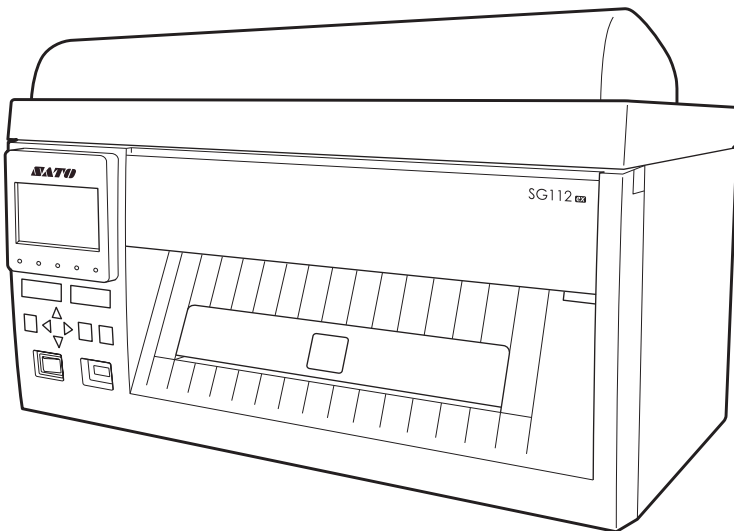


Programming Reference

For printer model:

SG112 **ex**



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Part 1 SBPL Commands

Command list

Control

Command name		Function
ESC+A	<A>	Start Code
ESC+Z	<Z>	Stop Code
ESC+Q	<Q>	Print Quantity
ESC+ID	<ID>	Job ID Number
ESC+WK	<WK>	Job Name

Print Position

Command name		Function
ESC+H	<H>	Horizontal Print Position
ESC+V	<V>	Vertical Print Position

Modification

Command name		Function
ESC+P	<P>	Character Pitch
ESC+L	<L>	Enlargement
ESC+PS	<PS>	Proportional Pitch
ESC+PR	<PR>	Release Proportional Pitch
ESC+%	<%>	Rotation
ESC+F	<F>	Sequential Number
ESC+FW	<FW>	Ruled/Grid Line Print
ESC+FC	<FC>	Print of Circle
ESC+FT	<FT>	Print Triangle
ESC+(	<(>	Reverse Color Print
ESC+KC	<KC>	Kanji Code
ESC+&	<&>	Store Form Overlay
ESC+/	</>	Recall Form Overlay
ESC+0	<0>	Partial Edit
ESC+WD	<WD>	Partial Copy
ESC+J	<J>	Journal Print
ESC+RF	<RF>	Recall Font & Logo
ESC+RM	<RM>	Mirror Image
ESC+PD	<PD>	Small Label Size

Command name		Function
ESC+_F	<_F>	Small Label Start
ESC+_N	<_N>	Format
ESC+_D	<_D>	Variable Data
ESC+_Q	<_Q>	Label Print Number
ESC+RI	<RI>	Label Size
ESC+RW	<RW>	Sheet Copy Quantity
ESC+RC	<RC>	Sheet Unit Cut Quantity
ESC+RT	<RT>	Print Order
ESC+RE	<RE>	Telegraphic Message End
ESC+RS	<RS>	Send Sheet
ESC+KS	<KS>	Kanji Set

Font

Command Name		Function
ESC+X20	<X20>	X20 Font (Basic size 5 x 9 dots)
ESC+X21	<X21>	X21 Font (Basic size 17 x 17 dots)
ESC+X22	<X22>	X22 Font (Basic size 24 x 24 dots)
ESC+X23	<X23>	X23 Font (Basic size 48 x 48 dots)
ESC+X24	<X24>	X24 Font (Basic size 48 x 48 dots)
ESC+XU	<XU>	XU Font (Basic size 5 x 9 dots)
ESC+XS	<XS>	XS Font (Basic size 17 x 17 dots)
ESC+XM	<XM>	XM Font (Basic size 24 x 24 dots)
ESC+XB	<XB>	XB Font (Basic size 48 x 48 dots)
ESC+XL	<XL>	XL Font (Basic size 48 x 48 dots)
ESC+OA	<OA>	OCR-A Font
ESC+OB	<OB>	OCR-B Font
ESC+\$	<\$>	Outline Font Design
ESC+\$=	<\$=>	Outline Font Print
ESC+RD	<RD>	CG Font
ESC+K1	<K1>	16 x 16 dots Kanji in Horizontal Line
ESC+K2	<K2>	24 x 24 dots Kanji in Horizontal Line
ESC+K3	<K3>	22 x 22 dots Kanji in Horizontal Line
ESC+K4	<K4>	32 x 32 dots Kanji in Horizontal Line
ESC+K5	<K5>	40 x 40 dots Kanji in Horizontal Line
ESC+K8	<K8>	16 x 16 dots Kanji in Horizontal Line with 1-byte Character
ESC+K9	<K9>	24 x 24 dots Kanji in Horizontal Line with 1-byte Character
ESC+KA	<KA>	22 x 22 dots Kanji in Horizontal Line with 1-byte Character
ESC+KB	<KB>	32 x 32 dots Kanji in Horizontal Line with 1-byte Character
ESC+KD	<KD>	40 x 40 dots Kanji in Horizontal Line with 1-byte Character
ESC+k1	<k1>	16 x 16 dots Kanji in Vertical Line

Command Name		Function
ESC+k2	<k2>	24 x 24 dots Kanji in Vertical Line
ESC+k3	<k3>	22 x 22 dots Kanji in Vertical Line
ESC+k4	<k4>	32 x 32 dots Kanji in Vertical Line
ESC+k5	<k5>	40 x 40 dots Kanji in Vertical Line
ESC+k8	<k8>	16 x 16 dots Kanji in Vertical Line with 1-byte Character
ESC+k9	<k9>	24 x 24 dots Kanji in Vertical Line with 1-byte Character
ESC+kA	<kA>	22 x 22 dots Kanji in Vertical Line with 1-byte Character
ESC+kB	<kB>	32 x 32 dots Kanji in Vertical Line with 1-byte Character
ESC+kD	<kD>	40 x 40 dots Kanji in Vertical Line with 1-byte Character
ESC+T1	<T1>	16 x 16 dots External Font Registration
ESC+T2	<T2>	24 x 24 dots External Font Registration
ESC+K1(K2)	<K1(K2)>	Recall Horizontal Writing External Character
ESC+k1(k2)	<k1(k2)>	Recall Vertical Writing External Character
ESC+U	<U>	U Font (Basic size 5 x 9 dots)
ESC+S	<S>	S Font (Basic size 8 x 15 dots)
ESC+M	<M>	M Font (Basic size 13 x 20 dots)
ESC+WB	<WB>	WB Font (Basic size 18 x 30 dots)
ESC+WL	<WL>	WL Font (Basic size 28 x 52 dots)

Barcode

Command name		Function
ESC+B		Barcode (Ratio 1:3)
ESC+D	<D>	Barcode (Ratio 1:2)
ESC+D~ESC+d	<D>~<d>	Barcode (with HRI)
ESC+BD	<BD>	Barcode (Ratio 2:5)
ESC+BT	<BT>	Barcode Ratio Registration
ESC+BW	<BW>	Barcode Print by Specified Ratio
ESC+BI	<BI>	GS1-128 (UCC/EAN128)(Standard Carton ID Only)
ESC+BC	<BC>	CODE93 Barcode
ESC+BG	<BG>	CODE128 Barcode
ESC+BP	<BP>	POSTNET
ESC+BF	<BF>	UPC Add-on
ESC+BL	<BL>	UPC-A Barcode (Without HRI)
ESC+BL~ESC+d	<BL>~<d>	UPC-A Barcode (Specifying HRI)
ESC+BM	<BM>	UPC-A Barcode (With HRI)
ESC+EU	<EU>	Composite Symbol
ESC+BS	<BS>	USPS Barcode

2D Code

Command name		Function
ESC+2D10	<2D10>	PDF417
ESC+2D12	<2D12>	Micro PDF417
ESC+2D20	<2D20>	MaxiCode
ESC+2D30	<2D30>	QR Code (Model 2)
ESC+2D31	<2D31>	QR Code (Model 1)
ESC+2D32	<2D32>	Micro QR Code
ESC+2D50	<2D50>	DataMatrix (ECC200)
ESC+2D51	<2D51>	GS1 DataMatrix
ESC+BQ	<BQ>	QR Code (Compatible commands)
ESC+BV	<BV>	MaxiCode (Compatible commands)
ESC+BK	<BK>	PDF417 (Compatible commands)
ESC+BX	<BX>	DataMatrix (ECC200) (Compatible commands)
ESC+DC	<DC>	DataMatrix (ECC200) Data Specify (Compatible commands)
ESC+FX	<FX>	DataMatrix (ECC200) Sequential Number (Compatible commands)

Graphic

Command name		Function
ESC+G	<G>	Graphic Print
ESC+GM	<GM>	BMP File Print
ESC+GP	<GP>	PCX File Print

System

Command name		Function
ESC+CS	<CS>	Print Speed
ESC+#F	<#F>	Print Darkness
ESC+A1	<A1>	Media Size
ESC+A3	<A3>	Base Reference Point
ESC+EP	<EP>	Print End Position
ESC+~	<~>	Multiple Cut
ESC+~A	<~A>	Cut Number Unit
ESC+~B	<~B>	Eject and Cut
ESC+*	<*>	Memory Clear
ESC+@	<@>	Offline
ESC+C	<C>	Reprint
ESC+PG	<PG>	Designation of Registration on Printer Motion
ESC+PC	<PC>	Designation of Registration on Printer Motion
ESC+E	<E>	Auto Line Feed
ESC+KM	<KM>	Mincho (Kanji)
ESC+KG	<KG>	Gothic (Kanji)
ESC+LD	<LD>	User Download

Command name		Function
ESC+CE	<CE>	European Code Page
ESC+TK	<TK>	Forced Tear Off
ESC+TW	<TW>	Option Waiting Time

Memory Card

Command name		Function
ESC+CC	<CC>	Card Slot for Use
ESC+BJF	<BJF>	Memory Card Initialization
ESC+BJS	<BJS>	Memory Card Status Print
ESC+&S	<&S>	Form Overlay Registration
ESC+&R	<&R>	Form Overlay Call
ESC+YS	<YS>	Format Registration
ESC+/N	</N>	Registration of Field
ESC+YR	YR	Format Call
ESC+/D	</D>	Print of Field
ESC+GI	<GI>	Registration of Graphic
ESC+GR	<GR>	Graphic Call
ESC+GT	<GT>	BMP File Registration
ESC+GC	<GC>	BMP File Call
ESC+PI	<PI>	PCX File Registration
ESC+PY	<PY>	PCX File Call
ESC+*	<*>	Memory Card Clear
ESC+T1	<T1>	Memory Card 16 x 16 dots External Font Registration
ESC+T2	<T2>	Memory Card 24 x 24 dots External Font Registration
ESC+K1(K2)(K8)(K9)	<K1(K2)(K8)(K9)>	Memory Card Horizontal Writing External Font Call
ESC+k1(k2)(K8)(k9)	<k1(k2)(k8)(k9)>	Memory Card Vertical Writing External Font Call
ESC+BJ ESC+BJD	<BJ> <BJD>	TrueType Font Registration (Compatible command)
ESC+BJT	<BJT>	TrueType Font Call (Compatible command)

Calendar

Command name		Function
ESC+WT	<WT>	Calendar Setup ^{*1}
ESC+WP	<WP>	Calendar Arithmetic ^{*1}
ESC+WA	<WA>	Calendar Print ^{*1}

^{*1} This command requires optional calendar IC.

Intelligent

Command name		Function
ESC+IK	<IK>	Label Feed Control
ESC+IM	<IM>	Displayed Messages
ESC+IF	<IF>	Internal Buffer Registration
ESC+IB	<IB>	Internal Buffer Recall
ESC+IC	<IC>	Internal Buffer Data Comparison
ESC+I*	<I*>	Internal Buffer Data Print
ESC+I#	<I#>	Exclusive Key Start-End
ESC+IZ	<IZ>	Key Input
ESC+IR	<IR>	Internal Buffer Registration (Received Data)
ESC+IT	<IT>	Data Sending
ESC+IO	<IO>	External Signal Input/Output
ESC+IW	<IW>	Print Start Waiting Time
ESC+IU	<IU>	Internal Buzzer Sound
ESC+I@	<I@>	Internal Buffer Initialization
ESC+IY	<IY>	Exclusive Display Start-End

Initial Value of Operation Settings

The initial values of operation setting are as follows:

Item	SG112-ex
Print speed	4 inch/s Range: 3, 4, 5, 6
Range of print darkness	A Range: A, B, C, D, E, F
Print darkness	5 Range: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
Start point correction	V: +0000 H: +0000
Zero font switch	YES
Kanji code switch	GB18030
Designation of proportional pitch	Enable

Font list

Specify ESC + (relevant font command) to use residential fonts.

Font	Font type	Pitch
OCR-A (12 dots/mm)	Bitmap [OCR-A font] 22×33 dots	Fixed
OCR-B (12 dots/mm)	Bitmap [OCR-B font] 30×36 dots	Fixed
XU	Bitmap [Helvetica] 5×9 dots	Fixed / Proportional
XS	Bitmap [Universe Condensed Bold] 17×17 dots	Fixed / Proportional
XM	Bitmap [Universe Condensed Bold] 24×24 dots	Fixed / Proportional
XB	Bitmap [Universe Condensed Bold] 48×48 dots	Fixed / Proportional
XL	Bitmap [Sans Serif] 48×48 dots	Fixed / Proportional
U	Bitmap [U font] 5 x 9 dots	Fixed
S	Bitmap [S font] 8 x 15 dots	Fixed
M	Bitmap [M font] 13 x 20 dots	Fixed
WB	Bitmap [WB font] 18 x 30 dots	Fixed
WL	Bitmap [WL font] 28 x 52 dots	Fixed
X20	Bitmap [X20 font] 5×9 dots	Fixed
X21	Bitmap [X21 font] 17×17 dots	Fixed / Proportional
X22	Bitmap [X22 font] 24×24 dots	Fixed / Proportional
X23	Bitmap [X23 font] 48×48 dots	Fixed / Proportional
X24	Bitmap [X24 font] 48×48 dots	Fixed / Proportional
K1	Bitmap [Kanji font] 16×16 dots	Fixed
K2	Bitmap [Kanji font] 24×24 dots	Fixed
K3	Bitmap [Kanji font] 22×22 dots	Fixed
K4	Bitmap [Kanji font] 32×32 dots	Fixed
K5	Bitmap [Kanji font] 40×40 dots	Fixed
K8	Bitmap [Kanji font] 16×16 dots	Fixed
K9	Bitmap [Kanji font] 24×24 dots	Fixed
KA	Bitmap [Kanji font] 22×22 dots	Fixed
KB	Bitmap [Kanji font] 32×32 dots	Fixed
KD	Bitmap [Kanji font] 40×40 dots	Fixed
\$(shape)	Outline font	Fixed / Proportional
\$(print)	Kanji Outline font	Fixed
RD	CG font [SATO CG Sleek]	Fixed / Proportional
	CG font [SATO CG Stream]	Fixed / Proportional
	SATOVICA	Fixed / Proportional
	SATOGAMMA	Fixed / Proportional

Expanded font

Internal font can be enlarged up to 12.

Example: When a font in a size of 5 dots of width and 9 dots of height is expanded by a factor of 3, the resulting font has a width of 15 dots and a height of 27 dots.

The input of enlargement ratio (height x enlargement ratio, width x enlargement ratio) for characters to be printed is done as described below:

Width x expansion factor = width parameter setting value

Height x expansion factor = height parameter setting value

The Enlargement <L> decides the expansion of the character. This parameter is set as factor.

Example: If setting the factor to: <L>0304, the character is expanded by a factor of 3 in horizontal direction (width) and a factor of 4 in vertical direction (height).

If an expansion factor is specified, also the pitch between the characters is automatically determined.

Fixed pitch / proportional pitch

Print of Fixed Pitch and Proportional Pitch are available for XU ~ XL fonts, X21~X24, Outline font, and CG font.

You can set the proportional pitch by <PS> command and release it by <PR> command or go to the USER Mode of printer LCD.

Depending on the font type, the width of the proportional pitch does differ. Kata-kana is not affected by the proportional pitch. However, when proportional pitch is applied to Kata-kana, the side space of characters will be narrowed.

At the fixed pitch, the character width is according to the relevant font size selected.

Difference between outline font and bitmap font

Regarding the bitmap font, the height and the width of the font are predefined. The height of the bitmap font is a little bit larger than the width.

The bitmap font is the largest in the font matrix.

For the font type and size refer to the font list previously described.

Regarding the outline font, if the height and the width of the font are set properly, the smooth scaling algorithm of the printer allows a well-balanced font. It is also possible to define some style options like a gray scale and a shadow setting.

Example of Command reference

1
2

[ESC+L] Enlargement

3 →

5 →

6 →

Hexadecimal code	ESC	L	Parameter ←
	<1B> ₁₆	<4C> ₁₆	aabb
Initial value	aa=01, bb=01		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter is valid until the next valid setting.	
	Valid range between items	The set parameter becomes initial value at the next item <A>.	

4

7 [Function]
Specifying the enlargement ratio of font.

8 [Format]
<L>aabb
 • Parameter
 a [Horizontal enlargement ratio] = Valid range: 01 to 36
 b [Vertical enlargement ratio] = Valid range: 01 to 36

9 [Coding Example]
 Horizontal enlargement ratio: 4 times, Vertical enlargement ratio: 3 times
 <A>
 <V>100<H>200<P>3<L>**0403**<XM>ABCD
 <Q>2
 <Z>

10 [Supplementary Explanation]
 • Enlarges the character pitch as well. When Character Pitch <P> is used at the same time, the parameter value of horizontal enlargement ratio specified in Enlargement <L> will be reflected in the subsequent specification <P>.

11 [Note]
 • If increasing the enlargement ratio, design the print format that does not exceed printing area.

12 [Valid Commands]

Font	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<K1>	<K2>	<K3>
	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>	<k2>	<k3>
	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	<U>	<S>	<M>
	<WB>	<WL>	<X20>	<X21>	<X22>	<X23>	<X24>			
Modification	<P>	<RF>								
Graphic	<G>	<GM>	<GP>							
Memory card	<GR>	<GC>	<PY>							

1. Indicates command code.
2. Indicates command name.
3. Indicates command in Hexadecimal code.
4. Indicates parameter to be described in command.
5. Indicates initial value for command.
6. Indicates valid range of command.
 - When the power is OFF
 - The set parameter is maintained.
 - The set parameter is not maintained.

- The set command is not maintained.
 - Valid range within items
 - The set parameter is valid until the next specification is made.
 - The set parameter becomes invalid.
 - The set command becomes invalid.
 - Valid range between items
 - The set parameter becomes initial value at the next item <A>.
 - The set parameter is valid until the next specification is made.
 - The set parameter becomes invalid.
 - The set command becomes invalid.
7. Explains the function of command.
8. Explains the command and required parameter.
 <L>AABB indicates the command ESC+L (<1B>₁₆<4C>₁₆) and two types of parameters such as "aa" and "bb".
9. Shows the example of how the command is used.
 This is the coding example programmed in BASIC output to the printer connected with RS-232C.
- ```

10 ESC$=CHR$(&H1B)
20 OPEN "COM1:9600,N,8,1,RS,BIN" FOR OUTPUT AS #1
30 PRINT #1,ESC$,"A";
40 PRINT #1,ESC$,"V100";ESC$,"H200";
50 PRINT #1,ESC$,"P3";ESC$,"L0403";
60 PRINT #1,ESC$,"XMABCD";
70 PRINT #1,ESC$,"Q2";
80 PRINT #1,ESC$,"Z";
90 CLOSE #1
100 END

```
10. Provides the supplemental information of command function and parameter.
11. Provides notes and restriction for the use of command.
12. Shows the commands that come under the influence of used commands.

---

# Control commands

---

## [ESC+A] Start Code

|                  |                    |                    |           |
|------------------|--------------------|--------------------|-----------|
| Hexadecimal code | ESC                | A                  | Parameter |
|                  | <1B> <sub>16</sub> | <41> <sub>16</sub> | None      |
| Initial value    | None               |                    |           |

|                                 |                           |                                    |
|---------------------------------|---------------------------|------------------------------------|
| Valid range and term of command | When the power is OFF     | The set command is not maintained. |
|                                 | Valid range within items  | The set command becomes invalid.   |
|                                 | Valid range between items | The set command becomes invalid.   |

### [Function]

Specifying the start of data transmission.

### [Format]

<A>

### [Coding Example]

<A>  
<V>100<H>200<P>2<L>0202<XM>ABCD  
<Q>2  
<Z>

### [Supplementary Explanation]

- Indicates the start of item and to be placed at the head of item.
- Use Start Code <A> and Stop Code <Z> as a pair of commands.

### [Note]

- Setting value of all commands excluding a part of system commands will be set to default.
- If this command is not specified, printing will not be performed.

## [ESC+Z] Stop Code

|                  |                    |                    |           |
|------------------|--------------------|--------------------|-----------|
| Hexadecimal code | ESC                | Z                  | Parameter |
|                  | <1B> <sub>16</sub> | <5A> <sub>16</sub> | None      |
| Initial value    | None               |                    |           |

|                                 |                           |                                    |
|---------------------------------|---------------------------|------------------------------------|
| Valid range and term of command | When the power is OFF     | The set command is not maintained. |
|                                 | Valid range within items  | The set command becomes invalid.   |
|                                 | Valid range between items | The set command becomes invalid.   |

### [Function]

Specifying the end of data transmission.

### [Format]

<Z>

### [Coding Example]

<A>  
<V>100<H>200<P>2<L>0202<XM>ABCD  
<Q>2  
<Z>

### [Supplementary Explanation]

- Indicates the end of item and to be placed at the tail of item.
- Use Start Code <A> and Stop Code <Z> as a pair of commands.

### [Note]

- If this command is not specified, printing will not be performed.

## [ESC+Q] Print Quantity

|                  |                    |                    |           |
|------------------|--------------------|--------------------|-----------|
| Hexadecimal code | ESC                | Q                  | Parameter |
|                  | <1B> <sub>16</sub> | <51> <sub>16</sub> | aaaaaa    |
| Initial value    | aaaaaa=1           |                    |           |

|                                 |                           |                                      |
|---------------------------------|---------------------------|--------------------------------------|
| Valid range and term of command | When the power is OFF     | The set parameter is not maintained. |
|                                 | Valid range within items  | The set parameter becomes invalid.   |
|                                 | Valid range between items | The set parameter becomes invalid.   |

### [Function]

Specifying the number of labels to print.

### [Format]

<Q>aaaaaa

- Parameter

a [Number of labels to print] = Valid range: 1 to 999999

### [Coding Example]

Number of labels: 2

<A>

<V>100<H>200<P>2<L>0202<XM>ABCD

<Q>2

<Z>

### [Supplementary Explanation]

- Print contents specified by Start Code <A> and Stop Code <Z> are regarded as 1 label, and the number of reprints can be specified.
- Use this command prior to Stop Code <Z>.

### [Points]

- Reprint will be performed based on the specified print quantity. If specifying Sequential Number <F>, the value of sequential number that was set up for that field portion will be printed.
- When this command is used in combination with Multiple Cut <~>, the specified print quantity multiplied by specified value for cutting becomes the number of labels to print.

## [ESC+ID] Job ID Number

|                  |                      |                                       |           |
|------------------|----------------------|---------------------------------------|-----------|
| Hexadecimal code | ESC                  | ID                                    | Parameter |
|                  | <1B> <sub>16</sub>   | <49> <sub>16</sub> <44> <sub>16</sub> | aa        |
| Initial value    | a=<20> <sub>16</sub> |                                       |           |

|                                 |                           |                                                                  |
|---------------------------------|---------------------------|------------------------------------------------------------------|
| Valid range and term of command | When the power is OFF     | The set parameter is not maintained.                             |
|                                 | Valid range within items  | The set parameter is valid until the next specification is made. |
|                                 | Valid range between items | The set parameter becomes invalid.                               |

### [Function]

Specifying job ID number for status return.

### [Format]

<ID>aa

- Parameter

a [Job ID number]

Valid range: 00 to 99 (fixed as 2 digits)

### [Coding Example]

Job ID Number: 01

<A>

**<ID>01**

<V>200<H>100<P>0<\$>B,100,100,6

<\$=>SATOPRINTER

<Q>2

<Z>

### [Supplementary Explanation]

- When status return is used for interface protocol, the specified job ID number can be set to the telegraphic status.
- Status can be confirmed by sending status request (ENQ).
- Include this command within items and use between Start Code <A> and Stop Code <Z>.

### [Points]

- In status return interface protocol, this command becomes valid when status request (ENQ) is received while printing (QTY≠0, includes at the time of Offline and Error).
- In status return communication protocol, if status request (ENQ) is received when printing is not in progress (QTY=0, No received data when power is ON), space (20H) will be set to status and returned.
- When Job ID Number <ID> is used more than twice within the items of Start Code <A> and Stop Code <Z>, the last specified value becomes valid.

## [ESC+WK] Job Name

|                  |                                     |                                       |                  |
|------------------|-------------------------------------|---------------------------------------|------------------|
| Hexadecimal code | ESC                                 | WK                                    | Parameter        |
|                  | <1B> <sub>16</sub>                  | <57> <sub>16</sub> <4B> <sub>16</sub> | aaaaaaaaaaaaaaaa |
| Initial value    | aaaaaaaaaaaaaaaa=<20> <sub>16</sub> |                                       |                  |

|                                 |                           |                                                                  |
|---------------------------------|---------------------------|------------------------------------------------------------------|
| Valid range and term of command | When the power is OFF     | The set parameter is not maintained.                             |
|                                 | Valid range within items  | The set parameter is valid until the next specification is made. |
|                                 | Valid range between items | The set parameter becomes invalid.                               |

### [Function]

Specifying job name for status return.

### [Format]

<WK>aaaaaaaaaaaaaaaa

- Parameter

a [Job Name] = ASCII code 16-digit, Shift JIS Kanji 8-digit

### [Coding Example]

Job name: SATO

<A>

<ID>01

**<WK>SATO**

<V>200<H>100<P>0<\$>B,100,100,6

<\$=>SATOPRINTER

<Q>2

<Z>

### [Supplementary Explanation]

- When Status4 is used for interface protocol, specified job name can be set to the telegraphic status.
- Status can be confirmed by sending status request (ENQ).
- Include this command within items and use between Start Code <A> and Stop Code <Z>.
- This command can be used in combination with Job ID Number <ID>.

### [Points]

- In status return interface protocol, this command becomes valid when status request (ENQ) is received while printing (QTY≠0, includes at the time of Offline and Error).
- In status return communication protocol, if status request (ENQ) is received when printing is not in progress (QTY=0, No received data when power is ON), space (20H) will be set to status and returned.
- When Job name <WK> is used more than twice within the items of Start Code <A> and Stop Code <Z>, the last specified value becomes valid.
- For more information, refer to the "Interface Specifications."

---

# Print Position Commands

---

## [ESC+H] Horizontal Print Position

|                  |                    |                    |           |
|------------------|--------------------|--------------------|-----------|
| Hexadecimal code | ESC                | H                  | Parameter |
|                  | <1B> <sub>16</sub> | <48> <sub>16</sub> | aaaa      |
| Initial value    | aaaa=1             |                    |           |

|                                 |                           |                                                                  |
|---------------------------------|---------------------------|------------------------------------------------------------------|
| Valid range and term of command | When the power is OFF     | The set parameter is not maintained.                             |
|                                 | Valid range within items  | The set parameter is valid until the next specification is made. |
|                                 | Valid range between items | The set parameter becomes initial value at the next item <A>.    |

### [Function]

Specifying horizontal print position from its start point by dot.

### [Format]

<H>aaaa

- Parameter

a [Horizontal Print Position] = Refer to [Initial Value and Valid Range of Parameter] section below.

### [Coding Example]

Horizontal print position: 200 dots

```
<A>
<V>100<H>200<P>2<L>0202<XM>ABCD
<Q>2
<Z>
```

### [Supplementary Explanation]

- Specifying the start of horizontal position for the print of text, barcode, ruled line and graphic.

### [Points]

- Any contents such as text, barcode, graphic exceed printing area will not be printed.

### [Initial Value and Valid Range of Parameter]

Initial value: 1

Valid range: 1 to 3200 dots

## [ESC+V] Vertical Print Position

Hexadecimal code	ESC	V	Parameter
	<1B> <sub>16</sub>	<56> <sub>16</sub>	aaaaa
Initial value	aaaaa=1		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

### [Function]

Specifying vertical print position from its start point by dot.

### [Format]

<V>aaaaa

- Parameter

a [Vertical Print Position] = Refer to [Initial Value and Valid Range of Parameter] section below.

### [Coding Example]

Vertical print position: 100 dots

<A>

<V>100<H>200<P>2<L>0202<XM>ABCD

<Q>2

<Z>

### [Supplementary Explanation]

- Specifying the start of vertical position for the print of text, barcode, ruled line and graphics.

### [Points]

- Any contents such as text, barcode, graphic exceed printing area will not be printed.

### [Initial Value and Valid Range of Parameter]

Initial value: 1

Valid range: 1 to 5040 dots



---

# Modification Commands

---

## [ESC+P] Character Pitch

Hexadecimal code	ESC	P	Parameter
	<1B> <sub>16</sub>	<50> <sub>16</sub>	aa
Initial value	aa=02		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next valid setting.
	Valid range between items;	The set parameter becomes initial value at the next item <A>.

### [Function]

Specifying character pitch by dot.

### [Format]

<P>aa

- Parameter

a [Character pitch] = Valid range: 00 to 99 dots

### [Coding Example]

Character pitch: 10

```
<A>
<V>200<H>100<P>10<L>0202<XM>ABCD
<Q>2
<Z>
```

### [Supplementary Explanation]

- Character pitch means the character gap or font gap when selecting font or barcode.
- Specified character pitch will be widened based on the ratio of Enlargement <L>.
- The Character Pitch <P> maintains the parameter only in the field. Even if linefeed code [CR] is specified in Auto Linefeed <E>, the character pitch remains the same without returning to initial value. Start of Data Transmission <A> can be used to reset to the initial value.
- By specifying Character Pitch <P> just before the barcode specification, pitch command becomes valid for barcode module.  
Object barcode: NW-7, CODE39, Industrial 2of5, Matrix 2of5  
For more information, refer to "(3) Intercharacter gap" in "Barcode Command."
- Data specification except numeric value or specification of over-digit will give the initial value.

## [Valid Commands]

Font	<X20>	<X21>	<X22>	<X23>	<X24>					
	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<\$=>	<K1>
	<K2>	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>
	<k2>	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	<U>
	<S>	<M>	<WB>	<WL>						
Barcode	<B>	<D>	<D><d>	<BD>	<BT>	<BW>	<BM>			
Modification	<RF>									
Memory Card	<\$=>									

## [ESC+L] Enlargement

Hexadecimal code	ESC	L	Parameter
	<1B> <sub>16</sub>	<4C> <sub>16</sub>	aabb
Initial value	aa=01, bb=01		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

### [Function]

Specifying the enlargement ratio of font.

### [Format]

<L>aabb

- Parameter

a [Horizontal enlargement ratio] = Valid range: 01 to 12

b [Vertical enlargement ratio] = Valid range: 01 to 12

### [Coding Example]

Horizontal enlargement ratio: 4 times, Vertical enlargement ratio: 3 times

```
<A>
<V>200<H>100<P>3<L>0403<XM>ABCD
<Q>2
<Z>
```

### [Supplementary Explanation]

- Enlarges the character pitch as well. When Character Pitch <P> is used at the same time, the parameter value of horizontal enlargement ratio specified in Enlargement <L> will be reflected in the subsequent specification <P>.

### [Points]

- If increasing the enlargement ratio, design the print format that does not exceed printing area.

### [Valid Commands]

Font	<X20>	<X21>	<X22>	<X23>	<X24>					
	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<K1>	<K2>
	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>	<k2>
	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	<U>	<S>
	<M>	<WB>	<WL>							
Modification	<P>	<RF>								
Graphic	<G>	<GM>	<GP>							
Memory Card	<GR>	<GC>	<PY>							

## [ESC+PS] Proportional Pitch

Hexadecimal code	ESC	PS	Parameter
	<1B> <sub>16</sub>	<50> <sub>16</sub> <53> <sub>16</sub>	None
Initial value	Proportional		

Valid range and term of command	When the power is OFF	The set command is not maintained.
	Valid range within items	The set command is valid until the next specification is made.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

### [Function]

Specifying the proportional pitch.

### [Format]

<PS>

### [Coding Example]

```
<A>
<PS>
<V>100<H>200<P>2<L>0202<XM>ABCD
<Q>2
<Z>
```

### [Supplementary Explanation]

- If specifying this command, width of alphanumeric becomes narrower than the time when <PS> was not specified.
- If data other than specified is set, proportional print will not be performed.

### [Valid Commands]

Font	<X21>	<X22>	<X23>	<X24>						
	<XU>	<XS>	<XM>	<XB>	<XL>	<RD>	<\$=>			
Modification	<RF>									

## [ESC+PR] Release Proportional Pitch

Hexadecimal code	ESC	PR	Parameter
	<1B> <sub>16</sub>	<50> <sub>16</sub> <52> <sub>16</sub>	None
Initial value	Proportional		

Valid range and term of command	When the power is OFF	The set command is not maintained.
	Valid range within items	The set command is valid until the next specification is made.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

### [Function]

Specifying the release of proportional pitch.

### [Format]

<PR>

### [Coding Example]

```
<A>
<PR>
<V>100<H>200<P>2<L>0202<XM>ABCD
<Q>2
<Z>
```

### [Valid Commands]

Font	<X21>	<X22>	<X23>	<X24>						
	<XU>	<XS>	<XM>	<XB>	<XL>	<RD>	<\$=>			
Modification	<RF>									

## [ESC+%] Rotation

Hexadecimal code	ESC	%	Parameter
	<1B> <sub>16</sub>	<25> <sub>16</sub>	a
Initial value	a=0		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

### [Function]

Specifying the counter-clockwise rotation of font and barcode. This is to rotate the print direction in 90° increments without changing the location of the base reference point.

### [Format]

<%>a

- Parameter

a [Rotative direction]

0: Parallel 1 (0 degree)

1: Serial 1 (90-degree)

2: Parallel 2 (180-degree)

3: Serial 2 (270-degree)

### [Coding Example]

Font rotation: Parallel 2 (180-degree), Barcode rotation: Serial 1 (90-degree)

<A>

<%>2

<V>100<H>400<P>3<L>0403<XM>ABCD

<%>1

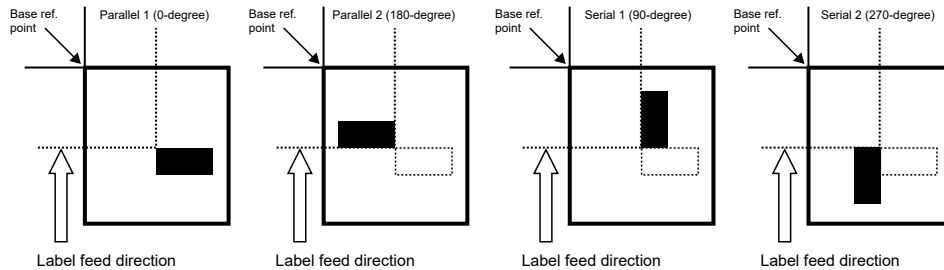
<V>400<H>200<BD>103160\*123\*

<Q>2

<Z>

### [Supplementary Explanation]

- Position specification of Vertical Print Position <V> and Horizontal Print Position <H> are the absolute value from its base reference point.
- When the value of parameter "a" is between 4 and 9, it will be processed as a command error and ignored. When the value other than numeric is specified, this will be ignored and printing will be performed at 0 degree.
- Print of barcode using Serial 1 or Serial 2 may cause blur. Drop the print speed for rotation print of Serial 1 and Serial 2 for better performance.



### [Valid Commands]

Font	<X20>	<X21>	<X22>	<X23>	<X24>					
	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<\$=>	<K1>
	<K2>	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>
	<k2>	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	<U>
	<S>	<M>	<WB>	<WL>						
Barcode	<B>	<BC>	<BG>	<BI>	<D>	<D><d>	<BD>	<BT>	<BW>	<BP>
	<BF>	<BS>	<BL>	<BL><d>	<BM>					
2D Code	<2D10>	<BK>	<2D12>	<2D20>	<BV>	<2D30>	<2D31>	<2D32>	<BQ>	<2D50>
	<BX>	<2D51>								
Composite Symbol	<EU>									
Graphic	<G>	<GM>	<GP>							
System	<E>									
Modification	<RF>	<FW>	<FC>	<FT>	<(>	<RM>				
Memory Card	<GR>	<GC>	<PY>							

## [ESC+F] Sequential Number

Hexadecimal code	ESC	F	Parameter
	<1B> <sub>16</sub>	<46> <sub>16</sub>	aaaabcccc(,dd,ee,f)
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying prior to the data specification command of font or barcode, and printing specified data in a sequential order.

### [Format]

<F>aaaabcccc(,dd,ee,f)

- Parameter

a [Print quantity specification of identical contents] = Valid range : 1 to 9999

b [Increasing and decreasing specification]

+ : Addition

- : Subtraction

c [Setting of increasing and decreasing value] = Valid range : 1 to 9999

d [Valid digit number for sequential number] = Valid range : 1 to 99 When omitted: 8 (omissible)

e [Low-order invalid digit number] = Valid range : 0 to 99 When omitted: 0 (omissible)

Starting with the rightmost position

f [Specification of Decimal/Hex sequential number]

0 : Decimal number When omitted: 0 (omissible)

1 : Hexadecimal

### [Coding Example]

Print quantity specification of identical contents: 1, Increasing and decreasing specification: +, Setting of increasing and decreasing value: 1, Valid digit number for sequential number: 5, Loworder invalid digit number: 0

<A>

<V>100<H>100<P>2<L>0202

**<F>1+1,5,0<XU>10000**

<Q>2

<Z>

### [Supplementary Explanation]

- Sequential number can be specified up to 8 points per format.
- Next print data from <F> command will be the initial value of sequential number.
- Specify the required number of digits for sequential number to print it properly. If not specified, sequential numbers may not be printed properly.
- Specification of Black/White Reverse Print <(> is not valid for sequential numbered data.
- Auto Linefeed <E> is not available.
- Need to print font or barcode to print sequential number.



- Digit number of sequential number should correspond to that of font/barcode data command. If the digit number of sequential number is larger, sequential number printing will not be performed.
- If the print data immediately after the Sequential Number <F> becomes the sequential number invalid command, the sequential number will be invalid.

#### [Valid Commands]

Font	<X20>	<X21>	<X22>	<X23>	<X24>					
	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<\$=>	<U>
	<S>	<M>	<WB>	<WL>						
Barcode	<B>	<BC>	<BG>	<BI>	<D>	<D><d>	<BD>	<BT>	<BW>	<BP>
	<BF>	<BS>	<BL>	<BL><d>	<BM>					

## [ESC+FW] Ruled / Grid Line Print

Hexadecimal code	ESC	<FW>	Parameter
	<1B> <sub>16</sub>	<46> <sub>16</sub> <57> <sub>16</sub>	Rule aabccccc(Peeeeeeee) Grid aabbVccccHdddd(Peeeeeeee)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying the ruled / grid line.

### [Format]

<FW>aabccccc(Peeeeeeee) : Print of ruled line

- Parameter

a [Line width] = Valid range : 02 to 99 dots

b [Horizontal/vertical direction]

H : Horizontal direction

V : Vertical direction

c [Ruled line length] = Valid range : Refer to [Valid Range] section below.

e [Line pattern] = Valid range : 01 to FFFFFFFF (omissible)

<FW>aabbVccccHdddd(Peeeeeeee) : Print of grid line

- Parameter

a [Vertical line width] = Valid range : 02 to 99 dots

b [Horizontal line width] = Valid range : 02 to 99 dots

c [Vertical line length] = Valid range : Refer to [Valid Range] section below.

d [Horizontal line length] = Valid range : Refer to [Valid Range] section below.

e [Line pattern] = Valid range : 01 to FFFFFFFF (omissible)

### [Coding Example 1]

Ruled line print, Line width: 4, Horizontal direction, Ruled line length: 400

Grid line print, Vertical line width: 8, Horizontal line width: 8, Vertical line length: 300, Horizontal line length: 400

<A>

<V>100<H>200<FW>**04H400**

<V>300<H>200<FW>**0808V300H400**

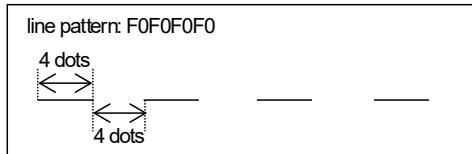
<Q>2

<Z>

### [Coding Example 2]

Ruled line print, Line width: 4, Horizontal direction, Ruled line length: 400, line pattern: F0F0F0F0

Grid line print, Vertical line width: 8, Horizontal line width: 8, Vertical line length: 300, Horizontal line length: 400, line pattern: F0F0F0F0



<A>  
 <V>100<H>200<FW>**04H400PF0F0F0F0**  
 <V>300<H>200<FW>**0808V300H400PF0F0F0F0**  
 <Q>2  
 <Z>

#### [Supplementary Explanation]

- When the print start position exceeds the printing area, printing will not be performed due to command error.
- Set line width to 2 dots or more so the horizontal line width is more than 0.166 mm.
- If setting the vertical line width wider, it will be widened to the right side against media feed direction. If setting the horizontal line width wider, it will be widened to the lower side against media feed direction.
- If setting the grid line wider, it will be widened inward.
- Please specify 8 digits bit pattern for the ruled line. (1 digit = 4 bits, 1 bit = 1 dot)
- When the ruled pattern is less than 8 digits, data are generated repeatedly from the specified data until it becomes 8 digits data.  
 Example) When ruled line pattern "FOC" is specified, ruled line pattern "FOCFOCFO" is generated.
- When a pattern is specified, the image is generated in 4 bytes of the drawing area. When the print base reference point is not in 4 bytes, the image is misaligned for 1 dot because the data are generated from in the middle of the pattern.

#### [Valid Range]

Horizontal line length: 1 to 3200 dots

Vertical line length: 1 to 5040 dots

## [ESC+FC] Print Circle

Hexadecimal code	ESC	FC	Parameter
	<1B> <sub>16</sub>	<46> <sub>16</sub> <43> <sub>16</sub>	,aaa,bbb(,c,d)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying the print of circle.

### [Format]

<FC>,aaa,bbb(,c,d)

- Parameter

a [Radius] = Valid range : 5 to 999 dots

b [Line width] = Valid range : 1 to 999 dots

c [Sectional number] = Valid range : 0 to 8 When omitted: 0 (omissible)

\*See the details listed below.

d [Pattern] = Valid range : 0 to 3 When omitted: 0 (omissible)

0 : Solid line (black)

1 : Gray 1

2 : Gray 2

3 : Gray 3

- Sectional number



Section 0



Section 1



Section 2



Section 3



Section 4



Section 5



Section 6



Section 7



Section 8

### [Coding Example]

Solid line circle of 100 dots in radius, 8 dots in line width

<A>

<V>200<H>200

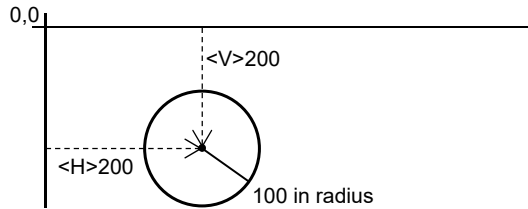
**<FC>,100,8,0,0**

<Q>1

<Z>

### [Supplementary Explanation]

- When the value outside of the range is specified for sectional number, it will be processed as "0." (This will not be a command error.)
- When the value outside of the range is specified for the designation of pattern, it will be processed as "0." (This will not be a command error.)
- Even when the print start position exceeds the printing area, the printing is performed. (This will be a command error.)
- This command sets the base reference point to the center of a circle.



- This command can be registered to the format.
- If setting the grid line wider, it will be widened inward.
- Head check is performed using the entire graphic area as a print area.

## [ESC+FT] Print Triangle

Hexadecimal code	ESC	FT	Parameter
	<1B> <sub>16</sub>	<46> <sub>16</sub> <54> <sub>16</sub>	,aaaa,bbbb(,cccc,d)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying the print of triangle.

### [Format]

<FT>,aaaa,bbbb(,cccc,d)

- Parameter

a [Length of sides] = Valid range : 10 to 2000 dots

b [Line width] = Valid range : 1 to 1000 dots

c [Length of base] = Valid range : 10 to 2000 dots (omissible)

When omitted, its value will be equal to the length of sides.

d [Pattern] = Valid range : 0 to 3 When omitted: 0 (omissible)

0 : Solid line (black)

1 : Gray 1

2 : Gray 2

3 : Gray 3

### [Coding Example]

Length of sides: 100 dots, Line width: 8 dots, Length of base: 100 dots

<A>

<V>100<H>200

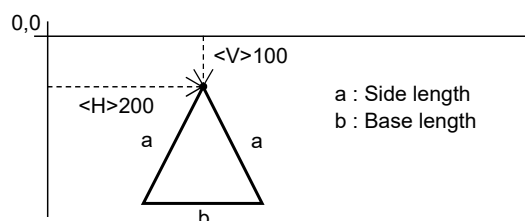
**<FT>,100,8,100,0**

<Q>1

<Z>

### [Supplementary Explanation]

- When the value outside of the range is specified for pattern, it will be processed as "0." (This will not be a command error.)
- When the print start position exceeds the printing area, printing will not be performed due to command error.
- When the side length is not equal to the base length, printing will not be performed due to command error.
- This command sets the base reference point to the apex of a triangle.



- This command can be registered to the format.
- If setting the line wider, it will be widened inward.
- If the base length is odd number, +1 will be added automatically to make even number.
- Head check is performed using the entire graphic area as a print area.

## [ESC+()] Reverse Color Print

Hexadecimal code	ESC	(	Parameter
	<1B> <sub>16</sub>	<28> <sub>16</sub>	aaaa,bbbb
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying black and white reverse print.

### [Format]

<(>aaaa,bbbb

- Parameter

a [Specification of reverse area in horizontal direction]

Valid range: Refer to [Valid Range] section below.

b [Specification of reverse area in vertical direction]

Valid range: Refer to [Valid Range] section below.

### [Coding Example]

Reverse area in horizontal direction: 200, Reverse area in vertical direction: 70

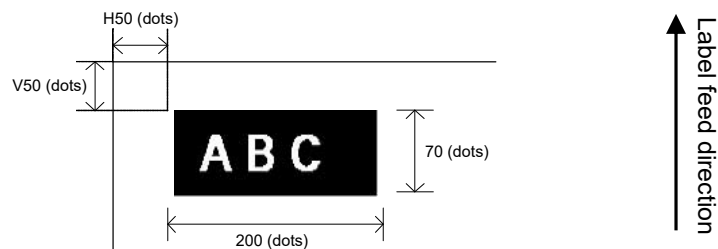
<A>

<V>50<H>50<P>2<L>0202<XM>ABC

<V>50<H>50<(>200,70

<Q>2

<Z>



### [Supplementary Explanation]

- Set this command next after the firm data string to be inversed. If it is set prior to the firm data the data will be printed in black without inverse.
- To set print start position, specify Horizontal Print Position <H> and Vertical Print Position <V> prior to this command.
- When the print start position exceeds the printing area, printing will not be performed due to command error.

### [Points]

- For setting, keep the black print area under 30% of overall label.



**[Valid Range]**

Area in horizontal direction: 8 to 3200 dots

Area in vertical direction: 8 to 5040 dots

## [ESC+KC] Kanji Code

Hexadecimal code	ESC	KC	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <43> <sub>16</sub>	a
Initial value	a=0		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

### [Function]

Specifying Kanji Code.

Normally, the character code is specified in the user mode of the printer, however, the character code can be changed temporary with this command <KC>.

### [Format]

<KC>a

- Parameter

a [Kanji code]

- 0 : JIS code
- 1 : Shift JIS code
- 2 : Unicode
- 4 : BIG5 code
- 5 : GB18030 code

### [Coding Example 1] In case of JIS code

```
<A>
<KC>0
<V>100<H>200<P>2<L>0202
<K1>H81698A94816A83548367815B
<Q>2
<Z>
```

### [Coding Example 2] In case of Shift JIS code

```
<A>
<KC>1
<V>100<H>200<P>2<L>0202
<K1>H214A3374214B25352548213C
<Q>2
<Z>
```

### [Coding Example 3] In case of Unicode

```
<A>
<KC>2
<V>100<H>200<P>2<L>0202
<K1>HFF08682AFF0930B530C830FC
<Q>2
<Z>
```

**[Supplementary Explanation]**

- There is no necessity to specify this command in the normal label printing.
- It is possible to specify multiple Kanji codes within 1 item.
- Please use the appropriate Kanji code according to the Kanji set specified in Kanji Set <KS>.
- When the Kanji set is changed, specify this command after Kanji Set <KS>.

**[Parameter valid range]**

Kanji Set <KS>	Kanji Code <KC> valid range
Japanese JIS208 Kanji (JISX208)	0: JIS code 1: Shift JIS code 2: Unicode
Chinese Traditional (BIG5)	4: BIG5 code
Chinese Simplified (GB18030)	5: GB18030 code

## [ESC+&] Store Form Overlay

Hexadecimal code	ESC	&	Parameter
	<1B> <sub>16</sub>	<26> <sub>16</sub>	(aab...b)
Initial value	None		

Valid range and term of command	When the power is OFF	The set command is not maintained.
	Valid range within items	The set command is valid until the next specification is made.
	Valid range between items;	The set command is valid until the next specification is made.

### [Function]

Specifying the registration of form overlay.

### [Format]

<&>(aab...b)

- Parameter

a [Registration key] = Valid range : 01 to 99 (omissible)

b [Comment] = Max. 16 bytes (omissible)

### [Coding Example]

```
<A>
<V>100<H>50<FW>1010V800H750
<V>100<H>50<FW>0505V760H710
<V>150<H>100<XB>0MODEL
<&>01DATA1
<Z>
```

### [Supplementary Explanation]

- This command saves fixed print contents to the printer and then, Recall Form Overlay </> combines the contents with drawing of general data to print out.
- Specify this command at the end of data string that is to be stored. Drawing valid range in form overlay registration is same as printing area.
- This command can register only one format. Use any code from 01 to 99 as a registration key.
- To change contents, specify Clear Form Overlay (<\*>&), and then register new storage data.
- Invoke registered contents by Recall Form Overlay </>.
- When specifying Media Size <A1>, it will be extracted in the specified area.

## [Valid Commands]

Print Psition	<V>	<H>								
Font	<X20>	<X21>	<X22>	<X23>	<X24>					
	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<\$=>	<K1>
	<K2>	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>
	<k2>	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	<U>
	<S>	<M>	<WB>	<WL>						
Barcode	<B>	<BC>	<BG>	<BI>	<D>	<D><d>	<BD>	<BT>	<BW>	<BP>
	<BF>	<BS>	<BL>	<BL><d>	<BM>					
2D Code	<2D10>	<BK>	<2D12>	<2D20>	<BV>	<2D30>	<2D31>	<2D32>	<BQ>	<2D50>
	<BX>	<2D51>								
Composite Symbol	<EU>									
Modification	<WD>	<FW>	<(>	<RF>	<RM>					
Graphic	<G>	<GM>	<GP>							

## [ESC+/] Recall Form Overlay

Hexadecimal code	ESC	/	Parameter
	<1B> <sub>16</sub>	<2F> <sub>16</sub>	(aa)
Initial value	None		

Valid range and term of command	When the power is OFF	The set command is not maintained.
	Valid range within items	The set command is valid until the next specification is made.
	Valid range between items	The set command is valid until the next specification is made.

### [Function]

Recalling form overlay.

### [Format]

</>(aa)

- Parameter

a [Registration key] = Valid Range : 01 to 99 (omissible)

### [Coding Example]

```
<A>
</>01
<V>200<H>100<P>0<$>B,100,100,6
<$>SATOPRINTER
<V>720<H>150102100*95000012345*
<Q>2
<Z>
```

### [Supplementary Explanation]

- This command invokes the contents registered by Store Form Overlay <&> to print.
- When detecting this command in normal print data, it will be combined with drawing stored in form overlay and printed.
- The registration key is not checked, so that specifying wrong registration key does not raise an error.

## [ESC+0] Partial Edit

Hexadecimal code	ESC	0	Parameter
	<1B> <sub>16</sub>	<30> <sub>16</sub>	None
Initial value	None		

Valid range and term of command	When the power is OFF	The set command is not maintained.
	Valid range within items	The set command becomes invalid.
	Valid range between items	The set command becomes invalid.

### [Function]

Editing the portion in the previous print data.

### [Format]

<0>

### [Coding Example]

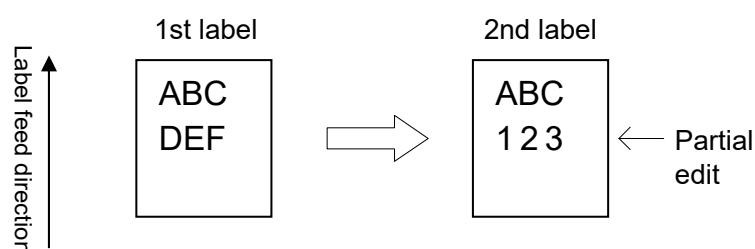
[DEF], a part of print data, is changed to [123].

#### First label

```
<A>
<V>100<H>200<P>2<L>0202<XM>ABC
<V>200<H>200<P>2<L>0202<XM>DEF
<Q>1
<Z>
```

#### Second label

```
<A>
<0>
<V>200<H>200<P>2<L>0202<XM>123
<Q>1
<Z>
```



### [Supplementary Explanation]

- Use this command to edit only one part of previous print data.
- Invoke the previous print data with this command to edit and print out. In this case, specify the part of previous data to edit, and send change data to it.
- Specified portion in the previous data will be cleared.
- If Rotation <%> is included in the specified editing portion, keep it for partial editing.
- Use this command with fixed pitch, same font or same digit number.

## [ESC+WD] Partial Copy

Hexadecimal code	ESC	WD	Parameter
	<1B> <sub>16</sub>	<57> <sub>16</sub> <44> <sub>16</sub>	VaaaaaHbbbbYccccXdddd
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Copying specified area to another place.

### [Format]

<WD>VaaaaaHbbbbYccccXdddd

- Parameter

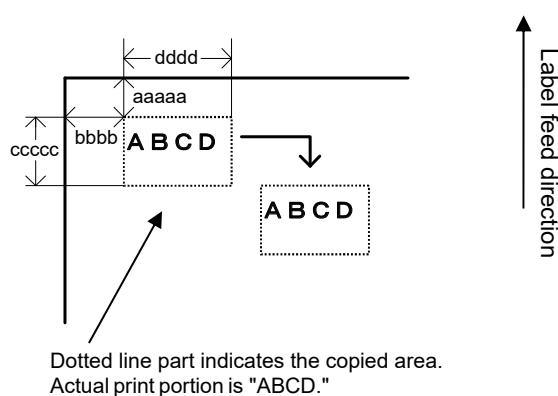
- a [Vertical start point of original data] = Valid range: Refer to [Valid Range] section below.
- b [Horizontal start point of original data] = Valid range: Refer to [Valid Range] section below.
- c [Vertical dot size of original data] = Valid range: Refer to [Valid Range] section below.
- d [Horizontal dot size of original data] = Valid range: Refer to [Valid Range] section below.

### [Coding Example]

Vertical start point of original data: 50, Horizontal start point of original data: 50,

Vertical dot size of original data: 200, Horizontal dot size of original data: 400

```
<A>
<V>50<H>50<P>2<L>0202<XU>ABCD
<V>300<H>100<WD>V50H50Y200X400
<Q>2
<Z>
```



### [Supplementary Explanation]

- To locate the destination of copy, specify Vertical Print Position <V> and Horizontal Print Position <H> prior to this command.
- Destination of copy has to be outside of specified original data.
- When the print start position of the copied area is outside of printing area, printing will not be performed due to command error.



**[Valid Range]**

Horizontal start point of original data, horizontal dot size of original data: 1 to 3200 dots

Vertical start point of original data, vertical dot size of original data: 1 to 5040 dots

\* Even if the specified parameter is within a valid range, it may get out of the valid range depending on its print start position, base position of copy or dot size. In that case, command error will occur.

## [ESC+J] Journal Print

Hexadecimal code	ESC	J	Parameter
	<1B> <sub>16</sub>	<4A> <sub>16</sub>	a...a+CR<0D> <sub>16</sub>
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying the print of journal.

### [Format]

<J>a...a+CR

- Parameter

a [Journal print column] = Print data

CR [Control code (0DH)]

### [Coding Example]

<A>

<J>

**ABCD+CR**

**EFGH+CR**

<Z>

### [Supplementary Explanation]

- This command starts journal print from vertical position of 2 dots and horizontal position of 2 dots.
- Character pitch is set to 2 dots and line pitch is set to 16 dots.
- This command prints in 2 x 2 times of XS font.
- Use of this command in combination with other commands is invalid. But, only Reprint <C> and Reverse Color Print <(> are available.
- This command performs the line feed regardless of setting of CR/LF deletion.

## [ESC+RF] Recall Font & Logo

Hexadecimal code	ESC	RF	Parameter
	<1B> <sub>16</sub>	<52> <sub>16</sub> <46> <sub>16</sub>	aabbbb,n...n
Initial value	aa=01, bbbb=1		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Invoking and printing the font and logo downloaded with exclusive tool.

### [Format]

<RF>aabbbb,n...n

- Parameter

a [Font ID number] = Valid range: 01 to 99

b [Print digit] = Valid range: 1 to 9999

n [Print data] = data

### [Coding Example 1]

To print [AB] in half size character with this command [Font ID No.: 01, Print digit: 4]

(Unicode; "A" is <0041><sub>16</sub>, "B" is <0042><sub>16</sub>)

<A>

<PS>

<V>100<H>100<L>0101

**<RF>010004,<0041><sub>16</sub><0042><sub>16</sub>**

<Z>

### [Coding Example 2]

When calling and printing logo [Font ID No.: 02 Print digit: 2]

<A>

<V>100<H>100<L>0101**<RF>020002,<826B><sub>16</sub>**

<Z>

### [Supplementary Explanation]

- Specify the value of print data putting Unicode(UTF-16BE).
- When calling and printing logo, specify [Print digit: 0002], [Print data: <826B><sub>16</sub>].

## [ESC+RM] Mirror Image

Hexadecimal code	ESC	RM	Parameter
	<1B> <sub>16</sub>	<52> <sub>16</sub> <4D> <sub>16</sub>	aaaa,bbbb
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Performing mirror rotation of print data.

### [Format]

<RM>aaaa,bbbb

- Parameter

a [Horizontal range of mirror rotation specification]

Valid range: Refer to [Valid Range for mirror rotation] section below.

b [Vertical range of mirror rotation specification]

Valid range: Refer to [Valid Range for mirror rotation] section below.

### [Coding Example 1]

When the range of mirror rotation is specified:

<A>

<H>100<V>200<XS>12345

<H>100<V>200<RM>0200,0080

<Q>1

<Z>

### [Coding Example 2]

When the range of mirror rotation is not specified:

<A>

<H>100<V>200<XS>12345

<RM>

<Z>

### [Supplementary Explanation]

- When the parameter "aaaa" and "bbbb" are not specified, all print data specified prior to this command will be rotated.
- Data outside of printing area will not rotate.
- If specifying this command for the item that does not contain print data, the command error will occur.
- This command cannot be used in combination with the commands that associated with reedition of print data. Refer to the invalid commands list below. When the command that cannot use in combination with is specified, print result is not guaranteed.
- This command cannot be used in combination with some registration commands. Refer to the invalid commands list below. When the command that cannot use in combination with is specified, print result is not guaranteed.
- This command cannot be used in combination with some of the modification commands. Refer to the invalid commands list below. When the command that cannot use in combination with is specified, print result is not guaranteed.
- This command prints the mirror image of the print data put before the mirror rotation command is specified. The data after the command does not rotate. Note that specifying this command several times results rotating the data several times.
- When the mirror image is applied for the barcode, reading of the barcode and the head damage check are not guaranteed.
- When executing the mirror image, the head damage check will be performed for all the areas where rotated.

### [Valid Range for mirror rotation]

Horizontal range of mirror rotation: 8 to 3200 dots

Vertical range of mirror rotation: 8 to 3600 dots

### [Invalid Commands]

Command that associated with reediting.	<WD>	<F>	<(>	<0>	<WA>					
Registration	<GI>	<GT>	<PI>							
Modification	<%>									

## [ESC+PD] Small Label Size

Hexadecimal code	ESC	PD	Parameter
	<1B> <sub>16</sub>	<50> <sub>16</sub> <44> <sub>16</sub>	,aaaa,bbbb,cc,dd
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter becomes enabled.

### [Function]

Specifying parameters relative to small label size.

### [Format]

<PD>,aaaa,bbbb,cc,dd

- Parameter

a [Vertical dimension] = 480 to 3600 (dots)

b [Horizontal dimension] = 480 to 1600 (dots)

c [Size in between labels] = 00 to 99 (dots)

d [Multiple cut labels] = 00 to 99

### [Coding Example]

Vertical dimension: 600, Horizontal dimension: 1020, Size in between labels: 24, Quantity of multiple cut labels: 2

<A>

<GS1-128>2

**<PD>, 600,1020,2**

<\_F><V>100<H>100<P>2<L>0202

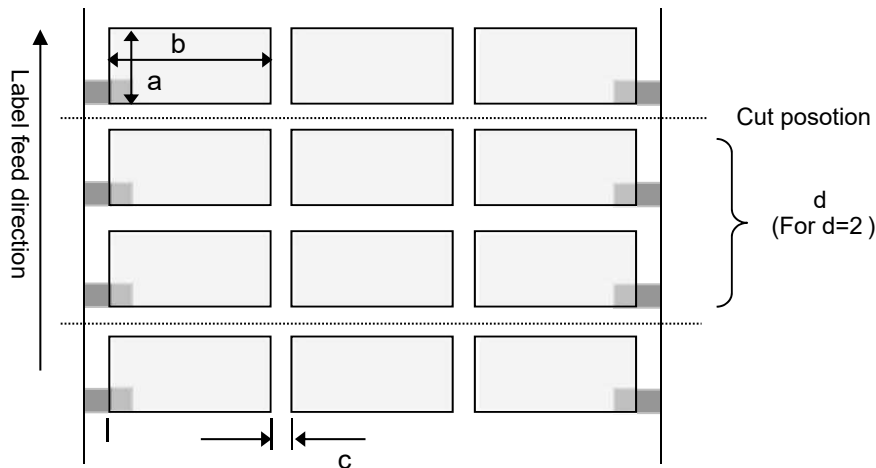
<X23>,0ABCD

<Q>,2

<Z>

### [Supplementary Explanation]

- If Small Label Size <PD> parameters do not match those of Media Size <A1>, an error occurs. In this case, Format <\_N> and Variable Data <\_D> following the <PD> will be ignored.
- Small Label Size <PD> automatically calculates the number of labels in horizontal direction.
- When both Media Size <A1> and Small Label Size <PD> are used, <A1> should appear within the set of commands from Start Code <A> to Stop Code <Z> that is used by <PD>. When <PD> command is not present, <A1> should always appear within own set of commands from <A> to <Z>.
- If the item includes Small Label Size <PD>, functionalities of status 5 (Item Number check, BCC check, Bluetooth CRC check) will not be activated even when they are enabled.



### [Additional information about the margin position]

The base reference position of Media Size <A1> is used for the calculation of the number of labels in horizontal direction, thus there may be a margin to the right in the feed direction depending on the media size and the width of the small label.

When the size in the horizontal direction of Media Size <A1> = 3200 dots, the media size in width of Small Media Size <PD> = 700 dots, the distance between labels = 0, the number of labels in horizontal direction is 4, which results in 400 dots margin to the right.

### [Coding Example 2]

Vertical dimension: 600, Horizontal dimension: 700, Size in between labels: 0, Quantity of multiple cut labels: 0

```
<A>
<A1>06363200
<PD>600,700,0,0
<_F>
<V>100<H>200<L>0101<X23>,0Header label
<_Q>,1
<_F>
<V>100<H>200<L>0202<X23>,0ABCD
<V>200<H>200<L>0202103200*11111*
<_Q>,6
<_F>
<V>100<H>200<L>0101<X23>,0Footer label
<_Q>,1
<Z>
```

Print result



### [Coding Example 3]

Vertical dimension: 600, Horizontal dimension: 700, Size in between labels: 50, Quantity of multiple cut labels: 0

```
<A>
<A1>06363200
<PD>600,700,50,0
<_F>
<V>100<H>200<L>0101<X23>,0Header label
<_Q>,1
<_F>
<V>100<H>200<L>0202<X23>,0ABCD
<V>200<H>200<L>0202103200*11111*
<_Q>,6
<_F>
<V>100<H>200<L>0101<X23>,0Footer label
<_Q>,1
<Z>
```

Print result





## [ESC+\_F] Small Label Start

Hexadecimal code	ESC	_F	Parameter
	<1B> <sub>16</sub>	<5F> <sub>16</sub> <46> <sub>16</sub>	None
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Showing the start of small label print specification.

