TOSHIBA

TOSHIBA Barcode Printer

BV400 Series

Key Operation Specification

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Table of Contents

Page

1 SCOPE 1

2 OUTLINE 1

3 KEY OPERATION (MODELS WITHOUT THE LCD) 1

3.1 Operation Panel 1
3.2 Mode Transition 2
3.3 Online Mode 4
3.3.1 Key function 4
3.3.2 LED function 4
3.3.3 ONLINE mode operation example 5
3.3.4 Reset operation example 6
3.3.5 LED indications 7
3.4 Self-diagnostic Test, Test Printing, Dump Mode 8
3.4.1 Operation example of the self-diagnostic test, test printing and dump mode 9
3.4.2 Self-diagnostic test printing 10
3.4.3 Test printing 10
3.4.4 Dump mode 10
3.5 Manual Threshold Setting Mode 11
3.6 Sensor Adjustment (Sensitivity Adjustment) 12
3.7 Extended Operation Setting Mode 13
3.8 Download Mode 15
3.9 RAM Clear 16
3.9.1 RAM clear operation example 16
3.9.2 Contents of RAM clear 16
3.10 Information Mode 17
3.10.1 Information mode operation example 17
3.10.2 Contents of the information mode 17
3.11 Media Sensor Calibration Mode (V1.7 or later) 18
3.12 DHCP obtained IP address printing 19
3.12.1 DHCP obtained IP address printing operation example 19
3.12.2 Contents of printing 20

4 OPERATION PANEL (MODELS WITH THE LCD) 21

4.1 Outline of Each Mode 22
4.1.1 Online mode 22
4.1.2 Threshold setting mode 22
4.1.3 Information mode 22
4.1.4 User mode 22
4.1.5 System mode 22
4.1.6 Download mode 22
4.1.7 Auto configuration mode 22
4.1.8 Media sensor calibration mode (V1.7 or later) 22

5 GENERAL VIEW OF KEY OPERATION 23

6 ONLINE MODE 26
6.1 Key Function 26
6.1.1 Online mode screen 26
6.1.2 Help screen 27
6.1.3 Manual threshold setting screen 27
6.2 LED Function 27
6.3 LCD Function 27
6.4 Online Mode Screen 28
6.4.1 Online mode screen example 28
6.4.2 Icon 30
6.4.3 Online mode screen transition and operation example 32
6.5 Help Screen 33
6.5.1 Explanation of the help screen 33
6.5.2 Help screen transition and operation example 34
6.6 Manual Threshold Setting 35
6.6.1 Outline of threshold setting 35
6.6.2 Threshold setting operation example 36
6.7 RFID Analyze Mode (Available for BV400T only) 40
6.7.1 Outline of the RFID analysis 40
6.8 Information Mode 41
6.8.1 Outline of the information mode 41
6.8.2 Information mode operation example 42
6.8.3 Information mode print sample 43
6.9 Media Sensor Calibration Mode (V1.7 or later) 44
6.9.1 Outline 44
6.10 LCD Messages and LED Indications 45
6.11 System Error List 54
7 DISPLAY PATTERN AND KEY OPERATION FOR SYSTEM MODE AND USER MODE 55
7.1 List Box with the Scrollbar 55
7.2 Value Setting Screen 58
7.3 Information Screen 60
7.4 Sensor Adjustment Screen 61
7.5 Temperature Display Screen 62
8 SYSTEM MODE 63
8.1 Outline of the System Mode 63
8.2 Reflecting the System Mode Settings to the Printer 64
8.3 RESET 64
8.4 DIAGNOSTIC 64
8.4.1 MAINTENANCE COUNTER 65
8.4.1.1 Printing contents of Maintenance Counter and Parameter Settings 67
8.4.1.2 LCD Display contents of Maintenance Counter and Parameter Settings 85
8.4.2 AUTO DIAGNOSTIC 87
8.4.2.1 Automatic Self-Diagnosis Print Content 88
8.4.3 HEAD CHECK 95
8.4.4 BD ADDRESS 96
8.5 SET PARAMETERS 98
8.5.1 MEDIA LOAD 99

8.5.2 FEED KEY 99
8.5.3 MOVE TO TEAROFF 100
8.5.3.1 MOVE TO TEAROFF pos. 100
8.5.4 FW/BK ACT. 100
8.5.5 PRE PEEL OFF 101
8.5.6 BACK FEED SPEED 101
8.5.7 AUTO HEAD CHECK 101
8.5.8 RIBBON NEAR END 101
8.5.9 PAPER/RBN END 102
8.5.10 CALIBRATE 103
8.5.11 POWER SAVE TIME 104
8.5.12 CODE PAGE 104
8.5.13 ZERO FONT 105
8.5.14 CTRL CODE 105
8.5.14.1 MANUAL 105
8.5.15 PEEL OFF STATUS 105
8.5.16 KANJI CODE 105
8.5.17 EURO CODE 105
8.5.18 MAXICODE SPEC 106
8.5.19 CUT MODE 106
8.5.20 MULTI LABEL 106
8.5.21 FEED LENGTH 107
8.5.22 TOTAL LENGTH 107
8.5.23 FEED ADJ. 108
8.5.24 CUT ADJ 109
8.5.25 BACK ADJ. 112
8.5.26 X ADJUST 113
8.5.27 X ADJ. METHOD 113
8.5.28 HEAT ENERGY TYPE 113
8.5.28.1 TRANS.(RIBBON) 114
8.5.28.2 DIRECT THERMAL 114
8.5.29 TONE ADJ. <T> 114
8.5.30 TONE ADJ. <D> 114
8.6 TEST PRINT 115
8.6.1 PRINT CONDITION 115
8.6.1.1 ISSUE COUNT 116
8.6.1.2 PRINT SPEED 116
8.6.1.3 SENSOR 117
8.6.1.4 PRINT TYPE 117
8.6.1.5 ISSUE TYPE 117
8.6.1.6 LABEL PITCH 117
8.6.1.7 PAPER FEED 117
8.6.2 SLANT LINE (1DOT) 118
8.6.3 SLANT LINE (3DOT) 118
8.6.4 CHARACTERS 119
8.6.5 BARCODE 120
8.6.6 NON-PRINTING 120
8.6.7 FACTORY TEST 120
8.6.8 AUTO PRINT (TRANS.) 121

8.6.9 AUTO PRINT (REFL.) 121
8.7 SENSOR 122
8.7.1 TEMPERATURE 122
8.7.2 ADJUSTMENT 122
8.7.2.1 REFLECTIVE SENSOR 122
8.7.2.2 TRANSMISSIVE SENSOR 123
8.7.2.3 PAPER END LEVEL 123
8.7.3 THRESHOLD LEVEL 124
8.7.3.1 REFLECT 124
8.7.3.2 TRANS. 124
8.8 RAM CLEAR 125
8.8.1 NO RAM CLEAR 125
8.8.2 MAINTE.CNT CLEAR 125
8.8.3 PARAMETER CLEAR 126
8.8.3.1 Parameters to be cleared 126
8.8.3.2 Initial setting wizard 133
8.9 INTERFACE 136
8.9.1 LAN/WLAN 136
8.9.1.1 LAN/WLAN 136
8.9.1.2 BASIC INFORMATION 136
8.9.1.3 IP ADDRESS 136
8.9.1.4 SUBNET MASK 137
8.9.1.5 GATEWAY ADDRESS 137
8.9.1.6 DHCP 137
8.9.1.7 DHCP CLIENT ID 137
8.9.1.8 DHCP HOST NAME 137
8.9.1.9 SOCKET PORT 137
8.9.1.10 PORT NUMBER 137
8.9.1.11 LPR 137
8.9.1.12 SNMP 137
8.9.1.13 WEB PRINTER 137
8.9.1.14 WLAN 138
8.9.2 USB 139
8.9.2.1 USB SERIAL ID 139
8.9.2.2 USB I/F STATUS 139
8.9.3 RS-232C 140
8.9.3.1 BAUD RATE 140
8.9.3.2 DATA LENGTH 140
8.9.3.3 STOP BIT 140
8.9.3.4 PARITY 140
8.9.3.5 CONTROL 140
8.9.4 BLUETOOTH 141
8.9.4.1 BLUETOOTH 141
8.9.4.2 FACTORY TEST 141
8.9.4.3 INQUIRY 141
8.9.4.4 SECURITY 141
8.9.4.5 SCAN INTERVAL 141
8.9.4.6 SCAN WINDOW 141
8.9.4.7 AUTO CONNECT 141

8.9.4.8 SSP AUTH 141
8.10 RFID [BV410T] 142
8.10.1 TEST 142
8.10.1.1 ID READ 142
8.10.2 MODULE 144
8.10.2.1 MODULE TYPE 144
8.10.2.2 Region 144
8.10.2.3 TAG 145
8.10.2.4 RF CHANNEL 145
8.10.3 RETRY 146
8.10.3.1 RETRY POSITION 146
8.10.3.2 RETRY LABELS 146
8.10.3.3 READ RETRY 146
8.10.3.4 WRITE RETRY 147
8.10.4 UHF SETTING 148
8.10.4.1 POWER LEVEL 148
8.10.4.2 Q VALUE 148
8.10.4.3 AGC THRESHOLD 149
8.10.4.4 WRITE AGC THRESHOLD 149
8.10.4.5 WRITE RETRY MIN AGC 150
8.10.4.6 CALIB. MODE 150
8.10.4.7 ENCODE POSITION 151
8.10.5 OTHER 152
8.10.5.1 TAG CHECK 152
8.10.5.2 MULTI WORD WRITE 153
8.10.6 CARRIER SENSE 154
8.11 FACTORY TEST 155
8.11.1 PANEL TEST 155
8.11.2 KEY TEST 157
8.12 BASIC 158
8.12.1 BASIC 158
8.12.2 FILE MAINTENANCE 158
8.12.3 TRACE 158
8.12.4 SYSTEM PROGRAM 158
8.13 XML 158
8.14 LCD PANEL 159
8.14.1 LCD LANGUAGE 159
8.14.2 DISPLAY 160
8.14.2.1 MODEL NAME 160
8.14.2.2 PRINTED COUNTER 160
8.14.2.3 IP ADDRESS 160
8.14.3 CONTRAST 160
8.15 PASSWORD 160
8.15.1 PASSWORD 160
8.15.1.1 System mode and user mode start screen when the password is enabled 161
9 USER MODE 162
9.1 Outline of the User Mode 162
9.2 EXIT 163

9.3 SET PARAMETERS 163
9.4 DETECTION LEVEL 163
9.5 SYSTEM TOOLS 163
9.5.1 DUMP 164
9.5.2 LOG 164
9.6 ISSUE CONTROL 165
9.7 SHOW ISSUE CONDITION 167
9.8 RIBBON CORE I.D. (Available for BV400T only) 168
9.9 RESET 168
10 DOWNLOAD 169
10.1 Downloading of the Printer Firmware 169
10.2 Download Bluetooth module firmware 171
11 AUTO CONFIGURATION MODE 172
11.1 Outline of the Auto Configuration Mode 172
11.2 Preparation for USB Memory 172
11.3 Auto Configuration File 173
11.3.1 Format 173
11.3.2 Model information 173
11.3.3 Display message 173
11.3.4 Firmware file to be downloaded 173
12 POWER SAVING FUNCTION 174

1 SCOPE

This specification applies to the key operations using the keys, LEDs and LCD of the BV400 series barcode printers.

2 OUTLINE

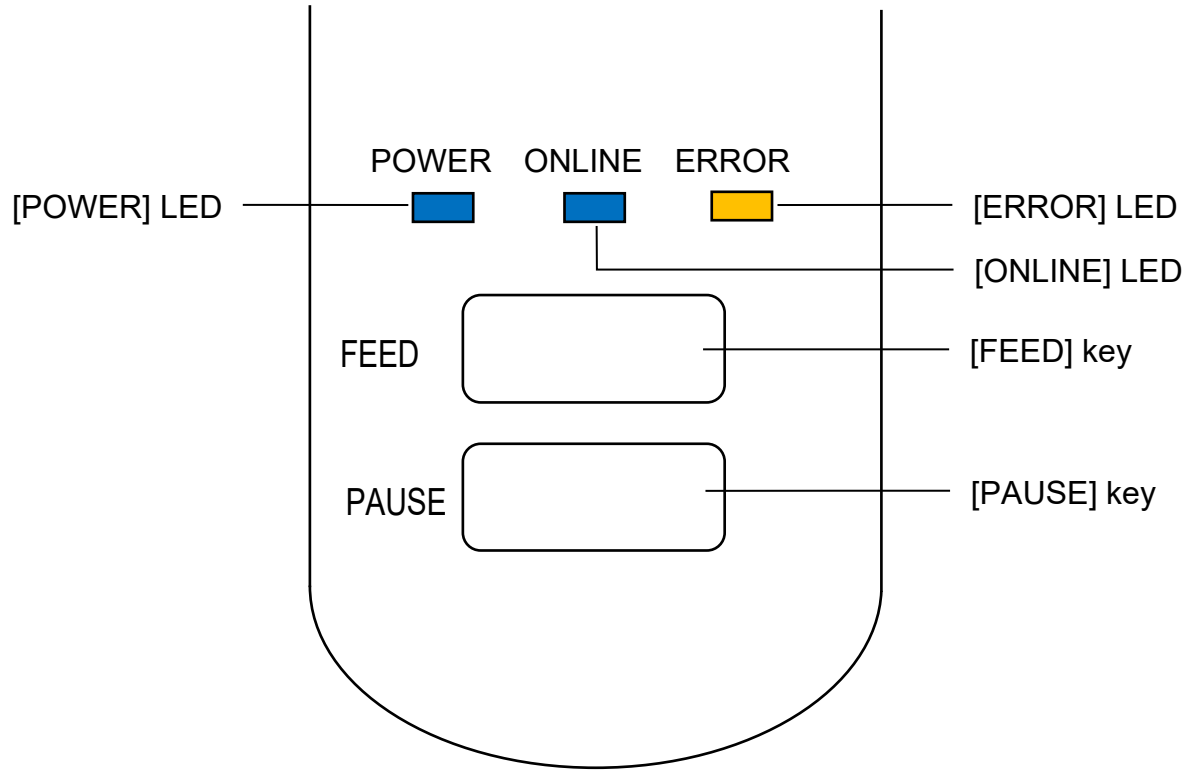
The key operations are different depending on the printer mode: The online mode in which operations are carried out through the keys and error messages are displayed while the printer is connected to the host such as a PC, and the system mode in which the self-diagnosis and the setting of various parameters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

Moreover, the key operations differ depending on the models. Refer to the following chapters for each model.
- Models without the LCD: Chapter 3
- Models with the LCD: Chapters 4 to 12

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

3 KEY OPERATION (Models without the LCD)

3.1 Operation Panel



Notes:

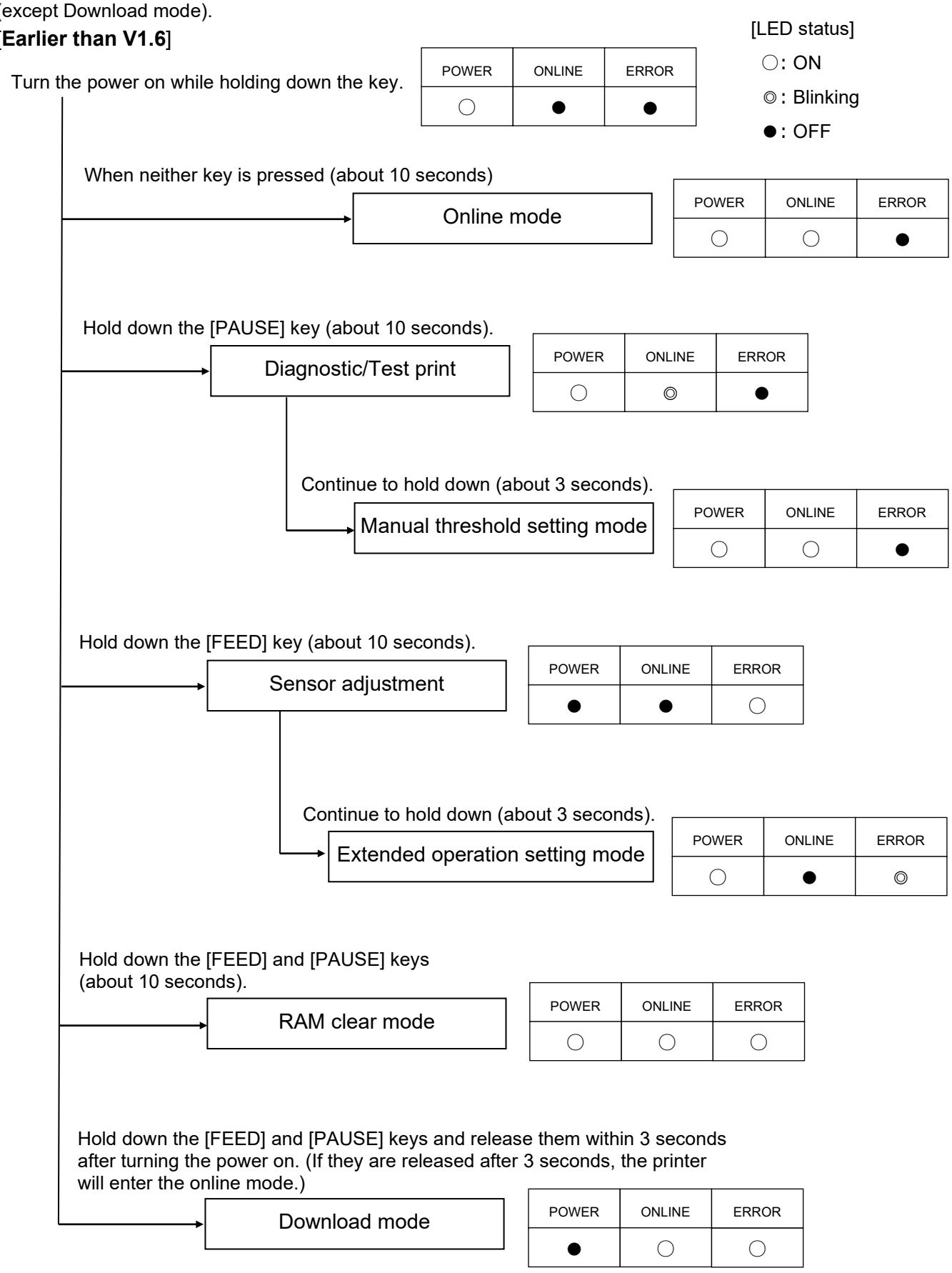
The LED emission colors are as follows.

[POWER] LED: Blue
[ONLINE] LED: Blue
[ERROR] LED: Amber

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).

[Earlier than V1.6]



[**V1.7 or later**]

[LED status]

○: ON

◎: Blinking

●: OFF

Turn the power on while holding down the key.

POWER	ONLINE	ERROR
○	●	●

When neither key is pressed (about 10 seconds)

→ Online mode

POWER	ONLINE	ERROR
○	○	●

Hold down the [PAUSE] key (about 10 seconds).

→ Diagnostic/Test print

POWER	ONLINE	ERROR
○	◎	

→ Manual threshold setting mode

Continue to hold down (about 3 seconds).

POWER	ONLINE	ERROR
○	○	●

Hold down the [FEED] key (about 10 seconds).

→ Sensor adjustment

POWER	ONLINE	ERROR
●	●	○

→ Media sensor calibration mode for Transmissive sensor

Continue to hold down (about 3 seconds).

POWER	ONLINE	ERROR
○	○	●

→ Media sensor calibration mode for Reflective sensor

Continue to hold down (about 3 seconds).

POWER	ONLINE	ERROR
○	●	○

→ Extended operation setting mode

Continue to hold down (about 3 seconds).

POWER	ONLINE	ERROR
○	●	◎

Hold down the [FEED] and [PAUSE] keys (about 10 seconds).

→ RAM clear mode

POWER	ONLINE	ERROR
○	○	○

Hold down the [FEED] and [PAUSE] keys and release them within 3 seconds after turning ON the power. (If released after 3 seconds, the printer will enter into the online mode.)

→ Download mode

POWER	ONLINE	ERROR
●	○	○

Notes:

Operation during automatic update of the 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 status of the [POWER] LED is ON, [ONLINE] LED and [ERROR] LED are blinking. After completion, the printer automatically enters the online mode (it does not depend on the key being 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) Pausing (Pause label issuing with the [PAUSE] key)
(4) Restarting (Use the [PAUSE] key to reissue after pausing label issuance and reissuing after an error.)
(5) Resetting (Press the [PAUSE] key to enter the initial state after turning the power on.)

3.3.1 Key function

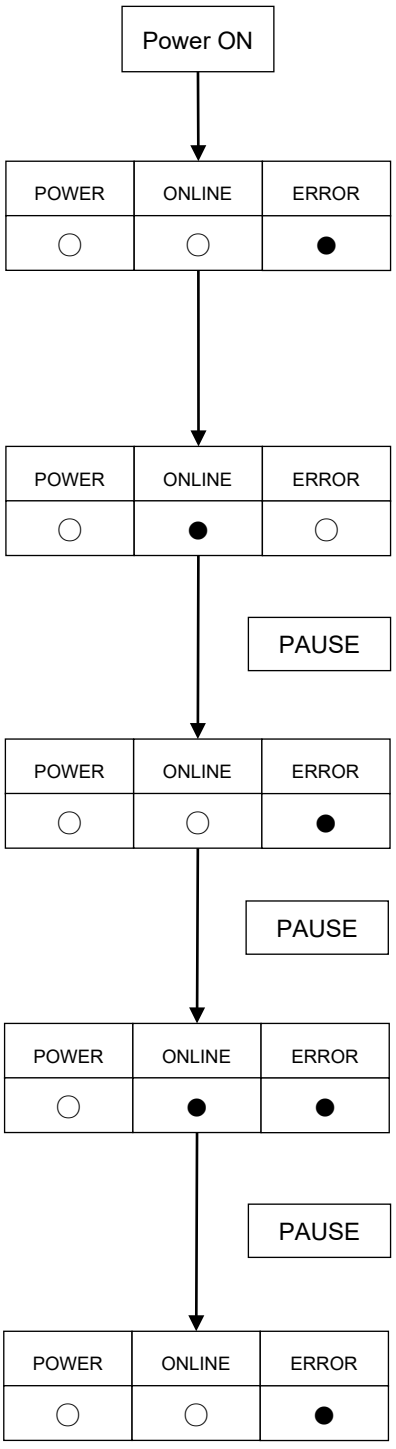
[FEED] key: Feeds one piece of media to eject one piece of media.
Use the media to feed to the print start position. If printing is attempted with the media improperly positioned, print data are not printed at the correct position. One or two pieces of the media need to be fed to adjust the print start position before printing.

[PAUSE] key: Stops label printing temporarily, reissue after stopping label printing or after an error.

3.3.2 LED function

[ONLINE] LED	Indicates that the printer is in the 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 saving 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 the 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 the idle state or printing is being performed.

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

Set the media and press the [PAUSE] key.

* Printing restarts.

Press the [PAUSE] key.

* If the [PAUSE] key is pressed during printing, this will be stopped and the printer will then enter the pause mode.

Press the [PAUSE] key.

* Printing restarts.

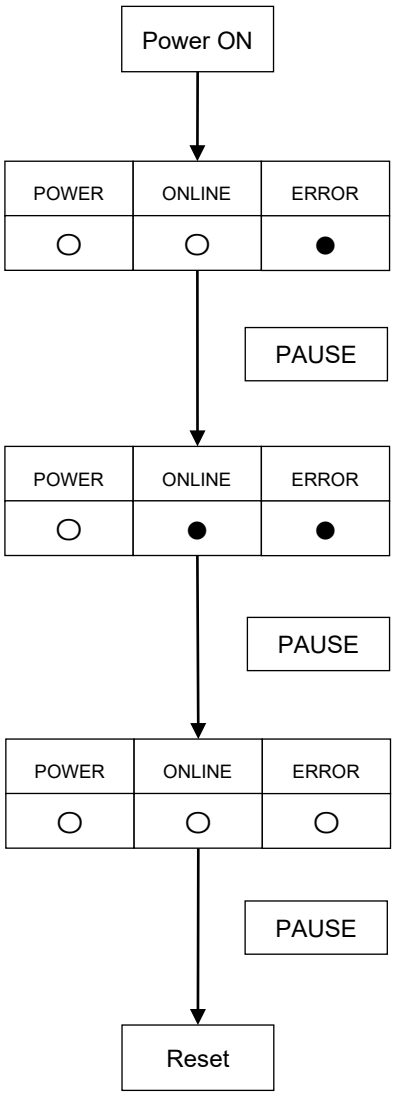
[LED status]

○: ON

◎: Blinking

●: OFF

3.3.4 Reset operation example



Turn the power on.

The printer is in the idle state or printing is being performed.

Press the [PAUSE] key.

The printer enters the pause mode.
* If the [PAUSE] key is pressed during printing, this 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 existing immediately after the power was turned on.

[LED status]

○: ON

◎: Blinking

●: OFF

Notes:

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

3.3.5 LED indications

○: ON ◎: Blinking ●: OFF

No	LED indication			Printer Status	Restoration by the [PAUSE] 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: 20 msec., OFF: 60 msec.	-	Yes
	○	◎	●	In the online mode (Loading the OTF) * Blinking interval: ON: 500 msec., OFF: 500 msec.	-	Yes
	○	○	◎	In the online mode in the ribbon nearly end state (Notes 1) (Available for BV400T only)	-	Yes
2	○	●	●	The top cover was opened in the online mode.	-	Yes
	○	●	●	The top cover was opened in the ribbon nearly end state. (Available for BV400T only)	-	Yes
3	○	●	●	In the pause state	Yes	Yes
	○	●	◎	In the pause state in the ribbon nearly end state (Notes 2) (Available for BV400T only)	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 feeding. ▪ The media is not loaded properly. ▪ The actual media in use and the selected media sensor type do not match. ▪ The media sensor position does not align with the black mark position. ▪ The size of the actual media and the specified media length do not match. ▪ The media sensor level is not suitable for the actual media in use. ▪ The gap of pre-printed label cannot be detected.	Yes	Yes
6	○	●	○	▪ A paper jam occurred in the cutter. ▪ The cutter did not move from its home position. ▪ The cutter cover is open.	Yes	Yes
7	○	●	○	▪ The media has run out. ▪ The media has not been loaded. ▪ The media sensor level is not suitable for the actual paper in use.	Yes	Yes
8	○	●	○	Feeding or issuing was attempted with the top cover open.	Yes	Yes
9	○	●	○	A broken dot error has occurred in the thermal head.	Yes	Yes
10	○	●	○	The thermal head temperature has become excessively high.	No	Yes
11	○	○	●	In the external characters or PC command saving mode	-	Yes
12	○	○	●	Initializing the storage area.	-	Yes
13	○	○	●	Downloading the TrueType font or BASIC program.	-	Yes
14	○	●	○	An error has occurred while writing data into the memory for storage (flash ROM on the CPU board).	No	Yes

15	○	●	○	An erasing error has occurred while formatting the memory for storage (flash ROM on the CPU board).	No	Yes
16	○	●	○	Saving failed because of an insufficient capacity in the memory for storage (flash ROM on the CPU board). (Online mode)	No	Yes
17	○	●	○	A command error has occurred while analyzing the command.	Yes	Yes
18	○	●	○	A system error has occurred because any of the following abnormal operations was performed. (a) Command fetching 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) An undefined command placed in other than the delay slot has been decoded. (e) An undefined command in the delay slot has been decoded. (f) A command to rewrite the delay slot has been decoded.	No	No
19	○	●	●	Initializing DHCP CLIENT. * Only when DHCP is enabled	-	-
20	○	●	○	▪ The ribbon has run out. ▪ A ribbon jam has occurred. ▪ The ribbon has been cut. ▪ The ribbon is not installed. (Available for BV400T only)	Yes	Yes

Notes:

1. When the detection of the ribbon nearly end state is set, the [ERROR] LED blinks in 1-second intervals (ON: 500 msec., OFF: 500 msec.) during the ribbon nearly end state.
2. If the label feed length exceeds the warning one, the [ERROR] LED is lit.

3.4 Self-diagnostic Test, Test Printing, Dump Mode

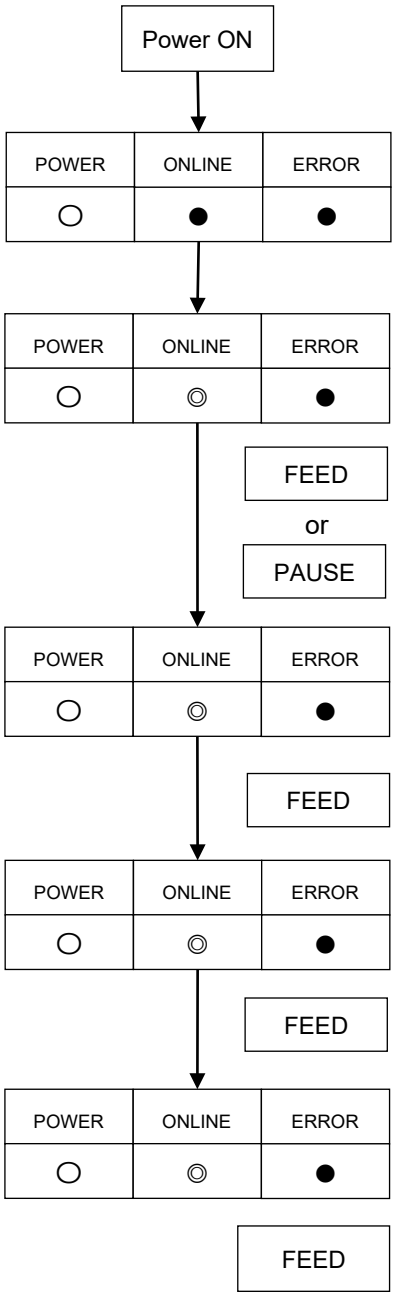
The self-diagnostic test, test printing and dump mode have the following functions.

