Software Developer's Manual

ESC/P Legacy Command Reference

PJ-822/823/862/863/883

Version 1.00

IMPORTANT - PLEASE READ CAREFULLY

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Introduction

This material provides the necessary information for directly controlling PJ-8XX.
This information is provided assuming that the user has full understanding of the operating system being used and basic mastery of communication interfaces 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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These ESC/P Legacy commands have been adapted specifically for this company.

What is ESC/P?

ESC/P is one type of control codes used for printers. With the codes introduced in this document, various documents can be created and printed. In this document, ESC/P codes are provided as both ASCII and binary codes.

When sending codes to the printer, make sure that the binary codes are used, otherwise the printer cannot parse the codes.

1. Using ESC/P Legacy Commands

Below is a description of the flow for creating documents.

Also refer to “2. Examples of Using ESC/P Legacy Commands”.

(1) Start ESC/P

1. Switch the command mode.	- Switch command mode (ESC i a 0) Note: ESC/P Legacy mode
2. Initialize	- Initialize (ESC @)

(2) Format settings

2. Specify print area.	- Specify left/right margins (ESC I, ESC Q)
3. Specify the line feed amount.	- Specify line feed amount (ESC 0, ESC 2, ESC 3, ESC A)
4. Specify tab positions.	- Specify horizontal tab position (ESC D) - Specify vertical tab position (ESC B)

(3) Print operations

1. Specify the print position.	- Specify the vertical position (VT, ESC J) - Specify the horizontal position (ESC $, ESC \, HT,)
2. Transfer the print data (one line).	- Transfer necessary text operation codes (see (4)), bit images, (see (5))
3. End of the line.	- Feed the paper (CR, LF)
4. Repeat 1–3 above.	
5. End of the page.	- Feed the page (FF)
6. Repeat 1–5 above.	
7. End of the document.	

(4) Text operations

1. Specify the character set.	- Select font (ESC k) - Select character code (ESC t) - Select international character set (ESC R) - Specify the character spacing (ESC P, ESC M, ESC SP)
2. Specify the character style.	- Specify character style (ESC 4, ESC 5, ESC E, ESC F, ESC G, ESC H, ESC W, SO, ESC SO, SI, ESC SI, DC2, DC4, ESC -, ESC !)
3. Specify character codes.	

Repeat 1–3 above as necessary.

(5) Bit images

1. Specify bit images.	- (ESC *, ESC K, ESC L, ESC Y, ESC Z)

2. Examples of Using ESC/P Legacy Commands

Set Basic setup first.

Basic set up : Specify ESC/P Legacy command mode

5.10 Advanced commands

ESC i a n Switch command mode

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

Function

Switches the command mode.

Details

When setting n is:

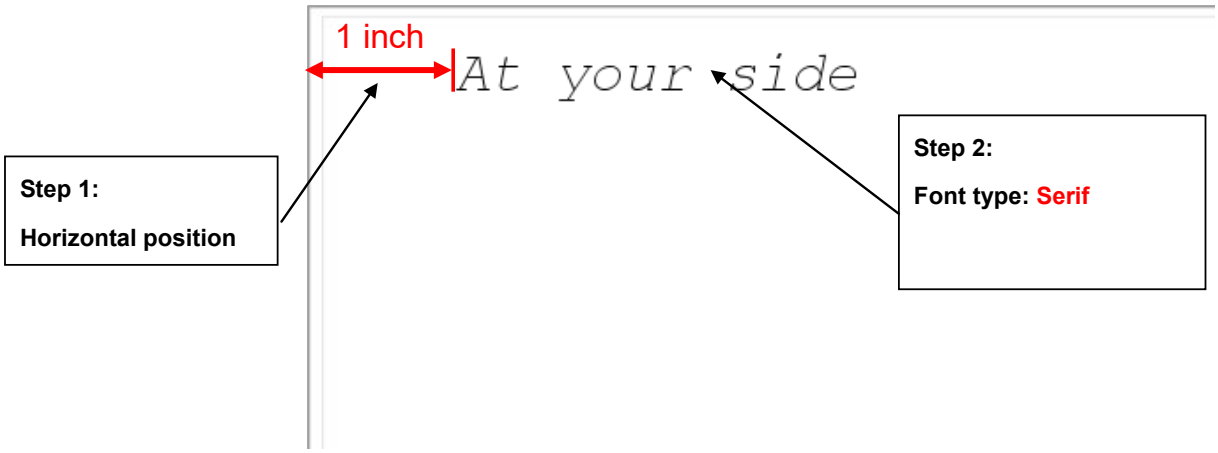
00h or 30h: ESC/P Legacy mode/Raster mode (default)
03h or 33h: P-touch Template mode
04h or 34h: ESC/P Brother mode

Example: 1Bh 69h 61h 00h Specifies ESC/P Legacy mode.

Entered Command

ESC i a 00h

This is the document that will be made.

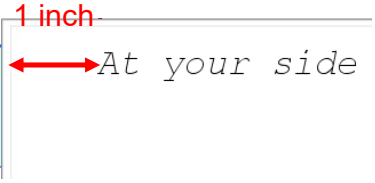


In order to make this document, the following two steps are required.

Step 1: Specify the horizontal position.

ESC $ n m Specify absolute position

ASCII:	ESC	$	n	m
Decimal:	27	36	n	m
Hexadecimal:	1B	24	n	m



Function

Moves the cursor position to the position (n + m * 256) / 60 inch from the left margin.

Details

However, this is ignored if (n + m *256) is outside of the range 0 to 815 and if the parameter extends past the right margin.

Entered command	n	m
ESC $	3Ch	00h

Horizontal position=n+m*256=60

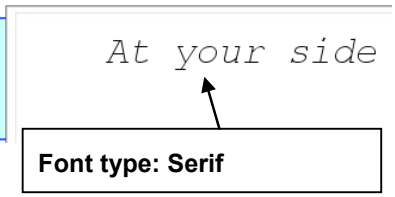
60 0

3Ch 00h

Step 2: Select the font type.