### [Format]

<\_F>

### [Coding Example]

```

<A>
<A1>06363060
<PD>,600,1020,0,0
<_F>
<V>100<H>200<L>0101<XM>HEADER LABEL
<_Q>,1
<_F>
<V>100<H>200<L>0202<XM>ABCD
<V>200<H>200<L>0202103200*11111*
<_Q>,6
<_F>
<V>100<H>200<L>0101<XM>FOOTER LABEL
<_Q>,1
<Z>

```

Print result



### [Supplementary Explanation]

- If sequential number is specified after Small Label Start <\_F>, the number can be printed on each small sized label.
- Use Label Print Number <\_Q> to set Print QTY for small sized label.
- Do not set any command for registration after Small Label Start <\_F>. If set, the printer may not print correctly.
- When using a small label command, follow the appropriate steps while using the coding examples as your reference. Please also see "Valid Commands" table below for the commands that can be used with Small Label Start <\_F>. Please note that any command without Base Reference Point <A3> cannot be used. If used, the printer may not print correctly.
- When both Media Size <A1> and Small Label Size <PD> are used, <A1> should appear within the set of commands from Start Code <A> to Stop Code <Z> that is used by <PD>. When <PD> command is not present, <A1> should always appear within own set of commands from <A> to <Z>.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<PS>	<PR>	<%>	<FW>	<F>	<_N>	<_D>	<_Q>
Font	<X20>	<X21>	<X22>	<X23>	<X24>	<XU>	<XS>	<XM>	<XB>	<XL>
	<OA>	<OB>	<RD>	<\$=>	<K1>	<K2>	<K3>	<K4>	<K5>	<K8>
	<K9>	<KA>	<KB>	<KD>	<k1>	<k2>	<k3>	<k4>	<k5>	<k8>
	<k9>	<kA>	<kB>	<kD>	<U>	<S>	<M>	<WB>	<WL>	
Barcode	<B>	<BC>	<BG>	<BI>	<D>	<D><d>	<BD>	<BT>	<BW>	<BF>
	<EU>	<BM>	<BL>							
2D Code	<2D10>	<BX>	<2D12>	<2D20>	<BV>	<2D30>	<2D31>	<2D32>	<BK>	<2D50>
	<BX>									

## [ESC+\_N] Format

Hexadecimal code	ESC	_N	Parameter
	<1B> <sub>16</sub>	<5F> <sub>16</sub> <4E> <sub>16</sub>	,aa,bb
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying small label format.

### [Format]

<\_N>,aa,bb

- Parameter

a [Field number] = 01 to 99

b [Data Digit] = 01 to 99

### [Coding Example]

```

<A>
<A1>06363060<PD>,600,1020,0,0
<_F>
<_N>,01,04<V>100<H>200<L>0202<XM>0ABCD
<_N>,02,07<V>200<H>200<L>0202103200*11111*
<_N>,03,02<V>100<H>800<L>0202<XM>022
<_D>,01,AAAA<_D>,02,*22222*<_D>,03,22<_Q>,1
<_D>,01,BBBB<_D>,02,*33333*<_D>,03,33<_Q>,2
<_D>,01,CCCC<_D>,02,*44444*<_D>,03,44<_Q>,4
<Z>

```

Print result



**[Supplementary Explanation]**

- With Format <\_N>, you can specify characters, one dimensional barcode (CODABAR (NW-7), CODE39 etc.) and Kanji.
- Use Label Print Number <\_Q> to set Print QTY for small sized label.
- Do not specify any commands for registration after Format <\_N>.
- When both Media Size <A1> and Small Label Size <PD> are used, <A1> should appear within the set of commands from Start Code <A> to Stop Code <Z> that is used by <PD>. When <PD> command is not present, <A1> should always appear within own set of commands from <A> to <Z>.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>							
Font	<X20>	<X21>	<X22>	<X23>	<X24>	<XU>	<XS>	<XM>	<XB>	<XL>
	<OA>	<OB>	<RD>	<\$=>	<K1>	<K2>	<K3>	<K4>	<K5>	<K8>
	<K9>	<KA>	<KB>	<KD>	<k1>	<k2>	<k3>	<k4>	<k5>	<k8>
	<k9>	<kA>	<kB>	<kD>	<U>	<S>	<M>	<WB>	<WL>	
Barcode	<B>	<BC>	<BG>	<BI>	<D>	<D><d>	<BD>	<BT>	<BW>	<BF>
	<BM>	<BL>								

## [ESC+\_D] Variable Data

Hexadecimal code	ESC	_D	Parameter
	<1B> <sub>16</sub>	<5F> <sub>16</sub> <44> <sub>16</sub>	,aa,n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying variable data for small labels.

### [Format]

<\_D>,aa,n...n

- Parameter

a [Field number] = Valid range 01 to 99

b [Variable data] = data\*

\* The digit number of the variable data should be equal to or less than the number specified by Format <\_N>. If it exceeds the specified length, the data will not be printed.

### [Coding Example]

```
<A>
<A1>06363060<PD>,600,1020,0,0
<_F>
<_N>,01,04<V>100<H>200<L>0202<XM>0ABCD
<_N>,02,07<V>200<H>200<L>0202103200*11111*
<_N>,03,02<V>100<H>800<L>0202<XM>022
<_D>,01,AAAA<_D>,02,*22222*<_D>,03,22<_Q>,1
<_D>,01,BBBB<_D>,02,*33333*<_D>,03,33<_Q>,2
<_D>,02,*44444*<_D>,03,44<_Q>,4 ----- (1)
<Z>
```

Print result



**[Supplementary Explanation]**

- If Variable Data <\_D> is omitted, the contents specified by Format <\_N>, which is initial setting is printed. When <\_D> is specified, this product continues to print the contents specified by <\_D>. (Please see (1) in [Coding Sample] above.)
- When both Media Size <A1> and Small Label Size <PD> are used, <A1> should appear within the set of commands from Start Code <A> to Stop Code <Z> that is used by <PD>. When <PD> command is not present, <A1> should always appear within own set of commands from <A> to <Z>.

## [ESC+\_Q] Label Print Number

Hexadecimal code	ESC	_Q	Parameter
	<1B> <sub>16</sub>	<5F> <sub>16</sub> <51> <sub>16</sub>	,aaaa(,b)
Initial value	aaaa=1, b=0		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying print quantity for small labels.

### [Format]

<\_Q>,aaaa,b

- Parameter

a [Print number] = Valid range : 0001 to 9999

b [Number of blank label] (Omissible)

0 : Auto new line

1-9 : Quantity of blank labels

### [Coding Example]

```

<A>
<A1>06363060
<PD>,600,1020,0,0
<_F>
<V>100<V>100<H>200<P>2<L>0202<XM>0ABCD
<V>200<H>200<P>2<L>0202
103200*11111*<_Q>,4,0
<_F>
<V>100<H>200<P>2<L>0202<XM>0BBBB
<V>200<H>200<P>2<L>0202
103200*22222*<_Q>,2,1
<Z>

```

Print result



**[Supplementary Explanation]**

- Use Label Print Number <\_Q> to set Print QTY for small sized label.
- When both Media Size <A1> and Small Label Size <PD> are used, <A1> should appear within the set of commands from Start Code <A> to Stop Code <Z> that is used by <PD>. When <PD> command is not present, <A1> should always appear within own set of commands from <A> to <Z>.



## [ESC+RI] Label Size

Hexadecimal code	ESC	RI	Parameter
	<1B> <sub>16</sub>	<52> <sub>16</sub> <49> <sub>16</sub>	aaaa,bbbb,cc,dd,eeee,ffff,gg,hh
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Specifying parameters relative to label size.

### [Format]

<RI>aaaa,bbbb,cc,dd,eeee,ffff,gg,hh

- Parameter

a [Sheet width] = Valid range : 1500 to 3200 (dots)

b [Sheet length] = Valid range : 480 to 3600 (dots)

c [Horizontal distance between labels] = Valid range : 00 to 60 (dots)

d [Vertical distance between labels] = Valid range : 00 to 60 (dots)

e [Small label width] = Valid range : 480 to 3200 (dots)

f [Small label length] = Valid range : 480 to 3600 (dots)

g [Label width quantity] = Valid range : 01 to 60

h [Label length quantity] = Valid range : 0 to 07

### [Coding Example]

<A>

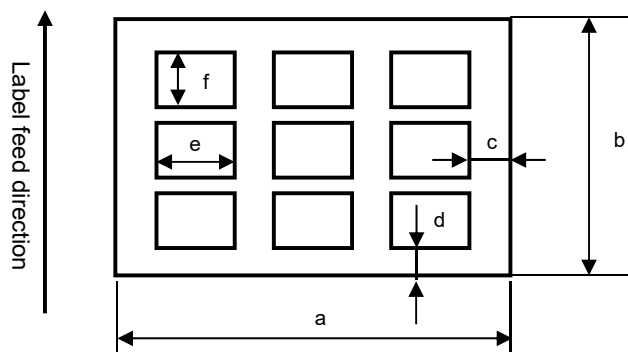
**<RI>2196,1440,24,36,0700,0480,03,03**

<A1>14402196

<RW>02

<Z>

Print result



**[Supplementary Explanation]**

- If Label Size <RI> data does not match Media Size <A1>, an error occurs.
- Label Size <RI> automatically calculates the label width and label length to print.
- Label Size <RI> and Telegraphic Message End <RE> should be paired.
- Each Label Size <RI> command should be followed by Telegraphic Message End <RE>, if <RE> is not sent after <RI>, the second and subsequent <RI> commands will be invalid (No error sound).

**[Points]**

- This Standard command cannot be used in combination with other commands.  
When you program, use Small Label Size <PD>.

## [ESC+RW] Sheet Copy Quantity

Hexadecimal code	ESC	RW	Parameter
	<1B> <sub>16</sub>	<52> <sub>16</sub> <57> <sub>16</sub>	aaaa
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying sheet cut quantity for small labels.

### [Format]

<RW>aaaa

- Parameter

a [Quantity] = Valid range: 1 to 9999

### [Coding Example]

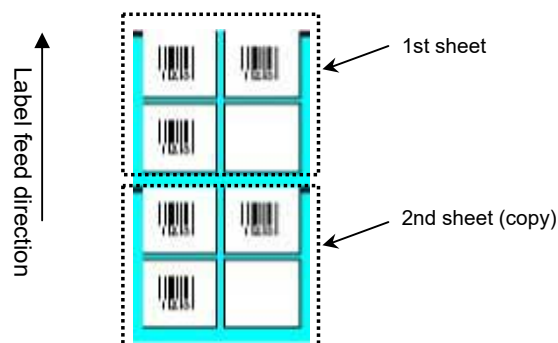
<A>

<RI>3200,1200,00,00,1600,0600,02,02

<A1>12003200

**<RW>0002**

<Z>



### [Supplementary Explanation]

- The sheet is defined as an area specified by Media Size <A1>, if Label Size <RI> is used to determine small label dimension.

### [Points]

- This command cannot be used in combination with other standard commands.

## [ESC+RC] Sheet Unit Cut Quantity

Hexadecimal code	ESC	RC	Parameter
	<1B> <sub>16</sub>	<52> <sub>16</sub> <43> <sub>16</sub>	aaaa
Initial value	a=0		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying sheet cut quantity for small labels.

### [Format]

<RC>aaaa

- Parameter

a [Number] = Valid range: 0 to 9999

### [Coding Example]

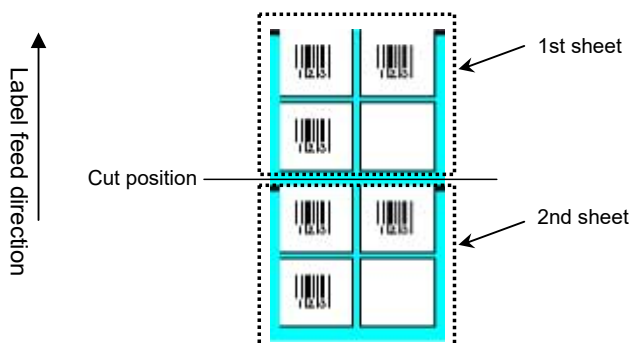
<A>

<RI>3200,1200,00,00,1600,0600,02,02

<A1>12003200

**<RC>0001**

<Z>



### [Supplementary Explanation]

- The sheet is defined as an area specified by Media Size <A1>, if Label Size <RI> is used to determine small label dimension.

### [Points]

- This command cannot be used in combination with other standard commands.

## [ESC+RT] Print Order

Hexadecimal code	ESC	RT	Parameter
	<1B> <sub>16</sub>	<52> <sub>16</sub> <54> <sub>16</sub>	a
Initial value	a=0		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Specifying print quantity for small labels.

### [Format]

<RT>a

- Parameter

a [Print direction]

0 : Horizontal

1 : Vertical

### [Coding Example]

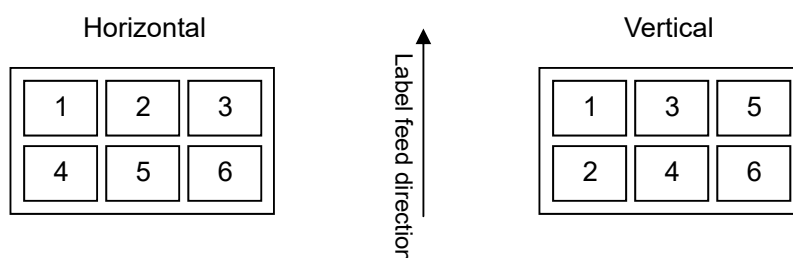
<A>

<RT>0

<RI>3200,1200,00,00,1600,0600,02,02

<A1>12003200

<Z>



### [Points]

- This command cannot be used in combination with other standard commands.

## [ESC+RE] Telegraphic Message End

Hexadecimal code	ESC	RE	Parameter
	<1B> <sub>16</sub>	<52> <sub>16</sub> <45> <sub>16</sub>	a
Initial value	a=0		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

### [Function]

Specifying print quantity for small labels.

### [Format]

<RE>a

- Parameter

a [Operates when ending]

0 : Discharge motion

1 : Discharge motion + Cut motion\*

\* When cutter is not equipped, motion is same as 0 (Discharge motion).

### [Coding Example]

<A>

**<RE>0**

<Z>

### [Supplementary Explanation]

- When Telegraphic Message End <RE> is received, editing in horizontal direction is considered to be completed, and this product ejects (feeds) the sheet.

Blank labels may be printed depending on the specified print QTY.

### [Points]

- This command cannot be used in combination with other standard commands.

## [ESC+RS] Send Sheet

Hexadecimal code	ESC	RS	Parameter
	<1B> <sub>16</sub>	<52> <sub>16</sub> <53> <sub>16</sub>	None
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying paper delivery (feed operation) of marked unit (I-mark, Gap) for small labels..

### [Format]

<RS>

### [Coding Example]

<A>  
<RS>  
 <Z>

### [Points]

- This command is used on a single item basis.
- This command cannot be used in combination with other standard commands.

## [ESC+KS] Kanji Set

Hexadecimal code	ESC	KS	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <53> <sub>16</sub>	a
Initial value	a=1		

Valid range and term of command	When the power is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Specifying Kanji set.

### [Format]

<KS>a

- Parameter

a [Kanji Set] = Refer to [Initial Value and Valid Range of Parameter] section blow.

### [Coding Example]

Specifying GB18030

<A>

<KS>3

<Z>

### [Supplementary Explanation]

- Select the kanji set to be printed by using 16 x 16 dots horizontal writing kanji <K1> command, 24 x 24 dots horizontal writing <K2> command, 16 x 16 dots vertical writing kanji <k1> command and 24 x 24 dots vertical dots <k2> command.
- An appropriate Kanji code should be specified when switching the Kanji Set. If the right code is not specified, the print may fail. Refer to Kanji Code <KC>.

### [Initial Value and Valid Range of Parameter]

Initial value	Valid range
1	1: Japanese, JIS208 Kanji (JISX208) 3: Chinese, Simplified Chinese characters (GB18030) 5: Chinese, Traditional Chinese characters (BIG5)



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# Font commands

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## [ESC+X20] X20 Font (Basic size 5 x 9 dots)

Hexadecimal code	ESC	X20	Parameter
	<1B> <sub>16</sub>	<58> <sub>16</sub> <32> <sub>16</sub> <30> <sub>16</sub>	,n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of W5 x H9 dots is specified.

### [Format]

<X20>,n...n

- Parameter

n [Print data] = Data

### [Coding Example]

<A>  
<V>100<H>200<P>2<L>0304<X20>,ABCDE  
<Q>2  
<Z>

### [Supplementary Explanation]

- X20 font only allows the setting of a fixed pitch.

### [Valid Commands]

Print Position	<V>	<H>							
Modification	<P>	<L>	<%>	<F>	<&>	</>	<0>	<WD>	
Barcode	<D><d>	<BL><d>							
Calendar	<WA>								

## X20 font character set

Basic size is 5 x 9 dots (width x height)

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P		p				-	タ	ミ		
1	!	1	A	Q	a	q				ア	チ	ム		
2	"	2	B	R	b	r				イ	ツ	ヌ		
3	#	3	C	S	c	s				ウ	テ	モ		
4	\$	4	D	T	d	t				エ	ト	ヤ		
5	%	5	E	U	e	u			・	オ	ナ	ユ		
6	&	6	F	V	f	v			ヨ	カ	ニ	ヨ		
7	'	7	G	W	g	w				キ	ヌ	ラ		
8	<	8	H	X	h	x				ク	ネ	リ		
9	>	9	I	Y	i	y				ケ	ノ	ル		
A	*	:	J	Z	j	z				コ	ハ	レ		
B	+	;	K	φ	k	-				サ	ヒ	ロ		
C	,	<	L	¥	l	-				シ	フ	ワ		
D	-	=	M		m					ス	ヘ	ン		
E	.	>	N		n	!				セ	ホ	ハ		
F	/	?	O		o					ソ	マ	◇		

The print sample shown above is issued with an enlargement ratio of 3 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+X21] X21 Font (Basic size 17 x 17 dots)

Hexadecimal code	ESC	X21	Parameter
	<1B> <sub>16</sub>	<58> <sub>16</sub> <32> <sub>16</sub> <31> <sub>16</sub>	,n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of W17 x H17 dots is specified.

### [Format]

<X21>,n...n

- Parameter

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0304<X21>,**ABCDE**

<Q>2

<Z>

### [Supplementary Explanation]

- X21 Font allows the selection of fixed pitch and proportional pitch.
- Setting of fixed pitch and proportional pitch can be configured with command or "Settings mode" of this product.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>	<&>	</>	<0>	<WD>
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## X21 font character set

Basic size is 17 x 17 dots (width x height)

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	'	p				ー	タ	ミ		
1	!	1	A	Q	a	q			。	ア	チ	ム		
2	"	2	B	R	b	r			「	イ	ツ	メ		
3	#	3	C	S	c	s			」	ウ	テ	モ		
4	\$	4	D	T	d	t			、	エ	ト	ヤ		
5	%	5	E	U	e	u			・	オ	ナ	ユ		
6	&	6	F	V	f	v			ヲ	カ	ニ	ヨ		
7	'	7	G	W	g	w			ア	キ	ヌ	ラ		
8	(	8	H	X	h	x			イ	ク	ネ	リ		
9	)	9	I	Y	i	y			ウ	ケ	ノ	ル		
A	*	:	J	Z	j	z			エ	コ	ハ	レ		
B	+	;	K	[	k	{			オ	サ	ヒ	ロ		
C	,	<	L	¥	l	!			ヤ	シ	フ	ワ		
D	－	=	M	]	m	}			ユ	ス	ヘ	ン		
E	.	>	N	^	n	~			ヨ	セ	ホ	ゝ		
F	/	?	0	_	o				ッ	ソ	マ	。		

The print sample shown above is issued with an enlargement ratio of 2 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+X22] X22 Font (Basic size 24 x 24 dots)

Hexadecimal code	ESC	X22	Parameter
	<1B> <sub>16</sub>	<58> <sub>16</sub> <32> <sub>16</sub> <32> <sub>16</sub>	,n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of W24x H24 dots is specified.

### [Format]

<X22>,n...n

- Parameter

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0304<X22>,ABCDE

<Q>2

<Z>

### [Supplementary Explanation]

- X22 Font allows the selection of fixed pitch and proportional pitch.
- Setting of fixed pitch and proportional pitch can be configured with command or "Settings mode" of this product.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>	<&>	</>	<0>	<WD>
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## X22 font character set

Basic size is 24 x 24 dots (width x height)

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p				ー	タ	ミ		
1	!	1	A	Q	a	q			。	ア	チ	ム		
2	”	2	B	R	b	r			「	イ	ツ	メ		
3	#	3	C	S	c	s			」	ウ	テ	モ		
4	\$	4	D	T	d	t			、	エ	ト	ヤ		
5	%	5	E	U	e	u			・	オ	ナ	ユ		
6	&	6	F	V	f	v			ヲ	カ	ニ	ヨ		
7	'	7	G	W	g	w			ア	キ	ヌ	ラ		
8	(	8	H	X	h	x			イ	ク	ネ	リ		
9	)	9	I	Y	i	y			ウ	ケ	ノ	ル		
A	*	:	J	Z	j	z			エ	コ	ハ	レ		
B	+	;	K	[	k	{			オ	サ	ヒ	ロ		
C	,	<	L	¥	!	!			ヤ	シ	フ	ワ		
D	—	=	M	]	m	}			ユ	ス	ヘ	ン		
E	.	>	N	^	n	~			ヨ	セ	ホ	°		
F	/	?	O	_	o				ッ	ソ	マ	°		

The print sample shown above is issued with an enlargement ratio of 2 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+X23] X23 Font (Basic size 48 x 48 dots)

Hexadecimal code	ESC	X23	Parameter
	<1B> <sub>16</sub>	<58> <sub>16</sub> <32> <sub>16</sub> <33> <sub>16</sub>	,an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of W48 x H48 dots is specified.

### [Format]

<X23>,an...n

- Parameter

a [Smoothing]

0 : Smoothing disabled

1 : Smoothing ON (Only available if Enlargement <L> is between 3 and 12)

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0304<X23>,0ABCDE

<Q>2

<Z>

### [Supplementary Explanation]

- X23 Font allows the selection of fixed pitch and proportional pitch.
- Setting of fixed pitch and proportional pitch can be configured with command or "Settings mode" of this product.
- When the smoothing is enabled, and Enlargement <L> is set to 1 or 2, the smoothing function will be ignored.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>	<&>	</>	<0>	<WD>
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## X23 font character set

Basic size is 48 x 48 dots (width x height)

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p				一	タ	ミ		
1	!	1	A	Q	a	q			。	ア	チ	ム		
2	”	2	B	R	b	r			「	イ	ツ	メ		
3	#	3	C	S	c	s			」	ウ	テ	モ		
4	\$	4	D	T	d	t			、	エ	ト	ヤ		
5	%	5	E	U	e	u			・	オ	ナ	ユ		
6	&	6	F	V	f	v			ヲ	カ	ニ	ヨ		
7	'	7	G	W	g	w			ア	キ	ヌ	ラ		
8	(	8	H	X	h	x			イ	ク	ネ	リ		
9	)	9	I	Y	i	y			ウ	ケ	ノ	ル		
A	*	:	J	Z	j	z			エ	コ	ハ	レ		
B	+	;	K	[	k	{			オ	サ	ヒ	ロ		
C	,	<	L	¥	l	!			ヤ	シ	フ	ワ		
D	—	=	M	]	m	}			ユ	ス	ヘ	ン		
E	.	>	N	^	n	~			ヨ	セ	ホ	°		
F	/	?	O	_	o				ッ	ソ	マ			

The print sample shown above is issued with an enlargement ratio of 1 (vertical/horizontal).

00H to 1FH are control code and not available.



## [ESC+X24] X24 Font (Basic size 48 x 48 dots)

Hexadecimal code	ESC	X24	Parameter
	<1B> <sub>16</sub>	<58> <sub>16</sub> <32> <sub>16</sub> <34> <sub>16</sub>	,an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of W48 x H48 dots is specified.

### [Format]

<X24>,an...n

- Parameter

a [Smoothing]

0 : Smoothing disabled

1 : Smoothing ON (Only available if Enlargement <L> is between 3 and 12)

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0304<X24>,0ABCDE

<Q>2

<Z>

### [Supplementary Explanation]

- X24 Font allows the selection of fixed pitch and proportional pitch.
- Setting of fixed pitch and proportional pitch can be configured with command or "Settings mode" of this product.
- When the smoothing is enabled, and Enlargement <L> is set to 1 or 2, the smoothing function will be ignored.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>	<&>	</>	<0>	<WD>
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## X24 font character set

Basic size is 48 x 48 dots (width x height)

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	'	p				一	タ	ミ		
1	!	1	A	Q	a	q			。	ア	チ	ム		
2	"	2	B	R	b	r			「	イ	ツ	メ		
3	#	3	C	S	c	s			」	ウ	テ	モ		
4	\$	4	D	T	d	t			、	エ	ト	ヤ		
5	%	5	E	U	e	u			・	オ	ナ	ユ		
6	&	6	F	V	f	v			ヲ	カ	ニ	ヨ		
7	'	7	G	W	g	w			ア	キ	ヌ	ラ		
8	(	8	H	X	h	x			イ	ク	ネ	リ		
9	)	9	I	Y	i	y			ウ	ケ	ノ	ル		
A	*	:	J	Z	j	z			エ	コ	ハ	レ		
B	+	;	K	[	k	{			オ	サ	ヒ	ロ		
C	,	<	L	¥	!	!			ヤ	シ	フ	フ		
D	-	=	M	]	m	}			ユ	ス	ヘ	ン		
E	.	>	N	^	n	~			ヨ	セ	ホ	°		
F	/	?	O	_	o				ツ	ソ	マ	°		

The print sample shown above is issued with an enlargement ratio of 1 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+XU] XU Font (Basic size 5 x 9 dots)

Hexadecimal code	ESC	XU	Parameter
	<1B> <sub>16</sub>	<58> <sub>16</sub> <55> <sub>16</sub>	n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of: W5 x H9 dots is specified.

### [Format]

<XU>n...n

- Parameter

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0304<XU>ABCDE

<Q>2

<Z>

### [Supplementary Explanation]

- XU Font allows the selection of fixed pitch and proportional pitch.
- Setting of fixed pitch and proportional pitch can be configured with command or "Settings mode" of this product.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>	<&>	</>	<0>	<WD>
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## XU font character set

Basic size is 5 x 9 dots (width x height)

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ç	É	á	Ø		ø	ó	-
1	!	1	A	Q	a	q	Ü	æ	í			Ð	þ	±
2	"	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	â	ô	ú			Ë	ò	
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	ñ	Á		€	ø	§
6	&	6	F	V	f	v	á	û	æ	Â	ã	í	µ	÷
7	'	7	G	W	g	w	ç	ù	ø	À	Ã	î	þ	,
8	<	8	H	X	h	x	ê	ÿ	¿	Θ		ï	þ	°
9	>	9	I	Y	i	y	ë	ö	«				ó	¨
A	*	:	J	Z	j	z	è	ü	¬				ô	+
B	+	;	K	[	k	{	ï	ø	½				ù	!
C	,	<	L	\	l		î	£	¼				ý	³
D	-	=	M	]	m	}	ì	ŕ	¡	¢		ì	ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	-	
F	/	?	O	_	o		Á	f	»				'	

The print sample shown above is issued with an enlargement ratio of 3 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+XS] XS Font (Basic size 17 x 17 dots)

Hexadecimal code	ESC	XS	Parameter
	<1B> <sub>16</sub>	<58> <sub>16</sub> <53> <sub>16</sub>	n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of W17 x H17 dots is specified.

### [Format]

<XS>n...n

- Parameter

n [Print data] = Data

### [Coding Example]

```
<A>
<V>100<H>200<P>2<L>0304<XS>ABCDE
<Q>2
<Z>
```

### [Supplementary Explanation]

- XS Font allows the selection of fixed pitch and proportional pitch.
- Setting of fixed pitch and proportional pitch can be configured with command or "Settings mode" of this product.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>	<&>	</>	<0>	<WD>
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## XS font character set

Basic size is 17 x 17 dots (width x height)

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

The print sample shown above is issued with an enlargement ratio of 2 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+XM] XM Font (Basic size 24 x 24 dots)

Hexadecimal code	ESC	XM	Parameter
	<1B> <sub>16</sub>	<58> <sub>16</sub> <4D> <sub>16</sub>	n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of W24x H24 dots is specified.

### [Format]

<XM>n...n

- Parameter

n [Print data] = Data

### [Coding Example]

```
<A>
<V>100<H>200<P>2<L>0304<XM>ABCDE
<Q>2
<Z>
```

### [Supplementary Explanation]

- XM Font allows the selection of fixed pitch and proportional pitch.
- Setting of fixed pitch and proportional pitch can be configured with command or "Settings mode" of this product.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>	<&>	</>	<0>	<WD>
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## XM font character set

Basic size is 24 x 24 dots (width x height)

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

The print sample shown above is issued with an enlargement ratio of 2 (vertical/horizontal).

00H to 1FH are control code and not available.



## [ESC+XB] XB Font (Basic size 48 x 48 dots)

Hexadecimal code	ESC	XB	Parameter
	<1B> <sub>16</sub>	<58> <sub>16</sub> <42> <sub>16</sub>	an...n
Initial value	a=0		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of: W48 x H48 dots is specified.

### [Format]

<XB>an...n

- Parameter

a [Smoothing]

0 : Smoothing disabled

1 : Smoothing ON (Only available if expansion factor is between 3 and 9)

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0304<XB>0ABCDE

<Q>2

<Z>

### [Supplementary Explanation]

- XB Font allows the selection of fixed pitch and proportional pitch.
- Setting of fixed pitch and proportional pitch can be configured with command or "Settings mode" of this product.
- When the smoothing is enabled, and Enlargement <L> is set to 1 or 2, the smoothing function will be ignored.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>	<&>	</>	<0>	<WD>
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## XB font character set

Basic size is 48 x 48 dots (width x height)

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

The print sample shown above is issued with an enlargement ratio of 1 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+XL] XL Font (Basic size 48 x 48 dots)

Hexadecimal code	ESC	XL	Parameter
	<1B> <sub>16</sub>	<58> <sub>16</sub> <4C> <sub>16</sub>	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of: W48 x H48 dots is specified.

### [Format]

<XL>an...n

- Parameter

a [Smoothing]

0 : Smoothing disabled

1 : Smoothing ON (Only available if expansion factor is between 3 and 9)

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0304<XL>0ABCDE

<Q>2

<Z>

### [Supplementary Explanation]

- XL Font allows the selection of fixed pitch and proportional pitch.
- Setting of fixed pitch and proportional pitch can be configured with command or "Settings mode" of this product.
- When the smoothing is enabled, and Enlargement <L> is set to 1 or 2, the smoothing function will be ignored.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<PS>	<PR>	<F>	<&>	</>	<0>	<WD>
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## XL font character set

Basic size is 48 x 48 dots (width x height)

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

The print sample shown above is issued with an enlargement ratio of 1 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+OA] OCR-A Font

Hexadecimal code	ESC	OA	Parameter
	<1B> <sub>16</sub>	<4F> <sub>16</sub> <41> <sub>16</sub>	n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying OCR-A font.

### [Format]

<OA>n...n

- Parameter

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>100<P>2<L>0202<OA>**ABC**

<Q>2

<Z>

### [Font size]

W22 x H33 (dots)

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>	<&>	</>	<0>	<WD>		
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## OCR-A font character set

OCR-A font specification.

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0		P										
1		1	A	Q										
2		2	B	R										
3		3	C	S										
4	¢	4	D	T										
5		5	E	U										
6		6	F	V										
7		7	G	W										
8		8	H	X										
9		9	I	Y										
A			J	Z										
B			K											
C			L											
D			M											
E	▪	>	N											
F	/		◊											

The print sample shown above is issued with a font size of 22 x 33, and an enlargement ratio of 1 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+OB] OCR-B Font

Hexadecimal code	ESC	OB	Parameter
	<1B> <sub>16</sub>	<4F> <sub>16</sub> <42> <sub>16</sub>	n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying OCR-B font.

### [Format]

<OB>n...n

- Parameter

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0202<OB>**ABC**

<Q>2

<Z>

### [Font size]

W30 x H36 (dots)

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>	<&>	</>	<0>	<WD>		
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## OCR-B font character set

OCR-B font specification.

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P										
1	!	1	A	Q										
2	"	2	B	R										
3	#	3	C	S										
4	\$	4	D	T										
5	%	5	E	U										
6	&	6	F	V										
7	'	7	G	W										
8	(	8	H	X										
9	)	9	I	Y										
A	*	:	J	Z										
B	+	;	K	¥										
C	,	<	L	¥										
D	-	=	M											
E	.	>	N											
F	/	?	O											

The print sample shown above is issued with a font size of 30 x 36, and an enlargement ratio of 1 (vertical/horizontal).

00H to 1FH are control code and not available.



## [ESC+\$] Outline Font Design

Hexadecimal code	ESC	\$	Parameter
	<1B> <sub>16</sub>	<24> <sub>16</sub>	a,bbb,ccc,d
Initial value	a=A, bbb=50, ccc=50, d=0		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

### [Function]

Specifying the type, size, and shape of outline font.

### [Format]

<\$>a,bbb,ccc,d

- Parameter

a [Font type]

- A: Helvetica bold (Proportional)
- B: Helvetica bold (Inter-character pitch fixed)
- K: Kanji specified by hexadecimal number\*1
- L: Kanji specified by binary number \*1
- k: Kanji (vertical) specified by hexadecimal number\*1
- l: Kanji (vertical) specified by hexadecimal number\*1

b [Font width] = Valid range: 24 to 999 dots

c [Font height] = Valid range: 24 to 999 dots

d [Font design]

- 0: Normal font (Black)
- 1: White characters on black background
- 2: Grey font (Pattern 1)
- 3: Grey font (Pattern 2)
- 4: Grey font (Pattern 3)
- 5: Font with shadow
- 6: White characters with shadow on black background
- 7: Mirrored font
- 8: Normal italic font
- 9: White italic characters with shadow on black background

\*1 Will specify Kanji outline font.

### [Coding Example]

Font type: A, font width: 100 dots,

font height: 100 dots, font design: 1

<A>

<V>100<H>100<P>2

<\$>A,100,100,1<\$=>SATO

<Q>2

<Z>

**[Supplementary Explanation]**

- Italic characters are tilt in an angle of 15-degree, within their specified width.
- The outline font printing command <\$=> shall be executed after the outline font design selection <\$>.
- For the font design 1 through 9, if the specified dot setting is irregularly small, the font cannot be identified.
- If the font width / height are very small, there can be cases that the font is squeezed.

**[Valid Commands]**

Font	<\$=>									
------	-------	--	--	--	--	--	--	--	--	--

## [ESC+\$=] Outline Font Print

Hexadecimal code	ESC	\$=	Parameter
	<1B> <sub>16</sub>	<24> <sub>16</sub> <3D> <sub>16</sub>	n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying printing command of outline font.

### [Format]

<\$=>n...n

- Parameter

n [Print data] = Data

### [Coding Example]

Print data: SATO

<A>

<V>100<H>100<P>2

<\$>A,100,100,1<\$=>**SATO**

<Q>2

<Z>

### [Supplementary Explanation]

- The outline font printing command <\$=> shall be executed after the outline font design <\$>.
- Font height includes both ascender and descender area. For proportional pitch, the character width of outline font differs depending on the font to be used.
- Use character pitch command <P> to specify font pitch.
- Italic characters are tilt in an angle of 15-degree, within their specified width. Font height includes both ascender and descender area.
- For the font design 1 through 9, if the specified dot setting is irregularly small, the font cannot be identified.
- If the font width / height are very small, there can be cases that the font is squeezed.
- JIS, Shift JIS, or Unicode (UTF-16, UTF-8) can be used for Kanji outline font, which should correspond with this product settings to proper printing. Specify Kanji code by <KC> command or "Settings Mode" of this product.

### [Valid Commands]

Print position	<V>	<H>								
Modification	<P>	<%>	<\$>	<F>						
Calendar	<WA>									

## [ESC+RD] CG Font

Hexadecimal code	ESC	<RD>	Parameter
	<1B> <sub>16</sub>	<52> <sub>16</sub> <44> <sub>16</sub>	abc,ddd,eee,n...n
Initial value	b=0		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying CG font type, font style, font size, and print data.

### [Format]

<RD>abc,ddd,eee,n...n

- Parameter

a [Font type]

- A [CG Times]
- B [CG Triumvirate]
- C [SATOGAMMA] (Code page can be switched by ESC+CE command)
- D [SATOVICA] (Code page can be switched by ESC+CE command)

b [Character set]

- 0 No specification for the character set (Fixed) [Font type A or B]  
Refer to [Code page specify parameter] section below. [Other than font type A or B]

c [Font style]

- 0 Standard
- 1 Bold
- 2 Italic
- 3 Bold + Italic

d [Width]

Valid Range: 004 to 999 (dots)  
Valid Range: P02 to P99 (points)

e [Height]

Valid Range: 004 to 999 (dots)  
Valid Range: P02 to P99 (points)

n [Print data] = Data

### [Coding Example]

Font type: CG Times

<A>

<V>100<H>100<P>2

**<RD>A00,P10,P10,SATO**

<Q>2

<Z>

**[Supplementary Explanation]**

- The font size is set by [dot number] or [point number].
- 1 dot is 0.083 mm.
- 1 point is 0.35 mm.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<%>	<F>	<PS>	<PR>					

**[Code page specify parameter]**

Command parameter	Name
-	Character set specified by <CE>
0	DOS 858 Multilingual Latin 1 + Euro character Default Code page proprietary to SATO.
1	ISO 8859-1 Latin 1
2	ISO 8859-2 Latin 2
3	ISO 8859-9 Latin 5
4	CP737 DOS Greek
5	CP855 DOS Cyrillic
8	PC-850 Multilingual
9	CP852 DOS Central European
A	CP857 DOS Turkish
B	CP866 DOS Cyrillic II
C	CP1250 Windows Central European
D	CP1251 Windows Cyrillic
E	CP1252 Windows Western Latin 1
F	CP1253 Windows Greek
G	CP1254 Windows Turkish
H	CP1255 Windows Hebrew *1
I	CP1256 Windows Arabic *1
J	CP1257 Windows Baltic
K	CP869 IBM Greek
L	CP862 DOS Hebrew *1
@	Unicode UTF-8

\*1 This is reserved language for function enhancement and these code pages are not supported.

## CG Times font character set

CG Times Font settings

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

00H to 1FH are control code and not available.

## CG Triumvirate font character set

CG Triumvirate Font settings

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

00H to 1FH are control code and not available.

## [ESC+K1] 16 x 16 dots Kanji in Horizontal Line

Hexadecimal code	ESC	K1	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <31> <sub>16</sub>	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying 16 x 16 (width x height) dots horizontal written Kanji character print.

### [Format]

<K1>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example 1]

Shift JIS HEX characters, Horizontal enlargement ratio: 3, Vertical enlargement ratio: 5

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<K1>H81698A94816A83548367815B**

<Q>2

<Z>

### [Coding Example 2]

JIS binary code, Horizontal enlargement ratio: 2, Vertical enlargement ratio: 3

<A>

<KC>0

<V>100<H>200<P>2<L>0203

**<K1>B! J3T! K%5%H! <**

<Q>2

<Z>



**[Supplementary Explanation]**

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.
- Use GB18030 for Simplified Chinese, and BIG5 for Traditional Chinese (Unicode cannot be used).

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- When the Kanji mode is set to [China, Traditional Chinese (BIG5)], it will be a command error.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+K2] 24 x 24 dots Kanji in Horizontal Line

Hexadecimal code	ESC	K2	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <32> <sub>16</sub>	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying 24 x 24 (width x height) dots horizontal written Kanji character print.

### [Format]

<K2>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example 1]

Shift JIS HEX characters, Horizontal enlargement ratio: 3, Vertical enlargement ratio: 5

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<K2>H81698A94816A83548367815B**

<Q>2

<Z>

### [Coding Example 2]

JIS binary code, Horizontal enlargement ratio: 2, Vertical enlargement ratio: 3

<A>

<KC>0

<V>100<H>200<P>2<L>0203

**<K2>B! J3T! K%5%H! <**

<Q>2

<Z>

**[Supplementary Explanation]**

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.
- Use GB18030 for Simplified Chinese, and BIG5 for Traditional Chinese (Unicode cannot be used).

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+K3] 22 x 22 dots Kanji in Horizontal Line

Hexadecimal code	ESC	K3	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <33> <sub>16</sub>	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying 22 x 22 (width x height) dots horizontal written Kanji character print.

### [Format]

<K3>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example 1]

Shift JIS HEX characters, Horizontal enlargement ratio: 3, Vertical enlargement ratio: 5

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<K3>H81698A94816A83548367815B**

<Q>2

<Z>

### [Coding Example 2]

JIS binary code, Horizontal enlargement ratio: 2, Vertical enlargement ratio: 3

<A>

<KC>0

<V>100<H>200<P>2<L>0203

**<K3>B! J3T! K%5%H! <**

<Q>2

<Z>

**[Supplementary Explanation]**

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- When the Kanji mode setting is [China, Simplified Chinese (GB18030)] or [China, Traditional Chinese (BIG5)], it will be a command error.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+K4] 32 x 32 dots Kanji in Horizontal Line

Hexadecimal code	ESC	K4	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <34> <sub>16</sub>	an...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying 32 x 32 (width x height) dots horizontal written Kanji character print.

### [Format]

<K4>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example 1]

Shift JIS HEX characters, Horizontal enlargement ratio: 3, Vertical enlargement ratio: 5

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<K4>H81698A94816A83548367815B**

<Q>2

<Z>

### [Coding Example 2]

JIS binary code, Horizontal enlargement ratio: 2, Vertical enlargement ratio: 3

<A>

<KC>0

<V>100<H>200<P>2<L>0203

**<K4>B! J3T! K%5%H! <**

<Q>2

<Z>

**[Supplementary Explanation]**

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- When the Kanji mode setting is [China, Simplified Chinese (GB18030)] or [China, Traditional Chinese (BIG5)], it will be a command error.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+K5] 40 x 40 dots Kanji in Horizontal Line

Hexadecimal code	ESC	K5	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <35> <sub>16</sub>	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying 40 x 40 (width x height) dots horizontal written Kanji character print.

### [Format]

<K5>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example 1]

Shift JIS HEX characters, Horizontal enlargement ratio: 3, Vertical enlargement ratio: 5

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<K5>H81698A94816A83548367815B**

<Q>2

<Z>

### [Coding Example 2]

JIS binary code, Horizontal enlargement ratio: 2, Vertical enlargement ratio: 3

<A>

<KC>0

<V>100<H>200<P>2<L>0203

**<K5>B! J3T! K%5%H! <**

<Q>2

<Z>



**[Supplementary Explanation]**

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- When the Kanji mode setting is [China, Simplified Chinese (GB18030)] or [China, Traditional Chinese (BIG5)], it will be a command error.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+K8] 16 x 16 dots Kanji in Horizontal Line with 1-byte Character

Hexadecimal code	ESC	K8	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <38> <sub>16</sub>	an...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying 16 x 16 (width x height) dots horizontal written Kanji character print and W8 x H16 dots half size character in horizontal line.

### [Format]

<K8>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example]

Shift JIS HEX characters, Data: 株式会社

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<K8>H8A948EAE89EF8ED0BBC4B0**

<Q>2

<Z>

### [Supplementary Explanation]

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.
- Use GB18030 for Simplified Chinese (Unicode cannot be used).

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- This command is not available for JIS code print data.
- For the half size character (1-byte character code), printing will be performed in W8 x H16 dots.
- For the full size character (2-byte character code), printing will be performed in W16 x H16 dots.
- When the Kanji mode is set to [China, Traditional Chinese (BIG5)], it will be a command error.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+K9] 24 x 24 dots Kanji in Horizontal Line with 1-byte Character

Hexadecimal code	ESC	K9	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <39> <sub>16</sub>	an...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying 24 x 24 (width x height) dots horizontal written Kanji character print and W12 x H24 dots half size character in horizontal line.

### [Format]

<K9>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example]

Shift JIS HEX characters, Data: 株式会社

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<K9>H8A948EAE89EF8ED0BBC4B0**

<Q>2

<Z>

### [Supplementary Explanation]

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.
- Use GB18030 for Simplified Chinese, and BIG5 for Traditional Chinese (Unicode cannot be used).

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- This command is not available for JIS code print data.
- For the half size character (1-byte character code), printing will be performed in W12 x H24 dots.
- For the full size character (2-byte character code), printing will be performed in W24 x H24 dots.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+KA] 22 x 22 dots Kanji in Horizontal Line with 1-byte Character

Hexadecimal code	ESC	KA	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <41> <sub>16</sub>	an...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying 22 x 22 (width x height) dots horizontal written Kanji character print and W11 x H22 dots half size character in horizontal line.

### [Format]

<KA>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example]

Shift JIS HEX characters, Data: 株式会社-

<A>

<KC>1

<V>100<H>200<P>2<L>0305

<CC>0

**<KA>H8A948EAE89EF8ED0BBC4B0**

<Q>2

<Z>

### [Supplementary Explanation]

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- This command is not available for JIS code print data.
- For the half size character (1-byte character code), printing will be performed in W11 x H22 dots.
- For the full size character (2-byte character code), printing will be performed in W22 x H22 dots.
- When the Kanji mode setting is [China, Simplified Chinese (GB18030)] or [China, Traditional Chinese (BIG5)], it will be a command error.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+KB] 32 x 32 dots Kanji in Horizontal Line with 1-byte Character

Hexadecimal code	ESC	KB	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <42> <sub>16</sub>	an...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying 32 x 32 (width x height) dots horizontal written Kanji character print and W16 x H32 dots half size character in horizontal line.

### [Format]

<KB>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example]

Shift JIS HEX characters, Data: 株式会社-

<A>

<KC>1

<V>100<H>200<P>2<L>0305

<CC>0

**<KB>H8A948EAE89EF8ED0BBC4B0**

<Q>2

<Z>

### [Supplementary Explanation]

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.



**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- For the half size character (1-byte character code), printing will be performed in W16 x H32 dots.
- For the full size character (2-byte character code), printing will be performed in W32 x H32 dots.
- This command is not available for JIS code print data.
- When the Kanji mode setting is [China, Simplified Chinese (GB18030)] or [China, Traditional Chinese (BIG5)], it will be a command error.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+KD] 40 x 40 dots Kanji in Horizontal Line with 1-byte Character

Hexadecimal code	ESC	KD	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <44> <sub>16</sub>	an...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying 40 x 40 (width x height) dots horizontal written Kanji character print and W20 x H40 dots half size character in horizontal line.

### [Format]

<KD>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example]

Shift JIS HEX characters, Data: 株式会社-

<A>

<KC>1

<V>100<H>200<P>2<L>0305

<CC>0

**<KD>H8A948EAE89EF8ED0BBC4B0**

<Q>2

<Z>

### [Supplementary Explanation]

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- For the half size character (1-byte character code), printing will be performed in W20 x H40 dots.
- For the full size character (2-byte character code), printing will be performed in W40 x H40 dots.
- This command is not available for JIS code print data.
- When the Kanji mode setting is [China, Simplified Chinese (GB18030)] or [China, Traditional Chinese (BIG5)], it will be a command error.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+k1] 16 x 16 dots Kanji in Vertical Line

Hexadecimal code	ESC	k1	Parameter
	<1B> <sub>16</sub>	<6B> <sub>16</sub> <31> <sub>16</sub>	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying 16 x 16 (width x height) dots vertical written Kanji character print.

### [Format]

<k1>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example 1]

Shift JIS HEX characters, Horizontal enlargement ratio: 3, Vertical enlargement ratio: 5

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<k1>H81698A94816A83548367815B**

<Q>2

<Z>

### [Coding Example 2]

JIS binary code, Horizontal enlargement ratio: 2, Vertical enlargement ratio: 3

<A>

<KC>0

<V>100<H>200<P>2<L>0203

**<k1>B! J3T! K%5%H! <**

<Q>2

<Z>

**[Supplementary Explanation]**

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.
- Use GB18030 for Simplified Chinese (Unicode cannot be used).

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- When the Kanji mode is set to [China, Traditional Chinese (BIG5)], it will be a command error.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+k2] 24 x 24 dots Kanji in Vertical Line

Hexadecimal code	ESC	k2	Parameter
	<1B> <sub>16</sub>	<6B> <sub>16</sub> <32> <sub>16</sub>	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying 24 x 24 (width x height) dots vertical written Kanji character print.

### [Format]

<k2>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example 1]

Shift JIS HEX characters, Horizontal enlargement ratio: 3, Vertical enlargement ratio: 5

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<k2>H81698A94816A83548367815B**

<Q>2

<Z>

### [Coding Example 2]

JIS binary code, Horizontal enlargement ratio: 2, Vertical enlargement ratio: 3

<A>

<KC>0

<V>100<H>200<P>2<L>0203

**<k2>B! J3T! K%5%H! <**

<Q>2

<Z>

**[Supplementary Explanation]**

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.
- When the language setting of this product is Japanese or Simplified Chinese or Traditional Chinese, printing follows the language setting.

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+k3] 22 x 22 dots Kanji in Vertical Line

Hexadecimal code	ESC	k3	Parameter
	<1B> <sub>16</sub>	<6B> <sub>16</sub> <33> <sub>16</sub>	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying 22 x 22 (width x height) dots vertical written Kanji character print.

### [Format]

<k3>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example 1]

Shift JIS HEX characters, Horizontal enlargement ratio: 3, Vertical enlargement ratio: 5

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<k3>H81698A94816A83548367815B**

<Q>2

<Z>

### [Coding Example 2]

JIS binary code, Horizontal enlargement ratio: 2, Vertical enlargement ratio: 3

<A>

<KC>0

<V>100<H>200<P>2<L>0203

**<k3>B! J3T! K%5%H! <**

<Q>2

<Z>



### [Supplementary Explanation]

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Print result of two bytes under bar "\_" is vertical line.
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.

### [Points]

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- When the Kanji mode setting is [China, Simplified Chinese (GB18030)] or [China, Traditional Chinese (BIG5)], it will be a command error.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+k4] 32 x 32 dots Kanji in Vertical Line

Hexadecimal code	ESC	k4	Parameter
	<1B> <sub>16</sub>	<6B> <sub>16</sub> <34> <sub>16</sub>	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying 32 x 32 (width x height) dots vertical written Kanji character print.

### [Format]

<k4>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example 1]

Shift JIS HEX characters, Horizontal enlargement ratio: 3, Vertical enlargement ratio: 5

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<k4>H81698A94816A83548367815B**

<Q>2

<Z>

### [Coding Example 2]

JIS binary code, Horizontal enlargement ratio: 2, Vertical enlargement ratio: 3

<A>

<KC>0

<V>100<H>200<P>2<L>0203

**<k4>B! J3T! K%5%H! <**

<Q>2

<Z>

### [Supplementary Explanation]

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Print result of two bytes under bar "\_" is vertical line.
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.

### [Points]

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- When the Kanji mode setting is [China, Simplified Chinese (GB18030)] or [China, Traditional Chinese (BIG5)], it will be a command error.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+k5] 40 x 40 dots Kanji in Vertical Line

Hexadecimal code	ESC	k5	Parameter
	<1B> <sub>16</sub>	<6B> <sub>16</sub> <35> <sub>16</sub>	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying 40 x 40 (width x height) dots vertical written Kanji character print.

### [Format]

<k5>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example 1]

Shift JIS HEX characters, Horizontal enlargement ratio: 3, Vertical enlargement ratio: 5

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<k5>H81698A94816A83548367815B**

<Q>2

<Z>

### [Coding Example 2]

JIS binary code, Horizontal enlargement ratio: 2, Vertical enlargement ratio: 3

<A>

<KC>0

<V>100<H>100<P>2<L>0203

**<k5>B! J3T! K%5%H! <**

<Q>2

<Z>

**[Supplementary Explanation]**

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Print result of two bytes under bar "\_" is vertical line.
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- When the Kanji mode setting is [China, Simplified Chinese (GB18030)] or [China, Traditional Chinese (BIG5)], it will be a command error.

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+k8] 16 x 16 dots Kanji in Vertical Line with 1-byte Character

Hexadecimal code	ESC	k8	Parameter
	<1B> <sub>16</sub>	<6B> <sub>16</sub> <38> <sub>16</sub>	an...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying 16 x 16 (width x height) dots vertical written Kanji character print and W8 x H16 dots half size character in horizontal line.

### [Format]

<k8>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example]

Shift JIS HEX characters, Data: 株式会社

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<k8>H8A948EAE89EF8ED0BBC4B0**

<Q>2

<Z>

### [Supplementary Explanation]

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.
- Use GB18030 for Simplified Chinese (Unicode cannot be used).

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- This command is not available for JIS code print data.
- For the half size character (1-byte character code), printing will be performed in W8 x H16 dots.
- For the full size character (2-byte character code), printing will be performed in W16 x H16 dots.
- When the Kanji mode is set to [China, Traditional Chinese (BIG5)], it will be a command error.

**[Notes]**

- When half-sized character with voiced/P-sound consonant mark is specified, each part of character appears as a single character.

e.g.) When the word "ハ -" is specified, it will be written separately such as "ハ", " ", " -".

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+k9] 24 x 24 dots Kanji in Vertical Line with 1-byte Character

Hexadecimal code	ESC	k9	Parameter
	<1B> <sub>16</sub>	<6B> <sub>16</sub> <39> <sub>16</sub>	an...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying 24 x 24 (width x height) dots vertical written Kanji character print and W12 x H16 dots half size character in vertical line.

### [Format]

<k9>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example]

Shift JIS HEX characters, Data: 株式会社

<A>

<KC>1

<V>100<H>200<P>2<L>0305

**<k9>H8A948EAE89EF8ED0BBC4B0**

<Q>2

<Z>

### [Supplementary Explanation]

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.
- Use GB18030 for Simplified Chinese, and BIG5 for Traditional Chinese (Unicode cannot be used).



**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- This command is not available for JIS code print data.
- For the half size character (1-byte character code), printing will be performed in W12 x H24 dots.
- For the full size character (2-byte character code), printing will be performed in W24 x H24 dots.

**[Notes]**

- When half-sized character with voiced/P-sound consonant mark is specified, each part of character appears as a single character.

e.g.) When the word "ハ" is specified, it will be written separately such as "ハ", "ハ", "ハ".

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+kA] 22 x 22 dots Kanji in Vertical Line with 1-byte Character

Hexadecimal code	ESC	kA	Parameter
	<1B> <sub>16</sub>	<6B> <sub>16</sub> <41> <sub>16</sub>	an...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying 22 x 22 (width x height) dots vertical written Kanji character print and W11 x H22 dots half size character in vertical line.

### [Format]

<kA>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example]

Shift JIS HEX characters, Data: 株式会社-

<A>

<KC>1

<V>100<H>200<P>2<L>0305

<CC>0

<kA>H8A948EAE89EF8ED0BBC4B0

<Q>2

<Z>

### [Supplementary Explanation]

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Print result of two bytes under bar "\_" is vertical line.
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- This command is not available for JIS code print data.
- For the half size character (1-byte character code), printing will be performed in W11 x H22 dots.
- For the full size character (2-byte character code), printing will be performed in W22 x H22 dots.
- When the Kanji mode setting is [China, Simplified Chinese (GB18030)] or [China, Traditional Chinese (BIG5)], it will be a command error.

**[Notes]**

- When half-sized character with voiced/P-sound consonant mark is specified, each part of character appears as a single character.  
e.g.) When the word "ハ -" is specified, it will be written separately such as "ハ", "^", " -".

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+kB] 32 x 32 dots Kanji in Vertical Line with 1-byte Character

Hexadecimal code	ESC	kB	Parameter
	<1B> <sub>16</sub>	<6B> <sub>16</sub> <42> <sub>16</sub>	an...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying 32 x 32 (width x height) dots vertical written Kanji character print and W16 x H32 dots half size character in horizontal line.

### [Format]

<kB>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example]

Shift JIS HEX characters, Data: 株式会社-

<A>

<KC>1

<V>100<H>200<P>2<L>0305

<CC>0

<kB>H8A948EAE89EF8ED0BBC4B0

<Q>2

<Z>

### [Supplementary Explanation]

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Print result of two bytes under bar "\_" is vertical line.
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- This command is not available for JIS code print data.
- For the half size character (1-byte character code), printing will be performed in W16 x H32 dots.
- For the full size character (2-byte character code), printing will be performed in W32 x H32 dots.
- When the Kanji mode setting is [China, Simplified Chinese (GB18030)] or [China, Traditional Chinese (BIG5)], it will be a command error.

**[Notes]**

- When half-sized character with voiced/P-sound consonant mark is specified, each part of character appears as a single character.

e.g.) When the word "ハ -" is specified, it will be written separately such as "ハ", "^", " -".

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+kD] 40 x 40 dots Kanji in Vertical Line with 1-byte Character

Hexadecimal code	ESC	kD	Parameter
	<1B> <sub>16</sub>	<6B> <sub>16</sub> <44> <sub>16</sub>	an...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying 40 x 40 (width x height) dots vertical written Kanji character print and W20 x H40 dots half size character in vertical line.

### [Format]

<kD>an...n

- Parameter

a [Kanji selection mode]

H: HEX characters

B: Binary code

I: HEX characters, smoothing function

C: Binary code, smoothing function

J: HEX characters, highlighting function

D: Binary code, highlighting function

K: HEX characters, smoothing and highlighting function

E: Binary code, smoothing and highlighting function

n [Data] = Print data. Refer to Kanji code (ESC+KC) command for the available character codes.

### [Coding Example]

Shift JIS HEX characters, Data: 株式会社-

<A>

<KC>1

<V>100<H>200<P>2<L>0305

<CC>0

<kD>H8A948EAE89EF8ED0BBC4B0

<Q>2

<Z>

### [Supplementary Explanation]

- HEX characters = Kanji Code 4 bytes ASCII / 1 Kanji character
- Binary code = Kanji Code 2 bytes / 1 Kanji character
- Smoothing function validity range = Horizontal/vertical valid range: factor 3 to 12
- Highlighting function validity range = Horizontal/vertical valid range: factor 1 to 5
- Print result of two bytes under bar "\_" is vertical line.
- Unicode data includes control codes. To print correct codes, specify HEX character in Kanji mode.

**[Points]**

- With the highlighting function the character width enlarges proportional with the expansion factor.
- Using the highlighting function, depending on the type of font, characters become squeezed.
- This command is not available for JIS code print data.
- For the half size character (1-byte character code), printing will be performed in W20 x H40 dots.
- For the full size character (2-byte character code), printing will be performed in W40 x H40 dots.
- When the Kanji mode setting is [China, Simplified Chinese (GB18030)] or [China, Traditional Chinese (BIG5)], it will be a command error.

**[Notes]**

- When half-sized character with voiced/P-sound consonant mark is specified, each part of character appears as a single character.  
e.g.) When the word "ハ -" is specified, it will be written separately such as "ハ", "^", " -".

**[Valid Commands]**

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<&>	</>	<0>	<WD>			

## [ESC+T1] 16 x 16 dots External Font Registration

Hexadecimal code	ESC	T1	Parameter
	<1B> <sub>16</sub>	<54> <sub>16</sub> <31> <sub>16</sub>	abbn...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Registering 16 x 16 dots external fonts.

### [Format]

<T1>abbn...n

- Parameter

a [Registration data selection]

H: Registration code in HEX character

B: Registration code in binary code

b [Registration font code address]

Using Kanji set <KS> command to set Japanese

JIS code

H: Up to 95 registrations from "21" to "7F" is available.

B: Up to 95 registrations from 21H to 7FH is available.

Shift JIS code

H: Up to 95 registrations from "40" to "9E" is available.

B: Up to 95 registrations from 40H to 9EH is available.

Using Kanji set <KS> command to set other than Japanese

GB18030, BIG5

H: Up to 95 registrations from "21" to "7F" is available.

B: Up to 95 registrations from 21H to 7FH is available.

n [Registered external font data] = Data

### [Coding Example]

Registration and printing by binary code

<A>

<CC>0

<T1>B<21><sub>16</sub><00FF00FF.....3C0000FF><sub>16</sub>

<Z>

<A>

<CC>0

<V>100<H>200<K1>B<80><sub>16</sub><21><sub>16</sub>

<Q>2

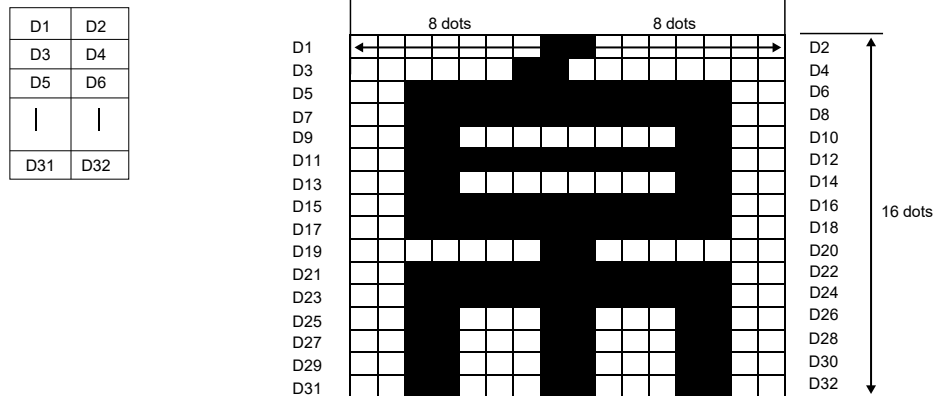
<Z>



### [Supplementary Explanation]

- Registering 16 x 16 dots external fonts in the internal memory or user registration memory.
- The code to specify in the registration font code address needs to match the Kanji Set <KS> and Kanji Code <KC>.
- Overwriting registration data is available.
- The order of data registration is as follows.
- The data registered in the memory of this product will be deleted at the power off. In this case, you need to register the data again.

External character file [16 x 16]



When registering the external characters described above, D1 data becomes  $\langle 01 \rangle_{16}$  and D2 data becomes  $\langle 80 \rangle_{16}$  because D1 consists of [00000001], D2 consists of [10000000]. In the same manner, D3 is  $\langle 03 \rangle_{16}$ , D4 is  $\langle 00 \rangle_{16}$ , D5 is  $\langle 3F \rangle_{16}$ , D6 is  $\langle FC \rangle_{16}$ , and the external registration data will be  $\langle 018003003FFC..... \rangle_{16}$  up to D32.

### [Points]

- The data registered in the user registration memory will be maintained after the power is off.
- You cannot use the internal memory in combination with the user registration memory.
- Specify the slot to register.

If <CC> command is not sent after the power on, the data is registered in the internal memory.

## [ESC+T2] 24 x 24 dots External Font Registration

Hexadecimal code	ESC	T2	Parameter
	<1B> <sub>16</sub>	<54> <sub>16</sub> <32> <sub>16</sub>	abbn...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Registering 24 x 24 dots external fonts.

### [Format]

<T2>abbn...n

- Parameter

a [Registration data selection]

H: Registration code in HEX character

B: Registration code in binary code

b [Registration font code address]

Using Kanji set <KS> command to set Japanese

JIS code

H: Up to 95 registrations from "21" to "7F" is available.

B: Up to 95 registrations from 21H to 7FH is available.

Shift JIS code

H: Up to 95 registrations from "40" to "9E" is available.

B: Up to 95 registrations from 40H to 9EH is available.

Using Kanji set <KS> command to set other than Japanese

GB18030, BIG5

H: Up to 95 registrations from "21" to "7F" is available.

