User's Guide

APR430

Thermal Label Printer

METTLER TOLEDO

APR430 Thermal Label Printer

METTLER TOLEDO Service

Essential Services for Dependable Performance of Your APR430 Thermal Label Printer

Congratulations on choosing the quality and precision of METTLER TOLEDO. Proper use of your new equipment according to this Manual and regular calibration and maintenance by our factory-trained service team ensures dependable and accurate operation, protecting your investment. Contact us about a service agreement tailored to your needs and budget. Further information is available at www.mt.com/service.

There are several important ways to ensure you maximize the performance of your investment:

1. Register your product: We invite you to register your product at www.mt.com/productregistration so we can contact you about enhancements, updates and important notifications concerning your product.
2. Contact METTLER TOLEDO for service: The value of a measurement is proportional to its accuracy – an out of specification scale can diminish quality, reduce profits and increase liability. Timely service from METTLER TOLEDO will ensure accuracy and optimize uptime and equipment life.

   Installation, Configuration, Integration and Training: Our service representatives are factory-trained, weighing equipment experts. We make certain that your weighing equipment is ready for production in a cost effective and timely fashion and that personnel are trained for success.

Safety Information

Only use the device according to this manual. If you do not use the device according to these documents or if the device is modified, the safety of the device may be impaired and Mettler-Toledo GmbH assumes no liability.

General Precautions

- Use the device in accordance with this manual.
- The device is intended for indoor use only.
- Any other type of use is considered as not intended.

Misuse

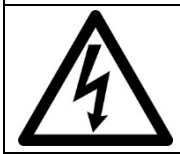
- Do not use the device other than for printing operations.
- Do not use the device in hazardous environments.
- Do not modify the device.
- Do not use the device beyond the limits of the technical specifications.

Safety Notes

- Ensure that the power socket outlet of the device is earthed and easily accessible, so that it can be deenergized rapidly in emergencies.
- Ensure that the supply voltage at the installation site lies within the range of 100-240 V.
- Ensure that there is a space of at least 3 cm (1.25") at the rear in order to prevent the power cable from being bent too strongly.
- Check the power cable regularly for damage. If it is damaged, immediately disconnect the device from the power supply.

Warnings and Cautions

- READ this manual BEFORE operating or servicing this equipment and FOLLOW these instructions carefully.
- SAVE this manual for future reference.

	**⚠ CAUTION**
	EQUIPMENT IS INTENDED FOR INSTALLATION IN RESTRICTED ACCESS LOCATION. ONLY INSTRUCTED PERSONS AND SKILLED PERSONS SHOULD BE ALLOWED TO INSTALL, REPLACE, OR SERVICE THIS EQUIPMENT.
	**⚠ CAUTION**
	MAKE SURE THE PRINTER IS OFF BEFORE PLUGGING THE POWER CONNECTOR INTO THE POWER JACK.
	**⚠ CAUTION**
	CHECK VOLTAGE OF POWER SOURCE BEFORE CONNECTING EQUIPMENT. USE OF A SURGE PROTECTOR IS RECOMMENDED.
	**⚠ CAUTION**
	PRINTER HAS HOT PARTS. TO AVOID BURNED FINGERS, WAIT 30 MINUTES AFTER SWITCHING OFF BEFORE HANDLING PARTS.
	**⚠ CAUTION**
	ONLY USE WITH THE DESIGNATED POWER SUPPLY ADAPTER MODEL.
	**⚠ CAUTION**
	AVOID GETTING LIQUID ON THE EQUIPMENT.
	***NOTICE***
	OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

Disposal of Electrical and Electronic Equipment

In conformance with the European Directive 2012/19/EC on Waste Electrical and Electronic Equipment (WEEE) this device may not be disposed of in domestic waste. This also applies to countries outside the EU, per their specific requirements.

Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.

If you have any questions, please contact the responsible authority or the distributor from which you purchased this device.

Should this device be passed on to other parties (for private or professional use), the content of this regulation must also be related.

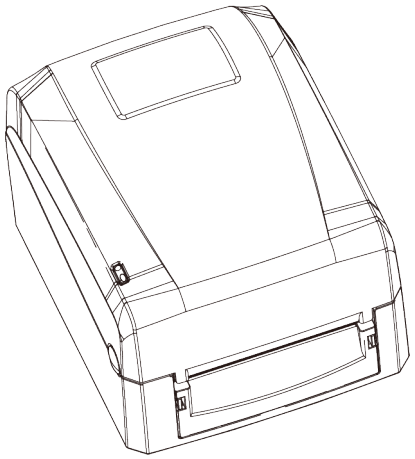
Thank you for your contribution to environmental protection.

Contents

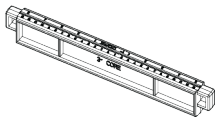
1 Introduction

1.1. Box Contents

Printer

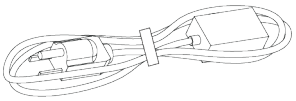


Label Supply Module – Label Supply Hub

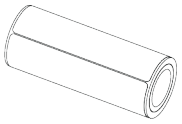


Ribbon Module – Empty Ribbon Core

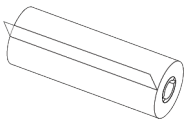
Power Adapter Power Cord



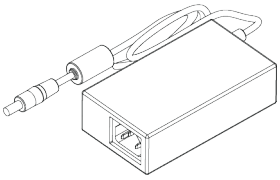
Label Stock



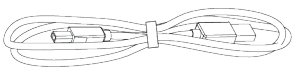
Ribbon



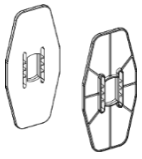
AC Adapter



USB Cable



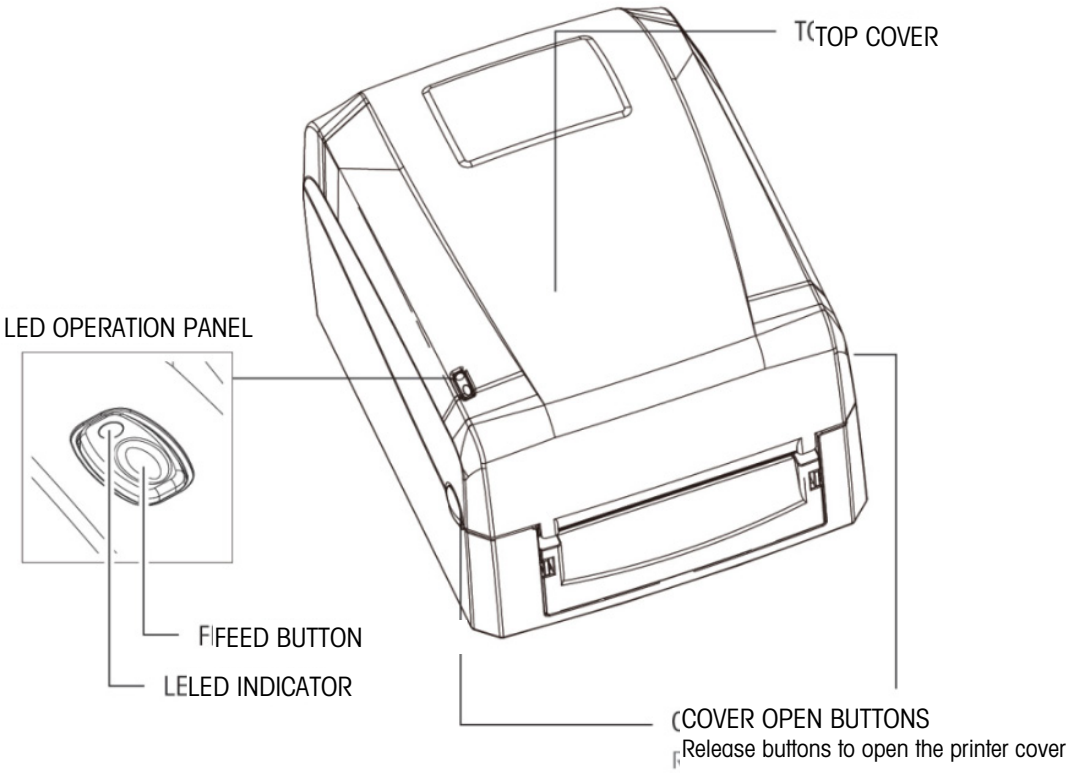
Label Stopper Plate



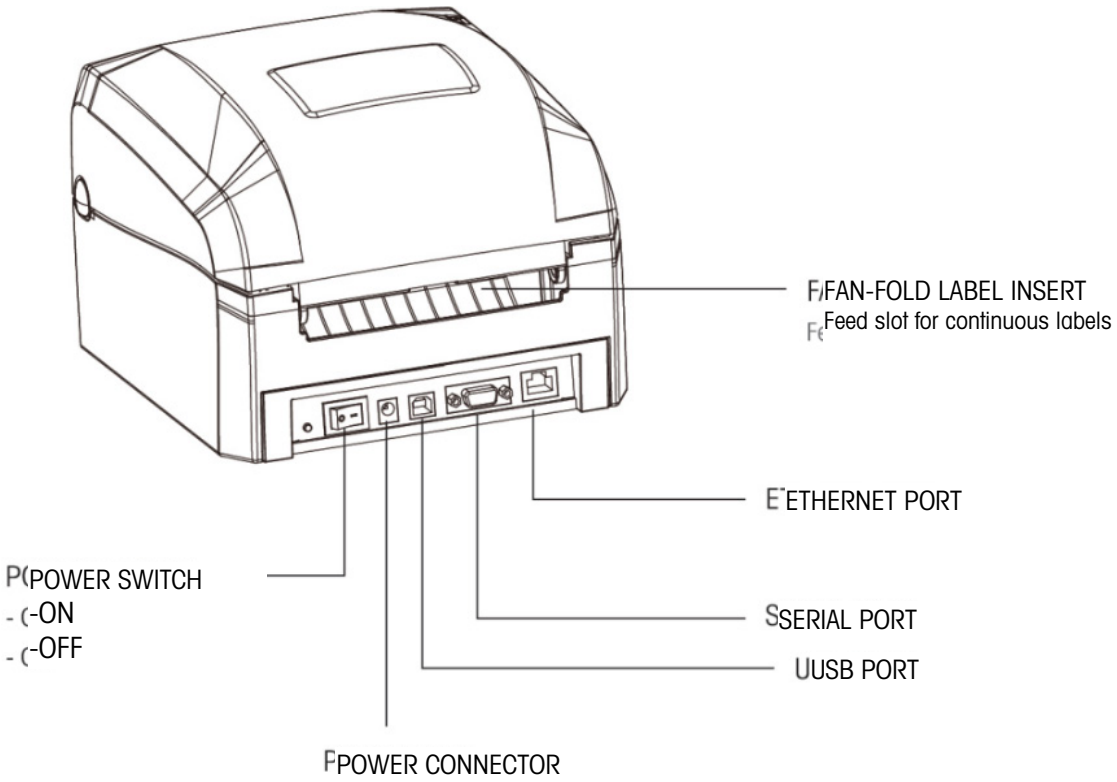
APR430 Quick Start Guide

1.2. Printer Overview

1.2.1. Front View



1.2.2. Rear View



2 Setup

2.1. Opening the Printer Cover

To open the printer cover:

