UX2
IJ Printer Option Specifications

External Signal Function A

1st edition

(1) This manual includes the specifications of “External Signal Function A” for model UX2 IJ printers

<Contents>

Hardware	Function
● EZJ147 PCB ● EZJ148 PCB	①External signal count ②External signal reset ③Switching print contents using external signal ④Calling up print data using external signal ⑤Output during calendar updating ⑥Output notifying completion of signal input ⑦External signal calendar stop

(2) Before using this function, thoroughly read this manual for optimum function use. After reading the manual, properly keep it for future reference.

(3) Understand in advance that the specifications and contents of description are subject to change without notice

(4) Refer to the instruction manual for basic count function.

(5) Refer to the Communication manual (Serial communication), including print data transmission, print content call transmission, etc.

Contents

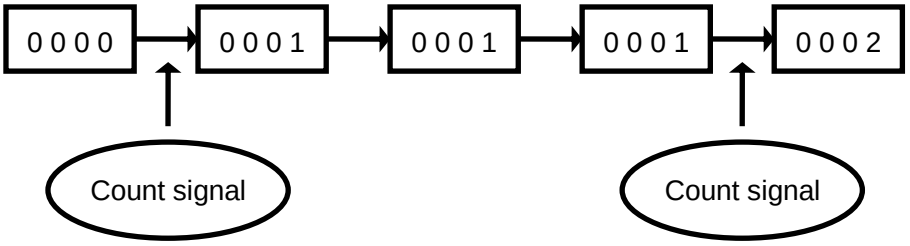
1. Overview

List of External Signal Functions

№	Function	Division	Content
1	External signal count	Input	Updates count.
2	External signal reset	Input	Changes print content of count item to predetermined content.
3	Switching print contents using external signal	Input	Reflects print data transmitted and temporarily held in printing.
4	Calling up print data by external signal	Input	Calls up print data.
5	Output during calendar updating	Output	Outputs signal when print contents are updated by calendar.
6	Output notifying completion of signal input	Output	Outputs signal when external signal is input.
7	External signal calendar stop	Input	Change the setting value of calendar time control in the screen of< Date/time setup >

1.1 External Signal Count

(1) The input of a parallel signal will update the count.

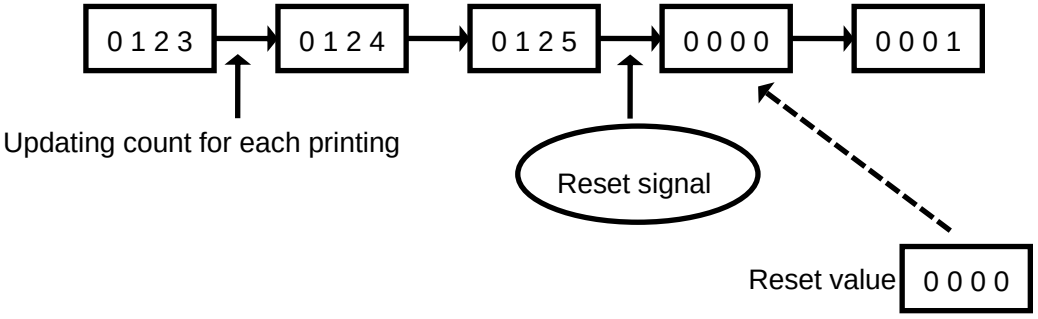


1.2 External Signal Reset

(1) The input of a parallel signal will change the print contents at count digit to a preset value (reset value), and simultaneously reset the ongoing count figures to zero.

(2) There are two reset signals, which can be selected for each print item.

(3) The external reset value can freely be set in units of print item.

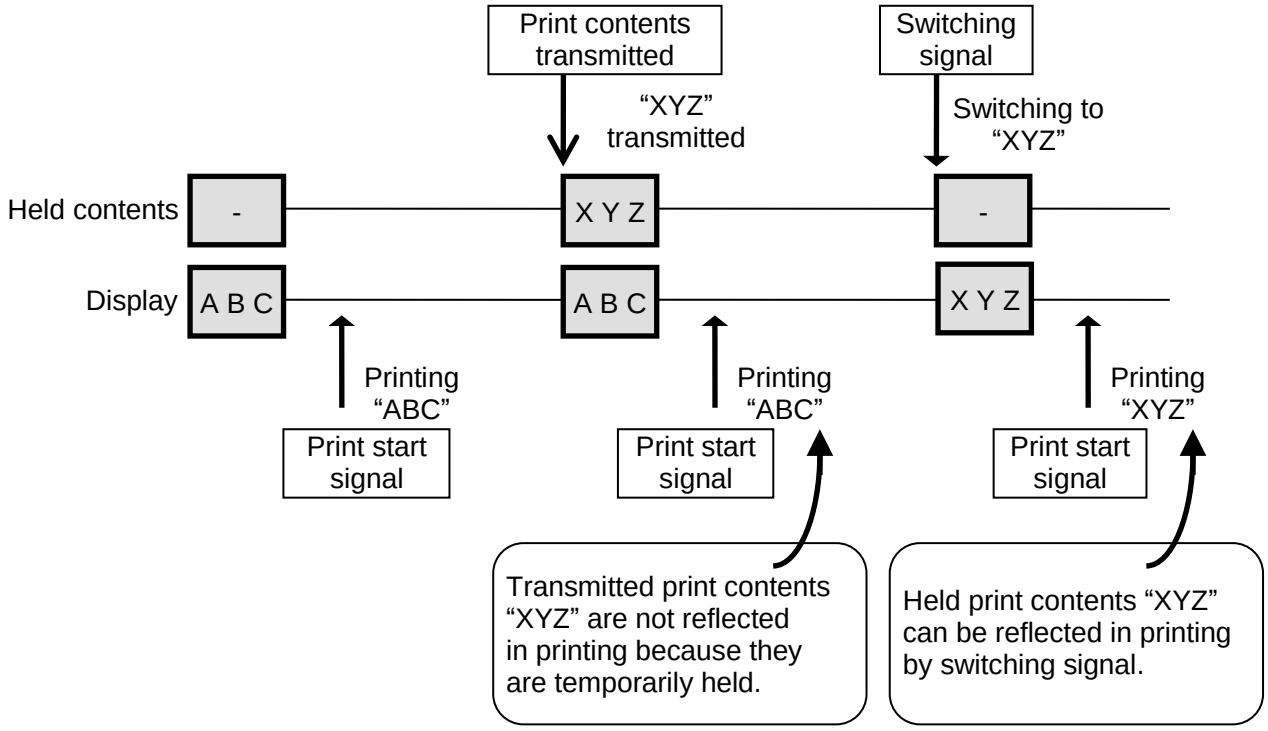


1.3 Switching Print Contents using External Signal

(1) This function reflects print contents that have previously been transmitted and then temporarily held in printing when parallel signal is input.

(2) Purposes of use

- When transmitting print contents to multiple IJ printers, it is necessary to individually transmit them to printers one by one, so switching of print contents will be random. This function allows operator to simultaneously supply external signal to IJ printers and switch print contents.
- Print contents are transmitted in advance regardless of printing process, and a signal will input when switching the print contents. The use of this function is effective for retries due to communication error, or when no transmission is possible between printings because the transfer rate is too low.



1.4 Calling up Print Data by External Signal

When an external signal is input, this function allows operator to call up previously registered print contents and print format and set them as print data.

1.5 Output during Calendar Updating

When IJ printer is in printable status and print contents are updated by calendar, a signal will be output to the terminal board of optional PCB (EZJ147).

1.6 Output Notifying Completion of Signal Input

When receiving external signal for count, reset, switching of print contents or data calling, a signal Wil be output to the terminal board of optional PCB (EZJ147).

1.7 External signal calendar stop

Change the status between <same as current time> and <clock stop> for [calendar time control] by status of external signal.

2. Explanation of Functions

2.1 External Signal Count

2.1.1 Function

(1) With any count block for which count conditions have been set, this function updates the count whenever an external signal is input.

(2) You can choose either updating count for each printing or using input of external signal, in units of count block.

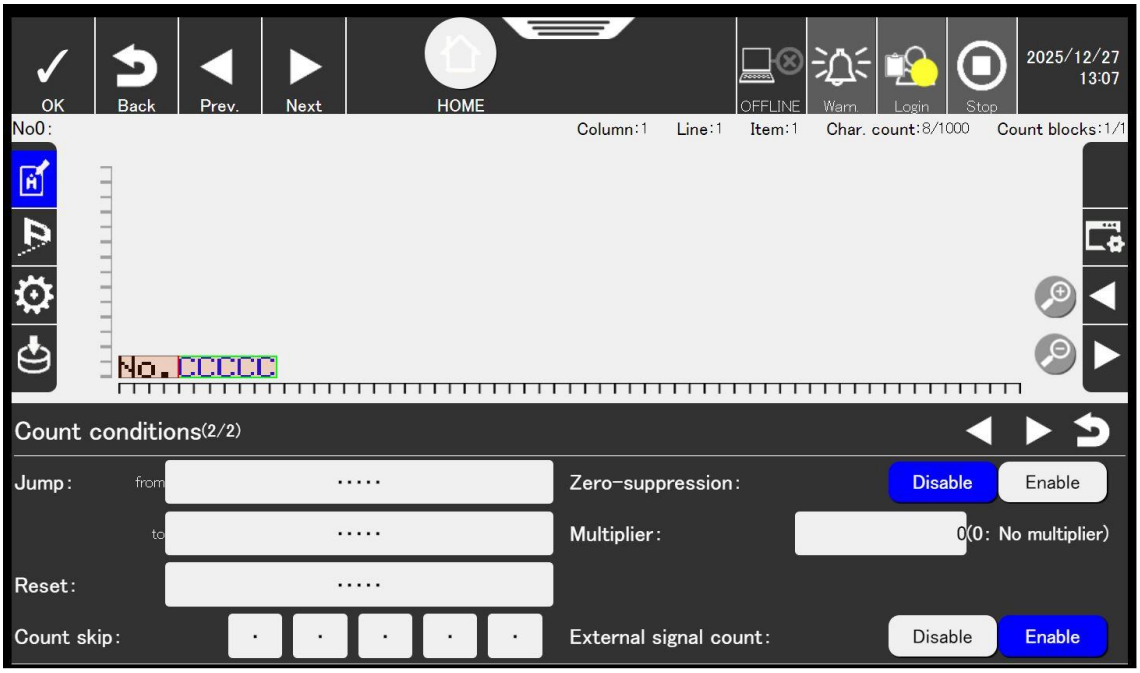
(3) The external signal count will function in online status: Note that the count remains in initial value; it is not updated in offline status.

2.1.2 Procedure

(1) Display the <Count conditions> screen, and touch the [4th screen] button.

(2) Choose the setting value for [External signal count].

- To update count using external signal: Choose [Enable].
- To update count for each printing: Choose [Disable].



(4) Set to the online status, and then input the signal whenever you want to update the count.

2.1.3 Notes

(1) To update the count each time the external signal is input, set the updating unit to “000001”.

(2) Refer to the instruction manual (4th chapter “Printing count characters”) for how to set the number of count digits, digit positions and count conditions (initial value, range, updating unit, direction, jump).

2.2 External Signal Reset

2.2.1 Function

(1) With a count block for which count conditions have been set, this function resets to the preset print content when external signal is input.

(2) You can specify whether or not you will use the reset function for each count block.