B: Up to 95 registrations from 21H to 7FH is available.

n [Registered external font data] = Data

### [Coding Example]

Registration and printing by binary code

<A>

<CC>0

<T2>B<21><sub>16</sub><00FF.....FF00><sub>16</sub>

<Z>

<A>

<CC>0

<V>100<H>200<K2>B<80><sub>16</sub><21><sub>16</sub>

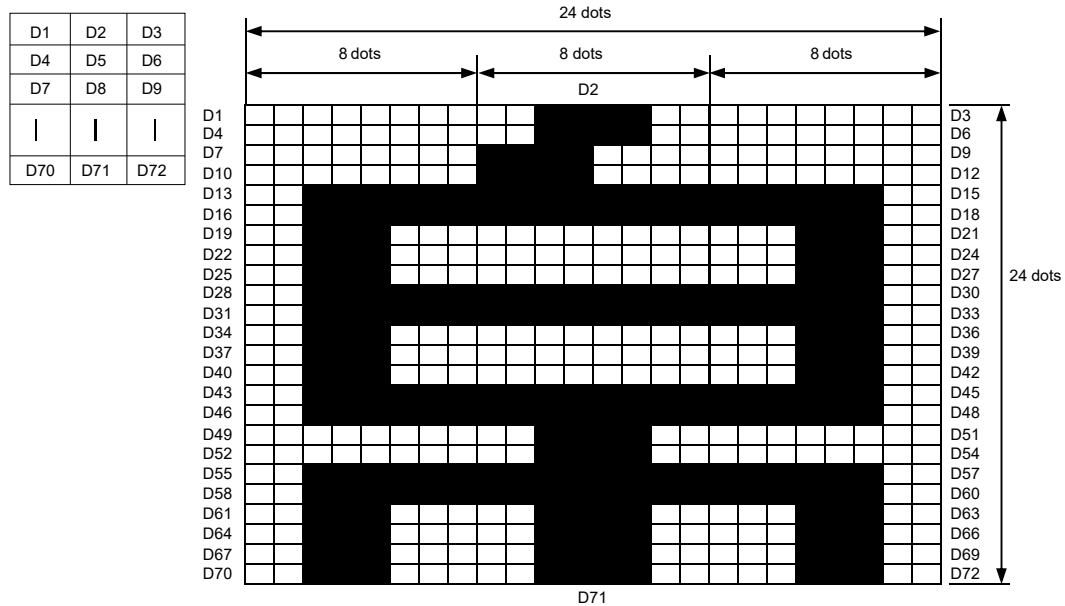
<Q>2

<Z>

### [Supplementary Explanation]

- Registering 24 x 24 dots external fonts in the internal memory or user registration memory.
- The code to specify in the registration font code address needs to match the Kanji Set <KS> and Kanji Code <KC>.
- Overwriting registration data is available.
- The order of data registration is as follows.
- The data registered in the memory of this product will be deleted at the power off. In this case, you need to register the data again.

External character file [24 × 24]



When registering the external characters described above, D1 data becomes <00><sub>16</sub> and D2 data becomes <3C><sub>16</sub> and D3 data becomes <00><sub>16</sub> because D1 consists of [00000000], D2 consists of [00111100] and D3 consists of [00000000].

In the same manner, D4 is <00><sub>16</sub>, D5 is <3C><sub>16</sub>, D6 is <00><sub>16</sub>, and the external registration data will be <003C00003C00.....><sub>16</sub> up to D72.

### [Points]

- The data registered in the user registration memory will be maintained after the power is off.
- You cannot use the internal memory in combination with the user registration memory.
- Specify the slot to register.

If <CC> command is not sent after the power on, the data is registered in the internal memory.

## [ESC+K1(K2)] Horizontal Writing External Font Call

Hexadecimal code	ESC	K1(K2)	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <31> <sub>16</sub> (<4B> <sub>16</sub> <32> <sub>16</sub> )	ab...b
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Invoking horizontal external characters saved in the memory of this product to print out.

### [Format]

<K1>ab...b

<K2>ab...b

- Parameter

a [Kanji selection mode]

H: HEX character

B: Binary code

I: HEX character letters, smoothing function

C: Binary code, smoothing function

J: HEX character letters, highlight function

D: Binary code, highlight function

K: HEX character letters, smoothing and highlight function

E: Binary character letters, smoothing and highlight function

b [Registration code]

Using Kanji set <KS> command to set Japanese

JIS code

H, I, J, K: "9021" to "907F"

B, C, D, E: 9021H to 907FH

Shift JIS code

H, I, J, K: "F040" to "F09E"

B, C, D, E: F040H to F09EH

Using Kanji set <KS> command to set other than Japanese

GB18030, BIG5

H, I, J, K: "8021" to "807F"

B, C, D, E: 8021H to 807FH

### [Coding Example]

Recall 16 x 16 external characters, registration data by HEX characters

<A>  
<CC>0  
<T1>H2100FF.....FF00  
<Z>

<A>  
<CC>0  
<V>100<H>200<K1>H8021  
<Q>2  
<Z>

### [Supplementary Explanation]

- If the print out is not performed properly, register the data again.
- You cannot call the external characters registered as JIS/Shift JIS character as Unicode, and vice versa.
- Please specify the slot of the memory to be recalled.

However, data in the internal memory will be recalled when <CC> command is not yet sent after the printer power on.

## [ESC+k1(k2)] Horizontal Writing External Font Call

Hexadecimal code	ESC	k1(k2)	Parameter
	<1B> <sub>16</sub>	<6B> <sub>16</sub> <31> <sub>16</sub> (<6B> <sub>16</sub> <32> <sub>16</sub> )	ab...b
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Invoking vertical external characters saved in the memory of this product to print out.

### [Format]

<k1>ab...b

<k2>ab...b

- Parameter

a [Kanji selection mode]

H: HEX character

B: Binary code

I: HEX character letters, smoothing function

C: Binary code, smoothing function

J: HEX character letters, highlight function

D: Binary code, highlight function

K: HEX character letters, smoothing and highlight function

E: Binary character letters, smoothing and highlight function

b [Registration code]

Using Kanji set <KS> command to set Japanese

JIS code

H, I, J, K: "9021" to "907F"

B, C, D, E: 9021H to 907FH

Shift JIS code

H, I, J, K: "F040" to "F09E"

B, C, D, E: F040H to F09EH

Using Kanji set <KS> command to set other than Japanese

GB18030, BIG5

H, I, J, K: "8021" to "807F"

B, C, D, E: 8021H to 807FH

### [Coding Example]

Recall 16 x 16 external characters, registration data by HEX characters

<A>  
<CC>0  
<T1>H2100FF.....FF00  
<Z>

<A>  
<CC>0  
<V>100<H>200<k1>H8021  
<Q>2  
<Z>

### [Supplementary Explanation]

- If the print out is not performed properly, register the data again.
- You cannot call the external characters registered as JIS/Shift JIS character as Unicode, and vice versa.
- Please specify the slot of the memory to be recalled.

However, data in the internal memory will be recalled when <CC> command is not yet sent after the printer power on.

## [ESC+U] U Font (Basic size 5 x 9 dots)

Hexadecimal code	ESC	U	Parameter
	<1B> <sub>16</sub>	<55> <sub>16</sub>	n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of W5 x H9 dots is specified.

### [Format]

<U>n...n

- Parameter

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0304<U>ABCDE

<Q>2

<Z>

### [Supplementary Explanation]

- U font only allows the setting of a fixed pitch.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>	<&>	</>	<0>	<WD>		
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									



## U font character set

Basic size is 5 x 9 dots (width x height)

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ç	É	á	Ø		ø	ó	-
1	!	1	A	Q	a	q	Ü	æ	í			Ð	þ	±
2	"	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	á	ô	Ú			Ë	ò	
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	Ñ	Á		€	ø	§
6	&	6	F	V	f	v	à	û	æ	Â	ã	í	µ	÷
7	'	7	G	W	g	w	ç	ù	ø	À	Ã	î	þ	,
8	<	8	H	X	h	x	ê	ÿ	¿	Θ		ï	þ	°
9	>	9	I	Y	i	y	ë	ö	«				ó	¨
A	*	:	J	Z	j	z	è	Ü	¬				ô	+
B	+	;	K	[	k	{	ï	ø	½				ù	!
C	,	<	L	\	l		î	£	¼				ý	³
D	-	=	M	]	m	}	ì	ŕ	¡	¢		ì	ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	~	
F	/	?	O	_	o		Á	f	»				'	

The print sample shown above is issued with an enlargement ratio of 3 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+S] S Font (Basic size 8 x 15 dots)

Hexadecimal code	ESC	S	Parameter
	<1B> <sub>16</sub>	<53> <sub>16</sub>	n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of W8 x H15 dots is specified.

### [Format]

<S>n...n

- Parameter

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0304<S>ABCDE

<Q>2

<Z>

### [Supplementary Explanation]

- S font only allows the setting of a fixed pitch.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>	<&>	</>	<0>	<WD>		
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## S font character set

Basic size is 8 x 15 dots (width x height)

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	'	p	Ç	É	á	Ø		ö	ó	—
1	!	1	A	Q	a	q	ü	æ	í			Ð	β	±
2	"	2	B	R	b	r	é	Æ	ó			Ê	ô	=
3	#	3	C	S	c	s	â	ô	ú			Ë	ò	¾
4	\$	4	D	T	d	t	ä	ö	ñ			È	õ	¶
5	%	5	E	U	e	u	à	ò	Ñ	Á		€	õ	§
6	&	6	F	V	f	v	à	û	ä	Â	ã	í	μ	÷
7	'	7	G	W	g	w	ç	ù	ó	À	Ã	î	þ	,
8	(	8	H	X	h	x	ê	ÿ	¿	©		ï	þ	°
9	)	9	I	Y	i	y	ë	ö	®				ú	”
A	*	:	J	Z	j	z	è	ü	¬				û	•
B	+	;	K	[	k	{	ï	ø	½				ù	¡
C	,	<	L	\	l	!	î	£	¼				ý	³
D	—	=	M	]	m	}	ì	ø	¡	¢		!	ý	²
E	.	>	N	^	n	~	Ä	×	«	¥		ì	”	
F	/	?	O	_	o	■	À	f	»		⊗		’	

The print sample shown above is issued with an enlargement ratio of 3 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+M] M Font (Basic size 13 x 20 dots)

Hexadecimal code	ESC	M	Parameter
	<1B> <sub>16</sub>	<4D> <sub>16</sub>	n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of W13 x H20 dots is specified.

### [Format]

<M>n...n

- Parameter

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0304<M>ABCDE

<Q>2

<Z>

### [Supplementary Explanation]

- M font only allows the setting of a fixed pitch.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>	<&>	</>	<0>	<WD>		
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## M font character set

Basic size is 13 x 20 dots (width x height)

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

The print sample shown above is issued with an enlargement ratio of 2 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+WB] WB Font (Basic size 18 x 30 dots)

Hexadecimal code	ESC	WB	Parameter
	<1B> <sub>16</sub>	<57> <sub>16</sub> <42> <sub>16</sub>	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of W18 x H30 dots is specified.

### [Format]

<WB>an...n

- Parameter

a [Smoothing]

0 : Smoothing disabled

1 : Smoothing ON (Only available if Enlargement <L> is between 3 and 12)

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0304<WB>0ABCDE

<Q>2

<Z>

### [Supplementary Explanation]

- WB font only allows the setting of a fixed pitch.
- When the smoothing is enabled, and the expansion <L> command is set to 1 or 2, the smoothing function will be ignored.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>	<&>	</>	<0>	<WD>		
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									

## WB font character set

Basic size is 18 x 30 dots (width x height)

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

The print sample shown above is issued with an enlargement ratio of 1 (vertical/horizontal).

00H to 1FH are control code and not available.

## [ESC+WL] WL Font (Basic size 28 x 52 dots)

Hexadecimal code	ESC	WL	Parameter
	<1B> <sub>16</sub>	<57> <sub>16</sub> <4C> <sub>16</sub>	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Font with the basic size of W28 x H52 dots is specified.

### [Format]

<WL>an...n

- Parameter

a [Smoothing]

0 : Smoothing disabled

1 : Smoothing ON (Only available if Enlargement <L> is between 3 and 12)

n [Print data] = Data

### [Coding Example]

<A>

<V>100<H>200<P>2<L>0304<WL>0ABCDE

<Q>2

<Z>

### [Supplementary Explanation]

- WL font only allows the setting of a fixed pitch.
- When the smoothing is enabled, and the expansion <L> command is set to 1 or 2, the smoothing function will be ignored.

### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>	<F>	<&>	</>	<0>	<WD>		
Barcode	<D><d>	<BL><d>								
Calendar	<WA>									



# WL font character set

Basic size is 28 x 52 dots (width x height)

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

The print sample shown above is issued with an enlargement ratio of 1 (vertical/horizontal).

00H to 1FH are control code and not available.

---

# Barcode Commands

---

In barcode specification, print of various barcodes, change of bar width ratio, and print of guard bar or human-readable information can be performed by the specification (B, D, BD) after ESC.

The contents may vary depending on the specification. This and next page should be read closely and followed.

Refer to the table below for the specification of B, D, and BD.

## [Specification of Bar Width Ratio]

Barcode specification parameter	Barcode specification	<B>	<D>	<BD>
0	CODABAR(NW-7)	1:3	1:2	2:5
1	CODE39	1:3	1:2	2:5
2	ITF	1:3	1:2	2:5
5	Industrial 2of5	1:3	1:2	2:5
6	Matrix 2of5	1:3	1:2	2:5

### (1) Bar Width Ratio

Barcode is composed of Narrow Bar, Wide Bar, Narrow Space and Wide Space. Bar width ratio is the proportion of Narrow Bar and Wide Bar.

- Barcode specification (Ratio 1:3) <B>

This barcode is composed of Narrow Bar [1] and Wide Bar [3].

- Barcode specification (Ratio 1:2) <D>

This barcode is composed of Narrow Bar [1] and Wide Bar [2].

- Barcode specification (Ratio 2:5) <BD>

This barcode is composed of Narrow Bar [2] and Wide Bar [5].

If specifying bar width ratio for your own convenience, register the ratio with Bar Width Ratio <BT> and print labels with Print of Specified Bar Width Ratio <BW>.

### (2) Width of Narrow Bar and Height of Barcode

Narrow bar indicates the narrow bar width, and bar height indicates the height of barcode.

For instance, printing narrow bar for 1 dot in head density of 8 dots/mm (203 dpi), the narrow bar width will be 0.125 mm and barcode scanner may have a reading problem. To avoid this problem, set the narrow bar to 2 dots so that the narrow bar width will be 0.25 mm and this will improve the scanner reading condition.

There is a necessity to set the narrow bar width based on head density of this product or performance of barcode scanner. In bar width ratio, [Narrow bar width] specification sets the width of bar.

e.g.)

When bar width ratio = 1:3 and narrow bar width is 3 dots, bar width ratio becomes 3:9.

Bar height is to specify the height of barcode, and proper height based on the scanner type can be set.

### (3) Intercharacter Gap

Intercharacter gap is the space between two adjacent barcode characters in a discrete barcode.

To specify and enable intercharacter gap, insert Character Pitch <P> right before barcode specification such as <B>, <D> and <BD> or Print of Barcode with Registered Ratio <BW>. If not, initial value (2 dots) will be set.

Intercharacter gap is designable for the following barcodes.

- NW-7
- CODE39
- Industrial 2of5
- Matrix 2of5

Intercharacter gap is the multiplier of values specified with Character Pitch <P> and narrow bar width.

e.g.)

When Character Pitch <P> is 3 and narrow bar width is 2 dots: Intercharacter gap = 3 x 2 = 6 (dots)

### (4) Designation of Human Readable Information (HRI) and Guard Bar

For UPC-A and JAN/EAN 8 and 13 digits barcode, availability of human-readable information (hereinafter HRI) and guard bar can be specified.

Barcode specification parameter	Barcode specification	<B>	<D>	<BD>
3	JAN/EAN13	HRI: Nil Guard bar: Nil	HRI: Nil Guard bar: Available	HRI: Available Guard bar: Available
4	JAN/EAN8	HRI: Nil Guard bar: Nil	HRI: Nil Guard bar: Available	HRI: Available Guard bar: Available
H	UPC-A	HRI: Nil Guard bar: Nil	HRI: Nil Guard bar: Available	HRI: Available Guard bar: Available

Barcode specification parameter	Barcode specification	<BM>	<BL>
H	UPC-A	HRI: Available Guard bar: Available	HRI: Nil Guard bar: Available

#### (1) Specification of <B> (No HRI, No guard bar)

If specifying <B>, following barcode will be printed.



#### (2) Specification of <D> (No HRI, Guard bar available)

If specifying <D>, following barcode will be printed.

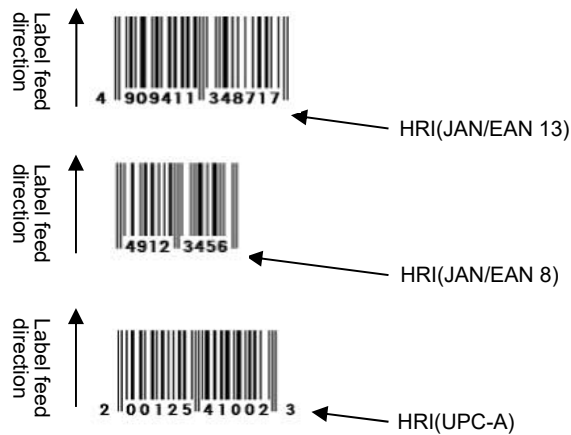


[Note]

- HRI is printable specifying <Character Type> data subsequently to <D>.
- For more information, refer to Barcode Specification (Selection of HRI) <D>~<d>.

### (3) Specification of <BD> (HRI and guard bar available)

If specifying <BD>, following barcode will be printed.



[Barcode Specification Only]

Barcode specification parameter	Barcode specification	<B>
C	CODE93	Barcode only
E	UPC-E	Barcode only
G	CODE128	Barcode only
I	UCC/EAN 128 for standard carton ID	Barcode only

### Note

- In this case, barcode will not have specification such as Bar Width Ratio and HRI.
- HRI will not be printed when barcode is error for barcode with HRI.

## (5) Composition of Check Digit

Refer to the table below for check digit in each barcode.

[Composition of C/D]

Barcode specification parameter	Barcode specification	Input digit No.	Print digit number and contents
3	JAN/EAN13	12 digits	13-digit (Input data of barcode + C/D) C/D is calculated by modulus10.
		13 digits	13-digit (Input data of barcode) C/D is not checked.
4	JAN/EAN8	7 digits	8 digits (Input data of barcode + C/D) C/D is calculated by modulus10.
		8 digits	8-digit (Input data of barcode) C/D is not checked.
C	CODE93	Max. 99 digits	C/D is calculated by modulus47.
E	UPC-E	6-digit only	C/D is calculated by modulus10.
G	CODE128	-	C/D is calculated by modulus103.
H	UPC-A	11-digit only <sup>*1</sup>	12-digit (Input data of barcode + C/D) C/D is calculated by modulus10.
I	UCC/EAN128 for standard carton ID UCC/EAN128	17-digit only	C/D is calculated by modulus103.

\*1 The data input digit for UPC-A is only 11 digits, however, the specified data is printed without check digit calculation when 12 digits is specified.

## (6) Barcode Rotation Print

Print direction of barcode can be rotated. Note that when specifying Serial 1 and Serial 2 for barcode rotation, it may cause blurring due to barcode enlargement ratio.

Avoid printing of 1-dot narrow bar since 1 dot becomes 0.083 mm.

Parallel 1: Forward feed print

Parallel 2: Backfeed print at 180-degree rotation

Serial 1: Forward feed print at 90-degree rotation

Serial 2: Forward feed print at 270-degree rotation

\* Forward feed: Prints horizontally to label feed direction

1) To print with Parallel 1 and Parallel 2, specify enlargement ratio of bar width so that narrow bar gets at least 2 dots. ("L" indicates the enlargement ratio to the bar width ratio.)

Bar width ratio 1:2	2L or more
Bar width ratio 1:3	2L or more
Bar width ratio 2:5	1L or more

UPC-A/EAN/JAN	2L or more
---------------	------------

2) If printing in serial 1 or serial 2 mode, specify the bar width expansion factor so that the width of the narrow bar is at least 3 dots.

Bar width ratio 1:2	3L or more
Bar width ratio 1:3	3L or more
Bar width ratio 2:5	2L or more
UPC-A/EAN/JAN	3L or more

3) If printing in serial 1 or serial 2, reduce the print speed.

## [ESC+B] Barcode (Ratio 1:3)

Hexadecimal code	ESC	B	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub>	abbcccn...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying a barcode with a ratio of 1:3 between narrow bar and wide bar.

### [Format]

<B>abbcccn...n

- Parameter

a [Barcode type] = Refer to table below

b [Narrow bar width] = Valid range : 01 to 12 dots

c [Barcode height] = Valid range : 001 to 999 dots

n [Print data] = Data

Barcode types (Ratio of module composition may not be available depending on the barcode.)

a	Barcode type	Description	Ratio
0	CODABAR(NW-7)	Set print data including Start/Stop character. Start/Stop characters are [A, B, C, D, E, N, T, a, b, c, d, e, n, t]. Note that scan result of the characters [E, N, T, a, b, c, d, e, n, t] is [D, B, A, A, B, C, D, D, B, A]. e.g.) When barcode print data is [123], specify [A123A]. Barcode character pitch becomes enabled. For print data, refer to the CODABAR (NW-7) code table.	1:3
1	CODE39	Set print data including Start/Stop character. Start/Stop Character is [*]. e.g.) When barcode print data is [12345], specify [*12345*]. Barcode character pitch becomes enabled. For print data, refer to the CODE39 code table.	1:3
2	ITF	Specify print data in even-numbered digit. If specifying in odd-numbered digit, add "0" to the head of print data. For print data, refer to the ITF code table.	1:3
3	JAN/EAN13	This barcode has no guard bars and no human-readable characters. For print data, refer to the JAN/EAN13 code table.	Fixed (11, 12, 13 digits)
4	JAN/EAN8	This barcode has no guard bars and no human-readable characters. For print data, refer to the JAN/EAN8 code table.	Fixed (7, 8 digits)
5	Industrial 2of5	Barcode character pitch becomes enabled. For print data, refer to the Industrial 2of5 code table.	1:3

a	Barcode type	Description	Ratio
6	Matrix 2of5	Barcode character pitch becomes enabled. For print data, refer to the Matrix 2of5 code table.	1:3
A	MSI	Print data can be specified up to 13-digit. Refer to the code list of the MSI for the print data.	Fixed
C	CODE93	Refer to CODE93 <BC>.	Fixed
E	UPC-E	Specify 6-digit number for print data. For print data, refer to the UPC-E code table.	Fixed
F	UPC add-on code Bookland	Refer to UPC add-on code/Bookland <BF>.	Fixed
G	CODE128	Refer to CODE128 Barcode <BC>.	Fixed
H	UPC-A	This barcode has no guard bars and no human-readable characters. For print data, refer to the UPC-A code table.	Fixed
I	GS1-128(UCC/EAN128)	Refer to GS1-128 (UCC/EAN128) <BI>.	Fixed
P	Postnet	Refer to the Postnet specification <BP>.	Fixed
S	USPS code	Refer to the USPS code specification <BS>.	Fixed

#### [Coding Example 1]

Barcode type: CODE39, Narrow bar width: 03, Height of barcode: 120, Print data: \*1234AB\*



<A>  
 <V>100<H>100<B>103120\*1234AB\*  
 <Q>2  
 <Z>

#### [Coding Example 2]

Barcode type: EAN8, Narrow bar width: 02, Height of barcode: 080, Print data: 4912345



<A>  
 <V>100<H>100<B>4020804912345  
 <Q>2  
 <Z>



### [Supplementary Explanation]

- The inter-character pitch of the barcode is valid at CODABAR (NW-7), CODE39, Industrial 2of5 and Matrix 2of5. The barcode inter-character pitch is set by specifying the character pitch <P> immediately before.

If not set, the inter-character pitch will be of the same size as a narrow space and will become multiples of a narrow bar.

Command	Ratio	Narrow space width	<P> specification	Gap between characters	
				Narrow bar width is [1]	Narrow bar width is [2]
<B>	1:3	1	None	1	2
			<P>0	1	2
			<P>1	1	2
			<P>2	2	4
			<P>3	3	6
			<P>4	4	8

- For print data of each barcode type, refer to the code tables of barcode.

### [Notes]

- If the value other than valid range is set, command error will occur and barcode will not be printed.
- A barcode that exceeds the printable area will not be printed.
- Increasing narrow bar width may exceed the printing area and may not be printed.
- Scanner may not read the barcode with valid character pitch when Character Pitch <P> is increased. Also, increasing the narrow bar width may cause the same type of problem. For more information, refer to the documentation of your scanner.
- Set narrow bar width to 2 dots or more.
- Adjust Print Speed <CS> or Print Darkness <#F> if there is a problem in barcode reading.
- Matrix 2of5 will be expressed as Coop2of5/NEC2of5.
- If Start/Stop character is not included in print data at the time of CODABAR (NW-7) or CODE39 specified, barcode will be printed; however, scanner cannot read it.
- If sending the print data including check digit at the time of JAN/EAN13 or JAN/EAN8 specified, set the correct calculated value. Barcode will be printed even when the data includes improper check digit; however, scanner cannot read it.

## [ESC+D] Barcode (Ratio 1:2)

Hexadecimal code	ESC	D	Parameter
	<1B> <sub>16</sub>	<44> <sub>16</sub>	abbcccn...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying a barcode with a ratio of 1:2 between narrow bar and wide bar.

### [Format]

<D>abbcccn...n

- Parameter

a [Barcode type] = Refer to table below

b [Narrow bar width] = Valid range : 01 to 36 dots

c [Barcode height] = Valid range : 001 to 999 dots

n [Print data] = Data

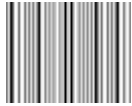
Barcode types (Ratio of module composition may not be available depending on the barcode.)

a	Barcode type	Contents	Ratio
0	CODABAR(NW-7)	Set print data including Start/Stop character. Start/Stop characters are [A, B, C, D, E, N, T, a, b, c, d, e, n, t]. Note that scan result of the characters [E, N, T, a, b, c, d, e, n, t] is [D, B, A, A, B, C, D, D, B, A]. e.g.) When barcode print data is [123], specify [A123A]. Barcode character pitch becomes enabled. For print data, refer to the CODABAR(NW-7) code table.	1:2
1	CODE39	Set print data including Start/Stop character. Start/Stop Character is [*]. e.g.) When barcode print data is [12345], specify [*12345*]. Barcode character pitch becomes enabled. For print data, refer to the CODE39 code table.	1:2
2	ITF	Specify print data in even-numbered digit. If specifying in odd-numbered digit, add "0" to the head of print data. For print data, refer to the ITF code table.	1:2
3	JAN/EAN13	This barcode has guard bars and no human-readable characters. For print data, refer to the JAN/EAN13 code table.	Fixed
4	JAN/EAN8	This barcode has guard bars and no human-readable characters. For print data, refer to the JAN/EAN8 code table.	Fixed
5	Industrial 2of5	Barcode character pitch becomes enabled. For print data, refer to the Industrial 2of5 code table.	1:2
6	Matrix 2of5	Barcode character pitch becomes enabled. For print data, refer to the Matrix 2of5 code table.	1:2

a	Barcode type	Contents	Ratio
H	UPC-A	This barcode has guard bars and no human-readable characters. For print data, refer to the UPC-A code table.	Fixed

#### [Coding Example 1]

Barcode type: CODABAR(NW-7), Narrow bar width: 03, Height of barcode: 120, Print data: A1234A



<A>  
 <V>100<H>100<D>003120A1234A  
 <Q>2  
 <Z>

#### [Coding Example 2]

Barcode type: ITF, Narrow bar width: 02, Height of barcode: 080, Print data: 98002345678163



<A>  
 <V>100<H>100<D>20208098002345678163  
 <Q>2  
 <Z>

#### [Coding Example 3]

Barcode type: UPC-A, Narrow bar width: 03, Height of barcode: 120, Print data: 20123948573



<A>  
 <V>240<H>100<D>H0312020123948573  
 <Q>2  
 <Z>

#### [Supplementary Explanation]

- The inter-character pitch of the barcode is valid at CODABAR (NW-7), CODE39, Industrial 2of5 and Matrix 2of5. The barcode inter-character pitch is set by specifying the character pitch <P> immediately before.

If not set, the inter-character pitch will be of the same size as a narrow space and will become multiples of a narrow bar.

e.g.)

Command	Ratio	Narrow space width	<P> specification	Gap between characters	
				Narrow bar width is [1]	Narrow bar width is [2]
<D>	1:2	1	None	1	2
			<P>0	1	2
			<P>1	1	2
			<P>2	2	4
			<P>3	3	6
			<P>4	4	8

- For print data of each barcode type, refer to the code tables of barcode.

#### **[Notes]**

- If the value other than valid range is set, command error will occur and barcode will not be printed.
- A barcode that exceeds the printable area will not be printed.
- Increasing narrow bar width may exceed the printing area and may not be printed.
- Scanner may not read the barcode with valid character pitch when Character Pitch <P> is increased. Also, increasing the narrow bar width may cause the same type of problem. For more information, refer to the documentation of your scanner.
- Set narrow bar width to 2 dots or more.
- Adjust Print Speed <CS> or Print Darkness <#F> if there is a problem in barcode reading.
- Matrix 2of5 will be expressed as Coop2of5/NEC2of5.
- If Start/Stop character is not included in print data at the time of CODABAR(NW-7) or CODE39 specified, barcode will be printed; however, scanner cannot read it.
- If sending the print data including check digit at the time of JAN/EAN-13 or JAN/EAN-8 specified, set the correct calculated value. Barcode will be printed even when the data includes improper check digit; however, scanner cannot read it.

## [ESC+D] ~ [ESC+d] Barcode (with HRI)

Hexadecimal code	ESC	D ~ d	Parameter
	<1B> <sub>16</sub>	<44> <sub>16</sub> ~ Character type	abbcccn...n ~ <d>n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying character type of human readable interpretation (HRI) for barcode.

### [Format]

<D>abbcccn...n ~ <d>n...n

- Parameter

a [Barcode type]

3: JAN/EAN13

4: JAN/EAN8

H: UPC-A

b [Narrow bar width] = Valid range : 01 to 12 dots

c [Height of barcode] = Valid range: 001 to 999 dots

n [Print data] = Barcode data

d [Character type]

OA

OB

XU

XS

XM

XB

XL

n [Print data] = HRI data

### [Coding Example]

Barcode type: EAN13, Narrow bar width: 03, Barcode height: 120, Barcode data: 4902471000793,  
Character type: XU, HRI data: 4902471000793



<A>  
<V>100<H>200<D>**3031204902471000793**  
<XU>**4902471000793**  
<Q>2  
<Z>

### [Supplementary Explanation]

- Adds HRI characters with specified font.
- When the data other than specified value is set, printing will not be performed. When barcode enlargement ratio is small and character type is large, HRI text may be overlapped with each other.
- This product will lay out HRI properly.
- The appropriate narrow bar width is 03 or 04 to print HRI for JAN/EAN8, JAN/EAN13 and UPC-A.
- HRI will not be printed when barcode is an error for barcode with HRI.
- When specifying <P> and <L>, (<P>02<d>n...n, <L><d>n...n), HRI characters are not printed.

## [ESC+BD] Barcode (Ratio 2:5)

Hexadecimal code	ESC	BD	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <44> <sub>16</sub>	abbcccn...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying a barcode with a ratio of 2:5 between narrow bar and wide bar.

### [Format]

<BD>abbcccn...n

- Parameter

a [Barcode type] = Refer to table below

b [Narrow bar width] = Valid range : 01 to 12 dots

c [Barcode height] = Valid range : 001 to 999 dots

n [Print data] = Data

Barcode types (Ratio of module composition may not be available depending on the barcode.)

a	Barcode type	Contents	Ratio
0	UNICODE(NW-7)	Set print data including Start/Stop character. Start/Stop characters are [A, B, C, D, E, N, T, a, b, c, d, e, n, t]. Note that scan result of the characters [E, N, T, a, b, c, d, e, n, t] is [D, B, A, A, B, C, D, D, B, A]. e.g.) When barcode print data is [123], specify [A123A]. Barcode character pitch becomes enabled. For print data, refer to the CODABAR(NW-7) code table.	2:5
1	CODE39	Set print data including Start/Stop character. Start/Stop Character is [*]. e.g.) When barcode print data is [12345], specify [*12345*]. Barcode character pitch becomes enabled. For print data, refer to the CODE39 code table.	2:5
2	ITF	Specify print data in even-numbered digit. If specifying in odd-numbered digit, add "0" to the head of print data. For print data, refer to the ITF code table.	2:5
3	JAN/EAN13	This barcode has guard bars and human-readable characters. For print data, refer to the JAN/EAN13 code table.	Fixed
4	JAN/EAN8	This barcode has guard bars and human-readable characters. For print data, refer to the JAN/EAN8 code table.	Fixed
5	Industrial 2of5	Barcode character pitch becomes enabled. For print data, refer to the Industrial 2of5 code table.	2:5
6	Matrix 2of5	Barcode character pitch becomes enabled. For print data, refer to the Matrix 2of5 code table.	2:5

a	Barcode type	Contents	Ratio
H	UPC-A	This barcode has guard bars and human-readable characters. For print data, refer to the UPC-A code table.	Fixed

#### [Coding Example 1]

Barcode type: CODABAR(NW-7), Narrow bar width: 03, Height of barcode: 120, Print data: A1234A



```
<A>
<V>100<H>100<BD>003120A1234A
<Q>2
<Z>
```

#### [Coding Example 2]

Barcode type: ITF, Narrow bar width: 03, Height of barcode: 120, Print data: 98002345678163



```
<A>
<V>100<H>100<BD>20212098002345678163
<Q>2
<Z>
```

#### [Coding Example 3]

Barcode type: UPC-A, Narrow bar width: 03, Height of barcode: 120, Print data: 20123948573



```
<A>
<V>240<H>100<BD>H0312020123948573
<Q>2
<Z>
```



### [Supplementary Explanation]

- The inter-character pitch of the barcode is valid at CODABAR (NW-7), CODE39, Industrial 2of5 and Matrix 2of5. The barcode inter-character pitch is set by specifying the character pitch <P> immediately before.

If not set, the inter-character pitch will be of the same size as a narrow space width.

Command	Ratio	Narrow space width	<P> specification	Gap between characters	
				Narrow bar width is [1]	Narrow bar width is [2]
<BD>	2:5	2	None	2	4
			<P>0	2	4
			<P>1	1	2
			<P>2	2	4
			<P>3	3	6
			<P>4	4	8

- For print data of each barcode type, refer to the code tables of barcode.
- HRI for JAN/EAN8, JAN/EAN13 and UPC-A are printed only when the narrow bar width is specified with 03 or 04.

HRI will not be printed if the value other than the listed above is specified.

### [Notes]

- If the value other than valid range is set, command error will occur and barcode will not be printed.
- A barcode that exceeds the printable area will not be printed.
- Increasing narrow bar width may exceed the printing area.
- Scanner may not read the barcode with valid character pitch when Character Pitch <P> is increased. Also, increasing the narrow bar width may cause the same type of problem. For more information, refer to the documentation of your scanner.
- For specifying the narrow bar width, consider the reading compatibility of scanner and head density beforehand.
- Adjust Print Speed <CS> or Print Darkness <#F> if there is a problem in barcode reading.
- Matrix 2of5 will be expressed as Coop2of5/NEC2of5.
- If Start/Stop character is not included in print data at the time of CODABAR (NW-7) or CODE39 specified, barcode will be printed; however, scanner cannot read it.
- If sending the print data including check digit at the time of JAN/EAN-13 or JAN/EAN-8 specified, set the correct calculated value. Barcode will be printed even when the data includes improper check digit; however, scanner cannot read it.

## [ESC+BT] Barcode Ratio Registration

Hexadecimal code	ESC	BT	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <54> <sub>16</sub>	abbccddee
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter is valid until the next specification is made.	
	Valid range between items	The set parameter is valid until the next specification is made.	

### [Function]

Specifying the ratio of the narrow bar in regard to the wide bar.

### [Format]

<BT>abbccddee

- Parameter

a [Barcode type]

0: CODABAR(NW-7)

1: CODE39

2: ITF

5: Industrial 2of5

6: Matrix 2of5 (Coop2of5, NEC2of5)

b [Narrow space] = Valid range : 01 to 99 dots

c [Wide space] = Valid range : 01 to 99 dots

d [Narrow bar] = Valid range : 01 to 99 dots

e [Wide bar] = Valid range : 01 to 99 dots

### [Coding Example]

Barcode type: CODE39, Narrow space: 03, Wide space: 05, Narrow bar: 03, Wide bar: 05



<A>

**<BT>103050305**

<V>100<H>200<BW>01233\*ABCD\*

<Q>2

<Z>

### [Supplementary Explanation]

- To print barcode with specified ratio, insert Barcode print by specified ratio <BW> after this command.
- When <BW> and the Print Quantity <Q> command are not specified, only the registration of bar width ratio of narrow and wide bars will be performed.
- Only one ratio can be registered.
- If the data other than specified is set, this will not be registered due to command error.
- Matrix 2of5 will be expressed as Coop2of5/NEC2of5.

## [ESC+BW] Barcode Print by Specified Ratio

Hexadecimal code	ESC	BW	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <57> <sub>16</sub>	aabbbn...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying barcode ratio, saved by <BT>.

### [Format]

<BW>aabbbn...n

- Parameter

a [Narrow bar] = Valid range : 01 to 12 dots

b [Height of Barcode] = Valid Range : 001 to 999 (dots)

n [Print data] = Barcode data

### [Coding Example]

Narrow bar: 02, Height of Barcode: 120



<A>

<BT>103060306

<V>100<H>200<BW>02120\*ABCD\*

<Q>2

<Z>

### [Supplementary Explanation]

- The inter-character pitch of the barcode is valid at CODABAR (NW-7), CODE39, Industrial 2of5 and Matrix 2of5. The barcode inter-character pitch is set by specifying the character pitch <P> immediately before.

If not set, the inter-character pitch will be of the same size as a narrow space and will become multiples of a narrow bar.

e.g.)

Command	Ratio	Narrow space width	<P> specification	Gap between characters	
				Narrow bar width is [1]	Narrow bar width is [2]
<BT>	3:5	3	None	3	6
			<P>0	3	6
			<P>1	1	2
			<P>2	2	4
			<P>3	3	6
			<P>4	4	8

- If there is no Registration of Bar Width Ratio <BT>, barcode based on pre-registered bar width ratio of narrow and wide bars will be printed. Note that specification of <BT> is required beforehand to print.
- For print data of each barcode type, refer to the code tables of barcode.

### [Notes]

- If the value other than valid range is set, command error will occur and barcode will not be printed.
- A barcode that exceeds the printable area will not be printed.
- Increasing narrow bar width may exceed the printing area and may not be printed.
- Scanner may not read the barcode with valid character pitch when Character Pitch <P> is increased. Also, increasing the narrow bar width may cause the same type of problem. For more information, refer to the documentation of your scanner.
- For specifying the narrow bar width, consider the reading compatibility of scanner and head density beforehand.
- Adjust Print Speed <CS> or Print Darkness <#F> if there is a problem in barcode reading.
- Matrix 2of5 will be expressed as Coop2of5/NEC2of5.
- If Start/Stop character is not included in print data at the time of CODABAR (NW-7) or CODE39 specified, barcode will be printed; however, scanner cannot read it.

# CODABAR (NW-7) Code table

					S				I				S				O			
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0				0												
0	0	0	1	1				1	A		a									
0	0	1	0	2				2	B		b									
0	0	1	1	3				3	C		c									
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5				5	E		e									
0	1	1	0	6				6												
0	1	1	1	7				7												
1	0	0	0	8				8												
1	0	0	1	9				9												
1	0	1	0	A			*	:												
1	0	1	1	B			+													
1	1	0	0	C																
1	1	0	1	D			-													
1	1	1	0	E			.		N		n									
1	1	1	1	F			/													

- As a standard, 0x20 (SP) is not available, and no error will occur to this product and space will be printed due to the specification.

CODE39 Code table

					S								I								S								O							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1							
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	0	0	1	1	0	0	1	1	1	1							
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1							
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F																
0	0	0	0	0			SP	0		P																										
0	0	0	1	1				1	A	Q																										
0	0	1	0	2				2	B	R																										
0	0	1	1	3				3	C	S																										
0	1	0	0	4			\$	4	D	T																										
0	1	0	1	5			%	5	E	U																										
0	1	1	0	6				6	F	V																										
0	1	1	1	7				7	G	W																										
1	0	0	0	8				8	H	X																										
1	0	0	1	9				9	I	Y																										
1	0	1	0	A			*		J	Z																										
1	0	1	1	B			+		K																											
1	1	0	0	C					L																											
1	1	0	1	D			-		M																											
1	1	1	0	E			.		N																											
1	1	1	1	F			/		O																											

## [ESC+BI] GS1-128 (UCC/EAN128) (Standard Carton ID Only)

Hexadecimal code	ESC	BI	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <49> <sub>16</sub>	aabbbcn...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying GS1-128 (UCC/EAN128) barcode for Standard Carton ID.

### [Format]

<BI>aabbbcn...n

- Parameter

- a [Narrow bar width] = Valid range : 01 to 12 dots
- b [Height of Barcode] = Valid Range : 001 to 999 dots
- c [Barcode expository font specification]
  - 0: No HRI
  - 1: HRI is available (Upper part of barcode)
  - 2: HRI is available (Under part of barcode)
- n [Print data] = Barcode data (Fixed 17 digits)

For barcode data, refer to the GS1-128 (UCC/EAN128) code table.  
EAN128 (Barcode for Standard Carton ID)

- Identifier of a continuous code for freight packaging
- Type of packaging
- Country/manufacture code
- Serial No. for shipping container
- Check digit

Note that check digit is automatically added; therefore, specify data in 17 digits excluding check digit.

### [Coding Example 1]

Narrow bar width: 05, Height of barcode: 080, HRI: Available (Under part of barcode), Print data: 12345678901234567



<A>  
 <V>100<H>200<BI>05080212345678901234567  
 <Q>2  
 <Z>

### [Coding Example 2]

Narrow bar width: 04, Height of barcode: 150, HRI: No, Print data: 123456789+ calendar data

<A>

<V>100<H>200  
**<BI>041500<WU>123456789>ZDDMMYYhh>Z**  
 <Q>2  
 <Z>

### [Supplementary Explanation]

- UCC128 code is exclusive to Standard Carton ID. When printing in EAN128, designed for the markets in the medical, fresh food, or flowers and plants, use CODE128 Barcode <BG> to specify print data with application identification or separator that matches each specification.
- Start character code, function character, end character code, and identification code (corresponds to [00] only) are added automatically.
- Modulus 10 check character and modulus 103 check character are automatically generated.
- Sequential number of barcode data is available.
- Line pitch between barcode and expository font is fixed at 10 dots.
- If the width of expository font is wider than that of barcode, it starts printing from the print start position of barcode.
- If the width of expository font is narrower than that of barcode, expository font will be aligned to the center of barcode for printing.
- Prints expository font in OCR-B.
- If expository font is outside of printing area, it will not be printed. When selecting [HRI is available], specify Vertical Print Position <V> and Horizontal Print Position <H> in consideration of print of expository font.
- If the bar code commentary font specification to specify other than 0, 1, 2, operation is the same as the bar code commentary font specified 0.

**ITF, Matrix 2of5, Industrial 2of5, UPC-A, JAN/EAN8, JAN/EAN13, UPC-E, GS1-128 (UCC/EAN128), MSI Code table**

					S				I				S				O			
					B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
					B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1
					B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1
					B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0				0												
0	0	0	1	1				1												
0	0	1	0	2				2												
0	0	1	1	3				3												
0	1	0	0	4				4												
0	1	0	1	5				5												
0	1	1	0	6				6												
0	1	1	1	7				7												
1	0	0	0	8				8												
1	0	0	1	9				9												
1	0	1	0	A																
1	0	1	1	B																
1	1	0	0	C																
1	1	0	1	D																
1	1	1	0	E																
1	1	1	1	F																



## [ESC+BC] CODE93 Barcode

Hexadecimal code	ESC	BC	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <43> <sub>16</sub>	aabbccn...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying CODE93 barcode.

### [Format]

<BC>aabbccn...n

- Parameter

a [Narrow bar width] = Valid range : 01 to 12 dots

b [Height of Barcode] = Valid Range : 001 to 999 dots

c [Digit number of data] = Valid Range : 01 to 99

n [Print data] = Barcode data (Refer to the CODE93 – Code Table.)

### [Coding Example]

Narrow bar width: 02, Barcode height: 120, Number of digit: 12, Print data: ABCD123456xy



<A>

<V>100<H>200<BC>0212012ABCD123456xy

<Q>2

<Z>

### [Supplementary Explanation]

- Check Digit is an auto-generation.
- Start code and stop code will be automatically added.
- Maximum entry digit number of data is 99.
- [Digit number of data] and number of input data have to be equal.
- Command error will occur when number of input data and [Digit number of data] are not matched.

CODE93 Code table

					S								I								S								O							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1									
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1									
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0									
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F																
0	0	0	0	0			SP	0	@	P	`	p																								
0	0	0	1	1			!	1	A	Q	a	q																								
0	0	1	0	2			"	2	B	R	b	r																								
0	0	1	1	3			#	3	C	S	c	s																								
0	1	0	0	4			\$	4	D	T	d	t																								
0	1	0	1	5			%	5	E	U	e	u																								
0	1	1	0	6			&	6	F	V	f	v																								
0	1	1	1	7			'	7	G	W	g	w																								
1	0	0	0	8			(	8	H	X	h	x																								
1	0	0	1	9			)	9	I	Y	i	y																								
1	0	1	0	A			*	:	J	Z	j	z																								
1	0	1	1	B			+	;	K	[	k	{																								
1	1	0	0	C			,	<	L	\	l																									
1	1	0	1	D			-	=	M	]	m	}																								
1	1	1	0	E			.	>	N	^	n	-																								
1	1	1	1	F			/	?	O	_	o	DEL																								

[00H to 7FH] can be available for CODE93.

## [ESC+BG] CODE128 (128A, 128B, 128C) Barcode

Hexadecimal code	ESC	BG	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <47> <sub>16</sub>	aabbbn...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying CODE128 barcode.

### [Format]

<BG>aabbbn...n

- Parameter

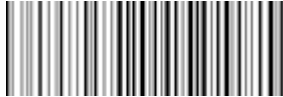
a [Narrow bar width] = Valid range : 01 to 12 dots

b [Height of Barcode] = Valid Range : 001 to 999 dots

n [Print data] = Barcode data (Refer to the CODE128 – Code Table.)

### [Coding Example]

Narrow bar width: 02, Barcode height: 120, Print data: ABCD123456 (Start character A)



<A>

<V>100<H>200<BG>02120<GABCD123456

<Q>2

<Z>

### [Supplementary Explanation]

- Specify [START CODE] at the head of print data.
  - START CODE A = [>G]
  - START CODE B = [>H]
  - START CODE C = [>I]
- C/D is an auto-generation.
  - When using "START CODE C," specify print data in even-numbered digit.
  - When "START CODE C" is set to print data in odd-number digit, specify "START CODE A" or "B" to change the first one character of print data. And then specify the rest of data with "Code Set Character C" to change it to even-numbered digit.
    - e.g.1) 15 digits [123456789012345] : <B>1<C>23456789012345
    - e.g.2) 9 digits / Alphanumeric 6 digits [123456789ABC123] : <C>12345678<B>9ABC123
  - When odd digits are specified with START CODE C, the behavior changes depending on the settings of this product.
  - When start character is omitted, data will be printed with "START CODE B."

# CODE128 Code table

VALUE	Code A	Code B	Code C
0	SP	SP	00
1	!	!	01
2	"	"	02
3	#	#	03
4	\$	\$	04
5	%	%	05
6	&	&	06
7	'	'	07
8	(	(	08
9	)	)	09
10	*	*	10
11	+	+	11
12	,	,	12
13	-	-	13
14	.	.	14
15	/	/	15
16	0	0	16
17	1	1	17
18	2	2	18
19	3	3	19
20	4	4	20
21	5	5	21
22	6	6	22
23	7	7	23
24	8	8	24
25	9	9	25
26	:	:	26
27	;	;	27
28	<	<	28
29	=	=	29
30	> (Note4.)	> (Note4.)	30
31	?	?	31
32	@	@	32
33	A	A	33
34	B	B	34
35	C	C	35
36	D	D	36
37	E	E	37
38	F	F	38
39	G	G	39
40	H	H	40
41	I	I	41
42	J	J	42
43	K	K	43
44	L	L	44
45	M	M	45
46	N	N	46
47	O	O	47
48	P	P	48

VALUE	Code A	Code B	Code C
55	W	W	55
56	X	X	56
57	Y	Y	57
58	Z	Z	58
59	[	[	59
60	\	\	60
61	]	]	61
62	^	^	62
63	—	—	63
64	NUL >SP	‘ >SP	64
65	SOH >!	a >!	65
66	STX >”	b >”	66
67	ETX >#	c >#	67
68	EOT >\$	d >\$	68
69	ENQ >%	e >%	69
70	ACK >&	f >&	70
71	BEL >’	g >’	71
72	BS >(	h >(	72
73	HT >)	i >)	73
74	LF >*	j >*	74
75	VT >+	k >+	75
76	FF >,	l >,	76
77	CR >—	m >—	77
78	SO >.	n >.	78
79	SI >/	o >/	79
80	DLE >0	p >0	80
81	DC1 >1	q >1	81
82	DC2 >2	r >2	82
83	DC3 >3	s >3	83
84	DC4 >4	t >4	84
85	NAK >5	u >5	85
86	SYN >6	v >6	86
87	ETB >7	w >7	87
88	CAN >8	x >8	88
89	EM >9	y >9	89
90	SUB >:	z >:	90
91	ESC >;	{ >;	91
92	FS ><	><	92
93	GS >=	} >=	93
94	RS >>	~ >>	94
95	US >?	DEL >?	95
96	FNC3 >@	FNC3 >@	96
97	FNC2 >A	FNC2 >A	97
98	SHIFT >B	SHIFT >B	98
99	Code-C >C	Code-C >C	99
100	Code-B >D	FNC4 >D	Code-B >D
101	FNC4 >E	Code-A >E	Code-A >E
102	FNC1 >F	FNC1 >F	FNC1 >F
103	START CODE A >G		
104	B >H		
105	C >I		

#### Note

- If START character (start code) is omitted, it works as code B, but 2-byte characters cannot be specified.
- STOP character (stop code) is added in this product automatically.
- Code after VALUE64 in Code A and Code B should be specified as 2 character code with ">" attached.
- Specification code for ">" is ">J."

## [ESC+BP] POSTNET

Hexadecimal code	ESC	BP	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <50> <sub>16</sub>	n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying POSTNET barcode.

### [Format]

<BP>n...n

- Parameter

n = Print data (Refer to the POSTNET Code Table)

Note that the digits other than specified below are not allowed.

- 5 digits (POSTNET-32 format)
- 6 digits (POSTNET-37 format)
- 9 digits (POSTNET-52 format)
- 11 digits (POSTNET-62 Delivery Point format)

### [Coding Example]

Postal code: 11 digits: 01234567890

<A>

<V>100<H>200<BP>**01234567890**

<Q>2

<Z>

### [Supplementary Explanation]

- If specifying the value other than 5, 6, 9, and 11 digits for print data, it will be ignored.
- Only numeric can be specified as print data.

POSTNET Code table

						S				I				S				O			
					B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
					B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
					B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
					B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	0	0	0				0													
0	0	0	1	1				1													
0	0	1	0	2				2													
0	0	1	1	3				3													
0	1	0	0	4				4													
0	1	0	1	5				5													
0	1	1	0	6				6													
0	1	1	1	7				7													
1	0	0	0	8				8													
1	0	0	1	9				9													
1	0	1	0	A																	
1	0	1	1	B																	
1	1	0	0	C																	
1	1	0	1	D																	
1	1	1	0	E																	
1	1	1	1	F																	

## [ESC+BF] UPC Add-on (Bookland)

Hexadecimal code	ESC	BF	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <46> <sub>16</sub>	aabbbn...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying UPC Add-on code (Bookland).

### [Format]

<BF>aabbbn...n

- Parameter

a [Narrow bar width] = Valid range : 01 to 12 dots

b [Height of barcode] = Valid range : 001 to 999 dots

n [Print data] = Numeric (0 to 9) : 2, 5 digits

### [Coding Example]

Narrow bar: 03, Height of Barcode: 120



<A>

<H>325<V>725<BD>H0315009827721123

<H>640<V>760<BF>**0312021826**

<H>655<V>730<OB>21826

<Q>1

<Z>

### [Supplementary Explanation]

- If specifying the value other than 2 and 5 digits, barcode will not be printed.
- Only numeric can be specified as print data. (Refer to code table.)
- No HRI
- When printed only UPC add-on <BF>, it cannot be scanned.  
Scan is available only when it is printed with UPC code.



UPC Add-on Barcode Code table

						S				I				S				O			
					B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
					B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
					B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
					B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	0	0	0				0													
0	0	0	1	1				1													
0	0	1	0	2				2													
0	0	1	1	3				3													
0	1	0	0	4				4													
0	1	0	1	5				5													
0	1	1	0	6				6													
0	1	1	1	7				7													
1	0	0	0	8				8													
1	0	0	1	9				9													
1	0	1	0	A																	
1	0	1	1	B																	
1	1	0	0	C																	
1	1	0	1	D																	
1	1	1	0	E																	
1	1	1	1	F																	

## [ESC+BL] UPC-A Barcode (Without HRI)

Hexadecimal code	ESC	BL	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <4C> <sub>16</sub>	abbcccn...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Set the height of character barcode of the first digit and the last digit to the same height of the guard bar.

### [Format]

<BL>abbcccn...n

- Parameter

a [Barcode type] = H : UPC-A(Fixed 'H')

b [Narrow bar width] = Valid range : 01 to 12 dots

c [Height of Barcode] = Valid Range : 001 to 999 dots

n [Print data] = Data : 11 fixed digits

### [Coding Example]

Barcode type: UPC-A, Narrow bar width: 03, Height of barcode: 120, Print data: 01234567890

<A>

<H>100<V>100<BL>**H0312001234567890**

<Q>2

<Z>

### [Supplementary Explanation]

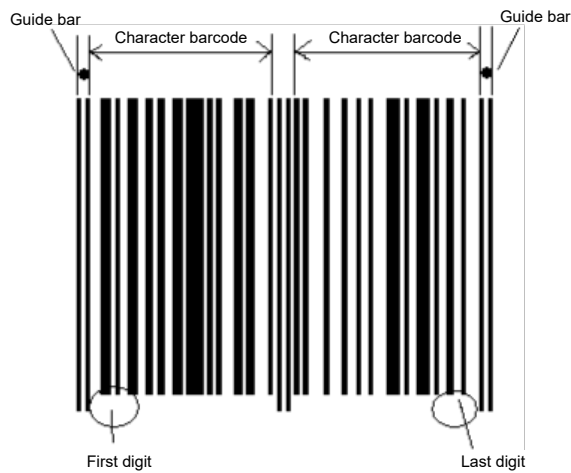
- This command supports UPC-A only. When barcode type is specified other than "H," command error occurs.
- Setting of Guard bar, HRI and ratio is described as follows.

Guard bar: Available

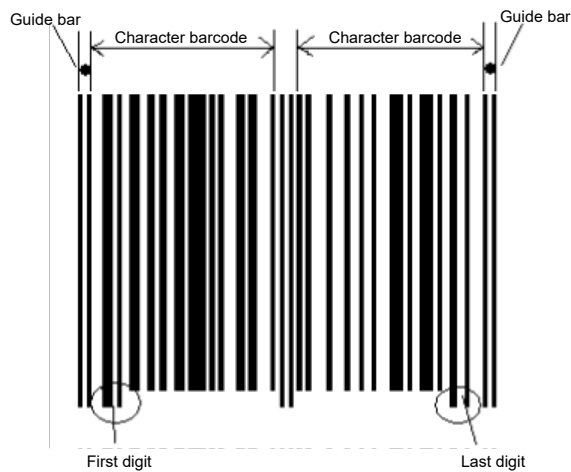
HRI: Nil

Ratio: Fix

- When the parameter value exceeds the range, operation is not supported.
- When printing UPC-A with <D>, all character barcodes have the same height. When <BL> is used, the height of the character barcode of the start digit and the last digit have the same height of the guard bar.



**UPC-A specifying <D>**



**UPC-A specifying <BL>**

## [ESC+BL] ~ [ESC+d] UPC-A Barcode (Specifying HRI)

Hexadecimal code	ESC	BL~d	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <4C> <sub>16</sub> ~ character type	abbcccn...n ~ <d>n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Set the height of character barcode of the first digit and the last digit to the same height of the guard bar.

### [Format]

<BL>abbcccn...n~<d>n...n

- Parameter

a [Barcode type] = H : UPC-A (Fixed 'H')  
b [Narrow bar width] = Valid range : 01 to 12 dots  
c [Height of barcode] = Valid range : 001 to 999 dots  
n [Print data] = Data : Fixed 11 digit  
d [Font type]  
OA  
OB  
XU  
XS  
XM  
XB  
XL

n [Print data] = HRI data : fixed 12 digits

### [Coding Example]

Barcode type: UPC-A, Narrow bar width: 02, Barcode height: 120, Barcode data: 01234567890,  
Font type: XS, HRI data: 01234567890

<A>  
<H>100<V>100<BL>**H0212001234567890**  
<XS>01234567890  
<Q>2  
<Z>

### [Supplementary Explanation]

- This command supports UPC-A only. When barcode type is specified other than "H," command error occurs.
- Recommended to specify [03] or [04] for the narrow bar width.
- Check digit (12th digit) for HRI data should be set the calculation result of modulus 10.
- Setting of Guard bar, HRI and ratio is described as follows.

Guard bar: Available

HRI: Available

Ratio: Fix

- When the parameter value exceeds the range, operation is not supported.
- HRI will not be printed when barcode is an error for barcode with HRI.
- All character barcode have the same height when printing UPC-A specifying <D> and then <font>. The first and the last character barcode have the same height to the guard bar when printing UPC-A specifying <BL> and then <font>. When printing UPC-A specifying <D> and <font>, HRI can be printed under the first digit and the last digit because the height of the first digit and the last digit of the barcode is low. When printing UPC-A specifying <BL> and <font>, the height of the first digit and the last digit of the barcode is high, and the font interval is narrower than previous case.



**UPC-A specifying <D> + <font>**



**UPC-A specifying <BL> + <font>**

## [ESC+BM] UPC-A Barcode (With HRI)

Hexadecimal code	ESC	BM	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <4D> <sub>16</sub>	abbcccn...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Set the height of character barcode of the first digit and the last digit to the same height of the guard bar.

### [Format]

<BM>abbcccn...n

- Parameter

a [Barcode type] = H : UPC-A(Fixed 'H')

b [Narrow bar width] = Valid range : 01 to 12 dots

c [Height of Barcode] = Valid Range : 001 to 999 dots

n [Print data] = Data : 11 fixed digits

### [Coding Example]

Barcode type: UPC-A, Narrow bar width: 02, Height of barcode: 120, Print data: 20123948573

<A>

<H>100<V>100<BM>**H0212020123948573**

<Q>2

<Z>

### [Supplementary Explanation]

- This command supports UPC-A only. When barcode type is specified other than "H," command error occurs.
- HRI is printed only when the narrow bar width is specified with 03 or 04.  
HRI will not be printed if the value other than the listed above is specified.
- Setting of Guard bar, HRI and ratio is described as follows.

Guard bar: Available

HRI: Available

Ratio: Fix

- When the parameter value exceeds the range, operation is not supported.
- When printing UPC-A with <BD>, all character barcodes have the same height. When <BM> is used, the height of the character barcode of the start digit and the last digit have the same height of the guard bar. When printing UPC-A with <BD>, HRI can be printed under the first digit and the last digit because the height of the first digit and the last digit of the barcode is low. When printing UPC-A specifying <BM>, the height of the first digit and the last digit of the barcode is high, and the font interval is narrower than previous case.



UPC-A specifying <BD>



UPC-A specifying <BM>

## [ESC+EU] Composite Symbol

Hexadecimal code	ESC	EU	Parameter
	<1B> <sub>16</sub>	<45> <sub>16</sub> <55> <sub>16</sub>	aabbccn...n aabbcccn...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying the composite symbol of EAN and UCC.

### [Format 1]

<EU>aabbccn...n

- Parameter

a [Type of composite symbol]

- 01 : GS1 DataBar Composite (CC-A/CC-B)
- 02 : GS1 DataBar Truncated Composite (CC-A/CC-B)
- 03 : GS1 DataBar Stacked Composite (CC-A/CC-B)
- 04 : GS1 DataBar Stacked Omni-Directional (CC-A/CC-B)
- 05 : GS1 DataBar Limited Composite (CC-A/CC-B)
- 06 : GS1 DataBar Expanded Composite (CC-A/CC-B)
- /GS1 DataBar Expanded Stacked (CC-A/CC-B)
- 07 : UPC-A Composite (CC-A/CC-B)
- 08 : UPC-E Composite (CC-A/CC-B)
- 09 : EAN13 Composite (CC-A/CC-B)
- 10 : EAN8 Composite (CC-A/CC-B)

b [Narrow bar] = 01 to 12 dots

c [Segment width] = 02 to 22 (Even number only)

\* Only GS1 DataBar Expanded Composite (CC-A/CC-B) are supported.

n [Print data] = Data

Maximum number of digit for 1D barcode data

GS1 DataBar Composite (CC-A/CC-B)	13 digits
GS1 DataBar Truncated Composite (CC-A/CC-B)	13 digits
GS1 DataBar Stacked Composite (CC-A/CC-B)	13 digits
GS1 DataBar Stacked Omni-Directional (CC-A/CC-B)	13 digits
GS1 DataBar Limited Composite (CC-A/CC-B)	13 digits
GS1 DataBar Expanded Composite (CC-A/CC-B)	74 digits
/GS1 DataBar Expanded Stacked (CC-A/CC-B)	
UPC-A Composite (CC-A/CC-B)	11 digits
UPC-E Composite (CC-A/CC-B)	Fixed 10 digits
Specify with "XX00000XXX" (X: variable) format.	
EAN13 Composite (CC-A/CC-B)	12 digits
EAN8 Composite (CC-A/CC-B)	7 digits



- Check digit is automatically calculated and added.
- To specify the print of composite symbol, delimit one-dimensional data and two-dimensional data with '|' (7Ch).  
Data = One-dimensional data | Two-dimensional data
- Data of GS1 DataBar Composite (CC-A/CC-B) are needed to be specified between the 1st and 16th digit of GS1 DataBar Expanded Composite (CC-A/CC-B) data.
- GS1 DataBar Expanded Composite (CC-A/CC-B) can contain GS1 DataBar Composite (CC-A/CC-B) data and 74 digits of numeric character and 41 digits of alphabet.  
(When numeric characters and alphabets are mixed, GS1 DataBar Composite (CC-A/CCB) data and 41 digit characters can be specified.)
- When specified data do not reach the maximum digits, blank is filled by zero.
- 2D data can contain up to 338 digits, but it varies by the type of Barcode.
- Barcode may stick out of the label depending on data and the number of digit, and scanner cannot read it. Adjust print data beforehand so that the barcode can fit to the label.
- For UPC-A Composite, you can only specify 11 digits for data entry, however when 12 digits is specified for the compatibility purpose, EAN13 Composite (CC-A/CC-B) is generated.

## [Format 2]

<EU>aabbcccn...n

- Parameter

a [One-dimensional barcode type]

11 : GS1-128 Composite (CC-A/CC-B)

12 : GS1-128 Composite (CC-C)

b [Minimum bar width] = 01 to 12 dots

c [Barcode height] = 001 to 500 dots

\* Specify barcode height when minimum bar width is "01."

\* When specifying minimum bar width "03," Barcode height "100,"

Barcode height become 300 dots.

n [Print data] = Data

Maximum number of digits that can specify by merging 1D and 2D (There is a limit for the maximum number of digits of 1D data.)

GS1-128 (UCC/EAN128) with CC-A/B	338 digits
GS1-128 (UCC/EAN128) with CC-C	2324 digits

Maximum number of digits that can specify 1D data

GS1-128 (UCC/EAN128) with CC-A/B	48 digits
GS1-128 (UCC/EAN128) with CC-C	48 digits

- To specify the print of composite symbol, delimit one-dimensional data and two-dimensional data with '|' (7Ch).

Data = One-dimensional data | Two-dimensional data

- Use '#'(23H) to specify CC-A/B (Micro RDF), FNC1 (GS) of CC-C (for PDF417) as data.
- 2D data for GS1-128 (UCC/EAN128) With CC-A/B can contain up to 338 digits.
- When 2D data of GS1-128 (UCC/EAN128) with CC-A/B are less than 56 digits, it is identified as CC-A, and identified as CC-B when data size is between 57 digits and 338 digits automatically.

