

UX2

IJ Printer Option (SOP-08) Specifications

Barcode Reader Connection

1st edition

- (1) This manual includes the specifications of “Barcode Reader Connection” for model UX2 IJ printers.

<Contents>

Hardware	Function
Serial communication	①Setting print contents ②Calling up print data

- (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 herein are subject to change without notice.
- (4) Refer to the Communication manual (Serial communication), including print data transmission, print content call transmission, etc.

Barcode Reader Connection - Contents

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1. Overview

The barcode reader connection function allows user to connect a barcode reader to the IJ printer via serial communications (RS-232C), and then set print contents and call up print data according to the read barcode.

(1) Function for setting print contents

- The contents of barcode read by the barcode reader are transmitted to IJ printer as a “character string”.
- The IJ printer sets the received “character string” in predestinated print item on the communication environment setup screen.
- The maximum number of the digits IJ Printer can receive is 1000 digits.
- If character string exists in print item of other than designated, the maximum number of the digits IJ printer can receive is the value of 1000 minus the character numbers of other than designated print item.

(2) Function for calling up print data

- The contents of barcode read by the barcode reader are transmitted to IJ printer as “call-up code” (maximum 50 digits).
- The IJ printer will call up the print data that has been coordinated with the “call-up code”.
- Therefore, first coordinate the “call-up code” and print data using the “Specifying message” screen.

(3) Choosing function

- Choose either “setting print contents” or “calling up print data” shown above from the communication environment setup screen.
- Note that using this option will temporarily disable use of the standard serial communication (RS-232C) function.

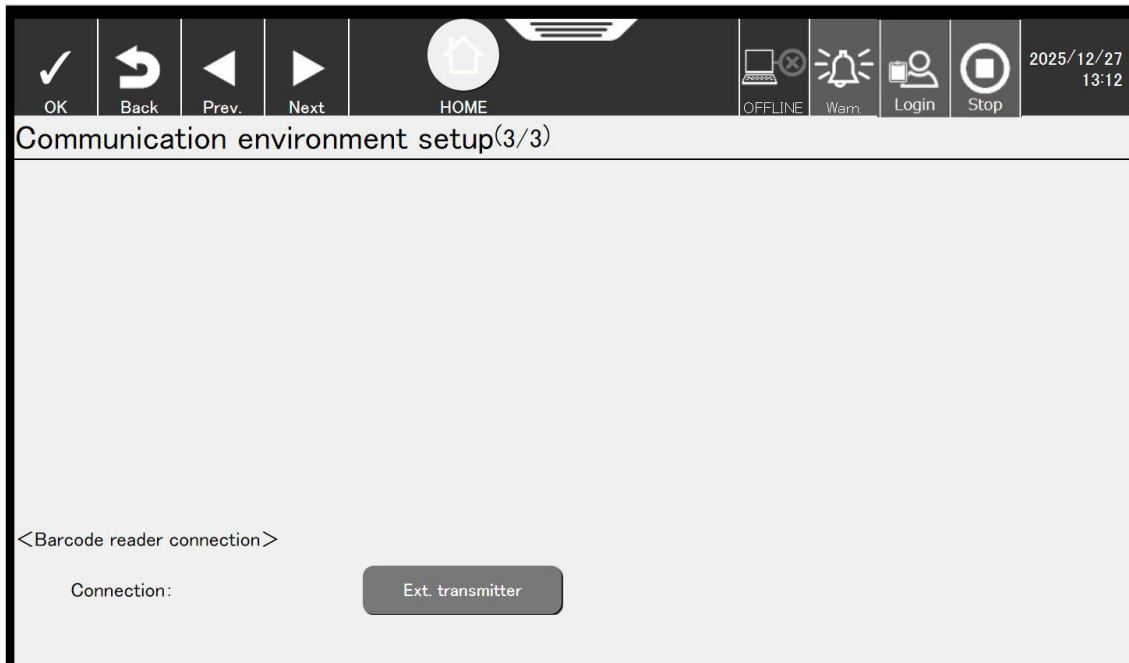
(4) Barcode Reader

- Use a barcode reader that has the specifications listed in “3. Transmission Specifications” or “6. Supplement”. Some readers may not be compatible: Carefully read the explanation when selecting a reader.
- IJ Printer may receive noise when the power of the barcode reader is turned on. Ensure to turn on the power of the barcode reader prior to IJ Printer.

2. Procedure

2.1 Setting up communication environment

- (1) Choose the setting values for barcode reader connection.
- (2) Display the third page of communication environment screen.