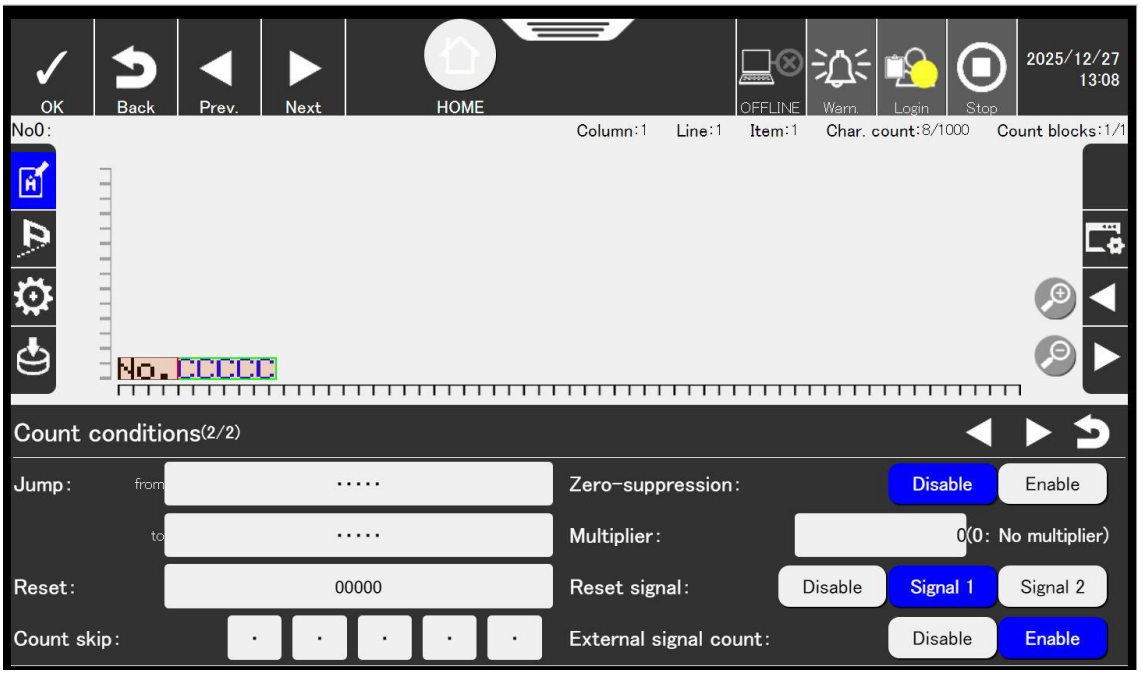
(3) Select from the two reset signals for each count block.

(4) The external signal reset will function only in online status: Note that reset is not possible in offline status.

（5） Reset function operates when <Count reset> button is pressed on print descriptions screen in offline status.

2.2.2 Procedure

(1) Display the second screen of <Count conditions>, and touch the [reset] button.



(2) Input the contents of reset in [Reset].

- When using external signal reset: Input the contents to be printed after reset.
- When not using external signal reset: Input [.] (Blank) for each digit.

(3) The selective option [Reset signal] will appear: Choose the type of signal you wish to use.

(4) Set to the online status, and then input the signal when you want a reset.

2.2.3 Note

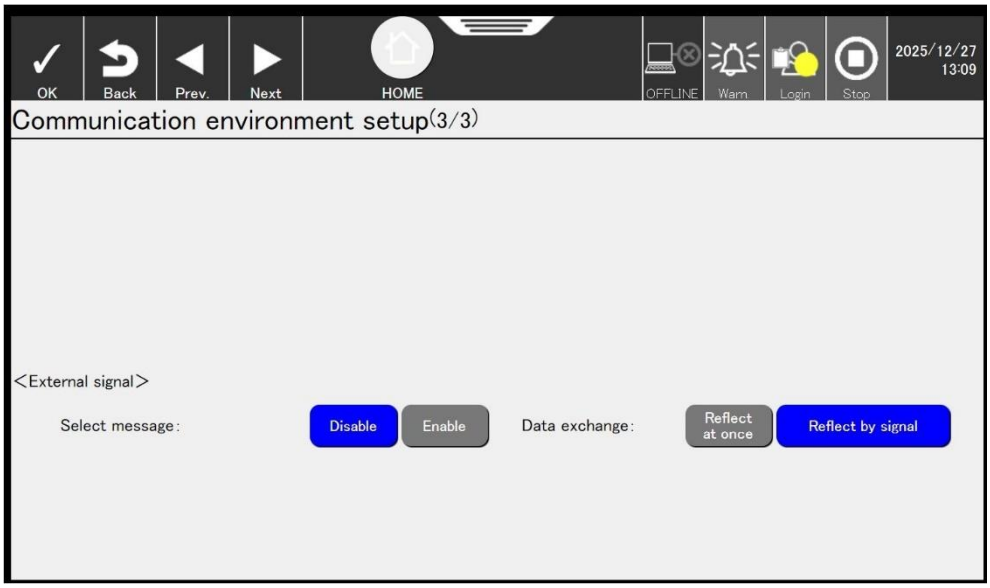
(1) When reset, the ongoing count figures in updating units will also be cleared to zero (0).

2.3 Switching Print Contents using External Signal

2.3.1 Procedure

(1) Setting communication environment

- Open the third screen of <Communication environment setup>, and set [Data exchange] to option [Reflect by signal].
- If [Reflect at once] is specified for [Data exchange] on the above screen, the transmitted print contents will immediately be reflected in printing (in the status where there is no print content switch option).



(2) Transmitting print contents

- Print contents are transmitted. The print content are temporarily held in printer and are not immediately reflected in printing or display.
- If multiple print items are switched with one switching signal, package them in one message. If multiple messages are used, multiple print items will not be reflected in printing of all of them together.

(3) Input of print content switching signal (parallel signal)

- When the print content switching signal is input, the held print contents will be reflected in printing and display.
- Each time the switching signal is input, a set of the oldest transmission contents will be reflected in printing.

2.3.2 Holding print contents

(1) Storable capacity

- Up to 100 transmitted print items (1000 digits in total) can be held. An alarm will be raised when it reached the capacity limit.

(2) Clearing held print contents

- If “print content switching clear” is transmitted, the print contents held in IJ printer will be cleared and no data will be left in memory.
- The held print contents will also be cleared in the following status:

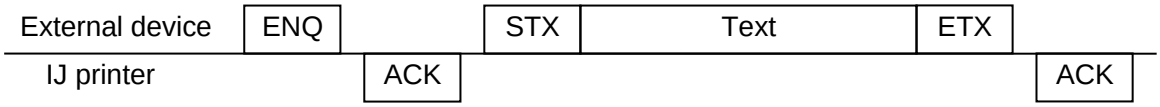
  ① With the <Communication env. setup> screen, [Reflect at once] is specified for [Data exchange].

  ② Set to the offline status.

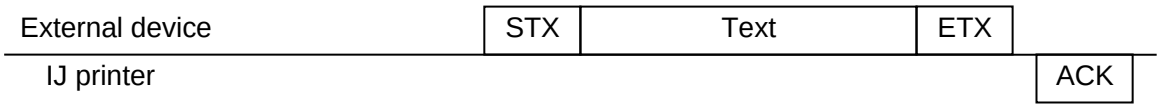
2.3.3 Transmission procedure

(1) Basic transmitting operation

(a) When ENQ and ACK are included

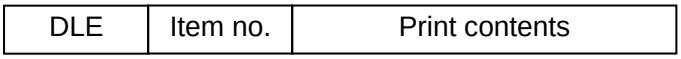


(b) When ENQ is skipped

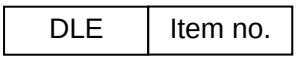


(2) Print content transmission text

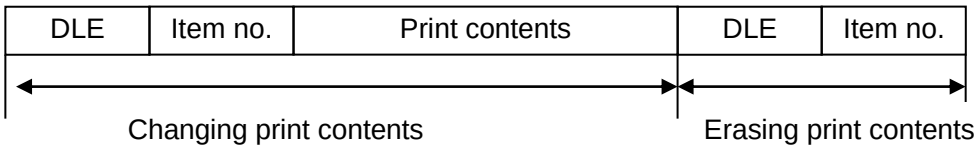
(a) Changing print contents



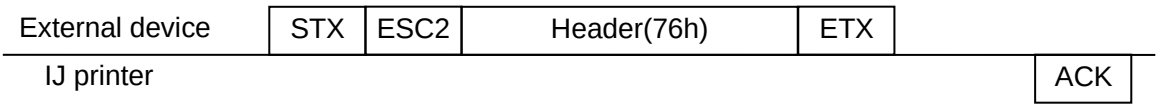
(b) Erasing print contents

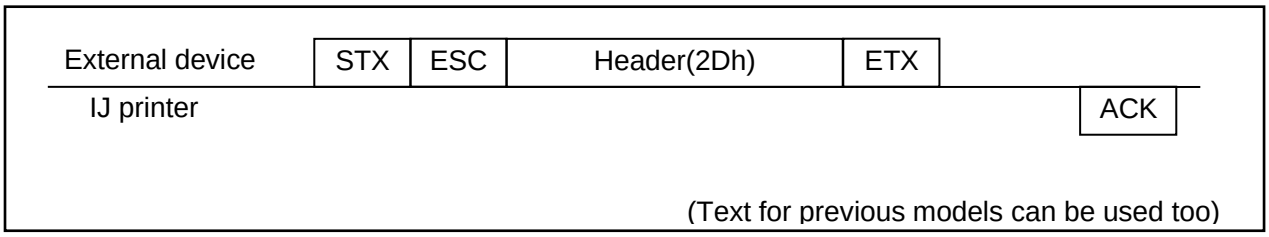


(c) Multiple items



(3) Clear the content of switching print contents





2.3.4 Cautions

(1) Do not call up print data while print content is being held. Always clear the hold buffer before calling up the print data. (This applies to all call-ups of print data, whether using key operation, communications or signal.)

(2) Maximum item numbers transmitted at one time is 8 print items (Maximum of 80 digits characters).

(3) Calendar and count characters cannot be used.

(4) When a text mixed with print format was received, print contents will not be reflected immediately but held. Print format will be reflected in printing immediately.

(5) Define user patterns at User pattern creation in advance. Undefined user patterns will be printed as a space.

2.4 Calling up Print Data using External Signal

2.4.1 Function

(1) Set the binary data signal that is identical to the message number of print data previously registered in data storage, to the terminal board (TB4) on EZJ147 PCB added in IJ printer, and then input a capture (strobe) signal: The registered data will automatically be called up and set as print data.

(2) The registration number signal consists of 12-line components (bits 0-11).

(3) Input external signal after setting the printer to online.

2.4.2 Signal names and functions

(1) Input signals (external device → IJ printer)

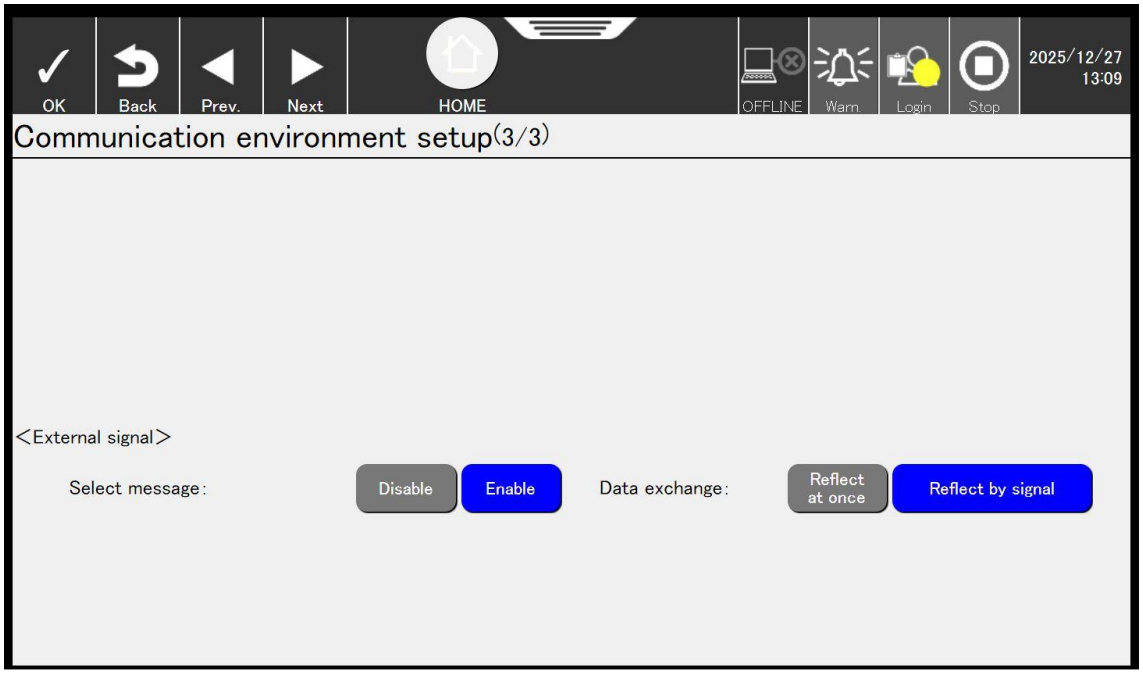
- After registration number is expressed in binary notation and input, the strobe signal is input: The registration number signals will be input.
- If registration number "0" or a value exceeding the maximum one is input, external signal error 003 will occur.

