TOSHIBA

TOSHIBA Bar Code Printer

BV400 Series

Key Operation Specification

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Toshiba Tec Corporation

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1 SCOPE

This specification describes key operations using the keys and the LCD of the BV400 series general-purpose bar code printers.

2 OUTLINE

Key operations are different depending on the printer mode: Online mode in which operations are carried out through the keys and error messages are displayed while the printer is connected to the host such as a PC, and the system mode in which self-diagnosis and setting of various parameters are performed.
This specification describes the key operation procedures with the printer keys and the LCD.
The names of the keys and LCD messages used in this specification are written in English.

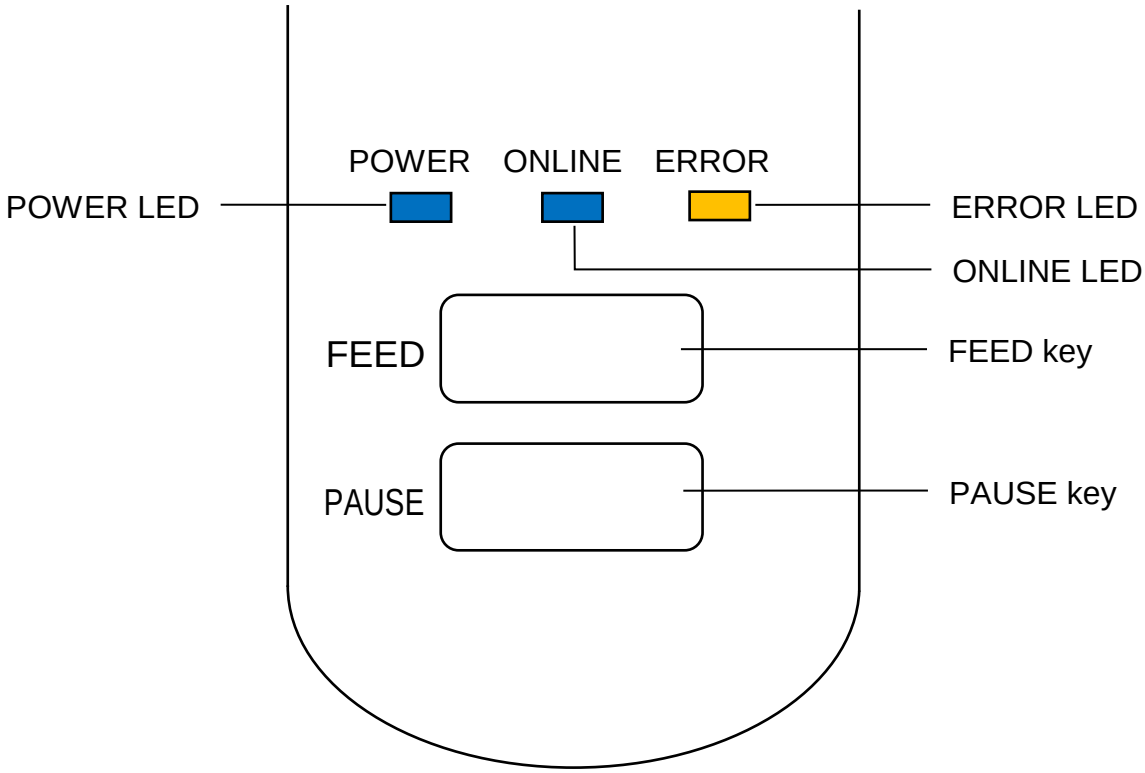
Also, the key operation differs depending on the models, refer to the following chapters for each model.

- Models without LCD : Chapter 3
- Models with LCD : Chapters 4 to 12

Note: On the BV410D series, the menu for thermal transfer is displayed in the LCD, but do not use it.

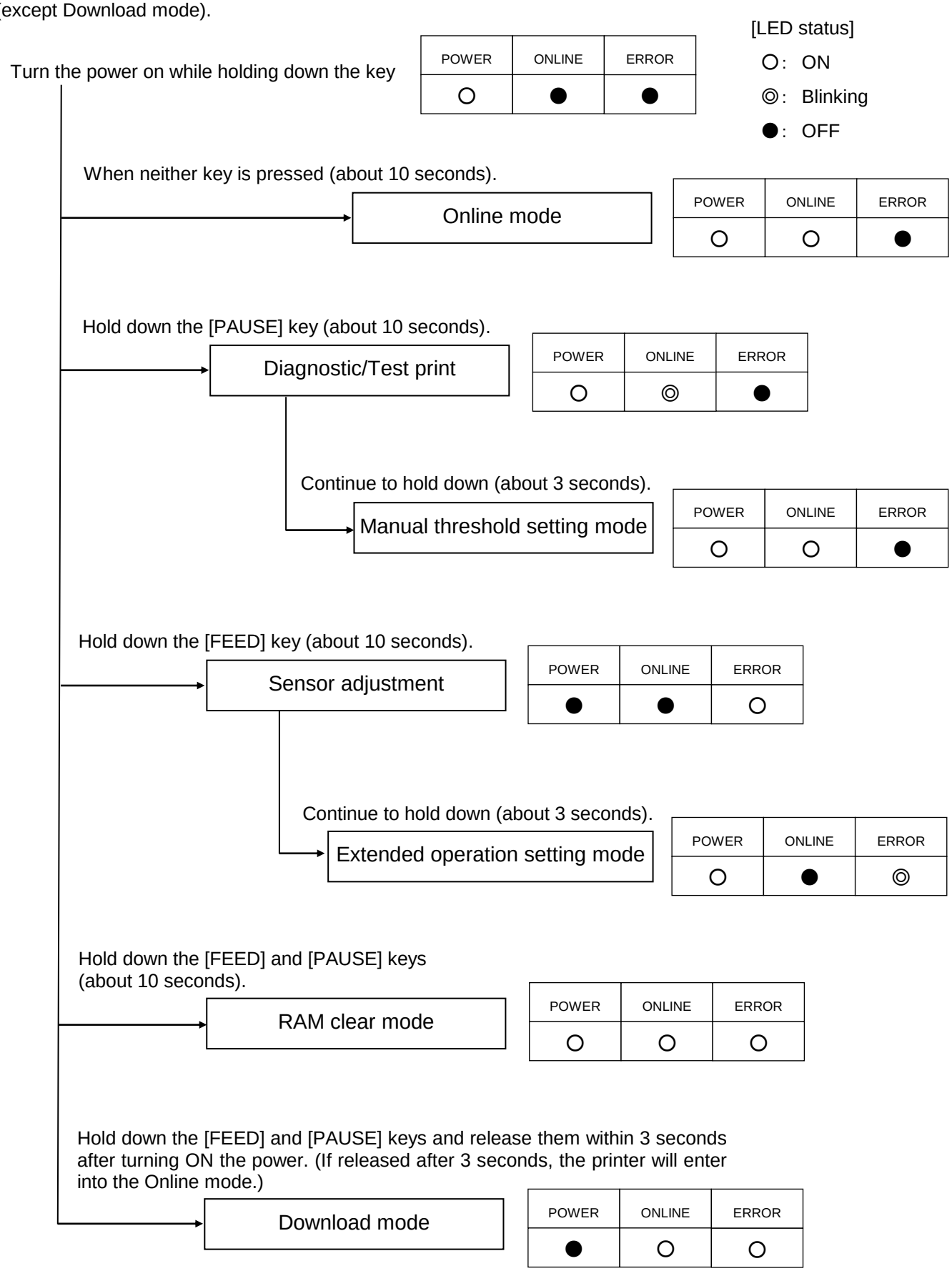
3 KEY OPERATION (Models without LCD)

3.1 OPERATION PANEL



3.2 MODE TRANSITION

If the key is released when the LED indication of the mode is shown, the printer enters into that mode. (except Download mode).



Notes:

・Operation during automatic update of Wireless LAN firmware

If the firmware installed in the Wireless LAN module is different from the Wireless LAN firmware held in the printer memory, the firmware of the Wireless LAN module is automatically updated when the power is turned on. At this time, the LED status is (POWER: ON, ONLINE: blinking, ERROR: blinking). After completion, the printer automatically enters into the Online mode (it does not depend on the key pressed when the power is turned on).

3.3 ONLINE MODE

The online mode has the following functions.

(1) Label issuing (by external equipment interface commands)
(2) Paper feed (by the [FEED] key)
(3) Pause (Pause label issuing with [PAUSE] key)
(4) Restart (Use the [PAUSE] key to reissue after pausing label issuance and reissue after an error)
(5) Reset (Press the [PAUSE] key to enter the initial state after turning on the power)

3.3.1 KEY FUNCTION

[FEED] key : Feed one piece of media to eject one piece of media.

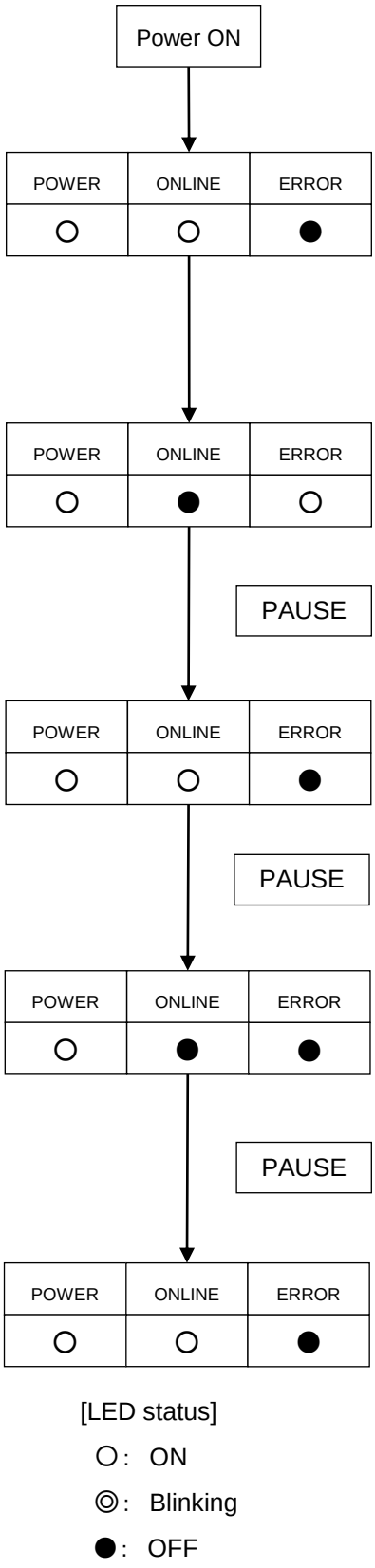
Use the media to feed to the print start position. If printing is attempted with the media improperly positioned, print data is not printed at the correct position. One or two pieces of media need to be fed to adjust the print start position before printing.

[PAUSE] key : Stop label printing temporarily, reissue after stop label printing, or reissue after error.

3.3.2 LED FUNCTION

[ONLINE] LED	Indicates that the printer is in online state.
	Blinks when the printer is communicating with the host.
	Blinks (ON: 250 msec., OFF: 250 msec.) in synchronization with the [ERROR] LED when the printer is turned off.
	Blinks in the power save mode (ON: 1 sec., OFF: 1 sec.)
	Blinks while loading the OTF after the printer is turned on. (ON: 500 msec., OFF: 500 msec.)
[ERROR] LED	Indicates that the printer is in error state.
	Blinks when a system error occurs.
	Blinks (ON: 250 msec., OFF: 250 msec.) in synchronization with the [ONLINE] LED when the printer is turned off.

3.3.3 ONLINE Mode Operation Example



Turn the power on.

The printer is in idle state or printing.

An error occurs.
* If an error occurs during printing, printing will be stopped.

Set the media and press the [PAUSE] key.

Restart printing.

Press the [PAUSE] key.

If pressing the [PAUSE] key during printing, printing will be stopped and then the printer will enter into the pause mode.

Press the [PAUSE] key.

Restart printing.

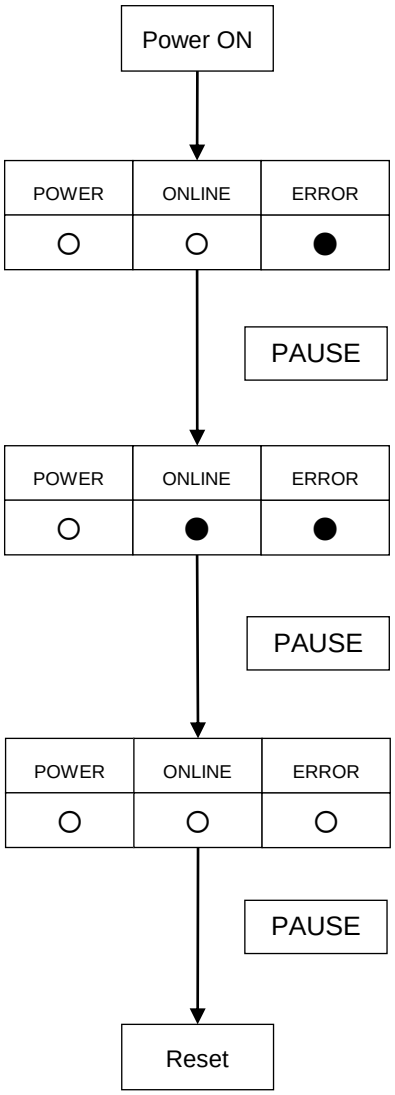
[LED status]

○: ON

◎: Blinking

●: OFF

3.3.4 Reset Operation Example



Turn the power on.

The printer is in idle state or printing.

Press the [PAUSE] key.

The printer enters the pause mode.
*If pressing the [PAUSE] key during printing, printing will be stopped.

Hold down the [PAUSE] key for 3 seconds or more in the pause mode.

The printer enters the reset mode.

Press the [PAUSE] key.

The printer returns to the state of right after a power on.

[LED status]

○: ON

◎: Blinking

●: OFF

Notes:

1. When the printer is in a state recoverable by pressing the [PAUSE] key, hold down the [PAUSE] key for 3 seconds or more. The printer enters a reset mode.
2. During an erroneous state or pause state, holding down and releasing the [PAUSE] key within 3 seconds causes the printer to restart printing. (Printer does not become Reset mode.) However, in the case of a communication error or command error, pressing the [PAUSE] key causes the printer to return to the state right after a power on.
3. After resetting the printer using the printer keys, data stored by a PC save command cannot be called automatically.

3.3.5 LED INDICATIONS

○ : ON ◎ : Blinking ● : OFF

No	LED indication			Printer Status	Restoration by [RESTART] key Yes/No	Acceptance of Status Request and Reset Command Yes/No
	POWER	ONLINE	ERROR			
1	○	○	●	In the online mode	—	Yes
	○	◎	●	In the online mode (Communicating) * Blinking interval : ON: 20msec., OFF: 60msec.	—	Yes
	○	◎	●	In the online mode (Loading the OTF) * Blinking interval : ON: 500msec., OFF: 500msec.	—	Yes
2	○	●	●	The top cover was opened in the online mode.	—	Yes
3	○	●	●	In a pause state	Yes	Yes
4	○	●	○	A parity error or framing error has occurred during communication by RS-232C.	Yes	Yes
5	○	●	○	▪ A paper jam occurred during paper feed. ▪ The media is not loaded properly. ▪ The media actually used and the selected media sensor type do not match. ▪ The media sensor position does not align with the black mark position. ▪ The actual media size and the specified media length do not match. ▪ The media sensor level is not suitable for the actual media. ▪ The gap of pre-printed label cannot be detected. ▪ If there is no label on the peeling table after the peeling is issued.	Yes	Yes
6	○	●	○	▪ A paper jam occurred in the cutter. ▪ The cutter did not move from the home position.	Yes	Yes
7	○	●	○	▪ The media has run out. ▪ The media has not been loaded. ▪ Media sensor level is not suitable for the paper used.	Yes	Yes
8	○	●	○	A feed or an issue was attempted with the top cover opened.	Yes	Yes
9	○	●	○	▪ A broken dot error has occurred in the thermal head. ▪ The error has occurred in the head driver.	Yes	Yes
10	○	●	○	The thermal head temperature has become excessively high.	No	Yes
11	○	○	●	External characters or PC command save mode.	—	Yes
12	○	○	●	Initializing the storage area.	—	Yes
13	○	○	●	Downloading TrueType font or BASIC program.	—	Yes
14	○	●	○	An error has occurred while writing data into the memory for storage. (USB memory, flash ROM on the CPU board)	No	Yes
15	○	●	○	An erase error has occurred while formatting the memory for storage. (USB memory, flash Rom on the CPU board)	No	Yes
16	○	●	○	Saving failed because of the insufficient capacity of the memory for storage (USB memory, flash ROM on the CPU board)	No	Yes

17	○	●	○	A command error has occurred while analyzing the command.	Yes	Yes
18	○	●	○	When any abnormal operations as below are performed, a system error occurs. (a) Command fetch from an odd address (b) Access to the word data from a place other than the boundary of the word data (c) Access to the long word data from a place other than the boundary of the long word data (d) Access to the area of 80000000H to FFFFFFFFH in the logic space in the user system mode. (e) Undefined command placed in other than the delay slot has been decoded. (f) Undefined command in the delay slot has been decoded. (g) Command to rewrite the delay slot has been decoded.	No	No
19	○	●	●	Initializing DHCP CLIENT. * Only when DHCP is enabled	–	–

3.4 DIAGNOSTIC TEST / TEST PRINT / DUMP MODE

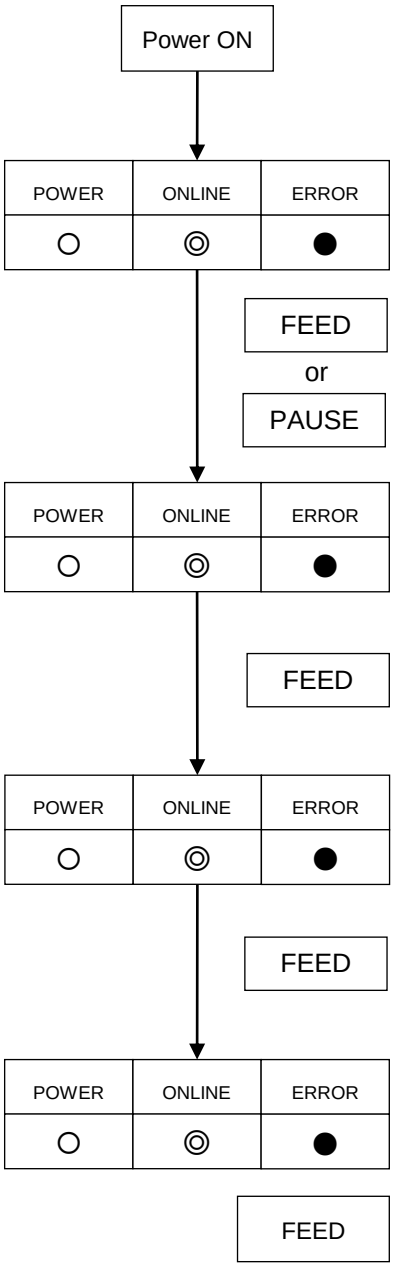
Diagnostic test / Test print / Dump mode have the following functions.

(1) Diagnostic test / Test print

- Maintenance counter
- Printing of the setting parameters
- Automatic self-diagnosis printing
- Slant line printing

(2) Dump mode

3.4.1 Diagnostic Test / Test Print / Dump Mode Example



[LED status]

○: ON

◎: Blinking

●: OFF

(1) Turn the power on while holding down the [PAUSE] key.
(about 10 seconds)

(2) Release the [PAUSE] key when the LEDs will indicate as the left.
* If continue to hold down the [PAUSE] key, the printer will enter into the manual threshold setting mode.

(3) Press the [FEED] key or the [PAUSE] key.

(4) The result of the diagnostic test is printed.

(5) Press the [FEED] key.

(6) The test print is performed.

(7) Press the [FEED] key.

(8) The printer enters into the dump mode.

(9) Press the [FEED] key.
The dump printing is performed with the data received after entering the dump mode.
*To perform dump printing again, enter the dump mode again after turning the power off / on.

(10) Turn the power off.

Notes:

1. If an error occurs while printing, the [ERROR] LED is turn on and printing stops. The error is cleared by pressing the [PAUSE] key, but printing is not automatically resumed after the error is cleared.
2. Even if the printer is in the auto forward wait setting, the printer does not feed the media backward to a print start position when the test print is performed.
3. Even if the printer is in an auto forward wait setting, when the result of the diagnostic test is printed, the printer does not feed the media backward to a print start position after the printer returns to the online mode.

3.4.2 DIAGNOSTIC TEST

・Maintenance Counter/Parameter Setting Print

See "9.4.1.1 Maintenance Counter/Parameter Settings Print Contents" and "9.4.1.2 Maintenance Counter/Parameter Display Contents" below.

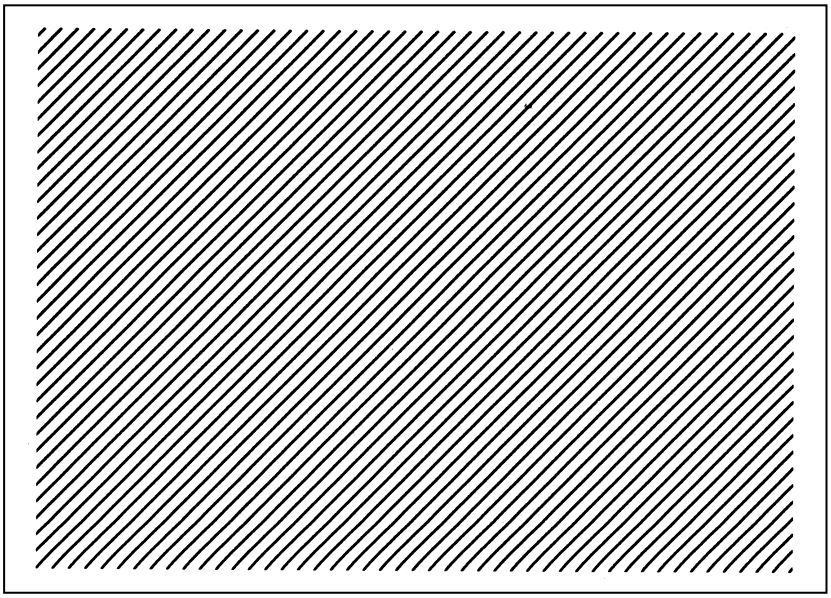
・Self-diagnosis print

See "9.4.2.1 Automatic Self-Diagnosis Print Content" below.

Notes

Printing conditions: No sensor, 4ips, 1 sheet issuance, continuous issuance

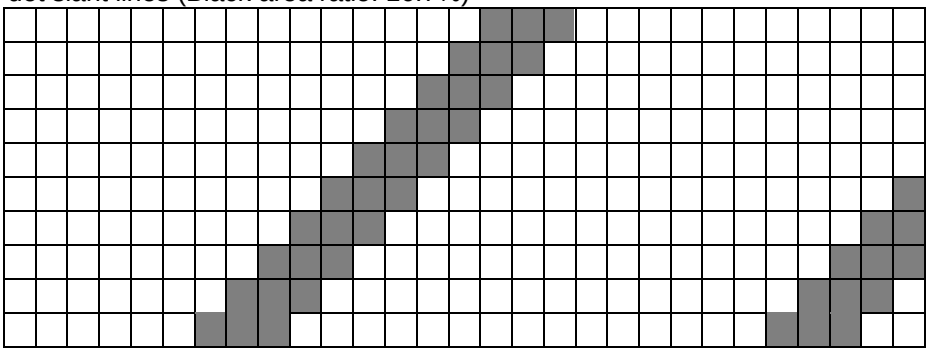
3.4.3 TEST PRINT



3-dot slant lines

Magnification of slant lines

3-dot slant lines (Black area ratio: 16.7%)



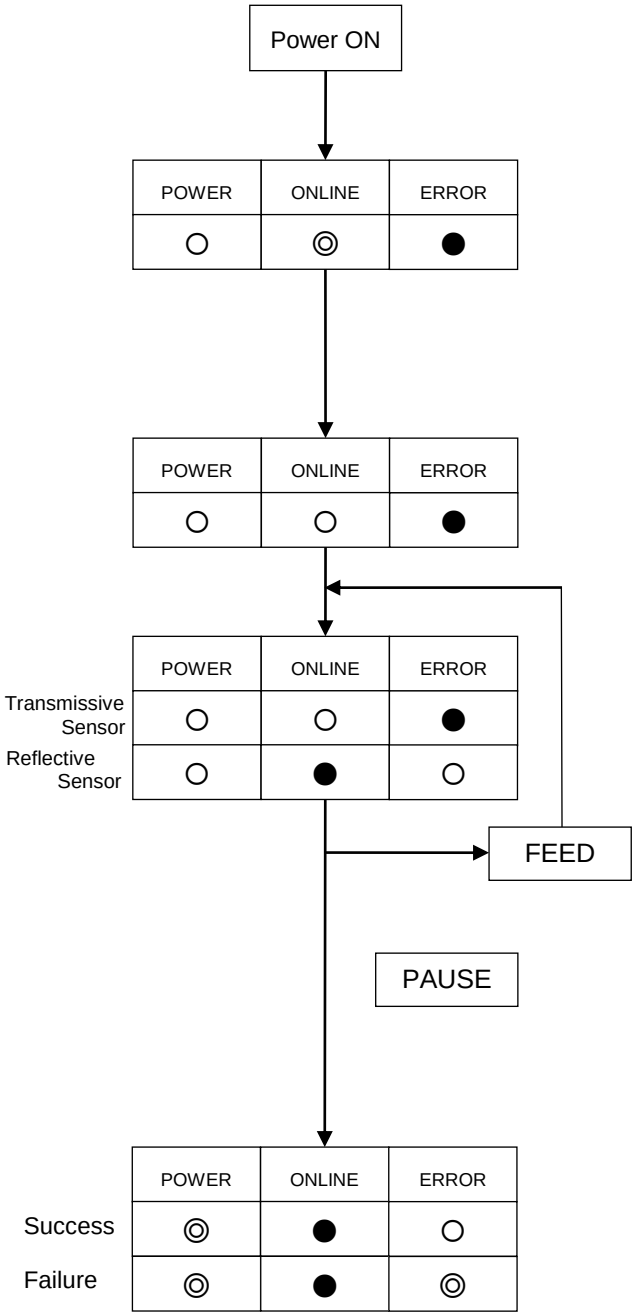
Notes:

Printing conditions: No sensor, 4ips, 1 sheet issuance, continuous issuance

3.4.4 DUMP MODE

The dump mode is a mode for printing the data sent from the host in the dump mode.
The data is printed in 16-byte units.
The print format is the same as the format printed by "10.6. DUMP" described later.

3.5 Manual threshold setting mode



(1) Turn the power on while holding down the [PAUSE] key.

(2) After about 10 seconds, the LEDs will indicate as the left. Then continue to hold down the [PAUSE] key.
* If release the [PAUSE] key at this point, the printer will enter into the Diagnostic Test/Test Print mode.

(3) Continue to hold down the [PAUSE] key.
(about 3 seconds from (2))

(4) The printer enters into the manual threshold setting mode.

(5) Release the [PAUSE] key.

(6) The current setting of the paper sensor is represented by the LED indications.

(6-a) If press the [FEED] key, the setting is changed and the LED indication is also changed.

(7) Load the pre-printed paper and hold down the [PAUSE] key until the labels are fed by 1.5 to 2 sheets or more.

(8) Release the [PAUSE] key when the labels have been fed by 1.5 to 2 sheets or more.

(9) Manual threshold setting : Success or Failure

(10) Turn the power off.

[LED status]

○: ON

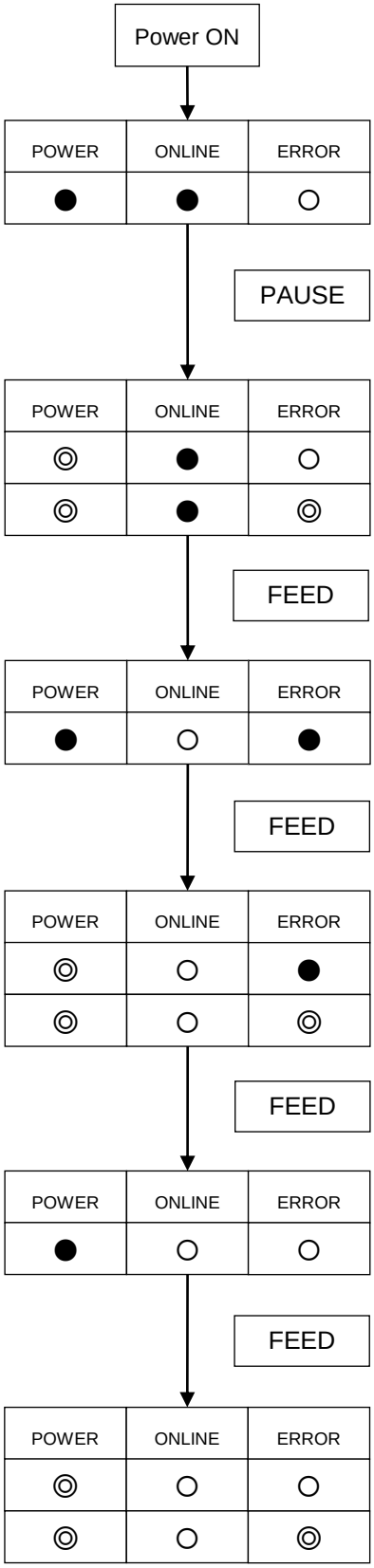
◎: Blinking

●: OFF

Notes

The value set in this mode is saved in "THRESHOLD1". (See: 9.7.3 THRESHOLD LEVEL)

3.6 Sensor Adjustment (Sensitivity adjustment)



(1) Turn the power on while holding down the [FEED] key.
(about 10 seconds)

(2) Release the [FEED] key when the LEDs will indicate as the left. Then the printer will enter into the reflective sensor adjustment mode.
* If continue to hold down the [FEED] key, the printer will enter into the Extended operation setting mode.

(3) Load the media so that the black mark is not in the paper sensor position and hold down the [PAUSE] key for 3 seconds or more.

(4) The reflective sensor adjustment is completed.

(5) Press the [FEED] key.

(6) The printer enters into the transmissive sensor adjustment mode.

(7) Load the media with the label removed, and press and hold down the [PAUSE] key for 3 seconds or more.

(8) The transmissive sensor adjustment is completed.

(9) Press the [FEED] key.

(10) The printer enters into the no paper level adjustment mode.

(11) Remove the media loaded on the paper sensor and hold down the [PAUSE] key for 3 seconds or more.

(12) The no paper level adjustment is completed.

(13) Turn the power off.

