

TOSHIBA TEC Bar Code Printer

B-SX6T/SX8T-TS12-QM-R

Expansion I/O Specification

First Edition: April 4, 2006

TOSHIBA TEC CORPORATION

F	Page
1. SCOPE	1
2. GENERAL DESCRIPTION	1
3. ELECTRICAL SPECIFICATIONS	2
3.1 PIN ASSIGNMENT	2
3.2 INTERFACE CIRCUIT	
4. SOFTWARE SPECIFICATIONS	4
4.1 STANDARD SPECIFICATIONS	4
4.1.1 OUTLINE OF SIGNALS	4
4.1.2 DETAILED DESCRIPTIONS FOR SIGNALS	5
4.1.3 EXAMPLE OF TIMING CHART (STANDARD SPECIFICATIONS)	17
4.2 IN-LINE SPECIFICATIONS	20
4.2.1 OUTLINE OF SIGNALS	20
4.2.2 DETAILED DESCRIPTIONS FOR SIGNALS	21
4.2.3 EXAMPLE OF TIMING CHART (IN-LINE SPECIFICATIONS)	33

TABLE OF CONTENTS

1. SCOPE

This specification applies to expansion input/output (I/O) for the B-SX6T-TS12-QM-R (hereinafter referred to as "B-SX6T") and B-SX8T-TS12-QM-R (hereinafter referred to as "B-SX8T") general-purpose bar code printers.

2. GENERAL DESCRIPTION

By using the expansion I/O, the printer can feed and issue labels, or indicate printer states, according to the external input/output signals, in addition to using commands from the PC. This allows interfacing with external equipment such as a labeler.

3. ELECTRICAL SPECIFICATIONS

3.1 PIN ASSIGNMENT

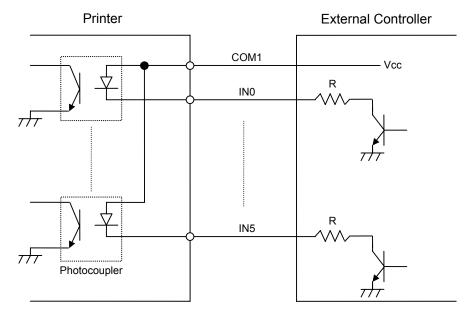
Connector: FCN-685JO024 or equivalent

No.	Signal Name	Direction
1	IN0	Input
2	IN1	Input
3	IN2	Input
4	IN3	Input
5	IN4	Input
6	IN5	Input
7	OUT0	Output
8	OUT1	Output
9	OUT2	Output
10	OUT3	Output
11	OUT4	Output
12	OUT5	Output

No.	Signal Name
13	OUT6
13	0016
14	N.C
15	COM1
16	N.C
17	N.C
18	N.C
19	N.C
20	N.C
21	COM2
22	N.C
23	N.C
24	N.C

3.2 INTERFACE CIRCUIT

(1) Input circuit

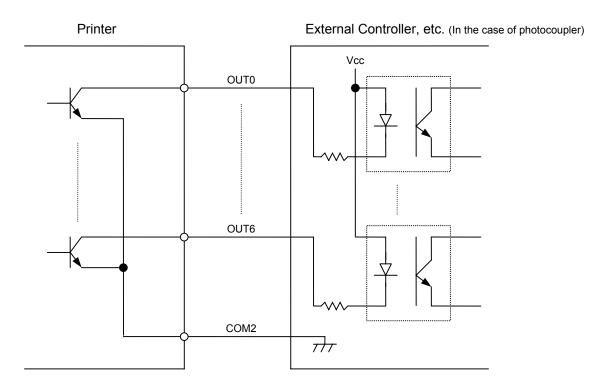


Photocoupler: TLP521 (TOSHIBA)

There are 6 input circuits, and each input is a current loop using the photocoupler. The anode of the photocoupler is connected to the common pin COM1 in each of the 6 circuits. The cathodes are independent. The voltage of Vcc is 24 V (max.) while the diode operating current is 16 mA.

Connector for the controller: FCN-781P024-G/P or equivalent

(2) Output circuit



There are 7 output circuits, and each output is an open collector. The voltage of Vcc is 24 V (max.) while the drive current is 150 mA.

4. SOFTWARE SPECIFICATIONS

There are two types of software specifications, for the standard mode and the in-line mode. The type can be selected in the system mode setting.

TYPE1: Standard mode TYPE2: In-line mode

4.1 STANDARD SPECIFICATIONS

[Standard]

4.1.1 OUTLINE OF SIGNALS

Input

- IN0. FEEDFeeds one label.
- IN1. ISSUE.....Issues one label.
- IN2. PAUSE Temporarily stops label printing.
- IN3. PRE-BACKFEEDFeeds a label back to the home position.
- IN4. Not used
- IN5. Not used

Output

- OUT0. FEEDINGIndicates the printer is feeding a label.
- OUT1. ISSUING.....Indicates the printer is issuing a label.
- OUT2. PAUSINGIndicates the printer is in a pause state.
- OUT3. ERRORIndicates the printer is in an error state.
- OUT4. Not used The signal is always off.
- OUT5. POWER ONIndicates the printer power is on (without software control).
- OUT6. Not used

4.1.2 DETAILED DESCRIPTIONS FOR SIGNALS

IN0

FEED

When the signal goes from off to on, the printer feeds one label. If the signal is on when the feed is completed, the printer feeds one more label.

The FEED signal input is ignored, when the printer is in any of the following states.

- Issuing
- Feeding
- Ejecting
- Manual feeding
- · Checking broken head dots
- Waiting for stripping
- Command save mode
- Writable character store mode
- Communication error (command error or hardware error)
- System mode
- Performing a pre-backfeed

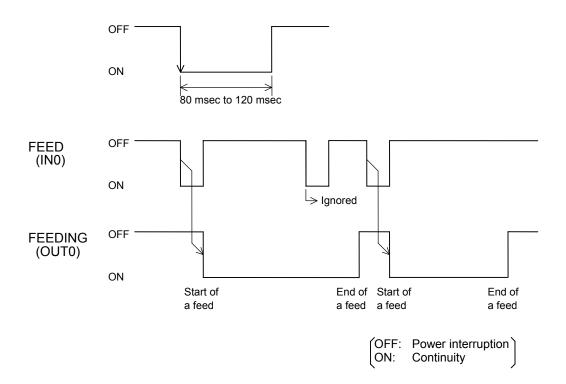
When the manual forward feed length has been set, a feed is performed by a value of one label feed length plus a manual forward feed length.

When the printer is in a waiting state for a forward feed in the cut issue mode, it performs the following operations.

One label feed \to Feed to the cut position \to Cut \to Reverse feed to the home position \to Forward feed

When the printer is feeding a label back to the home position (pre-backfeed), a feed length (described below) is actually performed.

A feed length to be performed = Pre-backfeed length + Feed length of a label



[Standard]

ISSUE

IN1

When the signal goes from off to on, the printer prints the data in the image buffer on one label. If the signal is on when the issue is completed, the printer issues one more label.

