TOSHIBA

TOSHIBA Barcode Printer

B-EX4T2/D2 SERIES

Precautions for the handling of Wireless Communication Devices

Wireless LAN Module: SD-Link 11g (B-EX700-WLAN-QM-R), SX-590 (B-EX700-WLAN3-QM-S)

For Europe

This device was tested and certified by Notified Body.
Hereby, Toshiba TEC Corporation declares that this device is in compliance with the essential requirements and other relevant provisions.
This equipment uses the radio frequency band which has not been standardized throughout the EU and EFTA countries.

For Europe

This device was tested and certified by Notified Body.
Hereby, Toshiba TEC Corporation, declares that this device is in compliance with the essential requirements and other relevant provisions.
This equipment uses the radio frequency band which has not been harmonized throughout all EU and EFTA countries.

For Taiwan

Caution

根據低功率電波輻射性電機管理辦法

For safety

Do not operate this product in locations where its use may be prohibited. For example, in an aeroplane or hospital. If you are unsure whether operation is permitted, please refer to and follow the airline company or medical institution guidelines.
Otherwise, flight instrument or medical equipment may be affected, causing a serious accident.
This product may affect the operation of some implanted cardiac pacemakers and other medically implanted equipment. Pacemaker patients should be aware that the use of this product in close proximity to a pacemaker might cause the device to malfunction.
If you have any reason to suspect that interference is taking place, immediately turn off the product and contact your TOSHIBA TEC sales agent.
Do not disassemble, modify, or repair the product as doing so may cause injury.
Modification is also against the Laws and Regulations for Radio Equipment. Please ask your TOSHIBA TEC sales agent for repair.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment that is installed outdoors is subject to licensing.

This equipment should be installed and operated with at least 20cm and more between the radiator and person's body (excluding extremities: hands, wrists, feet and legs).

Do not use the 5GHz band for communication outdoors. Using wireless devices outdoors on the 5GHz band is prohibited. To operate the wireless LAN of this product outdoors, only use the 2.4GHz band.

Precaution in use

This product communicates with other devices by radio. Depending on the installation location, orientation, environment, etc., its communication performance may deteriorate or devices installed near by may be affected.

Keep away from a microwave.

Communication performance may deteriorate or a communication error may occur due to the radio emitted from a microwave.

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WARNING!

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

CAUTION!

1. *This manual may not be copied in whole or in part without prior written permission of TOSHIBA TEC.*
2. *The contents of this manual may be changed without notification.*
3. *Please refer to your local Authorized Service representative with regard to any queries you may have in this manual.*

1. PRODUCT OVERVIEW

1.1 Introduction

Thank you for choosing the TOSHIBA B-EX4T2/D2 series bar code printer. This Owner's Manual contains from general set-up through to how to confirm the printer operation using a test print, and should be read carefully to help gain maximum performance and life from your printer. For most queries please refer to this manual and keep it safe for future reference. Please contact your TOSHIBA TEC representative for further information concerning this manual.

1.2 Features

This printer has the following features:

- The print head block can be opened providing smooth loading of media and ribbon.
- Various types of media can be used as the media sensors can be moved from the center to the left edge of the media.
- Web based functions such as remote maintenance and other advanced network features are available.
- Superior hardware, including the specially developed 8 dots/mm (203 dots/inch) thermal print head which will allow very clear print at a printing speed of 3, 6, 10, or 12 inches/sec. and 3, 5, 8, 10, or 12 inches/sec. with 11.8 dots/mm (300 dots/inch) thermal head. 23.6 dots/mm (600 dpi) thermal print head which will allow very clear print at a printing speed of 2, 3, 4, 5, or 6 inches/sec.

B-EX4T2/D2	B-EX4T2	
203dip	300dpi	600dpi
3ips	3ips	2ips
6ips	5ips	3ips
10ips	8ips	4ips
12ips	10ips	5ips
	12ips	6ips

- Besides the optional Cutter Module, there is also an optional Peel off Module, RS-232C I/F card, Centronics I/F card, Expansion I/O Card, Wireless LAN I/F card, the RTC/USB host I/F card.

1.3 Unpacking

NOTES:

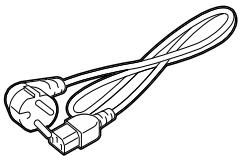
1. *Check for damage or scratches on the printer. However, please note that TOSHIBA TEC shall have no liability for any damage of any kind sustained during transportation of the product.*
2. *Keep the cartons and internal packing for future transportation of the printer.*

Unpack the printer as per the Unpacking Instructions supplied with the printer.

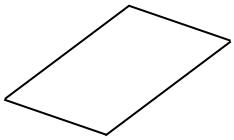
1.4 Accessories

When unpacking the printer, please make sure all the following accessories are supplied with the printer.

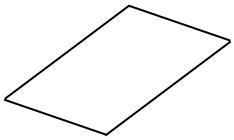
☐ Power cord



☐ Safety precautions



☐ Quick installation manual

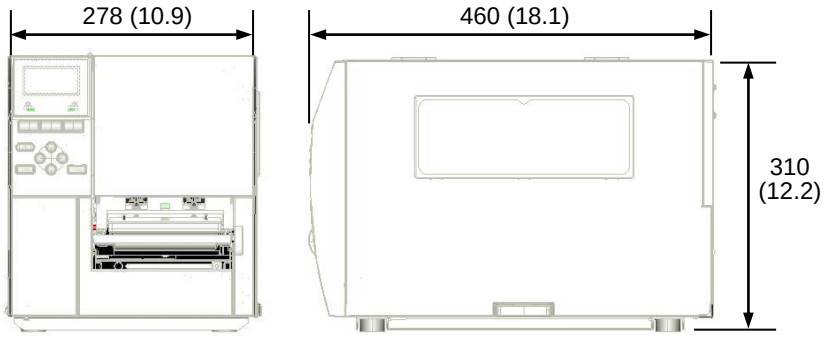


☐ CD-ROM(1pc.)

1.5 Appearance

The names of the parts or units introduced in this section are used in the following chapters.

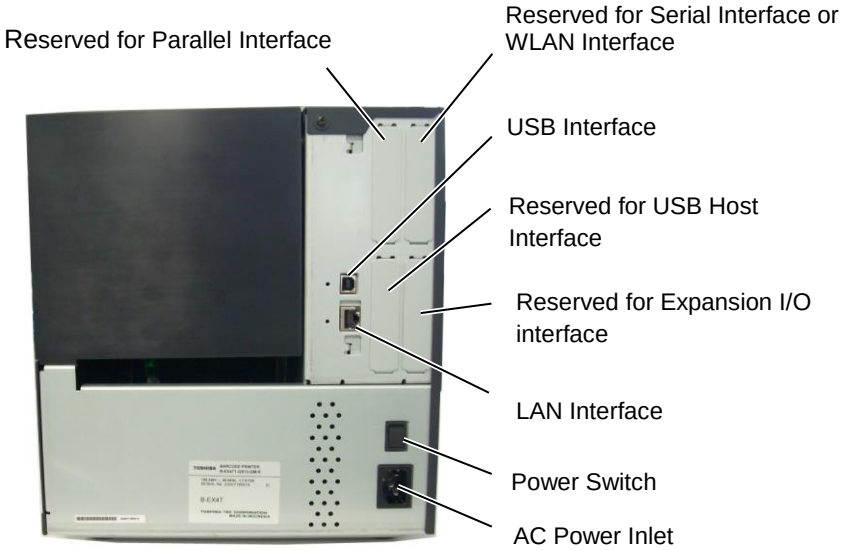
1.5.1 Dimensions



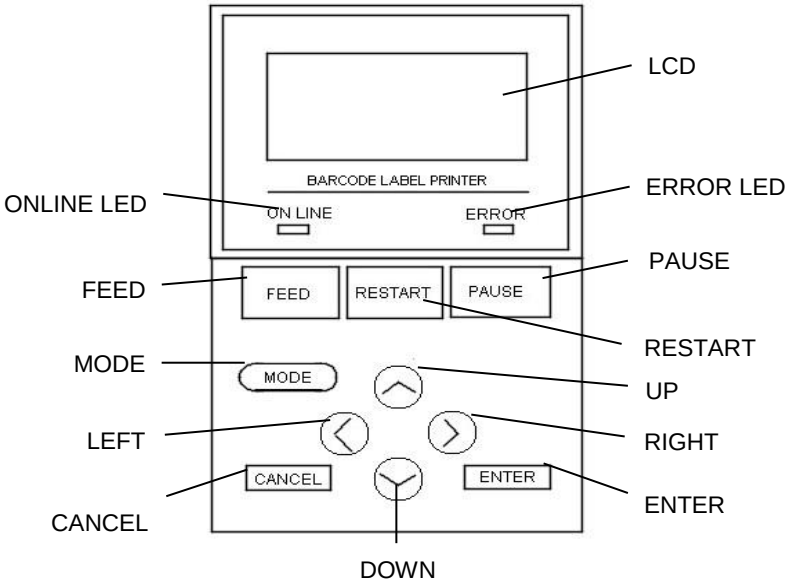
Dimensions in mm (inches)

1.5.2 Front View

1.5.3 Rear View

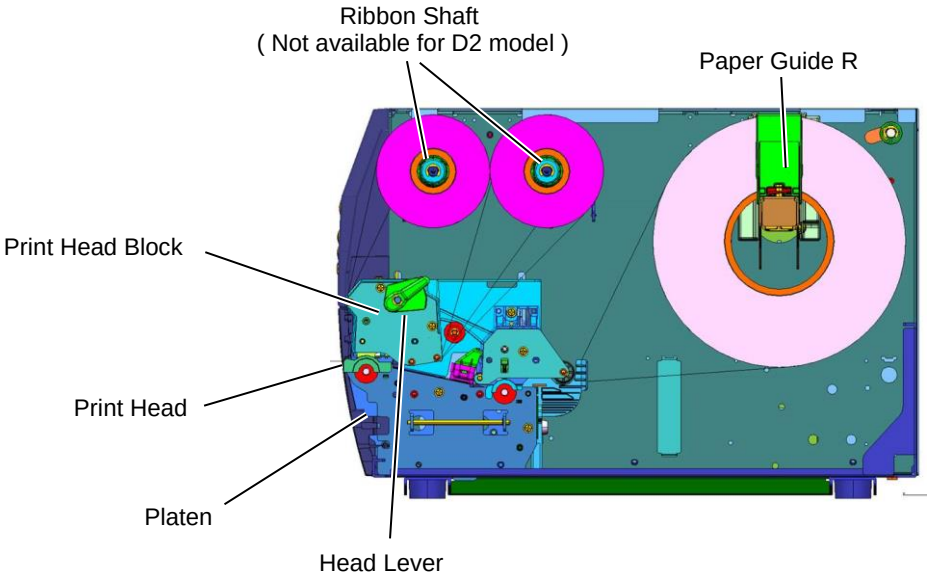


1.5.4 Operation Panel



Please see **Section 3** for further information about the Operation Panel.

1.5.5 Interior



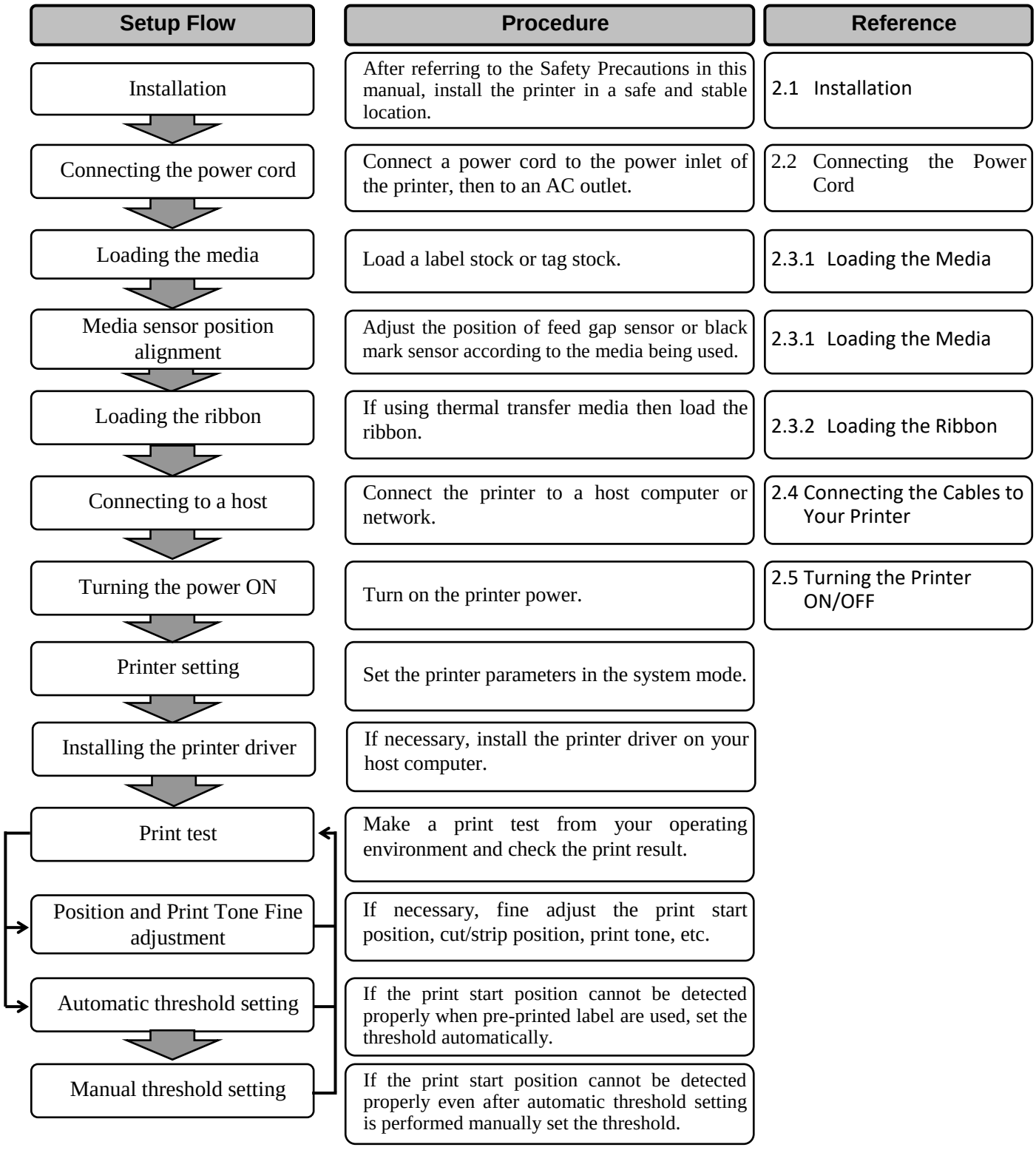
1.6 Option

Option Name	Type	Description
Disc cutter module	B-EX204-QM-R	Disc cutter Each time media is cut, the media feed is stopped.
Strip module	B-EX904-H-QM-R	This allows use of on-demand (peel-off) operation or to take-up labels and backing paper together when using the rewind guide plate. To purchase the strip module, please inquire with your local distributor.
203-dpi print head	B-EX704-TPH2-QM-R	This print head enables a conversion of a 300dpi print head of the B-EX4T2-TS model into 203dpi print head.
300-dpi print head	B-EX704-TPH3-QM-R	This print head enables a conversion of a 203dpi print head of the B-EX4T2-GS model into 300dpi print head.
600-dpi print head	B-EX704-TPH6-QM-R	Only with B-EX4T2-HS Model Note: 600-dpi print head is only with B-EX4T2-HS Model.
RTC & USB host interface card	B-EX700-RTC-QM-R	This card holds the current time: year, month, day, hour, minute, second and provides a USB host interface.
Expansion I/O interface card	B-EX700-IO-QM-R	Installing this card in the printer allows connection to an external device with the exclusive interface.
Parallel interface card	B-EX700-CEN-QM-R	Installing this card provides a Centronics interface port.
Serial interface card	B-EX700-RS-QM-R	Installing this card provides an RS-232C interface port.
Wireless LAN interface card	B-EX700-WLAN-QM-R B-EX700-WLAN3-QM-S	Installing this card provides Wireless LAN communication.

NOTE1
To purchase the optional kits, please contact the nearest authorised TOSHIBA TEC representative or TOSHIBA TEC Head Quarters.

2.PRINTER SETUP

This section outlines the procedures to setup your printer prior to its operation. The section includes precautions, loading media and ribbon, connecting cables, setting the operating environment of the printer and performing an online print test.



2.1 Installation

To insure the best operating environment and to assure the safety of the operator and equipment, please observe the following precautions.

- Operate the printer on a stable, level surface in a location free from excessive humidity, high temperature, dust, vibration and direct sunlight.
- Keep your work environment static free. Static discharge can cause damage to delicate internal components.
- Make sure the printer is connected to a clean source of AC power and no other high-voltage devices, that may cause line noise interference, are connected to the same mains.
- Assure that the printer is connected to the AC mains with a three-prong power cable that has the proper ground (earth) connection.
- Do not operate the printer with the cover open. Be careful not to allow fingers or articles of clothing to get caught in any of the moving parts, especially the optional cutter mechanism.
- For best results, and longer printer life, use only TOSHIBA TEC recommended media and ribbons.
- Store the media and ribbons in accordance with their specifications.
- This printer mechanism contains high-voltage components; therefore, you should never remove any of the covers of the machine as you may receive an electrical shock. Additionally, the printer contains many delicate components that may be damaged if accessed by unauthorized personnel.
- Clean the outside of the printer with a clean, dry cloth or a clean cloth slightly dampened with a mild detergent solution.
- Use caution when cleaning the thermal print head as it will become very hot while printing. Wait until it has had time to cool before cleaning. Use only the TOSHIBA TEC recommended print head cleaner to clean the print head.
- Do not turn off the printer power or remove the power plug while the printer is printing or while the ON LINE lamp is flashing.

2.1.1 WLAN Module Installation

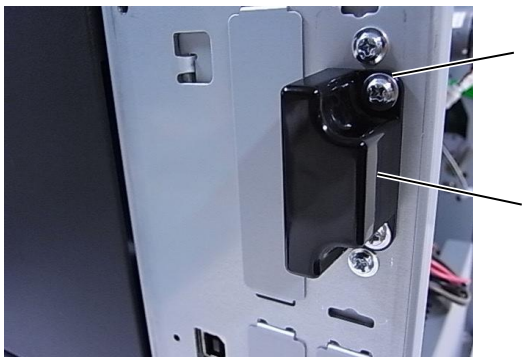
Please read below instructions and set up WLAN module to the printer before use.