[LED status]

○: ON

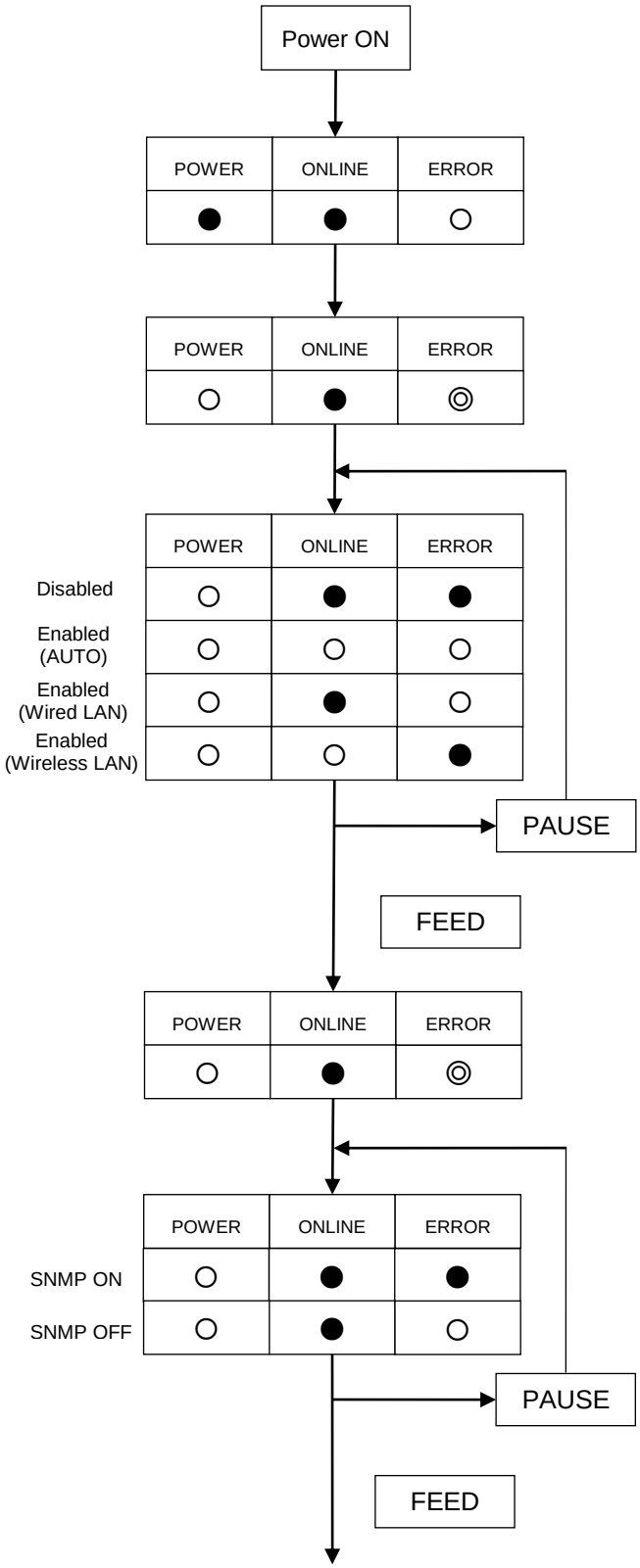
◎: Blinking

●: OFF

3.7 Extended operation setting mode

In the extended operation setting mode, the following settings can be changed.

- LAN interface
- SNMP
- BASIC



(1) Turn the power on while holding down the [FEED] key.

(2) After about 10 seconds, the LEDs will indicate as the left. Then continue to hold down the [FEED] key.

* If release the [DEED] key at this point, the printer will enter into the Sensor Adjustment mode.

(3) The printer will enter into the Extended operation setting mode.

(4) Release the [FEED key.

(5) The current setting of the LAN interface is represented by the LED indications.

(5-a) If press the [PAUSE] key, the setting is changed and the LED indication is also changed.

(6) If hold down the [FEED] key for 3 seconds or more, the settings will be saved according to the current LED indication.

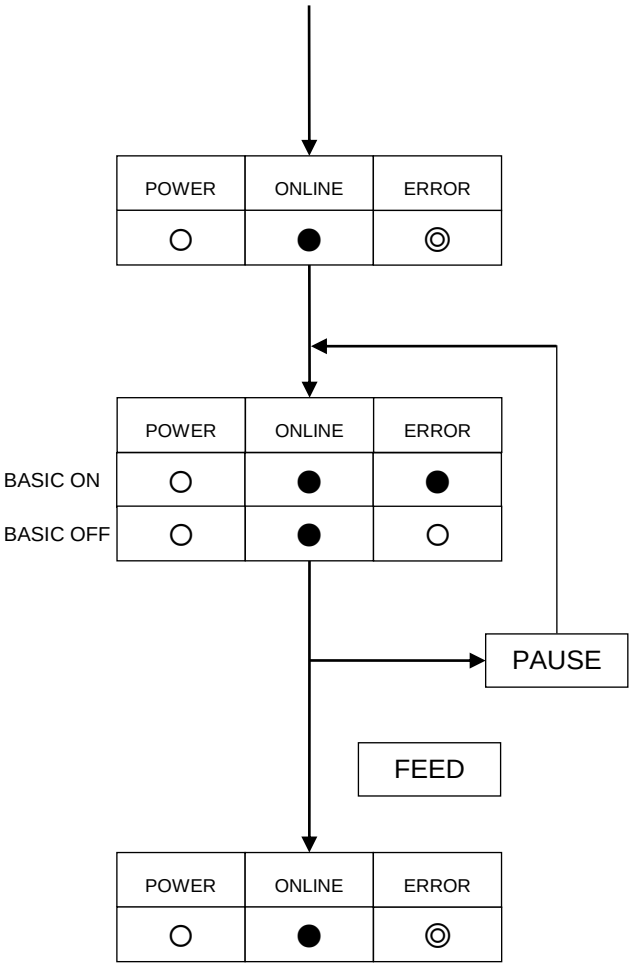
(7) The setting is completed.

(8) Release the [FEED key.

(9) The current setting of the SNMP is represented by the LED indications.

(9-a) If press the [PAUSE] key, the setting is changed and the LED indication is also changed.

(10) If hold down the [FEED] key for 3 seconds or more, the settings will be saved according to the current LED indication.



(11) The setting is completed.

(12) Release the [FEED] key.

(13) The current setting of BASIC is represented by the LED indication.

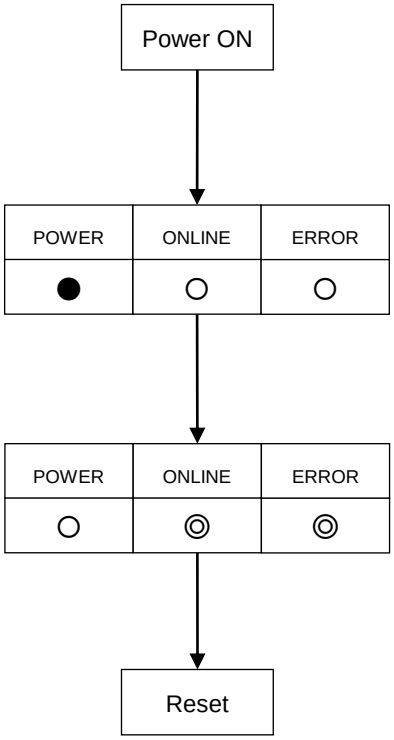
(13-a) If press the [PAUSE] key, the setting is changed and the LED lighting is also changed.

(14) If hold down the [FEED] key for 3 seconds or more, the settings will be saved according to the current LED indication.

(15) The setting is completed.

(16) Turn the power off.

3.8 Download mode



(1) Turn the power on while holding down the [FEED] and [PAUSE] key and release them within 3 seconds after turning ON the power.

*If released after 3 seconds, the printer enters into the Online mode.

(2) Download mode

(3) Download the firmware from the BCP Setting Tool.

(4) While downloading

(5) Automatically reset after download is completed.

[LED status]

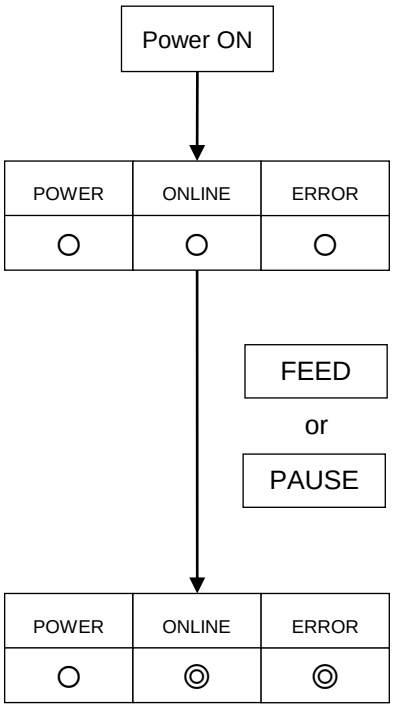
○: ON

◎: Blinking

●: OFF

3.9 RAM Clear

3.9.1 RAM clear operation example



(1) Turn the power on while holding down the [PAUSE] key.
(about 10 seconds)

(2) The printer enters into the RAM clear mode.

(3) Press the [FEED] key or the [PAUSE] key.

- If you press the [FEED] key for 3 seconds or longer, the maintenance counter will be cleared.
- When you press the [PAUSE] key, the parameter is cleared at the current destination setting.
- If you press the [PAUSE] key for 5 seconds or longer, the parameter is cleared at the destination QQ.

(4) The result of the diagnostic test is printed.

[LED status]

○: ON

◎: Blinking

●: OFF

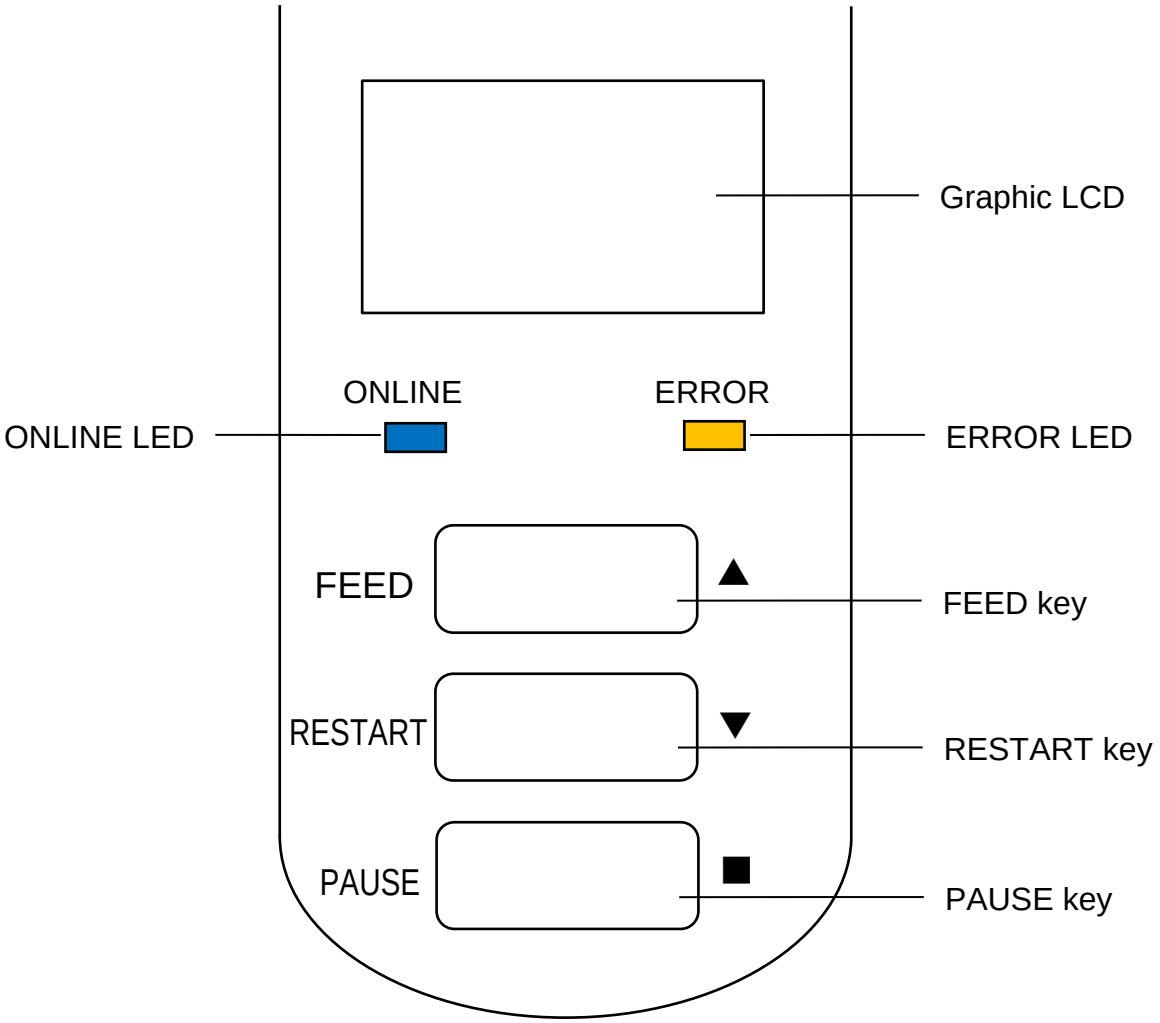
(Supplement explanation)

Parameter clear is performed at the current destination setting. If you want to change the destination, use the BCP Setting Tool to clear the parameters. However, RAM clear of destination QQ can be executed only in this mode.

3.9.2 Contents of RAM clear

For the default value setting after clearing the RAM, see "9.8.2 MAINTE.CNT CLEAR" and " 9.8.3 PARAMETER CLEAR" below.

4 OPERATION PANEL (Models with LCD)



4.1 OUTLINE OF EACH MODE

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

Also, in the case of operation using a USB memory, it is not necessary to insert a USB memory in advance and it may be inserted immediately before the operation to be used.

4.1.1 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.

4.1.2 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.

4.1.3 Information mode

In the information mode, the total feed amount counted during feed and printing operations is displayed on the LCD or printed in units of centimeter and inch.

Printing of the feed amount is performed on request.

4.1.4 USER MODE

The user system mode is accessible from the online mode. This mode contains the menus which might be frequently changed mainly by users (administrator) or service persons.

In addition to the menus such as parameter setting and fine adjustment common to those in the System Mode, issue condition display function, manual threshold setting, and system tools menu in which the printer dumps received data are provided.

The values set in this mode are stored in the non-volatile memory.

4.1.5 SYSTEM MODE

This mode is mainly used by service persons or the production department staff for adjustment of the printer before shipment. The system mode contains the menus which might be changed not so frequently.

In addition to the parameter setting and fine adjustment menus common to the User System Mode, there are sensor adjustment, interface and BASIC setting menus.

Furthermore, self-diagnosis, test print, RAM clear to initialize the printer settings, pre-shipment adjustment for factory use, and the menu which enables saving parameter settings, external characters, TPCL commands to the external USB memory or copying the data from the USB memory to the printer are provided. The values set in this mode are stored in the non-volatile memory.

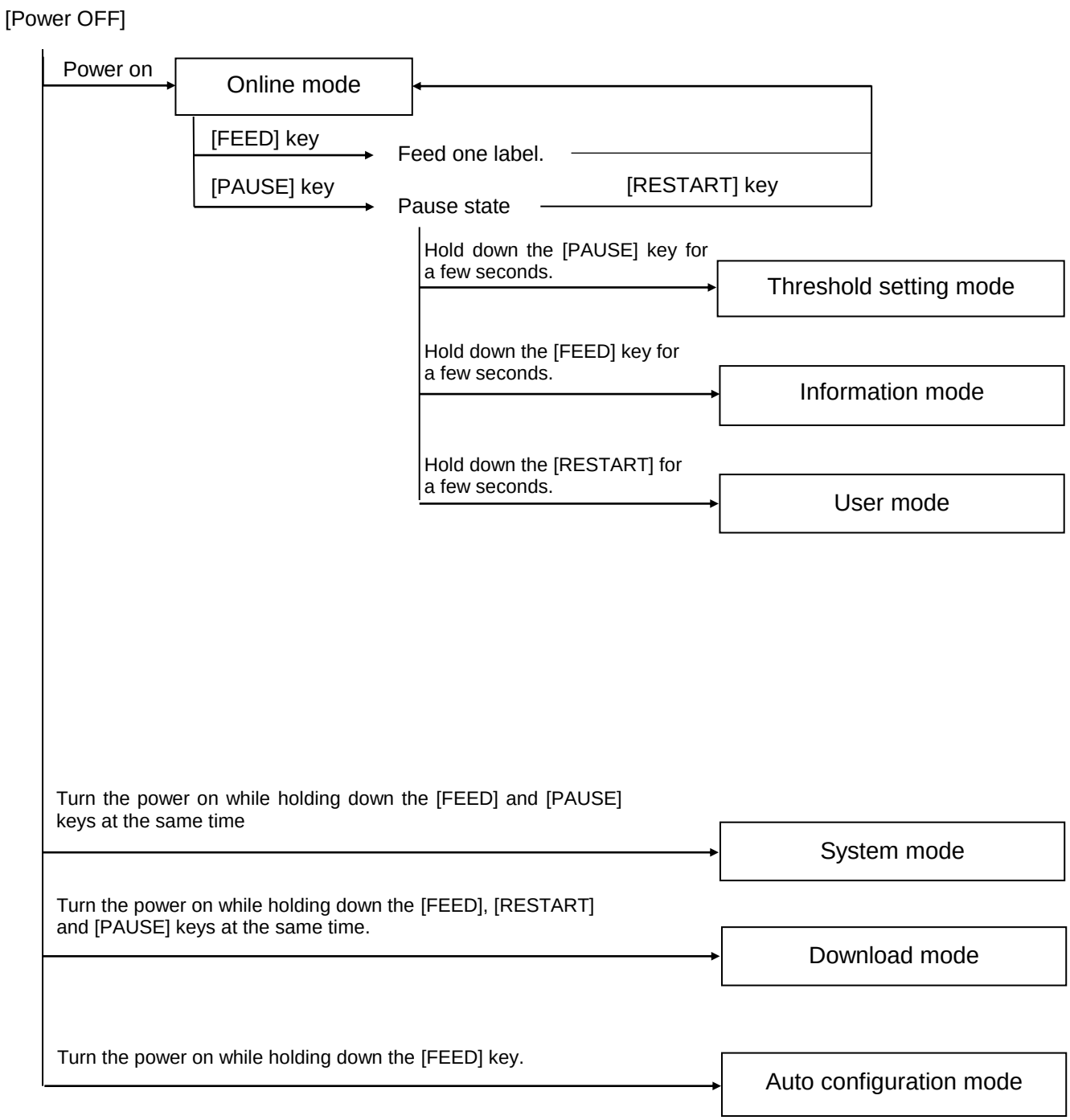
4.1.6 DOWNLOAD MODE

This mode is used to download BOOT and MAIN firmware.

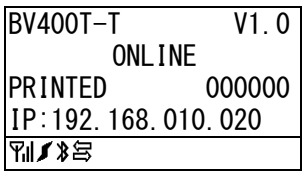
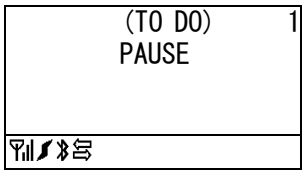
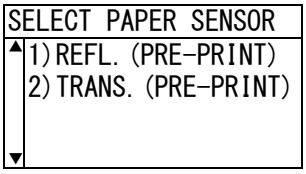
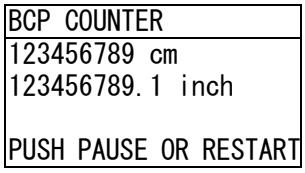
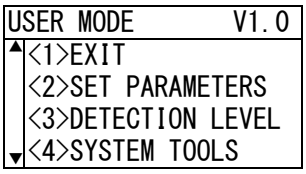
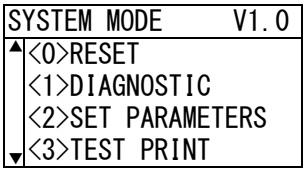
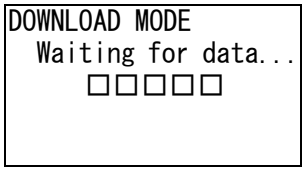
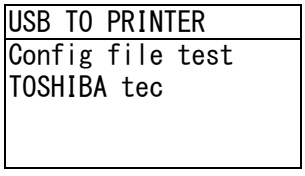
4.1.7 AUTO CONFIGURATION MODE

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

5 GENERAL VIEW OF KEY OPERATION



<Example of the LCD display>

ONLINE MODE	
Pause state	
Threshold setting mode	
Information mode	
User 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 each menu is shown.

2. Power off
   When the power of the printer is turned off(Enter Power SW key), the ONLINE and ERROR LEDs synchronously blinks (ON: 250ms, OFF: 250ms). When the LEDs are unlit, the printer power turns off.
   The printer power shall not be turned on again while these LEDs are blinking. Otherwise, “SYSTEM ERROR 02 POWER FAILURE” message will be displayed, or the LCD message may corrupt before the error message is displayed.
3. For the conditions to enter the Auto Configuration Mode, refer to Section 11.2 Preparation for USB Memory.

6 ONLINE MODE

6.1 KEY FUNCTION

The printer behavior is not guaranteed when undefined key is operated.

6.1.1 Online Mode Screen

Key	Function
[FEED]	(1) Feed one piece of media to eject one piece of media. Use the media to feed to the print start position. If printing is attempted with the media improperly positioned, print data is not printed at the correct position. One or two pieces of media need to be fed to adjust the print start position before printing. (2) Prints the data in the image buffer on one piece of media according to the system mode setting. Note: A Clear Command or a command for drawing shall not be sent to the printer while it is printing by pressing the [FEED] key. If a command is sent, the layout will be destroyed. Also, if printing is performed by pressing [FEED] key while the data is being drawn in the image buffer, the layout may be destroyed. * For details of the following cases, refer to the parameter setting section. • How to issue the label stock having the label pitch of 22 mm or less in the cut issue mode when the disc cutter is used. • How to issue the label stock having the minimum label pitch or less for each print speed in the cut issue mode when the rotary cutter is used. * In the strip mode, the printer feeds labels even when the peel-off sensor is detecting a label. * When the Media Load parameter is enabled, a media feed is performed to find the print start position depending on the condition. For details, refer to Section 8.5.1 MEDIA LOAD. (3) Switch to information mode. (Press for more than 3 seconds in pause state.)
[RESTART]	(1) Resume printing after a temporary stop of printing or after an error. (2) Place the printer in the initial state after startup. (3) Place the printer in the user system mode. (Press for more than 3 seconds in pause state.)
[PAUSE]	(1) Stop label printing temporarily. (2) Sets the threshold value. (Press for more than 3 seconds in pause state.) (3) Display help message.

6.1.2 Help Screen

Key	Function
[FEED]	(1) Return the page to the previous help message.
	(2) Ends help message screen.
[RESTART]	(1) Ends help message screen and restart.
[PAUSE]	(1) Advance page to next help message.
	(2) Ends help message screen.

6.1.3 Manual Threshold Setting Screen

Key	Function
[FEED]	(1) Moves the cursor upward. (2) Re-sets.
	(3) Scroll down in explanation Process.
	(4) Moves detection result.
[RESTART]	(1) Moves the cursor downward. (2) Scroll up in explanation Process.
	(3) Finish the threshold setting.
[PAUSE]	(1) Do threshold setting. (2) Choose the setting.
	(3) Move to detail display.
	(4) Move to adjustment setting.

6.2 LED FUNCTION

[ONLINE] LED	Indicates that the printer is in online state.
	Blinks when the printer is communicating with the host.
	Blinks (ON: 250msec., OFF: 250msec.) in synchronization with the ERROR LED when the printer is turned off.
	Blinks in the power save mode (ON: 1 sec., OFF: 1 sec.)
	Blinks while loading the OTF after the printer is turned on. (ON: 500 msec., OFF: 500 msec.)
[ERROR] LED	Indicates that the printer is in error state.
	Lights when a system error occurs.
	Blinks (ON: 250msec. OFF: 250msec.) in synchronization with the ONLINE LED when the printer is turned off.

6.3 LCD FUNCTION

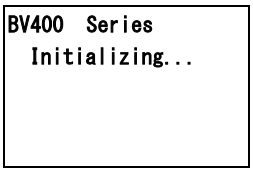
The LCD displays the messages which indicate the printer status.

LCD	Type	Graphics LCD
	Size	128 dots (W) x 64 dots (H)
	Display structure	Maximum 21 digits x 5 lines

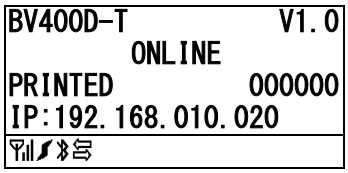
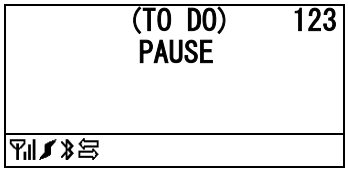
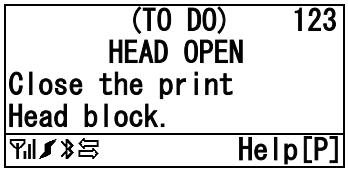
6.4 ONLINE MODE SCREEN

When the power switch is pushed in, the LCD backlight turns on. When the entire LCD glows, release the power switch.

After about 3 seconds, the following display appears. After that, when the startup process is complete, the display will be “ONLINE”.



6.4.1 Online Mode Screen Example

Printer condition	LCD	Description of each line
Online		← Model name, Firmware version (*5) ← Message ← The number of labels printed (*1) ← IP address etc. (*4) ← Icon
Pause		← The number of remaining labels to print (*2) ← Message ← 1st line of the error message ← 2nd line of the error message ← Icon
Head open		← The number of remaining labels to print (*2) ← Message ← 1st line of the error message ← 2nd line of the error message ← Icon, Help guide (*3)

(Note):

1. Whether to display or hide the 1st, 3rd and 4th lines of online mode screen can be selected in the system mode.
2. Refer to Section “6.4.2 Icon” for details on icon display.

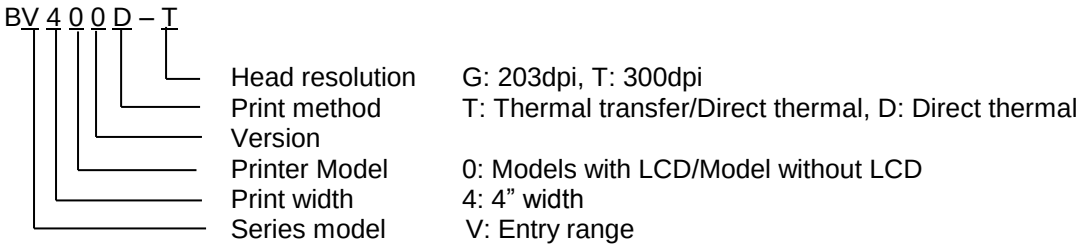
(*1) The number of labels printed is the cumulative number of labels printed after a printer is powered on.
Number of labels printed reset to zero when the printer is turned on. During an issue with the cut interval specified, the number of labels is updated when the label is cut normally.

(*2) [The number of remaining labels to print] = [Specified number of labels to print] – [The number of normally printed labels before error occurs or placing the printer in pause]
When the number of remaining labels to print is zero, it is not displayed. During an issue with the cut interval specified, the number of remaining labels is updated when the label is cut normally.

(*3) The help guide is displayed only when applicable help message exists.

(*4) The message displayed here is an IP address or supplemental information such as ribbon near end.
When LAN/WLAN setting is disabled, the IP address is not displayed even if displaying IP address is enabled in the system mode.
The ribbon near end message is displayed when a ribbon near end is detected, regardless of whether displaying the ribbon near end message is enabled in system mode.
A ribbon near end is detected depending on the diameter of the unused ribbon. The diameter of 38mm is equivalent to 30-meter ribbon and the diameter of 43 mm is equivalent to 70-meter ribbon, respectively.

(*5) The model name description



6.4.2 Icon

Five kinds of icon are displayed in the bottom line of the online mode screen.
These icons are displayed only in the online mode screen.

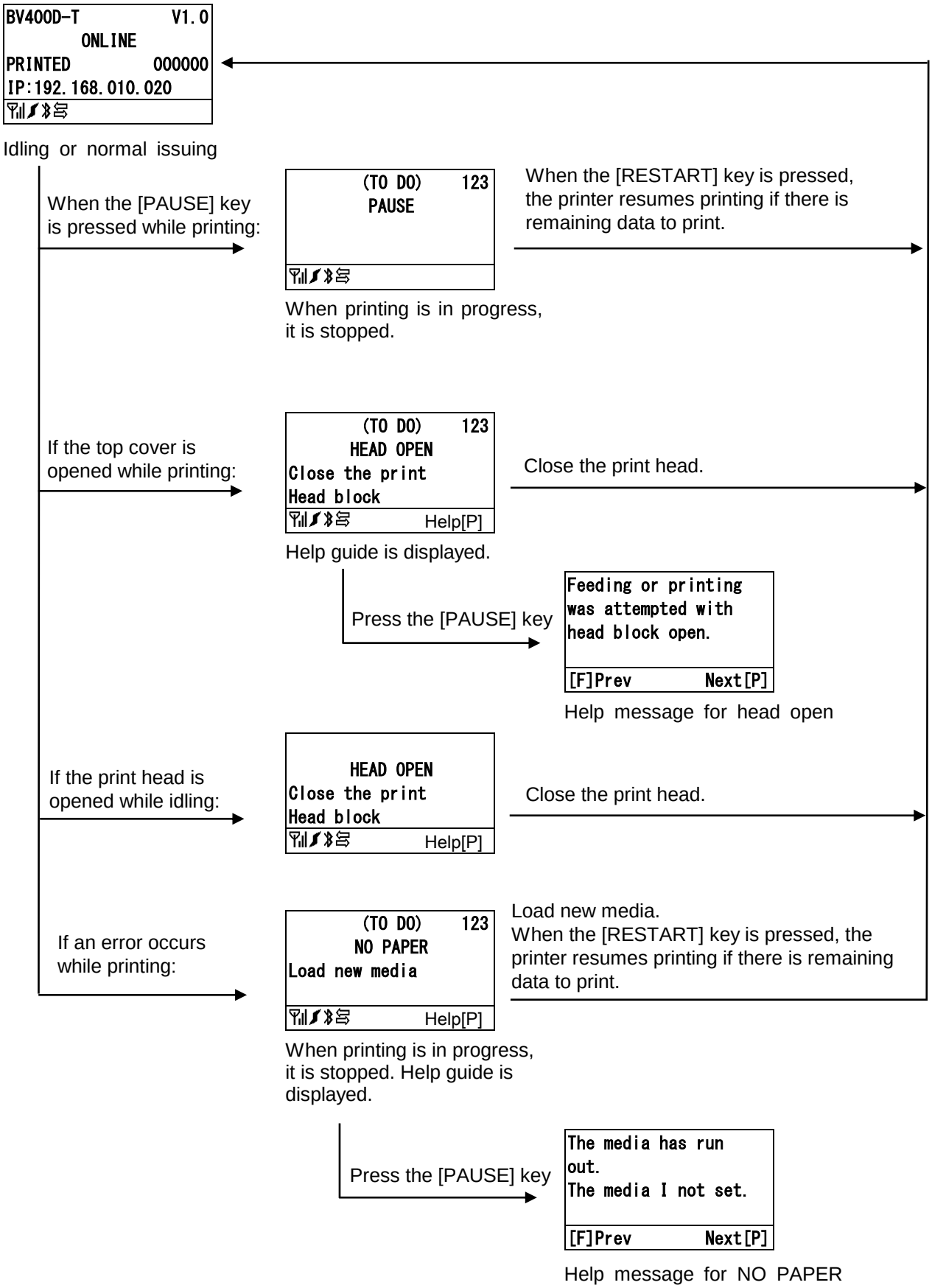
Icon	Explanation
Wireless LAN icon	Displayed and used when the wireless LAN module is installed. The graph shows the radio field strength. Graph 0: Outside the communication range Graph 1: Radio field strength is weak. Graph 2: Radio field strength is middle. Graph 3: Radio field strength is strong.
Link icon	Displayed and used when the wireless LAN module is installed. Displayed while the printer is communicating by wireless LAN. Blinks while roaming. OFF: No connection ON: Connecting to an access point Blinking: Roaming (*1)
Bluetooth Connection Icon	Displayed Bluetooth connection status OFF: Non Connection Available Connection Connection
Bluetooth Mode Icon	Displayed Bluetooth Auto Re-conncetion Mode OFF: Printer is not Bluetooth Auto Re-conncetion Mode : ON : Bluetooth Auto Re-conncetion Mode
Data transmission icon	Appears when a print job is present. (*2) ON: Print job is present.