#### [Coding Example 1]

GS1 DataBar Composite (CC-A/CC-B)



<A>  
<V>100<H>100  
<EU>01040361234567890|11990102  
<Q>1  
<Z>

#### [Coding Example 2]

GS1 DataBar Truncated Composite (CC-A/CC-B)



<A>  
<V>100<H>100  
<EU>02040361234567890|11990102  
<Q>1  
<Z>

#### [Coding Example 3]

GS1 DataBar Stacked Composite (CC-A/CC-B)



<A>  
<V>100<H>100  
<EU>03040341234567890|17010200  
<Q>1  
<Z>

#### [Coding Example 4]

GS1 DataBar Stacked Omni-Directional (CC-A/CC-B)



<A>  
<V>100<H>100  
<EU>04040341234567890|17010200  
<Q>1  
<Z>

#### [Coding Example 5]

GS1 DataBar Limited Composite (CC-A/CC-B)



<A>  
<V>100<H>100 <EU>05040351234567890|21ABCDEFGHIJKLMNOPQRSTUVWXYZ  
<Q>1  
<Z>

#### [Coding Example 6]

GS1 DataBar Expanded Composite(CC-A/CC-B)



<A>  
<V>100<H>100  
<EU>0605220104912345678904  
<Q>1  
<Z>

#### [Coding Example 7]

GS1 DataBar Expanded Stacked(CC-A/CC-B)



<A>  
<V>100<H>100  
<EU>0605020104912345678904  
<Q>1  
<Z>

#### [Coding Example 8]

UPC-A Composite (CC-A/CC-B)



<A>  
<V>100<H>100  
<EU>0704331234567890|991234-abcd  
<Q>1  
<Z>

**[Coding Example 9]**

UPC-E Composite (CC-A/CC-B)



<A>  
<V>100<H>100  
<EU>08041200000123|15021231  
<Q>1  
<Z>

**[Coding Example 10]**

EAN13 Composite (CC-A/CC-B)



<A>  
<V>100<H>100  
<EU>0904331234567890|991234-abcd  
<Q>1  
<Z>

**[Coding Example 11]**

EAN8 Composite (CC-A/CC-B)



<A>  
<V>100<H>100  
<EU>10041234567|21A12345678  
<Q>1  
<Z>

**[Coding Example 12]**

GS1-128 Composite (CC-A/CC-B)



<A>  
<V>100<H>100  
<EU>11040260103212345678906|21A1B2C3D4E5F6G7H8

<Q>1  
<Z>

### [Coding Example 13]

GS1-128 Composite (CC-C)



<A>  
<V>100<H>100  
<EU>120402600030123456789012340|02130123456789  
093724#101234567ABCDEFG  
<Q>1  
<Z>

### [Supplementary Explanation]

- Parameter varies depending on one-dimensional barcode type. Segment width can be specified only for DataBar Expanded Composite (CC-A/CC-B) (EU06). Barcode height can be specified only for GS1-128 (UCC/EAN-128) (EU11, EU12).
- If the value is not set to the data portion, composite symbol will not be printed.
- Parameter for print data is available up to 2361 digits including 1D barcode data and 2D barcode data as a specification for this command. Available number for 2D barcode data varies depending on the type of 1D barcode and/or mixture of alphabets and number. When specified data exceed the maximum digits, barcode may not be printed properly.
- Entire size of composite symbol changes depending on the specification of narrow bar width.
- If composite symbol exceeds the printing area, only the portion located within the area will be printed. Also, a scanner might read the value of such composite symbol occasionally.
- Height and width of 2D barcode of the composite symbol is adjusted by 1D barcode data size. When the width of 1D barcode is narrow, it cannot be printed even the size of data is less than the maximum number of digit.
- Print of HRI cannot be designated with this command.
- Rotation <%> is available, and Enlargement <L> is invalid.
- When specifying 11 (production date), 12 (term of payment), 13 (packing date), 15 (sales period), 17 (warranty period) for application identifier, set correct data YYMMDD. When the incorrect date is set, print result is not guaranteed.
- When specifying GS1 DataBar as a barcode type, specify 2D Barcode data with the format based on application identifier.
- GS1 DataBar Expanded Composite (CC-A/CC-B) is stacked automatically by segment width and data size and printed as GS1 DataBar Expanded Stacked (CC-A/CC-B).
- Barcode generation module has been modified for improvement. How the generated image looks may differ due to the change, however the read result is the same.

Code table for Composite Symbol 2D Barcode

						S							I							S							O						
					B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
					B7	0	0	0	0	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1					
					B6	0	0	1	1	0	0	1	1	1	0	0	1	1	0	0	1	1	0	0	1	1	1	1					
					B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0					
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F													
0	0	0	0	0			SP	0		P		p																					
0	0	0	1	1			!	1	A	Q	a	q																					
0	0	1	0	2			”	2	B	R	b	r																					
0	0	1	1	3				3	C	S	c	s																					
0	1	0	0	4				4	D	T	d	t																					
0	1	0	1	5			%	5	E	U	e	u																					
0	1	1	0	6			&	6	F	V	f	v																					
0	1	1	1	7			'	7	G	W	g	w																					
1	0	0	0	8			(	8	H	X	h	x																					
1	0	0	1	9			)	9	I	Y	i	y																					
1	0	1	0	A			*	:	J	Z	j	z																					
1	0	1	1	B			+	;	K		k																						
1	1	0	0	C			,	<	L		l																						
1	1	0	1	D			-	=	M		m																						
1	1	1	0	E			.	>	N		n																						
1	1	1	1	F			/	?	O	—	o																						

\* Use '#'(23H) for specifying FNC1.

## [ESC+BS] USPS Barcode

Hexadecimal code	ESC	BS	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <53> <sub>16</sub>	aabbbccccccddddd(e...e)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Printing USPS code.

### [Format]

<BS>aabbbccccccddddd(e...e)

- Parameter

a [Barcode ID] = Fixed 2 digits

note: 0 to 4 should be specified for the 2nd digit.

b [Service Type ID] = Fixed 3 digits

c [Mailer ID] = Fixed 6 digits

d [Serial Number] = Fixed 9 digits

e [Routing Code] = Fixed 5 digits or fixed 9 digits or fixed 11 digits(can be omitted)

### [Coding Example]

Barcode ID: 53, Service Type ID: 379, Customer Identifier: 777234, Serial Number: 994544928, Routing Code: 51135759461

<A>

<V>100<H>200<BS>**5337977723499454492851135759461**

<Q>1

<Z>

### [Supplementary Explanation]

- For available parameter, refer to USPS code table in next page.

# USPS Code table

						S				I				S				O			
					B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
					B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
					B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
					B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	0	0	0				0													
0	0	0	1	1				1													
0	0	1	0	2				2													
0	0	1	1	3				3													
0	1	0	0	4				4													
0	1	0	1	5				5													
0	1	1	0	6				6													
0	1	1	1	7				7													
1	0	0	0	8				8													
1	0	0	1	9				9													
1	0	1	0	A																	
1	0	1	1	B																	
1	1	0	0	C																	
1	1	0	1	D																	
1	1	1	0	E																	
1	1	1	1	F																	



---

## 2D Codes

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### [ESC+2D10] PDF417

Hexadecimal code	ESC	2D10	Parameter
	<1B> <sub>16</sub>	<32> <sub>16</sub> <44> <sub>16</sub> <31> <sub>16</sub> <30> <sub>16</sub>	,aa,bb,c,dd,ee,(f)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

#### [Function]

Specifying PDF417.

#### [Format] (Setup part)

,aa,bb,c,dd,ee,(f)

- Parameter

a [Minimum module width] = Valid Range : 01 to 09 dots

b [Minimum module height] = Valid Range : 01 to 24 dots

c [Security level] = Valid Range : 0 to 8

d [Number of data code words per one line]

Valid Range : 01 to 30

00 : Automatic (Width varies depending on number of data)

e [Number of line per symbol]

Valid Range : 03 to 90

00 : Automatic (Height varies depending on number of data)

f [Code type]

0 : Normal, When omitted 0(can be omitted)

1 : Truncated

#### [Format] (Data part)

<DN>mmmm,n...n

- Parameter

m [Number of data] = Valid Range : 1 to 2681 bytes

n [Print data] = Data

### [Coding Example 1]

Minimum module width: 03 dots, Minimum module height: 09 dots, Security level: 3, Number of data code words per line: 03, Number of line per symbol: 18



<A>  
<V>100<H>200<2D10>,03,09,3,03,18  
<DN>0010,0123456789  
<Q>2  
<Z>

### [Coding Example 2]

Minimum module width: 03 dots, Minimum module height: 09 dots, Security level: 3, Number of data code words per line: 03, Number of line per symbol: 18, Code type: Truncated

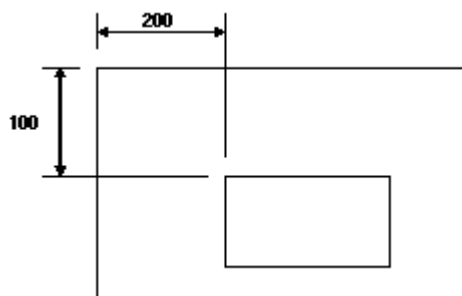


<A>  
<V>100<H>200<2D10>,03,09,3,03,18,1  
<DN>0010,0123456789  
<Q>2  
<Z>

### [Supplementary Explanation]

- Base print position of PDF417 is specified by Vertical Print Position <V> and Horizontal Print Position <H>.

<V>100<H>200<2D10>\*\*\*. . . . . \*\*



- When d=e=00, aspect ratio will be at 1:2 based on the number of print data.
- When parameter d and e does not match number of data, print may not be performed properly.
- When setting security level high, parameter d or e should have large number.
- Recommended to specify 2 dots or more because the minimum module width and minimum module height of QR code may not be read by the scanner.
- Barcode generation module has been modified for improvement. How the generated image looks may differ due to the change, however the read result is the same.
- According to a specifying symbol size, higher security level than specified security level may be set.

### [Points]

- Sequential number is not available.

- Specifying print position by automatic line feed is not available.
- Print 00H to FFH is available.
- Format registration is available.
- Enlarging minimum module size improves print quality.
- Increasing security level improves read rate.
- Print height varies depending on the character such as numeric only, alphabet only or mixture of numeric and alphabets.

#### PDF417 Code table

					S				I				S				O			
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@	P	`	p								
0	0	0	1	1			!	1	A	Q	a	q								
0	0	1	0	2			"	2	B	R	b	r								
0	0	1	1	3			#	3	C	S	c	s								
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7			'	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A			*	:	J	Z	j	z								
1	0	1	1	B			+	;	K	[	k	{								
1	1	0	0	C			,	<	L	¥	l									
1	1	0	1	D			-	=	M	]	m	}								
1	1	1	0	E			.	>	N	^	n	~								
1	1	1	1	F			/	?	O	_	o	DEL								

PDF417 can specify from 00H to FFH.

## [ESC+2D12] Micro PDF417

Hexadecimal code	ESC	2D12	Parameter
	<1B> <sub>16</sub>	<32> <sub>16</sub> <44> <sub>16</sub> <31> <sub>16</sub> <32> <sub>16</sub>	,aa,bb,c,dd(,e)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying Micro PDF417.

### [Format] (Setup part)

<2D12>,aa,bb,c,dd(,e)

- Parameter

- a [Minimum module width] = Valid Range : 01 to 09 dots
- b [Minimum module height] = Valid Range : 01 to 24 dots
- c [Number of data code words per row] (Cols) = Valid Range : 1 to 4
- d [Number of rows per symbol] (Rows) = Valid Range : 2 rows
- e [Binary mode]
  - 0 : Normal, When omitted 0 (Can be omitted)
  - 1 : Binary mode

### [Format] (Data part)

<DN>mmmm,n...n : When [Binary mode] is 1 (Binary mode)

<DS>n...n : When [Binary mode] is 0 (Normal)

- Parameter

- m [Number of data] = Valid Range : 0001 to 0366 bytes
- n [Print data] = Data

### [Coding Example]

Module width: 02 dots, Minimum module height: 04 dots, Data code word per row: 1, Rows per symbol: 14



```
<A>
<V>100<H>200<2D12>,02,04,1,14
<DN>0010,0123456789
<Q>2
<Z>
```

### [Supplementary Explanation]

- Number of row per symbol is decided by number of data code words per row.  
For details, refer to "Micro PDF417 – symbol size and number of data" below.
- Recommended to specify 2 dots or more because the minimum module width and minimum module height of QR code may not be read by the scanner.
- Barcode generation module has been modified for improvement. How the generated image looks may differ due to the change, however the read result is the same.
- Note: Symbol size of Micro PDF417 has 34 types and shown in the table below.

Micro PDF417 – symbol size and number of data

Symbol size		Maximum number of data		
Cols (c)	Rows (d)	Alphabet (A-Z)	Numeric only	Binary mode
1	11	6	8	3
	14	12	17	7
	17	18	26	10
	20	22	32	13
	24	30	44	18
	28	38	55	22
2	8	14	20	8
	11	24	35	14
	14	36	52	21
	17	46	67	27
	20	56	82	33
	23	64	93	38
	26	72	105	43
3	6	10	14	6
	8	18	26	10
	10	26	38	15
	12	34	49	20
	15	46	67	27
	20	66	96	39
	26	90	132	54
	32	114	167	68
	38	138	202	82
	44	162	237	97
4	4	14	20	8
	6	22	32	13
	8	34	49	20
	10	46	67	27
	12	58	85	34
	15	76	111	45
	20	106	155	63
	26	142	208	85

Symbol size		Maximum number of data		
Cols (c)	Rows (d)	Alphabet (A-Z)	Numeric only	Binary mode
	32	178	261	106
	38	214	313	128
	44	250	366	150

- Way of mixing alphabets (Capital, lower case), numeric characters and control codes differs by combination of number of characters.

#### Micro PDF417 Code table

					S								I								S								O							
					B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							
					B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1								
					B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	1	1	1								
					B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1								
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F																
0	0	0	0	0			SP	0	@	P	`	p																								
0	0	0	1	1			!	1	A	Q	a	q																								
0	0	1	0	2			"	2	B	R	b	r																								
0	0	1	1	3			#	3	C	S	c	s																								
0	1	0	0	4			\$	4	D	T	d	t																								
0	1	0	1	5			%	5	E	U	e	u																								
0	1	1	0	6			&	6	F	V	f	v																								
0	1	1	1	7			'	7	G	W	g	w																								
1	0	0	0	8			(	8	H	X	h	x																								
1	0	0	1	9			)	9	I	Y	i	y																								
1	0	1	0	A			*	:	J	Z	j	z																								
1	0	1	1	B			+	;	K	[	k	{																								
1	1	0	0	C			,	<	L	¥	l																									
1	1	0	1	D			-	=	M	]	m	}																								
1	1	1	0	E			.	>	N	^	n	~																								
1	1	1	1	F			/	?	O	_	o	DEL																								

Micro PDF417 can specify 00H to FFH to print data when binary mode is specified.

## [ESC+2D20] MaxiCode

Hexadecimal code	ESC	2D20	Parameter
	<1B> <sub>16</sub>	<32> <sub>16</sub> <44> <sub>16</sub> <32> <sub>16</sub> <30> <sub>16</sub>	,a(,bbb,ccc,d...d)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying MaxiCode.

### [Format] (Setup part)

<2D20>,a(,bbb,ccc,d...d)

- Parameter

a [Mode]

2 : Transportation (Numeric)

3 : Transportation (Alphanumeric)

4 : Standard symbol

6 : Reader programing

\* Following parameter must be specified when specifying mode 2 or mode 3.

When specifying mode 4 or mode 6, the parameter should be omitted.

b [Service class] = Valid Range : 001 to 999 (Numeric)

c [Country code] = Valid Range : 001 to 999 (Numeric)

d [Postal code] = Valid Range : 0 to 999999999 (Mode 2)  
000000 to 999999 (Mode 3)

\* Mode 2: Max 9 digits (Numeric only)

Mode 3: Fixed 6 digits (Capital alphabet)

### [Format] (Data part)

<DN>mmmm,n...n

- Parameter

m [Number of Data] = Valid Range : 1 to 138

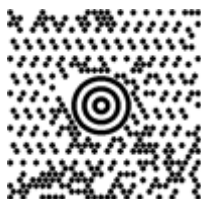
n [Print data] = Data

\* 00H cannot be specified.

Mode	Service class	Country code	Postal code	Maximum print data	
				Numeric only	Alphanumeric
2	Fixed 3 digits (Numeric only)	Fixed 3 digits (Numeric only)	Max. 9 digits	123	84
3			Fixed 6 digits (Alphanumeric)		
4	Omission			138	93
6					

### [Coding Example]

Mode: Transportation (Numeric only), Service class: 003, Country code: 081, Postal code: 123456789



<A>  
 <V>100<H>200<2D20>,2,003,081,123456789  
 <DN>0010,0123456789  
 <Q>2  
 <Z>

### [Supplementary Explanation]

- Size of MaxiCode are not changed by number of data for printing.
- If the parameter other than the description is specified or number of print data does not match, printing is not performed.
- When specifying mode 4 and mode 6, number of print data must be specified over 12. When number of print data is specified less than 11, scanner cannot read printed MaxiCode.
- The maximum number of print data varies depending on the print data combination when using the print data other than alphanumeric code.
- Barcode generation module has been modified for improvement. How the generated image looks may differ due to the change, however the read result is the same.

### MaxiCode Code table

					S				I				S				O			
					B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
					B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1
					B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1
					B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0				SP	0	@	P	`	p							
0	0	0	1	1				!	1	A	Q	a	q							
0	0	1	0	2				"	2	B	R	b	r							
0	0	1	1	3				#	3	C	S	c	s							
0	1	0	0	4				\$	4	D	T	d	t							
0	1	0	1	5				%	5	E	U	e	u							
0	1	1	0	6				&	6	F	V	f	v							
0	1	1	1	7				'	7	G	W	g	w							
1	0	0	0	8				(	8	H	X	h	x							
1	0	0	1	9				)	9	I	Y	i	y							
1	0	1	0	A				*	:	J	Z	j	z							
1	0	1	1	B				+	:	K	[	k	{							
1	1	0	0	C				,	<	L	¥	l								
1	1	0	1	D				-	=	M	]	m	}							
1	1	1	0	E				.	>	N	^	n	~							
1	1	1	1	F				/	?	O	_	o	DEL							



MaxiCode can specify from 01H to FFH.

## [ESC+2D30] QR Code (Model 2)

Hexadecimal code	ESC	2D30	Parameter
	<1B> <sub>16</sub>	<32> <sub>16</sub> <44> <sub>16</sub> <33> <sub>16</sub> <30> <sub>16</sub>	,a,bb,c,d(,ee,ff,gg)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying QR Code (Model 2).

### [Format] (Setup part)

<2D30>,a,bb,c,d(,ee,ff,gg)

- Parameter

a [Error Correction Level]

L : 7%  
M : 15%  
Q : 25%  
H : 30%

b [Size of one side of cell] = Valid Range : 01 to 32 dots

\* Specify more than 02 dots, otherwise scanner may have reading problem.

c [Data setup mode]

0 : Manual setup  
1 : Automatic setup

\* Note that data is specified differently depending on this setting.

d [Concatenation mode]

0 : Normal mode  
1 : Concatenation mode

Following parameter must be specified when specifying 1 (Concatenation mode) in Concatenation mode.  
Omit following parameter in normal mode.

e [Number of partitions of concatenation mode] = Valid Range : 01 to 16

\* Number of partitions: Specifying how many QR code are to be concatenated divided by Concatenation mode.

f [Sequential number partitioned by concatenation mode] = Valid Range : 01 to 16

\* Sequential number: Specifying what number is it of divided QR code.

g [Concatenation mode parity data] = Valid Range : 00 to FF

\* Parity data: Specifying exclusive OR of all the print data in divided QR code with HEX characters.

### [Format] (Data part)

#### Manual setup (Data setup mode)

<DS>k,n...n : Use when input mode specification is Numeric mode, Alphanumeric mode and Kanji mode.

<DN>mmmm,n...n : Use when specifying by binary.

### Automatic setup (Data setup mode)

<DN>mmmm,n...n : Change input mode automatically according to input data.

- Parameter

k [Input mode]

- 1 : Numeric mode
- 2 : Alphanumeric mode
- 3 : Kanji mode (Shift JIS Kanji code)

\* Specify only when specifying Manual setup in Data setting mode.

\* There is binary specification other than above, but data specification command is different.

m [Number of data] = Valid Range : 1 to 2953

\* Specify when specifying Automatic setup in Data setting mode or specifying binary specification in Manual setup.

n [Print data] = Data

### [Format] (version)

<QV>pp : Use when specifying the version.

- Parameter

pp [Version] = 00 to 40 (MODEL2)

\* This setting is used when fixing the size of QR symbol with the version command. When not specified, it becomes Auto. Specifying 00 also becomes Auto. It does not become a parameter error from 00 to 40.

\* Refer to "[ESC+QV] QR code version" for details.

### [Supplementary Explanation1]

- When specifying Kanji in <DN>, specify size that is 2 x number of Kanji characters.
- For <DN> in Automatic setup, when 80H to 9FH and E0H to FFH is specified as data, it is handed as Kanji mode, and cannot specify them as binary.

### [Coding Example 1]

Error correction level: 7%, Size of one side of cell: 05, Data setup mode: Manual setup, Concatenation mode: Normal



<A>

<V>100<H>200<2D30>,L,05,0,0

<DS>1,012345

<Q>2

<Z>

### [Supplementary Explanation2]

- If the parameter other than the description is specified or number of print data does not match, printing is not performed.
- Data specification command in data part varies according to parameter setup or specified data.

### [Coding Example 2]

Error correction level: 7%, Size of one side of cell: 04, Mixed specification of Manual setup (Data setup mode)

In Manual setup, you can proceed specifying data in specified input mode (Numeric, Alphanumeric, Kanji, Binary).

<A>  
<V>100<H>200  
<2D30>,L,04,0,0  
<DS>3,サトー  
<DN>0010,0123456789  
<DS>1,123  
<Q>1  
<Z>

### [Supplementary Explanation3]

- Parameter part to be followed by Data part. Data part and data part should be specified in a row. When do not specify in a row, print result may not be secured.
- Total number of data (n) need to be less than 7000 bytes. Maximum number of blocks in data part specified in a row is 200.

### [Coding Example 3]

Error correction level: 7%, Size of one side of cell: 05, Data setup mode: Manual setup,  
Concatenation mode: Normal, Version 5

<A>  
<V>100<H>200<2D30>,L,05,0,0  
<QV>5  
<DS>1,012345  
<DN>0004,6789  
<Q>1  
<Z>

## QR Code data size list (Model 2)

Version	Error Correction	Numeric	Alpha-Numeric	Kanji	Binary
1  21 × 21	L	41	25	10	17
	M	34	20	8	14
	Q	27	16	7	11
	H	17	10	4	7
2  25 × 25	L	77	47	20	32
	M	63	38	16	26
	Q	48	29	12	20
	H	34	20	8	14
3  29 × 29	L	127	77	32	53
	M	101	61	26	42
	Q	77	47	20	32
	H	58	35	15	24
4  33 × 33	L	187	114	48	78
	M	149	90	38	62
	Q	111	67	28	46
	H	82	50	21	34
5  37 × 37	L	255	154	65	106
	M	202	122	52	84
	Q	144	87	37	60
	H	106	64	27	44
6  41 × 41	L	322	195	82	134
	M	255	154	65	106
	Q	178	108	45	74
	H	139	84	36	58
7  45 × 45	L	370	224	95	154
	M	293	178	75	122
	Q	207	125	53	86
	H	154	93	39	64
8  49 × 49	L	461	279	118	192
	M	365	221	93	152
	Q	259	157	66	108
	H	202	122	52	84
9  53 × 53	L	552	335	141	230
	M	432	262	111	180
	Q	312	189	80	130
	H	235	143	60	98
10  57 × 57	L	652	395	167	271
	M	513	311	131	213
	Q	364	221	93	151
	H	288	174	74	119

Version	Error Correction	Numeric	Alpha-Numeric	Kanji	Binary
11  61 × 61	L	772	468	198	321
	M	604	366	155	251
	Q	427	259	109	177
	H	331	200	85	137
12  65 × 65	L	883	535	226	367
	M	691	419	177	287
	Q	489	296	125	203
	H	374	227	96	155
13  69 × 69	L	1022	619	262	425
	M	796	483	204	331
	Q	580	352	149	241
	H	427	259	109	177
14  73 × 73	L	1101	667	282	458
	M	871	528	223	362
	Q	621	376	159	258
	H	468	283	120	194
15  77 × 77	L	1250	758	320	520
	M	991	600	254	412
	Q	703	426	180	292
	H	530	321	136	220
16  81 × 81	L	1408	854	361	586
	M	1082	656	277	450
	Q	775	470	198	322
	H	602	365	154	250
17  85 × 85	L	1548	938	397	644
	M	1212	734	310	504
	Q	876	531	224	364
	H	674	408	173	280
18  89 × 89	L	1725	1046	442	718
	M	1346	816	345	560
	Q	948	574	243	394
	H	746	452	191	310
19  93 × 93	L	1903	1153	488	792
	M	1500	909	384	624
	Q	1063	644	272	442
	H	813	493	208	338
20  97 × 97	L	2061	1249	528	858
	M	1600	970	410	666
	Q	1159	702	297	482
	H	919	557	235	382

Version	Error Correction	Numeric	Alpha-Numeric	Kanji	Binary
21  101 × 101	L	2232	1352	572	929
	M	1708	1035	438	711
	Q	1224	742	314	509
	H	969	587	248	403
22  105 × 105	L	2409	1460	618	1003
	M	1872	1134	480	779
	Q	1358	823	348	565
	H	1056	640	270	439
23  109 × 109	L	2620	1588	672	1091
	M	2059	1248	528	857
	Q	1468	890	376	611
	H	1108	672	284	461
24  113 × 113	L	2812	1704	721	1171
	M	2188	1326	561	911
	Q	1588	963	407	661
	H	1228	744	315	511
25  117 × 117	L	3057	1853	784	1273
	M	2395	1451	614	997
	Q	1718	1041	440	715
	H	1286	779	330	535
26  121 × 121	L	3283	1990	842	1367
	M	2544	1542	652	1059
	Q	1804	1094	462	751
	H	1425	864	365	593
27  125 × 125	L	3517	2132	902	1465
	M	2701	1637	692	1125
	Q	1933	1172	496	805
	H	1501	910	385	625
28  129 × 129	L	3669	2223	940	1528
	M	2857	1732	732	1190
	Q	2085	1263	534	868
	H	1581	958	405	658
29  133 × 133	L	3909	2369	1002	1628
	M	3035	1839	778	1264
	Q	2181	1322	559	908
	H	1677	1016	430	698
30  137 × 137	L	4158	2520	1066	1732
	M	3289	1994	843	1370
	Q	2358	1429	604	982
	H	1782	1080	457	742

Version	Error Correction	Numeric	Alpha-Numeric	Kanji	Binary
31  141 × 141	L	4417	2677	1132	1840
	M	3486	2113	894	1452
	Q	2473	1499	634	1030
	H	1897	1150	486	790
32  145 × 145	L	4686	2840	1201	1952
	M	3693	2238	947	1538
	Q	2670	1618	684	1112
	H	2022	1226	518	842
33  149 × 149	L	4965	3009	1273	2068
	M	3909	2369	1002	1628
	Q	2805	1700	719	1168
	H	2157	1307	553	898
34  153 × 153	L	5253	3183	1347	2188
	M	4134	2506	1060	1722
	Q	2949	1787	756	1228
	H	2301	1394	590	958
35  157 × 157	L	5529	3351	1417	2303
	M	4343	2632	1113	1809
	Q	3081	1867	790	1283
	H	2361	1431	605	983
36  161 × 161	L	5836	3537	1496	2431
	M	4588	2780	1176	1911
	Q	3244	1966	832	1351
	H	2524	1530	647	1051
37  165 × 165	L	6153	3729	1577	2563
	M	4775	2894	1224	1989
	Q	3417	2071	876	1423
	H	2625	1591	673	1093
38  169 × 169	L	6479	3927	1661	2699
	M	5039	3054	1292	2099
	Q	3599	2181	923	1499
	H	2735	1658	701	1139
39  173 × 173	L	6743	4087	1729	2809
	M	5313	3220	1362	2213
	Q	3791	2298	972	1579
	H	2927	1774	750	1219
40  177 × 177	L	7089	4296	1817	2953
	M	5596	3391	1435	2331
	Q	3993	2420	1024	1663
	H	3057	1852	784	1273

## [ESC+2D31] QR Code (Model 1)

Hexadecimal code	ESC	2D31	Parameter
	<1B> <sub>16</sub>	<32> <sub>16</sub> <44> <sub>16</sub> <33> <sub>16</sub> <31> <sub>16</sub>	,a,bb,c,d(,ee,ff,gg)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying QR Code (Model 1).

### [Format] (Setup part)

<2D31>,a,bb,c,d(,ee,ff,gg)

- Parameter

a [Error Correction Level]

L : 7%  
M : 15%  
Q : 25%  
H : 30%

b [Size of one side of cell] = Valid Range : 01 to 32 dots

\* Specify more than 02 dots, otherwise scanner may have reading problem.

c [Data setup mode]

0 : Manual setup  
1 : Automatic setup

\* Note that data is specified differently depending on this setting.

d [Concatenation mode]

0 : Normal mode  
1 : Concatenation mode

Following parameter must be specified when specifying 1 (Concatenation mode) in Concatenation mode.  
Omit following parameter in normal mode.

e [Number of partitions of concatenation mode] = Valid Range : 01 to 16

\* Number of partitions: Specifying how many QR code are to be concatenated divided by Concatenation mode.

f [Sequential number partitioned by concatenation mode] = Valid Range : 01 to 16

\* Sequential number: Specifying what number is it of divided QR code.

g [Concatenation mode parity data] = Valid Range : 00 to FF

\* Parity data: Specifying exclusive OR of all the print data in divided QR code with HEX characters.

### [Format] (Data part)

#### Manual setup (Data setup mode)

<DS>k,n...n : Use when input mode specification is Numeric mode, Alphanumeric mode and Kanji mode.

<DN>mmmm,n...n : Use when specifying by binary.

### Automatic setup (Data setup mode)

<DN>mmmm,n...n : Change input mode automatically according to input data.

- Parameter

k [Input mode]

- 1 : Numeric mode
- 2 : Alphanumeric mode
- 3 : Kanji mode (Shift JIS Kanji code)

\* Specify only when specifying Manual setup in Data setting mode.

\* There is binary specification other than above, but data specification command is different.

m [Number of data] = Valid Range : 1 to 486

\* Specify when specifying Automatic setup in Data setting mode or specifying binary specification in Manual setup.

n [Print data] = Data

### [Format] (version)

<QV>pp : Specify when specifying the version.

- Parameter

pp [Version] = 00 to 14 (MODEL1)

\* This setting is used when fixing the size of QR symbol with the version command. When not specified, it becomes Auto. Specifying 00 also becomes Auto. It does not become a parameter error from 00 to 40.

\* Refer to "[ESC+QV] QR code version" for details.

### [Supplementary Explanation1]

- When specifying Kanji in <DN>, specify size that is 2 x number of Kanji characters.
- For <DN> in Automatic setup, when 80H to 9FH and E0H to FFH is specified as data, it is handed as Kanji mode, and cannot specify them as binary.

### [Coding Example 1]

Error correction level: 7%, Size of one side of cell: 05, Data setup mode: Manual setup, Concatenation mode: Normal



<A>

<V>100<H>200<2D31>,L,05,0,0

<DS>1,012345

<Q>2

<Z>

### [Supplementary Explanation2]

- If the parameter other than the description is specified or number of print data does not match, printing is not performed.
- Data specification command in data part varies according to parameter setup or specified data.

### [Coding Example 2]

Error correction level: 7%, Size of one side of cell: 04, Mixed specification of Manual setup (Data setup mode)



In Manual setup, you can proceed specifying data in specified input mode (Numeric, Alphanumeric, Kanji, Binary).

<A>  
<V>100<H>200  
<2D31>,L,04,0,0  
<DS>3,サトー  
<DN>0010,0123456789  
<DS>1,123  
<Q>1  
<Z>

### [Supplementary Explanation3]

- Parameter part to be followed by Data part. Data part and data part should be specified in a row. When do not specify in a row, print result may not be secured.

### [Coding Example 3]

Error correction level: 7%, Size of one side of cell: 05, Data setup mode: Manual setup,  
Concatenation mode: Normal, Version 5

<A>  
<V>100<H>200<2D31>,L,05,0,0  
<QV>5  
<DS>1,012345  
<DN>0004,6789  
<Q>1  
<Z>

## QR Code data size list (Model 1)

Version	Error Correction	Numeric	Alpha-numeric	Kanji	Binary	Version	Error Correction	Numeric	Alpha-numeric	Kanji	Binary
1	L	40	24	10	17	10	L	690	418	177	287
	M	33	20	8	14		M	526	319	135	219
	Q	25	15	6	11		Q	433	262	111	180
	H	16	10	4	7		H	291	176	74	121
2	L	81	49	20	34	11	L	800	485	205	333
	M	66	40	17	28		M	608	368	156	253
	Q	52	31	13	22		Q	493	299	126	205
	H	33	20	8	14		H	342	207	87	142
3	L	131	79	33	55	12	L	915	555	234	381
	M	100	60	25	42		M	694	421	178	289
	Q	81	49	20	34		Q	579	351	148	241
	H	52	31	13	22		H	390	236	100	162
4	L	186	113	48	78	13	L	1030	624	264	429
	M	138	84	35	58		M	790	479	202	329
	Q	114	69	29	48		Q	656	398	168	273
	H	76	46	19	32		H	454	275	116	189
5	L	253	154	65	106	14	L	1167	707	299	486
	M	191	116	49	80		M	877	531	225	365
	Q	157	95	40	66		Q	738	447	189	307
	H	105	63	27	44		H	498	302	127	207
6	L	321	194	82	134						
	M	249	151	64	104						
	Q	201	122	51	84						
	H	133	81	34	56						
7	L	402	244	103	168						
	M	311	188	80	130						
	Q	253	154	65	106						
	H	167	101	43	70						
8	L	493	299	126	206						
	M	378	229	97	158						
	Q	301	183	77	126						
	H	203	123	52	85						
9	L	585	354	150	244						
	M	441	267	113	184						
	Q	369	223	94	154						
	H	239	145	61	100						

## [ESC+2D32] Micro QR Code

Hexadecimal code	ESC	2D32	Parameter
	<1B> <sub>16</sub>	<32> <sub>16</sub> <44> <sub>16</sub> <33> <sub>16</sub> <32> <sub>16</sub>	,a,bb,c
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying QR Code (Micro QR Code).

### [Format] (Setup part)

<2D32>,a,bb,c

- Parameter

a [Error Correction Level]

L : 7%

M : 15%

Q : 25%

b [Size of one side of cell] = Valid Range : 01 to 32 dots

\* Specify more than 02 dots, otherwise scanner may have reading problem.

c [Data setup mode]

0 : Manual setup

1 : Automatic setup

### [Format] (Data part)

#### Manual setup (Data setup mode)

<DS>k,n...n : Use when input mode specification is Numeric mode, Alphanumeric mode and Kanji mode.

<DN>mmmm,n...n : Use when specifying by binary.

#### Automatic setup (Data setup mode)

<DN>mmmm,n...n : Change input mode automatically according to input data.

- Parameter

k [Input mode]

1 : Numeric mode

2 : Alphanumeric mode

3 : Kanji mode (Shift JIS Kanji)

\* There is binary specification other than above, but data specification command is different.

m [Number of data] = Valid Range : 1 to 15

\* Specify when specifying Automatic setup in Data setting mode.

n [Print data] = Data

### [Supplementary Explanation1]

- When specifying Kanji in <DN>, specify size that is 2 x number of Kanji characters.

- For <DN> in Automatic setup, when 80H to 9FH and E0H to FFH is specified as data, it is handed as Kanji mode, and cannot specify them as binary.

#### [Coding Example 1]

Error correction level: 7%, Size of one side of cell: 04



```
<A>
<V>100<H>200<2D32>,L,04,0
<DS>1,012345
<Q>2
<Z>
```

#### [Supplementary Explanation2]

- If the parameter other than the description is specified or number of print data does not match, printing is not performed.
- Data specification command in data part varies according to parameter setup or specified data.

#### [Coding Example 2]

Error correction level: 7%, Size of one side of cell: 04, Mixed specification of Manual setup (Data setup mode)

In Manual setup, you can proceed specifying data in specified input mode (Numeric, Alphanumeric, Kanji, Binary).

```
<A>
<V>100<H>200
<2D32>,L,04,0
<DS>3,サトー
<DN>0010,0123456789
<DS>1,123
<Q>1
<Z>
```

### [Supplementary Explanation3]

- Parameter part to be followed by Data part. Data part and data part should be specified in a row. When do not specify in a row, print result may not be secured.

Micro QR Code Data size list

Version	Error correction	Numeric	Alphanumeric	Kanji	Binary
M1 (11x11)	L (Error detection only)	5	-	-	-
M2 (13x13)	L	10	6	-	-
	M	8	5	-	-
M3 (15x15)	L	23	14	6	9
	M	18	11	4	7
M4 (17x17)	L	35	21	9	15
	M	30	18	8	13
	Q	21	13	5	9

### [Coding Example 3]

Error correction level: 7%, Size of one side of cell: 05, Data setup mode: Manual setup, Concatenation mode: Normal, printed in version M4

<A>

<V>100<H>200<2D32>,L,05,0,0

<QV>4

<DS>1,012345

<DN>0004,6789

<Q>1

<Z>

QR Code (Numeric mode) Code table

					S				I				S				0			
B8					0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
B7					0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
B6					0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
B5					0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0				0												
0	0	0	1	1				1												
0	0	1	0	2				2												
0	0	1	1	3				3												
0	1	0	0	4				4												
0	1	0	1	5				5												
0	1	1	0	6				6												
0	1	1	1	7				7												
1	0	0	0	8				8												
1	0	0	1	9				9												
1	0	1	0	A																
1	0	1	1	B																
1	1	0	0	C																
1	1	0	1	D																
1	1	1	0	E																
1	1	1	1	F																

QR Code (Alphanumeric mode) Code table

					S				I				S				0			
B8					0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
B7					0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
B6					0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
B5					0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0		P										
0	0	0	1	1				1	A	Q										
0	0	1	0	2				2	B	R										
0	0	1	1	3				3	C	S										
0	1	0	0	4			\$	4	D	T										
0	1	0	1	5			%	5	E	U										
0	1	1	0	6				6	F	V										
0	1	1	1	7				7	G	W										
1	0	0	0	8				8	H	X										
1	0	0	1	9				9	I	Y										
1	0	1	0	A			*	:	J	Z										
1	0	1	1	B			+		K											
1	1	0	0	C					L											
1	1	0	1	D			-		M											
1	1	1	0	E			.		N											
1	1	1	1	F			/		O											

# QR Code (Binary mode) Code table

					S				I				S				O			
B8					0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
B7					0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
B6					0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
B5					0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@	P	`	p								
0	0	0	1	1			!	1	A	Q	a	q								
0	0	1	0	2			"	2	B	R	b	r								
0	0	1	1	3			#	3	C	S	c	s								
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7			'	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A			*	:	J	Z	j	z								
1	0	1	1	B			+	;	K	[	k	{								
1	1	0	0	C			,	<	L	¥	l									
1	1	0	1	D			-	=	M	]	m	}								
1	1	1	0	E			.	>	N	^	n	~								
1	1	1	1	F			/	?	O	_	o	DEL								

[00H to 7FH], [A0H to DFH] can be available for QR code.

QR Code (Kanji mode) Code table

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
記号	813F		SP	、	。	、	、	、	、	、	、	、	、	、	、	、	、
	814F	^	—	—	、	、	、	、	、	全	々	、	〇	—	—	—	/
	815F	\	~	//		...	..	'	'	"	"	(	)	[	]	[	]
	816F	[	]	<	>	《	》	「	」	『	』	【	】	+	-	±	×
	8180	÷	=	≠	<	>	≤	≥	∞	∴	♂	♀	°	'	"	℃	¥
英・数字	8190	\$	¢	£	%	#	&	*	@	§	☆	★	○	●	◎	◇	
	819E		◆	□	■	△	▲	▽	▼	※	〒	→	←	↑	↓	=	
	824F	0	1	2	3	4	5	6	7	8	9						
ひらがな	825F		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	826F	P	Q	R	S	T	U	V	W	X	Y	Z					
	8280		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
	8290	p	q	r	s	t	u	v	w	x	y	z					
	829E		あ	い	う	え	お	か	が	き	ぎ	く					
カタカナ	82AE	ぐ	け	こ	さ	し	ず	せ	そ	そ	た						
	82BE	だ	ち	っ	づ	て	ど	な	に	ぬ	ね	の					
	82CE	ば	び	ひ	ふ	へ	べ	ほ	ほ	ま	み						
	82DE	む	め	も	や	ゆ	よ	ら	り	る	わ						
	82EE	み	え	を	ん												
ギ文	833F		ア	イ	ウ	エ	オ	カ	ガ	キ	ク						
	834F	グ	ケ	コ	サ	ゼ	シ	ジ	ス	ズ	セ	ソ	ゾ	タ			
	835F	ダ	チ	ッ	ツ	テ	ド	ナ	ニ	ヌ	ネ	ノ	ハ				
	836F	バ	ビ	フ	ブ	ヘ	ベ	ホ	ボ	マ	ミ						
	8380	ム	メ	モ	ヤ	ユ	ヨ	ラ	リ	ル	ロ	ワ					
シ	8390	キ	エ	ラ	ン	ヴ	カ	ケ									
	839E		A	B	Γ	Δ	E	Z	H	Θ	I	K	Λ	M	N	Ξ	O
	83AE	Π	P	Σ	T	Υ	Φ	X	Ψ	Ω							
	83BE		α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
	83CE	π	ρ	σ	τ	υ	φ	χ	ψ	ω							
ア文字	843F		A	B	B	Γ	Д	E	Ё	Ж	З	И	Й	К	Л	М	Н
	844F	О	П	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э
	845F	Ю	Я														
	846F		a	b	b	г	д	e	ё	ж	з	и	й	к	л	м	н
	8480	о	п	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э
	8490	ю	я														



	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
ア	889E		亜	啞	娃	阿	哀	愛	挨	始	逢	葵	茜	槐	惠	握	渥
	88AE	旭	葦	芦	鯨	梓	庄	輯	扱	宛	姐	虻	鮎	絢	綾	鮎	或
	88BE	粟	裕	安	庵	按	暗	案	闇	較	杏						
イ	88BE											以	伊	位	依	偉	因
	88CE	夷	委	威	尉	惟	意	慰	易	椅	為	畏	異	移	維	緯	胃
	88DE	萎	衣	謂	違	遣	医	井	亥	域	育	郁	磯	一	杏	溢	逸
	88EE	稻	茨	芋	鰯	允	印	咽	員	因	姻	引	飲	淫	胤	蔭	
	893F		院	陰	隱	韻	吋										
ウ	893F							右	宇	烏	羽	迂	雨	卯	鷄	窺	丑
	894F	碓	臼	渦	噓	唄	爵	蔚	鱒	姥	厥	浦	瓜	閨	嚙	云	運
	895F	雲															
エ	895F		荏	餌	叡	宮	嬰	影	映	曳	宋	永	泳	洩	瑛	盈	穎
	896F	穎	英	衛	詠	銳	液	疫	益	厭	悅	謁	越	閼	榎	厭	円
	8980	園	堰	奄	宴	延	怨	掩	援	沿	演	炎	焰	煙	燕	猿	縁
	8990	艶	苑	園	遠	鉛	鴛	塩									
オ	8990							於	汚	甥	凹	央	奧	往	応		
	899E		押	旺	横	欧	毆	王	翁	襖	鷗	央	岡	沖	荻	億	
	89AE	屋	憶	臆	桶	牡	乙	俺	卸	恩	温	穩	音				
カ	89AE													下	化	仮	何
	89BE	伽	価	佳	加	可	嘉	夏	嫁	家	寡	科	暇	果	架	歌	河
	89CE	火	珂	禍	禾	稼	箇	花	苛	茄	荷	華	菓	蝦	課	嘩	貨
	89DE	迦	過	霞	蚊	俄	峨	我	牙	画	臥	芽	蛾	賀	雅	餓	駕
	89EE	介	会	解	回	塊	壞	迴	快	怪	悔	恢	懷	戒	拐	改	
	8A3F		魁	晦	械	海	灰	界	皆	絵	芥	蟹	開	階	貝	凱	効
	8A4F	外	咳	害	崖	慨	概	涯	碍	蓋	街	該	鎧	骸	湮	罄	蛙
	8A5F	垣	柿	魴	鈎	劃	嚇	各	廓	拡	攪	格	核	殼	獲	確	穫
	8A6F	覚	角	赫	較	郭	閣	隔	革	学	岳	樂	額	額	掛	笠	櫻
	8A80	櫃	梶	鯢	鴻	割	喝	恰	括	活	渴	滑	葛	揭	轄	且	鯉
	8A90	叶	栴	樺	鞆	株	兜	電	蒲	釜	鎌	哺	鴨	栢	茅	萱	
	8A9E		粥	刈	刈	瓦	乾	侃	冠	寒	刊	勘	勸	卷	喚	堪	姦
	8AAE	完	官	寬	干	幹	患	感	慣	憾	換	敢	柑	桓	棺	款	飲
	8ABE	汗	漢	濶	灌	環	甘	監	看	竿	管	簡	緩	缶	翰	肝	艦
	8ACE	莞	觀	諫	貫	還	鑑	間	閑	閑	陷	韓	館	丸	含		岸
	8ADE	巖	玩	處	眼	岩	斷	膺	雁	頑	顏	願					

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キ	8ADE												企	伎	危	喜	器
	8AEE	基	奇	嬉	寄	岐	希	幾	忌	揮	机	旗	既	伎	危	喜	
	8B3F		機	婦	寄	岐	希	幾	忌	揮	机	旗	既	伎	危	喜	起
	8B4F	軌	輝	飢	騎	鬼	龜	偽	儀	妓	宜	戲	技	擬	欺	貴	疑
	8B5F	祇	義	蟻	誼	讓	拘	菊	鞠	吉	吃	喫	桔	橘	詰	玷	杵
	8B6F	黍	却	客	脚	虐	逆	丘	久	仇	休	及	吸	宮	弓	急	救
	8B80	朽	求	汲	泣	灸	球	究	窮	笈	級	糾	給	旧	牛	去	居
	8B90	巨	拒	拋	拳	渠	虛	許	距	鋸	漁	禦	魚	亨	享	京	
	8B9E		供	俠	僞	兇	競	共	凶	協	匡	卿	叫	喬	境	峽	強
	8BAE	彊	怯	恐	恭	扶	教	橋	況	狂	狹	嬌	胸	脅	興	蕙	鄉
ク	8BBE	鏡	響	響	驚	仰	凝	堯	曉	業	局	曲	極	玉	桐	秆	僅
	8BCE	勤	均	巾	錦	斤	欣	欽	琴	禁	禽	筋	緊	芹	菌	矜	襟
	8BDE	謹	近	金	吟	銀											
	8BDE					九	俱	句	區	狗	玖	矩	苦	軀	軀	駝	
	8BEE	駒	具	愚	虞	喰	空	偶	寓	隅	串	櫛	舌	肩	屈		
	8C3F		掘	窟	沓	靴	嚮	窪	隈	余	栗	櫛	桑	櫛	勲	君	
	8C4F	薰	訓	群	軍	郡											
	8C4F					卦	袈	祁	係	傾	刑	兄	啓	圭	珪	型	
	8C5F	契	形	徑	恵	慶	慧	憩	揭	敬	景	桂	溪	畦	珪	系	
	8C6F	經	繼	驚	霏	荃	荊	蛩	計	詣	輕	頸	溪	芸	迎	鯨	
ケ	8C80	劇	戟	擊	激	隙	析	傑	欠	決	潔	穴	結	血	訣	月	件
	8C90	俟	倦	健	兼	券	劍	喧	圈	堅	嫌	建	憲	懸	拳	捲	
	8C9E		揆	權	牽	犬	獻	研	硯	絹	鼎	肩	見	謙	賢	軒	遣
	8CAE	鍵	陔	顓	驗	餞	元	原	嚴	幻	弦	減	源	玄	現	絃	
	8CBE	言	諺	限													
	8CBE				乎	個	古	呼	固	姑	孤	己	庫	狐	戸	故	枯
	8CCE	湖	狐	黠	袴	股	胡	菰	虎	誇	跨	鉅	雇	顧	鼓	五	互
	8CDE	伍	午	呉	吾	娛	後	御	悟	梧	橋	瑚	暮	語	誤	護	醐
	8DEE	乞	鯉	交	佼	侯	候	倖	光	公	功	効	厚	口	向		
	8D3F		后	喉	坑	垢	好	孔	孝	宏	工	巧	巷	幸	庾	康	
	8D4F	弘	恒	慌	抗	拘	控	攻	昂	晃	更	杭	校	梗	構	江	洪
コ	8D5F	浩	港	溝	甲	皇	硬	稿	糠	紅	絃	絞	綱	耕	考	肯	肱
	8D6F	腔	膏	航	荒	行	衡	講	貢	購	郊	酵	鉅	砧	鋼	閭	降
	8D80	項	香	高	鴻	剛	劫	号	合	壕	拷	濤	豪	轟	翹	克	刻



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コ	8D90	告	国	穀	酷	鵠	黒	獄	瀝	腰	瓢	忽	惚	骨	狛	込	
	8D9E		此	頃	今	困	坤	壘	婚	恨	懇	昏	昆	根	梱	混	痕
	8DAE	紺	艮	魂													
サ	8DAE				些	佐	又	唆	嵯	左	差	查	沙	磋	砂	詐	鎖
	8DBE	娑	坐	座	挫	債	催	再	最	哉	塞	妻	宰	彩	才	採	裁
	8DCE	歲	濟	災	采	靡	碎	砦	祭	齋	細	菜	裁	載	際	劑	在
	8DDE	材	罪	財	冴	坂	阪	堺	柁	肴	咲	崎	埼	碕	鷺	作	削
	8DEE	昨	搾	昨	朔	柵	窄	策	索	錯	桜	鮭	筈	匙	冊	刷	
	8E3F		察	拶	撮	擦	札	殺	薩	雜	阜	鯨	捌	銷	鮫	皿	晒
	8E4F	三	傘	参	山	慘	撒	散	棧	燦	珊	産	算	纂	蚤	讚	
	8E5F	酸	餐	斬	暫	殘											
シ	8E5F						仕	仔	伺	使	刺	司	史	嗣	四	士	始
	8E6F	姉	姿	子	屍	市	師	志	思	指	支	孜	斯	施	旨	枝	止
	8E80	死	氏	獅	祉	私	糸	紙	紫	肢	脂	至	視	詞	詩	試	誌
	8E90	諮	資	賜	雌	飼	齒	事	似	侍	児	字	寺	慈	持	時	
	8E9E		次	滋	治	爾	璽	痔	磁	示	而	耳	自	蒔	辞	汐	鹿
	8EAE	式	識	鳴	竺	軸	穴	零	七	叱	執	失	嫉	室	悉	湿	漆
	8EBE	疾	質	実	部	篠	僊	柴	芝	屢	蕊	綺	舍	写	射	捨	赦
	8ECE	斜	煮	社	紗	者	謝	車	進	蛇	邪	借	勺	尺	杓	灼	爵
	8EDE	酌	釈	錫	若	寂	弱	惹	主	取	守	手	朱	殊	狩	珠	種
	8EEE	腫	趣	酒	首	儒	受	呪	寿	授	樹	綬	需	囚	収	周	
	8F3F		宗	就	州	修	愁	拾	洲	秀	秋	終	繡	習	吳	舟	蒐
	8F4F	衆	襲	讐	蹴	輯	週	酋	酬	集	醜	什	住	充	十	從	戎
	8F5F	柔	汁	洪	獸	縱	重	銃	叔	夙	宿	淑	祝	縮	肅	塾	熟
	8F6F	出	術	述	俊	峻	春	瞬	媛	舜	駿	准	循	旬	楯	殉	淳
	8F80	準	潤	盾	純	巡	遵	醇	順	処	初	所	暑	曙	渚	庶	
	8F90	署	書	薯	蒔	諸	助	叙	女	序	徐	恕	鋤	除	傷	償	
	8F9E		勝	匠	升	召	哨	商	唱	嘗	獎	妾	娼	宵	將	小	少
	8FAE	尚	庄	床	廠	彰	承	抄	招	掌	捷	昇	昌	昭	晶	松	梢
	8FBE	樟	樵	沼	消	涉	湘	燒	焦	照	症	省	硝	礁	祥	称	章
	8FCE	笑	粧	紹	肖	菖	蔣	蕉	衝	裳	訟	証	詔	詳	象	賞	嘗
	8FDE	鉦	鍾	鐘	障	鞘	上	丈	丞	乘	冗	刺	城	場	壤	嬖	
	8FEE	情	擾	条	杖	淨	狀	疊	穰	蒸	讓	釀	錠	囑	墮	飾	
	903F		拭	植	殖	燭	織	職	色	舐	食	蝕	辱	尻	伸	信	侵

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
シ	904F	唇	娠	寝	審	心	慎	振	新	晋	森	棟	浸	深	申	疹	真
	905F	神	秦	紳	臣	芯	薪	親	診	身	辛	進	針	震	人	仁	刃
	906F	塵	壬	尋	甚	尽	腎	訊	迅	陣	初						
ス	906F											筍	諫	須	酢	囟	厨
	9080	逗	吹	垂	帥	推	水	炊	睡	粹	翠	衰	遂	醉	錐	錘	随
	9090	瑞	髓	崇	嵩	数	枢	趨	難	据	杉	榻	管	顚	雀	裾	
	909E		澄	摺	寸												
セ	909E					世	瀬	軟	是	凄	制	勢	姓	征	性	成	政
	90AE	整	星	晴	棲	栖	正	清	性	生	盛	精	聖	声	製	西	誠
	90BE	誓	請	逝	醒	青	静	斉	税	脆	隻	席	惜	威	斥	昔	析
	90CE	石	積	籍	績	背	責	赤	跡	蹟	碩	切	拙	接	撰	折	設
	90DE	窃	節	説	雪	絶	舌	蟬	仙	先	千	占	宣	専	尖	川	戰
	90EE	扇	撰	栓	梅	泉	浅	洗	染	潜	煎	炳	旋	穿	箭	線	
	913F		織	羨	腺	舛	船	薦	詮	賤	踐	選	遷	錢	銑	閃	鮮
ソ	914F	前	善	漸	然	全	禪	繕	膳	纏							
	914F									噌	塑	咀	措	曾	曾	楚	
	915F	狙	疏	疎	礎	祖	租	相	素	組	蘇	訴	阻	遡	鼠	僧	創
	916F	双	叢	倉	喪	壯	奏	爽	宋	層	匝	惣	想	搜	掃	挿	撞
	9180	操	早	曹	巢	槍	槽	漕	燥	争	瘦	相	窓	槽	総	綜	聡
	9190	草	莊	葬	蒼	藻	装	走	送	遭	鎗	霜	像	増	憎		
	919E		臧	藏	贈	造	促	側	則	即	息	捉	束	測	足	速	俗
タ	91AE	属	賊	族	続	卒	袖	其	揃	存	孫	尊	損	村	遜		
	91AE															他	多
	91BE	太	汰	訖	唾	墮	妥	情	打	柁	舵	精	陀	駄	騾	体	堆
	91CE	対	耐	岱	帶	待	怠	態	戴	替	泰	滯	胎	腿	苔	袋	貨
	91DE	退	速	隊	黛	鯛	代	台	大	第	醍	題	鷹	淹	灘	卓	啄
	91EE	宅	托	挾	拓	沢	濯	琢	託	鐸	濁	諾	茸	鳳	蛸	只	
	923F		叩	但	達	辰	奪	脱	髻	豎	辿	棚	谷	狸	鱈	樽	誰
チ	924F	丹	単	嘆	坦	担	探	旦	歎	淡	湛	炭	短	端	綻		
	925F	胆	蛋	誕	鍛	団	壇	彈	断	暖	檀	段	男	談			
	925F														値	知	地
	926F	弛	恥	智	池	痴	稚	置	致	蚰	遲	馳	築	畜	竹	筑	蓄
	9280	逐	秩	窒	茶	嫡	着	中	仲	宙	忠	抽	昼	柱	注	虫	
	9290	註	酎	鑄	駐	糲	瀦	猪	苧	著	貯	丁	兆	凋	喋	寵	



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チ	929E		帖	暖	庁	弔	張	彫	徵	懲	挑	暢	朝	潮	牒	町	眺
	92AE	聴	脹	腸	蝶	調	謀	超	跳	銚	長	頂	鳥	勅	抄	直	朕
	92BE	沈	珍	賃	鎮	陳											
ツ	92BE						津	墜	椎	槌	追	鉋	痛	通	塚	柸	捆
	92CE	槻	佃	漬	柘	辻	薦	綴	鍔	椿	漬	坪	壺	婦	紬	爪	吊
	92DE	釣	鶴														
テ	92DE			亭	低	停	偵	剃	貞	呈	堤	定	帝	底	庭	廷	弟
	92EE	悌	抵	挺	提	梯	汀	碇	禎	程	締	艇	訂	諦	蹄	遞	
	933F		邸	鄭	釘	鼎	泥	摘	擢	敵	滴	的	笛	適	鎬	溺	哲
	934F	徹	撤	轍	迭	鉄	典	填	天	展	店	添	纓	甜	貼	転	顛
	935F	点	伝	殿	澱	田	電										
ト	935F							兎	吐	堵	塗	妬	屠	徒	斗	杜	渡
	936F	登	菟	賭	途	都	鍍	砥	碩	努	度	土	奴	怒	倒	党	冬
	9380	凍	刀	唐	塔	塘	套	宕	鳥	嶋	悼	投	搭	束	桃	袴	棟
	9390	盜	淘	湯	涛	灯	燈	当	痘	禱	等	答	筒	糖	統	到	
	939E		董	蕩	藤	討	膳	豆	踏	逃	透	鑑	陶	頭	騰	闕	働
	93AE	動	同	堂	導	懂	撞	洞	瞳	童	胴	萄	道	銅	峠	錫	匿
	93BE	得	德	洸	特	督	禿	篤	毒	独	読	析	椽	凸	突	櫟	届
	93CE	薦	苦	寅	酉	游	囁	屯	惇	敦	沌	豚	遁	頓	吞	晏	鈍
	93DE	奈	那	内	乍	瓜	薙	謎	灘	捺	鍋	櫛	馴	縄	暖	南	楠
ナ	93EE	軟	難	汝													
	93EE				二	尼	弑	迹	勾	賑	肉	虹	廿	日	乳	入	
ニ	943F		如	尿	菲	任	妊	忍	認								
	943F									濡							
ヌ	943F										褊	衤	寧	葱	猫	熱	年
	944F	念	捻	燃	燃	粘											
ノ	944F						乃	迺	之	埜	糞	悩	濃	納	能	腦	膿
	945F	農	覗	蚤													
ハ	945F				巴	把	播	霸	杷	波	派	琶	破	婆	罵	芭	馬
	946F	俳	魔	拝	排	敗	杯	盃	牌	背	肺	鞞	配	倍	培	媒	拍
	9480	煤	煤	狼	買	売	賠	陪	這	蠅	秤	矧	萩	伯	剥	博	
	9490	柏	泊	白	箔	柏	舶	薄	迫	曝	漠	爆	縛	莫	駁	麦	
	949E		函	箱	砒	箸	擊	苦	墟	幡	肌	畑	畠	八	鉢	澆	発
	94AE	醜	髮	伐	罰	拔	筏	閥	鳩	嘶	塙	蛤	隼	伴	判	半	反

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ハ	94BE	叛	帆	攤	斑	板	汎	汎	版	犯	班	畔	繁	般	藩	販	範
	94CE	采	煩	頒	飯	挽	晩	番	盤	磐	審	蠻					
ヒ	94DE												匪	卑	否	妃	庇
	94EE	彼	悲	扉	批	披	斐	比	泌	疲	皮	碑	秘	緋	罷	肥	被
	94FE	誹	費	避	非	飛	樋	鯁	備	尾	微	枇	毘	琵	眉	美	
	953F		鼻	終	稗	匹	疋	髭	彥	膝	菱	肘	弼	必	畢	筆	逼
	954F	桧	姫	媛	紐	百	謬	儀	彪	標	氷	漂	瓢	栗	表	評	豹
	955F	廟	描	病	秒	苗		銑	赫	蛭	鱒	品		斌	浜	瀕	貧
	956F	賓	頻	敏	瓶												
フ	956F					不	付	埠	夫	婦	富	富	布	府	怖	扶	敷
	9580	斧	普	浮	父	符	腐	膚	芙	譜	負	賦	赴	阜	附	侮	撫
	9590	武	舞	葡	蕪	部	封	楓	風	葦	露	伏	副	復	幅	服	
	959E		福	腹	複	覆	淵	弗	弘	沸	仏	物	耐	分	吻	噴	墳
	95AE	憤	扮	焚	奮	粉	冀	紛	霧	文	聞						
ヘ	95AE											丙	併	兵	堀	幣	平
	95BE	弊	柄	並	蔽	閉	陛	米	頁	僻	壁	癖	碧	別	譬	蔑	篋
	95CE	偏	變	片	篇	編	辺	返	遍	便	勉	婉	弁	鞭			
ホ	95CE														保	舗	舗
	95DE	圃	捕	步	甫	補	輔	穗	募	墓	慕	戊	暮	母	簿	菩	倣
	95EE	俸	包	呆	報	奉	宝	峰	峯	崩	庖	抱	捧	放	方	朋	
	963F		法	泡	烹	砲	縫	胞	芳	萌	蓬	蜂	褒	訪	豐	邦	鋒
	964F	飽	鳳	鵬	乏	亡	傍	剖	坊	妨	帽	忘	忙	房	暴	望	某
	965F	棒	冒	紡	肪	膨	謀	貌	貿	鋒	防	吠	頰	北	僕	卜	墨
	966F	撲	朴	牧	睦	穆	鉤	勃	沒	殆	堀	幌	奔	本	翻	凡	盆
マ	9680	摩	磨	魔	麻	埋	妹	昧	枚	每	哩	楨	幕	膜	枕	鮪	枉
	9690	鱈	枿	亦	俣	又	抹	末	沫	迄	低	蘭	磨	万	慢	滿	
	969E		漫	蔓													
ミ	969E				味	未	魅	巳	箕	岬	密	蜜	湊	糞	稔	脈	妙
	96AE	耗	民	眠													
ム	96AE				務	夢	無	牟	矛	霧	鵠	棕	娟	娘			
メ	96AE														冥	名	命
	96BE	明	盟	迷	銘	鳴	姪	牝	滅	免	棉	綿	緬	面	麵		
モ	96BE															摸	模
	96CE	茂	妄	孟	毛	猛	盲	網	耗	蒙	儲	木	默	目	空	勿	餅



	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
モ	96DE	尤	戾	粍	貰	問	問	紋	門	匆							
ヤ	96DE										也	冶	夜	爺	耶	野	弥
	96EE	矢	厄	役	約	菓	訊	躍	靖	柳	藪	鍵					
ユ	96EE											愉	愈	油	癒		
	973F		論	輸	唯	佑	優	勇	友	宥	幽	悠	憂	損	有	柚	湧
	974F	涌	猶	猷	由	祐	裕	誘	遊	邑	郵	雄	融	夕			
ヨ	974F														予	余	与
	975F	菅	輿	預	備	幼	妖	容	庸	揚	搖	擁	曜	楊	樣	洋	溶
	976F	焙	用	窯	羊	耀	葉	蓉	要	謡	踊	遙	陽	養	慾	抑	欲
	9780	沃	浴	翌	翼	淀											
ラ	9780					羅	螺	裸	来	萊	賴	雷	洛	絡	落	酪	
	9790	乱	卵	嵐	欄	濫	藍	蘭	覽								
リ	9790								利	吏	履	李	梨	理	璃		
	979E		痢	裏	裡	里	離	陸	律	率	立	掠	略	劉	流	溜	
	97AE	琉	留	硫	粒	隆	竜	龍	侶	慮	旅	虜	了	亮	僚	兩	凌
	97BE	寮	料	梁	涼	獵	療	瞭	稜	糧	良	諒	量	陵	領	力	
	97CE	綠	倫	厘	林	淋	淋	琳	臨	輪	隣	麟					
ル	97CE													瑠	壘	淚	累
	97DE	類															
レ	97DE		令	伶	例	冷	勵	嶺	伶	玲	礼	苓	鈴	隸	零	靈	麗
	97EE	齡	曆	歷	列	劣	烈	裂	廉	恋	憐	漣	煉	簾	練	聯	
	983F		蓮	連	鍊												
ロ	983F					呂	魯	櫓	炉	賂	路	露	勞	婁	廊	弄	朗
	984F	樓	榔	浪	漏	牢	狼	竜	老	聾	蠅	郎	六	麗	祿	肋	録
	985F	論															
ワ	985F		倭	和	話	歪	賄	脇	惑	梓	鷺	互	亘	鰐	詫	蕨	蕨
	986F	椀	湾	碗	腕												

