

Connector Pin Specifications		
Pin No.	I/O	Description
16	-	LOGIC Ground
17	-	Frame Ground
18	-	+5 V
19	-	STROBE RETURN
20-27	-	DATA 1 - DATA 8 RETURN
28	-	ACK RETURN
29	-	BUSY RETURN
30	-	PAPER EMPTY RETURN
31	Input	INITIALIZE
32	Output	FAULT
33-35	-	Not in use
36	Input	SELECT INPUT

Cable Specifications	
Cable Connector	Amphenol 36 pins, male
Cable Length	1.5 m (5 feet) or less



- Specifications are subject to change without notice.

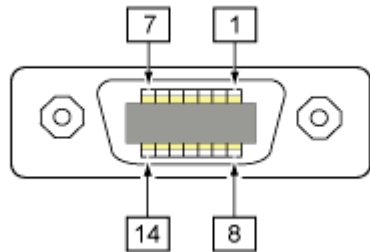
External Signal (EXT) Interface

Basic Specifications of External Signal (EXT) Interface

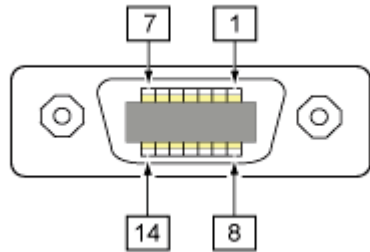
This interface is designed to connect the product with other peripherals.

Basic Specifications	
Connector	Centronics IDC Type 14 pins (Female)
Signal Levels	High-level +4.2 to +5.0 V

Basic Specifications	
	Low-level +0.0 to +0.7 V



Connector Pin Specifications of External Signal (EXT) Interface



Pin No.	I/O	Description	Electric Conditions (Voltage, Current (Max))
1	Output	Paper End Outputs a low signal when the paper end is detected.	Withstand voltage 50 V Sink current 50 mA
2	-	GND Reference Signal Ground	-
3	Output	Ribbon End Outputs a low signal when the ribbon end is detected.	Withstand voltage 50 V Sink current 50 mA
4	Output	Machine Error Outputs a low signal when an error such as the head open error is detected.	Withstand voltage 50 V Sink current 50 mA
5	Input	Print Start signal (PRIN) Prints one media when a low signal is detected.	High: high impedance Low: more than -15 mA, 0 V

Pin No.	I/O	Description	Electric Conditions (Voltage, Current (Max))
6	Output	Print Done/Print End signal (PREND) Outputs a signal when the media print is completed.	Withstand voltage 50 V Sink current 50 mA
7	Input	Reprint signal (PRIN2) Prints the previously printed content again when a low signal is detected.	High: high impedance Low: more than -15 mA, 0 V
8	Input	External power supply	5 V
9	Output	Offline Outputs a low signal when the product is in Offline mode.	Withstand voltage 50 V Sink current 50 mA
10	Output	Ribbon Near End Outputs a high signal when the ribbon near end is detected.	Withstand voltage 50 V Sink current 50 mA
11	-	-	-
12	-	+24 V \pm 10%	2 A
13	-	Vcc +5 V	500 mA
14	-	-	-
*	Output	Wait signal for dispense completion Outputs a low signal when the dispense is completed. You can set the pin number for output through the [Settings] > [Interface] > [External I/O] > [Signals] > [Outputs] menu.	Withstand voltage 50 V Sink current 50 mA
*	Output	Label Near End signal Outputs a high signal when the label near end is detected. You can set the pin number for output through the [Settings] > [Interface] > [External I/O] > [Signals] > [Outputs] menu. *This feature is supported on products from serial number 6B~ and above.	Withstand voltage 50 V Sink current 50 mA



- You can set the external signal (EXT) type (TYPE1 to TYPE4) for Print Done output signal of pin No. 6. Refer to the [EXT Mode] screen of the [Settings] > [Interface] > [External I/O] > [Signals] menu for details.
- You can set the pin number for input and output through the [Settings] > [Interface] > [External I/O] > [Signals] > [Inputs] and [Outputs] menu.
- The Print Done signal of pin No. 6 is not outputted when 0 is specified in the number of cuts in the command specifying the number of cuts during the cutter operation.

Timing Chart of the EXT Input Signal

Item	Input Waveform
Print Start	<p>Print Start (PRIN)</p> <p>Reprint (PRIN2)</p> <p>Print</p> <p>Print End (Print Done) TYPE 1</p> <p>TYPE 2</p> <p>TYPE 3</p> <p>TYPE 4</p> <p>Printed 1 piece</p> <p>20 ms</p>
Reprint (No Print Start Signal)	<p>Print Start (PRIN)</p> <p>Reprint (PRIN2)</p> <p>Print</p> <p>Print End (Print Done) TYPE 1</p> <p>TYPE 2</p> <p>TYPE 3</p> <p>TYPE 4</p> <p>Printed 1 piece</p> <p>20 ms</p>
Reprint (With Print Start Signal)	<p>Print Start (PRIN)</p> <p>Reprint (PRIN2)</p> <p>Print</p> <p>Print End (Print Done) TYPE 1</p> <p>TYPE 2</p> <p>TYPE 3</p> <p>TYPE 4</p> <p>Printed 1 piece</p> <p>More than 10 ms</p> <p>20 ms</p>



- Keep the print start signal (PRIN) to "Low" until the print end signal (Print done) is outputted. For maintaining the print start signal (PRIN), refer to the [Maintaining the Print Start Signal \(PRIN\)](#).
- Keep the output reprint signal (PRIN2) for more than 10 ms. When signal is outputted for shorter than 10 ms, and reprint signal is not acknowledged, the product does not perform reprinting.