Notes

*1. The icon flashes at a 1-second interval (ON: 500 msec. OFF: 500 msec.)

*2. The data transmission icon may not be displayed depending on the print job type.

6.4.3 Online Mode Screen Transition and Operation Example



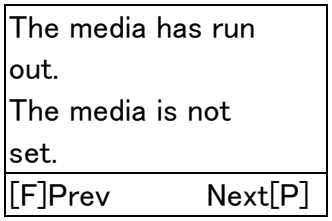
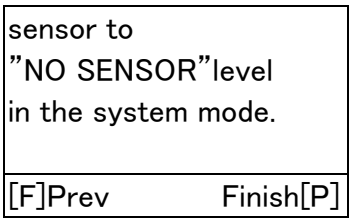
6.5 HELP SCREEN

6.5.1 Explanation of Help Screen

When “Help” is displayed at the lower right of the online mode screen, pressing the [PAUSE] key causes a help message to be shown.

The help message is displayed on the upper four lines. When the message exceeds four lines, the up and down arrows are shown on the scrollbar on the left, and the hidden lines can be displayed by scrolling down.

Example of help message

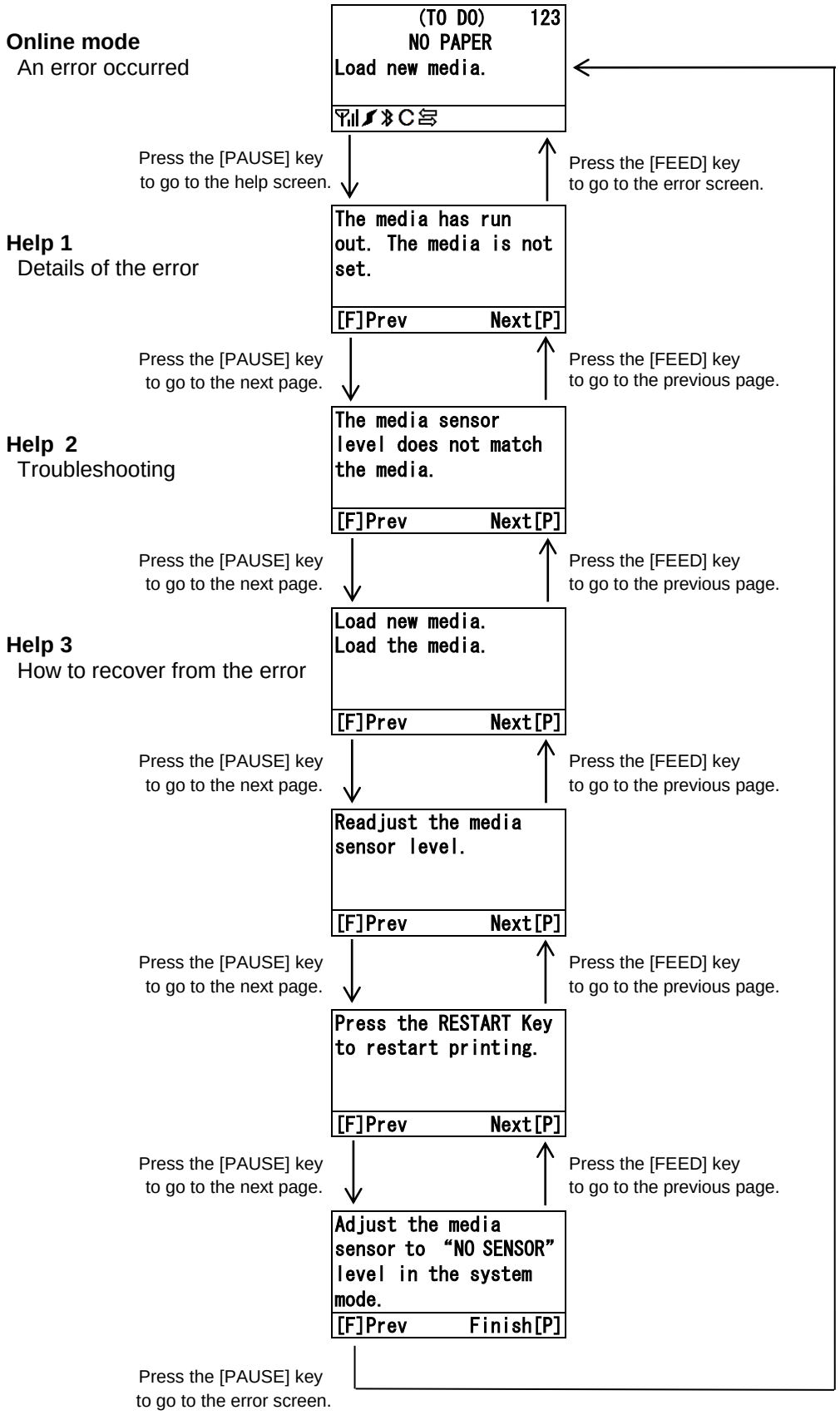
<table>
<tr><th>Help message</th><th>Display example</th><th></th></tr>
<tr><td rowspan="2">Up to 4 lines</td><td> 
</td><td>← 1st line of help message
← 2nd line of help message
← 3rd line of help message
← 4th line of help message
← Help guide</td></tr>
<tr><td>Since the help message is within three lines, the scrollbar arrows are not shown.</td></tr>
<tr><td rowspan="2">5 lines or more</td><td> 
</td><td>← 1st line of help message
← 2nd line of help message
← 3rd line of help message
← 4th line of help message
← Help guide</td></tr>
<tr><td>Since the help message exceeds four lines, the scrollbar arrows are shown.</td></tr>
</table>

6.5.2 Help Screen Transition and Operation Example

The help screen consists of three pages, which are Help 1, Help 2 and Help 3.

Help 1 shows the details of the error, Help 2 shows a troubleshooting, and Help 3 shows how to recover from the error.

If press and hold the [RESTART] key, the screen will change to the error screen of an error occurred.



6.6 MANUAL THRESHOLD SETTING

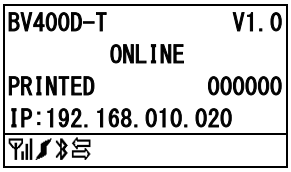
6.6.1 Outline of Threshold setting

When a label stock is printed, the printer automatically corrects the print position by detecting gaps between the labels by using the transmissive sensor to maintain a constant print position. However, when preprinted label stock is used, print positions may not be detected correctly depending on ink type used for preprints. In this case, it is required to manually set the transmissive sensor threshold through key operations and store the value in the non-volatile memory.
Up to 5 threshold values can be stored in non-volatile memory.
This threshold stored is used for printing by selecting “3: Transmissive Sensor (Manual threshold value 1 to 5)” for the sensor type of the Issue Command, and data is printed at a constant print position correctly since the print positions are detected based on this threshold.

When the media with black marks printed on the back side is used, the printer automatically corrects the print position by detecting the black marks by using the reflective sensor. However, if there is reflective rate variation on the media except for the black marks, the print position cannot be corrected properly. In this case, it is required to manually set the reflective sensor threshold through key operations and store the value in the non-volatile memory.
Up to 5 threshold values can be stored in non-volatile memory.
This threshold stored is used for printing by selecting “4: Reflective Sensor (Manual threshold value 1 to 5)” for the sensor type of the Issue Command, and data is printed at a constant print position correctly since the print positions are detected based on this threshold.

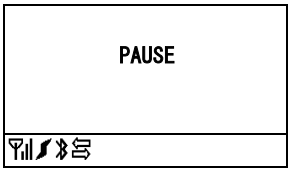
6.6.2 Threshold Setting Operation Example

1. Online mode:
   Online state



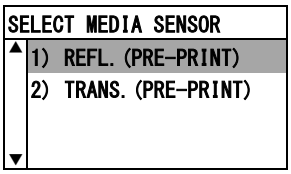
↓ Press the [PAUSE] key.

2. Online mode:
   Pause state



↓ Hold down the [PAUSE] key for 3 seconds.

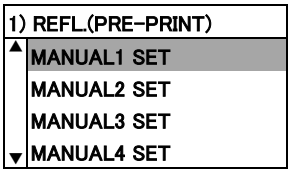
3. Threshold setting:
   Media sensor selection



Move the cursor with the [FEED] or [RESTART] key.
Move the PAUSE screen with the [FEED] and [RESTART] key.

↓ Press the [PAUSE] key.

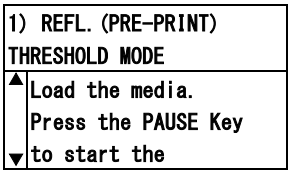
3-1. Threshold setting
   Threshold value save destination selection.



There are 5 destinations.
MANUAL1 SET
:
MANUAL5 SET

↓ Press the [PAUSE] key.

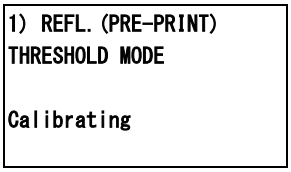
4. Threshold setting:
   Waiting for the media to be loaded



Scroll the screen with the [FEED] or [RESTART] key.
Move the PAUSE screen with the [FEED] and [RESTART] key.

↓ Press the [PAUSE] key.

5. Threshold setting:
   Calibration

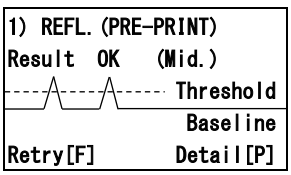


Hold down the [PAUSE] key to keep feeding the media.

↓ Release the [PAUSE] key. (Media feed stops.)

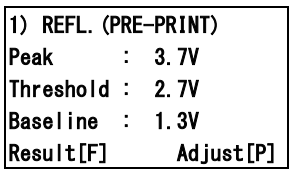
When the judgment result is OK, go to “6. Threshold setting”.
When the judgment result is NG, go to “7. Threshold setting”.

6. Threshold setting:
   6a. Judgment result: OK
   (After threshold setting)



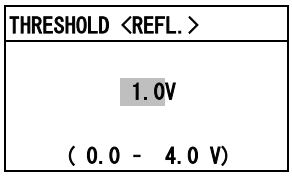
[FEED] key → “3. Media sensor selection.” (Threshold is set again.)
[RESTART] key → “2. Pause state.” (Threshold setting is completed.)
[PAUSE] key → “6b. Details of the result.” (Result and the threshold value are displayed.)

6b. Details of the result



↓ Press the [PAUSE] key.

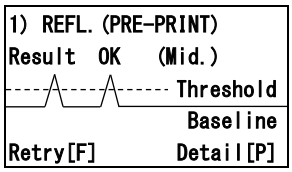
6c. Threshold fine adjustment



Operation is same as 8.7.3 THRESHOLD LEVEL.

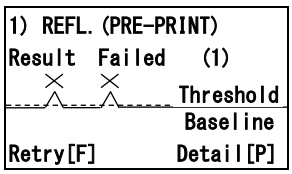
Press any of the [PAUSE] key.

6d. Judgment result (After the fine adjustment)



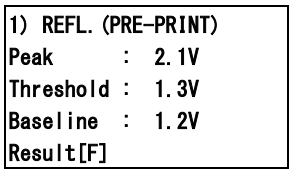
[FEED] key → "6c. Threshold fine adjustment." (The threshold value is fine adjusted again.)
[RESTART] key → "2. Pause state." (Threshold setting is completed.)
[PAUSE] key → "6b. Details of the result." (Result and the threshold value are displayed.)

7. Threshold setting:
7a. Judgment result (NG)



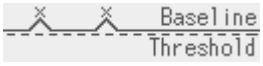
[FEED] key → "3. Media sensor selection." (Threshold is set again.)
[RESTART] key → "2. Pause state." (Threshold setting is completed.)
[PAUSE] key → "7b. Details of the result." (Result and the threshold value are displayed.)

7b. Details of the result

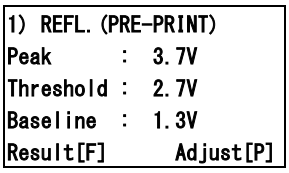


[FEED] key: Go to "7a. Judgment"

The threshold setting judgment result is indicated with one of the following icon types.

No.	Display example	Icon name	Explanation
1		OK (Mid.)	Print position is detectable with the media sensor. Threshold is at the midpoint between the peak and the baseline.
2		OK (High)	Threshold is near the peak voltage, so detection of a gap/black mark may fail if the difference between the threshold and the peak voltage is very small. (Adjusting the threshold to the midpoint between the peak and the baseline enables more accurate detection.)
3		OK (Low)	Threshold is near the baseline voltage, so detection of a gap/black mark may fail if the difference between the threshold and the base voltage is very small. (Adjusting the threshold to the midpoint between the peak and the baseline enables more accurate detection.)
4		NG (1)	Print position is not detectable with the media sensor. Fine adjustment is necessary.
5		NG (1)	Print position is not detectable with the media sensor because the threshold ≤ Baseline. Fine adjustment is necessary.
6		NG (2)	Print position is not detectable with the media sensor. (Calibration may enable print position detection, but it is very difficult.)

Details of the result

Display example	Displayed item	Explanation
	Sensor type Peak value Threshold voltage Baseline voltage Key operation guide	The calibration result and the threshold voltage are displayed. Pressing the [PAUSE] key enables setting a threshold fine adjustment value. Pressing the [FEED] key returns the screen to the calibration result.

Notes:

(1) When the [PAUSE] key is released within 3 seconds while the printer is paused, the [PAUSE] key is invalid.

(2) To set the threshold, 1.5 pieces or more label shall be fed. (If the label feed amount is insufficient, the threshold may not be properly set. In this case, the threshold setting needs to be retried.)

(3) While the print head is lifted, the [PAUSE] key is invalid even if the [PAUSE] key is held down for 3 seconds or more.

(4) When the print position is not corrected even after the threshold is set, the sensor adjustment may be insufficient. In this case, readjust the sensor in the system mode, and set the threshold.
(When the backing paper of the label is too thick, the transmissive sensor needs to be readjusted.)

In addition, make sure that “3: Transmissive sensor (when using the preprinted label)” or “4: Reflective sensor (when using a manual threshold value)” is selected for sensor type of the Feed Command and the Issue Command.

(5) Paper end and ribbon end are not detected during the threshold setting. (The setting continues as long as the [PAUSE] key is held down even if the printer runs short of media or ribbon.)

(6) The detailed result of the calibration is shown when the [PAUSE] key is pressed while the judgment result is displayed. The measured sensor level and the currently programmed threshold fine adjustment value can be checked.

Fine adjustment value = Peak voltage – Threshold voltage

(7) Pressing the [FEED] key returns the detailed result to the judgment result display. Pressing the [PAUSE] key causes the display to go to the threshold fine adjustment screen. This is the same menu with the threshold fine adjustment menu in section 8.7.3.1 REFLECT (Reflective sensor) or 8.7.3.2 TRANS. (Transmissive sensor).

(8) After the threshold fine adjustment value is set, the screen returns to the result display.

(9) While the result of fine adjusted threshold setting is shown, pressing the [FEED] key returns the screen to the threshold fine adjustment screen and pressing the [PAUSE] key shows the details of the result.

(10) During a threshold setting, the media is fed at the same speed with that for the previous issue.

(11) Canceling from the threshold setting screen

You can change to the PAUSE screen by pressing the [FEED] key + [PAUSE] key from the threshold setting screen.

(12) It is not possible to confirm whether threshold values 1 to 5 have already been set.

(13) When auto calibration is enabled, manual threshold setting is disabled.
Also, when changing from auto calibration valid to invalid, set the manual threshold.

6.7 INFORMATION MODE

6.7.1 Outline of the Information Mode

In the information mode, the total feed amount counted during feed and printing operations is displayed on the LCD in units of centimeter and inch, and printed on request.
The feed amount is counted at the end of feed or printing, and saved in the non-volatile memory.

Notes:

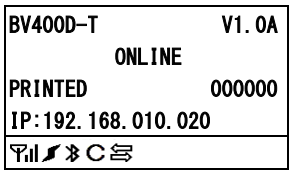
1. The effective range of the feed amount(*1) is as follows. When the feed amount exceeds the effective range, the maximum value will be saved.
   In unit of centimeter: 0 to 320000000
   In unit of inch: 0.0 to 125984251.9
2. In the following cases, feed or printing is not counted in this feed amount(*1).
   Reverse feed, forward feed to the strip position, pre-strip feed, auto forward feed, printing in offline (such as diag. test print, maintenance counter print, test print, and dump), printing in the information mode, feed for manual threshold setting and automatic calibration.
3. Since the feed amount(*1) is counted based on the label pitch specified by the command, a large margin of error may be generated if the command-specified label pitch differs from the actually-measured label pitch.

Note

*1. Feed amount counted in the information mode

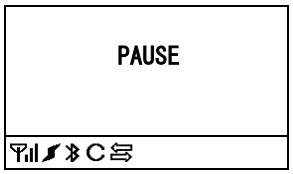
6.7.2 Information Mode Operation Example

[Online mode]
1. Normal state



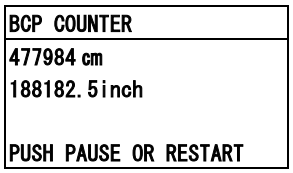
↓ Press the [PAUSE] key.

[Online mode]
2. Pause state



↓ Hold down the [FEED] key for 3 seconds.

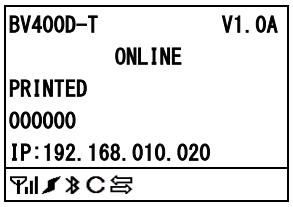
[Information mode]
3. Feed amount is displayed.



Pressing the [RESTART] key returns the screen to 1. Normal state.

↓ Press the [PAUSE] key.

[Online mode]
4. Printing is performed.



After printing is finished, the screen returns to 1. Normal state.

Notes:

1. When printing is performed in this mode, a quick reset is performed.

   Performing a quick reset causes the print count (number of labels issued) to be reset to zero and the image buffer to be cleared. When the automatic calibration is enabled, a calibration is performed after the quick reset.

   When the automatic call at power on parameter is enabled in the Saved data call command, saved data will be called after a quick reset.

2. Previous print conditions are applied to the printing performed in this mode, except:

   Print orientation

   When the mirror printing has been specified, only the mirror printing is not performed. Therefore, the bottom first mirror printing and top first mirror printing will be changed to bottom first printing and top first printing, respectively.

   Effective print width and X-coordinate fine adjustment

   When the feed amount to be printed reaches the max. number of digits (74 mm), the print position will be center-aligned.

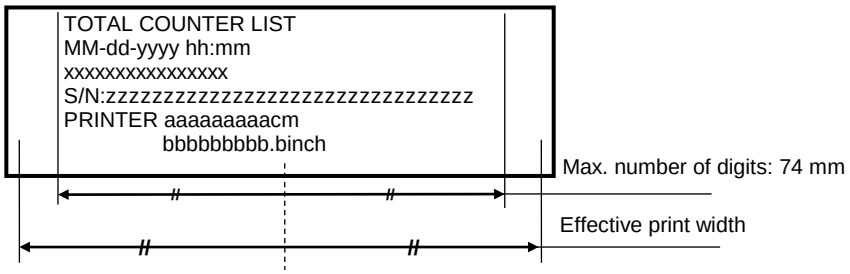
3. Before shifting to the Information mode, make sure that the printer has not received any commands related to feed or drawing. If the printer has received such commands, printing will not be performed and the printer will return to the normal state. At this time, a quick reset will not be performed.

4. Do not send a command to the printer in the Information mode.

6.7.3 Information Mode Print Sample

<Print sample>

Max. number of digits: 74 mm, Center-aligned



<Print data>

Item	Information		Range
1st line	Title		TOTAL COUNTER LIST
2nd line	Date and time (*1)	MM: Month	01 to 12
		dd: Day	01 to 31
		yyyy: Year	2000 to 2099
		hh: Hour	00 to 23
		mm: Minute	00 to 59
3rd line	Model Without IG Command	Head Resolution 203 dpi	BV400T-G
		Head Resolution 300 dpi	BV400T-T
	Model With IG Command	Head Resolution 203 dpi	BV410T-G / BV420T-G
		Head Resolution 300 dpi	BV410T-T / BV420T-T
4th line	Serial number (*2)		11 to 32-digit half-size alpha-numeric (A to Z, a to z, 0 to 9, space, hyphen)
5th line	Feed amount in information mode (unit: cm)		0 to 320000000
6th line	Feed amount in information mode (unit: inch)		0 to 125984251.9

*1. As the real time clock is not available, data areas in this line will be blank.
(E.g " - - : ".)

*2. In the case a serial number has never been registered to the printer, MAC address of wired LAN is printed without delimiters. If the MAC address of wired LAN cannot be obtained, this line will be blank.

*3. Model Type will be deferent by using IG command or not, in detail, please refer to the External Equipment Interface Specification.

6.8 LCD MESSAGES AND LED INDICATIONS

No	LCD Message 2nd line (English)	LED indications		Printer Status	Restoration by [RESTART] key Yes/No	Acceptance of Status Request and Reset Command Yes/No
		ON LINE	ERROR			
1	ONLINE	○	●	In the online mode	—	Yes
		◎	●	In the online mode (Communicating)	—	Yes
2	HEAD OPEN	●	●	The top cover was opened in the online mode.	—	Yes
3	PAUSE	●	●	In a pause state	Yes	Yes
4	COMMS ERROR	●	○	A parity error or framing error has occurred during communication by RS-232C.	Yes	Yes
5	PAPER JAM	●	○	▪ A paper jam occurred during paper feed. ▪ The media is not set properly. ▪ The media actually used and the selected media sensor type do not match. ▪ The media sensor position does not align with the black mark position. ▪ The actual media size and the specified media length do not match. ▪ The media sensor level is not suitable for the actual media. ▪ The gap of pre-printed label cannot be detected. ▪ If there is no label on the peeling table after the peeling is issued.	Yes	Yes
6	CUTTER ERROR	●	○	▪ A paper jam occurred in the cutter. ▪ The cutter did not move from the home position.	Yes	Yes
7	NO PAPER	●	○	▪ The media has run out. ▪ The media has not been set. ▪ Media sensor level is not suitable for the paper used.	Yes	Yes
8	HEAD OPEN	●	○	A feed or an issue was attempted with the top cover opened.	Yes	Yes
9	HEAD ERROR	●	○	▪ A broken dot error has occurred in the thermal head. ▪ The error has occurred in the head driver.	Yes	Yes
10	EXCESS HEAD TEMP	●	○	The thermal head temperature has become excessively high.	No	Yes
11	SAVING ####KB/&&&&KB or SAVING %,%%%.%%%KB	○	●	External characters or PC command save mode.	—	Yes
12	FORMAT ####KB/&&&&KB or FORMAT %,%%%.%%%KB	○	●	Initializing the storage area.	—	Yes
13	NOW LOADING…	○	●	In setting mode	—	Yes
14	SETTING MODE Do not turn the Printer off	○	●	Downloading TrueType font or BASIC program.	—	No
15	MEMORY WRITE ERR.	●	○	An error has occurred while writing data into the memory for storage. (USB memory, flash ROM on the CPU board)	No	Yes

16	FORMAT ERROR	●	○	An erase error has occurred while formatting the memory for storage. (USB memory, flash Rom on the CPU board)	No	Yes
17	MEMORY FULL	●	○	Saving failed because of the insufficient capacity of the memory for storage (USB memory, flash ROM on the CPU board)	No	Yes
18	SYNTAX ERROR Command error (See Notes 1 and 2)	●	○	A command error has occurred while analyzing the command.	Yes	Yes
19	SYSTEM ERROR	●	○	When any abnormal operations as below are performed, a system error occurs. (a) Command fetch from an odd address (b) Access to the word data from a place other than the boundary of the word data (c) Access to the long word data from a place other than the boundary of the long word data (d) Access to the area of 80000000H to FFFFFFFFH in the logic space in the user system mode. (e) Undefined command placed in other than the delay slot has been decoded. (f) Undefined command in the delay slot has been decoded. (g) Command to rewrite the delay slot has been decoded.	No	No
20	DHCP CLIENT INIT…	●	●	Initializing DHCP CLIENT. * Only when DHCP is enabled	—	—
21	INPUT PASSWORD	●	●	The printer is waiting for an entry of password.	No	No (Note 1)
22	PASSWORD INVALID	●	●	A wrong password was entered consecutively for three times.	No	No (Note 1)
23	INTERNAL COM ERR	●	●	A hardware error has occurred in the internal serial interface.	No	No

Explanation of symbols

Symbol	Explanation	Range
○:	ON	—
◎:	Blinking	—
●:	OFF	—
%%,%%%,%%%:	Remaining memory size of the external USB memory	0 to 09,999,999 (Kbyte)
####:	Remaining memory size for PC command storage area in the internal memory	0 to 3072 (Kbyte)
&&&&:	Remaining memory size for writable character storage area	0 to 3147 (Kbyte)

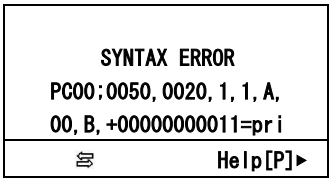
Notes

1. When 21 INPUT PASSWORD or 22 PASSWORD INVALID is displayed in the password input to enter the user mode, the status returned by the status request command is undefined.
2. If the label travel distance exceeds the warning distance, the ERROR LED is lit.
3. When the total label travel distance exceeds the warning distance, the ON LINE LED always blinks (lights 30msec, turns off 30msec).
4. Both the label mileage warning and the total label mileage warning are notified regardless of other errors and mode states (online mode / system mode / user mode / power saving mode).

(Supplement explanation)

1 . When there is command error in received commands, up to 42 bytes of error command, starting from the command code, are shown on 3rd and 4th lines of the LCD.
(However, [LF] and [NUL] are not displayed. Also, 43bytes and later are not displayed.)

Display example

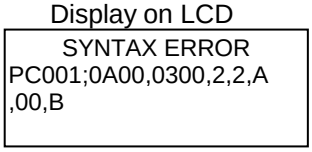


(Example 1)

[ESC] PC001;0**A**00,0300,2,2,A,00,B [LF][NUL]

Command error

Display on LCD

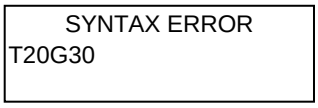


(Example 2)

[ESC]T20**G**30[LF][NUL]

Command error

Display on LCD

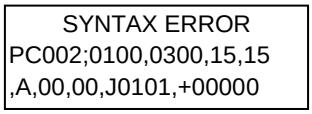


(Example 3)

[ESC] PC002;0100,0300,15,15,A,00,00,J0101,+000000000**A**,Z10,P1[LF][NUL]

Command error

Display on LCD



2. When a command error is displayed, codes other than 20H to 7FH and A0H to DFH are "?" (3FH).

LCD message (2nd line)

No	English
1	ONLINE
2	HEAD OPEN
3	PAUSE
4	COMMS ERROR
5	PAPER JAM
6	CUTTER ERROR
7	NO PAPER
8	HEAD OPEN
9	HEAD ERROR
10	EXCESS HEAD TEMP
11	SAVING ####KB/&&&&KB SAVING %%,%%%,%%%KB
12	FORMAT ####KB/&&&&KB FORMAT %%,%%%,%%%KB
13	NOW LOADING...
14	SETTING MODE
15	MEMORY WRITE ERR.
16	FORMAT ERROR
17	MEMORY FULL
18	SYNTAX ERROR
19	POWER FAILURE
20	SYSTEM ERROR
21	DHCP CLIENT INIT...
22	INPUT PASSWORD
23	PASSWORD INVALID
24	INTERNAL COM ERR
25	WRITING...

No	Germany
1	ONLINE
2	Kopf offen.
3	PAUSE
4	Kommunikations-Fehler
5	PAPIERSTAU
6	Messer Fehler
7	Kein Papier.
8	Kopf offen.
9	Kopf Fehler
10	Kopftemp. zu hoch
11	SAVING ####KB/&&&&KB SAVING %%,%%%,%%%KB
12	FORMAT ####KB/&&&&KB FORMAT %%,%%%,%%%KB
13	NOW LOADING...
14	SETTING MODE
15	MEMORY WRITE ERROR
16	FORMAT ERROR
17	Speicher voll
18	SYNTAX ERROR
19	POWER FAILURE
20	SYSTEM ERROR
21	DHCP CLIENT INIT...
22	INPUT PASSWORD
23	PASSWORT ungültig
24	INTERNAL COMM ERROR
25	WRITING...

No	French
1	PRETE
2	TÊTE OUVERTE
3	PAUSE
4	ERREURS DE COMMUNICAT
5	BOURRAGE PAPIER
6	ERREUR MASSICOT
7	PAS DE PAPIER
8	TÊTE OUVERTE
9	ERREUR DE TÊTE
10	TETE TROP CHAUDE
11	SAUVE ####KB/&&&&KB SAUVE %%,%%%,%%%KB
12	FORMAT ####KB/&&&&KB FORMAT %%,%%%,%%%KB
13	CHARGEMENT ...
14	MODE REGLAGES
15	ERR. ECRITURE MÉMOIRE
16	ERREUR DE FORMAT
17	MÉMOIRE PLEINE
18	ERREUR DE SYNTAXE
19	ERREUR D'ALIMENTATION
20	ERREUR SYSTÈME
21	INIT CLIENT DHCP ...
22	INPUT PASSWORD
23	MOT DE PASSE INVALIDE
24	ERREUR COMM. INT.
25	WRITING...

No	Dutch
1	IN LIJN
2	PRINTKOP OPEN.
3	PAUZE
4	COMMUNICATIE FOUT
5	PAPIER STORING.
6	FOUT SNIJMES
7	GEEN PAPIER
8	PRINTKOP OPEN.
9	FOUT PRINTKOP
10	PRINTKOP OVERHIT.
11	OPSLAAN ####KB/&&&&KB OPSLAAN %%,%%%,%%%KB
12	FORMAT ####KB/&&&&KB FORMAT %%,%%%,%%%KB
13	LADEN . . .
14	INSTELMODUS
15	MEM SCHRIJF FOUT
16	FORMAT FOUT
17	GEHEUGEN VOL
18	SYNTAX FOUT
19	VOEDING FOUT
20	SYSTEEM FOUT.
21	INIT CLIENT DHCP
22	INPUT PASSWORD
23	ONGELDIG PASWOORD
24	INTERNE COMM. FOUT
25	WRITING...

No	Spanish
1	PREPARADA
2	CABEZAL ABIERTO
3	PAUSA
4	ERROR DE COMUNICACION
5	ATASCO DE PAPEL
6	ERROR DE CORTADOR
7	SIN PAPEL
8	CABEZAL ABIERTO
9	ERROR DE CABEZAL
10	EXCESO TEMP. CABEZAL
11	SALVAR ####KB/&&&&KB SALVAR %%,%%%,%%%KB
12	FORMATO ####KB/&&&&KB FORMATO %%,%%%,%%%KB
13	CARGANDO...
14	MODO CONFIG.
15	ERROR DE ESCRITURA
16	ERROR DE FORMATO
17	MEMORIA LLENA
18	ERROR DE SINTAXIS
19	FALLO DE ALIMENTACION
20	ERROR DE SISTEMA
21	INIC. CLIENTE DHCP...
22	INPUT PASSWORD
23	CONTRASEÑA NO VALIDA
24	ERR INTERNO COMUNIC.
25	WRITING...