1. Place the printer on a flat surface.
2. Press the two buttons indicated in Figure 2-1.

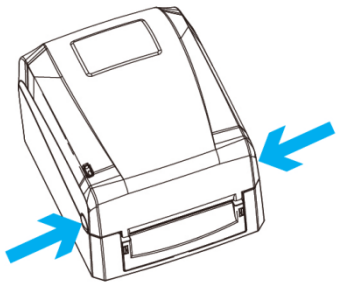


Figure 2-1: Cover Release Buttons

3. Lift the printer cover.

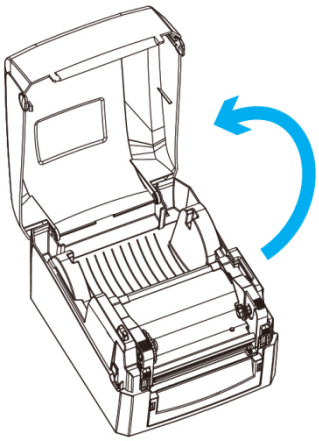


Figure 2-2: Lifting the Cover

2.2. Opening the Printing Mechanism

With the cover open, open the printing mechanism as follows:

1. Press up on the latches indicated in Figure 2-3.

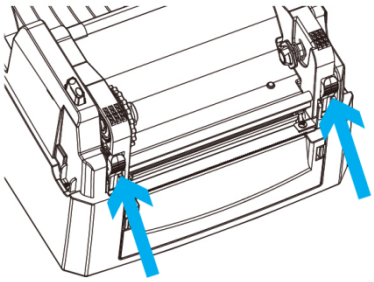


Figure 2-3: Print Mechanism Release Latches

2. Lift the printing mechanism.

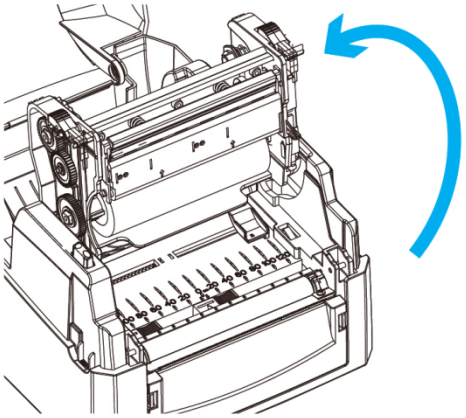


Figure 2-4: Lifting the Printing Mechanism

2.3. Loading the Ribbon

To install a new ribbon module:

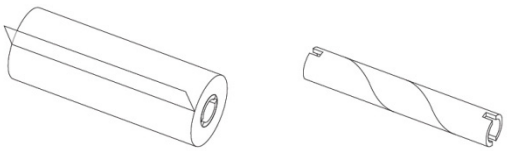


Figure 2-5: New Ribbon and Empty Ribbon Core

1. Adhere the ribbon to the ribbon core using the adhesive strip at the end of the ribbon. Note the notch at the ends of the ribbon core.

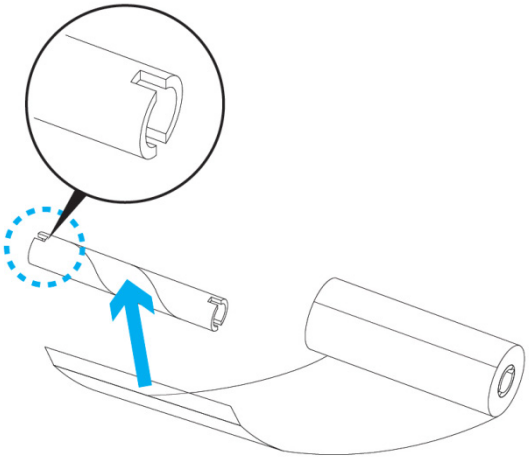


Figure 2-6: Attaching Ribbon to Ribbon Core

2. Wind the ribbon two or three turns around the core.

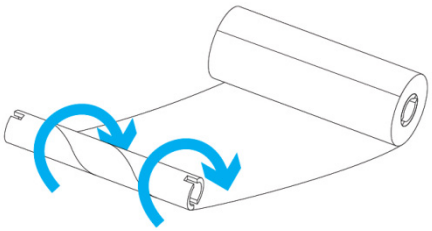


Figure 2-7: Winding the Ribbon Around the Ribbon Core

3. The new ribbon module is now ready.

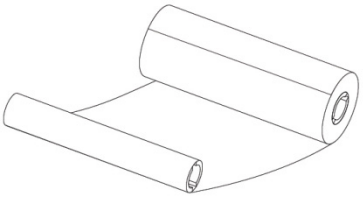


Figure 2-8: Completed Ribbon Module

2.4. Printer Setup

2.4.1. Loading the Ribbon

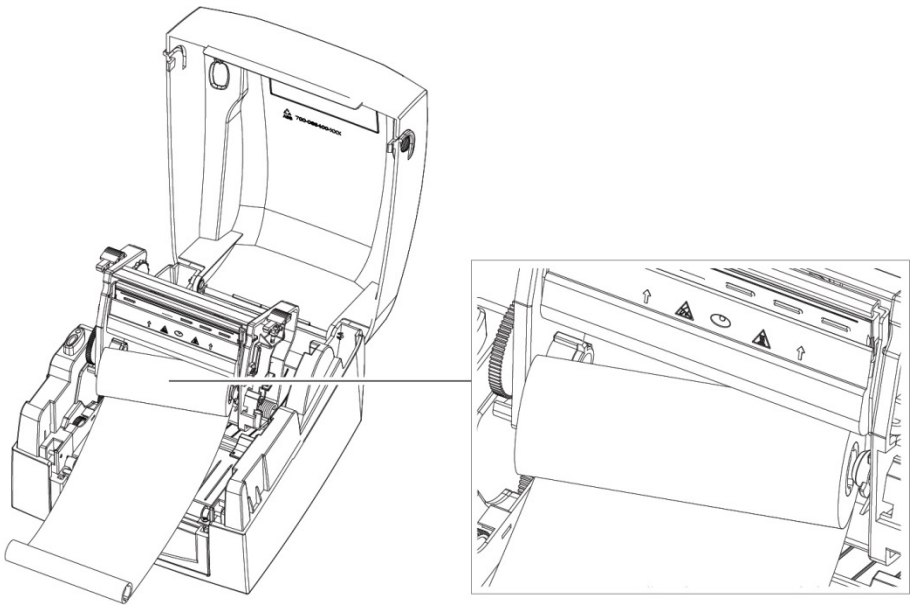


Figure 2-9: Positioning the Ribbon Supply Module

1. Position the right side of the ribbon supply module first.

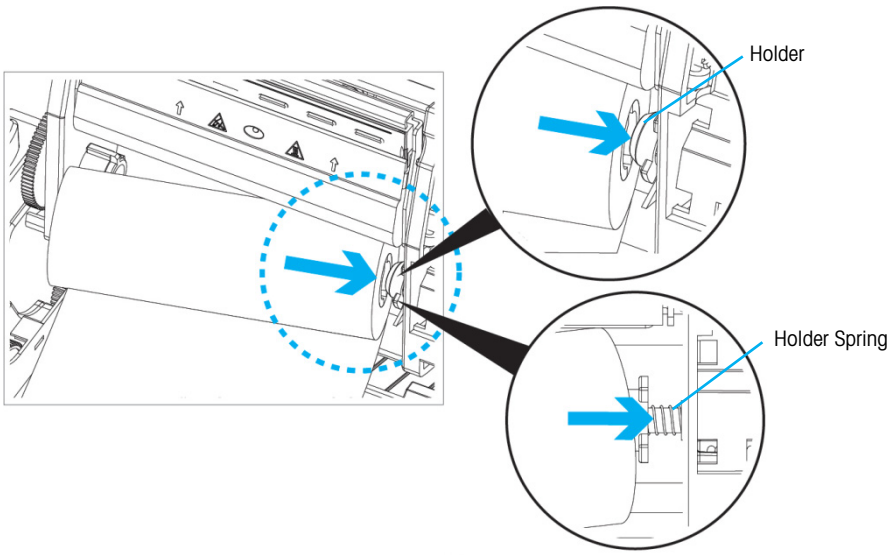


Figure 2-10: Aligning Ribbon Core to Right Side Holder

2. Position the left side of the ribbon supply module, aligning the notch of the ribbon core to the spoke indicated in Figure 2-11. If necessary, rotate the gear to align the spoke to the notch.