Terminal number	Signal name	Function
15	Strobe signal	To instruct input of message no. signal
16	Signal ground	−
17	Message no. signal bit 11	" Message no. 1" 000000000001 ↑ Bit11 side ↑ Bit 0 side " Message no. 2000" 011111010000 "0" indicates OFF; "1" indicates ON. When no signal is connected, "0" (OFF) is set.
18	Message no. signal bit 10	
19	Message no. signal bit 9	
20	Message no. signal bit 8	
21	Message no. signal bit 7	
22	Message no. signal bit 6	
23	Message no. signal bit 5	
24	Message no. signal bit 4	
25	Message no. signal bit 3	
26	Message no. signal bit 2	
27	Message no. signal bit 1	
28	Message no. signal bit 0	

2.4.3 Procedure

(1) Setting communication environment

Open the third screen of<Communication environment setup>, and set [Select message] to option [Enable].



Setting of [Select message] (data calling)

Disable: strobe signal will not be used (Data calling cannot be executed)

Enable: Input using strobe signal

2.5 Signal Output Functions

(Output during calendar updating, online output signal, signal notifying completion of signal input)

Names and Functions of Output Signals (external device ← IJ printer)

Terminal number	Signal name	Function
3	Signal during calendar updating	Outputs ON signal for 200 ms whenever print contents are updated by calendar in the print enable status.
2	Signal notifying completion of signal input	Outputs ON signal for 200 ms when external signal for count, reset, switching of print contents or data calling is input.
1	Signal ground	-

- Signals are output regardless of status being online or offline.

2.6 External Signal Calendar Stop

(1) This function allows to select the set value from “Same as current time” or “Clock stop” for “Calendar control “on the Date /time setup screen.

(2) When printing expiration date or the like using calendar function, if the calendar was stopped before 0 o’clock, the same contents as previous date can be printed even after past the 0 O’clock.

(3) Monitors input status of external signal and update the setting of calendar control according to the ON/OFF signal.

External Signal	Setting of calendar time control
OFF	1 : Same as current time
ON	2 : Clock stop

(4) Signal input

- Inputs to terminal board No.4 on EZJ147 board
- Judges status change of ON/OFF signal only during online.The setting of calendar time control does not change when signal was turned ON/OFF during offline.
- When data-call up is used (strobe signal instruct) the input of terminal board No.4 always monitors ON/OFF and judges status change regardless of strobe signal.

3. External Signals

3.1 Signal Inputs

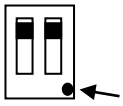
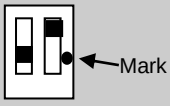
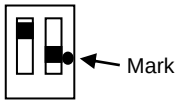
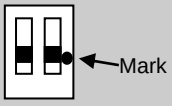
(1) Wiring

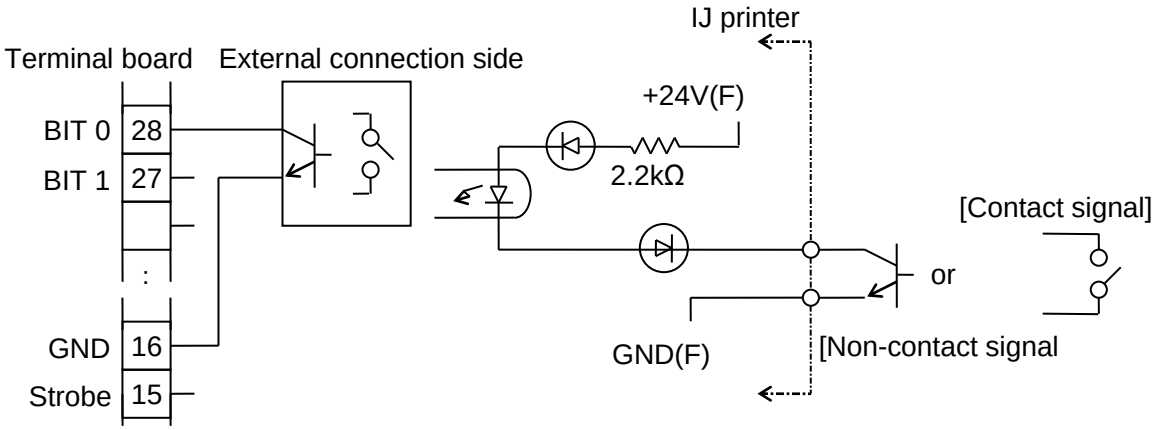
- Perform the wiring to IJ printer via terminal board TB4 on interface PCB (EZJ147) in printer as follows:

(a) NPN interface

Set the SW8 as follows for NPN I/F.

（Both bits are put on the up position at default setting: default setting is for NPN I/F)

	When the IJ Printer built-in power supply is used		When the dedicated power supply is used.	
	NPN I/F	PNP I/F	NPN I/F	PNP I/F
SW8	 Set both the bits to the upper position.	 Set the left bit to the bottom position.	 Set the right bit to the bottom position.	 Set both the bits to the bottom position

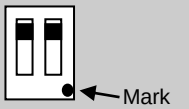
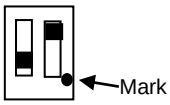
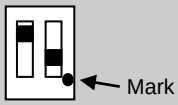
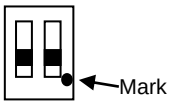


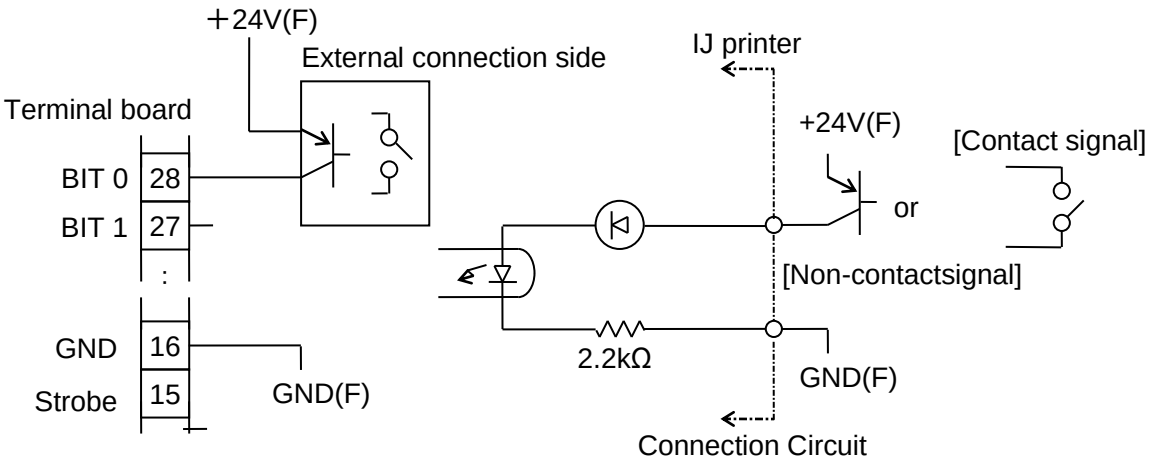
Connection Circuit

(b) PNP interface

Set the SW8 as follows for PNP I/F.

（Both bits are put on the up position at default setting: default setting is for NPN I/F)

	When the IJ Printer built-in power supply is used		When the dedicated power supply is used	
	NPN I/F	PNP I/F	NPN I/F	PNP I/F
SW8	 Set both the bits to the upper position.	 Set the left bit to the bottom position.	 Set the right bit to the bottom position.	 Set both the bits to the bottom position



(2) Input specifications

- With non-contact signal

Specifications of non-contact devices for signal inputs

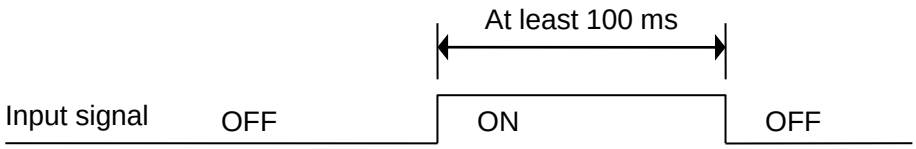
Item	Specification
Withstand voltage	At least 30 V DC
Load current	At least 12 mA DC
Leakage current	0.1 mA DC or less

- With contact signal

Use contacts with chatter only during on/off of 2.0 ms or less.

(3) Input judgment conditions

- Input is detected whenever input signal changes from OFF to ON.
- Continue the ON status for at least 100 ms. If the ON status time is too short, no signal input can be detected.
- Input is detected only during online.
- Input has nothing to do with status (print enable, standby, pause, etc.).



(4) Logic

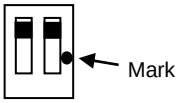
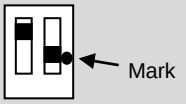
Contact format	Conditions for ON	Conditions for OFF
Non-contact signal	Non-contact device is ON	Non-contact device is OFF
Contact signal	Contact device is closed	Contact device is open

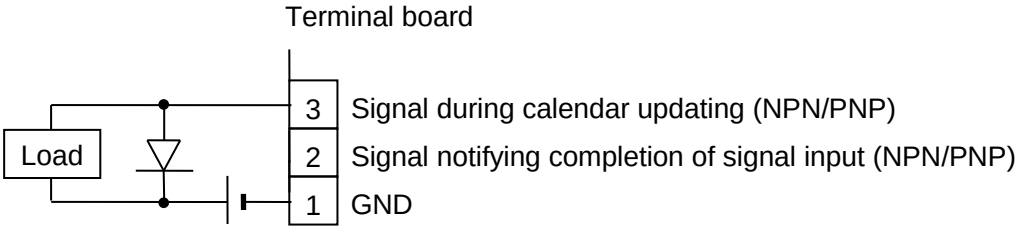
3.2 Signal Outputs

(1) Wiring

(a) NPN interface

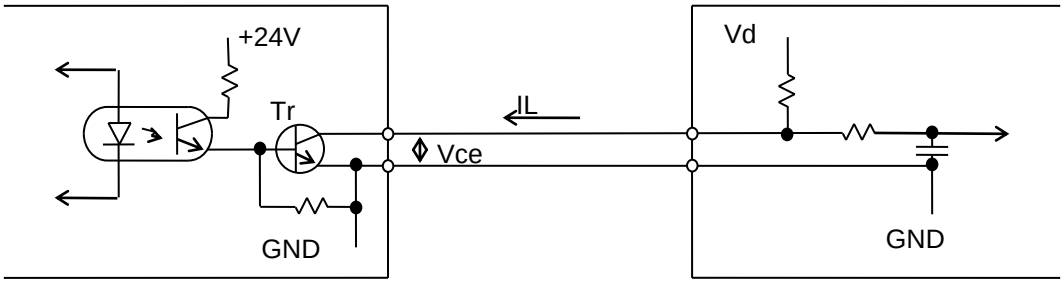
Set the SW7 as follows for NPN I/F.
(Both bits are put on the up position at default setting.)

	NPN I/F	PNP I/F
SW7	 Set both the bits to the upper position.	 Set the right bit to the bottom position.