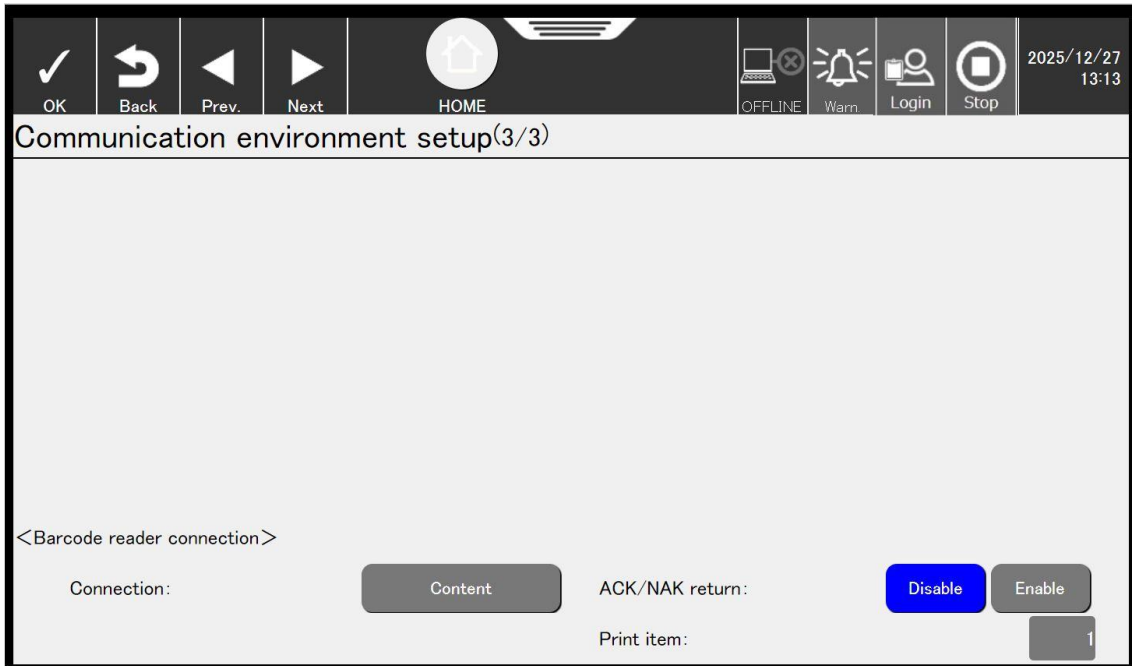


- (3) Items to be set.

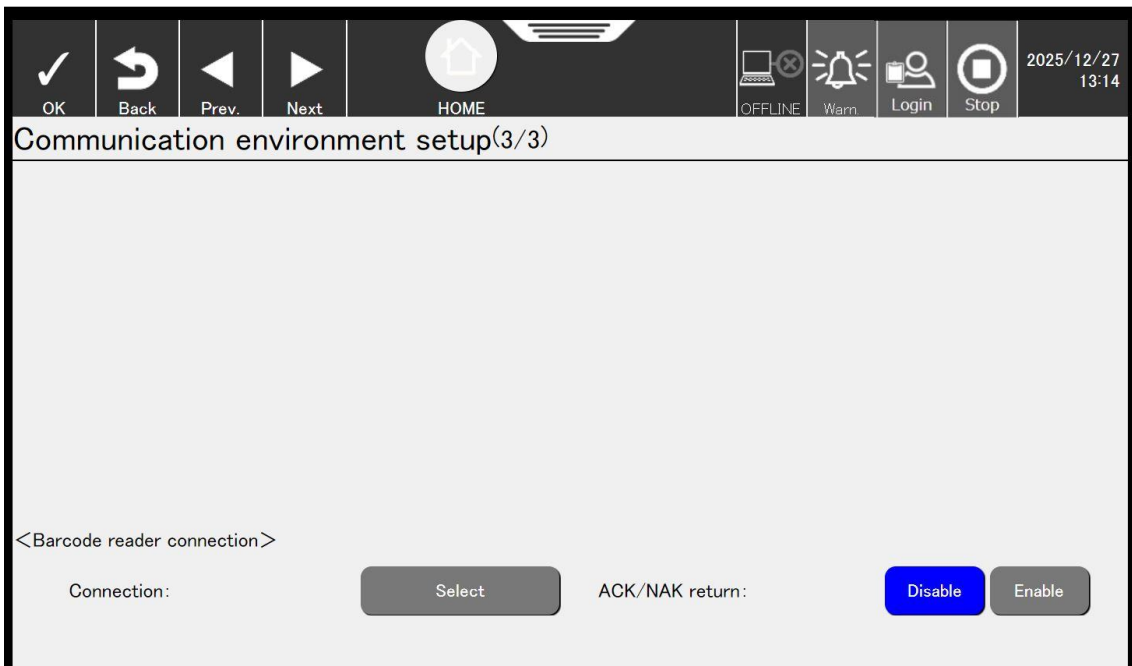
Setting items on communication environment setup screen

Item to be set	Option	Description
Connection	0: External transmitter	Mode for standard external communication
	1: Contents	Print content transfer mode
	2: Select	Print data call-up mode
ACK/NAK return	0: Disable	No ACK or NAK is returned from IJP
	1: Enable	ACK or NAK is returned from IJP
Print item	1-100	Number of print item in which received data is overwritten (only in print content transfer mode)

(4) Screen Display of print contents transfer setup.



