Second



         ***completed***
```

Paper Width Adjustment

Paper width can be adjusted to accommodate different paper roll widths.
(80 mm and 82.5 mm) by using "paper guide".
Opening wrench upward and put the paper guide slides into the channel.
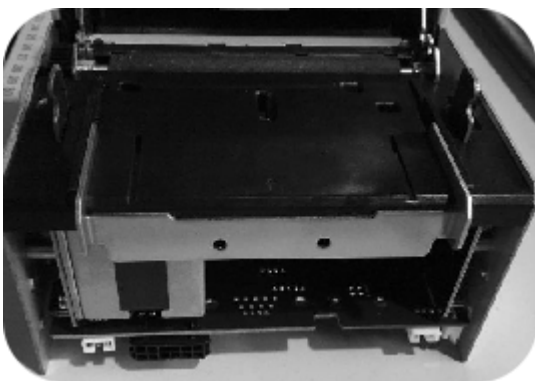Please ensure correct fit when inserting the guide.
(notice: please contact manufacturer to get different kit for suiting different paper width application)
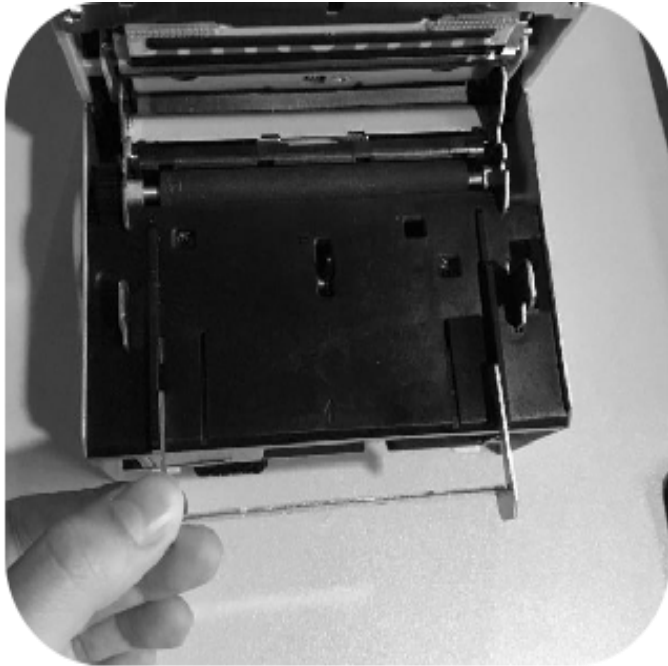
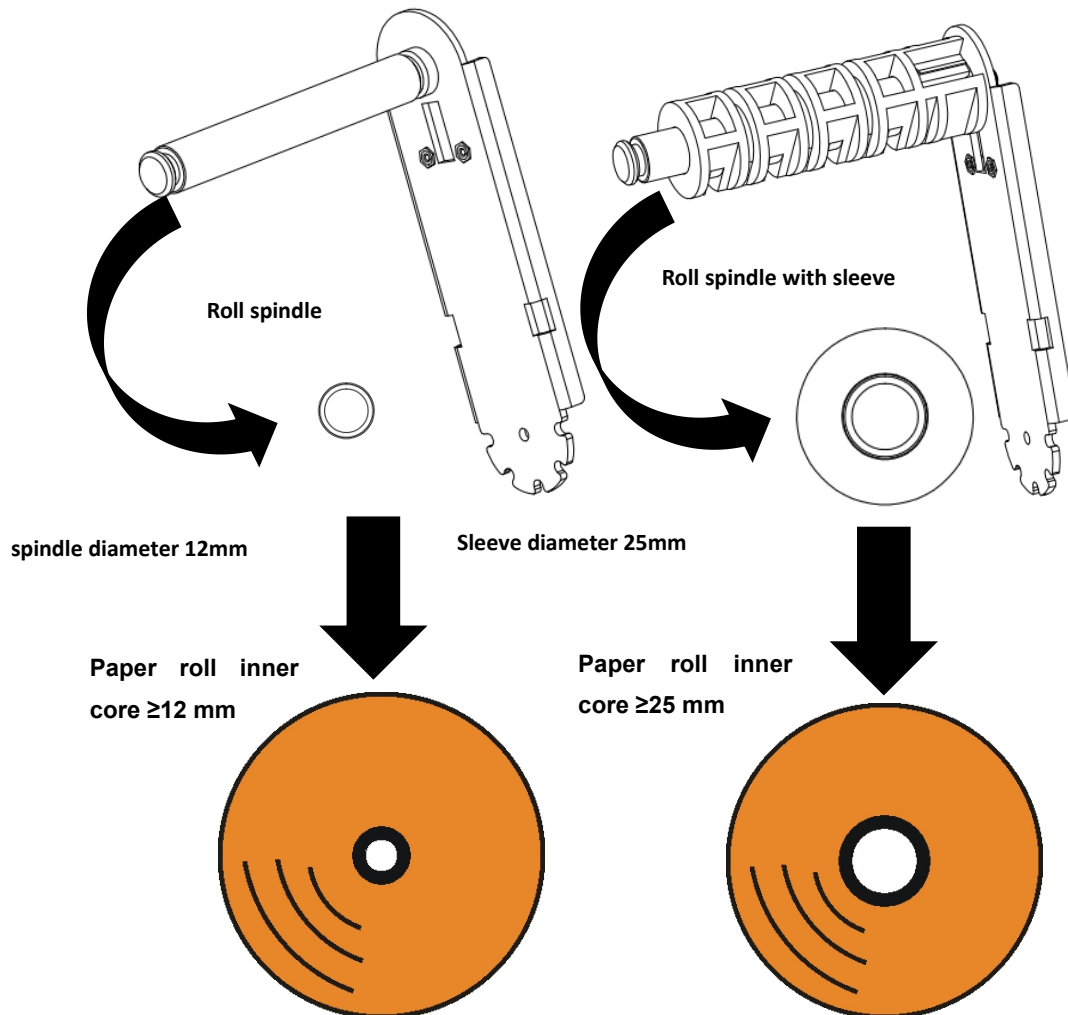1. Without paper guide : user can use 82.5mm width paper

2. with 80mm paper guide: user can use 80mm width paper

Loading Paper Roll

TMP printer uses thermal paper rolls, the internal diameter of the rolls may differ,

please verify if you require using standard spindle or require the sleeve. This is determined by the paper roll core dimensions.

