

TOSHIBA TEC Bar Code Printer

# **B-SX4T Series**, **B-SX5T Series**

# **Expansion I/O Specification**

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**TOSHIBA TEC CORPORATION** 

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# 1. SCOPE

This specification applies to expansion input/output (I/O) (B-7704-IO-XX) for the B-SX4T series (hereinafter referred to as "B-SX4T") and B-SX5T series (hereinafter referred to as "B-SX5T") industrial high-performance class general-purpose bar code printers.

# 2. GENERAL DESCRIPTION

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

# 3. ELECTRICAL SPECIFICATIONS

# 3.1 PIN ASSIGNMENT

Connector: FCN-685JO024 or equivalent

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

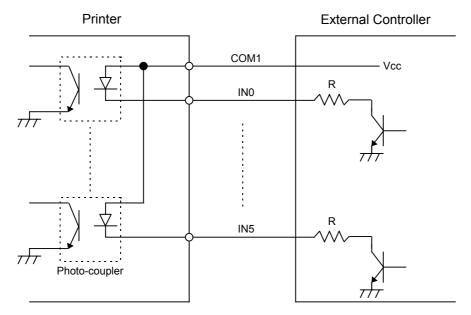
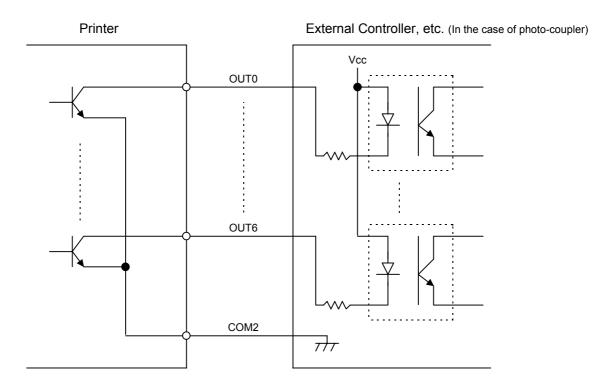


Photo-coupler: TLP521 (TOSHIBA)

There are 6 input circuits, and each input is a current loop using a photo-coupler. The anode of the photo-coupler 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.

### (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. FEED ......Feeds one label.
- IN1. ISSUE.....Issues one label.
- IN2. PAUSE......Temporarily stops label printing.
- 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. PAUSING ......Indicates the printer is in a pause state.
- OUT3. ERROR.....Indicates the printer is in an error state.
- OUT4. Not used ......The signal is always off.
- OUT5. POWER ON ......Indicates the printer power is on (without software control).
- OUT6. RIBBON NEAR END ......Indicates the printer ribbon is near the end.

## 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

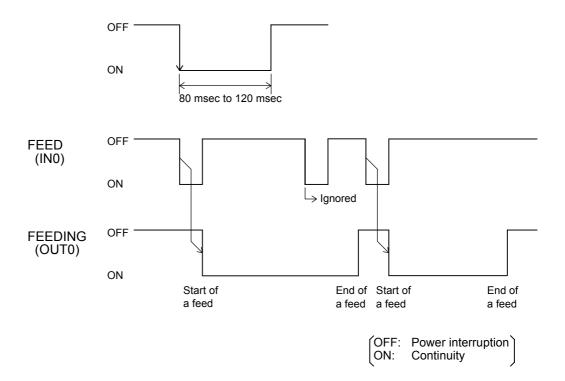
When the manual forward feed length has been set, a feed is performed by a value of one label feed length plus a manual forward feed length.

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

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.

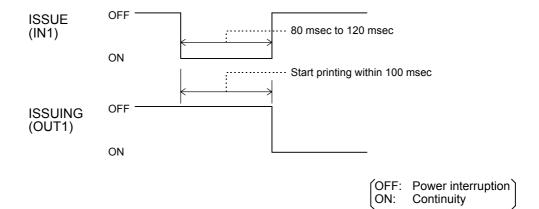
In this case, a label may not be issued, and a status response may be returned.

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

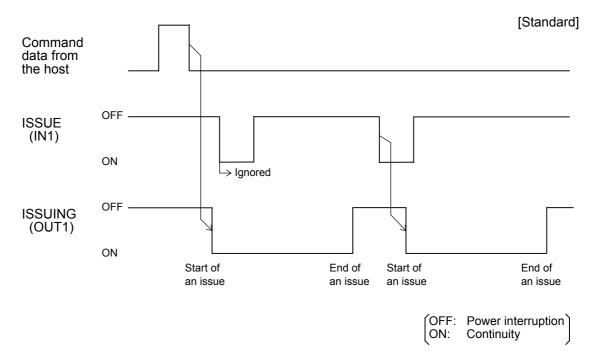
One label feed  $\to$  Feed to the cut position  $\to$  Cut  $\to$  Reverse feed to the home position  $\to$  Forward feed

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

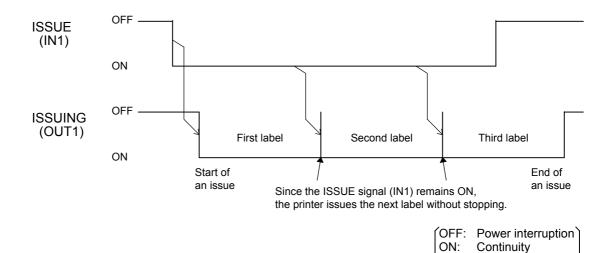
A feed length to be performed = Pre-backfeed length + Feed length of a label (+ Forward feed length to the strip position)