ESC k n Select font

ASCII:	ESC	k	n
Decimal:	27	107	n
Hexadecimal:	1B	6B	n



Function

Switches the half-width alphanumeric font that is used between “Serif” and “Sans Serif”.

Details

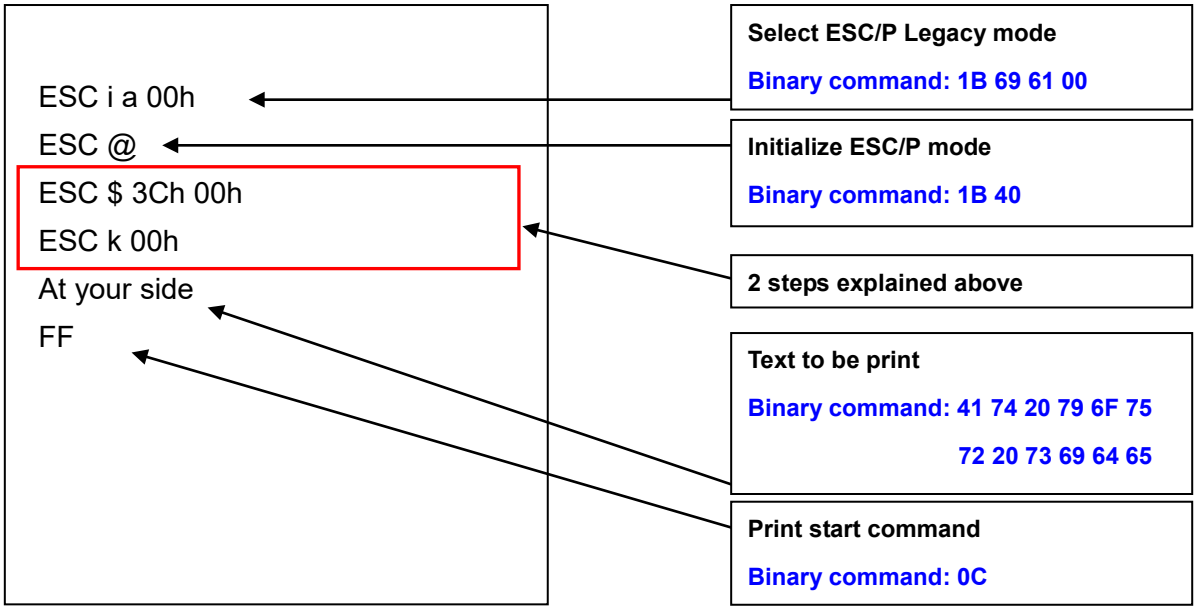
n = 30h, 00h: Serif

n = 31h, 01h: Sans Serif

Entered command n

ESC k 00h

All commands together will make the example document shown below.

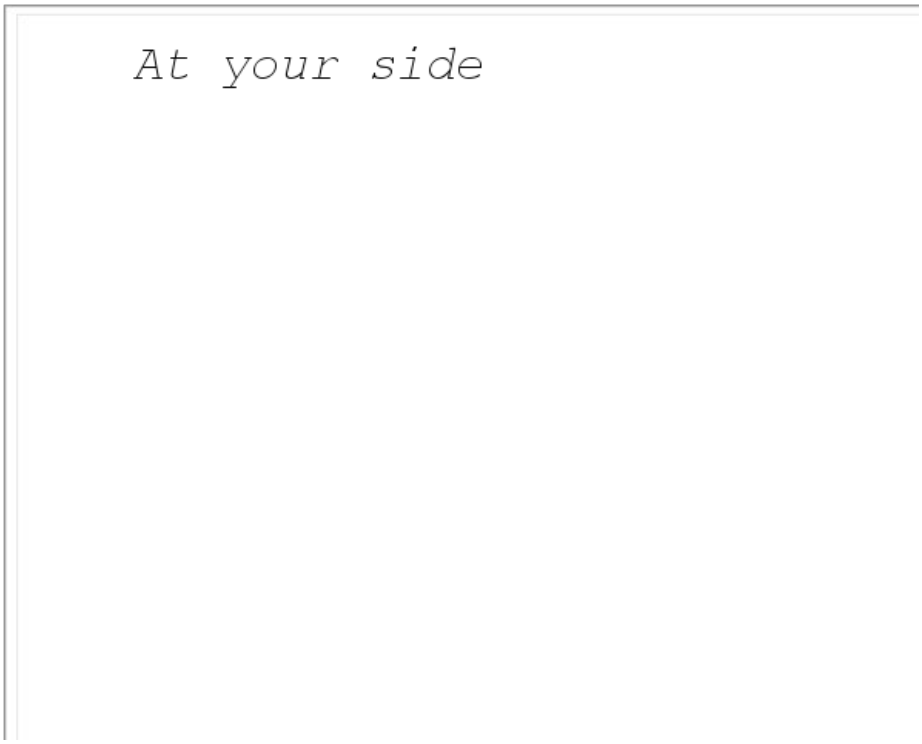


However, these commands should be converted to binary data before sent to the printer, as shown below.

Here is the captured converted binary data.

```
1B 69 61 00 1B 40 1B 24 3C 00 1B 6B 00 41 74 20
79 6F 75 72 20 73 69 64 65 0C
```

When the printer receives above binary commands, the document shown below is printed.