Assembly Instructions

<For B-EX700-WLAN-QM-R>

1) Insert the Wireless LAN Card into the slot.

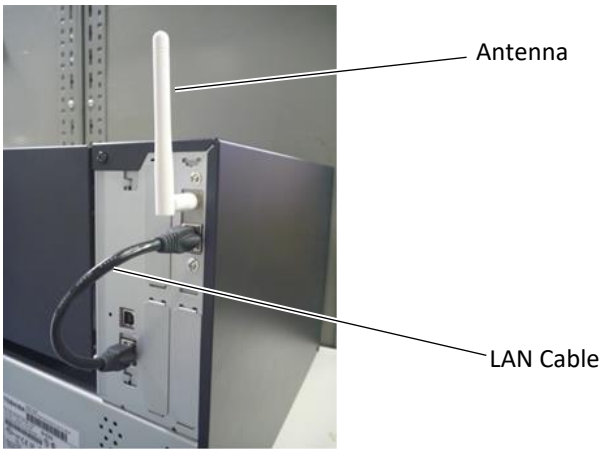
2) Attach the Cover to the printer back with the two M-3x6 screws, as shown below.



<For B-EX700-WLAN3-QM-S>

Fit the Antenna and LAN Cable as shown below.

NOTE:
Be sure to arrange the Antenna so that it is attached vertically.

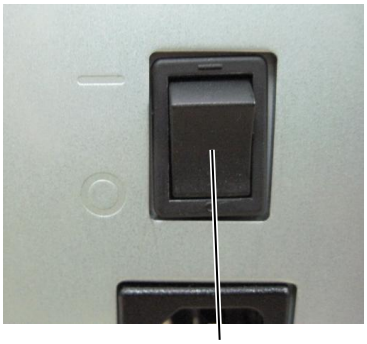


2.2 Connecting the Power Cord

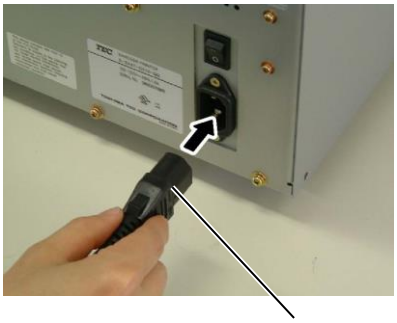
CAUTION!

1. *Make sure that the printer Power Switch is turned to the OFF position (○) before connecting the Power Cord to prevent possible electric shock or damage to the printer.*
2. *Connect the Power Cord to a supply outlet with a properly grounded (earthed) connection.*

1. Make sure that the printer Power Switch is in the OFF (○) position. Connect the Power Cord to the printer as shown in the figure below.

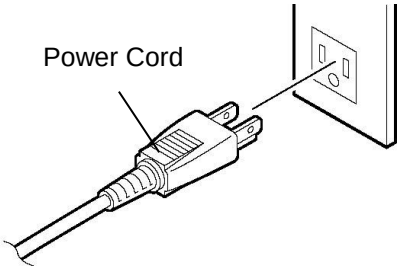


Power Switch

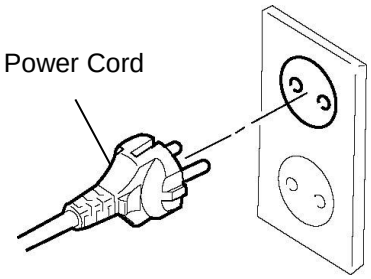


Power Cord

2. Plug the other end of the Power Cord into a grounded outlet as shown in the figure below.



[Example of US Type]



[Example of EU Type]

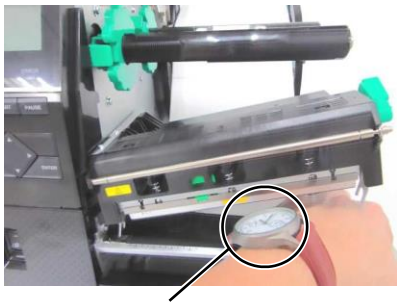
2.3 Loading Supplies

WARNING!

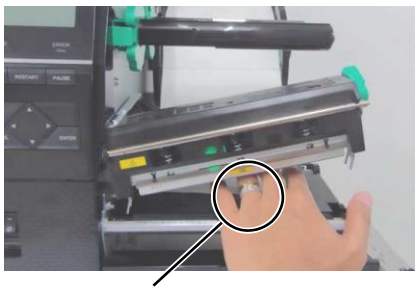
1. *Do not touch any moving parts. To reduce the risk of fingers, jewelry, clothing, etc., being drawn into the moving parts, be sure to load the media once the printer has stopped moving completely.*
2. *The Print Head becomes hot immediately after printing, allow it to cool before loading the media.*
3. *To avoid injury, be careful not to trap your fingers while opening or closing the cover.*

CAUTION!

1. *Be careful not to touch the Print Head Elements when lifting the Print Head Block. This may cause missing dots due to static electricity or other print quality problems.*
2. *When loading or replacing the media or ribbon, be careful not to damage the print head with hard objects like watches or rings.*



Care must be taken not to allow the metal or glass part of a watch to touch the print head edge.



Care must be taken not to allow a metal object like a ring to touch the print head edge.

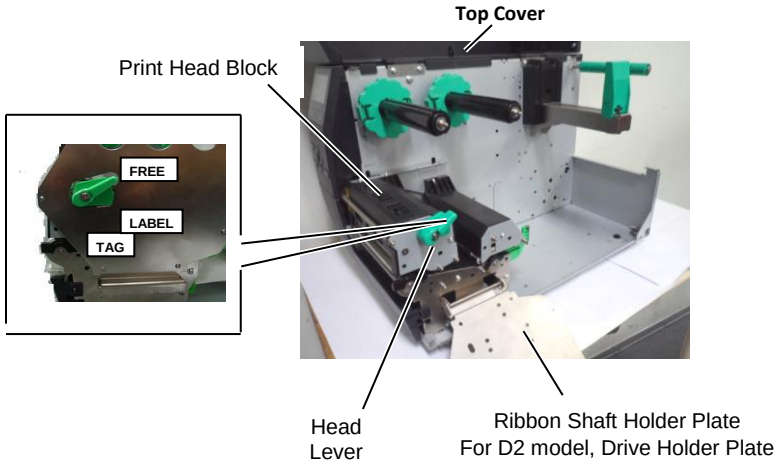
Since the print head element can be easily damaged by shock, please treat it carefully and do not hit it with hard objects.

2.3.1 Loading the Media

The following procedure shows the steps to properly load the media into the printer so that it feeds straight through the printer.

The printer prints both labels and tags.

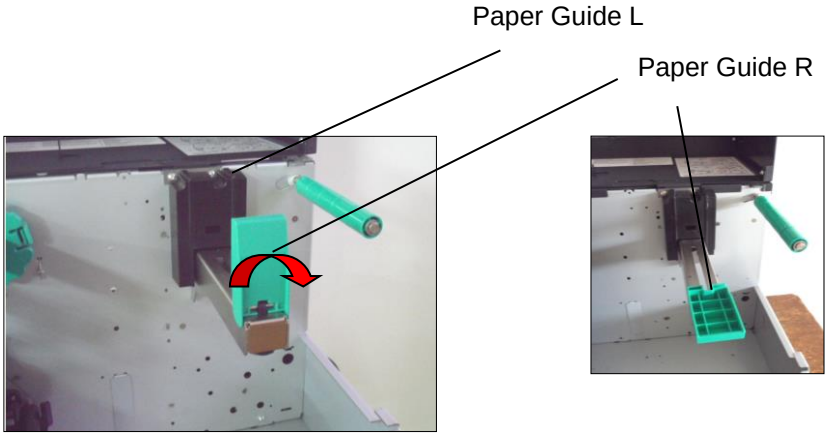
1. Open the Top Cover.
2. Turn the Head Lever to the **FREE** position and release the Ribbon Shaft Holder Plate or Drive Holder Plate.
3. Open the Print Head Block.



NOTES:

1. *When the Head Lever is turned to **FREE** position, the Print Head can be raised.*
2. *To enable printing the Head Lever must be set to the **LABEL / TAG** position. (This ensures that the Print Head is closed.) There are two head pressure levels in the **LABEL / TAG** position. Set the Head Lever depending on the media type:*
   *Position **LABEL**: Labels*
   *Position **TAG** : Tags*
   However, proper position may differ depending on media. For details, refer to your TOSHIBA TEC authorised service representative.

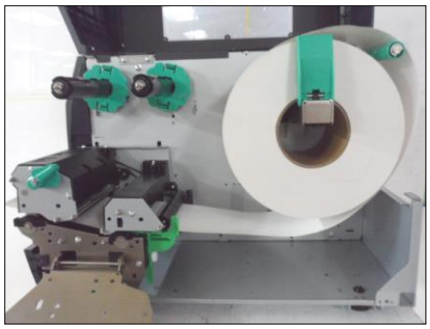
4. Move the Paper Guide R to the rightmost position or shift the guide to the horizontal position.

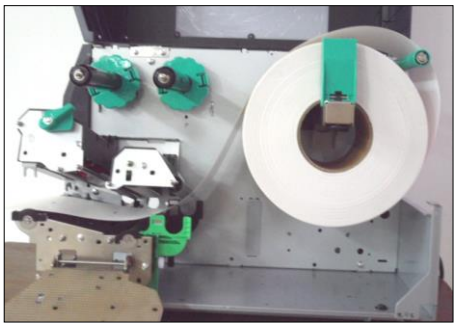


5. Put the media on the Paper Holder.
6. Pass the media around the Paper Holder, and then pull the media towards the front of the printer.
7. Push the Paper Guide against the media until the media is held firmly in place. To lock the Media, shift the Paper Guide R to vertical position

2.3.1 Loading the Media(Cont.)

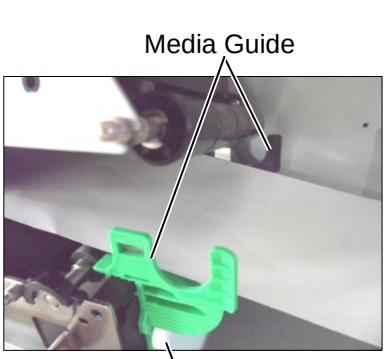
In the case of labels rolled with the print side facing inside.	In the case of labels rolled with the print side facing outside.

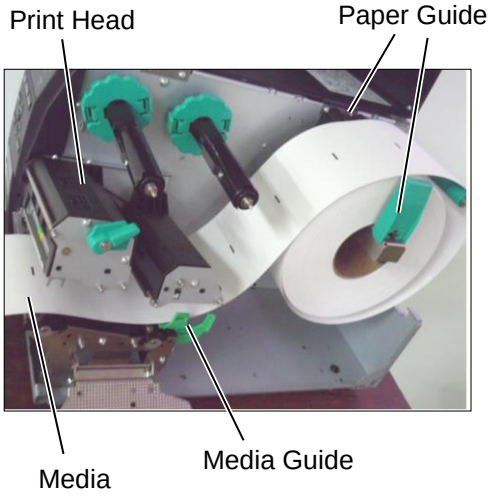




8. Place the media between the Media Guides and adjust them to the media width. Once in the correct position tighten the Locking Screw.

9. Check that the media's path through the printer is straight. The media should be to the left side of the print head





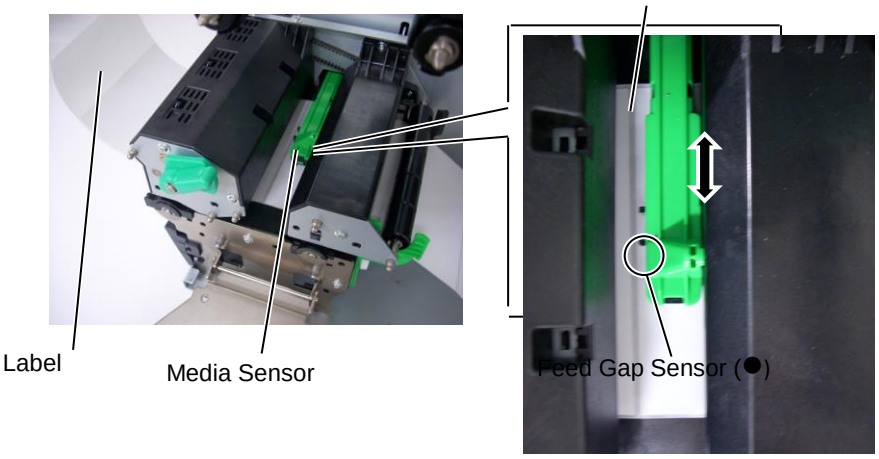
2.3.1 Loading the Media(Cont.)

10. Lower the Print Head Block.

11. Once the media is loaded it may be necessary to set the Media Sensors used to detect the start position for label or tag.

Setting the Feed Gap Sensor position

(1) Manually move the Media Sensor so that the Feed Gap Sensor is positioned at the center of the labels. (● indicates the position of the Feed Gap Sensor).



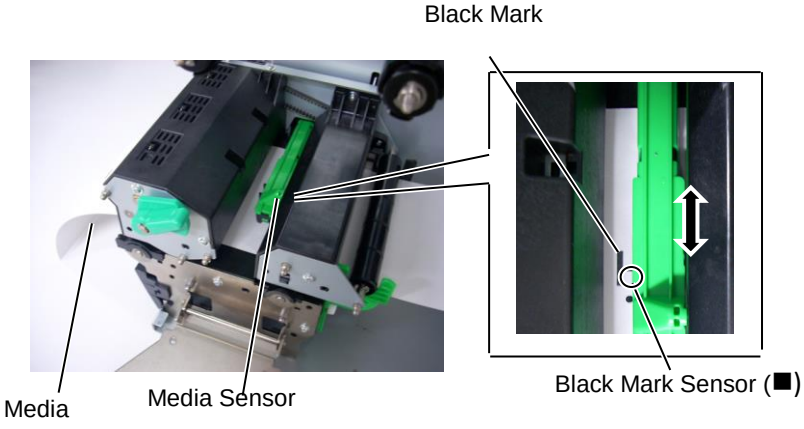
Setting the Black Mark Sensor position

(1) Pull about 500 mm of media out of the front of the printer, turn the media back on itself and feed it under the Print Head past the sensor so that the black mark can be seen from above.

(2) Manually move the Media Sensor so that the Black Mark Sensor is in line with the center of the black mark on the media. (■ indicates the position of the Black Mark Sensor).

NOTE:

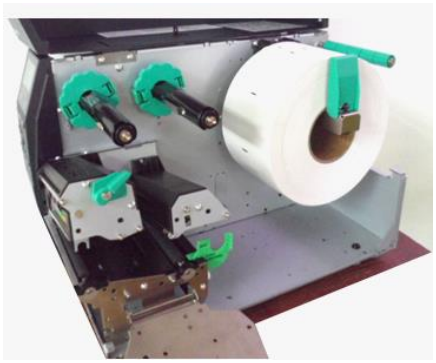
Be sure to set the black mark sensor to detect the center of the black mark, otherwise a paper jam or no paper error may occur.



2.3.1Loading the Media(Cont.)

12. Batch mode

In batch mode, the media is continuously printed until the number of labels/tags specified in the issue command has been printed.



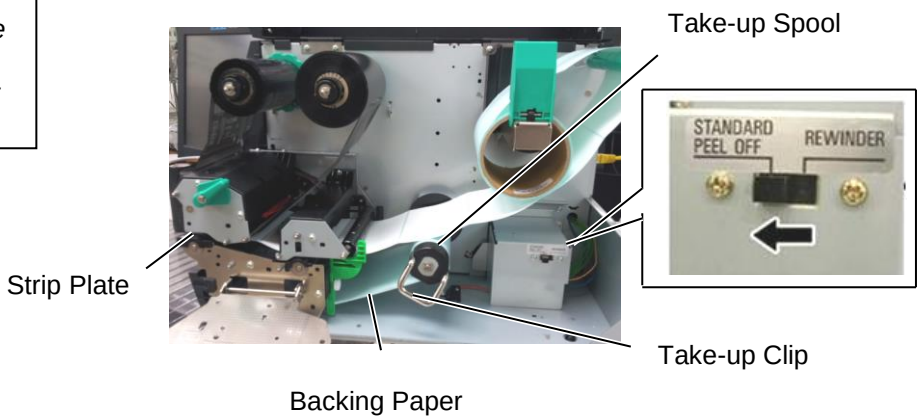
13. Loading with peel off module

When the optional Strip Module is fitted, the label is automatically removed from the backing paper at the Strip Plate as each label is printed.

NOTES:

1. *Be sure to set the Selection Switch to **STANDARD/ PEEL OFF** position.*
2. *The backing paper is easier to feed back to the Take-Up Spool if the Front Plate is removed.*
3. *Fit the Take-Up Clip so that the longer side of the clip is fitted into the shallow groove in the Take-Up Spool.*
4. *The backing paper can be wound directly onto the Take-up Spool or a paper core.*

(1) Remove enough labels from the leading edge of the media to leave 500mm of backing paper free.
(2) Insert the backing paper under the Strip Plate.
(3) Wind the backing paper onto the Take-up Spool and fix it in position with the Take-up Clip. (Wind the paper counter-clockwise around the spool.)
(4) Rotate the Take-up Spool counter-clockwise a few times to remove any slack in the backing paper.
(5) Set the Selection Switch mounted on the Rewinder Assembly to **STANDARD/PEEL OFF** position.



2.3.1 Loading the Media(Cont.)

WARNING!

The cutter is sharp, so care must be taken not to injure yourself when handling the cutter.

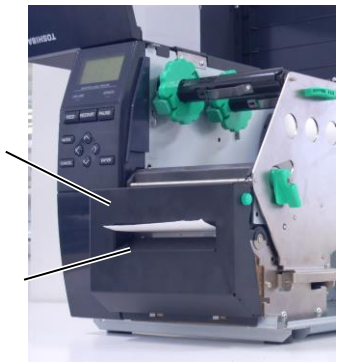
CAUTION!

1. *Be sure to cut the backing paper of the label. Cutting labels will cause the glue to stick to the cutter which may affect the cutter quality and shorten the cutter life.*
2. *Use of tag paper when the thickness exceeds the specified value may affect the cutter life.*

14. Loading with cutter

When the optional Cutter Module is fitted, the media is automatically cut. A disc cutter is available as option.

