

**Software Developer's Manual**  
**P-touch Template 2.0 Command Reference**  
**RJ-4030/4040**  
**Version 1.0**

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## Introduction

This material provides the necessary information for directly controlling the templates transferred to RJ-4030/4040.

This information is provided assuming that the user has full understanding of the operating system being used and basic mastery of programming in a developer's environment.

Read the model names that appear in the screens in this manual as the name of your printer.

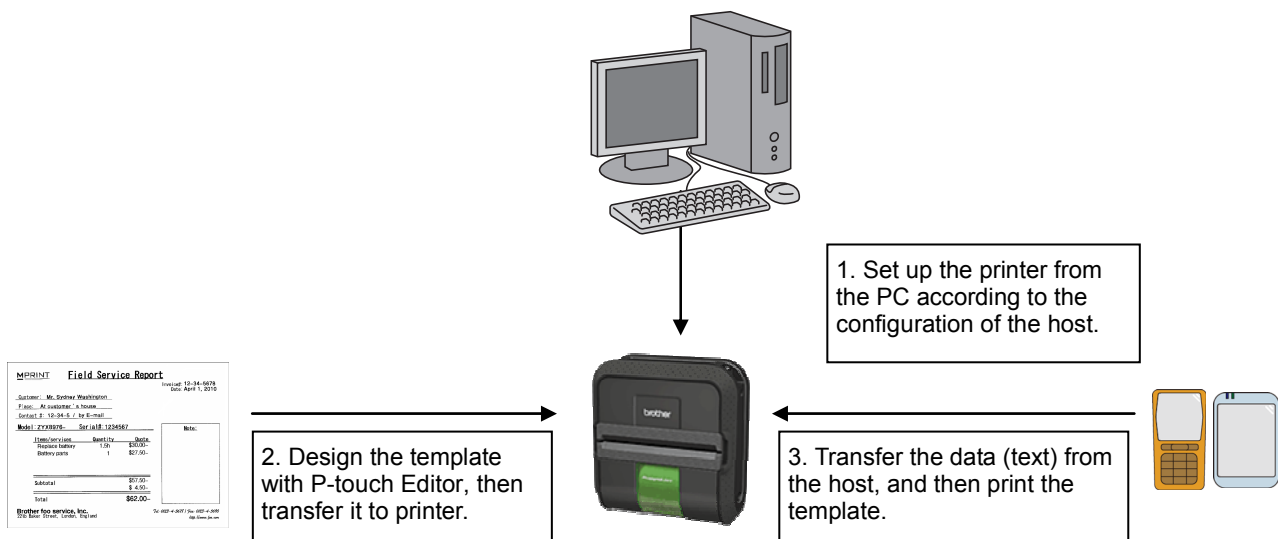
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## What is P-touch Template 2.0?

P-touch Template 2.0 helps the user develop a printing system that connects directly from the host and has following functions:

- transfers the template data from P-touch Editor to the printer (2)
- transfers the ASCII text and binary data from a host to the template in the printer (3)  
("Host" includes medias such as smartphones or mobile terminals.)
- prints the transferred data (3)  
(See the figure shown below.)



P-touch Template 2.0 commands consist of a prefix character and a two-character text string.

When the prefix character is sent, the printer begins the analysis of the P-touch Template 2.0 command, and performs the specified process if the following two-character text string corresponds to a command.

### Note

**\*P-touch Template 2.0 is not compatible with some hosts.**

**\*These hosts should have an interface to transfer the data.**

**\*ZPL II emulation is supported by P-touch Template 2.0.**



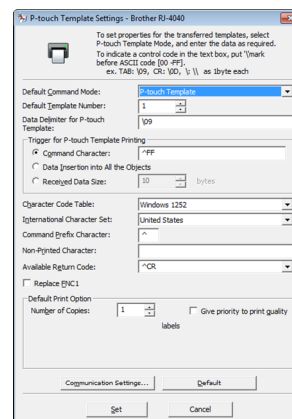
# 1. Using P-touch Template 2.0

## (1) Specify the printer settings.

Using the P-touch Template Settings tool, specify the initial printer settings according to the host system environment or the host that the printer is connected to.

(Please refer to [“2. P-touch Template Settings Tool User's Guide”](#) on page 4.)

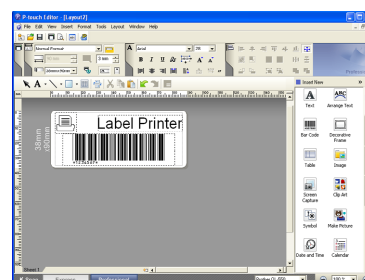
The printer driver must first be installed via a USB connection.



## (2) Design the template.

Using P-touch Editor, design the template to be transferred to the printer.

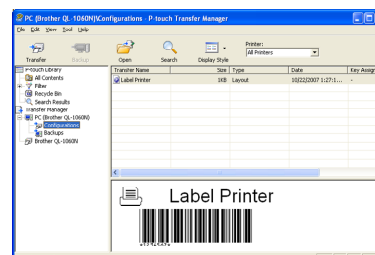
(Please refer to [“4. P-touch Template 2.0 Limitations”](#) on page 19.)



## (3) Transfer the templates.

Using P-touch Transfer Manager, transfer the templates to the printer.

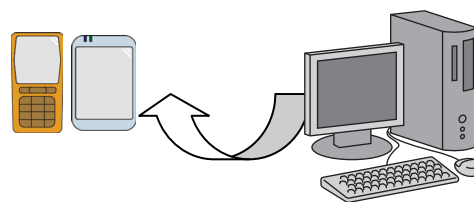
(Please refer to the RJ Series Software User's Guide.)



## (4) Program using P-touch Template 2.0 commands.

If any special commands are required to control the printer, change the terminal program in accordance with the P-touch Template 2.0 commands.

(Please refer to [“6. Control Code Lists”](#) on page 30.)

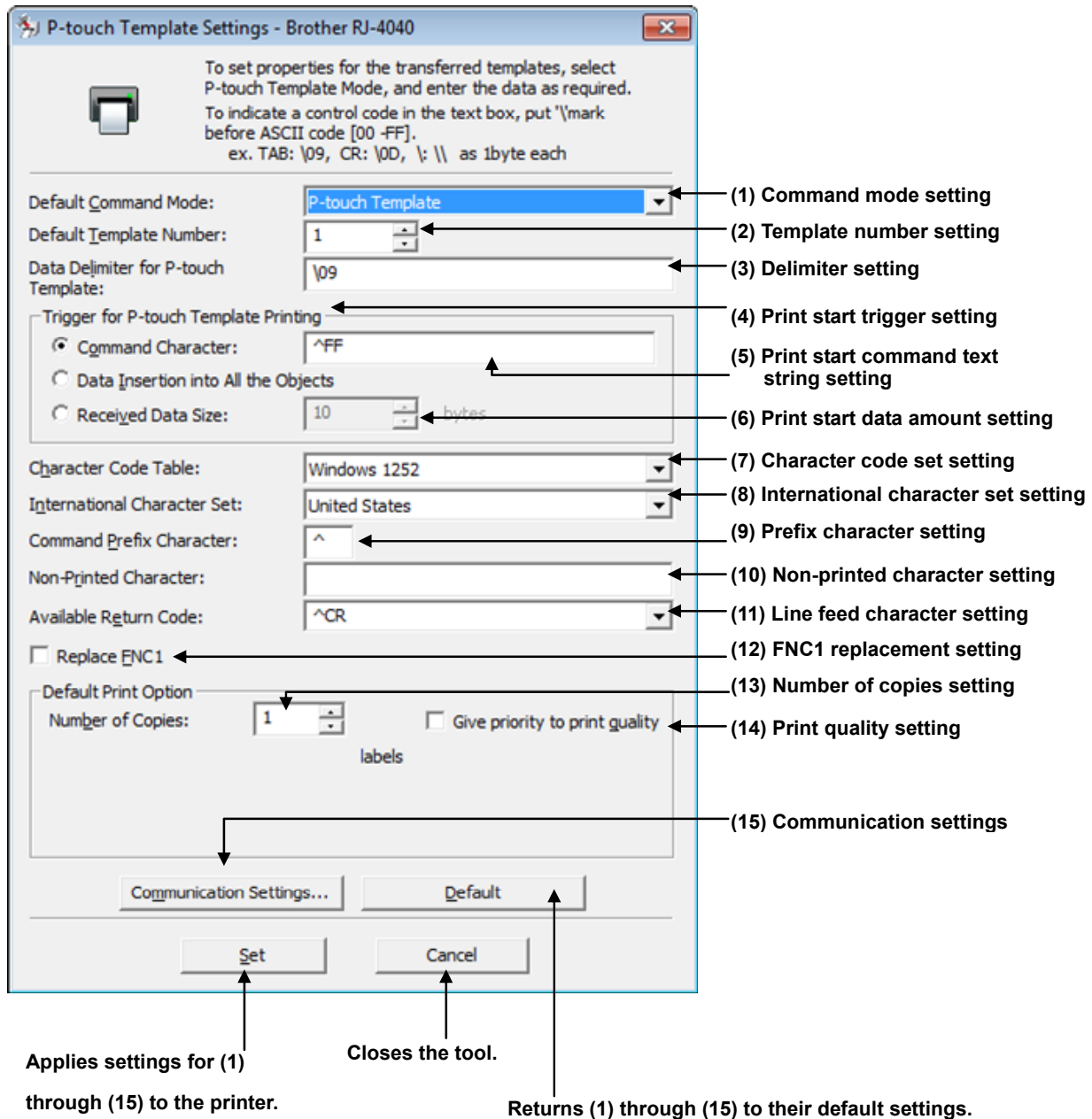


## (5) Connect the printer with the host and print slips etc.

Transfer the data such as ASCII text from the host to templates in the printer, and print the slips etc.



## 2. P-touch Template Settings Tool User's Guide



**(1) Command mode setting**

- P-touch Template mode  
To use P-touch Template 2.0, select the P-touch Template mode.
- ESC/P mode
- Raster mode

**(2) Template number setting**

Specify the template number selected as the default when the printer is turned on.

However, if any template has been set to not be transferred to the printer, the number of that template cannot be specified.

**(3) Delimiter setting**

A delimiter is the symbol used to indicate when to move to the next object in the data that is being sent. Between 1 and 20 characters can be specified.

**(4) Print start trigger setting**

Select one of the following three options for the print start trigger.

- Command Character  
(Printing starts when the command character specified in (5) is received.)
- Data Insertion into All the Objects  
(Printing starts when the delimiter for the last object is received.)
- Received Data Size  
(Printing starts when the number of characters specified in (6) is received. However, delimiters are not counted in the number of characters.)

**(5) Print start command text string setting**

Specify 1 to 20 characters.

**(6) Print start data amount setting**

The amount of data that must be received before printing can begin can be set between 1 and 999.

**(7) Character code set setting**

Select one of the following three character code sets. For character code tables, refer to "[Appendix B: Character Code Tables](#)".

- Windows1252
- Windows1250
- Brother standard

**(8) International character set setting**

Select one of the following countries for the character set.

- USA
- France
- Germany
- Britain
- Denmark I
- Sweden
- Italy
- Spain I
- Japan
- Norway
- Denmark II
- Spain II
- Latin America
- South Korea
- Legal

The following 12 codes are switched depending on the country selected from those listed above.

23h 24h 40h 5Bh 5Ch 5Dh 5Eh 60h 7Bh 7Ch 7Dh 7Eh

For the characters that are switched, refer to the [“International character set table”](#) in “Appendix B: Character Code Tables”.

**(9) Prefix character setting**

Change the prefix character code. Specify as a one-character character code.

The prefix character is the code for the first character that identifies commands that can be used in P-touch Template mode.

**(10) Non-printed character setting**

The characters specified here are not printed when data is received. Specify 1 to 20 characters.

**(11) Line feed character setting**

The line feed code is used when feeding data to indicate that the following data should be moved to the next line in a text object. One of the following four line feed codes can be selected, or 1 to 20 characters can be specified as the line feed code.

1. ^CR
2. \0D\0A
3. \0A
4. \0D

**(12) FNC1 replacement setting**

This setting selects whether or not GS codes, which are included in barcode protocols such as GS1-128 (UCC/EAN-128), are replaced with FNC1 codes.

If the check box is selected, a received GS code is replaced with the FNC1 code. If the check box is cleared, a received GS code is outputted as is.

**(13) Number of copies setting**

Specify the number of copies. A number between 1 and 99 can be specified.

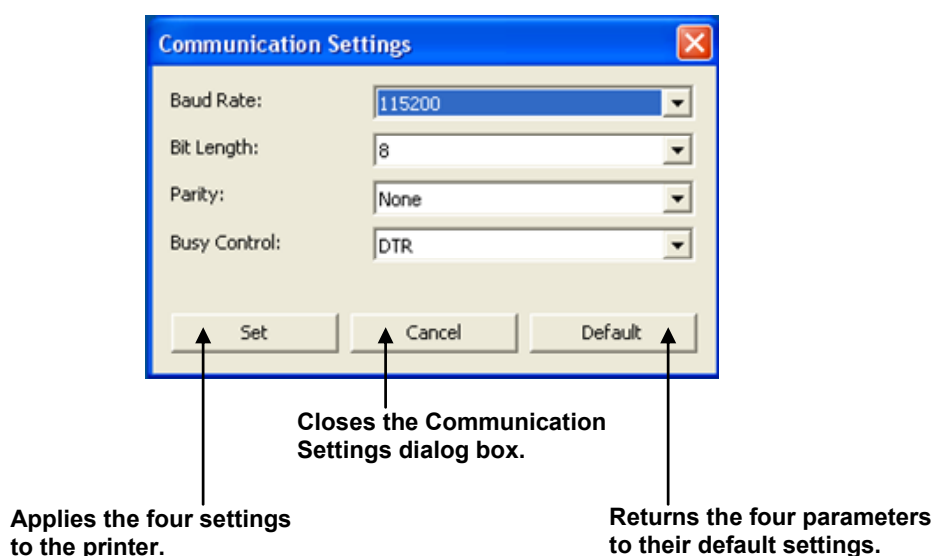
**(14) Print quality setting**

Select the print quality setting. If the check box is selected, priority is given to the print quality. If the check box is cleared, priority is given to the print speed.

**(15) Communication settings**

Settings can be specified for the following parameters for serial communication.

Baud rate	115200 bps, 57600 bps, 38400 bps, 31250 bps, 28800 bps, 19200 bps, 14400 bps, 9600 bps, 4800 bps, 2400 bps, 1200 bps, 600 bps, 300 bps
Bit length (bits)	8 bits, 7 bits
Parity	None, Odd, Even
Busy control	DTR, XON/XOFF



## Others

### · ini file

After the **[Set]** button (in the main dialog box or the Communications Settings dialog box) is clicked, the settings are saved when the dialog box is closed.

(RJ-4030)

C:\Documents and Settings\user\_account\_name\Application Data\Brother  
 \Printer Settings\pts3137.ini

(RJ-4040)

C:\Documents and Settings\user\_account\_name\Application Data\Brother  
 \Printer Settings\pts3237.ini

### · Typing text into text boxes (3), (5), (9) and (10)

Characters that can be entered as text can be typed in, and control codes can be entered as ASCII codes (00 to FF) with \ in front of them.