IN1



**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.

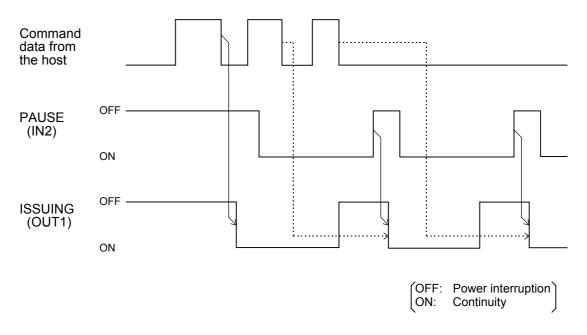


#### PAUSE

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]

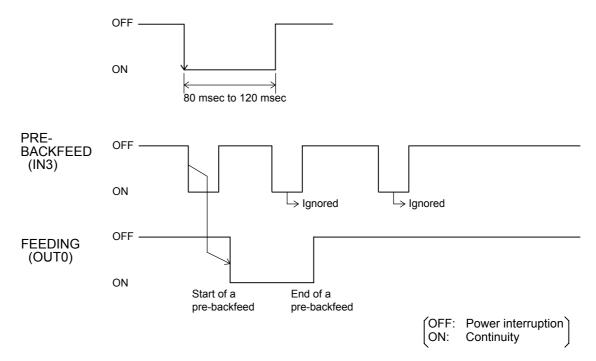
#### PRE-BACKFEED

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.



IN3

#### [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.

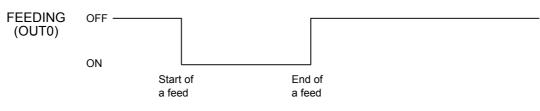
- Normal feeding
- · Ejecting by the Eject Command from the host
- Ejecting for an issue with a cut
- Reverse feeding for a strip issue
- Manual forward/reverse feeding
- Initial feed when the printer restarts after an error is cleared.
- Performing a pre-backfeed

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

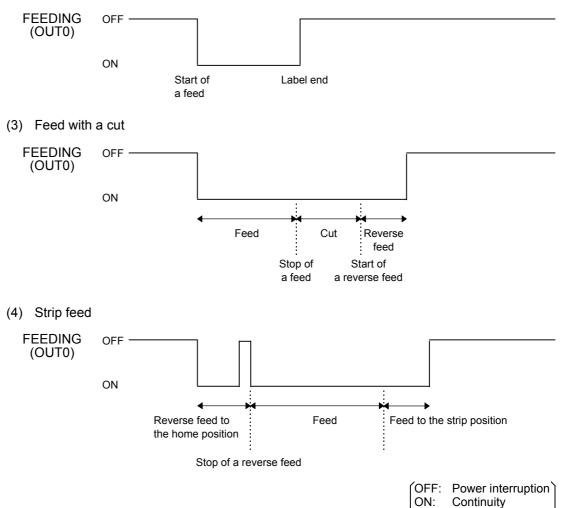
The FEEDING signal is output for a feed by any of the following: the printer key, a command from the host, or the FEED signal.

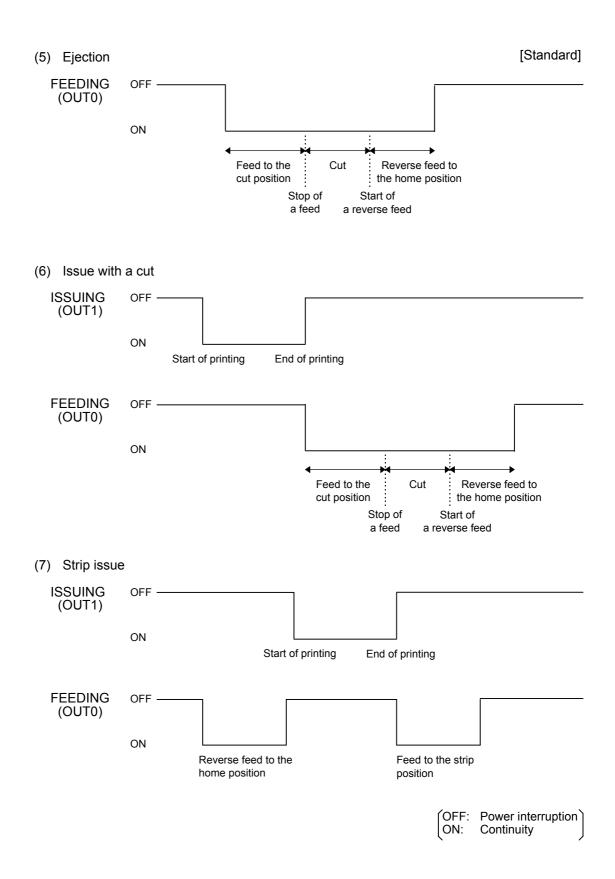
When an error occurs during a feed and the printer stops feeding, the FEEDING signal goes off.