- If induction load, such as a relay or solenoid is used, connect a diode to prevent counter-electromotive force in parallel with the load.
- Load circuit is exclusively used with DC: It cannot be used with AC load.

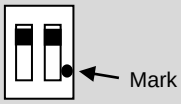
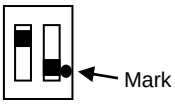
<Output specifications>



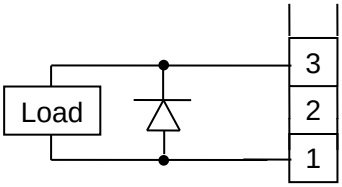
- Use voltage and current that meet the following specifications on external device:
  IL ≦20mA (Vce : TYP0.6V, MAX2V)
  Vd ≦DC30V

(b) PNP interface

Set the SW7 as follows for PNP I/F.
(Both bits are put on the up position at default setting.)

	NPN I/F	PNP I/F
SW7	 Set both the bits to the upper position.	 Set the right bit to the bottom position.

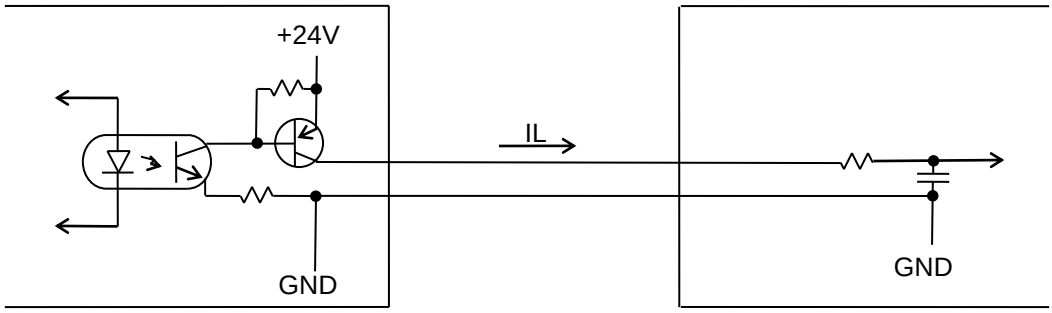
Terminal board



Signal during calendar updating (NPN/PNP)
Signal notifying completion of signal input (NPN/PNP)
GND

- If induction load, such as a relay or solenoid is used, connect a diode to prevent counter-electromotive force in parallel with the load.
- Load circuit is exclusively used with DC: It cannot be used with AC load.

<Output specifications>



- Use voltage and current that meet the following specifications on external device:
  IL ≦10mA (Vce : TYP0.6V, MAX2V)
  R ≧2.2kΩ Withstand voltage
  50 VDC or greater (Twice or more of used voltage)

3.3 Concurrent Use of Data Calling and Other Functions

(1) If “Select message (data calling): Enable” is specified on the Communication environment setup screen, data calling will be possible. With this setting, use other external signal functions (count, etc.), following the procedure below.

(2) For input of external signal, input the strobe signal after receiving specified components in registration number bits.

Signal Bit Specifications

NO.	bit												Signal
	11	10	9	8	7	6	5	4	3	2	1	0	
2049	1	0	0	0	0	0	0	0	0	0	0	1	Print content switching signal
2050	1	0	0	0	0	0	0	0	0	0	1	0	External count signal
2052	1	0	0	0	0	0	0	0	0	1	0	0	External reset signal 1
2064	1	0	0	0	0	0	0	1	0	0	0	0	External reset signal 2

0: OFF status; 1: ON status

4. EZJ147 PCB

(1) Input/output signal terminal board (TB3,TB4)

Terminal No.		Input/ Output	Communication environment setup “Select message” :Disable	Communication environment setup “Select message” : Enable	
			No strobe	Strobe signal input	
			In modes other than data calling	In modes other than data calling	During data calling
TB3	1	-	signal ground	signal ground	signal ground
	2	Output	Signal notifying Completion of signal input (NPN/PNP interface)	Signal notifying Completion of signal input (NPN/PNP interface)	Signal notifying Completion of signal input (NPN/PNP interface)
	3	Output	Signal during calendar Updating (NPN/PNP interface)	Signal during calendar Updating (NPN/PNP interface)	Signal during calendar Updating (NPN/PNP interface)
	4	Input	Calendar stop /Reserve input	Calendar stop /Reserve input	Calendar stop /Reserve input
	5	-	Reserve signal ground	Reserve signal ground	Reserve signal ground
	6	Input	Reserve	Reserve	Reserve
	7	Input	Reserve	Reserve	Reserve
	8	Input	Reserve	Reserve	Reserve
	9	Input	Reserve	Reserve	Reserve
	10	Output	Power supply /External power supply (DC24V)	Power supply /External power supply (DC24V)	Power supply /External power supply (DC24V)
	11	-	Reserve	Reserve	Reserve
	12	Reserve	Reserve	Reserve	Reserve
	13	-	Reserve	Reserve	Reserve
	14	-	signal ground	signal ground	signal ground
TB4	15	Input	Reserve	Strobe signal	Strobe signal
	16	-	signal ground	signal ground	signal ground
	17	Input	Reserve	Message no. signal bit 11	Print content switching Signal*, ,Count signal*, Reset signal 1*, Reset signal 2*, * Refer to (2) Concurrent Use of Data Calling and Other Functions” for allocation of signal bit
	18	Input	Reserve	Message no. signal bit 10	
	19	Input	Reserve	Message no. signal bit 9	
	20	Input	Reserve	Message no. signal bit 8	
	21	Input	Reserve	Message no. signal bit 7	
	22	Input	Reserve	Message no. signal bit 6	
	23	Input	Reserve	Message no. signal bit 5	
	24	Input	Reset signal 2	Message no. signal bit 4	
	25	Input	Reserve	Message no. signal bit 3	
	26	Input	Reset signal 1	Message no. signal bit 2	
	27	Input	Count signal	Message no. signal bit 1	
	28	Input	Print content switching signal	Message no. signal bit 0	
	29	-	signal ground	signal ground	signal ground

(2) Concurrent Use of Data Calling and Other Functions

(1) If “Select message (data calling): Enable” is specified on the Communication environment setup screen, data calling will be possible. With this setting, use other external signal functions (count, etc.), following the procedure below.

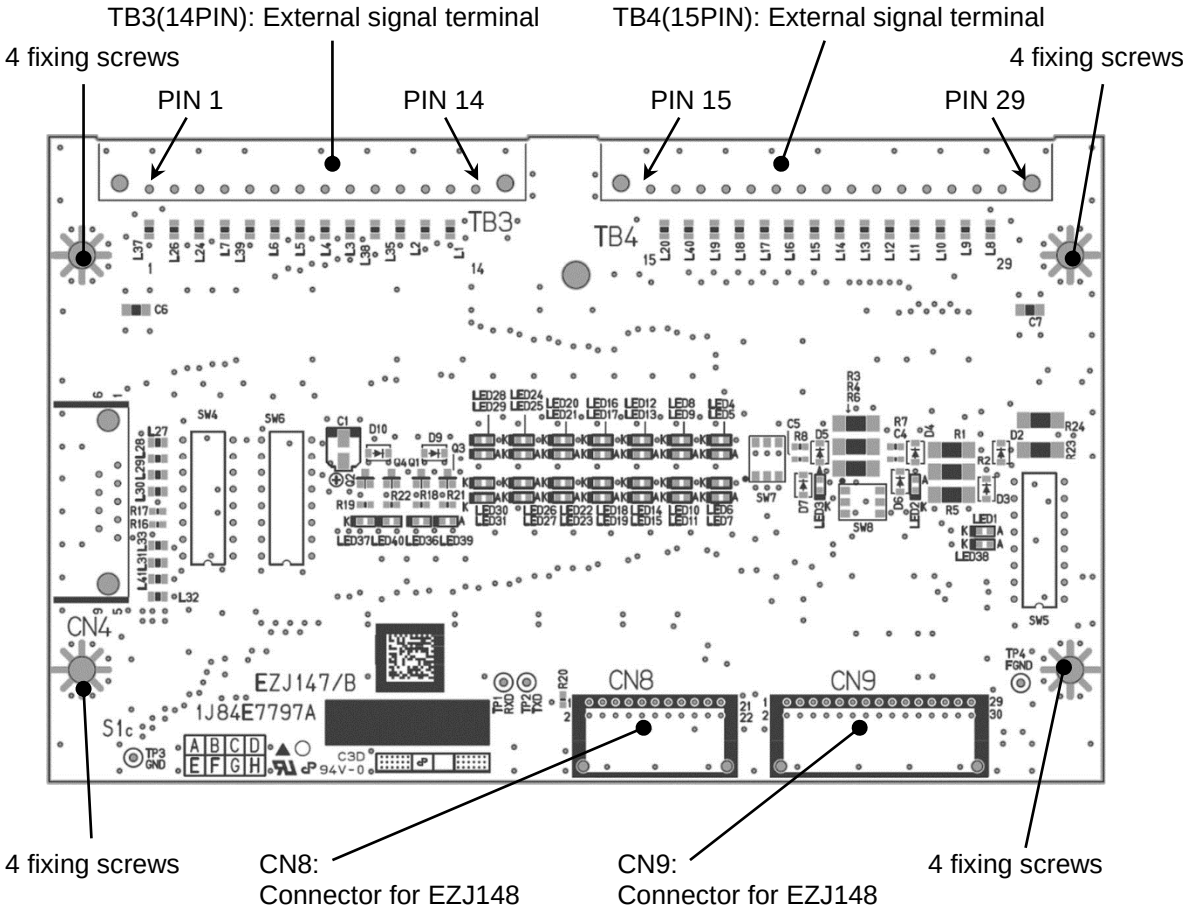
(2) For input of external signal, input the strobe signal after receiving specified components in registration number bits.

Signal Bit Specifications

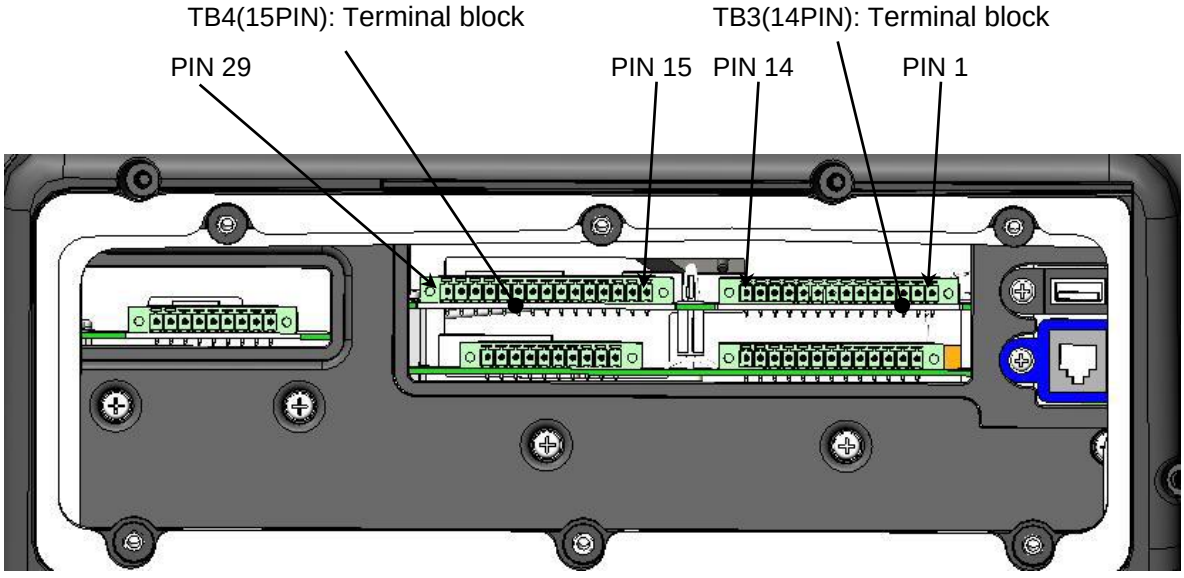
NO.	bit												Signal
	11	10	9	8	7	6	5	4	3	2	1	0	
2049	1	0	0	0	0	0	0	0	0	0	0	1	Print content switching signal
2050	1	0	0	0	0	0	0	0	0	0	1	0	External count signal
2052	1	0	0	0	0	0	0	0	0	1	0	0	External reset signal 1
2064	1	0	0	0	0	0	0	1	0	0	0	0	External reset signal 2