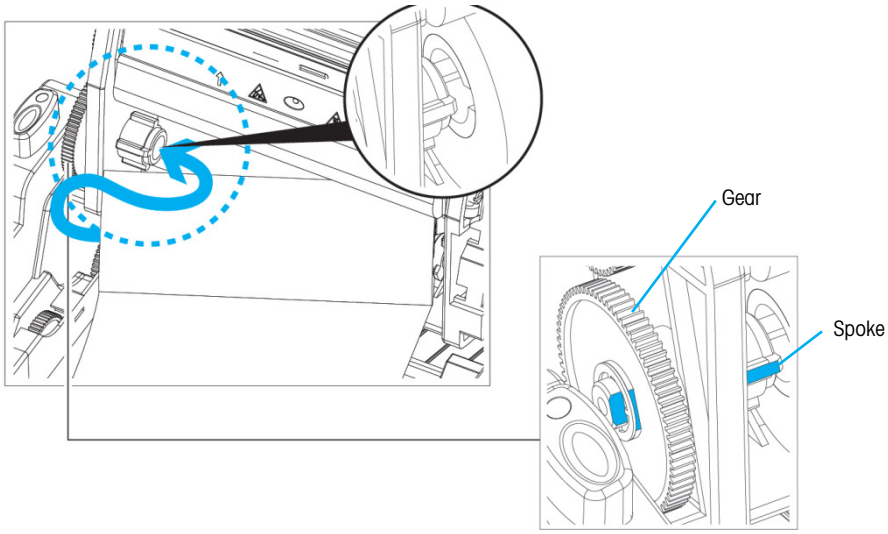


Figure 2-11: Positioning the Left Side of the Ribbon Module

3. Close the printing mechanism.

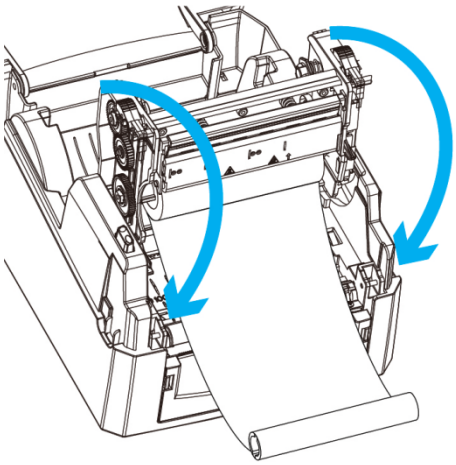


Figure 2-12: Closing the Printing Mechanism

2.4.2. Loading the Empty Ribbon Core

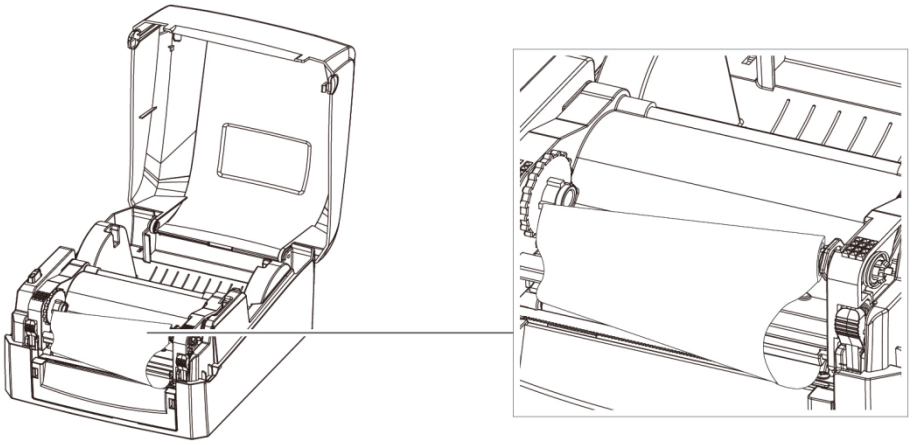


Figure 2-13: Printing Mechanism Closed

1. Place the right side of the empty ribbon core first. Align the empty ribbon to the ribbon core holder, then push the ribbon core to tighten the holder spring.

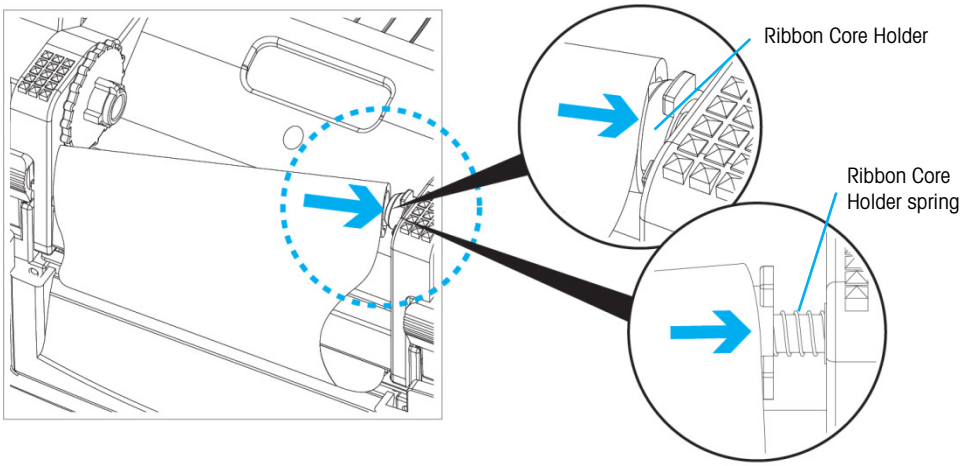


Figure 2-14: Positioning Right End of Ribbon Core

2. Now position the left end of the empty ribbon core. Align the notch on the ribbon core to the spoke on the core holder.

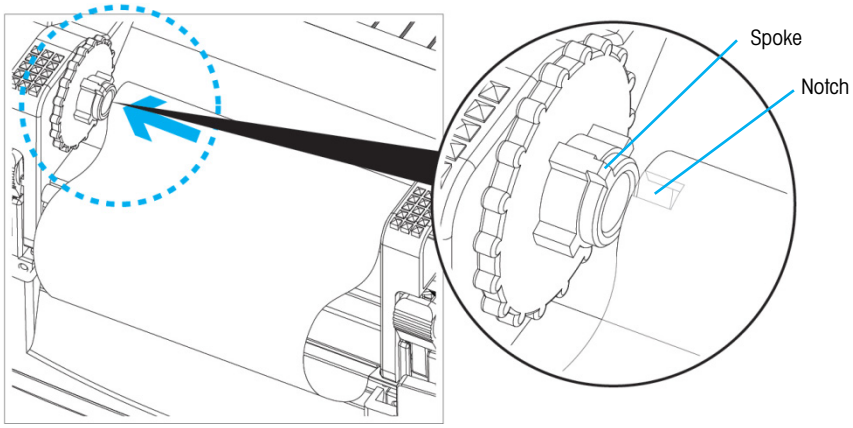


Figure 2-15: Positioning Left End of Ribbon Core

3. Turn the ribbon rewind wheel to tighten the ribbon until it has no wrinkles.

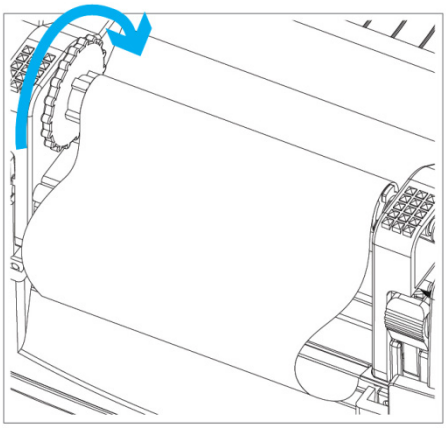


Figure 2-16: Tightening the Ribbon

4. Ribbon loading is now complete.

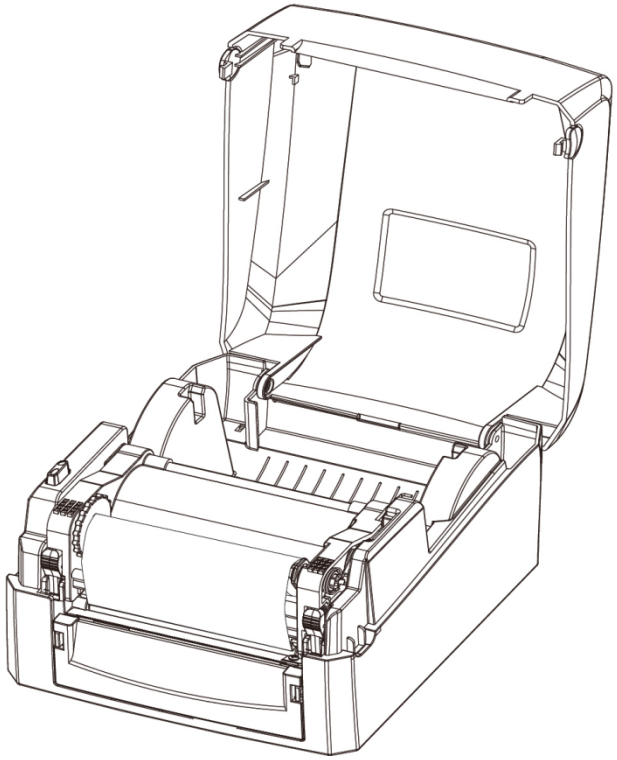


Figure 2-17: Ribbon Loading Complete

2.5. Loading the Label Roll

To install a new label roll module:

1. Slide the label stock roll onto the label supply hub.

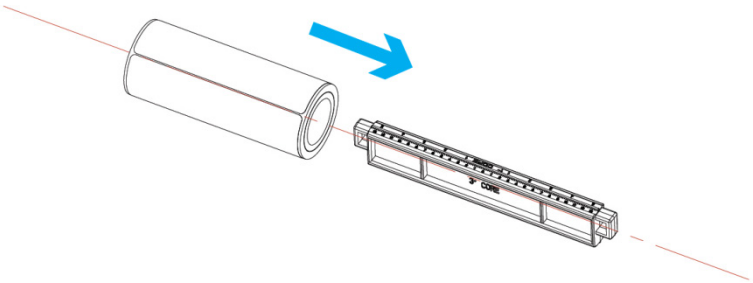


Figure 2-18: Placing Label Stock onto Label Supply Hub

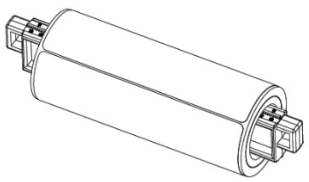


Figure 2-19: Label Roll Module complete

2. Attach the label guide plates to the label stock holder.

3. Pass the label through the label guides and adjust the guides to the label's width. This will prevent the label from moving sideways