Example

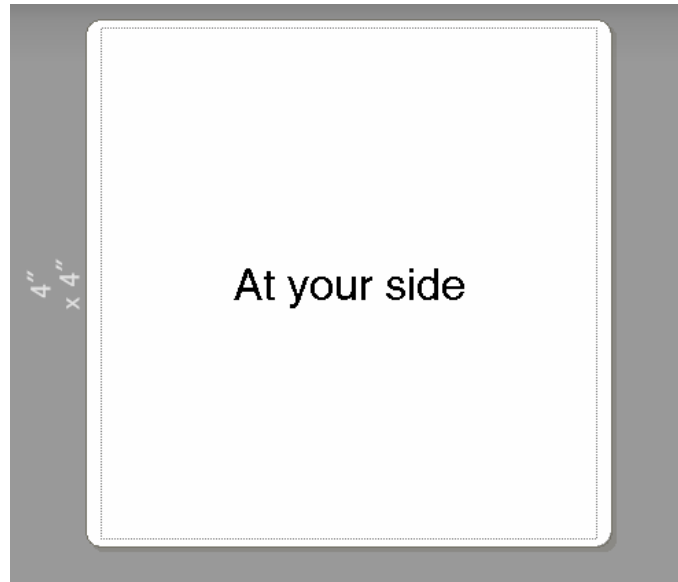
PRINT	PRINT
Tab control code	\09
Line feed control code	\0D
\	\\

### 3. Examples for Using Commands

#### 3.1 Example for using P-touch Template 2.0

Here is the label that will be made.

The media size is 4 inches x 4 inches

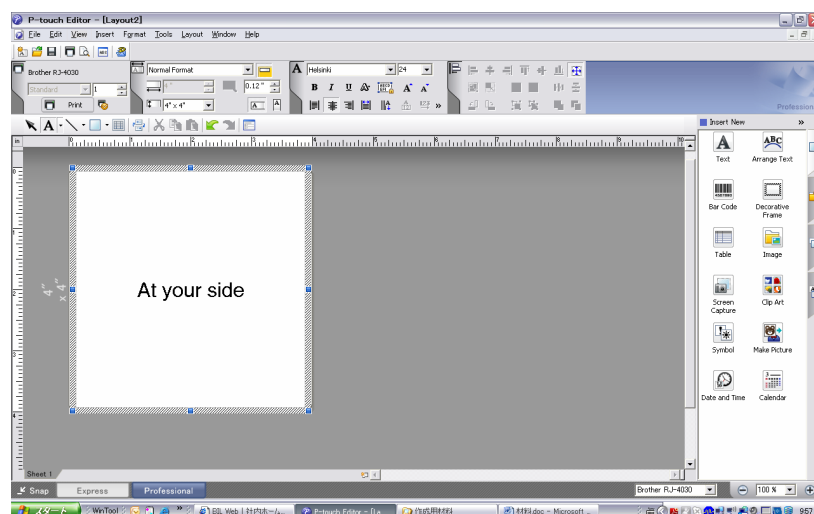


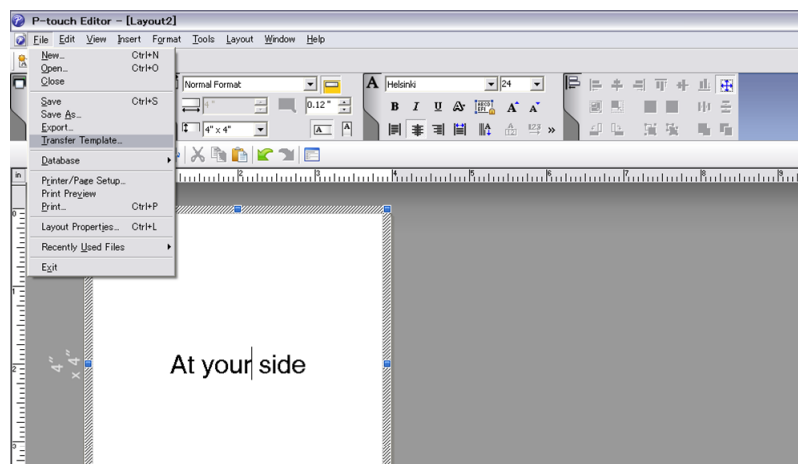
#### Steps

1. Make a template with P-touch Editor.
2. Transfer the template to Transfer Manager.
3. Transfer the template from Transfer Manager to the printer.
4. Use P-touch Template 2.0 commands for printing.

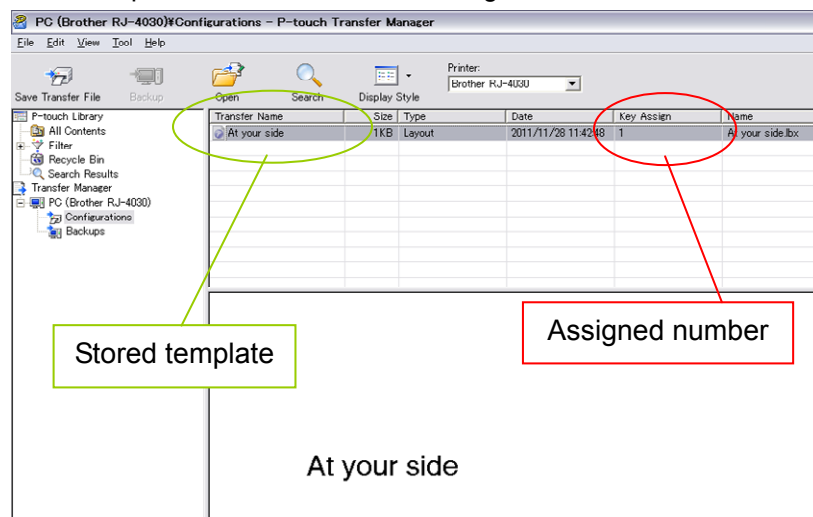
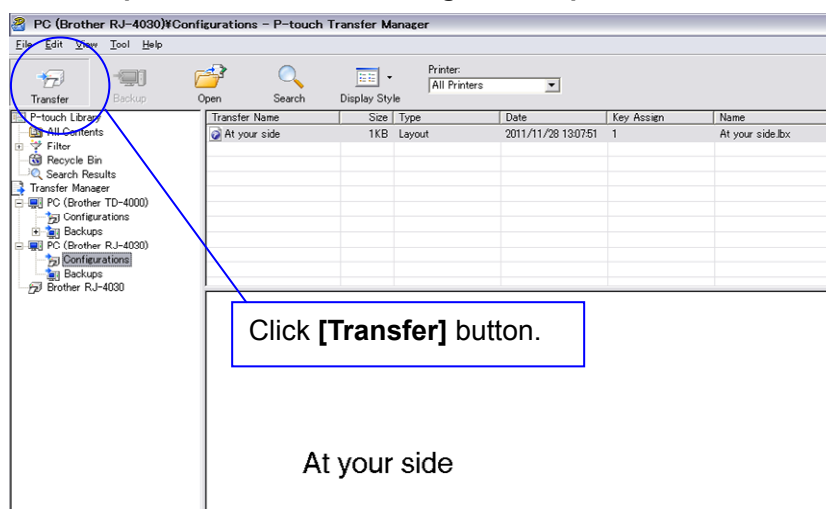
#### Step 1: Make a template with P-touch Editor.

Start the P-touch Editor and make a label.



**Step 2: Transfer the template to Transfer Manager.**

The template sent in step 2 is stored in Transfer Manager, as shown below.

**Step 3: Transfer the template from Transfer Manager to the printer.**



**Note**

Make sure that the printer is turned on and hooked up to the PC with a USB cable before using Transfer Manager. Also, make sure that the printer communication setting is always bidirectional communication when Transfer Manager is used.

When the template is transferred to the printer, the following message appears.

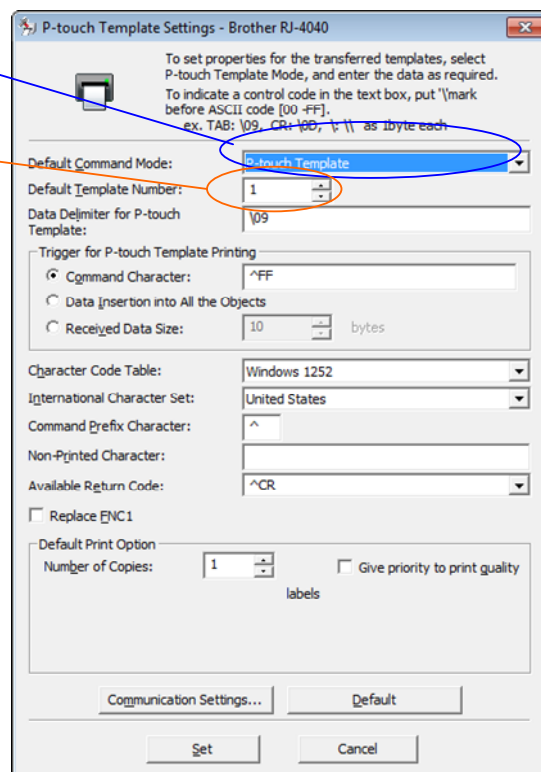
**Step 4: Use P-touch Template 2.0 commands for printing.**

When using P-touch Template 2.0 commands, at least these four commands are required.

However, two out of the four can be set by using the P-touch Template Settings tool.

(1) Select the P-touch Template mode.

(2) Choose the assigned number.



After setting (1) and (2) with the P-touch Template Settings tool, the other two commands must be sent to the printer.

## (3) Initialize P-touch Template 2.0

**^II      Initialize**

ASCII:	^	I	I
Decimal:	94	73	73
Hexadecimal:	5E	49	49

Parameters

None

**Entered command**

^II

## (4) Print Start

**^FF      Start printing**

ASCII:	^	F	F
Decimal:	94	70	70
Hexadecimal:	5E	46	46

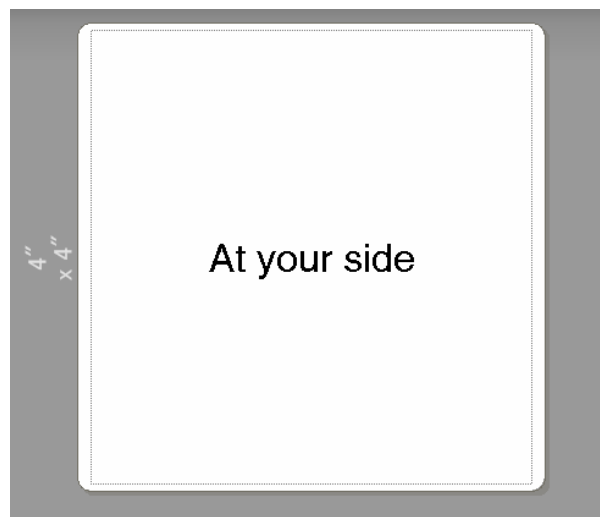
Parameters

None

**Entered command**

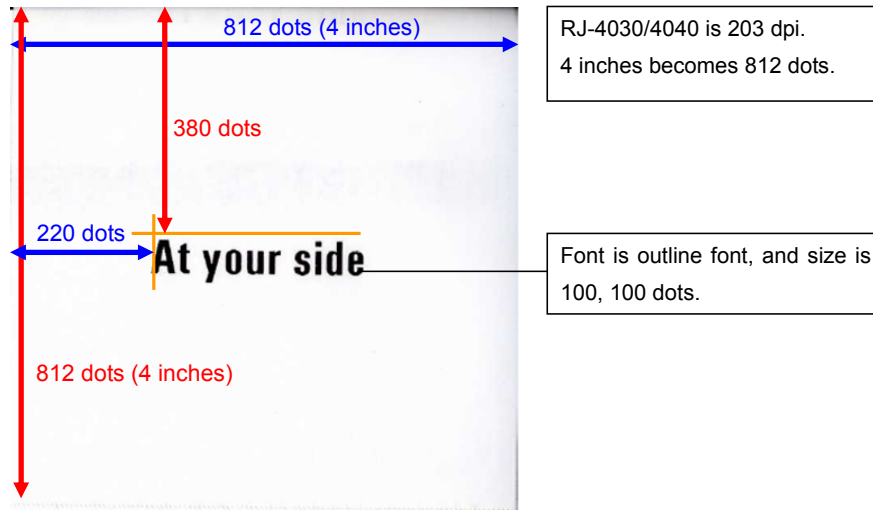
^FF

When the printer receives the command above, the label below is printed.



### 3.2 Example for using ZPL II in P-touch Template 2.0

Here is the label that will be made.



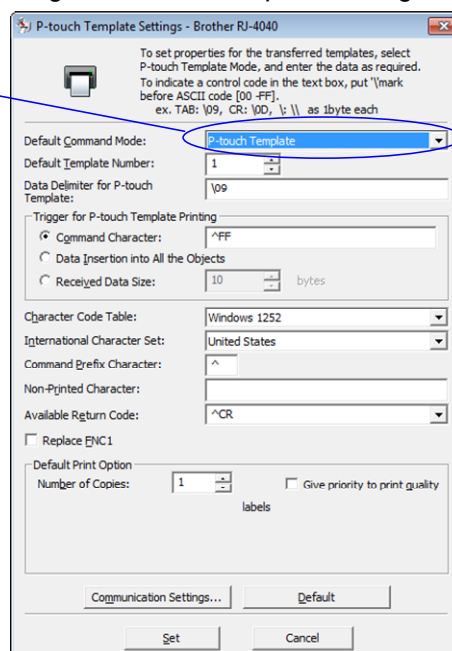
#### Steps

1. Change the mode to P-touch Template mode.
2. Set the label length with ^LL.
3. Set the label width with ^PW.
4. Send other ZPL II command.

#### Step 1: Change the mode to P-touch Template mode.

P-touch Template mode can be selected by using the P-touch Template Settings tool shown below.

Select P-touch Template mode.



**Step 2: Set the label length with ^LL.**

The label length is 812 dots.

Entered command

^LL812

**Step 3: Set the label width with ^PW.**

The label width is 812 dots.

Entered command

^PW812

**Step 4: Send other ZPL II commands.**

The orientation of the text is 220, 380.

The font is outline font and size is 100, 100.

The text is "At your side."

Entered command

^FO220,380  
^A0N,100,100  
^FDAt your side

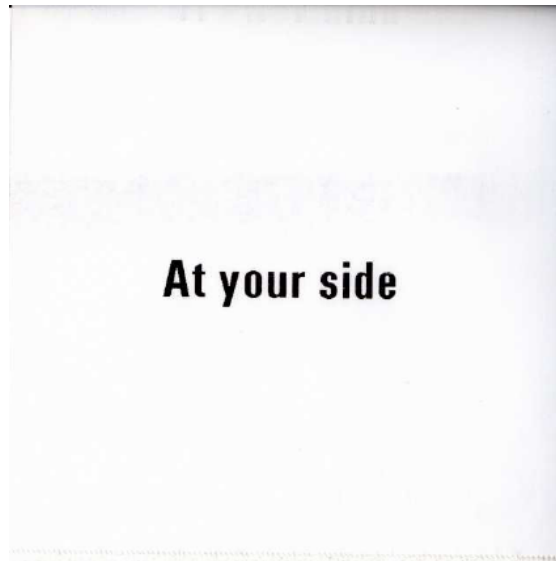
**Summary -all commands to be sent to make the label-**

^XA  
^LL812  
^PW812  
^FO220,380  
^A0N,100,100  
^FDAt your side  
^XZ

**Note**

"^XZ" is the command required at the end of format with ZPL II commands.