(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.

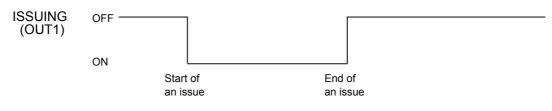
The signal is on during an issue. In the batch issue mode, the signal goes off when the specified number of labels are issued normally. However, when the printer performs batch issues without stopping between different batches, the signal remains on. In the strip issue mode, the signal goes off every 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 self-test, there may be moments where all output signals go on.

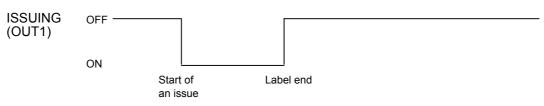
When an error occurs during issuing and the printer stops issuing, the ISSUING signal goes off.

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



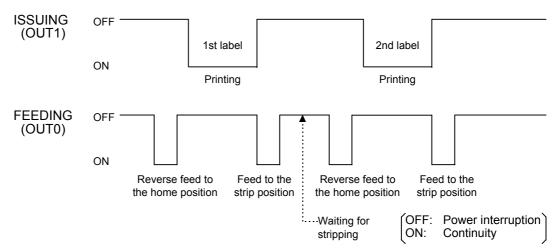
(2) Label end in the middle of an issue



(3) Batch issue (2 labels to issue)



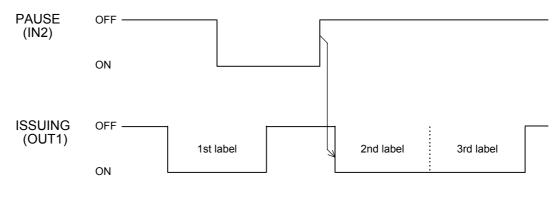
(4) Strip issue (2 labels to issue)



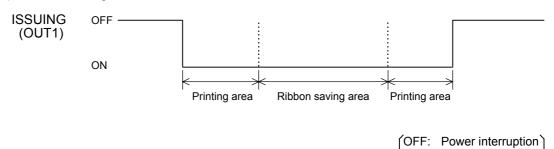
(5) Cut issue (4 labels to issue, cut every 2 labels)(When the swing cutter is used)

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

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



(7) Ribbon saving issue



ON: Continuity

[Standard]

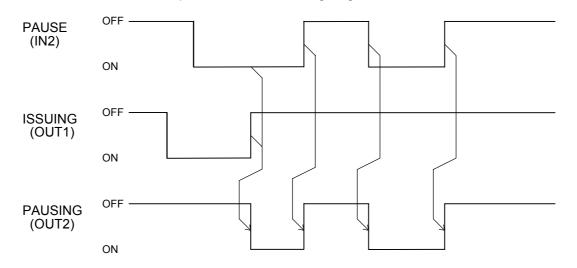
#### [Standard]

#### 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]

#### ERROR

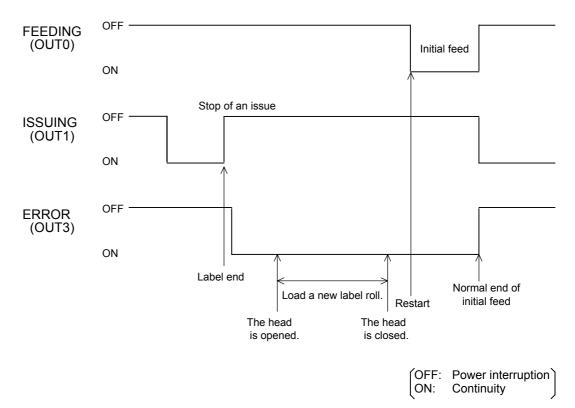
OUT3

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.