0: OFF status; 1: ON status

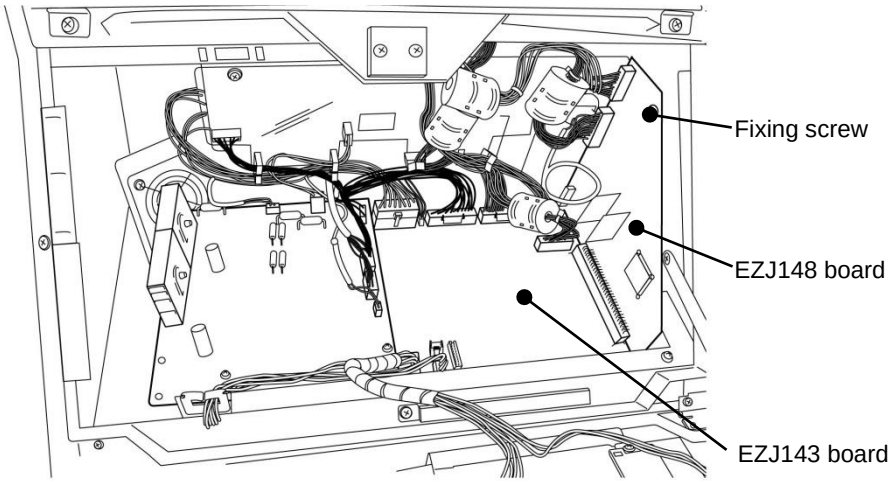
EZJ147 PCB Terminal Allocations

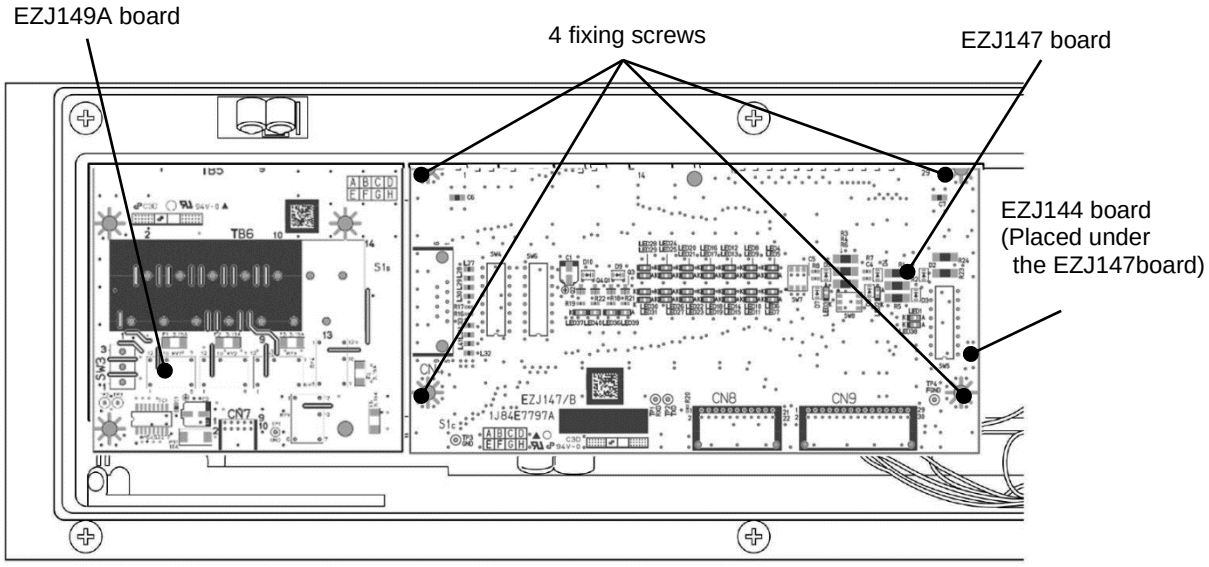


EZJ147 PCB Terminal Allocations



(2) EZJ147, EZJ 148 PCB location diagrams





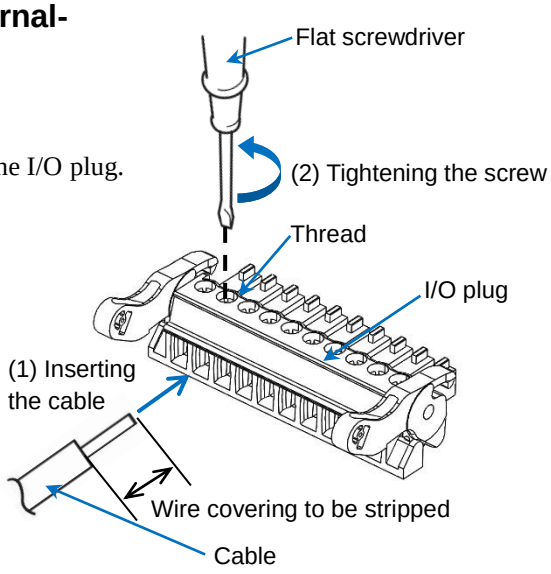
-About the usage of Pin terminal TB3, TB4 for external-

(1) Swage method

Applicable cable size: AWG24 to 16 (φ0.5 to 1.3)

Wire covering to be stripped: 8 to 9 mm

- Insert the stripped part of the wire covering into the pin of the I/O plug.
- Tighten the screw on the top of the pin to secure the cable.

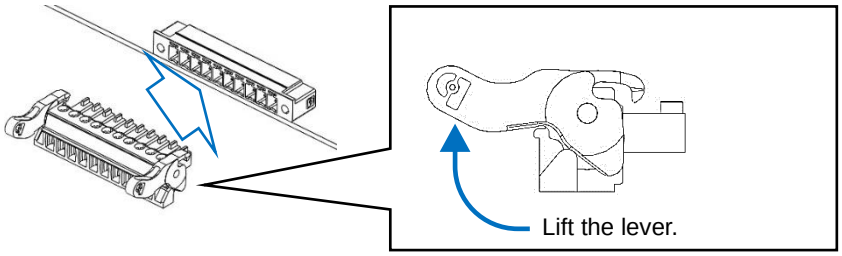


(2) Method for connecting to and removing from the terminal block

- Connecting the I/O plug

  Be sure to keep up the lever, insert the plug into the terminal block.

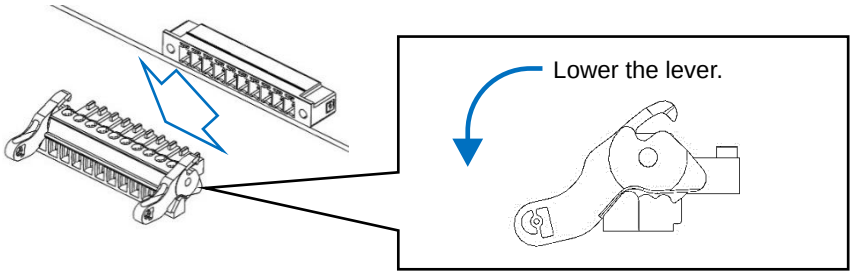
  Make sure that the I/O plug is securely inserted into the terminal block and that the left and right levers are locked on the protrusions of the terminal block.



- Removing the I/O plug

  You can remove the plug by lowering the lever.

  If it is difficult to remove, lower the left and right levers alternately little by little.

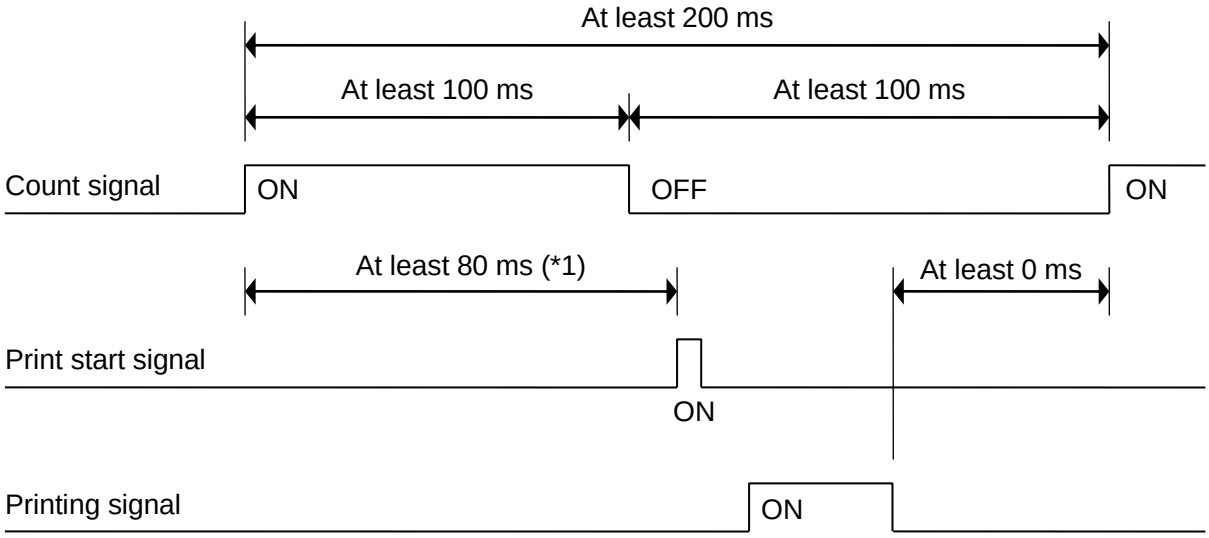


Safety Precautions

- Be sure to turn power off before removing or reinstalling the EZJ147,148 PCB:
  Neglecting this could cause a short-circuit, which could result in damage to the PCB.
- Be sure to turn power off before doing any wiring to input/output signal terminal board (TB3, TB4):
  Neglecting this could cause a short-circuit, which could result in damage to the PCB.
- Never open the panel during operation:
  Doing so could cause malfunctions due to static electricity.

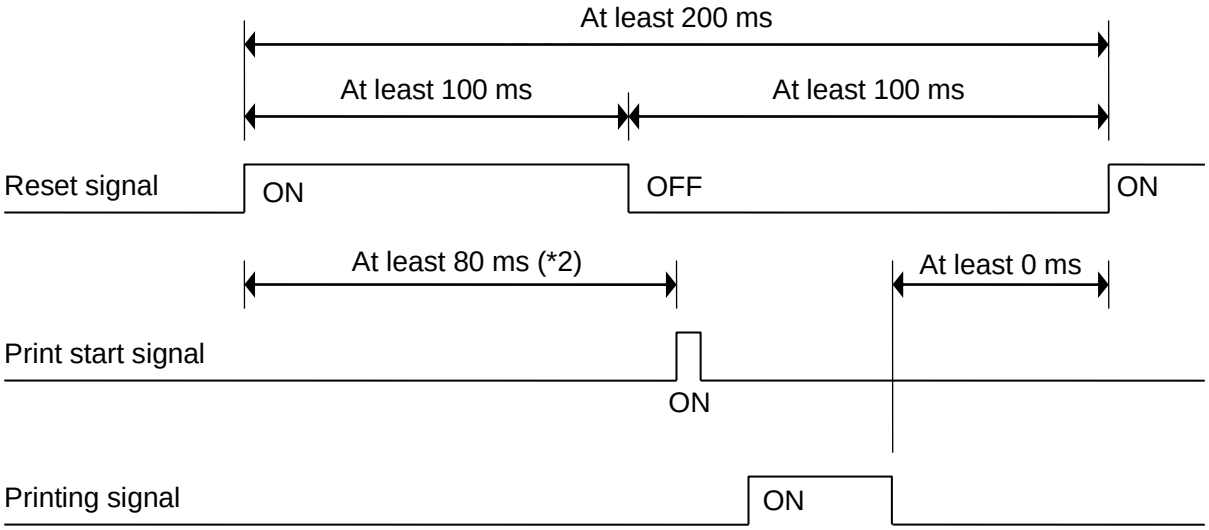
5. Input / Output Timing

5.1 Count Signal



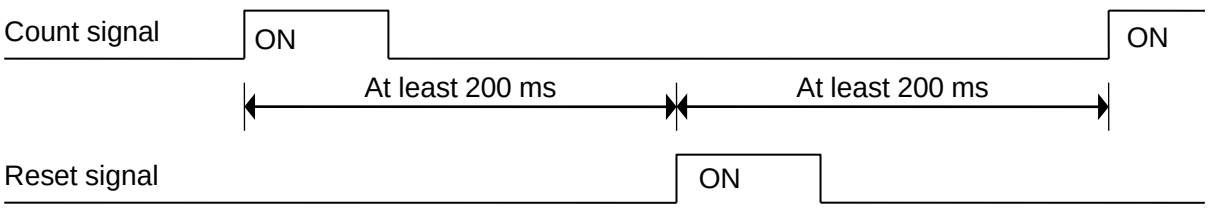
(*1) Using the strobe system enables shortening of by 30ms.

