brother

TD-4420TN/4520TN

User's Guide (English)

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1. Introduction

1.1 Product Introduction

The sleek design of the TD-4420TN/4520TN label printer can handle up to 984 ft. (300 m) of ribbon and label rolls. Its internal 5" (127 mm) label capacity can be further expanded with an external label roll mount to handle 8" (203.2 mm) rolls, designed for industrial label printers. The printer's movable Black Mark Sensor is compatible with a wide range of label media.

The printer uses its high-performance, high-quality, built-in Monotype Imaging® TrueType font engine with the CG Triumvirate Bold Condensed smooth scalable font. It also provides a choice of eight different sizes of the alphanumeric bitmap font. The printer's flexible firmware design allows the user to download additional TrueType fonts from a computer to print custom labels. It also supports most of the standard barcode formats and can print fonts and barcodes in four directions.

- For more information about printing labels, see your labelling software's documentation.
- For more information about writing custom programs, see the *FBPL Command Reference Manual*.

1.2 Product Features

1.2.1 Standard Features

- Thermal transfer printing
- Direct thermal printing
- Gap Sensor
- Fully movable reflective Black Mark Sensor
- Ribbon Sensor
- Head Open Sensor
- USB 2.0 (Hi-Speed)
- 64 MB DRAM memory
- 128 MB Flash memory
- RTC
- BUZZER
- Feed/Pause Button
- Three-color LED Indicator
- Standard industry emulation (including the Eltron® and Zebra® languages)
- 8 built-in alphanumeric bitmap fonts
- Fonts and barcodes can be printed in four directions (0°, 90°, 180°, 270°)
- Internal Monotype Imaging® TrueType font engine with CG Triumvirate Bold Condensed scalable font
- Downloadable fonts (from a computer)
- Downloadable firmware upgrades
- Text, barcode, graphics/image printing (See the *FBPL Command Reference Manual* for the supported codes.)

  Supported barcodes
  - 1D barcodes
    Code 11 (USD-8), Code 39, Code 93, Code 128 with subsets A/B/C, UPC-A, UPC-E, EAN-8, EAN-13, UPC and EAN 2- or 5-digit extensions, GS1-128 (UCC/EAN-128), MSI, Plessey, POSTNET, Standard 2-of-5 (IATA), Industrial 2-of-5, Interleaved 2-of-5, ITF-14, EAN-14, LOGMARS, Codabar (NW-7), Planet, Telepen, Deutsche Post Identcode, Deutsche Post Leitcode, Datalogic 2-of-5 (China Post)
  - 2D barcodes
    CODABLOCK F, PDF417, Code 49, GS1 DataMatrix, MaxiCode, QR Code, TLC39, MicroPDF417, GS1 DataBar (RSS), Aztec Code

  Supported image formats
  BMP, PCX (Max. 256 colors graphics)

1.2.2 Optional Features

Feature	User	Dealer
External Media Roll Mount with 3" (76.2 mm) Core Label Spindle (8.4" (213.4 mm) outer diameter)	✔	
Label Peeler		✔
Regular Full/Partial Cutter (Guillotine cutter) Paper thickness: From 2.36 mil to 7.48 mil (from 0.06 mm to 0.19 mm)		✔

1.3 General Specifications

Dimensions	8.03" (W) × 6.99" (H) × 11.02" (L) (204 mm (W) × 177.5 mm (H) × 280 mm (L))
Weight	2.5 kg
Power Supply	Input: AC 100 V - 240 V, 1.5 A, 50 Hz - 60 Hz Output: DC 24 V, 2.5 A, 60 W, LPS
Environment	Operating temperature: Between 41˚F and 104˚F (between 5˚C and 40˚C) Operating humidity: Between 25% and 85% (without condensation) Storage temperature: Between -40˚F and 140˚F (between -40˚C and 60˚C) Storage humidity: Between 10% and 90% (without condensation)

1.4 Print Specifications

Print Specifications	TD-4420TN (203 dpi model)	TD-4520TN (300 dpi model)
Print Resolution	203 dots/inch (8 dots/mm)	300 dots/inch (12 dots/mm)
Printing Technology	Thermal transfer and direct thermal	
Print Size (width × length)	0.125 mm × 0.125 mm (1 mm = 8 dots)	0.084 mm × 0.084 mm (1 mm = 11.8 dots)
Print Speed (inches per second)	Up to 6 ips	Up to 5 ips
Print Speed for Label Peeler Mode	Up to 3 ips	
Maximum Print Width	4.25" (108 mm)	4.16" (105.7 mm)
Maximum Print Length	1000" (25,400 mm)	450" (11,430 mm)

1.5 Ribbon Specifications

Ribbon Diameter	1" (25.4 mm) core: Max. 2.63" (67 mm)
	0.5" (12.7 mm) core: Max. 1.57" (40 mm)
Ribbon Length	1" (25.4 mm) inner core: 984 ft (300 m)
	0.5" (12.7 mm) inner core: 360 ft (110 m)
Ribbon Core Diameter	0.5" (12.7 mm) and 1" (25.4 mm)
Ribbon Width	Between 1.57" and 4.33" (between 40 mm and 110 mm) (with the 4.33" (110 mm) paper core and notches on both sides) • Use the ribbon that is wider than the media.
Ribbon Wound Type	Outside wound

1.6 Media Specifications

|	
Label Roll Capacity (Outer Diameter)	Max. 5" (127 mm)
Media Type	Continuous, die-cut, black mark, fan-fold, notch
Media Wound Type	Outside wound
Media Width	20 mm - 112 mm (Tear mode) 25.4 mm - 110 mm (Peeler mode) 25.4 mm - 112 mm (Cutter mode)
Media Thickness	Between 2.36 mil and 7.48 mil (between 0.06 mm and 0.19 mm)
Media Core Diameter	1" (25.4 mm) and 1.5" (38 mm)
Label Length	From 0.2" (5 mm) to the max. print length
Label Length (Label Peeler mode)	Between 1" and 6" (between 25.4 mm and 152.4 mm)
Label Length (Cutter mode)	From 1" (25.4 mm) to the max. print length
Gap Height	Min. 0.09" (2 mm)
Black Mark Height	Min. 0.09" (2 mm)
Black Mark Width	Min. 0.31" (8 mm)

2. Operations Overview

2.1 Unpack the printer and check the components

> **Note**
>
> Keep the packaging materials in case you need to ship the printer.

The components included in the box:
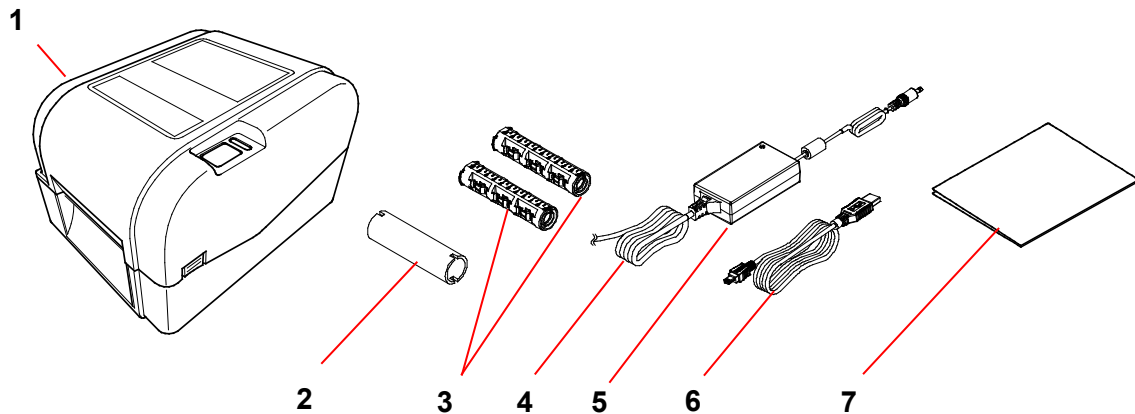
1. **1.** Printer Unit

2. **2.** 1" (25.4 mm) Ribbon Paper Core

3. **3.** Two 1" (25.4 mm) Ribbon Spindles for the 984 ft (300 m) ribbon

4. **4.** Power Cord

5. **5.** External Universal Switching Power Supply

6. **6.** USB Interface Cable

7. **7.** Quick Setup Guide

If any components are missing, contact the product manufacturer's customer service or your local dealer.
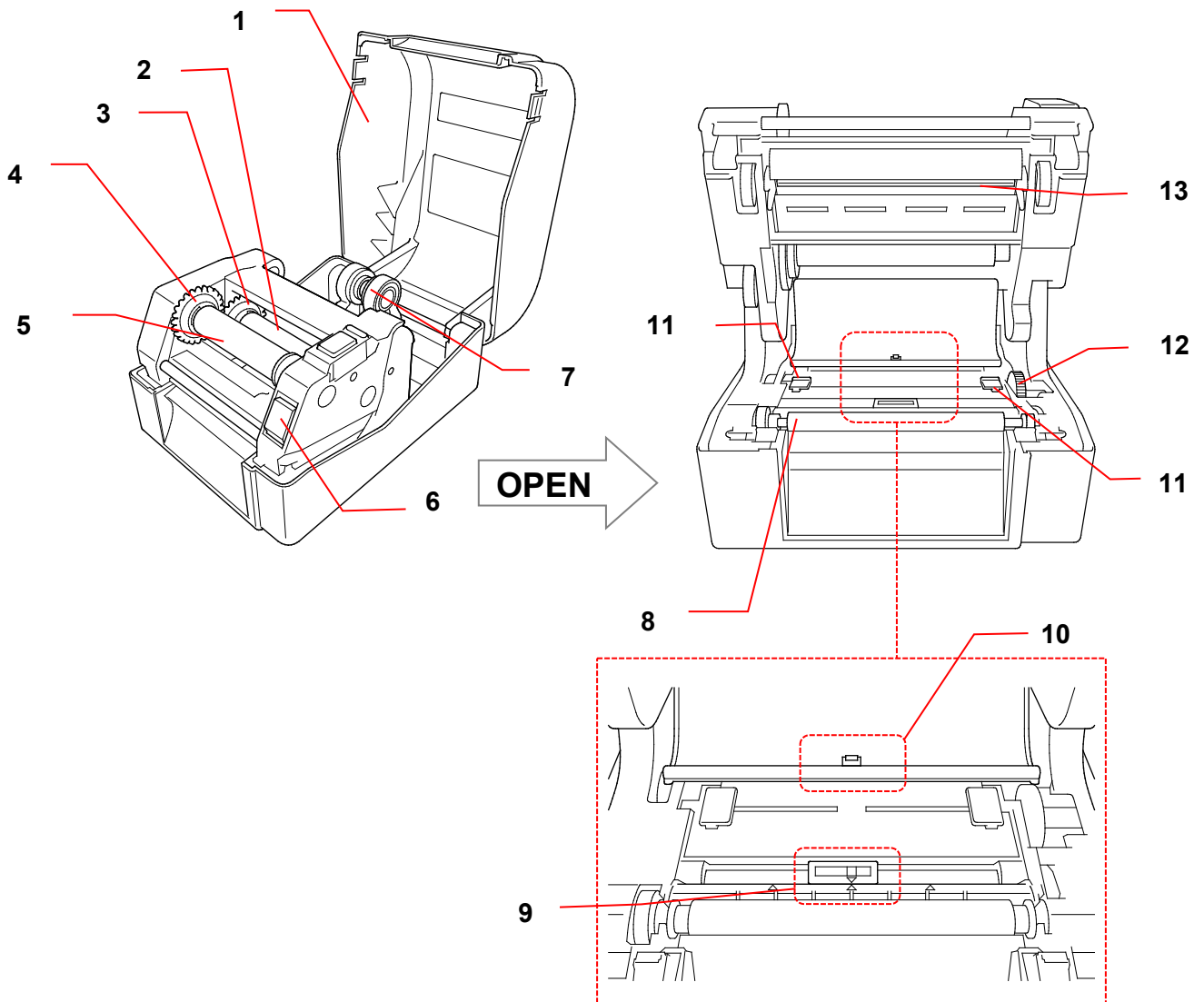
2.2 Printer Overview