3. ESC/P Legacy Command Limitations

3.1 Print area

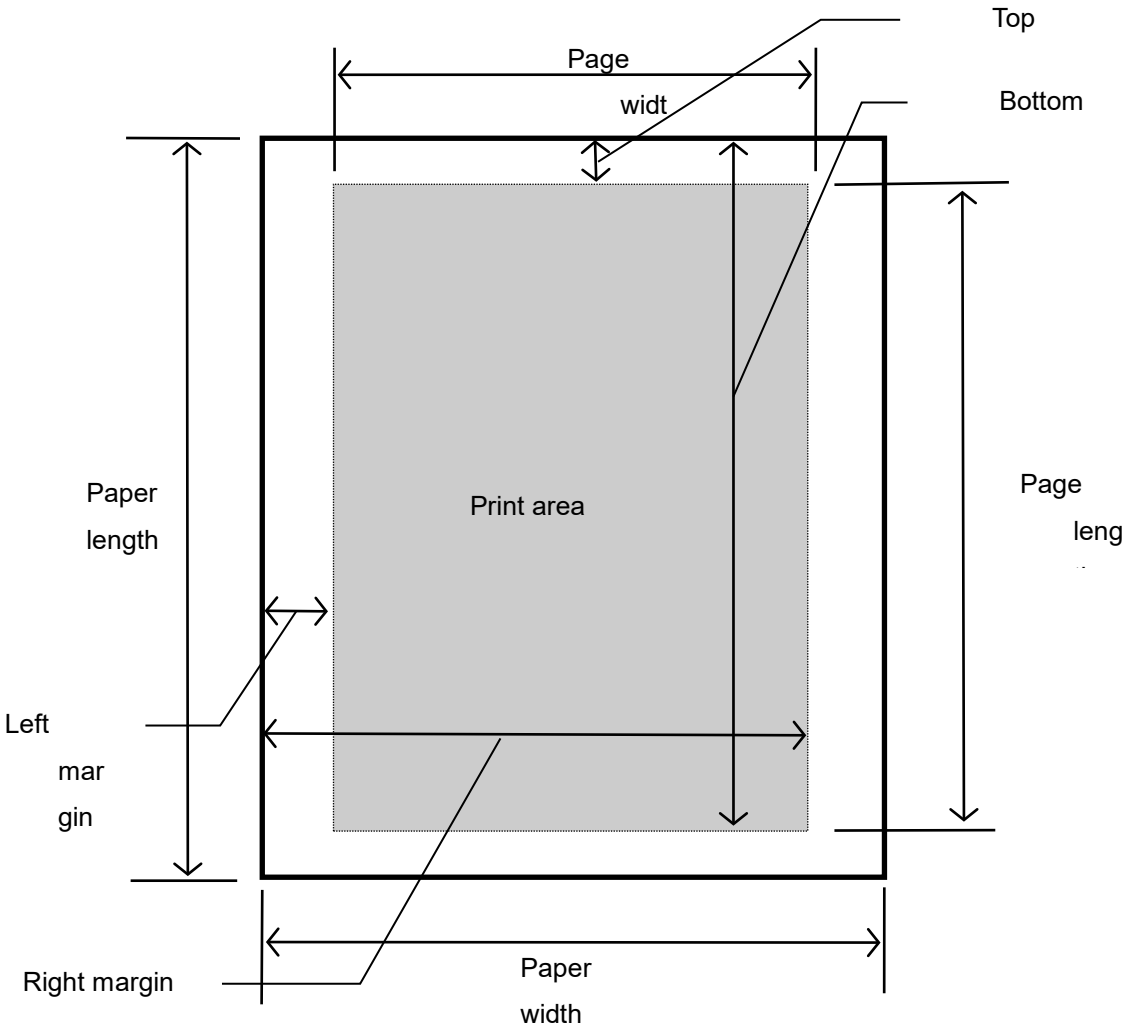
[Paper types and sizes]

- Thermal cut paper: A4/Letter/Legal sizes and any size
- Thermal roll paper: 210 mm (width)

* Any size is within a range of 210- to 216-mm wide and 25.4- to 567.3-mm long.

[Print area]

The printable area differs depending on the paper type; however, with any paper listed above, the top margin, left margin and page width of the print area are the same as with A4 paper. If the page length (8-inch page width) has been specified, the length specified with ESC/P Legacy command will be applied as the page length.



300 dpi (300 × 300) print area (dots)

	A4	Letter	Legal	Any
Paper width	2480	2550	2550	2480 ~ 2550
Paper length	3507	3300	4200	300 ~ 6700
Top margin	30	30	30	30
Bottom margin	3330	3230	4130	230 ~ 6630
Left margin	40	43	43	43
Right margin	2440	2507	2507	2507
Page width	2400	2464	2464	2464
Page length	3300	3200	4100	200 ~ 6600

203 dpi (203 × 200) print area (dots)

	A4	Letter	Legal	Any
Paper width	1680	1727	1727	1680 ~ 1727
Paper length	2338	2200	2800	200 ~ 4467
Top margin	20	20	20	20
Bottom margin	2220	2153	2753	153 ~ 4420
Left margin	27	34	34	34
Right margin	1651	1693	1693	1693
Page width	1624	1632	1632	1632
Page length	2200	2133	2733	133 ~ 4400

[Limitations]

- Bit image data that extends out of the print area is discarded and not printed. The limitations of the right margin are not applied to bit images.
- Character codes that extend past the right margin are printed on the next line as a result of an overflow line feed.

3.2 Characters

[Font specifications]

Type	ANK characters
Font	Serif, Sans Serif
Size	10, 12, 15 CPI Proportional

The conversions from CPI (characters per inch) to dots are shown below.

	300 dpi (300 × 300)	203 dpi (203 × 200)
10 CPI	30 × 45 dots	20 × 45 dots
12 CPI	25 × 45 dots	17 × 45 dots
15 CPI	20 × 45 dots	14 × 45 dots

3.3 Resolution

[Resolution conversion]

With ESC/P Legacy, the basic resolution is 360 dpi. However, since the printer resolution is 203 or 300 dpi, the resolution is converted. The resolution is converted according to the horizontal character position, the vertical feed amount (line feed amount), bit images, non-standard characters and download fonts.

[Limitations]

The line thickness and position may change since the resolution of bit images is converted in each line and that of non-standard characters and download fonts is converted when the character is registered.

4. Control Code List

Paper feed commands (Refer to section 5.1 Paper feed commands.)