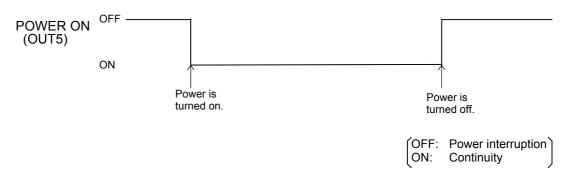


#### OUT5

#### 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.

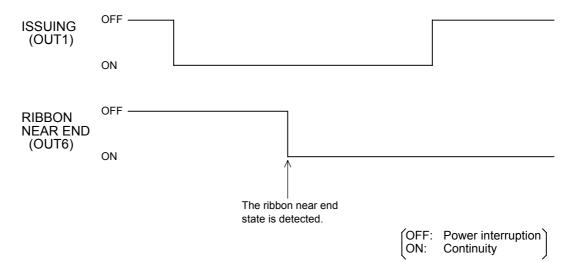


#### OUT6

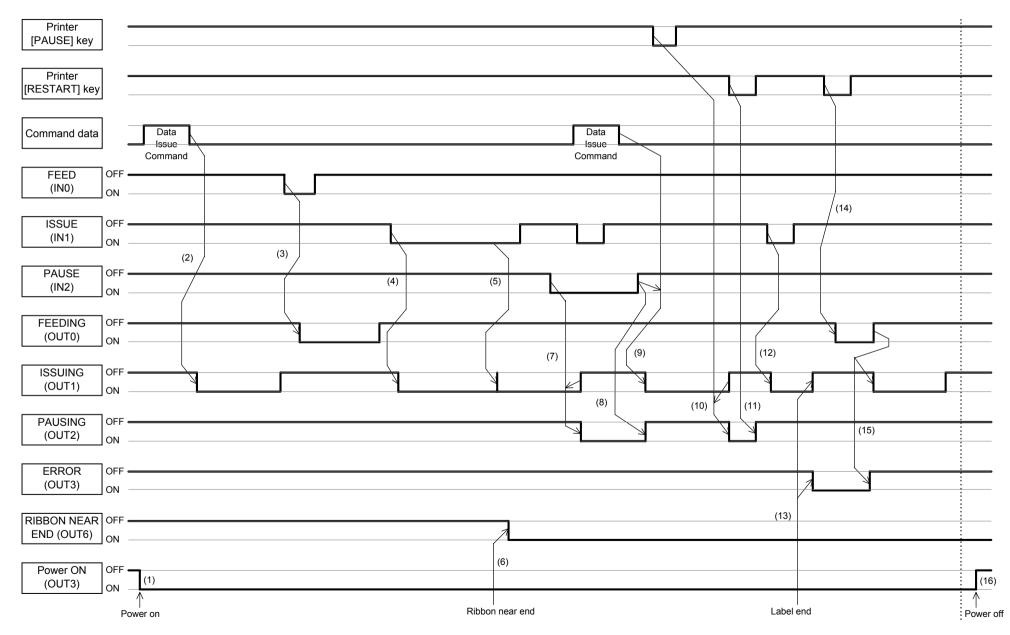
#### **RIBBON NEAR END**

This output signal indicates that the printer ribbon is near the end. While the printer is in a ribbon near end state, the signal goes on. When the printer has run out of ribbon, the signal goes off.

If the ribbon near end detection is set to OFF (not performed) in the system mode, the OUT6 signal remains OFF even if the printer is in a ribbon near end state.



#### 4.1.3 EXAMPLE OF TIMING CHART (STANDARD SPECIFICATIONS)

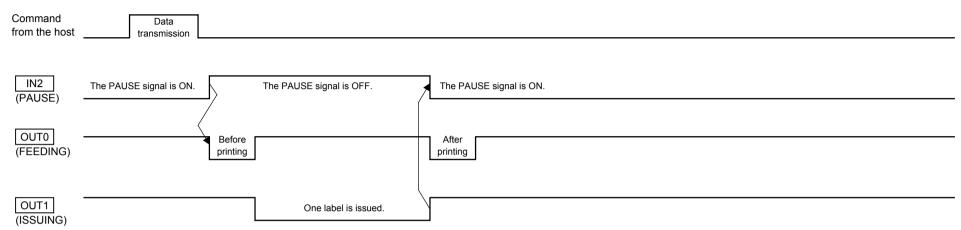


#### **Explanation of Timing Chart (Standard Specifications)**

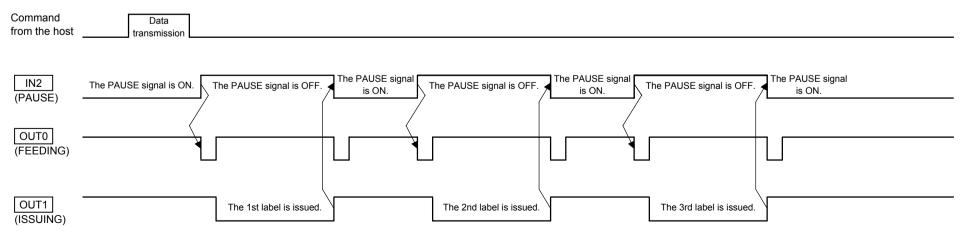
- (1) When the power is turned on, the OUT5 (POWER ON) goes on.
- (2) The printer starts issuing by the command from the host. The OUT1 (ISSUING) goes on.
- (3) The printer starts feeding by the INO (FEED). The OUTO (FEEDING) goes on.
- (4) The printer starts issuing by the IN1 (ISSUE). The OUT1 (ISSUING) goes on.
- (5) The printer starts issuing by the IN1 (ISSUE). The OUT1 (ISSUING) goes on.
- (6) Since a ribbon near end state is detected, OUT6 (RIBBON NEAR END) goes on.
- (7) After the issue is completed, the printer enters into a pause state by the IN2 (PAUSE). The OUT2 (PAUSING) goes on.
- (8) The pause state is cleared when the IN2 (PAUSE) goes off. The OUT2 (PAUSING) goes off.
- (9) 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.
- (10) After the issue is completed, the printer enters into a pause state by the printer PAUSE key. The OUT2 (PAUSING) goes on.
- (11) The pause state is cleared by the printer RESTART key. The OUT2 (PAUSING) goes off.
- (12) The printer starts issuing by the IN1 (ISSUE). The OUT1 (ISSUING) goes on.
- (13) The printer stops issuing because a label end error occurred during an issue. The OUT1 (ISSUING) goes off and the OUT3 (ERROR) goes on.
- (14) The printer starts an initial feed by the printer RESTART key. (The OUTO (FEEDING) goes on.)
- (15) After the initial feed is completed, the error state is cleared (the OUT3 (ERROR) goes off), the printer resumes issuing (the OUT1 (ISSUING) goes on).
- (16) 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. FEED ..... Feeds 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. ACTIVE.....Indicates whether or not the printer is active.
- OUT3. ERROR.....Indicates the printer is in an error state.
- OUT4. Not used ...... The signal is always off.
- OUT5. POWER ON ......Indicates the printer power is on (without software control).
- OUT6. RIBBON NEAR END ......Indicates the printer ribbon is near the end.