The ISSUE signal input is ignored, when the printer is in any of the following states.

- Issuing
- Feeding
- Pausing
- Engine error
- Ejecting
- Manual feeding
- · Checking broken head dots
- Waiting for stripping
- Command save mode
- Writable character store mode
- Communication error (command error, hardware error)
- System mode
- Performing a pre-backfeed

After a label is issued by the Issue Command sent from the host, the ISSUE signal allows the same label to be printed. However, this signal cannot be substituted for the Issue Command. If the ISSUE signal goes on under the following conditions, printing is not performed properly.

- The ISSUE Command is not sent.
- The image buffer clear and drawing are performed after the Issue Command is sent. However, the Issue Command is not sent again.

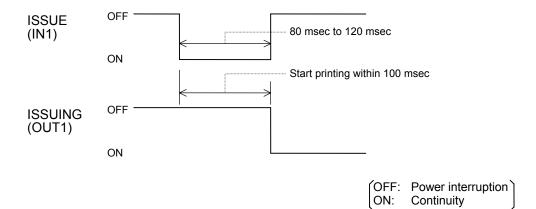
In this case, a label may not be issued, and a status response may be returned.

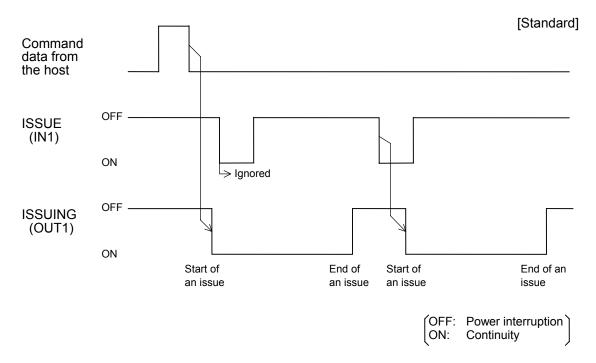
When the printer is in a waiting state for a forward feed in the cut issue mode, it performs the following operations.

One label feed \to Feed to the cut position \to Cut \to Reverse feed to the home position \to Forward feed

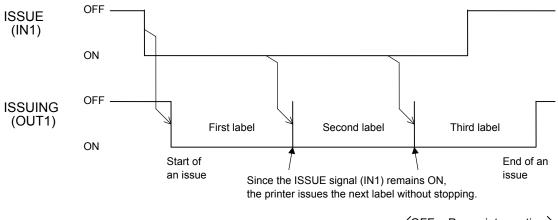
When the printer is feeding a label back to the home position (pre-backfeed), a feed length (described below) is actually performed.

A feed length to be performed = Forward feed of pre-backfeed length + Feed length of a label (+ Forward feed length to the strip position)





NOTE: While an issue is being performed by the ISSUE signal (IN1), the Clear Command or Drawing Command should not be sent from the host, since the data may not be printed properly.



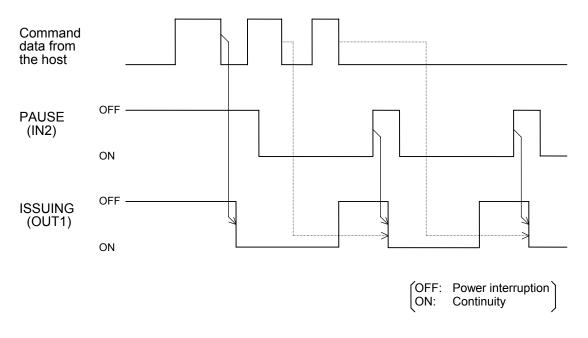
OFF: Power interruption ON: Continuity

PAUSE

IN2

The printer enters a pause state by this signal. While the PAUSE signal is on, the printer does not issue a label. When the signal goes off, the printer starts issuing.

If the PAUSE signal goes on while the printer is issuing or feeding a label, the printer does not stop an issue or a feed immediately. After issuing or feeding one label, the printer enters the pause state.



A pause state generated by the PAUSE signal cannot be cleared only by the [RESTART] key of the printer. The pause state, generated by the [PAUSE] key, can be cleared when the PAUSE signal goes from on to off.

An error can be cleared only by the [RESTART] key on the printer.

(The error cannot be cleared when the PAUSE signal goes from on to off.)

[Standard]

PRE-BACKFEED

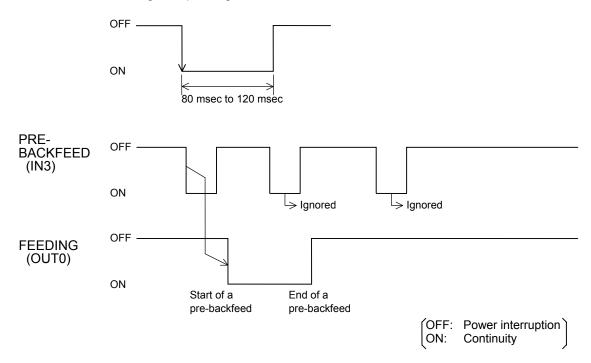
IN3

When the strip issue (Issue modes D and E) is selected, or this signal goes from off to on, the printer feeds a label back to the issue standby position.

The PRE-BACKFEED signal input is ignored when the printer is in any of the following states.

- Issuing
- Feeding
- Engine error
- Ejecting
- Manual feeding
- · Checking broken head dots
- Command save mode
- Writable character store mode
- Communication error (command error, hardware error)
- System mode
- Performing a pre-backfeed

Once the label is fed back to the issue standby position, thereafter, the PRE-BACKFEED signal input is ignored.



[Standard]

FEEDING

OUT0

This output signal indicates that the printer is feeding a label.

The signal is on during a feed. Feeding means the following states.

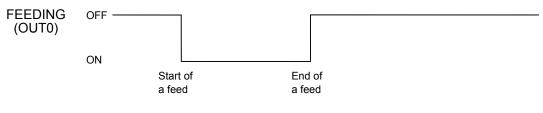
- Normal feeding
- · Ejecting by the Eject Command from the host
- Ejecting for an issue with a cut
- Reverse feeding for a strip issue
- Manual forward/reverse feeding
- Initial feed when the printer restarts after an error is cleared.
- Performing a pre-backfeed

When the printer completes a feed normally, the signal goes off.

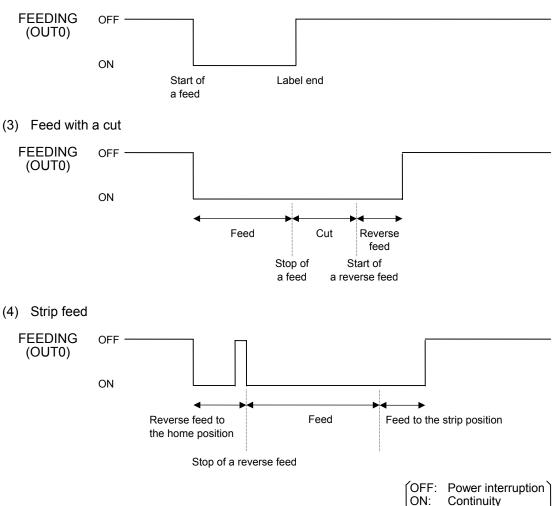
The FEEDING signal is output for a feed by any of the following: the printer key, a command from the host, or the FEED signal.