(5) Screen Display of print call-up transfer.

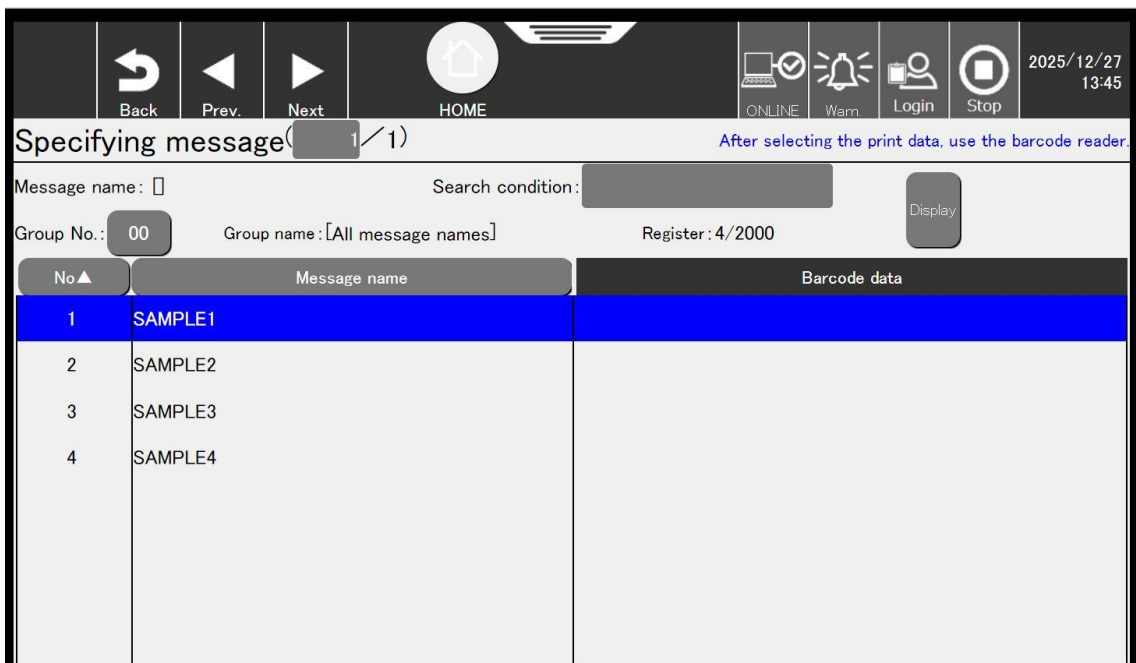
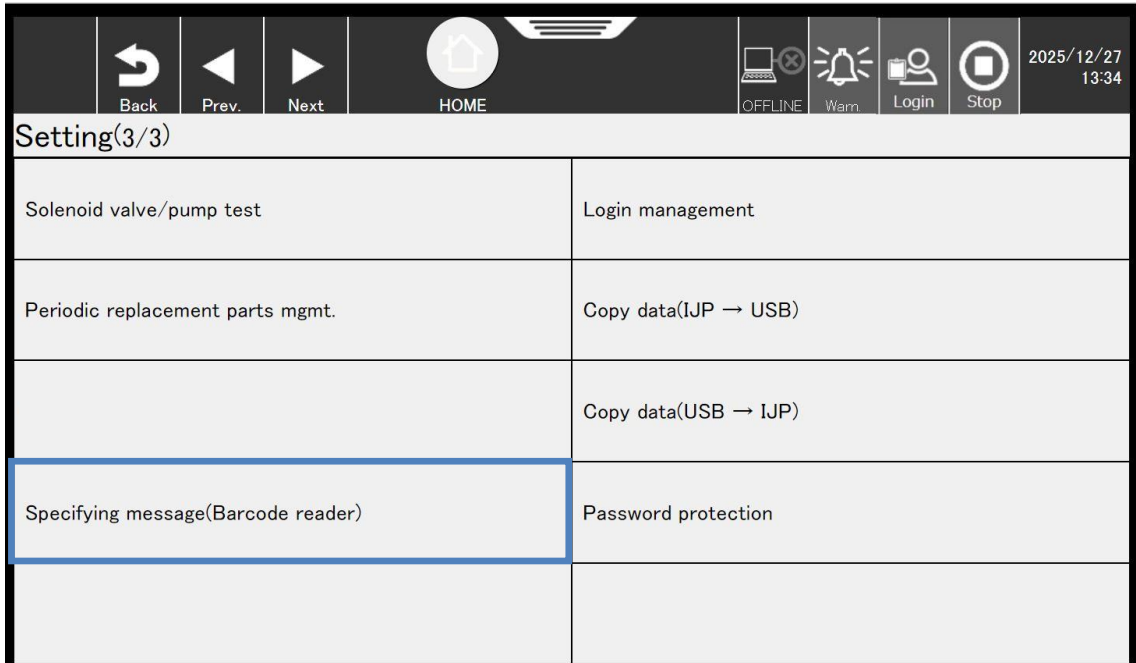


2.2 Designating data to be called up

(1) In advance, coordinate the “call-up codes” consisting of barcode read by barcode reader and the print data.