Roll spindle

Roll spindle with sleeve

spindle diameter 12mm

Sleeve diameter 25mm

Paper roll inner core ≥12 mm

Paper roll inner core ≥25 mm

Paper loading

⑴ Before inserting paper, make sure its edge is clean, as below:

⑵ Insert thermal paper into the paper entry channel until paper printer starts automatically to load/feed the paper.

thermal coating upward

Paper feed direction

Ticket out
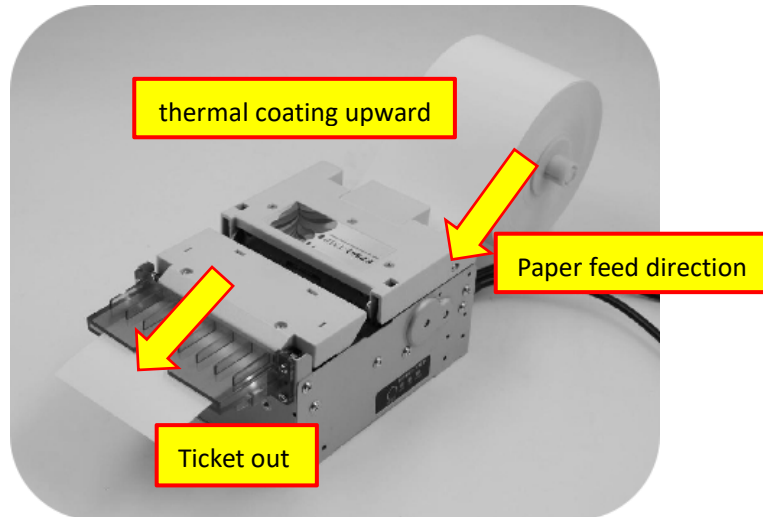
⑶ **Ticket will be presented**

Printer Maintenance

Open the main cover and blow out all the paper dust on a regular basis, based on usage at least every 6 months.
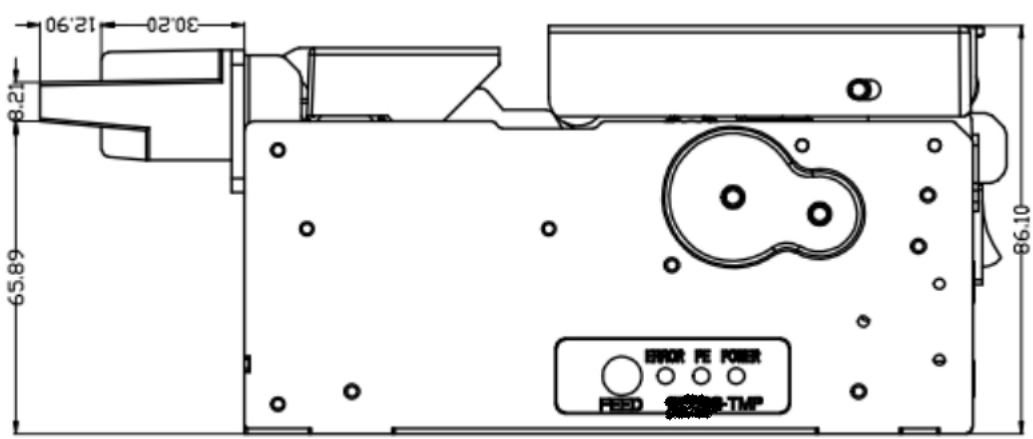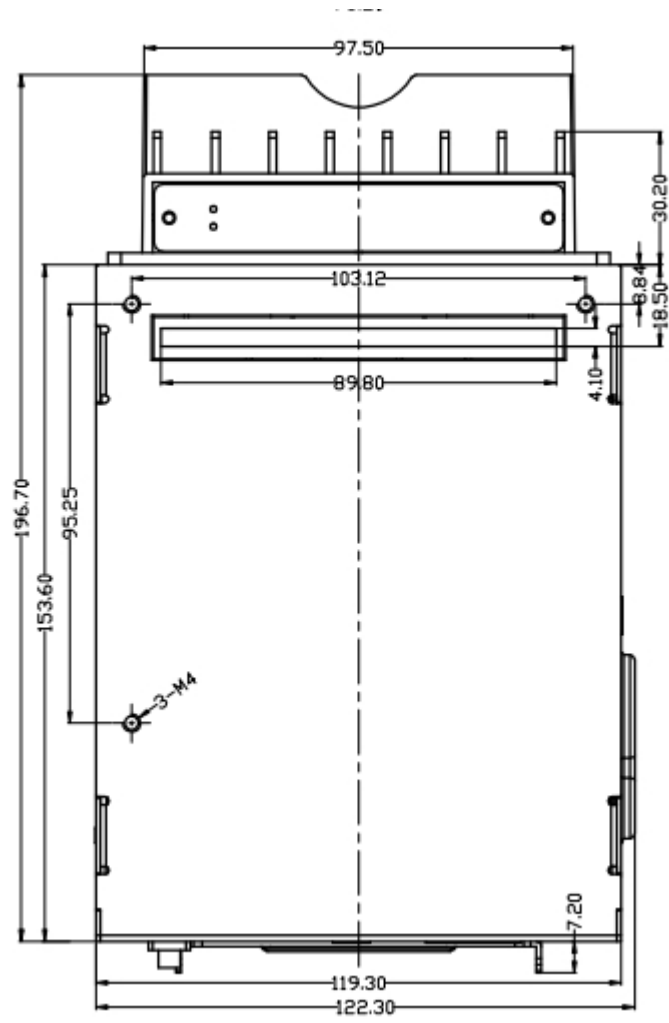Clean the print head with an approved alcohol or solution using a soft cloth.