### 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.

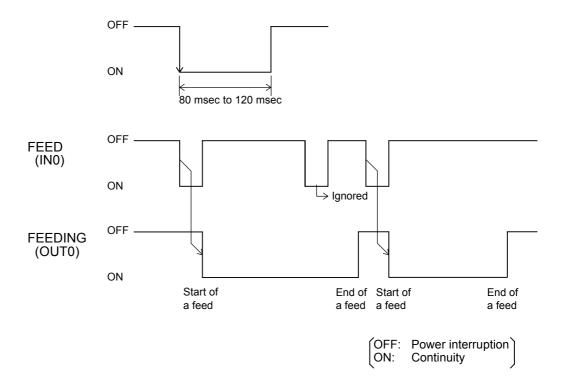
A feed length to be performed = Feed length of a label + Manual forward feed length

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.

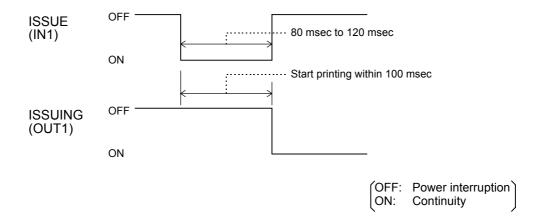
In this case, a label may not be issued, and a status response may be returned.

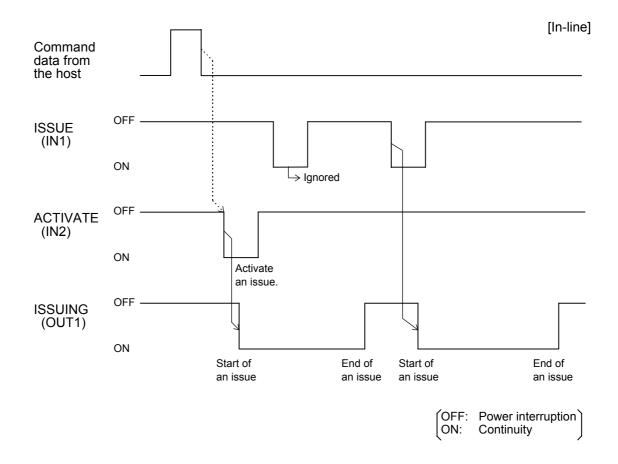
When the printer is in a wait state for a forward feed in the cut issue mode, it performs the following operations.

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

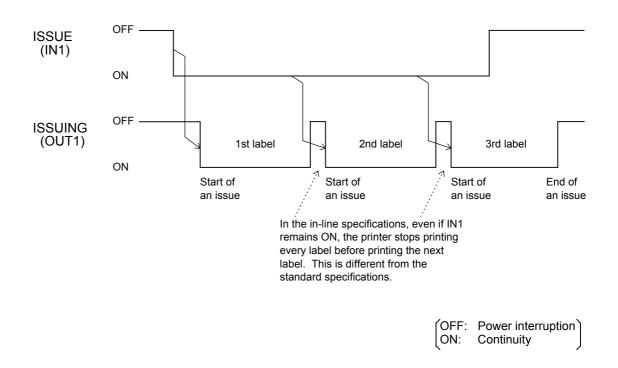
When the printer is feeding a label back to the home position (pre-backfeed), a feed length (described below) is actually performed.

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



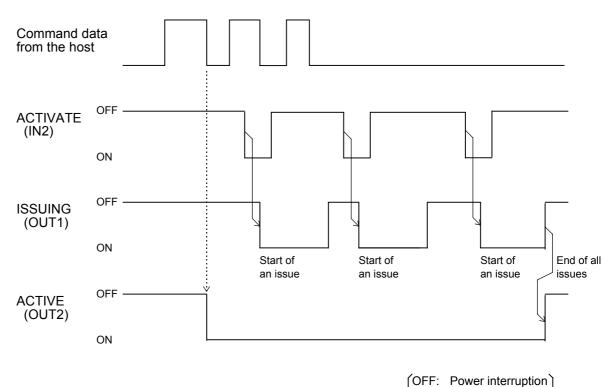
#### ACTIVATE

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 = Pre-backfeed length + Feed length of a label



ON: Continuity

#### IN3

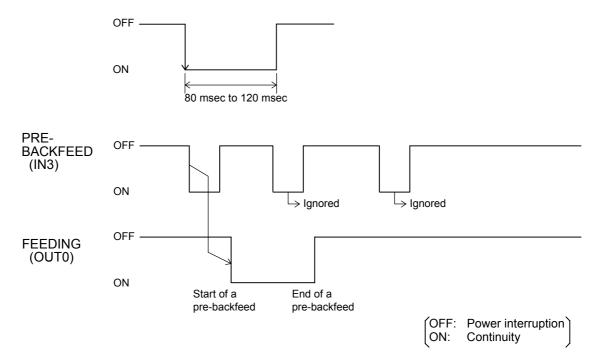
#### PRE-BACKFEED

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

[In-line]

This output signal indicates that the printer is feeding a label. The signal is on during a feed. Feeding means the following states.