5.2 Reset Signal

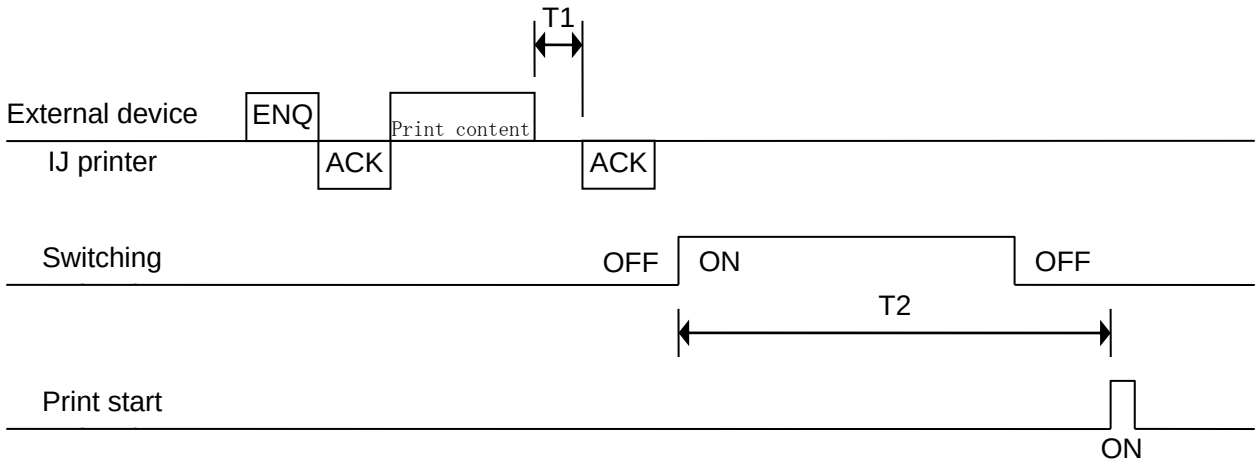


(*2) Using the strobe system enables shortening of by 30ms.

Simultaneous count signal and reset signal:



5.3 Switching Print Contents



(1) Time until IJ printer answers after ETX of print contents is transmitted (T1)

T1(ms)	
Within 24 items	25 items or more
20	55

(2) Time until print start signal can be input after print content switching signal has been input (T2)

T2 (ms)	
Within 24 items	25 items or more
N/10+95	N/10+145

N : Number of printing characters

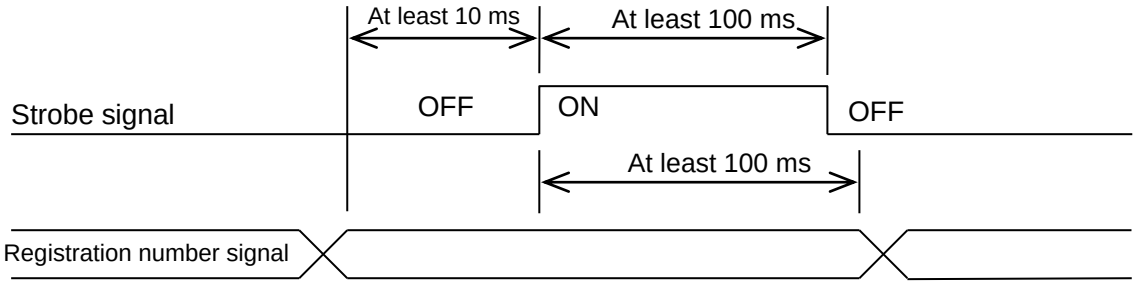
- If time T2 is too short, error will occur.
- Using the strobe system enables shortening of T2 by 30 ms.
- If a switching signal is input during printing, input the print start signal once T2 elapses after printing is completed.

(3) Allow an interval of at least 1 second for input of switching signal.

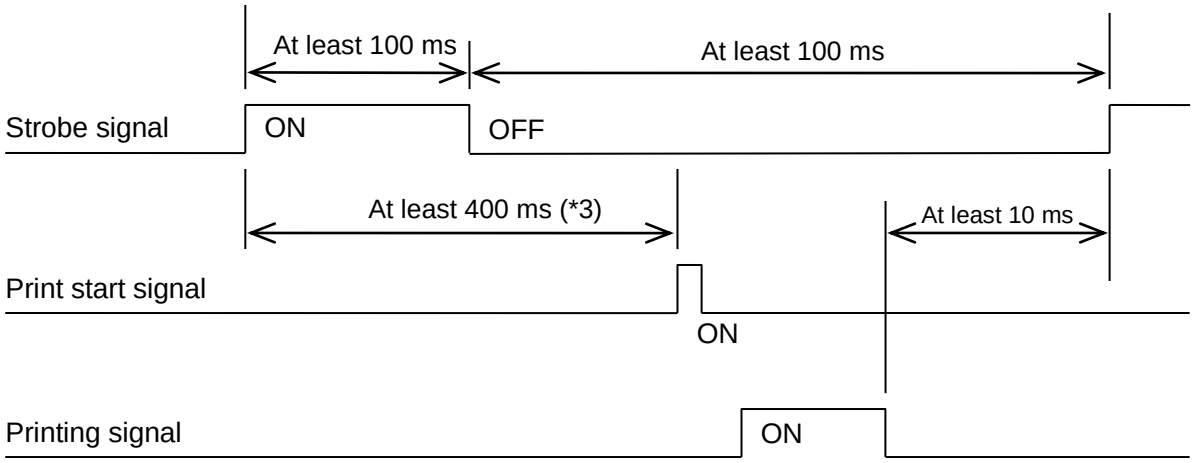
5.4 Calling Data

(1) Input of registration number signal

- When the strobe signal changes from OFF to ON, the registration number signal will be input.



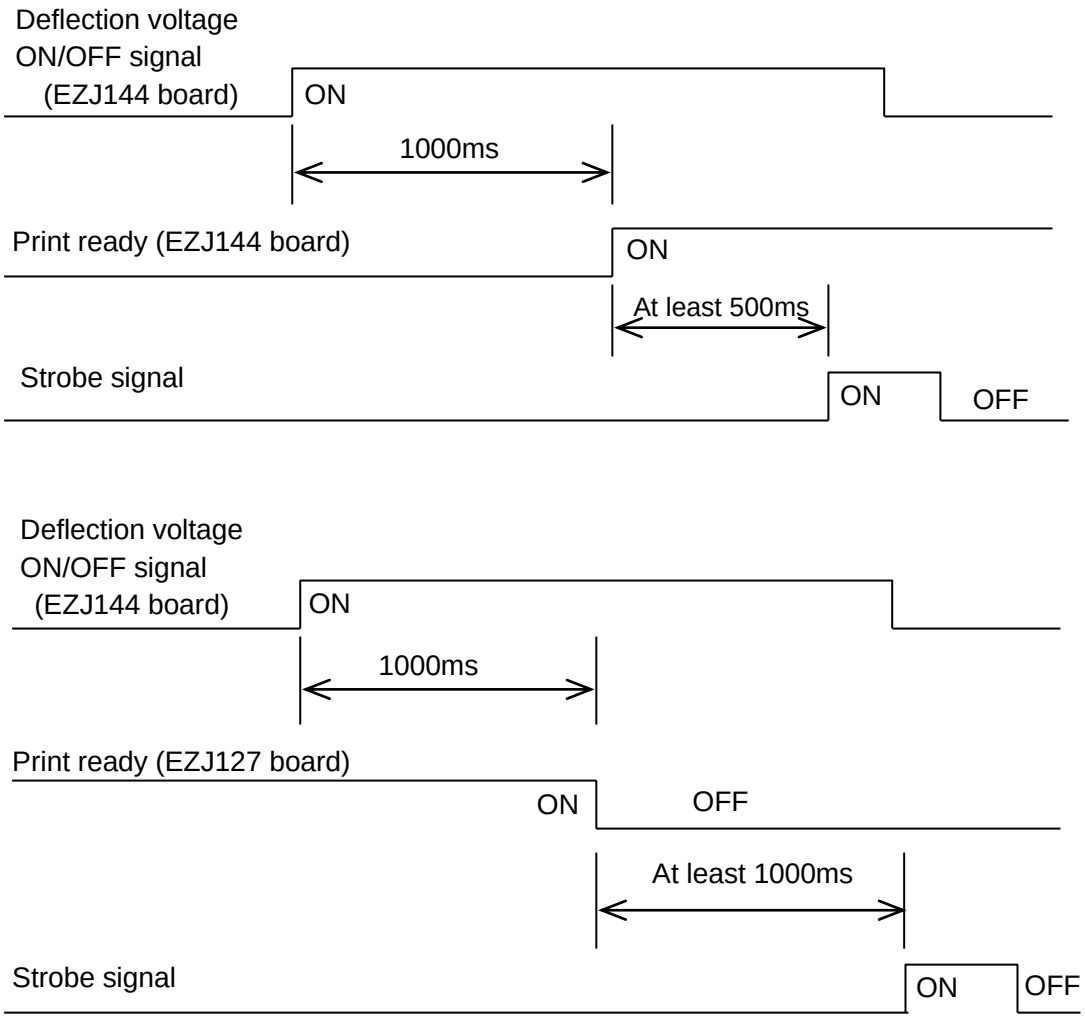
(2) Relationship between strobe signal and print start signal



- Input the strobe signal after printer is set to the online status.
- Do not input print start signal during switching process of print data: Doing so could cause an error.
- When data calling is used together with external communication (print content output, etc.) function, do not input a strobe signal unless ACK is returned from external device.
  If strobe signal is input when ACK is not returned form external device, IJ printer will detect the input of strobe signal only after ACK is returned.

(*3) Before or after data calling, if character size, character width, character orientation, repeat count, Ink drop use percentage setting or print format has not been changed, print start can be input at 40ms.

(3) Strobe signal and Deflection voltage ON/OFF signal



To change the status of IJ Printer from Standby to Print ready or the reverse sequence, turn on the strobe signal after 500ms or longer the Deflection signal (TB1-10pin of EZJ144) was turned ON, after 1000ms or longer the signal is turned OFF.

An error may occur if strobe signal is turned on at the timing shorter than mentioned above.

(4) To control the display by touch screen

- To change the IJ Printer status by handling the display by touch screen, do not turn ON the strobe signal.