No	Japanese
1	オンライン
2	ヘッドオープン
3	ポーズ
4	通信エラー
5	紙送りエラー
6	カッターエラー
7	紙がありません
8	ヘッドオープン
9	サーマルヘッドエラー
10	ヘッド異常加熱
11	登録 ####KB/&&&&KB 登録 %%,%%%,%%%KB
12	初期化 ####KB/&&&&KB 初期化 %%,%%%,%%%KB
13	登録中
14	設定モード中
15	メモリ書込エラー
16	フォーマットエラー
17	メモリオーバー
18	コマンドエラー
19	電源異常
20	システムエラー
21	DHCP CLIENT INIT...
22	INPUT PASSWORD
23	パスワードエラー
24	内部シリアルエラー
25	WRITING...

No	Italy
1	On Line
2	Testina Aperta
3	PAUSA
4	Errore Seriale
5	Carta inceppata
6	Errore Taglierina
7	Manca Carta
8	Testina Aperta
9	ERRORE TESTINA
10	Temp. testa alta
11	SALVA ####KB/&&&&KB SALVA %%,%%%,%%%KB
12	FORMAT ####KB/&&&&KB FORMAT %%,%%%,%%%KB
13	CARICAMENT
14	Configurazione
15	Err. Scritt. memoria
16	ERRORE FORMATTAZIONE
17	Memoria piena
18	SYNTAX ERROR
19	ERRORE ALIMENT.
20	SYSTEM ERROR
21	DHCP CLIENT INIT...
22	INPUT PASSWORD
23	PASSWORD ERRATA
24	Errore Comm Interna
25	WRITING...

No	Portuguese
1	PREPARADA
2	CABECA ABERTA
3	PAUSA
4	ERRO DE COMUNICACAO
5	PAPEL ENCRAVADO
6	ERRO DE CORTADOR
7	SEM PAPEL
8	CABECA ABERTA
9	ERRO DE CABECA
10	EXCESSO TEMP. CABECA
11	SALVAR ####KB/&&&&KB SALVAR %%,%%%,%%%KB
12	FORMATO ####KB/&&&&KB FORMATO %%,%%%,%%%KB
13	A CARREGAR...
14	MODO CONFIG.
15	ERRO DE ESCRITA
16	ERRO DE FORMATO
17	MEMORIA CHEIA
18	ERRO DE SINTAXE
19	FALHA DE ALIMENTACAO
20	ERRO DE SISTEMA
21	INIC. CLIENTE DHCP...
22	INPUT PASSWORD
23	SENHA INVALIDA
24	ERR INTERNO COMUNIC.
25	WRITING...

No	Chinese
1	ONLINE
2	打印头打开
3	暂停
4	通讯错误
5	卡纸
6	切刀错误
7	缺纸
8	打印头打开
9	打印头错误
10	过高打印头温度
11	保存 ####KB/&&&&KB 保存 %%,%%%,%%%KB
12	格式化 ####KB/&&&&KB 格式化 %%,%%%,%%%KB
13	正在加载…
14	设置模式
15	内存写入错误
16	格式化错误
17	内存满
18	语法错误
19	电源故障
20	系统错误
21	DHCP 客户端初始化…
22	INPUT PASSWORD
23	密码无效
24	内部通讯错误
25	WRITING…

No	Korean
1	온라인
2	헤드 열림
3	PAUSE
4	통신 에러.
5	용지 잼
6	커터 에러
7	종이가 없습니다.
8	헤드 열림
9	써멀헤드 에러.
10	헤드 이상 과열.
11	등록 ####KB/&&&&KB 등록 %%,%%%,%%%KB
12	초기화 ####KB/&&&&KB 초기화 %%,%%%,%%%KB
13	등록중
14	설정 모드 중
15	메모리 쓰기 에러.
16	초기화 에러
17	메모리 오버
18	커맨드 에러
19	전원 이상
20	시스템 에러
21	DHCP CLIENT 초기화중
22	INPUT PASSWORD
23	패스워드 에러
24	내부 시리얼 에러
25	WRITING…

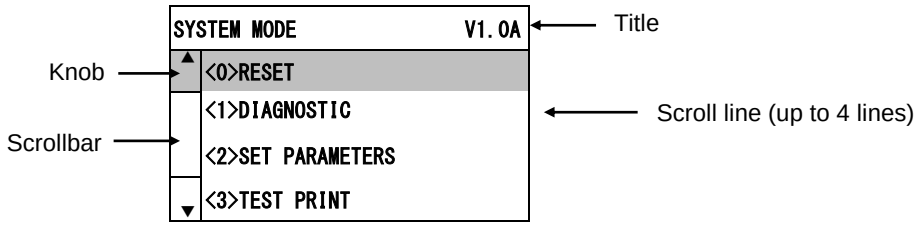
No	Turkish
1	ONLINE
2	Kafa açık
3	PAUSE
4	İLETİŞİM HATASI
5	Kağıt sıkışması
6	KESİCİ HATASI
7	Kağıt yok
8	Kafa açık
9	Kafa hatası
10	Kafada aşırı ısınma
11	KAYIT ####KB/&&&&KB KAYIT %%,%%%,%%%KB
12	FORMAT ####KB/&&&&KB FORMAT %%,%%%,%%%KB
13	YÜKLÜYOR…
14	AYAR MODU
15	Hafızaya yazma hatası
16	FORMAT hatası
17	Hafıza dolu
18	SYNTAX HATASI
19	GÜÇ HATASI
20	SISTEM HATASI
21	DHCP istemci başlıyor
22	INPUT PASSWORD
23	GEÇERSİ Z Ş İ FRE
24	İç iletişim hatası
25	WRITING...

No	Polish
1	ONLINE
2	OTWARTA GŁ OWICA.
3	PAUZA
4	BŁ Ą D COMMS
5	ZACIĘ CIE PAPIERU
6	BŁ Ą D NOŻ A
7	BRAK PAPIERU
8	OTWARTA GŁ OWICA.
9	BŁ Ą D GŁ OWICY
10	PRZEKR TEMP GŁ OWICY
11	ZAPIS ####KB/&&&&KB ZAPIS %%,%%%,%%%KB
12	FORMAT ####KB/&&&&KB FORMAT %%,%%%,%%%KB
13	Ł ADOWANIE...
14	TRYB USTAWIEŃ
15	BŁ Ą D ZAPISU PAMIĘ CI
16	BŁ Ą D FORMATOWANIA
17	PAMIĘ Ć PEŁ NA
18	BŁ Ą D SKŁ ADNI
19	BŁ Ą D ZASILANIA
20	BŁ Ą D SYSTEMU
21	INICJ KLIENTA DHCP...
22	INPUT PASSWORD
23	BŁ Ę DNE HASŁ O
24	WEWN. BŁ Ą D COMM
25	WRITING...

7 DISPLAY PATTERN AND KEY OPERATION FOR SYSTEM MODE AND USER SYSTEM MODE

7.1 LIST BOX WITH SCROLLBAR

The list box is used for displaying the menus or items to be selected. It is comprised of the following parts.



The knob appears on the scrollbar when the number of scroll lines is over 4 lines.

There are three types of list box with scrollbar, as follows.

	Display
Menu screen (without setting value)	SYSTEM MODE V1.0A <0>RESET <1>DIAGNOSTIC <2>SET PARAMETERS <3>TEST PRINT
Menu screen (with setting value)	COUNTER V1.0A TOTAL FEED 4.8Km FEED 0.0Km FEED1 4.8Km FEED2 0.0Km
Setting value selection screen	PRINT TYPE V1.0A TERMAL TRANSFER DIRECT THERMEL DISPLAY

Key function (Menu screen)

Substitute Key	Function
[FEED] + [RESTART]	Returns to the upper-level menu without saving changes.
[PAUSE]	Displays a next screen.
[RESTART]	Moves the cursor upward. When the cursor is positioned at the top of the list, it scrolls from the top to the bottom.
[FEED]	Moves the cursor downward. When the cursor is positioned at the bottom of the list, it scrolls from the bottom to the top.

Key function (value setting display)

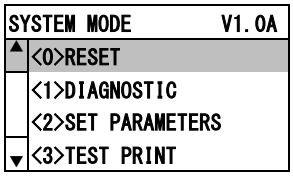
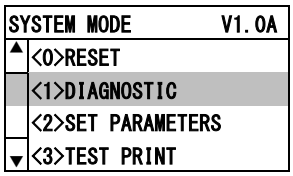
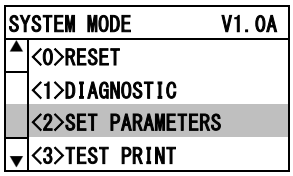
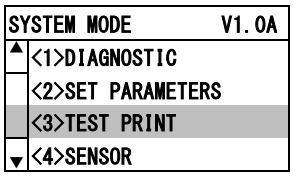
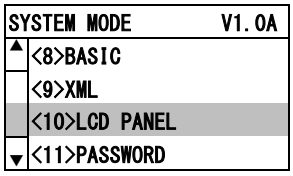
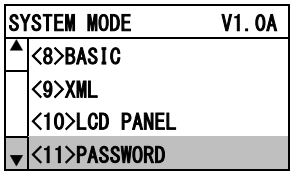
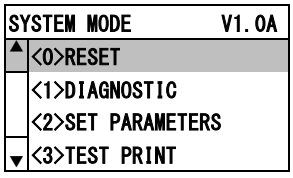
Substitute Key	Function
[FEED] + [RESTART]	Returns to the upper-level menu without saving changes.
[PAUSE]	Saves the changes and returns to the upper-level menu.
[RESTART]	Moves the cursor upward. When the cursor is positioned at the top of the list, it scrolls from the top to the bottom.
[FEED]	Moves the cursor downward. When the cursor is positioned at the bottom of the list, it scrolls from the bottom to the top.

Note:

Printer operation is not guaranteed when multiple keys are pressed at the same time except for those mentioned above ([FEED]+[RESTART]).

Movement of the cursor in screen scroll

The cursor moves in the following way with a press the [FEED] or [RESTART] key. The following table shows the example of press the [FEED] key. The [RESTRT] key functions in the same way.

Display	Key operation	Explanation
		
	Press the [FEED] key.	The position of the displayed menus remains unchanged and only the cursor moves down to the next item.
	Press the [FEED] key.	The position of the displayed menus remains unchanged and only the cursor moves down to the next item.
	Press the [FEED] key.	The entire menu list moves up by one line and the cursor moves down to the next item.
:	:	
	Press the [FEED] key.	The entire menu list moves up by one line and the cursor moves down to the next item.
	Press the [FEED] key.	The position of the menu list remains unchanged and only the cursor moves down to the next item.
	Press the [FEED] key.	When the cursor is positioned at the bottom of the list, the menu and the cursor scroll from the bottom to the top.

Notes:

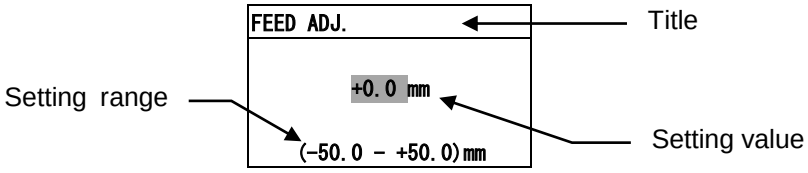
1. Cursor position when shifting from upper-level menu to its sub menu
   When shifting from upper-level menu to its sub menu, the cursor is positioned at the topmost item.
2. Cursor position when shifting from upper-level menu to its subordinate value setting screen
   When shifting from upper-level menu to its subordinate value setting screen, the cursor is positioned at the currently selected item.

3. Cursor position when shifting from sub menu or value setting screen to its upper-level menu
   When shifting from lower menu or value setting screen to its upper-level menu, the cursor is positioned at the previously selected item.
4. Operation when the [FEED] + [RESTART] key is pressed on the top screen
   If the [FEED] + [RESTART] key is pressed while the top screen is displayed in the system mode or user mode, the current option will not be moved.

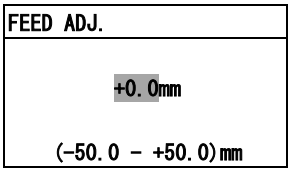
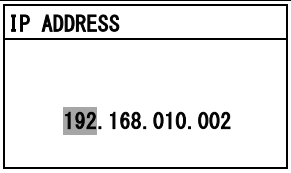
7.2 VALUE SETTING SCREEN

The value setting screen is used for setting a value by increasing or decreasing it.
It is comprised of the following parts.

Display example



Notes:
1. The currently programmable item is highlighted.
2. The display of the symbols like “+” and “-“, and the unit of measure like “mm” and “step” differs depending on the item to be set.

	Display
Setting screen with one field	
Setting screen for IP address	

Key function (Setting screen with one field)

Substitute Key	Function
[FEED] + [RESTART]	Returns to the upper-level menu without saving changes.
[PAUSE]	Saves the changes and returns to the upper-level menu.
[RESTART]	Increases the setting value by specified step. When the setting value reaches the maximum, it returns to the minimum value and increases.
[FEED]	Decreases the setting value by specified step. When the setting value reaches the minimum, it returns to the maximum value and decreases.

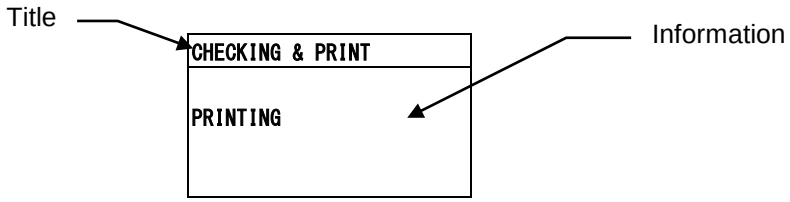
Key function (Setting screen for IP address)

Substitute Key	Function
[FEED] + [RESTART]	Return to the upper-level menu without saving changes.
[PAUSE]	Save the changes and returns to the upper-level menu.
[RESTART]	Increases the setting value by specified step. When the setting value reaches the maximum, it returns to the minimum value and increases.
[FEED]	Decreases the setting value by specified step. When the setting value reaches the minimum, it returns to the maximum value and decreases.

7.3 INFORMATION SCREEN

The information screen is used when no input / setting is performed.
It is comprised with the following:

Display example



	Display
Information screen	CHECKING & PRINT PRINTING
Scroll screen	FILE MAINTENANCE 00 ZEBRASTMSX5. 01 ---------- 02 SHORT.BAS 03 ----------

Key function

Substitute Key	Function
[FEED] + [RESTART]	Displays the upper-level menu.
[PAUSE]	Displays the upper-level menu.
[RESTART]	No function
[FEED]	No function

Key function (Scroll)

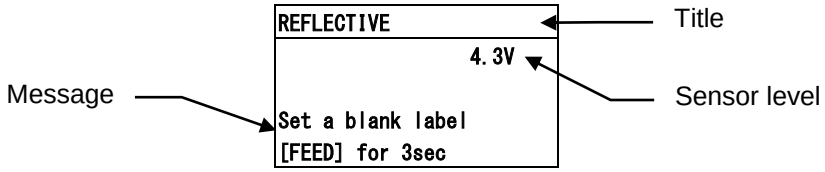
Substitute Key	Function
[FEED] + [RESTART]	Displays the next screen or upper-level menu.
[PAUSE]	Displays the next screen or upper-level menu.
[RESTART]	Moves the cursor upward. When the cursor is positioned at the top of the list, it scrolls from the top to the bottom.
[FEED]	Moves the cursor downward. When the cursor is positioned at the bottom of the list, it scrolls from the bottom to the top

7.4 SENSOR ADJUSTMENT SCREEN

The sensor adjustment screen is used only when the level of the media sensors on the printer is required to be adjusted.

It is comprised with the following :

Display example



	Display
Before adjustment	REFLECTIVE 4.3V Set a blank label [FEED] for 3sec
After adjustment	REFLECTIVE 4.5V * Adjust Complete

Key function (before adjustment)

Substitute Key	Function
[PAUSE]	Displays the upper-level menu.
[FEED]	When held down for 3 seconds or more, the sensor adjustment is performed. When this key is released within 3 seconds, the screen returns to the upper-level menu.
[RESTART]	No function

Key function (after adjustment)

Substitute Key	Function
[PAUSE]	Displays re-adjustment menu.
[FEED]	No function
[RESTART]	No function

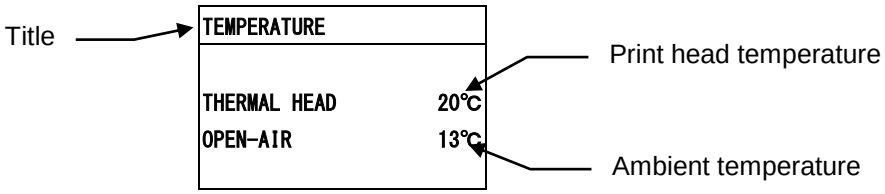
Notes:

1. The symbol “*” shown on the right side of the adjustment value indicates the completion of adjustment.
2. The voltage value being selected is updated approximately every 200 msec. interval.

7.5 TEMPERATURE DISPLAY SCREEN

Temperature display screen is used only for displaying the print head temperature and ambient temperature. It is comprised with the following :

Display example



	Display
Display of temperatures	TEMPERATURE THERMAL HEAD 20℃ OPEN-AIR 13℃

Key function

Substitute Key	Function
[PAUSE]	Displays the top menu.
[FEED]	No function
[RESTART]	No function

Note: Each temperature is updated approximately every 200 msec. interval

[FEED]	Move the cursor down. If it is the lowest, it will not move.

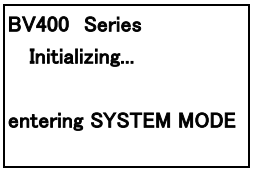
Note:

1. The operation is not guaranteed for multiple key presses other than the multiple key presses subject to processing (e.g., [FEED] + [RESTART]).

8 SYSTEM MODE

8.1 OUTLINE OF THE SYSTEM MODE

1. The printer enters the system mode with the following operations.
   - While the printer power is off, perform either of the following operations:
     - Turn on the printer while holding down the [FEED] and [PAUSE] key at the same time.
     - When the following display appears, you can enter system mode by releasing your hands from the [FEED] key and [PAUSE] key.



2. The system mode is intended for performing self-test and various parameter settings.
3. When the top menu is displayed, the main firmware version is shown on the right side of the title.
4. The language displayed on the LCD is Japanese when “Japanese” is selected for the LCD language parameter, and English when a language other than “Japanese” is selected. (See <13>LCD PANEL.)
5. The key operations for the system mode are described below.
   For the key functions and the display configuration, refer to Section 7. DISPLAY PATTERN AND KEY OPERATION FOR SYSTEM MODE AND USER SYSTEM MODE.

Top menu of the system mode

Display
SYSTEM MODE V1.0A <0>RESET <1>DIAGNOSTIC <2>SET PARAMATERS <3>TEST PRINT

Top menu list

English
<0>RESET
<1>DIAGNOSTIC
<2>SET PARAMETERS
<3>TEST PRINT
<4>SENSOR
<5>RAM CLEAR
<6>INTERFACE
<10>FACTORY TEST
<11>BASIC
<12>XML
<13>LCD PANEL
<14>PASSWORD

Outline of the top menu

<0>RESET	Restart the printer.
<1>DIAGNOSTIC	Perform self diagnosis, print out the result, check for the print head broken elements.
<2>SET PARAMETERS	Set the parameters for printer functions.
<3>TEST PRINT	Test print quality by printing slant lines, characters and barcodes.
<4>SENSOR	Display the ambient temaprature and print head temparature, and adjust each level of the media sensors.
<5>RAM CLEAR	Clear the maintenance counter and parameter settings.
<6>INTERFACE	Set the interface parameters such as network, Bluetooth, USB, RS232C and parallel.
<10>FACTORY TEST	Adjust the printer before shipment.
<11>BASIC	Set the function of loading BASIC program to the printer and using it.
<12>XML	Set XML functions.
<13>LCD PANEL	Select a language for the display, choose the items to be displayed, and adjust the contrast.
<14>PASSWORD	Set Password

8.2 REFLECTING THE SYSTEM MODE SETTINGS TO THE PRINTER

The settings configured in the system mode or user system mode is saved in the printer at the following timings.

- Periodic saving at 20 msec. interval.
- When Reset menu in the system mode or user system mode is performed.

The changes in the settings, with a partial exception, take effect at a power on time or after a reset.

8.3 RESET

Reset the printer.

Contents of RESET menu

Menu item
<0>RESET

8.4 DIAGNOSTIC

Contents of the DIAGNOSTIC menu

Menu item	
<1>DIAGNOSTIC	
	MAINTENANCE COUNTER
	AUTO DIAGNOSTIC
	HEAD CHECK
	BD ADDRESS

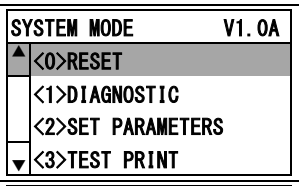
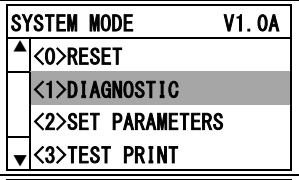
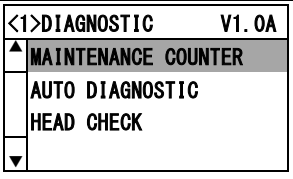
8.4.1 MAINTENANCE COUNTER

The following table shows the menu structure from the top menu of the system mode to MAINTENANCE COUNTER.

Menu item
<1>DIAGNOSTIC
MAINTENANCE COUNTER
THERMAL TRANSFER
PAPER CUTTING
NO
YES
DIRECT THERMAL
PAPER CUTTING
NO
YES
DISPLAY
COUNTER
ADJUSTMENT(PC)
STORAGE AREA
USB SERIAL NUMBER
WLAN AUTHENTICATION
RFID TAG COUNT

Notes:

1. The MAINTENANCE COUNTER enables selecting whether to print or display the self-diag. test result (maintenance counter data and parameter settings). When THERMAL TRANSFER or DIRECT THERMAL is selected, the test result is printed. When DISPLAY is selected, the test result is displayed on the LCD.
2. When an error occurs while printing, the error message is displayed, the ERROR LED turns on, and the ONLINE LED turns off. Though the error can be cleared by pressing the [PAUSE], key, the printer does not reprint the label automatically.
3. Menu operation example

	Display	Procedure
1		1. Turn off the printer. 2. Turn on the printer while holding down [FEED] and [PAUSE] keys at the same time. 3. The top menu of the SYSTEM MODE is displayed.
2		1. Select <1>DIAGNOSTIC. 2. Press the [PAUSE] key. 3. Submenus of <1>DIAGNOSTIC are displayed.
3		1. Select MAINTENANCE COUNTER. 2. Press the [PAUSE] key. 3. PRINT TYPE menu is displayed.

4	When THERMAL TRANSFER or DIRECT THERMAL is selected: Note: When DISPLAY is selected, go to step 5.	
4-1	PRINR TYPE V1.0A ▲ THERMAL TRANSFER DIRECT THERMAL DISPLAY ▼	1. Select either THERMAL TRANSFER or DIRECT THERMAL. 2. Press the [PAUSE] key. 3. PAPER CUTTING? Menu is displayed.
4-2	PAPER CUTTING V1.0A ▲ NO YES ▼ (Printing…) CHECKING & PRINT PRINTING	1. Select YES or NO. 2. Press the [PAUSE] key. 3. The maintenance counter data and parameter settings are printed. 4. “PRINTING” is displayed. Note: A print sample is provided in Section 8.4.1.1 Maintenance Counter/Parameter Settings Print Contents.
4-3	When the printing is completed. (Normal end)	
	PRINR TYPE V1.0A ▲ THERMAL TRANSFER DIRECT THERMAL DISPLAY ▼	1. When the printing is completed, PRINT TYPE menu is displayed again.
4-4	When an error occurred during printing	
	PRINT TYPE RIBBON ERROR	The printer displays the error message, and stops. The ERROR LED turns on and the ONLINE LED turns off. 1. Press the [PAUSE] key. 2. PRINT TYPE menu is displayed.
	PRINR TYPE V1.0A ▲ THERMAL TRANSFER DIRECT THERMAL DISPLAY ▼	The printer recovers from the error, the ERROR LED turns off and the ONLINE LED turns on. Note that the printer does not reprint the label automatically.
5	In the case DISPLAY is selected:	
5-1	PRINR TYPE V1.0A ▲ THERMAL TRANSFER DIRECT THERMAL DISPLAY ▼	1. Select DISPLAY. 2. Press the [PAUSE] key. 3. DISPLAY menu is displayed.
5-2	DISPLAY ▲ COUNTER ADJUSTMENT(PC) STORAGE AREA ▼ USB SERIAL NUMBER	1. Select an item to be displayed. 2. Press the [PAUSE] key. 3. The data of the selected item is displayed.
5-3	COUNTER ▲ TOTAL FEED 4.8km FEED 0.0km FEED1 4.8km ▼ FEED2 0.0km	For details of the Maintenance counter data, refer to Section 8.4.1.2 Maintenance Counter/Parameter Settings Display Contents.

8.4.1.1 Maintenance Counter/Parameter Settings Print Contents

```
<< COUNTER >>
TOTAL FEED 3.7km                                [QM]
FEED       2.4km
FEED1      1.3km
FEED2      0.0km
FEED3      0.0km
FEED4      0.0km
PRINT      2.4km
PRINT1     1.3km
PRINT2     0.0km
PRINT3     0.0km
PRINT4     0.0km
CUT        0
232C ERR   0
SYSTEM ERR 0
POWER FAIL 0
<< ADJUST >>
[PC]                    [KEY]
FEED     +0.0mm         FEED     +0.0mm
CUT      +0.0mm         CUT      +0.0mm
BACK     +0.0mm         BACK     +0.0mm
TONE(T)  +0step         TONE(T)  +0step
TONE(D)  +0step         TONE(D)  +0step
X ADJ.   +0.0mm  [TYPE1]
THRESHOLD(R) 1.0V 0.9V 1.1V 1.2V 1.3V  ⇒(Note *1)
THRESHOLD(T) 1.4V 1.2V 1.3V 1.5V 1.6V  ⇒(Note *1)
<< PARAMETER SETTINGS >>
MEDIA LOAD         [STD]
MOVE TO TEAROFF    [OFF] +0.0mm  [MODE1]
PRE PEEL OFF       [OFF]
BACK FEED SPEED    [STD]
CALIBRATION        [OFF]
CODE PAGE          [PC-850] [0]
CTRL CODE          [AUTO]
PEEL OFF STATUS    [ON]
USB I/F STATUS     [OFF]
FEED KEY           [FEED]
KANJI CODE         [TYPE1:Windows]
EURO CODE          [B0]
AUTO HEAD CHK      [OFF]
WEB PRINTER        [ON]

PAPER/RBN END      [Stop immediately]
MAXICODE SPEC.     [TYPE1: Compatible]
XML                [STD]
ENERGY TYPE(T)     [NORM: Normal]
ENERGY TYPE(D)     [NORM: Normal] (注 1)
POWER SAVE TIME    [ 15min]
BASIC              [OFF]
BASIC TRACE        [OFF]
CUT MODE           [TYPE1]
MULTI LABEL        [OFF]
FEED LENGTH        [3200km]
TOTAL LENGTH       [3200km]
ISSUE CTRL         SENSOR   [COMMAND]
                   MODE     [COMMAND]
                   SPEED    [COMMAND]
                   RIBBON   [COMMAND]
                   ROTATION [COMMAND]
                   STATUS   [COMMAND]
```

```
<< PANEL >> ⇒(Note *2)
LANGUAGE           [ENGLISH]
MODEL NAME         [ON]
PRINTED COUNTER    [ON]
IP ADDRESS         [ON]
CONTRAST           [40]
SYSTEM PASSWORD    [OFF]
<< STORAGE AREA >>
TTF AREA           [   0KB]
EXT CHR AREA       [3072KB]
BASIC AREA         [   0KB]
PC SAVE AREA       [   0KB]
OTF SAVE AREA      [25600KB]SPACE
<< USB >>
SERIAL NUMBER      [DISABLE]
                   [XXXXXXXXXXXX]
<< RS-232C >>
BAUD RATE          [9600]
DATA LENGTH        [8]
STOP BIT           [1]
PARITY             [EVEN]
CONTROL            [XON+READY AUTO]
<< LAN/WLAN >>
LAN/WLAN           [OFF]
SNMP               [OFF]
IP ADDRESS         [192.168.010.020]
v6L[fe80::280:91ff:fec8:cb                 ]
v6G[: :                                      ]
SUBNET MASK        [000.000.000.000]
GATEWAY ADDRESS    [255.255.255.000]
SOCKET PORT        [OFF] [08000]
DHCP               [OFF]
DHCP CLIENT ID     [FFFFFFFFFFFFFFFFFFFF]
                   [FFFFFFFFFFFFFFFFFFFF]
                   [FFFFFFFFFFFFFFFFFFFF]
                   [FFFFFFFFFFFFFFFFFFFF]
                   [FFFFFFFFFFFFFFFFFFFF]
                   [FFFFFFFFFFFFFFFFFFFF]
                   [FFFFFFFF]
DHCP HOST NAME     [ABCDEFGHIJKLMNOPQRST]
                   [UVWXYZ123456]
LPR                [OFF]
BAND SELECT        [DUAL BAND]
CONNECTION MODE    [INFRASTRUCTURE]
ESS ID             [                    ]
                   [                    ]
ENCRYPTION         [OFF]
WPA MODE           [OFF]
AUTHENTICATION     [OPEN SYSTEM]
802.1X SUPPLICANT  [OFF]
DEFAULT KEY        KEY[1]
COUNTRY CODE       [   ]
AP MODE CHANNEL    [   ]
<< BLUETOOTH >>
BLUETOOTH          [ON]
DEVICE NICKNAME    [TOSHIBA TEC BT]
                   [              ]
BD ADDRESS         [00:16:A4:08:CF:8D]
FACTORY TEST       [OFF]
INQUIRY            [EVERY]
SECURITY           [SPP]
SCAN INTERVAL      [2048]
SCAN WINDOW        [36]
AUTO CONNECT       [OFF]
```

Notes:

*1. In the case of the model without LCD, THRESHOLD (R) and THRESHOLD (T) are printed only for "THRESHOLD1".

*2. << PANEL >> item is not printed on the model without LCD.

*3. Refer to “8.8.3.1 Parameters to be cleared ” for the initial value after RAM clear.

Print condition:

Print method	User setting
Sensor type	None
Speed	4 ips
Print count	1
Issue mode	User setting

<< COUNTER >>

Item	Description
	Range
	Counting condition

TOTAL FEED	[Description] Total label distance covered (cannot be cleared)
	[Range] 0.0 to 3200.0 km
	[Counting condition] Counted when the media feed motor is driven to feed or print the media. (Reverse feed is also counted.)
FEED	[Description] Label distance covered
	[Range] 0.0 to 3200.0 km
	[Counting condition] Counted when the media feed motor is driven to feed or print the media. (Reverse feed is also counted.)
FEED1 to FEED4	[Description] History of last 4 label distances
	[Range] 0.0 to 3200.0 km
	[Counting condition] When the maintenance counter is RAM-cleared, the label distance covered is saved as FEED 1. At this time, data which were saved in FEED 1, FEED 2 and FEED 3 are re-saved as FEED 2, FEED 3, and FEED 4, respectively.
PRINT	[Description] Print distance
	[Range] 0.0 to 200.0 km
	[Counting condition] Counted while printing. (Reverse feed is not counted.)
PRINT1 to PRINT4	[Description] History of last 4 print distances
	[Range] 0.0 to 3200.0 km
	[Counting condition] When the maintenance counter is RAM-cleared, the print distance is saved as PRINT 1. At this time, data which were saved in PRINT 1, PRINT 2 and PRINT 3 are re-saved as PRINT 2, PRINT 3, and PRINT 4, respectively.
CUT	[Description] Cut count
	[Range] 0 to 1000000
	[Counting condition] Every cut operation is counted. The cut count is saved every 1 cut operations.
232C ERR	[Description] The number of times an RS-232C hardware error occurred
	[Range] 0 to 255
	[Counting condition] Counted when a parity error, overrun error or framing error occurs.
SYSTEM ERR	[Description] The number of times a system error occurred
	[Range] 0 to 15
	[Counting condition] Counted when a system error occurs.
POWER FAIL	[Description] The number of times a momentary power interruption occurred
	[Range] 0 to 15
	[Counting condition] Counted when a momentary power interruption occurs.