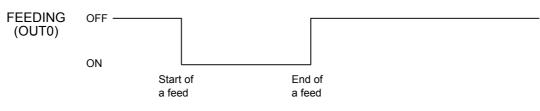
- Normal feeding
- · Ejecting by the Eject Command from the host
- Ejecting for an issue with a cut
- Reverse feeding for a strip issue
- Manual forward/reverse feeding
- Initial feed when the printer restarts after an error is cleared.
- Performing a pre-backfeed

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

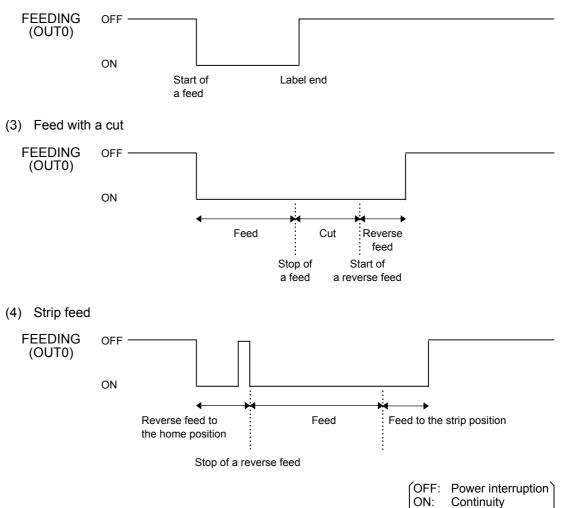
The FEEDING signal is output for a feed by any of the following: the printer key, a command from the host, or the FEED signal.

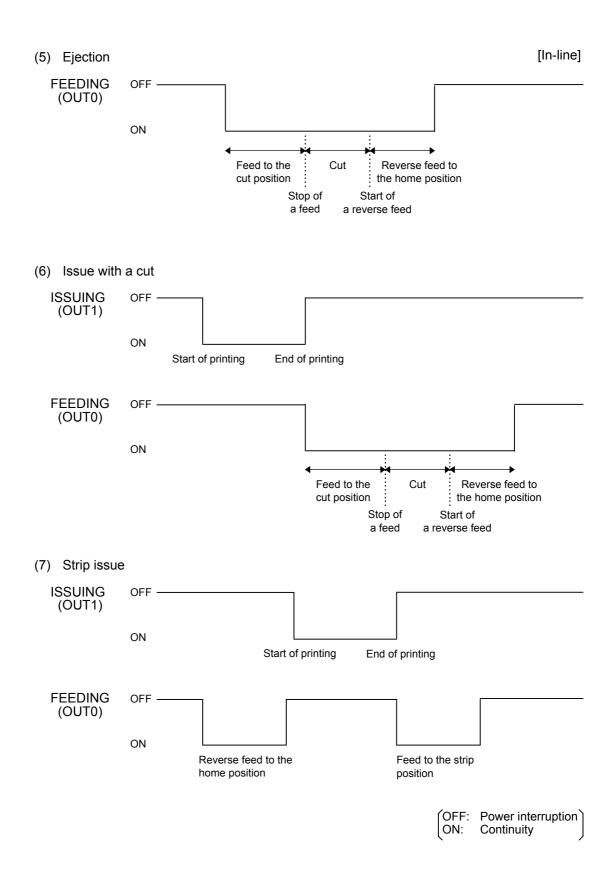
When an error occurs during a feed and the printer stops feeding, the FEEDING signal goes off.

(1) Normal feed



(2) Label end in the middle of a feed





#### [In-line]

#### ISSUING

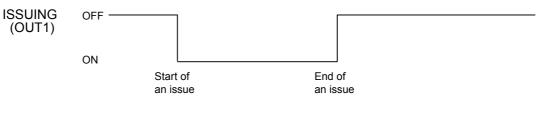
OUT1

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

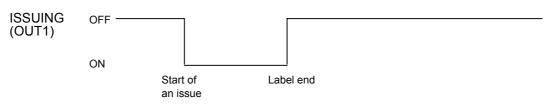
The ISSUING signal is output for any issue for the self test results printout or test print in the system mode, or by a command from the host or the ISSUE signal. However, since the checks such as the Expansion I/O loop back check are performed in the self-test, there may be moments where all output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