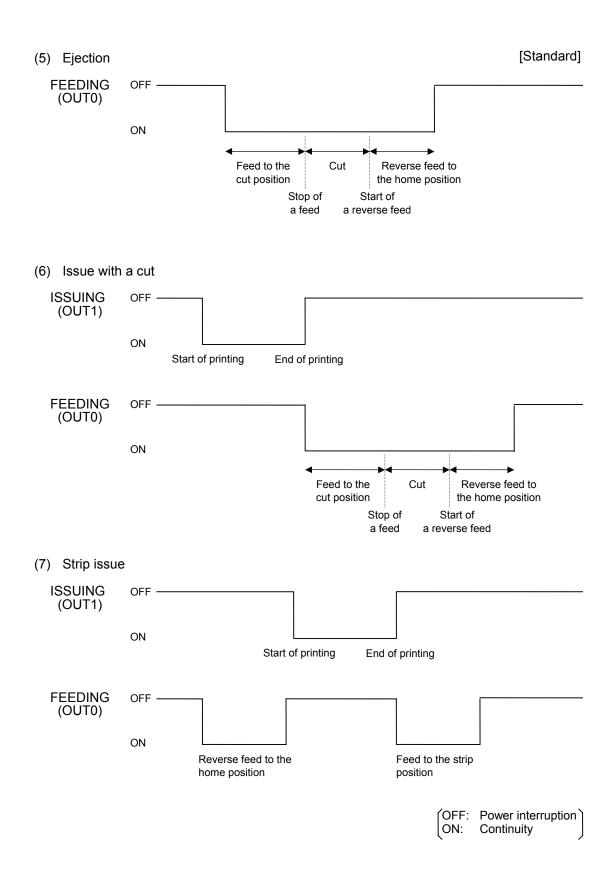
When an error occurs during a feed and the printer stops feeding, the FEEDING signal goes off.

(1) Normal feed



(2) Label end in the middle of a feed





ISSUING

OUT1

This output signal indicates that the printer is issuing a label.

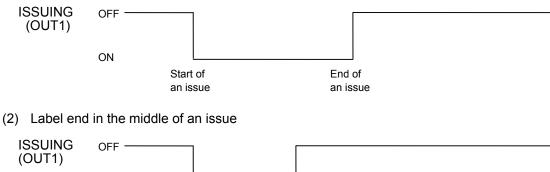
The signal is on during an issue. In the batch issue mode, the signal goes off when the specified number of labels are issued normally. However, when the printer performs batch issues without stopping between different batches, the signal remains on. In the strip issue mode, the signal goes off every time the printer issues one label normally. In the cut issue mode, the signal goes off while the printer is ejecting a label to cut.

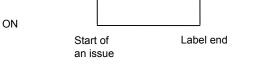
The ISSUING signal is output for any issue for the self test results printout or test print in the system mode, or by a command from the host or the ISSUE signal. However, since the checks such as the Expansion I/O loop back check are performed in the selftest, there may be moments where all output signals go on.

When an error occurs during issuing and the printer stops issuing, the ISSUING signal goes off.

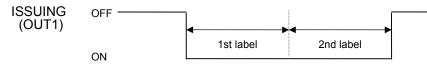
When the printer pauses during issuing one label or more, the signal goes off. After the pause state is cleared, the signal goes on again and the printer resumes printing the remaining number of labels.

(1) Normal issue

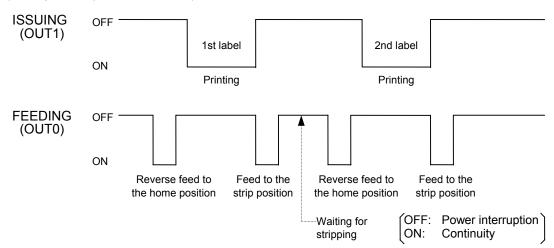




(3) Batch issue (2 labels to issue)



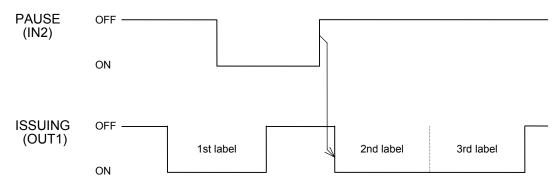
(4) Strip issue (2 labels to issue)



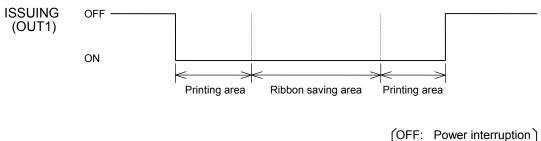
(5) Cut issue (4 labels to issue, cut every 2 labels) (When the swing cutter is used)

ISSUING OFF (OUT1) OFF Ist label 2nd label 3rd label 4th label ON FEEDING OFF (OUT0) OFF ON Eject

(6) Batch issue (3 labels to issue, pause during printing)



(7) Ribbon saving issue



ON: Continuity

[Standard]

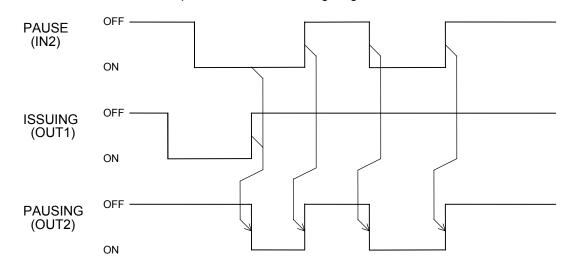
[Standard]

PAUSING

OUT2

This output signal indicates that the printer is in a pause state.

While the printer is in a pause state, the signal goes on. The PAUSING signal is output for any pausing state caused by either the printer key or PAUSE signal. Also, when the head is opened, the PAUSING signal goes on.



If the PAUSE signal is input during issuing or feeding, the PAUSING signal is not output until the issuing or feeding is completed.

If the PAUSE signal (IN2) is input when the printer is in an error state, it is ignored.

OFF: Power interruption ON: Continuity

[Standard]

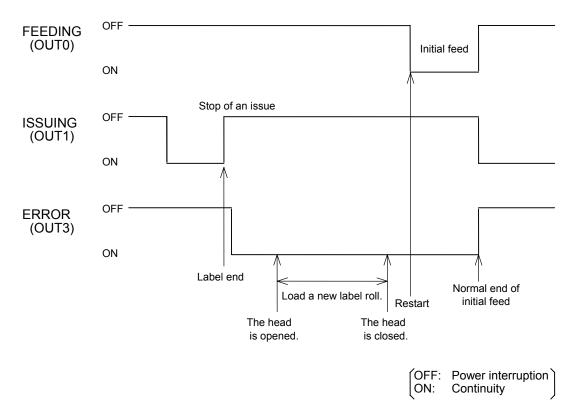
OUT3 ERROR

This output signal indicates that an error occurred, stopping the printer. The signal goes on while the printer is in an error state. When any of the following errors occur, the ERROR signal goes on.