Insert the leading edge of the media into the cutter until it comes out the Media Outlet of the Cutter Module.



2.3.2 Loading the Ribbon

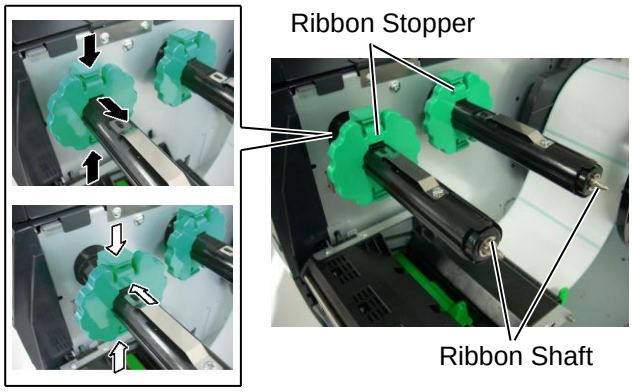
Skip this setup for D2 model.

There are two types of media available for printing on: thermal transfer and direct thermal (which has a chemically treated surface). DO NOT LOAD a ribbon when using direct thermal media.

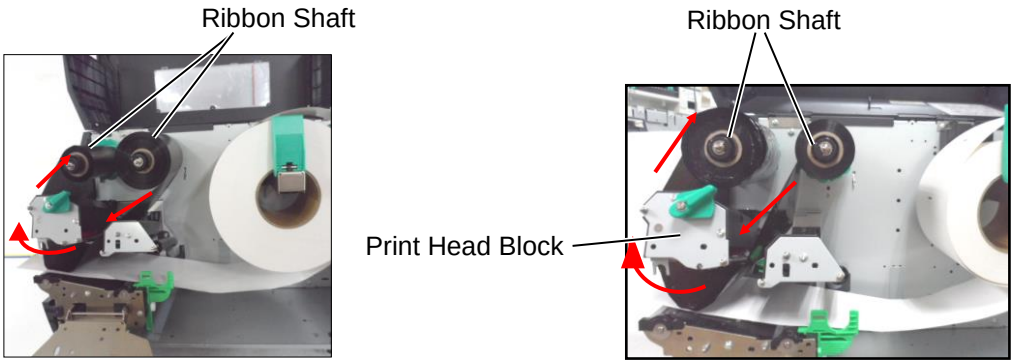
NOTES:

1. *When attaching the ribbon stoppers, make sure that the pinchers face into the printer*
2. *Be sure to remove any slack in the ribbon before printing. Printing with a wrinkled ribbon will reduce the print quality.*
3. *The Ribbon Sensor is mounted on the rear of the Print Head Block to detect a ribbon end. When a ribbon end is detected a "NO RIBBON" message will appear on the display and the ERROR LED will illuminate.*

1. Grasp the tabs on the top and bottom of the Ribbon Stoppers and move the Ribbon Stoppers back to the end of the Ribbon Shaft.



2. Leaving plenty of slack between the ribbon spools, place the ribbon onto the Ribbon Shafts as shown below. There are 2 possible ways to load the ribbon.



Outside Wound Ribbon **Inside Wound Ribbon**

NOTE:

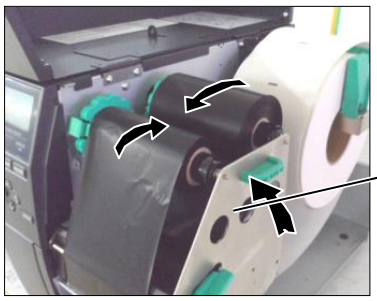
To check or change settings on which type of Ribbon winding to be used, you must go to SYSTEM Mode in the Printer. For more details refer to ***Key Operation Specification****.*

2.3.2 Loading the Ribbon (Cont.)

3. Push Ribbon along the Ribbon Shafts to a position where the ribbon is fully to the Left against the stoppers when fitted.

4. Lower the Print Head Block and set the Ribbon Shaft Holder Plate aligning its holes with the Ribbon Shafts.

5. Take up any slack in the ribbon. Wind the leading tape onto the ribbon take-up roll until the ink ribbon can be seen from the front of the printer.



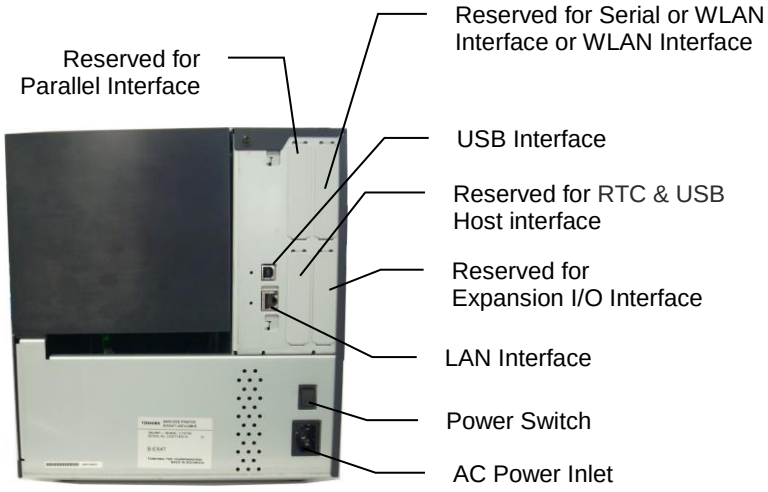
6. Turn the Head Lever to **Label or Tag** position to close the Print Head.

7. Close the Top Cover.

2.4 Connecting the Cables to Your Printer

The following paragraphs outline how to connect the cables from the printer to your host computer, and will also show how to make cable connections to other devices. Depending on the application software you use to print labels, there are 5 ways to connect the printer to your host computer. These are:

- An Ethernet connection using the printer's standard LAN connector.
- A USB cable connection between the printer's standard USB connector and your host computer's USB port. (Conforming to USB 2.0)
- A serial cable connection between the printer's optional RS-232 serial connector and one of your host computer's COM ports.
- A parallel cable connection between the printer's optional parallel connector and your host computer's parallel port (LPT).
- Wireless LAN using an optional Wireless LAN board.



2.5 Turning the Printer ON/OFF

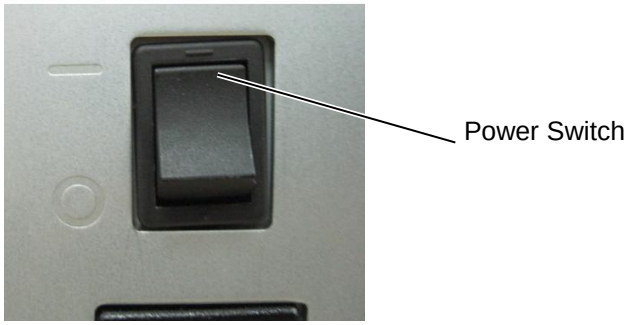
When the printer is connected to your host computer it is good practice to turn the printer ON before turning on your host computer and turn OFF your host computer before turning off the printer.

2.5.1 Turning ON the Printer

> ***CAUTION!***
>
> *Use the power switch to turn the printer On/Off. Plugging or unplugging the Power Cord to turn the printer On/Off may cause fire, an electric shock, or damage to the printer.*

> ***NOTE:***
>
> *If a message other than ON LINE appears on the display or the ERROR LED lamp is illuminated, refer to* ***Section 5.1****,* ***Error Messages****.*

1. To turn ON the printer power, press the Power Switch as shown in the diagram below. Note that (**|**) is the power ON side of the switch.

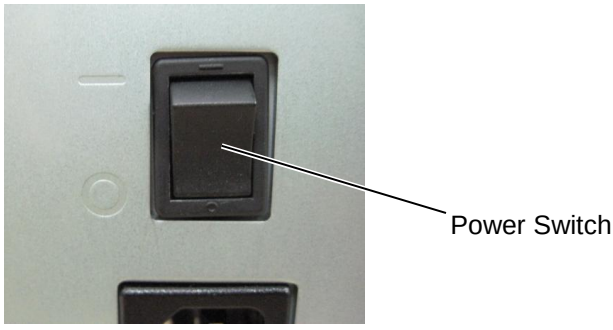


2. Check that the ON LINE message appears in the LCD Message Display and that the ON LINE and POWER LED lights are illuminated.

2.5.2 Turning OFF the Printer

1. Before turning off the printer Power Switch verify that the ON LINE message appears in the LCD Message Display and that the ON LINE LED light is on and is not flashing.
2. To turn OFF the printer power press the Power Switch as shown in the diagram below. Note that (O) is the power OFF side of the switch.

> ***CAUTION!***
>
> 1. *Do not turn off the printer power while the media is being printed, as this may cause a paper jam or damage to the printer.*
> 2. *Do not turn off the printer power while the ON LINE lamp is blinking as this may cause damage to your computer.*



2.6 OUTLINE OF EACH MODE

This chapter describes the outline of each mode supported by the printer. Refer to each chapter for detailed information.

2.6.1 ONLINE MODE

This mode is mainly used by users (operators).
The label or tag can be issued in the online mode. When an error occurs, the help function shows the cause of the error, troubleshooting, and recovery from the error. The threshold setting, described below, is also a part of the online mode.

2.6.2 Threshold setting mode

Threshold setting mode is provided to correct a print failure with pre-printed media.
When using pre-print label, print start positions may not be detected correctly with the usual media sensor threshold, depending on the ink type. Such error can be prevented by setting the threshold just for the pre-printed media to be used. Since the threshold setting value is stored in the non-volatile memory, it is unnecessary to set the threshold again as long as the same pre-print media is used.

2.6.3 Information mode

In the information mode, the total feed amount counted during feeding and printing operations is displayed on the LCD in units of centimeter and inch.
Printing of the feed amount is performed on request.

2.6.4 USER SYSTEM MODE

The user system mode is accessible from the online mode. This mode contains parameters and settings which might be frequently changed by users (administrator) or service persons.
In addition to the functions of parameter setting and fine adjustment (in common with the System Mode), there are the following additional features, issue condition display function, manual threshold setting, and system tools menu.
The values set in these modes are stored in the non-volatile memory.

2.6.5 SYSTEM MODE

This mode is mainly used by service persons or the production department staff for adjustment of the printer before shipment. System mode contains settings which should not be changed so frequently.
In addition to the parameter setting and fine adjustment menus (in common with the User System Mode), there are sensor adjustment, interface, RFID, RTC and BASIC setting menus.
Other extended functions are self-diagnosis, test print, RAM clear (re-initialize the printer), pre- shipment adjustments for factory use, and the menu which enables saving parameter settings, external characters, TPCL commands to an external USB memory stick or copying data from a USB memory stick to the printer.
The values set in this mode are stored in the non-volatile memory.

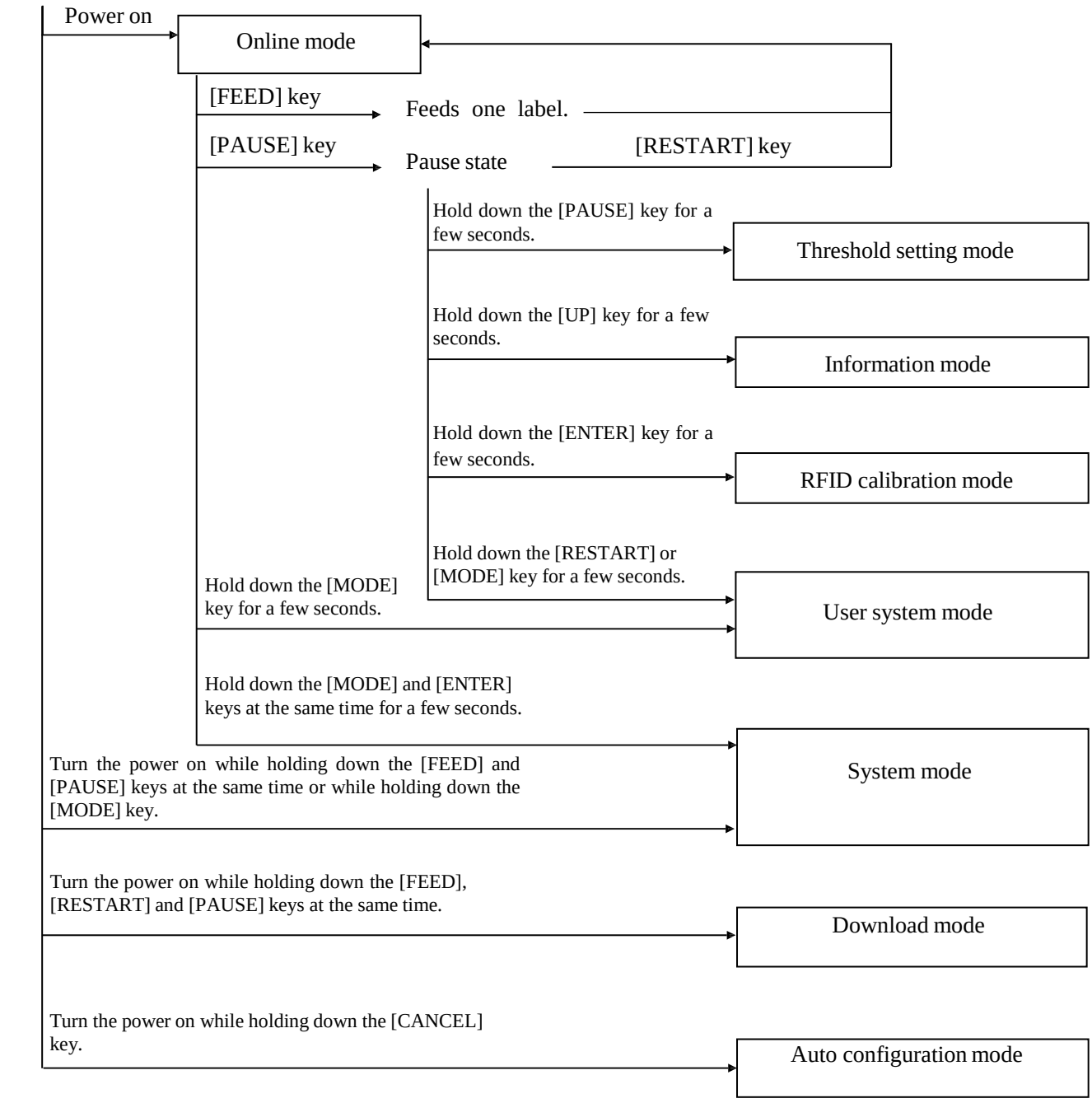
2.6.6 DOWNLOAD MODE

This mode is used to download boot and main programs.

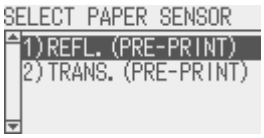
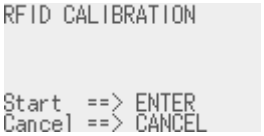
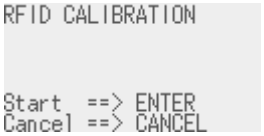
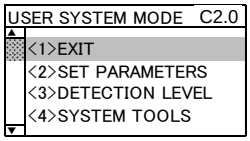
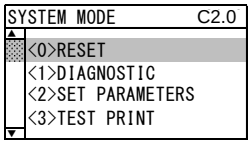
2.6.7 AUTO CONFIGURATION MODE

In this mode, the printer firmware is automatically updated with the program stored in a USB memory stick.

2.6.8 GENERAL VIEW OF KEY OPERATION



<Example of the screens>

Pause state	
Threshold setting mode	
RFID calibration mode	
Information mode	
User system mode	
System mode	
Download mode	
Auto configuration mode	

Notes:

1. To enter the download mode, system mode or auto configuration mode, keep holding down the specified key until the menu is displayed.

2. Power off

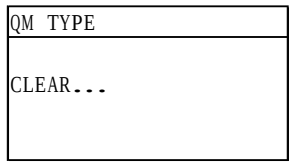
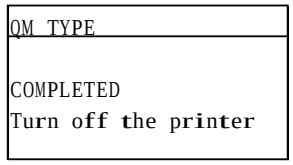
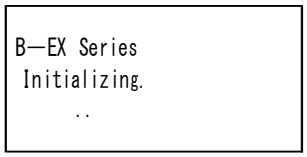
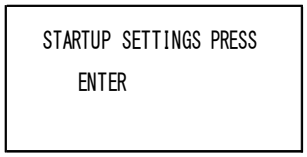
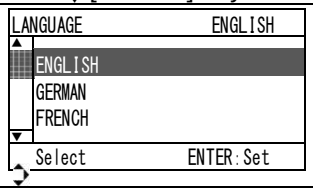
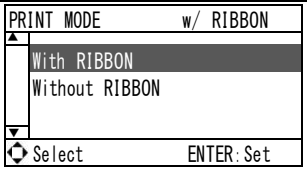
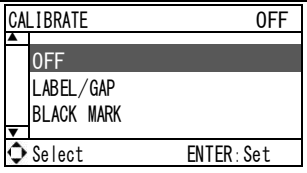
   When the power of the printer is turned off, the ONLINE and ERROR LEDs synchronously flash at a 500-ms interval (ON: 250ms, OFF: 250ms). When the LEDs are unlit, the printer power turns off.

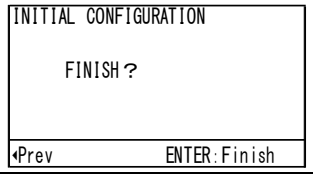
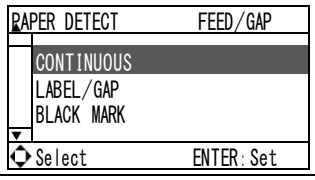
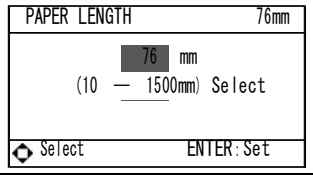
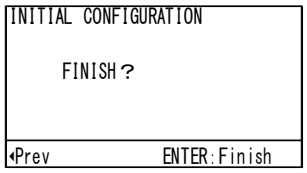
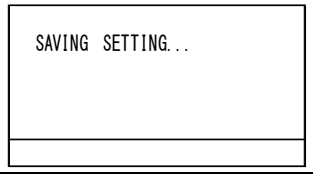
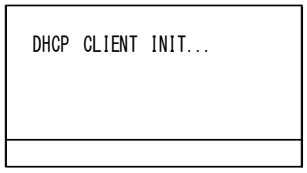
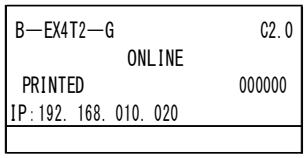
   The printer power should not be turned on again while these LEDs are flashing. Otherwise, a “SYSTEM ERROR 02 POWER FAILURE” message will be displayed, and the LCD message may corrupt before the error message is displayed.