(1) Self-diagnostic test and test printing

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

(2) Dump mode

3.4.1 Operation example of the self-diagnostic test, test printing and dump mode



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

(1)-1 Keep holding down the [PAUSE] key for about 10 seconds.

(2) Release the [PAUSE] key when the LEDs indicate as the left-hand image.
* If the [PAUSE] key continues to be held down, the printer will enter the manual threshold setting mode.

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

(4) The result of the self-diagnostic test is printed.
* Up to about 20 seconds are required until printing starts.

(5) Press the [FEED] key.

(6) The test printing is performed.

(7) Press the [FEED] key.

(8) The printer enters into the dump mode.

(9) Press the [FEED] key.
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 and then back on.

[LED status]

○: ON

◎: Blinking

●: OFF

Notes:

1. If an error occurs during printing, the [ERROR] LED is lit 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 automatic forward wait setting, the printer does not feed the media backward to the print start position when the test printing is performed.
3. Even if the printer is in the automatic forward wait setting, when the result of the self-diagnostic test is printed, the printer does not feed the media backward to the print start position after the printer returns to the online mode.

3.4.2 Self-diagnostic test printing

Maintenance Counter/Parameter Setting Print

See "8.4.1.1 Printing contents of Maintenance Counter and Parameter Settings" and "8.4.1.2 Display contents of Maintenance Counter and Parameter Settings" below.

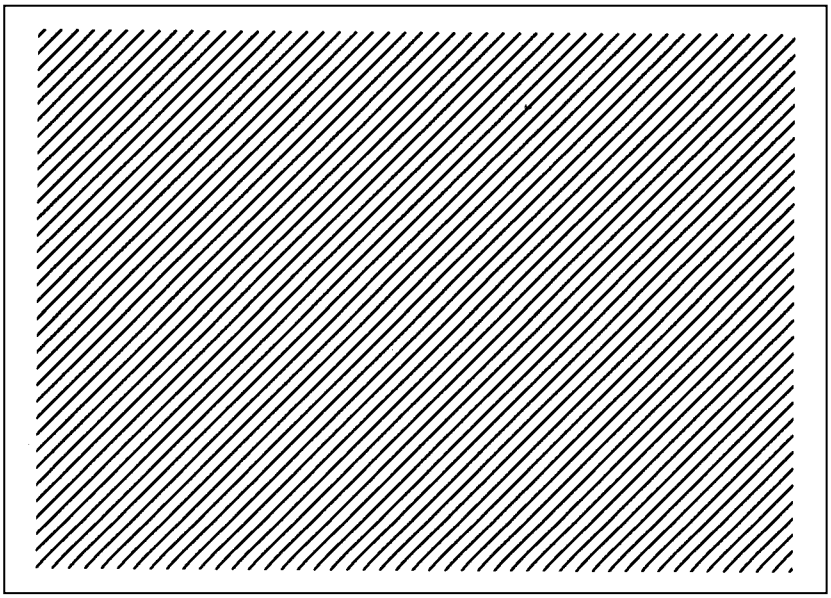
Self-diagnosis print

See "8.4.2.1 Automatic Self-Diagnosis Print Content" below.

Notes: for BV420D and BV420T

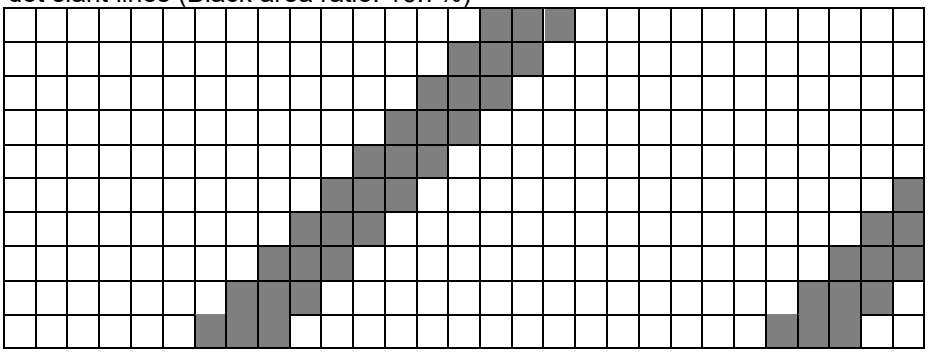
Printing conditions: No sensor, 4ips, 1 sheet issuance, continuous issuance, direct thermal printing

3.4.3 Test printing



3-dot slant lines

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



Notes: for BV420D and BV420T

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

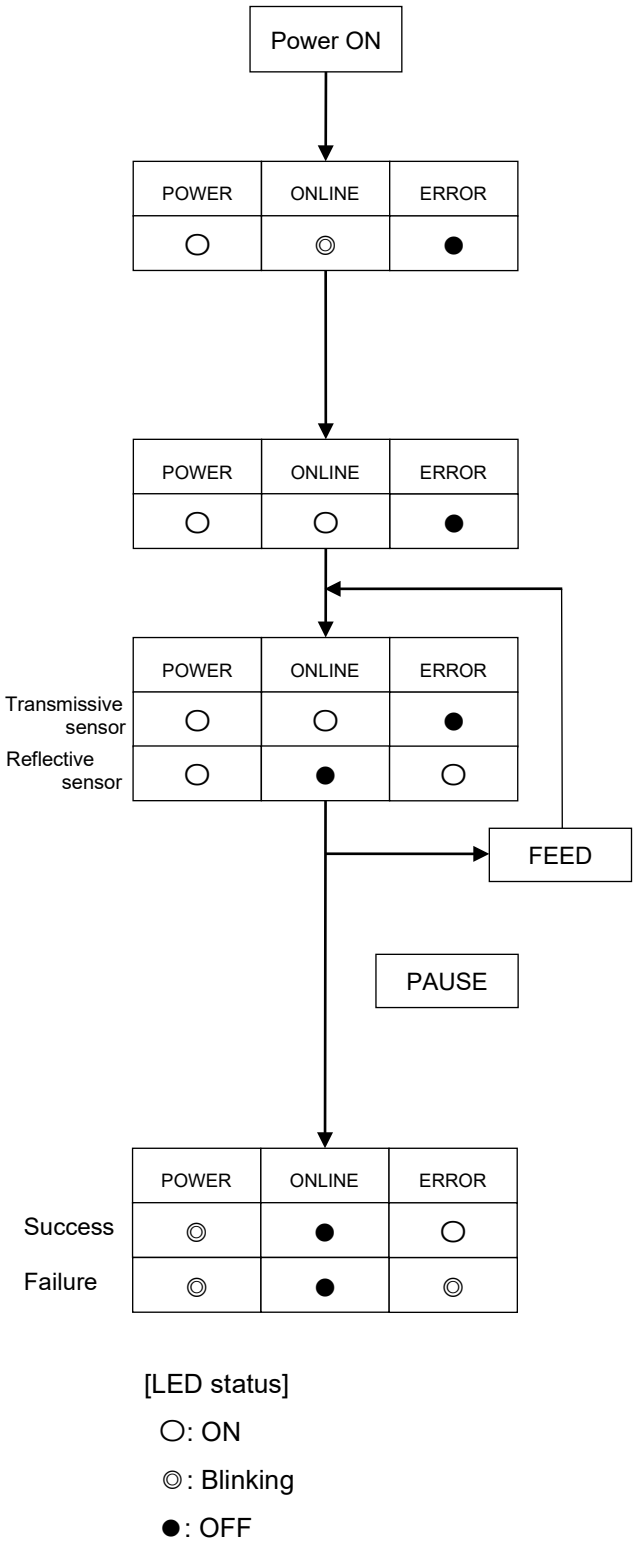
3.4.4 Dump mode

The dump mode is a mode for printing the data sent from the host in the dump mode.

Data are printed in 16-byte units.

The printing format is the same as the one described in "9.5.1. DUMP".

3.5 Manual Threshold Setting Mode



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

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

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

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

(5) Release the [PAUSE] key.

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

(6-a) When the [FEED] key is pressed, the setting is changed as well as the LED indication.

(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.

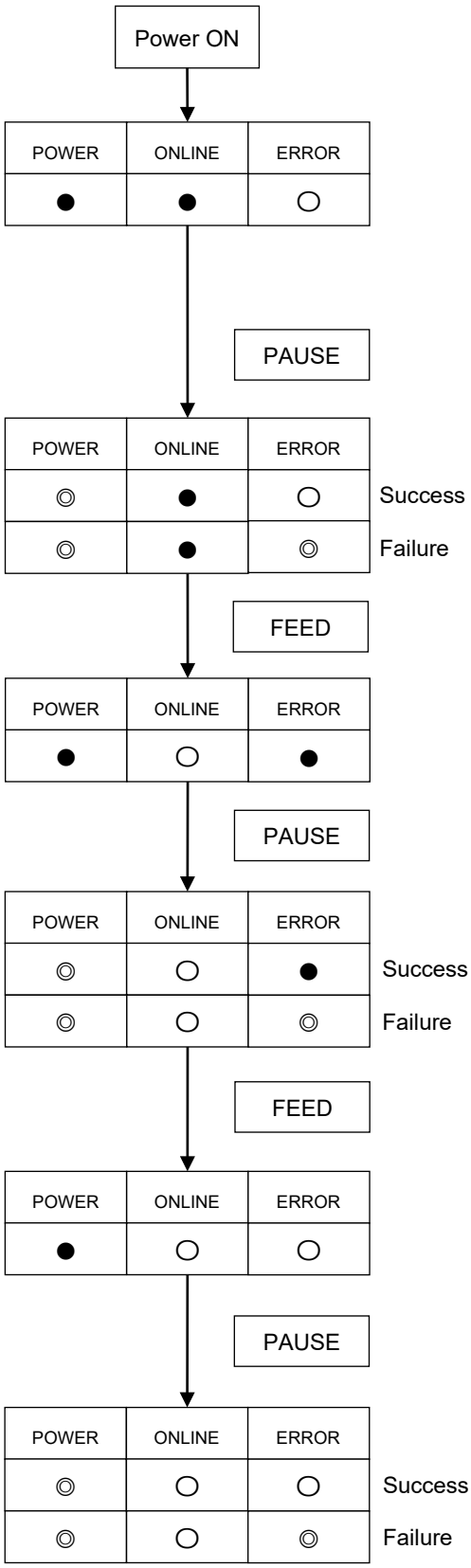
(8) Release the [PAUSE] key when the labels have been fed by 1.5 to 2 sheets or more.

(9) Manual threshold setting: Success or Failure

(10) Turn the power off.

Notes:
The value set in this mode is saved in "THRESHOLD1". (See 8.7.3 THRESHOLD LEVEL.)

3.6 Sensor Adjustment (Sensitivity Adjustment)



[LED status]

○: ON

◎: Blinking

●: OFF

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

(2) Release the [FEED] key when the LEDs indicate as the left-hand image. Then the printer will enter the reflective sensor adjustment mode.
* If the [FEED] key continues to be held down, the printer will enter the extended operation setting mode. (Earlier than V1.6)
* If the [FEED] key continues to be held down, the printer will enter the media sensor calibration mode. (V1.7 or later)

(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 the transmissive sensor adjustment mode.

(7) Load the media with the label removed 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 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.

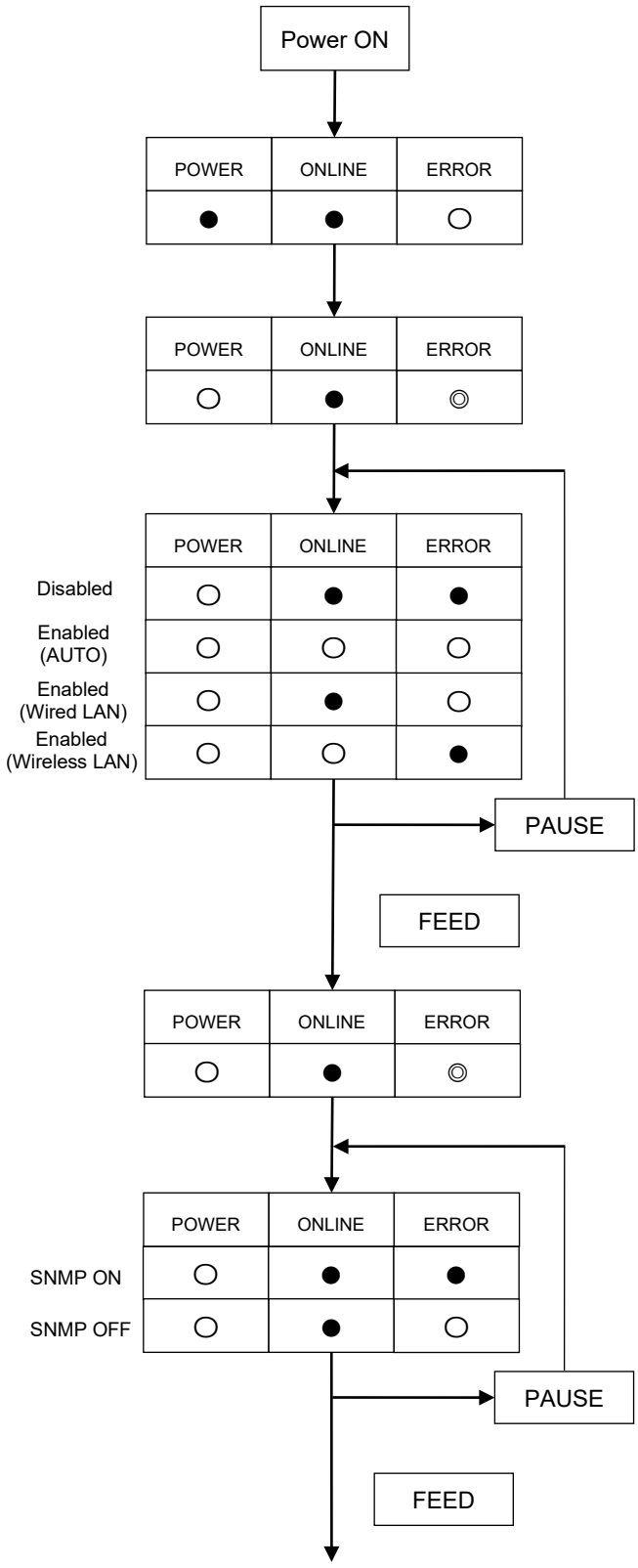
(12) The no paper level adjustment is completed.

(13) Turn the power off.

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 indicate as the left-side image. Then continue to hold down the [FEED] key.
* If the [FEED] key is released at this point, the printer will enter the sensor adjustment mode.

(3) The printer will enter 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) When the [PAUSE] key is pressed, the setting is changed as well as the LED indication.

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

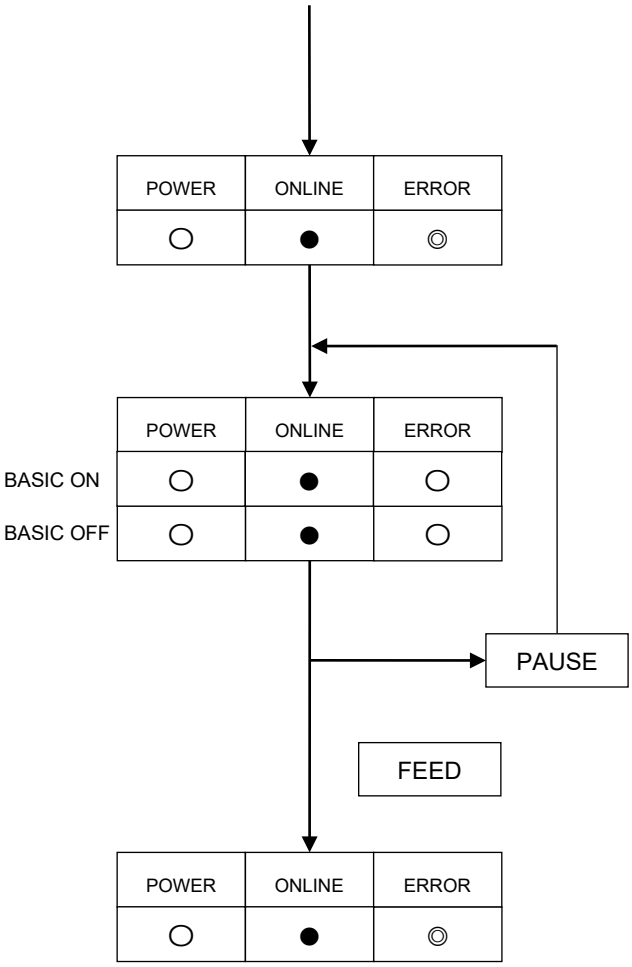
(7) The setting is completed.

(8) Release the [FEED] key.

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

(9-a) When the [PAUSE] key is pressed, the setting is changed as well as the LED indication.

(10) If the [FEED] key is held down 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.

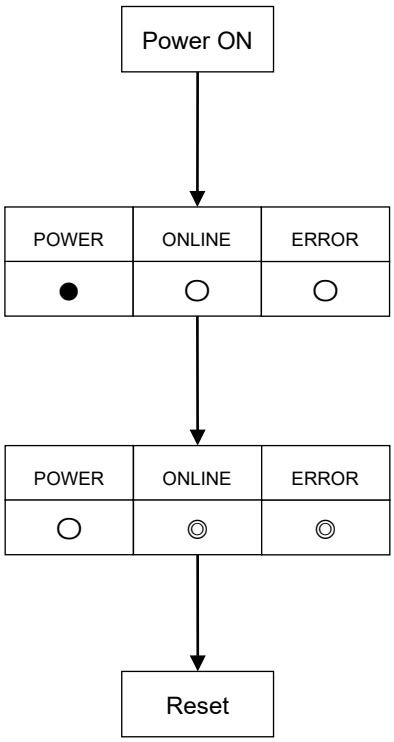
(13-a) When the [PAUSE] key is pressed, the setting is changed as well as the LED indication.

(14) If the [FEED] key is held down 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] keys. Then release them within 3 seconds after turning the power on.

* If they are not released within 3 seconds, the printer enters the online mode.

(2) Download mode

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

(4) During downloading

(5) The printer is automatically reset after download is completed.

[LED status]

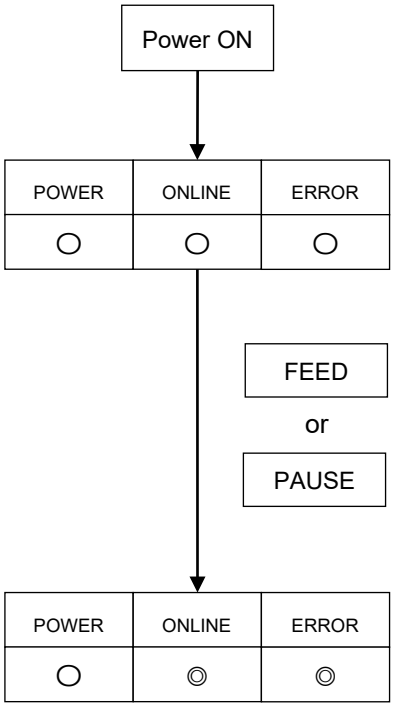
○: ON

◎: Blinking

●: OFF

3.9 RAM Clear

3.9.1 RAM clear operation example



(1) Turn the power on while holding down the [FEED] and [PAUSE] keys for about 10 seconds.

(2) The printer will enter the RAM clear mode.

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

(4) The RAM clear is completed.

[LED status]

○: ON

◎: Blinking

●: OFF

[Supplement explanation]

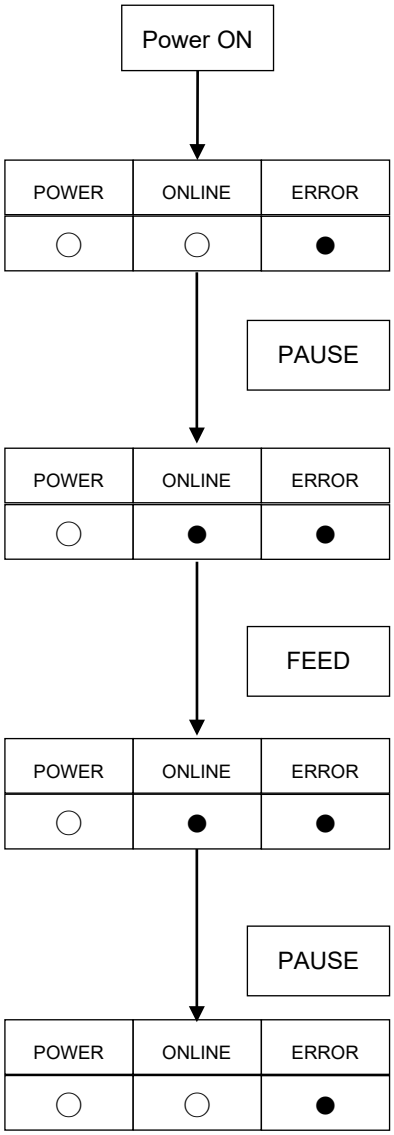
The parameter clearing is performed at the current destination setting. If you want to change the destination, use the BCP Setting Tool to clear the parameters. However, RAM clearing of the destination QQ can be executed only in this mode.

3.9.2 Contents of RAM clear

For the default value setting after clearing the RAM, see "8.8.2 MAINTE.CNT CLEAR" and "8.8.3 PARAMETER CLEAR".

3.10 Information Mode

3.10.1 Information mode operation example



(1) Idling

Press the [PAUSE] key.

(2) Pausing

Press the [FEED] key for 3 seconds or more.

(3) The printer will enter the information mode.

Press the [PAUSE] key.

(4) Printing of information is performed.

[LED status]

○: ON

◎: Blinking

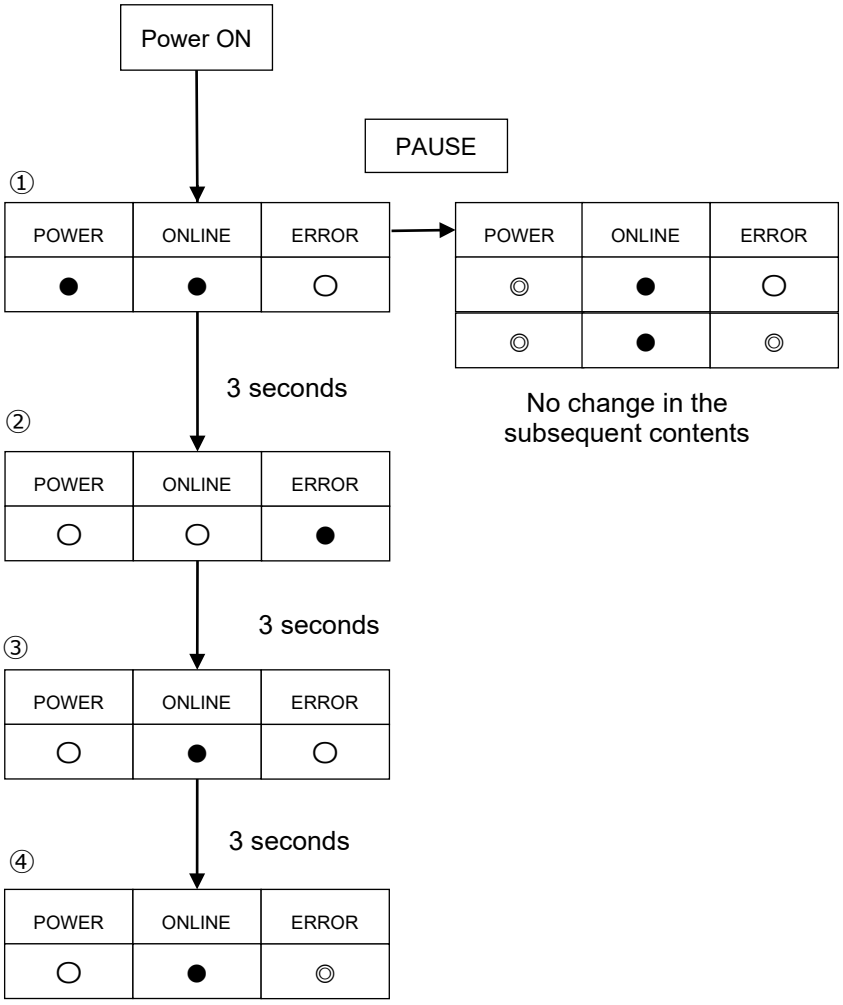
●: OFF

3.10.2 Contents of the information mode

For details about the contents of the information mode, see “4.1.3 Information mode” and “6.7 Information Mode”.

3.11 Media Sensor Calibration Mode (V1.7 or later)

This is the mode to execute automatic calibration by the key operation.



[LED status]

○: ON

◎: Blinking

●: OFF

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

(2) Release the [FEED] key within 3 seconds while the LEDs indication is as the left-hand image (①). The printer will enter the sensor adjustment mode (reflective sensor).

(2-1) Release the [FEED] key within 3 seconds while the LEDs indication is as the left-hand image (②). Then the printer performs calibration using the transmissive sensor and will enter the online mode.

(2-2) Release the [FEED] key within 3 seconds while the LEDs indication is as the left-hand image (③). Then the printer performs calibration using the reflective sensor and will enter the online mode.

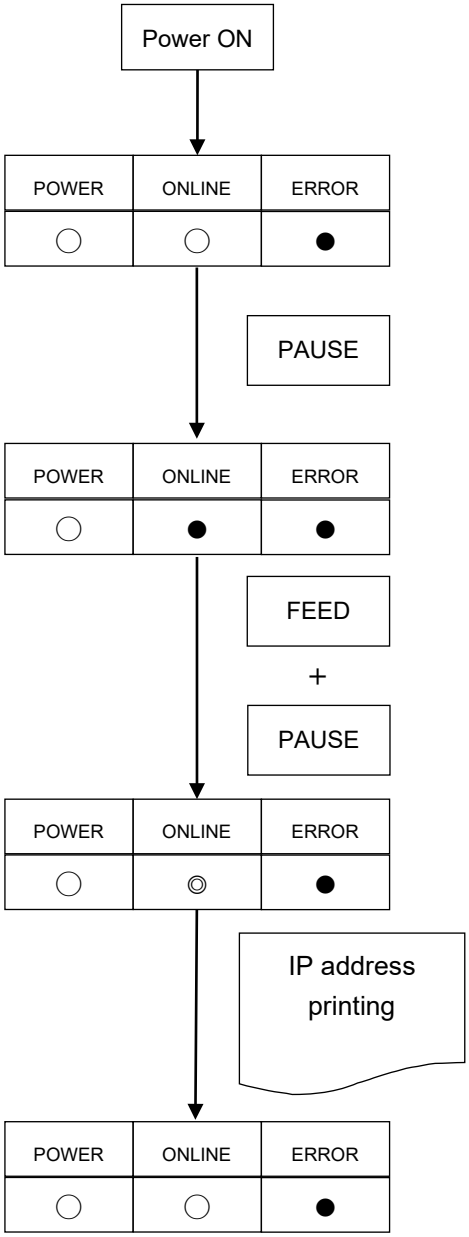
(2-3) Keep holding [FEED] key while the LEDs indication is the left-hand image (④).

3.12 DHCP obtained IP address printing

* V2.1 or later

Supported mode	TPCL	Z Mode	S Mode	D Mode	E Mode	I Mode
V2.1	Supported	Supported	Supported	Supported	Supported	Not Supported

3.12.1 DHCP obtained IP address printing operation example



(1) Idling

(2) Press the [PAUSE] key.

(3) Pausing

(4) Press the [FEED] and [PAUSE] keys for 3 seconds or more.

(5) When the ONLINE LED becomes blinking, release the [FEED] and [PAUSE] keys.

(6) After the IP address is obtained, perform printing.
(Until the IP address is obtained, the ONLINE LED keeps blinking and printing is

(7) The printer will enter the ONLINE mode.

[LED status]

○: ON

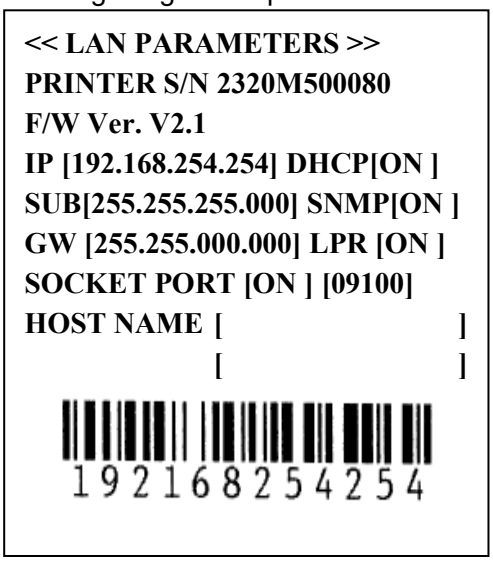
◎: Blinking

●: OFF

3.12.2 Contents of printing

The contents of printing are as shown below.