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
一	989E		弌	𠂇	丕												
丨	989E					个	𠂇										
丶	989E							丶	井								
丿	989E									丿	乂	乖	乘				
乙	989E													亂			
丿	989E														丿	豫	事
	98AE	舒															
二	98AE		式	于	亞	亟											
亅	98AE					亅	亢	京	毫	亅							
人	98AE											从	仍	仄	仆	仂	仗
	98BE	仂	伂	仂	价	伂	伂	佛	伂	伂	伂	伂	伂	伂	伂	伂	伂
	98CE	佩	佰	侑	侑	侑	侑	侑	侑	侑	侑	侑	侑	侑	侑	侑	侑
	98DE	俾	倚	倨	倨	倨	倨	倨	倨	倨	倨	倨	倨	倨	倨	倨	倨
	98EE	偃	假	會	偕	偕	偕	偕	偕	偕	偕	偕	偕	偕	偕	偕	偕
	993F		僉	僉	僉	僉	僉	僉	僉	僉	僉	僉	僉	僉	僉	僉	僉
	994F	僉	僉	僉	僉	僉	僉	僉	僉	僉	僉	僉	僉	僉	僉	僉	僉
儿	994F										儿	兀	兒	兌	免	兢	競
入	995F	兩	兪														
八	995F			兮	冀												
冂	995F					冂	同	册	冉	冂	冂	冂	冂				
冂	995F													冂	冤	冠	冢
	996F	冂	冂														
丿	996F			丿	决	互	冲	冰	况	冽	涸	凉	凜				
几	996F													几	處	凵	凭
	9980	風															
冂	9980		冂	函													
刀	9980				刃	利	利	刂	刂	刪	刮	刮	剝	剝	剝	剝	剝
	9990	剝	剝	剝	剝	剝	剝	剝	剝	剝	剝	剝	剝	剝	剝	剝	剝
	999E		剝														
力	999E			勑	勑	勑	券	勑	勑	勑	勞	勑	勑	勑	勑	勑	勑
	99AE	勑															
勑	99AE		勑	勿	勿	勿	勿	勿	勿								
乚	99AE									乚							
匚	99AE										匚	匚	匚	匚	匚		



	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
匸	99AE															匸	區
十	99BE	卅	卅	卅	卅	卅	卅										
卜	99BE							卞									
冂	99BE							冂	厄	外	卻	卷					
厂	99BE													厂	厰	厠	厦
	99CE	厥	厥	厥													
厶	99CE				厶	參	墓										
又	99CE							雙	雙	曼	曼						
口	99CE											叮	叨	叭	叭	吁	咩
	99DE	呀	听	吭	吼	吮	吮	吩	吝	呖	咏	呵	咎	呖	呖	呖	咩
	99EE	咒	呻	咀	嗽	咄	咄	咆	哇	呖	咸	咭	咬	哄	哈	咨	
	9A3F		咫	晒	咤	咤	咤	咤	哥	哦	唏	唔	哽	嚙	哭	哺	哧
	9A4F	啖	哇	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞
	9A5F	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞
	9A6F	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞	啞
	9A80	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫
	9A90	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫	噫
口	9A90											口	囍	囍	囍	囍	囍
	9A9E		囍	囍	囍	囍	囍	囍	囍	囍	囍	囍	囍	囍	囍	囍	囍
土	9A9E										垠	垠	垠	垠	垠	垠	垠
	9AAE	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠
	9ABE	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠
	9ACE	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠
	9ADE	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠	垠
土	9ADE				壯	壺	壺	壺	壺	壺	壺						
夕	9ADE										夕						
夕	9ADE										夕	夕					
夕	9ADE												夕	夕	夕	夕	
大	9ADE																大
	9AEE	夭	本	夸	夾	奇	奕	奧	奎	奚	奘	奢	莫	奧	奘	奘	奘
女	9B3F		奸	妁	妝	佞	佞	妁	妁	妁	嬖	姜	妍	姘	姚	娥	娟
	9B4F	娑	娜	娉	娉	娉	娉	娉	娉	娉	娉	娉	娉	娉	娉	娉	娉
	9B5F	媽	媽	媽	媽	媽	媽	媽	媽	媽	媽	媽	媽	媽	媽	媽	媽
	9B6F	孃	孃	孃													

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
子	9B6F				子	孕	孚	孛	孛	孩	執	孛	孛	學	孛	孛	
宀	9B6F																宀
	9B80	它	宀	宸	寬	冠	宦	寔	寐	寤	寤	寤	寤	寤	寤	寤	寤
	9B90	寤															
寸	9B90		尅	將	專	對											
小	9B90						尔	尅									
尢	9B90								尢	尢							
尸	9B90										尸	尹	屍	屈	屎	肩	
	9B9E		屮	屮	屮	屮											
屮	9B9E						屮										
山	9B9E							屮	岌	屹	岌	岑	岔	岌	岌	岌	岌
	9BAE	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌
	9BBE	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌
	9BCE	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌	岌
《	9BCE																《
工	9BDE	巫															
巳	9BDE		巳	厄													
巾	9BDE				帛	帛	帛	帛	帛	帛	帛	帛	帛	帛	帛	帛	帛
	9BEE	巾	巾	巾	巾	巾	巾	巾	巾	巾	巾	巾	巾	巾	巾	巾	巾
干	9BEE					干	井										
幺	9BEE						幺	麼									
广	9BEE									广	庠	廁	廂	厦	厦	厦	厦
	9C3F		廖	廣	廌	廌	廌	廌	廌	廌	廌	廌	廌	廌	廌	廌	廌
廌	9C3F															廌	廌
井	9C4F	井	井	井	井	井											
弋	9C4F						弋	弋									
弓	9C4F								弓	琴	弭	弭	弭	彈	彈	彈	彈
彳	9C5F	彳	彳	彳	彳												
彳	9C5F					彳	彭										
彳	9C5F							彳	徃	徃	徃	徃	徃	徃	徃	徃	徃
	9C6F	徃	徃	徃	徃	徃	徃										
心	9C6F							忄	忄	忄	忄	忄	忄	忄	忄	忄	忄
	9C80	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄
	9C90	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄	忄

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
心	9C9E		悄	悛	悖	悗	悛	悛	悛	惡	悛	惠	悛	悛	悛	悛	悛
	9CAE	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛
	9CBE	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛
	9CCE	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛
	9CDE	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛
	9CEE	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛	悛
戈	9CEE										戈	戈	戈	戈	戈	戈	戈
	9D3F		戛	戛	戛	戛	戛	戛	戛								
戸	9D3F									扁							
手	9D3F										扎	扌	扌	扌	扌	扌	扌
	9D4F	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
	9D5F	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
	9D6F	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
	9D80	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
	9D90	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
	9D9E		扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
	9DAE	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌
支	9DAE														支	支	攷
	9DBE	攷	攷	攷	攷	攷	攷	攷	攷	攷	攷	攷	攷	攷	攷	攷	攷
斗	9DBE																斛
	9DCE	斛															
斤	9DCE		斤	斷													
方	9DCE				旃	旃	旃	旃	旃	旃	旃	旃	旃				
无	9DCE												无	无			
日	9DCE														早	早	昊
	9DDE	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊
	9DEE	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊
	9E3F		晡	晡	晡	晡	晡	晡	晡	晡	晡	晡	晡	晡	晡	晡	晡
日	9E3F										日	日	日				
月	9E3F													朙	朙	朙	朙
	9E4F	朙	朙											朙	朙	朙	朙
木	9E4F			朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙
	9E5F	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙
	9E6F	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙	朙



	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
木	9E80	梳	栳	栳	档	桷	梃	梃	梃	梃	梃	梃	梃	梃	梃	梃	梃
	9E90	梵	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳
	9E9E		栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳
	9EAE	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳
	9EBE	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳
	9ECE	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳
	9EDE	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳
	9EEE	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳
	9F3F		栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳
	9F4F	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳	栳
欠	9F4F								欵	欵	盜	欵	欵	歌	歌	歌	歌
	9F5F	欵	欵	欵	欵	欵											
止	9F5F						歸										
歹	9F5F						歹	歹	歹	歹	歹	歹	歹	歹	歹	歹	歹
	9F6F	殄	殄	殄	殄	殄											
殳	9F6F						殳	殳	殳	殳							
母	9F6F										母	毓					
毛	9F6F											毳	毳	毳	毳	毳	毳
	9F80	毳	毳														
氏	9F80			氓													
气	9F80			气	氣	氣	氣										
水	9F80							汞	汕	汕	汪	汪	沂	沂	沚	沚	沛
	9F90	汾	汨	汨	汨	汨	汨	汨	汨	汨	汨	汨	汨	汨	汨	汨	汨
	9F9E		汨	汨	汨	汨	汨	汨	汨	汨	汨	汨	汨	汨	汨	汨	汨
	9FAE	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌
	9FBE	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌	洌
	9FCE	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮
	9FDE	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮
	9FEE	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮
	E03F		湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮	湮
	E04F	澎	澎	澎	澎	澎	澎	澎	澎	澎	澎	澎	澎	澎	澎	澎	澎
	E05F	濱	濱	濱	濱	濱	濱	濱	濱	濱	濱	濱	濱	濱	濱	濱	濱
	E06F	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾
火	E06F						炙	炒	炯	炯	炬	炸	炳	炮	烟	焦	焦

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
火	E080	烙	焉	烽	焜	焙	煥	熙	熙	煦	熒	煌	煖	煬	熏	燠	燂
	E090	煩	慰	熬	爛	煮	熾	燒	燉	燂	燎	煥	熾	燄	燄	燄	
	E09E		焚	燿	燥	爐	爛	爇									
爪	E09E								爭	爬	爰	爲					
爻	E09E											爻	爻				
爿	E09E														片	牀	牀
	E0AE	牀	牀														
牛	E0AE			牝	牝	犁	犁	犇	犇	犇	犇	犇	犇				
犬	E0AE												狃	豺	狃	狃	狃
	E0BE	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎
	E0CE	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎	狎
王	E0CE														玳	玳	玳
	E0DE	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳
	E0EE	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳
瓜	E13F		瓠	瓠													
瓦	E13F				𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔
	E14F	甕	甕	甕													
甘	E14F				𠂔												
生	E14F				甕												
用	E14F					甕											
田	E14F							𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔
	E15F	畧	畧	畧	畧	畧	畧	畧	畧	畧	畧	畧	畧	畧	畧	畧	畧
疒	E15F												疒	疒	疒	疒	疒
	E16F	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼
	E180	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼
	E190	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼	痼
	E19E		痼														
𠂔	E19E			𠂔	𠂔	發											
白	E19E					𠂔	兒	飯	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔	𠂔
皮	E19E															𠂔	𠂔
	E1AE	𠂔	𠂔	𠂔													
皿	E1AE				孟	盞	盞	盞	盞	盞	盞	盞	盞	盞	盞		
目	E1AE					眈	眈	眈	眈	眈	眈	眈	眈	眈	眈	眈	眈
	E1BE	眈	眈	眈	眈	眈	眈	眈	眈	眈	眈	眈	眈	眈	眈	眈	眈



	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
目	E10E	率	睹	睹	瞋	瞋	瞋	瞋	瞋	瞋	瞋	瞋	瞋	瞋	瞋	瞋	瞋
	E1DE	聾	聾														
矛	E1DE			矜													
矢	E1DE				矣	矮											
石	E1DE						砒	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒
	E1EE	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒
	E23F		砒	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒	砒
示	E23F																
	E24F	祕	祕	祕	祕	祕	祕	祕	祕	祕	祕	祕	祕	祕	祕	祕	祕
禺	E24F																
禾	E24F																
	E25F	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬
	E26F	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬	秬
穴	E26F																
	E280	窠	窠	窠	窠	窠	窠	窠	窠	窠	窠	窠	窠	窠	窠	窠	窠
立	E280																
	E290	竝	竝	竝													
竹	E290																
	E29E		筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵
	E2AE	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵
	E2BE	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵
	E2CE	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵
	E2DE	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵	筵
米	E2DE																
	E2EE	棕	棕	棕	棕	棕	棕	棕	棕	棕	棕	棕	棕	棕	棕	棕	棕
糸	E2EE																
	E33F		紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉
	E34F	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉
	E35F	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉
	E36F	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉
	E380	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉
	E390	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉	紉
缶	E390																
	E39E		罍	罍	罍	罍	罍	罍	罍	罍	罍	罍	罍	罍	罍	罍	罍

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
岡	E39E							岡	罕	岡	罌	罌	罌	罌	罌	罌	罌
	E3AE	羆	羆	羆	羆	羆											
羊	E3AE						羆	羆	羆	羆	羆	羆	羆	羆	羆	羆	羆
	E3BE	羆	羆														
羽	E3BE			翅	翠	翊	翕	翔	翥	翮	翮	翮	翮	翮			
老	E3BE														耆	耆	耆
耒	E30E	耒	耒	耒	耒	耒	耒										
耳	E30E							耿	耻	聊	聆	聒	聒	聒	聒	聒	聒
	E3DE	聒	聒	聒	聒	聒	聒										
聿	E3DE							聿	聿	聿	聿						
肉	E3DE											肱	肱	肱	肱	肱	肱
	E3EE	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱
	E43F		肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱
	E44F	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱
	E45F	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱	肱
臣	E45F										臧						
至	E45F											臧	臧				
白	E45F													臧	臧	臧	臧
	E46F	臧	臧														
舌	E46F			舌	舌	舌											
舟	E46F			舟	舟	舟	舟	舟	舟	舟	舟	舟	舟	舟	舟	舟	舟
	E480	舟	舟	舟	舟	舟											
艮	E480						艮										
色	E480						艮										
艸	E480							艸	艾	艾	艾	艾	艾	艾	艾	艾	艾
	E490	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾
	E49E		艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾
	E4AE	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾
	E4BE	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾
	E4CE	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾
	E4DE	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾
	E4EE	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾
	E53F		艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾
	E54F	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾	艾



	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
艸	E55F	蘋	蘋	蘭	蘆	蘆	蘇	蔞	蘿								
虎	E55F									虎	吊	度	號	虧			
虫	E55F														虱	蚧	蚣
	E56F	蚩	蚪	蚋	蚌	蚶	蚯	蛄	蛆	蚰	蛉	螞	蚋	蛔	蛞	蛭	蟻
	E580	蛟	蛛	蚌	蛭	蛭	蜈	蜀	蟬	蛻	蚤	蟬	蟬	蟬	蛭	蟬	蟬
	E590	蛭	蜻	蛭	蛭	蛭	蛭	蛭	蛭	蛭	蛭	蛭	蛭	蛭	蛭	蛭	蛭
	E59E		蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻
	E5AE	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻
	E5BE	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻	蟻
血	E5BE									血	血						
行	E5BE											衞	衞	衞	衞		
衣	E5BE															衫	袁
	E5CE	衾	衾	衾	衾	衾	衾	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂
	E5DE	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂
	E5EE	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂
	E63F		襦	襦	襦	襦	襦	襦	襦								
西	E63F									西	罩	覈	覈				
見	E63F													覈	覈	覈	覈
	E64F	覈	覈	覈	覈	覈	覈	覈	覈								
角	E64F									觚	觚	觚	觚	觚	觚		
言	E64F															訃	訃
	E65F	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃
	E66F	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃
	E680	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃
	E690	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃	訃
	E69E		讒	讒	讒	讒	讒	讒	讒	讒	讒	讒	讒	讒	讒	讒	讒
谷	E69E															訃	訃
	E6AE	穀															
豆	E6AE		豈	豈	豈	豈	豈										
豕	E6AE						豕	豕	豕								
豕	E6AE									豕	豕	豕	豕	豕	豕	豕	豕
	E6BE	豕	豕	豕													
貝	E6BE				賸	賸	賸	賸	賸	貳	貳	貳	賈	賈	賈	賈	賈
	E6CE	賽	賺	賺	賸	賸	賸	賸	賸	貳	貳	貳	賈	賈	賈	賈	賈



	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
赤	E6CE																赭
	E6DE	赭															
走	E6DE		走	赴	趁	趙											
足	E6DE						跂	趾	跣	跣	跣	跣	跣	跣	跣	跣	跣
	E6EE	跟	跣	跣	跣	跣	跣	跣	跣	跣	跣	跣	跣	跣	跣	跣	跣
	E73F		蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠
	E74F	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠	蹠
身	E74F												躬	躬	躬	躬	躬
	E75F	軀	軀														
車	E75F			軋	軋	軋	軋	軋	軋	軋	軋	軋	軋	軋	軋	軋	軋
	E76F	輾	輾	輾	輾	輾	輾	輾	輾	輾	輾	輾	輾	輾	輾	輾	輾
	E780	輾	輾	輾													
辛	E780				辜	辟	辣	辭	辯								
讎	E780									讎	讎	讎	讎	讎	讎	讎	讎
	E790	讎	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹
	E79E		迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹
	E7AE	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹	迹
邑	E7AE								邨	邨	邨	邨	邨	邨	邨	邨	邨
	E7BE	邨	邨	邨	邨												
酉	E7BE					酏	酏	酏	酏	酏	酏	酏	酏	酏	酏	酏	酏
	E7CE	醫	醴	醴	醴	醴	醴	醴	醴	醴	醴	醴	醴	醴	醴	醴	醴
采	E7CE									糴	糴						
里	E7CE											釐					
金	E7CE												鈞	鈞	鈞	鈞	鈞
	E7DE	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞
	E7EE	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞	鈞
	E83F		銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑
	E84F	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑
	E85F	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑
	E86F	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑	銑
門	E86F										門	門	門	門	門	門	門
	E880	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨
	E890	閨	閨	閨	閨												
阜	E890					阡	阡	阡	阡	阡	阡	阡	阡	阡	阡	阡	阡

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
阜	E89E		陝	陟	陟	陟	陟	陟	陟	陟	陟	陟	陟	陟	陟	陟	陟
隸	E8AE	隸	隸														
隹	E8AE			隹	隹	隹	隹	隹	隹	隹	隹	隹	隹	隹	隹	隹	隹
雨	E8AE																
	E8BE	霽	霽	霽	霽	霽	霽	霽	霽	霽	霽	霽	霽	霽	霽	霽	霽
青	E8CE	靜															
非	E8CE		靠														
面	E8CE			面	面	面											
革	E8CE						勒	勒	勒	勒	勒	勒	勒	勒	勒	勒	勒
	E8DE	韋	韋	韋	韋	韋	韋	韋	韋	韋	韋	韋	韋	韋	韋	韋	韋
韋	E8DE											韋	韋				
韭	E8DE													韭	韭	韭	
音	E8DE																竟
	E8EE	詔	詔														
頁	E8EE			頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤
	E93F		頤	頤	頤												
風	E93F					風	風	風	風	風	風	風	風				
食	E93F												飩	飩	飩	飩	飩
	E94F	饅	饅	饅	饅	饅	饅	饅	饅	饅	饅	饅	饅	饅	饅	饅	饅
	E95F	饅	饅	饅	饅												
首	E95F					馮	馮										
香	E95F							馮									
馬	E95F							馮	馮	馮	馮	馮	馮	馮	馮	馮	馮
	E96F	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝
	E980	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝	駝
骨	E980													肝	肝	肝	肝
	E990	體	體	體	體												
高	E990					髡											
髡	E990					髡	髡	髡	髡	髡	髡	髡	髡	髡	髡	髡	髡
	E99E		髡	髡	髡	髡	髡	髡	髡	髡	髡	髡	髡	髡	髡	髡	髡
門	E99E									門	門	門	門	門	門	門	門
鬯	E99E															鬯	
鬯	E99E																鬯
鬼	E9AE	魄	魄	魄	魄	魄	魄	魄	魄								

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
魚	E9AE								魴	魷	魷	鮑	鮑	鮑	鮑	鮑	鮑
	E9BE	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑
	E9CE	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑
	E9DE	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑	鮑
鳥	E9DE											鳶	鳶	鳶	鳶	鳶	鳶
	E9EE	鳶	鳶	鳶	鳶	鳶	鳶	鳶	鳶	鳶	鳶	鳶	鳶	鳶	鳶	鳶	鳶
	EA3F		鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠
	EA4F	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠
	EA5F	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠
鹵	EA5F				鹵	鹹	鹽										
鹿	EA5F							鹿	鹿	麋	麋	麋	麋	麋	麋	麋	麋
麥	EA5F															麥	麩
	EA6F	麩	麩	麩													
麻	EA6F				靡												
黃	EA6F					疊											
黍	EA6F					黎	黏	黏									
黑	EA6F									黔	黜	黜	黜	黜	黜	黜	黜
	EA80	黜	黜	黜													
箭	EA80				箭	箭	箭										
眼	EA80							眼	龍	龍							
鼓	EA80										鼓	琴					
鼠	EA80												鼠	鼯			
鼻	EA80														鼯		
齊	EA80															齊	
齒	EA80																齒
	EA90	鼯	鼯	鼯	鼯	鼯	鼯	鼯	鼯	鼯	鼯	鼯	鼯	鼯			
龍	EA90													龍			
龜	EA90														龜		
命	EA90															命	

## [ESC+2D50] DataMatrix (ECC200)

Hexadecimal code	ESC	2D50	Parameter
	<1B> <sub>16</sub>	<32> <sub>16</sub> <44> <sub>16</sub> <35> <sub>16</sub> <30> <sub>16</sub>	,aa,bb,ccc,ddd
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying DataMatrix Code (ECC200).

### [Format] (Setup part)

<2D50>,aa,bb,ccc,ddd

- Parameter

- a [Horizontal cell size] = Valid Range : 01 to 99 dots
- b [Vertical cell size] = Valid Range : 01 to 99 dots
- c [Number of cell in one line]  
Valid Range : 010 to 144  
000 : (Auto-setting)
- d [Number of cell lines]  
Valid Range : 008 to 144  
000 : (Auto-setting)

### [Format] (Data part)

<DN>mmmm,n...n

- Parameter

- m [Number of data] = Valid Range : 1 to 3116
- n [Print data] = Data
  - \* When print 7EH, specify "7EH, 7EH."
  - \* If Parameter other than above is specified or print data does not match, printing is not performed.

### [Coding Example]

Horizontal cell size: 3 dots, Vertical cell size: 3 dots



```
<A>
<V>100<H>200<2D50>,03,03,000,000
<DN>0010,0123456789
<Z>
```

### [Supplementary Explanation]

- If the parameter other than the description is specified or number of print data does not match, printing is not performed.
- When specifying print format, secure more than 2 mm blank space in four sides of the DataMatrix for read margin for the scanner.
- When print data is 7EH, specify "7EH, 7EH." Number of data will be "0002."
- When Auto setup (000) is applied for [Number of cell in one row] and [Number of cell lines], square DataMatrix is printed.

	Data format	Number of data
Data format	Numeric	3116
	Alphanumeric	2335
	Binary (00H to FFH)	1556

\* Symbol size of DataMatrix (ECC200) is following 30 types.

Symbol size and number of data of DataMatrix (ECC200)

Symbol size			The maximum value for the data digit		
Number of cells per 1 line (c)	Number of Cell lines (d)	Number of blocks	Numeric	Alphanumeric	Binary
10	10	1	6	3	1
12	12	1	10	6	3
14	14	1	16	10	6
16	16	1	24	16	10
18	18	1	36	25	16
20	20	1	44	31	20
22	22	1	60	43	28
24	24	1	72	52	34
26	26	1	88	64	42
32	32	4	124	91	60
36	36	4	172	127	84
40	40	4	228	169	112
44	44	4	288	214	142
48	48	4	348	259	172
52	52	4	408	304	202
64	64	16	560	418	278
72	72	16	736	550	366
80	80	16	912	682	454
88	88	16	1152	862	574
96	96	16	1392	1042	694
104	104	16	1632	1222	814
120	120	36	2100	1573	1048
132	132	36	2608	1954	1302
144	144	36	3116	2335	1556
18	8	1	10	6	3
32	8	2	20	13	8
26	12	1	32	22	14
36	12	2	44	31	20
36	16	2	64	46	30
48	16	2	98	72	47

\* Mixture of Numeric, Alphanumeric and Control code varies according to number of characters.



DataMatrix Code table

				S					I					S					O				
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1
				B6	0	0	1	1	0	0	1	1	1	0	0	1	1	0	0	1	1	1	1
				B5	0	1	0	1	0	1	0	1	1	0	1	0	1	0	1	0	1	1	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F			
0	0	0	0	0			SP	0	@	P	`	p											
0	0	0	1	1			!	1	A	Q	a	q											
0	0	1	0	2			”	2	B	R	b	r											
0	0	1	1	3			#	3	C	S	c	s											
0	1	0	0	4			\$	4	D	T	d	t											
0	1	0	1	5			%	5	E	U	e	u											
0	1	1	0	6			&	6	F	V	f	v											
0	1	1	1	7			'	7	G	W	g	w											
1	0	0	0	8			(	8	H	X	h	x											
1	0	0	1	9			)	9	I	Y	i	y											
1	0	1	0	A			*	:	J	Z	j	z											
1	0	1	1	B			+	;	K	[	k	{											
1	1	0	0	C			,	<	L	\	l												
1	1	0	1	D			-	=	M	]	m	}											
1	1	1	0	E			.	>	N	^	n	~											
1	1	1	1	F			/	?	O	_	o	DEL											

[00H to FFH] can be available for DataMatrix.

When print 7EH, specify "7EH, 7EH."

## [ESC+2D51] GS1 DataMatrix

Hexadecimal code	ESC	2D51	Parameter
	<1B> <sub>16</sub>	<32> <sub>16</sub> <44> <sub>16</sub> <35> <sub>16</sub> <31> <sub>16</sub>	,aa,bb,ccc,ddd
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying GS1 DataMatrix Code.

### [Format] (Setup part)

<2D51>,aa,bb,ccc,ddd

- Parameter

- a [Horizontal cell size] = Valid Range : 01 to 99 dots
- b [Vertical cell size] = Valid Range : 01 to 99 dots
- c [Number of cell in one line]
  - Valid Range : 010 to 144
  - 000 : (Auto-setting)
- d [Number of cell lines]
  - Valid Range : 008 to 144
  - 000 : (Auto-setting)

### [Format] (Data part)

<DN>mmmm,n...n

- Parameter

- m [Number of data] = Valid Range : 1 to 3116
- n [Print data] = Data
  - \* When print 7EH, specify "7EH, 7EH."
  - \* When print 1BH, specify "1BH, 1BH."
  - \* When print FNC1, specify "1BH, 31H."
  - \* If Parameter other than above is specified or print data do not match, print is not secured.

### [Coding Example]

Horizontal cell size: 3 dots, Vertical cell size: 3 dots

```
<A>
<V>100<H>200<2D51>,03,03,000,000
<DN>0014, <1B>161100123456789
<Q>2
<Z>
```

\* <1B><sub>16</sub> specifies character code "1BH."

### [Supplementary Explanation]

- If Parameter other than above is specified or print data do not match, printing is not performed.
- When specifying print format, secure more than 2 mm blank space in four sides of the DataMatrix for read margin for the scanner.
- When print data is 7EH, specify "7EH, 7EH." Number of data will be "0002."
- When [7EH] is specified solely, the command error occurs and the code will not be printed.
- When print data is 1BH, specify "1BH, 1BH." Number of data will be "0002."
- When print data is FNC1, specify "1BH, 31H." Number of data will be "0002."
- When [1BH] is specified solely, printing and the content of printing will not be guaranteed.
- When Auto setup (000) is applied for "Number of cell in one row" and "Number of cell lines," square symbol is printed.
- When the same value other than 000 is specified (manual setting) in the "number of cell in one row" and "number of cell lines," square symbol will be printed.
- When different value other than 000 is specified (manual setting) in the "number of cell in one row" and "number of cell lines," rectangle DataMatrix will be printed.
- The number of addressable data at data part is depending on data format. Available data number is as follows.

(Number of cell is auto setting or the maximum cell number is specified):

	Data format	Number of data
Data format	Numeric	3116
	Alphanumeric	2335
	Binary (00H to FFH)	1556

\* The symbol size of DataMatrix(ECC200) is fixed to the following 30 types.



# Symbol size and number of data of GS1 DataMatrix

Symbol size			The maximum value for the data digit		
Number of cells per 1 line (c)	Number of Cell lines (d)	Number of blocks	Numeric	Alphanumeric	Binary
10	10	1	6	3	1
12	12	1	10	6	3
14	14	1	16	10	6
16	16	1	24	16	10
18	18	1	36	25	16
20	20	1	44	31	20
22	22	1	60	43	28
24	24	1	72	52	34
26	26	1	88	64	42
32	32	4	124	91	60
36	36	4	172	127	84
40	40	4	228	169	112
44	44	4	288	214	142
48	48	4	348	259	172
52	52	4	408	304	202
64	64	16	560	418	278
72	72	16	736	550	366
80	80	16	912	682	454
88	88	16	1152	862	574
96	96	16	1392	1042	694
104	104	16	1632	1222	814
120	120	36	2100	1573	1048
132	132	36	2608	1954	1302
144	144	36	3116	2335	1556
18	8	1	10	6	3
32	8	2	20	13	8
26	12	1	32	22	14
36	12	2	44	31	20
36	16	2	64	46	30
48	16	2	98	72	47

\* Mixture of Numeric, Alphanumeric and Control code varies according to number of characters.

# GS1 DataMatrix Code table

					S								I								S								O							
				B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1									
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	1	1	1									
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1									
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F																
0	0	0	0	0			SP	0	@	P	`	p																								
0	0	0	1	1			!	1	A	Q	a	q																								
0	0	1	0	2			"	2	B	R	b	r																								
0	0	1	1	3			#	3	C	S	c	s																								
0	1	0	0	4			\$	4	D	T	d	t																								
0	1	0	1	5			%	5	E	U	e	u																								
0	1	1	0	6			&	6	F	V	f	v																								
0	1	1	1	7			'	7	G	W	g	w																								
1	0	0	0	8			(	8	H	X	h	x																								
1	0	0	1	9			)	9	I	Y	i	y																								
1	0	1	0	A			*	:	J	Z	j	z																								
1	0	1	1	B			+	;	K	[	k	{																								
1	1	0	0	C			,	<	L	\	l																									
1	1	0	1	D			-	=	M	]	m	}																								
1	1	1	0	E			.	>	N	^	n	~																								
1	1	1	1	F			/	?	O	_	o	DEL																								

	Data n	Data n+1
FNC1	1BH	31H

GS1 DataMatrix can specify from 00H to FFH.

When print 7EH, specify "7EH, 7EH."

When print 1BH, specify "1BH, 1BH."

When specifying FNC1, specify "1BH, 31H."

## [ESC+BQ] QR Code (Compatible command)

Hexadecimal code	ESC	BQ	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <51> <sub>16</sub>	Manual setup: abcc,(ddeeff,)g(hhhh)n Auto setup: abcc,(ddeeff,)n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying 2D code QR code.

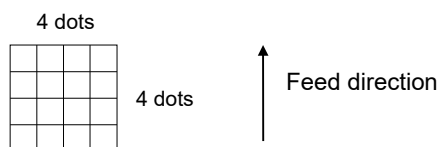
### [Format] (Setup part)

Manual setup: <BQ>abcc,(ddeeff,)g(hhhh)n

Auto setup: <BQ>abcc,(ddeeff,)n

- Parameter

- a [Error correction level]
  - 1 : 7% High density level (L)
  - 2 : 15% Standard level (M)
  - 3 : 30% High reliability level (H)
  - 4 : 25% reliability level (Q)
- b [Concatenation mode]
  - 0 : Normal mode
  - 1 : Concatenation mode
- c [Size of one side of cell]
  - Valid Range : 01 to 32 (dot)
  - e.x.) cc=04



- d [Number of partitions by concatenation mode]
  - Valid range : 01 to 16
- e [Sequential number partitioned by concatenation mode]
  - Valid range : 01 to 16
- f [Concatenation mode parity data]
  - Valid range : 00 to FF
- g [Character mode]
  - 1 : Number mode
  - 2 : Alphanumeric mode
  - 3 : Binary mode
  - 4 : Kanji mode
- h [Number of data]
  - Valid range : 01 to 7366 (dots)
- n [Print data] = Data

**[Coding Example]**

Error correction level: 30%, Concatenation mode: Normal, Size of one side of cell: 10

<A>

<V>100<H>200<BQ>3010,112345

<Q>2

<Z>

**[Supplementary Explanation]**

- Carry out XOR logic operation of all the partitioned print data of the QR code and then, specify this operation data in hexadecimal character. This is what we call [Parity data].
- When character mode is set to other than binary mode, it is not necessary to set data number parameter.

**[Precautions during use]**

- This command is for the compatibility with previous model.

## QR Code data size list (Model 1)

Version	Error Correction	Numeric	Alpha-numeric	Kanji	Binary	Version	Error Correction	Numeric	Alpha-numeric	Kanji	Binary
1 21×21	L	40	24	10	17	9 53×53	L	585	354	150	244
	M	33	20	8	14		M	441	267	113	184
	Q	25	15	6	11		Q	369	223	94	154
	H	16	10	4	7		H	239	145	61	100
2 25×25	L	81	49	20	34	10 57×57	L	690	418	177	287
	M	66	40	17	28		M	526	319	135	219
	Q	52	31	13	22		Q	433	262	111	180
	H	33	20	8	14		H	291	176	74	121
3 29×29	L	131	79	33	55	11 61×61	L	800	485	205	333
	M	100	60	25	42		M	608	368	156	253
	Q	81	49	20	34		Q	493	299	126	205
	H	52	31	13	22		H	342	207	87	142
4 33×33	L	186	113	48	78	12 65×65	L	915	555	234	381
	M	138	84	35	58		M	694	421	178	289
	Q	114	69	29	48		Q	579	351	148	241
	H	76	46	19	32		H	390	236	100	162
5 37×37	L	253	154	65	106	13 69×69	L	1030	624	264	429
	M	191	116	49	80		M	790	479	202	329
	Q	157	95	40	66		Q	656	398	168	273
	H	105	63	27	44		H	454	275	116	189
6 41×41	L	321	194	82	134	14 73×73	L	1167	707	299	486
	M	249	151	64	104		M	877	531	225	365
	Q	201	122	51	84		Q	738	447	189	307
	H	133	81	34	56		H	498	302	127	207
7 45×45	L	402	244	103	168						
	M	311	188	80	130						
	Q	253	154	65	106						
	H	167	101	43	70						
8 49×49	L	493	299	126	206						
	M	378	229	97	158						
	Q	301	183	77	126						
	H	203	123	52	85						

QR Code (Numeric mode) Code table

					S				I				S				0			
B8					0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
B7					0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
B6					0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
B5					0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0				0												
0	0	0	1	1				1												
0	0	1	0	2				2												
0	0	1	1	3				3												
0	1	0	0	4				4												
0	1	0	1	5				5												
0	1	1	0	6				6												
0	1	1	1	7				7												
1	0	0	0	8				8												
1	0	0	1	9				9												
1	0	1	0	A																
1	0	1	1	B																
1	1	0	0	C																
1	1	0	1	D																
1	1	1	0	E																
1	1	1	1	F																

QR Code (Alphanumeric mode) Code table

					S				I				S				0			
B8					0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
B7					0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
B6					0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
B5					0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0		P										
0	0	0	1	1				1	A	Q										
0	0	1	0	2				2	B	R										
0	0	1	1	3				3	C	S										
0	1	0	0	4			\$	4	D	T										
0	1	0	1	5			%	5	E	U										
0	1	1	0	6				6	F	V										
0	1	1	1	7				7	G	W										
1	0	0	0	8				8	H	X										
1	0	0	1	9				9	I	Y										
1	0	1	0	A			*	:	J	Z										
1	0	1	1	B			+		K											
1	1	0	0	C					L											
1	1	0	1	D			-		M											
1	1	1	0	E			.		N											
1	1	1	1	F			/		O											

# QR Code (Binary mode) Code table

					S				I				S				O			
				B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
				B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@	P	`	p								
0	0	0	1	1			!	1	A	Q	a	q								
0	0	1	0	2			"	2	B	R	b	r								
0	0	1	1	3			#	3	C	S	c	s								
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7			'	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A			*	:	J	Z	j	z								
1	0	1	1	B			+	;	K	[	k	{								
1	1	0	0	C			,	<	L	¥	l									
1	1	0	1	D			-	=	M	]	m	}								
1	1	1	0	E			.	>	N	^	n	~								
1	1	1	1	F			/	?	O	_	o	DEL								

[00H to 7FH], [A0H to DFH] can be available for QR code.

QR Code (Kanji mode) Code table

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Symbol	813F		SP	、	。	,	.	・	:	;	?	!	ˆ	°	´	˘	¨
	814F	ˆ	—	—	、	ゝ	ゝ	ゞ	〃	全	々	々	〇	—	—	-	/
	815F	＼	～	//		...	..	・	・	“	”	(	)	[	]	[	]
	816F	{	}	<	>	《	》	「	」	『	』	【	】	+	-	±	×
	8180	÷	=	≠	<	>	≤	≥	∞	∴	♂	♀	°	'	”	℃	¥
	8190	\$	¢	£	%	#	&	*	@	§	☆	★	○	●	◎	◇	
	819E	◆	□	■	△	▲	▽	▼	※	〒	→	←		↑	↓	=	
Alphanumeric	824F	0	1	2	3	4	5	6	7	8	9						
	825F		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	826F	P	Q	R	S	T	U	V	W	X	Y	Z					
	8280		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
	8290	p	q	r	s	t	u	v	w	x	y	z					
Hiragana	829E		あ	い	う	え	お	か	が	き	ぎ	く					
	82AE	ぐ	け	こ	さ	し	す	せ	げ	そ	ぞ	た					
	82BE	だ	ち	っ	づ	て	ず	な	ぬ	ね	の	は					
	82CE	ば	ぱ	び	ぷ	ぶ	べ	に	ぼ	ぽ	ま	み					
	82DE	む	め	も	や	ゆ	よ	ら	れ	ろ	わ	わ					
	82EE	ゐ	ゑ	を	ん												
Katakana	833F		ア	イ	ウ	エ	オ	カ	ガ	キ	グ	ク					
	834F	グ	ケ	コ	サ	シ	ス	セ	ゲ	ソ	ゾ	タ					
	835F	ダ	チ	ッ	ツ	テ	ト	ニ	ダ	ネ	ノ	ハ					
	836F	バ	パ	ビ	ピ	ブ	ヘ	ペ	バ	ポ	マ	ミ					
	8380	ム	メ	モ	ヤ	ユ	ヨ	ラ	レ	ロ	ワ	ワ					
	8390	ヰ	ヱ	ヲ	ヴ	カ	ケ										
Greek Alphabet	839E		A	B	Γ	Δ	E	Z	H	Θ	I	K	Λ	M	N	Ξ	O
	83AE	Π	P	Σ	T	Υ	Φ	X	Ψ	Ω							
	83BE		α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
	83CE	π	ρ	σ	τ	υ	φ	χ	ψ	ω							
Russian Alphabet	843F		A	Б	В	Г	Д	Е	Ё	Ж	З	И	Й	К	Л	М	Н
	844F	О	П	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э
	845F	Ю	Я														
	846F		a	б	в	г	д	е	ё	ж	з	и	й	к	л	м	н
	8480	о	п	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э
	8490	ю	я														



	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
ア	889E		亜	啞	娃	阿	哀	愛	挨	始	逢	葵	茜	穉	惡	握	渥
	88AE	旭	葦	芦	鯪	梓	庄	幹	扱	宛	姐	虻	飴	絢	綾	鮎	或
	88BE	栗	裕	安	庵	按	暗	案	闇	鞍	杏						
イ	88BE											以	伊	位	依	偉	困
	88CE	夷	委	威	尉	惟	意	慰	易	椅	為	畏	異	移	維	緯	胃
	88DE	萎	衣	謂	違	遺	医	井	亥	域	育	郁	磯	一	耆	溢	逸
	88EE	稻	茨	芋	鱒	允	印	咽	員	因	姻	引	飲	淫	胤	蔭	
	893F		院	陰	隱	韻	吋										
ウ	893F							右	宇	烏	羽	迂	雨	卯	鵜	窺	丑
	894F	碓	臼	渦	噓	唄	鬱	蔚	鰻	姥	廐	浦	瓜	閨	噂	云	運
	895F	雲															
エ	895F		荏	餌	飢	營	嬰	影	映	曳	榮	永	泳	洩	瑛	盈	穎
	896F	穎	英	衛	詠	銳	液	疫	益	馭	悅	謁	越	閼	榎	厭	円
	8980	園	堰	奄	宴	延	怨	掩	援	沿	演	炎	焰	煙	燕	猿	縁
	8990	艷	苑	菌	遠	鉛	鴛	塩									
オ	8990								於	汚	甥	凹	央	奧	往	応	
	899E		押	旺	横	欧	殴	王	翁	襖	鶯	鷗	黃	岡	沖	荻	億
	89AE	屋	憶	臆	桶	牡	乙	俺	卸	恩	溫	穩	音				
カ	89AE													下	化	仮	何
	89BE	伽	価	佳	加	可	嘉	夏	嫁	家	寡	科	暇	果	架	歌	河
	89CE	火	珂	禍	禾	稼	箇	花	苛	茄	荷	華	菓	蝦	課	嘩	貨
	89DE	迦	過	霞	蚊	俄	峨	我	牙	画	臥	芽	蛾	賀	課	餓	駕
	89EE	介	会	解	回	塊	壞	迴	快	怪	悔	恢	懷	戒	拐	改	
	8A3F		魁	晦	械	海	灰	界	皆	絵	芥	蟹	開	階	貝	凱	効
	8A4F	外	咳	害	崖	慨	概	涯	碍	蓋	街	該	鎧	骸	湮	馨	蛙
	8A5F	垣	柿	蛎	鈎	劃	嚇	各	廓	拵	攪	格	核	殼	獲	確	穫
	8A6F	覚	角	赫	較	郭	閣	隔	革	学	岳	桀	額	顙	掛	笠	慳
	8A80	樞	梶	鰍	漚	割	喝	恰	括	活	渴	滑	葛	謁	轄	且	鯉
	8A90	叶	柁	樺	鮑	株	兜	竈	蒲	釜	鎌	嚙	鴨	栢	茅	萱	
	8A9E		粥	刈	苺	瓦	乾	侃	冠	寒	刊	勘	勸	卷	喚	堪	姦
	8AAE	完	官	寬	干	幹	患	感	慣	憾	換	敢	柑	桓	棺	款	歛
	8ABE	汗	漠	濶	灌	環	甘	監	看	竿	管	簡	緩	缶	翰	肝	艦
	8ACE	莞	觀	諫	貫	還	鑑	間	閑	閑	陷	韓	館	舘	丸	含	岸
	8ADE	巖	玩	癌	眼	岩	翫	贗	雁	頑	顏	願					

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
キ	8ADE												企	伎	危	喜	器
	8AEE	基	奇	嬉	寄	岐	希	幾	忌	揮	机	旗	既	期	棋	棄	起
	8B3F		機	帰	穀	気	汽	畿	祈	季	稀	紀	微	規	記	貴	疑
	8B4F	軌	輝	飢	騎	鬼	亀	偽	儀	妓	宜	戲	技	擬	欺	犧	杵
	8B5F	祇	義	蟻	誼	議	掬	菊	鞠	吉	吃	喫	桔	橘	詰	砧	救
	8B6F	忝	却	客	脚	虐	逆	丘	久	仇	休	及	吸	宮	弓	急	居
	8B80	朽	求	汲	泣	灸	球	究	窮	笈	級	糾	給	旧	牛	去	居
	8B90	巨	拒	拋	拳	渠	虚	許	距	鋸	漁	禦	魚	亨	享	京	強
	8B9E		供	俠	僑	兇	競	共	凶	協	匡	卿	叫	喬	境	峽	鄉
	8BAE	彊	怯	恐	恭	挟	教	橋	況	狂	狹	矯	胸	脅	興	蕎	僅
	8BBE	鏡	響	饗	驚	仰	凝	充	曉	業	局	曲	極	玉	桐	秆	襟
	8BCE	勤	均	巾	錦	斤	欣	歛	琴	禁	禽	筋		芹	菌	衿	
	8BDE	謹	近	金	吟	銀											
ク	8BDE						九	俱	句	区	狗	玖	矩	苦	軀	驅	駢
	8BEE	駒	具	愚	虞	喰	空	偶	寓	遇	隅	串	櫛	釧	屑	屈	君
	8C3F		掘	窟	沓	靴	轡	窪	熊	隈	条	栗	縹	桑	鍬	勲	
	8C4F	薰	訓	群	軍	郡											
ケ	8C4F						卦	袈	祁	係	傾	刑	兄	啓	圭	珪	型
	8C5F	契	形	徑	恵	慶	慧	憩	掲	携	敬	景	桂	溪	畦	稽	系
	8C6F	経	繼	繫	野	荳	荊	蚩	計	詣	警	輕	頸	鷄	芸	迎	鯨
	8C80	劇	戟	擊	激	隙	析	傑	欠	決	潔	穴	結	血	訣	月	件
	8C90	儉	倦	健	兼	券	劍	喧	圈	堅	嫌	建	憲	懸	拳	捲	
	8C9E		檢	權	牽	犬	獻	研	硯	絹	凜	肩	見	謙	賢	軒	遣
	8CAE	鍵	險	顯	驗	齧	元	原	嚴	幻	弦	減	源	玄	現	絃	舷
	8CBE	言	諺	限													
コ	8CBE			乎	個	古	呼	固	姑	孤	己	庫	弧	戸	故	枯	
	8CCE	湖	狐	糊	股	胡	菰	虎	誇	跨	鈷	雇	顧	鼓	五	互	
	8CDE	伍	午	吳	娛	後	御	悟	梧	檣	瑚	碁	語	誤	護	醐	
	8DEE	乞	鯉	交	侯	候	倖	光	公	功	効	勾	厚	口	向	康	
	8D3F		后	喉	垢	好	孔	孝	宏	工	巧	巷	幸	広	庚	康	
	8D4F	弘	恒	慌	抗	拘	控	昂	晃	更	杭	校	梗	構	江	洪	
	8D5F	浩	港	溝	甲	皇	硬	稿	紅	紘	絞	綱	耕	考	肯	肱	
	8D6F	腔	膏	航	荒	行	衡	講	購	郊	酵	鉞	砧	鋼	閤	降	
	8D80	項	香	高	鴻	剛	劫	号	壕	拷	濠	豪	轟	翹	克	刻	

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
コ	8D90	告	国	穀	酷	鵠	黒	獄	漣	腰	甌	忽	惚	骨	狛	込	
	8D9E		此	頃	今	困	坤	壑	婚	恨	懇	昏	昆	根	梱	混	痕
	8DAE	紺	良	魂													
サ	8DAE			些	佐	又	唆	嵯	左	差	查	沙	瑳	砂	詐	鎖	
	8DBE	娑	坐	座	挫	債	催	最	哉	塞	妻	宰	彩	才	採	裁	
	8DCE	歲	濟	災	采	犀	碎	祭	齋	細	菜	裁	載	際	劑	在	
	8DDE	材	罪	財	冚	坂	阪	桼	肴	咲	崎	埼	碕	鷺	作	削	
	8DEE	昨	搾	昨	朔	柵	窄	策	錯	桜	鮭	笹	匙	冊	刷		
	8E3F		察	拶	撮	擦	札	殺	雜	皐	鯖		匙	鮫	皿	晒	
	8E4F	三	傘	参	山	慘	撒	散	燦	珊	鯖	産	纂	蚕	讚	贊	
	8E5F	酸	餐	斬	暫	殘											
シ	8E5F					仕	仔	伺	使	刺	司	史	嗣	四	士	始	
	8E6F	姉	姿	子	屍	市	志	思	指	支	孜	斯	施	旨	枝	止	
	8E80	死	氏	獅	祉	私	糸	紫	肢	脂	至	視	詞	詩	試	誌	
	8E90	諮	資	賜	雌	飼	齒	似	侍	児	字	寺	慈	持	時		
	8E9E		次	滋	治	爾	璽	磁	示	而	耳	自	蒔	薛	夕	鹿	
	8EAE	式	識	鷗	竺	軸	突	七	叱	執	失	嫉	室	悉	湿	漆	
	8EBE	疾	質	実	蔀	篠	悃	芝	屢	蕊	稿	舍	写	射	捨	赦	
	8ECE	斜	煮	社	紗	者	謝	遮	蛇	邪	借	勺	尺	杓	灼	爵	
	8EDE	酌	釈	錫	若	寂	弱	惹	取	守	手	朱	殊	狩	珠	種	
	8EEE	腫	趣	酒	首	儒	受	主	授	樹	綬	需	囚	収	周		
	8F3F		宗	就	州	修	愁	拾	秀	秋	終	繡	習	臭	舟	蒐	
	8F4F	衆	襲	讐	蹴	輯	週	曾	集	醜	什	住	充	十	從	戎	
	8F5F	柔	汁	洪	獸	縱	重	銑	夙	宿	淑	祝	縮	肅	塾	熟	
	8F6F	出	術	述	俊	峻	春	瞬	舜	駿	准	祝	旬	楯	殉	淳	
	8F80	準	潤	盾	純	巡	遵	醇	処	初	所	暑	曙	渚	庶	緒	
	8F90	署	書	薯	諸	諸	助	叙	序	徐	恕	鋤	除	傷	償		
	8F9E		勝	匠	升	召	哨	商	嘗	獎	妾	娼	宵	將	小	少	
	8FAE	尚	庄	床	廠	彰	承	抄	掌	捷	昇	昌	昭	晶	松	梢	
	8FBE	樟	樵	沼	消	涉	湘	燒	照	症	省	硝	礁	祥	称	章	
	8FCE	笑	粧	紹	肖	菖	蔣	蕉	裳	訟	証	詔	詳	象	賞	醬	
	8FDE	鉦	鍾	鐘	障	韜	上	丈	乘	冗	剩	城	場	壤	饒	常	
	8FEE	情	擾	条	杖	淨	狀	疊	蒸	讓	釀	錠	囑	墮	飾		
	903F		拭	植	殖	燭	織	職	觸	食	蝕	辱	尻	伸	信	侵	

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
シ	904F	唇	娠	寢	審	心	慎	振	新	晋	森	榛	浸	深	申	疹	真
	905F	神	秦	紳	臣	芯	薪	親	診	身	辛	進	針	震	人	仁	刃
	906F	塵	壬	尋	甚	尽	腎	訊	迅	陣	勒						
ス	906F											筈	諏	須	酢	囟	厨
	9080	逗	吹	垂	帥	推	水	炊	睡	粹	翠	衰	遂	須	錐	錘	随
	9090	瑞	髓	崇	嵩	数	枢	趨	雛	据	杉	相	菅	頗	雀	裾	
	909E		澄	摺	寸												
セ	909E					世	瀬	畝	是	凄	制	勢	姓	征	性	成	政
	90AE	整	星	晴	棲	栖	正	清	性	生	盛	精	聖	声	製	西	誠
	90BE	誓	請	逝	醒	青	静	斉	税	脆	隻	席	惜	戚	斥	昔	析
	90CE	石	積	籍	績	脊	責	赤	跡	蹟	碩	切	拙	接	撰	折	設
	90DE	窃	節	說	雪	絶	舌	蟬	仙	先	千	占	宣	専	尖	折	戰
	90EE	扇	撰	栓	柅	泉	浅	洗	染	潜	煎	煽	旋	穿	箭	線	
	913F		織	羨	腺	舛	船	薦	詮	賤	踐	選	遷	錢	銑	閃	鮮
	914F	前	善	漸	然	全	禪	繕	膳	糲							
ソ	914F										噌	塑	岨	措	曾	曾	楚
	915F	狙	疏	疎	礎	祖	租	粗	素	組	蘇	訴	阻	措	鼠	僧	創
	916F	双	叢	倉	喪	壯	奏	爽	宋	層	匠	惣	想	搜	掃	挿	搔
	9180	操	早	曹	巢	槍	槽	漕	燥	争	瘦	相	窓	糟	総	綜	聡
	9190	草	莊	葬	蒼	藻	装	走	送	遭	鎗	霜	騷	像	増	憎	
	919E		臧	藏	贈	造	促	側	則	即	息	捉	束	測	足	速	俗
	91AE	属	賊	族	続	卒	袖	其	揃	存	孫	尊	損	村	遜		
タ	91AE															他	多
	91BE	太	汰	詫	唾	墮	妥	情	打	柁	舵	梢	陀	駄	驛	体	堆
	91CE	対	耐	岱	帶	待	怠	態	戴	替	泰	滯	胎	腿	苔	袋	貸
	91DE	退	逮	隊	黛	鯛	代	台	大	第	醍	題	鷹	滝	瀧	卓	啄
	91EE	宅	托	扨	拓	沢	濯	琢	託	鐸	濁	諾	茸	夙	龍	只	
	923F		叩	但	達	辰	奪	脱	異	豎	辿	棚	谷	狸	鱒	樽	誰
	924F	丹	单	嘆	坦	担	探	旦	歎	淡	湛	炭	短	端	簞	綻	耽
	925F	胆	蛋	誕	鍛	団	壇	彈	断	暖	檀	段	男	談			
チ	925F															知	地
	926F	弛	恥	智	池	痴	稚	置	致	蚰	遲	馳	築	畜	竹	筑	蓄
	9280	逐	秩	窒	茶	嫡	着	中	仲	宙	忠	抽	昼	柱	注	虫	衷
	9290	註	酎	鑄	駐	禱	瀕	猪	苧	著	貯	丁	兆	涸	喋	寵	

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
チ	929E		帖	帳	庁	吊	張	彫	微	懲	挑	暢	朝	潮	牒	町	眺
	92AE	聴	脹	腸	蝶	調	諜	超	跳	銚	長	頂	鳥	勅	抄	直	朕
	92BE	沈	珍	賃	鎮	陳											
ツ	92BE					津	墜	椎		槌	追	鎚	痛	通	塚	柸	捆
	92CE	槻	佃	漬	柘	辻	鳶	綴	鏢	椿	潰	坪	壺	孀	紬	爪	吊
	92DE	釣	鶴														
テ	92DE			亭	低	停	偵	荆	貞	呈	堤	定	帝	底	庭	廷	弟
	92EE	悌	抵	挺	提	梯	汀	碇	禎	程	締	艇	訂	諦	蹄	遞	
	933F		邸	鄭	釘	鼎	泥	摘	擢	敵	滴	的	笛	適	鎬	溺	哲
	934F	徹	撤	轍	迭	鉄	典	填	天	展	店	添	纏	甜	貼	軋	顛
	935F	点	伝	殿	澱	田	電										
ト	935F							兎	吐	堵	塗	妬	屠	徒	斗	杜	渡
	936F	登	菟	賭	途	都	鍍	砥	砺	努	度	土	奴	怒	倒	党	冬
	9380	凍	刀	唐	塔	塘	套	宕	島	嶋	悼	投	搭	東	桃	禱	棟
	9390	盜	淘	湯	濤	灯	燈	当	痘	禱	等	答	筒	糖	統	到	
	939E		董	蕩	藤	討	騰	豆	踏	逃	透	鎧	陶	頭	騰	鬪	働
	93AE	動	同	堂	導	懂	撞	洞	瞳	童	胴	萄	道	銅	峠	鴛	匿
	93BE	得	德	澆	特	督	禿	篤	毒	独	読	析	橡	凸	突	楸	届
	93CE	鳶	苦	寅	酉	靜	嶺	屯	惇	敦	沌	豚	遁	頓	吞	曇	鈍
ナ	93DE	奈	那	内	乍	凧	薙	謎	灘	捺	鍋	槽	馴	縄	噉	南	楠
	93EE	軟	難	汝													
ニ	93EE			二		尼	弑	迹	匂	賑	肉	虹	廿	日	乳	入	
	943F		如	尿	萼	任	妊	忍	認								
ヌ	943F									濡							
ネ	943F									襦	祢	寧		葱	猫	熱	年
	944F	念	捻	撚	燃	粘											
ノ	944F																
	945F	農	覗	蚤		乃	迺	之		埜	囊	悩	濃	納	能	脳	膿
ハ	945F				巴	把	播	霸	杷	波	派	琶	破	婆	罵	芭	馬
	946F	俳	廢	拝	排	敗	杯	盃	牌	背	肺	輩	配	倍	培	媒	梅
	9480	煤	煤	狽	買	壳	賠	陪	這	蠅	秤	矧	菽	伯	剥	博	拍
	9490	柏	泊	白	箔	粕	舶	薄	迫	曝	漠	爆	縛	莫	駁	麦	
	949E		函	箱	谿	箸	肇	筈	櫨	幡	肌	畑	阜	八	鉢	澆	爰
	94AE	醜	髮	伐	罰	拔	筏	閥	鳩	嘶	塙	蛤	隼	伴	判	半	反

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
ハ	94BE 94CE	叛 采	帆 煩	搬 頒	斑 飯	板 挽	汜 晚	汎 番	版 盤	犯 磐	班 蕃	畔 蠻	繁	般	藩	販	範
ヒ	94CE 94DE 94EE 953F 954F 955F 956F	彼 誹	悲 費 鼻	扉 避 柎	批 非 稗	披 飛 匹	斐 樋 疋	比 簸 髭	泌 備 彦	疲 尾 膝	皮 微 菱	碑 枇 肘	匪 秘 毘 弼	卑 緋 琵琶	否 罷 眉	妃 肥 美	庇 被 逼
フ	956F 9580 9590 959E 95AE	斧 武 憤	普 舞 福 扮	浮 葡 腹 焚	父 蕪 複 奮	不 符 部 覆 粉	付 腐 封 淵 糞	埠 膚 楓 弗 紛	夫 芙 風 弘 雰	婦 譜 葺 沸 文	富 負 落 仏 聞	富 賦 伏 物	布 赴 副 鮒	府 阜 復 分	怖 附 幅 吻	扶 侮 服 噴	敷 撫 墳
ヘ	95AE 95BE 95CE	弊 偏	柄 麥	並 片	蔽 篇	閉 編	陞 辺	米 返	頁 遍	僻 便	壁 勉	丙 癖 婉	併 碧 弁	兵 別 鞭	摒 瞥	幣 蔑	平 篋
ホ	95CE 95DE 95EE 963F 964F 965F 966F	圃 俸	捕 包 法	步 呆 泡	甫 報 烹	補 奉 砲	輔 宝 縫	穗 峰 胞	募 峯 芳	墓 崩 萌	慕 庖 蓬	戊 抱 蜂	暮 捧 褒	母 放 訪	保 簿 方	舖 菩 朋	鋪 倣 鋒
マ	9680 9690 969E	飽 棒 撲	鳳 冒 朴	鵬 紡 牧	乏 肪 睦	亡 膨 穆	傍 謀 釦	坊 貿 勃	沒	妨 鉾 殆	帽 防 堀	忘 吠 幌	忙 頰 奔	房 北 本	暴 僕 翻	望 卜 凡	某 墨 盆
メ	9680 9690 969E	摩 鱒	磨 榭 漫	魔 亦 蔓	麻 俣	埋 又	妹 抹	味 末	枚 沫	每 迄	哩 俚	楨 蘭	幕 磨	膜 万	枕 慢	鮪 滿	枉
ミ	969E 96AE				味	未	魅	巳	箕	岬	密	蜜	湊	蓑	稔	脈	妙
ム	96AE				務	夢	無	牟	矛	霧	鷓	棕	婿	娘			
モ	96AE 96BE		明	盟	迷	銘	鳴	姪	牝	滅	免	棉	綿	緬	冥 面	名 麵	命
モ	96BE 96CE		茂	妄	孟	毛	猛	盲	網	耗	蒙	儲	木	默		摸 目	模 餅

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
モ	96DE	尤	戾	粿	貰	問	悶	紋	門	勾							
ヤ	96DE 96EE	矢	厄	役	約	葉	訳	躍	靖	柳	也	冶	夜	爺	耶	野	弥
ユ	96EE 973F 974F		諭	輸	唯	佑	優	勇	友	有	幽	悠	愉	愈	油	癒	湧
		涌	猶	猷	由	祐	裕	誘	遊	邑	郵	雄	融	揖	有	柚	
ヨ	974F 975F 976F 9780	誉	輿	預	傭	幼	妖	容	庸	揚	揺	擁	曜	楊	予	余	与
		熔	用	熏	羊	耀	葉	蓉	要	謠	踊	遙	陽	養	樣	洋	溶
		沃	浴	翌	翼	淀									慾		欲
ラ	9780 9790	乱	卵	嵐	欄	濫	羅	螺	裸	来	萊	賴	雷	洛	絡	落	酪
リ	9790 979E 97AE 97BE 97CE		痢	裏	裡	里	離	陸	律	利	吏	履	李	梨	理	璃	溜
		琉	留	硫	粒	隆	竜	龍	侶	率	立	葦	掠	略	劉	流	凌
		寮	料	梁	涼	獵	療	瞭	稜	慮	旅	虜	了	亮	僚	兩	力
		綠	倫	厘	林	淋	麟	琳	臨	糧	良	諒	遼	量	陵	領	
ル	97CE 97DE	類												瑠	壘	淚	累
レ	97DE 97EE 983F		令	伶	例	冷	勵	嶺	怜	玲	礼	苓	鈴	隸	零	靈	麗
		齡	曆	歷	列	劣	烈	裂	廉	恋	憐	漣	煉	簾	練	聯	
			蓮	連	鍊												
ロ	983F 984F 985F	楼	榔	浪	漏	呂	魯	櫓	炉	賂	路	露	勞	婁	廊	弄	朗
		論				牢	狼	篋	老	聾	蠟	郎	六	麓	祿	肋	録
ワ	985F 986F		倭	和	話	歪	賄	脇	惑	梓	驚	互	亘	鰐	詫	藁	蕨
		枕	灣	碗	腕												

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
一	989E	弌	𠂇	丕													
丨	989E				个	𠂇											
丿	989E					丿	井										
丩	989E									丩	乂	乖	乘				
乙	989E													亂			
丨	989E 98AE	舒												丨	豫	事	
二	98AE	弌	干	亞	亟												
亠	98AE				亠	亢	京	毫	亠								
人	98AE 98BE 98CE 98DE 98EE 993F 994F	仞 佩 俚 偃 僉 監	仞 佰 倚 假 僉 儕	仞 侑 倨 會 僂 儔	价 伴 倔 偕 傳 儔	伉 來 倪 修 儂 儻	佚 侖 倥 偈 僖 儼	估 儘 倅 倅 倅 儁	佛 倪 倅 倅 倅 儁	佝 俟 俶 倝 倝 儁	佝 俶 倝 倝 倝 儁	从 佝 倝 倝 倝 儁	仍 佝 倝 倝 倝 儁	仄 修 倝 倝 倝 儁	仆 侏 俚 倝 倝 儁	仞 侏 俚 倝 倝 儁	仗 佻 倝 倝 倝 儁
儿	994F									儿	兀	兒		兌	免	兢	競
入	995F	兩	兪														
八	995F		兮	冀													
冂	995F				冂	回	冊	冉		冂	冂	冂	冂				
冂	995F 996F	寫	冂											冂	冤	冠	冂
丩	996F		丩	决	冂	冲	冰	况		冽	涸	凉	凜				
几	996F 9980	鳳												几	處	凜	凭
凵	9980	凵	函														
刀	9980 9990 999E	剗	剔	剪	剗	刊	剗	剗	剗	刪	刮	剗	剗	剗	剗	剗	剗
力	999E 99AE	勸	勸	勸	勸	勸	勸	勸	勸	勸	勞	勸	勸	勸	勸	勸	勸
勹	99AE	勹	勹	勹	勹	勹	勹	勹	勹								
匕	99AE									匕							
匚	99AE									匚	匚	匚	匚	匚	匚	匚	匚