ASCII Code	Binary Code	Function
CR	0Dh	Carriage return
FF	0Ch	Form feed
LF	0Ah	Line feed
ESC 0	1Bh 30h	Specify line feed of 1/8 inch
ESC 2	1Bh 32h	Specify line feed of 1/6 inch
ESC 3	1Bh 33h	Specify line feed of n/180 inch
ESC A	1Bh 41h	Specify line feed of n/60 inch
ESC +	1Bh 2Bh	Specify line feed of n/360 inch
ESC J	1Bh 4Ah	Specify forward paper feed of n/180 inch

Print area setting commands (Refer to section 5.2 Print area setting commands.)

ASCII Code	**Binary Code**	**Function**
ESC C	1Bh 43h	Specify page length in lines
ESC C 0	1Bh 43h 00h	Specify page length in inches
ESC N	1Bh 4Eh	Specify skip perforation
ESC O	1Bh 4Fh	Cancel skip perforation

Tab setting commands (Refer to section 5.3 Tab setting commands.)

ASCII Code	**Binary Code**	**Function**
ESC B	1Bh 42h	Specify vertical tab position
VT	0Bh	Perform vertical tab
ESC D	1Bh 44h	Specify horizontal tab position
HT	09h	Perform horizontal tab

Print position setting commands (Refer to section 5.4 Print position setting commands.)

ASCII Code	**Binary Code**	**Function**
ESC l	1Bh 6Ch	Specify left margin
ESC Q	1Bh 51h	Specify right margin
BS	08h	Backspace
ESC $	1Bh 24h	Specify absolute position
ESC \	1Bh 5Ch	Specify relative position

Character selection commands (Refer to section 5.5 Character selection commands.)

ASCII Code	Binary Code	Function
ESC k	1Bh 6Bh	Select font
ESC P	1Bh 50h	Specify 10 cpi
ESC M	1Bh 4Dh	Specify 12 cpi
ESC g	1Bh 67h	Specify 15 cpi
ESC p	1Bh 70h	Apply/cancel proportional characters
ESC S	1Bh 53h	Apply superscript/subscript
ESC T	1Bh 54h	Cancel superscript/subscript
ESC t	1Bh 74h	Select character code table
ESC R	1Bh 52h	Select international character set

Character style commands (Refer to section 5.6 Character style commands.)

ASCII Code	Binary Code	Function
ESC x	1Bh 78h	Select text quality
SI, ESC SI	0Fh, 1Bh 0Fh	Specify reduced characters
DC2	12h	Cancel reduced characters
SO, ESC SO	0Eh, 1Bh 0Eh	Specify auto-cancelling double-width characters
DC4	14h	Cancel auto-cancelling double-width characters
ESC W	1Bh 57h	Specify/cancel double-width characters
ESC w	1Bh 77h	Specify/cancel double-height characters
ESC E	1Bh 45h	Apply bold style
ESC F	1Bh 46h	Cancel bold style
ESC G	1Bh 47h	Apply double-strike printing
ESC H	1Bh 48h	Cancel double-strike printing
ESC -	1Bh 2Dh	Apply/cancel underlining
ESC SP	1Bh 20h	Specify character spacing
ESC q	1Bh 71h	Select character style
ESC 4	1Bh 34h	Apply italics
ESC 5	1Bh 35h	Cancel italics
ESC !	1Bh 21h	Global formatting

Character definition commands (Refer to section 5.7 Character definition commands.)

ASCII Code	Binary Code	Function
ESC & 0	1Bh 26h 00h	Define download characters
ESC %	1Bh 25h	Apply/cancel download character set
ESC : 0	1Bh 3Ah 00h	Copy character set
ESC 6	1Bh 36h	Cancel upper control codes
ESC 7	1Bh 37h	Apply upper control codes

Supplemental function commands (Refer to section 5.8 Supplemental function commands.)

ASCII Code	Binary Code	Function
ESC @	1Bh 40h	Initialize

Others (Refer to section 5.9 Others.)

ASCII Code	Binary Code	Function
ESC K	1Bh 4Bh	8-bit single-density bit image
ESC L	1Bh 4Ch	8-bit double-density bit image
ESC Y	1Bh 59h	8-bit double-speed double-density bit image
ESC Z	1Bh 5Ah	8-bit quadruple-density bit image
ESC *	1Bh 2Ah	Select bit image
ESC ?	1Bh 3Fh	Convert bit image
ESC /	1Bh 2Fh	Select VFU channel
ESC b	1Bh 62h	Specify VFU tab position

Advanced commands (Refer to section 5.10 Advanced commands.)

ASCII Code	Binary Code	Function
ESC i a	1Bh 69h 61h	Switch command mode
ESC i S	1Bh 69h 53h	Request printer status
ESC ~ e F 1	1Bh 7Eh 65h 46h 01h	Reverse feed

5. Control Command Details

5.1 Paper feed commands

CR Carriage return

ASCII:	CR
Decimal:	13
Hexadecimal:	0D

Function

Returns the cursor position to the left edge.

Details

If automatic line feed has been specified with the utility, a line feed command (LF) is performed after a carriage return command (CR) is performed.

FF Form feed

ASCII:	FF
Decimal:	12
Hexadecimal:	0C

Function

Feeds the paper to the next page separation.

Details

At this time, the SO and ESC SO commands are cancelled.

The feed specifications depend on the specified feed mode.

LF Line feed

ASCII:	LF
Decimal:	10
Hexadecimal:	0A

Function

Feeds the paper by one line, according to the specified line feed amount.

Details

At this time, the SO and ESC SO commands are cancelled.

ESC 0 Specify line feed of 1/8 inch

ASCII:	ESC	0
Decimal:	27	48
Hexadecimal:	1B	30

Function

Specifies a line feed of 1/8 inch (about 0.32 cm).

ESC 2 Specify line feed of 1/6 inch

ASCII:	ESC	2
Decimal:	27	50
Hexadecimal:	1B	32

Function

Specifies a line feed of 1/6 inch (about 0.42 cm).

Details

The default line feed setting is 1/6 inch.

ESC 3 Specify line feed of n/180 inch

ASCII:	ESC	3	n
Decimal:	27	51	n
Hexadecimal:	1B	33	n

Function

Specifies a line feed of n/180 inch.