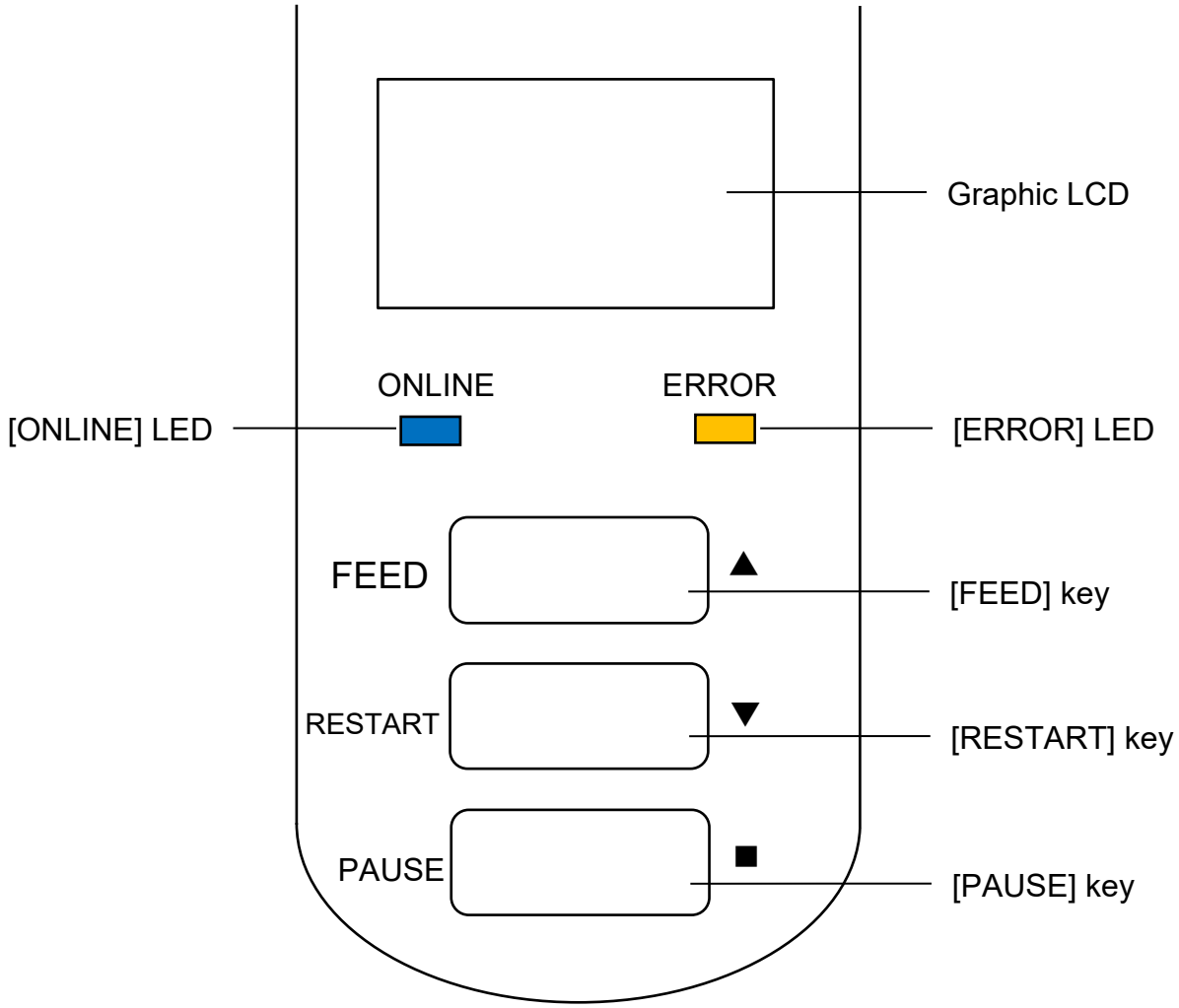
■ Printing image example



<Details of printing>

- PRINTER S/N: Printer serial number
- F/W Ver.: Printer firmware version
- IP: IP address
- DHCP: DHCP setting
- SUB: Subnet mask
- SNMP: SNMP setting
- GW: Default gateway
- LPR: LPR setting
- SOCKET PORT: Socket communication, port information
- HOST NAME: DHCP host name
- Barcode: IP address in the code128 format barcode

4 OPERATION PANEL (Models with the LCD)



Notes:

The LED emission colors are as follows.

[ONLINE] LED: Blue

[ERROR] LED: Amber

4.1 Outline of Each Mode

This chapter describes the outline of each mode supported by this printer. Refer to each chapter for detailed information.
In addition, in case of an operation using a USB memory, it is not necessary to insert it 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 has occurred in the printer, the help function shows the content of the error as well as its cause, troubleshooting and recovery procedure.

4.1.2 Threshold setting mode

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

4.1.3 Information mode

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

4.1.4 User mode

This mode is accessible from the online mode. This mode contains the menus which might be frequently changed mainly by users (administrator) or service technicians.
In addition to the menus such as the parameter setting and the fine adjustment common to those in the system mode, the system tools menus which can display the issue condition of the printer, automatic media measurement and dump printing of received data by the printer are provided.

4.1.5 System mode

This mode is mainly used by service technicians or the production department staff for adjustment of the printer before shipment. This 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 mode, there are the sensor adjustment, interface setting and BASIC setting menus, etc.

4.1.6 Download mode

This mode is used to download the BOOT firmware and the MAIN firmware.

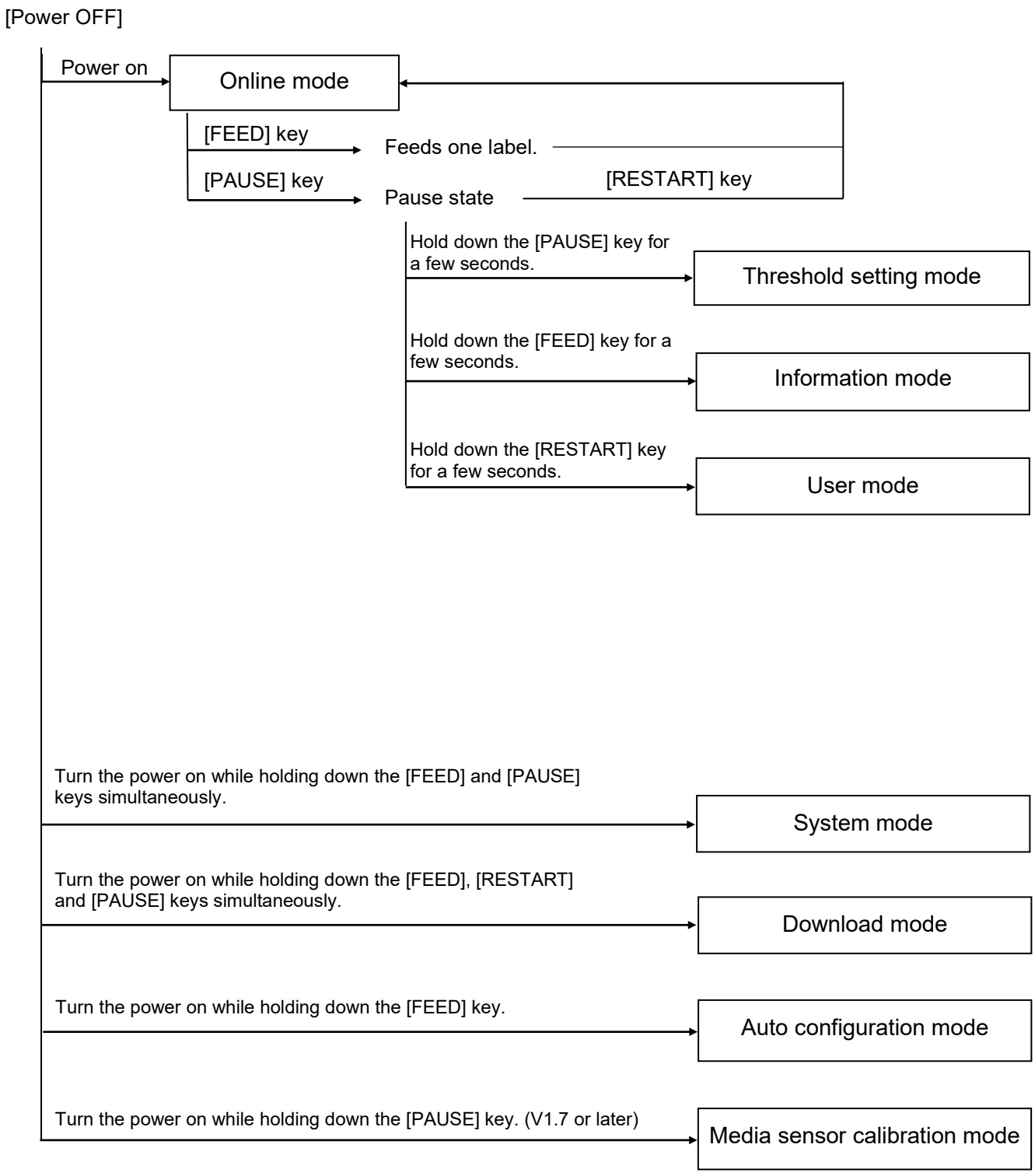
4.1.7 Auto configuration mode

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

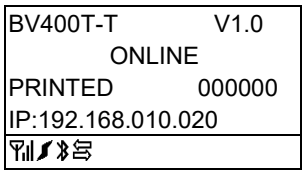
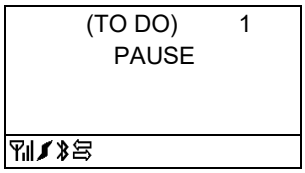
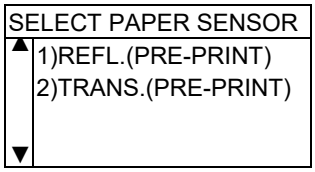
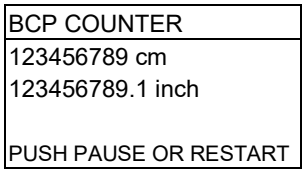
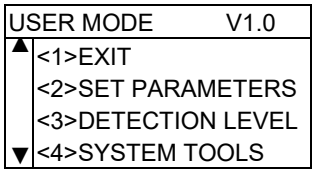
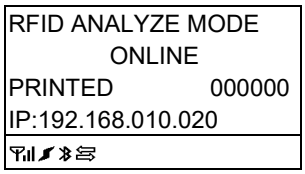
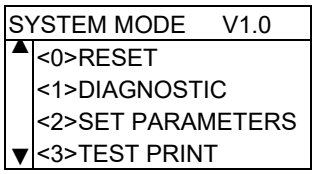
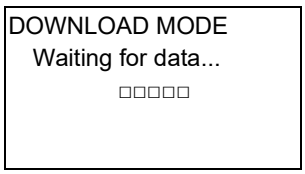
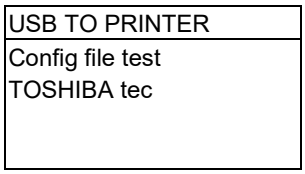
4.1.8 Media sensor calibration mode (V1.7 or later)

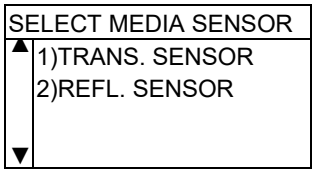
In this mode, the printer performs automatic calibration by the key operation menu.

5 GENERAL VIEW OF KEY OPERATION



<Example of the LCD display>

Online mode	
Pause state	
Threshold setting mode	
Information mode	
User mode	
RFID analyze mode (Available for BV410T only)	
System mode	
Download mode	
Auto configuration mode	

Media sensor calibration mode (V1.7 or later)	

Supplement Explanation:

1. To enter the download mode, system mode or auto configuration mode, keep holding down the specified keys until each menu is shown.
2. Power off
   When the power of the printer is turned off by pressing the [POWER] key, the [ONLINE] and [ERROR] LEDs synchronously blink (ON: 250 ms., OFF: 250 ms.). When the LEDs are unlit, the power of the printer is turned off. The power of the printer should not be turned on again while these LEDs are blinking. Otherwise, the "SYSTEM ERROR 02 POWER FAILURE" message will be displayed. In addition, the LCD message may be corrupted 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 keys are operated.

6.1.1 Online mode screen

Key	Function
[FEED]	(1) Feeds one piece of media to eject one piece of media. Use this key align the media to its print start position. If printing is attempted with the media improperly positioned, print data are not printed at the correct position. To avoid this, 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 drawing command shall not be sent to the printer during printing by pressing the [FEED] key. Otherwise, the layout will be destroyed. Moreover, if printing is performed by pressing the [FEED] key while the data are 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 a 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 peel-off mode, the printer feeds labels even when the peel-off sensor is detecting a label. * When the media load parameter is enabled, media feeding is performed to find the print start position depending on the condition. For details, refer to Section 8.5.1 MEDIA LOAD. (3) Switches to the information mode. (Press for more than 3 seconds in the pause state.)
[RESTART]	(1) Resumes printing after a temporary stopping of printing or after an error. (2) Places the printer in the initial state after startup. (3) Places the printer in the user mode. (Press for more than 3 seconds in the pause state.)
[PAUSE]	(1) Stops label printing temporarily. (2) Sets the threshold value. (Press for more than 3 seconds in the pause state.) (3) Displays the help message.

6.1.2 Help screen

Key	Function
[FEED]	(1) Returns the page to the previous help message. (2) Ends the help message screen.
[RESTART]	(1) Ends the help message screen and restarts the operation.
[PAUSE]	(1) Moves the page to the next help message. (2) Ends the help message screen.

6.1.3 Manual threshold setting screen

Key	Function
[FEED]	(1) Moves the cursor upward. (2) Resets the settings. (3) Scrolls down the display of the instructions. (4) Moves to the detection result.
[RESTART]	(1) Moves the cursor downward. (2) Scrolls up the display of the instructions. (3) Finishes the threshold setting.
[PAUSE]	(1) Performs the threshold setting. (2) Fixes the selected contents. (3) Moves to the detailed display. (4) Moves to the adjustment setting.

6.2 LED Function

[ONLINE] LED	Indicates that the printer is in the 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 saving 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 the error state.
	Lights when a system error has occurred.
	Blinks (ON: 250 msec., OFF: 250 msec.) in synchronization with the [ONLINE] LED when the printer is turned off.

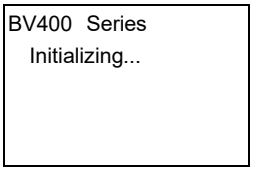
6.3 LCD Function

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] key is pushed, the LCD backlight turns on. When the entire LCD glows, release the [POWER] key.
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	BV400D-T V1.0 ONLINE PRINTED 000000 IP:192.168.010.020 [icon]	← Model name, Firmware version (*5) (*7) ← Message ← Number of the printed labels (*1) ← IP address etc. (*4) ← Icon
Pause	(TO DO) 123 PAUSE [icon]	← Number of remaining labels to print (*2) ← Message ← Icon
Head open	(TO DO) 123 HEAD OPEN Close the print Head block. [icon] Help[P]	← Number of remaining labels to print (*2) ← Message ← 1st line of the error message ← 2nd line of the error message ← Icon, Help guide (*3)

Supplement Explanation:

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

Notes:

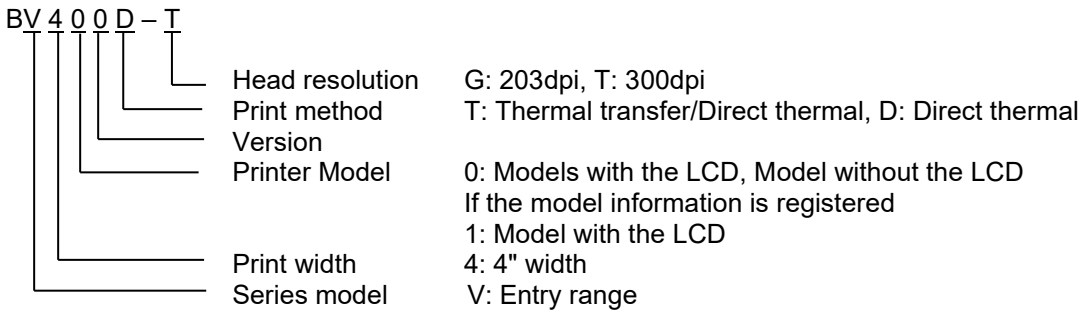
*1. The number of labels printed is the cumulative number of labels printed after the power of the printer is turned on. The number of labels printed resets to zero when the printer is turned on. During the issue operation with the cut interval specified, the number of labels is updated when the label has been cut normally.

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

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

*4. The message displayed here is an IP address or supplemental information.
- When the LAN/WLAN setting is disabled, the IP address is not displayed even if the displaying IP address is enabled in the system mode.
- The ribbon nearly end message is displayed when a ribbon nearly end status is detected, regardless of whether displaying the ribbon nearly end message is enabled in system mode. The ribbon nearly end status is detected depending on the remaining diameter of the ribbon. (Available for BV400T only)
  Inner diameter of ribbon core is 0.5 inches: 30 m is equivalent to φ26 mm.
  Inner diameter of ribbon core is 1.0 inch: 30 m is equivalent to φ39.7 mm.

*5. Model name description



*6. The ribbon nearly end status is sometimes displayed on this line during the pause state. The display condition is the same as that for the description in *4 (display of the ribbon nearly end status). (Available for BV400T only)

*7. When the emulation automatic switching is set, “A1:” or “A2:” is displayed. (Supported from V3.1 or later)

6.4.2 Icon

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

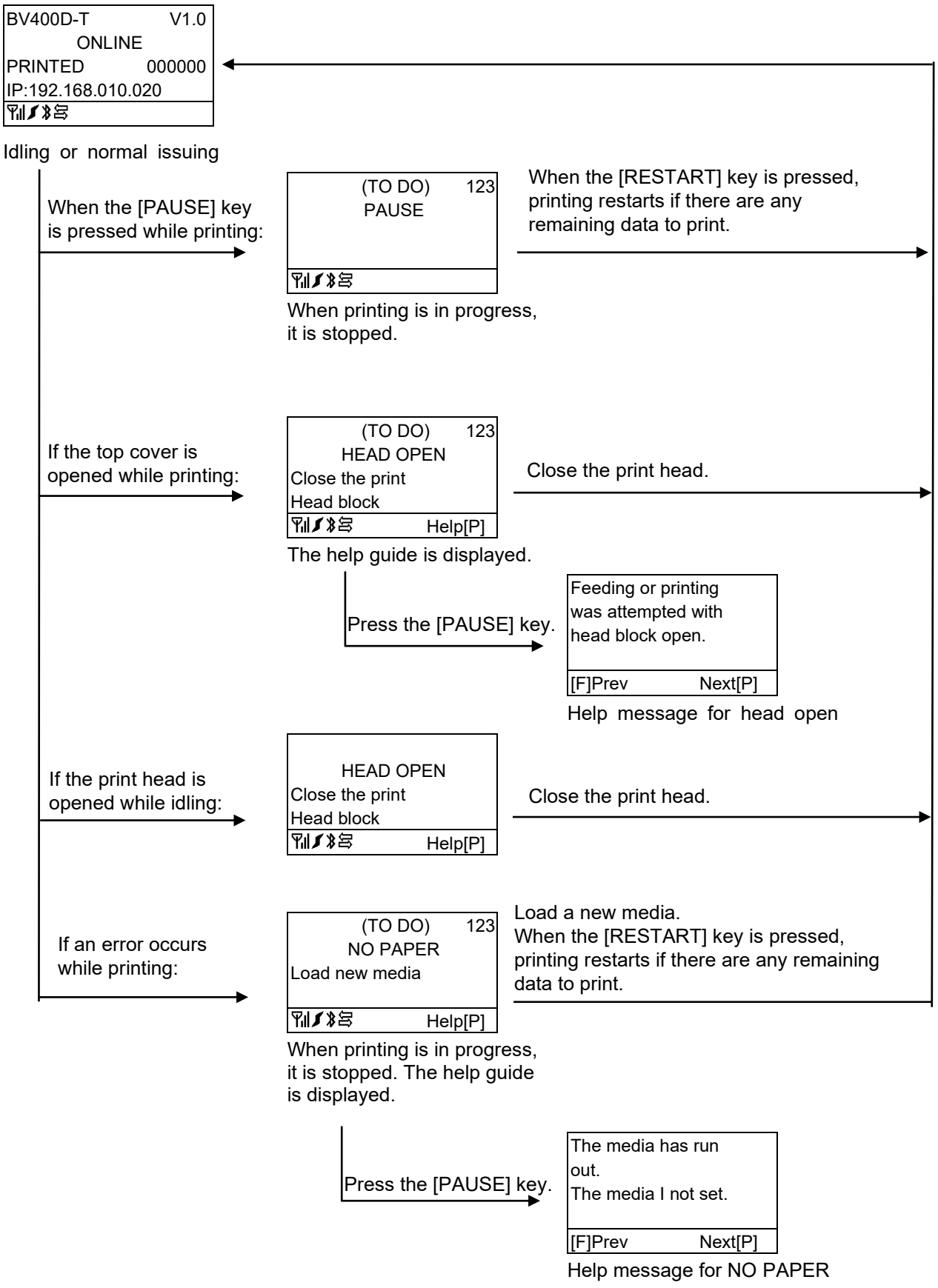
Icon	Explanation
Wireless LAN icon	- Displayed and used when the wireless LAN module is installed. - The graph shows the radio field strength.  Graph 0: Outside the communication range  Graph 1: Low  Graph 2: Middle  Graph 3: High
Link icon	- Displayed and used when the wireless LAN module is installed. - Displayed while the printer is communicating by the 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: Not connected  Connection available  Connecting
Bluetooth mode icon	- Displayed Bluetooth automatic reconnection mode. OFF: The printer is not in the Bluetooth automatic reconnection mode  ON: Bluetooth automatic reconnection mode
Data transmission icon	- Appears when there is a job in the printer. * This may not appear depending on the type of the job.  ON: There is a job.
RFID icon (Available for BV400T only)	- Displayed and used when the RFID module is installed. - This is turned on when the RFID module type is set and communication with it is available. - This is blinking during communication or an operation performing sequence with the RFID module. - Communication regardless of output radio waves is included. - This will blink when the output radio waves are instructed to the module even if none are emitted. (This will blink while the module is stopping the output radio waves due to the impact from other carriers or the channels are switching.)  ON: The module type is set. Communication is available.  Blinking: Communicating

Ribbon nearly end icon (Available for BV400T only)	- A ribbon nearly end status is detected. - This blinks when the ribbon is coming to its end. The ribbon nearly end status is detected by the remaining diameter of the ribbon. Inner diameter of ribbon core is 0.5 inches: 30 m is equivalent to φ26 mm. Inner diameter of ribbon core is 1.0 inch: 30 m is equivalent to φ39.7 mm.  Blinking: Ribbon nearly end status (*1)

Notes

*1. The icon blinks at a 1-second intervals (ON: 500 msec., OFF: 500 msec.)

6.4.3 Online mode screen transition and operation example



6.5 Help Screen

6.5.1 Explanation of the help screen

When "Help" is displayed at the lower right of the online mode screen, a help message is displayed by pressing the [PAUSE] key.

The help message is displayed in 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 the help message

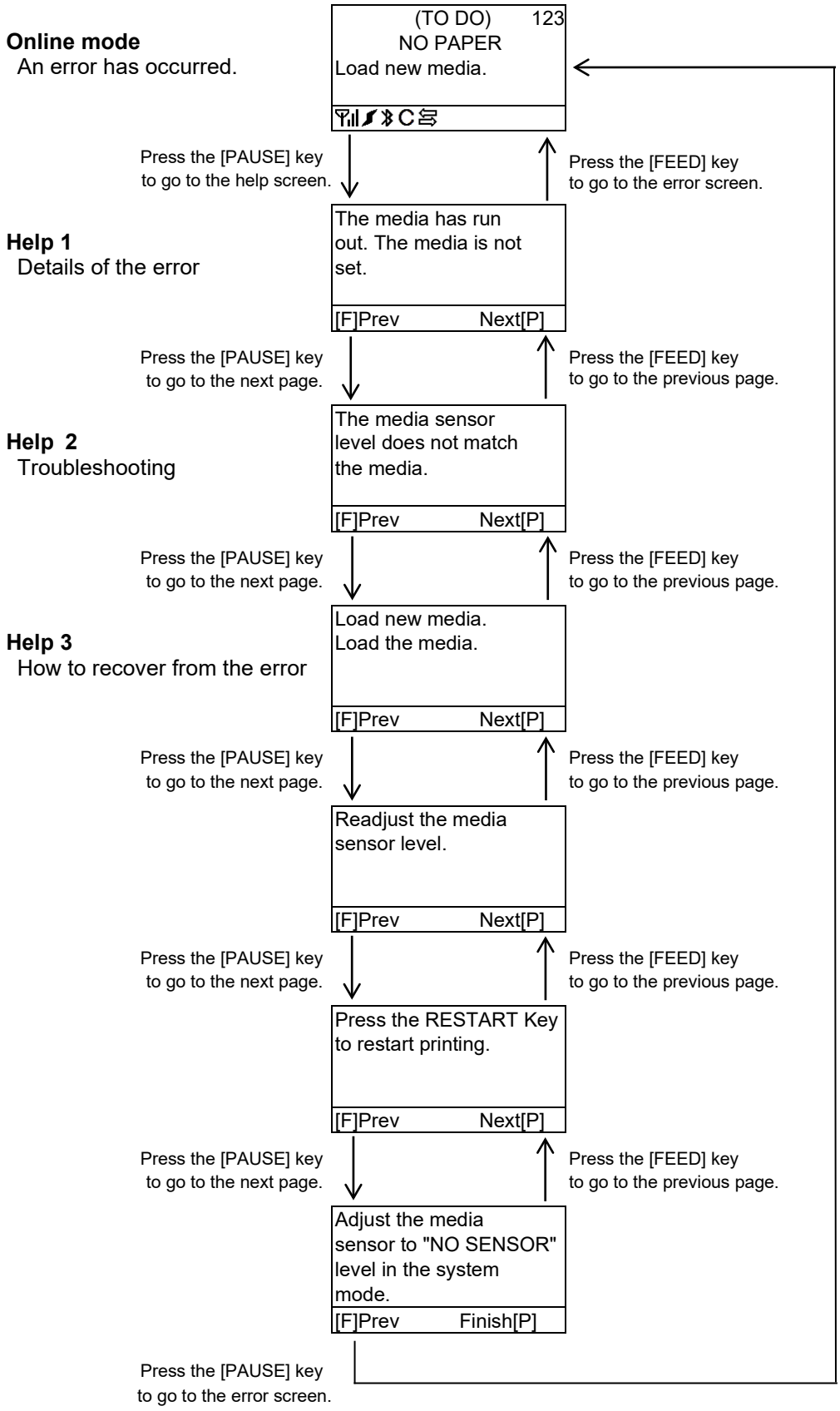
Help message	Display example	Description of each line
Up to 4 lines	The media has run out. The media is not set. [F]Prev Next[P]	← 1st line of help message ← 2nd line of help message ← 3rd line of help message ← 4th line of help message ← Help guide
	Since the help message is within three lines, the scrollbar arrows are not shown. When the screen shows the middle of the message, “Next[P]” appears to indicate that there is a next page.	
5 lines or more	sensor to "NO SENSOR"level in the system mode. [F]Prev Finish[P]	← 1st line of help message ← 2nd line of help message ← 3rd line of help message ← 4th line of help message ← Help guide
	Since the help message exceeds four lines, the scrollbar arrows are shown. When the screen shows the last page of the message, “Finish[P]” appears indicating the end of the message.	

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 the 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 relative to the one which occurred.



6.6 Manual Threshold Setting

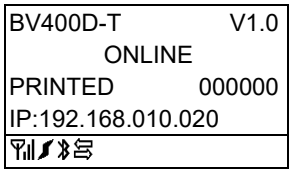
6.6.1 Outline of threshold setting

When a label stock is printed, the printer automatically corrects the print position by detecting the gaps between the labels by using a transmissive sensor to maintain a constant print position. However, when preprinted label stock is used, print positions may not be detected correctly depending on the 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 the 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 are printed at a constant print position correctly since the print positions are detected based on this threshold.

When 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 a reflective sensor. However, if there is a 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 the 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 are printed at a constant print position correctly since the print positions are detected based on this threshold.

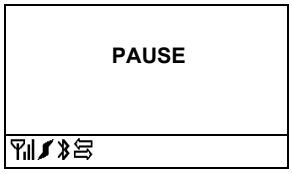
6.6.2 Threshold setting operation example

1. Online mode:
   Online state



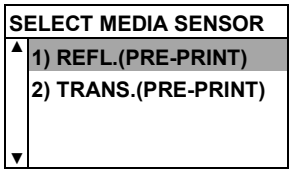
↓ Press the [PAUSE] key.

2. Online mode:
   Pause state



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

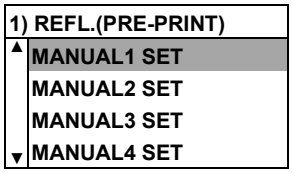
3. Threshold setting:
   Media sensor selection



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

↓ Press the [PAUSE] key.

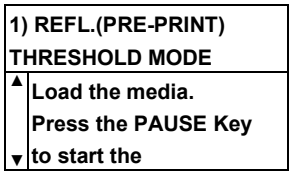
3-1. Threshold setting
   Threshold value save destination selection.



There are 5 destinations.
MANUAL1 SET
:
MANUAL5 SET

↓ Press the [PAUSE] key.

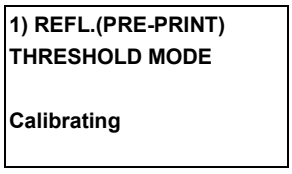
4. Threshold setting:
   Waiting for the media to be loaded



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

↓ Press the [PAUSE] key.

5. Threshold setting:
   Calibration

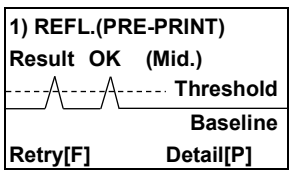


Hold down the [PAUSE] key to keep feeding the media.

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

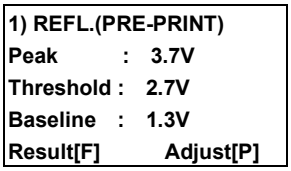
When the judgment result is OK, go to "6. Threshold setting".
When the judgment result is NG, go to "7. Threshold setting".

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



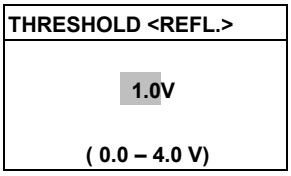
[FEED] key → "3. Media sensor selection." (Threshold is set again.)
[RESTART] key → "2. Pause state." (Threshold setting is completed.)
[PAUSE] key → "6b. Details of the result." (Result and the threshold value are displayed.)

6b. Details of the result



↓ Press the [PAUSE] key.

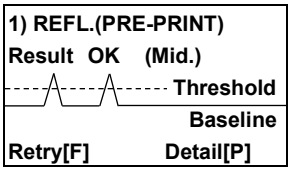
6c. Threshold fine adjustment



Operation is same as 8.7.3 THRESHOLD LEVEL.

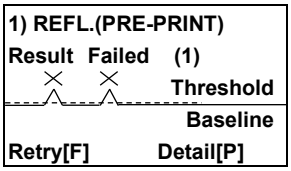
Press any of the [PAUSE] key.