With those commands above, the label below is printed.



### 3.3 Example for using external characters in P-touch Template 2.0

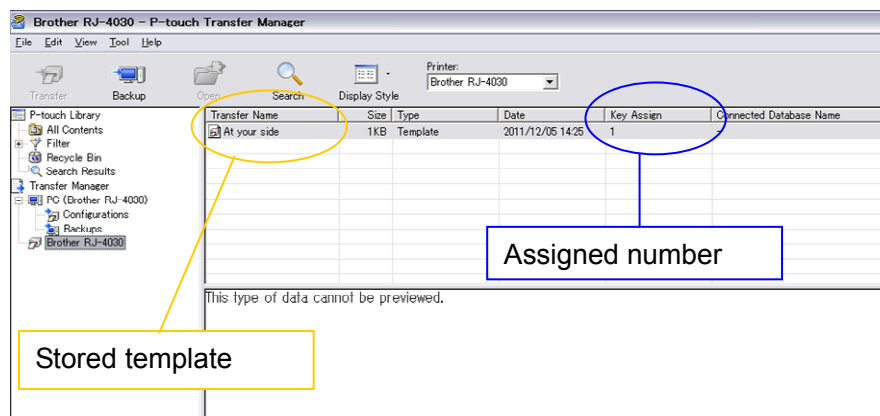
Here is the external character that will be printed.

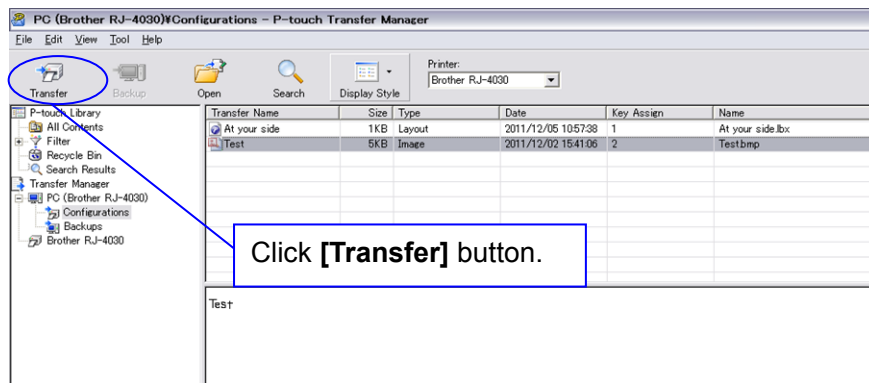
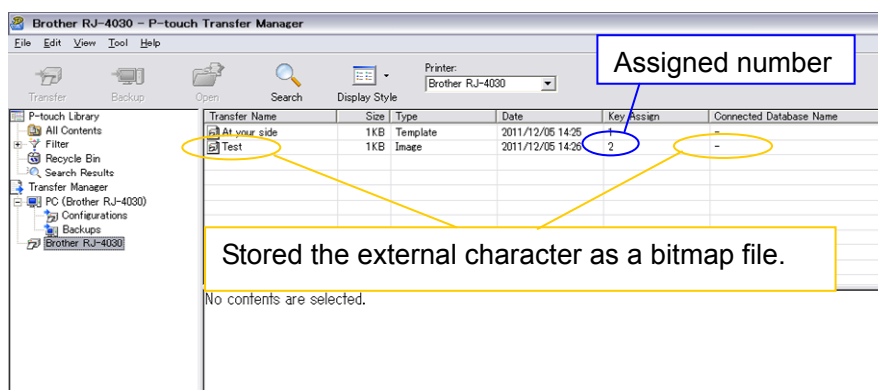


#### Steps

1. Make a template and transfer it to the printer.
2. Store the external characters as a bitmap file, and drag & drop it to Transfer Manager.
3. Transfer the bitmap file from Transfer Manager to the printer.
4. In the P-touch Template Settings tool, select the assigned number for the stored template.
5. With the P-touch Template commands, select the assigned number for the bitmap file.

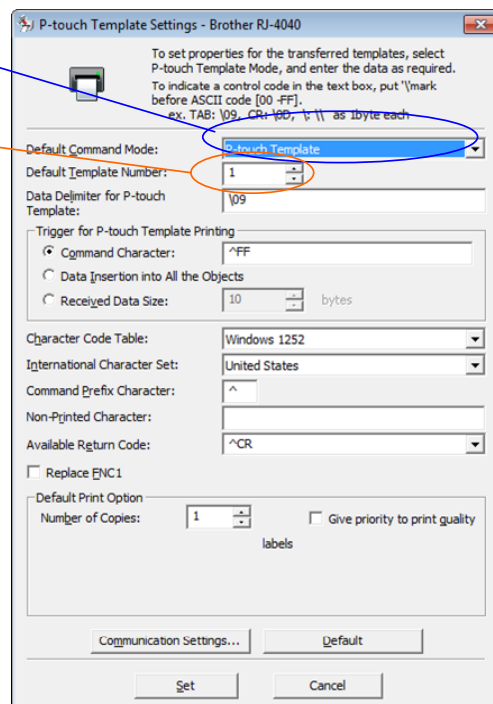
#### Step 1: Make a template and transfer it to the printer.



**Step 2: Store the external characters as a bitmap file, and drag & drop it to Transfer Manager.****Step 3: Transfer the bitmap file from Transfer Manager to the printer.****Step 4: In the P-touch Template Settings tool, select the assigned number for the stored template.**

(1) Select the P-touch Template mode.

(2) Choose the assigned number.



**Step 5: With the P-touch Template 2.0 commands, select the assigned number for the bitmap file.**

After using the P-touch Template Settings tool in Step 4, the remaining three commands must be sent to the printer.

**(1) Initialize P-touch Template****^II      Initialize**

ASCII:	^	I	I
Decimal:	94	73	73
Hexadecimal:	5E	49	49

**Parameters**

None

**Entered command**

^II

**(2) Select the bitmap file to be printed.**

In order to select the bitmap file, enter a specific character “\” and the value one less than the assigned number for the bitmap file that is shown in Step 3.

For example, if the assigned number for the bitmap file is 2, enter \01 as shown right.

**Entered command**

\01

**(3) Start printing.****^FF      Start printing**

ASCII:	^	F	F
Decimal:	94	70	70
Hexadecimal:	5E	46	46

**Parameters**

None

**Entered command**

^FF

When the printer receives the command above, the label below is printed.





## 4. P-touch Template 2.0 Limitations

### 4.1 Relating to text objects

#### 4.1.1 Font, size, etc.

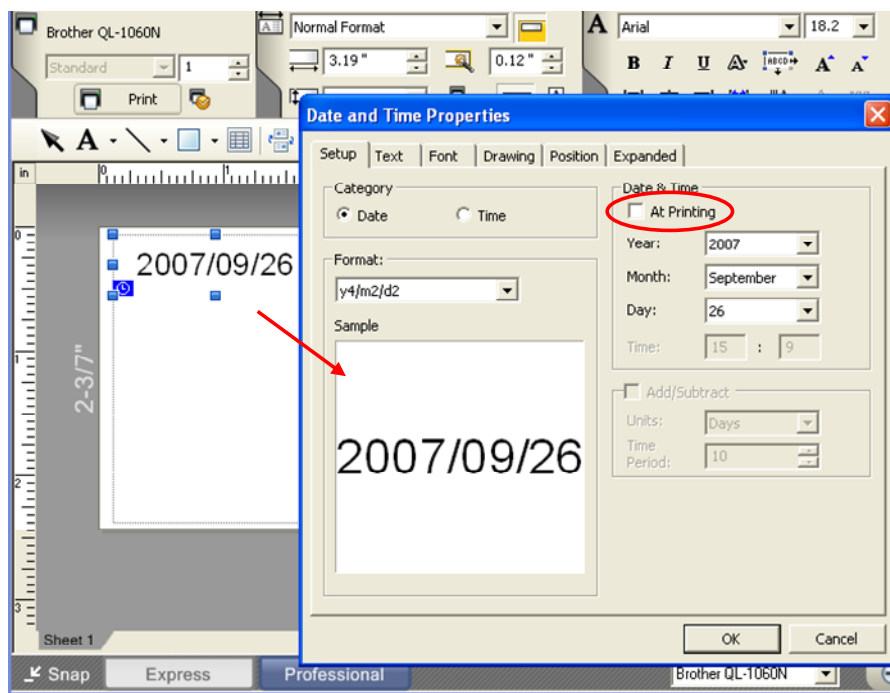
Please also refer to [“5.2 Relationship between the P-touch Editor settings and the printer image”](#) on page 28

- Fonts specified in P-touch Editor are converted to Helsinki or Letter Gothic, depending on the font shape, when the data is sent to the printer.

The font is converted according to the following rules: fixed pitch: Letter Gothic; sans serif: Helsinki.

With symbol fonts, symbols are converted to text objects if text input mode has been entered, and the font is converted to one of the two described above. If the text input mode has been exited, symbols are converted to image objects and the selected font is not converted.

- Character sizes specified in P-touch Editor are converted to the closest built-in character size when the data is sent to the printer.
- Character sizes specified in P-touch Editor are all made the same size within an object.
- If “At Printing” is selected, a time stamp specified in P-touch Editor is not printed. If “At Printing” is not selected, the time stamp is printed with the date and time that the data was created in P-touch Editor.
- Depending on the language of the computer used for transferring, either the Western European or the Eastern European character set is used for characters within text objects.



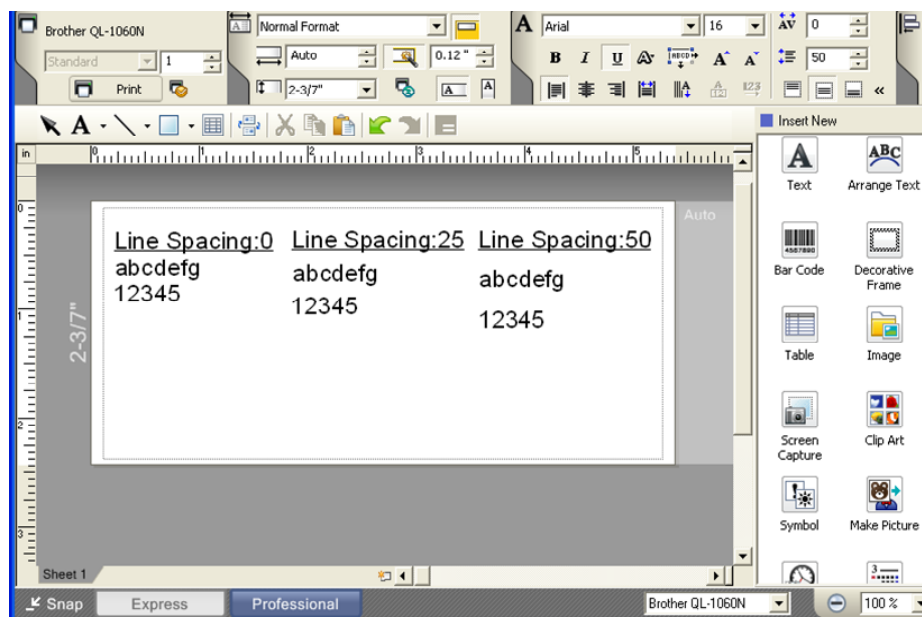
“At Printing” setting

To cancel the “At Printing” setting for a date/time in P-touch Editor, display the properties for the Date and Time object, and then clear the “At Printing” check box.

### 4.1.2 Character alignment

- Horizontal alignment settings (“Justify” or “Equal Length”) specified in P-touch Editor are changed to the left alignment setting.
- The setting for line feed with a line feed specified with the P-touch Editor can be set between 0 and 255 dots.

A negative line spacing setting cannot be used in P-touch Editor. In addition, since there is an upper limit (about 21 mm) for the line width with the printer, a line spacing setting larger than this limit specified in P-touch Editor will not be applied on the printer.



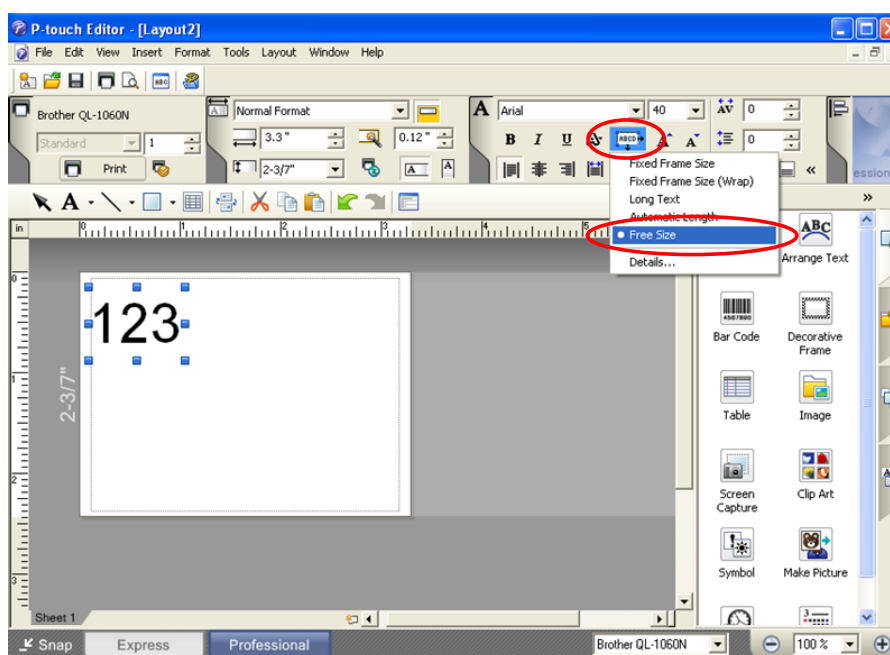
Specifying the line spacing setting in P-touch Editor

### 4.1.3 Text Layout settings

- Character styles specified in P-touch Editor all become the same style within an object.
- If the “Long Text” setting is selected under “Text Layout” in P-touch Editor, the vertical alignment setting is normally set for top alignment.
- If the “Long Text” setting is selected under “Text Layout” in P-touch Editor and continuous length tape is used, the print length is increased to fit the text.
- If the “Fixed Frame Size (Wrap)” setting is selected under “Text Layout” in P-touch Editor, the object size does not change, and the text size is reduced.

“Fixed Frame Size (Wrap)” is a setting that was added for inserting long text. Since it is possible that the text size may become extremely small if the wrapping feature is no longer applied, we recommend that “Fixed Frame Size” be selected when die-cut labels or a fixed length is specified in P-touch Editor, or that “Automatic Length” be selected when an automatic media length is specified.