<< ADJUST >>

Item		Description	Remarks
[PC]/[KEY]			
	FEED	Feed amount fine adjustment	-50.0mm to +50.0mm
	CUT	Cut position (or strip position) fine adjustment	-50.0mm to +50.0mm
	BACK	Reverse feed amount fine adjustment	-9.9mm to +9.9mm
	TONE (T)	Print density fine adjustment (Thermal transfer print mode)	-10 to +10 step
	TONE (D)	Print density fine adjustment (Direct thermal print mode)	-10 to +10 step
X ADJ.		X-coordinate fine adjustment	- 99.9mm to + 99.9mm
		X-coordinate method	TYPE1/TYPE2
THRESHOLD<R>		Threshold fine adjustment for reflective sensor From left to right, fine value 1, fine value 2, ..., fine value 5	0.0V to 4.0V
THRESHOLD<T>		Threshold fine adjustment for transmissive sensor From left to right, fine value 1, fine value 2, ..., fine value 5	0.0V to 4.0V

<< PARAMETER SETTINGS >>

Item	
	Description
	Value to be printed
MEDIA LOAD [ ]	
	[Description] Media feed to the print start position
	[Values to be printed] OFF: Disabled. STD: Feeds the detected gap/mark to the print start position. ECO: Feeds a gap/mark positioned between the print head and the media sensor, if any, to the print start position. ECO+Bfeed: Backfeed after the above ECO operation is completed.
MOVE TO TEAROFF [1] [2] [3]	
	[Description 1] Auto feed to the cut/strip position after printing
	[Value to be printed 1] OFF: Disabled. ON: Enabled. When this is turned on, the following media stop position fine adjustment values are printed.
	[Description 2] Media stop position fine adjustment value Note: Printed only when the “Auto feed to the cut/strip position after printing” is set to ON.
	[Value to be printed 2] -5.0mm to+5.0mm
	[Description 3] Feed mode
	[Value to be printed 3] MODE1: Feeds the media for 12.8 mm. MODE2: Reserve. (If selected, it will be the same as MODE1.)
PRE PEEL OFF [ ]	
	[Description 1] Whether to enable the pre-peel-off function
	[Values to be printed 1] OFF: Enabled. ON: Disabled.
BACK FEED SPEED [ ]	
	[Description] Reverse feed speed
	[Values to be printed] STD: 3 ips LOW: 2 ips
CALIBRATION [ ]	
	[Description] Automatic calibration
	[Values to be printed] OFF: Disabled. ON TRANS.: Auto calibration is performed with transmissive sensor. ON REFL.: Auto calibration is performed with reflective sensor. ON ALL: Auto calibration is performed with both sensors. ON TRAS+BF: Auto calibration is performed with transmissive sensor, then the media is reversely fed. ON REFL+BF: Auto calibration is performed with reflective sensor, then the media is reversely fed. ON ALL+BF: Auto calibration is performed with both sensors, then the media is reversely fed.
CODE PAGE [1] [2]	
	[Description 1] Character code selection
	[Value to be printed 1]

PC-850
PC-852
PC-857
PC-8
PC-851
PC-855
PC-1250
PC-1251
PC-1252
PC-1253
PC-1254
PC-1257
LATIN9
Arabic
PC-866
UTF-8

[Description 2] Character “0” selection

[Values to be printed]
0: with slash
Ø: without slash

CTRL CODE [ ]

[Description] Control code type

[Values to be printed]
AUTO: Automatic selection
{,|,}: {,|,} method
ESC,LF,NL: ESC,LF,NL method
MANUAL: Any code (Described in hex. code)
IBM HOST : 「, |, 」 method
IBM HOST US: 83H, |, 84H method

PEEL OFF STATUS [ ]

[Description] Whether to send a peel-off wait status to the host

[Values to be printed]
OFF: Not sent.
ON: sent.

USB I/F STATUS [ ]

[Description] Whether to send a response to the host via USB

[Values to be printed]
OFF: Not sent.
ON: Sent.

FEED KEY [ ]

[Description] Function of the [FEED] key

[Values to be printed]
FEED: The printer feeds one label.
PRINT: The printer prints data in the image buffer on one label.

KANJI CODE [ ]

[Description] Kanji code type

[Values to be printed]
TYPE1: Windows: WINDOWS codes
TYPE2: Original: Original codes

EURO CODE [ ]

[Description] Euro code setting

[Values to be printed]
20 to FF (Hex. code)

AUTO HEAD CHK [ ]

[Description] Whether to perform automatic print head check

[Values to be printed]

OFF: Not performed.
ON: Performed.

WEB PRINTER [ ]

[Description] Whether to use the printer as a web printer

[Values to be printed]

OFF: Not used.
ON: Enabled

PAPER/RBN END [ ]

[Description] Paper end / Ribbon error detection setting

[Values to be printed]

Stop immediately: Stops in the middle of issuing when Paper end / Ribbon error is detected
Complete current: When Paper end / Ribbon error is detected, finish printing as much as possible and stop.

MAXICODE SPEC. [ ]

[Description] Maxicode specification

[Values to be printed]

TYPE1: Compatible: Compatible with the current version
TYPE2: Special Spec: Special specification

XML [ ]

[Description] XML data printing

[Values to be printed]

OFF: Disabled.
STD: Standard specification
ORACLE: Specification for Oracle
SAP: Specification for SAP

ENERGY TYPE (T) [ ]

[Description] Energy level applied to the print head in thermal transfer mode

[Values to be printed]

NORM: Normal: Standard setting
rsv1: (Reserved3): Reserved
rsv2: (Reserved4): Reserved
rsv3: (Reserved3): Reserved
rsv4: (Reserved4): Reserved
rsv5: (Reserved5): Reserved
rsv6: (Reserved6): Reserved
rsv7: (Reserved7): Reserved
rsv8: (Reserved8): Reserved

[Note] This item is reflected when the printer is turned OFF / ON.

ENERGY TYPE (D) [ ]

[Description] Energy level applied to the print head in thermal direct mode

[Values to be printed]

NORM: Normal: Standard setting
rsv1: (Reserved3): Reserved
rsv2: (Reserved4): Reserved
rsv3: (Reserved3): Reserved
rsv4: (Reserved4): Reserved
rsv5: (Reserved5): Reserved
rsv6: (Reserved6): Reserved
rsv7: (Reserved7): Reserved
rsv8: (Reserved8): Reserved

[Note] This item is reflected when the printer is turned OFF / ON.

POWER SAVE TIME [ ]

[Description] Length of time until the printer enters sleep mode

[Values to be printed]
1 min. to 60 min.

BASIC [ ]

[Description] Basic interpreter setting

[Values to be printed]
OFF: Basic interpreter is disabled.
ON: Basic interpreter is enabled.

BASIC TRACE [ ]

[Description] Basic interpreter trace setting

[Values to be printed]
OFF: Trace is disabled.
ON: Trace is enabled.

CUT MODE[ ]

[Description] Setting CUT mode

[Values to be printed]
TYPE1: Standard cut mode(High speed cut).
TYPE2: Compatible cut mode(Same speed as B-SA).

MULTI LABEL[ ]

[Description] Setting Multi label

[Values to be printed]
OFF: Disable
ON: Enable

FEED LENGTH[ ]

[Description] Label mileage warning setting

[Values to be printed]
1 km to 3200 km

TOTAL LENGTH [ ]

[Description] Total label mileage warning setting

[Values to be printed]
1 km to 3200 km

ISSUE CTRL [ ]

[Description] Issuance control settings

[Values to be printed]
SENSOR: Sensor
COMMAND: Command priority
NONE: Without sensor
REFLECT Reflection sensor
TRANS: Transmission sensor
REF-MANUAL1: Reflection sensor 1 (manual)
REF-MANUAL2: Reflection sensor 2 (manual)
REF-MANUAL3: Reflection sensor 3 (manual)
REF-MANUAL4: Reflection sensor 4 (manual)
REF-MANUAL5: Reflection sensor 5 (manual)
TRN-MANUAL1: Transmission sensor 1 (manual)
TRN-MANUAL2: Transmission sensor 2 (manual)
TRN-MANUAL3: Transmission sensor 3 (manual)
TRN-MANUAL4: Transmission sensor 4 (manual)
TRN-MANUAL5: Transmission sensor 5 (manual)
MODE: Mode
COMMAND: Command priority
BATCH: Continuous
CUT(1): Cut

PEEL OFF: Peel off
PEEL OFF(Appl): Peel off (applicator)
LINERLESS CUT: Linerless cut
PARTIAL CUT: Partial cut

SPEED: Printing speed
COMMAND: Command priority
2 ips: 2 ips
3 ips: 3 ips
4 ips: 4 ips
5 ips: 5 ips
6 ips: 6 ips
7 ips: 7 ips

RIBBON: Ribbon
COMMAND: Command priority
NO: None (color development)
YES: Yes (transcription)

ROTATION: Print direction
COMMAND: Command priority
BOTTOM: Bottom first printing
TOP: Top first printing
BOTM/Mirror: Bottom first and mirror printing
TOP/Mirror: Top first and mirror printing

STATUS: Automatic status response
COMMAND: Command priority
OFF: Without automatic transmission
ON: With automatic transmission

<< PANEL >> (only for models with LCD)

LANGUAGE [ ]

[Description] Selection of a language for displaying LCD messages

[Values to be printed]

- ENGLISH: English
- GERMAN: German
- FRANCH: French
- DUTCH: Dutch
- SPANISH: Spanish
- JAPANESE: Japanese
- ITALIAN: Italian
- PORTUGUESE: Portuguese
- Simplified CHINESE: Simplified Chinese
- KOREAN: Korean
- TURKISH: Turkish
- POLISH: Polish

MODEL NAME [ ]

[Description] Whether to display the model name

[Values to be printed]

- OFF: Hidden.
- ON: Displayed.

PRINTED COUNTER [ ]

[Description] Whether to display the number of labels printed

[Values to be printed]

- OFF: Hidden.
- ON: Displayed.

IP ADDRESS [ ]

[Description] Whether to display IP address

[Values to be printed]

- OFF: Hidden.
- ON: Displayed.

CONTRAST [ ]

[Description] LCD contrast

[Values to be printed]

- 24 to 50

SYSTEM PASSWORD [ ]

[Description] System mode password setting

[Values to be printed]

- OFF: Disabled.
- ON: Enabled.

<< STORAGE AREA >>

TTF AREA [ ]
[Description] TrueType Font storage area size
[Values to be printed] 0KB to 3072KB
EXT CHR AREA [ ]
[Description] External character storage area size
[Values to be printed] 0KB to 3072KB
BASIC AREA [ ]
[Description] BASIC file storage area size
[Values to be printed] 0KB to 3072KB
PC SAVE AREA [ ]
[Description] PC command storage area size
[Values to be printed] 0KB to 3072KB
OTF SAVE AREA [ ]SPACE
[Description] OTF save storage area size
[Values to be printed] 0KB to 25600KB

<< USB >>

SERIAL NUMBER [1] [2]
[Description 1] Whether to enable USB serial number
[Values to be printed 1] DISABLE: Disabled. ENABLE: Enabled.
[Description 2] USB serial number

<< RS-232C >>

BAUD RATE [ ]
[Description] Baud rate
[Values to be printed] 2400: 2400bps 4800: 4800bps 9600: 9600bps 19200: 19200bps 38400: 38400bps 115200: 115200bps
DATA LENGTH [ ]
[Description] Data length
[Values to be printed] 8: 8 bits 7: 7 bits
STOP BIT [ ]
[Description] Stop bit length
[Values to be printed] 1: 1 bit 2: 2 bits

PARITY [ ]

[Description] Parity

[Values to be printed]

NONE: None
EVEN: Even
ODD: Odd

CONTROL [ ]

[Description] Transmission control method

[Values to be printed]

XON+READY AUTO:	XON/XOFF+ READY/BUSY(DTR) mode (XON output when the power is on, XOFF output when the power is off)
XON/XOFF AUTO:	XON/XOFF mode (XON output when the power is on, XOFF output when the power is off)
READY/BUSY RTS:	RTS mode (No XON output when the power is on, no XOFF output when the power is off)
XON/XOFF:	XON/XOFF mode (No XON output when the power is on, no XOFF output when the power is off)
READY/BUSY:	READY/BUSY(DTR) (No XON output when the power is on, no XOFF output when the power is off)

<< LAN/WLAN >>

LAN/WLAN [ ]

[Description] LAN type

[Values to be printed]

OFF: Disabled.
AUTO: Automatically selected.(If WLAN is installed, LAN is not available.)
LAN: Wired LAN
WLAN: Wireless LAN

SNMP [ ]

[Description] Whether to enable SNMP

[Values to be printed]

OFF: Disabled.
ON: Enabled.

IP ADDRESS [ ]

[Description] Printer IP address

[Values to be printed]

xxx.xxx.xxx.xxx

v6 L [ ]

[Description] IPv6 Link local address

[Values to be printed]

xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx

v6 G [ ]

[Description] IPv6 Global address

[Values to be printed]

: :

* From the power-off state, the self-diagnostic print in the system mode is "::".
However, self-diagnosis information can be obtained with BCP SettingTool after starting in online mode.

SUBNET MASK [ ]

[Description] Subnet mask

[Values to be printed]

xxx.xxx.xxx.xxx

GATEWAY ADDRESS [ ]

[Description] Gateway IP address

[Values to be printed]

xxx.xxx.xxx.xxx

SOCKET PORT [1] [2]

[Description 1] Socket communication

[Values to be printed 1]

OFF: Disabled.
ON: Enabled.

[Description 2] Socket communication port number

[Values to be printed 2]

00000 to 65535

DHCP [ ]

[Description] DHCP setting

[Values to be printed]

OFF: DHCP is disabled.
ON: DHCP is enabled.

DHCP CLIENT ID [ ]

[Description] DHCP client ID setting (Hex.)

[Values to be printed]

Max. 64 characters

DHCP HOST NAME [ ]

[Description] DHCP host name (ASCII)

[Values to be printed]

Max. 32 characters

LPR[ ]

[Description] LPR Setting

[Values to be printed]

ON: Enable
OFF: Disable

BAND SELECT[ ]

[Description] Wireless LAN BAND Setting

[Values to be printed]

DUAL BAND: 2.4GHz/5GHz using
2.4GHz: 2.4GHz Using
5GHz: 5GHz using

CONNECTION MODE [ ]

[Description] Wireless LAN: Connection setting

[Values to be printed]

AP MODE
INFRASTRUCTURE

ESS ID [ ]

[Description] Wireless LAN: ESS ID

[Values to be printed]

Max. 32 characters

ENCRYPTION [ ]

[Description] Wireless LAN: Encryption key setting

[Values to be printed]

OFF — Note: This parameter is set by using the Printer Setting Tool.

WEP40

WPA MODE [ ]

[Description] Wireless LAN: WPA setting

[Values to be printed]

OFF — Note: This parameter is set by using the Printer Setting Tool.

WPA

WPA-PSK

WPA2

WPA2-PSK

AUTHENTICATION [ ]

[Description] Wireless LAN: Authentication method

[Values to be printed]

OPEN — Note: This parameter is set by using the Printer Setting Tool.

SHARED

802.1X SUPPLICANT [ ]

[Description] Wireless LAN: Authentication method

[Values to be printed]

OFF — Note: This parameter is set by using the Printer Setting Tool.

EAP-TLS

EAP-TTLS

EAP-FAST MSCHAPV2

PEAP MSCHAPV2

PEAP MSCHAPV2(w/o Cert)

DEFAULT KEY [ ]

[Description] Wireless LAN: Encryption key for sending

[Values to be printed]

1 to 4 — Note: This parameter is set by using the Printer Setting Tool.

COUNTRY CODE [ ]

[Description] Country Code Setting

[Values to be printed] Note: This parameter is set by using the Printer Setting Tool.

INIT, USA, CAN, MEX, BRA, CHL, JPN, AUS, NZL, ZAF, CHN,
HKG, TWN, KOR, BEL, NLD, LUX, FRA, ITA, DEU, DNK,
IRL, GBR, GRC, ESP, PRT, AUT, FIN, SWE, CZE, EST,
CYP, LAT, LTU, HUN, MLT, POL, SVN, SVK, BGR, ROM,
NOT, LIE, ISL, CHE, IDN, ARG, ARE, MYS, PHL, VNM,
COL, THA, TUR, SGP, RUS, IND

AP MODE CHANNEL [ ]

[Description] Channel setting of AP Mode

[Values to be printed] Note: This parameter is set by using the Printer Setting Tool.

1 ch, 2 ch, 3 ch, 4 ch, 5 ch, 6 ch, 7 ch, 8 ch, 9 ch, 10 ch,
11 ch, 12 ch, 13 ch, 14 ch, 36 ch, 40 ch, 44 ch, 48 ch, 52 ch, 56 ch,
60 ch, 64 ch, 100 ch, 104 ch, 112 ch, 116 ch, 120 ch, 124 ch, 128 ch,
132 ch, 136 ch, 140 ch, 149 ch, 153 ch, 157 ch, 161 ch, 165 ch

<< BLUETOOTH >>

BLUETOOTH [ ]

[Description] Bluetooth setting

[Values to be printed]

ON : Bluetooth ON

OFF : Bluetooth OFF

DEVICE NICKNAME [ ]

[Description] Bluetooth device nickname setting

[Values to be printed]

Max 32 characters

* If the device nickname cannot be obtained because the Bluetooth setting is invalid or the communication with the Bluetooth module fails, "-" will be displayed.

BD ADDRESS [ ]

[Description] BD address

[Values to be printed]

XX:XX:XX:XX:XX:XX

FACTORY TEST [ ]

[Description] Distinction for Device Nickname

[Values to be printed]

OFF Device nickname for assembly process test is not used.

ON Device nickname for assembly process test is used.

INQUIRY [ ]

[Description] Inquiry setting.

[Values to be printed]

OFF Inquiry is disabled.

EVERY Inquiry is enabled.

60 sec Inquiry is enabled only for 60 sec. after the start of the printer.

SECURITY [ ]

[Description] Bluetooth Security setting

[Values to be printed]

SSP : Secure simple pairing

LINK : Link level security

OFF : No security feature

SCAN INTERVAL [ ]

[Description] inquiry time setting.

[Values to be printed]

18sec～4096sec

SCAN WINDOW [ ]

[Description] Bluetooth Page scan window setting

[Values to be printed]

18sec～4096sec

AUTO CONNECT [ ]

[Description] Bluetooth Auto re connection setting

[Values to be printed]

OFF : Disable Auto Re connection

ON : Enable Auto Re connection

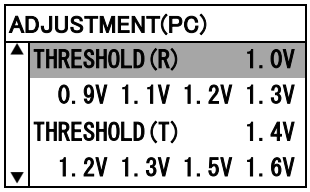
SSP AUTH [1] [2]
[Description 1] SSP setting
[Values to be printed 1] JUST WORKS : Link level security NUMERIC COMP: 6 digits Numeric Comparison
[Description 2] Confirm method
[Values to be printed 2] NO IN/OUT :Non Display DISP ONLY :Only Display DISP Y/N :Display with confirm.

8.4.1.2 Maintenance Counter/Parameter Settings Display Contents

COUNTER		
TOTAL FEED	[Description] Total label distance covered (cannot be cleared)	[Range] 0.0 ～ 3200.0km
FEED	[Description] Label distance covered	[Range] 0.0 ～ 3200.0km
FEED1	[Description] History of last 1 label distances	[Range] 0.0 ～ 3200.0km
FEED2	[Description] History of last 2 label distances	[Range] 0.0 ～ 3200.0km
FEED3	[Description] History of last 3 label distances	[Range] 0.0 ～ 3200.0km
FEED4	[Description] History of last 4 label distances	[Range] 0.0 ～ 3200.0km
PRINT	[Description] Print distance	[Range] 0.0 ～ 200.0km
PRINT1	[Description] History of last 1 print distances	[Range] 0.0 ～ 200.0km
PRINT2	[Description] History of last 2 print distances	[Range] 0.0 ～ 200.0km
PRINT3	[Description] History of last 3 print distances	[Range] 0.0 ～ 200.0km
PRINT4	[Description] History of last 4 print distances	[Range] 0.0 ～ 200.0km
CUT	[Description] Cut count	[Range] 0 ～ 1000000
RIBBON	[Description] Ribbon motor drive time	[Range] 0 ～ 2000 hours
232C ERR	[Description] The number of times an RS-232C hardware error occurred	[Range] 0 ～ 255
SYSTEM ERR	[Description] The number of times a system error occurred	[Range] 0 ～ 15
POWER FAIL	[Description] The number of times a momentary power interruption occurred	[Range] 0 ～ 15
ADJUSTMENT(PC)		
FEED ADJ.	[Description] Feed amount fine adjustment	[Range] -50.0mm～+50.0mm
CUT ADJ.	[Description] Cut position (or strip position) fine adjustment	[Range] -50.0mm～+50.0mm
BACK FEED	[Description] Reverse feed amount fine adjustment	[Range] -9.9mm ～ +9.9mm
TONE(TRANS.)	[Description] Print density fine adjustment (Thermal transfer print mode)	[Range] -10 ～ +10step
TONE(DIRECT)	[Description] Print density fine adjustment (Direct thermal print mode)	[Range] -10 ～ +10step

	X ADJ.	[Description] X-coordinate fine adjustment	[Range] -99.9mm～+99.9mm
	THRESHOLD(R) *1	[Description] Threshold fine adjustment 1 to 5 for reflective sensor	[Range] 0.0V ～ 4.0V
	THRESHOLD(T) *1	[Description] Threshold fine adjustment 1 to 5 for transmissive sensor	[Range] 0.0V ～ 4.0V
STORAGE AREA			
	TTF	[Description] TrueType Font storage area size	[Range] 0KB～3072KB
	EXT CHR	[Description] External character storage area size	[Range] 0KB～3072KB
	BASIC	[Description] Basic file storage area size	[Range] 0KB～3072KB
	PC SAVE	[Description] PC command storage area size	[Range] 0KB～3072KB
	OTF(SPACE)	[Description] OTF save storage area size	[Range] 0KB～25600KB
USB SERIAL NUMBER			
	USB SERIAL NUMBER	[Description] Whether to enable USB serial number	[Range] USB serial number
WLAN AUTHENTICATION			
	ENCRYPTION	[Description] Wireless LAN: Encryption key setting	[Range] OFF / WEP40
	WPA MODE	[Description] Wireless LAN: WPA setting	[Range] OFF / WPA / WPA-PSK / WPA2 / WPA2-PSK
	AUTHENTIC.	[Description] Wireless LAN: Authentication method	[Range] OPEN / SHARED

*1) The reflection / transmission sensor manual threshold fine adjustment value includes five values: fine adjustment value 1, fine adjustment value 2, ... fine adjustment value 5.
Examples of display contents are described below.
In the example below, the reflection sensor manual threshold fine adjustment is 1.0V (fine adjustment value 1) ... 1.3V (fine adjustment value 5), and the reflection sensor manual threshold fine adjustment is 1.4V (fine adjustment value 1) ... 1.6V (fine adjustment value 5).



8.4.2 AUTO DIAGNOSTIC

The procedure for printing the self-diagnosis result is the same as that for the maintenance counter/parameter setting data described in 8.4.1 MAINTENANCE COUNTER.

The following table shows the menu structure from top menu of the system mode to AUTO DIAGNOSTIC.

The menu structure of AUTO DIAGNOSTIC

Menu item
<1>DIAGNOSTIC
AUTO DIAGNOSTIC
THERMAL TRANSFER
NO
YES
DIRECT THERMAL
NO
YES
DISPLAY

Note:

When an error occurs while printing, the error message is displayed, the ERROR LED turns on, and the ONLINE LED turns off. Though the error can be cleared by pressing the [PAUSE] key, the printer does not reprint the label automatically.

8.4.2.1 Automatic Self-Diagnosis Print Content

```
PROGRAM BV400D-T
   PRINTER S/N 2318D120024
   MAIN 15NOV2018  V1.0B:F100
   BOOT 20APR2018  V1.0 :8E00
   XML  22MAY2018  V1.0 :6700
   WLAN 05JUL2016  V1.0A:4300
FONT    ANKCG     :AE00
        KANJI     :9F00
        CHINESE   :4D00
FROM    128MB
SDRAM   128MB
SENSOR1 00000000,00000111
SENSOR2 [H]23°C  [A]22°C
        [R]4.2V  [T]2.5V
PE LV.  [R]1.8V  [T]2.5V
M THRE. [R]1.8V  [T]2.5V
THRESHOLD(R)                    1.0V
                0.9V 1.1V 1.2V 1.3V
THRESHOLD(T)                    1.4V
                1.2V 1.3V 1.5V 1.6V
HEAD    [RANK]1         300DPI
LAN MAC 11-22-33-44-55-66
SIO     NG(0111)
BLUETOOTH   OK sppi_v2.12
MFi         OK
iAP Serial  2318T120023
WLAN    OK Ver1.1.3
MAC     00-11-22-33-44-55
USB MEMORY NG
BASIC M NONE
BASIC S NONE
```

Note:
"°" (degree) of "xx°C" may not be printed correctly, depend on the type of code page.

Printing conditions

Printing method	Set by user
Sensor type	None
Speed	4 ips
Issued number	1
Issuing mode	Set by user

PROGRAM BV400D-T
|_____ Model name

PRINTER S/N 2318D120024
|_____ Printer Serial Number
Normally, the production number is registered on the production line.
LAN MAC is printed when nothing is registered.

MAIN 15NOV2018 V1.0B:F100
| | | |_____ Checksum
| | |_____ Version
| |_____ Creation date (day, month, year)
|_____ Main Program

BOOT 20APR2018 V1.0 :8E00
| | | |_____ Checksum
| | |_____ Version
| |_____ Creation date (day, month, year)
|_____ Boot Program

XML 22MAY2018 V1.0 :6700
| | | |_____ Checksum
| | |_____ Version
| |_____ Creation date (day, month, year)
|_____ XML Program

WLAN 05JUL2016 V1.0A :4300
| | | |_____ Checksum
| | |_____ Version
| |_____ Creation data (day, month, year)
|_____ WLAN Program

FONT ANKCG :AE00
| |_____ Checksum
|_____ 1 byte code font

KANJI :9F00
| |_____ Checksum
|_____ Gothic/Mincho Bitmap KANJI

CHINESE :4D00
| |_____ Checksum
|_____ Chinese Bitmap KANJI

FROM 128MB
|_____ FROM Capacity

SDRAM 128MB
|_____ SDRAM Capacity

SENSOR1 0 0 0 0 0 0 0 0 , 0 0 0 0 0 1 0 1

- Thermal head open sensor
  - 1: Head closed
  - (* Do not print when head is open)
- Blank (0 fixed)
- Cutter home position sensor
  - 0: Outside home position
  - 1: Home position
- Blank (0 fixed)
- Blank (0 fixed)
- Blank (0 fixed)
- Blank (0 fixed)
- Peel sensor
  - 0: No label
  - 1: With label
- Blank (0 fixed)

SENSOR2 [H]23℃ [A]22℃

- Ambient air temperature sensor status (0 to 86℃, if not detectable –℃)
- Thermal head temperature sensor status (0 to 86℃)

[R]4.2V [T]2.5V

- Transmission sensor status (0.0 to 5.0V)
- Reflective sensor status (0.0 to 5.0V)

PE LV. [R]1.8V [T]2.5V

- Transmission sensor No paper level (0.0 to 5.0V)
- Reflection sensor, no paper level (0.0 to 5.0V)

M.THRE. [R] 1.8V
1.9V 2.0V 2.1V 2.2V

- Reflective sensor manual threshold level 1 to 5 (0.0 to 5.0V)

[T] 2.5V
2.4V 2.3V 2.2V.2.1V

- Transmission sensor manual threshold level 1 to 5 (0.0 to 5.0V)

HEAD [RANK]1 300DPI
| |_____ Installed head resolution (203DPI / 300DPI)
|
|_____ Thermal head resistance rank (0 / 1)

LAN MAC 11-22-33-44-55-66
|_____ Wired LAN: MAC address

SIO NG(0111) NG
| | | |___ DIN OK: Data normal
| | | NG: Data error or loopback jig not installed
| | |
| | |_____ Bit configuration (x3x2x1x0)
| | x0: 1 fixed
| | x1: 1 fixed
| | x2: 1 fixed
| | x3: Option board presence
| | 0: SIO board not connected
| | 1: SIO board connection
| |
| |_____ OK: Data normal
| NG: Data error or loopback jig not installed
|
|_____ External serial interface

BLUETOOTH OK sppi_v2.12
| | |_____ Bluetooth module firmware version
| | * If the version cannot be obtained from the Bluetooth module, it will be “--”.
| |
| |_____ OK: Normal
| NG: Abnormal
| — : Not installed
|
|_____ Bluetooth

MFi OK
| |____ OK: Normal
| NG: Abnormal
|
|_____ MFi chip (CP chip)

iAP Serial 2318T120023
| |_____ Module-registered iAP Serial
|
|_____ iAP Serial Number

WLAN OK Ver1.1.3
| | |_____ Program version on the wireless LAN board
| |
| |_____ OK: Wireless LAN installed
| NG: Wireless LAN not installed or wireless LAN disabled
|
|_____ Wireless LAN

MAC 00-11-22-33-44-55
|_____ Wireless LAN: MAC address

USB MEMORY NG
|_____ OK: Write / read check normal
NG: Write / read check error or USB memory not inserted

BASIC M NONE
| |_____ NONE: No program
| Version: With program
|
|_____ BASIC Main Program

BASIC S NONE
| |_____ NONE: No program
| Version: With program
|
|_____ BASIC System Program

8.4.3 HEAD CHECK

The print head check procedure is the same as that for the maintenance counter data described in 8.4.1 MAINTENANCE COUNTER.

The following table shows the menu structure from the top menu of the system mode to HEAD CHECK.

The menu structure of HEAD CHECK

Menu item
<1>DIAGNOSTIC
HEAD CHECK

Types of message during head check	
While checking	HEAD CHECK CHECKING
Normal end	HEAD CHECK NORMAL END
When broken dots are detected At this time, the ONLINE LED turns off and the ERROR LED turns on.	HEAD CHECK HEAD ERROR 16 /832 dots

8.4.4 BD Address

The following table shows the menu structure from the top menu of the system mode to BD Address.