Maintaining the Print Start Signal (PRIN)

Item	Input Waveform
Print Start	<p>TYPE 1, 2</p> <p>TYPE 3, 4</p>
Print End (PREND) Signal	

- Rise or fall time (T1) of Print Done signal is less than 150 ns. You have to consider the time when outputting the signal from the connected devices.
- When the print start signal and reprint signal are outputted simultaneously, the print start signal is enabled and the product does not perform reprinting.

- The reprint signal is valid only from the time of the print operation end (QTY=0) until the next print data reception. Other than that, the product does not perform reprinting.

Timing Chart of the EXT Output Signal

Standard Specification

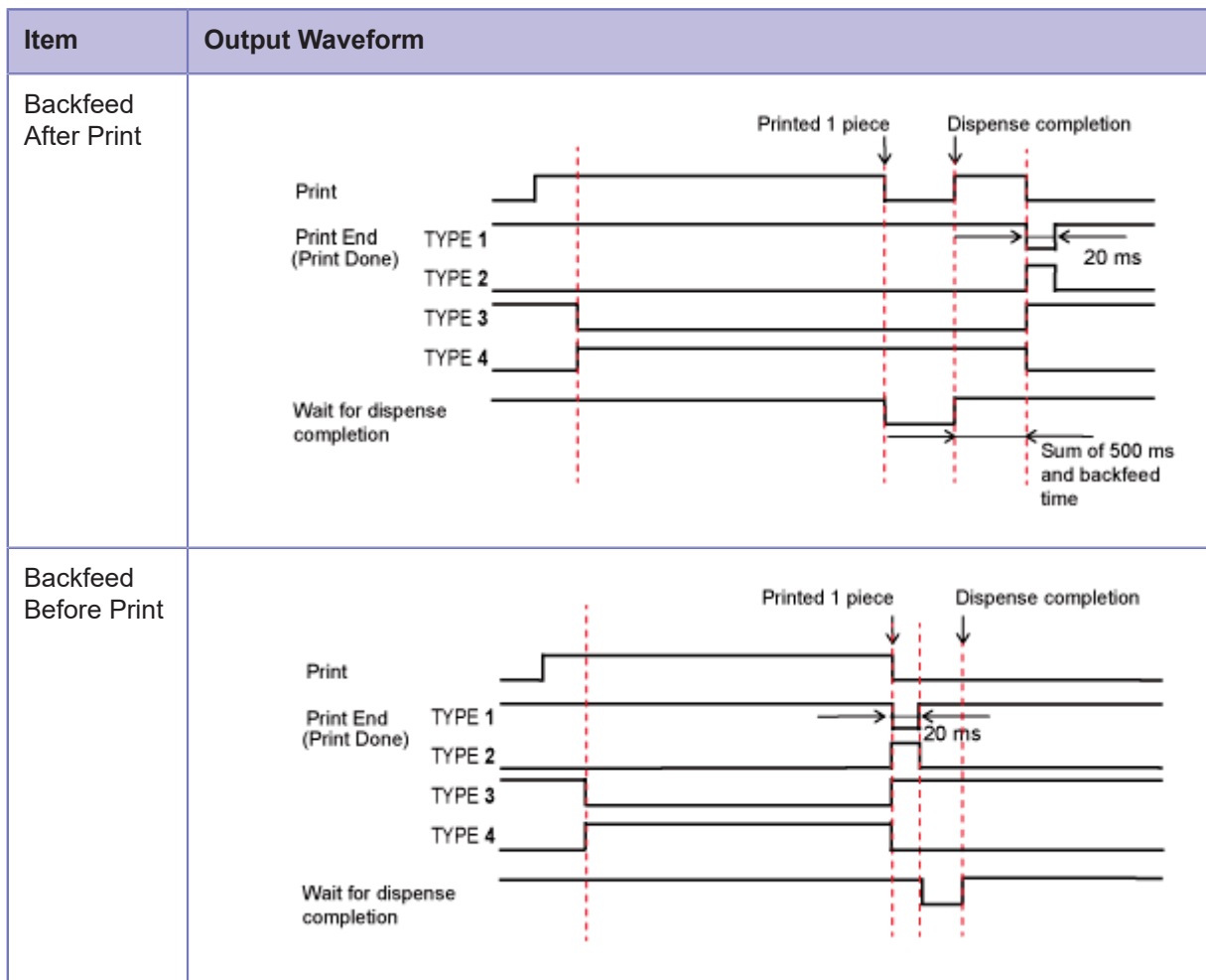
Item	Output Waveform
Basic Operation	<p>The timing chart for Basic Operation shows the following signals and their behavior:</p> <ul style="list-style-type: none"> Print: A pulse that starts at the beginning of the print operation and ends at the completion of one piece. Print End (Print Done): Four types (TYPE 1, TYPE 2, TYPE 3, TYPE 4) are shown. TYPE 1 and TYPE 2 are active during the print operation. TYPE 3 and TYPE 4 are active after the print operation ends. A 20 ms delay is shown between the end of the print operation and the start of the next print operation. Paper End: A pulse that occurs at the end of the print operation. Ribbon End: A pulse that occurs at the end of the print operation. Machine Error: A pulse that occurs at the end of the print operation.
Paper End	<p>The timing chart for Paper End shows the following signals and their behavior:</p> <ul style="list-style-type: none"> Print: A pulse that starts at the beginning of the print operation and ends at the completion of one piece. Print End (Print Done): Four types (TYPE 1, TYPE 2, TYPE 3, TYPE 4) are shown. TYPE 1 and TYPE 2 are active during the print operation. TYPE 3 and TYPE 4 are active after the print operation ends. Paper End: A pulse that occurs at the end of the print operation. Ribbon End: A pulse that occurs at the end of the print operation. Machine Error: A pulse that occurs at the end of the print operation. Head Open: A pulse that occurs after the print operation ends. Head Close: A pulse that occurs after the print operation ends. Replace Media: A period between Head Open and Head Close.
Ribbon End	<p>The timing chart for Ribbon End shows the following signals and their behavior:</p> <ul style="list-style-type: none"> Print: A pulse that starts at the beginning of the print operation and ends at the completion of one piece. Print End (Print Done): Four types (TYPE 1, TYPE 2, TYPE 3, TYPE 4) are shown. TYPE 1 and TYPE 2 are active during the print operation. TYPE 3 and TYPE 4 are active after the print operation ends. Paper End: A pulse that occurs at the end of the print operation. Ribbon End: A pulse that occurs at the end of the print operation. Machine Error: A pulse that occurs at the end of the print operation. Head Open: A pulse that occurs after the print operation ends. Head Close: A pulse that occurs after the print operation ends. Replace Ribbon: A period between Head Open and Head Close.