Shrink to Fit	The text object size is fixed, and the text size is changed depending on the text length.
Clip Text	The text object size is fixed, and the text size is fixed. If the text is too long, the text is not printed.
Long Text	The text object width is fixed, and the text size is fixed. If the text is too long, the text object height is increased.
Automatic Length	The text object height is fixed, and the text size is fixed. If the text is too long, the text object width is increased.
Free Size	The text size is fixed. If the text is too long, the text object width is increased. If a new line is started, the text height is increased.



Specifying a Text Layout setting

Click the button circled in red to display a drop-down list, and then select the desired option.

## 4.2 Relating to barcodes

### 4.2.1 Barcodes

- When trying to transfer a template containing a barcode that is not compatible with the printer, an error will occur while transferring and the template cannot be transferred to the printer.

The following barcodes are compatible with the RJ-XXXX.

1D barcodes	CODE39, ITF(I-2/5), UPC-A, UPC-E, EAN-13, EAN-8, CODABAR, CODE128, GS1-128(UCC/EAN-128) , RSS
2D barcodes	PDF417, QR Code, Data Matrix, MaxiCode

- If data containing characters incompatible with the protocol are fed into the barcode object, that barcode object is not printed.
- The barcode size may differ from that in the print result with P-touch Editor.
- Since CODE128 and GS1-128(UCC/EAN-128) can easily be printed slightly larger, we recommend leaving larger margins when creating templates in P-touch Editor.
- If data fed into a barcode in a template created with P-touch Editor causes an extremely long barcode, the barcode may not be fully printed.
- Do not insert line feed immediately before or immediately after the barcode data. Otherwise, it will be considered as part of the barcode data. In that case, the barcode will be created containing the line feed code, or the barcode will not be printed since data incompatible with the barcode protocol is entered.
- A delimiter or print start text string should be entered immediately after the barcode data.

### 4.2.2 1D barcodes

- The ratio setting for 1D barcodes specified in P-touch Editor is invalid. Normally, this is fixed at 3:1.
- A barcode wider than 22.5 cm will not be printed.
- A 1D barcode taller than 99 mm is converted to 99 mm.
- The number of characters that can be entered for each protocol is shown below.

CODE39	1 to 50 characters (not including “*” on both sides) When feeding data, the asterisks (*) at the beginning and end of the data are skipped.
ITF I-2/5	1 to 64 characters The bearer bar setting specified in P-touch Editor is invalid.
EAN-8	7 characters
EAN-13	12 characters
UPC-A	11 characters
UPC-E	6 characters
CODABAR	3 to 64 characters (with “A”, “B”, “C” or “D” at the beginning and end)
CODE128	1 to 64 characters
GS1-128 (UCC/EAN-128)	1 to 64 characters
RSS-14	3 to 15 characters (begins with “01”)
RSS Limited	3 to 15 characters (begins with “01”; third digit is “0” or “1”)
RSS Expanded	1 to 64 numbers or 1 to 40 letters*

\* ISO646 characters can be printed.

<<numbers, letters, spaces, !, ", %, &, ', (, ), \*, +, ,, -, ., /, :, ;, <, =, >, ? and \_>>

When trying to transfer data exceeding the ranges described above, an error will occur while transferring. If the data that is fed does not meet the minimum limit, the barcode is not printed. If the data exceeds the maximum limit, only the data to the maximum limit is applied. However, if the data exceeds 64 characters, the barcode is not printed.

- If a template is created in P-touch Editor with an extremely low barcode bar height, the bars may not be printed.

**4.2.3 2D barcodes**

QR Code	<p>The version setting for a QR Code specified in P-touch Editor is invalid. The version setting must be turned off.</p> <p>The Structured Append settings specified in P-touch Editor are invalid.</p>
PDF417	<p>Since the error correction levels for PDF417 specified in P-touch Editor are inconsistent with those on the printer, the size of the barcode may change when it is printed with P-touch Template 2.0.</p> <p>The Structured Append settings specified in P-touch Editor are invalid.</p>
Data Matrix	<p>The Structured Append settings specified in P-touch Editor are invalid.</p> <p>Macro settings specified in P-touch Editor are invalid</p>
Maxi Code	<p>The Structured Append settings specified in P-touch Editor are invalid.</p> <p>The barcode is partitioned when too much data is entered.</p> <p>When specifying the country code and service class with P-touch Editor, the number is entered at the beginning if the maximum number of characters is not reached. However, with the printer, the number is entered at the end.</p> <p>Example: "2" is specified.</p> <p>P-touch Editor: "200"; Printer: "002"</p>

### 4.3 Relating to images

- If a template containing overlapping images is transferred with P-touch Editor, all image data will be overlapping. (P-touch Editor displays the image created last on top.)

### 4.4 Relating to Numbering

- A single template can contain a maximum of 9 valid Numbering objects. Numbering will not be performed for Numbering objects that exceed the maximum of 9.
- A single object contains a single Numbering field.
- A Numbering field can contain a maximum of 15 digits. If the field contains more than 15 digits, Numbering will only be performed with the last 15 digits.
- Only Numbering fields will be saved in Numbering objects when printing is finished.
- If the number of characters that was fed in is less than the number of characters in the Numbering object, it may not be printed correctly.

**Note**

**Numbering objects refer to text objects or barcode objects that have the Numbering function applied.**

## 4.5 Others

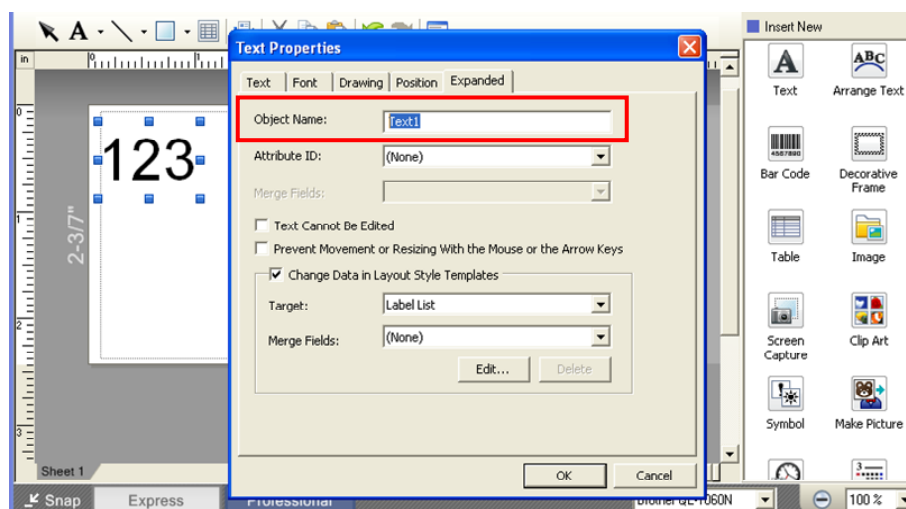
### 4.5.1 Transferring templates

- A maximum of 99 templates can be transferred. The transfer cannot be completed if the amount of data being transferred exceeds 6 MB.
- A single template can contain a maximum of 1000 objects. If the objects exceed 16 KB, an error will occur and the transfer cannot be completed.
- When print data is fed, the command mode should be the P-touch Template mode.
- When a template is transferred to the printer, all values specified with dynamic commands are initialized.
- This is not compatible with split labels.
- After printing from P-touch Editor, the command mode changes to raster mode. In order to print a template, select the P-touch Template mode in the P-touch Template Settings tool or, if the previous mode in the P-touch Template Settings tool was the P-touch Template mode, turn the printer off, then on again to enter P-touch Template mode.

### 4.5.2 About objects in a template

- The line feed codes (0D0A, 0D and 0A) in print data are read, then discarded. However, when specified as special data, such as delimiters, print start text strings or line feed commands, they are applied.
- The order of the objects is determined only by the last four-digit number of the object name. Objects with no numbers in their names will be at the end of the order. If objects have the same number, the order is determined in the following order: text, 1D barcodes, then 2D barcodes. If the objects are of the same type, the object created first is first in the order. We recommend that the numbers indicating the order be added at the end of the object name.

(To specify the name of an object in P-touch Editor, display the properties of the text or barcode object, and then specify the name in the “Object Name” box on the Expanded tab.)



Specifying the object name



## 5. Precautions

### 5.1 Notes for using Bluetooth (RJ-4030 only)

If the printer is connected using Bluetooth, the printer may not be ready immediately after the port is opened. When sending print data, wait at least 500 msec after the port has been opened before starting to send the data.

In addition, if the port is continuously opened and closed, for example, when printing multiple pages, wait at least 500 msec after the port is closed before opening the port the next time.

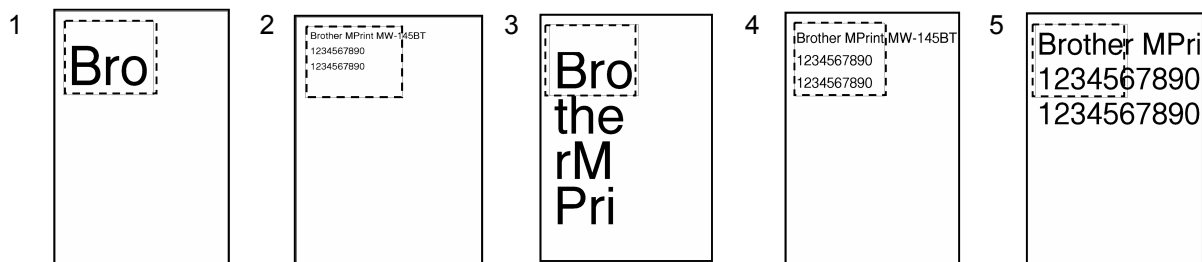
Once the print data for one page has been sent, do not close the Bluetooth port until printing is finished.

Since 32 bytes of data will be returned from the printer when printing is finished, close the port after it is received by the host.

## 5.2 Relationship between the P-touch Editor settings and the printer image

P-touch Editor setting Text options (Text Layout settings)			Printer image				Printed image
			Width		Height		
Text Layout	Details-Options	Wrap Text	Frame Size	Text Size	Frame Size	Text Size	
Fixed Frame Size	Clip Text		Fixed If the text is too long, the overflow text is not printed.	Fixed	Fixed If the text is too long, the overflow text is not printed.	Fixed	1 (See below.)
	Shrink to Fit		Fixed If the text is too long, even with the minimum text size, the overflow text is printed outside the frame.	Auto The text is automatically maximized to fit the frame size.	Fixed If the text is too long, even with the minimum text size, the overflow text is printed outside the frame.	Auto The text is automatically maximized to fit the frame size.	2 (See below.)
	Clip Text	Selected					
	Shrink to Fit	Selected					
Fixed Frame Size (Wrap)	-						
Long Text	-		Fixed The overflow text is automatically sent to the new line.	Fixed	Even the overflow text is printed outside the frame.	Fixed	3 (See below.)
Automatic Length	-		Even the overflow text is printed outside the frame.	Fixed	Fixed If the text is too long, even with the minimum text size, the overflow text is printed outside the frame.	Auto The text is automatically maximized to fit the frame size.	4 (See below.)
Free Size	-		Even the overflow text is printed outside the frame.	Fixed	Even the overflow text is printed outside the frame.	Fixed	5 (See below.)

Printed image



### 5.3 Making a template in order to save time before starting to print

- Perform the following operation to convert permanent objects into images.
  - In the **Text Properties** dialog box, select the **Expanded** tab, and then select the “**Text Cannot Be Edited**” check box.
  - If the **Expanded** tab of the **Text Properties** dialog box is not displayed, click [Options] on the **Tools** menu, and then select the “**Display Expanded Tabs of Object Properties**” check box on the **General** tab.
- Specify the text options (Text Layout settings) so that the text size is fixed.

## 6. Control Code Lists

### 6.1 Setting and retrieving commands for P-touch Template mode

ASCII Code	Binary Code	Static/Dynamic	Description
^PT	5E 50 54	Dynamic	Select print start trigger
^FF	5E 46 46		Start printing
^PS	5E 50 53	Dynamic	Specify print start command text string
^PC	5E 50 43	Dynamic	Specify print start received character count
^SS	5E 53 53	Dynamic	Specify delimiter
^TS	5E 54 53	Dynamic	Select template
^CO	5E 43 4F		Specify printer settings (cut options)
^LS	5E 4C 53	Dynamic	Specify line spacing with line feed
^CC	5E 43 43	Dynamic	Change prefix character
^RC	5E 52 43	Dynamic	Specify line feed command text string
^CN	5E 43 4E	Dynamic	Specify number of copies
^NN	5E 4E 4E	Dynamic	Specify number of Numbering copies
^ID	5E 49 44		Initialize template data
^QS	5E 51 53	Dynamic	Select print options
^QV	5E 51 56	Dynamic	Specify QR Code version
^FC	5E 46 43	Dynamic	FNC1 replacement setting
^II	5E 49 49		Initialize
^OP	5E 4F 50		Perform printer operation (feed)
^SR	5E 53 52		Status request
^VR	5E 56 52		Retrieve version information
^CR	5E 43 52		Line feed in object
^OS	5E 4F 53		Select object (object number)
^ON	5E 4F 4E		Select object (object name)
^DI	5E 44 49		Direct insert object
ESC ia	1B 69 61	Dynamic	Select command mode

#### Note

- \* The commands listed above must be used in P-touch Template mode.
- \* These commands (except ESC ia) cannot be used in raster mode or ESC/P mode.
- \* With dynamic commands, settings specified with a command are temporarily saved and applied until the printer is turned off.

## 6.2 Setting and retrieving commands for raster mode

ASCII Code	Binary Code	Static/Dynamic	Description
ESC iXT2	1B 69 58 54 32	Static	Select print start trigger
ESC iXP2	1B 69 58 50 32	Static	Specify print start command text string
ESC iXr2	1B 69 58 72 32	Static	Specify print start received character count
ESC iXD2	1B 69 58 44 32	Static	Specify delimiter
ESC iXa2	1B 69 58 61 32	Static	Specify non-printed text strings
ESC iXi2	1B 69 58 69 32	Static	Select command mode
ESC iXn2	1B 69 58 6E 32	Static	Select template
ESC iXf2	1B 69 58 66 32	Static	Change prefix character
ESC iXc2	1B 69 58 63 32	Static	Specify printer settings (cut options)
ESC iXy2	1B 69 58 79 32	Static	Specify printer settings (cut options—specifying number of labels)
ESC iXm2	1B 69 58 6D 32	Static	Select character code set
ESC iXj2	1B 69 58 6A 32	Static	Select international character set
ESC iXR2	1B 69 58 52 32	Static	Specify line feed command text string
ESC iXC2	1B 69 58 43 32	Static	Specify number of copies
ESC iXN2	1B 69 58 4E 32	Static	Specify number of Numbering copies
ESC iXF2	1B 69 58 46 32	Static	FNC1 replacement setting
ESC iXq2	1B 69 58 71 32	Static	Select print options
ESC iXT1	1B 69 58 54 31		Retrieve print start trigger setting
ESC iXP1	1B 69 58 50 31		Retrieve print start command setting text string
ESC iXr1	1B 69 58 72 31		Retrieve print start received character count
ESC iXD1	1B 69 58 44 31		Retrieve delimiter
ESC iXa1	1B 69 58 61 31		Retrieve non-printed text strings
ESC iXi1	1B 69 58 69 31		Retrieve command mode setting
ESC iXn1	1B 69 58 6E 31		Retrieve number of selected template
ESC iXc1	1B 69 58 63 31	Static	Retrieves printer settings (cut options)
ESC iXy1	1B 69 58 79 31	Static	Retrieve printer settings (cut options—specifying number of labels)
ESC iXm1	1B 69 58 6D 31		Retrieve character code set setting
ESC iXj1	1B 69 58 6A 31		Retrieve international character set setting
ESC iXf1	1B 69 58 66 31		Retrieve prefix character
ESC iXR1	1B 69 58 52 31		Retrieve line feed command setting text string

(continued from the previous page)

ASCII Code	Binary Code	Static/Dynamic	Description
ESC iXC1	1B 69 58 43 31		Retrieve number of copies setting
ESC iXN1	1B 69 58 4E 31		Retrieve number of Numbering copies setting
ESC iXF1	1B 69 58 46 31		Retrieve FNC1 replacement setting
ESC iXq1	1B 69 58 71 31		Retrieve print options

**Note**

- \* The commands listed above must be used in raster mode.
- \* These commands cannot be used in ESC/P mode or P-touch Template mode.
- \* With static commands, settings specified with a command are saved and stored in the memory.