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

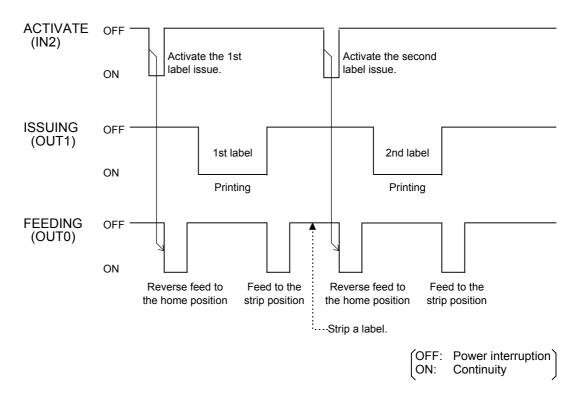
(1) Normal issue



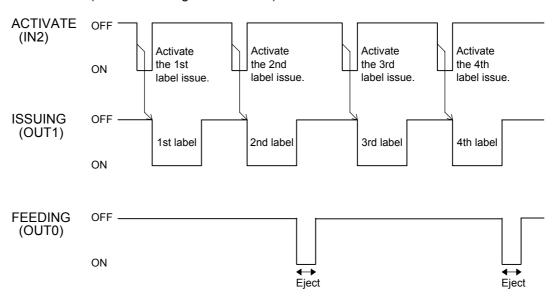
(2) Label end in the middle of an issue



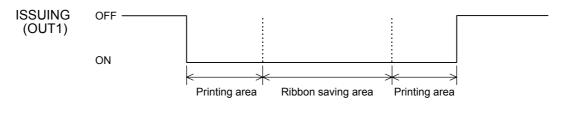
(3) Strip issue (2 labels to issue)



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



#### (5) Ribbon saving issue



OFF: Power interruption ON: Continuity

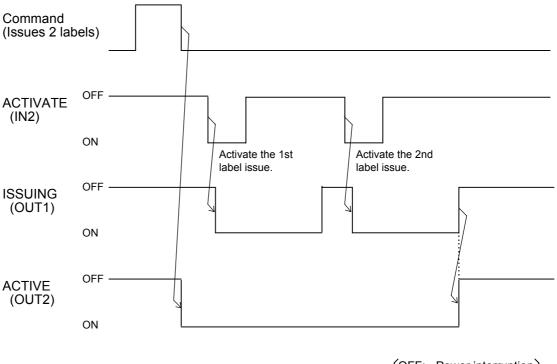
[In-line]

#### 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).



OFF: Power interruption ON: Continuity

#### ERROR

OUT3

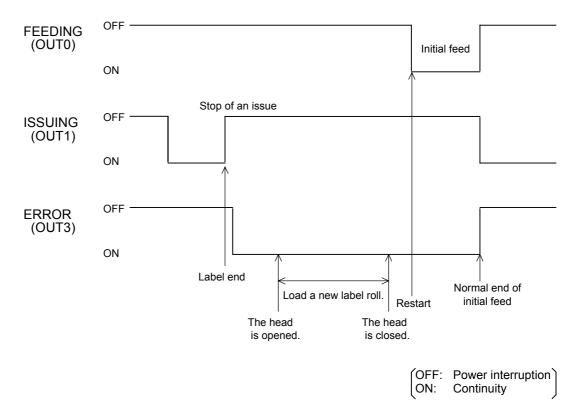
[In-line]

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.

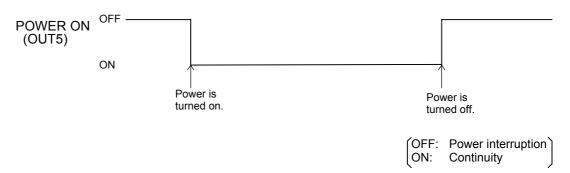


#### OUT5

#### 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.

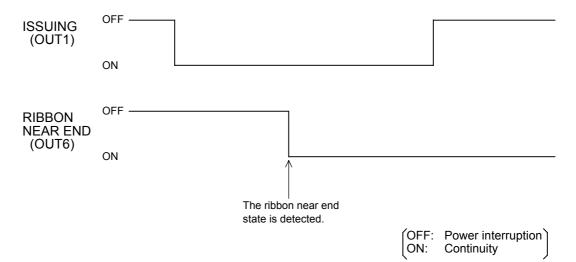


#### OUT6

#### **RIBBON NEAR END**

This output signal indicates that the printer ribbon is near the end. While the printer is in a ribbon near end state, the signal goes on. When the printer has run out of ribbon, the signal goes off.

If the ribbon near end detection is set to OFF (not performed) in the system mode, the OUT6 signal remains OFF even if the printer is in a ribbon near end state.



## 4.2.3 EXAMPLE OF TIMING CHART (IN-LINE SPECIFICATIONS)

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

Command data	data Issue 3 labels. <1>									■ Explanation					
FEED (IN0)	OFF												<1> <2> <3> <4>	The host sends t Command for pri Become active. Activate the 1st I Start of the 1st Ia	nting 3 labels. abel issue.
ISSUE (IN1)	OFF			ctivate the 1st bel issue.				ivate the 2nd el issue.			3	Activate the ard label assue.	<5> <6> <7>	End of the 1st la Activate the 2nd Start of the 2nd I	oel issue. label issue.
ACTIVATE (IN2)				<3>				<6>				<9>	<8> <9>	End of the 2nd la Activate the 3rd	bel issue. abel issue.
PRE-BACKFEED (IN3)	OFF												<11>		oel issue.
Not used (IN4)	OFF														
Not used (IN5)	OFF														
FEEDING (OUT0)	OFF			<4>		<5>		<7>		<8>		<10>			<11>
ISSUING (OUT1)	OFF		ļ	Start of the issue		End of the issue		Start of the issue		End of the issue		Start of the	issue		End of the issue <12>
ACTIVE (OUT2)	OFF ON	A .	<2> Ac	tive										4	Inactive
ERROR (OUT3)	OFF — ON —														
Not used (OUT4)	OFF — ON —														
POWER ON (OUT5)	OFF														
RIBBON NEAR END (OUT6)	ON			· · ·								· ·			
LCD (Upper line) indication		N LINE PAUSE		ON LINE	PAU	SE 2	ONI	INE	PAUS	SE 1		I LINE		ON	LINE