The menu structure of BD ADDRESS

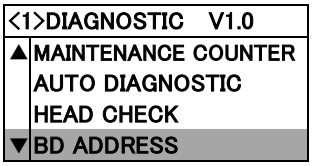
Menu item
<1>DIAGNOSTIC
BD ADDRESS

SYSTEM MODE V1.0 ▲ <0>RESET <1>DIAGNOSTIC <2>SET PARAMETERS ▼ <3>TEST PRINT	
↓ Press the [PAUSE] key	
<1>DIAGNOSTIC V1.0 ▲ MAINTENANCECOUNTER AUTO DIAGNOSTIC HEAD CHECK ▼ BD ADDRESS	
↓ Press the [FEED] key three times	
<1>DIAGNOSTIC V1.0 ▲ MANITENANCE COUNTER AUTO DIAGNOSTIC HEAD CHECK ▼ BD ADDRESS	
↓ Press the [PAUSE] key	Bluetooth function: OFF →
	Display the BD address with a QR code. * If the BD address fails to be displayed, the QR Code will not be displayed.
↓ Press the [PAUSE] key	
PRINT TYPE ▲ THERMAL TRANSFER DIRECT THERMAL ▼	Use the [FEED] key and the [RESTART] key to select the item.
↓ Press the [PAUSE] key	
PAPER CUTTING? ▲ NO YES ▼	Use the [FEED] key and the [RESTART] key to select the item.
↓ Press the [PAUSE] key	

BLUETOOTH:OFF

↓ [PAUSE] key

<1>DIAGNOSTIC V1.0
▲ MAINTENANCE COUNTER
AUTO DIAGNOSTIC
HEAD CHECK
▼ BD ADDRESS

	It will print Bluetooth address as QR code and CODE 128.
↓	
	

Notes:

If you select "BD ADDRESS" from "DIAGNOSTIC" after the following operation, "BLUETOOTH: OFF" will be displayed.

- Start the system mode with the Bluetooth setting OFF and change the Bluetooth setting to ON.
- Start the system mode with the Bluetooth setting ON and change the Bluetooth setting to OFF.

8.5 SET PARAMETERS

Contents of the SET PARAMETERS menu

Menu item
<2>SET PARAMETERS
MEDIA LOAD
FEED KEY
MOVE TO TEAROFF
FW/BK ACT.
PRE PEEL OFF
BACK FEED SPEED
AUTO HEAD CHECK
PAPER/RBN END
CALIBRATE
PW SAVE TIME
CODE PAGE
ZERO FONT
CTRL CODE
PEEL OFF STATUS
KANJI CODE
EURO CODE
MAXICODE SPEC
CUT MODE
MULTI LABEL
FEED LENGTH
TOTAL LENGTH
FEED ADJ.
CUT ADJ.
BACK ADJ.
X ADJUST
X ADJ. METHOD
HEAT ENERGY TYPE
TONE ADJ.<T>
TONE ADJ.<D>

8.5.1 MEDIA LOAD

OFF — Media loading function is disabled. (Same as a feed by press the [FEED] key)

STD — When the [FEED] key is pressed after the printer is turned on, reset by a batch reset command, or the print head is closed, the printer feeds the media to detect the next gap/black mark. When the gap/black mark is detected, the printer feeds the media for the distance from the sensor to the print start position.

ECO — When the [FEED] key is pressed after the printer is reset by a batch reset command or the print head is closed, the printer feeds the media to detect the next gap/black mark. When the gap/black mark is detected, the printer feeds the media, which is positioned nearest from the print head, to the print start position. At this time, the feed length is calculated based on the stored media pitch.

ECO+Backfeed — After performing above-mentioned ECO, the printer feeds the media backward for the label pitch length while raising the print head if the following conditions are satisfied.

Notes: 1. This function is enabled only when the sensor type is set to other than “None”.

2. Conditions for enabling ECO + Backfeed

Operation	Media pitch falls between 20mm and 100mm. The previous issue mode was Batch. (The issue mode is not reset by a power off or a printer reset.)

3. In the case the printer cannot detect a gap/black mark while feeding the media, an error occurs on the following condition. Regarding an error during a feed, refer to the External Equipment Interface Specification.

OFF	When the relation between the stored media pitch (A) and the media pitch detected by the sensor (B) does not satisfy the following formula, it will be an error: $(A) \times 50\% \leq (B) \leq (A) \times 150\%$
STD ECO ECO + Backfeed	When a gap/black mark is not detected while feeding 1500-mm media, it will be an error.

8.5.2 FEED KEY

FEED — Feed one label.

PRINT — Print data in the image buffer on one label.

8.5.3 MOVE TO TEAROFF

OFF Disables the auto feed to the cut/strip position after printing.
ON Enables the auto feed to the cut/strip position after printing.

Note:
1. For the BV420D-GL02(Linerless model), only "ON(Enable)" is available.

8.5.3.1 MOVE TO TEAROFF POS.

When the "MOVE TO TEAROFF" parameter is set to ON, the feed amount can be fine adjusted.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+5.0	-5.0	0.1	Decimal	Exist	1	1	None	mm

Note: Feed amount setting
+ (Plus) Increases the forward feed amount.
- (Minus) Decreases the forward feed amount.

Notes:
1. If the pitch of the media used for the previous issue was less than 20mm, the auto feed to the cut/strip position after printing will not be activated regardless of the parameter setting.
   * In the case labels with the different pitch (less than 20mm and 20mm or longer) are alternately placed in one label roll, the forward feed is not activated for the labels with the pitch of less than 20mm. Therefore it stays at the print stop position without being fed backward. Before the next label with the pitch of 20mm or larger is printed, however, it is automatically fed backward along with the previously printed label. This may cause the print data to be printed on the previous label.
2. The media will stay at the forwarded position even if the power is turned off/on, the printer is reset, or the print head is opened/closed.

8.5.4 FW/BK ACT.

MODE1: Normal: The printer waits for a next issue after media is forwarded 12.8 mm.
MODE2: Reserve: If selected, it will be the same as MODE1.

8.5.5 PRE PEEL OFF

OFF Disables pre peel off.
ON Enables pre peel off.

Note:
1. The pre peel off speed is the 2ips.

8.5.6 BACK FEED SPEED

STD 3 ips
LOW 2 ips

8.5.7 AUTO HEAD CHECK

OFF Disables the auto print head check.
ON Enables the auto print head check.

8.5.8 PAPER/RBN END

Stop immediately : When a paper end status is detected, the printer stops immediately.
Complete current : When a paper end status is detected, the printer prints the current label as far as possible, then stops.

Notes:

1. Stop immediately:
   When a paper end is detected in the middle of printing, printing is immediately stopped. When the printing is restarted, first the initial feed is performed, then the printer starts printing from the unfinished label.

2. Complete current:
   The “Complete current” is valid only when the ribbon save function is set to OFF. Even when the ribbon save function is enabled, the behavior of the “Stop immediately” will be automatically performed regardless of the setting. The printer behavior of the “Complete current” at the detection of a paper end is as follows.

   ■ Paper end detection

   • Printer behavior
   When a label end is detected in the middle of printing, the printer completes the half-finished printing and stops when the next label is at the home position, displaying the error message.
   * Printing of the half-finished label is completed.

   • LCD message
   “NO PAPER”

   • The remaining number of labels
   [Specified number of labels] – [The number of finished labels at the time of printing stop (including the half-finished label)]
   If a label end is detected while the last one of the specified number of labels is printed, the remaining number of labels on the LCD will be blank.

   • Printer behavior at restart
   When the printing is restarted, first the initial feed is performed, then the printer starts printing from the next label. In case the label end was detected while the last one of the specified number of labels was printed, only the initial feed is performed, and if the status response has been set to ON, an issue end status is sent after a feed end status.

   <Example>

   Specified number of labels = 5, A label end is detected while the 3rd label is printed.

   Printing: 1st label … Finished (*)

   Printing: 2nd label ... Finished (*)

   Printing: 3rd label … After an error is detected, printing of this label is completed. Finished (*)

   Stop with error … “NO PAPER” is displayed on the LCD.

   Initial feed … Restart

   Printing: 4th label … Finished (*)

   Printing: 5th label … Finished (*)

   (*) Completely printed labels: 1st to 5th labels

8.5.9 CALIBRATE

OFF:	Auto calibration is not performed.
ON TRANSMISSIVE:	Auto calibration is performed with transmissive sensor.
ON REFLECTIVE	Auto calibration is performed with reflective sensor.
ON ALL:	Auto calibration is performed with both sensors.
ON TRANS+BackFeed:	Auto calibration is performed with transmissive sensor, then the media is fed backward.
ON REFL+BackFeed:	Auto calibration is performed with reflective sensor, then the media is fed backward.
ON ALL+BackFeed:	Auto calibration is performed with both sensors, then the media is fed backward.

Notes:

1. When this parameter is enabled, an automatic calibration starts at an open/close of the print head and when power is on.

2. When this parameter is enabled, the media length, effective print length, sensor type and whether the ribbon is used or not, will be specified with commands, as handled as follows.

		Printer behavior after automatic calibration is performed
Whether the ribbon is used or not		The values obtained through the calibration will take effect until next calibration is performed or the printer power is turned off. (Settings specified by commands are ignored.)
Sensor type		The values obtained through the calibration will take effect after the calibration is completed. Afterward, the sensor specified by a command is ignored.
Media	Media pitch	After the automatic calibration is performed, the values obtained through the calibration will take effect until next calibration is performed or the printer power is turned off. (Settings specified by commands are ignored.)
	Effective print length	
	Gap length	

3. When the auto calibration with reflective sensor is selected, the lowest voltage detected by the reflective sensor is considered as a black mark level. And, the sum of this voltage and the threshold fine adjustment value will be stored as a threshold.

4. When the auto calibration with transmissive sensor is selected, the highest voltage detected by the transmissive sensor is considered as a gap level. After subtracting the threshold fine adjustment value from this voltage, the result will be stored as a threshold.

5. When “ON ALL” is selected, the highest voltage detected by transmissive sensor or the lowest voltage detected by the refrective sensor is considered as a gap level. After subtracting the threshold fine adjustment value for each sensor from this voltage, the result will be stored as a threshold.

6. The printer feeds about 160 mm long media to detect a black mark/gap and determine the threshold. When the printer has detected more than one black marks/gaps during this 160-mm media feed, the printer measures the media pitch and stops the automatic calibration 1 mm short of the bottom of a black mark or gap.

7. If the second black mark/gap is not found under the above conditions, the printer continues media feed for up to 500.0 mm to find the second black mark/gap. If it still cannot be detected, the printer will stop, as a paper jam.

8. This function supports the media pitch of 10.0 mm to 150.0 mm.

9. When the cutter is installed and a previous issue mode was cut mode, the media is cut and ejected after an automatic calibration completes.

10. While the automatic calibration is in operation, labels do not stop at the strip position even in strip or special strip mode.

11. When a paper end occurs during an automatic calibration, the printer stops, resulting in an error. Closing the print head after loading a new label can clear the error and resume the automatic calibration.

12. After automatic calibration is performed, when “BackFeed” is selected and if the following conditions are satisfied, the printer feeds the media backward for the media pitch length while lifting the print head.

Operating condition	Media pitch falls between 20mm and 100mm. The previous issue mode was Batch without cut. (The issue mode and the cut interval are not reset by a power off or a printer reset.)

13. The feed speed during the automatic calibration is 2 ips.

14. The print head must not be opened during automatic calibration as the subsequent printer operation is not guaranteed. If the print head is opened, turn off the power and back to on.

8.5.10 POWER SAVE TIME

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
240	1	1	Decimal	None	3	0	None	Min.

8.5.11 CODE PAGE

PC-850
PC-852
PC-857
PC-8
PC-851
PC-855
PC-1250
PC-1251
PC-1252
PC-1253
PC-1254
PC-1257
LATIN9
Arabic
PC-866
UTF-8

8.5.12 ZERO FONT

0 Without slash
Ø With slash

Note: The following fonts do not support zero with slash. Therefore, even if a zero with slash is selected, a zero without slash is used.

[Bit map fonts]
OCR-A, OCR-B, GOTHIC725 Black, Japanese Kanji, Chinese

[Outline fonts]
Price fonts 1, 2, and 3, DUTCH801 Bold, BRUSH738 Regular, GOTHIC725 Black, TrueTypeFont

8.5.13 CTRL CODE

AUTO
{,|,}
ESC,LF,NUL
MANUAL
IBM HOST / IBM HOST
IBM HOST：US / IBM HOST：US

Note:

When selected IBM HOST, Control code will be「(A2H), |(7CH), 」(A3H)
When selected IBM HOST US, Control code will be (83H), |(7CH), (84H)
When selected IBM HOST or IBM HOST US, Control code will ignore 00H to 1FH
When selected IBM HOST or IBM HOST US, AS/400 PAGES command will be ignored
* Among the PAGES commands, CTRL parameter X'01 'of the horizontal movement command (ESX 1C): Only the relative position movement (right movement) from the current position is supported. Replace with the specified amount of movement space. Discard the rest.

8.5.13.1 MANUAL

CODE1
CODE2
CODE3

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
0xFF	0x00	1	Hex	None	2	0	None	h

8.5.14 PEEL OFF STATUS

OFF Disabled
ON Enabled

8.5.15 KANJI CODE

TYPE1:Windows: Windows code
TYPE2:Original: Original code

8.5.16 EURO CODE

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
0xFF	0x20	1	Hex.	None	2	0	None	h

8.5.17 MAXICODE SPEC

TYPE1:Compatible: Compatible with the current version
TYPE2: Special Spec Special specification

Note: The mode specified by the command may be different from the actual mode, depending on the status of this parameter. Also, the data transmission method differs partly.
For details, refer to the External Equipment Interface Specification.

8.5.18 MULTI LABEL

- ・OFF: Disable Multi Label function
- ・ON: Enable Multi Label function

Note:
This function is not available when printer prints without sensor
This function is not available when printer prints with Calibration ON.
Number of Multi labels are 8 labels.
When the [FEED] key is pressed, one label is fed.

Example
Label pitch 30mm and Gap length 2mm, printer will regard 3labels as 1label.
{D0900,1000,0880|}
{C|}
{XS;I,0001,0002C4200|}

8.5.19 FEED LENGTH

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
3200	1	1	Decimal	None	4	0	None	km

If the label travel distance exceeds the warning distance, the ERROR LED is lit.
The label travel distance at that time can be confirmed by the “FEED” value of the self-diagnosis (count / parameter information).
When a label mileage warning occurs, it is notified regardless of other errors and mode states (online mode / system mode / user mode / power saving mode).

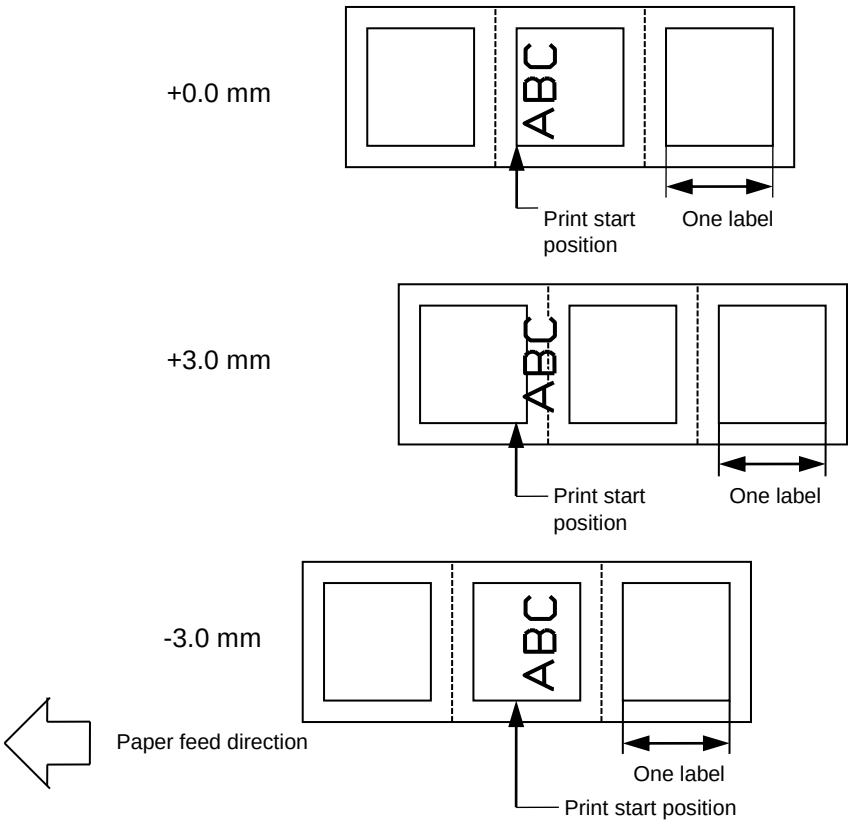
8.5.20 TOTAL LENGTH

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
3200	1	1	Decimal	None	4	0	None	km

When the total label travel distance exceeds the warning distance, the ON LINE LED always blinks (lights 30msec, turns off 30msec).
The total label mileage at that time can be confirmed by the “TOTAL FEED” value of the self-diagnosis (count / parameter information).
When a label mileage warning occurs, it is notified regardless of other errors and mode states (online mode / system mode / user mode / power saving mode).

8.5.21 FEED ADJ.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+50.0	-50.0	0.1	Decimal	Exist	2	1	None	mm

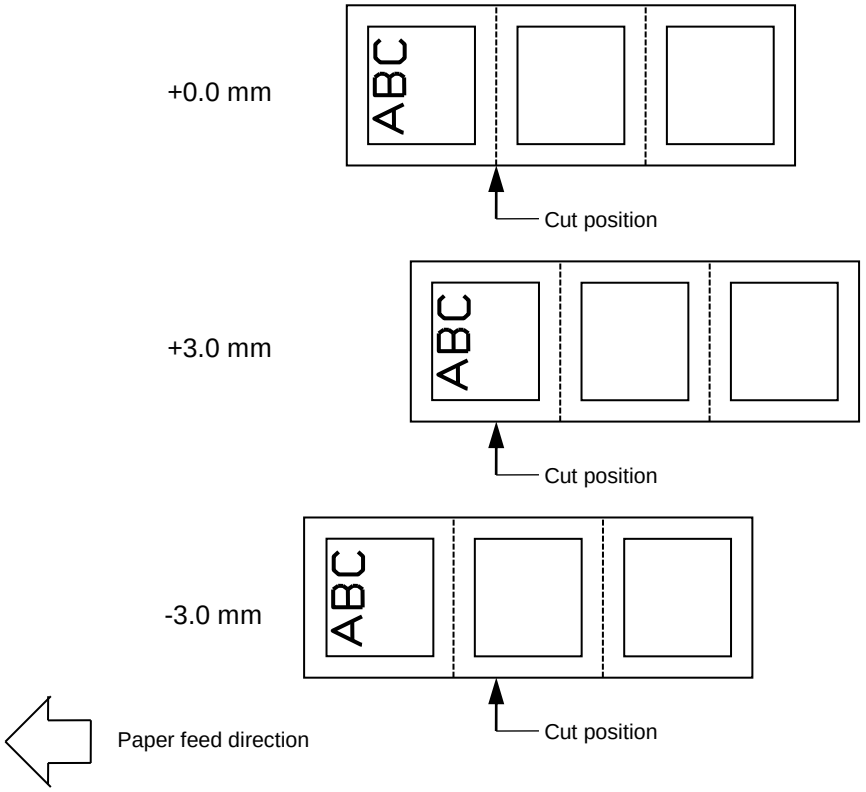


Note: The feed amount fine adjustment value is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is ±50.0mm.

Note: A value which is equal to or larger than the media pitch (FEED ADJ. ≥ Media pitch) must not be set. If the set fine adjustment value causes the printer to feed the media backward from the print stop position to the next print start position, the printer operation is not guaranteed.

8.5.22 CUT ADJ

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+50.0	-50.0	0.1	Decimal	Exist	2	1	None	mm



Notes:

1. The cut position fine adjustment value is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is ±50.0mm.
2. Solution for the problem with labels having label pitch of less than 22.0 mm when the disc cutter is used
   The minimum label pitch of the label which can be cut in normal use is 22.0 mm. When a label having a label pitch of less than 22.0 mm is used (although it is out of specifications), the edge of the label is caught by the edge of the thermal head during a reverse feed to the home position after cutting a label gap. Therefore, the label may not be fed back to the proper home position. By performing either method below, the problem will be solved.

   [Method 1] Lift the head.

   When the following conditions are all met, the cut operation is performed as follows.

   Head lifted → Forward feed to the cut position → Head lowered → Cut →
   Head lifted → Reverse feed to the home position → Head lowered

   Conditions: Issue Command, Feed Command, and Eject Command received.
   Label pitch of 22.0 mm, cut performed, transmissive sensor designated, cut position fine adjustment of ±10.0 mm or less, and issue mode “C”

   * If the bottom edge of the last label advances past the feed roller while the print head is lifted during label feed to cut, the sensor may not be able to detect an error even if the label cannot be fed any more.

[Method 2] Adjust the cut position fine adjustment value.

The cut position fine adjustment value can be calculated using the following method. If a calculated value does not work to feed the media backward to the proper home position, the cut position needs to be re-adjusted with another value.

Note: When this procedure is used, one or more printed labels are left between the print head and the cutter. Therefore, these labels need to be removed by an issue or a label feed.

(1) Cut position fine adjustment value calculation

$$\text{Cut position fine adjustment value} = (\text{Number of labels left between head and cutter}) \times (\text{Label pitch})$$

$$= \left(\frac{22.0\ \text{mm}}{\text{Label pitch}} \right) \times (\text{Label pitch})$$

* Any decimal remainders are rounded off.

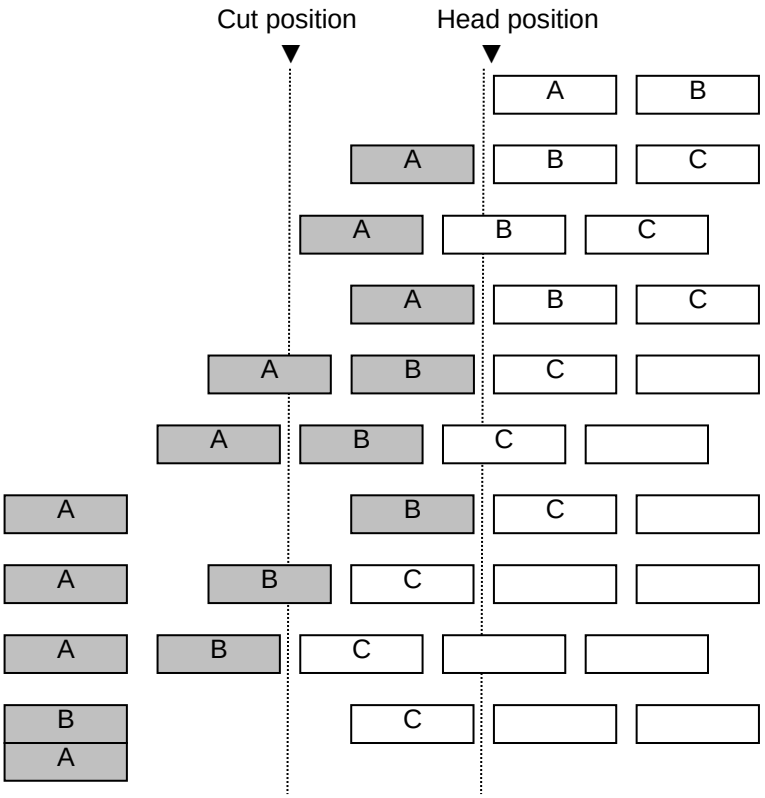
Ex) Label pitch: 20.0 mm

$$\text{Cut position fine adjustment value} = \left(\frac{22.0\ \text{mm}}{20.0\ \text{mm}} \right) \times (20.0\ \text{mm})$$

$$= 1 \times 20.0\ \text{mm}$$
$$= +20.0\ \text{mm}$$

(2) Operation example

Issue count: 2, Cut interval = 1



(1) Idle

(2) Completes printing the first label (A).

(3) Feeds the label to the cut position, then cuts the gap in front of label (A).

(4) Feeds the label backward to the home position.

(5) Completes printing the second label (B).

(6) Feeds the label to the cut position, then cuts the gap in front of label (B).

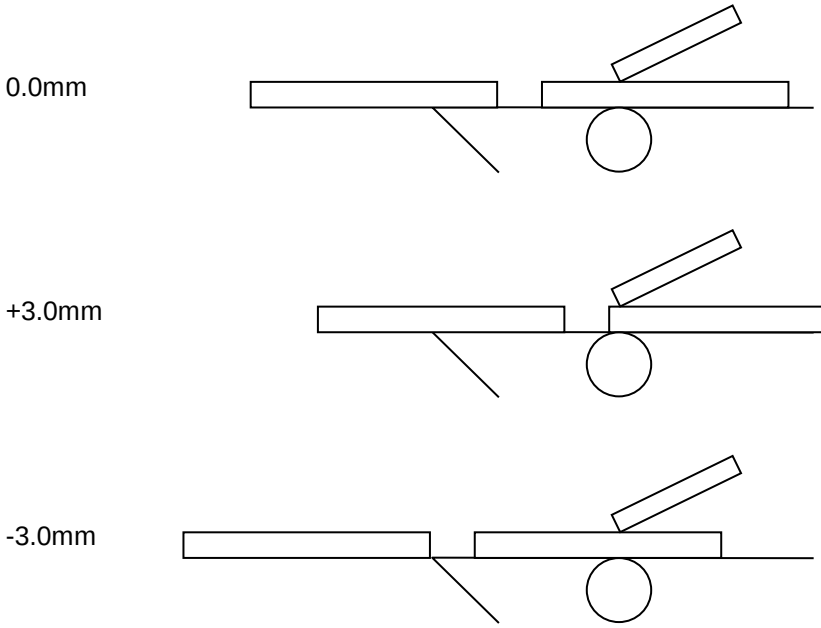
(7) Feeds the label backward to the home position.

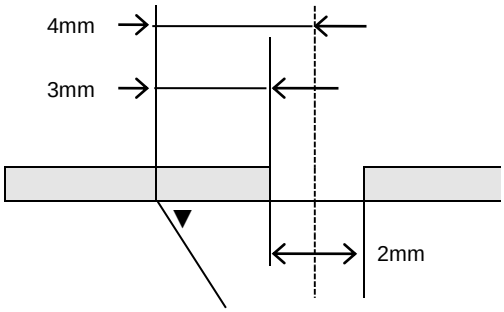
(8) To eject label (B), feeds the third label (C).

(9) Feeds the label to the cut position, then cuts the gap in front of label (C).

(10) Feeds the label backward to the home position.

3. Strip position fine adjustment

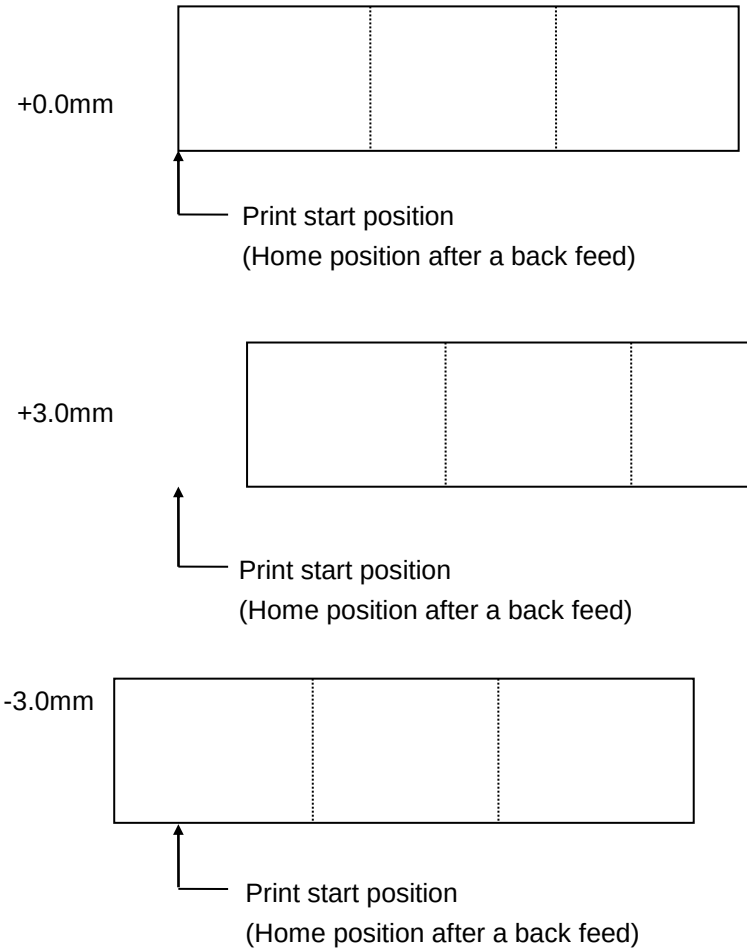




Printing in strip issue mode is stopped at the position where the distance from the middle point of the gap between labels to the end of the strip shaft is 4 mm, since the gap between labels is assumed to be 2 mm.
When the print stop position is not proper due to a greater gap, the print stop position should be adjusted using the strip position fine adjust function.

8.5.23 BACK ADJ.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+9.9	-9.9	0.1	Decimal	Exist	1	1	None	mm



Note:

1. The reverse feed amount fine adjustment value is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is ±9.9mm.

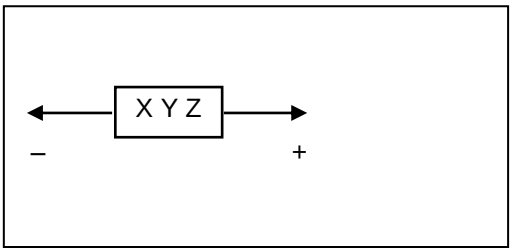
Note: There may be cases where a label is not returned to the home position depending on the print conditions, even if the media is fed backward for the same amount as the forward feed. For issuing media with the media sensor, if the label pitch is almost the same as the distance between the print head and the media sensor (69.8 mm), the media may not be returned to the home position when operations including a reverse feed (such as cut issues, strip issues, automatic forward feed) are performed. It may result in an error. To prevent this error from occurring, increase the reverse feed amount by performing the reverse feed amount fine adjustment in the + direction.

8.5.24 X ADJUST

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+99.9	-99.9	0.1	Decimal	Exist	2	1	None	mm

Notes:

1. The X ADJUST parameter can fine adjust the print position in X-coordinate (horizontal direction). The fine adjustment shall be performed so that the print position falls within the effective print width. (The X coordinate fine adjustment in the negative (-) direction is effective until the print field reaches coordinate 0. The coordinate does not change any further even if the fine adjustment is continued in the negative direction.)



2. The X-coordinate fine adjustment value is not applied to self-diagnosis results printing (maintenance counter and parameter settings, and auto diagnosis).

8.5.25 X ADJ. METHOD

TYPE1 : Minus X adjustment will be ignore when X adjustment reached to “0” coordinate.

TYPE2 : Minus X adjustment will be available even though X adjustment reached to more than 0 coordinate

Remarks: In the case of TYPE1, the field that reaches the coordinate 0 after fine adjustment in the negative direction remains 0 even if the fine adjustment is made further in the negative direction.

In the case of TYPE2, fine adjustment in the minus direction is possible even more than coordinate 0. However, printing is halfway.

8.5.26 HEAT ENERGY TYPE

TRANS.(RIBBON)
DIRECT THERMAL

Remarks: The HEAT ENERGY TYPE parameter is intended to make the printer perform appropriate printing for the supplies used (media such as label and tag, and ribbon). Use of a different supply from the setting may cause poor printing.

8.5.26.1 TRANS. (RIBBON)

NORM: Normal
Rev1: Reserve1
Rev2: Reserve2
Rev3: Reserve3
Rev4: Reserve4
Rev5: Reserve5
Rev6: Reserve6
Rev7: Reserve7
Rev8: Reserve8

8.5.26.2 DIRECT

NORM: Normal
Rev1: Reserve1
Rev2: Reserve2
Rev3: Reserve3
Rev4: Reserve4
Rev5: Reserve5
Rev6: Reserve6
Rev7: Reserve7
Rev8: Reserve8

8.5.27 TONE ADJ. <T>

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+10	-10	1	Decimal	Exist	2	0	None	Step

Remarks:
1. Setting a value in the positive (+) direction, the print tone becomes darker. And, setting a value in the negative (-) direction, the print tone becomes lighter.
   +10 ← (Darker) ← 0 → (Lighter) → -10
2. The print tone fine adjustment value (thermal transfer) is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is -10 ~ +10. If the value exceeds the print head rating, it is automatically corrected.
3. The factory default is +0step.