ESC A Specify line feed of n/60 inch

ASCII:	ESC	A	n
Decimal:	27	65	n
Hexadecimal:	1B	41	n

Function

Specifies a line feed of n/60 inch.

Details

The allowable setting range is 0≤n≤85 (55h).

ESC + Specify line feed of n/360 inch

ASCII:	ESC	+	n
Decimal:	27	43	n
Hexadecimal:	1B	2B	n

Function

Specifies a line feed of n/360 inch..

ESC J Specify forward paper feed of n/180 inch

ASCII:	ESC	J	n
Decimal:	27	74	n
Hexadecimal:	1B	4A	n

Function

Performs a print operation of n/180 inch.

Details

If a page separation is reached while feeding or if there is no more paper, the paper feed amount outside of the print area is not counted, and the remainder of the feed is performed after entering the next page.

5.2 Print area setting commands

ESC C Specify page length in lines

ASCII:	ESC	C	n
Decimal:	27	67	n
Hexadecimal:	1B	43	n

Function

Specifies the page length as ((line feed amount when this command is specified) * (n in lines)) inches.

Details

Settings that exceed 22 inches or are less than the sum of the top space (top margin) and bottom space (page length – bottom margin) are ignored.In addition, skip perforation is cancelled.The default value is 66 lines. (The default page length is 11 inches.)

ESC C 0 Specify page length in inches

ASCII:	ESC	C	0	n
Decimal:	27	67	0	n
Hexadecimal:	1B	43	00	n

Function

Specifies the page length as n inches.

Details

Settings that exceed 22 inches or are less than the sum of the top space (top margin) and bottom space (page length – bottom margin) are ignored.In addition, skip perforation is cancelled.The default value is 11 inches.

ESC N Specify skip perforation

ASCII:	ESC	N	n
Decimal:	27	78	n
Hexadecimal:	1B	4E	n

Function

1≤n≤255

Details

Values that exceed the page length are ignored.The print area is the area remaining when the skip amount is subtracted from the specified page length.

Cancelled with the ESC O, ESC C or ESC C 0 command.

ESC O Cancel skip perforation

ASCII:	ESC	O	
Decimal:	27	79	
Hexadecimal:	1B	4F	

Function

Sets the skip amount to 0. (Cancels skip perforation.)

5.3 Tab setting commands

ESC B Specify vertical tab position

ASCII:	ESC	B	n	n...	NUL
Decimal:	27	66	n	n...	0
Hexadecimal:	1B	42	n	n...	00

Function

Specifies a vertical tab position.

Details

Specifies a vertical tab at the position where

(line feed amount when this command is specified) * (specified number of lines n).

A maximum of 16 tab positions can be specified.

A tab setting that specifies a position extending past the bottom margin is ignored.

If n = 0, the vertical tabs are cancelled (default), as when the VFU tab is set to channel 0.

VT Perform vertical tab

ASCII:	VT
Decimal:	11
Hexadecimal:	0B

Function

Prints the data in the print buffer, and feeds the paper to the next vertical tab position.

Details

Vertical tab position = Line feed amount when this command is specified * Specified number of lines

If the remaining length of paper is not enough to perform a vertical tab, an FF operation is performed according to the specified form feed mode.

If VT is received when no vertical tabs are specified, an LF operation is performed.

If VT is entered after the vertical tab positions are cleared with ESC B NUL, the operation that is performed is the same as CR.

The “specify auto-cancelling double-width characters” command is cancelled.

ESC D Specify horizontal tab position

ASCII:	ESC	D	n	n...	NUL
Decimal:	27	68	n	n...	0
Hexadecimal:	1B	44	n	n...	00

Function

Specifies a horizontal tab position.

Details

Specifies a horizontal tab at the position where (character width when the tab is performed) * (specified number of columns) + (left margin position).

Ignored if (character width when this command is specified) * (n columns) + (left margin) extends past the right margin position.

Horizontal tab settings can be specified between 44h and 00h; settings that exceed the maximum of 32 positions are ignored.

The character width when proportional characters are applied is 10 cpi.

All horizontal tabs are cancelled with ESC D 0.

HT Perform horizontal tab

ASCII:	HT
Decimal:	9
Hexadecimal:	09

Function

Moves the print position to the next horizontal tab position.

Details

Horizontal tab position = Character width when the tab is performed * Specified number of columns + Left margin position.

This command is ignored if there is no space to perform a tab at the right of the current position.

5.4 Print position setting commands

ESC l　　Specify left margin

ASCII:	ESC	l	n
Decimal:	27	108	n
Hexadecimal:	1B	6C	n

Function

Specifies the left margin position as the position from the left edge where (character width when this command is specified) * n, and specifies the area to the left of this as an unprinted area.

Details

A setting that causes the left margin to be to the right of the right margin is ignored.

Clears the line buffer, and moves the cursor to the left margin position.

The left margin position does not change if the character width is changed after the margin has been specified.

In addition, this printer operates as an 80-column device, and a setting that extends past 4.5 inches from the left edge is ignored.

ESC Q Specify right margin

ASCII:	ESC	Q	n
Decimal:	27	81	n
Hexadecimal:	1B	51	n

Function

Specifies the right margin position as the position where (character width when this command is specified) * n.

Details

A setting that causes the right margin to be to the left of the left margin is ignored.

Clears the line buffer, and moves the cursor to the left margin position.

The right margin position does not change if the character width is changed after the margin has been specified.

In addition, the print position for the next character is compared with the right margin after one character is printed, and an overflow line feed is performed if the print position for the next character is to the right of the right margin.

BS Backspace

ASCII:	BS
Decimal:	8
Hexadecimal:	08

Function

Moves the current position in the line buffer back one character.

Details

Two or more BS are ignored.

ESC $ Specify absolute position

ASCII:	ESC	$	n	m
Decimal:	27	36	n	m
Hexadecimal:	1B	24	n	m

Function

Moves the cursor position to the position (n + m * 256) / 60 inch from the left margin.

Details

However, this is ignored if (n + m *256) is outside of the range 0 to 815 and if the parameter extends past the right margin.