Avoid touching the head with fingers or any hard item likely to scratch.
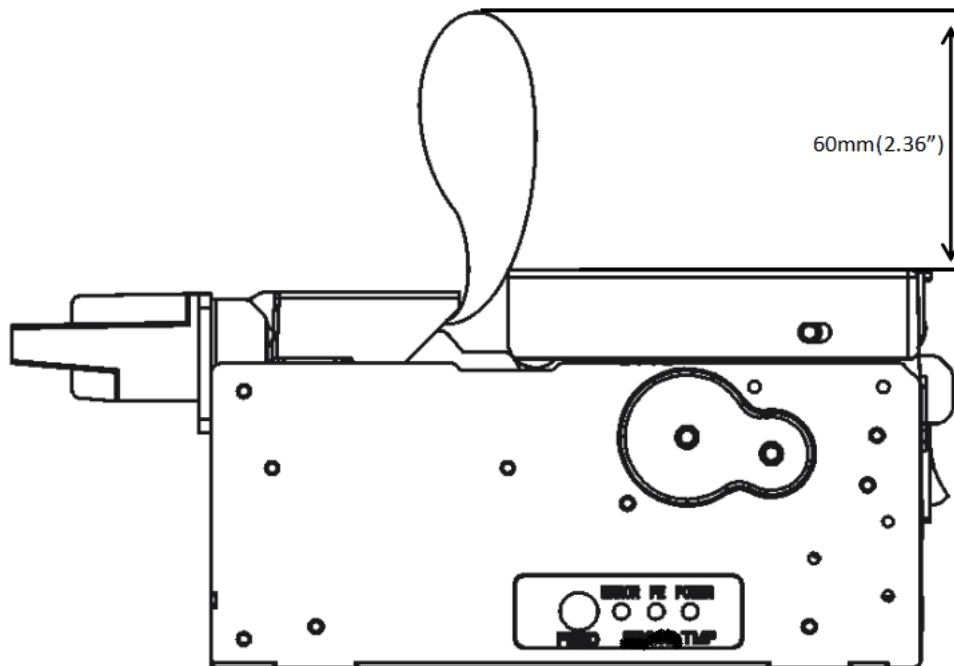All paper debris should be removed carefully without the use of a screw driver.

Mounting Requirements
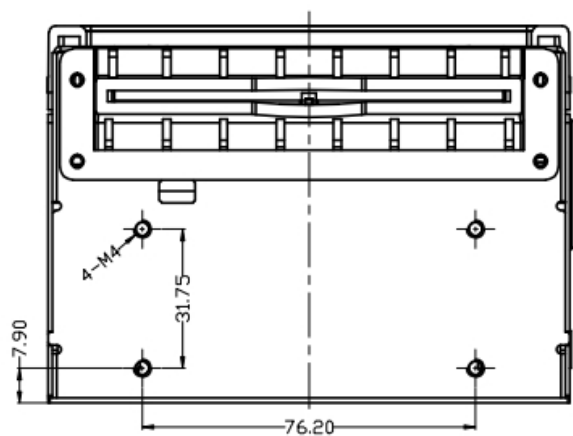
Consideration must be given to accommodate the "ticket loop" within the cabinet design.

Prevent the paper from touching any part of the cabinet or parts or cabling.
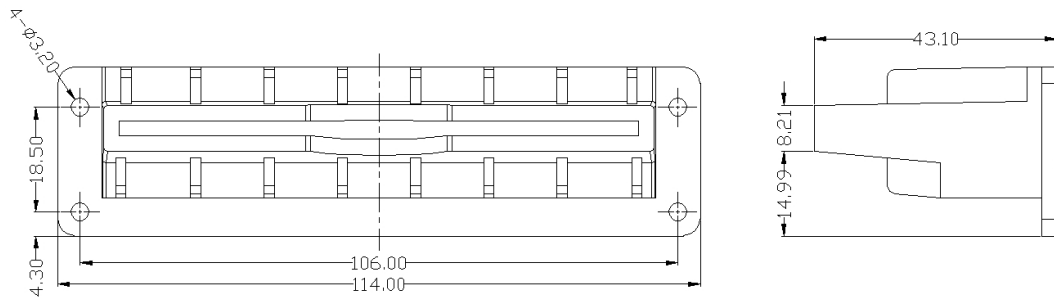

60mm(2.36")

Bezel Mounting

TMP printers are designed to accommodate a bezel assembly that is mounted following the hardware and mounting dimensions shown. Drawings show the positioning and dimensions of the TMP bezel's mounting points.