(2) Procedure

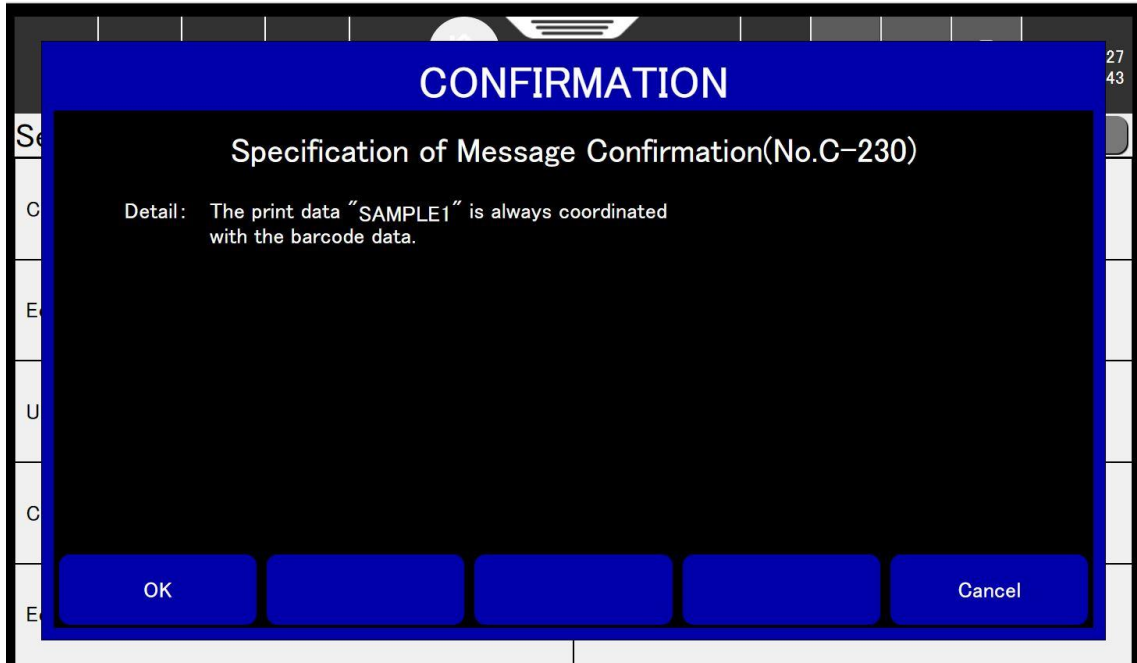
- 1 Choose **Specifying messages (Barcode reader)** from the “Setting (3/3)” screen.
The message management menu will appear.



Make sure that the online status is set.

2 Use the cursor to designate the print data.

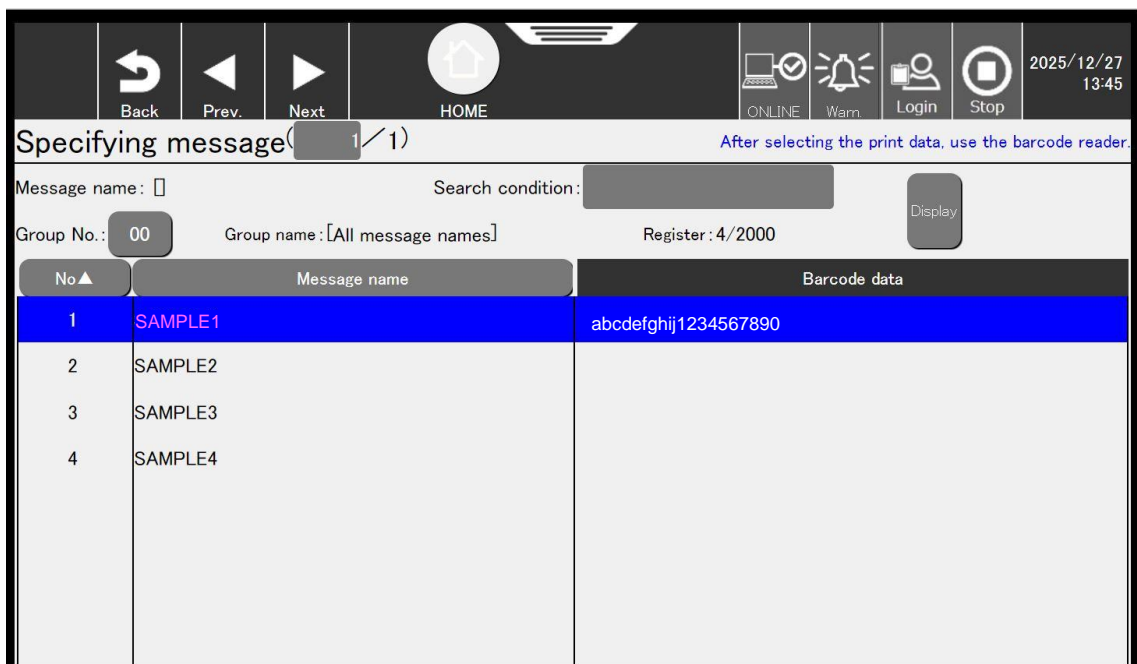
3 Use barcode reader to read barcode, and transmit the read data to IJ printer.
The message dialog "Specification of Message Confirmation" will appear.