2.2.1 Front View
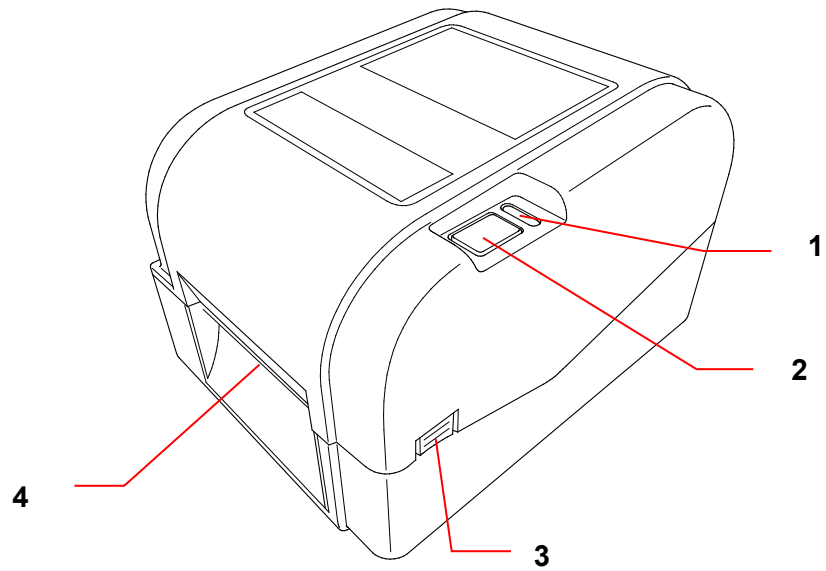
1. LED Indicator
2. Feed/Pause Button
3. Roll Compartment Cover Open Tab
4. Label Output Slot

2.2.2 Interior View

1. Roll Compartment Cover
2. Ribbon Supply Spindle
3. Ribbon Supply Hub
4. Ribbon Rewind Hub
5. Ribbon Rewind Spindle
6. Print Head Release Button
7. Roll Guides
8. Platen Roller
9. Black Mark Sensor
10. Gap Sensor
11. Media Guide Tips
12. Media Guide Hub
13. Print Head

⚠ **WARNING**

DO NOT touch rotating parts. There is a risk of injury if your finger is caught in the rotating gear. Turn off the product before touching the mechanism.

2.2.3 Rear View
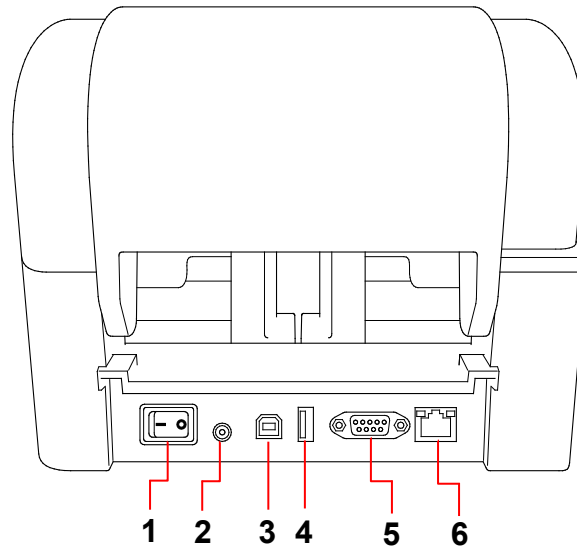
1. Power Switch
2. Power Port
3. USB Port (USB 2.0/Hi-Speed mode)
4. USB Host Port
5. RS-232 Serial Port
6. Ethernet Port

✎ **Note**

Some features are not available depending on the model. For more information, see the product specification.

3. Setup

## 3.1 Setting up the Printer

> 📝 **Note**
> ● Before you plug the Power Cord into the Power Port, make sure the printer's Power Switch is in the OFF position.
> ● Some features are not available depending on the model. For more information, see the product specification.
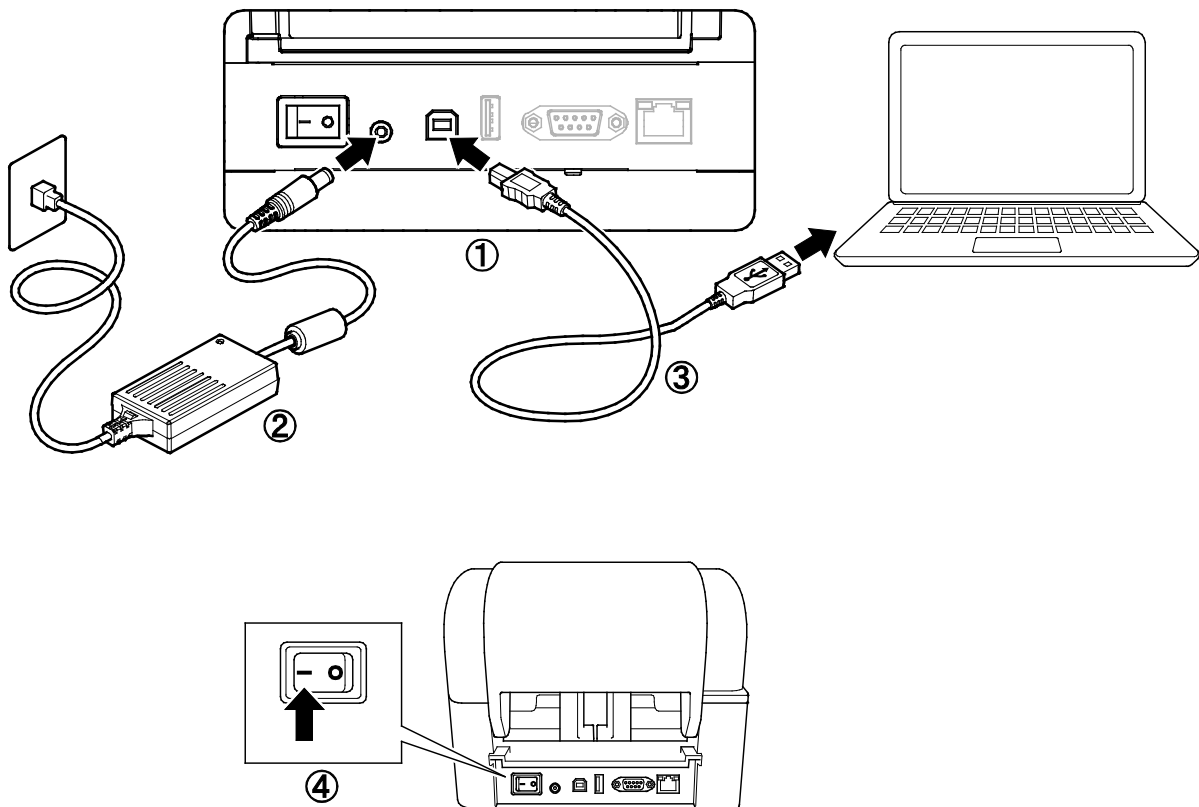
1. Place the printer on a flat, secure surface.
2. Plug the Power Cord into the Power Port at the rear of the printer. Then, plug the other end into the AC power outlet (electrical socket).
3. Connect the printer to the computer with the provided USB cable.
4. Push the "-" side of the Power Switch to turn on the printer.

3.2 Loading the Ribbon

1. Open the Roll Compartment Cover by pressing the tabs located on each side of the printer.
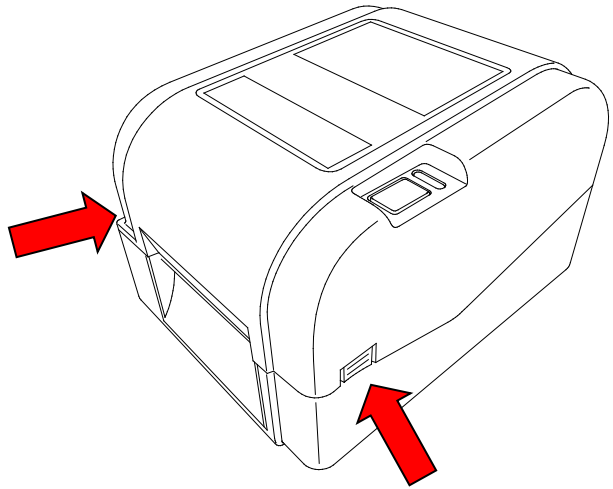
2. Insert the Ribbon Rewind Spindle into the Paper Core in the direction shown in the illustrations.
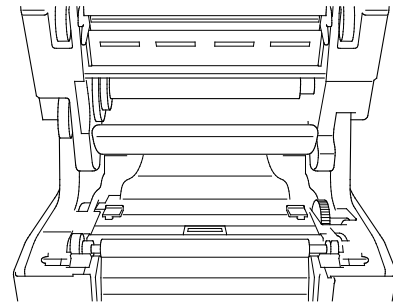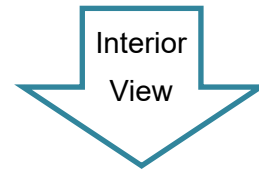
3. First, insert the right side of the Ribbon Rewind Spindle (marked "R") into the Ribbon Supply Hub. Then, insert the left side of the Ribbon Rewind Spindle into the hole on the left side of the Ribbon Rewind Hub.
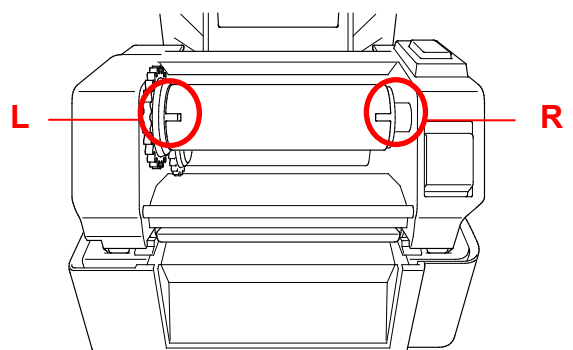
   📝 **Note**

   Alternatively, you can use a 0.5" (12.7 mm) or 1" (25.4 mm) ribbon roll with notches on both sides. Insert it into the Ribbon Rewind Hub directly.