Item	Output Waveform
<p>Machine Error</p>	
<p>Ribbon Near End/ Label Near End</p> <p>*Label Near End is supported on products from serial number 6B~ and above.</p>	
<p>Offline</p>	

If RFID Mode Is Enabled (CL4NX only)

Item	Output Waveform
Basic Operation	<p>The diagram shows the timing of various signals during a basic print operation. A vertical dashed red line marks the start of printing. The 'Print' signal is high during this period. 'Print End (Print Done)' has four types: TYPE 1, TYPE 2, TYPE 3, and TYPE 4. TYPE 1 is high for a short duration (indicated as 20 ms), while the others are high for a longer duration. 'Paper End', 'Ribbon End', 'RFID Tag Error', and 'Machine Error' signals are all low during the print operation. A 'Printed 1 piece' event is marked at the end of the print signal.</p>
Paper End	<p>The diagram shows the timing of signals when paper ends. The 'Print' signal is high until 'Paper End' occurs. 'Print End (Print Done)' signals (TYPE 1-4) are high until 'Paper End'. 'Paper End', 'Ribbon End', and 'RFID Tag Error' signals become high at the 'Paper End' event. 'Machine Error' becomes high when 'Head Open' occurs. 'Head Close' occurs later. A 'Replace Media' period is indicated between 'Paper End' and 'Head Close'.</p>
Ribbon End	<p>The diagram shows the timing of signals when the ribbon ends. The 'Print' signal is high until 'Ribbon End' occurs. 'Print End (Print Done)' signals (TYPE 1-4) are high until 'Ribbon End'. 'Paper End', 'Ribbon End', and 'RFID Tag Error' signals become high at the 'Ribbon End' event. 'Machine Error' becomes high when 'Head Open' occurs. 'Head Close' occurs later. A 'Replace Ribbon' period is indicated between 'Ribbon End' and 'Head Close'.</p>

Timing Chart of the Wait Signal for Dispense Completion



1. When the wait signal for dispense completion is enabled, note that the output timing of the print end signal (print done) differs between Backfeed After Print and Backfeed Before Print.
 - a. In Backfeed After Print, the print end signal (print done) is output after the label waiting for dispense is removed and the product backfeeds to the print start position.
 - b. In Backfeed Before Print, the print end signal (print done) is output after the product feeds the label to the dispense position.
2. "Printed 1 piece" includes the operation of the product feeding the label to the dispense position after printing.

Wireless LAN Interface

This interface complies with the IEEE802.11a/b/g/n standard.



- Before using wireless LAN near medical devices and facilities, consult your system administrator.