Example of change of IJ Printer status

① Press <Standby> in Print ready status to change the status to Standby

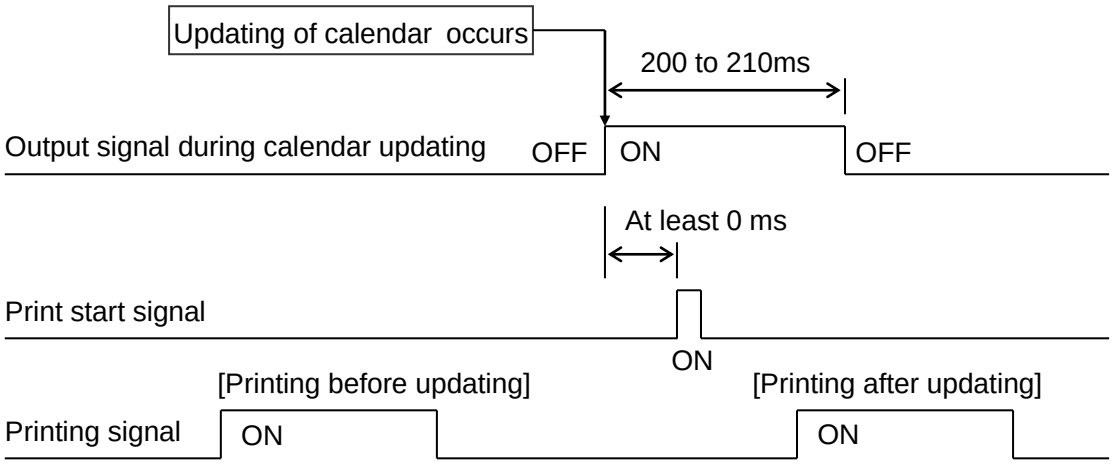
② Press <Stop> in Print ready status to change the status to stop

- Please be cautious as an error may occur if the status of IJ Printer was changed while Strobe signal was turned ON.

5.5 Output Signals

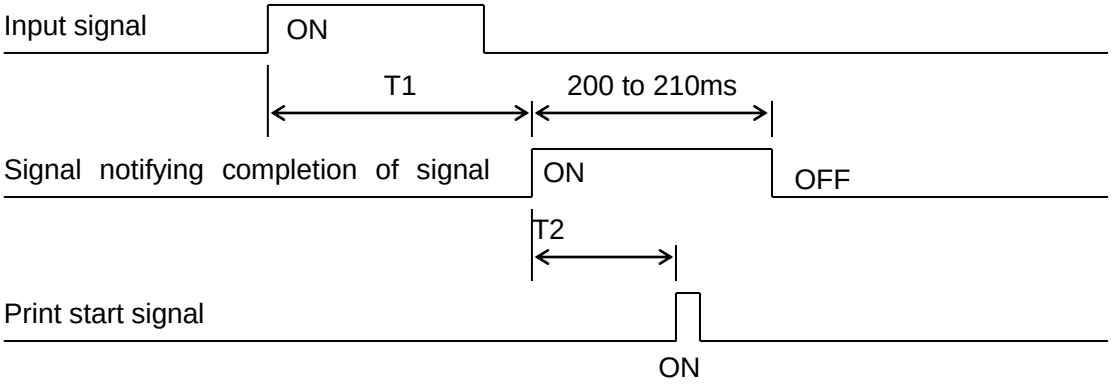
(1) Output during calendar updating

- When updating of calendar occurs in the print enable status, the ON signal will be output from 200 ms.



(2) Signal notifying completion of signal input

- The ON signal will be output for 200 ms whenever external signal for count, reset, switching of print contents or data calling is input.
- If a new input signal is detected during output notifying completion of signal input, the output will be interrupted.



Response Times

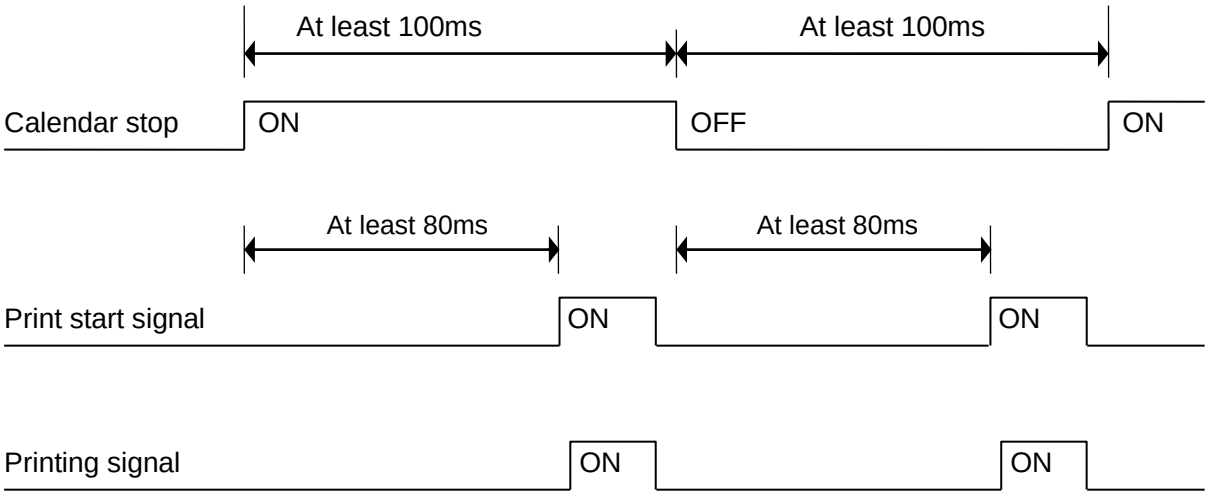
Item		T1(ms)	T2(ms)
Count signal		15	55
Reset signal		15	55
Print content switching signal	Within 24 items	15	N/10+55
	25 items or more	70	N/10+105
Data calling		15	400

N: Number of printing characters

- The above response times are for reference: They will slightly increase or decrease depending on various conditions.
- T1 will increase by 40 ms for systems that do not use a strobe signal.

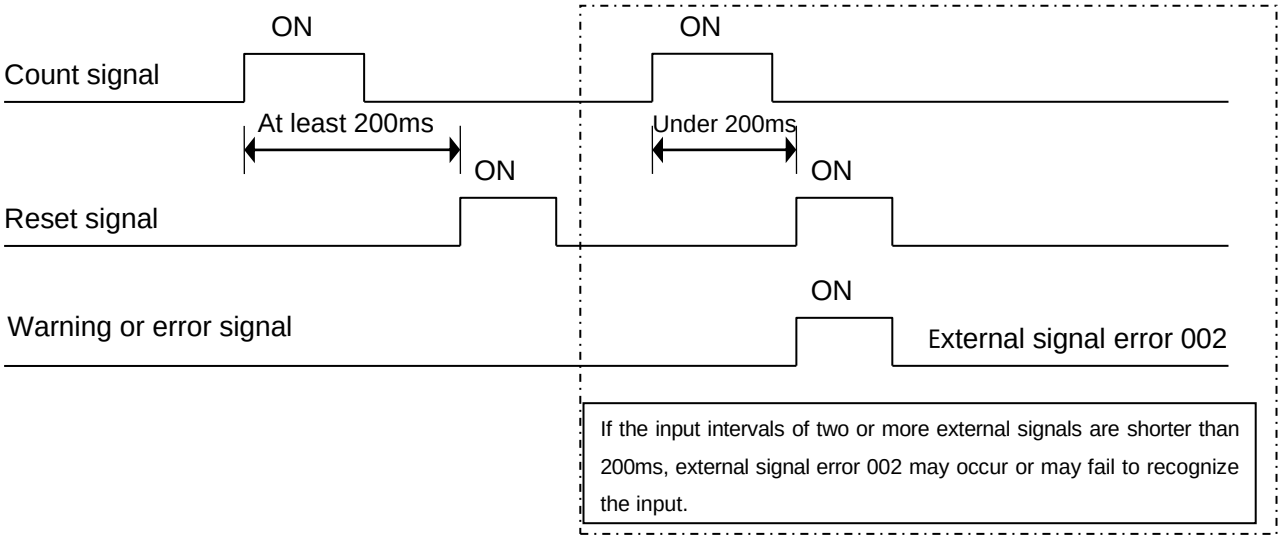
5.6 External signal calendar stop

When call-up data (Strobe signal instruct) is used, the input of TB3-4pin constantly monitors ON/OFF status regardless of strobe signal.



5.7 Caution of the complex external signals

When complex signal of more than 2 signals such as count signal or reset signal are input, make the interval of signal input 200ms or longer. If the external signal was turned ON when earlier than 200ms, external signal error 002 may occur or may fail to recognize the input.



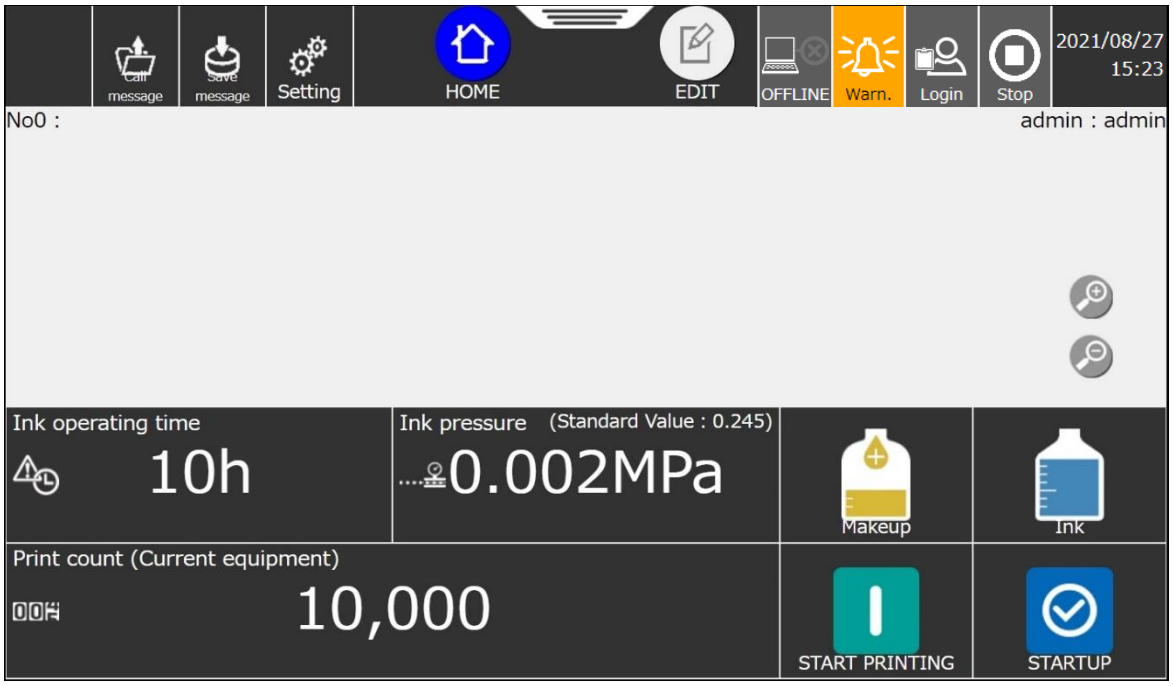
Example of complex input of count and reset signal

6. Warning Messages

(1) If error occurs in communication or signal, a warning message will appear under the status display area.

(2) Check the content of error and take corrective action corresponding to error code.

(3) Even when external communication error or external signal error has occurred, error will be released if normal communication or signal input is performed.



External Communication Error Code Table

Identification	Content	Check item
Print content switching receive error (external communication error 028)	The capacity of buffer for print content switching was exceeded.	Print contents have been transmitted before switching signal was input: Input switching signal or clear the held data.
Print content switching receive error (external communication error 030)	Received print items exceeded 9 items or received content exceeded 81 character s in one item	Check the content of input signal

See the Instruction Manual for other external communication errors.