2.6.9 Initial Setting Wizard

THE first time the printer is used after opening carton box or after a RAM clear, the initial setting wizard will start when the power is switched on. This wizard enables setting basic parameters, such as the LCD language and print mode. The values set with this wizard can be changed in the system mode and also by command.

Example of the Initial Setting Wizard Operation

	RAM clear with QM type selected	
1. Perform a RAM clear.	 ↓  ↓ Power OFF/ON  ↓	
2. The initial setting wizard starts.	 ↓ [ENTER] key	
3. Select a language.	 ↓ [ENTER] key	Choose the desired option with the [UP] or [DOWN] key and press ENTER to set.
4. Print mode	 ↓ [ENTER] key	Choose the desired option with the [UP] or [DOWN] key and press ENTER to set.
5. Select a calibration type.		Choose the desired option with the [UP] or [DOWN] key and press ENTER to set.
6.-1 When an option other than “OFF” is selected for CALIBRATE		

	6.-1-1 Finish	 ↓ [ENTER] key. 7. The settings are saved.	Press ENTER to finish.
6.-2 When “OFF” is selected for CALIBRATE			
	6.-2-1 Media detection	 ↓ [ENTER] key	Choose the desired option with the [UP] or [DOWN] key and press ENTER to set.
	6.-2-2 Media length	 ↓ [ENTER] key	Set the paper length with the [UP] or [DOWN] key and press ENTER to set.
	6.-2-3 Finish	 ↓ [ENTER] key. 7. The settings are saved.	Press ENTER to finish.
7. The settings are saved.		 ↓	
8. DHCP client is initialized.		 ↓	
9. Online mode			

Key functions (Wizard screen)

Key	Substitute key	Function
[MODE]	None	Returns to the top page without saving the changes.
[CANCEL]	[FEED] + [RESTART]	Returns to the upper level menu without saving the changes.
[ENTER]	[PAUSE]	In the case of option selection screen, saves the changes and displays the next screen.
[UP]	[RESTART]	Moves the cursor upward. When the cursor is positioned at the top of the list, it scrolls from the top to the bottom.
[DOWN]	[FEED]	Moves the cursor downward. When the cursor is positioned at the bottom of the list, it scrolls from the bottom to the top.
[LEFT]	None	Displays the next screen without saving the changes.
[RIGHT]	None	Displays the upper-level screen without saving the changes.

2.7 Printer Drivers

Once you install the TOSHIBA printer driver on your Windows host computer, you can use the TOSHIBA Bar code printer in the same way you would a laser or ink jet printer.
You can use the printer by connecting a USB or LAN cable to your host computer.

The installation procedure of the printer driver differs depending on the printer model and the connection method.

The Printer driver and installation manual can be downloaded from the Toshiba TEC Web-site

http://www.toshibatec.com/cnt/download_overseas/

If an older version of the printer driver has been already installed, you must uninstall it and restart the computer before installing a newer version.

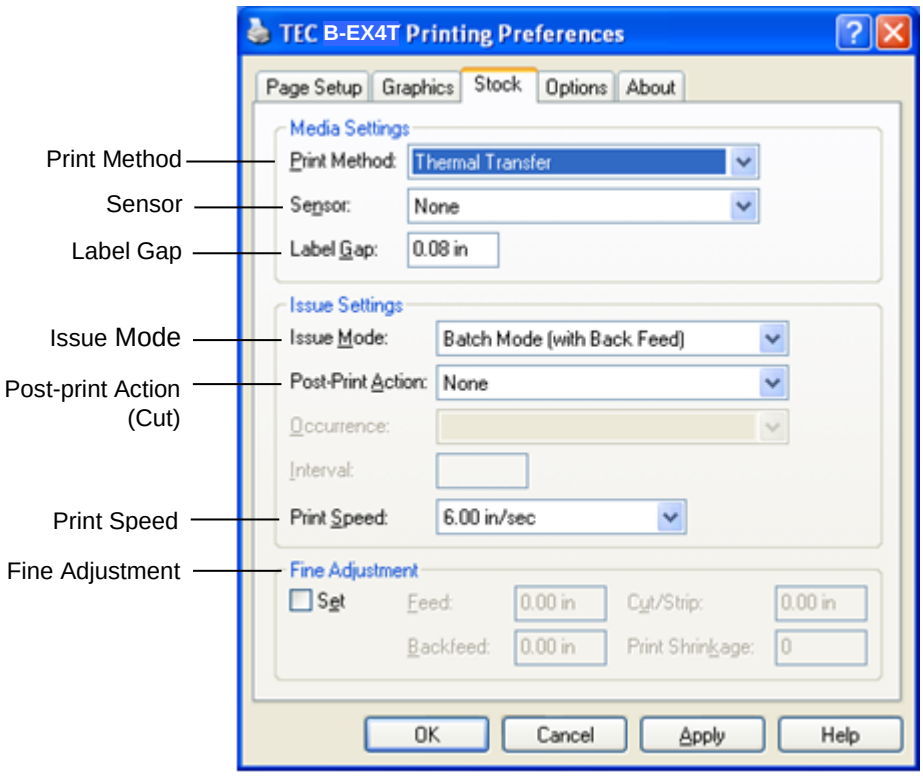
2.8 Print Test

After your drivers have been installed, perform a print test.

Performing a print test using the Printer Driver

The printer driver's Properties screen allows you to set the communication conditions, media size, and other printing conditions in accordance with your operating environment. For details, refer to the **Help for the Windows Printer Drivers** screen.

Example: Stock tab display of the Printer Driver's Properties Screen



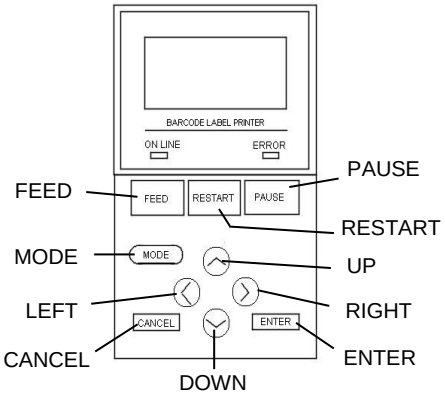
Print Method:	Direct thermal or thermal transfer is selectable.
Sensor:	Media sensor type is selectable.
Issue Mode:	Batch, strip or cut is selectable.
Post-print Action:	Whether to use the cutter or not is selectable.
Fine Adjustment:	Adjustment values for the feed amount, cut/strip position, etc. can be set.

3. ONLINE MODE

This chapter describes the usage of the keys on the Operation Panel in Online mode.

When the printer is in Online mode and connected to a host computer, the normal operation of printing on labels or tags can be accomplished.

3.1 Key Functions

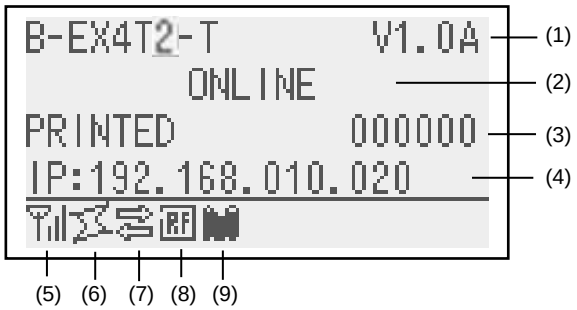


■ **Key functions in the online mode**

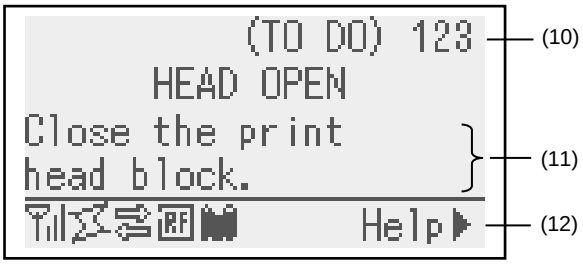
Key	Function
[FEED]	(1) Feeds the set media length.
	(2) Prints the data in the image buffer according to the system mode setting.
	(3) Clears the help message.
[RESTART]	(1) Resumes printing after a temporary pause in printing or after an error.
	(2) Places the printer in the initial state which is obtained when the power is turned on.
	(3) Places the printer in the user system mode.
	(4) Clears the help message.
[PAUSE]	(1) Stops label printing temporarily.
	(2) Programs the threshold values.
	(3) Clears the help message.
[MODE]	(1) Places the printer in the user system mode.
	(2) Clears the help message.
[CANCEL]	(1) Clears the job.
	(2) Displays previous help message page.
[ENTER]	(1) Displays next help message page.
	(2) Clears the help message.
[UP]	(1) Scrolls up
[DOWN]	(1) Scrolls down
[LEFT]	(1) Displays previous help message page.
[RIGHT]	(1) Displays next help message page.

3.2 LCD

Online state



Error state

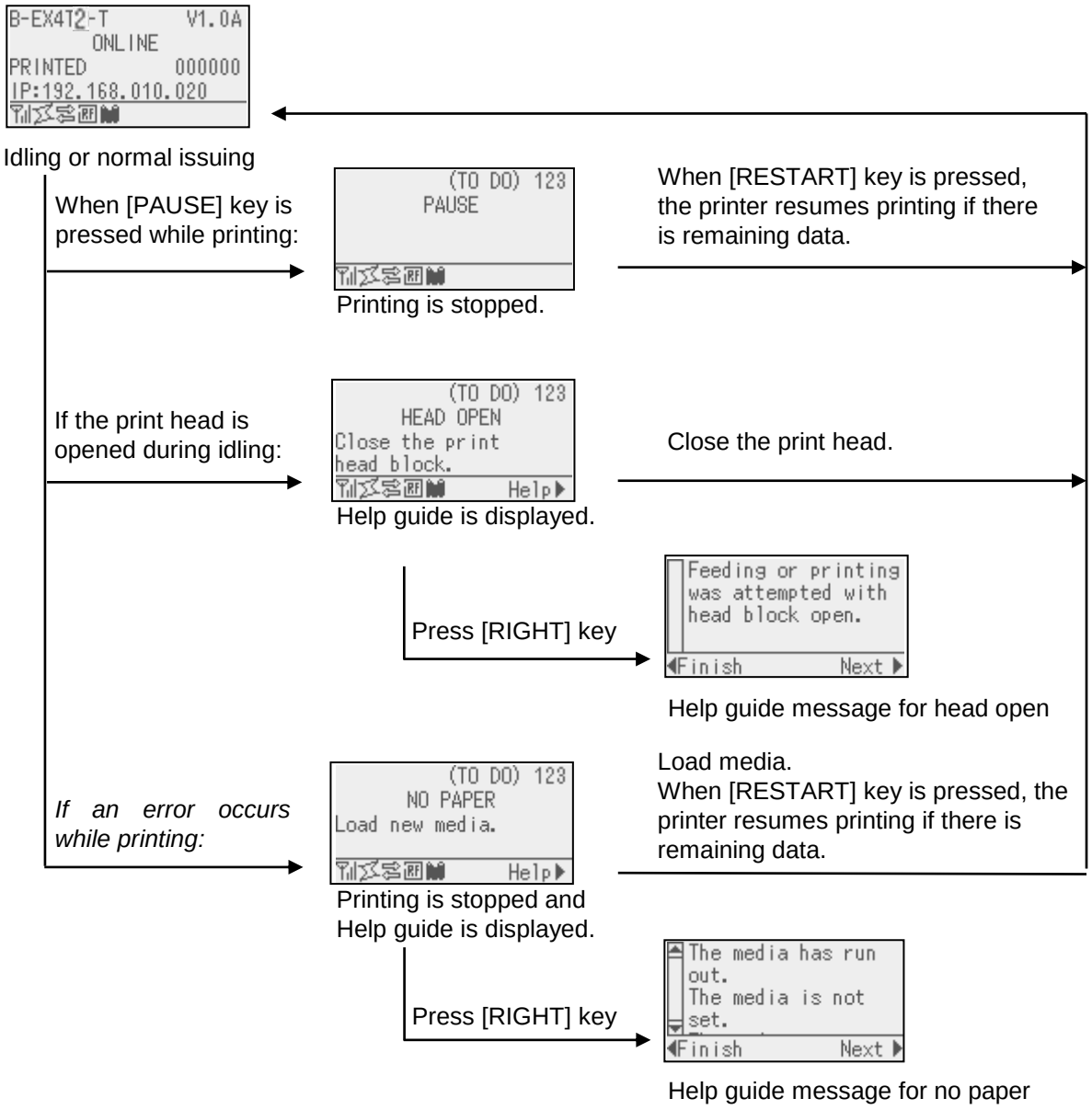


(Example: Head open error)

No.	Description
(1)	Model name and firmware version
(2)	Message
(3)	The number of labels printed
(4)	IP address (only when LAN/WLAN is enabled.)
(5)	Radio intensity (only when WLAN is enabled.) Indicates the radio intensity in 4 levels.
(6)	WLAN connection (only when WLAN is enabled.) ▪ Lights up when connecting to an access point. ▪ Flashes while roaming. ▪ Goes off when disconnected.
(7)	Presence of a print job Appears when a print job exists.
(8)	RFID (only when RFID module is installed.) ▪ Appears when a communication between the printer and the RFID module is enabled. ▪ Flashes while communicating with the RFID module.
(9)	Ribbon near end Flashes when a ribbon near end state is detected.
(10)	The number of remaining labels to print
(11)	Error description and solution
(12)	Help guide Appears when a help guide message is provided. Press the [RIGHT] key to see the help guide message.

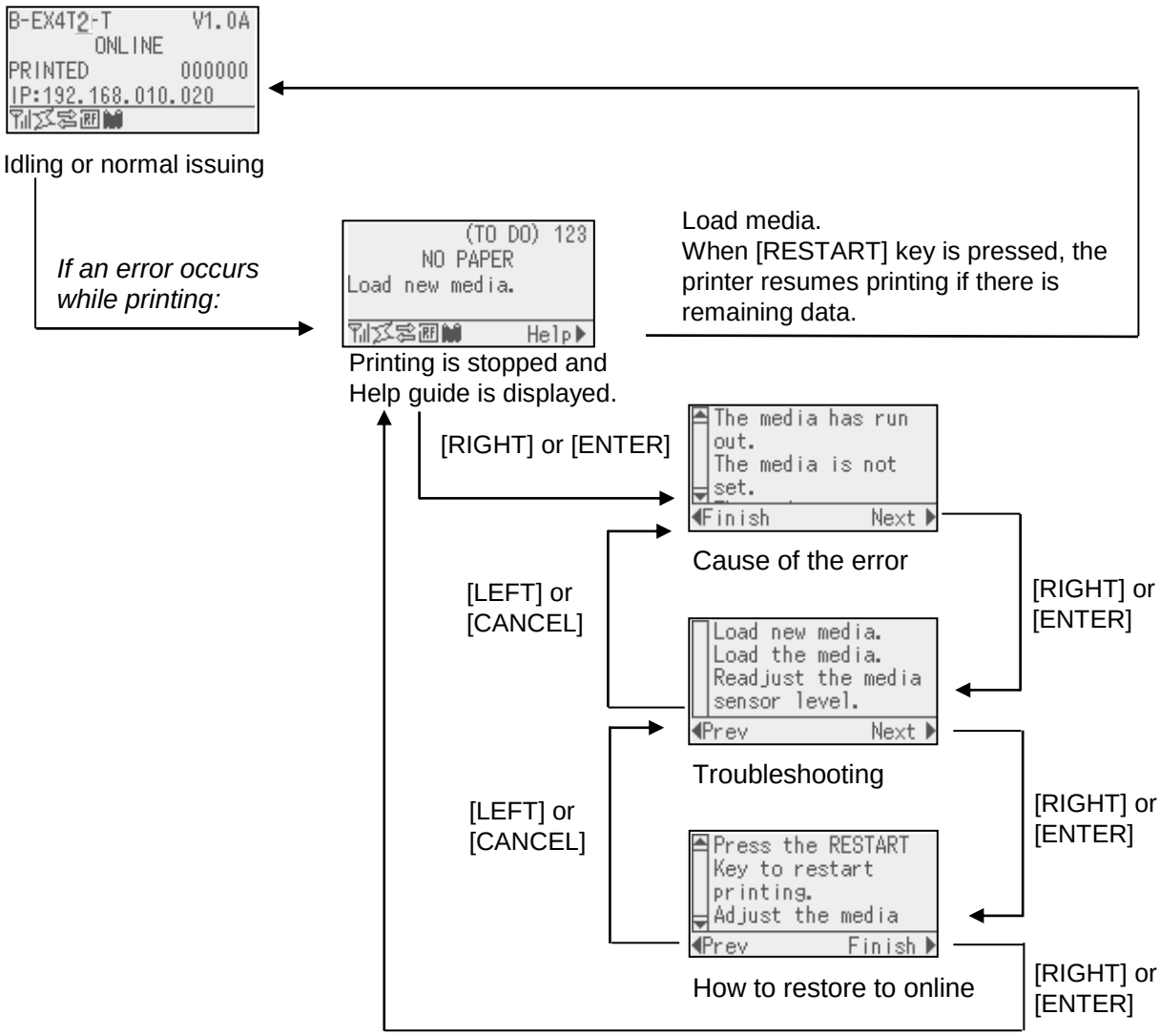
3.3 Operation Example

■ Online Mode



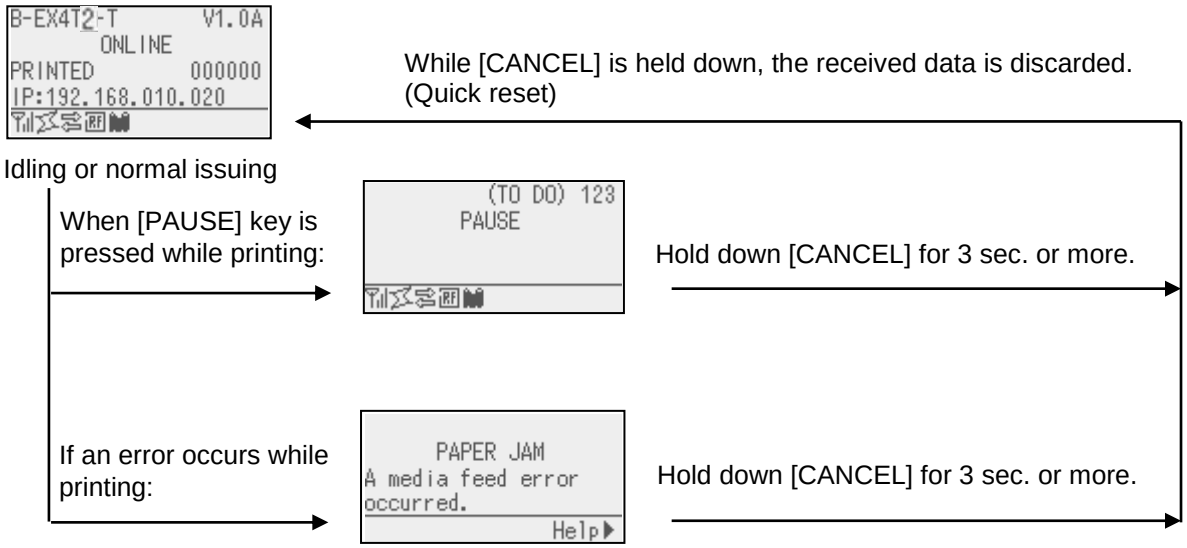
3.3 Operation Example(Cont.)