Front:
2 x M3 x 0.5 screws and interface with custom bezel.
(bezel view as below)

The bezel LED working mode :

| Printer is power off	LED off
Printer is ready	illuminating
Ticket is held on bezel or ticket taken sensor broken	Slow flashing
Ticket is blocked in bezel	Fast flashing

Note: if the kiosk usage environment has strong light exposuring. It's better to choose this dark black bezel. Because strong light directly radiates to printer bezel. It will influence the sensors normal functions in bezel.
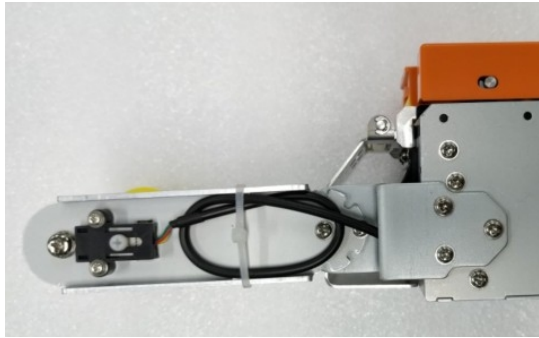
Paper roll holder installation

The TMP spindle assembly can be mounted in one of five locations on the left side of the printer or one of four locations on the control panel side.

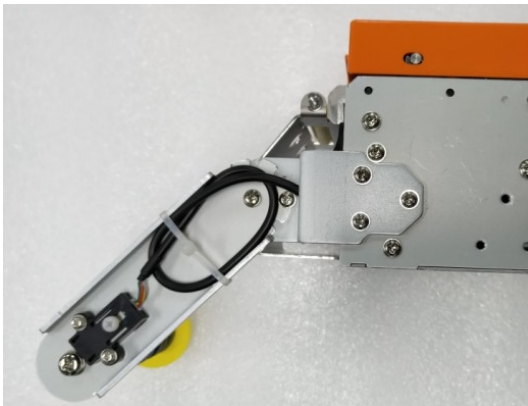The following figures show typical mounting locations and cable dressing options.
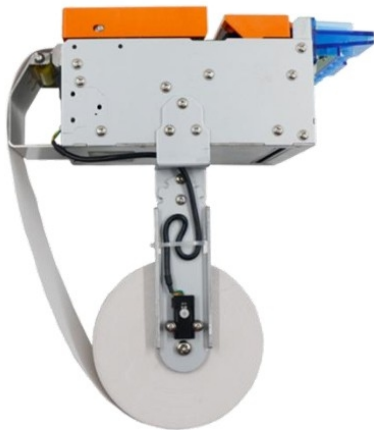
45˚ Upward Mounting
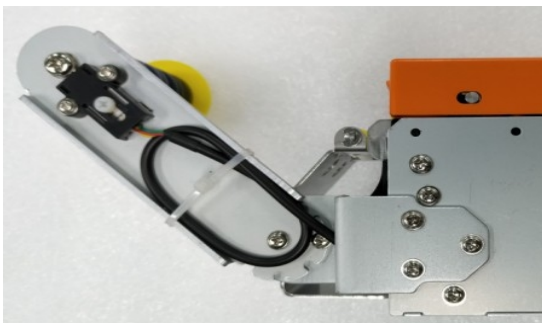
Horizontal Mounting
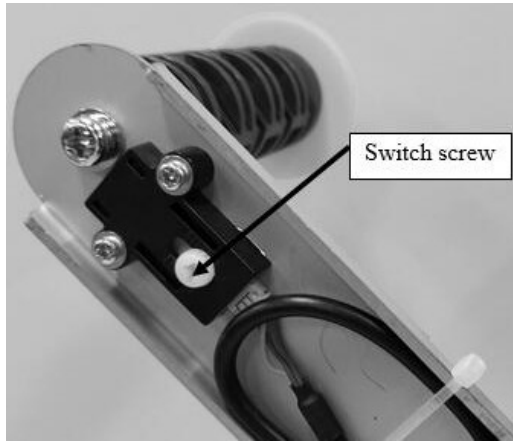
45° Downward Mounting