- Communication error (Command error)
- Communication error (Hardware error)
- · Paper jam
- Cutter error
- Paper end
- Ribbon end
- Ribbon error
- Head open error
- Thermal head abnormal
- · Thermal head temperature abnormal (overheating)
- Rewinder overflow
- Write error of memory for storage
- · Format error of memory for storage
- Full memory for storage

When the error state is cleared, the ERROR signal goes off.

However, the printer is not restored unless the power goes off then on, when an error cannot be cleared by the [RESTART] key.



OUT5

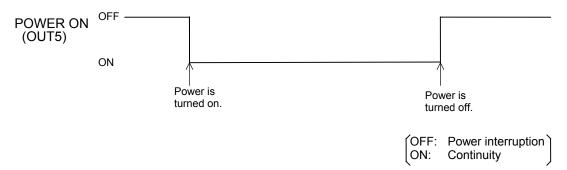
POWER ON

[Standard]

This output signal indicates that the printer power is on.

While the printer power is on, the signal is on.

While the printer power is on, the POWER ON signal remains on, no matter what state the printer is in.



4.1.3 EXAMPLE OF TIMING CHART (STANDARD SPECIFICATIONS)

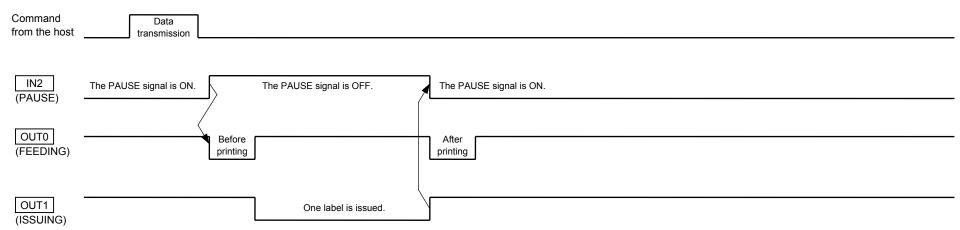
Printer RESTART New Command data FEED OFF (N0) PAUSE OFF (N2) OFF (N2) OFF (N2) OFF (N2) OFF (N2) OFF (N2) OFF (N3) (N1) OFF (N2) OFF (N2) OFF (N2) (N1) OFF (N2) (N1)	Printer [PAUSE] key		
FEED OFF Command ISSUE OFF (13) ISSUE OFF (13) ISSUE OFF (13) ISSUE OFF (11) ISSUING OFF (11) ISSUING OFF (11) ISSUING OFF (14) ISSUING OFF (11) ISSUING OFF (14) ISSUING OFF (14) ISSUING OFF (14) ISSUING OFF (12) Not used OFF (11) Power ON OFF (12)	Printer [RESTART] key		
FEED OFF (13) ISSUE OFF (13) (NV) (0) (13) PAUSE OFF (11) (NV) (2) (3) PAUSE (11) (11) (NV) (11) (11) (NV) (11) (11) (NV) (11) (11) (11) (11) (11) (11) (11) (11) (11) (11) (11) (11) (11) (11) (11) (11) (11) (12) (11) (14) (11) (11) (11) (12) (11) (11) (12) (11) (11) (12) (11) (11) (12) (11) (11) (12) (11) (11) (12) (11) (11) (12) (11) (11) (12) (11) (11) <td>Command data</td> <td></td> <td></td>	Command data		
ISSUE OFF (2) (3) (4) (5) PAUSE OFF (4) (5) (11) FEEDING OFF (6) (8) (11) ISSUING OFF (7) (9) (10) PAUSE OFF (11) (14) (14) ISSUING OFF (11) (14) (14) PAUSING OFF (12) (14) (14) ISSUING OFF (12) (12) (14) PAUSING OFF (12) (12) (14)			/(13)
PAUSE (IN2) OFF ON (4) (5) (6) (7) (7) (9) (11) ISSUING (OUT1) OFF ON (6) (8) (11) (14) PAUSING (OUT2) OFF ON (14) (14) (14) ERROR (OUT3) OFF ON (14) (14) (14) Power ON (OUT5) OFF ON (12) (14) (14)			
(OUT0) ON (6) (7) (9) (11) ISSUING (OUT1) OFF (OUT2) (7) (9) (10) PAUSING (OUT2) OFF (OUT3) (14) (14) ERROR (OUT3) OFF (OUT3) (12) (12) Not used (OUT6) OFF (OUT5) (1) (1) (1)			
ISSUING (OUT1) OFF ON (7) (9) (10) PAUSING (OUT2) OFF ON (14) (14) ERROR (OUT3) OFF ON (12) (12) Not used (OUT6) OFF ON (12) (12) Power ON (OUT5) OFF ON (11) (11)			
PAUSING (OUT2) OFF ON (14) ERROR (OUT3) OFF ON (12) Not used (OUT6) OFF ON (12) Power ON (OUT5) OFF ON (1)			
(OUT3) ON Not used (OUT6) OFF ON Power ON (OUT5) OFF ON (1) (1) (1) (1) (1) (1)			(14)
Not deed ON (OUT6) ON Power ON OFF (OUT5) ON	(01) TO		
(OUT5) ON (1)		(12)	
			(15

Explanation of Timing Chart (Standard Specifications)

- (1) When the power is turned on, the OUT5 (POWER ON) goes on.
- (2) The printer starts issuing by the command from the host. The OUT1 (ISSUING) goes on.
- (3) The printer starts feeding by the INO (FEED). The OUTO (FEEDING) goes on.
- (4) The printer starts issuing by the IN1 (ISSUE). The OUT1 (ISSUING) goes on.
- (5) The printer starts issuing by the IN1 (ISSUE). The OUT1 (ISSUING) goes on.
- (6) After the issue is completed, the printer enters into a pause state by the IN2 (PAUSE). The OUT2 (PAUSING) goes on.
- (7) The pause state is cleared when the IN2 (PAUSE) goes off. The OUT2 (PAUSING) goes off.
- (8) The pause state is cleared when the IN2 (PAUSE) goes off. Then the printer starts issuing for the command from the host. The OUT1 (ISSUING) goes on.
- (9) After the issue is completed, the printer enters into a pause state by the printer [PAUSE] key. The OUT2 (PAUSING) goes on.
- (10) The pause state is cleared by the printer [RESTART] key. The OUT2 (PAUSING) goes off.
- (11) The printer starts issuing by the IN1 (ISSUE). The OUT1 (ISSUING) goes on.
- (12) The printer stops issuing because a label end error occurred during an issue. The OUT1 (ISSUING) goes off and the OUT3 (ERROR) goes on.
- (13) The printer starts an initial feed by the printer [RESTART] key. (The OUTO (FEEDING) goes on.)
- (14) After the initial feed is completed, the error state is cleared (the <u>OUT3</u> (ERROR) goes off), the printer resumes issuing (the <u>OUT1</u> (ISSUING) goes on).
- (15) When the power is turned off, the OUT5 (POWER ON) goes off.
 - OFF: Power interruption ON: Continuity

Example of Timing Charts for Issue/Feed Mode E (Strip mode: with back feed, the peel-off sensor is ignored, the applicator is supported.)