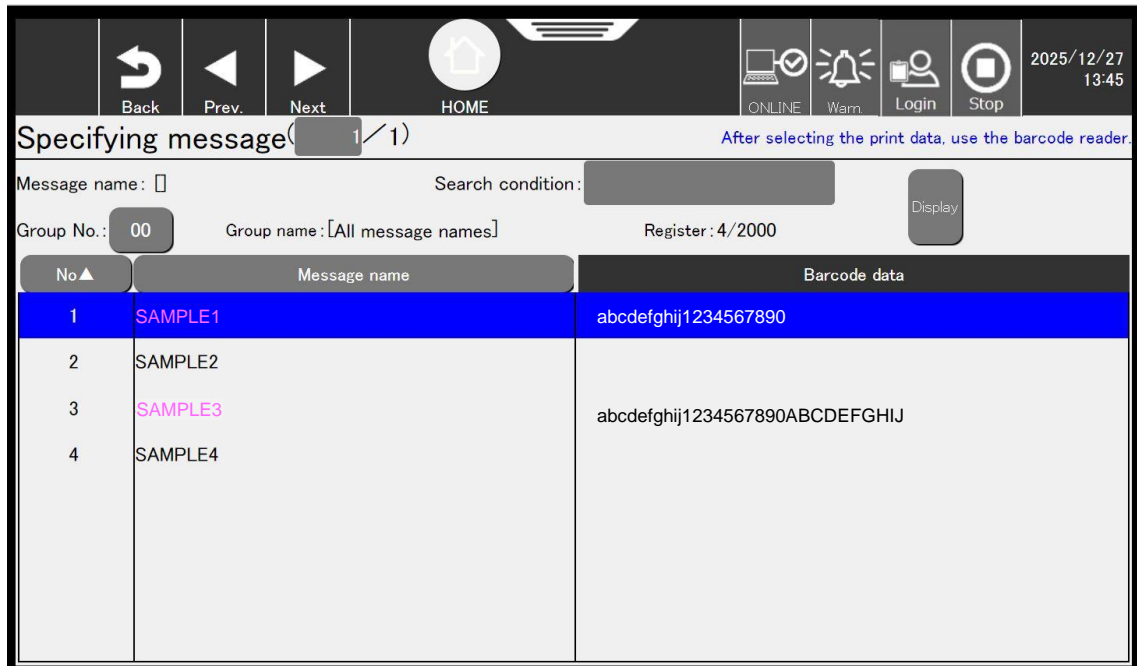
Press **Cancel** to cancel the read barcode data.