External Signal Error Code Table

Identification	Content	Check item
Print content Switching signal error (external signal error 001)	(1) No print content is held. (2) An attempt to switch to next printcontent was made even though previous print contents had not been printed. (Communication mode: Overwrite-protected) (3) When print data was called up, the held content included a character that could not be input using the character size of the called up print data.	(1) Switching signal has been input with no print content being transmitted. (2) In Overwrite-protected mode, switching signal was input before printing. (3) The print data was called up while the print content was being held.
Message no. signal error (external signal error 002)	(1) Signal has been input during switching of called up print data. (2) Strobe signal is chattering. (3) Complex external signals have been input at the same time.	Check the content of input signal and input timing.
Undefined signal input error (external signal error 003)	(1) Print data corresponding to input signal has not been registered. (2) Undefined signal has been input. (Error in code of signal related to software option other than external signal data calling)	Check the content of input signal.

7. Correspondence of Registration No. and Store code signal

Reg. No	Store code signal bit												Note	Reg. No.	Store code signal bit											Note
	11	10	9	8	7	6	5	4	3	2	1	0			11	10	9	8	7	6	5	4	3	2	1	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	N/A														
1	0	0	0	0	0	0	0	0	0	0	0	1		61	0	0	0	0	0	0	1	1	1	1	0	1	
2	0	0	0	0	0	0	0	0	0	0	1	0		62	0	0	0	0	0	0	1	1	1	1	1	0	
3	0	0	0	0	0	0	0	0	0	0	1	1		63	0	0	0	0	0	0	1	1	1	1	1	1	
4	0	0	0	0	0	0	0	0	0	1	0	0		64	0	0	0	0	0	1	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	1	0	1		65	0	0	0	0	0	1	0	0	0	0	0	1	
6	0	0	0	0	0	0	0	0	0	1	1	0		66	0	0	0	0	0	1	0	0	0	0	1	0	
7	0	0	0	0	0	0	0	0	0	1	1	1		67	0	0	0	0	0	1	0	0	0	0	1	1	
8	0	0	0	0	0	0	0	0	1	0	0	0		68	0	0	0	0	0	1	0	0	0	1	0	0	
9	0	0	0	0	0	0	0	0	1	0	0	1		69	0	0	0	0	0	1	0	0	0	1	0	1	
10	0	0	0	0	0	0	0	0	1	0	1	0		70	0	0	0	0	0	1	0	0	0	1	1	0	
11	0	0	0	0	0	0	0	0	1	0	1	1		71	0	0	0	0	0	1	0	0	0	1	1	1	
12	0	0	0	0	0	0	0	0	1	1	0	0		72	0	0	0	0	0	1	0	0	1	0	0	0	
13	0	0	0	0	0	0	0	0	1	1	0	1		73	0	0	0	0	0	1	0	0	1	0	0	1	
14	0	0	0	0	0	0	0	0	1	1	1	0		74	0	0	0	0	0	1	0	0	1	0	1	0	
15	0	0	0	0	0	0	0	0	1	1	1	1		75	0	0	0	0	0	1	0	0	1	0	1	1	
16	0	0	0	0	0	0	0	1	0	0	0	0		76	0	0	0	0	0	1	0	0	1	1	0	0	
17	0	0	0	0	0	0	0	1	0	0	0	1		77	0	0	0	0	0	1	0	0	1	1	0	1	
18	0	0	0	0	0	0	0	1	0	0	1	0		78	0	0	0	0	0	1	0	0	1	1	1	0	
19	0	0	0	0	0	0	0	1	0	0	1	1		79	0	0	0	0	0	1	0	0	1	1	1	1	
20	0	0	0	0	0	0	0	1	0	1	0	0		80	0	0	0	0	0	1	0	1	0	0	0	0	
21	0	0	0	0	0	0	0	1	0	1	0	1		81	0	0	0	0	0	1	0	1	0	0	0	1	
22	0	0	0	0	0	0	0	1	0	1	1	0		82	0	0	0	0	0	1	0	1	0	0	1	0	
23	0	0	0	0	0	0	0	1	0	1	1	1		83	0	0	0	0	0	1	0	1	0	0	1	1	
24	0	0	0	0	0	0	0	1	1	0	0	0		84	0	0	0	0	0	1	0	1	0	1	0	0	
25	0	0	0	0	0	0	0	1	1	0	0	1		85	0	0	0	0	0	1	0	1	0	1	0	1	
26	0	0	0	0	0	0	0	1	1	0	1	0		86	0	0	0	0	0	1	0	1	0	1	1	0	
27	0	0	0	0	0	0	0	1	1	0	1	1		87	0	0	0	0	0	1	0	1	0	1	1	1	
28	0	0	0	0	0	0	0	1	1	1	0	0		88	0	0	0	0	0	1	0	1	1	0	0	0	
29	0	0	0	0	0	0	0	1	1	1	0	1		89	0	0	0	0	0	1	0	1	1	0	0	1	
30	0	0	0	0	0	0	0	1	1	1	1	0		90	0	0	0	0	0	1	0	1	1	0	1	0	
31	0	0	0	0	0	0	0	1	1	1	1	1		91	0	0	0	0	0	1	0	1	1	0	1	1	
32	0	0	0	0	0	0	1	0	0	0	0	0		92	0	0	0	0	0	1	0	1	1	1	0	0	
33	0	0	0	0	0	0	1	0	0	0	0	1		93	0	0	0	0	0	1	0	1	1	1	0	1	
34	0	0	0	0	0	0	1	0	0	0	1	0		94	0	0	0	0	0	1	0	1	1	1	1	0	
35	0	0	0	0	0	0	1	0	0	0	1	1		95	0	0	0	0	0	1	0	1	1	1	1	1	
36	0	0	0	0	0	0	1	0	0	1	0	0		96	0	0	0	0	0	1	1	0	0	0	0	0	
37	0	0	0	0	0	0	1	0	0	1	0	1		97	0	0	0	0	0	1	1	0	0	0	0	1	
38	0	0	0	0	0	0	1	0	0	1	1	0		98	0	0	0	0	0	1	1	0	0	0	1	0	
39	0	0	0	0	0	0	1	0	0	1	1	1		99	0	0	0	0	0	1	1	0	0	0	1	1	
40	0	0	0	0	0	0	1	0	1	0	0	0		100	0	0	0	0	0	1	1	0	0	1	0	0	
41	0	0	0	0	0	0	1	0	1	0	0	1		101	0	0	0	0	0	1	1	0	0	1	0	1	
42	0	0	0	0	0	0	1	0	1	0	1	0		102	0	0	0	0	0	1	1	0	0	1	1	0	
43	0	0	0	0	0	0	1	0	1	0	1	1		103	0	0	0	0	0	1	1	0	0	1	1	1	
44	0	0	0	0	0	0	1	0	1	1	0	0		104	0	0	0	0	0	1	1	0	1	0	0	0	
45	0	0	0	0	0	0	1	0	1	1	0	1		105	0	0	0	0	0	1	1	0	1	0	0	1	
46	0	0	0	0	0	0	1	0	1	1	1	0		106	0	0	0	0	0	1	1	0	1	0	1	0	
47	0	0	0	0	0	0	1	0	1	1	1	1		107	0	0	0	0	0	1	1	0	1	0	1	1	
48	0	0	0	0	0	0	1	1	0	0	0	0		108	0	0	0	0	0	1	1	0	1	1	0	0	
49	0	0	0	0	0	0	1	1	0	0	0	1		109	0	0	0	0	0	1	1	0	1	1	0	1	
50	0	0	0	0	0	0	1	1	0	0	1	0		110	0	0	0	0	0	1	1	0	1	1	1	0	
51	0	0	0	0	0	0	1	1	0	0	1	1		111	0	0	0	0	0	1	1	0	1	1	1	1	
52	0	0	0	0	0	0	1	1	0	1	0	0		112	0	0	0	0	0	1	1	1	0	0	0	0	
53	0	0	0	0	0	0	1	1	0	1	0	1		113	0	0	0	0	0	1	1	1	0	0	0	1	
54	0	0	0	0	0	0	1	1	0	1	1	0		114	0	0	0	0	0	1	1	1	0	0	1	0	
55	0	0	0	0	0	0	1	1	0	1	1	1		115	0	0	0	0	0	1	1	1	0	0	1	1	
56	0	0	0	0	0	0	1	1	1	0	0	0		116	0	0	0	0	0	1	1	1	0	1	0	0	
57	0	0	0	0	0	0	1	1	1	0	0	1		117	0	0	0	0	0	1	1	1	0	1	0	1	
58	0	0	0	0	0	0	1	1	1	0	1	0		118	0	0	0	0	0	1	1	1	0	1	1	0	
59	0	0	0	0	0	0	1	1	1	0	1	1		119	0	0	0	0	0	1	1	1	0	1	1	1	
60	0	0	0	0	0	0	1	1	1	1	0	0		120	0	0	0	0	0	1	1	1	1	0	0	0	

(Note) [0] indicates Off status, [1] shows On status
The status is [0] (OFF) when not connected to signal

Reg. No	Store code signal bit												Note	Reg. No.	Store code signal bit												Note
	11	10	9	8	7	6	5	4	3	2	1	0			11	10	9	8	7	6	5	4	3	2	1	0	
121	0	0	0	0	0	1	1	1	1	0	0	1		151	0	0	0	0	1	0	0	1	0	1	1	1	
122	0	0	0	0	0	1	1	1	1	0	1	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
123	0	0	0	0	0	1	1	1	1	0	1	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
124	0	0	0	0	0	1	1	1	1	1	0	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
125	0	0	0	0	0	1	1	1	1	1	0	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
126	0	0	0	0	0	1	1	1	1	1	1	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
127	0	0	0	0	0	1	1	1	1	1	1	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
128	0	0	0	0	1	0	0	0	0	0	0	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
129	0	0	0	0	1	0	0	0	0	0	0	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
130	0	0	0	0	1	0	0	0	0	0	1	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
131	0	0	0	0	1	0	0	0	0	0	1	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
132	0	0	0	0	1	0	0	0	0	1	0	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
133	0	0	0	0	1	0	0	0	0	1	0	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
134	0	0	0	0	1	0	0	0	0	1	1	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
135	0	0	0	0	1	0	0	0	0	1	1	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
136	0	0	0	0	1	0	0	0	1	0	0	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
137	0	0	0	0	1	0	0	0	1	0	0	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
138	0	0	0	0	1	0	0	0	1	0	1	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
139	0	0	0	0	1	0	0	0	1	0	1	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
140	0	0	0	0	1	0	0	0	1	1	0	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
141	0	0	0	0	1	0	0	0	1	1	0	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
142	0	0	0	0	1	0	0	0	1	1	1	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
143	0	0	0	0	1	0	0	0	1	1	1	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
144	0	0	0	0	1	0	0	1	0	0	0	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
145	0	0	0	0	1	0	0	1	0	0	0	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
146	0	0	0	0	1	0	0	1	0	0	1	0		….	-	-	-	-	-	-	-	-	-	-	-	-	
147	0	0	0	0	1	0	0	1	0	0	1	1		….	-	-	-	-	-	-	-	-	-	-	-	-	
148	0	0	0	0	1	0	0	1	0	1	0	0		1998	0	1	1	1	1	1	0	0	1	1	1	0	
149	0	0	0	0	1	0	0	1	0	1	0	1		1999	0	1	1	1	1	1	0	0	1	1	1	1	
150	0	0	0	0	1	0	0	1	0	1	1	0		2000	0	1	1	1	1	1	0	1	0	0	0	0	

(Note) [0] indicates Off status, [1] shows On status
The status is [0] (OFF) when not connected to signal.

binary to decimal conversion (Example)
151 in decimal

151/2 = 75…… 1 ← bit0
75/2 = 37…… 1 ← bit 1
37/2 = 18…… 1 ← bit 2
18/2 = 9…… 0 ← bit 3
9/2 = 4…… 1 ← bit4
4/2 = 2…… 0 ← bit 5
2/2 = 1…… 0 ← bit 6
↑ Λ
Bit 7 remainde

Therefore, 151 in decimal equals to 10010111 in binary.

* For store code signal input for data registration No (Maximum 2000), please refer to binary to decimal conversion.