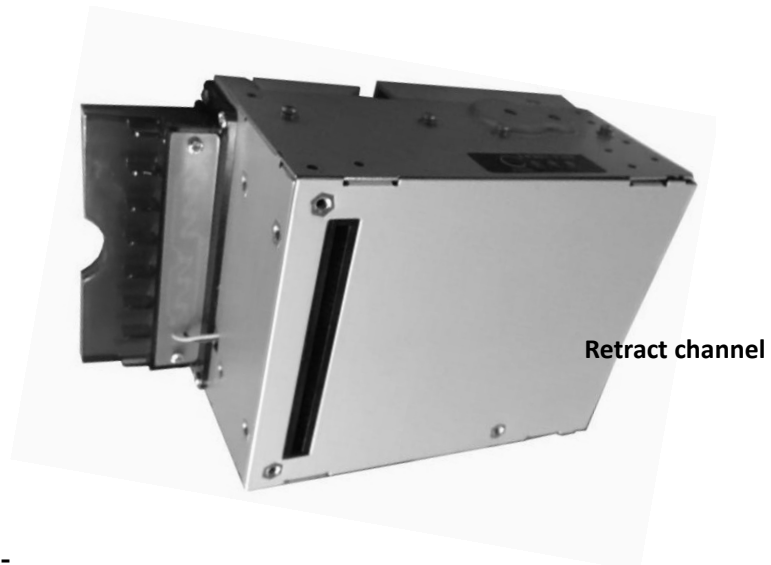Downward Vertical Mounting

Paper low adjustment

To adjust the paper low switch, loosen the switch screw and slide the switch to the desired position and then tighten the screw
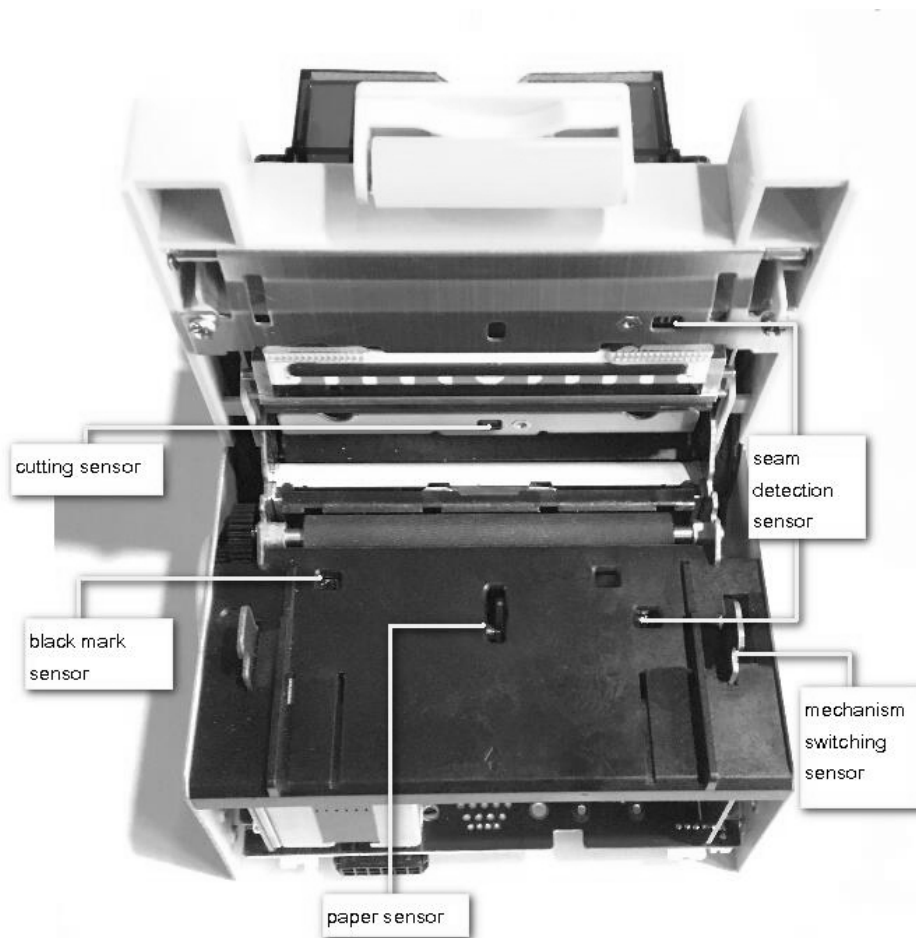
Switch screw

Retract Aperture

If using the retract feature please ensure there is adequate space for the tickets to be collected:

Retract channel

-
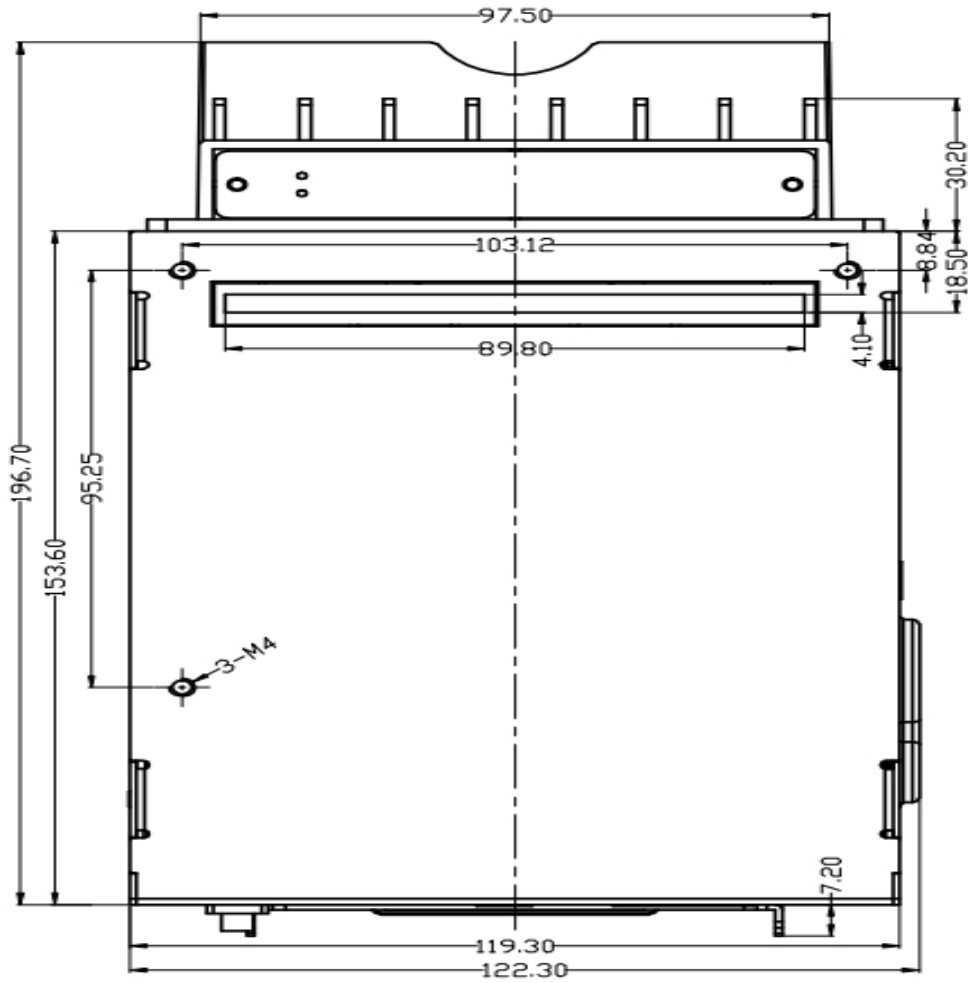
Printer Sensors

TMP comes with a full range of sensors to get printer status and send status information to host.The sensors' positions are shown as following :

- **Paper entry sensor:**

  Paper entry sensor is used to detect whether there is paper in printer mechanism

- **Mechanism switch:**

  When printer mechanism is closed well, the sensor is activated. When mechanism is open, the printer goes off-line.

- **Black mark sensor:**