4 Press **Ok** in the check message dialog box.

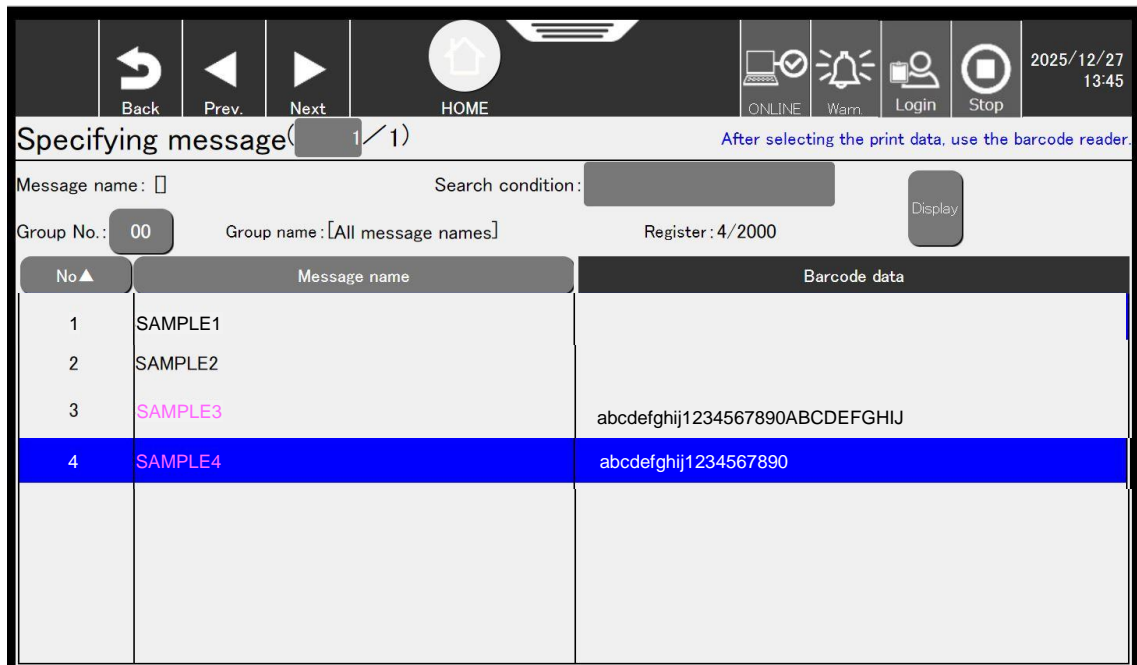
The barcode data (call-up code) will appear beside the title of corresponding print data, and the print data and call-up code will then be coordinated.



5 Repeat steps 2 ~ 4 when executing any other coordination.



6 If the same barcode data has already been registered, previous data and the correspondence will be deleted and new print data and call-up code will then be coordinated.



The barcode data (call-up code) coordinated with print data "SAMPLE1" is cleared and then newly coordinated with "SAMPLE4".

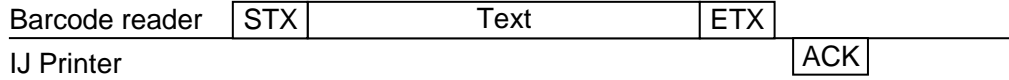
7 Press Back.

3. Transmission Specifications

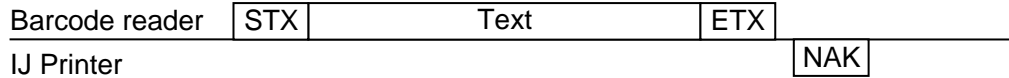
3.1 Transmission Procedure

(1) When setting ACK / NAK return to be enable

- Basic transmission operation



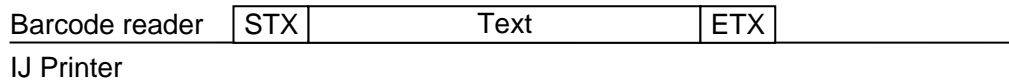
- If IJ printer cannot receive, in off-line status, or if faulty transmission (error in text) occurs:



The IJ printer will issue a communication error warning.

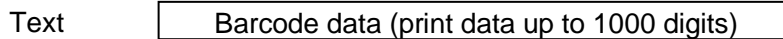
(2) When setting ACK / NAK return to be disable

- The IJ printer will not respond.
- The IJ printer will not return any response even if an abnormality has occurred in communications, but it will issue a communication error warning.



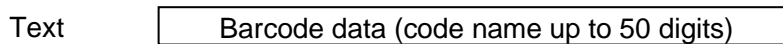
3.2 Text

(1) When setting print contents



- If character exists in other than designated print item, the value of the maximum digits of barcode data becomes 1000 digits minus the number of character other than designated.
- If the transmitted barcode data includes a start code and stop code, the start and stop codes will be included in the digit number of print contents, and then printed.

(2) When calling up print data



- If the transmitted barcode data includes a start code and stop code, the start and stop codes will be included in the digit number of code name and set.


3.3 Barcode data

(1)“ASCII codes” are used for data transmitted from the barcode reader to IJ printer.

ASCII codes

Upper place Lower place	0	1	2	3	4	5	6	7	8 ~ F
0			Space	0	@	P		p	
1			!	1	A	Q	a	q	
2	STX		"	2	B	R	b	r	
3	ETX		#	3	C	S	c	s	
4			\$	4	D	T	d	t	
5		NAK	%	5	E	U	e	u	
6	ACK		&	6	F	V	f	v	
7			'	7	G	W	g	w	
8			(	8	H	X	h	x	
9			)	9	I	Y	i	y	
A			*	:	J	Z	j	z	
B			+	;	K	[	k		
C			,	<	L	¥	l		
D			-	=	M	]	m		
E			.	>	N	^	n		
F			/	?	O	_	o		
Remarks	Control code		ASCII codes						Use prohibited