#### (2) Another Issue Command is sent during printing.

\_\_\_\_\_

Command data		lssue one label.	Issue					Issue one label.						■ Exp	lanation
FEED (IN0) ISSUE (IN1)	OFF ON OFF ON	<1>	. \					<8>						<1> <2> <3> <4>	The host continuously sends the two Issue Commands for printing 1 label. Become active. Activate the issue for the 1st Issue Command. Start of the issue for the 1st Issue Command.
ACTIVATE (IN2) PRE-BACKFEED (IN3)	OFF ON OFF ON			Activate	the 1st issue.		Activate the 2	nd issue.		Activate the	3rd issue.			<7>	End of the issue for the 1st Issue Command. Activate the issue for the 2nd Issue Command. Start of the issue for the 2nd Issue Command. The host sends another Issue
Not used (IN4)	OFF													<9>	Command, while the printer is printing. End of the issue for the 2nd Issue Command.
Not used (IN5)															Activate the issue for the 3rd Issue Command. Start of the issue for the 3rd Issue Command.
FEEDING (OUT0)				<4>		<5> End of the	<7>	Ę,	<9> nd of the	<11>		<12> End of the			End of the issue for the 3rd Issue Command. Become inactive.
ISSUING (OUT1)	OFF			L Start	of the issue	issue	Start of the		sue	Start of t	he issue	issue	7		
(OUT2)	ON	<u>لم</u>	<2> Active									4	<13> Ina	ctive	
(OUT3) Not used	ON														
(OUT4)	ON														
(OUT5) RIBBON NEAR END (OUT6)	ON OFF ON														
LCD (Upper line) indication		LINE	JSE 1	ON LI	NE	PAUSE	1 ON LINE	[	PAUSE 1	] N LINE		ON	LINE		

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Command data	Feed	Issue one label				■ Explanation
FEED (IN0)	OFF					<1> The host continuously sends the Feed Command and the Issue Command.           <2> Become active.         <3> Activate a feed.
ISSUE (IN1) ACTIVATE (IN2)	OFF OFF ON	Activate an feed.		vate an issue. 6>		<ul> <li><a>Start of the feed.</a></li> <li><a>End of the feed.</a></li> <li><a>Content of the feed.</a></li> <li><a>Start of the issue.</a></li> <li><a>End of the issue.</a></li> <li><a>Become inactive.</a></li> </ul>
PRE-BACKFEED (IN3)	OFF				l	<92 Become mactive.
Not used (IN4)	OFF					
Not used (IN5)	OFF OFF		<5>			
FEEDING (OUT0)	ON	Start of the feed	End of the feed	<7> <8>		
ISSUING (OUT1) ACTIVE	ON			Start of the issue End of the issue	7	
(OUT2)		<2> Active		۲	<9> Inactive	
(OUT3)						
(OUT4)	ON					
(OUT5) RIBBON NEAR	ON					
END (OUT6)	ON	ON LINE	PAUSE 1	ON	LINE	
line) indication	PAUS	E	ON L	INE		

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

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Command data		Issue ne label.								■ Explanation
FEED (IN0)	OFF	<1>	Feed r	request by the FEED	signal					<ul> <li>&lt;1&gt; The host sends the Issue Command.</li> <li>&lt;2&gt; Become active.</li> <li>&lt;3&gt; Feed request by the FEED signal.</li> <li>&lt;4&gt; Start of the feed.</li> </ul>
ISSUE (IN1)	OFF					Ac	tivate an issue.			<5> End of the feed. <6> Activate an issue. <7> Start of the issue.
ACTIVATE (IN2)	ON						<6>			<8> End of the issue. <9> Become inactive.
PRE-BACKFEED (IN3)	OFF									
Not used (IN4)	OFF									
Not used (IN5)	OFF		<4	>	<5>					
FEEDING (OUT0)	ON		Sta	art of the feed	End of the feed		<7>	<8>		
ISSUING (OUT1)	OFF					Ļ	Start of the issue	End of the issue	7	
ACTIVE (OUT2)	ON	✓ <2> Acti	ve					4	<9> Inactive	
ERROR (OUT3)	OFF					- - - - - - -				
Not used (OUT4)	ON									
POWER ON (OUT5)	OFF									
RIBBON NEAR END (OUT6)	OFF		PAUSE	1	PAUSE	1			LINE	
LCD (Upper line) indication		PAUSE 1	PAUSE	<u> </u>	PAUSE		LINE			

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

#### (5) A paper end error occcurs during prnting.

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