4. Push the Print Head Release Button to open the Print Head mechanism.

5. Lift the Print Head until it locks into place.

Interior View

6. Insert the Ribbon Spindle into the ribbon.

> 📝 **Note**
>
> The Ribbon Spindle can be substituted with the ribbon with notches on both sides, which can be inserted into the ribbon mechanism directly.
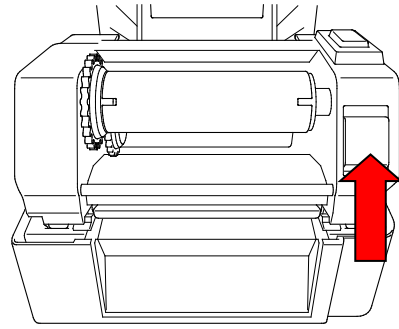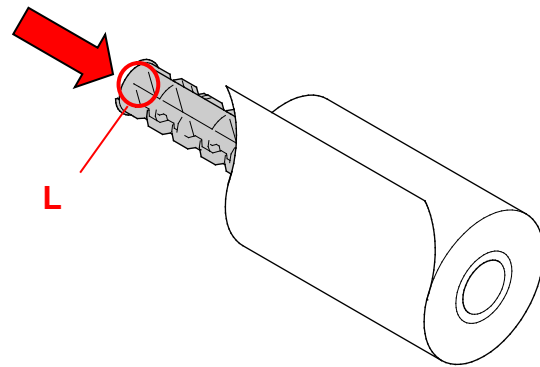
L

7. First, insert the right side of the Ribbon Supply Spindle (marked "R") into the Ribbon Supply Hub. Then, insert the left side of the Ribbon Supply Spindle into the hole on the left side of the Ribbon Supply Hub.
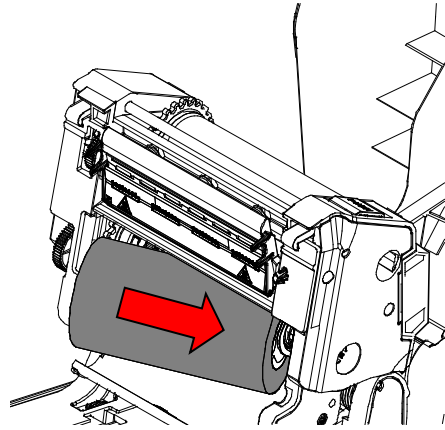
8. Thread the ribbon through the Print Head and adhere the leader of the ribbon onto the Ribbon Rewind Paper Core.

   IMPORTANT

   Do not dispose of the Ribbon Rewind Paper Core when replacing the ribbon roll. This part is necessary for the ribbon roll replacement.
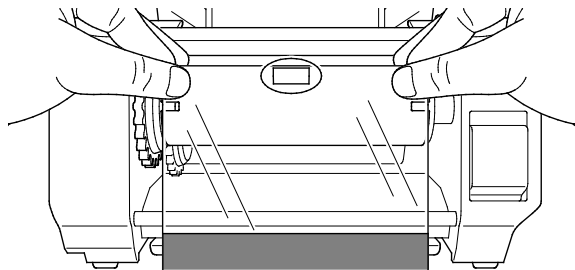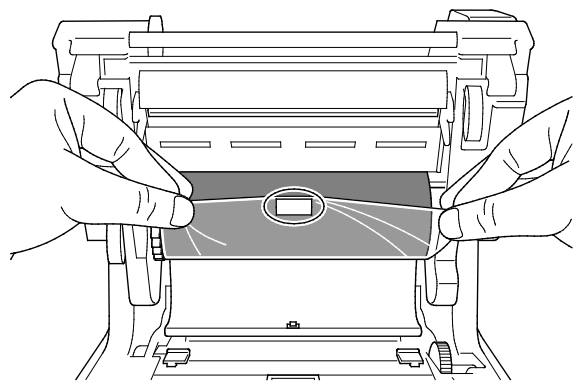
9. Using the Ribbon Rewind Gear, rotate the Ribbon Rewind Hub until the ribbon plastic leader is thoroughly wound and the black section of the ribbon covers the Print Head.
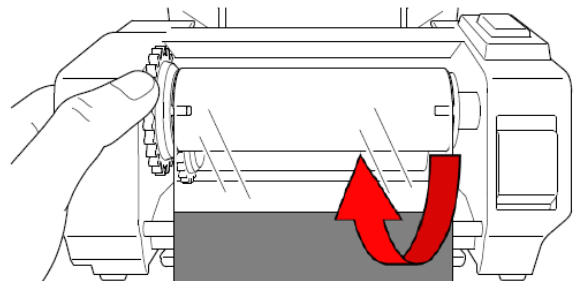
10. Close the Print Head mechanism with both hands until it locks into place.	
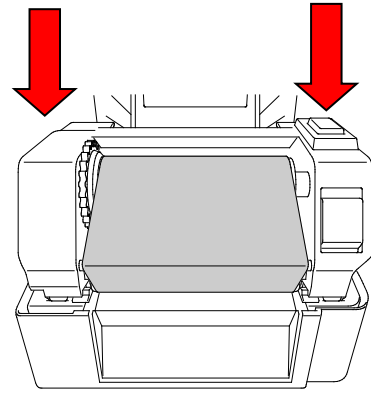
Ribbon Loading Path

1. Print Head
2. Ribbon Rewind Gear
3. Media Guide Tips
4. Platen Roller
5. Black Mark Sensor
6. Gap Sensor
7. Ribbon
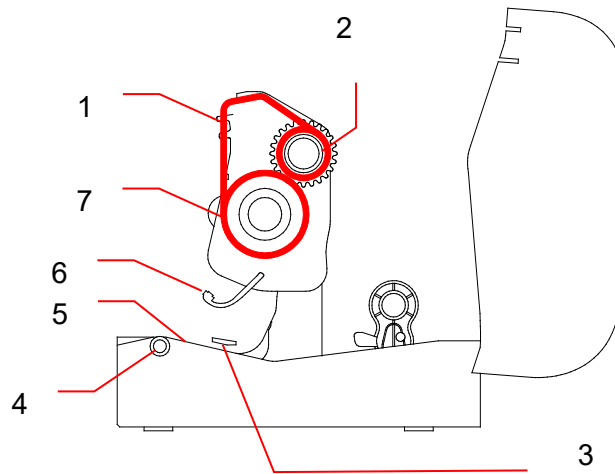
3.3 Loading the Media

3.3.1 Loading the Label Rolls

1. Open the Roll Compartment Cover by pressing the tabs located on each side of the printer.
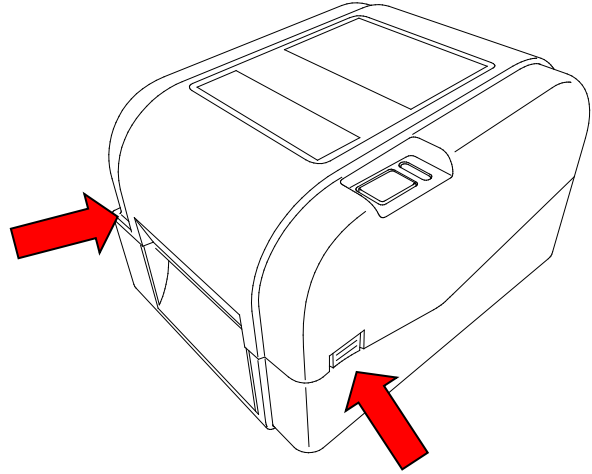
2. Push up the lock switch to unlock the Roll Guides.
   Slide both Roll Guides outwards.
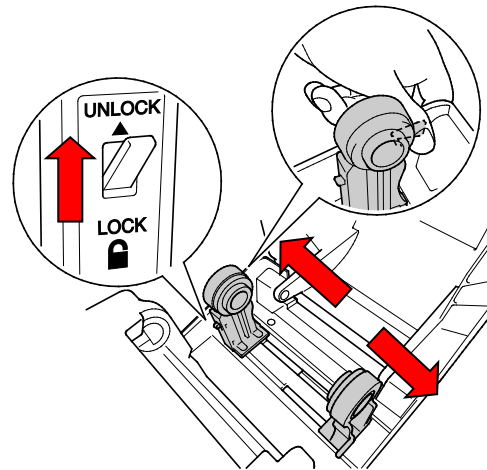
3. Insert the paper roll with the labels facing up, as shown in the illustration.
   Push down the lock switch to lock the Roll Guides into place.

   📝 **Note**

   Make sure that the label print side is facing up.
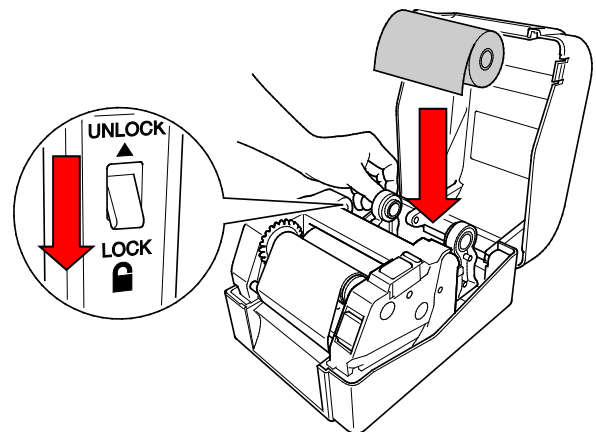
4. Push the Print Head Release Button to open the Print Head mechanism.