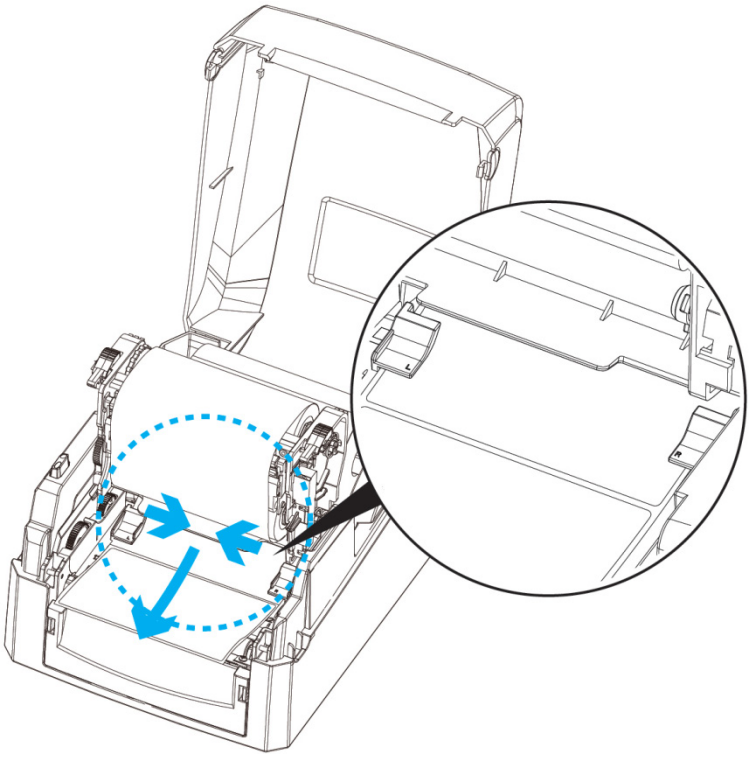


Figure 2-20: Passing Label Through Guides

4. Close the printing mechanism and the top cover to complete label loading.

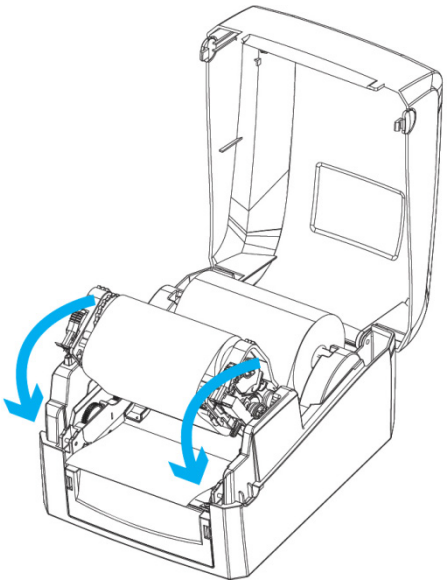


Figure 2-21: Closing the Printer

2.6. Loading the Label Supply Hub

2.6.1. 1" Cores

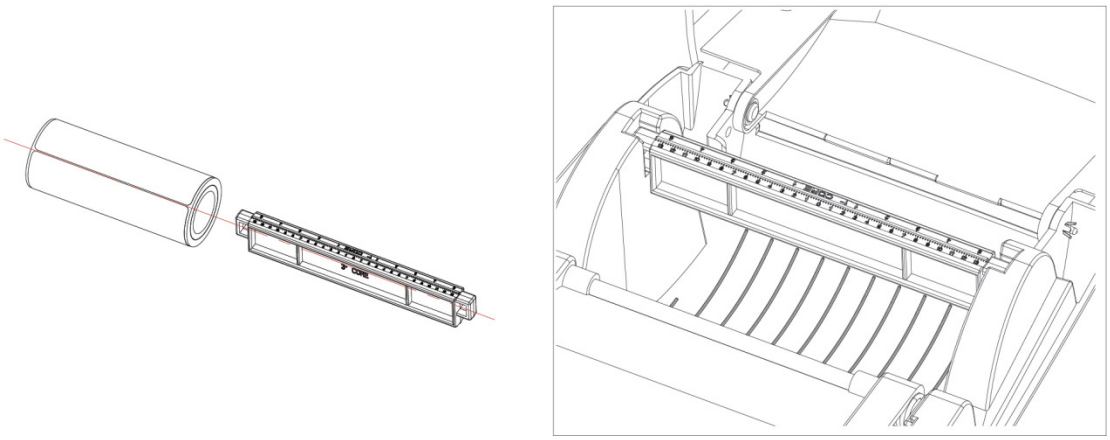


Figure 2-22: Loading the Label Supply for 1" Cores

2.6.2. 1.5" Cores

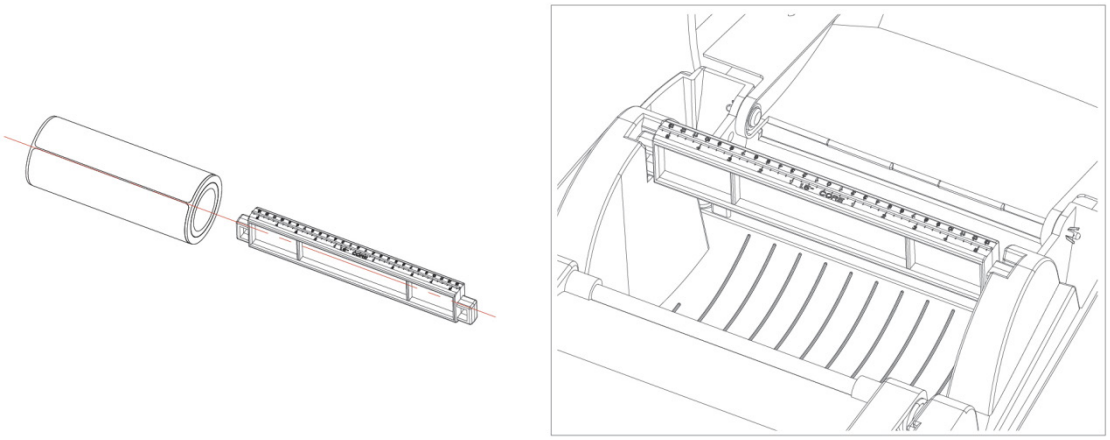


Figure 2-23: Loading the Label Supply for 1.5" Cores

2.7. Connecting the Printer to the METTLER TOLEDO Terminal

1. Make sure that the printer is switched off.
2. Connect the power cord to the AC adapter.
    a. Power cable may differ.