(1) When one label is issued:



• When issue mode E is selected, an issue is started by the IN2 (PAUSE).

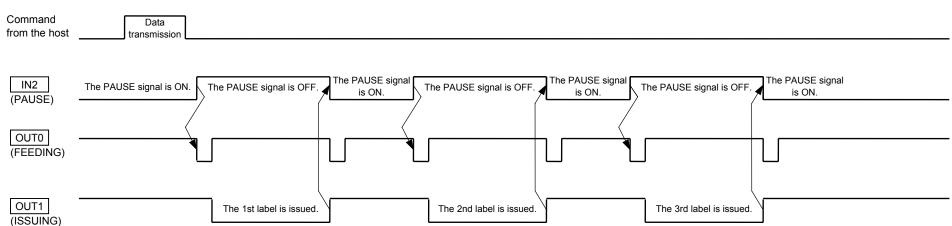
• The data transmission is performed when the IN2 (PAUSE) goes on, and an issue is started when the IN2 (PAUSE) goes off.

• The IN2 (PAUSE) goes on at the timing of the rise of the OUT1 (ISSUING).

• If the label to be issued is the same as the previous one, an issue is started when the IN2 (PAUSE) goes off.

• If the label to be issued is different from the previous one, an issue is started when the IN2 (PAUSE) goes off, after the next label data is sent.

(2) When three labels are issued:



4.2 IN-LINE SPECIFICATIONS

4.2.1 OUTLINE OF SIGNALS

Input

- IN0. FEEDFeeds one label.
- IN1. ISSUE.....Issues one label.
- IN2. ACTIVATE Starts processing the Issue Command
- IN3. PRE-BACKFEED Feeds a label back to the home position.
- IN4. Not used
- IN5. Not used

Output

OUT0.	FEEDING	Indicates the printer is feeding a label.	

- OUT1. ISSUING.....Indicates the printer is issuing a label.
- OUT2. ACTIVEIndicates whether or not the printer is active.
- OUT3. ERRORIndicates the printer is in an error state.
- OUT4. Not used The signal is always off.
- OUT5. POWER ONIndicates the printer power is on (without software control).
- OUT6. Not used

4.2.2 DETAILED DESCRIPTIONS FOR SIGNALS

IN0

FEED

When the signal goes from off to on, the printer feeds one label. If the signal is on when the feed is completed, the printer feeds one more label.

The FEED signal input is ignored, when the printer is in any of the following states.

- Issuing
- Feeding
- · Manual feeding
- Ejecting
- · Checking broken head dots
- Waiting for stripping
- Command save mode
- Writable character store mode
- Communication error (command error or hardware error)
- System mode
- Performing a pre-backfeed

When the manual forward feed length has been set, a feed length (described below) is performed.

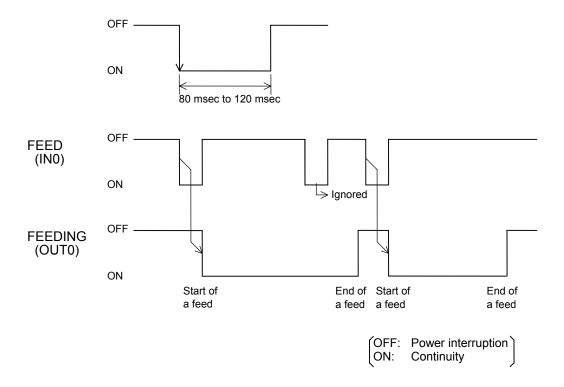
A feed length to be performed = Feed length of a label + Manual forward feed length

When the printer is in a wait state for a forward feed in the cut issue mode, it performs the following operations.

One label feed \to Feed to the cut position \to Cut \to Reverse feed to the home position \to Forward feed

When the printer is feeding a label back to the home position (pre-backfeed), a feed length (described below) is actually performed.

A feed length to be performed = Pre-backfeed length + Feed length of a label



ISSUE

IN1

When the signal goes from off to on, the printer prints the data in the image buffer on one label. If the signal is on when the issue is completed, the printer issues one more label.

The ISSUE signal input is ignored, when the printer is in any of the following states.

- Issuing
- Feeding
- Pausing
- Inactive
- Engine error
- Manual feeding
- · Checking broken head dots
- Waiting for stripping
- Command save mode
- Writable character store mode
- Communication error (command error, hardware error)
- System mode
- Performing a pre-backfeed

After a label is issued by the Issue Command sent from the host and the ACTIVATE signal (IN2), the ISSUE signal allows the same label to be printed. However, this signal cannot be substituted for the Issue Command. If the ISSUE signal goes on under the following conditions, printing is not performed properly.

- The ISSUE Command is not sent.
- An issue is not performed by the ACTIVATE signal after the Issue Command is sent.
- The image buffer clear and drawing are performed after the Issue Command is sent. However, the Issue Command is not sent again.

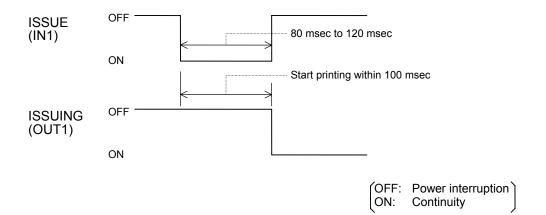
In this case, a label may not be issued, and a status response may be returned.

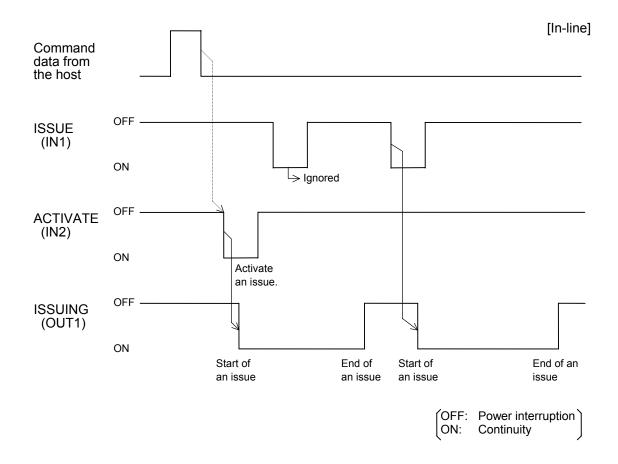
When the printer is in a wait state for a forward feed in the cut issue mode, it performs the following operations.