■ **Help Guide Message**



3.3 Operation Example(Cont.)

■ Cancellation of Print Job



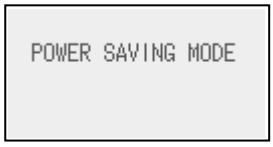
3.4 Power Save Function

3.4.1 Entering the Power Saving Mode

When the printer stays in any of the following statuses for the specified length of time, it enters the power saving mode.

- Online (Idle, communicating)
- Pause
- Error
- Waiting for label to be removed
- System mode (except for self-diagnosis, test print, sensor adjustment)
- User system mode (except for dump)
- Pause state of the expansion I/O

When the printer enters the power saving mode, "POWER SAVING MODE" is displayed on the LCD and the backlight goes off.



When the following occurs in the power saving mode, the LCD wakes up.

- A key is pressed. (Except for [RESTART] or [FEED] key which causes printing or paper feed.)
- The head lever is released and locked.
- The status of the pause or active signal of the expansion I/O changes.

The LCD shows "POWER SAVING MODE" and the backlight goes off again if no status change occurs on the printer for 30 seconds.

3.4.2 Exiting the Power Saving Mode

The printer exits the power saving mode when:

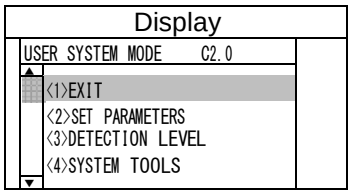
- printing (printing caused by a depression of the [RESTART] key is included.) is performed.
- paper feed or re-print s caused by a depression of the [FEED] key
- printing or paper feed is initiated through the expansion I/O
- automatic calibration is performed
- sensor adjustment is performed in the system mode
- the printer receives commands (U1/U2, T, XS, IB, or RFID-related commands).

3.5 USER SYSTEM MODE

3.5.1 OUTLINE OF USER SYSTEM MODE

1. The printer enters the user system mode with the following operations.
   - While the printer is in pause state, perform either of the following operations:
     - Hold down the [RESTART] key for 3 sec. or more.
     - Hold down the [MODE] key for 3 sec. or more.
   - While the printer is in online, perform the following operation:
     - Hold down the [MODE] key for 3 sec. or more.
2. The user system mode is intended for performing parameter and other settings.
3. The key operations for the user system mode are described below.
   For the key functions and display, please refer B-EX key operation manual.

Display



Top menu list

Outline of the top menu

<1>EXIT	Used to return the printer to online state. (The printer is not reset.)
<2>SET PARAMETERS	Used to set the parameters for each printer function.
<3>DETECTION LEVEL	Used to set the threshold value.
<4>SYSTEM TOOLS	Used to print data sent from the host or store it in USB memory.
<5>SHOW ISSUE CONDITION	Used to display the print conditions (such as sensor type, print speed and orientation).
<6>RESET	Used to reset the printer.

3.5.2 EXIT

The printer is returned from the user system mode to the online mode. (No reset is performed.)
Some parameter settings are reset when the Exit is performed. The parameters to be reset are indicated with “Reset Req.”. Other parameters are not reset

4. MAINTENANCE

WARNING!

1. Be sure to disconnect the power cord before performing maintenance. Failure to do this may cause an electric shock.
2. To avoid injury, be careful not to pinch your fingers while opening or closing the cover and print head block.
3. The print head becomes hot immediately after printing. Allow it to cool before performing any maintenance.
4. *Do not pour water directly onto the printer.*

This chapter describes how to perform routine maintenance.
To ensure the continuous high quality operation of the printer, you should perform a regular maintenance routine. For high usage it should be done on a daily basis. For low usage it should be done on a weekly basis.

4.1 Cleaning

To maintain the printer performance and print quality, please clean the printer regularly, or whenever the media or ribbon is replaced.

4.1.1 Print Head/Platen/ Sensors

CAUTION!

1. *Do not use any volatile solvent including thinner and benzene, as this may cause discoloration to the cover, print failure, or breakdown of the printer.*
2. Do not touch the Print Head Element with bare hands, as static may damage the Print Head.

1. Turn off the power and unplug the printer.
2. Open the Top Cover.
3. Turn the Head Lever to the "**FREE"** position, and then release the Ribbon Shaft Holder Plate.
4. Open the Print Head Block.
5. Remove the ribbon and media.

CAUTION!

When cleaning the print head, be careful not to damage the print head with hard objects like watches or rings.

Care must be taken not to allow the metal or glass part of a watch to touch the print head edge.

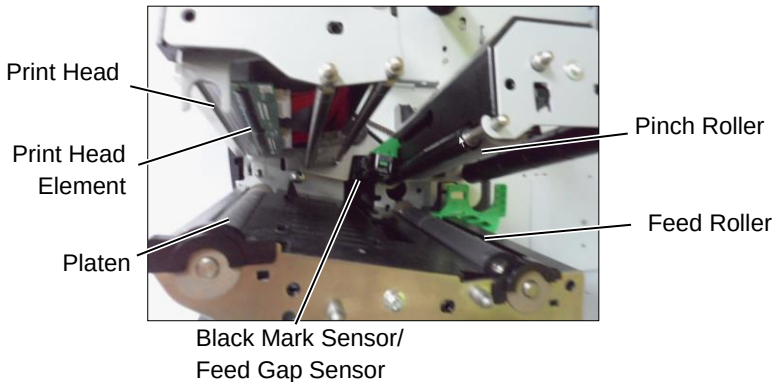
Care must be taken not to allow a metal object like a ring to touch the print head edge.

Since the print head element can be easily damaged by shock, please treat it carefully and do not hit it with hard objects.

4.1.1 Print Head/Platen/ Sensors (Cont.)

> ***NOTE:***
> Please purchase the Print Head Cleaner from your authorised TOSHIBA TEC service representative.

6. Clean the Print Head Element with a Print Head Cleaner or a cotton swab or soft cloth slightly moistened with alcohol.



7. Wipe the Platen, Feed Roller, and Pinch Roller with a soft cloth slightly moistened with alcohol. Remove dust or foreign substances from the internal parts of the printer.

8. Wipe the Feed Gap Sensor and Black Mark Sensor with a dry soft cloth.

4.1.2 Covers and Panels

> ***CAUTION!***
> 1. DO NOT POUR WATER directly onto the printer.
> 2. DO NOT APPLY cleaner or detergent directly onto any cover or panel.
> 3. NEVER USE THINNER OR OTHER VOLATILE SOLVENT on the plastic covers.
> 4. DO NOT clean the panel, covers, or the supply window with alcohol as it may cause them to discolor, lose their shape or develop structural weakness.

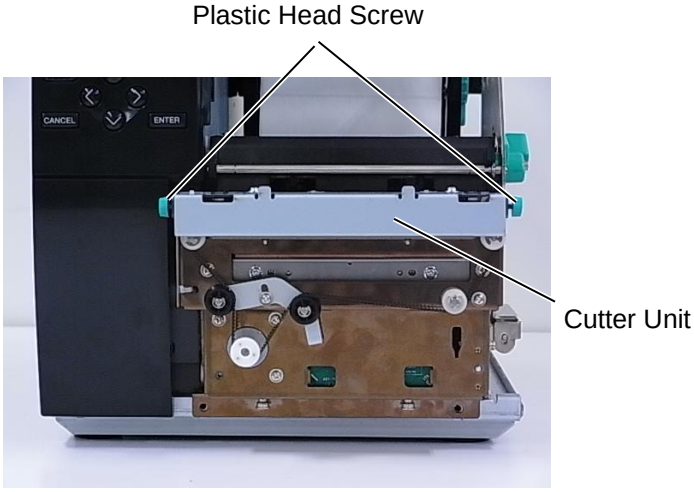
Wipe the covers and panels with a dry soft cloth or a cloth slightly moistened with a mild detergent solution.

4.1.3 Optional Cutter Module

WARNING!
1. Be sure to turn the power off before cleaning the Cutter Module. *2. As the cutter blade is sharp, care should be taken not to injure yourself while cleaning.*

The disc cutter and rotary cutter are available as an option. They are both cleaned in the same way. When removing the Cutter Cover of the rotary cutter unit, remove the screws from the bottom of the cover.

1. Loosen the two Plastic Head Screws to remove the Cutter Cover.
2. Remove the jammed paper.
3. Clean the Cutter with a soft cloth slightly moistened with alcohol.
4. Attach the Cutter Cover.



5. TROUBLESHOOTING

This chapter lists the error messages, possible problems, and their solutions.

WARNING!
If a problem cannot be solved by taking the actions described in this chapter, do not attempt to repair the printer. Turn off and unplug the printer, then contact an authorized TOSHIBA TEC service representative for assistance.

5.1 Error Messages

NOTES:

- *If an error is not cleared by pressing the **[RESTART]** key, turn the printer off and then on.*
- *After the printer is turned off, all print data in the printer is cleared.*

Error Messages	Problems/Causes	Solutions
HEAD OPEN	The Print Head Block is opened in Online mode.	Close the Print Head Block.
	Feeding or printing has been attempted with the Print Head Block open.	Close the Print Head Block. Then press the **[RESTART]** key.
COMMS ERROR	A communication error has occurred.	Make sure the interface cable is correctly connected to the printer and the host and the host is turned on.
PAPER JAM	1. The media is jammed in the media path. The media is not fed smoothly.	1. Remove the jammed media, and clean the Platen. Reload the media correctly. Press the **[RESTART]** key. ⇒ **Section 5.3.**
	2. The media is not loaded properly.	2. Reload the media correctly. Then press the **[RESTART]** key. ⇒ **Section 2.3**.1
	3. Wrong Media Sensor is selected for the media being used.	3. Turn the printer off and then on. Select the Media Sensor for the media type being used. Resend the print job.
	4. The Black Mark Sensor is not correctly aligned with the Black Mark on the media.	4. Adjust the sensor position, then press the **[RESTART]** key. ⇒ **Section 2.3.1.**
	5. Size of the loaded media is different from the programmed size.	5. Replace the loaded media with one that matches the programmed size, press the **[RESTART]** key, or turn the printer off and then on, select a programmed size that matches the loaded media. Resend the print job.
	6. Media sensor has not been properly calibrated for the media being used.	6. Refer to **"Key Operation Specification"** to set the threshold. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative.

5.1 Error Messages (Cont.)

Error Messages	Problems/Cause	Solutions
CUTTER ERROR (Only when the cutter module is installed on the printer.)	1. The media is jammed in the cutter.	1. Remove the jammed media. Press the **[RESTART]** key. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative. ⇒ **Section 4.1.3**.
	2. The Cutter Cover is not attached properly.	2. Attach the Cutter Cover properly.
NO PAPER	1. The media has run out.	1. Load new media. Press the **[RESTART]** key. ⇒ **Section 2.3.1**.
	2. The media is not loaded properly.	2. Reload the media correctly. Press the **[RESTART]** key. ⇒ **Section 2.3.1**.
	3. The media sensor position has not been adjusted properly.	3. Adjust the sensor position. Press the **[RESTART]** key. ⇒ **Section 2.3.1.**
	4. Media sensor has not been properly calibrated for the media being used.	4. Refer to **"Key Operation Specification"** to set the threshold. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative.
	5. The media is slack.	5. Take up any slack in the media.
RIBBON ERROR	1. The ribbon is not fed properly.	1. Remove the ribbon and check the status of the ribbon. Replace the ribbon if necessary. If the problem is not solved, turn off the printer, and call a TOSHIBA TEC authorised service representative.
	2. The ribbon is not loaded.	2. Load a ribbon. ⇒ **Section 2.3.2**
	3. The ribbon sensor has a problem.	3. Turn off the printer and call a TOSHIBA TEC authorised service representative.
NO RIBBON	The ribbon has run out.	Load a new ribbon. Press the **[RESTART]** key. ⇒ **Section 2.3.2**.
REWIND FULL	The Built-in Rewinder Unit is full.	Remove the backing paper from the Built-In Rewinder Unit. Press the **[RESTART]** key.
EXCESS HEAD TEMP	The Print Head has overheated.	Turn off the printer and allow it to cool down for about 3 minutes. If this does not solve the problem call a TOSHIBA TEC authorised service representative.
HEAD ERROR	There is a problem with the Print Head.	Replace the Print Head.
POWER FAILURE	A momentary power failure has occurred.	Check that the power source, which supplies power to the printer, is the correct rating. If the printer shares the same power outlet with other electrical appliances that consume large amounts of power, use a different outlet.

5.1 Error Messages (Cont.)

Error Messages	Problems/Cause	Solutions
SYSTEM ERROR	1. The printer is used in a location where it is subject to noise or there are power cords from other electrical appliances near the printer or interface cables.	1. Keep the printer and the interface cables away from the source of noise
	2. The Power Cord of the printer is not grounded.	2. Ground the Power Cord.
	3. The printer shares the same power source with any other electrical appliances.	3. Provide an exclusive power source for the printer.
	4. An application software used on your host computer has an error or malfunction.	4. Confirm the host computer operates properly.
MEMORY WRITE ERR.	An error has occurred in writing to the flash ROM/USB memory.	Turn the printer off, and then on again.
FORMAT ERROR	An error has occurred in formatting the flash ROM/USB memory.	Turn the printer off, and then on again.
MEMORY FULL	Saving failed because of insufficient storage space in the flash ROM/USB memory.	Turn the printer off, and then on again.
EEPROM ERROR	Data cannot be read-from or written-to a backup EEPROM properly.	Turn the printer off, and then on again.
RFID WRITE ERROR	The printer did not succeed in writing data onto an RFID tag after retrying the specified number of times.	Press the **[RESTART]** key.
RFID ERROR	The printer cannot communicate with the RFID module.	Turn the printer off, and then on again.
LOW BATTERY	The voltage of the Real Time Clock Battery is low.	If you wish to keep using the same battery even after "LOW BATTERY" error occurs, turn off the printer and start it in the system mode, set the date and time for the RTC and reset the printer. As long as the power is on the date and time will be correct. Call a TOSHIBA TEC authorized service representative to replace the battery.
SYNTAX ERROR	While the printer is in the Download mode for upgrading the firmware, it receives an improper command, for example, an Issue Command.	Turn the printer off, and then on again.
PASSWORD INVALID Please Power OFF	A wrong password was entered three consecutive times.	Please consult the system administrator.
Other error messages	A hardware or software problem may have occurred.	Turn the printer off and then on. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative.

5.2 Possible Problems

This section describes problems that may occur when using the printer, and their causes and solutions.

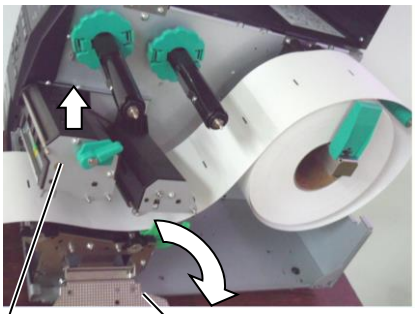
Possible Problems	Causes	Solutions
The printer will not turn on.	1. The Power Cord is disconnected.	1. Plug in the Power Cord.
	2. The AC outlet is not functioning correctly.	2. Test with a power cord from another electrical appliance.
	3. The fuse has blown, or the circuit breaker has tripped.	3. Check the fuse or circuit breaker.
The media will not feed.	1. The media is not loaded properly.	1. Load the media properly. ⇒ **Section 2.3.1**.
	2. The printer is in an error condition.	2. Solve the error in the message display. (See **Section 5.1** for more detail.)
Pressing the **[FEED]** key in the initial state results in an error.	A feed was attempted contrary to the following default conditions. Sensor type: Feed gap sensor Printing method: Thermal transfer Media pitch: 76.2 mm	Change the print condition by using the printer driver or a print command so that it corresponds to your printing conditions. Clear the error state by pressing the **[RESTART]** key.
Nothing is printed on the media.	1. The media is not loaded properly.	1. Load the media properly. ⇒ **Section 2.3.1.**
	2. The ribbon is not loaded properly.	2. Load the ribbon properly. ⇒ **Section 2.3.2**.
	3. The print head is not installed properly.	3. Install the print head properly and close the Print Head Block.
	4. The combination of the ribbon and media is not correct.	4. Select an appropriate ribbon for the media type being used.
The printed image is blurred.	1. The combination of the ribbon and media is not correct.	1. Select an appropriate ribbon for the media type being used.
	2. The Print Head is not clean.	2. Clean the print head using the Print Head Cleaner or a cotton swab slightly moistened with ethyl alcohol.
The cutter does not cut.	1. The Cutter Cover is not attached properly.	1. Attach the Cutter Cover properly.
	2. The media is jammed in the Cutter.	2. Remove the jammed paper. ⇒ **Section 4.1.3**.
	3. The cutter blade is dirty.	3. Clean the cutter blade. ⇒ **Section 4.1.3**.
The Strip Module does not remove labels from the backing paper.	Label stock is too thin or the glue is too sticky.	1. Refer to **Section 7.1 Media** and change the label.
		2. Set the Pre Peel function to ON.