5. Thread the labels under the Print Head mechanism and feed the paper through the Label Output Slot. Position the end of the paper slightly out of the Label Output Slot.

Gap Sensor

Platen Roller
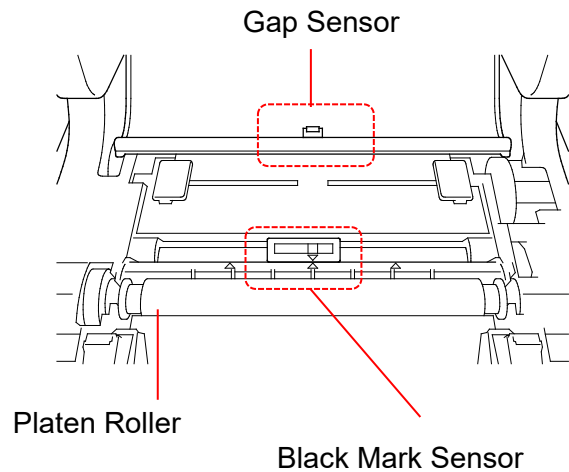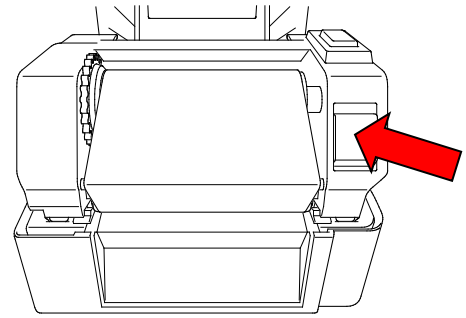
Black Mark Sensor

> 📝 **Note**
>
> The Black Mark Sensor is moveable and the Gap Sensor is fixed. Make sure you align the Black Mark Sensor Slider with the installed media and that the position of the media's gap/black mark is aligned with the Gap Sensor.

6. Adjust the Media Guide Tips to fit the label width.
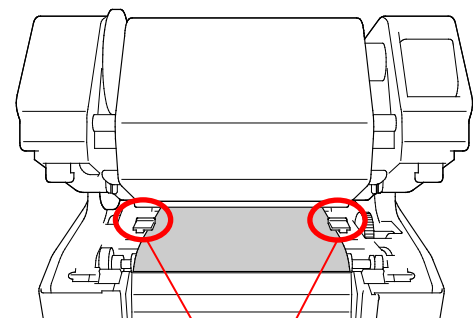
Media Guide Tips

7. Close the Print Head mechanism with both hands until it locks into place.	
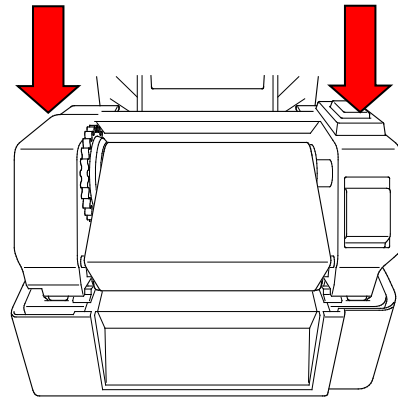
8. Use the Brother Printer Management Tool to set the media sensor type and calibrate the selected sensor.
   a. Start the BPM.
   b. Click the **Printer Function** button.
   c. Click the **Calibrate** button.
For more information about sensor calibration, see section 6.2.	
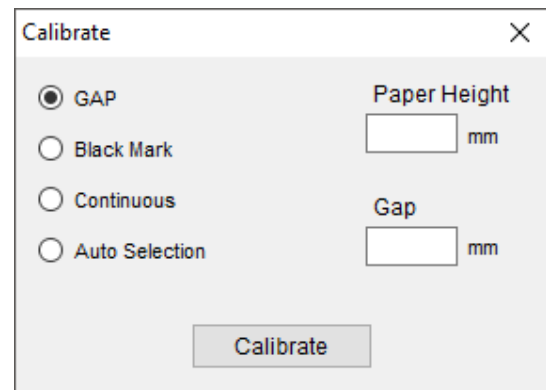
✎ **Note**

Calibrate the Gap/Black Mark Sensor every time you change the media.

Media Loading Path

1. Print Head
2. Ribbon Rewind Gear
3. Media
4. Media Guide Tips
5. Platen Roller
6. Black Mark Sensor
7. Gap Sensor
8. Ribbon
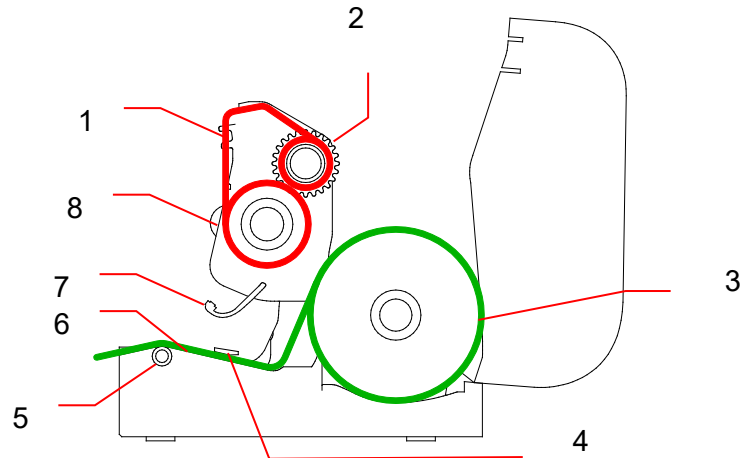
⚠ **WARNING**

DO NOT touch rotating parts. There is a risk of injury if your finger is caught in the rotating gear. Turn off the product before touching the mechanism.

3.3.2 External Label Roll Mount Installation (Optional)

1. Tighten the screws on the metal fittings of the extended plate.	
2. Attach the extended plate to the bottom of the printer.	
3. Insert a 3" (76.2 mm) Label Spindle into a paper roll. Then, install it on the External Paper Roll Mount.	3" (76.2 mm) Label Spindle
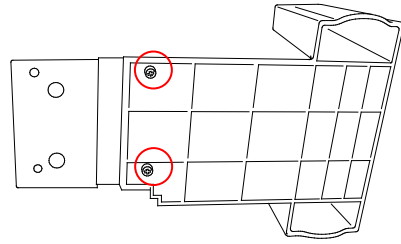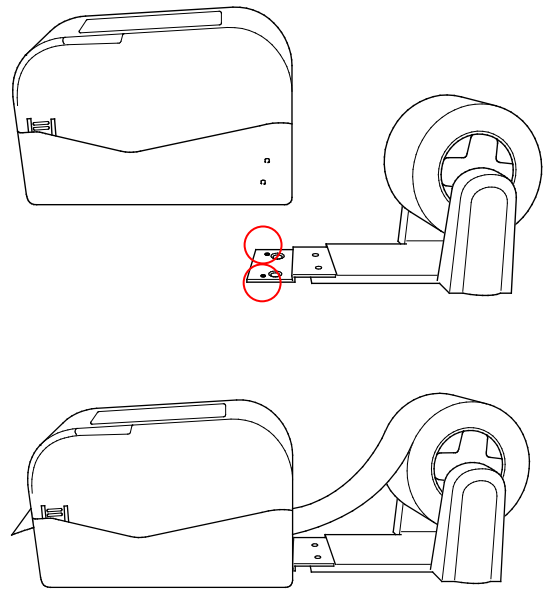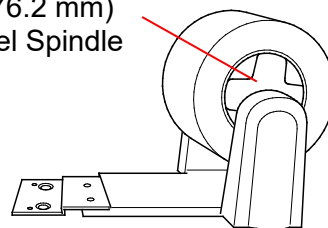
4. Feed the media through the rear label feed slot.

   📝 **Note**

   Make sure that the label print side is facing up.
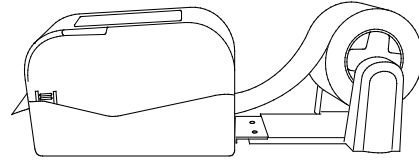
5. Open the Roll Compartment Cover. Slide the Roll Guides outwards, and then align the paper width with the Roll Guides. Push down the lock switch to lock the Roll Guide.
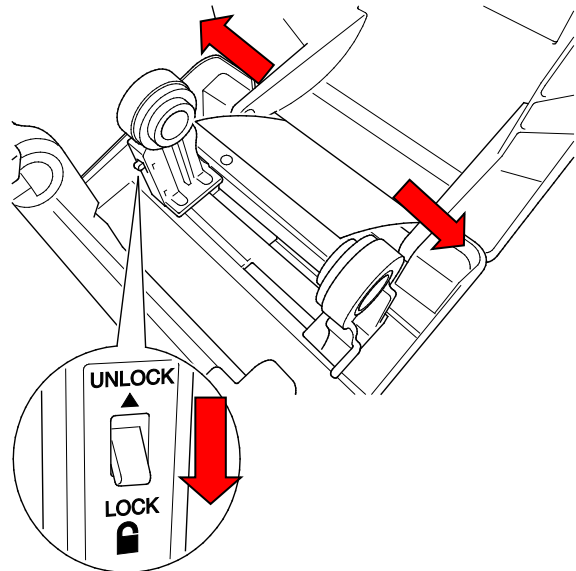
6. Install the label roll as described in section 3.3.1.
7. Turn the Media Guide Hub, and match the Media Guide width to the paper width.
8. Use the Brother Printer Management Tool to set the media sensor type and calibrate the selected sensor.
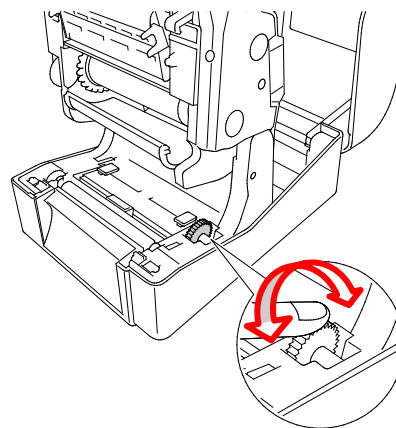
📝 **Note**

Calibrate the Gap/Black Mark Sensor every time you change the media.