  Black-mark sensing has a black mark on thermal paper, and the printer searches for the black bar to determine when to stop feeding paper, printing and cutting. The position of black bar just as following A&B shown. (A is for 80 mm or 82.5 mm paper width ;B is for 60 mm paper width.(note: black mark can't be printed on thermal coating side)

CUTTING POSITION

STARTING PRINTING POSTITION

22.70 mm
12.80 mm
2.50 mm

A

PAPER FEED DIRECTION

CUTTING POSITION

STARTING PRINTING POSITION

B

2.50 mm
12.80 mm
22.70 mm

PAPER FEED DIRECTION
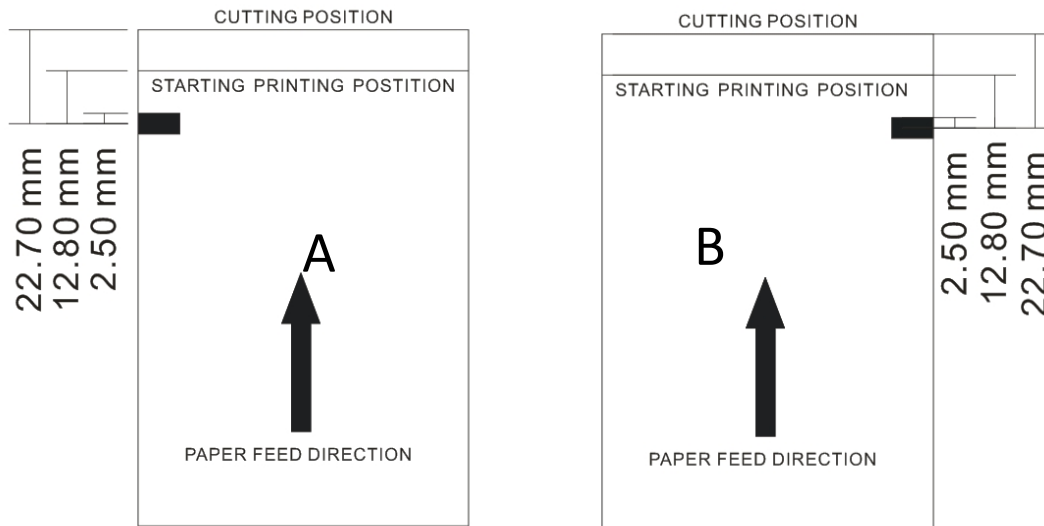
- ● Seam detection sensors:

Seam detection sensors are inserted feed path and can detect the paper gap to decide when to stop printing. (those sensors will be used for label paper and fan-fold ticket, below are paper sample)
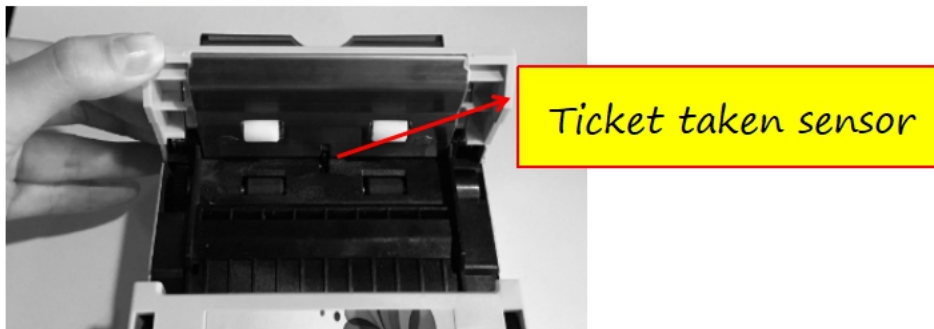
Label paper:

Fan-fold ticket:

● **Cutting sensor**

Cutting sensor is used to detect paper status before and after cutting. On normally, the receipt goes forward and out of paper bezel after cutting .But if there is paper jam or other errors ,the sensor can detect the wrong status sending to host and printer stops printing .