## 7. Control Command Details

### **^PT**      **Select print start trigger**

ASCII:	^	P	T	n
Decimal:	94	80	84	nd
Hexadecimal:	5E	50	54	nh

#### Parameters

1≤n≤3

#### Description

- Selects the type of print start trigger.
  - n=1: When the specified text string is received (default)
  - n=2: When all objects are filled  
(Prints with the delimiter at the end of the data.)
  - n=3: When the specified number of characters is received  
(not including delimiters)
- This command is a dynamic command.

#### Remarks

- Invalid if n is a value other than 1 through 3

#### Example

- When the print start trigger is “when all objects are filled”:

```
^ P T 2
(5Eh 50h 54h 32h)
```

**^FF      Start printing**

ASCII:	^	F	F
Decimal:	94	70	70
Hexadecimal:	5E	46	46

**Parameters**

None

**Description**

- Starts printing.
- However, the print start trigger must be “when the specified text string is received”.  
(Refer to “^PT” and “ESC iXT2”.)
- The text string for the print start command can be changed.  
(Refer to “^PS” and “ESC iXP2”.)

**Example**

- To print template number 3:

^ T S 0 0 3 ^ F F  
(5Eh 54h 53h 30h 30h 33h 5Eh 46h 46h)



**^PS      Specify print start command text string**

ASCII:	^	P	S	n1	n2	data
Decimal:	94	80	83	nd1	nd2	datad
Hexadecimal:	5E	50	53	nh1	nh2	datah

**Parameters**

$0 \leq n1 \leq 2$

$0 \leq n2 \leq 9$

$00h \leq datah \leq FFh$

**Description**

- Specifies the text string for the print start command.  
 (n1\*10)+n2: Length of the text string (can be set between 1 and 20)  
 data: Text string (The maximum number of characters that can be set is 20 characters (bytes).)
- The default text string for the print start command is “^FF”.
- This command is a dynamic command.

**Remarks**

- Invalid if more than 20 characters have been specified

**Example**

- To change the text string for the print start command to “START”:  
 Since the text string to be specified (data), “START”, contains 5 characters, n1=0 and n2=5. Therefore, the command will be as follows.

^ P S 0 5 S T A R T  
 (5Eh 50h 53h 30h 35h 53h 54h 41h 52h 54h)

**^PC Specify print start received character count**

ASCII:	^	P	C	n1	n2	n3
Decimal:	94	80	67	nd1	nd2	nd3
Hexadecimal:	5E	50	43	nh1	nh2	nh3

**Parameters**

$0 \leq n1 \leq 9$

$0 \leq n2 \leq 9$

$0 \leq n3 \leq 9$

**Description**

- Specifies the number of characters to be received in order to start printing.  
( $n1 \times 100 + n2 \times 10 + n3$ ): Print start received character count (bytes) (1 to 999)
- The default print start received character count is 10.
- This command is a dynamic command.

**Example**

- To change the print start received character count to 100 characters:  
Since  $n1=1$ ,  $n2=0$  and  $n3=0$ , the command will be as follows.

^ P C 1 0 0  
(5Eh 50h 43h 31h 30h 30h)

**^SS Specify delimiter**

ASCII:	^	S	S	n1	n2	data
Decimal:	94	83	83	nd1	nd2	datad
Hexadecimal:	5E	53	53	nh1	nh2	datah

**Parameters**

$0 \leq n1 \leq 2$

$0 \leq n2 \leq 9$

$00h \leq datah \leq FFh$

**Description**

- The delimiter is used to indicate when to move to the next object in data that is being sent.
- Specifies the text string for the delimiter.  
 $(n1 \times 10) + n2$ : Length of the text string (between 1 and 20)  
data: Text string (The maximum number of characters that can be set is 20 characters (bytes).)
- The default text string for the delimiter is "09h" (Tab code).  
A text string that will not appear in the print data should be specified.
- This command is a dynamic command.

**Remarks**

- Invalid if more than 20 characters have been specified

**Example**

- To change the delimiter to "," (2Ch):  
Since the text string contains one character,  $n1=0$  and  $n2=1$ . In addition, with the text string (datah) ",", (2Ch), the command will be as follows.

```
^ S S 0 1 ,  
(5Eh 53h 53h 30h 31h 2Ch)
```

**^TS      Select template**

ASCII:	^	T	S	n1	n2	n3
Decimal:	94	84	83	nd1	nd2	nd3
Hexadecimal:	5E	54	53	nh1	nh2	nh3

**Parameters**

n1: 0 (Fixed)

0≤n2≤9

0≤n3≤9

**Description**

- Specifies the number of the template selected from the printer.  
(n2\*10)+n3: Template number (1 to 99)
- The default selection number is 1.
- This command is a dynamic command.

**Remarks**

- The template numbers that can be set are between 1 and 99.  
This command becomes invalid if any other value has been specified or if the number that has been specified is for a template not transferred to the printer.

**Example**

- To select template number 99:  
Since n2=9 and n3=9, the command will be as follows.

```
^ T S 0 9 9
(5Eh 54h 53h 30h 39h 39h)
```

**^CO      Select printer settings (cut options)**

ASCII:	^	C	O	n1	n2	n3	n4
Decimal:	94	67	79	nd1	nd2	nd3	nd4
Hexadecimal:	5E	43	4F	nh1	nh2	nh3	nh4

**Parameters**

0≤n1≤1

0≤n2≤9

0≤n3≤9

0≤n4≤1

**Description**

- Specifies the various cut options.
  - n1:            Auto cut setting  
(ON: 1 (default); OFF: 0)
  - (n2\*10)+n3: Auto cut label number setting (1 to 99)  
(Default value: 1)
  - n4:            Cut at end setting  
(ON: 1 (default); OFF: 0)
- This command is a dynamic command.

**Remarks**

- The auto cut label number setting can be between 1 and 99.  
This command becomes invalid if any other value has been specified.

**Example**

- To cut after every two labels:  
Since the auto cut setting will be set to ON and the auto cut label number will be two labels, n1=1, n2=0 and n3=2. Therefore, the command will be as follows.

```
^ C O 1 0 2 0
(5Eh 43h 4Fh 31h 30h 32h 30h)
```

**^LS Specify line spacing with line feed**

ASCII:	^	L	S	n1	n2	n3
Decimal:	94	76	83	nd1	nd2	nd3
Hexadecimal:	5E	4C	53	nh1	nh2	nh3

**Parameters**
 $0 \leq n1 \leq 2$ 
 $0 \leq n2 \leq 9$ 
 $0 \leq n3 \leq 9$ 
**Description**

- Specifies the number of dots for the line spacing when a line feed is entered.  
( $n1 \times 100$ ) + ( $n2 \times 10$ ) +  $n3$ : Number of dots for the line spacing (0 to 255)
- The default number of dots for the line spacing when a line feed is entered is the number of dots determined when the template is created in P-touch Editor.
- This command is a dynamic command.

**Remarks**

- The number of dots for the line spacing can be between 0 and 255. This command becomes invalid if any other value has been specified.  
1 dot = 1/203 inch  
1 dot  $\approx$  0.125 mm

**Example**

- To set the line spacing to 10 dots:

```
^ L S 0 1 0
(5Eh 4Ch 53h 30h 31h 30h)
```

**^CC      Change the prefix character**

ASCII:	^	C	C	n
Decimal:	94	67	67	nd
Hexadecimal:	5E	43	43	nh

**Parameters**

00h≤nh≤FFh

**Description**

- Changes the prefix character code.  
n: Character code
- The default text string for the prefix character is “^”.
- This command is a dynamic command.

**Example**

- To change the prefix character from “^” to “\_”:

^ C C 5Fh  
(5Eh 43h 43h 5Fh) (5Fh stands for “\_” in ASCII code)

- However, if the printer is later not turned off, then on again, the prefix character remains set to “\_”, and the initialize command, for example, will be “\_II” instead of “^II”.

**^RC Specify line feed command text string**

ASCII:	^	R	C	n1	n2	data
Decimal:	94	82	67	nd1	nd2	datad
Hexadecimal:	5E	52	43	nh1	nh2	datah

**Parameters**

$0 \leq n1 \leq 2$

$0 \leq n2 \leq 9$

$00h \leq datah \leq FFh$

**Description**

- Specifies the text string for the line feed command.  
(n1\*10)+n2: Length of the text string (can be set between 1 and 20)  
data: Text string (The maximum number of characters that can be set is 20 characters (bytes).)
- The default text string for the line feed command is “^CR”.
- This command is a dynamic command.

**Remarks**

- Invalid if more than 20 characters have been specified

**Example**

- To change the text string for the line feed command to “0Dh 0Ah”:  
Since the text string to be specified (data) contains 2 characters, n1=0 and n2=2. Therefore, the command will be as follows.

^ R C 0 2 0Dh 0Ah  
(5Eh 52h 43h 30h 32h 0Dh 0Ah)



**^CN      Specify number of copies**

ASCII:	^	C	N	n1	n2	n3
Decimal:	94	67	78	nd1	nd2	nd3
Hexadecimal:	5E	43	4E	nh1	nh2	nh3

**Parameters**

$0 \leq n1 \leq 9$

$0 \leq n2 \leq 9$

$0 \leq n3 \leq 9$

**Description**

- Specifies the number of copies to be printed.  
( $n1 \times 100 + n2 \times 10 + n3$ ): Number of copies (bytes) (1 to 999)
- The default number of copies is 1.
- This command is a dynamic command.

**Remarks**

- When printing is finished, the number of copies specified with this command returns to the number of copies (static value) specified from the printer.

**Example**

- To change the number of copies to 100:  
Since  $n1=1$ ,  $n2=0$  and  $n3=0$ , the command will be as follows.

```
^ C N 1 0 0
(5Eh 43h 4Eh 31h 30h 30h)
```

**^NN      Specify number of Numbering copies**

ASCII:	^	N	N	n1	n2	n3
Decimal:	94	78	78	nd1	nd2	nd3
Hexadecimal:	5E	4E	4E	nh1	nh2	nh3

**Parameters**

0≤n1≤9

0≤n2≤9

0≤n3≤9

**Description**

- Specifies the number of copies to be printed with Numbering.  
(n1\*100)+(n2\*10)+n3: Number of Numbering copies (bytes) (1 to 999)
- The default number of copies printed with Numbering is 1.

**Remarks**

- When printing is finished, the number of copies specified with this command returns to the number of copies (static value) specified from the printer.

**Example**

- To change the number of Numbering copies to 100:  
Since n1=1, n2=0 and n3=0, the command will be as follows.

^ N N 1 0 0  
(5Eh 4Eh 4Eh 31h 30h 30h)

**^ID      Initialize template data**

ASCII:	^	I	D
Decimal:	94	73	68
Hexadecimal:	5E	49	44

**Parameters**

None

**Description**

- Returns the data in the selected template to what it was when the template was transferred.

**^QS      Select print options**

ASCII:	^	Q	S	n
Decimal:	94	81	83	nd
Hexadecimal:	5E	51	53	nh

**Parameters**

n: 0, 1

**Description**

- Selects the print options.
  - n=0: Priority given to print speed
  - n=1: Priority given to print quality
- The default value for the print options is "0" (priority given to print speed).
- This command is a dynamic command.

**Example**

- To set the print options to give priority to print quality:  
Since n=1, the command will be as follows.

```
^ Q S 1
(5Eh 51h 53h 31h)
```

**^QV      Specify QR Code version**

ASCII:	^	Q	V	n1	n2
Decimal:	94	81	86	nd1	nd2
Hexadecimal:	5E	51	56	nh1	nh2

**Parameters**
 $0 \leq n1 \leq 9$ 
 $0 \leq n2 \leq 9$ 
**Description**

- Specifies the QR Code version.  
( $n1 \times 10 + n2$ ): Version number (between 0 and 40)
- The default QR Code version is 0.
- This command becomes invalid if a value other than those that can be set (between 0 and 40) has been specified.
- This command is a dynamic command.

**Example**

- To change the version to 10:

Since  $n1=1$  and  $n2=0$ , the command will be as follows.

```
^ Q V 1 0
(5Eh 51h 56h 31h 30h)
```

**^FC      FNC1 replacement setting**

ASCII:	^	F	C	n
Decimal:	94	70	67	nd
Hexadecimal:	5E	46	43	nh

**Parameters**

$0 \leq n \leq 1$

**Description**

- Selects whether or not GS codes, which are included in barcode protocols such as GS1-128 (UCC/EAN-128), are replaced with FNC1 codes.

n: FNC1 replacement setting  
(ON: 1; OFF: 0 (default))

- This command is a dynamic command.

**Remarks**

- Invalid if n is a value other than 1 or 0

**Example**

- To disable FNC1 replacement:

Since FNC1 replacement will be disabled, n=0. Therefore, the command will be as follows.

^ F C 0  
(5Eh 46h 43h 30h)

**^II Initialize**

ASCII:	^	I	I
Decimal:	94	73	73
Hexadecimal:	5E	49	49

**Parameters**

None

**Description**

- Reverts all dynamic settings to the printer settings.
  - (1) Print start trigger setting
  - (2) Print start command text string
  - (3) Print start received character count
  - (4) Delimiter
  - (5) Number of selected template
  - (6) Line spacing with line feed
  - (7) Prefix character
  - (8) Number of copies setting
  - (9) Print options setting
  - (10) QR Code version setting
  - (11) Line feed command text string
  - (12) FNC1 replacement setting

**^OP      Perform printer operation (feed)**

ASCII:	^	O	P	n
Decimal:	94	79	80	nd
Hexadecimal:	5E	4F	50	nh

**Parameters**
 $1 \leq n \leq 2$ 
**Description**

- Causes the printer to perform a feed operation.
  - n=1: Feeds 1 inch (for continuous length tape)
  - n=2: Feeds one label length (for die-cut labels)

**Remarks**

- Invalid if n is a value other than 1 or 2

**Example**

- To specify that the printer performs a feed operation:

```
^ O P 2
(5Eh 4Fh 50h 32h)
```

**^SR      Status request**

ASCII:	^	S	R
Decimal:	94	83	82
Hexadecimal:	5E	53	52

**Parameters**

None

**Description**

- Returns the printer status.