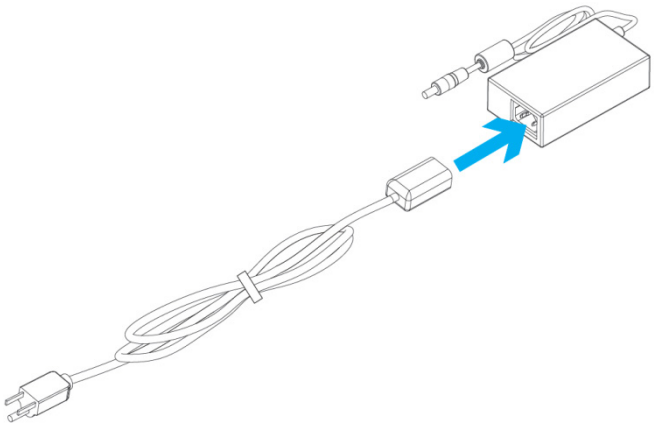


Figure 2-24: Power Cord and AC Adapter

3. Connect the jack of the power adapter to the print and connect the power connector plug to the wall socket.

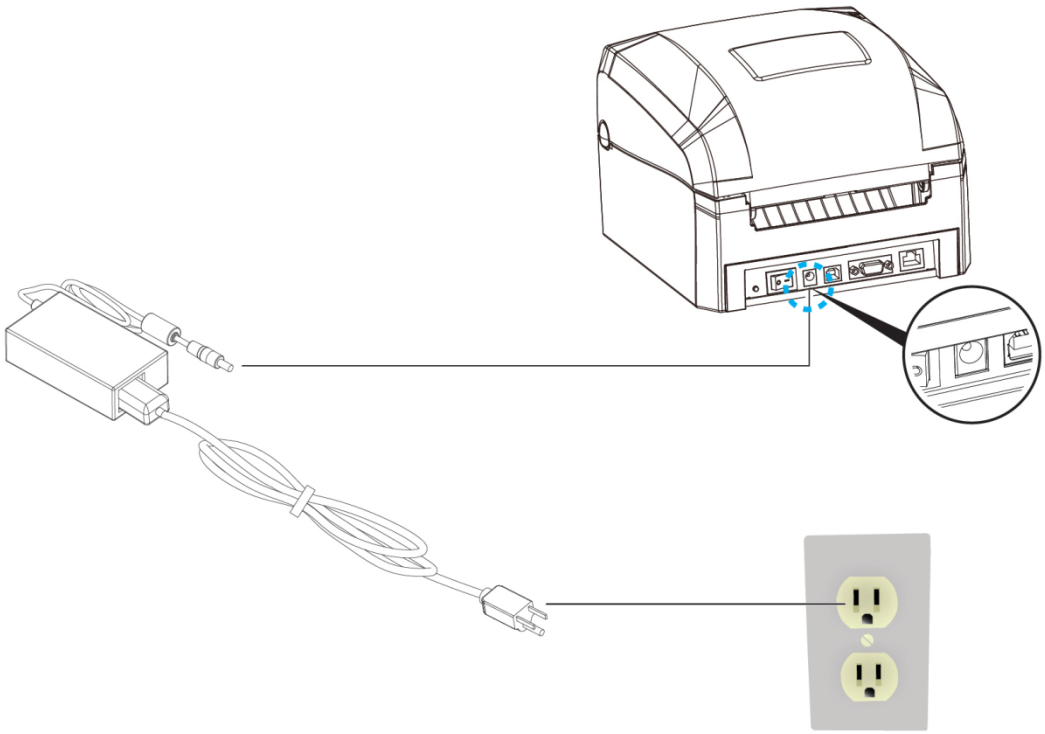


Figure 2-25: Connecting to Power Source

4. Connect the serial cable to the printer and to the METTLER TOLEDO Indicator.

Figure 2-26: Serial Connection

5. Switch on the printer. The LED indicator should light up.

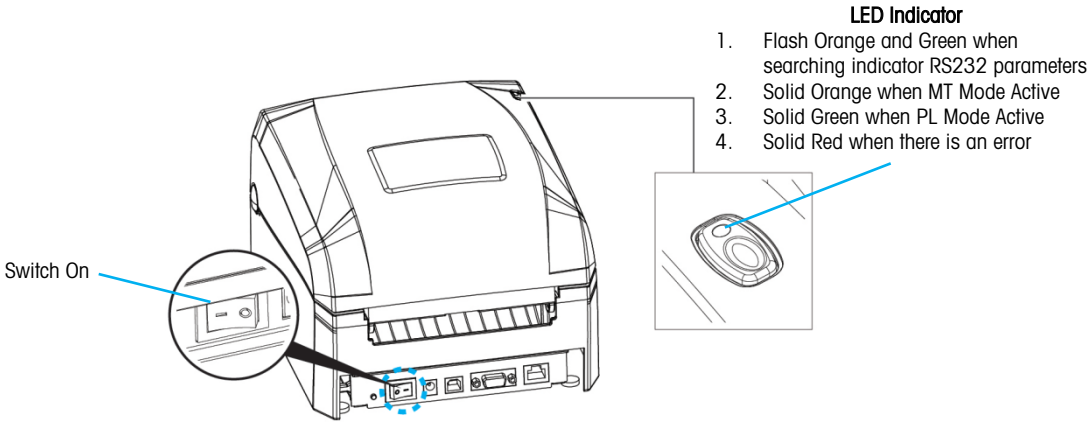


Figure 2-27: Switching on the Printer

2.8. Connecting the Printer to the Host Computer

1. Connect the USB/parallel cable to the printer and to the host computer.

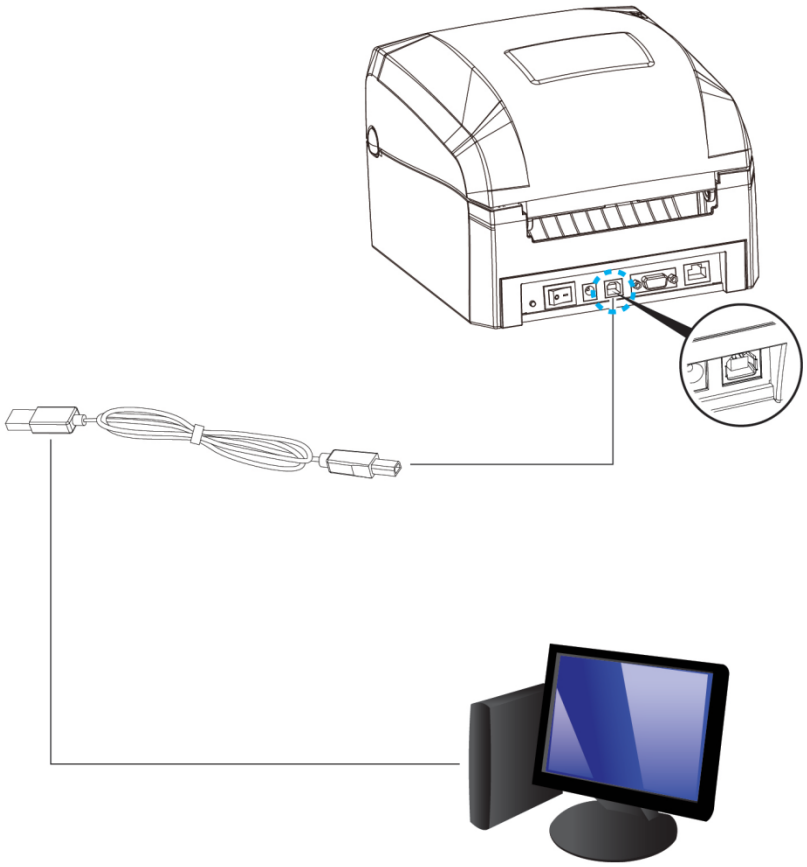


Figure 2-28: Computer Connection

2. Switch on the printer and **hold feed button** until the LED indicator light turns green.

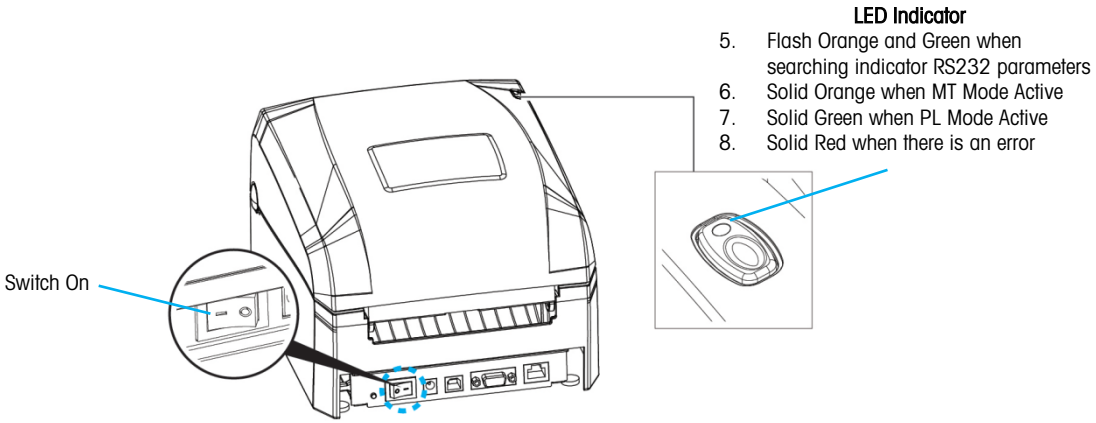


Figure 2-29: Switching on the Printer

2.9. Installing the Driver

1. Download the driver from www.mt.com/APR430
2. Open the **Seagull Drivers** folder and select the icon for the driver file and click it to start the installation.

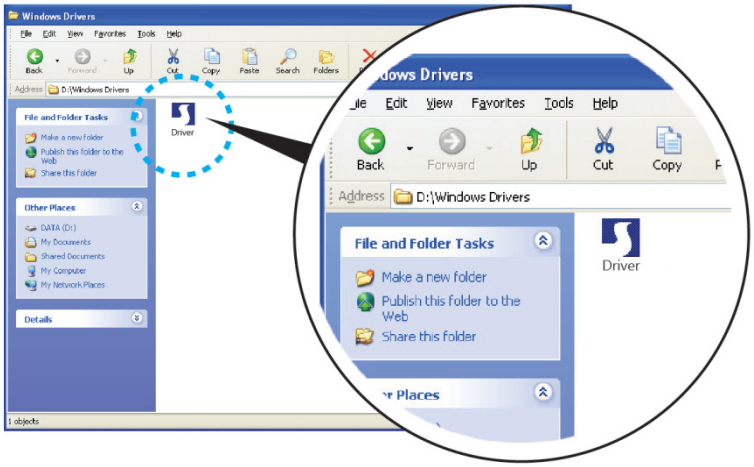


Figure 2-30: Driver File Icon

3. Follow the instructions on screen. The Driver Wizard will guide you through the installation procedure. Select **Install printer drivers**.

Figure 2-31: Driver Wizard

4. Specify your printer model.

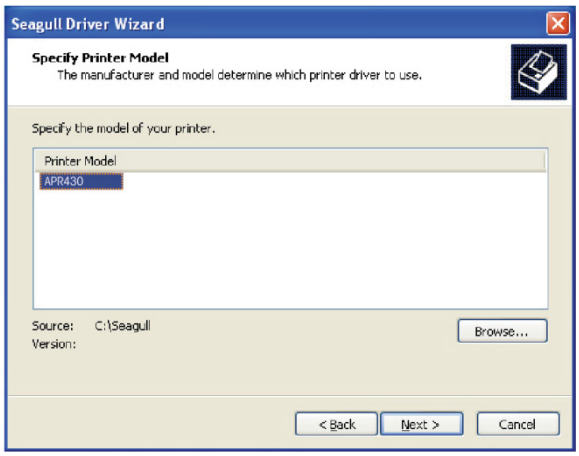


Figure 2-32: Specifying Printer Model

5. Specify the port used to connect the printer to the host computer.

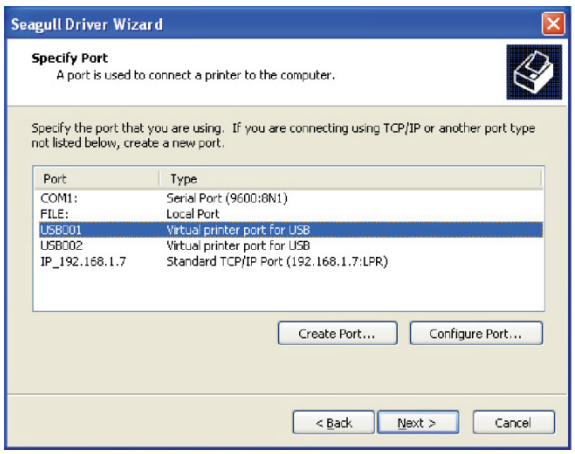


Figure 2-33: Selecting a Port

6. Enter a printer name and assign the appropriate rights.

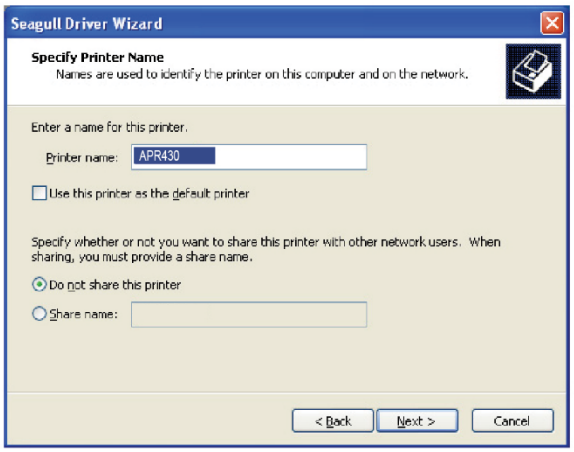


Figure 2-34: Entering a Printer Name

7. Once the installation is complete, a summary of the printer settings is displayed. Check whether the settings are correct and click Finish to start copying the driver files. Wait until copying is complete, then finish the installation.