3.3.3 Loading the Media in Cutter mode (Dealers only)

1. Install the label roll as described in section 3.3.1.
2. Use the Brother Printer Management Tool to set the media sensor type and calibrate the selected sensor.
3. Open the Roll Compartment Cover by pressing the tabs located on each side of the printer.
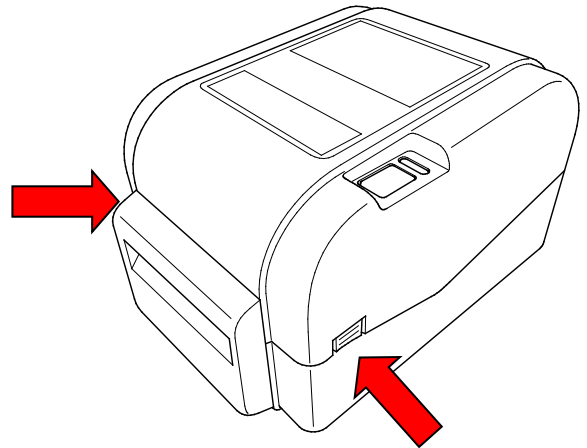
4. Push the Print Head Release Button to open the Print Head mechanism and feed the media through the media sensor. Adjust the Media Guide Tips to fit the label width.
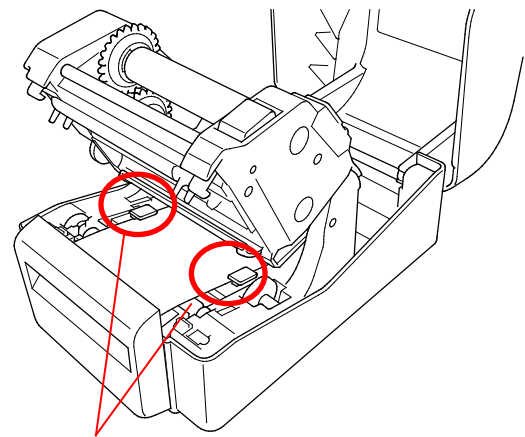
Media Guide Tips

5. Push the media through the Cutter Output Slot.

   ✎ **Note**

   Make sure that the label print side is facing up.
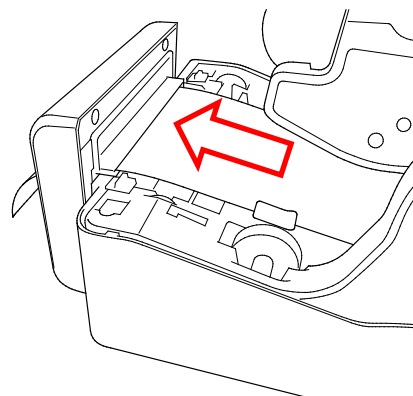
6. Close the Print Head mechanism with both hands until it locks into place.
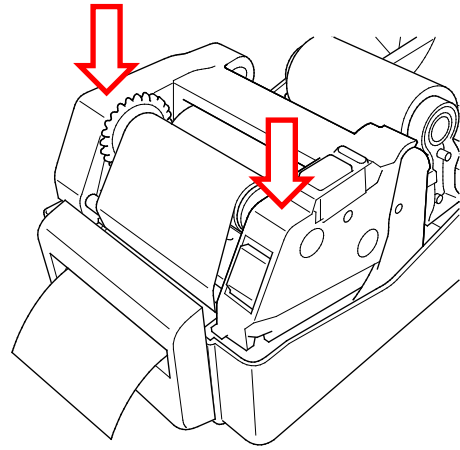
7. Close the Roll Compartment Cover.

8. Use the Brother Printer Management Tool to set the printer for cutter mode.

   a. Start the BPM.

   b. Click the **Printer Configuration** button.

   c. Select the **FBPL** tab.

   d. Select the **CUTTER** option from the **Post-Print Action** drop-down list.

   e. Click **Set**.
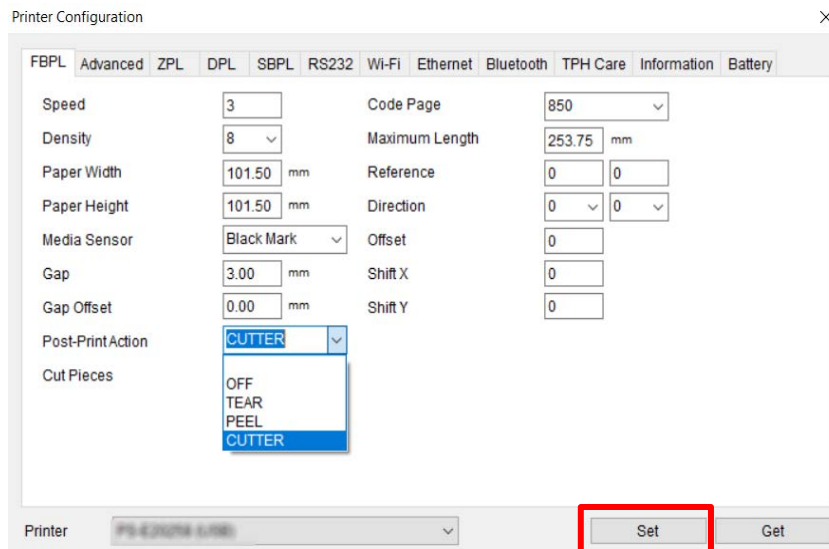
   f. Press the Feed/Pause Button to test.
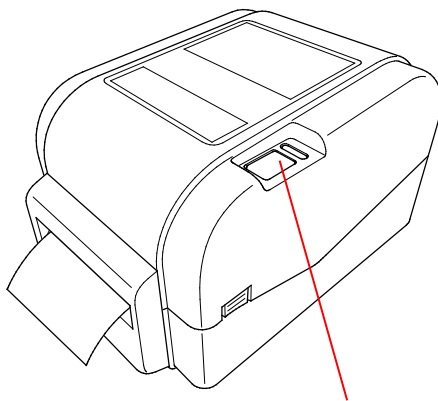
Feed/Pause Button

3.3.4 Loading the Media in Peel-off Mode (Dealers only)
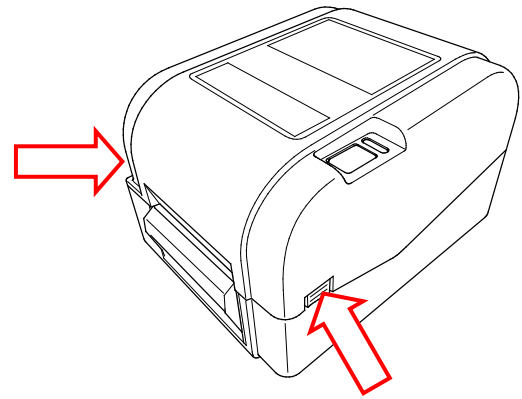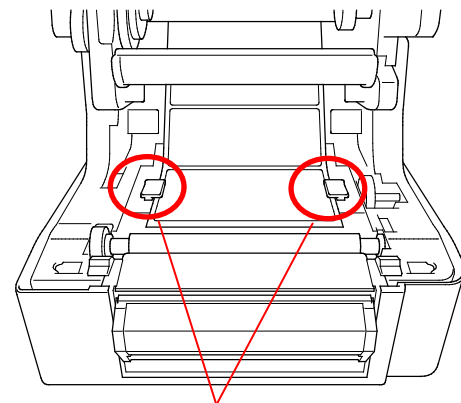
1. Install the label roll as described in section 3.3.1. 2. Use the Brother Printer Management Tool to set the media sensor type and calibrate the selected sensor. 3. Open the Roll Compartment Cover by pressing the tabs located on each side of the printer.	
4. Push the Print Head Release Button to open the Print Head mechanism and feed the media through the media sensor. Adjust the Media Guide Tips to fit the label width.	 Media Guide Tips
5. Pull the media out of the printer and remove some labels, leaving the liner only. > 📝 **Note** > Make sure that the label print side is facing up.	 Label Liner
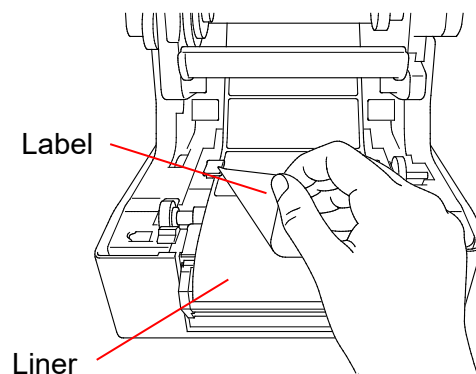
6. Open the Label Peeler Cover. Feed the liner into Label Peeler Cover Slot.	 Label Peeler Cover Slot
7. Close the Label Peeler Module.	
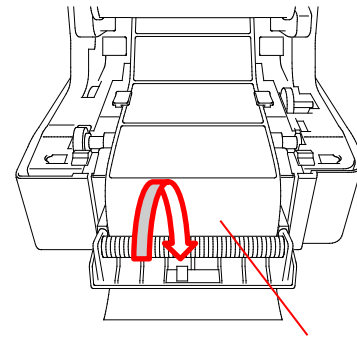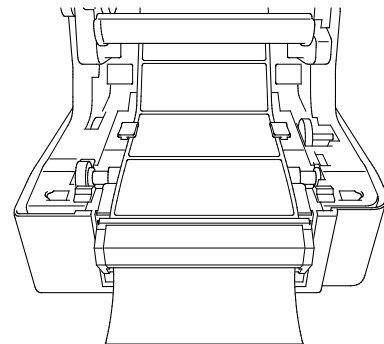
8.   Use the Brother Printer Management Tool to set the Label Peeler mode.

    a.   Start the BPM.

    b.   Click the **Printer Configuration** button.

    c.   Select the **FBPL** tab.

    d.   Select the **PEEL** option from the **Post-Print Action** drop-down list.

    e.   Click **Set**.
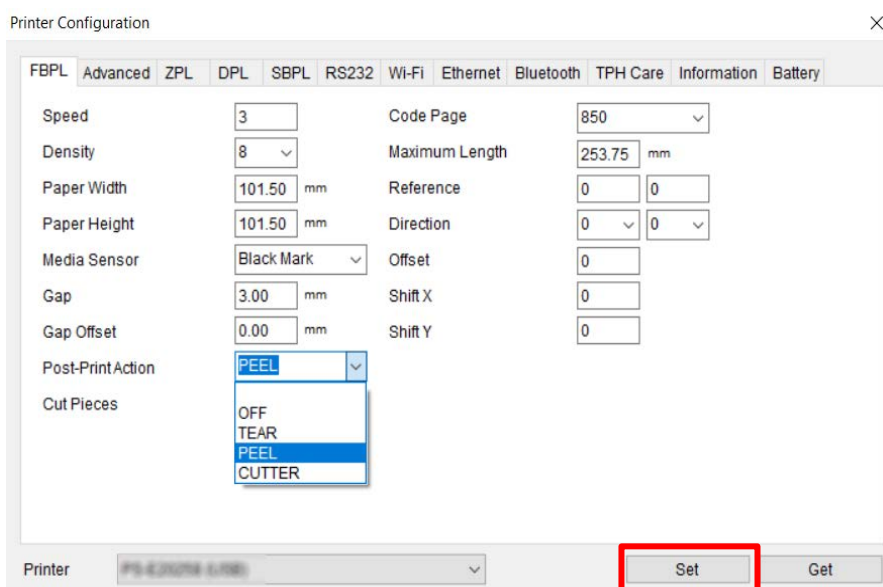
9. Close the Roll Compartment Cover.