5.3 Removing Jammed Media

This section describes, in detail, how to remove jammed media from the printer.

CAUTION!
Do not use any tool that may damage the Print Head.

1. Turn off and unplug the printer.
2. Open the Top Cover.
3. Turn the Head Lever to **FREE** position, then open the Ribbon Shaft Holder Plate.
4. Open the Print Head Block.
5. Remove the ribbon and media.



Print Head Block Ribbon Shaft Holder Plate

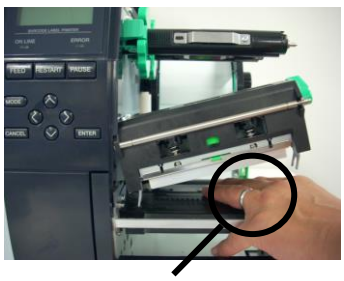
6. Remove the jammed media from the printer. DO NOT use any sharp implements or tools as these could damage the printer.
7. Clean the Print Head and Platen, then remove any further dust or foreign substances.
8. Paper jams in the Cutter Unit can be caused by wear or residual glue from label stock on the cutter. Do not use non-specified media in the cutter.

NOTE:
If you get frequent jams in the cutter, contact a TOSHIBA TEC authorised service epresentative.

CAUTION!

When removing the jammed media, be careful not to damage the print head with hard objects like watches or rings.

Care must be taken not to allow the metal or glass part of a watch to touch the print head.



Care must be taken not to allow a metal object like a ring to touch the print head.

Since the print head element can be easily damaged by shock, please treat it carefully and do not hit it with hard objects.

6. PRINTER SPECIFICATIONS

This section describes the printer specifications.

Item \ Model		B-EX4T2/D2-GS	B-EX4T2-TS	B-EX4T2-HS
Destination	QM: World wide	B-EX4T2-GS12-QM-R B-EX4D2-GS12-QM-R*1	B-EX4T2-TS12-QM-R	B-EX4T2-HS12-QM-R
	QQ:North America	B-EX4D2-GS12-QQ-R	-	-
Dimension (W x D x H)		278 mm x 460 mm x 310 mm (10.9” x 18.1” x 12.2”)		
Weight (kg)		17 kg		
Operating temperature range		5 degC to 40 degC (40 degF to 104 degF)		
Relative humidity		25% to 85% RH (no condensation)		
Power supply		Universal switching power source AC 100 V to 240 V, 50/60 Hz +/- 10%		
Input voltage		AC100 V to 240 V, 50/60 Hz +/- 10%		
Power Consumption	During a print job*2	157.34W 0.71A		
	During stand-by	15W or less		
	During sleep mode	5.7W 0.09A		
Resolution		8 dots/mm (203 dpi)	11.8 dots/mm (300 dpi)	23.6 dots/mm (600 dpi)
Printing method		T2: Thermal transfer or Direct thermal D2: Direct thermal	T2: Thermal transfer or Direct thermal	
Printing speed		76.2mm/sec. (3 in/sec.) 152.4mm/sec (6 in/sec.) 254.0mm/sec.(10 in/sec.) 304.8mm/sec.(12 in/sec.)	76.2 mm/sec. (3 in/sec.) 127.0mm/sec. (5 in/sec.) 203.8mm/sec. (8 in/sec.) 254.0mm/sec.(10 in/sec.) 304.8mm/sec.(12 in/sec.)	50.8 mm/sec. (2 in/sec.) 76.2 mm/sec. (3 in/sec.) 101.6 mm/sec. (4 in/sec.) 127.0mm/sec. (5 in/sec.) 152.4mm/sec. (6 in/sec.)
Available media width (including backing paper)		25.0 mm to 114.0 mm (0.98 inches to 4.49 inches)		15.0 mm to 114.0 mm (0.59inches to 4.49inches)
Effective print width (max.)		104.0 mm (4.1 inches)		
Issue mode		Batch Strip (Strip mode is enabled only when the optional Strip Module is installed.) Cut (Cut mode is enabled only when the optional Cutter Module is installed.)		
LCD Message display		Graphic type 128 x 64 dots		

**1: B-EX4D2-GS12-QM-R complies for U.S.A, Canada, Australia, EU and EFTA*

**2: While 20% slant lines are printed in the specified format.*

Item \ Model	B-EX4T2/D2-GS	B-EX4T2-TS	B-EX4T2-HS
Bar code types	JAN8, JAN13, EAN8, EAN8+2 digits, EAN8+5 digits, EAN13, EAN13+2 digits, EAN13+5 digits, UPC-E, UPC-E+2 digits, UPC-E+5 digits, UPC-A, UPC-A+2 digits, UPC-A+5 digits, MSI, ITF, NW-7, CODE39, CODE93, CODE128, EAN128, Industrial 2 to 5, Customer Bar Code, POSTNET, KIX CODE, RM4SCC (ROYAL MAIL 4 STATE CUSTOMER CODE), GS1 DataBar		
Two-dimensional code	Data Matrix, PDF417, QR code, Maxi Code, Micro PDF417, CP Code		
Font	Times Roman (6 sizes), Helvetica (6 sizes), Presentation (1 size), Letter Gothic (1 size), Prestige Elite (2 sizes), Courier (2 sizes), OCR (2 types), Gothic (1 size), Outline font (4 types), Price font (3 types) 24 x 24 Simp-Chinese font (only CN model)		
Rotations	0, 90, 180, 270 deg		
Standard interface	USB interface and LAN interface		
Optional interface	Serial interface (B-EX700-RS-QM-R) Parallel interface (B-EX700-CEN-QM-R) Expansion I/O interface (B-EX700-IO-QM-R) RTC & USB Host interface (B-EX700-RTC-QM-R) Wireless LAN interface (B-EX700-WLAN-QM-R, B-EX700-WLAN3-QM-S)		
Optional Module	Disc cutter module (B-EX204-QM-R) Strip module (B-EX904-H-QM-R)		
Optional Kit	T2: 203-dpi print head (B-EX704-TPH2-QM-R) 300-dpi print head (B-EX704-TPH3-QM-R) D2: 203-dpi print head (B-EX704-TPH2-QM-R)		T2: 600-dpi print head (B-EX704-TPH6-QM-R)

NOTES:

- *Data Matrix™ is a trademark of International Data Matrix Inc., U.S.*
- *PDF417™ is a trademark of Symbol Technologies Inc., US.*
- *QR Code is a trademark of DENSO CORPORATION.*
- *Maxi Code is a trademark of United Parcel Service of America, Inc., U.S.*

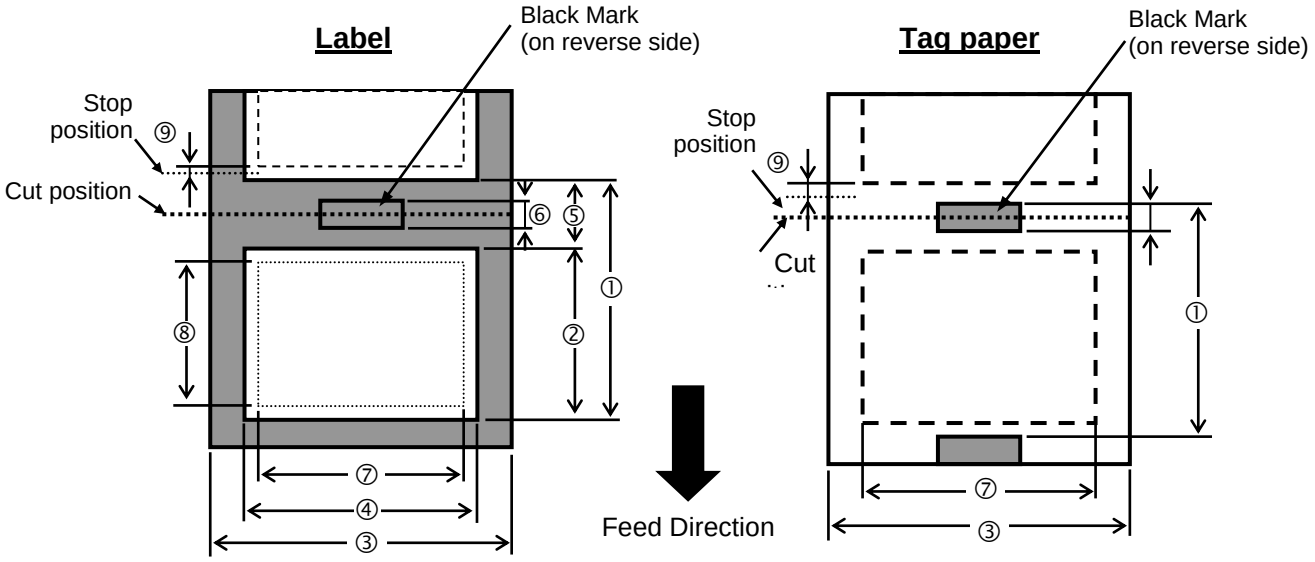
7. SUPPLY SPECIFICATIONS

7.1 Media

Please make sure that the media being used is approved by TOSHIBA TEC. The warranty does not apply when a problem is caused by using media that is not approved by TOSHIBA TEC.
For information regarding TOSHIBA TEC approved media, please contact a TOSHIBA TEC authorized service representative.

7.1.1 Media Type

Two types of media can be loaded for this thermal transfer and direct thermal printer: label or tag. The table below shows size and shape of the media available for this printer.



Paper Size and Shape

Item				B-EX4T2 / D2								
Thermal head density				8dots/mm（203dpi）			11.8dots/mm（300dpi）			23.6dots/mm（600dpi）		
Thermal head width				104.0mm			108.416mm			105.58mm		
Contents		Issue type		Batch	Strip *Note1*	Disc Cutter	Batch	Strip *Note1*	Disc Cutter	Batch	Strip	Disc Cutter
1.	Paper Pitch	Label	Min.	10.0	15.0	25.0	10.0	15.0	25.0	10.0	15.0	25.0
			Max.	1500.0	256.0	1500.0	1500.0	256.0	1500.0	500.0	256.0	500.0
		Tag	Min.	10.0	—	25.0	10.0	—	25.0	10.0	—	25.0
			Max.	1500.0	—	1500.0	1500.0	—	1500.0	500.0	—	500.0
2.	Paper length	Min.		8.0	13.0	19.0 *Note2*	8.0	13.0	19.0 *Note2*	8.0	13.0	19.0 *Note2*
		Max.		1498.0	254.0	1494.0	1498.0	254.0	1494.0	498.0	254.0	494.0
3.	Tag width and Backing paper width	Min.		25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
		Max.	Direct	114.0			114.0			114.0		
			Transfer	108.0			108.0			108.0		
4.	Label width	Min.		22.0			22.0			22.0		
		Max.	Direct	111.0			111.0			111.0		
			Transfer	105.0			105.0			105.0		
5.	Label-to-label gap	Min.		2.0		6.0	2.0		6.0	2.0		6.0
		Max.		20.0			20.0			20.0		
6.	Black mark length	Min.		2.0			2.0			2.0		
		Max.		10.0			10.0			10.0		

7.	Max. effective print width	Max.		104.0 +-0.2			104.0 +-0.2			104.0 +-0.2		
8.	Effective print length	Label	Min.	6.0	11.0	17.0	6.0	11.0	17.0	6.0	11.0	17.0
			Max.	1496.0	252.0	1492.0	1496.0	252.0	1492.0	496.0	252.0	492.0
		Tag	Min.	8.0	—	19.0	8.0	—	19.0	8.0	—	19.0
			Max.	1498.0	—	1498.0	1498.0	—	1498.0	498.0	—	498.0
9.	Slow-up and down area (Un-print area)	Slow-up		1.0			1.0			1.0		
		Slow-down		1.0			1.0			1.0		
10.	Paper thickness	Min.		0.13			0.13			0.13		
		Max.		0.17			0.17			0.17		
11.	Paper thickness can be cut	Min.		-		0.08	-		0.08	-		0.08
		Max.		-		0.17	-		0.17	-		0.17
12.	Max. paper roll diameter			φ200 (φ180 when then built-in rewinder is used)			φ200 (φ180 when then built-in rewinder is used)			φ200 (φ180 when then built-in rewinder is used)		
13.	Paper winding direction			Inside the printing side (STD.)			Inside the printing side (STD.)			Inside the printing side (STD.)		
14.	Paper core			Inside diameter φ76.2±0.3			Inside diameter φ76.2±0.3			Inside diameter φ76.2±0.3		

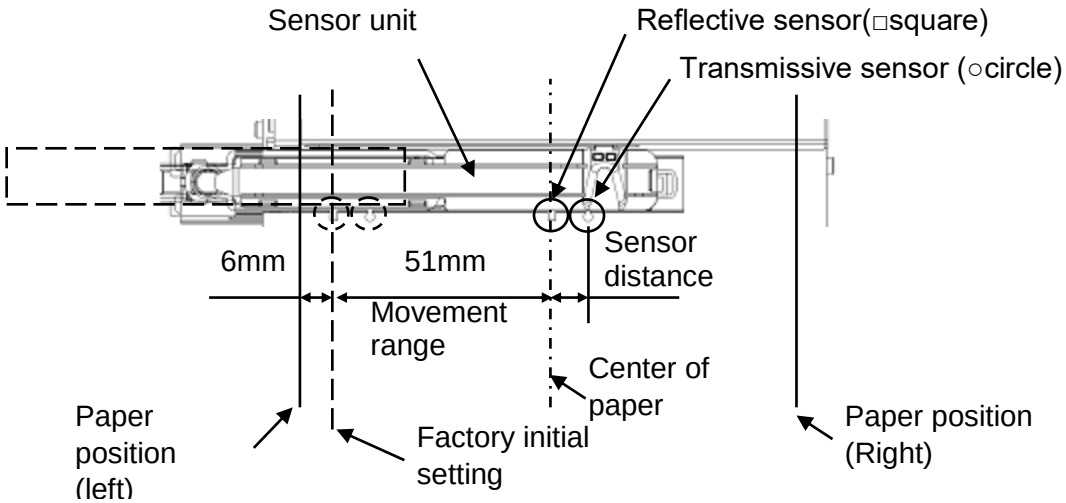
NOTES:

1. *To ensure print quality and print head life use only TOSHIBA TEC specified media.*
2. *When using the peel-off at 12"/sec or more for 203dpi model, issue at 10"/sec. When using the peel-off at 10"/sec or more for 300dpi model, issue at 8"/sec.*
3. *When using the disk cutter, the label length must meet the following condition: Label length ≧18.0mm - (Gap length/2).*
4. *For label issues, set the head lever to position LABEL.*
5. *For tag issues, set the head lever to position TAG.*
6. *When using narrow paper, may need to set the head lever to position TAG, or need to adjust the right head pressure.*
7. The ratio of a label length to a gap length must be a minimum of 3 to 1 (3:1).
8. The paper width for the label includes its backing paper.
9. When using label stock in cut mode, be sure to cut in the gaps. Cutting labels will cause the adhesive to stick to the cutter, which may affect the cutter performance and shorten the cutter life.
10. In the cut issue mode, the backing paper of labels (the gap between labels) can be cut. The label itself cannot be cut. When the perforated label is used, it is necessary to test and confirm the cutting performance beforehand.
11. In the cut issue mode, the gap length must be 6 mm or more, and the cut position must be adjusted so that the cutter cuts in the center of the gap.
12. When the stop position is not proper, the print stop position should be changed by the strip position fine adjustment.
13. When the gap between labels is 5 mm or more, the effective print length should be set to the maximum value (Label pitch minus 2 mm), then the print stop position should be changed by the strip position fine adjustment.
14. If paper is jammed at the platen when cut issue is performed, enable the forward feed function ("FORWARD WAIT") in system mode.
15. When the paper thickness is more than 200 µm, the print head installation position may need to be changed.