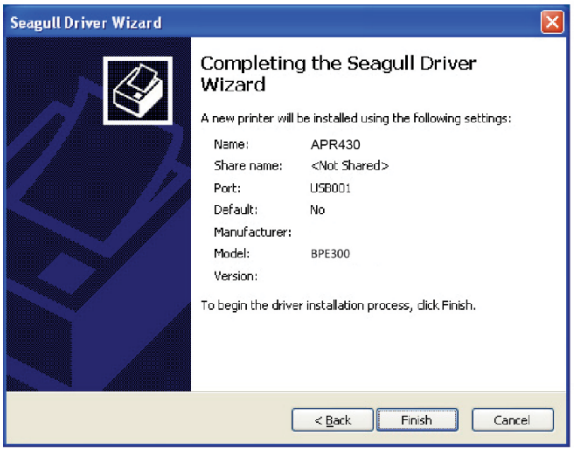


Figure 2-35: Finishing the Installation

8. Once the driver installation is complete, the new printer should appear in the **Printers and Faxes** folder.

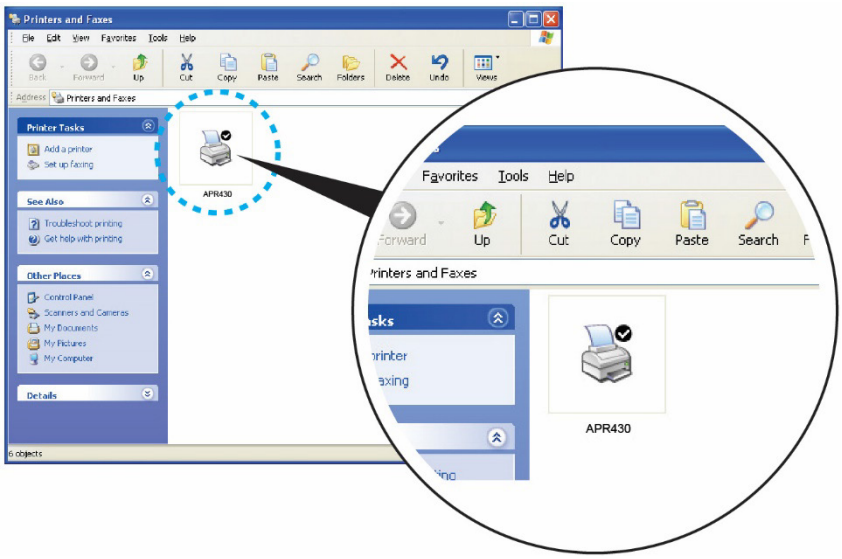


Figure 2-36: Printer Displayed in Folder

3 Operation

3.1. Controls

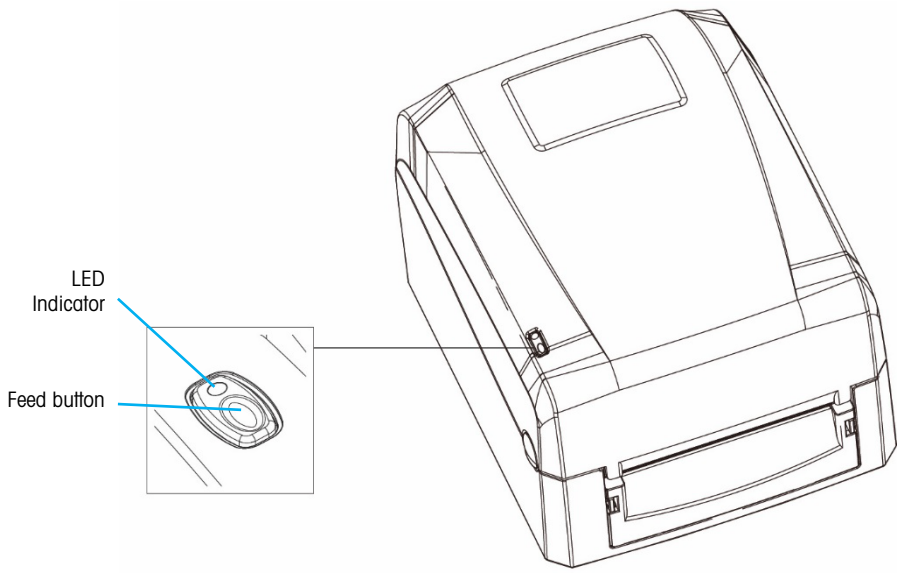


Figure 3-1: APR430 Operation Panel

3.1.1. Feed Button

In MT Mode (Orange LED):

When you press the FEED button in MT Mode, the printer moves to the next field. When you press the FEED enough times to cycle through the fields in the MT Mode label, the printer moves the label to the defined stop position.

In PL Mode (Green LED):

When you press the FEED button in PL Mode, the printer moves the label to the defined stop position.

- If you are using continuous labels, pressing the FEED button will move label stock until you release the button again.
- If you are using individual labels, pressing the FEED button will move only one label.

If the label does not stop at the correct position, run the auto-detection function on the label stock. Refer to Section 3.3, **Label Calibration and Self-Test**.

3.1.2. LED Indicators

LED Indicator	Status	Description
Solid Orange	MT Mode	The printer is ready for operation in MT Mode
Solid Green	PL Mode	The printer is ready for operation in PL Mode
Flashing Green and Orange	Automatic connection in progress	The printer is searching for an METTLER TOLEDO indicator and searching for the correct Baud Rate to connect.
Flashing Orange or Red	Error	The printer has detected an error. Refer to section 3.2, **Error Alerts**.

3.2. Error Alerts

In the event of a problem that prevents the printer from functioning normally, the LED lights will indicate an error, and beeps will be heard. Refer to the following for error alert details. Refer to the following for error alert details.

3.2.1. Error Lights Key

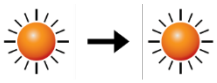
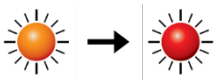
Red 

Fast Flashing 

Orange Flashing 

Slow Flashing 

3.2.2. Error Indications

LED Indicator	Status	Description	Solution
	Media Error	Unable to detect paper	Run the auto-detection function again.
		Need new ribbon or labels	Replace the ribbon or label roll
		Paper jam	Possible reasons: • Paper feed roller is blocked • No gap or black mark could be detected.
	Settings Error	No ribbon is loaded, but thermal transfer is selected as printing mode	1. To work in thermal transfer mode, load a ribbon 2. Alternatively, select the direct thermal printing mode
	Memory Error	Memory is full. The printer also prints a message, "Memory full."	Switch to PL Mode and delete data you no longer need from the printer's memory.
		Unable to find file. The printer also prints a message, "*Filename* cannot be found."	Switch to PL Mode and use the "~X4" command to print a list of all existing file names. Check whether the file name is correct.
		File name already exists. The printer also prints a message, "Filename is repeated."	Change the name of the file and try storing it on the printer again.
	Print Head Error	Print head temperature is too high	Wait for the print head to cool down to operating temperature. The printer will then swtich to standby mode and the LED will stop flashing.

3.3. Label Calibration and Self-Test

3.3.1. Label Calibration

The printer can automatically detect and store label height, so that the printer does not have to transmit label height to the printer. In MT Mode, the label height is based on the format saved to the printer. To change the label you must design a new MT Mode Label.

3.3.2. Self-Test

The self-test function makes it possible to check that the printer is running normally. To run the label size calibration and self-test:

1. Check that the label stock is loaded correctly.
2. Switch off the printer.
3. Press and hold the FEED button and turn the print on. When the LED starts to flash red, release the FEED button. The printer will now measure the label stock and store the label height.
4. Once the printer has successfully measured the label stock, it will print a self test label.