The printer status consists of 32 bytes.

Number	Offset	Size	Name	Value/Reference
1	0	1	Print head mark	Fixed at 80h
2	1	1	Size	Fixed at 20h
3	2	1	Brother code	Fixed at "B" (42h)
4	3	1	Series code	Fixed at "7" (35h)
5	4	1	Model code	Fixed at RJ-4030: "1" (31h) RJ-4040: "2" (32h)
6	5	1	Country code	Fixed at "0" (30h)
7	6	1	Battery level information	Refer to table (5) below.
8	7	1	Reserved	Fixed at 00h
9	8	1	Error information 1	Refer to table (1) below.
10	9	1	Error information 2	Refer to table (2) below.
11	10	1	Media width	
12	11	1	Media type	Refer table (3) below.
13	12	1	Number of colors	Fixed at 00h
14	13	1	Media length (higher order bytes)	
15	14	1	Media sensor value	
16	15	1	Mode	Fixed at 00h
17	16	1	Density	Fixed at 00h
18	17	1	Media length (lower order bytes)	
19	18	1	Status type	Refer to table (4) below.
20	19	1	Phase type	Fixed at 00h
21	20	1	Phase number (higher order bytes)	Fixed at 00h
22	21	1	Phase number (lower order bytes)	Fixed at 00h
23	22	1	Notification number	Not used
24	23	1	Expansion area (number of bytes)	Fixed at 00h
25	24	8	Reserved	Fixed at 00h



## (1) Error information 1

Flag	Mask	Definition
Bit 0	01h	"No media" error
Bit 1	02h	"End of media" error
Bit 2	04h	"Cutter jam" error
Bit 3	08h	Not used
Bit 4	10h	Printer in use
Bit 5	20h	Printer turned off
Bit 6	40h	Not used
Bit 7	80h	Fan motor error

## (2) Error information 2

Flag	Mask	Definition
Bit 0	01h	"Replace media" error
Bit 1	02h	"Expansion buffer is full." error
Bit 2	04h	Communication error
Bit 3	08h	Image error occurred
Bit 4	10h	"Cover open" error
Bit 5	20h	Not used
Bit 6	40h	Leading edge detection error
Bit 7	80h	System error

## (3) Media type

Media Type	Value	Remarks
Continuous length tape	4Ah	
Die-cut label	4Bh	

## (4) Status type

Status Type	Value	Remarks
Reply to status request	00h	
(Not used)	01h	
Error occurred	02h	
(Not used)	03h to FFh	

## (5) Battery level information

Flag	Mask	Meaning
Bit 0	00h	Full battery
Bit 1	01h	Half battery
Bit 2	02h	Low battery
Bit 3	03h	Changing required
Bit 4	04h	AC adapter in use

**^VR      Retrieve version information**

ASCII:	^	V	R
Decimal:	94	86	82
Hexadecimal:	5E	56	52

Parameters

None

Description

- Retrieves the version information for the printer as a 16-character text string.

**^CR      Line feed in object**

ASCII:	^	C	R
Decimal:	94	67	82
Hexadecimal:	5E	43	52

**Parameters**

None

**Description**

- Adds a line feed to the next line in the text object.
- Valid even if the text string for the line feed command has been changed

**Example**

- To print three lines:

Code: 1 ^ C R 2 ^ C R 3 ^ F F

(31h 5Eh 43h 52h 32h 5Eh 43h 52h 33h 5Eh 46h 46h)

Print result:

1
2
3

**^OS      Select object (object number)**

ASCII:	^	O	S	n1	n2
Decimal:	94	79	83	nd1	nd2
Hexadecimal:	5E	4F	53	nh1	nh2

**Parameters**

$0 \leq n1 \leq 9$

$0 \leq n2 \leq 9$

**Description**

- Selects an object by its object number.  
( $n1 \times 10 + n2$ ): Object number (1 to 99)

**Remarks**

- The object number can be set between 1 and 99.  
This command becomes invalid if any other value has been specified.
- Use this command to insert data starting with an intermediary object.

**Example**

- To select the 33rd object:

^ O S 3 3  
(5Eh 4Fh 53h 33h 33h)

**^ON      Select object (object name)**

ASCII:	^	O	N	data	00
Decimal:	94	79	78	datad	00
Hexadecimal:	5E	4F	4E	datah	00

**Parameters**

None

**Description**

- Selects an object by its object name.  
data: Text string (object name)

**Remarks**

- The maximum length of text that can be set is 20 characters. If text longer than this has been specified, the command becomes invalid. In addition, the command becomes invalid if no text has been specified.
- "00h" should be added at the end of the text. This indicates the end of the text.
- Use this command to insert data starting with an intermediary object.

**Example**

- To select an object with the name "TEXT1":

```
^ O N T E X T 1 00h
(5Eh 4Fh 4Eh 54h 45h 58h 54h 31h 00h)
```

**^DI      Directly insert object**

ASCII:	^	D	I	n1	n2	data
Decimal:	94	68	73	nd1	nd2	datad
Hexadecimal:	5E	44	49	nh1	nh2	datah

**Parameters**

00h≤nh1≤FFh

00h≤nh2≤FEh

**Description**

- Inserts a text string for the specified number of characters into the object selected in the selected template. (Even if a print command or delimiter is within the specified number of characters, they are treated as data.)

(nh2\*256)+nh1: Specified number of characters

data:              Text string

**Example**

- If "A" is specified as the print start text string, and the print start trigger is specified as the print start text string, easily print "A" with the following command.

Code: ^ D I 03h 00h 1 A 2 A

(5Eh 44h 49h 00h 03h 31h 41h 32h 41h)

Print result:

1A2

**ESC i a     Select command mode**

ASCII:	ESC	i	a	n
Decimal:	27	105	97	nd
Hexadecimal:	1B	69	61	nh

**Parameters**

nh=00h 01h 03h 30h 31h 33h

**Description**

- Switches the mode.
  - nh=00h or 30h: ESC/P mode (default)
  - nh=01h or 31h: Raster mode
  - nh=03h or 33h: P-touch Template mode
- This command is a dynamic command.

**Remarks**

- If the specified value is one other than those that can be set, raster mode will be entered.

**ESC iXT2 Select print start trigger**

ASCII:	ESC	i	X	T	2	n1	n2	n3
Decimal:	27	105	88	84	50	nd1	nd2	nd3
Hexadecimal:	1B	69	58	54	32	nh1	nh2	nh3

**Parameters**

nh1=01h (Fixed)

nh2=00h (Fixed)

00h≤nh3≤02h

**Description**

- Selects the type of print start trigger.
  - nh3=00h: When the specified text string is received (default)
  - nh3=01h: When all objects are filled  
(Prints with the delimiter at the end of the data.)
  - nh3=02h: When the specified number of characters is received  
(not including delimiters)
- This command is a static command.

**Remarks**

- Invalid if nh3 is a value other than 00h through 02h

**Example**

- When the print start trigger is “when all objects are filled”:

ESC i X T 2 01h 00h 01h  
 (1Bh 69h 58h 54h 32h 01h 00h 01h)



**ESC iXP2 Specify print start command text string**

ASCII:	ESC	i	X	P	2	n1	n2	data
Decimal:	27	105	88	80	50	nd1	nd2	datad
Hexadecimal:	1B	69	58	50	32	nh1	nh2	datah

**Parameters**

01h≤nh1≤14h

nh2: 00h (Fixed)

00h≤datah≤FFh

**Description**

- Specifies the text string for the print start command.  
 nh1+(nh2\*256): Length of the text string (can be set between 1 and 20)  
 data: Text string (The maximum number of characters that can be set is 20 characters (bytes).)
- The default text string for the print start command is “^FF”.
- This command is a static command.

**Remarks**

- Invalid if more than 20 characters have been specified

**Example**

- To change the text string for the print start command to “START”:  
 Since the text string to be specified (data), “START”, contains 5 characters, nh1=05h and nh2=00h.  
 Therefore, the command will be as follows.

ESC i X P 2 05h 00h S T A R T  
 (1Bh 69h 58h 50h 32h 05h 00h 53h 54h 41h 52h 54h)

**ESC iXr2 Specify print start received character count**

ASCII:	ESC	i	X	r	2	n1	n2	n3	n4
Decimal:	27	105	88	114	50	nd1	nd2	nd3	nd4
Hexadecimal:	1B	69	58	72	32	nh1	nh2	nh3	nh4

**Parameters**

nh1: 02h (Fixed)

nh2: 00h (Fixed)

00h≤nh3≤FFh

00h≤nh4≤03h

**Description**

- Specifies the number of characters to be received in order to start printing.  
nh3+(nh4\*256): Print start received character count (bytes) (1 to 999)
- The default print start received character count is 10.
- This command is a static command.

**Example**

- To change the print start received character count to 100 characters:

Since nh3=64h and nh4=00h, the command will be as follows.

ESC i X r 2 02h 00h 64h 00h  
(1Bh 69h 58h 72h 32h 02h 00h 64h 00h)

**ESC iXD2 Specify delimiter**

ASCII:	ESC	i	X	D	2	n1	n2	data
Decimal:	27	105	88	68	50	nd1	nd2	datad
Hexadecimal:	1B	69	58	44	32	nh1	nh2	datah

**Parameters**

01h≤nh1≤14h

nh2: 00h (Fixed)

00h≤datah≤FFh

**Description**

- The delimiter is used to indicate when to move to the next object in data that is being sent.
- Specifies the text string for the delimiter.  
 nh1+(nh2\*256): Length of the text string (between 1 and 20)  
 data: Text string (The maximum number of characters that can be set is 20 characters (bytes).)
- The default text string for the delimiter is "09h" (Tab code).
- This command is a static command.

**Remarks**

- Invalid if more than 20 characters have been specified

**Example**

- To change the delimiter to "," (2Ch):  
 Since the text string contains one character, nh1=01h and nh2=00h. In addition, with the text string (datah) ",", (2Ch), the command will be as follows.

ESC i X D 2 01h 00h 2Ch  
 (1Bh 69h 58h 44h 32h 01h 00h 2Ch)

**ESC iXa2 Specify non-printed text strings**

ASCII:	ESC	i	X	a	2	n1	n2	n3	data
Decimal:	27	105	88	97	50	nd1	nd2	nd3	datad
Hexadecimal:	1B	69	58	61	32	nh1	nh2	nh3	datah

**Parameters**

01h≤nh1≤15h

nh2: 00h (Fixed)

nh3: 01h (Fixed)

00h≤datah≤FFh

**Description**

- Specifies the non-printed text string.  
 nh1+(nh2\*256): Length of the text string (0 to 20) + 1  
 data: Text string (The maximum number of characters that can be set is 20 characters (bytes).)
- This command is a static command.

**Remarks**

- Invalid if more than 20 characters have been specified

**Example**

- To specify the non-printed text string as "ABCD":  
 Since the text string contains four characters, nh1=05h and nh2=00h. Therefore, the command will be as follows.

ESC i X a 2 05h 00h 01h A B C D  
 (1Bh 69h 58h 61h 32h 05h 00h 01h 41h 42h 43h 44h)

**ESC iXi2    Select command mode**

ASCII:	ESC	i	X	i	2	n1	n2	n3
Decimal:	27	105	88	105	50	nd1	nd2	nd3
Hexadecimal:	1B	69	58	69	32	nh1	nh2	nh3

**Parameters**

nh1: 01h (Fixed)

nh2: 00h (Fixed)

nh3: 00h 01h 03h

**Description**

- Switches the mode.
  - nh3=00h: ESC/P mode (default)
  - nh3=01h: Raster mode
  - nh3=03h: P-touch Template mode
- This command is a static command.

**Remarks**

- Invalid if a value other than those that can be set has been specified

**ESC iXn2 Select template**

ASCII:	ESC	i	X	n	2	n1	n2	n3
Decimal:	27	105	88	110	50	nd1	nd2	nd3
Hexadecimal:	1B	69	58	6E	32	nh1	nh2	nh3

**Parameters**

nh1: 01h (Fixed)

nh2: 00h (Fixed)

01h≤nh3≤63h

**Description**

- Selects the number of the template selected from the printer.  
n3: Template number (1 to 99)
- The default selection number is 1.
- This command is a static command.

**Remarks**

- The template numbers that can be set are between 1 and 99.  
This command becomes invalid if any other value has been specified or if the number that has been specified is for a template not transferred to the printer.

**Example**

- To select template number 99:  
Since nh3=63h, the command will be as follows.

ESC i X n 2 01h 00h 63h  
(1Bh 69h 58h 6Eh 32h 01h 00h 63h)

**ESC iXf2    Change the prefix character**

ASCII:	ESC	i	X	f	2	n1	n2	n3
Decimal:	27	105	88	102	50	nd1	nd2	nd3
Hexadecimal:	1B	69	58	66	32	nh1	nh2	nh3

**Parameters**

nh1: 01h (Fixed)

nh2: 00h (Fixed)

00h≤nh3≤FFh

**Description**

- Changes the prefix character code.  
n3: Character code
- The default text string for the prefix character is “^”.
- This command is a static command.

**Example**

- To change the prefix character to “\_”:

ESC i X f 2 01h 00h 5Fh (“\_”)  
(1Bh 69h 58h 66h 32h 01h 00h 5Fh)

**ESC iXc2 Select printer settings (cut options)**

ASCII:	ESC	i	X	c	2	n1	n2	n3
Decimal:	27	105	88	99	50	nd1	nd2	nd3
Hexadecimal:	1B	69	58	63	32	nh1	nh2	nh3

**Parameters**

nh1: 01h (Fixed)

nh2: 00h (Fixed)

nh3: 00h 01h 08h 09h

**Description**

- Selects the various cut options.
  - nh3=00h: No cutting
  - nh3=01h: Automatically cuts
  - nh3=08h: Cut at end of printing
  - nh3=09h: Automatically cuts, and cuts at end of printing
- This command is a static command.

**Example**

- To select auto cutting:

ESC i X c 2 01h 00h 01h  
 (1Bh 69h 58h 63h 32h 01h 00h 01h)



**ESC iXy2 Select printer settings (cut options—specifying number of labels)**

ASCII:	ESC	i	X	y	2	n1	n2	n3
Decimal:	27	105	88	121	50	nd1	nd2	nd3
Hexadecimal:	1B	69	58	79	32	nh1	nh2	nh3

**Parameters**

nh1: 01h (Fixed)

nh2: 00h (Fixed)

01h≤nh3≤63h

**Description**

- Specifies that the tape will be cut after the specified number of labels. (If the auto cut setting is ON, the tape will be cut after the number of labels specified with this setting.)  
nh3: Cuts after a specified number of labels (01h to 63h)
- This command is a static command.