 : Unavailable

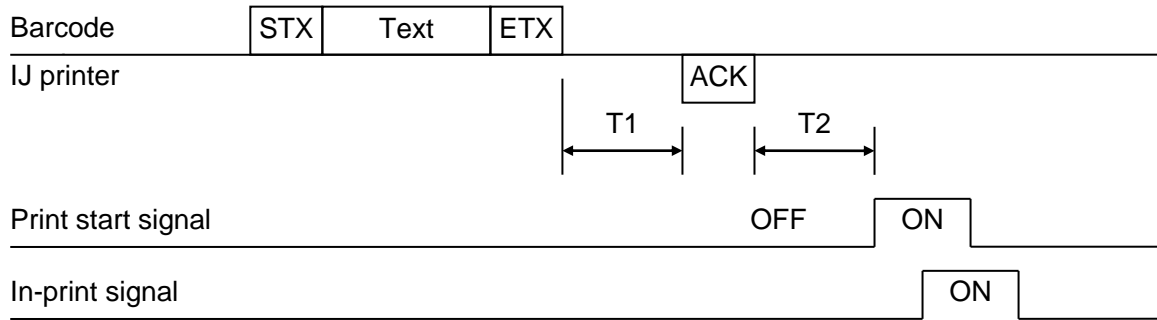
 : Character converted in Print content transfer mode

(2) Print content transfer mode sets a result of character conversion in the IJ Printer for a section of “ASCII codes”.

ASCII Code character conversion in Print content transfer mode

ASCII codes	Barcode reader	IJ Printer
	Transmit data	Contents
40H	@	■
5EH	^	x

4. Response Time



T1: Time from the completion of reading by the barcode reader until the IJ printer returns ACK.

T2: Time from the returning ACK by IJ printer until ready to print.

Type of transmission	Content fix ACK condition	T1 (ms)	T2 (ms)	Remark
Print content transfer mode	Fixed time	20	$(M \div 10) + 35$	*1
	Print synchronization	$(M \div 10) + 55$	0	*2
Print data call-up mode	-	20 ~ 600	400	-

[M: Number of transmitted characters for communication]

- In print data call-up mode, Time T1 / T2 a time, changes according to the number of print data which is coordinated with call-up code.
 - In Print content mode, Time is changed according to the character size and number of 2D codes when Data Matrix, QR codes, Micro QR, GS1 DataBar or Dotcode are set to print items of destination.
- *1 Time "T1" is as following table, when print item include Data Matrix, QR codes, Micro QR, GS1 DataBar or Dotcode and Content fix ACK condition is "Fixed time".
- *2 Time "T2" is as following table, when print item include Data Matrix, QR codes, Micro QR, GS1 DataBar or Dotcode and Content fix ACK condition is "Print synchronization".

(Data Matrix, QR codes, Micro QR, GS1 DataBar or Dotcode)

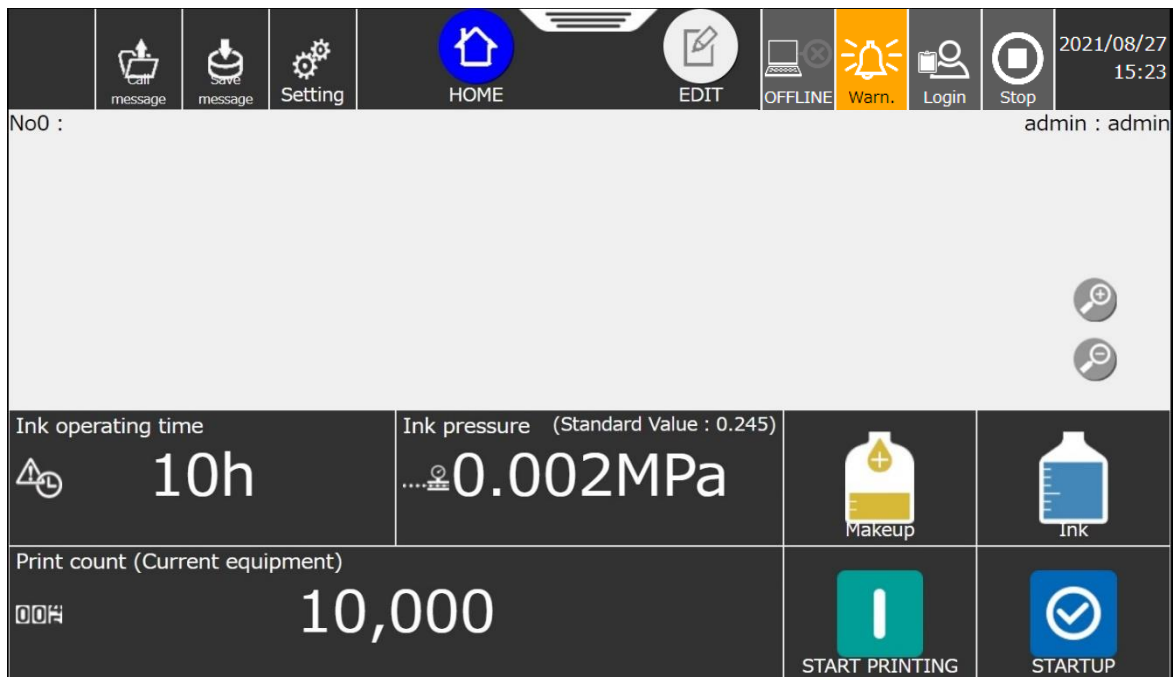
Barcodes	Character size	T1 or T2 (ms)
Data Matrix	5 x 8	$8 \times N + 20$
	12 x 16, 18 x 24	$15 \times N + 40$
QR codes	QR (21 x 21)	$200 \times N$
	QR (25 x 25)	$300 \times N$
	QR (29 x 29)	$400 \times N$
	QR (30 x 30)	$500 \times N$
Micro QR	15 x 15	$100 \times N$
GS1 DataBar	-	$15 \times N + 30$
Dotcode	Vertical 7/8/10 dots	$300 \times N$
	Vertical 12 dots	$400 \times N$
	Vertical 14 dots	$600 \times N$
	Vertical 16 dots	$700 \times N$