One label printing \rightarrow Feed to the cut position \rightarrow Cut \rightarrow Reverse feed to the home position \rightarrow Forward feed

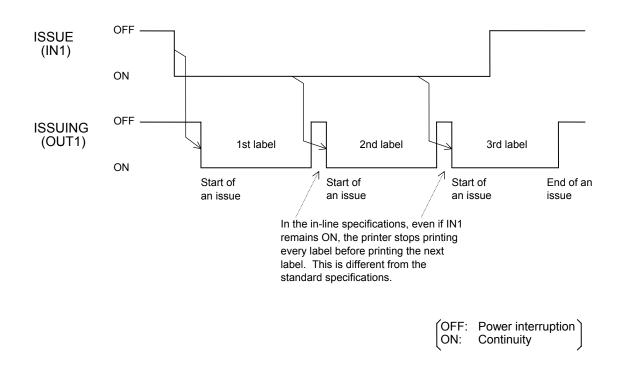
When the printer is feeding a label back to the home position (pre-backfeed), a feed length (described below) is actually performed.

A feed length to be performed = Forward feed of pre-backfeed length + Feed length of a label (+ Forward feed length to the strip position)





NOTE: While an issue is being performed by the ISSUE signal (IN1), the Clear Command or Drawing Command should not be sent from the host, since the data may not be printed properly.



[In-line]

ACTIVATE

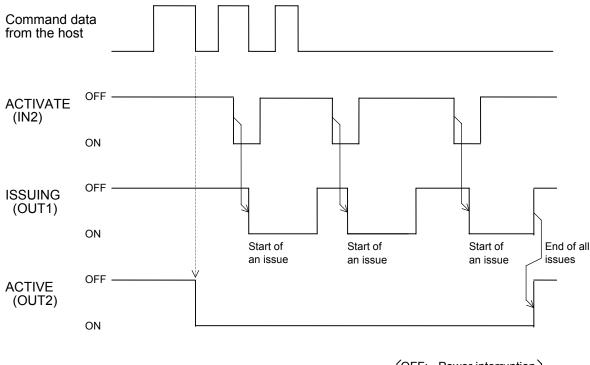
IN2

The printer executes the Issue Command which has been sent from the host according to this signal. While the ACTIVATE signal is off, the printer does not issue a label. The printer starts executing the Issue Command sent from the host by an ON pulse of 80 msec or more. One ON pulse allows the printer to execute the process for one label in the received Issue Commands. However, the ACTIVATE signal input is ignored, when the printer is in any of the following states.

- Issuing
- Feeding
- Inactive
- Engine error
- Ejecting
- Manual feeding
- · Checking broken head dots
- Command save mode
- Writable character store mode
- Communication error (command error, hardware error)
- System mode
- Performing a pre-backfeed

When the printer is feeding a label back to the home position (pre-backfeed), a feed length (described below) is actually performed.

A feed length to be performed = Forward feed of pre-backfeed length + Feed length of a label (+ Forward feed length to the strip position)



OFF: Power interruption ON: Continuity

IN3

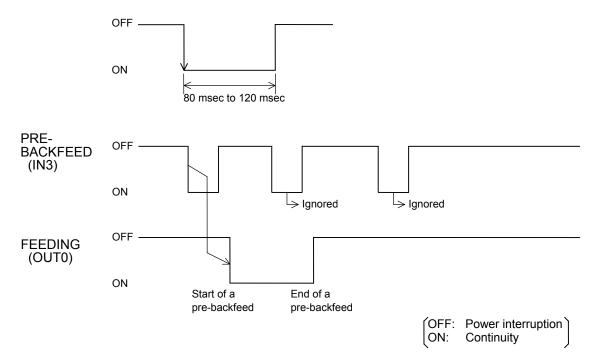
PRE-BACKFEED

When the strip issue (Issue modes D and E) is selected, or this signal goes from off to on, the printer feeds a label back to the issue standby position.

The PRE-BACKFEED signal input is ignored when the printer is in any of the following states.

- Issuing
- Feeding
- Engine error
- Ejecting
- Manual feeding
- · Checking broken head dots
- Command save mode
- Writable character store mode
- Communication error (command error, hardware error)
- System mode
- Performing a pre-backfeed

Once the label is fed back to the issue standby position, thereafter, the PRE-BACKFEED signal input is ignored.



FEEDING

OUT0

This output signal indicates that the printer is feeding a label.

The signal is on during a feed. Feeding means the following states.

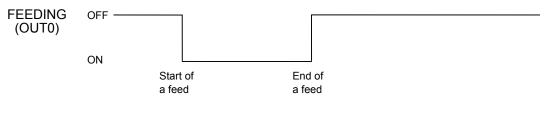
- Normal feeding
- · Ejecting by the Eject Command from the host
- Ejecting for an issue with a cut
- Reverse feeding for a strip issue
- Manual forward/reverse feeding
- Initial feed when the printer restarts after an error is cleared.
- Performing a pre-backfeed

When the printer completes a feed normally, the signal goes off.

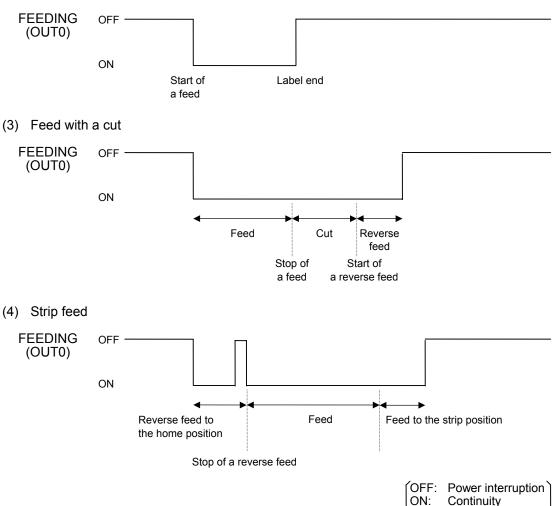
The FEEDING signal is output for a feed by any of the following: the printer key, a command from the host, or the FEED signal.

When an error occurs during a feed and the printer stops feeding, the FEEDING signal goes off.

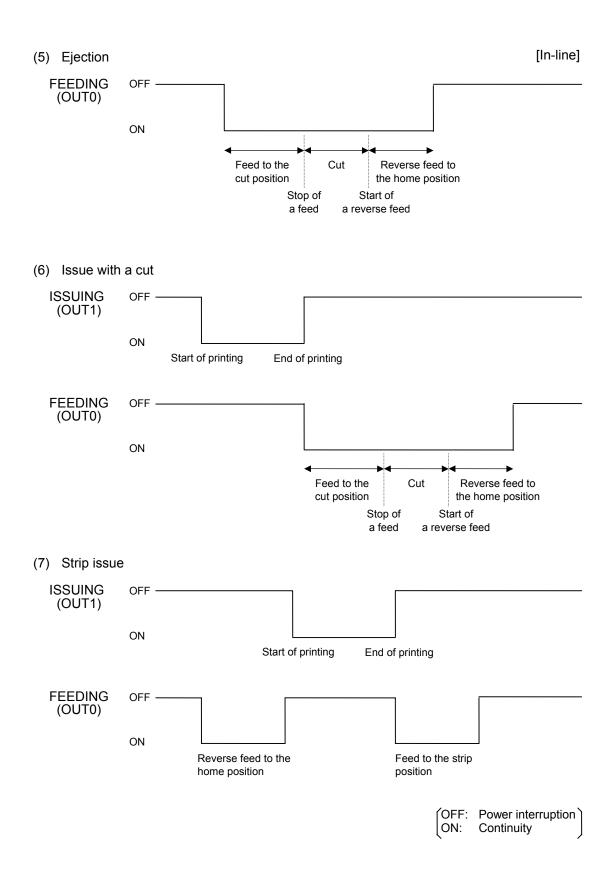
(1) Normal feed



(2) Label end in the middle of a feed



[In-line]