ESC \ Specify relative position

ASCII:	ESC	\	n	m
Decimal:	27	92	n	m
Hexadecimal:	1B	5C	n	m

Function

Moves the cursor position (n + m * 256) dots to the right or left of the next print position.

Details

Ignored if the position after being moved extends past the left or right margin position.

The movement amount is the number of dots specified as a 2's complement. This is not underlined.

The dots that the cursor is moved is in units of 1/180 inch or 1/120 inch, and can be switched with the ESC x setting. (The default is 1/180 inch.)

5.5 Character selection commands

ESC k Select font

ASCII:	ESC	k	n
Decimal:	27	107	n
Hexadecimal:	1B	6B	n

Function

Switches the half-width alphanumeric font that is used between “Serif” and “Sans Serif”.

Details

n = 30h, 00h: Serif

n = 31h, 01h: Sans Serif

ESC P Specify 10 cpi

ASCII:	ESC	P
Decimal:	27	80
Hexadecimal:	1B	50

Function

Uses the character set at 10 cpi.

ESC M Specify 12 cpi

ASCII:	ESC	M
Decimal:	27	77
Hexadecimal:	1B	4D

Function

Uses the character set at 12 cpi.

etails

The default is 12 cpi.

ESC g Specify 15 cpi

ASCII:	ESC	g
Decimal:	27	103
Hexadecimal:	1B	67

Function

Uses the character set at 15 cpi.

Details

The “specify reduced characters” is cancelled

ESC p Apply/cancel proportional characters

ASCII:	ESC	p	n
Decimal:	27	112	n
Hexadecimal:	1B	70	n

Function

Applies or cancels proportional characters for alphanumeric characters.

Details

n=00h or 30h: Cancel proportional characters

n=01h or 31h: Apply proportional characters

If a download character set is selected, characters are printed with the width of the defined download character when proportional characters are applied.

ESC S Apply superscript/subscript

ASCII:	ESC	S	n
Decimal:	27	83	n
Hexadecimal:	1B	53	n

Function

Applies superscript/subscript attributes to alphanumeric characters.

Details

n = 00h or 30h: Apply superscript attribute

The script character is printed raised.

n = 01h or 31h: Apply subscript attribute

The script character is printed lowered.

The character limitations are as described in the manual.

Amount lowered: 20 lines at 300 dpi

13 lines at 203 dpi

ESC T Cancel superscript/subscript

ASCII:	ESC	T	n
Decimal:	27	84	n
Hexadecimal:	1B	54	n

Function

Cancels applied superscript/subscript attributes.

ESC t Select character code table

ASCII:	ESC	t	n
Decimal:	27	116	n
Hexadecimal:	1B	74	n

Function

Selects the character table for character codes 128 through 255.

Details

n = 00h: Select italic characters

n = 01h: Select advanced graphics (default)

* Precautions

Graphics characters (B0h through DFh and F0h through FEh of the advanced graphics code table) are printed as normal characters.

ESC R Select international character set

ASCII:	ESC	R	n
Decimal:	27	82	n
Hexadecimal:	1B	52	n

Function

Changes a part of the alphanumeric character code table according to the value of n.

Details

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

5.6 Character style commands

ESC x Select text quality

ASCII:	ESC	x	n
Decimal:	27	120	n
Hexadecimal:	1B	78	n

Function

Selects draft or high quality for alphanumeric characters.

Details

n = 00h or 30h: Draft mode (1/120" movement amount)

n = 01h or 31h: Letter mode (1/180" movement amount)

Since this printer is not installed with a draft font, the text quality does not change.

However, the setting for this command is used for the units of the movement amount when the ESC \ command is received.

SI, ESC SI Specify reduced characters

ASCII:	ESC	SI
Decimal:	27	15
Hexadecimal:	1B	0F

Function

The width of proportional characters is halved (10 cpi→16.67 cpi and 12 cpi → 20 cpi).

Details

Ignored if 15 cpi is specified.

DC2 Cancel reduced characters

ASCII:	DC2
Decimal:	18
Hexadecimal:	12

Function

Cancels reduced characters specified with the SI or ESC SI command.

SO, ESC SO Specify auto-canceling double-width characters

ASCII:	ESC	SO
Decimal:	27	14
Hexadecimal:	1B	0E

Function

Specifies auto-cancelling double-width enlargement for alphanumeric characters.

Details

Cancelled with the DC4, CR, LF, FF, VT or ESC W 0 command.

DC4 Cancel auto-canceling double-width characters

ASCII:	DC4
Decimal:	20
Hexadecimal:	14

Function

Cancels auto-cancelling double-width enlargement for alphanumeric characters.

Details

Double-width enlargement specified with ESC W 1 is not cancelled.

ESC W Specify/cancel double-width characters

ASCII:	ESC	W	n
Decimal:	27	87	n
Hexadecimal:	1B	57	n

Function

Specifies or cancels double-width enlargement for alphanumeric characters.

Details

n = 00h or 30h: Cancel double-width enlargement and auto-cancelling double-width enlargement

n = 01h or 31h: Specify double-width enlargement

ESC w Specify/cancel double-height characters

ASCII:	ESC	w	n
Decimal:	27	119	n
Hexadecimal:	1B	77	n

Function

Specifies or cancels double-height enlargement for alphanumeric characters.

Details

n = 00h or 30h: Cancel double-height enlargement

n = 01h or 31h: Specify double-height enlargement

Double-height enlargement is valid with ANK characters. The baseline is lowered 24/180 inch, and the characters are lengthened vertically.

ESC E Apply bold style

ASCII:	ESC	E
Decimal:	27	69
Hexadecimal:	1B	45

Function

Applies the bold style to alphanumeric characters.

Details

Characters are shifted 1 bit to the right and OR'ed.

ESC F Cancel bold style

ASCII:	ESC	F
Decimal:	27	70
Hexadecimal:	1B	46

Function

Cancels the bold style.

ESC G Apply double-strike printing

ASCII:	ESC	G
Decimal:	27	71
Hexadecimal:	1B	47

Function

Applies double-strike printing to alphanumeric characters.