6d. Judgment result (After the fine adjustment)



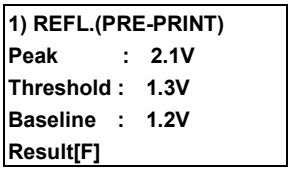
[FEED] key → "6c. Threshold fine adjustment." (The threshold value is fine adjusted again.)
[RESTART] key → "2. Pause state." (Threshold setting is completed.)
[PAUSE] key → "6b. Details of the result." (Result and the threshold value are displayed.)

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.)	The print position is detectable with the media sensor. The threshold is at the midpoint between the peak and the baseline.
2		OK (High)	The threshold is near the peak voltage, so the 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 a more accurate detection.)
3		OK (Low)	The threshold is near the baseline voltage, so the 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 a more accurate detection.)
4		NG (1)	The print position is not detectable with the media sensor. Fine adjustment is necessary.
5		NG (1)	The print position is not detectable with the media sensor because the threshold ≤ Baseline. Fine adjustment is necessary.
6		NG (2)	The 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
1) REFL.(PRE-PRINT) **Peak : 3.7V** **Threshold : 2.7V** **Baseline : 1.3V** **Result[F] Adjust[P]**	・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 labels 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 a preprinted label)" or "4: Reflective sensor (when using a manual threshold value)" is selected for the sensor type of the Feed Command and the Issue Command.

(5) The paper end and the 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 as 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 automatic calibration is enabled, manual threshold setting is disabled.
Also, when changing from automatic calibration valid to invalid, set the manual threshold.

6.7 RFID Analyze Mode (Available for BV400T only)

6.7.1 Outline of the RFID analysis

The RFID analysis is a function to calibrate and determine the “appropriate reading and writing position” and “AGC values” required for the RFID reading and writing issue, by following the command from the RFID analyze tool. Parameters which will be calibrated particularly depend on the specification of the RFID analyze tool.

When the printer enters the RFID analyze mode by following the command from the RFID analyze tool, RFID analysis is being performed is indicated on the top line of the LCD.

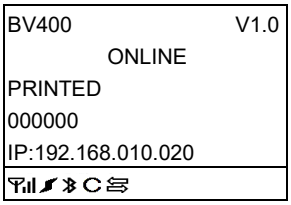
The performance during the RFID analyze mode is as below.

- The FEED fine adjustment parameters (including system mode setting and AX command setting) recorded in the printer are ignored and the printer is made to perform with the FEED fine adjustment value specified by the RFID analyze tool.
- The hold status after the LF motor has been stopped is not released; however, a hold current is kept to apply to the LF motor with the current value previously specified.

* The RFID analyze mode is turned OFF when the printer is started or reset.
When an error such as running out of media has occurred, the RFID analyze mode is turned OFF and the printer returns to the normal mode.

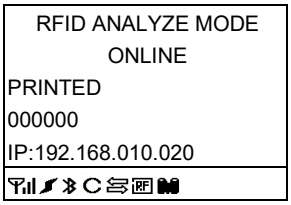
Display example

Online mode
Normal status



A command from the RFID analyze tool to enter the RFID analyze mode is received

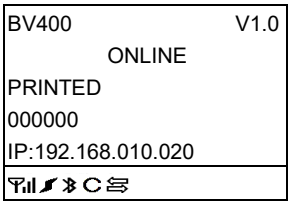
RFID analyze mode



RFID calibration is performed by the command from the RFID analyze tool.

A command from the RFID analyze tool to return to the normal mode is received

Online mode
Normal status



6.8 Information Mode

6.8.1 Outline of the information mode

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

Tip:

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 centimeters:	0 to 320000000	Earlier than V3.1
	0 to 4200000000	V3.1 or later
In unit of inches:	0.0 to 125984251.9	Earlier than V3.1
	0.0 to 1653543307.0	V3.1 or later

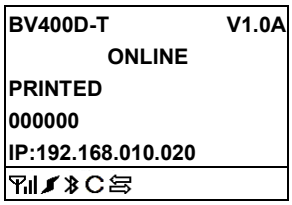
2. In the following cases, feeding or printing is not counted in this feed amount(*1).
   Reverse and forward feeding to the peel-off position, pre peel-off feeding, auto forward feeding, offline printing (such as diag. printing, test printing, maintenance counter printing and dump printing), printing in the information mode, feeding 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

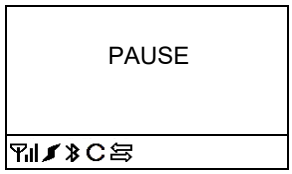
6.8.2 Information mode operation example

[Online mode]
1. Normal state



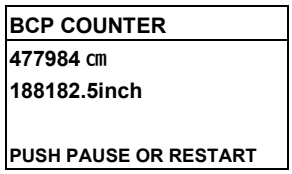
↓ Press the [PAUSE] key.

[Online mode]
2. Pause state



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

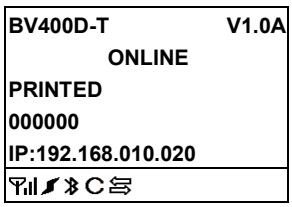
[Information mode]
3. The feed amount is displayed.



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.

Tip:

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

   Executing 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, calibration is performed after the quick reset.

   When the automatic call at power on parameter is enabled in the saved data call command, the 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 maximum number of digits (74 mm), the print position will be center-aligned.

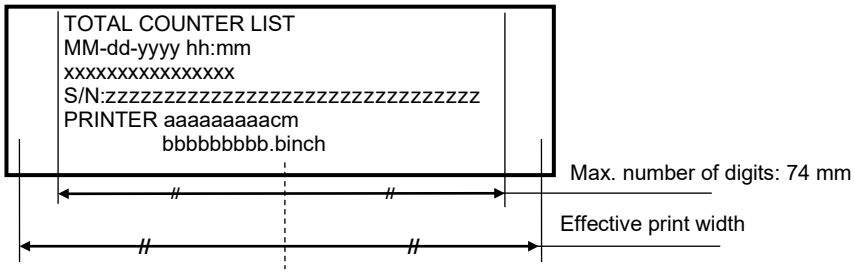
3. Before shifting to the Information mode, make sure that the printer has not received any commands related to feeding or drawing. If the printer has received such commands, printing will not be performed and the printer will return to the normal state. At this time, a quick reset will not be executed.

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

6.8.3 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, BV400T-G
		Head Resolution 300 dpi	BV400T-T, BV400T-T
	Model with IG command	Head Resolution 203 dpi	BV410T-G, BV420T-G, BV410T-G, BV420T-G
		Head Resolution 300 dpi	BV410T-T, BV420T-T, BV410T-T, BV420T-T
4th line	Serial number (*2)		11 to 32-digit 1-byte 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 Earlier than V3.1
			0 to 4200000000 V3.1 or later
6th line	Feed amount in information mode (unit: inch)		0 to 125984251.9 Earlier than V3.1
			0 to 1653543307.0 V3.1 or later

Tip:

*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 The model type will be different according to whether the IG command is used or not. For details, refer to the External Equipment Interface Specification.

6.9 Media Sensor Calibration Mode (V1.7 or later)

6.9.1 Outline

This mode performs the media sensor calibration by the key operation menu.

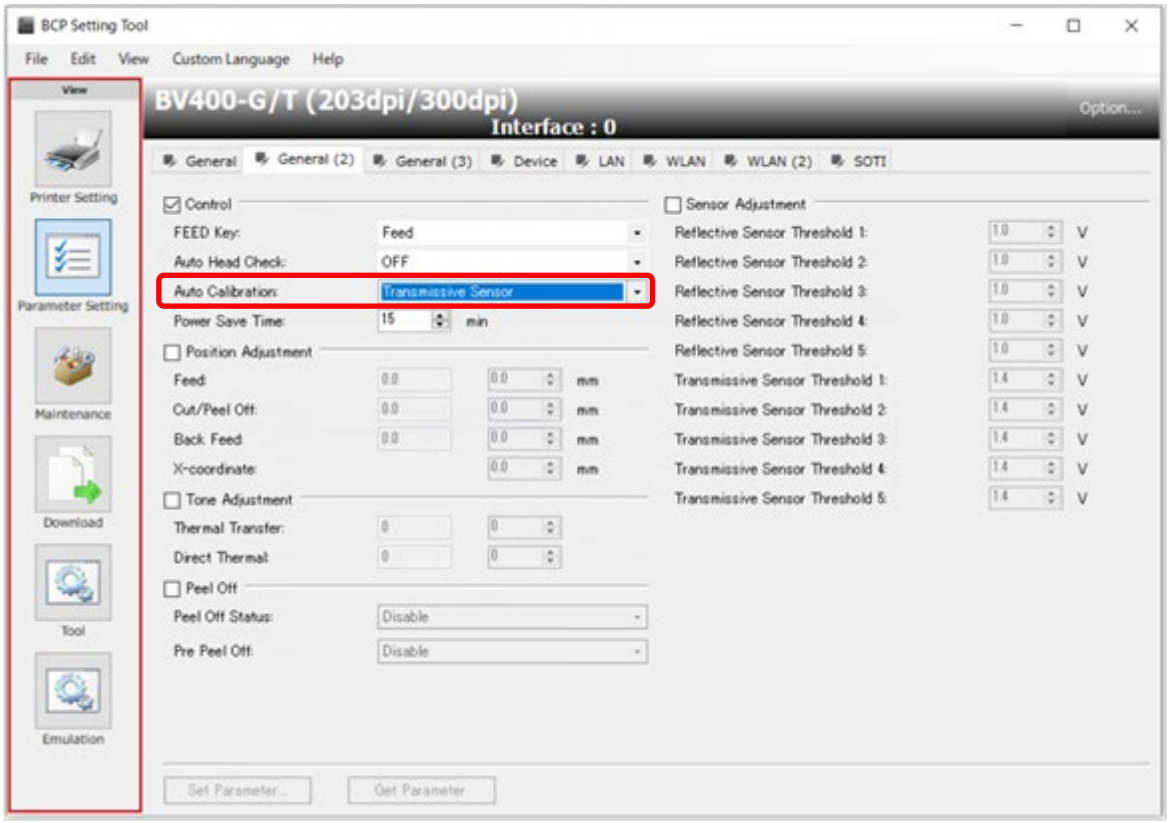
The behavior of this calibration is the same as that in the following settings of the BCP Setting Tool.

Note: The following images are examples of the BCP Setting Tool Version 001.018.010.

TPCL :

For Transmissive sensor: "Transmissive Sensor" in [Auto Calibration]

For Reflective sensor: "Reflective Sensor" in [Auto Calibration]



6.10 LCD Messages and LED Indications

No	LCD Message 2nd line (English)	LED indications		Printer Status	Restoration by the [RESTART] key Yes/No	Acceptance of status request and reset command Yes/No
		ONLINE	ERROR			
1	ONLINE	○	●	In the online mode	-	Yes
		◎	●	In the online mode (Communicating) * Blinking interval: ON: 20 msec., OFF: 60 msec.	-	Yes
		◎	●	In the online mode (Loading the OTF) * Blinking interval: ON: 500 msec., OFF: 500 msec.	-	Yes
		○	◎	In the online mode in the ribbon nearly end state (Notes 6) (Available for BV400T only)	-	Yes
2	HEAD OPEN	●	●	The top cover was opened in the online mode.	-	Yes
		●	●	The top cover was opened in the ribbon nearly end state. (Available for BV400T only)	-	Yes
3	PAUSE	●	●	In the pause state	Yes	Yes
		●	●	In the pause state in the ribbon nearly end state (Notes 2) (Available for BV400T only)	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 feeding. ▪ The media is not loaded properly. ▪ The actual media in use and the selected media sensor type do not match. ▪ The media sensor position does not align with the black mark position. ▪ The size of the actual media and the specified media length do not match. ▪ The media sensor level is not suitable for the actual media in use. ▪ The gap of pre-printed label cannot be detected.	Yes	Yes
6	CUTTER ERROR	●	○	▪ A paper jam occurred in the cutter. ▪ The cutter did not move from its home position. ▪ The cutter cover is open.	Yes	Yes
7	NO PAPER	●	○	▪ The media has run out. ▪ The media has not been loaded. ▪ The media sensor level is not suitable for the actual paper in use.	Yes	Yes
8	HEAD OPEN	●	○	Feeding or issuing was attempted with the top cover open.	Yes	Yes
9	HEAD ERROR	●	○	▪ A broken dot error has occurred in the thermal head. (Notes 7) ▪ 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	○	●	In the external characters or PC command saving mode	-	Yes

12	FORMAT####KB &&&&KB or FORMAT%,%%%.%%%KB	○	●	Initializing the storage area.	-	Yes
13	NOW LOADING...	○	●	Downloading the TrueType font or BASIC program.	-	Yes
14	SETTING MODE Do not turn the Printer off	○	●	In setting mode	-	No
15	MEMORY WRITE ERR.	●	○	An error has occurred while writing data into the memory for storage (a USB memory, flash ROM on the CPU board).	No	Yes
16	FORMAT ERROR	●	○	An erasing error has occurred while formatting the memory for storage (A USB memory, flash Rom on the CPU board). (Online mode)	No	Yes
17	MEMORY FULL	●	○	Saving failed because of an insufficient capacity in the memory for storage (a USB memory, flash ROM on the CPU board).	No	Yes
18	SYNTAX ERROR Command error (Notes 1 and 2)	●	○	A command error has occurred while analyzing the command.	Yes	Yes
19	POWER FAILURE	●	○	An instantaneous power failure has occurred. (The LCD display is sometimes corrupted until the error is displayed.)	No	No
20	SYSTEM ERROR	●	○	A system error has occurred because any of the following abnormal operations was performed. (a) Command fetching 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 mode (e) An undefined command placed in other than the delay slot has been decoded. (f) An undefined command in the delay slot has been decoded. (g) A command to rewrite the delay slot has been decoded.	No	No
21	DHCP CLIENT INIT...	●	●	Initializing DHCP CLIENT. * Only when DHCP is enabled	-	-
22	INPUT PASSWORD	●	●	The printer is waiting for an entry of a password.	No	Yes (Note 1)
23	PASSWORD INVALID	●	●	A wrong password was entered consecutively for three times.	No	Yes (Note 1)
24	INTERNAL COM ERR	●	●	A hardware error has occurred in the internal serial interface.	No	No
25	WRITING… $$%	◎	●	▪ Dump list is being written. ▪ Log data are being written.	No	No

26	RIBBON ERROR	●	○	▪ The ribbon has run out. ▪ A ribbon jam has occurred. ▪ The ribbon has been cut. ▪ The ribbon is not installed. (Available for BV400T only)	Yes	Yes
27	RFID WRITE ERROR	●	○	An RFID label writing has failed consecutively for the number of retries. (Available for BV400T only)	Yes	Yes
28	RFID ERROR	●	○	Communication with the RFID module cannot be made. (Available for BV400T only)	No	Yes

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 the PC command storage area in the internal memory	0 to 3072 (Kbyte)
&&&&	Remaining memory size for the writable character storage area	0 to 3147 (Kbyte)

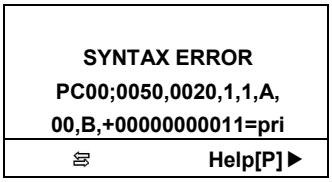
Notes

1. When “22 INPUT PASSWORD” or “23 PASSWORD INVALID” is displayed while inputting a password to enter the user mode, the status returned by the status request command is undefined.
2. If the label feed length exceeds the warning one, the [ERROR] LED is lit.
3. When the label total feed length exceeds the warning one, the [ONLINE] LED always blinks (ON: 30 msec., OFF: 30 msec.).
4. The warning for both the label feed length and the label total feed length is notified regardless of other errors and mode states (online mode, system mode, user mode, power saving mode).
5. When a broken dot error has occurred, the LCD shows where the disconnection occurred among all the dots.

Supplement explanation

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

Display example

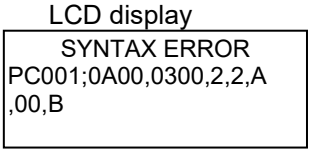


(Example 1)

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

Command error

LCD display



(Example 2)

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

Command error

LCD display

```
    SYNTAX ERROR
T20G30
```

(Example 3)

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

Command error

LCD display

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

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...
26	RIBBON ERROR
27	RFID WRITE ERROR
28	RFID ERROR

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	PASSWORT EINGEBEN
23	PASSWORT ungültig
24	INTERNAL COMM ERROR
25	SCHREIBEN...
26	FARBBAND FEHLER
27	RFID WRITE ERROR
28	RFID FEHLER

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	DHCP CLIENT INIT…
22	SAISIR MOT DE PASSE
23	MOT DE PASSE INVALIDE
24	ERREUR COMM. INT.
25	L'ÉCRITURE...
26	ERREUR RUBAN
27	ERREUR ECRITURE RFID
28	ERREUR RFID

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	DHCP CLIENT INIT…
22	WACHTWOORD INVOEREN
23	ONGELDIG PASWOORD
24	INTERNE COMM. FOUT
25	SCHRIJVEN...
26	LINT FOUT
27	SCHRIJFFOUT RFID
28	RFID FOUT

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	DHCP CLIENT INIT…
22	INSERTAR CONTRASEÑA
23	CONTRASEÑA NO VALIDA
24	ERR INTERNO COMUNIC.
25	ESCRIBIENDO...
26	ERROR DE CINTA
27	ERROR ESCRITURA RFID
28	ERROR EN RFID

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	メモリ書込みエラー
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	パスワード入力
23	パスワードエラー
24	内部シリアルエラー
25	書込み中
26	リボンエラー
27	RFID 書込みエラー
28	RFID エラー

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	INSERIRE PASSWORD
23	PASSWORD ERRATA
24	Errore Comm Interna
25	SCRIVERE...
26	ERRORE NASTRO
27	RFID WRITE ERROR
28	RFID ERROR

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	DHCP CLIENT INIT…
22	INSIRA A SENHA
23	SENHA INVALIDA
24	ERR INTERNO COMUNIC.
25	ESCRITA...
26	ERRO DE FITA
27	ERRO ESCRITA RFID
28	ERRO EM RFID

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 CLIENT INIT…
22	密码输入
23	密码无效
24	内部通讯错误
25	写作…
26	碳带错误
27	RFID 写入错误
28	RFID 错误

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	FORMAT 에러
17	메모리 오버
18	커맨드 에러
19	전원 이상
20	시스템 에러
21	DHCP CLIENT INIT…
22	비밀번호 입력
23	패스워드 에러
24	내부 시리얼 에러
25	쓰는 중
26	리본 에러
27	RFID 쓰기 에러
28	RFID 에러

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 CLIENT INIT…
22	GİRİŞ ŞİFRESİ
23	GEÇERSİZ ŞİFRE
24	İç iletişim hatası
25	YAZI...
26	RIBBON HATASI
27	RFID YAZMA HATASI
28	RFID HATASI

No	Polish
1	ONLINE
2	OTWARTA GŁOWICA.
3	PAUZA
4	BŁĄD COMMS
5	ZACIĘCIE PAPIERU
6	BŁĄD NOŻA
7	BRAK PAPIERU
8	OTWARTA GŁOWICA.
9	BŁĄD GŁOWICY
10	PRZEKR TEMP GŁOWICY
11	ZAPIS ####KB &&&&KB ZAPIS %%,%%%,%%%KB
12	FORMAT ####KB &&&&KB FORMAT %%,%%%,%%%KB
13	ŁADOWANIE...
14	TRYB USTAWIEŃ
15	BŁĄD ZAPISU PAMIĘCI
16	BŁĄD FORMATOWANIA
17	PAMIĘĆ PEŁNA
18	BŁĄD SKŁADNI
19	BŁĄD ZASILANIA
20	BŁĄD SYSTEMU
21	DHCP CLIENT INIT…
22	WPROWADŹ HASŁO
23	BŁĘDNE HASŁO
24	WEWN. BŁĄD COMM
25	PISMO…
26	BŁĄD TAŚMY
27	BŁĄD ZAPISU RFID
28	BŁĄD RFID

No	Czech
1	ONLINE
2	Otevřená hlava
3	PAUZA
4	Komunikační chyba
5	ETIKETA NENALEZENA
6	CHYBA ŘEZÁNÍ
7	DOŠEL PAPÍR
8	Otevřená hlava
9	CHYBA TISKOVÉ HLAVY
10	PŘEHŘÁTÁ TISK HLAVA
11	UKLÁDÁNÍ ####KB &&&&KB
	UKLÁDÁNÍ %%,%%%,%%%KB
12	FORMÁT ####KB &&&&KB
	FORMÁT %%,%%%,%%%KB
13	NAHRÁVÁNÍ…
14	REŽIM NASTAVENÍ
15	CHYBA ZÁPISU DAT
16	CHYBA FORMÁTOVÁNÍ
17	PAMĚŤ JE PLNÁ
18	SYNTAKTICKÁ CHYBA
19	CHYBA NAPÁJENÍ
20	SYNTAKTICKÁ CHYBA
21	DHCP KLIENT INIT…
22	ZADEJTE HESLO
23	NEPLATNÉ HESLO
24	INTERNÍ CHYBA COM
25	PSANÍ...
26	CHYBA BARVICÍ PÁSKY
27	CHYBA ZÁPISU RFID
28	CHYBA RFID

6.11 System Error List

LCD display	Error content	Error details	Countermeasure
06 SYSTEM ERROR	System error	・ Buffer full has occurred since the memory could not be released during the BASIC processing. ・ The number of retries of an optional external keyboard is exceeded. (Standard: 5 times, Startup: 25 times)	Turn the power of the printer off and then back on. If this error is not solved, check the connection status of the external keyboard. If this error persists, the connector portion of the main PC board or the external keyboard may be broken. Contact your service technician to correct it.
08 ANK CG NONE	ANK CG non-installed error	The data area of the font data ANK CG is broken. ANK: Alphabet Numerals and Katakana CG: Character Generator	Turn the power of the printer off. Updating of the ANK CG data has failed. Contact your service technician to obtain the correct font data. After obtaining, update the font data.
16 UNDEFINED CODE	Undefined command exception	・ An undefined command exception of the CPU has occurred. The CPU has executed an undefined command. This may occur if the program has run out of control.	Turn the power of the printer off and then back on. If this error persists, the main PC board may be broken. Contact your service technician to replace the main PC board.
17 PREFETCH ABORT	Prefetch abort exception	・ A prefetch abort exception has occurred. A command fetch from an invalid address has been executed.	Turn the power of the printer off and then back on. If this error persists, the main PC board may be broken. Contact your service technician to replace the main PC board.
18 DATA ABORT	Data abort exception	・ A data abort exception has occurred. A reading or writing command from an invalid address has been executed.	Turn the power of the printer off and then back on. If this error persists, the main PC board may be broken. Contact your service technician to replace the main PC board.
31 WLAN INIT ERROR	Module initialization error	Error related to the WLAN module ・ The WLAN module cannot be switched to the normal mode. ・ Responding from the WLAN module at the time of the printer startup is abnormal. ・ Auto Baud Rate Detection (ABRD) has failed.	Contact your service technician to replace the WLAN module.
34 WLAN COMM ERROR	WLAN host I/F (UART) error	Error related to the WLAN module ・ A communication failure of the internal I/F has occurred at the time of the firmware updating.	The WLAN module may be broken. Contact your service technician to replace the WLAN module.
35 WLAN MODULE ERROR	WLAN module F/W ROM not installed	Error related to the WLAN module ・ The printer has recognized that the firmware is not installed. ・ A program whose firmware has been updated is abnormal.	Turn off the power of the printer. Updating of the firmware has failed. Contact your service technician to obtain the correct firmware. After obtaining, update the firmware.

Tips:

Models without the LCD equipped

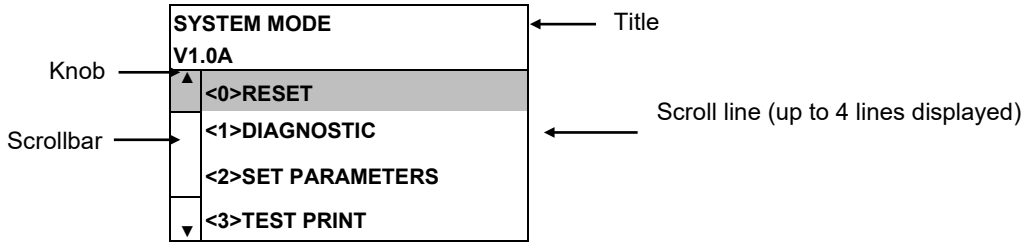
When any of the above errors has occurred in models without an LCD equipped, the ERROR LED is lit.

Status responding and rebooting are not performed. (The printer will become unusable.)

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

7.1 List Box with the Scrollbar

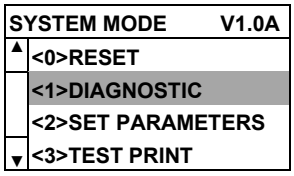
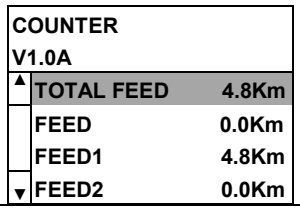
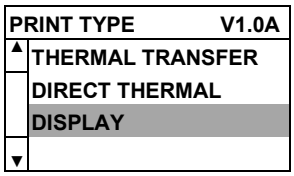
The list box is used for displaying the menus or items to be selected. It is comprised of the following parts.



Supplemental explanation:

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

List box type

	Display
Menu screen (without the setting value)	
Menu screen (with the setting value)	
Value setting screen	

Key function (Menu screen)

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

Key function (value setting screen)

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

Supplemental explanation:
The printer operation is not guaranteed when multiple keys are pressed at the same time except for those mentioned above (e.g.: [FEED]+[RESTART]).

Movement of the cursor in the screen scrolling

The cursor is moved in the following way by pressing the [FEED] key or the [RESTART] key. The table below shows the example of pressing the [RESTART] key. When [FEED] key is pressed, the cursor moves up one line.

Display	Key operation	Explanation
SYSTEM MODE V1.0A ▲ <0>RESET <1>DIAGNOSTIC <2>SET PARAMETERS ▼ <3>TEST PRINT		
SYSTEM MODE V1.0A ▲ <0>RESET <1>DIAGNOSTIC <2>SET PARAMETERS ▼ <3>TEST PRINT	Press the [RESTART] key.	The position of the displayed menus remains unchanged and only the cursor moves down to the next item.
SYSTEM MODE V1.0A ▲ <0>RESET <1>DIAGNOSTIC <2>SET PARAMETERS ▼ <3>TEST PRINT	Press the [RESTART] key.	The position of the displayed menus remains unchanged and only the cursor moves down to the next item.
SYSTEM MODE V1.0A ▲ <1>DIAGNOSTIC <2>SET PARAMETERS <3>TEST PRINT ▼ <4>SENSOR	Press the [RESTART] key.	The entire menu list moves up by one line and the cursor moves down to the next item.
:	:	
SYSTEM MODE V1.0A ▲ <8>BASIC <9>XML <10>LCD PANEL ▼ <11>PASSWORD	Press the [RESTART] key.	The entire menu list moves up by one line and the cursor moves down to the next item.
SYSTEM MODE V1.0A ▲ <8>BASIC <9>XML <10>LCD PANEL ▼ <11>PASSWORD	Press the [RESTART] key.	The position of the menu list remains unchanged and only the cursor moves down to the next item.
SYSTEM MODE V1.0A ▲ <0>RESET <1>DIAGNOSTIC <2>SET PARAMETERS ▼ <3>TEST PRINT	Press the [RESTART] key.	When the cursor is positioned at the bottom of the list, the menu and the cursor scroll from the bottom to the top.

Supplemental explanation:

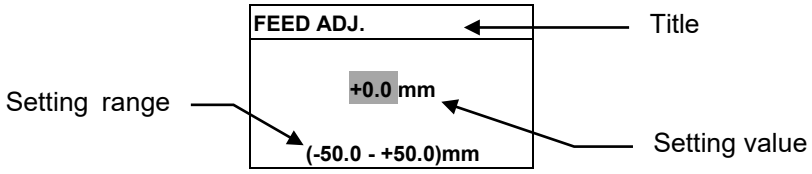
1. Cursor position when shifting from the upper-level menu to its sub menu
   When shifting from the upper-level menu to its sub menu, the cursor is positioned at the topmost item.
2. Cursor position when shifting from the upper-level menu to its subordinate value setting screen
   When shifting from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

3. Cursor position when shifting from the sub menu or value setting screen to its upper-level menu
   When shifting from the 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] and [RESTART] keys are pressed on the top screen
   If the [FEED] and [RESTART] keys are 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

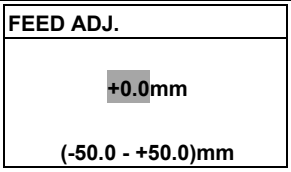
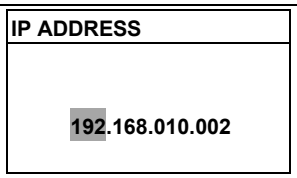
The value setting screen is used for setting a value by increasing or decreasing it.
It is comprised of the following parts.

Display example



Supplemental explanation:
1. The currently programmable item is highlighted.
2. The display of the symbols like "+" and "-", and the unit of measurement like "mm" and "step" differs depending on the item to be set.