**Example**

- To cut after every five labels (However, the auto cut setting must be set to ON.):

ESC i X y 2 01h 00 05h

(1Bh 69h 58h 79h 32h 01h 00h 05h)

**ESC iXm2 Select character code set**

ASCII:	ESC	i	X	m	2	n1	n2	n3
Decimal:	27	105	88	109	50	nd1	nd2	nd3
Hexadecimal:	1B	69	58	6D	32	nh1	nh2	nh3

**Parameters**

nh1: 01h (Fixed)

nh2: 00h (Fixed)

nh3: 00h 01h 02h 03h

**Description**

- Selects the character code set. (For details on the character code sets, refer to the character code tables in "[Appendix B: Character Code Tables](#)".)  
 nh3=00h: Brother standard  
 nh3=01h: Windows1250 (Eastern Europe)  
 nh3=02h: Windows1252 (Western Europe)  
 nh3=03h: ZPL II Emulation
- Invalid if nh3 is set to a value other than 00h through 02h
- This command is a static command.

**Example**

- To set the character code set to the Brother standard:

ESC i X m 2 01h 00h 00h  
 (1Bh 69h 58h 6Dh 32h 01h 00h 00h)

**ESC iXj2 Select international character set**

ASCII:	ESC	i	X	j	2	n1	n2	n3
Decimal:	27	105	88	106	50	nd1	nd2	nd3
Hexadecimal:	1B	69	58	6A	32	nh1	nh2	nh3

**Parameters**

nh1: 01h (Fixed)  
 nh2: 00h (Fixed)  
 00h≤nh3≤0Dh, 40h

**Description**

- Selects the character set according to the country selected, and switches some character codes in the code table according to the value for nh3.

nh3=00h: USA  
 nh3=01h: France  
 nh3=02h: Germany  
 nh3=03h: Britain  
 nh3=04h: Denmark I  
 nh3=05h: Sweden  
 nh3=06h: Italy  
 nh3=07h: Spain I  
 nh3=08h: Japan  
 nh3=09h: Norway  
 nh3=0Ah: Denmark II  
 nh3=0Bh: Spain II  
 nh3=0Ch: Latin America  
 nh3=0Dh: South Korea  
 nh3=40h: Legal

- The following 12 codes are switched.  
 23h 24h 40h 5Bh 5Ch 5Dh 5Eh 60h 7Bh 7Ch 7Dh 7Eh  
 (For the characters that are switched, refer to "[International character set table](#)".)
- The default setting is nh3=00h (USA).
- This command is a static command.

**Example**

- To change the international character set to that for Japan:

ESC i X j 2 01h 00h 08h  
 (1Bh 69h 58h 6Ah 32h 01h 00h 08h)

**ESC iXR2 Specify line feed command text string**

ASCII:	ESC	i	X	R	2	n1	n2	data
Decimal:	27	105	88	82	50	nd1	nd2	datad
Hexadecimal:	1B	69	58	52	32	nh1	nh2	datah

**Parameters**

01h≤nh1≤14h

nh2: 00h (Fixed)

00h≤datah≤FFh

**Description**

- Specifies the text string for the line feed command.
  - nh1+(nh2\*256): Length of the text string (can be set between 1 and 20)
  - data: Text string (The maximum number of characters that can be set is 20 characters (bytes).)
- The default text string for the line feed command is “^CR”.
- This command is a static command.

**Remarks**

- Invalid if more than 20 characters have been specified

**Example**

- To change the text string for the line feed command to “0Dh 0Ah”:
 

Since the text string to be specified (data), contains 2 characters, nh1=02h and nh2=00h. Therefore, the command will be as follows.

ESC i X R 2 02h 00h 0Dh 0Ah  
(1Bh 69h 58h 52h 32h 02h 00h 0Dh 0Ah)

**ESC iXC2 Specify number of copies**

ASCII:	ESC	i	X	C	2	n1	n2	n3	n4
Decimal:	27	105	88	67	50	nd1	nd2	nd3	nd4
Hexadecimal:	1B	69	58	43	32	nh1	nh2	nh3	nh4

**Parameters**

nh1: 02h (Fixed)

nh2: 00h (Fixed)

00h≤nh3≤FFh

00h≤nh4≤03h

**Description**

- Specifies the number of copies to be printed.  
nh3+(nh4\*256): Number of copies (bytes) (1 to 999)
- The default number of copies is 1.
- This command is a static command.

**Example**

- To change the number of copies to 100:

Since nh3=64h and nh4=00h, the command will be as follows.

ESC i X C 2 02h 00h 64h 00h

(1Bh 69h 58h 43h 32h 02h 00h 64h 00h)

**ESC iXN2 Specify number of Numbering copies**

ASCII:	ESC	i	X	N	2	n1	n2	n3	n4
Decimal:	27	105	88	78	50	nd1	nd2	nd3	nd4
Hexadecimal:	1B	69	58	4E	32	nh1	nh2	nh3	nh4

**Parameters**

nh1: 02h (Fixed)

nh2: 00h (Fixed)

00h≤nh3≤FFh

00h≤nh4≤03h

**Description**

- Specifies the number of copies to be printed with Numbering.  
nh3+(nh4\*256): Number of Numbering copies (bytes) (1 to 999)
- The default number of copies printed with Numbering is 1.
- This command is a static command.

**Example**

- To change the number of Numbering copies to 100:  
Since nh3=64h and nh4=00h, the command will be as follows.

ESC i X N 2 02h 00h 64h 00h  
(1Bh 69h 58h 4Eh 32h 02h 00h 64h 00h)

**ESC iXF2 FNC1 replacement setting**

ASCII:	ESC	i	X	F	2	n1	n2	n3
Decimal:	27	105	88	70	50	nd1	nd2	nd3
Hexadecimal:	1B	69	58	46	32	nh1	nh2	nh3

**Parameters**

nh1: 01h (Fixed)

nh2: 00h (Fixed)

nh3: 00h 01h

**Description**

- Selects whether or not GS codes, which are included in barcode protocols such as GS1-128 (UCC/EAN-128), are replaced with FNC1 codes.  
nh3=00h: FNC1 replacement setting OFF  
nh3=01h: FNC1 replacement setting ON
- This command is a static command.

**Example**

- To disable FNC1 replacement:

ESC i X F 2 01h 00h 00h  
(1Bh 69h 58h 46h 32h 01h 00h 00h)

**ESC iXq2 Select print options**

ASCII:	ESC	i	X	q	2	n1	n2	n3
Decimal:	27	105	88	113	50	nd1	nd2	nd3
Hexadecimal:	1B	69	58	71	32	nh1	nh2	nh3

**Parameters**

nh1: 01h (Fixed)

nh2: 00h (Fixed)

nh3: 00h, 01h

**Description**

- Selects the print options.
  - nh3=00h: Priority given to print speed
  - nh3=01h: Priority given to print quality
- The default value for the print options is "00h" (priority given to print speed).
- This command is a static command.

**Example**

- To set the print options to give priority to print quality:

Since nh3=01h, the command will be as follows.

ESC i X q 2 01h 00h 01h

(1Bh 69h 58h 71h 32h 01h 00h 01h)



**ESC iXT1 Retrieve print start trigger setting**

ASCII:	ESC	i	X	T	1	n1	n2
Decimal:	27	105	88	84	49	nd1	nd2
Hexadecimal:	1B	69	58	54	31	nh1	nh2

**Parameters**

nh1=00h (Fixed)

nh2=00h (Fixed)

**Description**

- The print start trigger is returned as 3-byte data.
  - [1]: 01h (Fixed)
  - [2]: 00h (Fixed)
  - [3]: Setting
    - 00h: When the specified text string is received
    - 01h: When all objects are filled
    - 02h: When the specified number of characters is received
- The retrieved value is a value specified by a static command.

**Example**

- The print start trigger specified for the printer is retrieved. When the setting is “when the specified text string is received”:

Code: ESC i X T 1 00h 00h  
 (1Bh 69h 58h 54h 31h 00h 00h)  
 Returned value: 01h 00h 00h

**ESC iXP1 Retrieve print start command setting text string**

ASCII:	ESC	i	X	P	1	n1	n2
Decimal:	27	105	88	80	49	nd1	nd2
Hexadecimal:	1B	69	58	50	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the text string specified for the print start command.
- 3- to 22-byte data is returned from the printer. (Varies depending on the length of the text string)
  - [1,2]: nh1 nh2 (number of characters)  $nh1+(nh2*256)$
  - [3 and later]: Text string
- The retrieved value is a value specified by a static command.

**Example**

- When the text string for the print start command is specified as "START":

Code: ESC i X P 1 00h 00h  
 (1Bh 69h 58h 50h 31h 00h 00h)  
 Returned value: 05h 00h S T A R T  
 (05h 00h 53h 54h 41h 52h 54h)

**ESC iXr1 Retrieve print start received character count**

ASCII:	ESC	i	X	r	1	n1	n2
Decimal:	27	105	88	114	49	nd1	nd2
Hexadecimal:	1B	69	58	72	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the number of characters specified to be received in order to start printing.
- 4-byte data is returned from the printer.
  - [1]: 02h (Fixed)
  - [2]: 00h (Fixed)
  - [3,4]: nh3 nh4 settings  
nh3+(nh4\*256): Print start received character count
- The retrieved value is a value specified by a static command.

**Example**

- For a print start received character count of 500 characters:

Code: ESC i X r 1 00h 00h

(1Bh 69h 58h 72h 31h 00h 00h)

Returned value: 02h 00h F4h 01h (244+1\*256=F4h+01h\*256=500 characters)

**ESC iXD1 Retrieve delimiter**

ASCII:	ESC	i	X	D	1	n1	n2
Decimal:	27	105	88	68	49	nd1	nd2
Hexadecimal:	1B	69	58	44	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the text string specified for the delimiter.
- 3- to 22-byte data is returned from the printer. (Varies depending on the length of the text string)
  - [1,2]: nh1 nh2 (number of characters) nh1+(nh2\*256)
  - [3 and later]: Text string
- The retrieved value is a value specified by a static command.

**Example**

- When the delimiter is set as “,” (2Ch):

Code: ESC i X D 1 00h 00h  
 (1Bh 69h 58h 44h 31h 00h 00h)  
 Returned value: 01h 00h  
 (01h 00h 2Ch)

**ESC iXa1 Retrieve non-printed text strings**

ASCII:	ESC	i	X	a	1	n1	n2	n3
Decimal:	27	105	88	97	49	nd1	nd2	nd3
Hexadecimal:	1B	69	58	61	31	nh1	nh2	nh3

**Parameters**

nh1: 01h (Fixed)

nh2: 00h (Fixed)

nh3: 01h (Fixed)

**Description**

- Retrieves the specified non-printed text string.
- 2- to 22-byte data is returned from the printer. (Varies depending on the length of the text string)  
[1,2]: nh1 nh2 (number of characters)  $nh1+(nh2*256)$   
[3 and later]: Text string
- The retrieved value is a value specified by a static command.

**Example**

- When "ABCD" is specified as the non-printed text string:

The following command is sent to the printer.

Code: ESC i X a 1 01h 00h 01h  
(1Bh 69h 58h 61h 31h 01h 00h 01h)  
Returned value: 04h 00h A B C D  
(04h 00h 41h 42h 43h 44h)

**ESC iXi1 Retrieve command mode setting**

ASCII:	ESC	i	X	i	1	n1	n2
Decimal:	27	105	88	105	49	nd1	nd2
Hexadecimal:	1B	69	58	69	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the setting for the command mode.
- 3-byte data is returned from the printer.
  - [1]: 01h (Fixed)
  - [2]: 00h (Fixed)
  - [3]: Setting
    - 00h: ESC/P mode
    - 01h: Raster mode
    - 03h: P-touch Template mode
- The retrieved value is a value specified by a static command.

**Example**

- When the setting is for raster mode:

Code: ESC i X i 1 00h 00h  
 (1Bh 69h 58h 69h 31h 00h 00h)  
 Returned value: 01h 00h 01h

**ESC iXn1 Retrieve number of selected template**

ASCII:	ESC	i	X	n	1	n1	n2
Decimal:	27	105	88	110	49	nd1	nd2
Hexadecimal:	1B	69	58	6E	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the template number selected from the printer.
- 3-byte data is returned from the printer.
  - [1]: 01h (Fixed)
  - [2]: 00h (Fixed)
  - [3]: Setting
- The retrieved value is a value specified by a static command.

**Example**

- When template number 99 is selected:

Code: ESC i X n 1 00h 00h  
 (1Bh 69h 58h 6Eh 31h 00h 00h)  
 Returned value: 01h 00h 63h

**ESC iXc1 Retrieve printer settings (cut options)**

ASCII:	ESC	i	X	c	1	n1	n2
Decimal:	27	105	88	99	49	nd1	nd2
Hexadecimal:	1B	69	58	63	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the various cut settings.
- 3-byte data is returned from the printer.
  - [1]: 01h (Fixed)
  - [2]: 00h (Fixed)
  - [3]: Setting
    - 00h: No cutting
    - 01h: Automatically cuts
- The retrieved value is a value specified by a static command.

**Example**

- When auto cutting is selected:

Code: ESC i X c 1 00h 00h  
 (1Bh 69h 58h 63h 31h 00h 00h)  
 Returned value: 01h 00h 01h



**ESC iXy1 Retrieve printer settings (cut options—specifying number of labels)**

ASCII:	ESC	i	X	y	1	n1	n2
Decimal:	27	105	88	121	49	nd1	nd2
Hexadecimal:	1B	69	58	79	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the setting for cutting after a specified number of labels.
- 3-byte data is returned from the printer.
  - [1]: 01h (Fixed)
  - [2]: 00h (Fixed)
  - [3]: Setting
- The retrieved value is a value specified by a static command.

**Example**

- When cutting is specified for every five labels:

Code: ESC i X y 1 00h 00h  
 (1Bh 69h 58h 79h 31h 00h 00h)  
 Returned value: 01h 00h 05h

**ESC iXm1 Retrieve character code set setting**

ASCII:	ESC	i	X	m	1	n1	n2
Decimal:	27	105	88	109	49	nd1	nd2
Hexadecimal:	1B	69	58	6D	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the specified character code set. (For details on the character code sets, refer to "[Appendix B: Character Code Tables](#)".)
- 3-byte data is returned from the printer.
  - [1]: 01h (Fixed)
  - [2]: 00h (Fixed)
  - [3]: Setting
    - 00h: Brother standard
    - 01h: Windows1250 (Eastern Europe)
    - 02h: Windows1252 (Western Europe)
    - 03h: ZPL II Emulation
- The retrieved value is a value specified by a static command.

**Example**

- When the character code set is the Brother standard:

Code: ESC i X m 1 00h 00h  
 (1Bh 69h 58h 6Dh 31h 00h 00h)  
 Returned value: 01h 00h 00h

**ESC iXj1 Retrieve international character set setting**

ASCII:	ESC	i	X	j	1	n1	n2
Decimal:	27	105	88	106	49	nd1	nd2
Hexadecimal:	1B	69	58	6A	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the international character set setting.
- 3-byte data is returned from the printer.
  - [1]: 01h (Fixed)
  - [2]: 00h (Fixed)
  - [3]: Setting
    - 00h: USA
    - 01h: France
    - 02h: Germany
    - 03h: Britain
    - 04h: Denmark I
    - 05h: Sweden
    - 06h: Italy
    - 07h: Spain I
    - 08h: Japan
    - 09h: Norway
    - 0Ah: Denmark II
    - 0Bh: Spain II
    - 0Ch: Latin America
    - 0Dh: South Korea
    - 40h: Legal
- The retrieved value is a value specified by a static command.