ESC H Cancel double-strike printing

ASCII:	ESC	H
Decimal:	27	72
Hexadecimal:	1B	48

Function

Cancels double-strike printing of alphanumeric characters.

ESC – Apply/cancel underlining

ASCII:	ESC	-	n
Decimal:	27	45	n
Hexadecimal:	1B	2D	n

Function

Specifies or cancels underlining of alphanumeric characters.

Details

n = 00h or 30h: Cancel underlining

n = 01h or 31h: Apply underlining

Underline position: No character limitations (45th line)

No underlining when the print position is moved with ESC $, ESC \ or HT

ESC SP Specify character spacing

ASCII:	ESC	SP	n
Decimal:	27	32	n
Hexadecimal:	1B	20	n

Function

Specifies the amount of character spacing for alphanumeric characters.

Details

Since the spacing is the remainder from dividing n by 128, 0 to 127 is the normal range of parameters that are used.

The default is 0.

The units for the spacing are 1/180 inch.

ESC q Select character style

ASCII:	ESC	q	n
Decimal:	27	113	n
Hexadecimal:	1B	71	n

Function

Selects the character style for alphanumeric characters.

Details

n = 00h: Normal characters (default)

n = 01h: Outline

n = 02h: Shadow

n = 03h: Shadow and outline

No character limitations

ESC 4 Apply italic

ASCII:	ESC	4
Decimal:	27	52
Hexadecimal:	1B	34

Function

Applies italics to alphanumeric characters.

Details

B0h through DFh as well as F4h and F5h of the advanced graphics code table are printed as normal characters.

ESC 5 Cancel italic

ASCII:	ESC	5
Decimal:	27	53
Hexadecimal:	1B	35

Function

Cancels italics for alphanumeric characters.

ESC ! Global formatting

ASCII:	ESC	!	n
Decimal:	27	33	n
Hexadecimal:	1B	21	n

Function

Specifies the print mode for alphanumeric characters.

Details

The individual settings are specified according to the description for each command.

With the n values listed below for each of the commands,
the added values only for global formatting are specified.

n value	Setting	Corresponding command
00h	10 cpi	ESC P
01h	12 cpi	ESC M
02h	Proportional	ESC p
04h	Reduced	SI, DC2
08h	Bold (emphasized)	ESC E, ESC F
10h	Double-strike printing	ESC G, ESC H
20h	Double width	ESC W
40h	Italics	ESC 4, ESC 5
80h	Underline	ESC -

5.7 Character definition commands

ESC & 0 Define download characters

ASCII:	ESC	&	0	n	n...
Decimal:	27	38	0	n	n...
Hexadecimal:	1B	26	00	n	n...

Function

Defines characters that are the same as alphanumeric characters as a download character set.

Details

Converts the resolution of the character line buffer from 180 dpi to 300 dpi or 203 dpi when characters are defined as 32 dots wide at 300 dpi (21 dots at 203 dpi).

Only high-quality characters can be defined; draft characters can also be defined as high-quality characters.

Used when applying a download character (ESC % 1).

ESC % Apply/cancel download character set

ASCII:	ESC	%	n
Decimal:	27	37	n
Hexadecimal:	1B	25	n

Function

Applies or cancels the download character set for alphanumeric characters.

Details

n = 00h or 30h: Cancel download character, use font from Flash area

n = 01h or 31h: Apply download character, use font from DRAM area

ESC : 0 Copy character set

ASCII:	ESC	:	0	n	0
Decimal:	27	58	0	n	0
Hexadecimal:	1B	3A	00	n	00

Function

Copies the font from the Flash memory area to the DRAM area.

ESC 6 Cancel upper control codes

ASCII:	ESC	6
Decimal:	27	54
Hexadecimal:	1B	36

Function

Cancels control codes 128 (80h) through 159 (9F).

Details

128 (80h) through 159 (9F) function as character codes
cannot be used as control codes.

ESC 7 Apply upper control codes

ASCII:	ESC	7
Decimal:	27	55
Hexadecimal:	1B	37

Function

Applies control codes 128 (80h) through 159 (9F).

Details

128 (80h) through 159 (9F) function as control codes
and cannot be used as character codes.
The default settings are: Cancelled (ESC 6)

5.8 Supplemental function commands

ESC @ Initialize

ASCII:	ESC	@
Decimal:	27	64
Hexadecimal:	1B	40

Function

Initialize printer

Details

The settings that are stored depend on the setting.

Other items are as listed below.

Beginning of paper:	The current paper position is considered as the beginning.
Horizontal print position:	Left margin position
Vertical print position:	Top margin position
Margin settings:	Same settings as the margins for the print area of A4-size page
Horizontal tabs:	8 half-width characters
VFU channel:	0
Page length:	11 inches
Page width:	8 inches
ANK character pitch:	12 cpi
Line feed amount:	1/6 inch
International character set:	USA

5.9 Others

ESC K 8-bit single-density bit image

ASCII:	ESC	K	n	m ...
Decimal:	27	75	n	m...
Hexadecimal:	1B	4B	n	m...

Function

With the initial settings, same as ESC * 0.

Details

60 dpi bit image data, n = LSB, m = MSB

ESC L 8-bit double-density bit image

ASCII:	ESC	L	n	m ...
Decimal:	27	76	n	m ...
Hexadecimal:	1B	4C	n	m ...

Function

With the initial settings, same as ESC * 1.

Details

120 dpi bit image data, n = LSB, m = MSB

The details are as described in the Epson manual.

ESC Y 8-bit double-speed double-density bit image

ASCII:	ESC	Y	n	m ...
Decimal:	27	89	n	m...
Hexadecimal:	1B	59	n	m...

Function

With the initial settings, same as ESC * 2.

Details

120 dpi bit image data, n = LSB, m = MSB

The details are as described in the Epson manual.

ESC Z 8-bit quadruple-density bit image

ASCII:	ESC	Z	n	m ...
Decimal:	27	90	n	m ...
Hexadecimal:	1B	5A	n	m ...