8.5.28 TONE ADJ. <D>

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+10	-10	1	Decimal	Exist	2	0	None	Step

Remarks:
1. Setting a value in the positive (+) direction, the print tone becomes darker. And, setting a value in the negative (-) direction, the print tone becomes lighter.
   +10 ← (Darker) ← 0 → (Lighter) → -10
2. The print tone fine adjustment value (thermal transfer) is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is -10 ~ +10. If the value exceeds the print head rating, it is automatically corrected.
3. The factory default is +0.

8.6 TEST PRINT

Contents of TEST PRINT menu

Menu item
<3>TEST PRINT
PRINT CONDITION
SLANT LINE(1DOT)
SLANT LINE(3DOT)
CHARACTERS
BARCODE
NON-PRINTING
FACTORY TEST
AUTO PRINT(TRANS.)
AUTO PRINT(REFL.)

8.6.1 PRINT CONDITION

The menu structure of PRINT CONDITION

Menu item
<3>TEST PRINT
PRINT CONDITION
ISSUE COUNT
PRINT SPEED
SENSOR
PRINT TYPE
ISSUE TYPE
LABEL PITCH
PAPER FEED

Notes:

1. Initial value for each parameter at a power on

   ISSUE COUNT: 1
   PRINT SPEED: 4 ips
   SENSOR: TRANSMISSIVE
   PRINT TYPE: DIRECT THERMAL
   ISSUE TYPE: NO CUT
   LABEL PITCH: 76mm
   PAPER FEED: FEED

2. Each fine adjustment value is effective for test print. However, the X-coordinate fine adjustment is excluded.
3. When an error occurs during a test print, an error message is displayed and printing is stopped. At this time, the error LED turns on and the online LED turns off.
4. The error is cleared by pressing the [PAUSE] key, and the display returns to the test print menu. At this time, the error LED turns off and the online LED turns on. Printing is not automatically resumed after the error is cleared.
5. The label size greater than the image buffer length cannot be designated. If it is designated, the printer prints data equivalent to the image buffer length then stops, or the printer stops because of an error.
6. When the transmissive sensor is selected, the gap between labels shall be 3 mm.

8.6.1.1 ISSUE COUNT

1
3
5
10
50
100
500
1000
5000

8.6.1.2 PRINT SPEED

Selectable printer speed differs depending on the resolution.

Resolution / Print speed	203dpi	300dpi
2 ips	Supported	Supported
3 ips	Supported	Supported
4 ips	Supported	Supported
5 ips	Supported	Supported
6 ips	Supported	Not supported
7 ips	Supported	Not supported

8.6.1.3 SENSOR

NONE
TRANSMISSIVE
REFLECTIVE
MANUAL1 TRANS.
MANUAL2 TRANS.
MANUAL3 TRANS.
MANUAL4 TRANS.
MANUAL5 TRANS.
MANUAL1 REFL.
MANUAL2 REFL.
MANUAL3 REFL.
MANUAL4 REFL.
MANUAL5 REFL.

8.6.1.4 PRINT TYPE

DIRECT THERMAL

8.6.1.5 ISSUE TYPE

NO CUT
WITH CUT
PARTIAL
PEEL OFF
LINERLESS (only for BV420D-GL02)

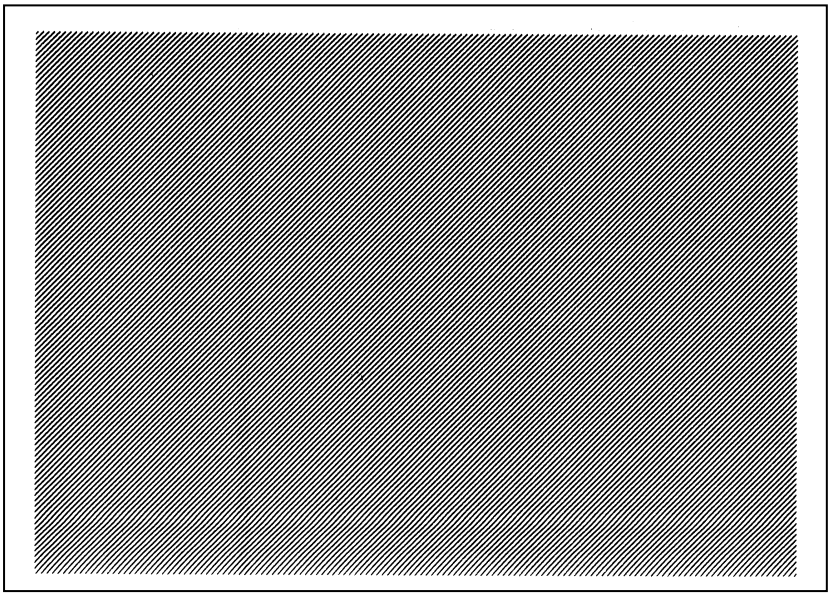
8.6.1.6 LABEL PITCH

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
999	5	1	Decimal	None	3	0	None	mm

8.6.1.7 PAPER FEED

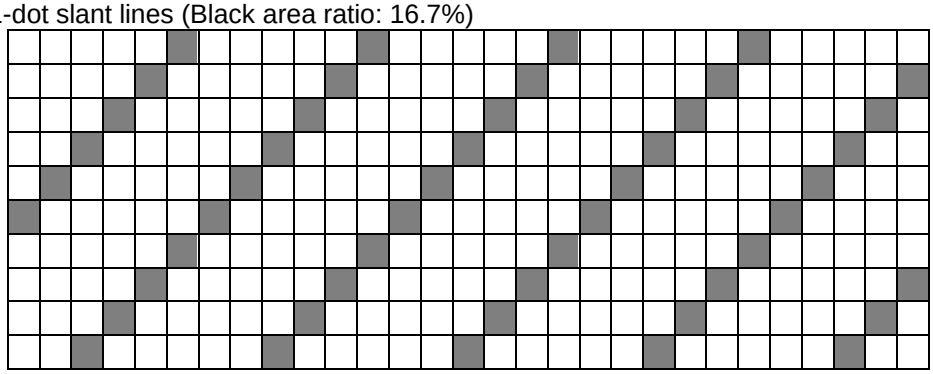
NO FEED
FEED

8.6.2 SLANT LINE (1DOT)

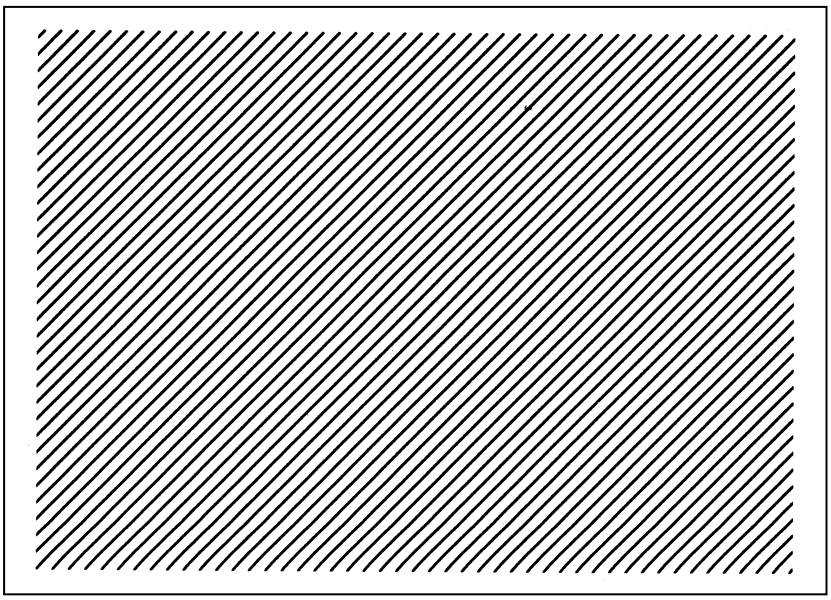


1-dot slant lines

Magnification of slant lines
1-dot slant lines (Black area ratio: 16.7%)

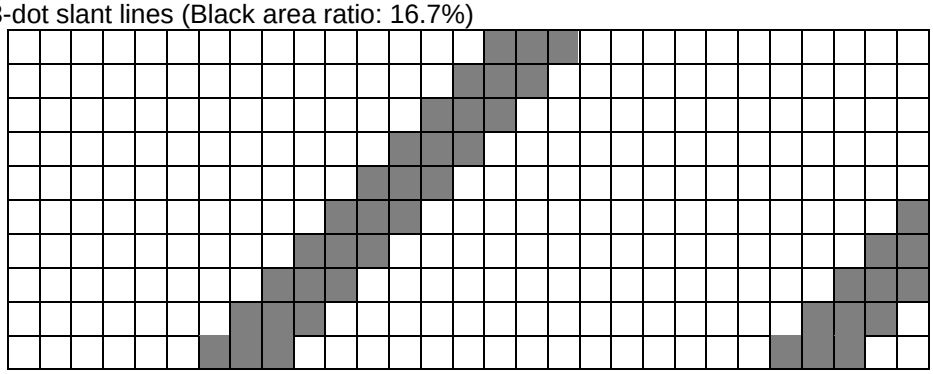


8.6.3 SLANT LINE (3DOT)



3-dot slant lines

Magnification of slant lines
3-dot slant lines (Black area ratio: 16.7%)



8.6.4 CHARACTERS

Gothic + Mincho

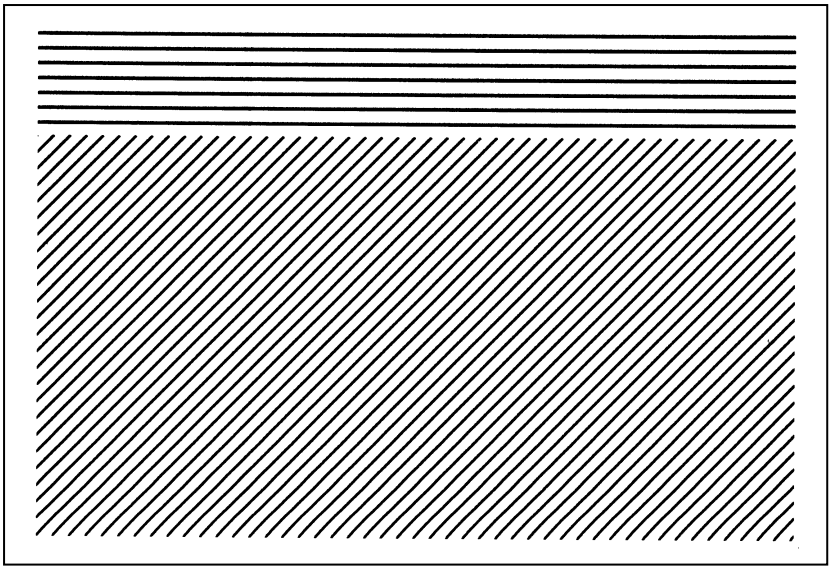
Gothic + Chinese

8.6.5 BARCODE

8.6.6 NON-PRINTING

The printer feeds blank label.

8.6.7 FACTORY TEST



8.6.8 AUTO PRINT (TRANS.)

The factory test print is performed on the following conditions, therefore, the parameter settings and the print density fine adjustment value are ignored.

Key functions after printing of each test pattern are as follows.

[PAUSE] key (or its substitute key): Next printing is performed.

<Factory test print patterns and print conditions>

Print test pattern	1 blank label
	3-dot slant lines
	Barcode
	Characters
Issue count	5 labels each
Print speed	4 ips
Sensor type	Transmissive sensor
Print method	Direct thermal
Issue mode	Batch issue
Label pitch	76 mm
Print density fine adjustment value	±0

8.6.9 AUTO PRINT (REFL.)

The factory test print is performed on the following conditions. therefore, the parameter settings and the print density fine adjustment value are ignored.

Key functions after printing of each test pattern are as follows.

[PAUSE] key (or its substitute key): Next printing is performed.

<Factory test print patterns and print conditions>

Print test pattern	1 blank label
	3-dot slant lines
	Barcode
	Characters
Issue count	5 labels each
Print speed	4 ips
Sensor type	Reflective sensor
Print method	Direct thermal
Issue mode	Batch issue
Label pitch	76 mm
Print density fine adjustment value	±0

8.7 SENSOR

Contents of SENSOR menu

Menu item
<4>SENSOR
TEMPERATURE
ADJUSTMENT
THRESHOLD LEVEL

8.7.1 TEMPERATURE

The ambient temperature and print head temperature are displayed.

Only when the temperature is below zero, the symbol of minus (-) is displayed.

The display is updated every 200 msec.

The range of each temperature is shown below.

Ambient temperature	-20 to 100
Print head temperature	-20 to 100

8.7.2 ADJUSTMENT

The menu structure of ADJUSTMENT menu

Menu item
<4>SENSOR
ADJUSTMENT
REFLECTIVE SENSOR
TRANSMISSIVE SENSOR
PEPER END LEVEL

8.7.2.1 REFLECTIVE SENSOR

The sensor level of the reflective sensor is registered.

Place the tag paper to be used on the reflective sensor so that the sensor can detect a print (blank) area.

The display of the currently detected value is updated every 200 msec.

Hold down the [FEED] key for 3 seconds or more.

When the registration of the “print area level” is completed, “Adjust Complete” is displayed and an asterisk (*) is shown on the right side of the voltage.

If the registration failed due to sensor failure, “SENSOR ERROR” is displayed and the ERROR LED turns on.

The ERROR LED turns off when the upper-level menu is displayed.

The setting range is as below.

Reflective sensor	0.0V to 5.0 V

8.7.2.2 TRANSMISSIVE SENSOR

The sensor level of the transmissive sensor is registered.
Remove some labels and place the backing paper so that the Transmissive sensor can detect it.
The display of the currently detected value is updated every 200 msec.
Hold down the [FEED] key for 3 seconds or more.
When the registration of the “label gap level” is completed, “Adjust Complete” is displayed and an asterisk (*) is shown on the right side of the voltage.
If the registration failed due to sensor failure, “SENSOR ERROR” is displayed and the ERROR LED turns on.
The ERROR LED turns off when the upper-level menu is displayed.
The setting range is as below.

Transmissive sensor	0.0V to 5.0 V

8.7.2.3 PAPER END LEVEL

Paper end level of the transmissive sensor and the reflective sensor is registered.
Remove any media from the printer.
The display of the currently detected value is updated every 200 msec.
Hold down the [FEED] key for 3 seconds or more.
When the registration of the “paper end level” is completed, “Adjustment Complete” is displayed and an asterisk (*) is shown on the right side of the voltage.
If the registration failed due to sensor failure, “SENSOR ERROR” is displayed and the ERROR LED turns on.
The ERROR LED turns off when the upper-level menu is displayed.
The setting range is as below.

Reflective sensor	0.0V to 5.0 V
Transmissive sensor	0.0V to 5.0 V

8.7.3 THRESHOLD LEVEL

The menu structure of THRESHOLD LEVEL menu

Menu item
<4> SENSOR
THRESHOLD LEVEL
REFLECT
THRESHOLD1
THRESHOLD2
THRESHOLD3
THRESHOLD4
THRESHOLD5
TRANS.
THRESHOLD1
THRESHOLD2
THRESHOLD3
THRESHOLD4
THRESHOLD5

8.7.3.1 REFLECT

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
4.0	0.0	0.1	Decimal	None	1	1	None	V

Note: If “0.0 V” is set, the value “0.0 V” is automatically corrected to the initial value “1.0 V”.

THRESHOLD1

THRESHOLD2

THRESHOLD3

THRESHOLD4

THRESHOLD5

8.7.3.2 TRANS.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
4.0	0.0	0.1	Decimal	None	1	1	None	V

Note: If “0.0 V” is set, the value “0.0 V” is automatically corrected to the initial value “1.4 V”.

THRESHOLD1

THRESHOLD2

THRESHOLD3

THRESHOLD4

THRESHOLD5

8.8 RAM CLEAR

Contents of RAM CLEAR menu

Menu item
<8>RAM CLEAR
NO RAM CLEAR
MAINTE.CNT CLEAR
PARAMETER CLEAR

8.8.1 NO RAM CLEAR

This option is provided for users who access this menu by mistake, and intended to exit from the RAM clear menu without performing any RAM clear.

8.8.2 MAINTE.CNT CLEAR

The following maintenance counter data is cleared.

ALL COUNTER
FEED
PRINT
CUT
OTHER

Notes: 1. Maintenance counter data to be cleared and the initial values after maintenance counter clear

Maintenance counter item	Initial value	Parameter and cleared items				
		ALL COUNTER	FEED	PRINT	CUT	OTHER
1. Label distance covered	0 km	Cleared	Cleared			
2. Print distance	0 km	Cleared		Cleared		
3. Cut count	0	Cleared			Cleared	
4. RS-232C hardware error count	0	Cleared				Cleared
5. System error count	0	Cleared				Cleared
6. Momentary power interruption count	0	Cleared				Cleared

<Reference: Maintenance counter printout>

```
<< COUNTER >>
TOTAL FEED   4.8km                                  [QM]
FEED         0.0km… ①Label distance covered
FEED1        4.8km
FEED2        0.0km
FEED3        0.0km
FEED4        0.0km
PRINT        0.0km… ②Print distance
PRINT1       4.5km
PRINT2       0.0km
PRINT3       0.0km
PRINT4       0.0km
CUT          0 …… ③Cut count
232C ERR     0 …… ⑦RS-232C hardware error count
SYSTEM ERR   0 …… ⑧System error count
POWER FAIL   0 …… ⑨Momentary power interruption count
```

2. LCD message while a maintenance counter clear is performed

	Display
While clearing	ALL COUNTER CLEAR...
After the maintenance counter clear is completed	ALL COUNTER COMPLETED Turn off the printer

3. After the maintenance counter clear is completed, turn off the printer when “COMPLETED. Turn off the printer” is displayed.

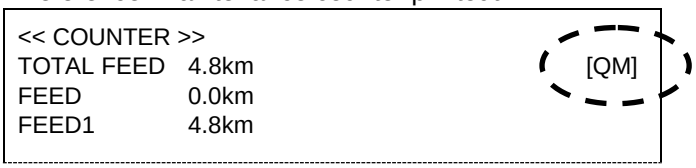
8.8.3 PARAMETER CLEAR

The parameter settings are cleared and reset to the initial values for each destination.
When the printer is started for the first time after a parameter clear, the initial setting wizard is started. This wizard enables setting the basic parameters (LCD language, use of the ribbon, media type, etc.) required for various settings.

8.8.3.1 Parameters to be cleared

After the parameter settings are cleared, the initial values for a selected destination are set.
QM TYPE
JA TYPE
CN TYPE
QQ TYPE

Notes:
1. The destination code printed on the upper right corner of the maintenance counter printout shows which destination was selected for the parameter clear.
<Reference: Maintenance counter printout>



2. LCD message while a maintenance counter clear is performed

	Display
While clearing	QM TYPE CLEAR...
After the parameter clear is completed	QM TYPE COMPLETED Turn off the printer

3. Parameter settings to be cleared and the initial values set after parameter clear

■ Settings printed on the maintenance counter/parameter setting data printout

<<ADJUST>>

Item		Description	Initial value
[PC] / [KEY]			
	FEED	Feed amount fine adjustment value	[PC] +0.0mm [KEY] +0.0mm
	CUT	Cut position/Strip position fine adjustment value	[PC] +0.0mm [KEY] +0.0mm
	BACK	Reverse feed amount fine adjustment value	[PC] +0.0mm [KEY] +0.0mm
	TONE(T)	Print tone fine adjustment value (Thermal transfer)	[PC] +0step [KEY] +0step
	TONE(D)	Print tone fine adjustment value (Direct thermal)	[PC] +0step [KEY] +0step
X ADJ.		X-coordinate fine adjustment value	+0.0mm
		X-direction coordinate fine adjustment method setting	TYPE1
THRESHOLD(R) 1 to 5		Manual threshold fine adjustment for reflective sensor	1.0V
THRESHOLD(T) 1 to 5		Manual threshold fine adjustment for transmissive sensor	1.4V

<< PARAMETER SETTINGS>>

Item	Description		Initial value
MEDIA LOAD	Media feed to the print start position		OFF
MOVE TO TEAROFF	Auto feed to the cut/strip position after printing		ON
	Media stop position fine adjustment value		+0.0mm
	Feed mode		MODE1
PRE PEEL OFF	Pre-peeling position adjustment value		OFF
BACK FEED SPEED	Reverse feed speed		STD
CALIBRATION (Note : *1)	Auto calibration		OFF
CODE PAGE	Character code selection		PC-850
	Character “0” selection		0 (without slash)
CTRL CODE	Control code type		AUTO
PEEL OFF STATUS	Whether to send a peel-off wait status to the host		OFF
USB I/F STATUS	Whether to return a response to the host via USB		OFF
FEED KEY	[FEED] key function		FEED
KANJI CODE	Kanji code type		TYPE1: Windows
EURO CODE	EURO code setting		B0 (0xb0)
AUTO HEAD CHK	Auto print head check		OFF
WEB PRINTER	Web printer function	QM TYPE CN TYPE QQ TYPE	ON
		JA TYPE	OFF
PAPER/RBN END	Printer behavior at label/ribbon end		Stop immediately
MAXICODE SPEC.	MaxiCode specification		TYPE1: Compatible
XML	XML data type to be printed		STD

ENERGY TYPE (T)	Energy level applied to the print head in thermal transfer mode	NORM: Normal
ENERGY TYPE (D)	Energy level applied to the print head in thermal direct mode	NORM: Normal
POWER SAVE TIME	Length of time until the printer enters sleep mode	15min
BASIC	BASIC interpreter setting	OFF
BASIC TRACE	BASIC interpreter trace setting	OFF
CUT MODE	Cut Mode setting	TYPE1
MULTI LABEL	Multi Label setting	OFF
FEED LENGTH	Label length warning setting	3200km
TOTAL LENGTH	Total label length warning setting	3200km
ISSUE CTRL	Issuance control setting	
SENSOR	Sensor	COMMAND
MODE	Mode	COMMAND
SPEED	Print speed	COMMAND
RIBBON	Ribbon	COMMAND
ROTATION	Print direction	COMMAND
STATUS	Automatic status response	COMMAND

Note: *1. Though the setting value is reset to the initial value by clearing a parameter, the first online operation after clearing a parameter is based on the value set with the initial setting wizard.

<< PANEL >> (only for models with LCD)

Item	Description		Initial value
LANGUAGE	LCD message language	QM TYPE QQ TYPE	ENGLISH
		JA TYPE	JAPANESE
		CN TYPE	Simplified CHINESE
MODEL NAME	Whether to display the model name		ON
PRINTED COUNTER	Whether to display the number of labels printed		ON
IP ADDRESS	Whether to display the IP address		ON
CONTRAST	Contrast of the LCD		40
SYSTEM PASSWORD	System mode password		Not cleared. * The password is not cleared, either. * Default is OFF

<< STORAGE AREA >>

Item	Description	Initial value
TTF AREA	TrueTypeFont storage area size	Not cleared. Default is 0KB
EXT CHR AREA	External characters storage area size	Not cleared. Default is 1792KB
BASIC AREA	BASIC file storage area size	Not cleared. Default is 0KB
PC SAVE AREA	PC command storage area size	Not cleared. Default is 1280KB

OTF SAVE AREA	Open TypeFont storage area size	Not cleared Default is 3552KB

<< USB >>

Item	Description	Initial value
SERIAL NUMBER	USB serial number	DISABLE

<< RS-232C >>

Item	Description		Initial value
BAUD RATE	Baud rate		9600bps
DATA LENGTH	Data length		8bits
STOP BIT	Stop bit length		1bit
PARITY	Parity	QM TYPE CN TYPE QQ TYPE	NONE
		JA TYPE	EVEN
CONTROL	Transmission control method		XON+READY AUTO

<< LAN/WLAN >>

Item	Description		Initial value
LAN/WLAN	Selection of LAN type		AUTO
SNMP	SNMP	QM TYPE JA TYPE CN TYPE	ON
		QQ TYPE	OFF
IP ADDRESS	Printer IP address		Not cleared. * Default is “192.168.10.20”.
SUBNET MASK	Subnet mask		Not cleared. * Default is “255.255.255.0”.
GATEWAY ADDRESS	Gateway IP address		Not cleared. * Default is “0.0.0.0”.
SOCKET PORT	Whether to enable socket communication		Not cleared. * Default is ON.
	Socket port number		Not cleared. * Default is “9100”.
DHCP	DHCP		ON
DHCP CLIENT ID	DHCP ID		Not cleared. * Default is ”not setting”.
DHCP HOST NAME	DHCP host name		Not cleared. * Default is ”not setting”.
BAND SELECT	WLAN Frequency Setting		DUAL BAND
CONNECTION MODE	WLAN: Communication mode		INFRASTRUCTURE
ESS ID	WLAN: ESS ID		TOSHIBATEC
ENCRYPTION	WLAN: Encryption		OFF
WPA MODE	WLAN: WPA		OFF
AUTHENTICATION	WLAN: Authentication method		OPEN

802.1X SUPPLICANT	WLAN: Authentication method	OFF
DEFAULT KEY	WLAN: Encryption key	1
AP MODE CHANNEL	WLAN：AP Mode channel	1(AP mode)
LPR	Whether to enable LPR	ON

<< Bluetooth >>

Item	Description	Initial value
BLUETOOTH	Bluetooth Setting	ON
FACTORY TEST	Settings to distinguish device nicknames	OFF
DEVICE NICKNAME	Bluetooth Device Nickname	TOSHIBA TEC BT
BD ADDRESS	Bluetooth Device address	Not cleared. * Module specific
INQUIRY	Inquiry setting	EVERY
SCAN INTERVAL	Scan Interval setting	2048
SCAN WINDOW	Scan Window setting	36
SECURITY	Security Level setting	SSP
AUTO CONNECT	Auto Re-connection setting	OFF
SSP AUTH	SSP Authentication	Not cleared. *Default is as follows; Models with LCD : JUST WORKS Models without LCD : NUMERIC COMP
NUMERIC CONP	Numeric comparison setting	Not cleared. *Default is “DISP Y/N” (Models with LCD)

■ Settings not printed on the maintenance counter/parameter setting data printout

・ User system mode:

<5>SHOW ISSUE COND.

Item	Initial value
Sensor (Note)	TRANSMISSIVE
Mode	BATCH
Print Speed	4 ips
Ribbon (Note)	No
Direction	BOTTOM
Media pitch (Note)	76.0mm
Print length	203 dpi: 74.1mm 300 dpi: 74.2mm
Print width	203 dpi: 108.0mm 300 dpi: 105.7mm
Media width	Not cleared

Note: Though the setting value is reset to the initial value by a parameter clear, the first online operation after a parameter clear is performed based on the value set with the initial setting wizard.

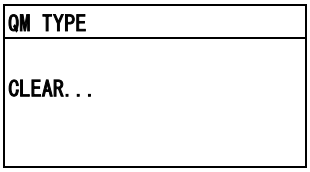
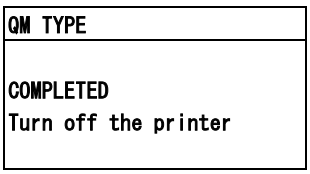
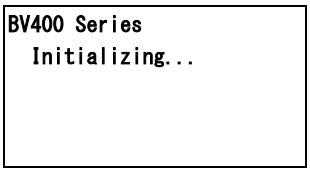
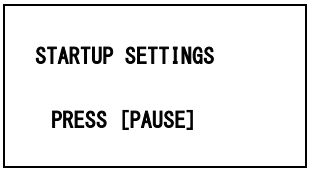
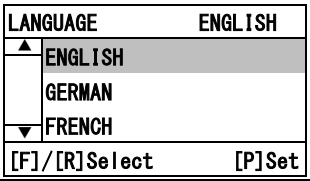
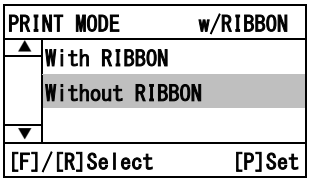
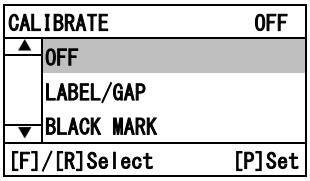
・ Parameters that can be set only for the BCP Setting Tool

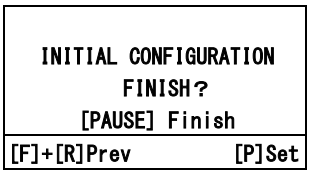
Item	Initial value
Reprint After Error	ON
Simplified Receipt Mode	OFF
Bottom Margin	2

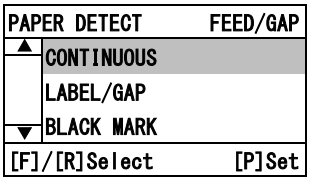
8.8.3.2 INITIAL SETTING

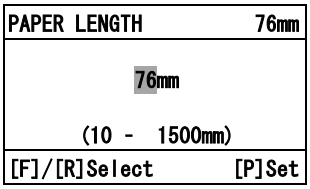
When Printer do RAM Clear(except JA), printer will show initial setting wizard. In this wizard, you can make various printer settings such as LCD language and printing method that are required for initial setup. The contents set in this wizard can be changed by system mode or command transmission.

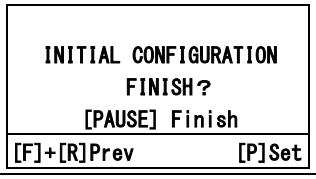
Wizard operation example after clearing parameters

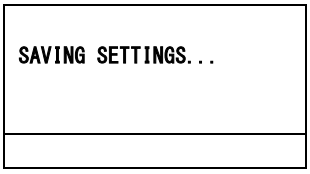
	(RAM Clear QM Type)	
1. After Parameter Clear	 ↓  ↓ Turn OFF/ON  ↓	
2. Show Initial Setting wizard	 ↓ [PAUSE]	
3. Language Setting	 ↓[PAUSE]	Selected by [FEED], [RESTART]
4. Print Mode Setting	 ↓[PAUSE]	Selected by [FEED], [RESTART]
5. Calibrate Setting		Selected by [FEED], [RESTART]

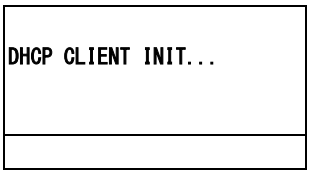
<table>
<tr><td colspan="3">6-1. Calibrate setting select except “OFF “</td></tr>
<tr><td>6-1-1.
Finish setting</td><td> 

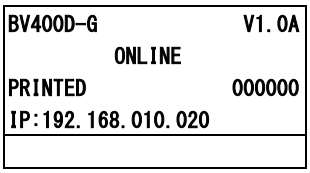
↓ [PAUSE]
to 7. Saved the Setting</td><td></td></tr>
<tr><td colspan="3">6-2. Calibrate setting select “OFF “</td></tr>
<tr><td>6-2-1.
Paper detect setting</td><td> 

↓ [PAUSE]</td><td>Selected by [FEED], [RESTART]</td></tr>
<tr><td>6-2-2.
Paper length Setting</td><td> 

↓ [PAUSE]</td><td>Set the paper length with [FEED] and [RESTART].</td></tr>
<tr><td>6-2-3
Setting complete</td><td> 

↓ [PAUSE]
to 7. Saved the Setting</td><td></td></tr>
<tr><td>7. Saved the Setting</td><td> 

↓</td><td></td></tr>
<tr><td>8. DHCP Client
Initializing</td><td> 

↓</td><td></td></tr>
<tr><td>9. ONLINE mode</td><td> 
</td><td></td></tr>
</table>

Key operation (Wizard screen)

Key	Function
[FEED] + [RESTART]	Display the upper screen without saving the settings.
[PAUSE]	In the case of the setting selection screen, the setting is saved and the next screen is displayed.
[RESTART]	Move the cursor up. If it is at the top, it moves to the bottom.
[FEED]	Move the cursor down. If it is at the bottom, move to the top.