Ticket taken sensor

● **Ticket taken sensor** :

   The sensor detects whether ticket is taken away or not by terminal user

● **Receipt retracting sensor** :

    Receipt retracting sensor can detect whether retraction operation is finished.

● **Paper low sensor**

Paper end sensor is used for detecting whether the paper roll is sufficient. The PE red indicator will lighten on if the paper is near end. (note: this sensor can be adjusted for adapting different size paper roll)
moreover, there are two paper near end sensor ports ,left one and right one ,which brings more options for paper roll installation.

paper low sensor

Switch screw

Paper low sensor ports
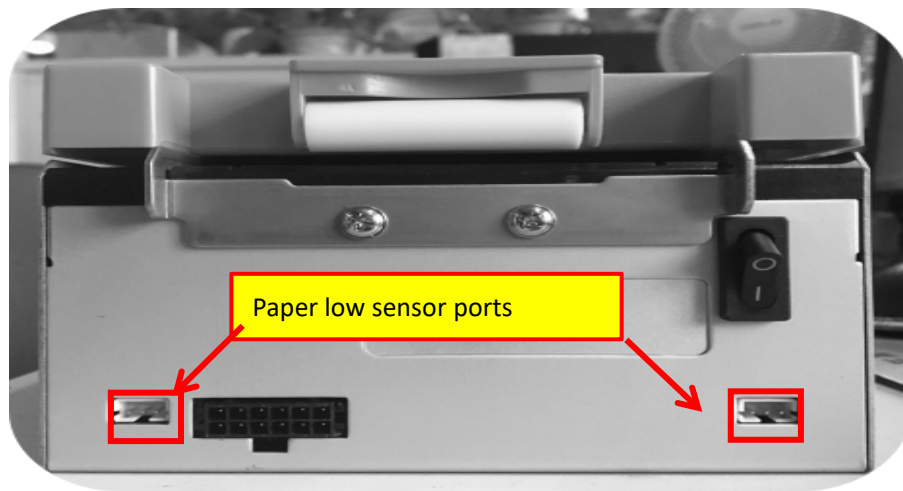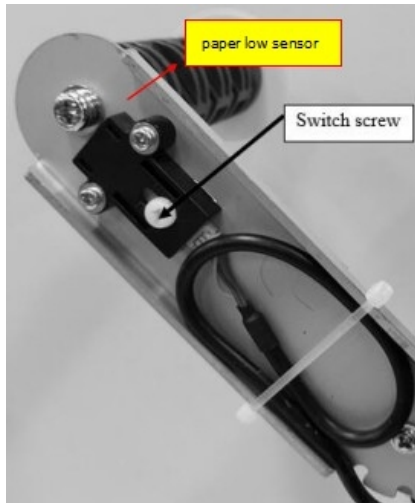
Electrical Connections

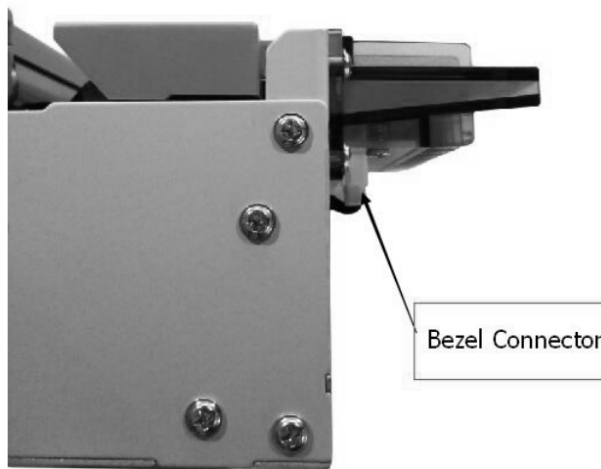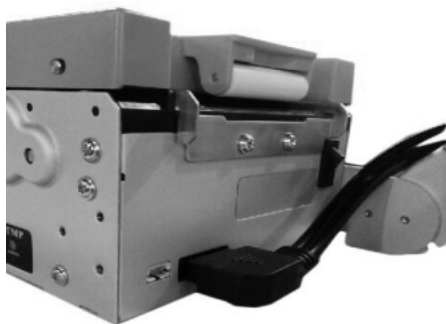## Communication interfaces

USB and RS-232 are supplied through interface connections at the rear of the printer, as illustrated in below. The Serial RS-232 + USB+ power interface connector are integrated as a locking Molex connector ,as shown.