**Example**

- When the international character set is that for Japan:

Code: ESC i X j 1 00h 00h  
 (1Bh 69h 58h 6Ah 31h 00h 00h)  
 Returned value: 01h 00h 08h

**ESC iXf1 Retrieve prefix character**

ASCII:	ESC	i	X	f	1	n1	n2
Decimal:	27	105	88	102	49	nd1	nd2
Hexadecimal:	1B	69	58	66	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the prefix character code.
- 3-byte data is returned from the printer.
  - [1]: 01h (Fixed)
  - [2]: 00h (Fixed)
  - [3]: Specified character
- The retrieved value is a value specified by a static command.

**Example**

- When the prefix character is set to “\_”:

Code: ESC i X f 1 00h 00h

(1Bh 69h 58h 66h 31h 00h 00h)

Returned value: 01h 00h 5Fh (5Fh stands for “\_” in ASCII code)

**ESC iXR1 Retrieve line feed command setting text string**

ASCII:	ESC	i	X	R	1	n1	n2
Decimal:	27	105	88	82	49	nd1	nd2
Hexadecimal:	1B	69	58	52	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the text string specified for the line feed command.
- 2- to 22-byte data is returned from the printer. (Varies depending on the length of the text string)
  - [1, 2]: nh1 nh2 (number of characters) nh1+(nh2\*256)
  - [3 and later]: Text string
- The retrieved value is a value specified by a static command.

**Example**

- When the text string for the line feed command is specified as "0Dh 0Ah":

Code: ESC i X R 1 00h 00h

(1Bh 69h 58h 52h 31h 00h 00h)

Returned value: 02h 00h 0Dh 0Ah

**ESC iXC1 Retrieve number of copies setting**

ASCII:	ESC	i	X	C	1	n1	n2
Decimal:	27	105	88	67	49	nd1	nd2
Hexadecimal:	1B	69	58	43	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the number of copies specified to be printed.
- 4-byte data is returned from the printer.
  - [1]: 02h (Fixed)
  - [2]: 00h (Fixed)
  - [3, 4]: nh3 nh4 settings  
nh3+(nh4\*256): Print start received character count
- The retrieved value is a value specified by a static command.

**Example**

- When the number of copies is set to 500:

Code: ESC i X C 1 00h 00h

(1Bh 69h 58h 43h 31h 00h 00h)

Returned value: 02h 00h F4h 01h (F4h+01h\*256=244+256=500)

**ESC iXN1 Retrieve number of Numbering copies setting**

ASCII:	ESC	i	X	N	1	n1	n2
Decimal:	27	105	88	78	49	nd1	nd2
Hexadecimal:	1B	69	58	4E	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the number of copies specified to be printed with Numbering.
- 4-byte data is returned from the printer.
  - [1]: 02h (Fixed)
  - [2]: 00h (Fixed)
  - [3, 4]: nh3 nh4 settings  
nh3+(nh4\*256): Number of Numbering copies
- The retrieved value is a value specified by a static command.

**Example**

- When the number of Numbering copies is set to 500:

Code: ESC i X N 1 00h 00h

(1Bh 69h 58h 4Eh 31h 00h 00h)

Returned value: 02h 00h F4h 01h (F4h+01h\*256=244+256=500)

**ESC iXF1 Retrieve FNC1 replacement setting**

ASCII:	ESC	i	X	F	1	n1	n2
Decimal:	27	105	88	70	49	nd1	nd2
Hexadecimal:	1B	69	58	46	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the FNC1 replacement setting.
- 3-byte data is returned from the printer.
  - [1]: 01h (Fixed)
  - [2]: 00h (Fixed)
  - [3]: Setting
    - 00h: FNC1 replacement setting OFF
    - 01h: FNC1 replacement setting ON
- The retrieved value is a value specified by a static command.

**Example**

- When the FNC1 replacement setting is OFF:

Code: ESC i X F 1 00h 00h  
 (1Bh 69h 58h 46h 31h 00h 00h)  
 Returned value: 01h 00h 00h



**ESC iXq1 Retrieve print options**

ASCII:	ESC	i	X	q	1	n1	n2
Decimal:	27	105	88	113	49	nd1	nd2
Hexadecimal:	1B	69	58	71	31	nh1	nh2

**Parameters**

nh1: 00h (Fixed)

nh2: 00h (Fixed)

**Description**

- Retrieves the print options setting.
- 3-byte data is returned from the printer.
  - [1]: 01h (Fixed)
  - [2]: 00h (Fixed)
  - [3]: nh3 Settings
- The retrieved value is a value specified by a static command.

**Example**

- When the print options are set to give priority to print quality:

Code: ESC i X q 1 00h 00h  
 (1Bh 69h 58h 71h 31h 00h 00h)  
 Returned value: 01h 00h 01h

## 8. ZPL II supported by RJ-4030/4040

ZPL II	Description
^A	Select font
^B2	Interleaved 2 of 5
^B3	Code39
^B7	PDF417
^B8	EAN-8
^B9	UPC-E
^BA	Code93
^BC	Code128
^BD	MaxiCode
^BE	EAN-13
^BF	MicroPDF417
^BK	ANSI CodaBar
^BQ	QR Code
^BS	UPC-EAN Extension
^BU	UPC-A
^BX	DataMatrix
^BY	Bar setting for barcodes
^BZ	PostNet
^CC	Change prefix ^
~CC	Change prefix ^
^CD	Change delimiter character
~CD	Change delimiter character
^CF	Change default font
^CI	Change international character set
^CT	Change prefix ~
~CT	Change prefix ~
^CW	Name downloaded font with 1 alphanumeric character.
^DF	Download format
^DG	Download graphic
~DG	Download graphic

ZPL II	Description
^EF	Clear all formats in RAM except GRF
~EF	Clear all formats in RAM except GRF
^EG	Clear all GRF
~EG	Clear all GRF
^FB	Set field block
^FD	Set input data area
^FH	Use hexadecimal character for input data
^FN	Set data area as a number
^FO	Set position from home position of label
^FR	Reverse field color
^FS	Point to last position of field
^FT	Set position of field
^FV	Set the number of data to be inserted in field
^FW	Set the default orientation
^FX	Insert comment
^GB	Draw box
^GS	GS fonts
^HG	Return graphic data to host
~HI	Retrieve printer information
~HS	Return printer settings to host
^ID	Delete image file
^IL	Recall image files stored with ^IS
^IM	Recall image files
^IS	Store image files
~JA	Cancel format
^JB	Initialize memory
~JP	Clear format holding ~JP
~JR	Initialize when printer turned on
^JU	Printer setting
^JZ	Select print setting after error occurs
^KL	Set language
^LH	Set home position of label

<b>ZPL II</b>	<b>Description</b>
^LL	Set label length
^LR	Reverse field data color
^LS	Set horizontal print position
^LT	Set vertical print position
^MC	Clear data after printing
^MF	Feed setting
^MN	Media setting
^MU	Unit setting
^PM	Mirror printing
^PO	Upside-down printing
^PQ	Copy printing
^PW	Set print width
~SD	Set print density
^SF	Serialization
^SN	Serialization
~TA	Reverse feed length setting when printing
~WC	Print printer settings
^WD	Print list of stored files
^XA	Command required at beginning of format
^XF	Recall format stored with ^DF
^XG	Recall format stored with ^DG or ^DG
^XZ	Command required at end of format

## Appendix A: Specifications

### BROTHER RJ-4030/RJ-4040 P-touch Template 2.0 specifications

Printing	Printing method		Raster printing (PTCBP mode) <b>ESC/P printing</b> P-touch Template printing
	Maximum print length		1 meter
	Resolution (dpi)		203 dpi × 203 dpi
	Text	Font	Outline fonts: Helsinki, Letter Gothic
		Size (dots)	Outline fonts: Maximum 400 dots
		Character style	None, Bold, Italics, Outline, Shadow, Shadow + Outline
		Underline	Off, On
		Character width	-
		Horizontal alignment	Left, Center, Right
		Rotate	Portrait, landscape
	Bar-code	Protocols	CODE39, ITF (I-2/5), EAN-13, EAN-8, UPC-A, UPC-E, CODABAR, CODE128, GS1-128 (UCC/EAN-128), QR Code, PDF417, Data Matrix, MaxiCode, RSS-14(Standard, Truncated, Stacked, Stacked Omni), RSS-Limited, RSS Expanded(Standard, Stacked)
		Width	Large, Medium, Small, Extra Small
Transmission	RS	Baud rate (bps)	115.2k, 57.6k, <b><u>9600</u></b>
		Busy	<b><u>DTR</u></b> , Xon/Xoff
		Bit length	<b><u>8</u></b> , 7
		Parity	<b><u>NONE</u></b> , ODD, EVEN
		Stop bit	1 bit

Settings that appear in **bold** and underlined are the default settings.

## Appendix B: Character Code Tables

### Character code tables

#### (1) Windows1252 (Western Europe)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			SP	0	@	P	`	p	€			°	À	Ð	à	ð
1			!	1	A	Q	a	q	~	'	ı	±	Á	Ñ	á	ñ
2			"	2	B	R	b	r	,	'	ç	²	Â	Ò	â	ò
3			#	3	C	S	c	s	f	"	£	³	Ã	Ó	ã	ó
4			\$	4	D	T	d	t	,,	"	¤	'	Ä	Ô	ä	ô
5			%	5	E	U	e	u	...	•	¥	µ	Å	Õ	å	õ
6			&	6	F	V	f	v	†	-		¶	Æ	Ö	æ	ö
7			'	7	G	W	g	w	‡	—	§	·	Ç	×	ç	÷
8			(	8	H	X	h	x	^	~	¨	¸	È	Ø	è	ø
9			)	9	I	Y	i	y	‰	™	©	¹	É	Ù	é	ù
A			*	:	J	Z	j	z	Š	š	ª	º	Ê	Ú	ê	ú
B			+	;	K	[	k	{	<	>	«	»	Ë	Û	ë	û
C			,	<	L	\	l		Œ	œ	¬	¼	Ì	Ü	ì	ü
D			-	=	M	]	m	}			-	½	Í	Ý	í	ý
E			.	>	N	^	n	~	Ž	ž	®	¾	Î	Þ	î	þ
F			/	?	O	_	o	DEL		ÿ	¯	¿	Ï	ß	ï	ÿ

#### Note

" ■ " indicates that a space is printed.

" ■ " indicates that the character will switch when the international character set is changed.

## (2) Windows1250 (Eastern Europe)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			SP	0	@	P		p	€	ť		°	Ř	Đ	ř	ď
1			!	1	A	Q	a	q	À	‘	˘	±	Á	Ň	á	ň
2			"	2	B	R	b	r	,	’	˘	˘	Â	Ň	â	ň
3			#	3	C	S	c	s	˘ L	“	Ł	ł	Ă	Ó	ă	ó
4			\$	4	D	T	d	t	„	”	¤	’	Ä	Ô	ä	ô
5			%	5	E	U	e	u	...	•	Å	μ	Í	Õ	í	õ
6			&	6	F	V	f	v	†	–		¶	Ć	Ö	ć	ö
7			’	7	G	W	g	w	‡	—	§	·	Ç	×	ç	÷
8			(	8	H	X	h	x	İ		¨	˘	Č	Ř	č	ř
9			)	9	I	Y	i	y	‰	™	©	ą	É	Ů	é	ů
A			*	:	J	Z	j	z	Š	š	Ş	ş	Ț	Ú	ț	ú
B			+	;	K	[	k	{	<	>	«	»	Ë	Ů	ë	ů
C			,	<	L	\	l		Ś	ś	¬	Ł	Ě	Ü	ě	ü
D			–	=	M	]	m	}	Ť	ť	–	”	Í	Ý	í	ý
E			.	>	N	^	n	~	Ž	ž	®	İ	Î	Ț	î	ț
F			/	?	O	_	o	DEL	Ž	ž	Ž	ž	Ď	ß	ď	·

**Note**

" ■ " indicates that a space is printed.

" ■ " indicates that the character will switch when the international character set is changed.

## (3) Brother standard

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			SP	0	@	P		p	Ç	É	á		L		α	
1			!	1	A	Q	a	q	ü	æ	í		⊥		β	±
2			"	2	B	R	b	r	é	Æ	ó		⊥			
3			#	3	C	S	c	s	â	ô	ú		⊥			¾
4			\$	4	D	T	d	t	ä	ö	ñ	⊥	—			
5			%	5	E	U	e	u	à	ò	Ñ		⊥			§
6			&	6	F	V	f	v	å	û	ª				μ	÷
7			'	7	G	W	g	w	ç	ù	º					
8			(	8	H	X	h	x	ê	ÿ	¿	©	ℒ			°
9			)	9	I	Y	i	y	ë	Ö	®	¶	¶	⌋		.
A			*	:	J	Z	j	z	è	Ü	€		⊥	⌈	Ω	
B			+	;	K	[	k	{	ï	ø	½	¶	¶	✓	δ	
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D			-	=	M	]	m	}	ì	¥	¡	TEL	=		ø	²
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F			/	?	O	_	o	DEL	Å	f	»	⌈		□		

## Note

" ■ " indicates that a space is printed.

" ■ " indicates that the character will switch when the international character set is changed.



## International character set table

Corresponding characters that switch in each language when the international character set is changed

n		23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
0	United States (U.S.A)	#	\$	@	[	\	]	^	`	{		}	~
1	France	#	\$	à	°	ç	§	^	`	é	ù	è	¨
2	Germany	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
3	Britain (U.K.)	£	\$	@	[	\	]	^	`	{		}	~
4	Denmark I	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	~
5	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
7	Spain I	Pt	\$	@	í	Ñ	¿	^	`	¨	ñ	}	~
8	Japan	#	\$	@	[	¥	]	^	`	{		}	~
9	Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
10	Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
11	Spain II	#	\$	á	í	Ñ	¿	é	`	í	ñ	ó	ú
12	Latin America	#	\$	á	í	Ñ	¿	é	ü	í	ñ	ó	ú
13	South Korea	#	\$	@	[	₩	]	^	`	{		}	~
64	Legal	#	\$	§	°	'	"	¶	`	©	®	†	™

## Appendix C: Troubleshooting

If printing does not begin (main most frequent cause)

- (1) The communication settings are incorrect.
- (2) The command mode is not in the P-touch Template mode.
- (3) The conditions for the print start trigger are not met.

The following three types of print start triggers exists, but the current selection is incorrect.

- When the specified text string is received
- When all objects are filled
- When the specified number of characters is received

If the settings described above are incorrect, use the P-touch Template Settings tool to specify the settings.

If a template linked to a database is not printed

- (1) A delimiter character must be entered after the search text.
- (2) The print start trigger must be “when the specified text string is received”.

Example:

To search for the key code (333333333333) for “Chocolate”, then print:

	A	B	C
1	Key code	Product	Price
2	111111111111	Cake	1.5
3	222222222222	Candy	1
4	333333333333	Chocolate	2.5
5	444444444444	Cookie	1.5
6	555555555555	Pie	4.5



333333333333 09h ^ F F

## Appendix D: Introducing the Brother Developer Center

Useful information for developers, such as applications, tools, SDKs as well as FAQs, are provided in the Brother Developer Center.

<http://www.brother.com/product/dev/index.htm>

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