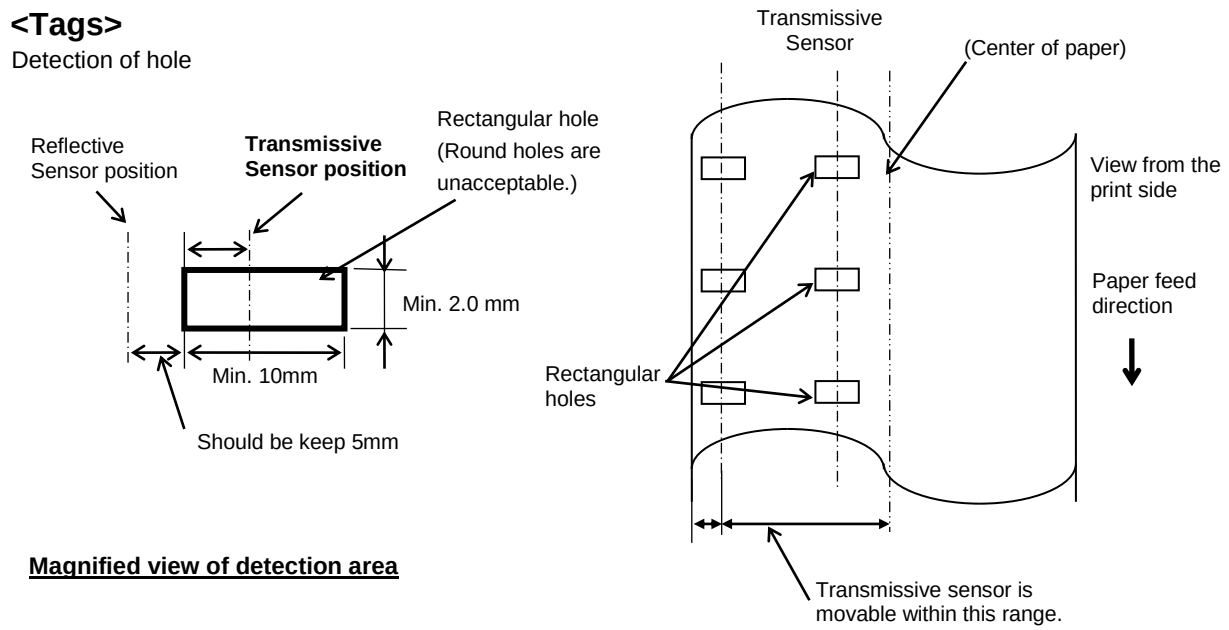
7.1.2 Detection Area of the Transmissive Sensor

Sensor position

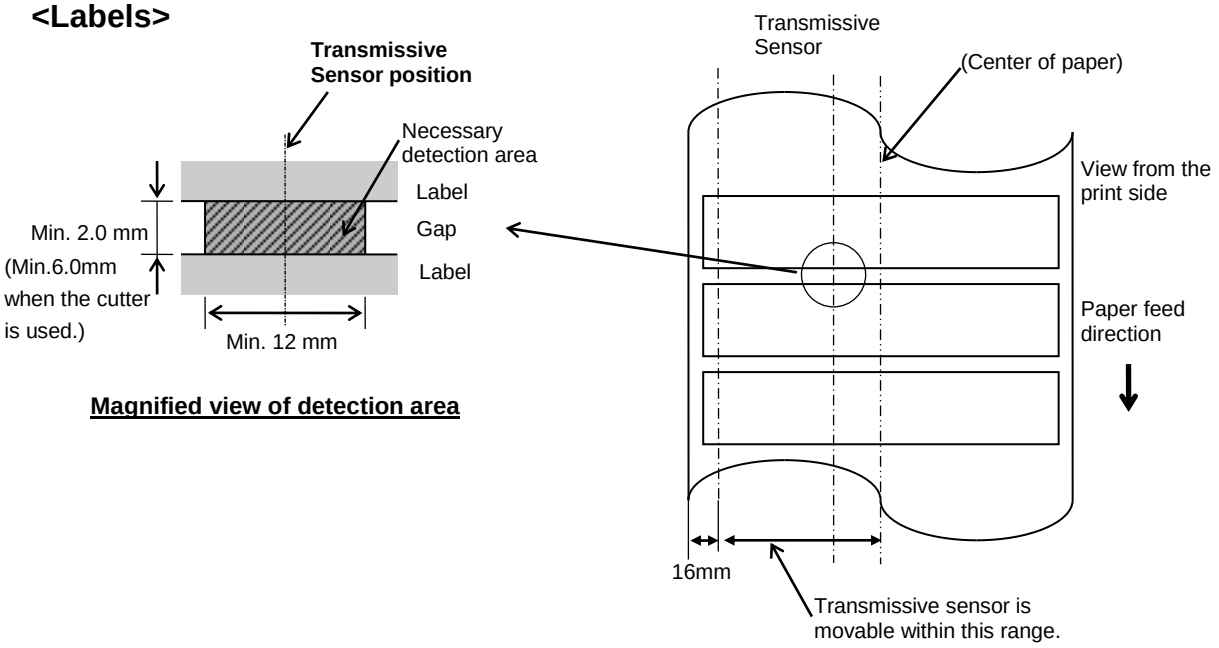
The sensor is movable in the range from the center of the paper to the left end.
Transmissive sensor and Reflective sensor are moving from side to side at same time each sensor unit.



Detection Area of Transmissive Sensor

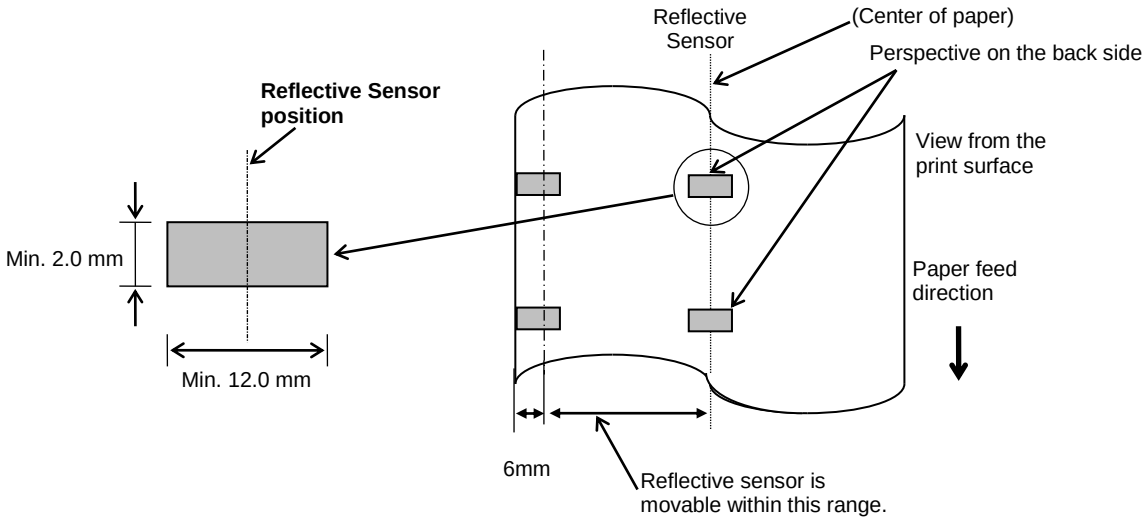


<Labels>



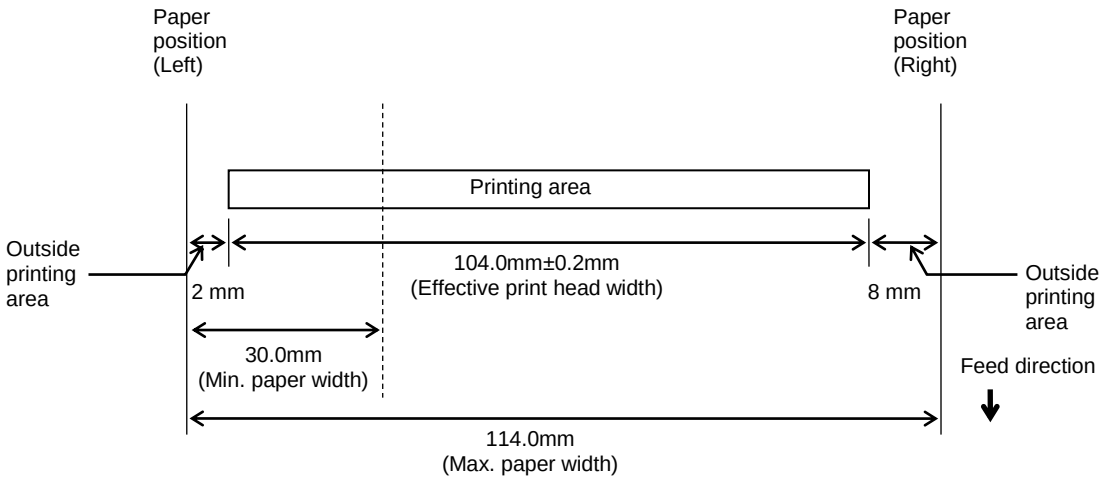
7.1.3 Detection Area of the Reflective Sensor

1. The Reflective Sensor is movable from the center to the left edge of media.
2. The reflection factor of the Black Mark must be 10% or lower with a waveform length of 950 nm.
3. The Reflective Sensor should be aligned with the center of the Black Mark.
4. The black marks, if necessary, must be printed on the labels in the gap areas.
5. Rectangular holes can substitute the black marks, on the condition that nothing is printed on the back side. Round holes cannot be detected by the reflective sensor.

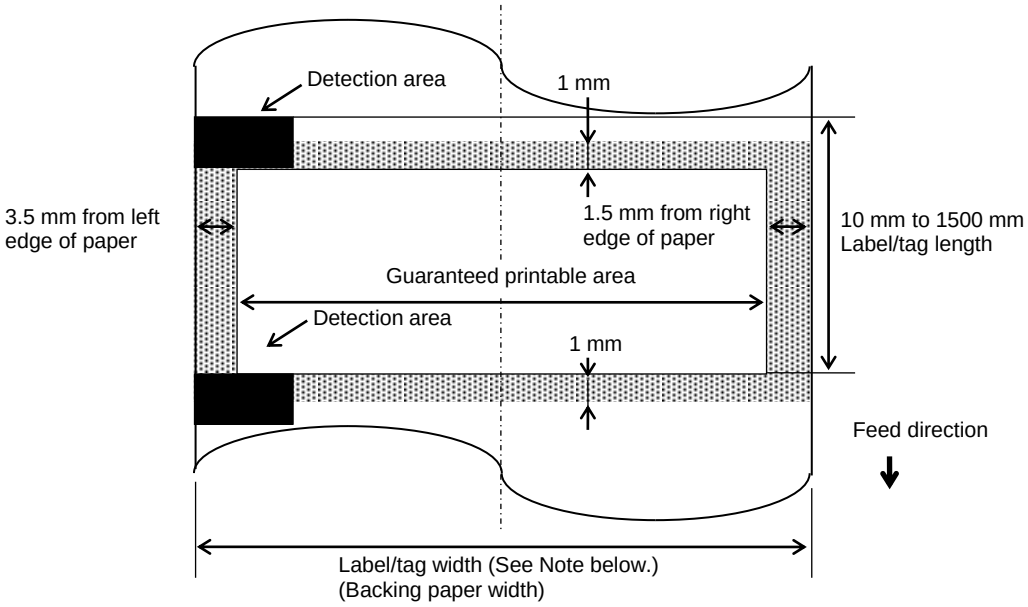


7.1.4 Effective Print Area

7.1.4.1 Relationship between Print Head Effective Print Width and Paper Width



7.1.4.2 Effective Print Area of Tags and Labels



NOTES:

1. *Print quality in the shaded area is not guaranteed. For the label, printing in the 1-mm width area around the label is not guaranteed as well as the shaded area shown above.*
2. *This printer paper set position is left side,*
   The center of the paper (label and tag) is not almost aligned with the center of the print head.
3. *If printing is performed in the shaded area, the ribbon may wrinkle. This may affect the print quality of the guaranteed printing area.*

7.2 Ribbon

Please make sure that the ribbon being used is approved by TOSHIBA TEC. The warranty does not apply to any problem caused by using non-approved ribbons.
For information regarding TOSHIBA TEC approved ribbon, please contact a TOSHIBA TEC service representative.

Type	Spool type
Width	41 – 112 mm Recommended width is 41, 50, 68, 84, and 112 mm.
Length	600 m (max)
Outside Diameter	ϕ90 mm (max.)

The table below shows the correlation between ribbon width and media width (backing paper is not included.)

Ribbon width	Media width	Ribbon width	Media width
41 mm	30 – 36 mm	84 mm	63 – 79 mm
50 mm	36 – 45 mm	112 mm	79 – 108 mm
68 mm	45 – 63 mm		

NOTES:

1. *To ensure print quality and print head life use only TOSHIBA TEC specified ribbons.*
2. *To avoid ribbon wrinkles use a ribbon that is wider than the media by 5 mm or more. However, too much difference in width between the two may cause wrinkles.*
3. The ribbon which is narrower than the paper width by 5 mm or more can be used, but the print area becomes narrower.

7.3 Recommended Media and Ribbon Types

Media type	Description
Vellum paper and labels	General use for low cost applications.
Coated paper	Matt coated paper General use including applications that require small letters and/or symbols. Glossy coated paper Used where a high-grade finish is required
Plastic films	Synthetic film (Polypropylene, etc.) This water-proof and solvent-resistant material has high physical strength and low-temperature resistance, but poor heat resistance (dependent upon material). This material can be used for labels stuck to recyclable containers, so it can be recycled in the same process. PET film This water-proof and solvent-resistant material has high physical strength, and low-temperature resistance as well as heat resistance. This material is used for many applications, especially where high durability is required. Mode/serial plate labels, caution labels, etc. Polyimide This material gives the best performance on heat resistance (greater than PET film). It is often used for PCB labels as it can withstand passage through a solder bath.

7.3 Recommended Media and Ribbon Types (Cont.)

Ribbon type	Description
Vellum wax ribbon	This ribbon is mainly used for vellum paper and labels. It has a very high ink density to cope with uneven printing surface
Standard wax ribbon	Good match for coated paper (Matt coat and glossy coat).
Smear-less ribbon (Wax resin ribbon)	Good match for coated paper. The printed image will resist water and light rubbing.
Scratch and solvent resistance ribbon	Very good match for plastic films (synthetic paper, PET, polyimide, etc.) Scratch and solvent resistance Heat resistance with PET and polyimide.

Combination of Media and Ribbon

Media type / Ribbon type	Vellum paper and label	Coated paper	Plastic films
Vellum wax ribbon	○		
Standard wax ribbon		○	
Smear-less ribbon (wax-resin ribbon)		○	
Scratch/solvent resistance ribbon			○

○: Good match

7.4 Care/Handling of Media and Ribbon

CAUTION!

Be sure to carefully review and understand the Supply Manual. Use only media and ribbons that meet specified requirements. Use of non-specified media and ribbons may shorten the head life and result in problems with bar code readability or print quality. All media and ribbons should be handled with care to avoid any damage to the media, ribbons or printer. Read the guidelines in this section carefully.

- Do not store the media or ribbon for longer than the manufacturer's recommended shelf life.
- Store media rolls on the flat end. Do not store them on the curved sides as this might flatten that side causing erratic media advance and poor print quality.
- Store the media in plastic bags and always reseal after opening. Unprotected media can get dirty and the extra abrasion from the dust and dirt particles will shorten the print head life.
- Store the media and ribbon in a cool, dry place. Avoid areas where they would be exposed to direct sunlight, high temperature, high humidity, dust or gas.
- The thermal paper used for direct thermal printing must not have specifications which exceed Na^+ 800 ppm, K^+ 250 ppm and Cl^- 500 ppm.
- Some ink used on pre-printed media may contain ingredients which shorten the print head's product life. Do not use labels pre-printed with ink which contain hard substances such as carbonic calcium ($CaCO_3$) and kaolin (Al_2O_3, $2SiO_2$, $2H_2O$).

For further information, please contact your local distributor or your media and ribbon manufacturers.

APPENDIX 1 MESSAGES AND LEDS

Appendix 1 describes the LCD messages displayed on the operation panel.

Symbols in the message

1: ❍: The LED is illuminated. ⊙: The LED is flashing. ●: The LED is unlit.
2: %%,%%%,%%%: Remaining memory size of the external memory: 0 to 09,999,999 (in K bytes)
3: ####: Remaining memory size for PC commands storage area in the internal memory: 0 to 3072 (in K bytes)
4: &&&&: Remaining memory size for writable characters storage area: 0 to 3147 (in K bytes)

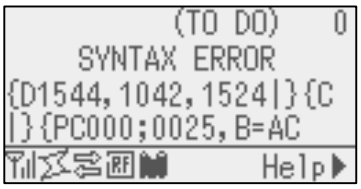
No.	LCD Message	LED Indication		Printer Status	Restoration by RESTART key	Acceptance of Status Request/ Reset Command
		ONLINE	ERROR		Yes/No	Yes/No
1	ON LINE	❍	●	In online mode	-----	Yes
	ON LINE	⊙	●	In online mode (The printer is communicating)	-----	Yes
2	HEAD OPEN	●	●	The print head block is open in online mode.	-----	Yes
3	PAUSE	●	●	The printer is paused.	Yes	Yes
4	COMMS ERROR	●	❍	A parity, overrun, or framing error has occurred during communication through the RS-232C.	Yes	Yes
5	PAPER JAM	●	❍	The media is jammed during paper feed.	Yes	Yes
6	CUTTER ERROR	●	❍	A problem has occurred with the cutter module.	Yes	Yes
7	NO PAPER	●	❍	The media has run out, or the media is not loaded properly.	Yes	Yes
8	NO RIBBON	●	❍	The ribbon has run out.	Yes	Yes
9	HEAD OPEN	●	❍	Feed or printing was attempted with the print head block open.	Yes	Yes
10	HEAD ERROR	●	❍	There is a problem with the print head.	Yes	Yes
11	EXCESS HEAD TEMP	●	❍	The print head has overheated.	No	Yes
12	RIBBON ERROR	●	❍	The ribbon has been torn. A problem has occurred with the sensor that determines the torque for the ribbon motor.	Yes	Yes
13	REWIND FULL	●	❍	An overflow error has occurred in the rewind unit.	Yes	Yes
14	SAVING#####KB/&&&&KB or SAVING%,%%%.%%%KB	❍	●	Writable character or PC command save mode	-----	Yes
15	FORMAT#####KB/&&&&KB or FORMAT%,%%%.%%%KB	❍	●	The storage area is being initialised.	-----	Yes
16	NOW LOADING…	❍	●	TrueType font or BASIC program is being downloaded.	-----	Yes
17	MEMORY WRITE ERR.	●	❍	An error has occurred while writing to flash memory or USB memory.	No	Yes
18	FORMAT ERROR	●	❍	An erase error has occurred while formatting the flash memory or USB memory.	No	Yes
19	MEMORY FULL	●	❍	Data cannot be stored because the flash memory or USB memory is full.	No	Yes
20	SYNTAX ERROR (Refer to “Notes”)	●	❍	A command error has occurred while analyzing the command.	Yes	Yes
21	POWER FAILURE	●	❍	A power failure has occurred.	No	No

No.	LCD Message	LED Indication		Printer Status	Restoration by RESTART key	Acceptance of Status Request/ Reset Command
		ONLINE	ERROR		Yes/No	Yes/No
22	EEPROM ERROR	●	❍	Data cannot be read from/written to a backup EEPROM properly	No	No
23	SYSTEM ERROR	●	❍	When the following abnormal operations are performed, a system error occurs: (a) Command fetch from an incorrect address. (b) Access to word data at an incorrect address. (c) Access to long-word data at an incorrect address. (d) Access to the area of 80000000H to FFFFFFFFH in the logic space in user mode. (e) An undefined instruction in an area other than a delay slot was decoded. (f) An undefined instruction in a delay slot was decoded. (g) An instruction to rewrite a delay slot was decoded.	No	No
24	DHCP CLIENT INIT…	●	●	DHCP Client is being initialised. (Only when the DHCP is enabled.)	-----	-----
25	RFID WRITE ERROR	●	❍	The printer did not succeed in writing data onto an RFID tag after having retried the specified number of times.	Yes	Yes
26	RFID ERROR	●	❍	The printer cannot communicate with the RFID module.	No	Yes
27	INPUT PASSWORD	●	●	The printer is waiting for a password to be entered.	No	No
28	PASSWORD INVALID	●	●	A wrong password was entered three consecutive times.	No	No
29	RFID CONFIG ERROR	●	❍	B-EX700-RFID-U2-EU/US-R, B-EX700-RFID-U4-EU/US-R, U4 Module preinstall model only RFID Module's destination code is not specified.	No	No
30	LOW BATTERY (Refer to Notes)	●	❍	RTC Battery is low.	No	Yes
31	INTERNAL COM ERR	●	●	A hardware error has occurred in the internal serial interface.	No	No

NOTE: *When an error message listed above appears on the LCD display please refer to* ***Section 5 TROUBLESHOOTING*** *for a solution.*

NOTES:

- *If an error is found in a command received, up to 42 bytes of the erroneous command, starting from the command code, will be displayed. (However, [LF] and [NUL] will not be displayed.)*



Example 1
[ESC]PC001;0**A**00,0300,2,2,A,00,B[LF][NUL]
Command error
The following message appears.