Type of the value setting screen

	Display
Setting screen with one field	
Setting screen for the IP address	

Key function (setting screen with one field)

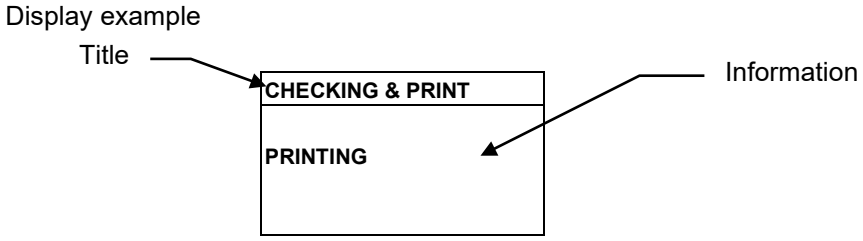
Substitute key	Function
[FEED] + [RESTART]	Returns to the upper-level menu without saving the changes.
[PAUSE]	Saves the changes and returns to the upper-level menu.
[RESTART]	Increases the setting value by the specified step. When the setting value reaches the maximum, it returns to the minimum value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

Key function (setting screen for the IP address)

Substitute Key	Function
[FEED] + [RESTART]	Return to the upper-level menu without saving the changes.
[PAUSE]	Save the changes and returns to the upper-level menu.
[RESTART]	Increases the setting value by the specified step. When the setting value reaches the maximum, it returns to the minimum value and increases.
[FEED]	Decreases the setting value by the 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 inputting or setting is not performed.
It is comprised of the following:



Type of the information screen

	Display
Information screen	CHECKING & PRINT PRINTING
Scroll screen	FILE MAINTENANCE 00 ZEBRASTMSX5. 01 ---------- 02 SHORT.BAS 03 ----------
RFID reading (Available for BV400T only)	ID READ TAG 1/1 00010203 04050607 08090A0B 0C0D0E0F

Key function

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

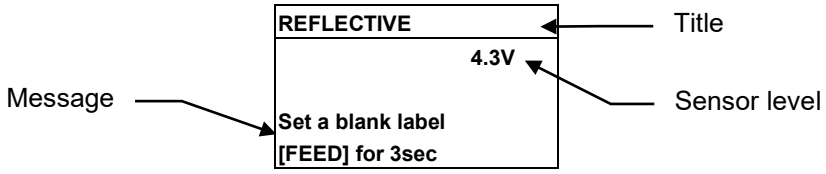
Key function (scrolling)

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 downward. When the cursor is positioned at the bottom of the list, it scrolls from the bottom to the top.
[FEED]	Moves the cursor upward. When the cursor is positioned at the top of the list, it scrolls from the top to the bottom.

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 of the following :

Display example



Sensor adjustment screen type

	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]	Performs sensor adjustment by pressing this key 3 seconds or more. 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 the re-adjustment menu.
[FEED]	No function
[RESTART]	No function

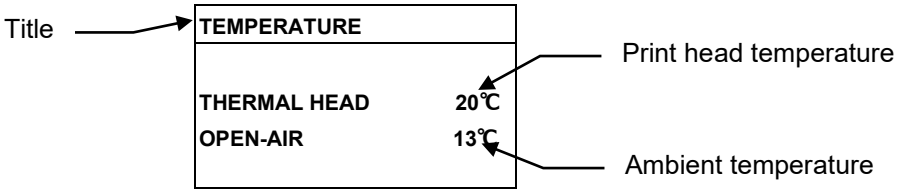
Supplemental explanation:

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 at intervals of every 200 msec.

7.5 Temperature Display Screen

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

Display example



Type of the temperature display screen

	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

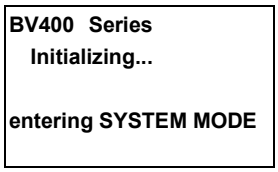
Supplemental explanation:

Each temperature is updated approximately at intervals of every 200 msec.

8 SYSTEM MODE

8.1 Outline of the System Mode

1. The printer enters the system mode by the following operations.
   ・While the printer power is turned off, perform the following operations.
   - Turn on the printer while holding down the [FEED] and [PAUSE] keys simultaneously.
   - When the following display appears, the printer enters the system mode even if you release holding down the [FEED] and [PAUSE] keys.



2. The system mode is intended for performing the 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 as below. (*)
   [Earlier than V3.1]
   When “Japanese” is selected: Japanese
   When other than "Japanese" is selected: English
   [V3.1 or later]
   The selected language is used.
   (*: See <13>LCD PANEL in the system mode menu.)
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 MODE.

Top menu of the system mode

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

Top menu list

English
<0>RESET
<1>DIAGNOSTIC
<2>SET PARAMETERS
<3>TEST PRINT
<4>SENSOR
<5>RAM CLEAR
<6>INTERFACE
<7>RFID[BV410T]
<10>FACTORY TEST
<11>BASIC
<12>XML
<13>LCD PANEL
<14>PASSWORD

Outline of the top menu

<0>RESET	Restarts the printer.
<1>DIAGNOSTIC	Performs the self diagnosis, prints out the results and checks for the print head broken elements.
<2>SET PARAMETERS	Sets the parameters for the printer functions.
<3>TEST PRINT	Tests the print quality by printing slant lines, characters and barcodes.
<4>SENSOR	Displays the ambient temperature and print head temperature, and adjusts each level of the media sensors.
<5>RAM CLEAR	Clears the maintenance counter and parameter settings.
<6>INTERFACE	Sets the interface parameters such as network, Bluetooth, USB, RS232C and parallel.
<7>RFID[BV410T]	Sets the RFID parameters. (Available only for BV410T)
<10>FACTORY TEST	Adjusts the printer before shipment.
<11>BASIC	Sets the function of loading the BASIC program to the printer and using it.
<12>XML	Sets the XML functions.
<13>LCD PANEL	Selects a language for the display, sets the items to be displayed and adjusts the contrast.
<14>PASSWORD	Sets the password.

8.2 Reflecting the System Mode Settings to the Printer

The settings configured in the system mode and user mode are saved in the printer at the following timing.

- Periodic saving at intervals of 20 msec.
- Saving by resetting the system mode or user mode

The changes in the settings, with a partial exception, take effect when the power is turned on or after a reset.

8.3 RESET

Use this to reset the printer.

Contents of the ESET 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

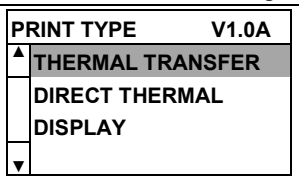
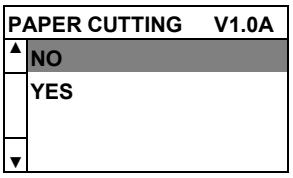
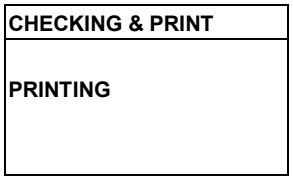
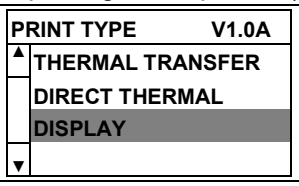
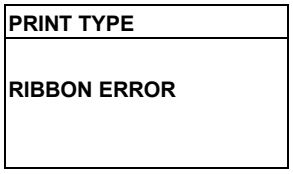
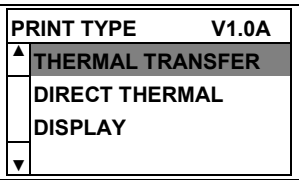
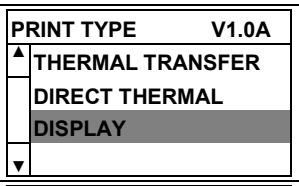
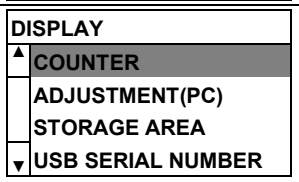
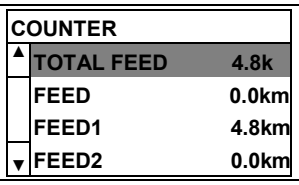
The following table shows the menu structure from the top menu of the system mode to MAINTENANCE COUNTER.

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 (available only for BV410T)

Supplemental explanation:

1. The MAINTENANCE COUNTER enables selecting whether to print or display the self-diagnosis 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 has occurred during printing, the error message is displayed, the [ERROR] LED is turned on and the [ONLINE] LED is turned off. Although 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	SYSTEM MODE V1.0A ▲ <0>RESET <1>DIAGNOSTIC <2>SET PARAMETERS ▼ <3>TEST PRINT	1. Turn off the printer. 2. Turn on the printer while holding down the [FEED] and [PAUSE] keys simultaneously. The top menu of the SYSTEM MODE is displayed.
2	SYSTEM MODE V1.0A ▲ <0>RESET <1>DIAGNOSTIC <2>SET PARAMETERS ▼ <3>TEST PRINT	1. Select <1>DIAGNOSTIC. 2. Press the [PAUSE] key. The submenus of <1>DIAGNOSTIC are displayed.
3	<1>DIAGNOSTIC V1.0A ▲ MAINTENANCE COUNTER AUTO DIAGNOSTIC HEAD CHECK ▼	1. Select MAINTENANCE COUNTER. 2. Press the [PAUSE] key. The PRINT TYPE menu is displayed.

4	When THERMAL TRANSFER or DIRECT THERMAL is selected: * When DISPLAY is selected, go to step 5.	
4-1		1. Select either THERMAL TRANSFER or DIRECT THERMAL. 2. Press the [PAUSE] key. The PAPER CUTTING menu is displayed.
4-2	 (Printing...) 	1. Select YES or NO. 2. Press the [PAUSE] key. The maintenance counter data and parameter settings are printed. "PRINTING" is displayed. * A print sample is provided in Section 8.4.1.1 Printing contents of Maintenance Counter and Parameter Settings.
4-3	When the printing is completed. (Normal end)	
		When the printing is completed, the PRINT TYPE menu is displayed again.
4-4	When an error has occurred during printing	
		The printer displays the error message and stops the operation. The [ERROR] LED is turned on and the [ONLINE] LED is turned off. 1. Press the [PAUSE] key. The PRINT TYPE menu is displayed.
		The printer recovers from the error, the [ERROR] LED is turned off and the [ONLINE] LED is turned on. Note that the printer does not reprint the label automatically.
5	In the case DISPLAY is selected:	
5-1		1. Select DISPLAY. 2. Press the [PAUSE] key. The DISPLAY menu is displayed.
5-2		1. Select the item to be displayed. 2. Press the [PAUSE] key. The data of the selected item are displayed.
5-3		For details of the Maintenance counter data, refer to Section 8.4.1.2 Display contents of Maintenance Counter and Parameter Settings. (The data will not be updated if counter clearing is carried out in continuation.

8.4.1.1 Printing contents of Maintenance Counter and Parameter Settings

BV400 F/W earlier than V2.1

```
<< 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]  ⇒(Note *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            [XXXXKB]
EXT CHR AREA        [XXXXKB]
BASIC AREA          [XXXXKB]
PC SAVE AREA        [XXXXKB]
OTF SAVE AREA       [XXXXXKB]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]
SSP AUTH            [JUST WORKS]
```

BV400 F/W V2.1 or later

```
<< 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]
RIBBON NEAR END     [OFF]
PAPER/RBN END       [Stop immediately]
MAXICODE SPEC.      [TYPE1: Compatible]
XML                 [STD]
ENERGY TYPE(T)      [NORM: Normal]
ENERGY TYPE(D)      [NORM: Normal]  ⇒(Note *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            [XXXXKB]
EXT CHR AREA        [XXXXKB]
BASIC AREA          [XXXXKB]
PC SAVE AREA        [XXXXKB]
OTF SAVE AREA       [XXXXXKB]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]
FTP                 [DISABLE]
SFTP                [DISABLE]
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]
SSP AUTH            [JUST WORKS]
```

```
<< RFID >>        [BV410T]   ⇒(Note *3)
MODULE TYPE             [U4]
TAG TYPE                [EPC C1 Gen2]
RF CHANNEL              [AUTO]
RETRY POSITION          [+00mm]
RETRY LABELS            [   3labels]
READ RETRY              [   5times] [4.0sec]
WRITE RETRY             [   5times] [2.0sec]
POWER LEVEL             [   4]
Q VALUE                 [   2]
AGC THRESHOLD           [   5]
WRITE AGC               [   5]
RETRY MIN AGC           [   5]
TAG CHECK               [OFF]
MULTI WRITE             [OFF]
CALIB. MODE             [ON]
ENCODE POSITION         [+000.0mm]
SUCCEEDED TAGS          36
VOID PRINT TAGS         0
```

* Refer to "8.8.3.1 Parameters to be cleared " for the initial value after RAM clear.

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. These items will be printed even if the RFID is not installed or not supported.

Self-diagnosis printing conditions

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] Label total feed length (cannot be cleared)
	[Range] 0.0 to 3200.0 km
	[Counting condition] Counts when the media feed motor is driven to feed or print the media. (Reverse feeding is also counted.)
FEED	[Description] Label feed length
	[Range] 0.0 to 3200.0 km
	[Counting condition] Counts when the media feed motor is driven to feed or print the media. (Reverse feeding is also counted.)
FEED1 to FEED4	[Description] Label feed length history 1 to 4
	[Range] 0.0 to 3200.0 km
	[Counting condition] When the maintenance counter is cleared by the RAM clear command, the label feed length is saved as FEED 1. At this time, data which have been 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] Counts while printing. (Reverse feeding is not counted.)
PRINT1 to PRINT4	[Description] Print distance history 1 to 4
	[Range] 0.0 to 200.0 km
	[Counting condition] When the maintenance counter is cleared by the RAM clear command, the print distance is saved as PRINT 1. At this time, data which have been 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] Number of times an RS-232C hardware error occurred
	[Range] 0 to 255
	[Counting condition] Counts when a parity error, overrun error or framing error has occurred.
SYSTEM ERR	[Description] Number of times a system error occurred
	[Range] 0 to 15
	[Counting condition] Counts when a system error has occurred.
POWER FAIL	[Description] Number of times a momentary power interruption occurred
	[Range] 0 to 15
	[Counting condition] Counts when a momentary power interruption has occurred.

<< ADJUST >>

Item		Description	Remarks
[PC]/[KEY]			
	FEED	Feeding amount fine adjustment	-50.0 to +50.0 mm
	CUT	Cut position (or peel-off position) fine adjustment	-50.0 to +50.0 mm
	BACK	Reverse feeding amount fine adjustment	-9.9 to +9.9 mm
	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	-99.9 to +99.9 mm
		X-coordinate method	TYPE1/TYPE2
THRESHOLD<R>		Threshold fine adjustment for the reflective sensor From left to right, fine value 1, fine value 2, ..., fine value 5	0.0 V to 4.0 V
THRESHOLD<T>		Threshold fine adjustment for the transmissive sensor From left to right, fine value 1, fine value 2, ..., fine value 5	0.0 V to 4.0 V

<< 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: Performs backward feeding after the above ECO operation is completed. (Removed after V3.1 or later)
MOVE TO TEAROFF [1] [2] [3]	
	[Description 1] Auto feed to the cut/peel-off 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: Prints only when "Auto feed to the cut/peel-off position after printing" is set to ON.
	[Value to be printed 2] -5.0 to +5.0 mm
	[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] Backward feeding 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 the transmissive sensor.
ON REFL.:	Auto calibration is performed with the reflective sensor.
ON ALL:	Auto calibration is performed with both sensors.
ON TRANS+BF:	Backward feeding is performed after auto calibration is carried out with the transmissive sensor. (Removed after V3.1 or later)
ON REFL+BF:	Backward feeding is performed after auto calibration is carried out with the reflective sensor. (Removed after V3.1 or later)
ON ALL+BF:	Backward feeding is performed after auto calibration is carried out with both sensors. (Removed after V3.1 or later)

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

RIBBON NEAR END [ ] (available only for BV410T)

[Description] Ribbon nearly-end detection setting

[Values to be printed]

OFF:	Not detected
30m:	Detected

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 and then back 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 and then back 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: Disabled
ON: Enabled

FEED LENGTH[ ]

[Description] Label feed length warning setting

[Values to be printed]
1 km to 3200 km

TOTAL LENGTH [ ]

[Description] Label total feed length 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 the LCD)

LANGUAGE [ ]

[Description] Selection of a language for displaying LCD messages

[Values to be printed]
ENGLISH: English
GERMAN: German
FRENCH: French
DUTCH: Dutch
SPANISH: Spanish
JAPANESE: Japanese
ITALIAN: Italian
PORTUGUESE: Portuguese
Simplified CHINESE: Simplified Chinese
KOREAN: Korean
TURKISH: Turkish
POLISH: Polish
CZECH: Czech (V3.1 or later)
* Czech has been added for BV410T. This is selectable with V2.1; however, this version does not support it and thus the operation is not guaranteed.

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] 0 to 3072 KB
EXT CHR AREA [ ]
[Description] External character storage area size
[Values to be printed] 0 to 3072 KB
BASIC AREA [ ]
[Description] BASIC file storage area size
[Values to be printed] 0 to 3072 KB
PC SAVE AREA [ ]
[Description] PC command storage area size
[Values to be printed] 0 to 3072 KB
OTF SAVE AREA [ ]SPACE
[Description] OTF storage area size
[Values to be printed] 0 to 27640 KB

<< 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: 2400 bps 4800: 4800 bps 9600: 9600 bps 19200: 19200 bps 38400: 38400 bps 115200: 115200 bps

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 turned on, XOFF output when the power is turned off)

XON/XOFF AUTO: XON/XOFF mode
(XON output when the power is turned on, XOFF output when the power is turned off)

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

XON/XOFF: XON/XOFF mode
(No XON output when the power is turned on, no XOFF output when the power is turned off)

READY/BUSY: READY/BUSY(DTR)
(No XON output when the power is turned on, no XOFF output when the power is turned 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

FTP [ ] (Supported from V3.1 or later)
[Description] Whether to enable FTP
[Values to be printed] DISABLE: Disabled ENABLE: Enabled
SFTP [ ] (Supported from V3.1 or later)
[Description] Whether to enable SFTP
[Values to be printed] DISABLE: Disabled ENABLE: 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 the BCP Setting Tool after starting in the 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: Enabled

OFF: Disabled

BAND SELECT[ ]

[Description] Wireless LAN BAND Setting

[Values to be printed]

DUAL BAND: Using 2.4 GHz or 5 GHz

2.4GHz: Using 2.4 GHz

5GHz: Using 5 GHz

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 (WLAN: 1) Note: This parameter is set by using the Printer Setting Tool.
COUNTRY CODE [ ]
[Description] Wireless LAN: Country or region 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] Wireless LAN: 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] 18 to 4096 sec.
SCAN WINDOW [ ]
[Description] Bluetooth Page scan window setting
[Values to be printed] 18 to 4096 sec.
AUTO CONNECT [ ]
[Description] Bluetooth Auto reconnection setting
[Values to be printed] OFF: Auto reconnection disabled ON: Auto reconnection enabled
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: Not displayed DISP ONLY: Display only (* only for models with the LCD) DISP Y/N: Display with confirmation (* only for models with the LCD)

<< RFID >> [BV410T] * Available for BV410T only

MODULE TYPE [ ]
[Description] RFID module type setting
[Values to be printed] NONE: without the RFID module U4: Module type U4
TAG TYPE [ ]
[Description] RFID tag type setting
[Values to be printed] NONE EPC C1 Gen2
RF CHANNEL [ ]
[Description] RFID channel setting
[Values to be printed] AUTO 2CH 3CH 4CH 5CH 6CH 7CH 8CH
RETRY POSITION [ ]
[Description] RFID adjustment retry setting
[Values to be printed] -99 to +99 mm
RETRY LABELS [ ]
[Description] RFID issue retry number of labels setting
[Values to be printed] 0 to 255 labels
READ RETRY [ ]
[Description 1] RFID read retry times setting
[Values to be printed 1] 0 to 255 times
[Description2] RFID read retry interval setting
[Values to be printed 2] 0 to 9.9 sec.
WRITE RETRY [ ]
[Description 1] RFID write retry times setting
[Values to be printed 1] 0 to 255 times
[Description2] RFID write retry interval setting
[Values to be printed 2] 0 to 9.9 sec.

POWER LEVEL [ ]
[Description] RFID wireless output level
[Values to be printed] 0 to 18
Q VALUE [ ]
[Description] RFID module Q value setting
[Values to be printed] 0 to 15
AGC THRESHOLD [ ]
[Description] RFID AGC threshold setting
[Values to be printed] 0 to 15
WRITE AGC [ ]
[Description] RFID write AGC threshold value setting
[Values to be printed] 0 to 15
RETRY MIN AGC [ ]
[Description] RFID write AGC threshold retry minimum value setting
[Values to be printed] 0 to 15
TAG CHECK [1] [2] [3]
[Description 1] RFID error tag detection setting
[Values to be printed 1] OFF: Disabled EPCCODE: Enabled. An error tag is detected in the data of the ID area. PASSWORD: Enabled. An error tag is detected in the data of the access word area. * This value is enabled only when Gen2 tag is selected.
[Description 2] Protection password setting * Printing is performed when “PASSWORD” is selected for “RFID error tag detection setting”.
[Values to be printed 2] OFF: Disabled ON: Enabled
[Description 3] Auto unlocking function setting * Printing is performed when “PASSWORD” is selected for “RFID error tag detection setting”.
[Values to be printed 3] OFF: Disabled ON: Enabled
MULTI WRITE [ ]
[Description] Multi-word write setting
[Values to be printed] OFF: Disabled ON: Enabled

CALIB. MODE [ ]	
	[Description] Enabling/disabling setting of the value set in the RFID calibration mode
	[Values to be printed] OFF: Disabled ON: Enabled
ENCODE POSITION	
	[Description] POSITION value detected by RFID calibration
	[Values to be printed] -999.9 to +999.9 mm
SUCCEEDED TAGS	
	[Description] RFID write success label issue times
	[Values to be printed] 0 to 9999999
VOID PRINT TAGS	
	[Description] RFID write failure label issue times
	[Values to be printed] 0 to 9999999

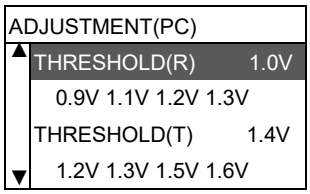
8.4.1.2 LCD Display contents of Maintenance Counter and Parameter Settings

COUNTER		
	TOTAL FEED	[Description] Label total feed length (cannot be cleared)
	FEED	[Description] Label feed length
	FEED1	[Description] Label feed length history 1
	FEED2	[Description] Label feed length history 2
	FEED3	[Description] Label feed length history 3
	FEED4	[Description] Label feed length history 4
	PRINT	[Description] Print distance
	PRINT1	[Description] Print distance history 1
	PRINT2	[Description] Print distance history 2
	PRINT3	[Description] Print distance history 3
	PRINT4	[Description] Print distance history 4
	CUT	[Description] Cut count
	RIBBON	[Description] Ribbon motor drive time
	232C ERR	[Description] Number of times an RS-232C hardware error occurred
	SYSTEM ERR	[Description] Number of times a system error occurred
	POWER FAIL	[Description] Number of times a momentary power interruption occurred
ADJUSTMENT(PC)		
	FEED ADJ.	[Description] Feeding amount fine adjustment
	CUT ADJ.	[Description] Cut position (or peel-off position) fine adjustment
	BACK FEED	[Description] Reverse feeding amount fine adjustment
	TONE(TRANS.)	[Description] Print density fine adjustment (Thermal transfer print mode)
	TONE(DIRECT)	[Description] Print density fine adjustment (Direct thermal print mode)

	X ADJ.	[Description] X-coordinate fine adjustment
	THRESHOLD(R) *1	[Description] Threshold fine adjustment for the reflective sensor 1 to 5
	THRESHOLD(T) *1	[Description] Threshold fine adjustment for the transmissive sensor 1 to 5
STORAGE AREA		
	TTF	[Description] TrueType Font storage area size
	EXT CHR	[Description] External character storage area size
	BASIC	[Description] BASIC file storage area size
	PC SAVE	[Description] PC command storage area size
	OTF(SPACE)	[Description] OTF storage area size
USB SERIAL NUMBER		
	USB SERIAL NUMBER	[Description] Whether to enable USB serial number
WLAN AUTHENTICATION		
	ENCRYPTION	[Description] Wireless LAN: Encryption key setting
	WPA MODE	[Description] Wireless LAN: WPA setting
	AUTHENTIC.	[Description] Wireless LAN: Authentication method
RFID TAG COUNT (available only for BV410T)		
	SUCCEEDED	[Description] RFID write success label issue times
	VOID PRINT	[Description] RFID write failure label issue times

Notes:

*1 There are five values for reflection / transmission sensor manual threshold fine adjustment included: fine adjustment value 1, fine adjustment value 2, ... fine adjustment value 5.
The example of the display contents is 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-diagnostic result is the same as that for the maintenance counter and parameter setting data described in 8.4.1 MAINTENANCE COUNTER.

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

Menu structure of AUTO DIAGNOSTIC

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

Note:

When an error has occurred during printing, the error message is displayed, the [ERROR] LED is turned on and the [ONLINE] LED is turned off. Although 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

Earlier than V2.1

```
PROGRAM BV410D-G
  PRINTER S/N 2320M500083
    MAIN  22DEC2020   V1.2 :F100
    BOOT  02NOV2020   V1.1 :A400
    XML   28AUG2020   V1.0 :DC00
    WLAN  28AUG2020   V1.0 :0800
FONT        ANKCG     AC00
            KANJI     2A00
            CHINESE   5600
FROM        128MB
SDRAM       128MB
SENSOR1     00000000,10000111
SENSOR2     [H]23° C [A]25° C
            [R]4.6V [T]1.1V
PE LV.      [R]1.8V [T]4.8V
M THRE.     [R]                 2.4V
            0.0V 0.0V 0.0V 0.0V
            [T]                 0.9V
            2.9V 0.9V 0.0V 0.0V
HEAD        [RANK]0             203DPI
LAN MAC     11-22-33-44-55-66
SIO         NG(0111)
BLUETOOTH   OK sppi_v2.12
MFi         OK
iAP Serial  2318T120023
WLAN        OK Ver3.1.1
MAC         00-11-22-33-44-55
USB MEMORY NG
BASIC M NONE
BASIC S NONE
```

V2.1 to earlier than V3.3

```
PROGRAM BV410D-T
  PRINTER S/N 2318D120024
    MAIN  11NOV2022    V2.1A:FF00
    BOOT  03OCT2022    V2.0 :C600
    XML   07NOV2022    V1.5 :EC00
    WLAN  12JUL2021    V1.4 :A300
FONT        ANKCG     6900
            KANJI     2A00
            CHINESE   5600
FROM        128MB
SDRAM       128MB
SENSOR1     00000000,00100111
SENSOR2     [H]23° C [A]23° C
            [R]4.7V [T]0.7V
PE LV.      [R]0.8V [T]4.7V
M THRE.     [R]                2.4V
            0.0V 0.0V 0.0V 0.0V
            [T]                0.9V
            2.9V 0.9V 0.0V 0.0V
HEAD        [RANK]0            300DPI
LAN MAC     11-22-33-44-55-66
EX.232C     NG
SIO         NG(0111)
BLUETOOTH   OK sppi_v2.12
MFi             OK
iAP Serial  2318T120023
RFID[BV410T]NG
WLAN        OK Ver3.1.1
MAC         00-11-22-33-44-55
USB MEMORY NG
BASIC M NONE
BASIC S NONE
```

V3.3 or later

```
PROGRAM BV410D-T
  PRINTER S/N 2318D120024
    MAIN    11JUL2023     V3.3 :FF00
    BOOT    03OCT2022     V2.0 :C600
    XML     07NOV2022     V1.5 :EC00
    WLAN    12JUL2021     V1.4 :A300
FONT        ANKCG    6900
            KANJI    2A00
            CHINESE  1000
FROM        128MB
SDRAM       128MB
SENSOR1     00000000,00100111
SENSOR2     [H]23° C [A]23° C
            [R]4.7V [T]0.7V
PE LV.      [R]0.8V [T]4.7V
            M THRE. [R]                2.4V
            0.0V 0.0V 0.0V 0.0V
            [T]                0.9V
            2.9V 0.9V 0.0V 0.0V
HEAD        [RANK]0          300DPI
LAN MAC     11-22-33-44-55-66
EX.232C     NG
SIO         NG(0111)
BLUETOOTH   OK sppi_v2.12
MFi         OK
iAP Serial 2318T120023
RFID[BV410T]NG
WLAN        OK Ver3.1.1
MAC         00-11-22-33-44-55
USB MEMORY NG
BASIC M NONE
BASIC S NONE
OTF
CJK.TTF                 010827E0
```

Note:

"º" (degree) of "xxºC" may not be printed correctly, depending on the type of the code page.

Printing conditions

Printing method	User setting
Sensor type	None
Speed	4 ips
Issued number	1
Issuing mode	User setting

PROGRAM BV400D-T
|_____ Model name

PRINTER S/N 2318D120024
|_____ Printer serial No.
Normally, this 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
| GB18030-2005 font: 5600
| GB18030-2022 font: 1000
|_____ Chinese Bitmap KANJI

FROM 128MB
|_____ FROM Capacity

SDRAM 128MB
|_____ SDRAM Capacity

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

- Thermal head open sensor
  - 1: Head closed
  - (* Printing is not performed while the head is opened.)
- Blank (Unfixed value)
- Cutter home position sensor
  - 0: Outside the home position
  - 1: Home position
  - (* If no module is attached: Unfixed value)
- Blank (0 fixed)
- Blank (0 fixed)
- Ribbon slit sensor
  - 0: Ribbon slit sensor detected
  - 1: Ribbon slit sensor not detected
  - (* BV400D: Unfixed value)
- Blank (0 fixed)
- Peel-off sensor
  - 0: No label
  - 1: With label
- Blank (0 fixed)

SENSOR2 [H]23℃ [A]22℃

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

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

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

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

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

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

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

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

EX.232C NG
| |_____ OK: Data normal
| NG: Data error or loopback jig not installed
| * For BV400D, “NG” (not connected) only
|
|____ Internal serial I/F

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

RFID [BV410T] OK Z#20A:A0 0 (US) R00

- Module revision (U4 series)
- Module specification destination setting
- Chip revision
- Module F/W version
- Module check result
  OK: Normal, NG: Abnormal
  * For BV400D, “NG” (not connected) only
- RFID module

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

V3.3 or later

OTF CJKTTF 010827E0

- File size (Hexadecimal notation (Unit: Byte)), 8-digit fixed
  “--------” is outputted if there is no applicable file.
  Size: 00FAA8DC Chinese (GB18030-2005) supported
  Size: 010827E0 Chinese (GB18030-2022) supported
- File name (Max. 20 Bytes)
  Digits exceeding the maximum number of characters are truncated.
- “OTF” fixed

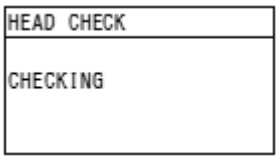
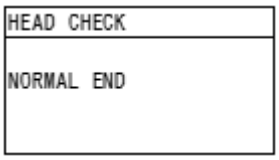
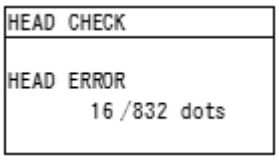
8.4.3 HEAD CHECK

The procedure of the print head check 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.