	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
匚	99AE																匚 區
十	99BE	卅	卅	卅	卅	卅	卅										
卜	99BE							卞									
冂	99BE								冂	卮	卯	卻	卷				
厂	99BE													厂	厰	厠	厦
	99CE	厥	廝	廩													
厶	99CE				厶	參	纂										
又	99CE						雙	叟		曼	變						
口	99CE											叮	叨	叭	叭	吁	咩
	99DE	呀	听	吭	吼	吮	呐	吩	吝	呖	咏	呵	咎	呖	呖	呖	咩
	99EE	咒	呻	咀	呖	咄	咐	咆	哇	呖	咸	咍	咬	哄	哈	咨	
	9A3F		呖	哂	咤	咄	哂	哂	哥	哦	唏	唔	哽	哮	哭	哺	哂
	9A4F	嗽	哇	唧	咤	售	哂	哂	啖	啖	唸	喉	哂	喙	喀	咯	哂
	9A5F	啖	啖	啖	喘	唧	單	啼	喃	喻	喇	哂	鳴	嗅	嗟	嘎	嗜
	9A6F	嗤	噴	嘔	嗽	噴	嗽	嗽	嘛	噠	噠	噠	噠	噠	噠	噠	噠
	9A80	噫	噤	嘯	噬	噪	噤	噤	噤	噠	噠	噠	噠	噠	噠	噠	噠
	9A90	噤	噤	噤	噤	噤	噤	噤	噤	噠	噠	噠	噠	噠	噠	噠	噠
口	9A90									口	囧	囧	囧	囧	囧	囧	
	9A9E		囧	國	圍	圓	團	圖	膏	囧	囧						
土	9A9E										垠	垠	垠	坎	圻	址	坏
	9AAE	坩	垂	垚	坡	坩	垠	垠	垠	圻	垠	垠	垠	坎	圻	址	坏
	9ABE	坩	垠	垠	垠	坩	垠	垠	垠	圻	垠	垠	垠	坎	圻	址	坏
	9ACE	墅	垠	垠	垠	坩	垠	垠	垠	圻	垠	垠	垠	坎	圻	址	坏
	9ADE	壘	壘	壘	壘	坩	垠	垠	垠	圻	垠	垠	垠	坎	圻	址	坏
士	9ADE				壯	壺	壺	壺	壺	壽							
夕	9ADE									夕							
夕	9ADE										夕	夕					
夕	9ADE													夕	夕	夕	
大	9ADE																大
	9AEE	夭	本	夸	夾	奇	奕	奂	奎	奚	奘	奢	奠	奧	獎	奘	
女	9B3F		奸	妁	妝	佞	佞	妘	妘	姆	姨	姜	妍	姘	姚	娥	娟
	9B4F	娑	娜	娉	娉	姘	姘	姘	姘	娶	婢	婪	媚	媼	媼	媼	媼
	9B5F	媽	媽	媽	娉	嫩	嫵	嫵	嫵	嬌	嬋	嬋	嬋	嫩	嬋	嬋	嬋
	9B6F	孃	孃	孃	娉												

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
子	9B6F				子	孕	孚	幸	孖	孩	孰	孳	孵	學	孥	孺	
宀	9B6F 9B80 9B90	它	宦	宸	寃	寇	崔	寔	寐	寤	實	寢	寔	寥	寫	寰	寶
寸	9B90	尅	將	專	對												
小	9B90					尔	尠										
尢	9B90							尢		尠							
尸	9B90 9B9E									尸	尹	屁		屆	屎	頂	
屮	9B9E					屮											
山	9B9E 9BAE 9BBE 9BCE	岬	岷	岷	岷	峇	峙	峩	峽	屹	岌	岑	岔	岌	岫	岷	岷
巛	9BCE	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺	嶺
工	9BDE	巫															
巳	9BDE	巳	厄														
巾	9BDE 9BEE	幟	幟	幣	幣	帶	帙	帙	帛	帶	帷	幄	幃	幃	幃	幃	幃
干	9BEE					干	井										
幺	9BEE					幺	麼										
广	9BEE 9C3F	廖	廣	廐		廚	廛	廢	廛	广	庠	廁	廂	厦	廐	廐	
廴	9C3F															廴	廴
升	9C4F	升	弃	莽	莽												
弋	9C4F					弋	弋										
弓	9C4F							弓		弩	弭	弭	弭	彈	彌	彎	彎
彡	9C5F	彡	彡	彡	彡												
彳	9C5F 9C6F	徙	徙	徠	徠	徠	徠	徠	徠	徠	徠	徠	徠	徠	徠	徠	徠
心	9C6F 9C80 9C90	怙	恠	恠	恠	怙	怙	怙	怙	忤	忤	忤	忤	惠	恠	恠	恠

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
心	9C9E		悄	悛	悖	悵	悵	悵	悵	惡	悖	惠	倦	悴	悴	悽	惆
	9CAE	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵
	9CBE	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵
	9CCE	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵
	9CDE	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵
	9CEE	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵	悵
戈	9CEE										戈	戊	戊	戊	戔	戔	
	9D3F		戔	戔	戔	戔	戔	戔	戔								
戸	9D3F									扁							
手	9D3F										扎	扞	扣	扞	扞	扞	扞
	9D4F	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞
	9D5F	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞
	9D6F	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞
	9D80	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞
	9D90	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞
	9D9E	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞
	9DAE	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞	扞
支	9DAE														支	攴	攴
	9DBE	攴	攴	攴	攴	攴	攴	攴	攴	攴	攴	攴	攴	攴	攴	攴	攴
斗	9DBE																斛
	9DCE	斛															
斤	9DCE		斫	斫													
方	9DCE				旃	旃	旃	旃	旃	旃	旃	旃	旃				
无	9DCE												无	无			
日	9DCE														旱	昊	昊
	9DDE	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	晝	晝	晝	晝
	9DEE	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	晝	晝	晝	晝
	9E3F	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	昊	晝	晝	晝	晝
日	9E3F									日	日	日					
月	9E3F													肫	肫	肫	肫
	9E4F	肫	肫	肫	肫	肫	肫	肫	肫								
木	9E4F			朮	朮	朮	朮	朮	朮	杆	杞	杞	杞	杧	杧	杧	杰
	9E5F	杧	杧	杧	杧	杧	杧	杧	杧	杧	杧	杧	杧	杧	杧	杧	杰
	9E6F	杧	杧	杧	杧	杧	杧	杧	杧	杧	杧	杧	杧	杧	杧	杧	杰

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
木	9E80	梳	栳	杵	档	桷	梠	梠	梠	梭	梠	條	椰	梠	檣	梠	桴
	9E90	梵	栢	桢	桢	梠	梠	梠	梠	桷	棘	栢	栢	梠	桢	梠	梠
	9E9E		栢	棧	棕	梭	椒	接	棗	棗	栢	棗	棠	梠	栢	栢	栢
	9EAE	桷	栢	桢	桢	桢	桢	桢	桢	楔	栢	栢	栢	栢	栢	栢	栢
	9EBE	榆	栢	桢	桢	桢	桢	桢	桢	桢	栢	栢	栢	栢	栢	栢	栢
	9ECE	榆	桢	桢	桢	桢	桢	桢	桢	桢	栢	栢	栢	栢	栢	栢	栢
	9EDE	桢	桢	桢	桢	桢	桢	桢	桢	桢	栢	栢	栢	栢	栢	栢	栢
	9EEE	桢	桢	桢	桢	桢	桢	桢	桢	桢	栢	栢	栢	栢	栢	栢	栢
	9F3F		桢	桢	桢	桢	桢	桢	桢	桢	栢	栢	栢	栢	栢	栢	栢
	9F4F	桢	桢	桢	桢	桢	桢	桢	桢	桢	栢	栢	栢	栢	栢	栢	栢
欠	9F4F								欸	欸	盜	欸	飲	欸	欸	欸	歐
	9F5F	欸	欸	欸	欸	欸											
止	9F5F					歸											
歹	9F5F						歹	殳		殳	殳	殳	殳	殳	殳	殳	殳
	9F6F	殳	殳	殳	殳	殳											
殳	9F6F					殳	殳	殳		殳							
母	9F6F									母	毓						
毛	9F6F											毳		毳	毫	毳	毳
	9F80	毳	毳														
氐	9F80			氐													
气	9F80			气	氛	氫	氣										
水	9F80							汞		汕	汩	汪	沂	汩	汩	汩	汩
	9F90	汾	汩	汩	沒	沐	泄	決	泓	沽	泗	汩	沂	汩	汩	汩	汩
	9F9E		汩	泛	汎	汩	汩	決	衍	洵	汩	汩	汩	汩	汩	汩	汩
	9FAE	洌	汩	涓	泓	汩	決	浙	涎	涕	濤	涓	淹	汩	汩	汩	汩
	9FBE	洌	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓
	9FCE	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓
	9FDE	滿	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓
	9FEE	溥	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓
	E03F		涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓
	E04F	澎	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓
	E05F	濱	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓	涓
	E06F	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾	瀾
火	E06F					炙	炒	炯		炯	炬	炸	炳	炮	烟	焦	焦

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
火	E080	烙	焉	烽	焜	焙	煥	熙	熙	煦	煢	煌	煖	煬	熏	燠	燂
	E090	煩	熨	熬	爛	烹	熾	燒	燉	燔	燎	燠	燬	燧	燵	燹	
	E09E		燹	燿	燦	爐	爛	爨									
									爭	爬	爰	爲					
爪	E09E																
爻	E09E												爻	組			
𠂇	E09E														𠂇	牀	牆
	E0AE	牋	牘														
牛	E0AE			牴	牯	犁	犁	犇	犒	犖	犖	犖					
犬	E0AE												犹	豺	狃	狃	狄
	E0BE	狎	狒	狒	狒	狡	狹	狛	倏	猗	猊	猜	狙	狢	狢	狢	狢
	E0CE	猓	猓	獎	猓	默	獫	獯	獯	獯	獯	獯	獯	獯	獯	獯	獯
王	E0CE														珈	玳	玳
	E0DE	玻	珀	珥	珥	珞	璫	琅	瑯	琥	珥	琲	玳	玳	玳	玳	玳
	E0EE	璫	璫	璫	璫	璫	璫	璫	璫	璫	璫	璫	璫	璫	璫	璫	璫
瓜	E13F		瓠	瓠													
瓦	E13F				𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇
	E14F	甕	甕	甕													
甘	E14F				嘗												
生	E14F					甦											
用	E14F						甬										
田	E14F						𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇	𠂇
	E15F	畧	畧	畧	畧	當	疆	疇	疇	疊	疊	疊	疊	畝	畝	畝	時
疒	E15F												疔	疔	疔	疔	疔
	E16F	痂	疳	疔	疔	疽	疽	疼	疱	瘡	瘡	瘡	瘡	疥	疥	疥	疥
	E180	痼	瘁	痰	痺	痲	痲	瘋	瘍	瘡	瘡	瘡	瘡	瘡	瘡	瘡	瘡
	E190	癰	癰	癰	癰	癰	癰	癰	癰	癰	癰	癰	癰	癰	癰	癰	癰
	E19E																
𠂇	E19E			𠂇	癸	發											
白	E19E					皀	兒	皀		皀	皀	皀	皀	皀	皀	皀	皀
皮	E19E															皀	皀
	E1AE	皀	皀	皀													
皿	E1AE				盂	盂	盂	盂	盂	盂	盂	盂	盂	盂	盂	盂	盂
目	E1AE					眚	眚	眚	眚	眚	眚	眚	眚		眚	眚	眚
	E1BE	眚	眚	眚	眚	眚	眚	眚	眚	眚	眚	眚	眚	眚	眚	眚	眚

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
目	E1CE E1DE	辜 瞽 瞞 瞢	瞞 瞞 瞞 瞞		瞞 瞞 瞞 瞞					瞞 瞞 瞞 瞞				瞞 瞞 瞞 瞞			
矛	E1DE			矜													
矢	E1DE			矣	矮												
石	E1DE E1EE E23F	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗	砗 砗 砗 砗
示	E23F E24F	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕	祕 祕 祕 祕
禺	E24F													禺	禺		
禾	E24F E25F E26F	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬	秬 秬 秬 秬
穴	E26F E280	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀	窀 窀 窀 窀
立	E280 E290	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝	竝 竝 竝 竝
竹	E290 E29E E2AE E2BE E2CE E2DE	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵	筵 筵 筵 筵
米	E2DE E2EE	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗	糗 糗 糗 糗
糸	E2EE E33F E34F E35F E36F E380 E390	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉	紉 紉 紉 紉
缶	E390 E39E	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇	罇 罇 罇 罇

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
网	E39E E3AE	竊	熙	羈	羈	羈	网	罕		罔	罟	罟	罟	罟	罟	罟	罟
羊	E3AE E3BE	羴	羴			羴	羴	羴	羴	羴	羴	羴	羴	羴	羴	羴	羴
羽	E3BE			翊	翠	翊	翕	翔	翕	翕	翕	翕	翕	翕	翕	翕	翕
老	E3BE														耆	耆	耆
耒	E3CE	耒	耒	耒	耒	耒	耒										
耳	E3CE E3DE	聾	聾	聾	聾	聾	聾	聾	聾	聊	聆	聒	聒	聚	聒	聒	聒
聿	E3DE						聿	聿		聿	聿						
肉	E3DE E3EE E43F E44F E45F	胛	胛	胛	胛	胛	胛	胛	胛	胛	胛	胛	胛	胛	胛	胛	胛
臣	E45F									臧							
至	E45F									臺	臻						
臼	E45F E46F	與	舊											與	與	與	與
舌	E46F			舍	舐	舖											
舟	E46F E480	舩	舩	舩	舩	舩	舩	舩	舩	舩	舩	舩	舩	舩	舩	舩	舩
艮	E480					艮											
色	E480					艷											
艸	E480 E490 E49E E4AE E4BE E4CE E4DE E4EE E53F E54F	苙	苙	苙	苙	苙	苙	苙	苙	艾	芍	芒	芫	芫	芫	芫	芫

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
艸	E55F	蘋	蘋	蘭	蘆	龍	蘇	蕨	蘿								
虍	E55F									虍	帀	虔	號	虧			
虫	E55F													虱	蛆	蚣	蚣
	E56F	蚩	蚪	蚋	蚌	蚶	蚯	蛄	蛆	蚰	蛉	螞	蛇	蛔	蛞	蛭	蛭
	E580	蛟	蛛	蛭	蛭	蛭	蜈	蜀	蠶	蛭	蛭	蛭	蛭	蛭	蛭	蛭	蛭
	E590	蜷	蜻	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥	蜥
	E59E		蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪
	E5AE	蝗	墓	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪	蟪
	E5BE	蠕	蠱	蠱	蠱	蠱	蠱	蠱	蠱	蠱	蠱	蠱	蠱	蠱	蠱	蠱	蠱
血	E5BE									衃	衃						
行	E5BE											衞	衞	衞	衞		
衣	E5BE											衿	衿	衿	衿	衿	衿
	E5CE	衾	衾	衾	衾	衾	衾	衾	衾	衾	衾	衾	衾	衾	衾	衾	衾
	E5DE	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂
	E5EE	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂	袂
	E63F		襦	襦	襦	襦	襦	襦	襦	襦	襦	襦	襦	襦	襦	襦	襦
而	E63F									而	罩	覈	羈				
見	E63F													覓	覓	覓	覓
	E64F	覓	覓	覓	覓	覓	覓	覓	覓								
角	E64F									觚	觚	觚	觚	觚	觚		
言	E64F									詒	詒	詒	詒	詒	詒	詒	詒
	E65F	訐	訐	訐	訐	訐	訐	訐	訐	詆	詆	詆	詆	詆	詆	詆	詆
	E66F	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆
	E680	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆
	E690	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆
	E69E	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆	詆
谷	E69E															𪛗	𪛗
	E6AE	𪛗															
豆	E6AE		豈	豈	豈	豈											
豕	E6AE						豕	豕	豕								
豸	E6AE									豸	豸	豸	豸	豸	豸	豸	豸
	E6BE	豸	豸	豸													
貝	E6BE				賤	賤	賤	賤	賤	貳	貳	貳	賈	賈	賈	賈	賈
	E6CE	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈



	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
赤	E6CE E6DE	赭												赧			
走	E6DE	𡳵 𡳶 𡳷				趙											
足	E6DE E6EE E73F E74F	跟	跣	跣	跣	踉	跬	蹠	踞	跣	跣	跣	跣	跛	跛	踣	踣
身	E74F E75F	軀 軀								躬				軀	軀	軀	軀
車	E75F E76F E780	輟	輟	輟	輟	輟	輟	輟	輟	輟	輟	輟	輟	輟	輟	輟	輟
辛	E780	辜				辟	辣	辭	辯								
𠂔	E780 E790 E79E E7AE	迨	迹	迺	迺	逕	逕	逕	逕	𠂔	逕	逕	逕	逕	逕	逕	逕
邑	E7AE E7BE	鄒	鄒	鄒	鄒	邨				邨	邨	邨	邨	邨	邨	邨	邨
酉	E7BE E7CE	醫	醢	醢	醢	酏	酏	酏	酏	酏	酏	酏	酏	酏	酏	酏	酏
采	E7CE									釉 釋							
里	E7CE									釐							
金	E7CE E7DE E7EE E83F E84F E85F E86F	釵	鉞	鉞	鉞	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔
門	E86F E880 E890	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨
阜	E890					阡	阡	阡	阡	阡	阡	阡	阡	阡	阡	阡	阡

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
阜	E89E		陝	陟	陟	陟	陟	陟	陟	隕	隕	隕	隕	隱	隕	隕	隕
隶	E8AE	隶	隸														
隹	E8AE			隹	隹	雥	雥	雍	襍	雜	霍	隹					
雨	E8AE												雹	霄	霆	霈	霓
	E8BE	雲	霑	霏	霖	雲	雷	霆	霰	霹	霽	霏	霏	霽	靈	霽	霓
青	E8CE	靜															
非	E8CE		靠														
面	E8CE			醜	醜	醜											
革	E8CE					勒	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞
	E8DE	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞	鞞				
韋	E8DE											韋	韋				
韭	E8DE													韭	齏	齏	
音	E8DE																竟
	E8EE	韶	韻														
頁	E8EE		頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤	頤
	E93F	頤	頤	頤	頤												
風	E93F					風	颯	颯	颯	颯	颯	颯	颯				
食	E93F					饒	饒	餅	餡				餡	饒	饒	饒	饒
	E94F	餡	饒	饒	饒	饒	饒	餅	餡	饒	饒	饒	饒	饒	饒	饒	饒
	E95F	饒	饒	饒	饒												
首	E95F					馮	馮										
香	E95F					馮	馮										
馬	E95F					馮	馮			馮	馮	馮	馮	馮	馮	馮	馮
	E96F	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮
	E980	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮	馮
骨	E980													骨	骨	骨	骨
	E990	體	體	體	體												
高	E990					髡											
髟	E990					髟	髟	髟	髟	髟	髟	髟	髟	髟	髟	髟	髟
	E99E	髟	髟	髟	髟	髟	髟	髟	髟								
門	E99E									門	開	開	開	開	開		
鬯	E99E															鬯	
兩	E99E																兩
鬼	E9AE	魄	魅	魏	魍	魍	魍	魍									

	Shift JIS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
魚	E9AE								魴	魷	魷	鮑	鮑	鮫	鮫	鮫	鮫
	E9BE	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓
	E9CE	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓
	E9DE	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓	鮓
鳥	E9DE											鳧	鳧	鳧	鳧	鳧	鳧
	E9EE	鳧	鳧	鳧	鳧	鳧	鳧	鳧	鳧	鳧	鳧	鳧	鳧	鳧	鳧	鳧	鳧
	EA3F		鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠
	EA4F	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠
	EA5F	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠
鹵	EA5F				鹵	鹵	鹽										
鹿	EA5F					鹿	麋			麋	麋	麋	麋	麋	麋	麋	麋
麥	EA5F															麥	麴
	EA6F	麴	麴	麴													
麻	EA6F				摩												
黃	EA6F					覺											
黍	EA6F					黍	黏	黍									
黑	EA6F									黔	黜	黜	黜	黜	黜	黜	黜
	EA80	黜	黜	黜													
荷	EA80				荷	蔽	蔽										
龜	EA80					龜	龜			龜							
鼓	EA80									鼓	鼓						
鼠	EA80												鼠	鼯			
鼻	EA80														鼯		
齊	EA80															齊	
齒	EA80																齒
	EA90	齒	齒	齒	齒	齒	齒	齒	齒	齒	齒	齒	齒				
龍	EA90													龍			
龜	EA90														龜		
龠	EA90															龠	

## [ESC+BV] MaxiCode (Compatible command)

Hexadecimal code	ESC	BV	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <56> <sub>16</sub>	a,b,c,ddddddddd,eee,fff,n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying MaxiCode.

### [Format]

<BV>a,b,c,ddddddddd,eee,fff,n...n

- Parameter

a [Symbol number] = Valid Range : 1 to 8

b [Number of symbol digit] = Valid Range : 1 to 8

c [Mode]

2 : Transportation only

3 : Transportation only

4 : Standard symbol

6 : Reader programing

d [Postal code] = Valid Range : 0 to 999999999 (Mode 2)

000000 to 999999 (Mode 3)

\* Mode 2: Max 9 digits (Numeric only)

\* Mode 3: Fixed 6 digits (Capital alphabet)

e [Country code] = Valid Range : 001 to 999

f [Service class] = Valid Range : 001 to 999

n [Low priority message] = Alphanumeric/Symbol

Mode	Service Class	Country code	Postal code	Maximum print data	
				Numeric only	Alphanumeric
2	Fixed 3 digits (Numeric only)	Fixed 3 digits (Numeric only)	Max. 9 digits	123	84
3			Fixed 6 digits (Alphanumeric)		
4	Omission			138	93
6					

### [Coding Example]

<A>

<V>100<H>200<BV>1,1,2,123456789,001,002,SAHTHA

<Q>2

<Z>

### [Supplementary Explanation]

- Size of MaxiCode are not changed by number of data for printing.
- If the parameter other than the description is specified or number of print data does not match, printing is not performed.

- When specifying mode 4 and mode 6, number of print data must be specified over 12. When number of print data is specified less than 11, scanner cannot read printed MaxiCode.

#### [Precautions during use]

- This command is for the compatibility with previous model.

#### MaxiCode Code table

					S									I									S									O								
					B8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
					B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1												
					B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	1	1	1												
					B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0												
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F																				
0	0	0	0	0			SP	0	@	P	`	p																												
0	0	0	1	1			!	1	A	Q	a	q																												
0	0	1	0	2			"	2	B	R	b	r																												
0	0	1	1	3			#	3	C	S	c	s																												
0	1	0	0	4			\$	4	D	T	d	t																												
0	1	0	1	5			%	5	E	U	e	u																												
0	1	1	0	6			&	6	F	V	f	v																												
0	1	1	1	7			'	7	G	W	g	w																												
1	0	0	0	8			(	8	H	X	h	x																												
1	0	0	1	9			)	9	I	Y	i	y																												
1	0	1	0	A			*	:	J	Z	j	z																												
1	0	1	1	B			+	;	K	[	k	{																												
1	1	0	0	C			,	<	L	¥	l																													
1	1	0	1	D			-	=	M	]	m	}																												
1	1	1	0	E			.	>	N	^	n	~																												
1	1	1	1	F			/	?	O	_	o	DEL																												

[01H to FFH] can be available for MaxiCode.

## [ESC+BK] PDF417 (Compatible command)

Hexadecimal code	ESC	BK	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <4B> <sub>16</sub>	aabbcddeefffg...g(,h)
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying PDF417.

### [Format] (Setup part)

<BK>aabbcddeefffg...g(,h)

- Parameter

- a [Minimum module width] = Valid range : 01 to 09 dots
- b [Minimum module height] = Valid range : 01 to 24 dots
- c [Security level] = Valid range : 0 to 8
- d [Number of data code words per digit]
  - Valid range : 01 to 30
  - 00 : Automatic (Width varies depending on the number of data specified)
- e [Digit number per symbol]
  - Valid range : 03 to 90
  - 00 : Automatic (Height varies depending on the number of data specified)
- f [Digit number of data] = Valid data : 0001 to 2681
- g [Print data] = Data
- h [PDF code type]
  - When omitted : PDF417
  - T : Truncated scale
  - M : Micro PDF

### [Coding Example]

Minimum module width: 03 dots, Minimum module height: 09 dots, Security level: 3, Number of data code words per line: 03, Number of line per symbol: 18

```
<A>
<V>100<H>200<BK>0309303180010PDF1234567
<Q>2
<Z>
```

### [Supplementary Explanation]

- Minimum module width can be set to 01 and 02; the read, this may not be read properly.
- Minimum module height can be set to 01, 02 and 03; the read, this may not be read properly.
- When d=e=00, aspect ratio will be at 1:2 based on the number of print data.
- When specifying security level high, parameter d or e should have large number.
- Maximum number of digit of data is 2681, but it varies depending on Minimum module size, Security level and type of print data.
- When parameter d and e does not match number of data, print may not be performed properly.

- When Micro PDF is specified by PDF type, number per symbol is specified by number of data codeword per line, and accordingly maximum number of data digit is specified. For details, refer to "Symbol size and number of data of MicroPDF417" below.
- When specifying Micro PDF by PDF code type, security level is disabled.

**[Points]**

- Sequential number is not available.
- Specifying print position by automatic line feed is not available.
- Print 00H to FFH is available.
- Format registration is available.
- Enlarging minimum module size improves print quality.
- Increasing security level improves read rate.
- Print height varies depending on the character such as numeric only, alphabet only or mixture of numeric and alphabets.

**[Notes]**

- This command is for the compatibility with previous one.

Note: Symbol size of Micro PDF417 has 34 types and shown in the table below.

Micro PDF417 – symbol size and number of data

Symbol size		Maximum number of data		
Cols (c)	Rows (d)	Alphabet (A-Z)	Numeric only	Binary mode
1	11	6	8	3
	14	12	17	7
	17	18	26	10
	20	22	32	13
	24	30	44	18
	28	38	55	22
2	8	14	20	8
	11	24	35	14
	14	36	52	21
	17	46	67	27
	20	56	82	33
	23	64	93	38
	26	72	105	43
3	6	10	14	6
	8	18	26	10
	10	26	38	15
	12	34	49	20
	15	46	67	27
	20	66	96	39
	26	90	132	54
	32	114	167	68
	38	138	202	82
	44	162	237	97
4	4	14	20	8
	6	22	32	13
	8	34	49	20
	10	46	67	27
	12	58	85	34
	15	76	111	45
	20	106	155	63
	26	142	208	85
	32	178	261	106
	38	214	313	128
	44	250	366	150

Mix of Alphabet (Capital letter, small letter), Numeric and Control code varies depending on number of combined characters.



# PDF417 Code table

					S				I				S				O			
B8					0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
B7					0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
B6					0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
B5					0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@	P	`	p								
0	0	0	1	1			!	1	A	Q	a	q								
0	0	1	0	2			"	2	B	R	b	r								
0	0	1	1	3			#	3	C	S	c	s								
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7			'	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A			*	:	J	Z	j	z								
1	0	1	1	B			+	;	K	[	k	{								
1	1	0	0	C			,	<	L	¥	l									
1	1	0	1	D			-	=	M	]	m	}								
1	1	1	0	E			.	>	N	^	n	~								
1	1	1	1	F			/	?	O	_	o	DEL								

PDF417 can specify from 00H to FFH.

## [ESC+BX] DataMatrix (ECC200) (Compatible command)

Hexadecimal code	ESC	BX	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <58> <sub>16</sub>	aabbccddeeffghh
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying GS1 DataMatrix Code.

### [Format] (Setup part)

<BX>aabbccddeeffghh

- Parameter
  - a [Format ID]
    - Valid Range : 01 (Fixed)
  - b [Error correction level]
    - Valid Range : 20 (Fixed)
  - c [Cell width]
    - Valid Range : 01 to 16 (dot per cell)
  - d [Cell pitch]
    - Valid Range : 01 to 16 (dot per cell)
  - e [Number of cells per line]
    - Valid Range : 010 to 144
    - 000 : (Auto setup)
  - f [Number of cell lines]
    - Valid Range : 008 to 144
    - 000 : (Auto setup)
  - g [Mirror image]
    - Valid Range : 0 (Fixed)
  - h [Size of guide cell]
    - Valid Range : 01 (Fixed)

### [Supplementary Explanation]

- 01 and 02 are designable for [Cell width] and [Cell Pitch]; however, they may not be read properly. In this case, 00 will be an error.
- If 000 is specified for both [Number of cells per line] and [Number of cell lines], optimum matrix size is set automatically based on the Number of data.

### [Notes]

- This command is for the compatibility with previous model.

## [ESC+DC] DataMatrix (ECC200) Data Specify (Compatible command)

Hexadecimal code	ESC	DC	Parameter
	<1B> <sub>16</sub>	<44> <sub>16</sub> <43> <sub>16</sub>	n...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying data for DataMatrix (ECC200).

### [Format] (Setup part)

<DC>n...n

- Parameter

n [Print data] = Data

### [Coding Example]

Cell width: 02, Cell pitch: 02, Number of cells per line: 000 (Auto setup), Number of cell lines: 000 (Auto setup), Print data: 1234567890

```
<A>
<V>100<H>200
<BX>01200202000000001
<DC>1234567890
<Q>2
<Z>
```

### [Supplementary Explanation]

- DataMatrix (ECC200) can specify from 00H to FFH. Note that 05H, 10H, 11H, 12H, 18H, 1BH cannot be specified because they are printer control codes. When specifying control code for data, use DataMatrix <2D50>.

### [Notes]

- This command is for the compatibility with previous model.

	Data format	Number of data
Data format	Numeric	3116
	Alphanumeric	2335
	Binary (00H to FFH)	1556

\* Value in above table shows the maximum number of data that can be specified as barcode data.

## [ESC+FX] DataMatrix (ECC200) Sequential Number (Compatible command)

Hexadecimal code	ESC	FX	Parameter
	<1B> <sub>16</sub>	<46> <sub>16</sub> <58> <sub>16</sub>	aaabccdddeee
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying sequential number for DataMatrix (ECC200).

### [Format] (Sequential number part)

<FX>aaabccdddeee

- Parameter
  - a [Number of duplication to print]  
Valid Range : 001 to 999
  - b [Flag of increase and decrease]  
+ : Increment  
- : Decrement
  - c [Number of increase and decrease]  
Valid Range : 001 to 999
  - d [Specification of digit position]  
Valid Range : 001 to 999
  - e [Number of digit]  
Valid Range : 001 to 999

### [Coding Example]

Number of duplication to print: 001, Flag of increase and decrease: +, Number of increase and decrease: 001, Digit position: 005, Number of digit: 003

```
<A>
<V>100<H>200
<FX>001+001005003
<BX>01100202000000001
<DC>00006000
<Q>2
<Z>
```

### [Notes]

- This command is for the compatibility with previous model.

**GS1 DataMatrix (ECC200) Code table (<DC>)**

					S				I				S				O			
					B8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
					B7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1
					B6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1
					B5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
B4	B3	B2	B1		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0			SP	0	@	P	`	p								
0	0	0	1	1			!	1	A	Q	a	q								
0	0	1	0	2			"	2	B	R	b	r								
0	0	1	1	3			#	3	C	S	c	s								
0	1	0	0	4			\$	4	D	T	d	t								
0	1	0	1	5			%	5	E	U	e	u								
0	1	1	0	6			&	6	F	V	f	v								
0	1	1	1	7			'	7	G	W	g	w								
1	0	0	0	8			(	8	H	X	h	x								
1	0	0	1	9			)	9	I	Y	i	y								
1	0	1	0	A			*	:	J	Z	j	z								
1	0	1	1	B			+	;	K	[	k	{								
1	1	0	0	C			,	<	L	¥	l									
1	1	0	1	D			-	=	M	]	m	}								
1	1	1	0	E			.	>	N	^	n	~								
1	1	1	1	F			/	?	O	_	o	DEL								

[00H to FFH] can be available for GS1 DataMatrix (ECC200).

(Note that 05H, 10H, 11H, 18H, 1BH cannot be specified because they are printer control codes.)

When specifying 7EH, specify "7EH, 7EH."

---

# Graphic Commands

---

## [ESC+G] Graphic Print

Hexadecimal code	ESC	G	Parameter
	<1B> <sub>16</sub>	<47> <sub>16</sub>	aabbcccn...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying the print of graphic.

### [Format]

<G>aabbcccn...n

- Parameter

a [Data specification by HEX and BIN]

H : Hex data

Specify graphic data as 2 characters of ASCII 0-F which is equal to 8 dots, output it as hex code corresponding to ASCII.

B : Binary data

Specify graphic data as one byte of binary which is equal to 8 dots.

b [Specification of crosswise graphic area per byte]

Valid range: Refer to [Initial value of parameter and Valid Range] section below.

c [Specification of lengthwise graphic area per byte] = Valid range: Refer to the table below.

Valid range: Refer to [Initial value of parameter and Valid Range] section below.

n [Graphic data]

### [Coding Example 1]

[H: HEX data] is specified for [Data specification by HEX and BIN]

[□] is printed with the below specification.

<A>

<V>50<H>50

<G>H001001H001001FF8181818181FF

<Q>1

<Z>

### [Coding Example 2]

[B: Binary data] is specified for [Data specification by HEX and BIN]

[□] is printed with the below specification.

<A>

<V>50<H>50

<G>B001001<FF818181818181FF><sub>16</sub>

<Q>1  
<Z>

#### **[Supplementary Explanation]**

- Specification of [B] has shorter program description than that of specification [H]; and, transfer data length is 50 percent shorter. This could be advantage in data capacity.
- Specification of Rotation <%> and Enlargement <L> are available.
- Enlargement <L> should be placed just before Graphic Print <G>.
- When using Rotation <%> and Enlargement <L> commands at the same time, specify <%> command before <L>.
- The crosswise maximum byte and lengthwise maximum byte are specified in [Initial value of parameter and Valid Range] section below, however, it is possible to specify up to 999 bytes to have compatibility with the old model.

It is possible to print less than 2937600 bytes as the graphic data.

- The calculation of graphic data size is [crosswise maximum byte x lengthwise maximum byte x 8].

#### **[Initial value for parameter and Valid range]**

Crosswise max. bytes: 400

Lengthwise max. bytes: 450

## [ESC+GM] BMP File Print

Hexadecimal code	ESC	GM	Parameter
	<1B> <sub>16</sub>	<47> <sub>16</sub> <4D> <sub>16</sub>	aaaaa,n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying the print of BMP file created by such as Image editing application.

### [Format]

<GM>aaaaa,n...n

- Parameter

a [Total bytes of BMP file]

n [Data]

### [Coding Example]

<A>

<V>50<H>50<GM>04500,<424D00...00><sub>16</sub>

<Q>2

<Z>

### [Supplementary Explanation]

- Data is sent in binary data (Outputs 8-dot, one byte in binary all at once) (BMP file size = Total byte size, BMP file data = data).
- When [Total bytes of BMP file] is not matching the transfer data, this may become the cause of malfunction.
- Total bytes are the file size displayed at [Property] and such.
- BMP file is available in Black/White mode only. In color mode, printing is not guaranteed.

Also, this command is not valid for BMP compressed file. Make sure that the file extension is set to [BMP] before printing.

- Rotation <%> and Enlargement <L> are available.
- Enlargement <L> should be placed just before this command.
- When using Rotation <%> and Enlargement <L> at the same time, specify <%> command before <L>.



## [ESC+GP] PCX File Print

Hexadecimal code	ESC	GP	Parameter
	<1B> <sub>16</sub>	<47> <sub>16</sub> <50> <sub>16</sub>	aaaaa,n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying the print of PCX file created by such as Image editing application.

### [Format]

<GP>aaaaa,n...n

- Parameter

a [Total bytes of PCX file]

n [Data]

### [Coding Example]

<A>

<V>50<H>50<GP>**04500,XXXXXXXXXXXX**

<Q>2

<Z>

### [Supplementary Explanation]

- Data is sent in binary data (Outputs 8-dot, one byte in binary all at once) (PCX file size = Total byte size, PCX file data = data).
- When [Total bytes of PCX file] is not matching the transfer data, this may become the cause of malfunction.
- Total bytes are the file size displayed at [Property] and such.
- PCX file is available in Black/White mode only. In color mode, printing is not guaranteed.

Also, this command is not valid for PCX compressed file. Make sure that the file extension is set to [PCX] before printing.

- Rotation <%> and Enlargement <L> are available.
- Enlargement <L> should be placed just before this command.
- When using Rotation <%> and Enlargement <L> at the same time, specify <%> command before <L>.

---

# System Commands

---

## [ESC+CS] Print Speed

Hexadecimal code	ESC	CS	Parameter
	<1B> <sub>16</sub>	<43> <sub>16</sub> <53> <sub>16</sub>	aa
Initial value	Refer to [Parameter Initial Value and Specified Range] section below.		

Valid range and term of command	When the power is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Specifying the speed of printing.

### [Format]

<CS>aa

- Parameter

a [Print speed] = Refer to [Initial value for parameter and Valid range] section below.

### [Coding Example]

<A>

<CS>4

<Z>

### [Supplementary Explanation]

- Print speed value specified by the command or "Settings" mode is maintained.

### [Points]

- If the value over valid range is specified, command error will occur and print speed will not be changed.
- Use default set operation of printer to set back the value to the initial one.

**[Initial value for parameter and Valid range]**

Initial value	Parameter valid range	Print speed corresponding to parameter
4	3, 4, 5, 6	3: 3 (inch/s) 75 (mm/s) 4: 4 (inch/s) 100 (mm/s) 5: 5 (inch/s) 125 (mm/s) 6: 6 (inch/s) 175 (mm/s)

## [ESC+#F] Print Darkness

Hexadecimal code	ESC	#F	Parameter
	<1B> <sub>16</sub>	<23> <sub>16</sub> <46> <sub>16</sub>	ab or aab
Initial value	Refer to [Print darkness level range] and [Print darkness range] section below.		

Valid range and term of command	When the power is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Specifying print darkness.

### [Format]

<#F>ab

<#F>aab

- Parameter

a [Print darkness level specification]

1 ↑ Lightest

2

3

4

5

6

7

8

9

10 ↓ Darkest

b [Print darkness specification]

A to F (omissible)

This parameter is usually "A."

The parameter valid range differs depending on the model.

Refer to [Print darkness range] section below.

### [Coding Example]

<A>

<#F>5A

<Z>

### [Supplementary Explanation]

- Print darkness value specified by the command or "Settings" mode is maintained.

### [Notes]

- If the value over valid range is specified, command error will occur and print darkness will not be changed.
- Initial value can be set by default setting operation of this product.

**[Print darkness level range]**

Initial value	Parameter valid range	When setting outside of valid range
5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	Command error will occur when other values than parameter valid range in the left is specified.

**[Print darkness range]**

Initial value	Parameter valid range	When setting outside of valid range
A	A	Command error will occur when other values than parameter valid range in the left is specified.

## [ESC+A1] Media Size

Hexadecimal code	ESC	A1	Parameter
	<1B> <sub>16</sub>	<41> <sub>16</sub> <31> <sub>16</sub>	aaaabbbb VaaaaaHbbbb
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Specifying media size.

### [Format]

<A1>aaaabbbb (a, b fixed) \*Media size is less than 9999.

<A1>VaaaaaHbbbb (a, b variable)

- Parameter

a [Height of label] = Valid range: Refer to [Valid range] section below.

b [Width of label] = Valid range: Refer to [Valid range] section below.

### [Valid Range]

Width of label: 1500 to 3200 dots

Height of label: 360 to 5040 dots

### [Coding Example]

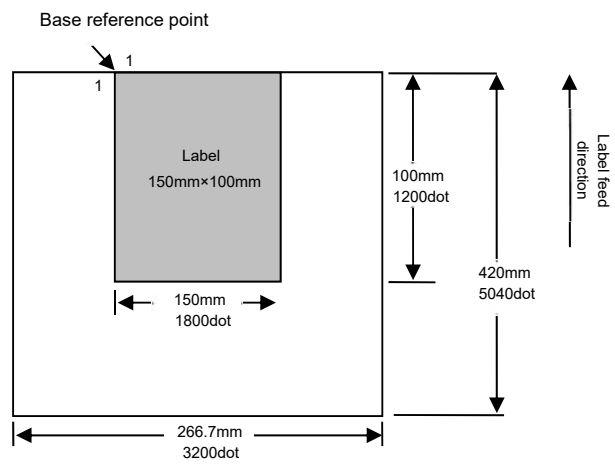
<A>

**<A1>12001800**

<Z>

### [Supplementary Explanation]

- If using the label smaller than the head width, use this command for specifying the media size and adjust the start point position corresponding to the media size.
- For specifying the media size, include the size of backing paper.



## [ESC+A3] Base Reference Point

Hexadecimal code	ESC	A3	Parameter
	<1B> <sub>16</sub>	<41> <sub>16</sub> <33> <sub>16</sub>	VabbbHcddd
Initial value	a=+,b=000,c=+,d=000		

Valid range and term of command	When the power is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Changing the start point coordinate. This is set in "Settings" mode of this product (normally).

### [Format]

<A3>VabbbHcddd

- Parameter

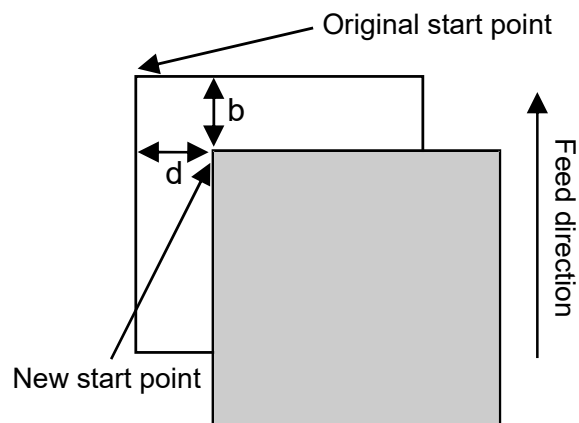
- a [Vertical start point correction sign] = +, - (Omissible)
- b [Vertical start point correction (Number of dots)] = 0 to 792 (dots)
- c [Horizontal start point correction sign] = +, - (Omissible)
- d [Horizontal start point correction (Number of dots)] = 0 to 792 (dots)

### [Coding Example]

<A>

<A3>V+10H+10

<Z>



### [Supplementary Explanation]

- If changing start point correction and being located outside of printing area, printing may not be performed.
- When changing start point correction through multiple label formats, correction will affect all of the formats.

### [Points]

- This command is effective prior to the "Settings" mode settings of this product.



- The offset value specified by Base Reference Point <A3> with the start point correction sign is not saved. Thus, the offset value specified by Base Reference Point <A3> is maintained until the change is made by the next <A3> or the power is off (See [Valid range and saving parameter]).
- The offset value specified by Base Reference Point <A3> is registered in the advanced mode of this product. Thus, the offset value specified by Base Reference Point <A3> is maintained even the power is off.

## [ESC+EP] Print End Position

Hexadecimal code	ESC	EP	Parameter
	<1B> <sub>16</sub>	<45> <sub>16</sub> <50> <sub>16</sub>	None
Initial value	None		
Valid range and term of command	When the power is OFF	The set command is not maintained.	
	Valid range within items	The set command becomes invalid.	
	Valid range between items	The set command becomes invalid.	

### [Function]

Specifying the label stop position in the sensor ignored mode.

### [Format]

<EP>

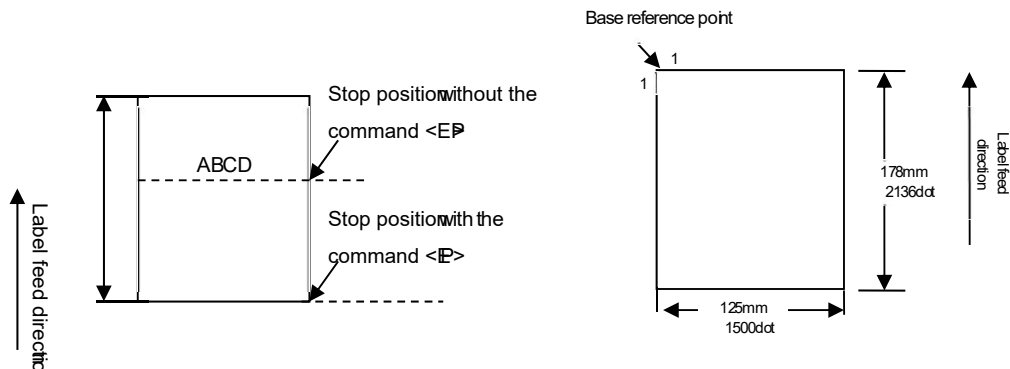
### [Coding Example]

```

<A>
<A1>21361500
<Z>
<A>
<V>100<H>200<P>2<L>0202<XS>ABCD
<Q>2
<EP>
<Z>

```

Example)



### [Supplementary Explanation]

- Use this command in the sensor invalid mode.
- Use this command in combination with Media Size <A1>.
- If you specify Media Size <A1> in Format Registration <YS> and Form Overlay Registration <&S> make sure to specify Print End Position <EP> when you specify Format Call <YR> and Form Overlay Call <&R>.

## [ESC+~] Multiple Cut

Hexadecimal code	ESC	~	Parameter
	<1B> <sub>16</sub>	<7E> <sub>16</sub>	aaaa
Initial value	aaaa=1		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

### [Function]

Specifies the number of labels to print between each cut.

### [Format]

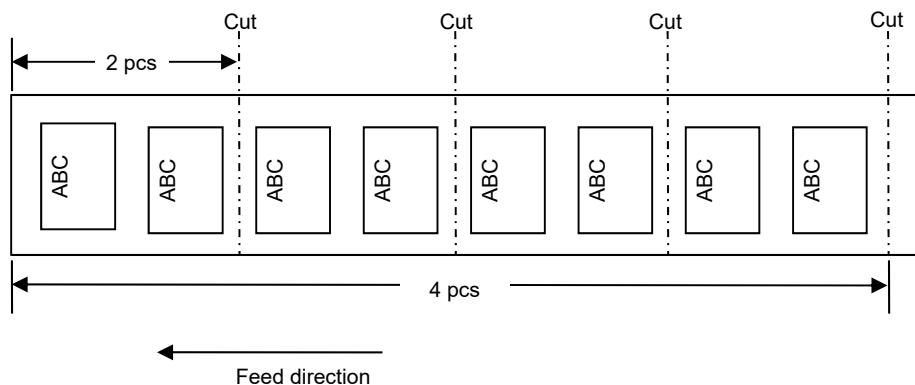
<~>aaaa

- Parameter

a [Number of prints before cutting] = Valid Range : 0 to 9999

### [Coding Example]

```
<A>
<V>100<H>200<P>2<L>0202<XM>ABC
<Q>4
<~>2
<Z>
```



### [Supplementary Explanation]

- Valid only for Cutter models.
- If this command is not specified in Cutter mode, each label will be cut off after printed.
- In case the parameter "a" is set to 0, no label will be cut.
- The product of Qty and value of "aaaa" shall not exceed the maximum number "999999."
- This command <~> shall be put after Qty<Q>. <Q>, in this case, is to specify number of sheets to be cut.

## [ESC+~A] Cut Number Unit

Hexadecimal code	ESC	~A	Parameter
	<1B> <sub>16</sub>	<7E> <sub>16</sub> <41> <sub>16</sub>	aaaa
Initial value	aaaa=1		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter becomes initial value at the next item <A>.

### [Function]

Specifying the number of labels for each cut.

### [Format]

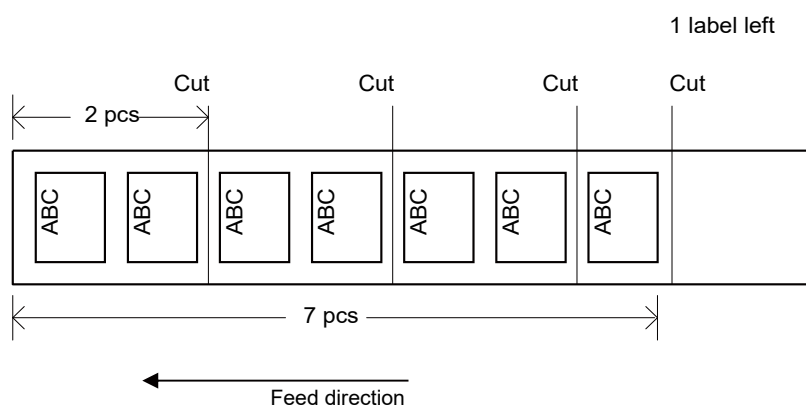
<~A>aaaa

- Parameter

a [Number of labels between each cut] = Valid range : 0 to 9999

### [Coding Example]

```
<A>
<V>100<H>200<P>2<L>0202<XS>ABC
<~A>2
<Q>7
<Z>
```



### [Supplementary Explanation]

- Valid only for Cutter models.
- If the parameter is not specified by this command <~A>, each label will be cut after being printed.
- In case the parameter "a" is set to 0, no label will be cut.
- Set this command before Print Quantity <Q>.
- This command may not be used in combination with other cut commands <~>.

## [ESC+~B] Eject and Cut

Hexadecimal code	ESC	~B	Parameter
	<1B> <sub>16</sub>	<7E> <sub>16</sub> <42> <sub>16</sub>	None
Initial value	None		

Valid range and term of command	When the power is OFF	The set command is not maintained.
	Valid range within items	The set command becomes invalid.
	Valid range between items	The set command becomes invalid.

### [Function]

Specifying eject and cut operation.

### [Format]

<~B>

### [Coding Example]

<A>

<~B>

<Z>

(1) Label stop position

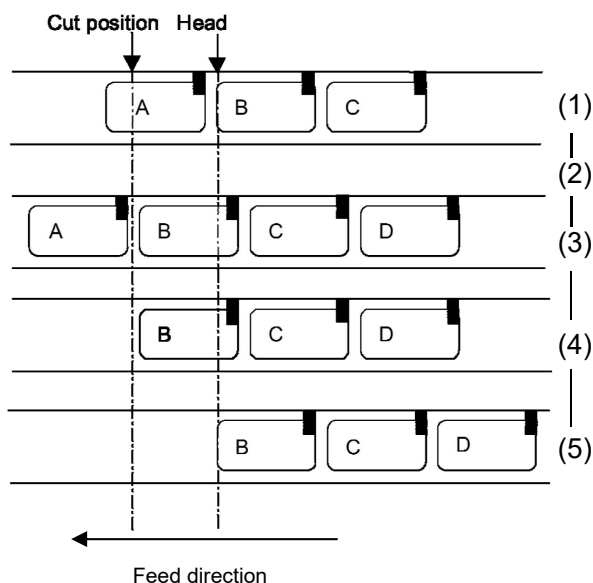
- A: Printed
- B: Not printed
- C: Not printed
- D: Not printed

(2) Command received

(3) Label is fed to the cut position.

(4) Label is cut off.

(5) Label is back fed to the print position.



### [Supplementary Explanation]

- Valid only for Cutter models.
- This command is used to cut the last label remaining in the printer.
- This command <~B> should be used by differentiating between Start Code <A> and Stop Code <Z>.
- This command <~B> may not be used in combination with other commands.
- This command <~B> is valid when the printer still holds the label which is not cut after being printed.

**[Notes]**

- This command is used to cut remaining label in printer after the commands <~A>0 or <~>0 is executed.

## [ESC+\*] Memory Clear

Hexadecimal code	ESC	*	Parameter
	<1B> <sub>16</sub>	<2A> <sub>16</sub>	a[,bbb...b]
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Clearing the contents registered in the internal memory.

### [Format]

<\*>a[,bbb...b]

- Parameter

a [Item to be cleared]

Not specified : Single item buffer, Receive buffer, Edit buffer (Reprint is not possible)  
Multi item buffer, Receive buffer, Edit buffer (Clears job in parsing)

T : User defined characters area

& : Form overlay

X : All clear

(Receive buffer, Edit buffer, User defined characters, form overlay)

Note the job, which is currently in progress, will not be cleared.

S : Sub port receive data

H : History (Print log, STATUS5)

### [Coding Example1] Clear receive and edit buffer

<A>

<\*>

<Z>

### [Coding Example2] All clear

<A>

<\*>X

<Z>

### [Coding Example3] Clear user-defined characters

<A>

<\*>T

<Z>

### [Coding Example4] Clear receive data from sub port

<A>

<\*>S

<Z>

### [Supplementary Explanation]

- Set this command between Start Code <A> and Stop Code <Z>.

- This command <\*> (a=X) will clear all the data sent before the command. However, the data which is completely parsed before the command will not be cleared. X will also clear user-defined characters and form overlay.

**[Points]**

- After the command <\*> is executed, have an interval of more than 100 ms before sending next print data.
- The job in printing will not be terminated by the command <\*>.



## [ESC+@] Offline

Hexadecimal code	ESC	@	Parameter
	<1B> <sub>16</sub>	<40> <sub>16</sub>	None
Initial value	None		

Valid range and term of command	When the power is OFF	The set command is not maintained.
	Valid range within items	The set command becomes invalid.
	Valid range between items	The set command becomes invalid.

### [Function]

Set this product offline.

### [Format]

<@>

### [Coding Example]

<A>  
<@>  
<Z>

### [Supplementary Explanation]

- Set this command between Start Code <A> and Stop Code <Z>.
- Select single-item-buffer for data transmission mode.
- When Offline <@> is sent, this printer goes into offline after the remaining print data is printed.

## [ESC+C] Reprint

Hexadecimal code	ESC	C	Parameter
	<1B> <sub>16</sub>	<43> <sub>16</sub>	None
Initial value	None		

Valid range and term of command	When the power is OFF	The set command is not maintained.
	Valid range within items	The set command becomes invalid.
	Valid range between items	The set command becomes invalid.

### [Function]

Specifies to reprint the last label.

### [Format]

<C>

### [Coding Example]

<A>

<C>

<Z>

### [Supplementary Explanation]

- Since the last print data will be cleared by powering off, reprint operation will not be available after this product rebooted.
- The Forced Tear Off <TK> and Eject and Cut <~B> do not execute reprinting.

### [Points]

- In case the print data contains sequential numbering by Sequential Number <F>, the same number will be printed.

## [ESC+PG] Designation of Registration on Printer Motion

Hexadecimal code	ESC	PG	Parameter
	<1B> <sub>16</sub>	<50> <sub>16</sub> <47> <sub>16</sub>	abcdefghijklmnooppqrrstuvwxy
Initial value	Refer to the table below.		

Valid range and term of command	When the power is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Registering the operation of the printer.

### [Format]

<PG>abcdefghijklmnooppqrrstuvwxy

- Parameter

For the detailed parameter, refer to the table in the "Parameter" section.

### [Coding Example]

<A>

<PG><00 00 04 00 00 00 00 41 01 00 00 03 00 00 01 0C 80 03 40 00 00 00 00 00 00 00 00 00><sub>16</sub>

<Z>

Parameter is described in HEX; <00><sub>16</sub><00><sub>16</sub><04><sub>16</sub> . . . . <00><sub>16</sub>

### [Supplementary Explanation]

- This command is not necessary in the normal label printing operation.
- Operation settings specified with this command are still in effect after turning off this product.
- Do not send this command during the print operation. The sensor of this product may not be disabled if this command is sent during the print operation.
- When there is illegal parameter, the command error occurs and the setting is not saved.

### [Points]

- The registration of the printer motion can be done in the settings mode and advanced mode in this product without using this command.

## Parameter

No.	Item	Description
a	Print method	00H: Thermal transfer 01H: Direct thermal
b	Not used	00H: fixed
c	Print speed	01H: 3 (inches/sec) 75 (mm/sec) 02H: 4 (inches/sec) 100 (mm/sec) 03H: 5 (inches/sec) 125 (mm/sec) 04H: 6 (inches/sec) 150 (mm/sec)
d	Print operation	00H: Continuous 01H: Tearoff 02H: Cutter 03H: Dispense (Not used) 04H: Printer Cut
e	Cutting motion	00H: Motion 1 (at head place) 01H: Motion 2 (at cutter place) 02H: No backfeed
f	Not used	00H: fixed
g	Not used	00H: fixed
h	Print darkness	41H: A (Initial value) 42H: B (Not used) 43H: C (Not used) 44H: D (Not used) 45H: E (Not used) 46H: F(Not used)
h	Print darkness level	01H: Darkness 1 02H: Darkness 2 03H : Darkness 3 04H : Darkness 4 05H: Darkness 5 (Initial value) 06H : Darkness 6 07H : Darkness 7 08H : Darkness 8 09H : Darkness 9 0AH : Darkness 10
i	Sensor type	00H: Reflective sensor 01H: Transmissive sensor (Initial value) 02H: Ignore sensor
j	Zero slash	00H: Disable 01H: Enable (Initial value)
k	Character code	00H: JIS 01H: SJIS 02H: Unicode 04H: BIG5 05H: GB18030
l	Not used	00H: fixed

No.	Item	Description
m	Initial feed	00H: Disable (Initial value) 01H: Enable
n	Proportional Pitch	00H: Disable 01H: Enable (Initial value)
o	Label height (dot)	0168H to 13B0H (360 to 5040) (Initial value: 5040)
p	Label width (dot)	05DCH to 0C80H (1500 to 3200) (Initial value: 3200)
q	Vertical offset value (dot)	0000H to 0318H (0 to 792) (Initial value: 0) FFFFH to FCE8H (-1 to -792)
r	Horizontal offset value (dot)	0000H to 0318H (0 to 792) (Initial value: 0) FFFFH to FCE8H (-1 to -792)
s	Option Standby time (in 100ms increments)	05H to C8H (5 to 200) (Initial value: 0AH (10))
t	Time to LCD power saving (in minute)	00H to 0FH (0 - 15) (Initial value: 00H (0))
u	Not used	00H: fixed
v	Not used	00H: fixed
w	Not used	00H: fixed
x	Not used	00H: fixed
y	Buzzer setting	00H: None 01H: Low 02H: Medium (Initial value) 03H: High

## [ESC+PC] Designation of Registration on Printer Motion

Hexadecimal code	ESC	PC	Parameter
	<1B> <sub>16</sub>	<50> <sub>16</sub> <43> <sub>16</sub>	1: a,b,c,d,...,y,z,a1 2: aa,b
Initial value	Refer to the table "parameters" below.		

Valid range and term of command	When the power is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Registering the operation of this product.

### [Format 1]

When setting all the items:

<PC>a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,pppp,qqqq,rrrr,ssss,t,u,v,w,x,y,z,a1

- Parameter

a [Setting item number] = F: Setting for all the items

b...a1 [Setting content] = Refer to the table "Parameters" below.

### [Format 2]

When setting specified item:

<PC>aa,b

- Parameter

a [Setting item No.] = Valid range: 1 to 26

b [Setting content] = Refer to the table "Parameters" below.

### [Coding Example 1]

setting all the items:

<A>

<PC>F,,,2,,,,A,4,,1,0,,1,1,3000,2400,,,,,,0

<Z>

### [Coding Example 2]

setting specified item:

<A>

<PC>26,1

<Z>

### [Supplementary Explanation]

- Go to the Advanced Mode or Service Mode of the printer for setting.
- Operation settings specified with this command are still in effect after turning off this product.

- To set all the items, entire or part of parameter entry is omissible by using comma. Note that a comma cannot be omitted. When omitting the settings, the default value will be set.
- When there is illegal parameter, the command error occurs. Setting is not saved.

## Parameters

Parameter	Item No.	Item	Contents
b	1	Print method	0: Thermal transfer (Initial value) 1: Direct thermal
c	2	Not used	0: Fixed
d	3	Print speed	0: 2 (inches/sec) (Not used) 1: 3 (inch/sec) 75 (mm/sec) 2: 4 (inch/sec) 100 (mm/sec) (Initial value) 3: 5 (inch/sec) 125 (mm/sec) 4: 6 (inch/sec) 150 (mm/sec) 5: 7 (inches/sec) (Not used) 6: 8 (inches/sec) (Not used) 7: 9 (inches/sec) (Not used) 8: 10 (inches/sec) (Not used)
e	4	Print mode	0: Continuous 1: Tear-off 2: Cutter 3: Dispense (Not used) 4: Cut while printing
f	5	Cutter motion	0: Motion 1 (head position) (Initial value) 1: Motion 2 (Cutter position) 2: Motion 3 (No backfeed)
g	6	Not used	0: Fixed
h	7	Not used	0: Fixed
i	8	Print Darkness	A: A (Initial value) B: B (not used) C: C (not used) D: D (not used) E: E (not used) F: F (not used)
j	9	Print darkness level	1: Darkness 1 2: Darkness 2 3: Darkness 3 4: Darkness 4 5: Darkness 5 (Initial value) 6: Darkness 6 7: Darkness 7 8: Darkness 8 9: Darkness 9 10: Darkness 10
k	10	Sensor type	0: Reflective sensor 1: Transmissive sensor (Initial value) 2: Disable sensor

Parameter	Item No.	Item	Contents
l	11	Zero slash	0: Disabled 1: Enabled (Initial value)
m	12	Kanji code	0: JIS code (initial value) 1: Shift JIS code 2: Unicode 4: BIG5 5: GB18030
n	13	Not used	0: Fixed
o	14	Initial feed	0: Disable (Initial value) 1: Enable
p	15	Proportional pitch	0: Disabled 1: Enabled (Initial value)
q	16	Height of label (dots)	0360 to 5040 (Initial value: 5040)
r	17	Width of label (dots)	1500 to 3200 (Initial value: 3200)
s	18	Vertical start point correction (dots)	0 to 792 (Initial value: 0) -1 to -792
t	19	Horizontal start point correction (dots)	0 to 792 (Initial value: 0) -1 to -792
u	20	Option Standby time (in 100ms increments)	5 to 200 (Initial value: 10)
v	21	Time to LCD power saving (in minute)	0 to 15 (Initial value: 0)
w	22	Not used	0: Fixed
x	23	Not used	0: Fixed
y	24	Not used	0: Fixed
z	25	Not used	0: Fixed
a1	26	Buzzer setting	0: None 1: Small 2: Medium (Initial value) 3: Large



## [ESC+E] Auto Line Feed

Hexadecimal code	ESC	E	Parameter
	<1B> <sub>16</sub>	<45> <sub>16</sub>	aaa
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifies amount of line spacing and CR (Line feed).

### [Format]

<E>aaa

- Parameter

a [line spacing] = valid range : 0 to 999 dots

### [Coding Example]

<A>

<E>10

<V>100<H>200<P>2<L>0304<XM>ABCDE+CR

FGHIJ+CR

<Q>2

<Z>

### [Supplementary Explanation]

- When CR (0DH) is specified, linefeed based on line pitch will be performed.
- Rotation <%> can be used in combination with this command.
- This command may be used in a job and change the line spacing as necessary.
- Specify this command before designating the consecutive print of 1-line.
- Specifying font command executes the line feed regardless of CR/LF deletion setting.
- Performing auto linefeed by the designation of CR (0DH), print start position of linefeed will be determined based on the pitch specified with Auto Line Feed <E> and the value specified with Horizontal Print Position <H> designated after Auto Line Feed <E>. In case that Print Position <H> is specified several times after Auto Line Feed <E>, return position by CR (0DH) will be at the end of Print Position <H>.

## [ESC+KM] Mincho (Kanji)

Hexadecimal code	ESC	KM	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <4D> <sub>16</sub>	None
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Sets Kanji font style to Mincho.

### [Format]

<KM>

### [Coding Example]

<A>  
<KM>  
<V>100<H>200<P>2<L>0304  
<K1>H82508A94816A83548367815B  
<KG>  
<V>200<H>200<P>2<L>0304  
<K1>H82508A94816A83548367815B  
<Q>2  
<Z>

### [Supplementary Explanation]

- It is possible to specify multiple Kanji codes within 1 item.

## [ESC+KG] Gothic (Kanji)

Hexadecimal code	ESC	KG	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <47> <sub>16</sub>	None
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Sets Kanji font style to Gothic.

### [Format]

<KG>

### [Coding Example]

```
<A>
<KG>
<V>100<H>200<P>2<L>0304
<K1>H82508A94816A83548367815B
<KM>
<V>200<H>200<P>2<L>0304
<K1>H82508A94816A83548367815B
<Q>2
<Z>
```

### [Supplementary Explanation]

- It is possible to specify multiple Kanji codes within 1 item.

## [ESC+LD] User Download

Hexadecimal code	ESC	LD	Parameter
	<1B> <sub>16</sub>	<4C> <sub>16</sub> <44> <sub>16</sub>	,a,b,c,d,e,f,g,h,i,j
Initial value	Refer to the table "Parameters" below.		

Valid range and term of command	When the power is OFF	The set parameter is maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Setting the auto-online, availability of zero slash, protocol code and Euro code.

### [Format]

<LD>,a,b,c,d,e,f,g,h,i,j

- Parameter

Refer to the table below for the details.

Function	Parameter	Contents	Initial value	
			Standard	Non-standard
Protocol code	a (HEX)	STX	02H	{ (7BH)
	b (HEX)	ETX	03H	} (7DH)
	c (HEX)	ESC	1BH	^ (5EH)
	d (HEX)	ENQ	05H	@ (40H)
	e (HEX)	CAN	18H	! (21H)
	f (HEX)	NULL	00H	~ (7EH)
	g (HEX)	Offline	40H	] (5DH)
Auto online	h (ASCII)	0: YES 1: NO	0 (30H)	0 (30H)
Zero slash	i (ASCII)	0: YES 1: NO	0 (30H)	0 (30H)
Euro code	j (HEX)	D5H	D5H	D5H

### [Coding Example]

```
<A>
<LD>,{ },%,#,&=,~,0,0,<FF>16
<Z>
```

### [Supplementary Explanation]

- Delimit Start Code <A> and Stop Code <Z> with this command for use.
- Entire or part of parameter entry is omissible by using comma. Note that a comma cannot be omitted. Omitted setting will remain as default.