Details

240 dpi bit image data, n = LSB, m = MSB

The details are as described in the Epson manual.

ESC * Select bit image

ASCII:	ESC	*	m	n1	n2...
Decimal:	27	42	m	n1	n2...
Hexadecimal:	1B	2A	m	n1	n2...

Function

With the initial settings, same as ESC * 3.

Details

The resolution is converted according to the print command after the bit image is expanded in the 360 dpi line buffer.

The size of the 360 dpi line buffer is 2,880 dots × 48 lines. The data for a bit image that exceeds the buffer area is discarded, and an overflow line feed is not performed. The process for the right margin is also not performed. In addition, n = 72 is processed in the same way as if n = 73.

ESC ? Convert bit image

ASCII:	ESC	?	m	n
Decimal:	27	63	m	n
Hexadecimal:	1B	3F	m	n

Function

Converts the bit images of ESC K, ESC L, ESC Y and ESC Z to the bit image of parameter n in ESC *.

Details

m refers to the bit image to be converted.

n refers to the bit image to be converted into (m of ESC *).

ESC / Select VFU channel

ASCII:	ESC	/	m
Decimal:	27	47	m
Hexadecimal:	1B	2F	m

Function

Selects the VFU channel.

Details

Subsequent VT depend on the vertical tab positions specified with channel m.

ESC b Specify VFU tab position

ASCII:	ESC	b	m	n...0
Decimal:	27	98	m	n...0
Hexadecimal:	1B	62	m	n...00

Function

Specifies a vertical tab position at VFU channel m.

Details

Specifies a vertical tab at the position where (line feed amount when this command is specified) * (specified number of lines n). A tab setting that specifies a position extending past the page length is ignored.

5.10 Advanced commands

ESC i a Switch command mode

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

Function

Switches the command mode.

Details

When setting n is:

00h or 30h: ESC/P Legacy / Raster mode (default)

03h or 33h: P-touch Template mode

04h or 34h: ESC/P Brother mode

Example: 1Bh 69h 61h 00h Specifies ESC/P Legacy / Raster mode.

ESC i S Request printer status

ASCII:	ESC	i	S
Decimal:	27	105	83
Hexadecimal:	1B	69	53

Function

Requests the printer status.

Details

*Refer to the P-Touch Template Command Reference.

ESC ~ e F 1 Reverse feed

ASCII:	ESC	~	e	F	1	n	m
Decimal:	27	126	101	70	1	n	m
Hexadecimal:	1B	7E	65	46	01	n	m

Function

Reverse feeds the paper by the specified number of lines.

Details

The number of lines is specified with the two bytes n m.

However, n is the least significant byte and m is the most significant byte.

The setting range for the number of lines is:

At 300 dpi: 24 to 12,000 dots

At 203 dpi: 18 to 8,000 dots

Example: 1Bh 7Eh 65h 46h 01h 04h 10h

Specifies the number of lines as 1004h = 4,100 dots.

Appendix A: Character Code Tables

Character code tables

Advanced graphics code table

MSB / LSB	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			SP	0	@	P	`	p	Ç	É	á	▒	└	╨	α	≡
1			!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	ß	±
2			“	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3			#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4			$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	∑	⌠
5			%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6			&	6	F	V	f	v	å	û	a	╢	╞	╓	µ	÷
7			‘	7	G	W	g	w	ç	ù	o	╖	╟	╫	γ	≈
8			(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9			)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	●
A			*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	•
B			+	;	K	[	k	{	ï	¢	½	╗	╦	■	δ	√
C			,	<	L	\	l	¦	î	£	¼	╝	╠	▄	∞	n
D			-	=	M	]	m	}	ì	¥	¡	╜	═	▌	Ø	2
E			.	>	N	^	n	~	Ä	Pts	«	╛	╬	▐	Є	▪
F			/	?	O	_	o		Å	ƒ	»	┐	╧	▀	∩	ø

Precautions

- The character code 0xF2 is “≤” at 300dpi.
- The character code 0xF3 is “≥” at 300dpi.

Italic characters code table

MSB / LSB	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			SP	0	@	P	`	p			SP	0	@	P	`	p
1			!	1	A	Q	a	q			!	1	A	Q	a	q
2			“	2	B	R	b	r			“	2	B	R	b	r
3			#	3	C	S	c	s			#	3	C	S	c	s
4			$	4	D	T	d	t			$	4	D	T	d	t
5			%	5	E	U	e	u			%	5	E	U	e	u
6			&	6	F	V	f	v			&	6	F	V	f	v
7			‘	7	G	W	g	w			‘	7	G	W	g	w
8			(	8	H	X	h	x			(	8	H	X	h	x
9			)	9	I	Y	i	y			)	9	I	Y	i	y
A			*	:	J	Z	j	z			*	:	J	Z	j	z
B			+	;	K	[	k	{			+	;	K	[	k	{
C			,	<	L	\	l	¦			,	<	L	\	l	¦
D			-	=	M	]	m	}			-	=	M	]	m	}
E			.	>	N	^	n	~			.	>	N	^	n	~
F			/	?	O	_	o				/	?	O	_	o	ø

International characters

	Country	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
0	USA	#	$	@	[	\	]	^	`	{	¦	}	~
1	France	#	$	à	°	Ç	§	^	`	é	ù	é	ø
2	Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
3	UK	£	$	@	[	\	]	^	`	{	¦	}	~
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	₧	$	@	¡	Ñ	¿	^	`	ø	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	¡	Ñ	¿	é	`	í	ñ	ó	ú
12	Latin America	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú
13	Korea	#	$	@	[	₩	]	^	`	{	¦	}	~
64	Legal	#	$	§	°	'	"	¶	`	©	®	†	™

Precautions for selecting the international character sets listed above

When character code 0x7C (“ø”) for Denmark, Norway or Denmark II is selected, it becomes a space if the proportional pitch is applied.

Appendix B: 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.

https://support.brother.com/g/s/es/dev/en/index.html?navi=offall