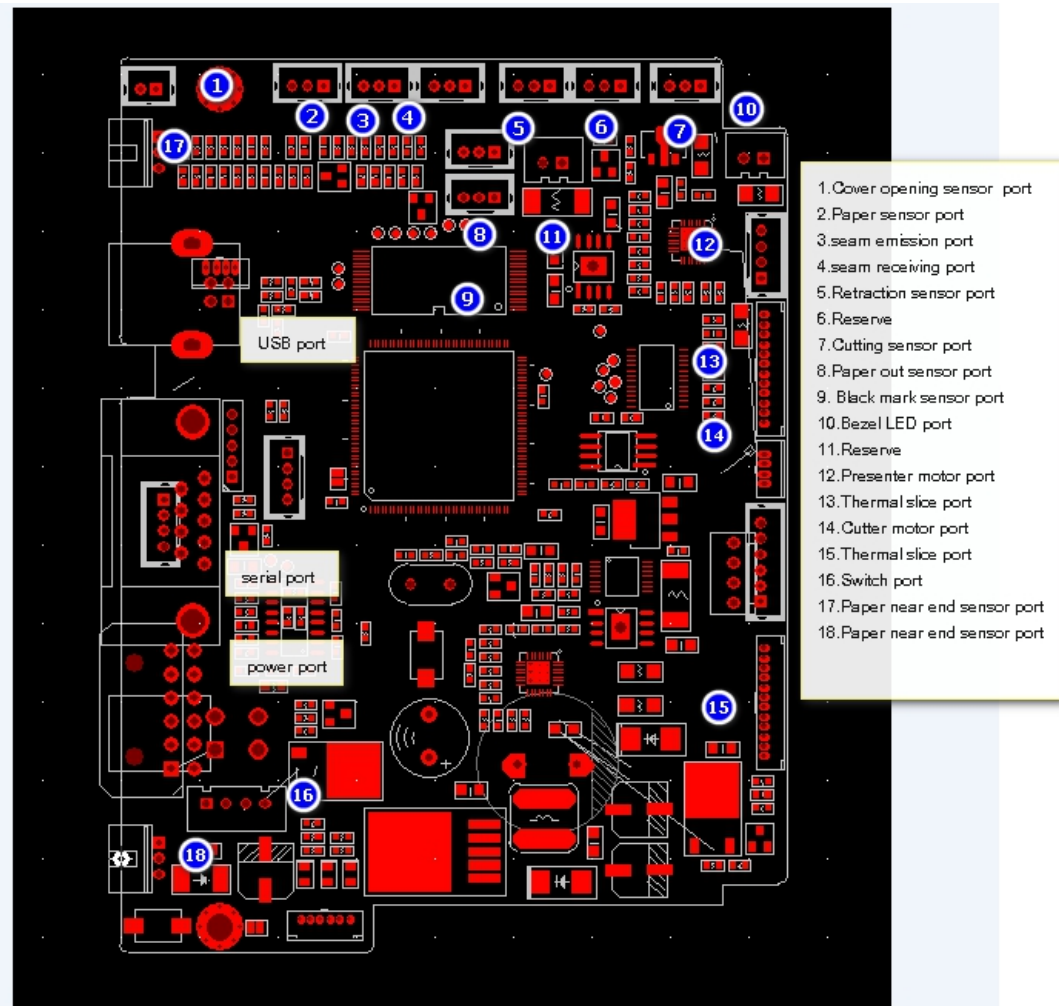
Bezel connector

Bezel Connector

Cable Connection Locations

Printer Schematic Diagram

1. Cover opening sensor port
2. Paper sensor port
3. seam emission port
4. seam receiving port
5. Retraction sensor port
6. Reserve
7. Cutting sensor port
8. Paper out sensor port
9. Black mark sensor port
10. Bezel LED port
11. Reserve
12. Presenter motor port
13. Thermal slice port
14. Cutter motor port
15. Thermal slice port
16. Switch port
17. Paper near end sensor port
18. Paper near end sensor port

USB port

serial port

power port

General Safety Information :

❖ Before cleaning the printer ,user should disconnect the power supply.

❖ Clean the printer with a damp cloth .Do not use liquid or spray products .

❖ Do not operate the printer near water .

❖ During the integration of printer, we strongly warn to keep adequate paper loop outlet underneath the presenter ,in order to allow the receipt being properly printed out .

❖ Only use the printer on flat surface and in environments that guarantee proper ventilation.

❖ Make sure the printer is placed in such a way as to avoid damage to its wiring .

❖ Do not spill liquids onto the printer .

❖ Do not input voltage incorrect .

❖ Use the specific type of electrical power supply.please contact your retailer If there is

any doubt.

❖ Do not disassemble or modify printers.

Precautions for user

❖ Use of thermal paper supplied or recommended by manufacturer, or it will affect the printing quality and the printer mechanism using life, even damage the printer head TPH.

❖ Ensure all sizes (width ,ID ,OD)of thermal paper roll within the allowable limitation of range .Or paper cannot go smoothly and straightly.

❖ Do not use tough materials to clean the printer head or cutter.

❖ Do not touch the printer mechanism or motor as soon as the printer just finishes printing work .

❖ The friction between the paper and roller is big .Do not feed paper when no paper in printer mechanism.

❖ Clean the printer mechanism with pure alcohol regularly.

❖ Clean the dust on printer regularly if the printer used outdoor environment .So that we can get the accurate and valid status of printer .

Transportation and Storage

❖ Do not use printer on unstable platform that might cause it to fall and seriously damaged.

❖ The printer may be damaged if falling.

❖ Keep its storage environments in dry and clean.

❖ Do not put heavy products on it .

❖ Do not stand on it.

❖ Please disconnected power if the printer is not used for some time .