📝 **Note**

The Label Peeler Module supports only plain paper.

4. Printing

4.1 Printer Driver Installation

> 📝 **Note**
>
> The model name and serial number are located on the back of the printer.

The driver installation method depends on the connection type:
- [USB Connection (Windows/Mac/Linux)](#)
- [Wired Network Connection (Windows)](#)

4.1.1 USB Connection (Windows/Mac/Linux)

> 📝 **Note**
>
> **Mac/Linux Users**
>
> For more information about driver installation, see the driver installation guide provided with the driver.

1. Connect your printer to the computer using a USB cable.
2. Visit support.brother.com, go to your model's **Downloads** page, and download the latest printer driver and software.
3. Run the Seagull Driver Wizard application and select **Install printer drivers** and **USB**.
4. Follow the on-screen instructions.

> 📝 **Note**
>
> If you cannot install a printer driver:
>
> - Install a printer driver manually:
>   In the Seagull Driver Wizard application, select **Install printer drivers** > **Others**.
> - Remove the printer drivers:
>   In the Seagull Driver Wizard application, select **Remove printer drivers** > **Automatically remove all Drivers by Seagull** or **Use advanced printer driver removal options**.
> - Reset the printer settings:
>   Start the BPM, and then click **Printer Function** > **Factory Default**.

4.1.2 Wired Network Connection (Windows)

1. Connect both the printer and the computer to your router/access point using LAN cables. The printer automatically receives a default IP address. Then it is displayed on the main screen of the BPM (Brother Printer Management Tool) or in the Ethernet tab within the Printer Configuration.
2. Visit support.brother.com, go to your model's **Downloads** page, and download the latest printer driver and software.
3. Run the Seagull Driver Wizard application and select **Install printer drivers** and **Network**.
4. Select your printer, and then click **Next**.
5. If your TCP/IP port does not appear in the list, click **Create port** and select **Standard TCP/IP port** > **New Port**.
6. Type your printer's IP address and port name, and then click **Next**.
7. Click **Finish**.
8. Return to the **Specify Port** window and select the port you created.
9. Follow the on-screen instructions.

📝 **Note**

If you cannot install a printer driver:

- Remove the printer drivers:
  In the Seagull Driver Wizard application, select **Remove printer drivers** > **Automatically remove all Drivers by Seagull** or **Use advanced printer driver removal options**.
- Reset the printer settings:
  Start the BPM, and then click **Printer Function** > **Factory Default**.

4.2 Creating and Printing Labels Using BarTender

BarTender is a label creation tool, which can be downloaded for free from the product's page at support.brother.com.
This software is only available for Windows.

1. Launch BarTender.

2. Follow the on-screen steps to create a label.
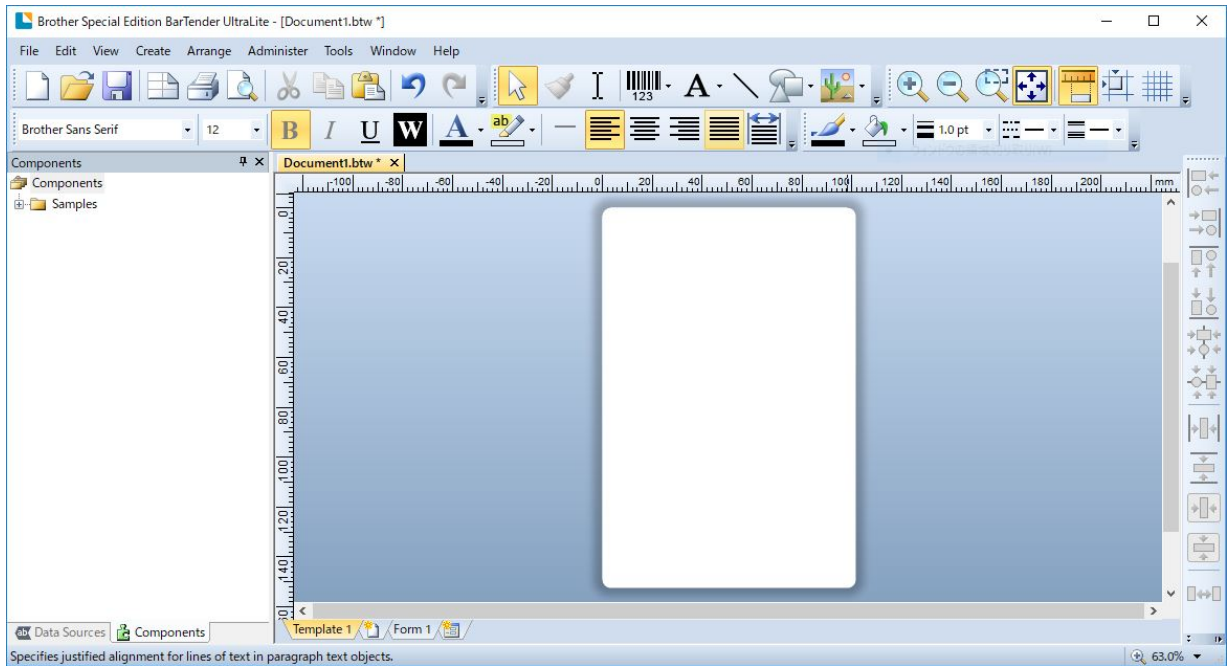
Note

For more information on using BarTender, click **Help**.

3. Click **File** > **Print** to print the label.

Note

When the Partial Cut setting is selected, a blank area of about 1.57" (40 mm) is added between the cut line and the print area, as illustrated.

Partial Cut is only available when the Cutter Module is installed on your printer.

additional length

additional length
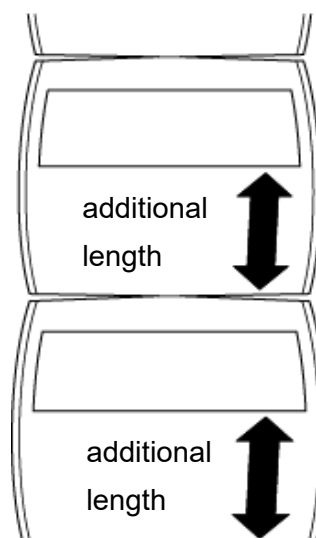
5. The LED Indicator and Feed/Pause Button Functions

By using the printer's Feed/Pause Button and the three-color LED Indicator, you can feed labels, pause print jobs, select and calibrate sensors, print the printer self-test report, and restore the printer's factory settings.

5.1 The LED Indicator

LED Color	Description
Green (Lit)	The power is on and the printer is ready to use.
Green (Flashing)	· The printer is downloading data from a computer. · The printer is paused.
Amber	The printer removes data.
Red (Lit)	· The Print Head is open. · There is a problem with the Cutter.
Red (Flashing)	There is a memory error or printing error (for example: paper jam, Print Head is open, paper is empty, or the ribbon is empty).

5.2 The Feed/Pause Button Functions

1. Feed Labels

To feed a label, press the Feed/Pause Button when the printer's LED is lit in green.

2. Pause Print Jobs

To pause a print job, press the Feed/Pause Button.
The LED flashes in green. To resume the print job, press the button again.

5.3 Power-on Utilities

There are six power-on utilities to set up and test the printer's functions.

To activate a power-on utility:
1. Turn off the printer.
2. Press and hold the Feed/Pause Button, and then turn on the printer.
3. Release the button when the LED indicates the function you want:

Power-On Utility	LED Patterns						
LED color Function	Amber	Red (5 times)	Amber (5 times)	Green (5 times)	Green/Amber (5 times)	Red/Amber (5 times)	Green (Lit)
1. Gap/Black Mark Sensors calibration		✔					
2. Gap/Black Mark Sensor calibration, self-test, and entering dump mode			✔				
3. Printer initialization				✔			
4. Media sensor calibration (For the Black Mark Sensor)					✔		
5. Media sensor calibration (For the Gap Sensor)						✔	
6. Skip the AUTO.BAS program							✔

5.3.1 Gap/Black Mark Sensors Calibration

The Gap/Black Mark Sensor sensitivity should be calibrated when:

● A new printer is purchased

● Label stock is changed

● Printer initialization takes place

To calibrate the ribbon and Gap/Black Mark Sensors:

1. Turn off the printer.

2. Press and hold the Feed/Pause Button, and then turn on the printer.

3. Release the button when the LED is flashing in red.

🗎 **Note**

● The LED color will change as follows:

Amber → **red (5 times)** → amber (5 times) → green (5 times) → green/amber (5 times) → red/amber (5 times) → green (lit)

● To select the sensor for calibration, send the correct command to the printer:

· For the Gap Sensor: send the GAP command

· For the Black Mark Sensor: send the BLINE command

For more information about the available commands, see the *FBPL Command Reference Manual*.

5.3.2 Gap/Black Mark Sensor Calibration, Self-Test, and Entering Dump Mode

During the calibration of the Gap/Black Mark Sensor, the printer will detect the label length, print the internal configuration (self-test), and then enter the dump mode. Calibrate the Gap or Black Mark Sensor if the sensor's settings used in the last print job are not suitable for the current print job.

To calibrate the Gap/Black Mark Sensor:

1. Turn off the printer.
2. Press and hold the Feed/Pause Button, and then turn on the printer.
3. Release the button when the LED is flashing in amber.