SYNTAX ERROR
PC001;0A00,0300,2,2,A
,00,B

Example 2
[ESC]T20**G**30[LF] [NUL]
Command error
The following message appears.

SYNTAX ERROR
T20G30

Example 3
[ESC]PC002;0100,0300,15,15,A,00,00,J0101,+000000000**A**,Z10,P1[LF] [NUL]
Command error
The following message appears.

SYNTAX ERROR
PC002;0100,0300,15,15
,A,00,00,J0101,+00000

- *When the error is shown, "? (3FH)" appears for character codes other than 20H to 7FH and A0H to DFH.*
- *For details, please refer to the* ***B-EX Series External Equipment Interface Specification.***

NOTES:

・The battery check does not work when the printer is being reset and the RTC is not mounted.

・It is necessary to follow the procedure below to use RTC function under a low battery condition.

・Turn off the printer power while the printer is in an error state. Start the printer in the system mode, set the date and time for the RTC again, then reset the printer to place the printer in online state.

* The printer can print the programmed date and time until it is turned off.

APPENDIX 2 INTERFACE

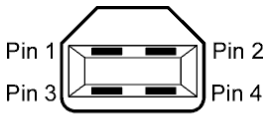
NOTE:
To prevent radiation and reception of electrical noise, the interface cables must meet the following requirements:

- *In case of a parallel interface cable or serial interface cable, fully shielded and fitted with metal or metallised connector housings.*
- *Keep as short as possible.*
- *Should not be bundled tightly with power cords.*
- *Should not be tied to power line conduits.*
- *A parallel interface cable to be used should conform to IEEE1284.*

■ USB interface (Standard)

Physical Layer: Conforming to V2.0 Full speed
Transfer type: Control transfer, Bulk transfer
Transfer rate: Full speed (12M bps)
Class: Printer class
Number of ports: 1
Power source: Self power
Connector: Type B

Pin No.	Signal
1	VCC
2	D-
3	D+
4	GND

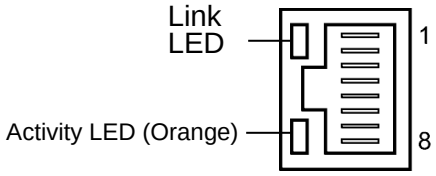


Series B Plug

Series B Plug

■ LAN (Standard)

Physical Layer: IEEE802.3 10BASE-T/100BASE-TX
Number of ports: 1
Connector: RJ-45
LED status: Link LED, Activity LED



LED	LED Status	LAN status
Link	ON	10Mbps link or 100Mbps link is detected.
	OFF	No link is detected. ** Communication cannot be made while the Link LED is off.*

LAN cable: 10BASE-T: UTP category 3 or category 5
100BASE-TX: UTP category 5
Cable length: Segment length Max. 100 m

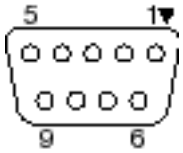
NOTE:

When a generally-used twisted pair Ethernet (TPE) or UTP cable is used, a communication error may occur depending on your operating environment. In such case, you may be requested to use a shielded twisted pair cable.

■ Serial interface (Option: B-EX700-RS-QM-R)

Type: RS-232C
Communication mode: Full duplex
Transmission speed: 2400 bps, 4800 bps, 9600 bps, 19200 bps, 38400 bps, 115200 bps
Synchronization: Start-stop synchronization
Start bit: 1 bit
Stop bit 1 bit, 2 bit
Data length: 7 bit, 8 bit
Parity: None, EVEN, ODD
Error detection: Parity error, Framing error, Overrun error
Protocol: Unprocedure communication
Data input code: ASCII code, European character 8 bit code, graphic 8 bit code, JIS8 code, Shift JIS Kanji code, JIS Kanji code
Receive buffer: 1M byte
Connector:

Pin No.	Signal
1	N.C
2	TXD (Transmit Data)
3	RXD (Received Data)
4	DSR (Data Set Ready)
5	SG (Signal Ground)
6	DTR (Data Terminal Ready)
7	CTS (Clear to Send)
8	RTS (Request to Send)
9	N.C



■ Parallel interface (Centronics) (Option: B-EX700-CEN-QM-R)

Mode: Conforming to IEEE1284
Compatible mode (SPP mode), Nibble mode
Data input method: 8 bit parallel
Control signal:

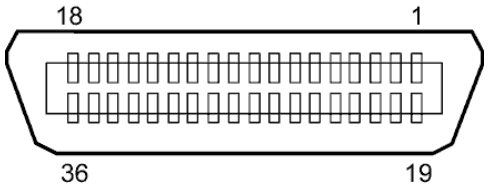
SPP Mode	Nibble Mode	ECP Mode
nStrobe	HostClk	HostClk
nAck	PtrClk	PeriphClk
Busy	PtrBusy	PeriphAck
Perror	AckDataReq	NAckReverse
Select	Xflag	Xflag
nAutoFd	HostBusy	HostAck

Data input code: ASCII code
European 8 bit code
Graphic 8 bit code
JIS8 code
Shift JIS Kanji code
JIS Kanji code
Receive buffer: 1MB

Connector:

PIN No.	Signal		
	SPP Mode	Nibble Mode	ECP Mode
1	nStrobe	HostClk	HostClk
2	Data 1	Data 1	Data 1
3	Data 2	Data 2	Data 2
4	Data 3	Data 3	Data 3
5	Data 4	Data 4	Data 4
6	Data 5	Data 5	Data 5
7	Data 6	Data 6	Data 6
8	Data 7	Data 7	Data 7
9	Data 8	Data 8	Data 8
10	nAck	PtrClk	PeriphClk
11	Busy	PtrBusy	PeriphAck
12	PError	AckDataReq	nAckReverse
13	Select	Xflag	XFlag
14	nAutoFd	HostBusy	HstAck
15	NC	NC	NC
16	0V	0V	0V
17	CHASSIS GND	CHASSIS GND	CHASSIS GND
18	+5V (For detection)	+5V (For detection)	+5V (For detection)
19	TWISTED PAIR GND(PIN1)	TWISTED PAIR GND(PIN1)	TWISTED PAIR GND(PIN1)
20	TWISTED PAIR GND(PIN2)	TWISTED PAIR GND(PIN2)	TWISTED PAIR GND(PIN2)
21	TWISTED PAIR GND(PIN3)	TWISTED PAIR GND(PIN3)	TWISTED PAIR GND(PIN3)
22	TWISTED PAIR GND(PIN4)	TWISTED PAIR GND(PIN4)	TWISTED PAIR GND(PIN4)
23	TWISTED PAIR GND(PIN5)	TWISTED PAIR GND(PIN5)	TWISTED PAIR GND(PIN5)
24	TWISTED PAIR GND(PIN6)	TWISTED PAIR GND(PIN6)	TWISTED PAIR GND(PIN6)
25	TWISTED PAIR GND(PIN7)	TWISTED PAIR GND(PIN7)	TWISTED PAIR GND(PIN7)
26	TWISTED PAIR GND(PIN8)	TWISTED PAIR GND(PIN8)	TWISTED PAIR GND(PIN8)
27	TWISTED PAIR GND(PIN9)	TWISTED PAIR GND(PIN9)	TWISTED PAIR GND(PIN9)
28	TWISTED PAIR GND(PIN10)	TWISTED PAIR GND(PIN10)	TWISTED PAIR GND(PIN10)
29	TWISTED PAIR GND(PIN11)	TWISTED PAIR GND(PIN11)	TWISTED PAIR GND(PIN11)
30	TWISTED PAIR GND(PIN31)	TWISTED PAIR GND(PIN31)	TWISTED PAIR GND(PIN31)
31	nInit	nInit	nReverseRequest

32	nFault	NDataAvail	nPeriphRequest
33	0V	0V	0V
34	NC	NC	NC
35	NC	NC	NC
36	nSelectIn	IEEE1284Active	IEEE1284Active



IEEE1284-B Connector

■ Wireless LAN

・ Option: B-EX700-WLAN-QM-R

Standard:	Conforming to IEEE802.11b, and IEEE802.11g
Client protocol:	TCP/IP, Socket, LPD (LLPR), DHCP/WINS, HTTPD (SNMP)
Print protocol:	Socket communication/LPR
Security protocol:	WEP (64 bits/128 bits) or AES, TKIP (only when using WPA, WPA-PSK) Shared key (for WEP), PSK, PEAP, TLS, TTLS, MD5, LEAP, EAP-FAST
Antenna:	Built-in
Parameter setting:	via USB, LAN, WLAN, RS-232C, Parallel
Default IP address:	192.168.10.21
Default subnet mask:	255.255.255.0
Certification:	Wi-Fi, CCX V3, V4

NOTE:

MAC address of the Wireless LAN module will be necessary when setting the MAC address filtering function of an access point. Please ask a service person of your nearest TOSHIBA TEC service representative.

・ Option: B-EX700-WLAN3-QM-S

Standard:	IEEE802.11a/b/g/n/ac
Client protocol:	TCP/IPv4, Socket, LPR, DHCP, (SNMP v2c)
Print protocol:	Socket communication/LPR
Security protocol:	WEP 128 bits, TKIP(WPA), AES(WPA2) Pre Shared Key(WPA/WPA2-Personal),PEAP, EAP-TLS, EAP-TTLS, EAP-FAST
Antenna:	External antenna (Rod type)
Parameter setting:	via USB or WLAN
Default IP address:	192.168.10.20
Default subnet mask:	255.255.255.0

NOTE:
The printer's LAN connector (Ethernet) is used to connect the option to the printer.

WARNING!

Do not use the 5GHz band for communication outdoors. Using wireless devices outdoors on the 5GHz band is prohibited. To operate the wireless LAN of this product outdoors, only use the 2.4GHz band.

■ USB Host interface (Option: B-EX700-RTC-QM-R)

Physical Layer:	Conforming to V2.0 Full speed
Transfer type:	Control transfer, Bulk transfer
Transfer rate:	Full speed (12M bps)
Number of ports:	1
Power supply:	50mA output
Connector:	Type A

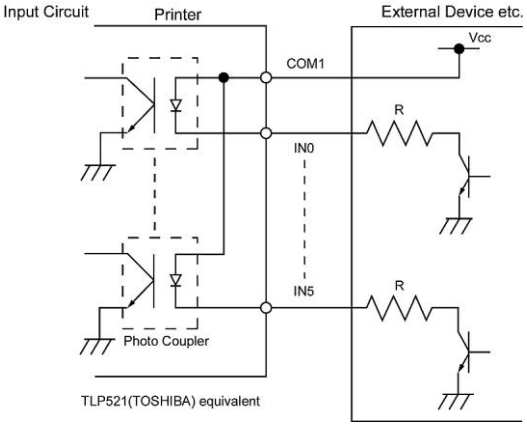
■ Expansion I/O Interface (Option: B-EX700-IO-QM-R)

Input Signal IN0 to IN5
Output Signal OUT0 to OUT6
Connector (External Device Side) FCN-781P024-G/P or equivalent
Connector (Printer Side) FCN-685J0024 or equivalent

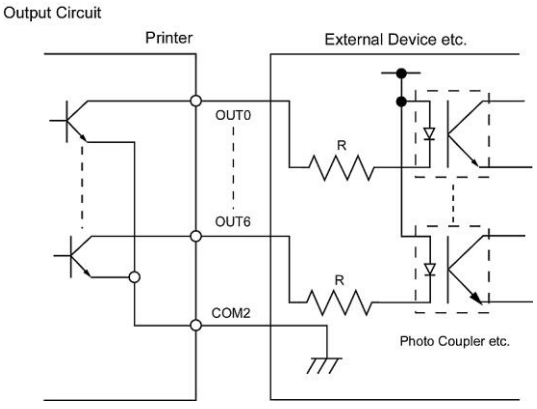
Pin	Signal	I/O	Function	Pin	Signal	I/O	Function
1	IN0	Input	FEED	13	OUT6	Output	
2	IN1	Input	PRINT	14	N.C.	-----	
3	IN2	Input	PAUSE	15	COM1	Common (Power)	
4	IN3	Input		16	N.C.	-----	
5	IN4	Input		17	N.C.	-----	
6	IN5	Input		18	N.C.	-----	
7	OUT0	Output	FEED	19	N.C.	-----	
8	OUT1	Output	PRINT	20	N.C.	-----	
9	OUT2	Output	PAUSE	21	COM2	Common (Ground)	
10	OUT3	Output	ERROR	22	N.C.	-----	
11	OUT4	Output		23	N.C.	-----	
12	OUT5	Output	POWER ON	24	N.C.	-----	

N.C.: No Connection

Input Circuit



Output Circuit



Operating environment Temperature: 0 to 40 °C
Humidity: 20 to 90% (No Condensation)

■ RFID

• (Option)B-EX700-RFID-U4-US-R *1

Module:	TOSHIBATEC TRW-USM-10
Frequency:	KR settings: 910.4-913.6MHz (UHF Korea)
Output:	10 to 100 mW
Available RFID tag:	EPC C1 Gen2, ISO-18000-6C

• (Option)B-EX700-RFID-U4-EU-R

Module:	TOSHIBATEC TRW-EUM-10
Frequency:	869.85 MHz (UHF Europe)
Output:	10 to 100 mW
Available RFID tag:	EPC C1 Gen2, ISO-18000-6C

• (Standard) B-EX4T1-GS/TS18-CN-R

Module:	TOSHIBATEC TRW-USM-10
Frequency:	CN settings: 920.625 MHz to 924.375 MHz (UHF China)
Output:	10 to 100 mW
Available RFID tag:	EPC C1 Gen2, ISO-18000-6C

• (Option)B-EX700-RFID-U4-EU-R

Module:	TOSHIBATEC TRW-EUM-10
Frequency:	869.85 MHz (UHF Europe)
Output:	10 to 100 mW
Available RFID tag:	EPC C1 Gen2, ISO-18000-6C

APPENDIX 3 GLOSSARIES

Barcode
A code which represents alphanumeric characters by using a series of black and white stripes of different widths. Reading barcodes is a fast and accurate means of capturing data.

Batch mode
An issue mode that continuously prints until the specified number has been printed.

Black mark
A black mark printed on the media so that the printer can maintain a consistent print position by detecting this mark.

Black mark sensor
A reflective sensor that detects the difference of potential between the black mark and print area to find the print start position.

Built-in rewinder mode
A printer mode where media is wound onto the build-in rewinder.

Cut mode
A printer mode where an optional cutter module is installed to automatically cut media from the supply roll after they are printed. The print command can specify to cut after every print or to cut after a set number of prints.

Cutter module
A device used to cut the media.

DHCP
Dynamic Host Configuration Protocol
A communications protocol that allocates an IP address to a computer plugged into a network.

DPI
Dots Per Inch
The unit used to express print density.

Expansion I/O interface
An interface circuit that may be installed to allow the printer to be connected to an external device such as a wrapping machine. It can receive feed, print start, and pause signals from the external device and to send back print, pause, and error status signals to the external device.

Feed gap sensor
A transmissive sensor that detects the difference of potential between the gap between labels and the label to find the print start position.

Font
A complete set of alphanumeric characters in one style of type. E.g. Helvetica, Courier, Times

Gap
Gap between labels on a backing material

IPS
Inch per second
The unit used to express print speed.

Label
A type of media with adhesive backing.

LCD
Liquid Crystal Display
Installed on the operation panel and displays operation modes, error message etc.

Media
Material on which data is printed by the printer. Labels, tag paper, fanfold paper, perforated paper etc.

Plug and Play
When Plug and Play is enabled, the PC will automatically identify the printer (if the PC supports Plug & Play), optimise the system resource (IRQ and DMA), and display a message prompting a printer driver installation.

Pre-printed media
A type of media on which characters, logos, and other designs have been already printed.

Printer IP address
A 32-bit address of a printer connected to TCP/IP network, which identifies the printer. An IP address is written as 4 sets of numbers, separated by full stops. For example 192.168.10.20.

Print head element
The thermal print head consists of a single line of tiny resistive elements. When current is allowed to flow through each element it heats up causing a small dot to be burned onto thermal paper or a small dot of ink to be transferred from a thermal ribbon.

Print speed
The speed at which printing occurs. This speed is expressed in units of IPS (inches per second).

Reflective sensor
See Black mark sensor.

Resolution
The number of individual dots a printer can produce within a unit of distance. Printer resolution measured in Dots per Inch. As the number of dots per inch increases, the resolution increases, resulting in a more detailed image.

RFID (Radio Frequency Identification)
RFID is a technology that uses radio waves to exchange data between a reader and an electronic tag. The tag can be encapsulating inside a label which can also be printed on. RFID is very useful for object identification and tracking.

Ribbon
An inked film used to transfer an image or text onto media. In thermal transfer printing, it is heated by the print head, causing an image to be transferred onto the media.

Strip mode
The printer removes labels from the backing paper. After each issue the printer stops until the label is removed. Once the label is removed the next label will be issued and so on.

Supplies
Media and ribbon

Tag
A type of media with no adhesive, usually made from cardboard or other durable material.

Thermal direct printing
A printing method using no ribbon and thermal media which reacts to heat. The print head makes direct contact with the media producing text or images.

Thermal print head
A print head using thermal transfer or thermal direct printing method.

Thermal transfer printing
A printing method where the thermal print head heats an ink or resin coated ribbon against the media. The ink/resin is then transferred onto the media.

Threshold setting
A sensor setting that allows the printer to maintain a consistent print position of pre-printed media.

Transmissive sensor
See Feed gap sensor.

USB (Universal Serial Bus)
An interface that is used to connect peripherals, such as a printer, keyboard, mouse to computer or host. The USB port may allow disconnection of a USB device without turning off the power.

Web printer
The web printer function allows you to browse the printer status on the PC, issue media, check or change the settings, or download firmware to the printer. For details, refer to the **Network Specification**.

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