- If number of commas within parameter is other than 10, or if the specified code is included in the other control code, command, or print data, operation will not be accurate.

## [ESC+CE] European Code Page

Hexadecimal code	ESC	CE	Parameter
	<1B> <sub>16</sub>	<43> <sub>16</sub> <45> <sub>16</sub>	a...a(,b)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is maintained.
	Valid range within items	The set command is valid until the next specification is made.
	Valid range between items	The set command is valid until the next specification is made.

### [Function]

Specify the European code page to be used.

### [Format]

<CE>a...a(,b)

- Parameter

a [Code page name] = Valid range : refer to the [Code page parameter] below.

b [Code page setting maintain] = Valid range : P (fixed)

Specify [P] to retain selected code page. (omissible)

When omitted, the selected code page is not retained.

### [Coding Example 1]

<A>

<V>100<H>200<P>2<L>0304<CE>1253<XU>ABCDE

<Q>2

<Z>

### [Coding Example 2]

<A>

<V>100<H>200<P>2<L>0304<CE>855<XU>ABCDE

<Q>2

<Z>

### [Code page parameter]

Parameter a	Official name	Supplementary explanation
858	DOS 858	Multilingual Latin 1 + Euro character Default Code page proprietary to SATO.
88591	ISO 8859/1	ISO 8859-1 Latin 1
88592	ISO 8859/2	ISO 8859-2 Latin 2
88599	ISO 8859/9	ISO 8859-9 Latin 5
850	DOS 850	Latin 1 Multilingual
852	DOS 852	Latin 2
855	DOS 855	Cyrillic
857	DOS 857	Turkish

Parameter a	Official name	Supplementary explanation
737	DOS 737	Greek
866	DOS 866	Cyrillic II
1250	Win 1250	Central Europe
1251	Win 1251	Cyrillic
1252	Win 1252	Western Latin 1
1253	Win 1253	Greek
1254	Win 1254	Turkish
1257	Win 1257	Baltic
869	IBM 869	IBM 869 Greek
201	X0201	Japanese X0201 *1
UTF-8	UTF-8	Unicode encoding in UTF-8

\*1: Specifying X0201 to perform following operation.

Bitmap font (for U font, S font, M font, WB font and WL font): Print with X0201 character set. XU font, XS font, XM font, XB font and XL font: Print with default -858 (DOS 858) character set.

CG font: Print with 88591 (ISO 8859-1 Latin 1) character set.

#### [Code page support font]

Following bitmap fonts are extended for supporting European code page.

Font name	Size (dots)	Type face
U	5x9	Helvetica
S	8x15	Universal Condensed
M	13x20	Universal Condensed
WB	18x30	Universal
WL	28x52	Sans Serif Bold
XU	5x9	Helvetica
XS	17x17	Universal Condensed Bold
XM	24x24	Universal Condensed Bold
XB	48x48	Universal Condensed Bold
XL	48x48	Universal

## [ESC+TK] Forced Tear Off

Hexadecimal code	ESC	TK	Parameter
	<1B> <sub>16</sub>	<54> <sub>16</sub> <4B> <sub>16</sub>	None
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Executes Tear off compulsory.

### [Format]

<TK>

### [Coding Example]

<A>  
<TK>  
 <Z>

### [Supplementary Explanation]

- This command can be specified only in Tear off mode.
- With this command, this product executes Tear off motion without waiting the time set by Option Waiting Time <TW>. If the next data is received before Tear off motion, Tear off is executed compulsory.
- This command cannot be used in combination with other commands. Please send the command independently.

### [Notes]

- This command can be used to shorten print time set at Option Waiting Time, if it is sure that there is no following item.



## [ESC+TW] Option Waiting Time

Hexadecimal code	ESC	TW	Parameter
	<1B> <sub>16</sub>	<54> <sub>16</sub> <57> <sub>16</sub>	aaa
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Setting the option standby time.

### [Format]

<TW>aaa

- Parameter

aaa [Waiting time] = Valid range : 005 to 200 (unit: 100 ms)

### [Coding Example] (waiting time = 1.5 seconds)

<A>

<TW>015

<Z>

### [Supplementary Explanation]

- This command specifies, in Tear-off mode, the waiting time between print completion and Tear-off motion.
- The set parameter becomes valid soon after receiving the command and will be retained after power off.

---

# Memory Card Commands

---

## [ESC+CC] Card Slot for Use

Hexadecimal code	ESC	CC	Parameter
	<1B> <sub>16</sub>	<43> <sub>16</sub> <43> <sub>16</sub>	a
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Specifying the slot number for use.

This product can access to the media registered to the specified slot.

### [Format]

<CC>a

- Parameter

a [Slot number]

- 0 : Slot 0 (Initial value: Product's memory)
- 1 : Slot 1 (Initial value: FROM)
- 2 : Slot 2 (Initial value: SD card)

### [Coding Example]

<A>

<CC>1

<GI>H003003001FF000000~000000FF

<Z>

### [Supplementary Explanation]

- It is necessary to specify when accessing to "Product's memory" and "FROM."
- Specifying the unused slot becomes command error.
- Please confirm that the media is mounted when specifying "SD card."

The command error occurs when the printer accessed to the slot when the media is not mounted.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [ESC+BJF] Memory Card Initialization

Hexadecimal code	ESC	BJF	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <4A> <sub>16</sub> <46> <sub>16</sub>	aaaaaaaa
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying the format (initialization) of memory card.

### [Format]

<BJF>aaaaaaaa

- Parameter

a [User ID] = Specifying up to 8 bytes in alphanumeric and symbols.

### [Coding Example]

<A>

<CC>1

<BJF>satocard

<Z>

### [Supplementary Explanation]

- Specify slot number registered with Card Slot for Use <CC> prior to this command <BJF> by all means.
- This command <BJF> is for formatting a memory card; therefore, it cannot be used in combination with other commands.
- The card will not be formatted and error occurs when the memory card is write-protect. The data is not guaranteed when the memory card is formatted accidentally. Be careful when formatting the memory card.
- Initialization takes time. Do not send any command until the initialization finishes.
- When SD card is selected by the Card slot for Use <CC> and the SD card is formatted, the contents of the SD card are deleted all and then the printer creates folders necessary.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [ESC+BJS] Memory Card Status Print

Hexadecimal code	ESC	BJS	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <4A> <sub>16</sub> <53> <sub>16</sub>	None
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Printing status of memory card.

### [Format]

<BJS>

### [Coding Example]

```
<A>
<CC>1
<BJS>
<Z>
```

### [Supplementary Explanation]

- This command <BJS> is for printing status of memory card; therefore, it cannot be used in combination with other commands.
- Status of memory card can be confirmed with a Media size of 128 mm in width and 90 mm in length.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [ESC+&S] Form Overlay Registration

Hexadecimal code	ESC	&S	Parameter
	<1B> <sub>16</sub>	<26> <sub>16</sub> <53> <sub>16</sub>	,aa(,bbbb,cccc)
Initial value	None		

Valid range and term of command	When the power is OFF	The registered data become valid.
	Valid range within items	The registered data is valid until the next specification is made.
	Valid range between items;	The registered data is valid until the next specification is made.

### [Function]

Specifying the registration of fixed print contents to a memory card.

### [Format]

<&S>,aa(,bbbb,cccc)

- Parameter

a [Registration No.] = Valid range: 1 to 99

b [Size specification of window width]

Valid range: Refer to [Valid Range] section below (omissible).

c [Size specification of window height]

Valid range: Refer to [Valid Range] section below (omissible).

### [Coding Example]

<A>

<V>100<H>100<XS>MODEL

<CC>1

<&S>,1

<Z>

### [Supplementary Explanation]

- Specify slot No. with Card Slot for Use <CC> prior to this command <&S> by all means.
- Delimit Start of Data Transmission <A> and End of Data Transmission <Z> with the format to be registered.
- Registration of identical registration No. is invalid.
- Both Print of Graphic <G> and Print of BMP File <GM> can be registered.
- This command <&S> allows up to 99 registries. Note that the capacity of registry may vary depending on the memory card to be used.
- Data registered with this command <&S> can be cleared with Clear <\*>R.
- If the vertical size of the window is larger than the set paper length, a command error occurs.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [Valid Range of Window Size]

Horizontal size of the window: 1 to 3200 dots

Vertical size of the window: 1 to 5040 dots

## [Valid Commands]

Print Psition	<V>	<H>								
Font	<X20>	<X21>	<X22>	<X23>	<X24>					
	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<\$=>	<K1>
	<K2>	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>
	<k2>	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	<U>
	<S>	<M>	<WB>	<WL>						
Barcode	<B>	<BC>	<BG>	<BI>	<D>	<D><d>	<BD>	<BT>	<BW>	<BP>
	<BF>	<BS>	<BL>	<BL><d>	<BM>					
2D Code	<2D10>	<BK>	<2D12>	<2D20>	<BV>	<2D30>	<2D31>	<2D32>	<BQ>	<2D50>
	<BX>									
Composite Symbol	<EU>									
Modification	<WD>	<FW>	<(>	<RF>	<FC>	<FT>	<RM>			
Graphic	<G>	<GM>	<GP>							

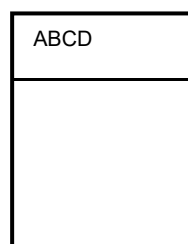
In general, this command is used for [Registration number] only. Specification of window height and width will control the movement with Vertical Print Position <V> and Horizontal Print Position <H> at the time of calling. For the movement at the time of calling, if registered area is exceeding print area, the portion outside of print area will not be printed.

The following are the brief operation.

### (1) Normal (To register)

```
<A>
<V>100<H>100<P>2<L>0202
<X23>0ABCD
<V>60<H>60
<FW>0808V800H400
<V>320<H>60
<FW>04H400
<CC>1
<&S>,1
<Z>
```

Registered image



### (2) When print is specified after the command <&S>

```
<A>
<V>100<H>100<P>2<L>0202
<X23>0ABCD
<V>60<H>60
<FW>0808V800H400
<V>320<H>60
<FW>04H400
<CC>1
<&S>,1
<V>200<H>100<OB>12345
<Z>
```

Anything specified prior to the command <&S> will be registered as form overlay.

← Printing out this part

### (3) When window size is specified

Label Size <A1>08000400, Window width [200], Window height [200]

<A>

<A1>08000400

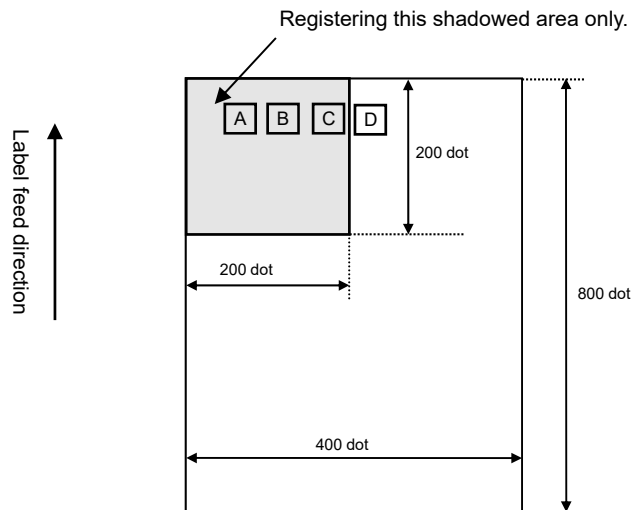
<V>100<H>00<P>2<L>0202

<X23>0ABCD

<CC>1

<&S>1,200,200

<Z>



## [ESC+&R] Form Overlay Call

Hexadecimal code	ESC	&R	Parameter
	<1B> <sub>16</sub>	<26> <sub>16</sub> <52> <sub>16</sub>	,aa
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Invoking the contents in memory card with Registration of Form Overlay <&S>.

### [Format]

<&R>,aa

- Parameter

a [Registration Number] = Valid range: 1 to 99

### [Coding Example]

```
<A>
<CC>1
<&R>,1
<Z>
```

### [Supplementary Explanation]

- Specify slot number registered with Card Slot for Use <CC> prior to this command <&R> by all means.
- This command can be combined with different registration No. and printed.
- When registration No. is not specified, this command will be ignored.
- If specifying unregistered No., Read/Write error will occur.
- When registering without specifying window, Vertical Print Position <V> and Horizontal Print Position <H> will be ignored and V1 and H1 (Start position of drawing area) will be determined.
- When specifying and registering window, movement with <V> and <H> will be enabled.  
Note that when exceeding print area, the portion outside of print area will not be printed.
- Please note that this command cannot be used without a memory card.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

### [Valid Commands]

Print position	<V>	<H>								
----------------	-----	-----	--	--	--	--	--	--	--	--



## [ESC+YS] Format Registration

Hexadecimal code	ESC	YS	Parameter
	<1B> <sub>16</sub>	<59> <sub>16</sub> <53> <sub>16</sub>	,aaa
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter is valid until the next specification is made.	
	Valid range between items	The set parameter is valid until the next specification is made.	

### [Function]

Registering print format.

### [Format]

<YS>,aaa

- Parameter

a [Format registration number] = Valid Range : 1 to 999

### [Coding Example]

```
<A>
<CC>1
<YS>,1
</N>,3,3
<%>0<V>100<H>200<P>2<L>0101<XM>ABC
<Z>
```

### [Supplementary Explanation]

- When registering multiple formats, Delimit Start Code <A> and Stop Code <Z> with one format.
- Specify Card Slot for Use <CC> prior to this command <YS> by all means.
- Use this command and Registration of Field </N> as a pair.
- Attempts to re-register with registered No., error will occur, and the targeted content will be printed.
- The error occurs when specifying unused or specifying the slot which this product is allocated.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.
- The maximum registration with </N> is 99 fields. (Refer to [ESC+/N] Registration of Field for the commands can be registered.)
- The maximum registration with other than </N> is 50 fields. Refer to [Available registration command] below for the commands can be registered.

## [Points]

### - Details of Format Registration

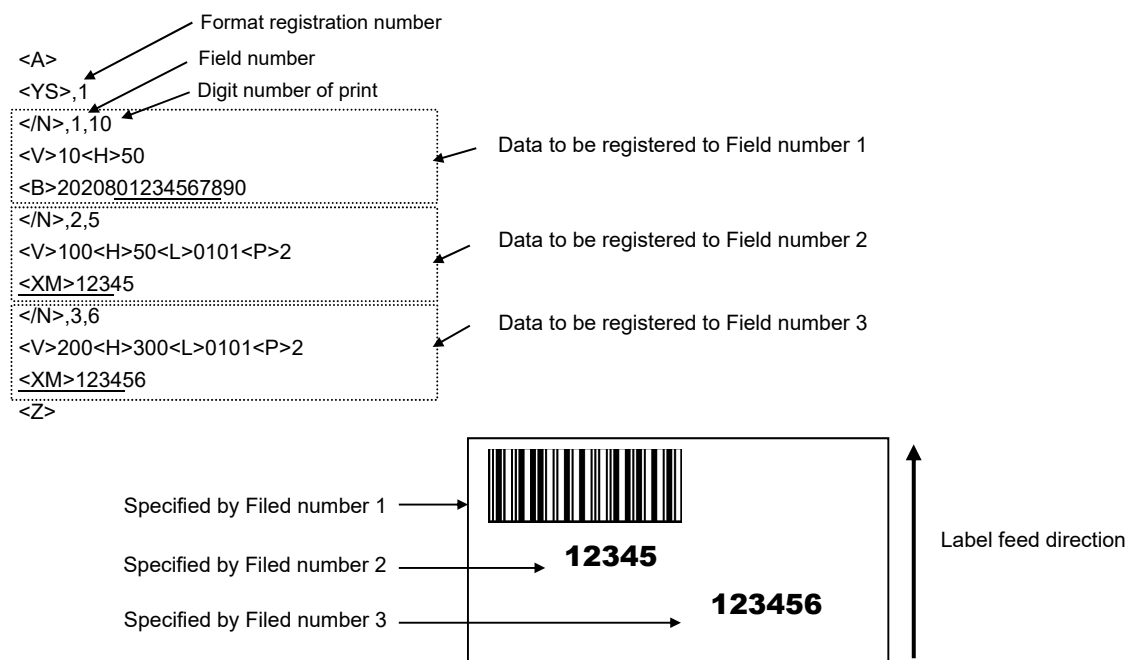
A group of commands can be registered to a memory card (option). Once registered, it saves time to specify the identical command group. The registration also allows a change of print data when invoking the format. Such function is called "Format Registration."

One item consists of different command groups necessary for printing, and such groups are called "Field." Note that multiple fields make format.

Commands for format registration:

One format consists of a pair of commands from Start Code <A> to Stop Code <Z>, and specify Format Registration <YS> right after <A>. For <YS>, specify [Format registration number] between 1 and 999. And then, insert Registration of Field </N> after <YS> to specify [Field number] and [Digit number of print quantity]. After [Field number] and [Digit number of print quantity] are entered, specify print position, character type, barcode, and so on.

[Registration Example]



Invoking the registered print contents

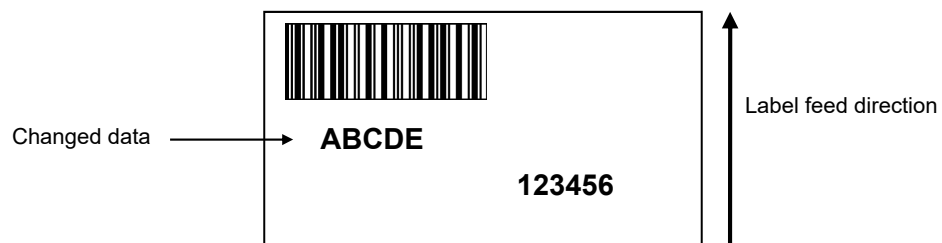
Specify saved [Format registration number] between 1 and 999 with Format Call <YR>.

To change print data, use Print of Field </D> to specify [Field number] to be changed, and continuously specify the changed print data. Note that the underlined parts in the [Registration Example] are changeable.

#### Calling Example

<A>  
 <YR>,1  
 </D>,2,ABCDE  
 <Q>2  
 <Z>

Format registration number to invoke  
 Field number of print data to be changed  
 Data to be changed



Available registration commands are as follows.

#### [Available registration commands]

Print Psition	<V>	<H>								
Font	<X20>	<X21>	<X22>	<X23>	<X24>					
	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>	<RD>	<\$=>	<K1>
	<K2>	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>
	<k2>	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	
Barcode	<B>	<BC>	<BG>	<BI>	<D>	<D><d>	<BD>	<BT>	<BW>	
Modification	<P>	<L>	<PS>	<PR>	<%>	<FW>	<(>	<WD>		
System	<A1>	<A3>								
Memory Card	<&R>	</N>	<GR>	<GC>	<PY>					

#### Note

- The operation when registering a command other than available command is not guaranteed.

## [ESC+/N] Registration of Field

Hexadecimal code	ESC	/N	Parameter
	<1B> <sub>16</sub>	<2F> <sub>16</sub> <4E> <sub>16</sub>	,aa,bb
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter is valid until the next specification is made.	
	Valid range between items	The set parameter is valid until the next specification is made.	

### [Function]

Registering items within the field of Registration of Format <YS>.

### [Format]

</N>,aa,bb

- Parameter

a [Field number] = Valid Range : 1 to 99

b [Digit number of print] = Valid Range : 1 to 99

### [Coding Example]

```

<A>
<CC>1
<YS>,1
</N>,1,3
<%>0<V>100<H>200<P>2<L>0101<XM>ABC
</N>,2,5
<%>0<V>200<H>200<P>2<L>0101<OA>12345
</N>,3,8
<%>0<V>300<H>4040208049123456
<Z>

```

### [Supplementary Explanation]

- Specify the value of [Field number] in ascending order.
- Specify Vertical Print Position <V> and Horizontal Print Position <H> for each field. If not, initial value will be set.
- Specification of digit number when printing external character.  
 External code H, one external character has 4 digits; thus, three external characters make 12 digits for printing.  
 External code B, one external character has 2 digits; thus, three external characters make 6 digits for printing.
- Use this command and Registration of Format <YS> as a pair.
- Due to the memory capacity limit, it may not save up to 99 registries.
- The error occurs when specifying unused or specifying the slot which this product is allocated.

**[Notes]**

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

**[Designable Commands for the Change of Print]**

Font	<X20>	<X21>	<X22>	<X23>	<X24>	<OA>	<OB>	<RD>	<\$=>	<K1>
	<K2>	<K3>	<K4>	<K5>	<K8>	<K9>	<KA>	<KB>	<KD>	<k1>
	<k2>	<k3>	<k4>	<k5>	<k8>	<k9>	<kA>	<kB>	<kD>	<XU>
	<XS>	<XM>	<XB>	<XL>						
Modification	<P>	<L>	<PS>	<PR>	<%>					
Barcode	<B>	<BC>	<BG>	<BI>	<D>	<D><d>	<BD>	<BT>	<BW>	

## [ESC+YR] Format Call

Hexadecimal code	ESC	YR	Parameter
	<1B> <sub>16</sub>	<59> <sub>16</sub> <52> <sub>16</sub>	,aaa
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Invoking and printing out the format registered with Registration of Format <YS>.

### [Format]

<YR>,aaa

- Parameter

a [Format registration Number] = Valid Range : 1 to 999

### [Coding Example]

```
<A>
<CC>1
<YR>,1
</D>,1,DEF
</D>,2,78901
</D>,3,49000238
<Q>2
<Z>
```

### [Supplementary Explanation]

- This command cannot invoke multiple formats between Start Code <A> and Stop Code <Z>.
- Use this command and Print of Field </D> as a pair.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [ESC+/D] Print of Field

Hexadecimal code	ESC	/D	Parameter
	<1B> <sub>16</sub>	<2F> <sub>16</sub> <44> <sub>16</sub>	,aa,n...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter is valid until the next specification is made.	
	Valid range between items	The set parameter is valid until the next specification is made.	

### [Function]

Invoking the items registered with Registration of Field and specifying data.

### [Format]

</D>,aa,n...n

- Parameter

a [Field number] = Valid Range : 1 to 99

n [Data] = Data to be changed

### [Coding Example]

```
<A>
<CC>1
<YR>,1
</D>,1,DEF
</D>,2,78901
</D>,3,49000238
<Q>2
<Z>
```

### [Supplementary Explanation]

- Digit number of print is valid within the range specified with Registration of Field </N>.
- When digit number of this command is larger than the one specified with Registration of Field </N>, only the defined digit No. will be available for printing.
- Use this command and Format Call <YR> as a pair.
- The error occurs when specifying unused or specifying the slot which this product is allocated.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [ESC+GI] Registration of Graphic

Hexadecimal code	ESC	GI	Parameter
	<1B> <sub>16</sub>	<47> <sub>16</sub> <49> <sub>16</sub>	abbbccdddn...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying the registration of graphic pattern data.

### [Format]

<GI>abbbccdddn...n

- Parameter

a [Selection of data transfer in HEX or BIN]

H : Hex data

B : Binary data

Hex data (Divide 8 bits data into 4 bits and outputs it as hex code corresponding to ASCII)

Binary data (Output 8 bits data as one character data all at once)

b [Specification of crosswise graphic area per byte] = Refer to [Specified Range] section below.

c [Specification of lengthwise graphic area per byte] = Refer to [Specified Range] section below.

d [Registration number] (Identification number when invoking) = Valid range : 1 to 999

n [Data] = Graphic data

### [Coding Example 1]

[H: HEX data] is specified for [Data specification by HEX and BIN]

[□] is registered to the 999th of the slot 1 by the below.

<A>

<CC>1

**<GI>H001001999<4646383138313831383138314646><sub>16</sub>**

<Z>

### [Coding Example 2]

[B: Binary data] is specified for [Data specification by HEX and BIN]

[□] is registered to the 999th of the slot 1 by the below.

<A>

<CC>1

**<GI>B001001999<FF818181818181FF><sub>16</sub>**

<Z>



**[Supplementary Explanation]**

- Specify the card slot number used for Card Slot <CC> prior to this command.
- Specify registered data only.
- To change the registered content, clear it with Clear <\*> to re-register.
- Graphic Call <GR> is for printing out the data registered with Registration of Graphic <GI>.
- When data is not registered properly, print error may occur.  
For details of data format, refer to Print of Graphic <G>.
- The error occurs when specifying unused or specifying the slot which this product is allocated.

**[Notes]**

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

**[Specified Range]**

Maximum byte in horizontal direction: 252

Maximum byte in vertical direction: 600

## [ESC+GR] Graphic Call

Hexadecimal code	ESC	GR	Parameter
	<1B> <sub>16</sub>	<47> <sub>16</sub> <52> <sub>16</sub>	aaa
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Invoking and printing out the data registered with Registration of Graphic <GI>.

### [Format]

<GR>aaa

- Parameter

a [Registration Number] = Valid range: 1 to 999

### [Coding Example]

```
<A>
<V>100<H>100
<CC>1
<GR>1
<Q>1
<Z>
```

### [Supplementary Explanation]

- Specify slot number registered with Card Slot for Use <CC> prior to this command <GR> by all means.
- Ignoring Start Point Correction <A3> and making no correction.
- Rotation <%> and Enlargement <L> are available for the invoked graphic.
- Specify Card Slot for Use <CC> prior to this command when using.
- The error occurs when specifying unused or specifying the slot which this product is allocated.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [ESC+GT] BMP File Registration

Hexadecimal code	ESC	GT	Parameter
	<1B> <sub>16</sub>	<47> <sub>16</sub> <54> <sub>16</sub>	aaa,bbbb,n...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying the registration of BMP file created by such as Image editing application.

### [Format]

<GT>aaa,bbbb,n...n

- Parameter
  - a [Registration number]  
Valid Range : 1 to 999
  - b [Total bytes of BMP file]  
Valid Range : 1 to 99999  
Specify the file size of BMP file for total bytes.
  - n [Data] = BMP file data  
Data is sent as binary data (Outputs 8 bits as one character data all at once)

### [Coding Example]

```
<A>
<CC>1
<GT>1,12345,<424D00~00>16
<Z>
```

### [Supplementary Explanation]

- Specify slot number registered with Card Slot for Use <CC> prior to this command <GT> by all means.
  - Data is sent in binary data (Outputs 8-dot, one byte in binary all at once). In this case, file size of BMP file becomes the total bytes, and BMP file data becomes data.
  - In BMP file, 62 bytes of data is for the header part and the rest of data is for the image data.
  - When [Total bytes of BMP file] is not matching the transfer data, this may become the cause of malfunction.
  - Total bytes are the file size displayed at [Property] and such.
  - BMP file is available in Black/White mode only. In color mode, printing is not guaranteed.
- Also, this command is not valid for BMP compressed file. Make sure that the file extension is set to [BMP] before printing.
- Specify Card Slot for Use <CC> prior to this command when using.
  - The error occurs when specifying unused or specifying the slot which this product is allocated.

**[Notes]**

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [ESC+GC] BMP File Call

Hexadecimal code	ESC	GC	Parameter
	<1B> <sub>16</sub>	<47> <sub>16</sub> <43> <sub>16</sub>	aaa
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Invoking and printing out the data registered with Registration of BMP File <GT>.

### [Format]

<GC>aaa

- Parameter

a [Registration Number] = Valid range: 1 to 999

### [Coding Example]

```
<A>
<V>100<H>100
<CC>1
<GC>1
<Q>2
<Z>
```

### [Supplementary Explanation]

- Specify slot number registered with Card Slot for Use <CC> prior to this command <GC> by all means.
- Rotation <%> and Enlargement <L> are available for the invoked data.
- Specify Card Slot for Use <CC> prior to this command when using.
- The error occurs when specifying unused or specifying the slot which this product is allocated.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [ESC+PI] PCX File Registration

Hexadecimal code	ESC	PI	Parameter
	<1B> <sub>16</sub>	<50> <sub>16</sub> <49> <sub>16</sub>	aaa,bbbb,n...n
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying the registration of PCX file created by such as Image editing application.

### [Format]

<PI>aaa,bbbb,n...n

- Parameter
  - a [Registration number]  
Valid Range : 1 to 999
  - b [Total bytes of PCX file]  
Valid Range : 1 to 99999  
\* Specify the file size of PCX file for total bytes.
  - n [Data] = PCX file data  
\* Data is sent as binary data (Outputs 8 bits as one character data all at once)

### [Coding Example]

```
<A>
<CC>1
<PI>001,12345,n...n
<Z>
```

### [Supplementary Explanation]

- Specify slot number registered with Card Slot for Use <CC> prior to this command <PI> by all means.
- Data is sent as binary data (Outputs 8 bits as one font data all at once). Total bytes is PCX file size and Data is PCX file data.
- In PCX file, 128 bytes of data is for the header part and the rest of data is for the image data.
- When [Total bytes of PCX file] is not matching the transfer data, this may become the cause of malfunction.
- Total bytes are the file size displayed at [Property] and such.
- PCX file is available in Black/White mode only. In color mode, printing will not be performed due to command error. Also, this command is not valid for PCX compressed file. Make sure that the file extension is set to [PCX] before printing.
- Specify Card Slot for Use <CC> prior to this command when using.
- The error occurs when specifying unused or specifying the slot which this product is allocated.

**[Notes]**

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [ESC+PY] PCX File Call

Hexadecimal code	ESC	PY	Parameter
	<1B> <sub>16</sub>	<50> <sub>16</sub> <59> <sub>16</sub>	aaa
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Invoking and printing out the data registered with Registration of PCX File <PI>.

### [Format]

<PY>aaa

- Parameter

a [Registration Number] = Valid range: 1 to 999

### [Coding Example]

```
<A>
<V>100<H>100
<CC>1
<PY>001
<Q>2
<Z>
```

### [Supplementary Explanation]

- Specify slot number registered with Card Slot for Use <CC> prior to this command <PY> by all means.
- Rotation <%> and Enlargement <L> are available for the invoked data.
- Specify Card Slot for Use <CC> prior to this command when using.
- The error occurs when specifying unused or specifying the slot which this product is allocated.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.



## [ESC+\*] Memory Card Clear

Hexadecimal code	ESC	*	Parameter
	<1B> <sub>16</sub>	<2A> <sub>16</sub>	a(,bbb)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Clearing the entire contents in memory card (option).

### [Format]

<\*>a(,bbb)

- Parameter

a [Item to be cleared]

G : SATO Graphic

(Clearing graphic registered with Registration of Graphic <GI>)

P : PCX file

(Clearing PCX file registered with Registration of PCX File <PI>)

M : BMP file

(Clearing BMP file registered with Registration of BMP File <GT>)

F : Format

(Clearing format registered with Registration of Format <YS>)

O : TrueType font

(Clearing TrueType font registered with Registration of TrueType Font <BJ>)

R : Form Overlay

(Clearing form overlay registered with Registration of Form Overlay <&S>)

b [Registration No.] = Valid range :

000 to 099 (Omissible) TrueType font

001 to 999 (Omissible) Except TrueType font

(When omitting Registration No., all the registered data will be cleared.)

### [Coding Example 1]

Clearing 001 of SATO graphic

<A>

<CC>1

<\*>G,001

<Z>

### [Coding Example 2]

Clearing 002 of PCX file

<A>

<CC>1

<\*>P,002

<Z>

**[Coding Example 3]**

Clearing Form Overlay entirely

<A>

<CC>1

<\*>R

<Z>

**[Supplementary Explanation]**

- Delimit Start of Data Transmission <A> and End of Data Transmission <Z> with this command <\*> for use.
- Specify the card slot number used for Card Slot <CC> prior to this command.

**[Points]**

- To clear all data of memory card, use Format <BJF>.

**[Precautions during use]**

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

# [ESC+T1] Memory Card 16 x 16 dots External Font Registration

Hexadecimal code	ESC	T1	Parameter
	<1B> <sub>16</sub>	<54> <sub>16</sub> <31> <sub>16</sub>	abbn...n
Initial value	None		
Valid range and term of command	When the power is OFF	The registered data become valid.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

## [Function]

Registering 16 x 16 dots external fonts in the memory card.

## [Format]

<T1>abbn...n

- Parameter

a [Registration data selection]

H : HEX character

B : Binary code

b [Registration font code address]

Using Kanji set <KS> command to set Japanese

JIS code

H : Up to 95 registrations from "21" to "7F" is available.

B : Up to 95 registrations from 21H to 7FH is available.

Shift JIS code

H : Up to 95 registrations from "40" to "9E" is available.

B : Up to 95 registrations from 40H to 9EH is available.

Using Kanji set <KS> command to set other than Japanese

GB18030, BIG5

H : Up to 95 registrations from "21" to "7F" is available.

B : Up to 95 registrations from 21H to 7FH is available.

n [Registered external font data]

## [Coding Example]

<A>

<CC>1

**<T1>H2100FF00FF to 3C0000FF**

<Z>

### [Supplementary Explanation]

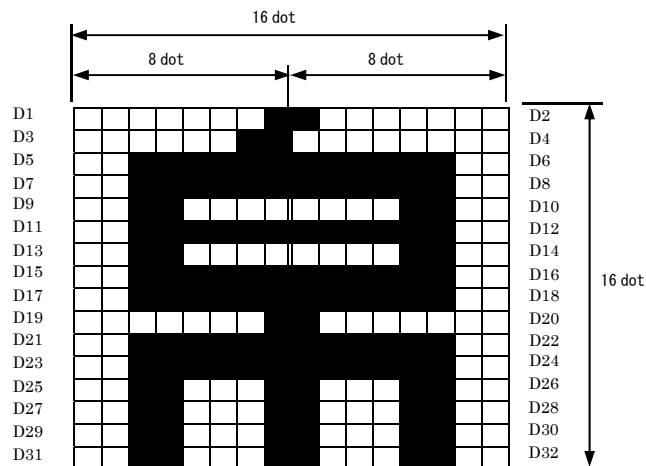
- Overwriting registration data is available.
- Specify slot registered with Card Slot for Use <CC> prior to this command <T1> by all means.
- When use <T1> with another registration command, it may occur error because of capacity shortage of the memory card.

In this case, register another command in another memory card, or use a memory card having bigger capacity.

- Data output is as follows.

External file [16x16]

D1	D2
D3	D4
D5	D6
D31	D32



When registering the external characters described above, D1 data becomes <01><sub>16</sub> and D2 data becomes <80><sub>16</sub> because D1 consists of [00000001], D2 consists of [10000000]. In the same manner, D3 is <03><sub>16</sub>, D4 is <00><sub>16</sub>, D5 is <3F><sub>16</sub>, D6 is <FC><sub>16</sub>, and the external registration data will be <018003003FFC.....><sub>16</sub> up to D32.

- The error occurs when unused slot is specified.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

# [ESC+T2] Memory Card 24 x 24 dots External Font Registration

Hexadecimal code	ESC	T2	Parameter
	<1B> <sub>16</sub>	<54> <sub>16</sub> <32> <sub>16</sub>	abbn...n
Initial value	None		
Valid range and term of command	When the power is OFF	The registered data become valid.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

## [Function]

Registering 24x24 dots external fonts in the memory card.

## [Format]

<T2>abbn...n

- Parameter

a [Registration data selection]

H : HEX character

B : Binary code

b [Registration font code address]

Using Kanji set <KS> command to set Japanese

JIS code

H : Up to 95 registrations from "21" to "7F" is available.

B : Up to 95 registrations from 21H to 7FH is available.

Shift JIS code

H : Up to 95 registrations from "40" to "9E" is available.

B : Up to 95 registrations from 40H to 9EH is available.

Using Kanji set <KS> command to set other than Japanese

GB18030, BIG5

H : Up to 95 registrations from "21" to "7F" is available.

B : Up to 95 registrations from 21H to 7FH is available.

n [Registered external font data]

## [Coding Example]

<A>

<CC>1

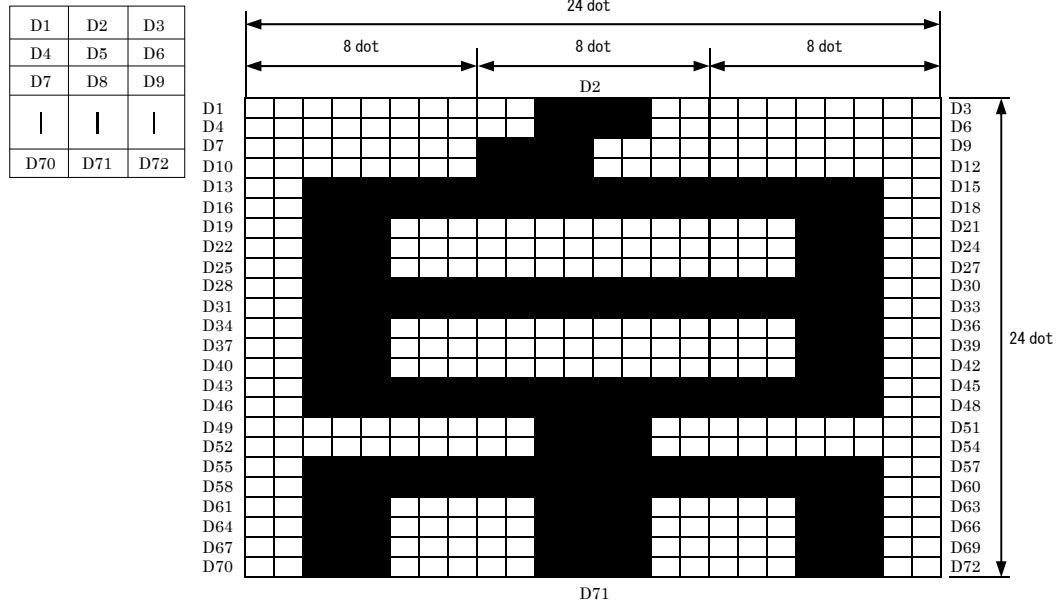
**<T2>H2100FF00FF to 3C0000FF**

<Z>

### [Supplementary Explanation]

- Overwriting registration data is available.
- Specify slot registered with Card Slot for Use <CC> prior to this command <T2> by all means.
- When use <T2> with another registration command, it may occur error because of capacity shortage of the memory card. In this case, register another command in another memory card, or use a memory card having bigger capacity.
- Data output is as follows.

External file [24x24]



When registering the external characters described above, D1 data becomes <00><sub>16</sub> and D2 data becomes <3C><sub>16</sub> and D3 data becomes <00><sub>16</sub> because D1 consists of [00000000], D2 consists of [00111100] and D3 consists of [00000000].

In the same manner, D4 is <00><sub>16</sub>, D5 is <3C><sub>16</sub>, D6 is <00><sub>16</sub>, and the external registration data will be <003C00003C00.....><sub>16</sub> up to D72.

- The error occurs when unused slot is specified.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [ESC+K1(K2)(K8)(K9)] Memory Card Horizontal Writing External Font Call

Hexadecimal code	ESC	K1(K2)(K8)(K9)	Parameter
	<1B> <sub>16</sub>	<4B> <sub>16</sub> <31> <sub>16</sub> ( <4B> <sub>16</sub> <32> <sub>16</sub> ) ( <4B> <sub>16</sub> <38> <sub>16</sub> ) ( <4B> <sub>16</sub> <39> <sub>16</sub> )	an...n
Initial value	None		
Valid range and term of command	When the power is OFF	The registered data is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying call of external fonts registered in memory card.

### [Format]

<K1>an...n

<K2>an...n

- Parameter

a [External font registration]

H: HEX character

B: Binary code

I: HEX character letters, smoothing function

C: Binary code, smoothing function

J: HEX character letters, highlight function

D: Binary code, highlight function

K: HEX character letters, smoothing and highlight function

E: Binary character letters, smoothing and highlight function

n...n [Registration code]

Using Kanji set <KS> command to set Japanese

JIS code

H, I, J, K: "9021" to "907F"

B, C, D, E: 9021H to 907FH

Shift JIS code

H, I, J, K: "F040" to "F09E"

B, C, D, E: F040H to F09EH

Using Kanji set <KS> command to set other than Japanese

GB18030, BIG5

H, I, J, K: "8021" to "807F"

B, C, D, E: 8021H to 807FH

**[Coding Example]**

<A>  
<V>100<H>100  
<CC>1  
<K1>H8021  
<Q>2  
<Z>

**[Supplementary Explanation]**

- Specify slot registered with Card Slot for Use <CC> prior to this command <K1> by all means.
- The error occurs when unused slot is specified.
- <K8><k9> is valid only when Shift-JIS is specified.

**[Notes]**

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.



# [ESC+k1(k2)(k8)(k9)] Memory Card Vertical Writing External Font Call

Hexadecimal code	ESC	k1(k2)(k8)(k9)	Parameter
	<1B> <sub>16</sub>	<6B> <sub>16</sub> <31> <sub>16</sub> ( <6B> <sub>16</sub> <32> <sub>16</sub> ) ( <6B> <sub>16</sub> <38> <sub>16</sub> ) ( <6B> <sub>16</sub> <39> <sub>16</sub> )	an...n
Initial value	None		

Valid range and term of command	When the power is OFF	The registered data is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

## [Function]

Specifying call of external fonts registered in memory card.

## [Format]

<k1>an...n

<k2>an...n

- Parameter

a [External font registration]

H: HEX character

B: Binary code

I: HEX character letters, smoothing function

C: Binary code, smoothing function

J: HEX character letters, highlight function

D: Binary code, highlight function

K: HEX character letters, smoothing and highlight function

E: Binary character letters, smoothing and highlight function

n...n [Registration code]

Using Kanji set <KS> command to set Japanese

JIS code

H, I, J, K: "9021" to "907F"

B, C, D, E: 9021H to 907FH

Shift JIS code

H, I, J, K: "F040" to "F09E"

B, C, D, E: F040H to F09EH

Using Kanji set <KS> command to set other than Japanese

GB18030, BIG5

H, I, J, K: "8021" to "807F"

B, C, D, E: 8021H to 807FH

**[Coding Example]**

<A>  
<V>100<H>100  
<CC>1  
<k1>H8021  
<Q>2  
<Z>

**[Supplementary Explanation]**

- Specify slot registered with Card Slot for Use <CC> prior to this command <k1> by all means.
- The error occurs when unused slot is specified.
- <K8><k9> is valid only when Shift-JIS is specified.

**[Notes]**

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [ESC+BJ ESC+BJD] TrueType Font Registration (Compatible command)

Hexadecimal code	ESC	BJ BJD	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <4A> <sub>16</sub> <42> <sub>16</sub> <4A> <sub>16</sub> <44> <sub>16</sub>	(a...ab...b c ...cdddde...e )
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying registration of TrueType Font.

### [Format]

<BJ>(a...ab...b

<BJD>c ...cdddde...e

<BJ>)

- Parameter

a [Font description] 40 byte font

b [Date] 10 bytes date data

c [Memory offset] 5 bytes memory offset (HEX)

d [Number of data bytes] Valid Range = 0001 to 9999

e [Font data to download]

### [Coding Example]

Font= 'abcdefghijklabcdefghijklabcdefghijkl' ,Date data=29-08-2010, Memory offset=000000220<sub>16</sub>, Number of data bytes=3001, Font data= 'A00490020....00000000'

<A>

<CC>1

<BJ>(abcdefghijklabcdefghijklabcdefghijkl29-08-2000

<BJD>0000002203001A00490020.....0000000

<BJ>)

<Z>

### [Supplementary Explanation]

- Specify the card slot number used for Card Slot <CC> prior to this command.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

## [ESC+BJT] TrueType Font Call

Hexadecimal code	ESC	BJT	Parameter
	<1B> <sub>16</sub>	<42> <sub>16</sub> <4A> <sub>16</sub> <54> <sub>16</sub>	,aa,bb,cc,dd,ee,fff,n...n
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying TrueType Font call.

### [Format]

<BJT>,aa,bb,cc,dd,ee,fff,n...n

- Parameter

- a [Font ID] Valid Range : 00 to 99
- b [Horizontal scale factor] Valid Range : 01 to 12
- c [Vertical scale factor] Valid Range : 01 to 12
- d [Word Pitch] Valid Range : 00 to 99
- e [Reserve] Valid Range : 00 (Fixed)
- f [Reserve] Valid Range : 0000 (Fixed) n [Data]

### [Coding Example]

```
<A>
<V>100<H>200<CC>1
<BJT>,01,02,02,01,00,0004SATO
<Q>
<Z>
```

### [Supplementary Explanation]

- Specify the card slot number used for Card Slot <CC> prior to this command.

### [Notes]

- Do not power off this product when accessing to the memory. When this product is turned off while memory accessing, the data in the accessed media may be corrupted.

---

# Calendar Commands

---

## [ESC+WT] Calendar Setup

Hexadecimal code	ESC	WT	Parameter
	<1B> <sub>16</sub>	<57> <sub>16</sub> <54> <sub>16</sub>	aabbccdde
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Specifying the calendar.

### [Format]

<WT>aabbccdde

- Parameter

a [Year] = Valid Range : 00 to 99  
b [Month] = Valid Range : 01 to 12  
c [Day] = Valid Range : 01 to 31  
d [Hour] = Valid Range : 00 to 23  
e [Minutes] = Valid Range : 00 to 59

### [Coding Example] Specifying and printing out "2020.1.1 13:13"

<A>

<WT>2001011313

<Z>

### [Supplementary Explanation]

- This command requires optional Calendar IC. This command cannot be used without Calendar IC.

## [ESC+WP] Calendar Arithmetic (Add)

Hexadecimal code	ESC	WP	Parameter
	<1B> <sub>16</sub>	<57> <sub>16</sub> <50> <sub>16</sub>	abbb
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter is valid until the next specification is made.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying addition of calendar date.

### [Format]

<WP>abbb

- Parameter

a [Specification of Year-Month-Day]

Y : Year

M : Month

D : Day

h : Time

W : Week

b [Specification of additional value for Y-M-D-h]

Valid Range of Y : 0 to 9

Valid Range of M : 00 to 99

Valid Range of D : 000 to 999

Valid Range of h : 000 to 999

Valid Range of W : 00 to 99

0 before the additional value can be omitted.

### [Coding Example]

Specifying and printing out the date that is three months from today.

<A>

**<WP>M03**

<V>100<H>200

<OB><WA>DD/MM/YY

<Q>2

<Z>

### [Supplementary Explanation]

- This command requires optional Calendar IC. This command cannot be used without Calendar IC.
- This command adds specified value to specified data (Year, Month, Day, Hour and Week). It can specify the date three months from current date.
- When there are more than one <WP> in one item, the last one is available.

## [ESC+WA] Calendar Print

Hexadecimal code	ESC	WA	Parameter
	<1B> <sub>16</sub>	<57> <sub>16</sub> <41> <sub>16</sub>	a
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Specifying the print of calendar.

### [Format]

<WA>parameter

- Parameter

a [Specification of print contents]

YYYY(Year) Valid Range : 1981 to 2080  
 YY(Year) Valid Range : 00 to 99  
 Y(Year) Valid Range : 0 to 9  
 MM(Month) Valid Range : 01 to 12  
 DD(Day) Valid Range : 01 to 31  
 HH(Hour) Valid Range : 00 to 11  
 hh(Hour) Valid Range : 00 to 23  
 mm(Minutes) Valid Range : 00 to 59  
 ss(Second) Valid Range : 00 to 59  
 TT(AM/PM) Valid Range : AM/PM  
 JJJ(Julian date) Valid Range : 001 to 366  
 WW(Week) Valid Range : 00 to 52  
 ww(Week) Valid Range : 01 to 53

### [Coding Example]

Specifying and printing out the date that is three months from today.

```

<A>
<WP>M03
<V>100<H>200
<OB><WA>DD/MM/YYYY
<V>200<H>200
<OB><WA>hh:mm:ss TT
<V>300<H>200
<OB><WA>YY JJJ WW ww
<Q>2
<Z>

```

### [Supplementary Explanation]

- This command requires optional Calendar IC. This command cannot be used without Calendar IC.
- When specifying QTY>2, real-time printing will be performed per label.
- This command specification is available up to six locations within one form.

- Up to 16 characters are available for calendar print data.
- In the [Parameter] above, count the initiation of WW (Week) as [0], and ww (Week) as 1 .

#### WW/ww command example

Ex.1) January in 2008, The year of Jan 1 begins with Mon, Tue, Wed, and Thu.

M	T	W	T	F	S	S	WW	ww
31	1	2	3	4	5	6	wk0	wk1
7	8	9	10	11	12	13	wk1	wk2
14	15	16	17	18	19	20	wk2	wk3
21	22	23	24	25	26	27	wk3	wk4
28	29	30	31	1	2	3	wk4	wk5

- 2007/12/31: WW (week) prints week 0. (ww (week) prints week 1.)
- 2008/01/25: WW (week) prints week 3. (ww (week) prints week 4.)
- 2008/01/28: WW (week) prints week 4. (ww (week) prints week 5.)
- 2008/02/03: WW (week) prints week 4. (ww (week) prints week 5.)

Ex.2) January in 2010, the year of Jan 1 begins with Fri, Sat, and Sun.

M	T	W	T	F	S	S	WW	ww
28	29	30	31	1	2	3	wk52	wk53
4	5	6	7	8	9	10	wk 0	wk 1
11	12	13	14	15	16	17	wk 1	wk 2
18	19	20	21	22	23	24	wk 2	wk 3
25	26	27	28	29	30	31	wk 3	wk 4

- 2010/01/01: WW (week) prints week 52. (ww (week) prints week 53.)
- 2010/01/14: WW (week) prints week 0. (ww (week) prints week 1.)

Note: The yeas Jan 1 begins with Fri, Sat and Sun, the second week of January is set as week 0 (ww(week): week1).

- Correct calendar is not printed in following condition.

The time data will be edited firstly when the host cannot send whole print data of one item to this product (e.g. product's buffer is full) and also received data included the calendar print command. This product will print the calendar when receiving one item data after taking a long time and completing editing all data, and the printed calendar is not the time of printing but the time of editing time data.

#### [Valid Commands]

Print Position	<V>	<H>								
Modification	<P>	<L>	<%>							
Font	<XU>	<XS>	<XM>	<XB>	<XL>	<OA>	<OB>			
	<U>	<S>	<M>	<WB>	<WL>					
	<X20>	<X21>	<X22>	<X23>	<X24>					



# Intelligent Commands

## [ESC+IK] Label Feed Control

Hexadecimal code	ESC	IK	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <4B> <sub>16</sub>	a(,bbbb)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Feeding forward or backward for the specified distance.

### [Format]

<IK>a(,bbbb)

- Parameter

a [Feed direction]

0 : Forward feed

1 : Backfeed

b [Feed length]

Valid range : Refer to [Valid Range] section below. (Omissible only for forward feed.)

Feeds one label when omitting this parameter.

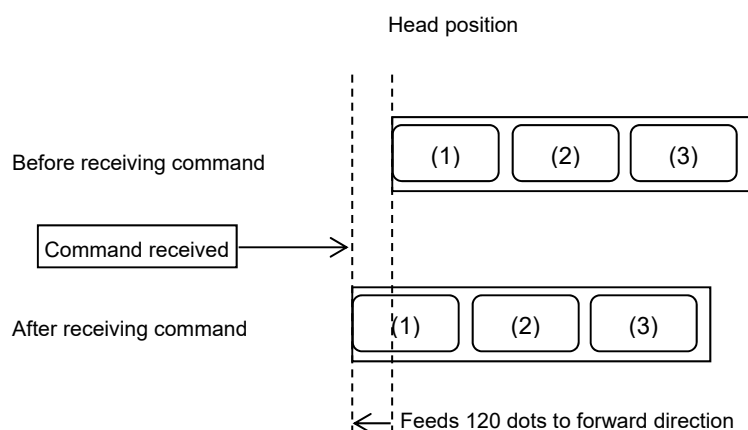
### [Coding Example 1]

When 120 dots feeding forward the media

<A>

<IK>0,120

<Z>

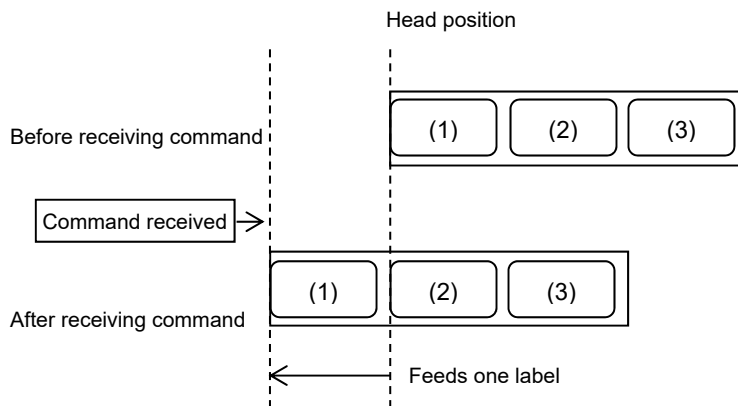


When print data is received without returning to the original position with <IK>1,120, printing will start from the current stop position.

### [Coding Example 2]

When feeding one label

<A>  
<IK>0  
<Z>



### [Supplementary Explanation]

- Delimit Start Code <A> and Stop Code <Z> with this command. When specifying this command with the same item as print data, the command will be ignored.
- When setting [Feed direction] to [1: Backfeed], length of label feed needs to be checked. If this length is very long, it may cause overlapped prints or label may fall off the platen and result in detection error as paper-end.
- When setting [Thermal transfer] to [Print method], length of label backfeed needs to be under 30 mm. If 30 mm or more is specified, it may result in detection error as ribbon end. And also, avoid consecutive specification of label feed command for backfeed.
- In Tear-off/Cutter mode, do not attempt to backfeed right after cutting and dispensing label.
- The feeding speed is fixed for 4inches/sec when media feed length is specified.
- When omitting [Feed length] in forward feed, product motion will be similar to label feed motion when pressing the FEED key in offline state.
- Label feed motion with this command will be activated at the time of online.
- Control of feed motion by external signal is not available.
- When omitting [Feed length] in backfeed, label feed will not be performed due to command error.
- When the sensor is disabled in continuous mode, <IK>0 (omission of [Feed length]) will not feed labels.
- When the specified feed value is outside of valid range, printing will not be performed due to command error.
- Actual feed distance may be different from the set value according to the individual difference of each product, supplies and operating environment. Recommend to adjust the feed value before operation.

### [Valid Range]

Feed length when media feed direction is forward: 72 to 2400 dots

Feed length when media feed direction is backward: 72 to 420 dots

## [ESC+IM] Displayed Messages

Hexadecimal code	ESC	IM	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <4D> <sub>16</sub>	a(,bbb...b)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Specifying messages to be displayed while the printer is online, normal mode.

Alphanumeric and symbols can be specified. The maximum 16 digits can be specified.

### [Format]

<IM>a(,bbb...b)

- Parameter

a [Switching of display/no display]

0 : No display

1 : Display on the upper row

2 : Display on the lower row

b [Displayed message]

Valid range: Alphanumeric and symbols (20H-7EH of ASCII) 16 digits

This parameter can be omitted for no display.

### [Coding Example 1]

Change the display of the upper row

<A>

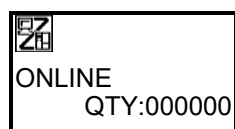
**<IM>1,FORMAT01**

[Print data]

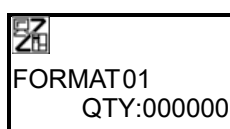
<Q>100

<Z>

Before the command



After the command



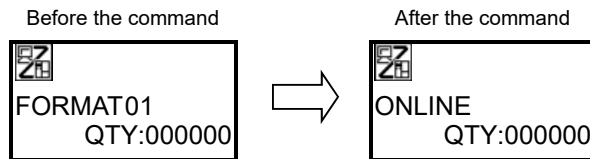
### [Coding Example 2]

Return back the displayed message

<A>

<IM>0

<Z>



### [Supplementary Explanation]

- The displayed message is returned back to the normal display after powering off this product.
- When a specified message is exceeded the maximum digit, the message within the valid digit is displayed.
- The message is left aligned and when the message is less than the maximum display digit (16 digits), space (20H) is filled.
- The message will not be changed when the displayed data are omitted.
- The specified message is displayed only in the normal mode, online state. It is not displayed in the offline state and error state.
- Invalid code in the displayed data will be replaced with space (20H).
- This product will process it as the control code when control codes (00H to 1FH) are included in the display data. Do not specify any control code in the display data to prevent the printer false operation.
- The printing quantity display during the printing is not displayed when message display is specified in the lower row.

## [ESC+IF] Internal Buffer Registration

Hexadecimal code	ESC	IF	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <46> <sub>16</sub>	aa,bb,cc(,ddd...d)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter is valid until the next specification is made.
	Valid range between items	The set parameter is valid until the next specification is made.

### [Function]

Store the specified data in the internal buffer.

It is possible to store up to 32 digits for 16 blocks in the internal buffer(RAM).

The stored data can be recalled by Internal Buffer Recall <IB> to be used as print data.

### [Format]

<IF>aa,bb,cc(,ddd...d)

- Parameter

a [Internal buffer number] = Valid range : 1 to 16

b [Input digit] = Valid range: 1 to 32

c [Data] = For number of digits specified by b (Display available range: ASCII 20H to 7EH)

d [Data item name] = Valid range : Only alphanumeric and symbols 16 digits (Omissible)

### [Coding Example]

<A>

<IF>1,2,49,DATA1 ----- (1)

<IF>2,6,123456,DATA2 ----- (2)

<IF>3,4,1234,DATA3 ----- (3)

<IF>6,4,0010,QTY ----- (4)

<Z>

Internal buffer				
	No.	Item name	Number of digits	Data contents
(1) ----->	01	DATA1	2	49
(2) ----->	02	DATA2	6	123456
(3) ----->	03	DATA3	4	1234
	04		0	
	05		0	
(4) ----->	06	QTY	4	0010
	07		0	
	08		0	
	09		0	
	10		0	
	11		0	
	12		0	
	13		0	
	14		0	
	15		0	
	16		0	

### [Supplementary Explanation]

- The stored data is cleared when this product is powered off.
- The item name will not be changed when [Data item name] parameter is omitted.
- Only for the available digit of the data from the start will be stored when the specified number of data exceeded the input digit. Note that the data exceeded the available digit are not maintained.  
e.g.) <IF>1,5,12345678 -> only 5 digit data "12345" is stored.
- When the data are less than the input digit, following parameter or command sequence become the buffer input data and it will not operate normally.  
e.g.) <IF>1,5,456,DATA1 -> 5 digit data "456,D" is stored. Nothing will be stored for the item name.
- When specified already stored internal buffer number, the stored data is overwritten and stored in the buffer.

## [ESC+IB] Internal Buffer Recall

Hexadecimal code	ESC	IB	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <42> <sub>16</sub>	aa(,aa,aa...)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Recall the data stored in the internal buffer.

The data can be used as character strings or print data for the barcode.

### [Format]

<IB>aa(,aa,aa...)

- Parameter

a [Internal buffer number] = Valid range: 1 to 16

It is possible to combine multiple data by delimiting with comma and specifying them.

### [Coding Example]

Print JAN13 by using the internal buffer data

#### Original data

<A>

<V>100<H>100

<IB>1,2,3

<BD>304120

<IB>6

<Q>

<Z>

#### Data after processing

<A>

<V>100<H>100

<BD>304120491234561234 <---- (1) in the figure below

<Q>0010 <---- (2) in the figure below

<Z>

Internal buffer				
No.	Item name	Number of digits	Data contents	
(1) ←	49	2	DATA1	49
	123456	6	DATA2	123456
	1234	4	DATA3	1234
		0		
		0		
(2) ←	0010	4	QTY	0010
		0		
		0		
		0		
		0		
		0		
		0		
		0		
		0		
		0		
		0		
		0		
		0		

The registered data 1, 2, and 3 are combined and used as the barcode data in the above example.

### [Supplementary Explanation]

- The stored data is cleared when this product is powered off.
- Refer to the table “Commands that can be specified as parameter” below for the command that can be replaced for the print data and parameters.
- Specify the Internal Buffer Recall <IB> before the command replaced for the data.
- The Internal Buffer Recall <IB> is valid only when the data and parameter of the command to be replaced are not specified. The replacement of data by the Internal Buffer Recall <IB> will not be done when parameter is specified for the command to be replaced.
- The maximum 1024 bytes of the internal buffer data for one time can be recalled.
- It is possible to specify the same internal buffer number repeatedly in the command.

Commands that can be specified as parameter

Category	Command	Command Name	The parameter can be replaced (underlined part)
Font	<X20>	X20 font specifications	<X20> <u>n...n</u>
	<X21>	X21 font specifications	<X21> <u>n...n</u>
	<X22>	X22 font specifications	<X22> <u>n...n</u>
	<X23>	X23 font specifications	<X23> <u>1n...n</u> * Smoothing is fixed to valid
	<X24>	X24 font specifications	<X24> <u>1n...n</u> * Smoothing is fixed to valid
	<XU>	XU font	<XU> <u>n...n</u>
	<XS>	XS font	<XS> <u>n...n</u>
	<XM>	XM font	<XM> <u>n...n</u>
	<XB>	XB font	<XB> <u>1n...n</u> * Smoothing is fixed to valid
	<XL>	XL font	<XL> <u>1n...n</u> * Smoothing is fixed to valid
	<OA>	OCR-A Font	<OA> <u>n...n</u>
	<OB>	OCR-B Font	<OB> <u>n...n</u>



Category	Command	Command Name	The parameter can be replaced (underlined part)
Barcode	<\$=>	Outline Font Print	<\$=> <u>n...n</u>
	<RD>	CG Font	<RD>abb,ccc,ddd, <u>n...n</u>
	<B>	Barcode (Ratio 1:3)	<B>abbccc <u>n...n</u>
	<D>	Barcode (Ratio 1:2)	<D>abbccc <u>n...n</u>
	<D><d>	Barcode (with HRI)	<D>abbccc <u>n...n</u> <D> <u>n...n</u>
	<BD>	Barcode (Ratio 2:5)	<BD>abbccc <u>n...n</u>
	<BW>	Barcode Print by Specified Ratio	<BW>aabbb <u>n...n</u>
	<BI>	GS1-128 (UCC/EAN) (Standard Carton ID Only)	<BI>aabbbcc <u>n...n</u>
	<BC>	CODE93 Barcode	<BC>aabbbcc <u>n...n</u>
	<BG>	CODE128 Barcode	<BG>aabbb <u>n...n</u>
	<BF>	Bookland	<BF>aabb <u>n...n</u>
	<BP>	POSTNET	<BP> <u>n...n</u>
	<BL>	UPC-A barcode (without HRI)	<BL>abbccc <u>n...n</u>
	<BL><d>	UPC-A barcode (HRI)	<BL>abbccc <u>n...n</u> <d> <u>n...n</u>
	<BM>	UPC-A barcode (with HRI)	<BM>abbccc <u>n...n</u>
2D Code	<2D10>	PDF417	<DN>aaaa, <u>n...n</u>
	<2D12>	Micro PDF417	<DN> <u>n...n</u> * Only when binary mode is 0=Normal.
	<2D20>	MaxiCode	<DN>aaaa, <u>n...n</u>
	<2D30>	QR Code (Model 2)	<DS>k, <u>n...n</u> <DN>aaaa, <u>n...n</u>
	<2D31>	QR Code (Model 1)	<DS>k, <u>n...n</u> <DN>aaaa, <u>n...n</u>
	<2D32>	Micro QR Code	<DS>k, <u>n...n</u> <DN>aaaa, <u>n...n</u>
	<2D50>	DataMatrix (ECC200)	<DN>aaaa, <u>n...n</u>
	<2D51>	GS1 DataMatrix	<DN>aaaa, <u>n...n</u>
	<BQ>	QR code	<BQ>abcc,(ddeeff,)g(hhhh) <u>n...n</u> <BQ>abcc,(ddeeff,) <u>n...n</u>
	<BV>	MaxiCode	<BV>a,b,c,ddddddddd,eee,fff, <u>n...n</u>
	<BK>	PDF417	<BK>aabbccddeeffffg...g,h
	<DC>	DataMatrix (ECC200) data	<BX>aabbccddeeffghh <DC> <u>n...n</u>
Control	<Q>	Print Quantity	<Q> <u>n...n</u>
Intelligent	<IT>	Data Sending	<IT>aa,bb, <u>n...n</u>

#### [Notes]

There are restrictions as follows with QR code, manual mode mixed:

- It is possible to replace normally when number of mix=1.

- When the number of mix is bigger than 1, the print data that is acquired by the Internal Buffer Recall <IB> that is specified before the QR code print command will be specified for replace for the number of mix.
- Recommend to use in auto mode when replacing the print data by Internal Buffer Recall <IB>.

## [ESC+IC] Internal Buffer Data Comparison

Hexadecimal code	ESC	IC	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <43> <sub>16</sub>	a,bb,cc
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Compare the stored data in the internal buffer.

The data after this command will be analyzed when the comparison result is the same as the parameter a (Match/Mismatch).

The data after this command until the Stop Code <Z> will be invalid when the comparison result is not the same as the parameter a (Match/Mismatch).