📝 **Note**

The LED color will change as follows:

Amber → red (5 times) → **amber (5 times)** → green (5 times) → green/amber (5 times) → red/amber (5 times) → green (lit)

---

4. The printer calibrates the sensor and detects the label length, prints the internal settings, and then enters the dump mode.

📝 **Note**

To select the sensor for calibration, send the correct command to the printer:

● For the Gap Sensor: send the GAP command
● For the Black Mark Sensor: send the BLINE command

For more information about the available commands, see the *FBPL Command Reference Manual*.

■ Self-test

You can print the printer configuration after the Gap/Black Mark Sensor calibration. Self-test printouts list the printer's configuration and available memory space, and can indicate whether there is any dot damage on the heater component.

Self-test printout	
| ```
--------------------------------
       SYSTEM INFORMATION
--------------------------------
    MODEL: XXXXXX
 FIRMWARE: X.XX
 CHECKSUM: XXXXXXXX
      S/N: XXXXXXXXXXX
      TCF: NO
     DATE: 1970/01/01
     TIME: 00:04:18
NON-RESET: 110      m (TPH)
    RESET: 110      m (TPH)
NON-RESET: 0          (CUT)
    RESET: 0          (CUT)
  BAD DOT: 0

--------------------------------
``` | Model name<br>Firmware version<br>Firmware checksum<br>Printer serial number<br>Configuration file<br>System date<br>System time<br>Printed mileage (meter)<br>Cutting counter<br><br>Number of defective dots |
| ```
--------------------------------
       PRINTING SETTING
--------------------------------
    SPEED: 5 IPS
  DENSITY: 8.0
    WIDTH: 4.00 INCH
   HEIGHT: 4.00 INCH
      GAP: 0.00 INCH
INTENSION: 5
 CODEPAGE: 850
  COUNTRY: 001
--------------------------------
``` | Print speed (inch/sec)<br>Print density<br>Label size (inch)<br>Gap distance (inch)<br>Gap/Black Mark Sensor sensitivity<br>Code page<br>Country code |
| ```
--------------------------------
          Z SETTING
--------------------------------
 DARKNESS: 16.0
    SPEED: 4 IPS
    WIDTH: 4.00 INCH
    TILDE: 7EH  (~)

    CARET: 5EH  (^)
DELIMITER: 2CH  (,)
 POWER UP: NO MOTION
HEAD CLOSE: NO MOTION
--------------------------------
``` | Print darkness<br>Print speed (inch/sec)<br>Label size<br>Control prefix<br>Format prefix<br>Delimiter prefix<br>Printer power up motion<br>Print Head close motion |
| ```
--------------------------------
        RS232 SETTING
--------------------------------
     BAUD: 9600
   PARITY: NONE
 DATA BIT: 8
 STOP BIT: 1
--------------------------------
``` | RS232 Serial Port configuration |

```
    --------------------------------
            ETHERNET SETTING
    --------------------------------
          NAME: XXXXX ─────────────────── Printer name
     MAC ADDR: XXXXX ─────────────────── Mac Address
          DHCP: ON ───────────────────── DHCP
      IP ADDR: 0.0.0.0 ───────────────── IP Address
       SUBNET: 0.0.0.0 ───────────────── Subnet Mask
      GATEWAY: 0.0.0.0 ───────────────── Gateway
          PORT: 9100 ────────────────── RAW Port
    --------------------------------
```

```
    --------------------------------
         DRAM FILE (0 FILES)
    --------------------------------
        PHYSICAL   XXXX  KBYTES
        AVAILABLE  XXXX  KBYTES
    --------------------------------

    --------------------------------
         FLASH FILE (0 FILES)
    --------------------------------
        PHYSICAL   XXXX  KBYTES
        AVAILABLE  XXXX  KBYTES
    --------------------------------
```

Number of downloaded files
Total and available memory space

Print Head check pattern

■ Dump mode

The printer will enter dump mode after printing the printer configuration. This mode allows users to verify and debug the printer's programs. The characters in the left column are received from the printer's system and those in the right column are their hexadecimal representation.

ASCII data →

```
SPEED 2.0     53 50 45 45 44 20 32 2E 30 0D
DENSITY 8     0A 44 45 4E 53 49 54 59 20 38
   SET PEEL   0D 0A 53 45 54 20 50 45 45 4C
OFF   DIRE    20 4F 46 46 0D 0A 44 49 52 45
CTION 0   G   43 54 49 4F 4E 20 30 0D 0A 47
AP 3.00 mm    41 50 20 33 2E 30 30 20 6D 6D
,0.00 mm      2C 30 2E 30 30 20 6D 6D 0D 0A
REFERENCE     52 45 46 45 52 45 4E 43 45 20
0,0  SET C    30 2C 30 0D 0A 53 45 54 20 43
UTTER OFF     55 54 54 45 52 20 4F 46 46 0A
  SIZE 100.   0A 53 49 5A 45 20 31 30 30 2E
02 mm,65.0    30 32 20 6D 6D 2C 36 35 2E 30
4 mm   CLS    34 20 6D 6D 0D 0A 43 4C 53 0D
  BARCODE 1   0A 42 41 52 43 4F 44 45 20 31
44,149,"39    34 34 2C 31 34 39 2C 22 33 39
",120,1,0,    22 2C 31 32 30 2C 31 2C 30 2C
2,6,"57114    32 2C 36 2C 22 35 37 31 31 34
38T"  PRIN    33 38 54 22 0D 0A 50 52 49 4E
T 1,1  SPE    54 20 31 2C 31 0D 0A 53 50 45
ED 2.0  DE    45 44 20 32 2E 30 0D 0A 44 45
NSITY 8  S    4E 53 49 54 59 20 38 0D 0A 53

ET PEEL OF    45 54 20 50 45 45 4C 20 4F 46
F  DIRECTI    46 0D 0A 44 49 52 45 43 54 49
ON 0  GAP     4F 4E 20 30 0D 0A 47 41 50 20
3.00 mm,0.    33 2E 30 30 20 6D 6D 2C 30 2E
00 mm  REF    30 30 20 6D 6D 0D 0A 52 45 46
ERENCE 0,0    45 52 45 4E 43 45 20 30 2C 30
  SET CUTT    0D 0A 53 45 54 20 43 55 54 54
ER OFF  SI    45 52 20 4F 46 46 0D 0A 53 49
ZE 100.02     5A 45 20 31 30 30 2E 30 32 20
mm,65.04 m    6D 6D 2C 36 35 2E 30 34 20 6D
m   CLS  BA   6D 0D 0A 43 4C 53 0D 0A 42 41
RCODE 144,    52 43 4F 44 45 20 31 34 34 2C
149,"39",1    31 34 39 2C 22 33 39 22 2C 31
20,1,0,2,6    32 30 2C 31 2C 30 2C 32 2C 36
,"5711438T    2C 22 35 37 31 31 34 33 38 54
"   PRINT 1   22 0D 0A 50 52 49 4E 54 20 31
,1            2C 31 0D 0A
```

← Hexadecimal representation of the ASCII data

📝 Note
- Dump mode requires 4" (101.5 mm) wide paper.
- To resume normal printing, turn the printer off and then on again.

5.3.3 Printer Initialization

Printer initialization clears the printer's DRAM and restores its factory settings.

To activate printer initialization:

1. Turn off the printer.
2. Press and hold the Feed/Pause Button, and then turn on the printer.
3. Release the button after the amber LED flashes five times and the LED is lit in green.

📝 Note
The LED color will change as follows:

Amber → red (5 times) → amber (5 times) → **green (5 times)** → green/amber (5 times) → red/amber (5 times) → green (lit)

After the initialization, the following factory settings will be restored:

Parameter	Default Values
Speed	127 mm/sec (5 ips) (203DPI)
	76 mm/sec (3 ips) (300DPI)
Density	8
Label Width	4" (101.5 mm)
Label Height	4" (101.5 mm)
Sensor Type	Gap Sensor
Gap Setting	0.12" (3 mm)
Print Direction	0
Reference Point	0,0 (upper left corner)
Offset	0
Tear Mode	On
Label Peeler Off Mode	Off
Cutter Mode	Off
Code Page	850
Country Code	001
Clear Flash Memory	No

5.3.4 Media Sensor Calibration (For the Black Mark Sensor)

1. Turn off the printer.
2. Press and hold the Feed/Pause Button, and then turn on the printer.
3. Release the button after the green LED flashes five times and when the LED is lit in green/amber.

✎ **Note**

The LED color will change as follows:

Amber → red (5 times) → amber (5 times) → green (5 times) → **green/amber (5 times)** → red/amber (5 times) → green (lit)

5.3.5 Media Sensor Calibration (For the Gap Sensor)

1. Turn off the printer.
2. Press and hold the Feed/Pause Button, and then turn on the printer.
3. Release the button after the green/amber LED flashes five times and the LED is lit in red/amber.

🖉 **Note**

The LED color will change as follows:

Amber → red (5 times) → amber (5 times) → green (5 times) → green/amber (5 times) → **red/amber (5 times)** → green (lit)

5.3.6 Skip the AUTO.BAS program

The user can upload the AUTO.BAS program to the printer's flash memory so that it can be run automatically at startup.

To prevent the AUTO.BAS program from running at startup:
1. Turn off the printer.
2. Press the Feed/Pause Button, and then turn on the printer.
3. Release the button when the LED is lit in green.