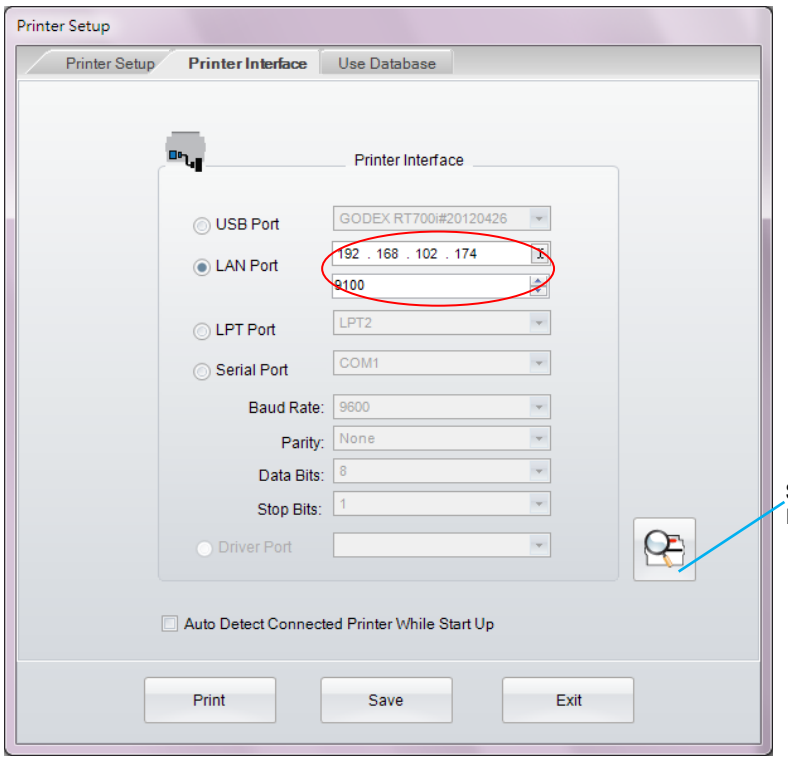
Figure 3-2: Self-Test Label

4 Setting Ethernet and Wi-Fi using Label+

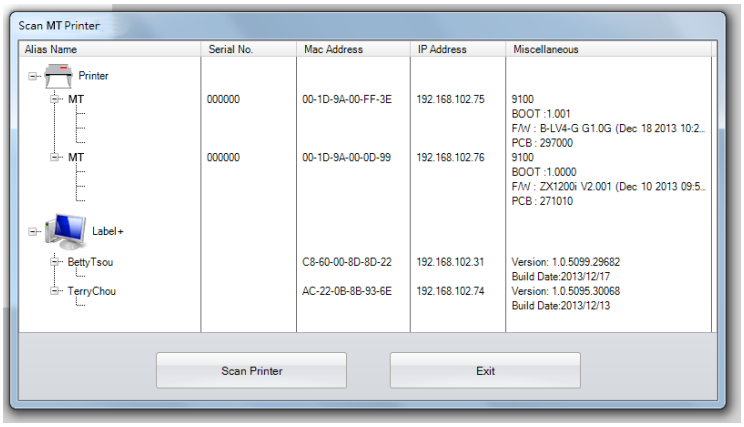
4.1. Printer with LAN Port

4.1.1. Search Printer

In case the printer is connected by Ethernet LAN port, please click the Printer Setup icon in the Generic Tool Set; select LAN Port in the Printer Interface dialog and Save.

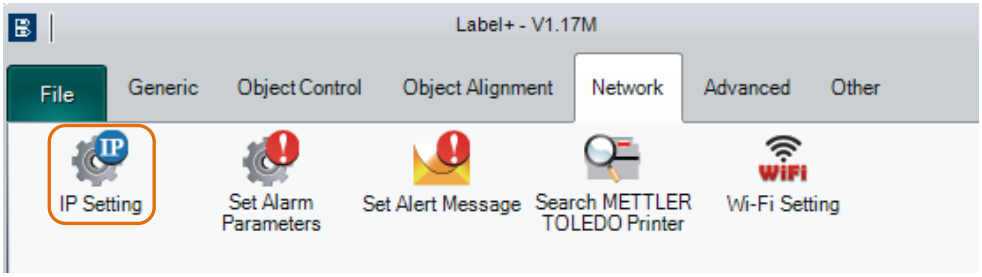


Next, click the Search Printer icon to search the network and find the METTLER TOLEDO printer. The following dialog sill display.

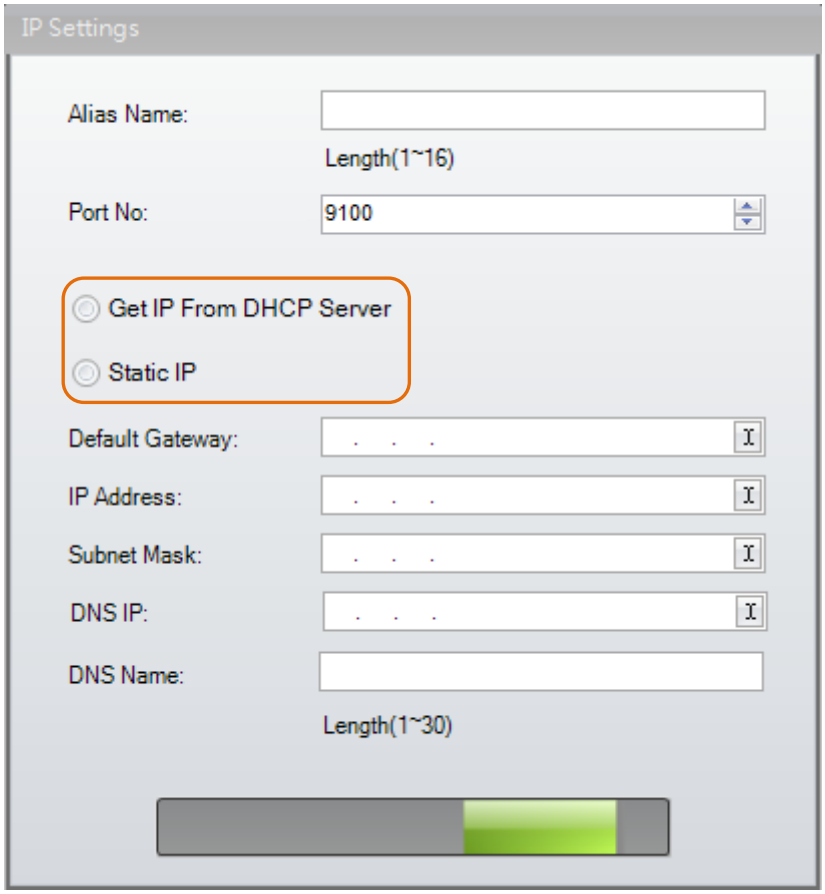


4.1.2. Setting IP Address

Under the Network tab, select IP setting to make modifications.

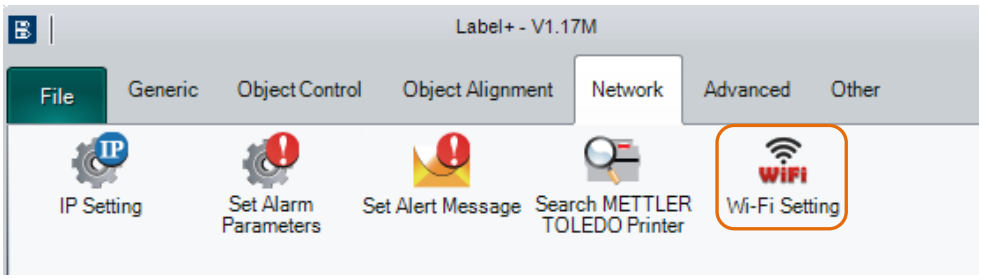


Click the IP Setting icon. The IP address can either be provided automatically by the DHCP Server, or select a Static IP entered manually.

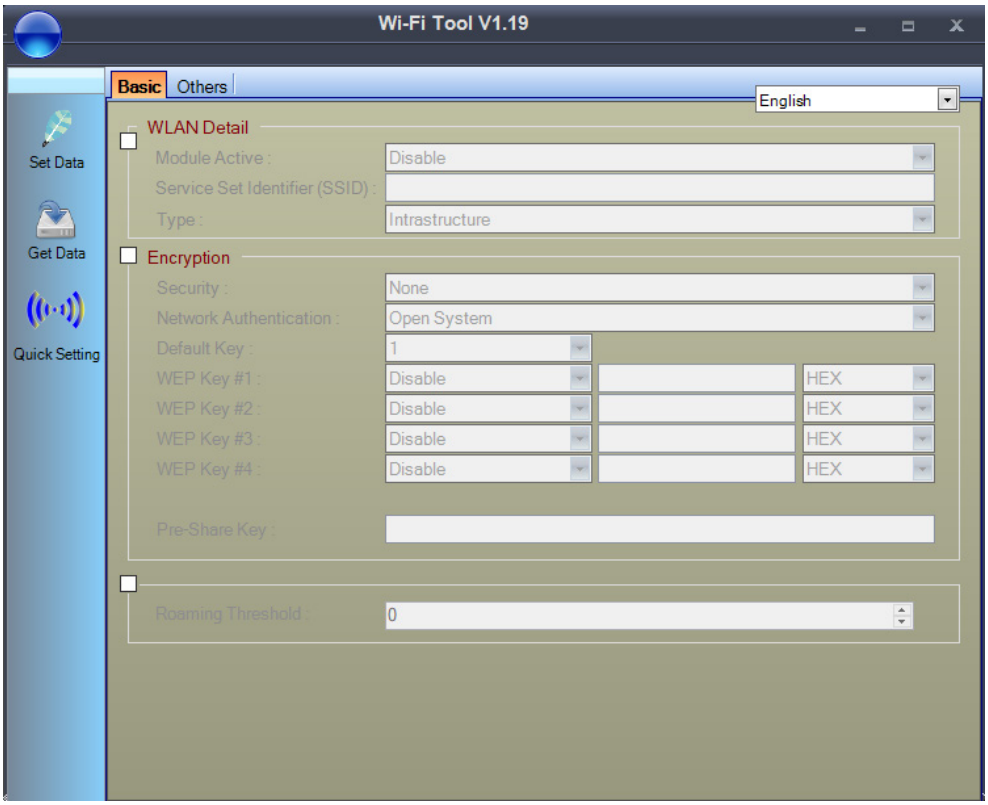


4.1.3. Setting Wi-Fi Settings

Under the Network tab, select Wi-Fi Setting to make modifications.



Click the Wi-Fi Setting icon. For more information on the Wi-Fi Tool, see the Label+ Help Guide.



5 Maintenance and Adjustment

5.1. Cleaning the Print Head

Dirt on the print head or ribbon, or glue residue from the label stock may result in inadequate print quality. The printer cover must therefore always be closed during printing. Keeping dirt and dust away from the paper or labels ensures a good print quality and a longer lifespan of the print head.