[N: Number of 2D codes]

If the print start signal is received earlier, fault "Print data changeover in progress S" will occur.

5. Warning Messages

- (1) If erroneous communication occurs, alarm “external communication error” will occur.
- (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 cleared if normal communication or signal input is performed.
- (4) The IJ printer will reply NAK when “ACK/NAK return” setting enable on communication environment setup (3/3)



External Communication Error Code Table

Error code	Name	Description	Check
001	Transmission code error	<ul style="list-style-type: none"> ● A character code was received while waiting for receiving STX code. ● After receiving STX code, ETX code was received before receiving a character code. 	Check if a code that is not used for communication has been sent.
003	Print character code error	<ul style="list-style-type: none"> ● 1001 or more-byte character code was received. 	Check whether the number of characters for print contents receivable with an item exceeded the maximum value.
006	Ready-for-Reception error	<ul style="list-style-type: none"> ● This error come up when the printer is following status. <ol style="list-style-type: none"> ① "Off-line fixed" has been set in Communication environment ② Communication was conducted during the stop or shutdown process. ③ "Apply" key and message window were both displayed. ● STX was received with the previous data unprinted when the connection category was "Printed content" and the communication environment setting "Communication mode" was "Overwrite protected". 	Check whether a communication was performed when reception was disabled. Or subsequent barcode was received without printing the previously transmitted print contents (in overwrite-protected mode).
009	ETX code error	<ul style="list-style-type: none"> ● ETX code was received while waiting for receiving STX code. 	Check whether the ETX code is in a specified position.
011	STX code error	<ul style="list-style-type: none"> ● STX code was received while waiting for receiving ETX code. 	Check whether the STX code is in a specified position.
019	Code error	<ul style="list-style-type: none"> ● Unsupported character code was received. ● A control code other than STX or ETX was received. 	Check whether the data code range is from 20h to 5Fh and from 61h to 7Ah.
030	Data error	<ul style="list-style-type: none"> ● After receiving STX code, ETX code was received without receiving a character code (data length = 0). ● 51 or more-digits character code was received. ● The received data is not in the mapping table. ● The data associated with the received data was non-callable data (red characters). 	Data uncoordinated with print data was received. In this case, however, ACK was returned. Or text exceeding 51 digits was received on the "Specifying message" screen.

6. Supplement

6.1 Caution when “ACK / NAK return: Enable” was specified for communication environment setup

- (1) If text data exceeding 51 digits is transmitted from barcode reader, the IJ printer will reply NAK. In this case, the communication between the barcode reader and IJ printer will not end because of the retry function of barcode reader: If this occurs, switch to off-line once.
- (2) If there is a possibility that the number of digits of barcode to be read will exceed 51, specify “ACK / NAK return: Disable”, or set the retry number of barcode reader to 0.

6.2 Power supply for barcode reader

- (1) The IJ printer does not provide a power supply for barcode reader: It is necessary to prepare a separate power supply.
- (2) If the signal cable of barcode reader includes a power line, it will be necessary to prepare a relay cable, and separate the power line from the signal line.

6.3 Caution when using this option with SOP “External Signal A”

- (1) If the unit supports both SOP “External Signal A” and “Barcode Reader Connection”, the function of “Barcode reader connection” is performed on a priority basis. Even if software option “Print data registration number addition” is enabled, the maximum number of print data items that can be displayed on call-up data designation screen is 150.
- (2) When “Print content mode” or “Print data-call up mode” is setup for Barcode connection, the external signal print switching function of “External signal A”, “Reflect by signal”, does not function effectively. The transmitted contents are not hold with this setting.
- (3) When “External communication” is setup for Barcode reader connection, the external signal print switching function of “External Signal A”, “Reflect by signal” functions effectively. The transmitted contents are hold with this setting.