[In-line]

ISSUING

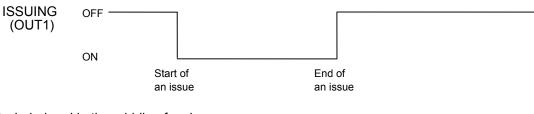
OUT1

This output signal indicates that the printer is issuing a label. The signal is on during an issue.

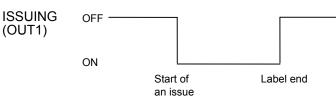
The ISSUING signal is output for any issue for the self test results printout or test print in the system mode, or by a command from the host or the ISSUE signal. However, since the checks such as the Expansion I/O loop back check are performed in the selftest, there may be moments where all output signals go on.

When an error occurs during issuing and the printer stops issuing, the ISSUING signal goes off.

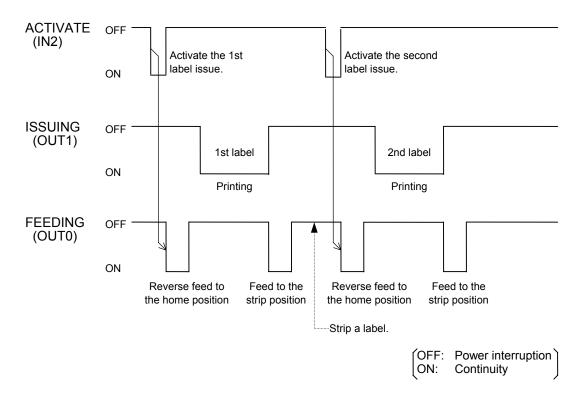
(1) Normal issue



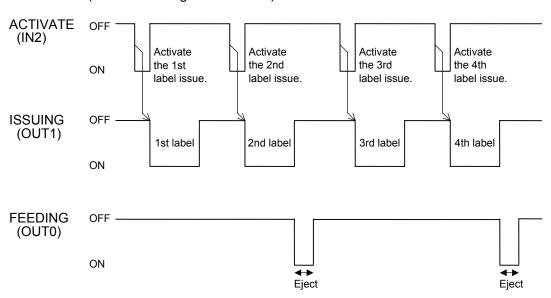
(2) Label end in the middle of an issue



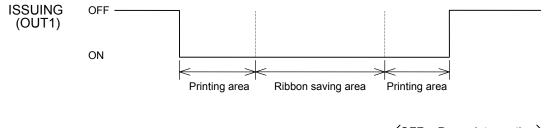
(3) Strip issue (2 labels to issue)

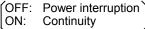


(4) Cut issue (4 labels to issue, cut every 2 labels) (When the swing cutter is used)



(5) Ribbon saving issue





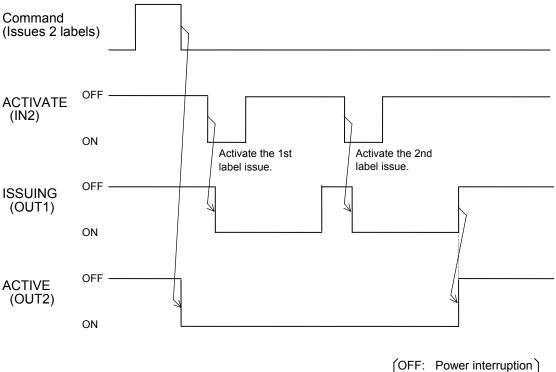
[In-line]

OUT2

ACTIVE

This output signal indicates that the printer is active.

When the printer receives the Feed Command or the Issue Command, the signal goes on (active). When the printer completes all Feed Commands or Issue Commands sent from the host, the signal goes off (inactive).



ON: Continuity

ERROR

OUT3

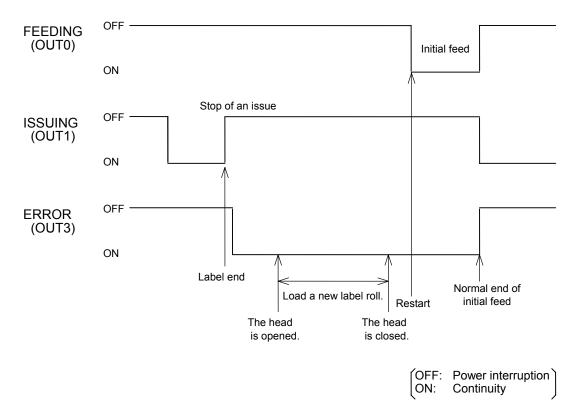
[In-line]

This output signal indicates that an error occurred, stopping the printer. The signal goes on while the printer is in an error state. When any of the following errors occur, the ERROR signal goes on.

- Communication error (Command error)
- Communication error (Hardware error)
- Paper jam
- Cutter error
- Paper end
- Ribbon end
- Ribbon error
- Head open error
- Thermal head abnormal
- Thermal head temperature abnormal (overheating)
- Rewinder overflow
- Write error of memory for storage
- · Format error of memory for storage
- Full memory for storage

When the error state is cleared, the ERROR signal goes off.

However, the printer is not restored unless the power goes off then on, when an error cannot be cleared by the [RESTART] key.



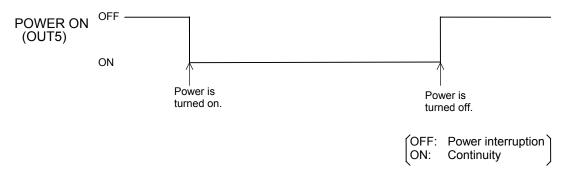
OUT5

POWER ON

This output signal indicates that the printer power is on.

While the printer power is on, the signal is on.

While the printer power is on, the POWER ON signal remains on no matter what state the printer is in.



4.2.3 EXAMPLE OF TIMING CHART (IN-LINE SPECIFICATIONS)

(1) The Issue Command (for printing 3 labels) is sent.