Menu structure of HEAD CHECK

Menu item
<1>DIAGNOSTIC
HEAD CHECK

Type of messages during head check	
While checking	
Normal end	
When broken dots are detected At this time, the [ONLINE] LED is turned off and the [ERROR] LED is turned on.	

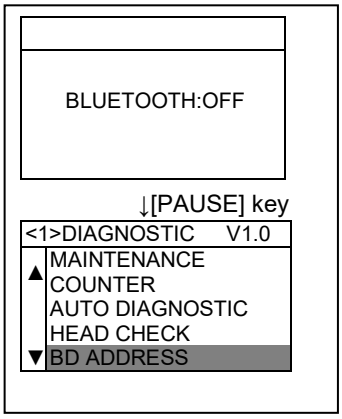
8.4.4 BD ADDRESS

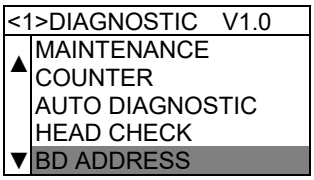
The following table shows the menu structure from the top menu of the system mode to BD Address.

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 ▲ MAINTENANCE COUNTER AUTO DIAGNOSTIC HEAD CHECK ▼ BD ADDRESS	
↓ Press the [FEED] key three times.	
<1>DIAGNOSTIC V1.0 ▲ MAINTENANCE COUNTER AUTO DIAGNOSTIC HEAD CHECK ▼ BD ADDRESS	
↓ Press the [PAUSE] key.	**Bluetooth function: OFF** →
	Displays 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.	



	Prints the Bluetooth address as the 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
RIBBON NEAR END
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	The media loading function is disabled. (Same as feeding by pressing the [FEED] key)
STD	When the [FEED] key is pressed after the printer is turned on and is reset by the 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 the 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 feeding length is calculated based on the stored media pitch.
ECO+BackFeed	(Removed after V3.1 or later) After the ECO operation is carried out, backward feeding by the media pitch is performed if the following conditions are satisfied.

Tip:

1. This function is enabled only when the sensor type is set to other than "None".
2. Operating conditions to set ECO+BackFeed
   Media pitch: between 20 mm or longer and 100 mm or shorter
   Previous issue mode: Batch
   (Even if the power is turned off and then back on and resetting is performed by the key operation and with the reset command, the previous issue mode is continued.)
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 feeding, 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 (A) x 50% ≤ (B) ≤ (A) x 150%
STD ECO	When a gap/black mark is not detected while feeding 999.9-mm media

8.5.2 FEED KEY

FEED	Feeds one label.
PRINT	Prints data in the image buffer on one label.

8.5.3 MOVE TO TEAROFF

Earlier than V3.6

OFF Disables the automatic feeding to the cut/peel-off position after printing.

ON Enables the automatic feeding to the cut/peel-off position after printing.

Note:

For BV420D-GL02 (linerless model), only "ON" is available.

V3.6 or later

OFF Disables the automatic feeding to the cut/peel-off position after printing.

ON1(WITH DELAY) Enables the automatic feeding to the cut/peel-off position after printing. (Performs after some delay)

ON2(INSTANT) Enables the automatic feeding to the cut/peel-off position after printing. (Performs immediately)

Note:

For BV420D-GL02 (linerless model), the printer performs its operation with “ON2” regardless of the setting.

8.5.3.1 MOVE TO TEAROFF pos.

The feeding amount can be finely adjusted when “MOVE TO TEAROFF” is set as shown below.

Earlier than V3.6: “ON”

V3.6 or later: “ON1(WITH DELAY)” or “ON2(INSTANT)”

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

Tip: Feeding amount setting

+ (Plus): Increases the forward feeding amount.

- (Minus): Decreases the forward feeding amount.

Notes:

1. For BV400D, if the pitch of the media used for the previous issue was less than 20 mm, the automatic feeding to the cut/peel-off position after printing will not be activated regardless of the parameter setting.
   * In the case labels with the different pitch (less than 20 mm and 20 mm or longer) are alternately placed in one label roll, the forward feeding is not activated for the labels with the pitch of less than 20 mm. Therefore, it stays at the print stop position without being fed backward. Before the next label with the pitch of 20 mm 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 and then back 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 as below.

BV400D: 12.8 mm

BV400T: 16.2 mm

MODE2: Reserved: 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:

The pre peel off speed is 2 ips.

8.5.6 BACK FEED SPEED

STD 3 ips

LOW 2 ips

8.5.7 AUTO HEAD CHECK

OFF Disables the automatic print head check.

ON Enables the automatic print head check.

8.5.8 RIBBON NEAR END

OFF Note detected

30m Detected (30 m)

Note:

Some differences will occur in the detection of the ribbon nearly-end status of the printer. Therefore, if the ribbon nearly-end status is made to be detected by this setting, the results should be taken for reference purposes only.

This is available for BV410T only.

For BV410/420D with the firmware version V2.1 or later, this can be set but is not valid. For BV410/420D with the firmware version earlier than V2.1, this is not displayed.

8.5.9 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 printing is restarted, first the initial feeding is performed then the printer starts printing from the unfinished label.
2. Complete current
   This setting is valid only when the ribbon saving function is set to OFF. Even when the ribbon saving function is enabled, the behavior of this setting will be automatically performed regardless of the setting. The printer behavior of this setting at the detection of a label end is as follows.
   1) Label end detection
   - Printer behavior
     When a label end is detected in the middle of printing, the printer completes printing of the half-finished label 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"
   - 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 printing is restarted, first the initial feeding 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 feeding is performed. If the status response has been set to ON, an issue end status is sent after a feeding 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

8.5.10 CALIBRATE

OFF	Automatic calibration is not performed.
ON TRANSMISSIVE	Automatic calibration is performed with the transmissive sensor.
ON REFLECTIVE	Automatic calibration is performed with the reflective sensor.
ON ALL	Automatic calibration is performed with both sensors.
ON TRANS+BF:	Backward feeding is performed after auto calibration is carried out with the transmissive sensor. (Removed after V3.1 or later)
ON REFL+BF:	Backward feeding is performed after auto calibration is carried out with the reflective sensor. (Removed after V3.1 or later)
ON ALL+BF:	Backward feeding is performed after auto calibration is carried out with both sensors. (Removed after V3.1 or later)

Tip:

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

<table>
<tr><th colspan="2"></th><th>Printer behavior after performing automatic calibration</th></tr>
<tr><td colspan="2">With or without a ribbon</td><td>The setting contents obtained by automatic calibration are specified.
Afterward, the printer follows the setting contents while the automatic calibration setting is enabled. (The setting content of the command is ignored.)</td></tr>
<tr><td colspan="2">Sensor type</td><td>The setting contents obtained by automatic calibration are specified.
The setting is enabled after the automatic calibration operation is stopped.
Afterward, the setting content of the command is ignored.</td></tr>
<tr><td rowspan="3">Media</td><td>Pitch</td><td rowspan="3">The setting contents obtained by automatic calibration are specified.
Afterward, the printer follows the setting contents while the automatic calibration setting is enabled. (The setting content of the command is ignored.)</td></tr>
<tr><td>Effective print length</td></tr>
<tr><td>Gap length</td></tr>
</table>

3. When automatic calibration with the reflective sensor is selected, the lowest voltage detected by the reflective sensor is considered as a black mark level. Moreover, the sum of this voltage and the threshold fine adjustment value will be stored as a threshold.
4. When automatic calibration with the 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 the transmissive sensor or the lowest voltage detected by the reflective 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 feeding, 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 feeding 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 the previous issue mode was “Cut”, the media is cut and ejected after automatic calibration completes.

10. While automatic calibration is in operation, labels do not stop at the peel-off position even in the peel-off or special peel-off mode.
11. When a paper end occurs during automatic calibration, the printer stops, resulting in an error. Closing the print head after loading a new label can clear the error and resume automatic calibration.
12. After auto calibration is performed and if BackFeed is set, backward feeding is carried out by the media pitch only if the following conditions are satisfied.
    Media pitch: between 20 mm or longer and 100 mm or shorter
    Previous issue mode: Batch
    (Even if the power is turned off and then back on and resetting is performed by the key operation and with the reset command, the previous issue mode is continued.)
13. The feed speed during automatic calibration is 2 ips (BV400-G/T).
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 then back on.

8.5.11 POWER SAVE TIME

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
60	1	1	Decimal	None	3	0	None	Min.

8.5.12 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

8.5.13 ZERO FONT

0 Without slash

Ø With slash

Note:

The following fonts do not support “Ø” (With slash). Therefore, even if this value is selected, “0” (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

8.5.14 CTRL CODE

AUTO

{,|,}

ESC,LF,NUL

MANUAL

IBM HOST / IBM HOST

IBM HOST:US / IBM HOST:US

Note:

1. When IBM HOST is selected, the control code will be「(A2H), |(7CH), 」(A3H).
2. When IBM HOST US is selected, the control code will be (83H), |(7CH), (84H).
3. When IBM HOST or IBM HOST US is selected, the control code will ignore 00H to 1FH.
4. When IBM HOST or IBM HOST US is selected, the 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 the movement space. Discard the rest.

8.5.14.1 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

8.5.15 PEEL OFF STATUS

OFF Disabled

ON Enabled

8.5.16 KANJI CODE

TYPE1: Windows: Windows code

TYPE2: Original: Original code

8.5.17 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

8.5.18 MAXICODE SPEC

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

Tip:
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.

8.5.19 CUT MODE

Standard Action
Conventional Action

Tip:
When “TYPE1” is set, a high-speed performance, such as overlapping the timing of the cutting operation and media transport operation or backward feeding of the media after cutting is performed in 5 ips, is made. In addition, the operation by combining the issue mode and backward feeding speed settings is as shown below.

System mode setting		Backward feeding speed				
		Cut issue		Peel-off issue	Reverse command	Reversing from normal standby
Backward feeding speed	Cut mode	Backward feeding speed	Operation timing			
2ips	Standard	5ips	High-speed	2ips		
3ips				3ips		
2ips	Conventional	2ips	Conventional	2ips		
3ips		3ips		3ips		

8.5.20 MULTI LABEL

OFF: Disables the Multi Label function.
ON: Enables the Multi Label function.

Tip:
This function is not available without specifying the sensor.
When the automatic calibration setting is set to ON, this function is not available since the actual measurement label pitch is automatically measured.
The maximum number of multi labels is 8.
When the [FEED] key is pressed, one label is fed.

Example:
When 3 labels are considered as 1 label for a label whose actual measurement pitch is 30 mm and the gap length is 2 mm
{D0900,1000,0880|}
{C|}
{XS;I,0001,0002C4200|}

8.5.21 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 feed length exceeds the warning one, the [ERROR] LED is lit.
The label feed length at that time can be confirmed by the "FEED" value of the self-diagnostic (count/parameter information).
When a label feed length warning has occurred, this is notified regardless of other errors and mode states (online mode, system mode, user mode, power saving mode).

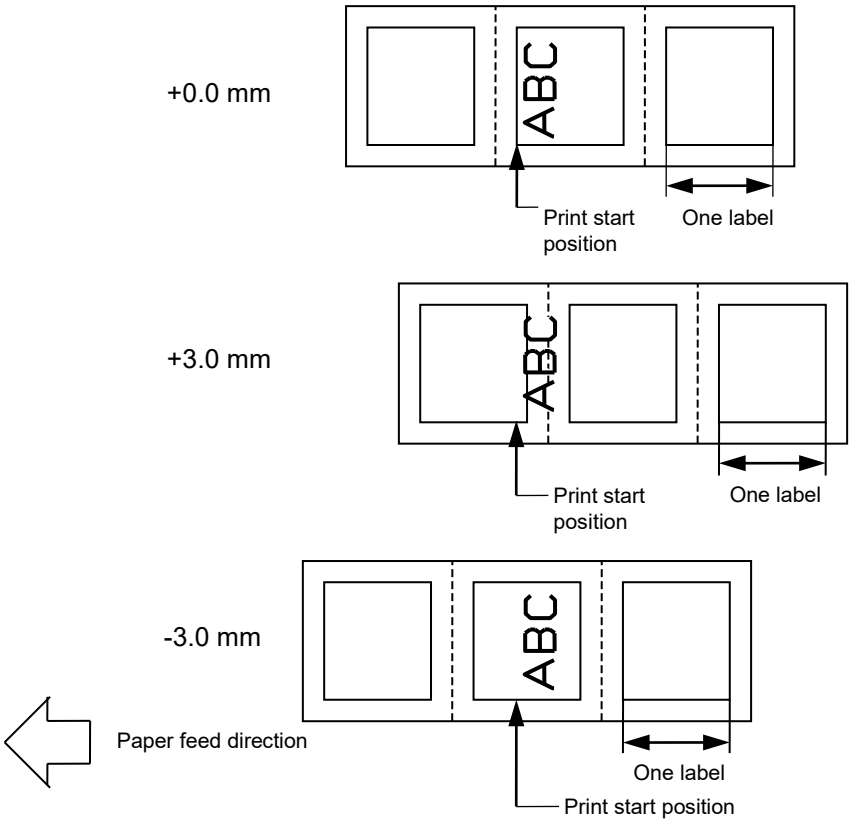
8.5.22 TOTAL LENGTH

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 label total feed length exceeds the warning one, the [ONLINE] LED always blinks (ON: 30 msec., OFF: 30 msec.).
The label total feed length at that time can be confirmed by the "TOTAL FEED" value of the self-diagnostic (count/parameter information).
When the label total feed length warning has occurred, it is notified regardless of other errors and mode states (online mode, system mode, user mode, power saving mode).

8.5.23 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

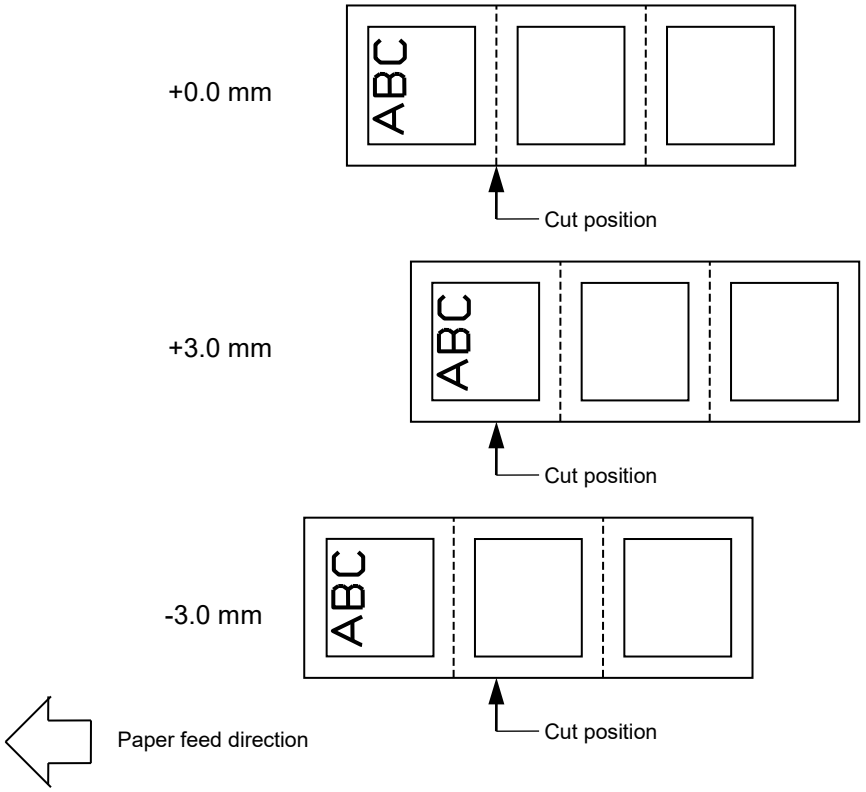


Tip:
The feeding amount fine adjustment value is the sum of the fine adjustment values set in the system mode (by the key operation) and set by the command (from the PC). The maximum value is ±50.0 mm.

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.

8.5.24 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 the key operation) and set by the command (from the PC). The maximum value is ±50.0 mm.
2. Countermeasure for labels whose size is less than 22.0 mm when the disc cutter is used
   The minimum label pitch of a label which can be cut in normal use is 22.0 mm. When a label whose size is less than 22.0 mm is used (even though it is out of the specifications), the edge of the label is caught by the edge of the thermal head during a reverse feeding 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] Adjusting the cut position fine adjustment value

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 issuing or feeding a label.

(1) Cut position fine adjustment value calculation

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.

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

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

* Any decimal remainders are rounded off.

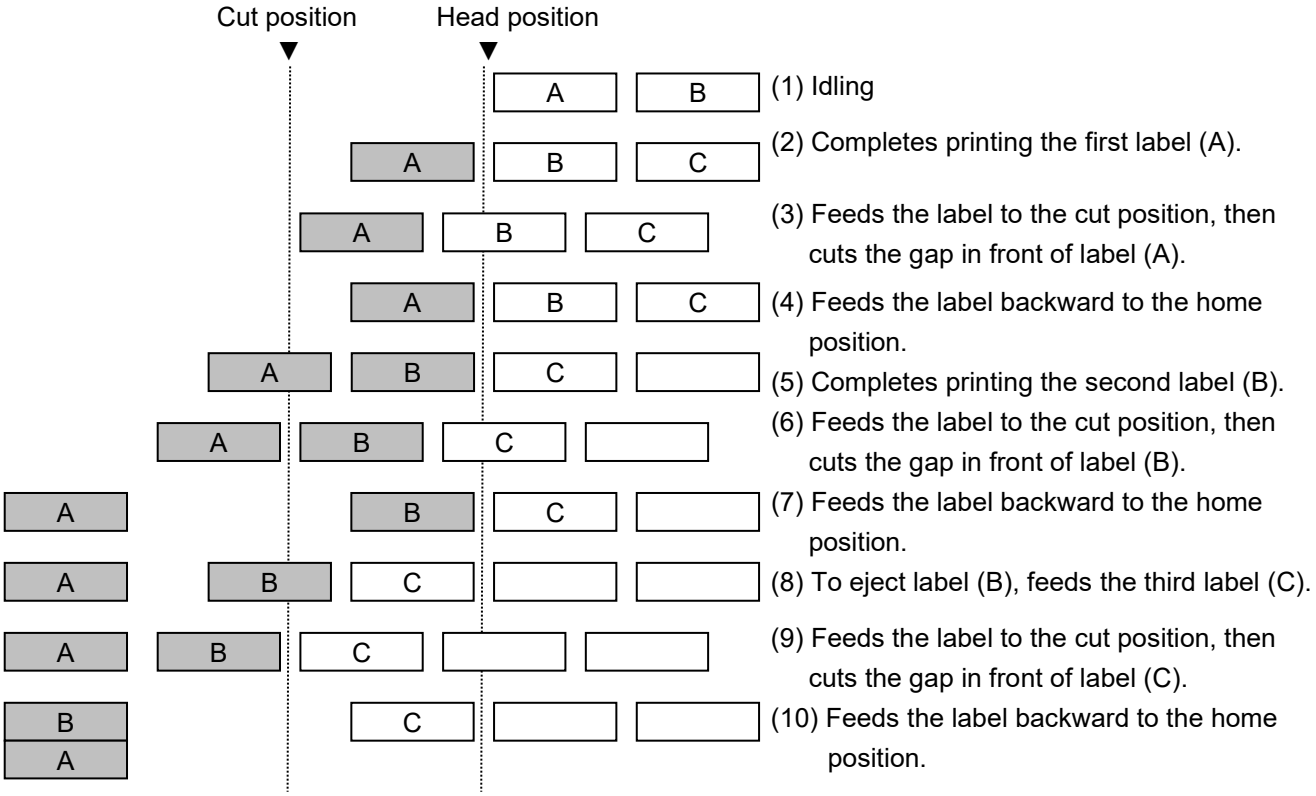
e.g.) Label pitch: 20.0 mm

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

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

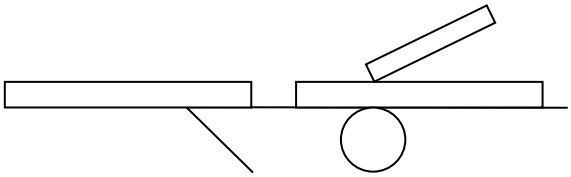
(2) Operation example

Issue count: 2, Cut interval = 1

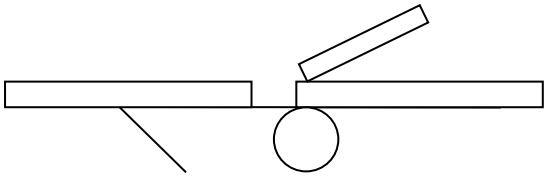


3. Peel-off position fine adjustment

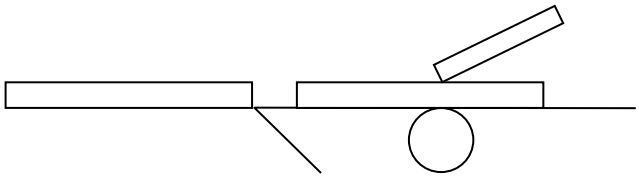
0.0 mm

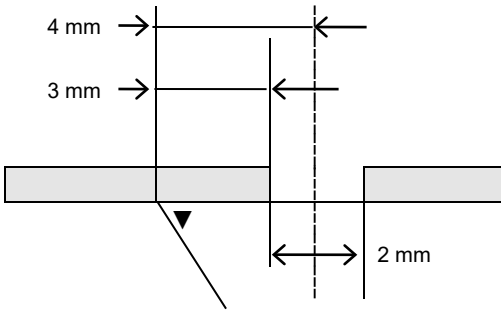


+3.0 mm



-3.0 mm

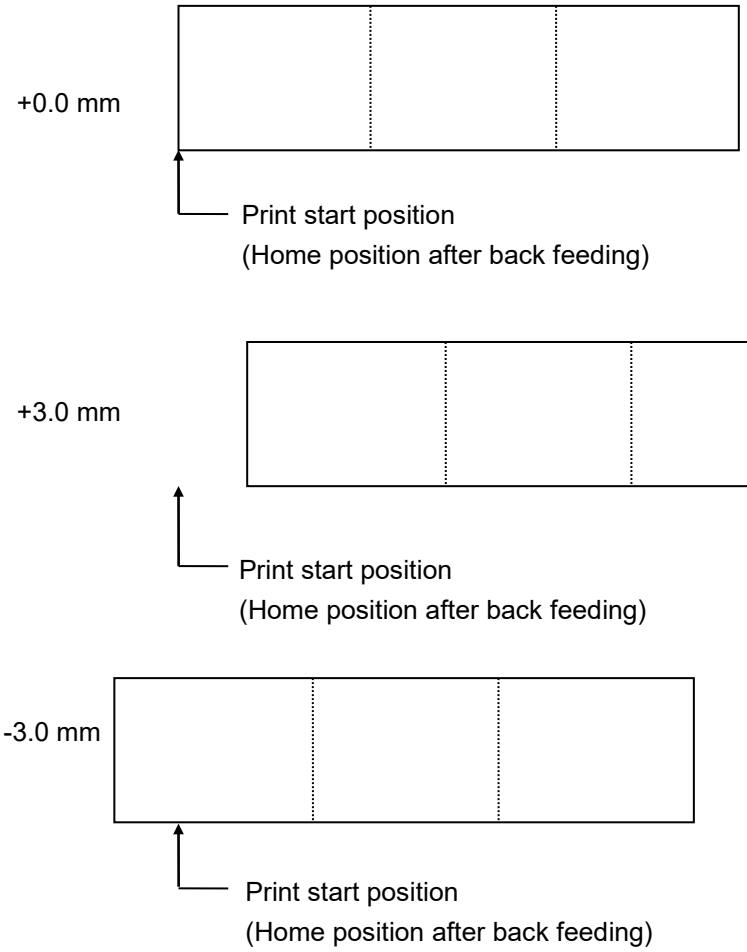




Printing in the peel-off mode is stopped at the position where the distance from the middle point of the gap between labels to the end of the peel-off shaft is 4 mm, since the gap between labels is assumed to be 2 mm. When the print stop position is not proper due to a greater gap, the print stop position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

8.5.25 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



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

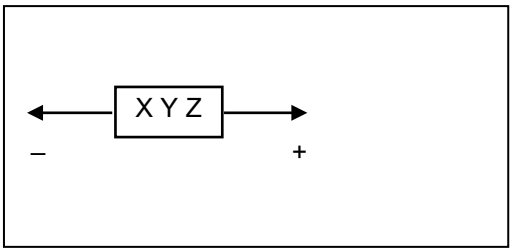
Note:
There may be cases where a label is not returned to the home position depending on the print conditions, even if the media is fed backward for the same amount as the forward feeding. For issuing media with the media sensor, if the label pitch is almost the same as the distance between the print head and the media sensor BV400D standard models: 19.9 mm, linerless models: 12.8 mm, BV400T standard models (between the thermal head and the reflective sensor): 43.3 mm, BV400T standard models (between the thermal head to the transmissive sensor): 82.4 mm, the media may not be returned to the home position when operations including reverse feeding (such as cut issuing, peel-off issuing) are performed. It may result in an error. To prevent this error from occurring, increase the reverse feeding amount by performing the reverse feeding amount fine adjustment in the + direction.

8.5.26 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

Tip:

1. The X ADJUST parameter can finely adjust the print position in the 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-diagnostic results printing (maintenance counter and parameter settings, and auto diagnosis).

8.5.27 X ADJ. METHOD

TYPE1: Minus X adjustment will be ignored when X adjustment has reached to the "0" coordinate.

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

Tip:

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.

8.5.28 HEAT ENERGY TYPE

TRANS.(RIBBON)

DIRECT THERMAL

Tip:

1. This 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. For details, refer to the Supply Specifications.
2. Having a multiple number of the heat energy tables depending on the print confirmation results should be considered.

8.5.28.1 TRANS.(RIBBON)

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

8.5.28.2 DIRECT THERMAL

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

8.5.29 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

Tip:

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 the key operation) and set by the command (from the PC). The maximum value is -10 to +10. If the value exceeds the print head rating, it is automatically corrected.
3. The factory default is +0 step.

8.5.30 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

Tip:

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 the key operation) and set by the command (from the PC). The maximum value is -10 to +10. If the value exceeds the print head rating, it is automatically corrected.
3. The factory default is +0 step.

8.6 TEST PRINT

Contents of the 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

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

Tip:

1. Initial value for each parameter at a power on
   ISSUE COUNT: 1
   PRINT SPEED: 4 ips
   SENSOR: TRANSMISSIVE
   PRINT TYPE: BV400D: DIRECT THERMAL
   BV400T: THERMAL TRANSFER
   ISSUE TYPE: NO CUT
   LABEL PITCH: 76 mm
   PAPER FEED: FEED
2. Each fine adjustment value is effective for test printing. However, the X-coordinate fine adjustment is excluded.
3. When an error has occurred during test printing, an error message is displayed and printing is stopped. At this time, the [ERROR] LED is turned on and the [ONLINE] LED is turned 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 is turned off and the [ONLINE] LED is turned 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. Alternatively, the printer stops because of an error.
6. When the transmissive sensor is selected, the gap between labels shall be 3 mm.

7. If the setting parameters satisfy all of the following conditions and issuance is performed continuously for 10 seconds or more, it will be paused once every 10 seconds. (V1.2 or later)
   <V1.2 to V1.3>
   - Print speed: 6 to 7 ips
   - Print tone fine adjustment value: +1 to +10 step

   <V1.4 or later>
   - Print speed: 2 to 7 ips
   - Print tone fine adjustment value: -10 to +10 step

   The specifications of the effective print length to be paused are as follows.