5.1.1. Cleaning Steps

To clean the print head:

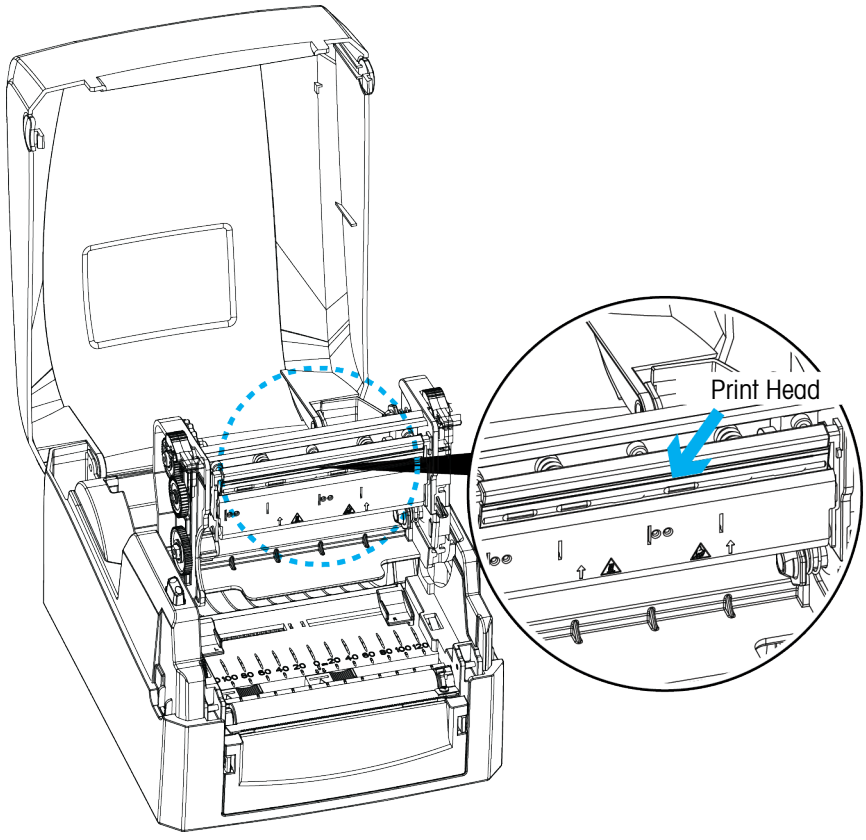


Figure 5-1: Print Head Cleaning

- The print head should be cleaned once a week.
- Please make sure that there are no metal fragments or other hard particles on the soft cloth used to clean the print head.

5.2. Troubleshooting

Problem	Solution
The printer is switched on but the LED does not light up.	• Check the power supply. Refer to Section 2.6.
The LED lights up red and printing is interrupted.	• Check the software settings (driver settings) or command codes • Look for the error alert in the table in Section 3.2, Error Alerts • Check whether the print mechanism is closed correctly. Refer to section 3.2.
The label stock passes through the printer but no image is printed.	• Make sure the label stock is loaded the right way up and that it is suitable material • Choose the correct printer driver • Choose the correct lable stock and a suitable printing mode
The label stock jams during printing.	• Clear the paper jam. Remove any label material left on the thermal print head and clean the print head using a soft, lint-free cloth dipped in alcohol. Please refer to section 5.1.
There is no printed image on some parts of the label.	• Check whether any label material or ribbon is stuck to the thermal print head • Check for errors in the application software • Check whether the starting position has been set incorrectly • Check the ribbon for wrinkles
There is no printed on image on part of the label or the image is blurred.	• Check the thermal print head for dust or other dirt • Use the internal ~T command to check whether the theraml print head will carry out a complete print job • Check the quality of the print medium
The printed image is positioned incorrectly.	• Check whether there is paper or dust covering the sensor • Check whether the label stock is suitable. Contact your supplier • Check the paper guide settings
A label is omitted during printing.	• Check the label height setting • Check whether there is dust covering the sensor • Run the auto-detection function. Refer to section 3.3.
The printed image is blurred.	• Check the darkness setting • Check the thermal print head for dust or dirt. Refer to section 5.1 • Check if the ribbon is suitable for the label stock in use

A Product Specifications

A.1. APR430 Thermal Label Printer

		Standard Features
Print Method		Thermal Transfer / Direct Thermal
Resolution		203dpi
Terminal Compatibility		Works with most METTLER TOLEDO Terminals
Agency Approvals		CE (EMC), FCC Class A, CB, UL, cUL, CCC, UKCA

		Printer Specifications
MT Mode		Ascii Character Strings
PL Mode		EZPL,GEPL,GZPL,GDPL auto switch
Print Speed		102 mm/s (5 in/s)
Print Width		108 mm (4.25 in)
Print Length		Min. 4 mm (0.16 in)** ; Max 1727 mm (68 in)
Memory	Flash	8 MB Flash (4 MB for user Storage)
	SDRAM	16 MB SDRAM
Sensor Type		Adjustable reflective sensor (full range); Fixed transmissive sensor

		Physical Characteristics
Dimensions (LxWxH)		251 mm x 164 mm x 200 mm (9.88 in x 6.46 in x 7.87 in)
Weight		1.8 kg (3.96 lb), excluding consumables
Power		Auto Switching 100-240VAC, 50-60Hz input

		Media Characteristics
Paper	Types	Continuous form, gap labels, black mark sensing, and punched hole; Label length set by auto sensing or programming
	Width	Min. 25.4 mm (1 in) – Max. 118 mm (4.64 in) Left Alignment Printing Mechanism - Min. 1"(25.4 mm) — Max. 4.45"(113mm)
	Thickness	Min. 0.08 mm (0.003 in) – Max. 0.20 mm (0.008 in)
	Label Roll Outside Diameter	Max. 127 mm (5 in)
	Core Diameter	25.4 mm (1 in) or 38.1 mm (1.5 in)
Ribbon	Types	Wax, Wax / Resin, Resin
	Length	110 m (360 ft)
	Width	Min. 30 mm (1.18 in) – Max. 110 mm (4.33 in)
	Ribbon Roll Diameter	40 mm (1.57 in)
	Core Diameter	12.7 mm (0.5 in)

		Printer Software
Software	PC Software for Label Design	Label+ (Create MT Mode and EZPL formats only)
	Driver	Vista, Windows 7, Windows 8 & 8.1, Windows 10, Windows Server 2008 R2, 2012, 2012 R2, 2016, 2019, MAC, Linux
	SDK	Win CE, .NET, Windows Vista, Windows 7, Windows 8 & 8.1, Windows 10, Android, Mac, iOS
Resident Fonts	Bitmap Fonts	6, 8, 10, 12, 14, 18, 24, 30, 16X26 and OCR A&B Bitmap fonts 0°, 90°, 180°, 270° rotatable, single characters 0°, 90°, 180°, 270° rotatable Bitmap fonts 8 times expandable in horizontal and vertical directions
	TTF Fonts	TTF Fonts (Bold / Italic / Underline). 0°,90°, 180°, 270° rotatable
Download Fonts	Bitmap Fonts	0°, 90°, 180°, 270° rotatable, single characters 0°, 90°, 180°, 270° rotatable
	Asian Fonts	6x16, 24x24. Traditional Chinese (BIG-5), Simplified Chinese(GB2312), Japanese (S-JIS), Korean (KS-X1001) 0°, 90°, 180°, 270° rotatable and 8 times expandable in horizontal and vertical directions
	TTF Fonts	TTF Fonts (Bold / Italic / Underline). 0°,90°, 180°, 270° rotatable
Code Pages		Codepage 437, 737,850, 851, 852, 855, 857, 860, 861, 862, 863, 865, 866, 869 Windows 1250, 1251, 1252, 1253, 1254, 1255, 1257 Unicode UTF8, UTF16BE, UTF16LE
Graphics		Resident graphic file types are BMP and PCX, other graphic formats are downloadable from the software

	Communications
Interfaces	USB 2.0 (Windows Driver Required) Serial port: RS-232 (DB-9) Ethernet 10/100 Mbps
Control Panel	One Tri-color LED: Power (Green, Orange and Red) Function Key: PL Mode = FEED; MT Mode = Field Feed Calibration Button (Hold to calibrate label size)

		Printer Barcode Types
Barcodes	1-D Bar codes	China Postal Code, Codabar, Code 11, Code 32,Code 39, Code 93, Code 128 (subset A, B, C), EAN-8/EAN-13 (with 2 & 5 digits extension), EAN 128, FIM, German Post Code, GS1 DataBar, HIBC, Industrial 2 of 5 , Interleaved 2-of-5 (I 2 of 5), Interleaved 2-of-5 with Shipping Bearer Bars, ISBT-128, ITF 14, Japanese Postnet, Logmars, MSI, Postnet, Plessey, Planet 11 & 13 digit, RPS 128, Standard 2 of 5, Telepen, Matrix 2 of 5, UPC-A/UPC-E (with 2 or 5 digit extension), UCC/EAN-128 K-Mart and Random Weight
	2-D Bar codes	Aztec code, Code 49,Codablock F , Datamatrix code, MaxiCode, Micro PDF417, Micro QR code, PDF417,QR code, TLC 39, GS1 Composite

	Environmental Specifications
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-20°C to 50°C (-4°F to 122°F)
Operating Humidity	30-85%, non-condensing
Storage Humidity	10-90%, non-condensing

	Other
Accessories	Cutter (Dealer Install), External label Unwind Stand, Wifi (Dealer Install)

* Specifications are subject to change without notice. All company and/or product names are trademarks and/or registered trademarks of their respective owners.

** Minimum print height and maximum print speed specification compliance can be dependent on non-standard material variables such as label type, thickness, spacing, and liner construction.

A.2. Connections

A.2.1. Pinout Description

Pin number	1	2	3	4
Function	VUBS	D–	D+	GND

A.2.2. Serial Port

Default settings are:

9600 Baud, no parity, 8 data bits, 1 stop bit, XON/XOFF protocol and RST/CTS

DB9 Socket			**DB9 Plug**
-	1	1	+5V, max 500mA
RxD	2	2	TxD
TxD	3	3	RxD
DTR	4	4	N/C
GND	5	5	GND
DSR	6	6	RTS
RTS	7	7	CTS
CTS	8	8	RTS
RI	9	9	N/C
Computer			**Printer**

Figure A-1: RS232 Housing (9-pin to 9-pin)

A.2.3. Ethernet

Pin No.	Function
1	Transmit +
2	Transmit –
3	Receive +
4	Bias of Transmission
5	NC
6	Receive –
7	Bias of Receiver
8	NC

METTLER TOLEDO Service

To protect your product's future:

Congratulations on choosing the quality and precision of METTLER TOLEDO. Proper use according to these instructions and regular calibration and maintenance by our factory-trained service team ensure dependable and accurate operation, protecting your investment. Contact us about a service agreement tailored to your needs and budget.

We invite you to register your product at www.mt.com/productregistration so we can contact you about enhancements, updates and important notifications concerning your product.

www.mt.com
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30769829 Rev. 00, 05/2022

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