Command data		Issue 3 labels.	<1>											Explana	ation	•
FEED (IN0)	OFF													Co <2> Be <3> Ac <4> Sta	e host sends the ommand for prin come active. tivate the 1st la art of the 1st lat	ting 3 labels. bel issue. bel issue.
(IN1)	ON			ctivate the 1st bel issue.				ctivate the 2nd bel issue.	1			Activa 3rd lal issue.	bel	<6> Ac <7> Sta	d of the 1st lab tivate the 2nd la art of the 2nd la	abel issue. bel issue.
(IN2)	ON			<3>				<6>				<9>	, 	<9> Ac <10> Sta	d of the 2nd lat tivate the 3rd la art of the 3rd lat	bel issue. bel issue.
(IN3)	ON														d of the 3rd lab come inactive.	el issue.
Not used (IN4)	ON ——															
Not used (IN5)																
FEEDING (OUT0)	OFF ON			<4>		<5>		<7>		<8>		<1	0>			<11>
ISSUING (OUT1)	OFF		ļ	Start of the issue		End of the issue	<u>ب</u> ا و	Start of the	ssue	End of the	issue	▲ St	art of the	issue		End of the issue <12>
ACTIVE (OUT2)	OFF ON	L	<2> Ac	tive												Inactive
ERROR (OUT3)	OFF															
Not used (OUT4)	OFF															
POWER ON (OUT5)	OFF															
Not used (OUT6)	OFF															
LCD (Upper line) indication	0	N LINE PAUSI		N LINE	PAU	SE 2	ON	LINE	P	AUSE 1		N LI	NE		ON	LINE

(2) Another Issue Command is sent during printing.

Command data		Issue	Issue					Issue					■ Explanation
FEED (IN0) ISSUE (IN1)	OFF ON OFF ON	<pre>'one label.' <1></pre>	one label.	Activate th	e 1st issue.		Activate the	one label.		Activate the 3rd issue.			 <1> The host continuously sends the two Issue Commands for printing 1 label. <2> Become active. <3> Activate the issue for the 1st Issue Command. <4> Start of the issue for the 1st Issue Command.
ACTIVATE (IN2) PRE-BACKFEED (IN3)	OFF			<3>			<6>			<10>			 <5> End of the issue for the 1st Issue Command. <6> Activate the issue for the 2nd Issue Command. <7> Start of the issue for the 2nd Issue Command.
Not used (IN4)	ON OFF ON												 <8> The host sends another Issue Command, while the printer is printing. <9> End of the issue for the 2nd Issue Command. <10: Activate the issue for the 2nd Issue
Not used (IN5) FEEDING	OFF												<10> Activate the issue for the 3rd Issue Command. <11> Start of the issue for the 3rd Issue Command.
(OUT0)	ON			<4>	f the issue	<5> End of the	<7>	End	<9> of the	<11>	<12>		<12> End of the issue for the 3rd Issue Command. 13 Become inactive.
(OUT1) ACTIVE (OUT2)	ON OFF ON		<2> Active		f the issue	issue	Start of the	ne issue issue		Start of the issue	issue	13> Inaci	tive
ERROR (OUT3)	OFF												
Not used (OUT4)													
POWER ON (OUT5)	OFF												
Not used (OUT6)	ON												
line) indication		LINE	JSE 1	ON LINE	2	PAUSE	1 ON LINE	P	AUSE 1 ON	LINE	ON LI	NE	

- 34 -

Command data	Feed Issue one label	■ Explanation
FEED (IN0) ISSUE (IN1) ACTIVATE (IN2)	OFF	 <1> The host continuously sends the Feed Command and the Issue Command. <2> Become active. <3> Activate a feed. <4> Start of the feed. <5> End of the feed. <6> Activate an issue. <7> Start of the issue. <8> End of the issue.
PRE-BACKFEED (IN3)	OFF	<9> Become inactive.
Not used (IN4)	OFF	
Not used (IN5)	OFF <4> <5>	
FEEDING (OUT0)	ON Start of the feed End of the feed	
ISSUING (OUT1)	OFF <7> <8> ON Start of the issue End of the issue OFF	
ACTIVE (OUT2)	ON <2> Active <9> Inactive	
ERROR (OUT3)	OFF	
Not used (OUT4)	ON	
POWER ON (OUT5)	ON	
Not used (OUT6)	OFF	
LCD (Upper line) indication	ON LINE ON LINE ON LINE PAUSE ON LINE	

(3) The Feed Command and the Issue Command are continuously sent.

		_								
Command data	Issue one lab							■ Explanation		
	<i></i>	: \	eed request by the FEED signal					<1> The host sends the Issue Command.		
FEED	0FF		<3>				<2> Become active.			
(IN0)	ON		. <>>					<3> Feed request by the FEED signal.		
ISSUE	OFF						<4> Start of the feed. <5> End of the feed.			
(IN1)	ON							<6> Activate an issue.		
				Ac	ctivate an issue.			<7> Start of the issue.		
ACTIVATE	OFF				<6>			<8> End of the issue.		
(IN2)	ON				102			<9> Become inactive.		
PRE-BACKFEED	OFF									
(IN3)	ON									
Not used (IN4)	OFF									
(1144)	ON									
Not used	OFF									
(IN5)	ON									
FEEDING	OFF		<4>	<5>						
(OUT0)	ON		Start of the feed End o	f the feed						
					<7>	-0>				
ISSUING	OFF				5	<8> End of the issue				
(OUT1)	ON						/			
ACTIVE	OFF -						-0. In a still a			
(OUT2)	ON	<2> Active					<9> Inactive			
ERROR	OFF									
(OUT3)	ON									
(0000)										
Not used	OFF									
(OUT4)	ON									
POWER ON	OFF									
(OUT5)	ON									
Not used (OUT6)	OFF									
	ON									
LCD (Upper	ON LINE	PAU	SE 1	PAUSE 1		ON	LINE			
line) indication	PAU	JSE 1		ON	LINE					

(4) A feed is performed by the FEED signal during the active state.

- 36 -

(5) A paper end error occcurs during prnting.

Command data	Issue one label.		■ Explanation
FEED (IN0)	<1> OFF ON		 <1> The host sends the Issue Command. <2> Become active. <3> Activate an issue. <4> Start of the issue.
ISSUE (IN1) ACTIVATE (IN2)	OFF Activate an issue.	Re-activate an issue.	 <5> An error occurs during printing. <6> The ERROR signal goes ON. <7> Clear the error, and press the [RESTART] key on the printer. <8> Start of the initial feed at restart. <9> End of the initial feed.
PRE-BACKFEED (IN3) Not used (IN4)	OFF		 <10> The ERROR signal goes OFF. <11> Re-activate the issue. <12> Start of the issue. <13> End of the issue. <14> Become inactive.
Not used (IN5)	ON		
(OUT0) ISSUING (OUT1)	ON initial feed initial feed OFF <4> ON Start of the issue <5> 0	<12> Start of the	<13>
ACTIVE (OUT2) ERROR	OFF <7> The error is cleared. ON <6>		<14> Inactive
(OUT3) Not used (OUT4)	ON The ERROR signal goes ON. The ERROR signal goes 4 <10> OFF ON	>	
POWER ON (OUT5)	OFF		
(OUT6)	ON ON LINE DAUSE 1 ON LINE NO LABEL 1 NO LABEL 1 PAUSE 1	1 N LINE	ON LINE