<table>
<tr><th rowspan="2">Resolution / Print speed</th><th colspan="2">203dpi</th><th colspan="2">300dpi</th></tr>
<tr><th>Min. Value</th><th>Max. value</th><th>Min. value</th><th>Max. value</th></tr>
<tr><td>2 ips</td><td rowspan="6">6.0 mm</td><td>480.0 mm</td><td rowspan="4">6.0 mm</td><td>480.0 mm</td></tr>
<tr><td>3 ips</td><td>720.0 mm</td><td>720.0 mm</td></tr>
<tr><td>4 ips</td><td>960.0 mm</td><td>960.0 mm</td></tr>
<tr><td>5 ips</td><td rowspan="3">997.9 mm</td><td>997.9 mm</td></tr>
<tr><td>6 ips</td><td colspan="2" rowspan="2">Not supported</td></tr>
<tr><td>7 ips</td></tr>
</table>

8.6.1.1 ISSUE COUNT

1
3
5
10
50
100
500
1000
5000

8.6.1.2 PRINT SPEED

The 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

THERMAL TRANSFER
DIRECT THERMAL

8.6.1.5 ISSUE TYPE

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

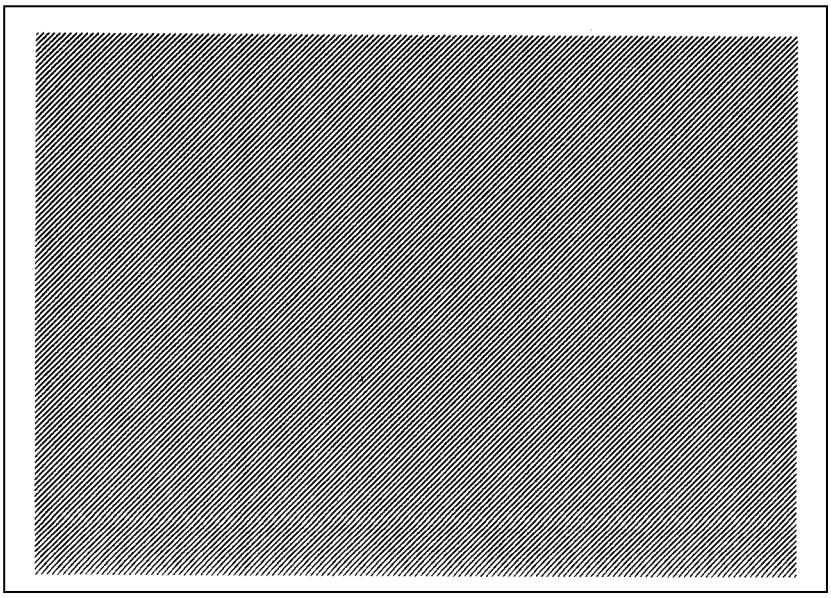
8.6.1.6 LABEL PITCH

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

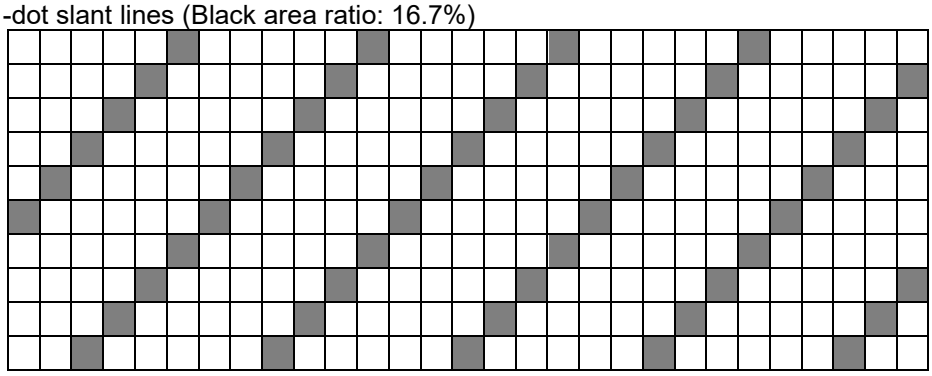
NO FEED
FEED

8.6.2 SLANT LINE (1DOT)

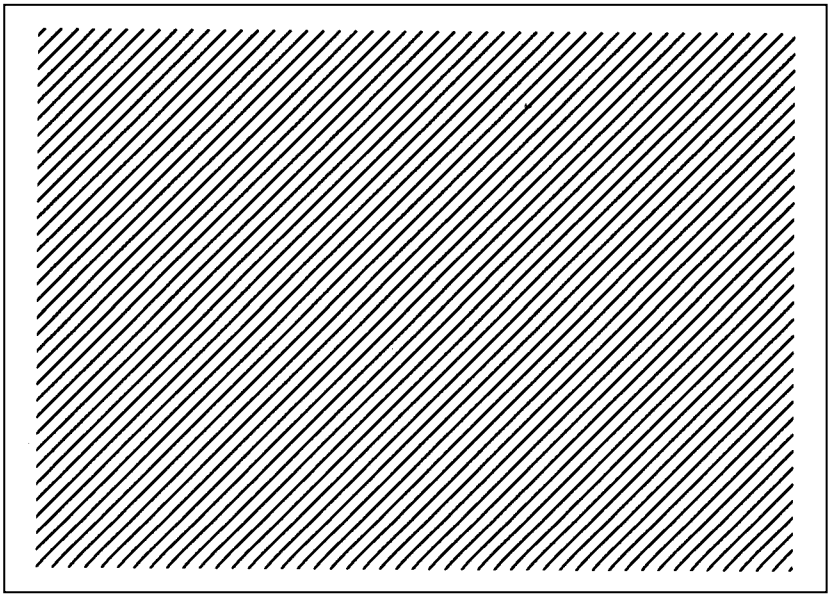


1-dot slant lines

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

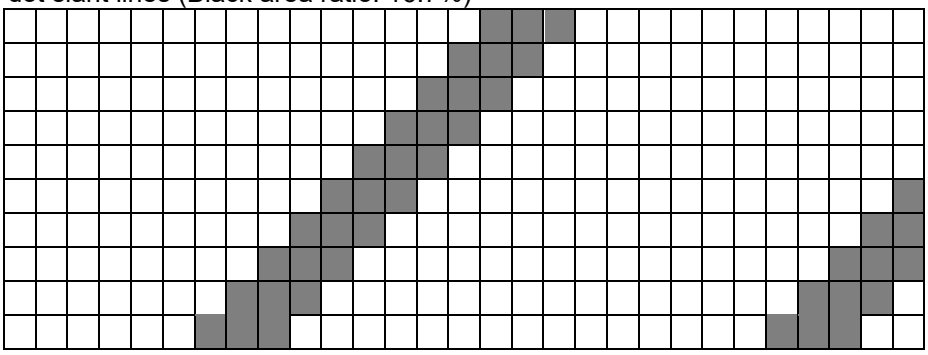


8.6.3 SLANT LINE (3DOT)



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



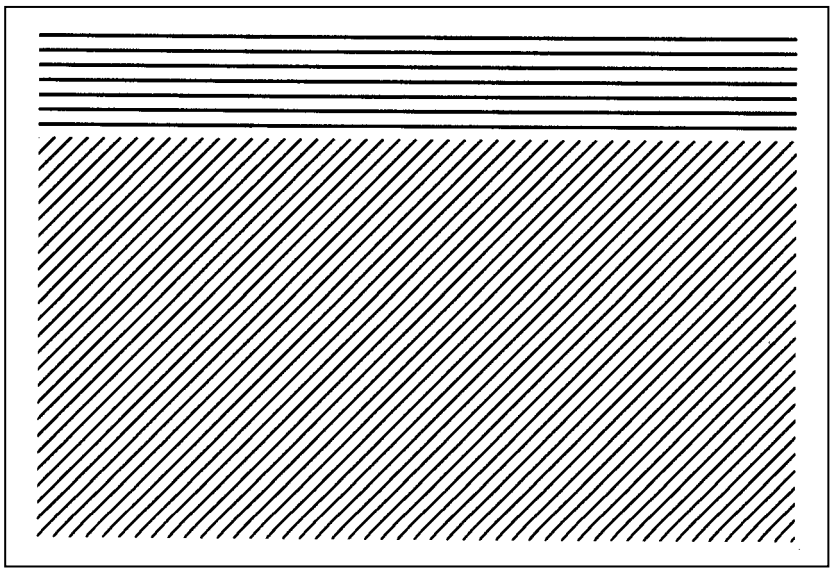
8.6.5 BARCODE



8.6.6 NON-PRINTING

The printer feeds a 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.

The 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>

	BV400D	BV400T
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	Thermal transfer
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>

	BV400D	BV400T
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	Thermal transfer
Issue mode	Batch issue	
Label pitch	76 mm	
Print density fine adjustment value	±0	

8.7 SENSOR

Contents of the 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

Menu structure of ADJUSTMENT

Menu item
<4>SENSOR
ADJUSTMENT
REFLECTIVE SENSOR
TRANSMISSIVE SENSOR
PAPER 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 "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 is turned on. The [ERROR] LED is turned off when the upper-level menu is displayed.

The setting range is as below.

Reflective sensor	0.0 V 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 "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 is turned on. The [ERROR] LED is turned off when the upper-level menu is displayed.
The setting range is as below.

Transmissive sensor	0.0 V to 5.0 V

8.7.2.3 PAPER END LEVEL

The 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 is turned on. The [ERROR] LED is turned off when the upper-level menu is displayed.
The setting range is as below.

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

8.7.3 THRESHOLD LEVEL

Menu structure of THRESHOLD LEVEL

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, this 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, this is automatically corrected to the initial value "1.4 V".

THRESHOLD1
THRESHOLD2
THRESHOLD3
THRESHOLD4
THRESHOLD5

8.8 RAM CLEAR

Contents of the 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 mistakenly, and is intended to exit 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

Tip:

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	Others
1. Label feed length	0 km	Cleared	Cleared			
2. Print length	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··· 1. Label feed length
FEED1        4.8km
FEED2        0.0km
FEED3        0.0km
FEED4        0.0km
PRINT        0.0km··· 2. Print length
PRINT1       4.5km
PRINT2       0.0km
PRINT3       0.0km
PRINT4       0.0km
CUT          0 ····· 3. Cut count
232C ERR     0 ····· 4. RS-232C hardware error count
SYSTEM ERR   0 ····· 5. System error count
POWER FAIL   0 ····· 6. Momentary power interruption count
```

2. LCD message while 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 maintenance counter clear is completed, "COMPLETED. Turn off the printer" is displayed. Turn off the printer.

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 parameter clear, the initial setting wizard is launched. This wizard enables setting the basic parameters (LCD language, use of the ribbon, media type, etc.) required for various settings.

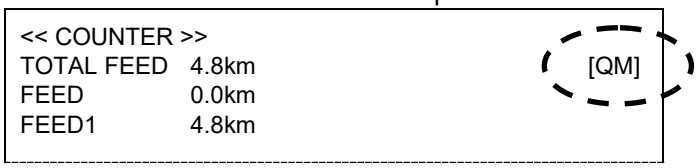
8.8.3.1 Parameters to be cleared

After the parameter settings are cleared, the initial values for the selected destinations are set.

QM TYPE
JA TYPE
CN TYPE
QQ TYPE

Tip:

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



2. LCD message while 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. The default value of the language mode at the time of startup after clearing each parameter is as below. (Supported from V3.1 or later)

Destination	BV400D	BV400T
QM TYPE	TPCL	AUTO1
JA TYPE		TPCL
CN TYPE		AUTO1
QQ TYPE		

AUTO1: Emulation automatic switching

4. 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/Peel-off 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	Earlier than V3.6 Automatic feeding to the cut/peel-off position after printing		ON
	V3.6 or later Automatic feeding to the cut/peel-off position after printing	QM TYPE CN TYPE QQ TYPE	ON2(INSTANT)
		JA TYPE	ON1(WITH DELAY)
	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)	Automatic 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
RIBBON NEAR END	Ribbon nearly-end detection setting (available for BV400T only)		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 feed length warning setting		3200km
TOTAL LENGTH	Label total feed 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 the LCD)

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

<< STORAGE AREA >>

Item	Description	Initial value
TTF AREA	TrueTypeFont storage area size	Not cleared Default: 0 KB
EXT CHR AREA	External characters storage area size	Not cleared Default: 1792 KB
BASIC AREA	BASIC file storage area size	Not cleared Default: 0 KB
PC SAVE AREA	PC command storage area size	Not cleared Default: 1280 KB
OTF SAVE AREA	OpenType Font storage area size	Not cleared Default: 3548 KB

<< 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
FTP	FTP	QM TYPE CN TYPE QQ TYPE	DISABLE
		JA TYPE	ENABLE * To make this become "ENABLE", download a ROM supporting SFTP into a printer in the field and then perform RAM clearing.
SFTP	SFTP	QM TYPE CN TYPE QQ TYPE JA TYPE	DISABLE
IP ADDRESS	Printer IP address		Not cleared * Default: 192.168.10.20
SUBNET MASK	Subnet mask		Not cleared * Default: 255.255.255.0
GATEWAY ADDRESS	Gateway IP address		Not cleared * Default: 0.0.0.0
SOCKET PORT	Whether to enable socket communication	QM TYPE QQ TYPE CN TYPE	Not cleared * Default: ON
		JA TYPE	ON
	Socket port number		Not cleared * Default: 9100
DHCP	DHCP		ON
DHCP CLIENT ID	DHCP ID		Not cleared * Default: Not specified
DHCP HOST NAME	DHCP host name		Not cleared * Default: Not specified

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: Models with the LCD: JUST WORKS Models without the LCD: NUMERIC COMP
NUMERIC COMP	Numeric comparison setting	Not cleared * Default: DISP Y/N (Models with the LCD)

<< RFID >> [BV410T]

Item	Description	Initial value
MODULE TYPE	RFID module type setting	NONE
TAG TYPE	RFID tag type setting	NONE
RF CHANNEL	RFID channel setting	AUTO
RETRY POSITION	RFID adjustment retry setting	+00 mm
RETRY LABELS	RFID issue retry number of labels setting	3 labels
READ RETRY	RFID read retry times setting	5 times
	RFID read retry interval setting	4.0 sec.
WRITE RETRY	RFID write retry times setting	5 times
	RFID write retry interval setting	2.0 sec.
POWER LEVEL	RFID wireless output level	18
Q VALUE	RFID module Q value setting	0
AGC THRESHOLD	RFID AGC threshold setting	0
WRITE AGC	RFID write AGC threshold value setting	0
RETRY MIN AGC	RFID write AGC threshold retry minimum	0

	value setting	
TAG CHECK	RFID error tag detection setting	Not cleared
MULTI WRITE	RFID multi-word write setting	OFF
CALIB. MODE	RFID calibration mode setting	OFF
ENCODE POSITION	POSITION value detected by RFID calibration	+000.0 mm
SUCCEEDED TAGS	RFID write success label issue times	Not cleared
VOID PRINT TAGS	RFID write failure label issue times	Not cleared

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

User mode:

<5> SHOW ISSUE COND.

Item		Initial value
Sensor (Note)	Other than the linerless models	TRANSMISSIVE
	Linerless model	No
Mode		BATCH
Print Speed		4 ips
Ribbon (Note)		No
Direction		BOTTOM
Media pitch (Note)		76.0 mm
Print length		203 dpi: 74.1 mm 300 dpi: 74.2 mm
Print width		203 dpi: 104.0 mm 300 dpi: 105.7 mm
Media width		Not cleared

<7> RIBBON CORE I.D. (available only for BV400T)

Item	Description		Initial value
RIBBON CORE I.D.	Ribbon core holder internal diameter setting	QM TYPE QQ TYPE CN TYPE	25.4 mm (1.0 inch)
		JA TYPE	12.7 mm (0.5 inches)

Note:

Though the setting value is reset to the initial one by clearing the parameter, the first online operation after this 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

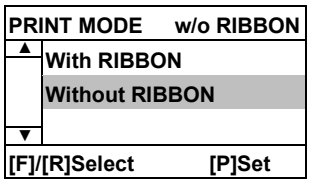
8.8.3.2 Initial setting wizard

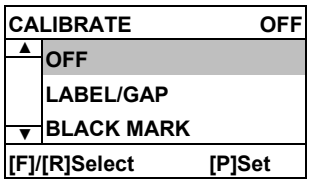
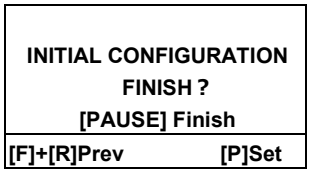
After parameter clear is performed (other than the JA type), the printer will show the initial setting wizard only at the first startup. In this wizard, you can make various printer settings such as the LCD language and printing method that are required for the initial setup. The contents set in this wizard can be changed by the system mode or command transmission.

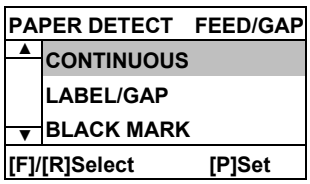
Item		Initial value
LANGUAGE		QM TYPE, QQ TYPE: ENGLISH
		CN TYPE: SIMP. CHINESE
PRINT MODE	BV400D	Without RIBBON
	BV400T	With RIBBON
CALIBRATE		OFF
PAPER DETECT		LABEL/GAP
PAPER LENGTH		76 mm

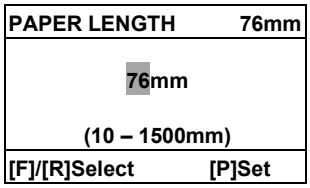
Wizard operation example after clearing parameters (BV400D)

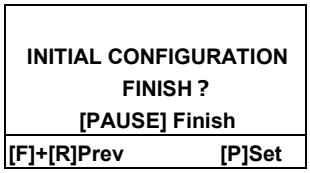
	(RAM Clear QM Type)	
1. After Parameter Clear	**QM TYPE** **CLEAR...** ↓ **QM TYPE** **COMPLETED** **Turn off the printer** ↓ Turn the power off and then back on **BV400 Series** **Initializing...** ↓	
2. Show Initial Setting wizard	**STARTUP SETTINGS** **PRESS [PAUSE]** ↓ Press the [PAUSE] key.	
3. Language Setting	**LANGUAGE ENGLISH** ▲ **ENGLISH** **GERMAN** ▼ **FRENCH** **[F]/[R]Select [P]Set** ↓ Press the [PAUSE] key.	Select by the [FEED] key or the [RESTART] key.

<table>
<tr><td>4. Print Mode Setting</td><td>

↓ Press the [PAUSE] key.</td><td>Select by the [FEED] key or the [RESTART] key.</td></tr>
<tr><td>5. Calibrate Setting</td><td>
</td><td>Select by the [FEED] key or the [RESTART] key.</td></tr>
<tr><td colspan="3">6-1. Calibrate setting select except "OFF "</td></tr>
<tr><td></td><td>6-1-1.
Finish setting</td><td>

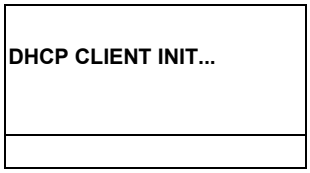
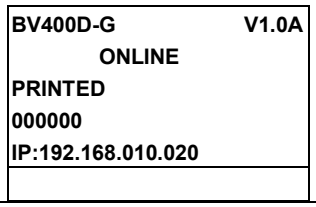
↓ Press the [PAUSE] key.
Go to 7. Saved the Setting.</td></tr>
<tr><td colspan="3">6-2. Calibrate setting select "OFF "</td></tr>
<tr><td></td><td>6-2-1.
Paper detect setting</td><td>

↓ Press the [PAUSE] key.</td><td>Select by the [FEED] key or the [RESTART] key.</td></tr>
<tr><td></td><td>6-2-2.
Paper length Setting</td><td>

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

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

↓</td><td></td></tr>
</table>

8. DHCP Client Initializing		
9. ONLINE mode		

Key operation (Wizard screen)

Key	Function
[FEED] + [RESTART]	Displays the upper-level screen without saving the settings.
[PAUSE]	In case of the setting selection screen, saves the changes and returns to the upper-level menu.
[RESTART]	Moves the cursor downward. When the cursor is positioned at the bottom of the list, it scrolls from the bottom to the top.
[FEED]	Moves the cursor upward. When the cursor is positioned at the top of the list, it scrolls from the top to the bottom.

Tip:

1. The printer operation is not guaranteed when multiple keys are pressed at the same time except for those mentioned above (e.g.: [FEED]+[RESTART]).
2. When the language is specified in the Language Setting screen and then the screen is moved to the next Print Mode Setting screen, it is displayed by the specified language. For details about the display language, refer to “8.14.1 LCD LANGUAGE”.
3. The items of the default setting wizard will be updated by pressing the [PAUSE] key. To change the item, it is necessary to press the [FEED] and [RESTART] keys to move to the upper-level screen to select it.

8.9 INTERFACE

Contents of the INTERFACE menu

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

8.9.1 LAN/WLAN

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) (The wired LAN will not be available when the wireless LAN module is installed in 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

The IP address can be displayed and set.

8.9.1.4 SUBNET MASK

The subnet mask can be displayed and set.

8.9.1.5 GATEWAY ADDRESS

The gateway address can be displayed and set.

8.9.1.6 DHCP

The DHCP protocol can be enabled or disabled.

OFF

ON

8.9.1.7 DHCP CLIENT ID

The DHCP client ID can be entered with a hex code.

Setting range: 00 to 63 (64 bytes)

8.9.1.8 DHCP HOST NAME

The DHCP host name can be entered with an ASCII code.

Setting range: 00 to 31 (32 bytes)

8.9.1.9 SOCKET PORT

The socket communication can be enabled or disabled.

OFF

ON

8.9.1.10 PORT NUMBER

The socket port number can be displayed and set.

Setting range: 00000 to 65535

8.9.1.11 LPR

LPR can be enabled or disabled.

OFF

ON

8.9.1.12 SNMP

OFF

ON

8.9.1.13 WEB PRINTER

OFF

ON

8.9.1.14 WLAN

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

ESSID can be entered with an ASCII code.

Setting range: 00 to 31 (32 bytes)

8.9.2 USB

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 A response is returned to the host via USB.

Tip:

1. Regardless of the setting of this parameter, the status indicating the end of issuing is automatically returned.
2. The transmission of the commands related to the status is performed as follows.
   1) WS, WB or WN command
      - In the case USB and other interfaces 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 USB 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, returning of a status will be switched depending on the setting of this parameter.
      * When this parameter is set to OFF, no status is returned via USB even if it is connected.

8.9.3 RS-232C

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

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
Tip: For BV400T, only SSP is available. (SSP is specified even though LINK or OFF is selected.)

8.9.4.5 SCAN INTERVAL

Setting Range: 18 to 4096 (sec.)

8.9.4.6 SCAN WINDOW

Setting Range: 18 to 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 RFID [BV410T]

This is available for BV410T only.
For BV410/420D with the firmware version V2.1 or later, this can be set but is valid. For BV410/420D with the firmware version earlier than V2.1, this is not displayed.

Contents of the RFID menu

Menu item
<7>RFID [BV410T]
TEST
MODULE
RETRY
UHF SETTING
OTHER
CARRIER SENSE

8.10.1 TEST

Data of the RFID tag related to the test are read.

Menu structure of TEST

Menu item
<7>RFID [BV410T]
TEST
ID READ

8.10.1.1 ID READ

The printer enters the ID read test mode and reads the data of the RFID tag. From this point of time, the ID read test is carried out every time the [PAUSE] key is pressed. When tag reading has succeeded, the read data are displayed on the LCD. When this has failed, an error message appears on the LCD.

Error content	Message
The module type is not set or the communication is not available.	MODULE TYPE ERROR
The country or region configuration is not set.	COUNTRY CONFIG ERROR
The type of the read tag does not match the setting.	READ ERROR Confirm Setting or set other Tag.
Not available	NOT AVAILABLE
No response	NO RESPONSE
Timeout	READ TIMEOUT set a RF-Tag on Ant.
Other errors	UNKNOWN ERROR

Tip:
In tag reading, only the tag type specified in the RFID tag type setting is read. If the type of the tag does not match the one specified in the RFID tag type setting, reading of the RFID will fail. Therefore, before the reading test is carried out, be sure to specify the type of the RFID tag to be used.
<Display example>

ID READ
TAG 1/16
AGC 0
00010203 04050607
08090A0B 0C0D0E0F

- The meaning of “1/16” on the first line is as below.
  Numerator: Number of tag sheets displaying the result
  Denominator: Total number of read tag sheets
  * In most cases, only one tag sheet is read.
- The second line shows the “AGC” field in decimals.
- The third and fourth lines are displayed in hexadecimals. (16 digits x 2 lines = 32 digits)
  An EPC code of the EPC area is displayed.
- If the capacity of the data is less than 16 bytes, empty spaces will be displayed in blank.
- When a multiple number of tags with a short pitch is read at one time, the display of the read tag data on the LCD is switched by pressing the up and down keys.

8.10.2 MODULE

The contents related to the module setting are displayed.

Menu structure of MODULE

Menu item
<7>RFID [BV410T]
MODULE
MODULE TYPE
Region
TAG
RF CHANNEL

8.10.2.1 MODULE TYPE

NONE	No RFID module		
UHF band(U4)	UHF band RFID kit	BV704-RFID-U4-US-S:	North America and others
		BV704-RFID-U4-EU-S:	Europe
		BV704-RFID-U4-AU-S:	Australia

8.10.2.2 Region

The country or region where the module currently installed is displayed and can be changed. Once the setting of the country or region is changed, the frequency of the radio wave outputted from the RFID module is altered. Therefore, this setting has been protected by a password so that a user cannot change this setting.

In accordance with the module setting value, type of the installed module and installation status, a message will appear as shown in the table below.

Module setting value	Module type and installation status		Message
NONE	Not installed		NONE
UHF band(U4)	Not installed		No RFID Module
	BV704-RFID-U4-US-S BV704-RFID-U4-EU-S BV704-RFID-U4-AU-S	Country or region: Selected (*1)	[PAUSE] for Setting
		Country or region: Not selected	Need Setting for use [PAUSE] for Setting

Note:

*1: The country or region varies depending on the type of the RFID module. For details about it, refer to “Module revision and LCD display” in “8.4.2.1 Automatic Self-Diagnosis Print Content”.

8.10.2.3 TAG

The tag type of the RFID module is set.

* The setting contents of the tag type vary depending on the configuration of the module type.
When RFID is used in this printer, set “U4” for the module type and “EPC C1 Gen2” for the tag type.

Module type	Tag type
NONE	NONE
	I-Code
	Tag-it
	C220
	ISO15693
	C210
	C240
	C320
	EPC C1 Gen2
UHF band(U4)	NONE
	EPC C1 Gen2

8.10.2.4 RF CHANNEL

The value of the channel to made the RFID reading is set.

AUTO
2CH
3CH
4CH
5CH
6CH
7CH
8CH

Tip:

1. When a value “2CH” through “8CH” is set, the selected channel is fixed and used.
2. When a value “AUTO” is set, the printer searches for the available channel. When it is found, the radio wave is set by the searched channel. The channel is searched in the order of “ 2 > 8 > 6 > 4 > 3 > 7 > 5 > 2”.

Printer setting channel	Frequency (MHz)
2CH	921.0
3CH	921.2
4CH	921.4
5CH	921.6
6CH	921.8
7CH	922.0
8CH	922.2

8.10.3 RETRY

The contents related to retrying are set.

Menu structure of RETRY

Menu item
<7>RFID [BV410T]
RETRY
RETRY POSITION
RETRY LABELS
READ RETRY
WRITE RETRY

8.10.3.1 RETRY POSITION

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+99	-99	1	Decimal	None	2	0	None	mm

When RFID writing has failed, the forward or backward feeding by the step specified in this setting is carried out. After then, the RFID write retrying is performed again. This will be available only when the value -3 mm or smaller or +3 mm or larger is set.

8.10.3.2 RETRY LABELS

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
255	0	1	Decimal	None	3	0	None	labels

When RFID writing has failed, an error pattern (Void pattern) is automatically printed and then retrying is carried out by the number of times of the specified count of labels. If the RFID writing failure has continued, an RFID WRITE error occurs and the printer stops the operation.

8.10.3.3 READ RETRY

The number of retries and the retry period for reading are set.

(1) Number of retries

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
255	0	1	Decimal	None	3	0	None	times

You can set how many times the printer retries RFID reading during the processing. If the specified RFID reading retry period has elapsed before the number of reading retries set here, the retry is terminated at that point. When writing data to RFID tags, reading is also performed first. The number of retries at this point also uses the parameters set here.

(2) Retry period

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
9.9	0.0	0.1	Decimal	None	1	1	None	sec.

You can set how long the printer retries RFID reading during the processing. If the specified number of RFID reading retries has elapsed before the reading retry period set here, the retry is terminated at that point. When writing data to RFID tags, reading is also performed first. The retry period at this point also uses the parameters set here.

8.10.3.4 WRITE RETRY

The number of retries and the retry period for writing are set.

(1) Number of retries

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
255	0	1	Decimal	None	3	0	None	times

You can set how many times the printer retries RFID writing during the processing. If the specified RFID reading retry period has elapsed before the number of writing retries set here, the retry is terminated at that point.

(2) Retry period

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
9.9	0.0	0.1	Decimal	None	1	1	None	sec.

You can set how long the printer retries RFID writing during the processing. If the specified number of RFID writing retries has elapsed before the writing retry period set here, the retry is terminated at that point.

8.10.4 UHF SETTING

The contents related to UHF are set.

Menu structure of UHF SETTING

Menu item
<7>RFID [BV410T]
UHF SETTING
POWER LEVEL
Q VALUE
AGC THRESHOLD
WRITE AGC THRESHOLD
WRITE RETRY MIN AGC
CALIB. MODE
ENCODE POSITION

8.10.4.1 POWER LEVEL

The wireless output level of the UHF band is set.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
255	0	1	Decimal	None	3	0	None	None

Tip:

When “UHF band(U4)” is set for the RFID module type, the range of the output level is between 18 (approx. 100 mW) to 0 (approx. 1 mW).

Module type	Min. value	Max. value
NONE	0	255
UHF band(U4)	0	18

8.10.4.2 Q VALUE

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
15	0	1	Decimal	None	2	0	None	None

When an RFID tag which can read multiple tag sheets inside a printer is used, if “0” is set, the tags interfere with each other and writing will become impossible. Therefore, when such a type of an RFID tag is used, be sure to set a value larger than “1” (Recommended value: 2). At that time, specify the RFID write AGC threshold value setting and RFID write AGC threshold retry minimum value setting so that the writing can be carried out by selecting the tag directly above the antenna.

In almost all RFID tags, this symptom will not occur. Therefore, it is not necessary to change the value from “0” (factory default).

8.10.4.3 AGC THRESHOLD

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
15	0	1	Decimal	None	2	0	None	None

When an RFID tag gain is obtained and its value is lower than the specified AGC threshold level, the tag sheet will be made to proceed as an error tag even if the writing has succeeded. If the value is “0”, writing to all tag sheets is possible. For example, if the value is “8”, the tag sheet with the AGC threshold level “7” or lower will be made to proceed as an error tag. Moreover, the proper AGC threshold setting value varies depending on the type of the RFID tag.

8.10.4.4 WRITE AGC THRESHOLD

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
15	0	1	Decimal	None	2	0	None	None

When an RFID tag which can read multiple tag sheets inside a printer is used, set the RFID module Q value to “1” or larger and the AGC threshold value for the tag sheet to be written with this value together. The printer does not carry out writing to a tag sheet whose gain is smaller than the AGC value specified in this setting. Upon setting the writing threshold value in this setting, writing to a tag sheet which has a higher gain, meaning which is close to and directly above the antenna, is possible. For example, if the threshold value is set to “11” (specify a value between 8 to 14) while the gain value of the tag sheet above the antenna is “14” and the one which is not above the antenna is “7, writing is carried out to the tag sheet above the antenna but not to the one which is not above the antenna. If “0” is set to this setting, writing is carried out regardless of the gain value of the tag sheet. The difference between this setting and the RFID AGC threshold setting is as below.
RFID AGC threshold value setting: The gain value of the tag sheet is verified after writing is carried out.
RFID write AGC threshold value setting: The gain value of the tag sheet is verified when it is detected but writing is not carried out if the value is the setting one or smaller.
Moreover, a proper AGC threshold setting value varies depending on the type of the RFID tag.
In almost all RFID tags, this symptom will not occur. Therefore, it is not necessary to change the value from “0” (factory default).

8.10.4.5 WRITE RETRY MIN AGC

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
15	0	1	Decimal	None	2	0	None	None

When an RFID tag which can read multiple tag sheets inside a printer is used, set this setting to utilize the RFID write AGC threshold value setting. When the printer cannot detect a tag sheet which has a gain higher than the RFID write AGC threshold value setting, the value set in this setting is taken as the minimum and the gain of the tag sheet with the highest one among them, which could be found, is used as the AGC threshold value to make the writing process retry.

For example, if the value of the AGC threshold value setting is “11”, the RFID write AGC threshold retry minimum value setting is “9” and the gain of the detected tag sheet is “10”, then writing cannot be carried out because the value of the gain of the tag sheet found in the first process is lower than that for the RFID write AGC threshold value setting. However, since the value of the gain of the tag sheet found is larger than that for the AGC threshold retry minimum value setting “9”, write retrying is carried out again with the AGC threshold setting of “10”. When retrying is carried out, writing will succeed in almost all cases, since the value of the gain of the tag sheet found is “10”. (Since the value of the gain is not always the same each time, this does not mean that writing will always succeed.)

If the value of the RFID write AGC threshold value setting is “11”, the RFID write AGC threshold retry minimum setting is “9” and the gain of the detected tag sheet is “8”, then writing cannot be carried out because the value of the gain of the tag sheet found in the first process is lower than that for the RFID write AGC threshold value setting. At this time, since the value of the gain of the tag sheet found is lower than that for the AGC threshold retry minimum value setting “9”, write retrying is carried out again while taking the value “9” for the AGC threshold retry minimum value setting as the AGC threshold value. When retrying is carried out, writing will fail in almost all cases, since the value of the gain of the tag sheet found is “8”. (Since the value of the gain is not always the same each time, this does not mean that writing will always fail.)

When the value of the RFID write AGC threshold retry minimum value setting is set to the same one as the RFID write AGC threshold value setting, write retrying is continued with the same write AGC threshold value. Moreover, a proper AGC threshold setting value varies depending on the type of the RFID tag.

In almost all RFID tags, this symptom will not occur. Therefore, it is not necessary to change the value from “0” (factory default).

8.10.4.6 CALIB. MODE

The RFID calibration mode can be set.

OFF

ON

Tip:

1. When “ON” is set, the values for “CALIB. AGC” and “CALIB. POSITION” specified in the RFID calibration will become enabled.
2. In the RFID writing and reading operations while “ON” is set to this setting, forward feeding and backward feeding are automatically performed by the value specified in “CALIB. POSITION”. Therefore, the parameters “a” and “bbbb” in the @003 command will become disabled. (For details about the @003 command, refer to the External Equipment I/F Specification.)
3. When a value detected by RFID calibration is set, “ON” is automatically set to this setting.
4. For RFID calibration, refer to “6.7 RFID Analyze Mode”.

8.10.4.7 ENCODE POSITION

By performing RFID calibration, the value of POSITION (distance from the home position to the best suit writing or reading position) is detected and can be set.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+999.9	-999.9	0.1	Decimal	None	3	1	None	mm

Tip:

1. This setting is available only when “ON” is set for “CALIB. MODE”.
2. During the RFID writing and reading issue operations, forward feeding and backward feeding to the best suited writing or reading position, which is usually controlled by the @003 command” is automatically preformed in accordance with this setting value.
3. When a positive value is set, forward feeding is performed. When a negative value is set, backward feeding is performed.
4. The values from -2.9 to +2.9 mm are not reflected to the actual operation (fine adjustment of the reading and writing positions).
5. For RFID calibration, refer to “6.7 RFID Analyze Mode”.

8.10.5 OTHER

Menu structure of OTHER

Menu item
<7>RFID [BV410T]
OTHER
TAG CHECK
MULTI WORD WRITE

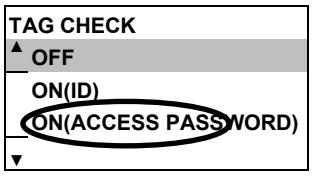
8.10.5.1 TAG CHECK

OFF	Error tag detection disabled
ON(ID)	Error tag detection enabled
ON(ACCESS PASSWORD)	Error tag detection enabled

Tip:

1. Explanation about each parameter
   - OFF: Error tag detection disabled
     The RFID tag reading check is carried out before the RFID tag writing. RFID tag writing is performed no matter what the data are at the beginning of it.
   - ON(ID): Error tag detection enabled
     RFID tag reading (EPC area for a Gen2 tag) is carried out before the RFID tag writing. RFID tag writing is performed only when the beginning of the data is “A5A5”.
   - ON(ACCESS PASSWORD): Error tag detection enabled
     The reading of the access password area is carried out before the RFID tag writing. RFID tag writing is performed only when the data match with that for the specified access password setting.
2. To prevent users from changing the RFID error tag detection setting, its protection password can be set. For details about the setting, see the following items.
3. Operation example when “ON(ACCESS PASSWORD)” is selected

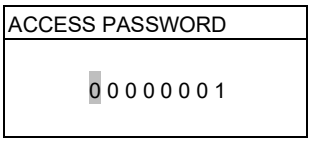
1. TAG CHECK screen



Select “ON(ACCESS PASSWORD)”.

↓ Press the [PAUSE] key.

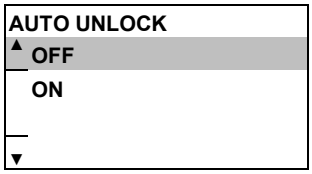
2. ACCESS PASSWORD screen



Enter an 8-digit access password.

↓ Press the [PAUSE] key.

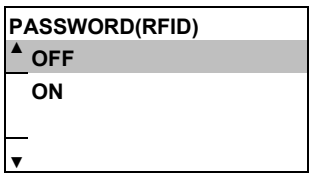
3. AUTO UNLOCK screen



Select “OFF” or “ON”.

↓ Press the [PAUSE] key.

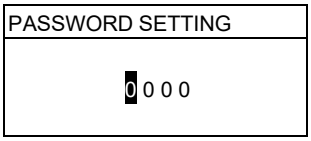
4. PASSWORD(RFID) screen



When “OFF” is selected:
This menu quits and the screen returns to the upper-level one.
When “ON” is selected:
The screen returns to the PASSWORD SETTING screen.

(When “ON” is selected)
↓ Press the [PAUSE] key.

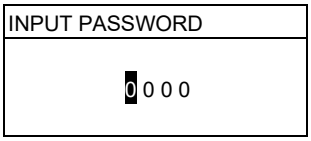
5. PASSWORD SETTING screen



Enter a 4-digit protection password.

↓ Press the [PAUSE] key.
This menu quits and the screen returns to the upper-level one.

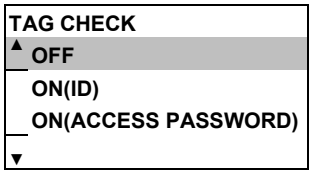
4. Operation example when the protection password is specified (“ON” is selected on the PASSWORD(RFID) screen)
   1. Select [SYSTEM Mode] > [<7> RFID] > [TAG CHECK].
   2. INPUT PASSWORD screen



Enter a 4-digit protection password.

↓ Press the [PAUSE] key.
When the password is OK: The screen moves to the TAG CHECK screen.
When the password is NG: An error message is displayed. Press the [PAUSE] key to quit this menu. Then the screen returns to the upper-level one.

   3. TAG CHECK screen



* If “OFF” or “ON(ID)” is selected in this menu, the PASSWORD(RFID) setting is automatically set to “OFF”. (After that, when step 1 is performed, the INPUT PASSWORD screen is not displayed.)

8.10.5.2 MULTI WORD WRITE

OFF
ON

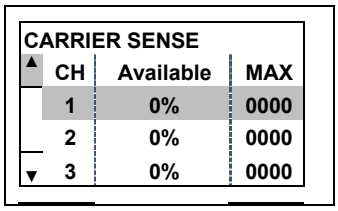
Tip:
When “OFF” is set to this setting, data are written into RFID tags in 1-word units.
When “ON” is set, data writing into RFID tags in 2-word units becomes available, resulting in the reduction of the writing period.

8.10.6 CARRIER SENSE

The printer enters the carrier sense mode and performs it. The radio wave around the printer is obtained for approx. 30 times for each channel within 5 seconds after performing this.

Menu structure of CARRIER SENSE

Menu item
<7>RFID [BV410T]
CARRIER SENSE



Tip:

1. The meaning of the number of the fields in the screen is as below.
   CH: Obtained channel number
   Available: Probability that the relevant channel has been judged to be available among approximately 30 carrier senses (unit: %)
   In other words, “100%” means that there no other devices using that channel.
2. The “MAX” field indicates the way to figure out other devices. The larger the number, the more high-power the device nearby.
3. Then the screen can be fed by pressing the [FEED] key or the [RESTART] key. The information for the channels 1 through 9 is displayed.
4. Upon pressing the [PAUSE] key, carrier sensing is reattempted. To quit this, press the [FEED] and [PAUSE] keys simultaneously.
5. If “Non” is specified for the module or communication is not established, “NO RFID MODULE” is displayed.
6. If a value other than “U4” is specified for the module, “NOT AVAILABLE” is displayed.
7. If “U4” is specified but valid data cannot be obtained, “NO RESPONSE” is displayed.
8. If the destination of use is not specified in the following modules, “RFID CONFIG ERR” is displayed.

8.11 FACTORY TEST

Contents of the FACTORY TEST menu

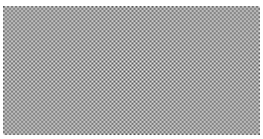
Menu item
<10>FACTORY TEST
PANEL TEST
KEY TEST

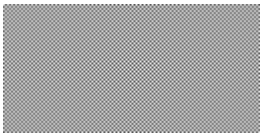
8.11.1 PANEL TEST

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**	The [ONLINE] LED is turned on. The [ERROR] LED is turned on. The backlight is turned on.
		Press any key.
	LCD BACK LIGHT OFF **PRESS ANY KEY**	The [ONLINE] LED is turned on. The [ERROR] LED is turned on. The backlight is turned off.
		Press any key.
Missing dot test	**PRESS ANY KEY**	The [ONLINE] LED is turned on. The [ERROR] LED is turned on. The backlight is turned on. A 1-dot line is displayed along the edges of the LCD.
		Press any key.
		The [ONLINE] LED is turned on. The [ERROR] LED is turned on. The backlight is turned on. All LCD dots are turned on.
		Press any key.
		The [ONLINE] LED is turned on. The [ERROR] LED is turned on. The backlight is turned on. All LCD dots are turned off.
		Press any key.
		The [ONLINE] LED is turned on. The [ERROR] LED is turned on. The backlight is turned on. A 1-dot check pattern is displayed. The upper left corner dot is black.
		Press any key.

		The [ONLINE] LED is turned on. The [ERROR] LED is turned on. The backlight is turned on. A 1-dot check pattern is displayed. The upper left corner dot is white.
		Press any key.
Character display test	ABCDEFGHIJKLMNOPQRSTU 1134567890123456789 01 abcdefghijklmnopqrstu 0987654321098765432 10 ZYXWVUTSRQPONMLKJIHGF	The [ONLINE] LED is turned on. The [ERROR] LED is turned on. The backlight is turned on. Characters are displayed.
		Press any key.
Contrast test	CONTRAST TEST 24	The [ONLINE] LED is turned on. The [ERROR] LED is turned on. The backlight is turned on. Displays with the minimum contrast.
		Press any key.
	CONTRAST TEST 40	The [ONLINE] LED is turned on. The [ERROR] LED is turned on. The backlight is turned on. Displays with the default contrast.
		Press any key.
	CONTRAST TEST 50	The [ONLINE] LED is turned on. The [ERROR] LED is turned on. The backlight is turned on. Displays with the maximum contrast.
		Press any key.
End display	LCD/LED TEST COMPLETE PRESS PAUSE KEY	The [ONLINE] LED is turned on. The [ERROR] LED is turned on. The backlight is turned on.
		Press the [PAUSE] key to return to the upper-level menu.

8.11.2 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 COMPLETE** **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.

8.12 BASIC

Contents of the BASIC menu

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

8.12.1 BASIC

OFF
ON

8.12.2 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 (-).

8.12.3 TRACE

OFF
ON

8.12.4 SYSTEM PROGRAM

The BASIC program is executed.

8.13 XML

Contents of the XML menu

Menu item
<12>XML

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

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

8.14 LCD PANEL

Contents of the LCD PANEL menu

Menu item	
<13>LCD PANEL	
	LANGUAGE
	DISPLAY
	CONTRAST

8.14.1 LCD LANGUAGE

ENGLISH
GERMAN
FRENCH
DUTCH
SPANISH
JAPANESE
ITALIAN
PORTUGUESE
Simplified CHINESE
KOREAN
TURKISH
POLISH
CZECH (V3.1 or later)

Tip:
Earlier than V2.1
When the printer mode is other than online and the firmware version is earlier than V2.1, 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.

V2.1 or later
Due to the addition of the specification for BV410T, the language to be displayed is followed by the setting in the printer mode other than online. Languages can be selected for BV410/420D with V2.1 or later; however, the operation other than in JAPANESE and ENGLISH is not guaranteed. Be sure to select JAPANESE or ENGLISH if another language is chosen.
CZECH has been added for BV410T. This is selectable; however, the operation other than in the online mode is not guaranteed.
Simplified CHINESE can be used for the display of other than the online mode by setting “CN” for the destination of the parameter clear; however, the operation is not guaranteed. Therefore, be sure to select JAPANESE or ENGLISH for the setting display of other than the online mode.

V3.1 or later
The language to be displayed is followed by the setting.

8.14.2 DISPLAY

Menu structure of DISPLAY

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

8.14.2.1 MODEL NAME

OFF The model name is hidden.

ON The model name is displayed.

8.14.2.2 PRINTED COUNTER

OFF The number of labels printed is hidden.

ON The number of labels printed is displayed.

8.14.2.3 IP ADDRESS

OFF The IP address is hidden.

ON The IP address is displayed.

8.14.3 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

Tip:

Contrast setting

+ (Plus) Higher contrast

- (Minus) Lower contrast

8.15 PASSWORD

Contents of the PASSWORD menu

Menu item
<14>PASSWORD

OFF The password is not set.

ON The password is set.

8.15.1 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

8.15.1.1 System mode and user mode start screen when the password is enabled

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

Password entry for the system mode

Display	Procedure
PASSWORD 0 0 0 0	Turn on the printer while pressing the [FEED] and [RESTART] keys simultaneously. The password entry screen is displayed.
	Enter the password.
	The printer enters the system mode.
When a wrong password is entered	
PASSWORD 1 0 0 0 Password Invalid	A password invalid message is displayed.
When wrong password was entered for 3 times consecutively or the [FEED] and [RESTART] keys are pressed simultaneously in the password setting screen	
	The password can no longer entered. Turn the printer off and then back on.

Password entry for user mode

Display	Procedure
PASSWORD 0 0 0 0	Turn on the printer, press the [PAUSE] key to place the printer in the 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 mode.
When a wrong password is entered	
PASSWORD 1 0 0 0 Password Invalid	A 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]▶	The printer is locked. Turn the printer off and then back on.

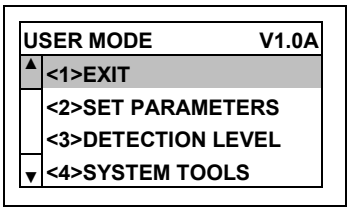
Note:
If you have forgotten the system mode password, disable it with @010 command.

9 USER MODE

9.1 Outline of the User Mode

1. The printer enters the user mode with the following operations.
   ・While the printer is in the pause state, perform the following operations:
   - Hold down the [RESTART] key for 3 seconds or more.
2. The user mode is intended for performing various parameter settings.
3. The key operations for the user mode are described below.
   For the key functions and display, see Section 7. DISPLAY PATTERN AND KEY OPERATION FOR SYSTEM MODE AND USER MODE.

Screen of the user mode



Top menu list

<1>EXIT
<2>SET PARAMETERS
<3>DETECTION LEVEL
<4>SYSTEM TOOLS
<5>ISSUE CONTROL
<6>SHOW ISSUE COND
<7>RIBBON CORE I.D. (available for BV400T only)
<8>RESET

Outline of the top menu

<1>EXIT	Returns the printer to the online state. (The printer is not reset.)
<2>SET PARAMETERS	Sets the parameters for each printer function.
<3>DETECTION LEVEL	Sets the threshold value.
<4>SYSTEM TOOLS	Prints data sent from the host or stores them in a USB memory.
<5>ISSUE CONTROL	Sets the issue control items (sensor type, printing speed, printing direction, etc.).
<6>SHOW ISSUE COND	Displays the printing conditions (sensor type, printing speed and printing direction, etc.).
<7>RIBBON CORE I.D. (available for BV400T only)	Selects the ribbon core size (“0.5” or “1.0”).
<8>RESET	Rests the printer.

9.2 EXIT

The printer state is returned from the user mode to the online mode. (The printer is not reset.)
Some parameter settings are required to be reset to reflect the changed contents. Those parameters are reset when EXIT is performed. The parameters to be reset are indicated with "Reset Req.". Other parameters are not reset with EXIT and return to the online mode. In addition, when transitioning from the error occurrence screen to the user mode, the screen returns to the error screen before transition.

Contents of the EXIT menu

Menu item
<1>EXIT

9.3 SET PARAMETERS

Same as Section 8.5 SET PARAMETERS of the system mode.

9.4 DETECTION LEVEL

Contents of the DETECTION LEVEL menu

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

Same as Section 6.6 MANUAL THRESHOLD SETTING.

9.5 SYSTEM TOOLS

Contents of the SYSTEM TOOL menu

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.
RFID [BV410T]	⇒ 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 in a USB memory.

USB
- USB MEMORY: Saves in a USB memory.
- PRINT: Prints on a label.
  - ON DEMAND: Prints a certain amount.
  - ALL: Prints 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.

RFID [BV410T] Subsequent menus are the same as USB.
This is available for BV410T only.
For BV410/420D with the firmware version V2.1 or later, this can be set but is valid. For BV410/420D with the firmware version earlier than V2.1, this is not displayed.

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 in a USB memory.

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

Notes:

* The supported log data are the printer's memory information (ROM and RAM).
  Note that the memory information at that time is saved in a USB memory, so the memory contents will be changed when the power of the printer is turned off. In particular, note that the memory contents of RAM will be lost.
* Log data are the printer memory information (ROM, RAM) and sensor log acquisition function.
* While the log data are being written, the LCD indicates "WRITING...", the [ONLINE] LED blinks and the [ERROR] LED is turned off.

9.6 ISSUE CONTROL

Contents of the ISSUE CONTROL menu

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

Sensor

COMMAND

NO

REFLECTIVE

TRANSMISSIVE

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 automatic 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)

Notes:

1. When “2 ips” is selected in the thermal transfer, the printer performs in “3 ips”.
2. If the setting parameters satisfy all of the following conditions and issuance is performed continuously for 10 seconds or more, it will be paused once every 10 seconds.

< V1.2 to V1.3 >

- Print speed: 6 to 7 ips
- Print tone fine adjustment value: +1 to +10 steps

< V1.4 or later>

- Print speed: 2 to 7 ips
- Print tone fine adjustment value: -10 to +10 steps

Note: The specifications of the effective print length to be paused are as follows.

<table>
<tr><th rowspan="2">Resolution / Print speed</th><th colspan="2">203dpi</th><th colspan="2">300dpi</th></tr>
<tr><th>Min. Value</th><th>Max. value</th><th>Min. value</th><th>Max. value</th></tr>
<tr><td>2 ips</td><td rowspan="6">6.0 mm</td><td>480.0 mm</td><td rowspan="4">6.0 mm</td><td>480.0 mm</td></tr>
<tr><td>3 ips</td><td>720.0 mm</td><td>720.0 mm</td></tr>
<tr><td>4 ips</td><td>960.0 mm</td><td>960.0 mm</td></tr>
<tr><td>5 ips</td><td rowspan="3">997.9 mm</td><td>997.9 mm</td></tr>
<tr><td>6 ips</td><td colspan="2" rowspan="2">Not supported</td></tr>
<tr><td>7 ips</td></tr>
</table>

Ribbon

COMMAND

NO (Direct)

YES

Direction

COMMAND

BOTTOM

TOP

BOTM/Mir

TOP/Mir

Auto status

COMMAND

OFF

ON

[Explanation]

The issue control setting affects only the TPCL mode.

9.7 SHOW ISSUE CONDITION

Contents of the 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)

Tip:

The current setting value for each parameter is shown in the position of (*1).

The options for the parameters are as follows.

Sensor

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

Mode

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

* When [CUT] is selected, the set of the sheets to be cut is fixed to “1”.
* When other than [COMMAND] is set and then the setting is returned to [COMMAND], the setting once specified will become enable. ([CUT] specified in ISSUE CONTROL is excluded.)

e.g.:
When [BATCH] is specified in SHOW ISSUE COND.
Select [PEEL OFF] in ISSUE CONTROL.
↓
When the [Mode] check box is selected in SHOW ISSUE COND., [PEEL OFF] is selected.
↓
Select [COMMAND] in ISSUE CONTROL.
↓
When the [Mode] check box is selected in SHOW ISSUE COND., [PEEL OFF] is selected.

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)

Ribbon

NO (Direct)

YES

Direction

BOTTOM

TOP

BOTM/Mir

TOP/Mir

Media pitch

(10.0 to 999.9) mm

Print length

(10.0 to 997.9) mm

Print width

BV400 (203 dpi)

(10.0 to 108.0) mm

BV400 (300 dpi)

(10.0 to 105.7) mm

Media width

(25.4 to 118.0) mm

[Explanation]

The display items of the SHOW ISSUE CONDITION menu are reflected only when the issue condition of TPCL is changed.

9.8 RIBBON CORE I.D. (Available for BV400T only)

Contents of the RIBBON CORE I.D. menu

Menu item	
<7>RIBBON CORE I.D.	
	12.7mm(0.5inch)
	25.4mm(1.0inch)

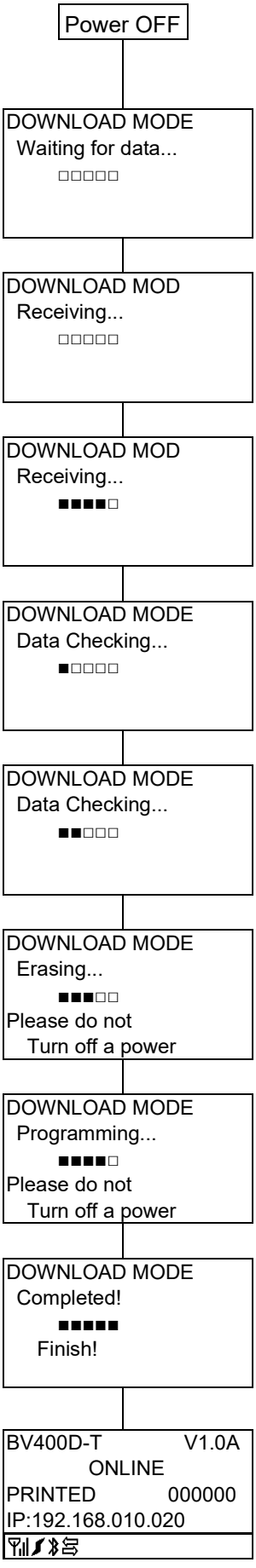
9.9 RESET

Contents of the RESET menu

Menu item
<8>RESET

10 DOWNLOAD

10.1 Downloading of the Printer Firmware



(1) Power off state

(2) Turn the power on while pressing the [FEED], [RESTART] and [PAUSE] keys simultaneously.

(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.

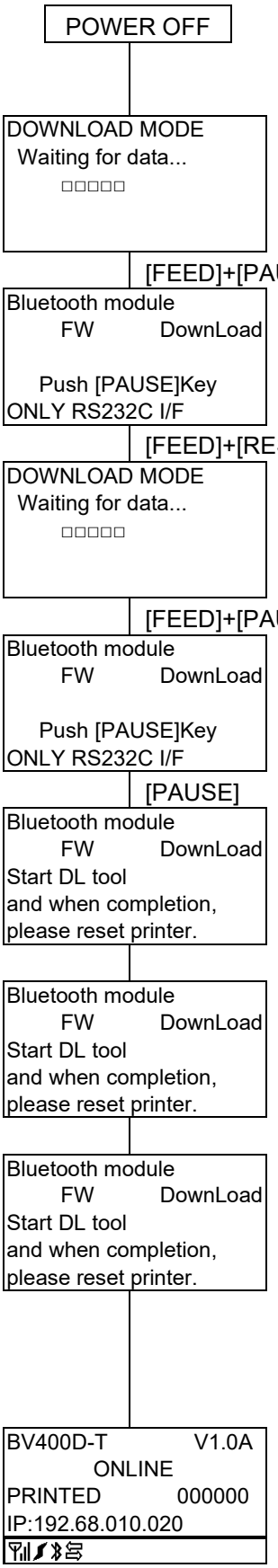
When an error has occurred while downloading data with the download mode, the following error message will be displayed:

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 has occurred, the printer stops and never recovers unless the power is turned off and then back on.
2. After a writing error has occurred, turn the printer off and then back on to display "DOWNLOAD MODE". The printer then enters the loading mode. Reattempt the loading of the program.
3. When the checksum for the boot program does not end with "00H", "CHECKSUM ERROR" is displayed and the printer stops with an error.
4. After receiving all data of the boot program, the printer compares them with those for the currently installed one and then 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 indicate "Initializing..." when the printer is turned off in the download mode. This does not affect the printer operation.
6. When the [FEED], [RESTART] and [PAUSE] keys are pressed simultaneously at the timing of the printer resetting in the system mode or user mode, the forced download mode display appears on the LCD. This menu is not executable. The printer must be turned off and then back on while the [FEED], [RESTART] and [PAUSE] keys are being pressed simultaneously.

10.2 Download Bluetooth module firmware



(1) Power off state

(2) Turn the power on while pressing the [FEED], [RESTART] and [PAUSE] keys simultaneously.

(3) Printer FW download mode display

(4) Press the [FEED] and [PAUSE] keys simultaneously.

(5) Bluetooth module FW download mode display

(6) Press the [FEED] and [RESTART] keys simultaneously.

(7) Return to the Printer FW download mode.

(8) Press the [FEED] and [PAUSE] keys simultaneously.

(9) Bluetooth module FW download mode display

(10) Press the [PAUSE] key.

(11) Ready for FW download of the Bluetooth module

* Press the [FEED] and [RESTART] keys simultaneously to return to (9).

* The printer display does not change even if the tool is launched to start downloading.

* The printer display does not change even if downloading is complete.

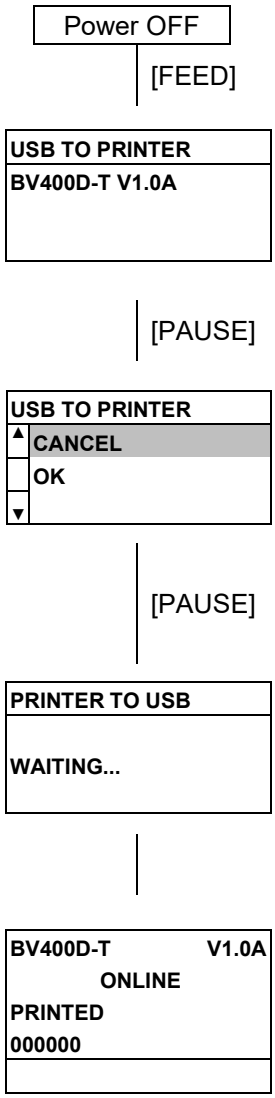
Restart the printer after confirming the completion on the tool screen.

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

11 AUTO CONFIGURATION MODE

11.1 Outline of the Auto Configuration Mode

When the printer is turned on while pressing the [FEED] key, the auto configuration mode is started.
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 pressing 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) After downloading is completed, the printer automatically reboots and returns to the online mode.

11.2 Preparation for USB Memory

To execute the auto configuration mode, you need to create a firmware file (*.bin) and a special CFG file in a USB memory in advance. 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:

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

Format	Example
Model information	BV400,0400
Display message	BV400 V1.0A
Firmware file to be downloaded	/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

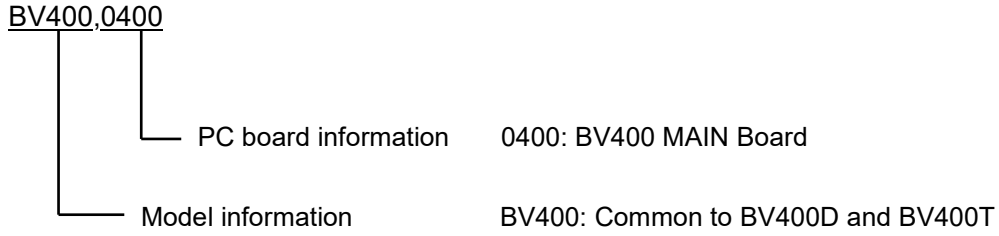
11.3.2 Model information

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.

The 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 SAVING FUNCTION

1. Printer status allowing shift to the power saving mode

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

- ONLINE (Idling, 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 saving mode

The power saving mode is terminated when:

- Printing is performed.
- Any key is pressed.
- Print with the [RESTART] key
- Feed/Reprint with the [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 saving mode

When the printer enters the power saving 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 any key is pressed during power saving.
- When the head is opened/closed during power saving.

4. LED during the power saving mode

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

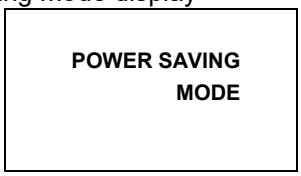
- [ONLINE] LED: Blinks (ON: 1000 msec., OFF: 1000 msec.)
- [ERROR] LED: Continues before transitioning to the power saving mode.

5. Message in the power saving mode

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

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

Power saving mode display



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