Note: Multiple key presses other than the multiple key presses ([FEED] + [RESTART], etc.) subject to processing are not guaranteed to operate.

8.9 INTERFACE

Contents of INTERFACE menu

Menu item
<6>INTERFACE
LAN/WLAN
USB
RS-232C
BLUETOOTH

8.9.1 LAN/WLAN

The menu structure of LAN/WLAN

Menu item
<6>INTERFACE
LAN/WLAN
LAN/WLAN
BASIC INFORMATION
IP ADDRESS
SUBNET MASK
GATEWAY ADDRESS
DHCP
DHCP CLIENT ID
DHCP HOST NAME
SOCKET PORT
PORT NUMBER
LPR
WLAN
SNMP
WEB PRINTER

8.9.1.1 LAN/WLAN

OFF
ON (AUTO) *Wired LAN will not be available when installed the wireless LAN Module on the printer.
ON (LAN)
ON (WLAN)

8.9.1.2 BASIC INFORMATION

The following network-related information is displayed.
IP address
Subnet mask
Gateway address
Socket port status
Socket port number

8.9.1.3 IP ADDRESS

IP address is displayed and set.

8.9.1.4 SUBNET MASK

Subnet mask is displayed and set.

8.9.1.5 GATEWAY ADDRESS

Gateway address is displayed and set.

8.9.1.6 DHCP

Select whether to enable DHCP.

OFF

ON

8.9.1.7 DHCP CLIENT ID

Enter a DHCP client ID with Hex. code.

Setting range: 00 to 63 (64 bytes)

8.9.1.8 DHCP HOST NAME

Enter a DHCP host name with ASCII code.

Setting range: 00 to 31 (32 bytes)

8.9.1.9 SOCKET PORT

Select whether to enable the socket communication.

OFF

ON

8.9.1.10 PORT NUMBER

Socket port number is displayed and set.

Setting range: 00000 to 65535

8.9.1.11 LPR

Select whether to enable the LPR.

OFF

ON

8.9.1.12 SNMP

OFF

ON

8.9.1.13 WEB PRINTER

OFF

ON

8.9.1.14 WLAN

The menu structure of WLAN

Menu item
<6>INTERFACE
LAN/WLAN
WLAN
BAND SELECT
CONNECTION MODE
ESSID

8.9.1.14.1 BAND SELECT

DUAL BAND

2.4GHz

5GHz

8.9.1.14.2 CONNECTION MODE

AP MODE

INFRASTRUCTURE

8.9.1.14.3 ESSID

Enter an ESSID with ASCII code.

Setting range: 00 to 31 (32 bytes)

8.9.2 USB

The menu structure of USB

Menu item
<6>INTERFACE
USB
USB SERIAL ID
USB I/F STATUS

8.9.2.1 USB SERIAL ID

OFF

ON

8.9.2.2 USB I/F STATUS

OFF: No response is returned.

ON: Returns a response to the host via USB.

Notes:

1. Regardless of the setting of this parameter, the status indicating the end of issue is automatically returned.
2. Transmission of the commands related to the status is performed as follows.
   1) WS, WB, or WN command
      ● In the case the USB and other interface cables are connected to the printer:
      Whether a status is returned or not depends on the setting of this parameter.
      Example) When this parameter is set to ON and a WS, WB or WN command is sent to the printer via LAN, the printer returns the status via both LAN and USB.
      ● In the case only the USB cable is connected to the printer:
      A status will be returned regardless of the setting of this parameter.

   2) Status-related commands other than WS, WB and WN
      Whether a status is returned or not depends on the setting of this parameter.
      Example 1) When a command is sent via the interface other than USB, a status will not be returned regardless of the setting of this parameter.
      Example 2) When a command is sent via USB, whether a status is returned or not depends on the setting of this parameter.
      * When this parameter is set to OFF, no status is returned via USB even if the USB cable is connected.

8.9.3 RS-232C

The menu structure of RS-232C

Menu item
<6>INTERFACE
RS-232C
BAUD RATE
DATA LENGTH
STOP BIT
PARITY
CONTROL

8.9.3.1 BAUD RATE

2400 bps
4800 bps
9600 bps
19200 bps
38400 bps
115200 bps

8.9.3.2 DATA LENGTH

8 bits
7 bits

8.9.3.3 STOP BIT

1 bit
2 bits

8.9.3.4 PARITY

NONE
EVEN
ODD

8.9.3.5 CONTROL

XON+READY AUTO	(Outputs XON at power on, XOFF at power off)
XON+XOFF AUTO	(Outputs XON at power on, XOFF at power off)
READY/BUSY RTS	(Outputs no XON/OFF at power on/off)
XON+XOFF	(Outputs no XON/OFF at power on/off)
READY/BUSY	(Outputs no XON/OFF at power on/off)

8.9.4 BLUETOOTH

The menu structure of BLUETOOTH.

Menu item
<6> INTERFACE
BLUETOOTH
BLUETOOTH
FACTORY TEST
INQUIRY
SECURITY
SCAN INTERVAL
SCAN WINDOW
AUTO CONNECT
SSP AUTH

8.9.4.1 BLUETOOTH

OFF

ON

8.9.4.2 FACTORY TEST

OFF

ON

8.9.4.3 INQUIRY

EVERY

OFF

60sec

8.9.4.4 SECURITY

SSP

LINK

OFF

8.9.4.5 SCAN INTERVAL

Setting Range：18～4096（sec）

8.9.4.6 SCAN WINDOW

Setting Range：18～4096（sec）

8.9.4.7 AUTO CONNECT

OFF

ON

8.9.4.8 SSP AUTH

JUST WORKS

NUMERIC COMP————————— NO IN/OUT

DISP ONLY

DISP Y/N

8.10 FACTORY TEST

Contents of FACTORY TEST menu

Menu item	
<10>FACTORY TEST	
	PANEL TEST
	KEY TEST

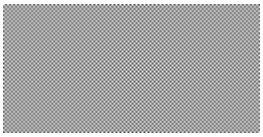
8.10.1 PANEL TEST

The LCD test is performed in the following order.

(Start) ⇒ Backlight test ⇒ Missing dot test ⇒ Character display test ⇒ Contrast test ⇒ (End)

The display language is English regardless of the LCD Language parameter setting.

	LCD	Operation and LCD/LED status
Backlight test	LCD BACK LIGHT ON PRESS ANY KEY	ONLINE LED turns on. ERROR LED turns on. Backlight turns on.
		Press any key.
	LCD BACK LIGHT OFF PRESS ANY KEY	ONLINE LED turns on. ERROR LED turns on. Backlight turns off.
		Press any key.
Missing dot test	PRESS ANY KEY	ONLINE LED turns on. ERROR LED turns on. Backlight turns on. 1-dot line is displayed along the edges of the LCD.
		Press any key.
		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. All LCD dots are on.
		Press any key.
		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. All LCD dots are off.
		Press any key.
		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. 1-dot check pattern is displayed. The upper left corner dot is black.
		Press any key.

		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. 1-dot check pattern is displayed. The upper left corner dot is white.
		Press any key.
Character display test	ABCDEFGHIJKLMNOPQRSTU 113456789012345678901 abcdefghijklmnopqrstu 098765432109876543210 ZYXWVUTSRQPONMLKJIHGF	ONLINE LED turns on. ERROR LED turns on. Backlight turns on. Character display
		Press any key.
Contrast test	CONTRAST TEST 24	ONLINE LED turns on. ERROR LED turns on. Backlight turns on. Displays with the minimum contrast.
		Press any key.
	CONTRAST TEST 40	ONLINE LED turns on. ERROR LED turns on. Backlight turns on. Displays with the default contrast.
		Press any key.
	CONTRAST TEST 50	ONLINE LED turns on. ERROR LED turns on. Backlight turns on. Displays with the maximum contrast.
		Press any key.
End display	LCD/LED TEST COMPLETE PRESS PAUSE KEY	ONLINE LED turns on. ERROR LED turns off. Backlight turns on.
		Press the [PAUSE] key to return to the upper-level menu.

8.10.2 KEY TEST

The test is performed in the following order.

(Start) ⇒ FEED key test ⇒ RESTART key test ⇒ PAUSE key test ⇒ (End)

The display language is English regardless of the LCD Language parameter setting.

	LCD	Operation and LCD/LED status
FEED KEY TEST	PRESS FEED KEY	
		Press the [FEED] key.
RESTART KEY TEST	PRESS RESTART KEY	
		Press the [RESTART] key.
PAUSE KEY TEST	PRESS PAUSE KEY	
		Press the [PAUSE] key.
END DISPLAY	KEY TEST COMPLLETE PRESS PAUSE KEY	
		Press the [PAUSE] key to return to the upper-level menu.

Notes:

1. If a key other than designated is pressed, the printer waits until the designated key is pressed. (The test does not proceed to the next.)
2. If the key test does not proceed to the next test even after the designated key is pressed, the key may be broken. In this case, turn off the printer.

8.11 BASIC

Contents of BASIC menu

Menu item
<11>BASIC
BASIC
FILE MAINTENANCE
TRACE
SYSTEM PROGRAM

8.11.1 BASIC

OFF
ON

8.11.2 FILE MAINTENANCE

The block numbers and BASIC program file names (up to 12 characters) stored in the BASIC program storage area are displayed. If the file name exceeds 12 characters, the overflowing characters are not displayed.
When no file is stored, Place of the file name is displayed with a hyphen (-).(-) is

8.11.3 TRACE

OFF
ON

8.11.4 SYSTEM PROGRAM

The printer changes the mode to execute the BASIC program.
Execute BASIC Program

8.12 XML

Contents of XML menu

Menu item
<12>XML

OFF	Disables XML function.
STD	Standard specification
ORACLE	Specification for Oracle
SAP	Specification for SAP

Note:
When the XML feature is enabled, the user system mode functions are not guaranteed. It is required to terminate the user system mode with reset. For the functions covered by the system mode, settings configured in the system mode must be used.

8.13 LCD PANEL

Contents of LCD PANEL menu

Menu item
<13>LCD PANEL
LANGUAGE
DISPLAY
CONTRAST

8.13.1 LCD LANGUAGE

ENGLISH
GERMAN
FRENCH
DUTCH
SPANISH
JAPANESE
ITALIAN
PORTUGUESE
Simplified CHINESE
KOREAN
TURKISH
POLISH

Note:
In the printer modes other than online, the language displayed on the LCD panel is JAPANESE when JAPANESE is selected, and ENGLISH when ENGLISH, GERMAN, FRENCH, DUTCH, SPANISH, ITALIAN, PORTUGUESE, Simplified CHINESE, KOREAN, TURKISH, or POLISH is selected.

8.13.2 DISPLAY

The menu structure of DISPLAY

Menu item
<13>LCD PANEL
DISPLAY
MODEL NAME
PRINTED COUNTER
IP ADDRESS

8.16.2.1 MODEL NAME

OFF	Model name is hidden.
ON	Model name is displayed.

8.16.2.2 PRINTED COUNTER

OFF	The number of labels printed is hidden.
ON	The number of labels printed is displayed.

8.16.2.3 IP ADDRESS

OFF IP address is hidden.

ON IP address is displayed.

8.13.3 CONTRAST

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
50	24	2	Decimal	None	2	0	Enabled	None

Note:

Contrast setting

+ (Plus) Higher contrast

- (Minus) Lower contrast

8.14 PASSWORD

Contents of PASSWORD menu

Menu item
<14>PASSWORD

OFF Password is not set.

ON Password is set.

8.14.1 PASSWORD

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
F	0	1	Hex.	None	1	0	None	None

8.17.1.1 System mode and user system mode start screen when password is enabled

When the password is enabled, the password entry screen is displayed at the time the system mode or user system mode is started.

Password entry for system mode

Display	Procedure
PASSWORD 0 0 0 0	Turn on the printer while holding down the [FEED] and [RESTART] keys at the same time. The password entry screen is displayed.
	Enter the password.
	The printer enters the system mode.
When a wrong password is entered or the [FEED] key or [RESTART] key is pressed	
PASSWORD 1 0 0 0 Password Invalid	Password invalid message is displayed.
A wrong password was entered for 3 times consecutively.	
	Password cannot be re-entered. Turn on the printer again.

Password entry for user system mode

Display	Procedure
PASSWORD 0 0 0 0	Turn on the printer, press the [PAUSE] key to place the printer in pause state. Then, hold down the [RESTART] key for 3 seconds. The password entry screen is displayed.
	Enter the password.
	The printer enters the user system mode.
When a wrong password is entered or the [FEED] key and the [RESTART] key are pressed at the same time.	
PASSWORD 1 0 0 0 Password Invalid	Password invalid message is displayed.
A wrong password was entered for 3 times consecutively.	
PASSWORD INVALID Turn the printer off, then on again Help[P]►	Password cannot be re-entered. Turn on the printer again.

Note:

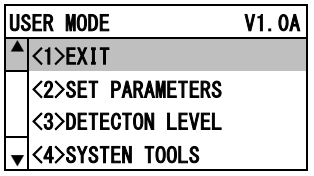
If you forgot the system mode password, disable it with @010 command

9 USER SYSTEM MODE

9.1 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.
2. The user system mode is intended for performing various parameter settings.
3. The key operations for the user system mode are described below.
   For the key functions and display, see Section 7. DISPLAY PATTERN AND KEY OPERATION FOR SYSTEM MODE AND USER SYSTEM MODE.

Top screen of user system mode

Display


Top menu list

English
<1>EXIT
<2>SET PARAMETERS
<3>DETECTION LEVEL
<4>SYSTEM TOOLS
<5>ISSUE CONTROL
<6>SHOW ISSUE COND
<7>RESET

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 thershold value.
<4>SYSTEM TOOLS	Used to print data sent from the host or store it in USB memory.
<5>ISSUE CONTROL	Used to set the issue control items (sensor type, print speed, print direction, etc.).
<6>SHOW ISSUE COND	Used to display the print conditions (such as sensor type, print speed and orientation).
<7>RESET	Used to reset the printer.

9.2 EXIT

The printer state 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 do not reset with EXIT and return to online mode. Also, when transitioning from the error occurrence screen to the user mode, the screen returns to the error screen before transition.
* If an RFID write error occurs in Z Mode and a transition is made to user mode, the reset is performed in the same way.

Contents of EXIT menu

Menu item
<1>EXIT

9.3 SET PARAMETERS

Same as 8.5 SET PARAMETERS of the system mode.

9.4 DETECTION LEVEL

Contents of DETECTION LEVEL menu

Menu item
<3>DETECTION LEVEL
1)REFL.(PRE-PRINT)
2)TRANS.(PRE-PRINT)

Same as 6.6 MANUAL THRESHOLD SETTING.

9.5 SYSTEM TOOLS

Menu item	
<4>SYSTEM TOOLS	
DUMP	
USB	
USB MEMORY	
PRINT	*1
ON DEMAND	
ALL	
LAN/WLAN	⇒ The subsequent menus are same as *1.
BLUETOOTH	⇒ The subsequent menus are same as *1.
RS-232C	⇒ The subsequent menus are same as *1.
CENTRONICS	⇒ The subsequent menus are same as *1.
RFID	⇒ The subsequent menus are same as *1.
BASIC1	⇒ The subsequent menus are same as *1.
BASIC2	⇒ The subsequent menus are same as *1.
LOG	
PRINTER TO USB	
CANCEL	
OK	

9.5.1 DUMP

A dump list of the received data of each interface can be printed or saved to a USB memory.

USB
- USB MEMORY : Save to USB memory
- PRINT : Print on label
  - ON DEMAND : Print a certain amount
  - ALL : Print all at once

LAN/WLAN
- Subsequent menus are the same as USB.

BLUETOOTH
- Subsequent menus are the same as USB.

RS-232C
- Subsequent menus are the same as USB.

BASIC1
- Subsequent menus are the same as USB.

BASIC2
- Subsequent menus are the same as USB.

9.5.2 LOG

Log data can be saved to USB memory.

PRINTER TO USB
- ROM/RAM
  - CANCEL
  - OK
- LOG
  - Subsequent menus are the same as ROM/RAM.

Notes:

1. The supported log data is the printer's memory information (ROM and RAM).
   Note that the memory information at that time is saved in the USB memory, so the memory contents will change when the power is turned off. In particular, note that the memory contents of RAM will be lost.
2. Log data is printer memory information (ROM, RAM) and sensor log acquisition function.
3. While the log is being written, the LCD display shows "WRITING..." and the progress, and the online LED blinks and the error LED turns off.

9.6 ISSUE CONTROL

Menu item
<5> ISSUE CONTROL
Sensor
Mode
Print speed
Ribbon
Direction
Auto status

Sensor
- COMMAND
- NO
- REFLECTIVE
- TR.Threshold1
- TR.Threshold2
- TR.Threshold3
- TR.Threshold4
- TR.Threshold5
- RE.Threshold1
- RE.Threshold2
- RE.Threshold3
- RE.Threshold4
- RE.Threshold5
- * This setting is disabled when the auto calibration setting is enabled.

Mode
- COMMAND
- BATCH
- CUT(1)
- PEEL OFF
- LINERLESS(1)
- PARTIAL(1)
- * If cut is selected, the cut multiple sheet setting is fixed at 1.

Print speed
- COMMAND
- 2 ips
- 3 ips
- 4 ips
- 5.ips
- 6 ips (only for 203 dpi models)
- 7 ips (only for 203 dpi models)

Ribbon
- COMMAND
- NO (Direct)
- YES

Direction
- COMMAND
- BOTTOM
- TOP
- BOTM/Mir
- TOP/Mir

Auto status
COMMAND
OFF
ON

Note:
The issue control setting affects only TPCL mode.

9.7 SHOW ISSUE CONDITION

Contents of SHOW ISSUE CONDITION menu

Menu item		
<6>SHOW ISSUE CONDITION		
	Sensor	(*1)
	Mode	(*1)
	Print speed	(*1)
	Ribbon	(*1)
	Direction	(*1)
	Media pitch	(*1)
	Print length	(*1)
	Print width	(*1)
	Media width	(*1)

Notes:

The current setting value for each parameter is shown in the position of (*1). The options for the parameters are as follows.

1. Sensor
   NO
   REFLECTIVE
   TRANSMISSIVE
   TR.Threshold1
   TR.Threshold2
   TR.Threshold3
   TR.Threshold4
   TR.Threshold5
   RE.Threshold1
   RE.Threshold2
   RE.Threshold3
   RE.Threshold4
   RE.Threshold5

2. Mode
   BATCH
   CUT(yyy) * yyy: Cut interval (1 to 100)
   PEEL OFF
   LINERLESS(yyy)
   PARTIAL(yyy)

3. Print speed
   * Selectable print speed differs depending on the model.
     2 ips
     3 ips
     4 ips
     5 ips
     6 ips (only for 203 dpi models)
     7 ips (only for 203 dpi models)

4. Ribbon
     NO (Direct)
     YES

5. Direction
     BOTTOM
     TOP
     BOTM/Mir
     TOP/Mir

6. Media pitch
     (10.0 - 999.9) mm

7. Print length
     (10.0 - 997.9) mm

8. Print width
     BV400D-G(203dpi)
       (10.0 - 108.0) mm
     BV400D-T(300dpi)
       (10.0 – 105.7) mm

9. Media width
     (25.4.0 - 118.0) mm

[Explanation]

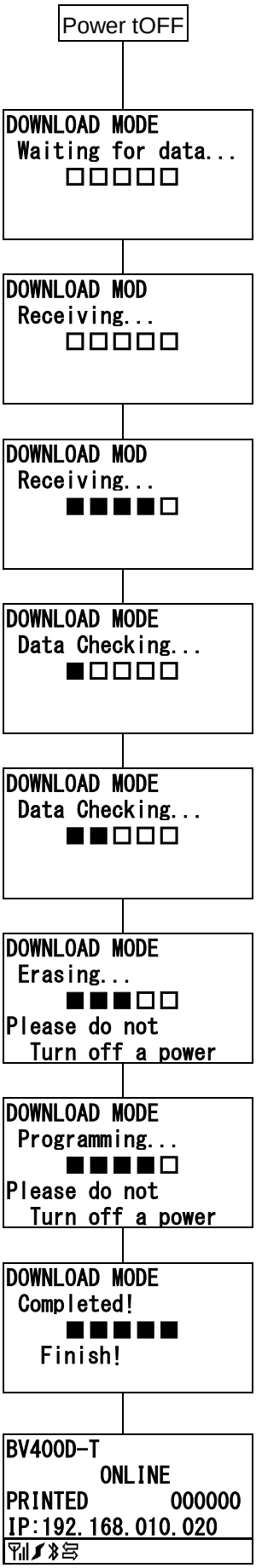
The display item of the issue control confirmation is reflected only when the issue condition of TPCL is changed.

9.8 RESET

Contents of RESET menu

Menu item
<7>RESET

10 DOWNLOAD



(1) Power off state

(2) Turn the power on while holding down the [FEED], [RESTART] and [PAUSE] keys at the same time.

(3) Download mode display

(4) Send a download command.

(5) The printer starts receiving the data.

(6) The printer is receiving the data

(7) Data is being checked.

(8) Data is being checked.

(9) The flash ROM is being erased.

(10) Downloaded data is being written.

(11) Downloading is completed.

(12) After downloading is completed, the printer will be automatically restarted, and placed in the online state.

When error occurs while downloading data with download mode, the following error message will be displayed:

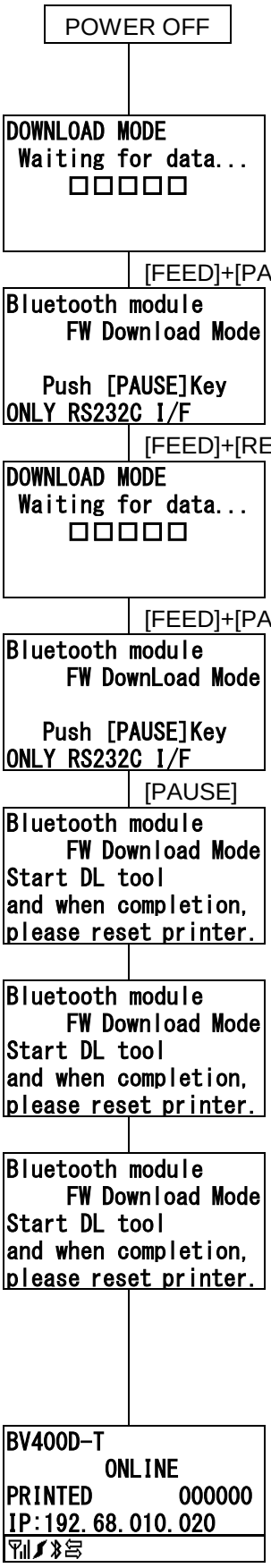
Error message

Error message	Description
DOWNLOAD MODE Syntax Error Please retry after Checking the data	Communication error (Command error)
DOWNLOAD MOD Check SUM Error Please retry after Checking the data	The checksum of the boot program does not end with “00”.
DOWNLOAD MODE Data Size Over Please retry after Checking the data	The data size is too large.
DOWNLOAD MODE Fail! Format Error Call a service Person.	Format error
DOWNLOAD MODE Fail! Write Error Call a service Person.	Write error

Notes:

1. When an error occurs, the printer stops and never recovers unless the power is turned off and on.
2. After a write error occurs, turning the printer off and back and “DOWNLOAD MODE” to be displayed and the printer to enter the loading mode. The program needs to be loaded again.
3. When the checksum for the boot program does not end with “00H”, “CHECKSUM ERROR” is displayed and the printer stops with error.
4. After receiving the all data of the boot program, the printer compares it with the currently installed boot program, and erases the flash memory for writing data if there is a difference.
   When there is no difference, the downloading normally ends without erasing the memory or writing data.
5. The LCD may show the message “Initializing…” when the printer is turned off in the download mode. This does not affect the printer operation.
6. When the [FEED]+[RESTART]+[PAUSE] keys are held down at the timing of printer reset in the system mode or user system mode, the forced download mode display appears on the LCD. This menu is not executable. The printer must be turned off and back to on while the [FEED]+[RESTART]+[PAUSE] keys are held down.

Download Bluetooth module firmware



(1) Power off state

(2) Turn the power on while holding down the [FEED], [RESTART] and [PAUSE] keys at the same time.

(3) Printer FW download mode display.

(4) Hold down the [FEED] and [PAUSE] key at the same time.

(5) Bluetooth module FW download mode display.

(6) Hold down the [FEED] and [RESTART] key at the same time.

(7) Return to the Printer FW download mode.

(8) Hold down the [FEED] and [PAUSE] key at the same time.

(9) Bluetooth module FW download mode display.

(10) Press the [PAUSE] key.

(11) Ready for FW download of Bluetooth module

* Press [FEED] + [RESTART] simultaneously to return to (9).

* Printer display does not change even if the tool is started and download is started.

* The printer display will not change even if the download is complete.

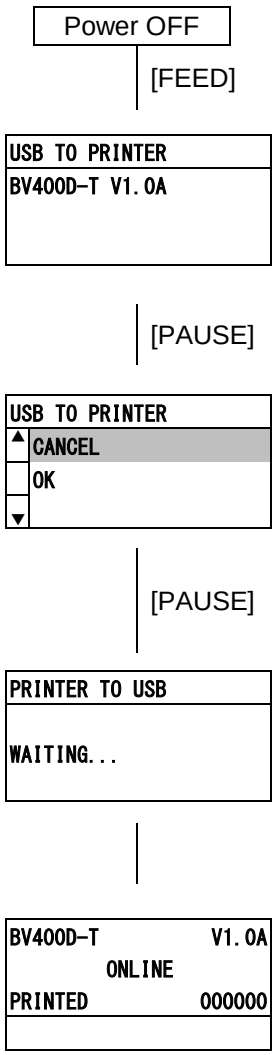
Restart the printer after confirming the completion on the tool screen.

(12) After the download is completed, it automatically restarts and shifts to online mode.

11 Auto Configuration Mode

11.1 Outline of the Auto Configuration Mode

When turning on the printer while holding down the [FEED] key, the printer to start auto configuration mode. The auto configuration mode allows for automatically downloading the master firmware and restarting the printer.



(1) Power off state

(2) Turn on the printer while holding down the [FEED] key.

(3) Auto configuration mode display

(4) Press the [PAUSE] key to show the next display.

(5) Confirmation display

(6) Select “OK” and press the [PAUSE] key.
* When “CANCEL” is selected, the printer returns to the online state without downloading the firmware.

(7) The firmware is being downloaded.

(8) Automatically reboots and returns to online mode after downloading is completed.

11.2 Preparation for USB Memory

In order to execute the auto configuration mode, you need to create a firmware file (*.bin) and a special CFG file in USB memory beforehand. As a condition for migration to auto-config mode, it is necessary to have an RTCUSB host, a USB memory, and an appropriate CFG file. If not aligned, it does not shift to the auto configuration mode, but starts normally.

Each file is stored in the SYSTEM directory created in the root of the USB memory.

Example: When BOOT/MAIN/CG programs are downloaded:

/ATA0/SYSTEM/BV400-BOOT-Vx.x-xx.bin
/ATA0/SYSTEM/BV400-MAIN-Vx.x-xx.bin
/ATA0/SYSTEM/BV400-CG-Vx.x-xx.bin
/ATA0/SYSTEM/AUTOCONFIG.CFG

11.3 Auto Configuration File

To execute the auto configuration mode, it is required to create the auto configuration file, which is an exclusive CFG file, in the USB memory in advance.

The auto configuration file is stored in the following path under the name of “AUTO CONFIG.CFG”.

/ATA0/SYSTEM/AUTOCONFIG.CFG

11.3.1 Format

Auto configuration file has the following formats.

Example	Description
BV400,0400	Model information
BV400 V1.0A	Display message
/ATA0/SYSTEM/BV400-BOOT2-Vx.x-xx.bin	Firmware file to be downloaded
/ATA0/SYSTEM/BV400-MAIN-Vx.x-xx.bin	Firmware file to be downloaded
/ATA0/SYSTEM/BV400-CG-Vx.x-xx.bin	Firmware file to be downloaded

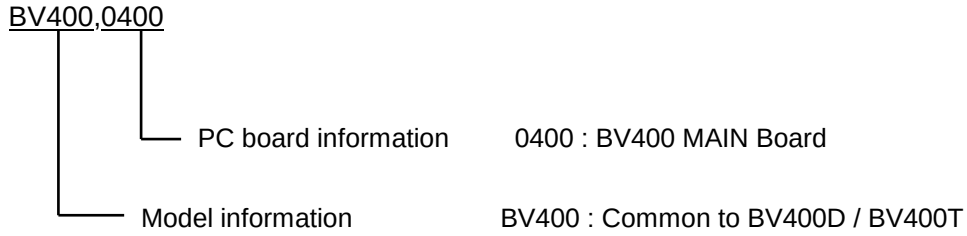
11.3.2 Model Information

Applicable model’s information is stored.

The information is comma separated. The first half is the model name and the second half is the PC board information.

If the actual printer and this model information do not match, the auto configuration mode will not start.

Description of the model information:



11.3.3 Display Message

A message displayed on the LCD while the printer is in the auto configuration mode.

Word-wrap feature is enabled.

Only characters that can be expressed with ASCII are allowed to be input.

11.3.4 Firmware File to be downloaded

Name of the file to be downloaded

12 Power Save Function

1. Printer status allowing shift to the power save mode

When the following status continues for a specified length of time, the printer will enter the power save mode and show the power save mode message. (Refer to “5. Message in the power save mode” described below.)

- ONLINE (Idle, communicating)
- Pause
- Error
- Waiting for peel off of a label
- System mode (except for the menus that use the 24V line, such as self-diagnosis, test print and sensor adjustment.)
- User mode (except for the menus that use the 24V line, such as dumping.)

2. Conditions for exiting the power save mode

The power save mode is terminated when:

- Printing is performed.
- Key is pressed.
- Print with [RESTART] key
- Feed/Reprint with [FEED] key
- Commands with printer operation
  - The printer receives U1/U2 command (Forward feed/reverse feed command).
  - The printer receives T command (Feed command).
  - The printer receives XS command (Issue command).
  - The printer receives IB command (Eject command).
- Auto calibration when cover is closed.

3. Display and key operations during the power save mode

When the printer enters the power save mode, it shows “POWER SAVING MODE” on the LCD and turns off the LCD backlight. However, it is possible to display the normal LCD display content and turn on the LCD backlight even during power saving by the following operation. If the printer status remains unchanged for 30 seconds, “POWER SAVING MODE” is displayed and the LCD backlight turns off again.

During registration in the registration area, a message indicating power saving is displayed when no operation is performed for 30 seconds after registration is completed.

- When the key is pressed while saving power.
- When the head is opened/closed during power saving.

4. LED during the power save mode

While the printer is in the power save mode, the state of the LEDs is as follows.

- ONLINE LED: Blinks (ON: 1000msec. OFF: 1000msec.)
- ERROR LED: Continued before transitioning to power save mode.

5. Message in the power save mode

The language differs depending on the printer status before the printer enters the power save mode.

Printer status before power save	Supported language
Online mode (except for manual threshold setting)	Multi-language
System mode, User system mode and manual threshold setting in online mode	Japanese/English

Power save mode display

Display
POWER SAVING MODE