🖉 **Note**

The LED color will change in the following order:

Amber → red (5 times) → amber (5 times) → green (5 times) → green/amber (5 times) → red/amber (5 times) → **green (lit)**

---

4. The printer will start without running the AUTO.BAS program.

6. BPM (Brother Printer Management Tool)

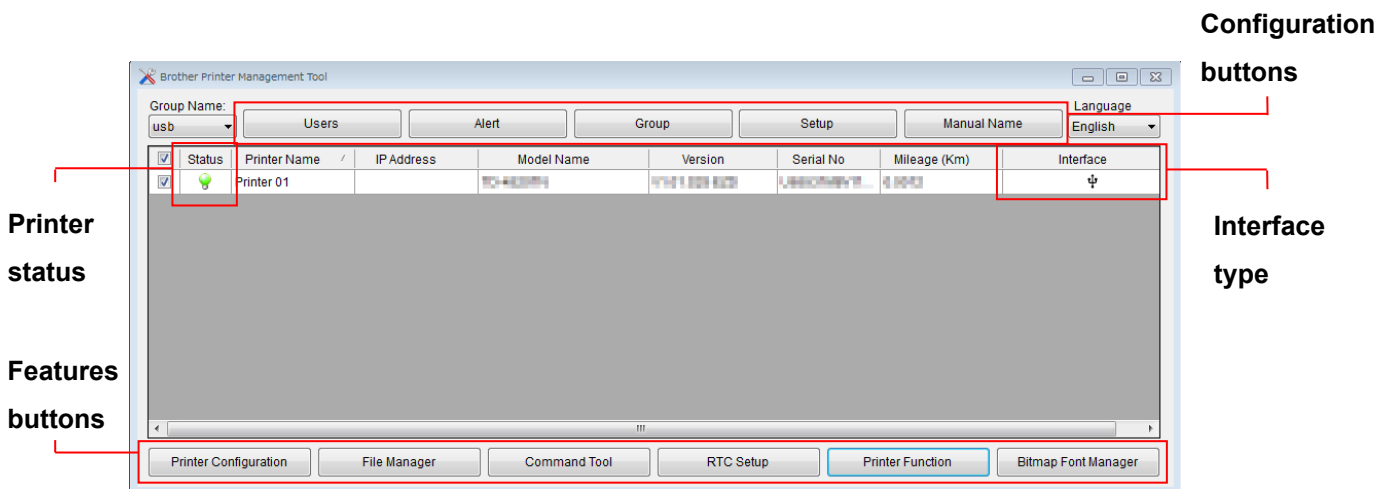The Brother Printer Management Tool is an integrated tool allowing you to:

- Check a printer's status and settings.
- Change printer settings.
- Send additional commands to a printer.
- Download graphics and fonts.
- Create a printer bitmap font.
- Download and update firmware.

Using this tool, you can also review your printer's status and settings to troubleshoot any problems.

This software is only available for Windows.

6.1 Start the BPM

1. Double-click the BPM icon to start the software.

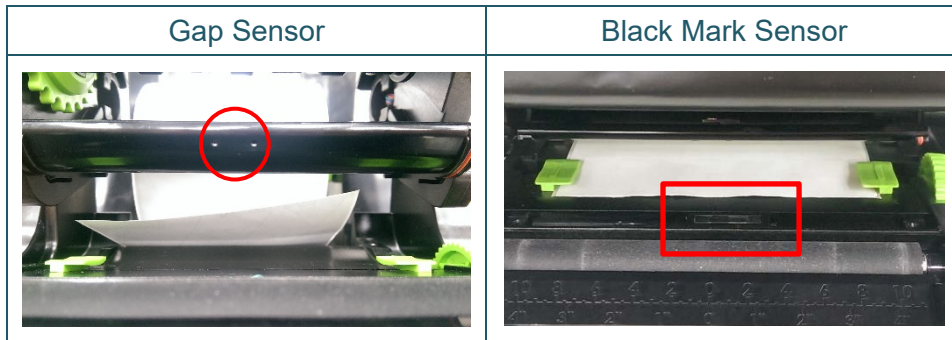BPM's main screen allows you to access the following options:

- Printer Configuration
- File Manager
- Command Tool
- RTC Setup
- Printer Function
- Bitmap Font Manager

For more information, see the *Brother Printer Management Tool Quick Start Guide*.

6.2 Calibrating the Media Sensor using the BPM

6.2.1 Auto Calibration

Use the BPM to set the media sensor type (Gap Sensor or Black Mark Sensor) and calibrate the selected sensor.

Gap Sensor	Black Mark Sensor

The transmissive/gap sensor detects the beginning of the label and feeds the label to the correct position.

The reflective/black mark sensor detects the mark and feeds the media to the correct position.

1. Make sure the media is already installed and the Print Head mechanism is closed. (See section 3.3)
2. Turn on the printer.
3. Start the BPM.
4. Click the **Printer Function** button.
5. Click the **Calibrate** button.
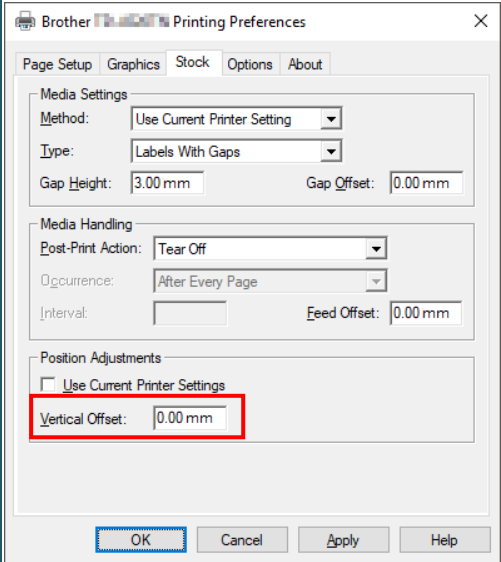6. Select the sensor media type and click **Calibrate**.

7. Troubleshooting

This chapter explains how to resolve typical problems you may encounter when using the printer. If you have any problems with the printer, first make sure you have performed the following tasks correctly.

If you still have problems, contact the product manufacturer's customer service or your local dealer.

Problem	Possible Cause	Solution
The LED Indicator is not lit.	The Power Cord is not correctly connected.	· Make sure the printer is correctly connected to the power outlet (electrical socket) using the Power Cord. · Turn the printer on.
- The Brother Printer Management Tool shows **Head Open**. - The LED flashes in red.	The Print Head mechanism is open.	Close the Print Head mechanism.
- The Brother Printer Management Tool shows **Out of Ribbon** or **Ribbon Encoder Err.** - The LED flashes in red.	· The ribbon has run out. · The ribbon is installed incorrectly.	· Install a new ribbon roll. · To install a new ribbon roll, see section 3.2.
- The Brother Printer Management Tool shows **Out of Paper**. - The LED flashes in red.	· The label has run out. · The label is installed incorrectly. · The Gap/Black Mark Sensor is not calibrated.	· Install a new label roll. · To install a new label roll, see section 3.3. · Calibrate the Gap/Black Mark Sensor.
- The Brother Printer Management Tool shows **Paper Jam**. - The LED flashes in red.	· The Gap/Black Mark Sensor is not calibrated. · Make sure label size is set correctly. · Labels may be stuck inside the Printer Head mechanism.	· Calibrate the Gap/Black Mark Sensor. · Set the label size correctly.
I cannot print.	· The cable is not connected to the serial or USB interface. · The serial port cable is not correctly connected.	· Re-connect the serial or USB cable. · Try a new cable. · Use a correct ribbon or media. · Check the ribbon for damage. · Reinstall the ribbon. · Clean the Print Head. · Adjust the print density and print speed. · The Print Head's harness connector is not connected correctly with the Print Head. Turn off the printer and plug the connector again. · Make sure that your program contains the PRINT command at the end of the file and a CRLF at the end of each command line.
Memory full (FLASH/DRAM).	The FLASH/DRAM storage is full.	Delete unused files from the FLASH/DRAM.

Problem	Possible Cause	Solution
Poor Print Quality.	· The ribbon/media is loaded incorrectly. · Dust or adhesive has accumulated on the Print Head. · The print density is set incorrectly. · The Print Head mechanism is damaged. · The ribbon/media are incompatible.	· Reload the media/ribbon. · Clean the Print Head. · Clean the Platen Roller. · Adjust the print density and print speed. · Run the printer self-test and check the Print Head test pattern for missing dots. · Install the correct ribbon/media.
Labels are skipped when printing.	· The label size is not specified correctly. · The sensor sensitivity is not set correctly. · The media sensor is dirty.	· Check if the label size is set up correctly. · Calibrate the sensor using the Auto Gap or Manual Gap options. · Clean the Gap/Black Mark Sensor using a blower brush.
The printing position of small labels is incorrect.	· The media sensor sensitivity is not set correctly. · The label size is incorrect. · The vertical offset setting in the driver is incorrect.	· Calibrate the sensor sensitivity again. · Set the correct label size and gap size. · If using the BarTender software, set the Vertical Offset in the driver. ![Brother Printing Preferences dialog showing Stock tab with Media Settings, Media Handling, and Position Adjustments sections; Vertical Offset 0.00 mm highlighted]
Incomplete printing on the left or right side of label.	The label size is set up incorrectly.	Set the correct label size.
Warped labels.	· The ribbon is installed incorrectly. · The media is installed incorrectly. · The print density setting is incorrect. · The media is not fed correctly.	· Adjust the print density to improve the print quality. · Make sure the label guide touches the edge of the Media Guide Tips.
Blank labels with gray lines.	· The Print Head is dirty. · The Platen Roller is dirty.	· Clean the Print Head. · Clean the Platen Roller.
Irregular printing.	The printer is in Hex Dump mode.	Turn the printer on and off to skip the dump mode. (See section 5.3.2)
The media wraps around the platen roller.	The label adhesive is on the Platen Roller.	Clean the Platen Roller regularly.

For more information about cleaning the printer, see section 8.

8. Maintenance

We recommend cleaning your printer on a regular basis to maintain its correct performance.

Recommended cleaning materials:

- Cotton swab
- Lint-free cloth
- Vacuum / Blower brush
- Compressed air
- Isopropyl alcohol or ethanol

Printer Part	Cleaning Method	Interval
Print Head	1. Turn the printer off. 2. Allow the Print Head to cool down for at least one minute. 3. Wipe the Print Head with a cotton swab dipped in isopropyl alcohol or ethanol.	Clean the Print Head when changing a label roll.
Platen Roller	1. Turn the printer off. 2. Rotate the Platen Roller and wipe it thoroughly with a lint-free cloth or cotton swab dipped in isopropyl alcohol or ethanol.	Clean the Platen Roller when changing a new label roll.
Tear Bar/Peel Bar	Wipe it with a lint-free cloth dipped in isopropyl alcohol or ethanol.	As needed.
Sensor	Use compressed air or vacuum.	Monthly.
Exterior	Wipe the printer exterior with a lint-free cloth dipped in water.	As needed.
Interior	Use a brush or vacuum.	As needed.

IMPORTANT

Securely dispose of any printers, components, and supplies if they are no longer going to be used. Ensure there is no jammed paper in the printer and destroy the thermal transfer ribbon if it has retained any visible prints.

📝 **Note**

● Do not touch the Print Head. If you have touched it, clean it as described above.

● Do not use medical alcohol as it may damage the Print Head. Use isopropyl alcohol or