### [Format]

<IC>a,bb,cc

- Parameter

a [Comparison result]

0 : Match

1 : Mismatch

b [Internal buffer number (original)]

Valid range : 1 to 16

c [Internal buffer number (to be compared)]

Valid range : 1 to 16

### [Coding Example]

<A>

**<IC>0,01,02**

<V>100<H>400<L>0404<X22>,OK

<Q>1

<Z>

Internal buffer				
	No.	Item name	Number of digits	Data contents
Comparison	01	DATA1	5	12345
	02	DATA2	5	12345
	03	DATA3	8	12345678
	04		0	
	.	.	.	.
	.	.	.	.
	.	.	.	.
	16		0	

Result: The below label will be printed when the data are the same.



The label will not be printed when the data is not the same.

**[Supplementary Explanation]**

- The command error occurs when the parameter is in invalid range. Comparison of the internal buffer data will not be done.

## [ESC+I\*] Internal Buffer Data Print

Hexadecimal code	ESC	I*	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <2A> <sub>16</sub>	None
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Print the stored data in the internal buffer.

### [Format]

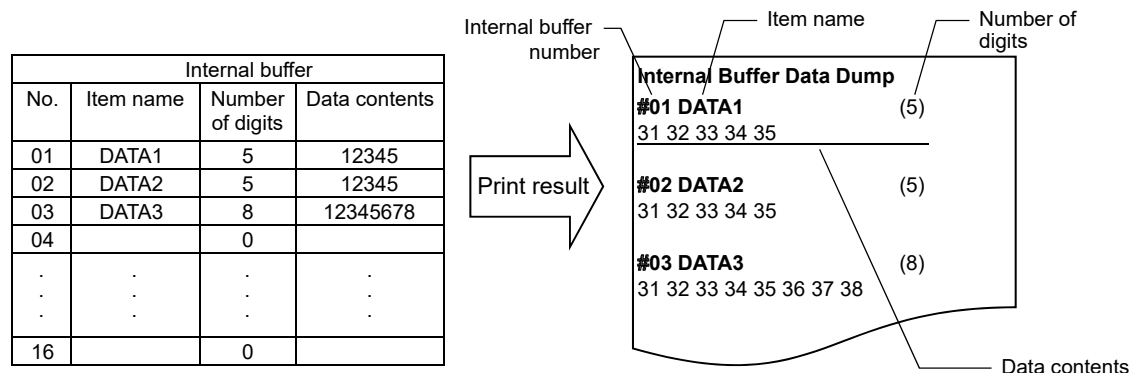
<I\*>

### [Coding Example]

<A>

<I\*>

<Z>



### [Supplementary Explanation]

- Use this command in between Start Code <A> and Stop Code <Z>.

## [ESC+I#] Exclusive Key Start-End

Hexadecimal code	ESC	I#	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <23> <sub>16</sub>	a
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter is valid until the next specification is made.	
	Valid range between items	The set parameter is valid until the next specification is made.	

### [Function]

Disable the normal key input temporally and user can specify key exclusively.

The key operation information is stored to the key buffer during the exclusive key function.

The information stored in the key buffer can be acquired by the key information acquisition command [SOH+KI]. Refer to [Key Information Acquisition Command] below for the details.

### [Format]

<I#>a

- Parameter

a [Exclusive key start-end switch]

1 : Start exclusive key

0 : End exclusive key

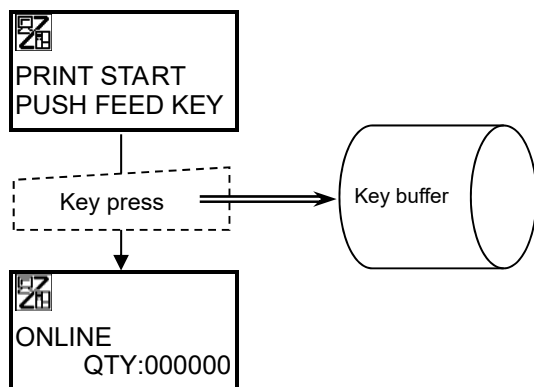
### [Coding Example]

```
<A>
<I#>1
<IM>1,PRINT START
<IM>2,PUSH FEED KEY
<Z>
```

(Possible to acquire with the key information acquisition command [SOH+IK])

```
<A>
<I#>0
<IM>1
<Z>
```

(Possible to acquire with the key information acquisition command [SOH+IK])



### [Supplementary Explanation]

- This command is valid only in the online mode.
- The size of the key buffer is 1KB. The maximum 512 inputs can be maintained because 2 bytes are used with one key information.
- The key buffer is a ring buffer. When the key input is stored above the maximum item, the oldest information will be overwritten.
- The key buffer is initialized when start exclusive key with this command.
- The key buffer is not initialized when end exclusive key with this command. It is possible to acquire the key information when exclusive key is ended.
- Label printing and printer error detection are done normally when the exclusive key use has started.
- The exclusive key use is temporarily release when an error occurs. Back to exclusive key use when the printer is in online state after recovering from the error.
- The initial state after the printer power on is not exclusive use.
- The Key Input <IZ> is disabled when the exclusive key use is on.

### [Key Information Acquisition Command]

The specification of key information acquisition command is as follows.

#### (1) Command

SOH + KI (01H 4BH 49H)

#### (2) Return Status

[STX] + number of key information + key information string + [ETX]

##### 1) Number of key information

Indicate the following number of key information.

Number of key information is equal to the number of key pressing detection.

The information is stored in ASCII, binary and 5 bytes.

0	1	2	3	4
The ten-thousands place	The thousands place	The hundreds place	The tens place	The ones place

- Displayed in the numeric character from "00000" to "99999."

- The information is notified in 5 digits fixed. When the key press detection is less than 5 digits, upper digits are filled with zeros.

## 2) Key Information String

The all key information is notified consecutively.

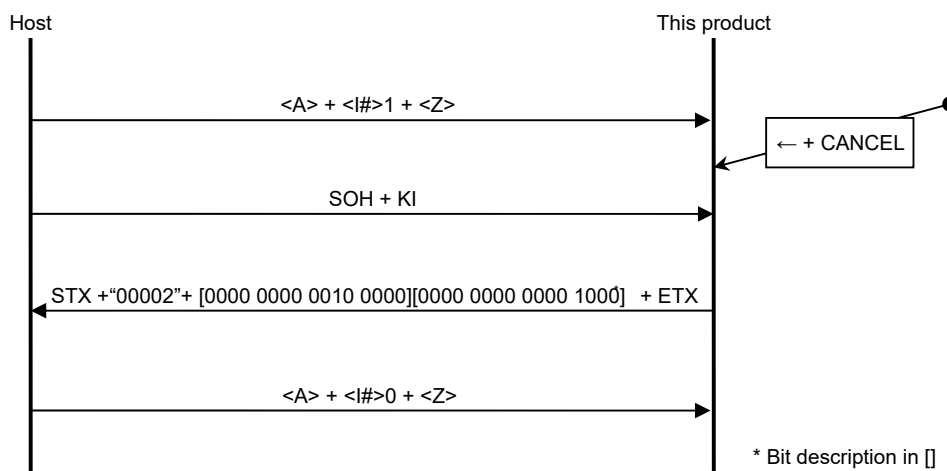
One key information is consist with 2 bytes binary value.

No.	Item	Contents	Number of bytes
1	Key information	Key press information Output the ON/OFF status of the key to the bit corresponding to the key. (Refer to the table below for the bit corresponding to the key) 0: Key is released 1: Key is pressed	2

The bit corresponding to the key (2 bytes)

B15	B14	B13	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	B0
0	0	0	0	0	0	0	FUNCTION	↓	↑	←	→	CANCEL	ENTER	LINE	FEED

## 3) Acquired Sequence



The key information stored in the key buffer can be cleared by key buffer initialization command.

### (1) Command

SOH + KC (01H 4BH 43H)

### (2) Return Status

[STX] + 0 + [ETX] (02H 30H 03H)

0 is fixed.



## [ESC+IZ] Key Input

Hexadecimal code	ESC	IZ	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <5A> <sub>16</sub>	aa,bb,cc,ddd...d
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

Store the data input from the operation panel to the internal buffer.

Change the data with [↑] [↓] keys and move the cursor with [←] [→] keys.

Fix the input value with the [ENTER] key and store it in the internal buffer. The display transit in this state.

It is possible to store input data up to 32 digits for 16 blocks in the internal buffer (RAM).

The stored data can be recalled by Internal Buffer Recall <IB> to be used as print data.

### [Format]

<IZ>aa,bb,cc,ddd...d

- Parameter

a [Internal buffer number] = Valid range : 1 to 16

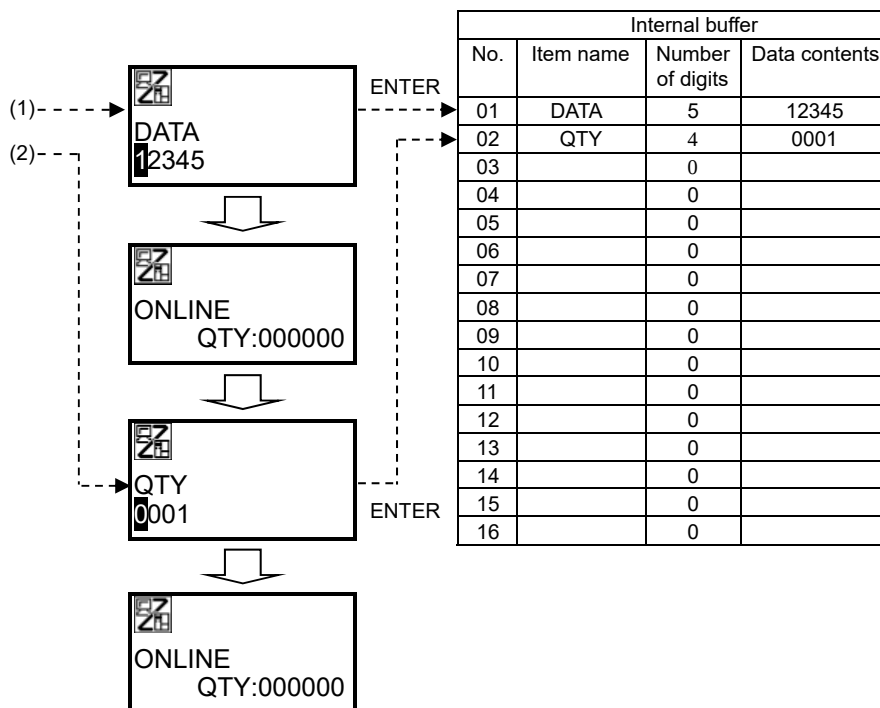
b [Input digit] = Valid range: 1 to 32

c [Initial data] = For number of digits specified by b (Display available range: ASCII 20H-7EH)

d [Data item name] = Valid range : Only alphanumeric and symbols 16 digits

## [Coding Example]

```
<A>
<IZ>1,5,12345,DATA ----- (1)
<IZ>2,4,0001,QTY ----- (2)
<Z>
```



## [Supplementary Explanation]

- The stored data is cleared when this product is powered off.
- The input data is displayed up to 16 digits. When the data exceeded 16 digits, display the data with [←] [→] key scrolling.
- The printer returns back to the original display after input.
- Data input and message display is only available in the online state. Data input is not available when offline state and error state.
- The message is left aligned. When the message is less than the maximum display digit (16 digits), space (20H) is filled.
- The moving range by [←] [→] keys for input cursor depends on the input digit specification.
- Invalid code in the displayed data will be replaced with space (20H) and displayed.
- The code can be changed by [↑] [↓] keys is 20H to 7EH in ASCII.
- It is not possible to change by key input when control code (00H to 1FH in ASCII) is included in the default data.

Even the code has been changed by input cursor, the applicable code is discarded when storing to the internal buffer.

- The command error occurs when input digit and the number of default data is not consistent.
- The error will not be occurred even a printer error is detected during input waiting.
- This command is invalid when the keys are used exclusively by <I#>1.

## [ESC+IR] Internal Buffer Registration (Received Data)

Hexadecimal code	ESC	IR	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <52> <sub>16</sub>	aa,bb(,cccc)(,d)(,eeee)(,fffff) (,gggg...g)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Acquire received data from the sub port.

It is possible to store acquired data up to 32 digits for 16 blocks in the internal buffer (RAM).

The stored data can be recalled by Internal Buffer Recall <IB> to be used as print data.

### [Format]

<IR> aa,bb(,cccc)(,d)(,eeee)(,fffff)(,gggg...g)

- Parameter

a [Internal buffer number]

Valid range : 1 to 16

b [Acquired digit]

Valid range : 1 to 32

c [Received data import start position]

Valid range : 0 to 999 (Omissible)

d [Digit of terminate code]

Valid range : 1 to 4 (Omissible)

e [Terminate code]

No code range specification, 4 digits (Omissible)

f [Timeout time]

Valid range : 0 to 999999(1=5ms) (Omissible)

When this parameter is omitted, the printer will not be proceeded to the next command analysis until data for specified digit are received.

g [Data item name]

Valid range : Only alphanumeric and symbols 16 digits (Omissible)

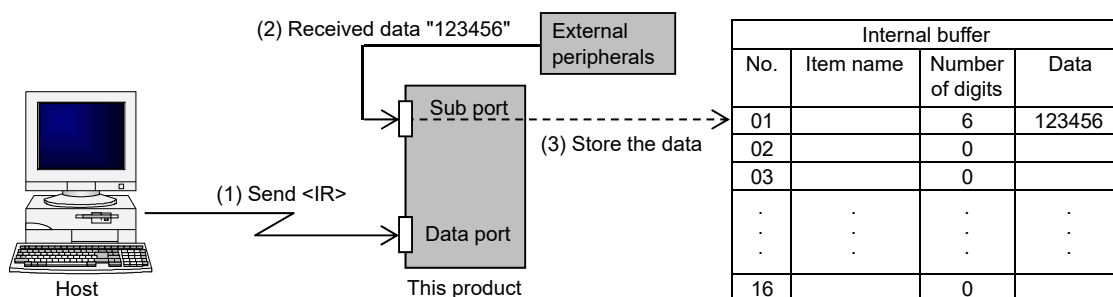
### [Coding Example 1]

Store the received 6 byte data to the internal buffer (Start code, terminate code, time out time and data item name are omitted)

<A>

<IR>1,6

<Z>



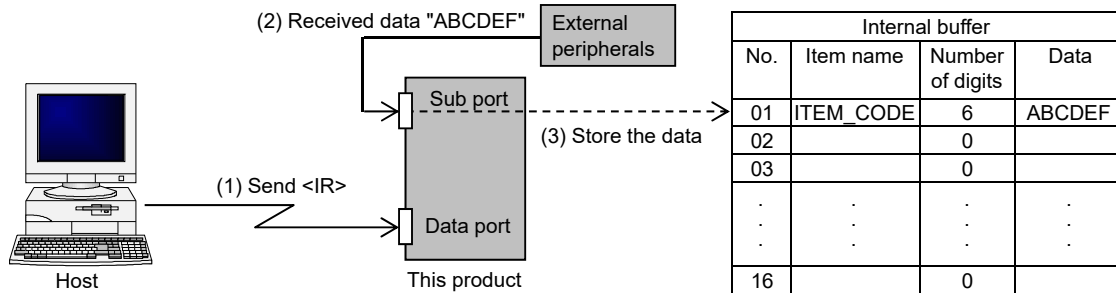
### [Coding Example 2]

Store the received 6 byte data to the internal buffer (Start code and terminate code are omitted)

<A>

<IR>1,6,,,1000,ITEM\_CODE

<Z>



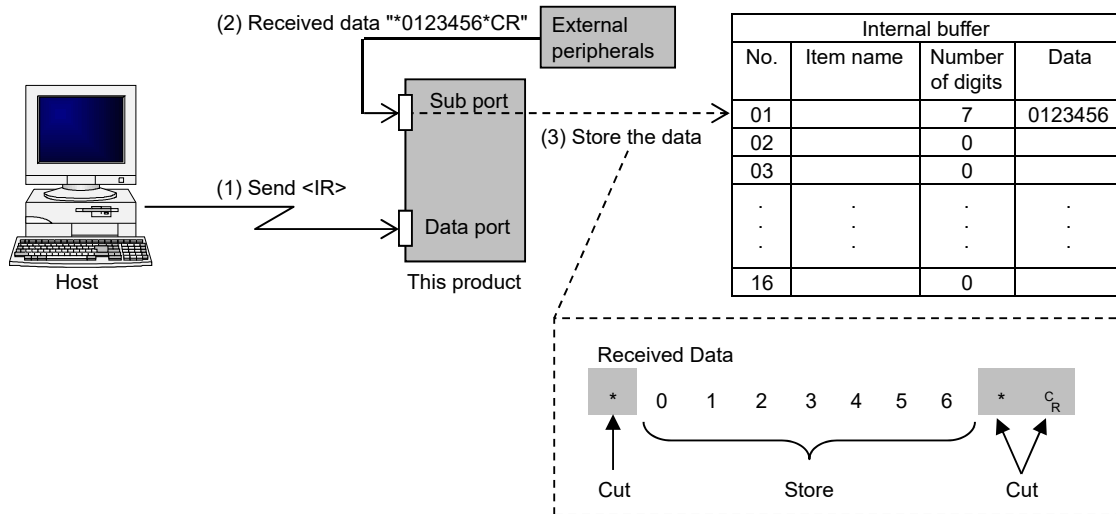
### [Coding Example 3]

Store the data by specifying the import start position and terminate code (Timeout time and data item name are omitted)

<A>

<IR>1,32,1,2,\*CR

<Z>



\* Use this method when there are data that you wish to discard at before and after the received data.

\* Either of the import start position and terminate code specification can be omitted. Also, both can be specified at the same time.

\* Specify the maximum 32 digits for the acquired digit when digits to be received is unknown.

### [Supplementary Explanation]

- The stored data is cleared when this product is powered off.
- Do not use this command together with the print data.
- The data that exceeds the specified digit are not stored in the internal buffer.
- The allocation of the data port and sub port is according to the setting in the interface mode.
- Enable the setting of the sub port on the LCD in advance to be able to acquire output data of external peripheral with this command.

- The data receive waiting status of this command can be released with the following cancel the operation.
  - Send CAN to the data port
  - Print job cancel by LCD menu operation ([OFFLINE] -> [CANCEL] -> [YES] -> [ENTER])
- Note that 00H is specified as terminate code for the specified digit when terminate code is specified and terminate code itself is omitted.
- The time out time is waiting time for 1 byte receive data. Monitoring time is cleared at every 1 byte receive, and wait for the specified time again for receive. This is repeated for the specified receive digits.
- When the time to receive is out, store the received byte to the internal buffer and stop the command operation. The digit item in the internal buffer will be the actual received bytes, not the specified digits.
- When the time to receive is out, the command finishes normally even the data are not enough for the specified receive data.
- When the command finished due to the receive timeout while receiving terminate code, already received terminate code may be stored in the internal buffer. In this case, set longer timeout time.
- When received data are less than the specified [acquire digit], the printer will wait receiving for the specified [timeout time].
- When the received data are more than the [acquire digit], the data for the acquire digit are stored in the internal buffer and rest are remained in the receive buffer. These can be stored in the internal buffer by using Internal Buffer Registration (received data) <IR> again.

## [ESC+IT] Data Sending

Hexadecimal code	ESC	<IT>	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <54> <sub>16</sub>	a,b(,cccc)(,ddd...d)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Send data to the specified port.

The maximum data for sending is 1024 bytes.

### [Format]

<IT>a,b(,cccc)(,ddd...d)

- Parameter

a [Port to be sent]

1 : Data port

2 : Sub port

b [Sending text format]

0 : No additional code

1 : Add STX(02H) at the beginning and ETX(03H) at the ending

2 : Add CRLF(0D0AH) at the ending

3 : Add CR(0DH) at the ending

c [Sending digit] = Valid Range: 1 to 1024

d [Data to be sent] = Valid range: For the digits specified by c, no limitation for code range

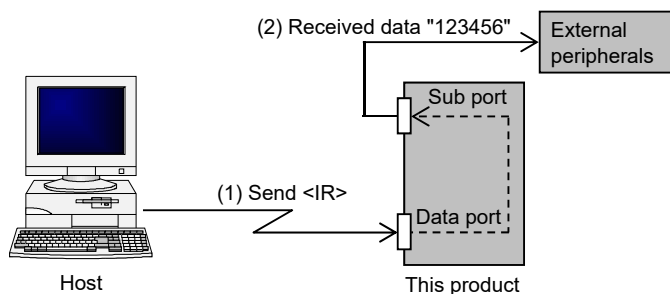
### [Coding Example 1]

Send data from the host via printer to the external peripheral

<A>

**<IT>2,0,6,123456**

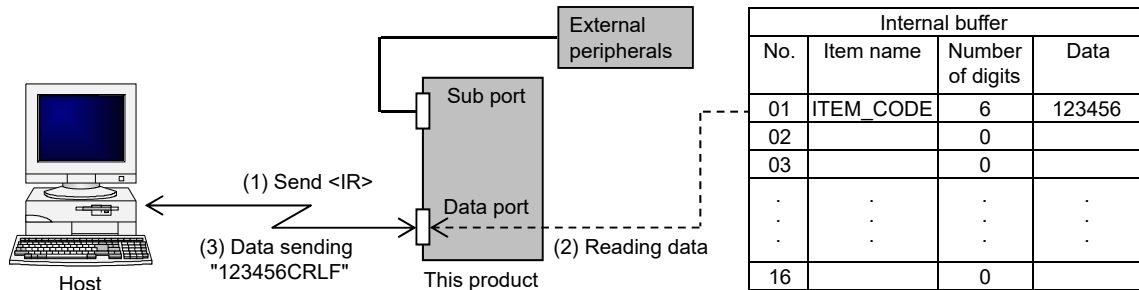
<Z>



### [Coding Example 2]

Upload the contents in the internal buffer from the host

<A>  
<IB>1  
<IT>1,2,6  
<Z>



### [Supplementary Explanation]

- Do not use this command together with print data.
- Data sending is valid only when bidirectional communication is available.
- The allocation of the data port and sub port to the interface card 1 or 2 is according to the setting in the interface mode.
- Make sure to match the digit of sending and sending data. When the digit is not matched, the following data may not be analyzed correctly.
- Data will not be sent to the external peripherals when the cable of sub port is not connected.

### [Receive data acquisition request command]

There is a similar command called "Receive data acquisition request."

The printer returns the data received from the status port to the data port by receiving this command.

#### (1) Command

SOH (01H) + RD

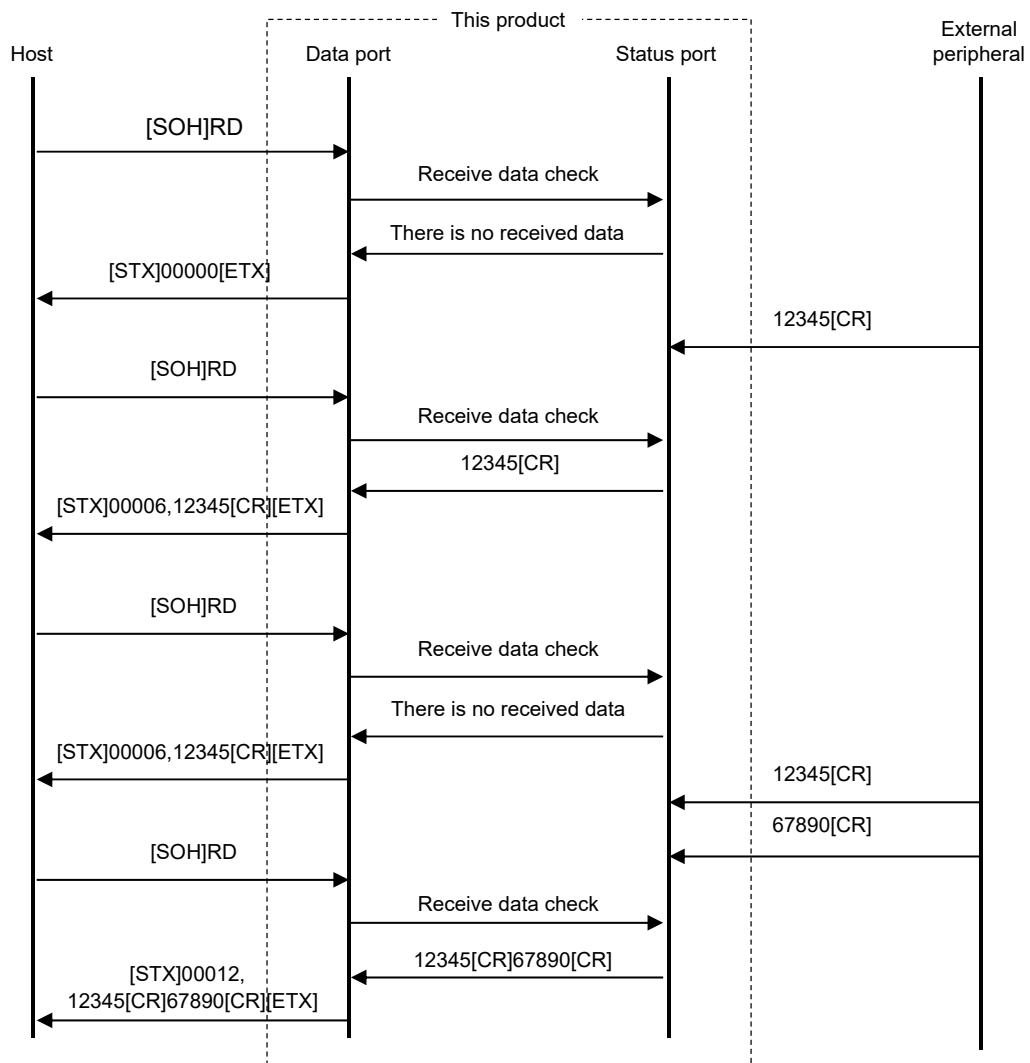
#### (2) Return Status

[STX]+ number of receive bytes + receive data + [ETX]

#### (3) Return status list

No.	Item	Contents	Number of bytes
1	Number of receive bytes	Number of receive data (0 to 10240)	5
2	Received Data	Data received from the status port	For number of receive bytes

#### (4) Acquired Sequence





## [ESC+IO] External Signal Input/Output

Hexadecimal code	ESC	IO	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <4F> <sub>16</sub>	a,b,c,(dddddd)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specify input/output of the designated pin number of the external signal.

### [Format]

<IO>a,b,c,(dddddd)

- Parameter

a [Input or output]

0 : Input

1 : Output

b [Pin number] = Valid range : 1 to 14

c [Input/Output level]

0 : Low

1 : High

d [Timeout for input] = Valid range : 0 to 999999 (1 = 5 ms) (Omissible)

\* When it is [Input], this parameter is the input timeout time.

When this parameter is omitted, the printer does not proceed to the next command analysis until the next input from the designated port.

[Output time] = Valid range : 0 to 999999 (1 = 5 ms) (Omissible)

\* When it is [Output], this parameter is the output time.

The signal level will be returned to the status before this command after the specified time has been passed when this parameter is specified.

The signal will be output continuously at the specified level when this parameter is omitted.

### [Coding Example 1]

Wait until HIGH level is input from the EXT5 pin (with 5 second timeout)

<A>

<IO>0,5,1,1000

<Z>

### [Coding Example 2]

Output LOW level for 5 seconds to the EXT1 pin (before this command the signal is HIGH level)

<A>

<IO>1,1,0,1000

<Z>

### [Supplementary Explanation]

- Set the external signal output for "DISABLE" in the advanced mode when using this External Signal Input/Output <IO>. When it is set to "ENABLE", the signal changes regardless with this command because the signal is output on the printer.
- The timing of signal output is not related the print operation of the printer but when this command is processed.
- Refer to [Input or Output] described below for input or output.
- There may be about 5 msec margin of error in the specified output time and the actual signal output time.
- When the output level and the current output level is the same, the output level will not be changed even the specified output time has passed.

### [Input or Output]

Pin number	Input or Output : 14 pins	Pin number	Input or Output : 14 pins
1	Output	8	-
2	-	9	Input/Output <sup>*1</sup>
3	Output	10	Output
4	Output	11	Input
5	Input	12	-
6	Output	13	-
7	Input	14	-

<sup>\*1</sup> Input/Output of the PIN 9 of the 14 pin-connector can be selected by Jumper SW (JP2) on the external signal interface board.

## [ESC+IW] Print Start Waiting Time

Hexadecimal code	ESC	IW	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <57> <sub>16</sub>	aaaaaa
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Specifying the waiting time to the print start.

### [Format]

<IW>aaaaaa

- Parameter

a [Print start waiting time] = Valid range : 0 to 999999 (1=5 ms)

### [Coding Example]

Wait until 5 second has been passed

<A>

**<IW>1000**

\*\*\* Print data \*\*\*

<Q>1

<Z>

With the above example, the printer waits for 5 seconds after print data edition has been finished, then print the data.

### [Supplementary Explanation]

- When there are multiple item continuously received, the printer starts printing after the time specified by this command has been passed from the previous item print finish.
- This command is valid only for the first label when multiple print is specified by Print Quantity <Q>. It will be printed continuously without waiting time from the second label.
- This command is invalid when external signal setting is enable.
- This command is invalid when there are not print data.
- When there is a printer error or the printer becomes the offline state while waiting for print start, the printer waits again for the specified time when the printing has been resumed.
- When the printing has been stopped by receiving print stop request command (DLE) while waiting for print start, the waiting for print start is also stopped. When the printing has resumed by receiving print start request command (DC1), the waiting time is resumed at the stopped time.
- This product will not wait for print start when reprint by Reprint <C> or function key.

## [ESC+IU] Internal Buzzer Sound

Hexadecimal code	ESC	IW	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <55> <sub>16</sub>	a
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Beep the buzzer inside the printer.

### [Format]

<IU>a

- Parameter

a [Sound pattern]

Valid range : 0 to 4

0 : One short beep

1 : One long beep

2 : Two short beeps

3 : Two long beeps

4 : Three long beeps

### [Coding Example]

One short beep

<A>

**<IU>0**

<Z>

### [Supplementary Explanation]

- The beep time for the short beep is 100 msec, and 500 msec for the long beep.
- The interval between beeps for the sound pattern 2, 3, and 4 is 5 msec or longer.
- The analysis of received data stops while a buzzer beeping.
- The timing of buzzer sound may be untimely with the current printing item when multi buffer operation.

Acquire the printer status and send this command in order to synchronize with the item print timing.

## [ESC+I@] Internal Buffer Initialization

Hexadecimal code	ESC	I@	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <40> <sub>16</sub>	(aa)
Initial value	None		

Valid range and term of command	When the power is OFF	The set parameter is not maintained.
	Valid range within items	The set parameter becomes invalid.
	Valid range between items	The set parameter becomes invalid.

### [Function]

Initialize the internal buffer.

### [Format]

<I@>(aa)

- Parameter

a [Internal buffer number to be initialized] = Valid range : 1 to 16 (Omissible)

\* All the internal buffer will be initialized when the buffer number is omitted.

### [Coding Example 1]

Initialize the internal buffer number 6

<A>

<I@>06 ----- (1)

<Z>

Internal buffer			
No.	Item name	Number of digits	Data contents
01	DATA1	2	49
02	DATA2	6	123456
03	DATA3	4	1234
04		0	
05		0	
(1) -----> 06	QTY	4	0010
07		0	
08		0	
09		0	
10		0	
11		0	
12		0	
13		0	
14		0	
15		0	
16		0	

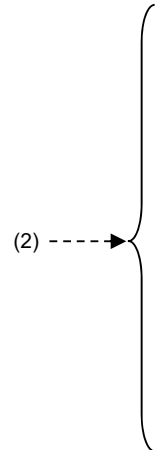
### [Coding Example 2]

Initialize all the internal buffer

<A>

<I@> ----- (2)

<Z>



No.	Item name	Number of digits	Data contents
01	DATA1	2	49
02	DATA2	6	123456
03	DATA3	4	1234
04		0	
05		0	
06	QTY	4	0010
07		0	
08		0	
09		0	
10		0	
11		0	
12		0	
13		0	
14		0	
15		0	
16		0	

### [Supplementary Explanation]

- Do not specify this command in the same item as Internal Buffer Registration (Received Data) <IR> and Data Sending <IT>.
- It is not possible to undo the internal buffer data that are initialized.
- The digit of appropriate buffer number become 0, and item name and the data contents string are deleted after the initialization.

## [ESC+IY] Exclusive Display Start-End

Hexadecimal code	ESC	IY	Parameter
	<1B> <sub>16</sub>	<49> <sub>16</sub> <59> <sub>16</sub>	a
Initial value	None		
Valid range and term of command	When the power is OFF	The set parameter is not maintained.	
	Valid range within items	The set parameter becomes invalid.	
	Valid range between items	The set parameter becomes invalid.	

### [Function]

The message area (upper and lower column) that is specified by Displayed Messages <IM> is exclusively used and messages from the printer system will not be displayed temporarily.

### [Format]

<IY>a

- Parameter

a [Exclusive display start-end]

1 : Start exclusive display

0 : End exclusive display

### [Coding Example 1]

Start exclusive display

<A>

<IY>1

<Z>

### [Coding Example 2]

End exclusive display

<A>

<IY>0

<Z>

### [Supplementary Explanation]

- Do not specify this command together with other SBPL commands in the same item.
- Send this command only when this product is online and operation stop (waiting for receive) status.
- The data which this command is included are not received while this product is operating. This is true for both start/end exclusive display.
- The icon display area is not possible to use exclusively.
- This command is invalid when the printer is offline or error state.
- Error messages are not displayed while the display is used exclusively. Confirm with icons only.
- The display will not be used exclusively when message display is not specified by Displayed Messages <IM>.

# Part 2 Interface Specification

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## Overview

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### Overview

This product has a build-in interface to communicate data with host and has an external signal interface to connect the product and peripheral devices.

Followings are the types of build-in interface.

- USB interface (USB2.0 High-speed, A type connector/B type connector)
- LAN interface (10BASE-T/100BASE-TX Auto switch, RJ-45 connector)



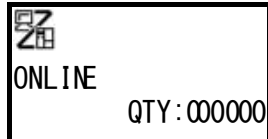
## Function Setting

It is required to configure each interface in the interface mode of this product before using it.

### Procedure to Go to the Interface Mode

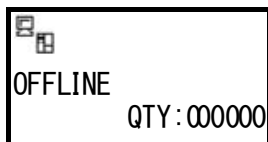
It is necessary to go to the interface mode to configure each interface.

1. Power on this product, press **LINE** once while this product is ONLINE.



This product goes OFFLINE.

2. Press **ENTER**.



This product goes to MODE MENU.

3. Press → twice to move the the cursor to .



4. Press **ENTER**.



This product goes to the interface mode.

Turn off this product after changing the settings, then turn on again.

## Data Port and Sub Port

You need to configure both "Data Port" and "Sub Port". The followings are overview of each ports.

### Data Port

This port receives print data from PC. All SBPL commands are available in this port.

<Configurable interfaces for the Data Port>

USB, LAN, IEEE1284, RS-232C

The interface configured as Sub Port cannot be used as the Data Port interface.

### Sub Port

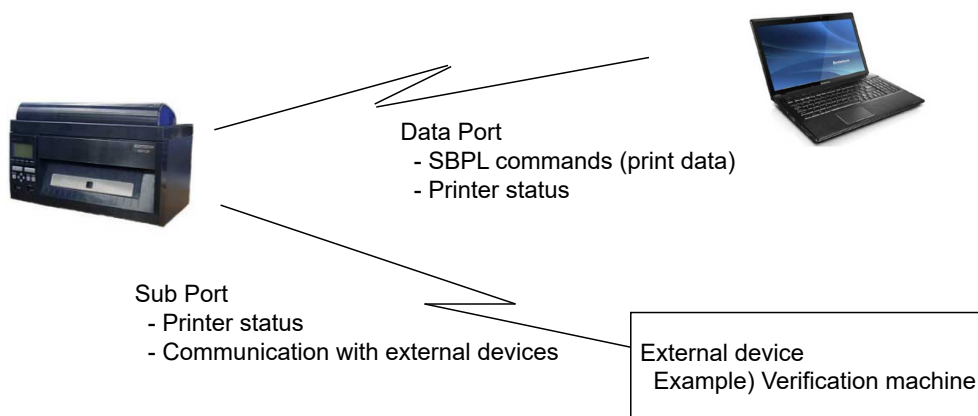
This port monitors the printer status.

Refer to "Return status" section in "Communication Protocol" for available commands in this port.

<Configurable interfaces for the Sub Port>

None, USB, LAN, IEEE1284, RS-232C

The interface configured as Data Port cannot be used as the Sub Port interface.



## Combination of Interface

The following combinations are available for the Data Port and the Sub Port.

		Data Port			
		RS-232C	IEEE1284	USB	LAN
Sub Port	RS-232C		○	○	○
	IEEE1284	○		○	○
	USB	○	○		○
	LAN	○	○	○	

○: Configurable

### [Supplementary information]

- Change the data port selection to "RS-232C" if it is not selected. If "RS-232C" is selected for the Sub port, change it to "NONE".

# Communication protocol

## Types of Communication Protocol and Reception Mode

This product has two types of receive modes; single item and multiple. The available receive mode differs depending on the combinations of interface and communication protocol.

- Single item receive mode  
Single item ([ESC+A] to [ESC+Z]) can be received after the previous single item has printed.
- Multiple receive mode  
Able to receive data up to reception buffer near full size during printing.
- Bi-directional communication (Status2, Status3, Status4, Status5)  
Monitors status of this product to carry out data communication.
- No bidirectional communication (READY/BUSY)  
Hardware controls data communication.
- Please refer to each interface for the detailed description of READY/BUSY, XON/XOFF, status2, status3, status4, status5.

Following chart shows available communication protocols.

Communication protocol	Interface			
	RS-232C	IEEE1284	USB	LAN
Single item receive Without bidirectional communication	x	o	x	x
Multiple buffer Without bidirectional communication	x	o	x	x
READY/BUSY Single item receive Without bidirectional communication	o	x	x	x
READY/BUSY Multiple buffer Without bidirectional communication	o	x	x	x
XON/XOFF Single item receive With bidirectional communication	o	x	x	x
XON/XOFF Multiple buffer With bidirectional communication	o	x	x	x
Status2 Single item receive	o	x	x	x

	Interface			
Communication protocol	RS-232C	IEEE1284	USB	LAN
With bidirectional communication				
Status3 Multiple buffer With bidirectional communication	○	×	×	○
Status4 Multiple buffer With bidirectional communication	○	○	○	○
Status5 Multiple buffer With bidirectional communication	○	○	○	○

○: Enable, x: Disable

## Return Status

The purpose of return status is to manage the status of this product from the host, and this product returns the status by request command from host.

There are four types of return status format, Status2, Status3, Status4, and Status5. Each return status is listed below.

The product returns the status after receiving request command.

Communication protocol	Command	Command Name	Data Port	Sub Port
Status2	ENQ	Status Request Command	○	○
	CAN	Cancel Request Command	○	×
Status3	ENQ	Status Request Command	○	○
	CAN	Cancel Request Command	○	×
Status4	ENQ	Status Request Command	○	○
	CAN	Cancel Request Command	○	×
	DLE	Print End Request Command	○	×
	DC1	Print Start Request Command	○	×
Status5	SOH + ENQ	Status Request Command	○	○
	SOH + CAN	Cancel Request Command	○	×
	SOH + DLE	Print End Request Command	○	×
	SOH + DC1	Print Start Request Command	○	×
Status3	SOH + MG	Print Configuration Request	○	○
Status4	SOH + SB	System Version Information Request	○	○
Status5	SOH + EB	Free Memory Space Information Request	○	○
	SOH + FO	Form Overlay Information Request	○	○
	SOH + CR	Status5 Setting Information Request	○	×
	SOH + LW	Status5 History data Information Request	○	×
	SOH + LA	LAN Information Request	○	×

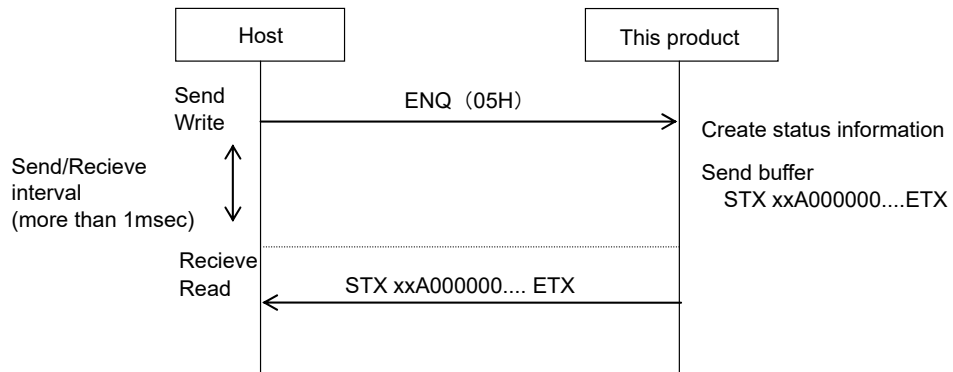
○ : supported, × : not supported

### Remarks

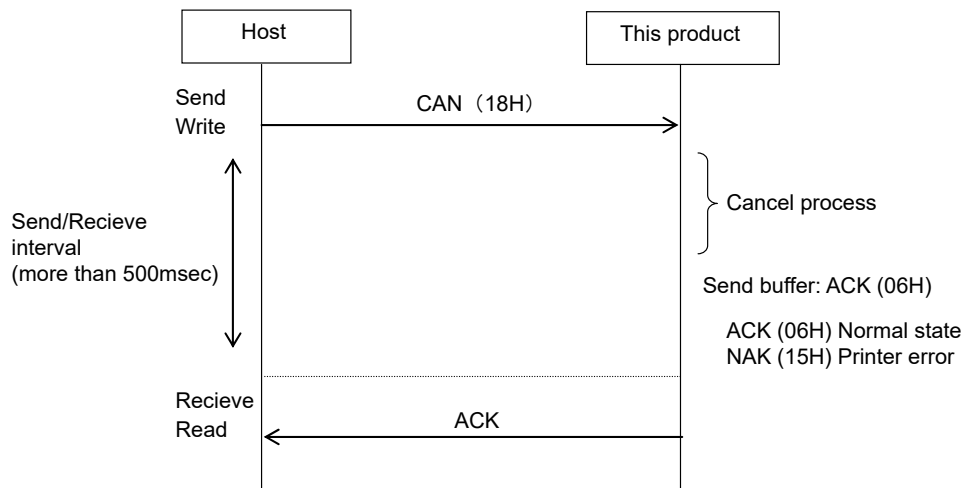
When you acquire return status from this product, please input transmission interval time after sending each command to this product.

Command	Command Name	Transmission interval time (target value)
ENQ (05H)	Status request	1 ms or more
CAN (18H)	Cancel request	500 ms or more
DLE (10H)	Print end request	
DC1 (11H)	Print start request	

### (1) ENQ (Status request)



### (2) CAN (Cancel request)



The above values are target values for queuing time until host reads ACK from this product. It varies by the interface type, setting of communication interface and communication environment.

The rough standard for transmission interval shall be 900 ms or more when you request cancel (18H) when receive buffer is near full.

## Return Status of Status2

This product returns the printer status by receiving the status request command sent from the host.

Also, this product initializes the receive buffer and cancels the print job by receiving the cancel request command.

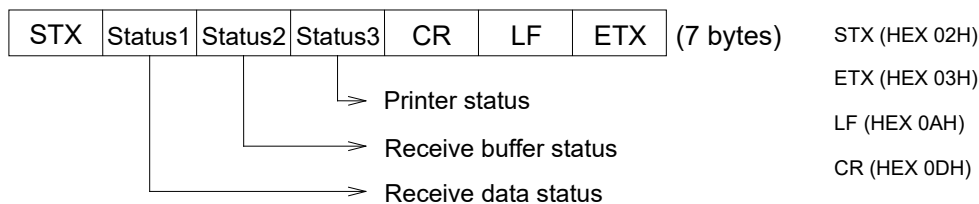
Following described about the details of request commands and return status.

### Status Request Command

This product returns the state of the receive data, the receive buffer and this product by receiving this command sent from the host.

1. Command ENQ (HEX 05H)

2. Return status/format



3. Status list

State of receive data

Status return	Contents
"0" (HEX 30H)	Indicates the receive text was received normally.
"1" (HEX 31H)	Indicates the receive text was received normally (Communication error, receive buffer overflow).

State of receive Buffer

Status return	Contents
"0" (HEX 30H)	Indicates no data exist in the receive buffer.
"9" (HEX 39H)	Indicates data exist in the receive buffer.

Status of this product

Status return	Contents
"0" (HEX 30H)	Normal (Receivable state)
"1" (HEX 31H)	Offline or print pause
"@" (HEX 40H)	Ribbon end <sup>*1</sup>
"A" (HEX 41H)	Paper end
"B" (HEX 42H)	(Unused) Cutter error
"E" (HEX 45H)	Head open
"G" (HEX 47H)	Head error
"J" (HEX 4AH)	Card error
"k" (HEX 6BH)	Other errors

\* There is no ribbon end with the direct thermal model.



## **Cancel Request Command**

This command enables to cancel print jobs and to clear the entire contents of receive buffer.

Note that the printer does not return the status with this command. Make sure to send the next data after the elapse of 500 msec as delay time after sending the cancel request.

This command is also effective in offline state and the time of the error.

\* This command shall not be used while sending other data like print data.

1. Command CAN (HEX 18H)

## Return Status of Status3

The purpose of this communication protocol is to return this product condition and reply as a status to the host by receiving three types of request commands and print command.

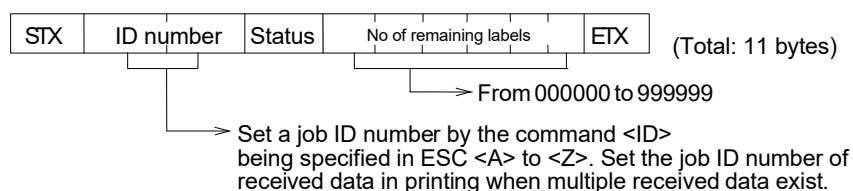
Following described about the details of request commands and return status.

### Status Request Command

This command returns the Job ID number of received data in printing, status of this product and the number of remaining label to Process print to the host. All "0" (HEX 30H) is returned for print quality when the print is completed or when there is no received data. Space (HEX 20H) is returned for the Job ID numbers when command for the designation of the job ID number <ID> is not specified.

Please do not send ENQ (Status request) while sending print data (STX <A> to <Z> ETX). Status would not be returned properly or print would not be performed properly if ENQ is sent.

1. Command ENQ (HEX 05H)  
STX (HEX 02H)  
ETX (HEX 03H)
2. Return status, Format (for other than Port 3 (9100) that LEGACY STATUS setting is enabled)



3. Status list

Contents			ASCII	HEX
OFFLINE STATE	NO ERROR		0	30
	RIBBON NEAR END		1	31
	BUFFER NEAR FULL		2	32
	RIBBON NEAR END & BUFFER NEAR FULL		3	33
ONLINE STATE	WAIT TO RECEIVE	NO ERROR	A	41
		RIBBON NEAR END	B	42
		BUFFER NEAR FULL	C	43
		RIBBON NEAR END & BUFFER NEAR FULL	D	44
	PRINTING	NO ERROR	G	47
		RIBBON NEAR END	H	48
		BUFFER NEAR FULL	I	49
		RIBBON NEAR END & BUFFER NEAR FULL	J	4A
	STANDBY (Waiting for dispenser/ cutter)	NO ERROR	M	4D
		RIBBON NEAR END	N	4E
		BUFFER NEAR FULL	O	4F
		RIBBON NEAR END & BUFFER NEAR FULL	P	50
	ANALYZING / EDITING	NO ERROR* <sup>1</sup>	S	53
		RIBBON NEAR END* <sup>1</sup>	T	54
		BUFFER NEAR FULL* <sup>1</sup>	U	55

Contents			ASCII	HEX
		RIBBON NEAR END & BUFFER NEAR FULL *1	V	56
ERROR DETECTION	BUFFER OVER*2		a	61
	HEAD OPEN		b	62
	PAPER END		c	63
	RIBBON END		d	64
	MEDIA ERROR (PRINT ERROR)		e	65
	SENSOR ERROR		f	66
	HEAD ERROR		g	67
	CARD ERROR		i	69
	OTHER ERRORS		k	6B

\*1 Print quantity may not be set properly depending on timing of edit and analysis.

\*2 BUFFER OVER may occur or may not occur, it depends on interface.

RS-232C: BUFFER OVER may occur.

USB, LAN, IEEE1284: BUFFER OVER may not occur.

### Cancel Request Command

This command enables to cancel print jobs and to clear the entire contents of receive buffer.

The status of this product after finishing process is returned.

\* When the cancel request command has been sent, wait more than 500 ms before sending the next data.

\* This command shall not be used while sending other data like print data.

1. Command CAN (HEX 18H)
2. Return status list

Return status	Contents
ACK (HEX 06H)	No error in this product
NAK (HEX 15H)	Error in this product

### Print Command

Print starts after receiving print command (STX <A> to <Z> ETX).

The status of this product after receiving command is returned.

1. Return status list (The status of this product)

Return status	Contents
ACK (HEX 06H)	No error in this product
NAK (HEX 15H)	Error in this product

Command example of Job ID number <ID>

<A>

<ID>01

<V>100<H>100<P>2<L>0202<XM>ABC

<Q>1

<Z>

Please refer to "Job ID Number <ID>" in this document for details.

## Return Status of Status4

The purpose of this communication protocol is to return this product condition and reply as a status to the host by receiving five types of request commands and print command.

Following described about the details of request commands and return status.

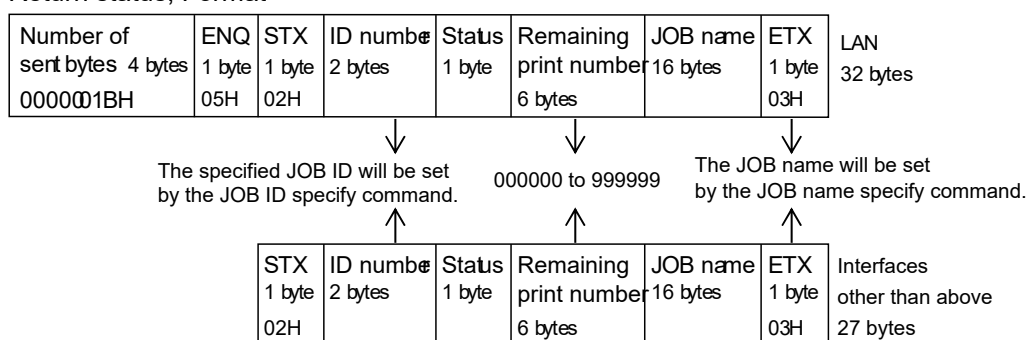
### Status Request Command

This command returns the Job ID number of received data in printing, status of this product and the number of remaining label to Process print to , the host. All "0" (HEX 30H) is returned for print quality when the print is completed or when there is no received data. Space (HEX 20H) is returned for the Job ID numbers when command for the designation of the job ID number <ID> is not specified.

Please do not send ENQ (Status request) while sending print data (STX <A> to <Z> ETX). Status would not be returned properly or print would not be performed properly if ENQ is sent.

#### 1. Command ENQ (HEX 05H)

#### 2. Return status, Format



#### 3. Return status list

Contents			ASCII	HEX
OFFLINE STATE	NO ERROR		0	30
	RIBBON NEAR END		1	31
	BUFFER NEAR FULL		2	32
	RIBBON NEAR END & BUFFER NEAR FULL		3	33
	PRINT HALT (NO ERROR)		4	34
ONLINE STATE	WAIT TO RECEIVE	NO ERROR	A	41
		RIBBON NEAR END	B	42
		BUFFER NEAR FULL	C	43
		RIBBON NEAR END & BUFFER NEAR FULL	D	44
		PRINT HALT (NO ERROR)	E	45
	PRINTING	NO ERROR	G	47
		RIBBON NEAR END	H	48
		BUFFER NEAR FULL	I	49
		RIBBON NEAR END & BUFFER NEAR FULL	J	4A
		PRINT HALT (NO ERROR)	K	4B
	STANDBY (Waiting for dispenser/ cutter)	NO ERROR	M	4D
		RIBBON NEAR END	N	4E
		BUFFER NEAR FULL	O	4F
		RIBBON NEAR END & BUFFER NEAR FULL	P	50

Contents			ASCII	HEX
		PRINT HALT (NO ERROR)	Q	51
	ANALYZING / EDITING	NO ERROR <sup>*1</sup>	S	53
		RIBBON NEAR END <sup>*1</sup>	T	54
		BUFFER NEAR FULL <sup>*1</sup>	U	55
		RIBBON NEAR END & BUFFER NEAR FULL <sup>*1</sup>	V	56
		PRINT HALT (NO ERROR) <sup>*1</sup>	W	57
ERROR DETECTION	HEAD OPEN		b	62
	PAPER END		c	63
	RIBBON END		d	64
	MEDIA ERROR (PRINT ERROR)		e	65
	SENSOR ERROR		f	66
	HEAD ERROR		g	67
	CARD ERROR		i	69
	CUTTER ERROR		j	6A
	OTHER ERRORS		k	6B

<sup>\*1</sup> Print quantity may not be set properly depending on timing of edit and analysis.

### Cancel Request Command

This command enables to cancel print jobs and to clear the entire contents of receive buffer.

The status of this product after finishing process is returned.

\* When the cancel request command has been sent, wait more than 500 ms before sending the next data.

\* Please do not send CAN (Cancel request command) while STX <A> to <Z> ETX. CAN (Cancel request command) would not be sent properly.

1. Command CAN (HEX 18H)
2. Return status list

Return Status	Contents
ACK (HEX 06H)	No error in this product
NAK (HEX 15H)	Error in this product

### Print Command

This command (<A> to <Z>) starts the printing process.

The status of this product after receiving command is returned.

1. Return status list  
interface

Return Status	Contents
ACK (HEX 06H)	No error in this product
NAK (HEX 15H)	Error in this product

### Print End Request Command

This command halts the printing process.

The status of this product after receiving command is returned.

1. Command DLE (HEX 10H)
2. Return status list

Return status	Contents
ACK (HEX 06H)	No error in this product
NAK (HEX 15H)	Error in this product

Please do not send DLE (Print stop request command) while STX <A> to <Z> ETX. DLE (Print stop request command) would not be sent properly. Font data, graphic data, barcode data will not be processed as DLE transmission (Print stop request).

### Print Start Request Command

This command releases the pause mode of this product and restarts the printing process.

The status of this product after receiving command is returned.

1. Command DC1 (HEX 11H)
2. Return status list

Return status	Contents
ACK (HEX 06H)	No error in this product
NAK (HEX 15H)	Error in this product

## Return Status of Status5

The following is functionality provided by this communication protocol.

### Data Transmission Format

1. All control commands like print data, status request, cancel request are specified by adding STX (HEX 02H) and (HEX 03H).

\* It is not necessary to add STX (HEX 02H) and ETX (HEX 03H) for setting data.

2. Item No. must be added to print data.

If there is no item No., or specifying illegal item No. will cause item No. error.

3. BCC must be added at the end of item end (<Z>) when BCC check functionality is set to enabled. BCC is not necessary for obtaining information like status request etc.

Use example)

- Print data

STX	<A>	<ID>00000	Print data	<Z>	BCC	ETX
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- Status request

STX	SOH	ENQ	00000	ETX
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### Item No. command

This command adds an item No. to every item of print data sent from host. Each item can be distinguished by the item No. This command is needed to be included in the print data (<A>~<Z>) when using status 5 reply protocol because high reliability functions provided by the status 5 reply status identify items by the item No.

#### [Command]

ESC (HEX 1BH) + ID

#### [Format]

<ID>aaaaa

- Parameter

a     [Item No.]     Valid range : 00000 to 99999 (necessary to put all 5 digits)

#### [Example]

<A>

<ID>00001

...

<Z>

## History Function

The process status of the received print data (item) will be saved in the history buffer. The process status can be acquired by item status request command.

### [Memory configuration]

Usage	Type	Size	Remarks
Receive buffer	RAM	2.95 MB	
History buffer	SFROM	4 KB	The maximum register items: 500 items (ring buffer) The history data will be maintained even power of this product is off.

### [History data configuration]

No.	Description	Number of bytes (Total: 8 bytes)
1	Control flag	1
2	Item No.	5
3	Status 00: Received 01: Printed 02: Cancel 03: Item No. error. 04: BCC error 05: Print after error 06: Cancel after error 07: Analyzed item with no print 08: Unprocessed error (items that are not processed before power off the product)	2

### [Supplementary Explanation]

- The item No. will be "\*\*\*\*\*", the status will be "3" when there is no item No. command in the received data or the item No. command is illegal. There will be item No. error and the printing will be stopped at the start of this item print.
- The history data will be saved in the internal memory. The status will be maintained after printer off to on. However, when item status before the power off is 00: received, 03: item No. error, 04: BCC error, or 05: print after error, the receive data will not be saved and these will be 08: unprocessed error.

## Item Status Obtaining Command

This command searches for the specified item number from the end of history buffer and returns the status of target item to host.

### [Command]

SOH(HEX 01H) + ENQ(HEX 05H)



**[Format]**

STX + SOH + ENQ + aaaaaa + ETX

- Parameter

a [Item No.] Valid range : 00000 to 99999  
\*\*\*\*\*

1. Parameter must be 5 digits.
2. Parameter [\*] is [HEX 2AH].
3. When "\*\*\*\*\*" is specified as the parameter, the status of the last item in the history buffer will be returned to the host.

**[Return status format]**

[1] STX	[5] Specified Item No.	[2] Specified item Status  *1	[5] Currently processed Item No.	[2] Currently processed item Status  *2	[6] Currently processed item Number of prints	[1] ETX
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Numerical number in [ ] indicates the number of bytes in use. Total 22 bytes of return status format (Fix).

Item No. is filled by "0."

The currently processing item No. will become space (20H) after printing is completed.

\*1 The below is the specified item status list.

Description	ASCII	HEX
Received	00	3030
Printed	01	3031
Cancel	02	3032
Item No. error.	03	3033
BCC error	04	3034
Print after error (this is a temporary error and this will be "Printed" after printing)	05	3035
Cancel after error	06	3036
Analyzed item with no print	07	3037
Unprocessed error (power of this product has been off before processing the item)	08	3038
Others	**	2A2A

\*2 The first digit shows the status of processing item and the second digit shows the error. The following is the chart showing status of processing items.

Digit	Contents	ASCII	HEX
1	Offline	0	30
	Online - Wait for receiving	1	31
	Online - Printing	2	32

Digit	Contents	ASCII	HEX
	Online - Waiting (Wait for dispense)	3	33
	Online - Analyzing / Editing * [Number of processing item to be printed] may not be set, which is depending on the timing.	4	34
	Error	5	35
	Stop printing (Receiving DLE command)	6	36

Digit	Contents	ASCII	HEX
2	NO ERROR	0	30
	RIBBON NEAR END	1	31
	BUFFER NEAR FULL	2	32
	RIBBON NEAR END & BUFFER NEAR FULL	3	33
	MACHINE ERROR	A	41
	FLASH ROM ERROR	B	42
	HEAD OPEN	C	43
	PAPER END	D	44
	RIBBON END	E	45
	SENSOR ERROR	F	46
	HEAD ERROR	G	47
	MEMORY READ/WRITE ERROR	H	48
	MEMORY FULL	I	49
	KANJI DATA ERROR	L	4C
	BCC ERROR	Q	51
	ITEM NO. ERROR	R	52
	MEDIA ERROR (PRINT ERROR)	S	53
	OTHER ERRORS	U	55

#### [Example]

STX SOH ENQ 00001 ETX

STX SOH ENQ \*\*\*\*\* ETX

#### [Supplementary Explanation]

- This command shall not be used while sending other data like print data. Status would not be returned properly or print would not be performed properly if this command is sent while sending print data.
- Upon reception of this command, this product will search the specified item from the history buffer, and it may take some time to return the status to the host.
- Item No. that is not sent as the print data shall not be specified as the parameter of this command. In this case, the status will not be returned. In addition, the status will not be returned when the specifying an illegal item No. The control of item No. shall be done at the host.

- The latest item status will be returned when there are multiple same item No. in the history buffer.

## Item No. Check Function

This product will check the item No. in the print data if it is incremented one by one with every item. If it is not, the printer will arise "item No. error" at the print start of the item and stop the printing.

### The LCD display of the item No. error



\* The item No. error will be detected only when the item No. check is enabled.

The followings are cancellation method of item No. error.

Press [LINE] key	Resume printing from print data with item No. error.
Send SUB command	Resume printing where it left off after canceling Item No. error. This commands able to specify whether to print data with error or cancel the data.
Send CAN command	Cancel print data with item No. error has occurred then resume printing from the next item.
Press [Cancel] key	

The history data with the item No. error will be processed as follows according to the error cause.

When the item No. is not specified or the digit is not correct	The item No. will be "*****" and status No. 03 "item No. error" will be recorded.
When the item No. is not incremented by 1	The specified item No. and status No. 03 "item No. error" will be recorded.

### [Supplementary Explanation]

- Print data is only target item No. check. Error will not be detected for error which does not require printing operation like registration data or printer setting command etc. With those data, please specify "\*\*\*\*\*" as the item No.
- When the item No. is specified by the starting item No. specifying command <IQ>, the starting item No. of the next data will be the item No. specified by <IQ> +1.

## BCC Check Function

BCC (Block Check Code) is 1 byte of data calculated XOR of 1 send data (<A>-<Z>). BCC shall be added to the end of data (<Z>) per item for host to send data to this product.

This product checks the validity of receiving data by calculating BCC per data item being received and compares it with sent BCC. When those BCC are different, this product judges that receiving data is incorrect and causes [BCC error] before printing the item then stops printing operation.

### The LCD display of the item No. error



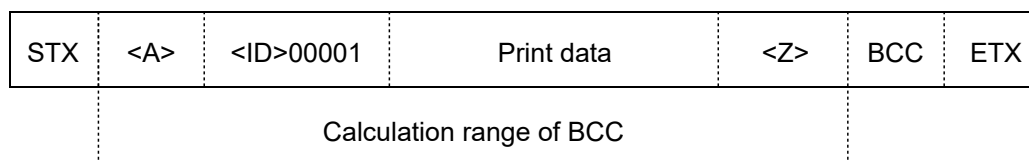
\* The BCC error will be detected only when the BCC Check check is enabled.

The following is the cancellation method of BCC error.

Press [LINE] key	Resume printing from print data with BCC error.
Send SUB command	Resume printing where it left off after canceling BCC error. This commands able to specify whether to print data with error or cancel the data.
Send CAN command	Cancel print data with BCC error then resume printing from the next item.
Press [Cancel] key	

Calculation range of BCC)

- Print data



**[Supplementary Explanation]**

- Print data is only target for BCC check. Error will not be detected for error which does not require printing operation like registration data or printer setting command etc.
- Add only data, which starts from data transmission start <A> and ends at data transmission <Z> for BCC.
- BCC calculates exclusive OR for data in the calculation range.

## Cancel Request Command

This command searches for the specified item number from the end of history buffer and cancels the target item. However, when the status of the specified item is "Printed", this command is disabled.

**[Command]**

SOH(HEX 01H) + CAN(HEX 18H)

**[Format]**

STX + SOH + CAN + aaaaa + ETX

- Parameter

a [Item No.] Valid range : 00000 to 99999  
\*\*\*\*\*

1. Parameter must be 5 digits.
2. Parameter [\*] is [HEX 2AH].
3. When "\*\*\*\*\*" is specified as the parameter, all the data that status are "Printed" in the history buffer will be canceled.

**[Example]**

STX SOH CAN 00001 ETX

STX SOH CAN \*\*\*\*\* ETX

**[Supplementary Explanation]**

- This command shall not be used while sending other data like print data.
- Upon reception of this command, this product will search the specified item from the history buffer, and it may take some time to cancel.
- Item No. that is not sent as the print data shall not be specified as the parameter of this command. This product is not being able to cancel the item. In addition, this product is not being able to cancel the item when specifying an illegal item No. The control of item No. shall be done at the host.
- Please note that there is no return data for this command. Host will send item acquiring command (SOH+ENQ) so please check the result by checking the return status.
- Item No. that is not sent as the print data shall not be specified as the parameter of this command. This product is not being able to cancel the item. In addition, this product is not being able to cancel the item when specifying an illegal item No. The control of item No. shall be done at the host.

**Print End Request Command**

This command stops printing operation.

**[Command]**

SOH(HEX 01H) + DLE(HEX 10H)

**[Format]**

STX + DLE

**[Example]**

STX DLE

**[Supplementary Explanation]**

- This command shall not be used while sending other data like print data.
- Please note that there is no return data for this command. Host will send item acquiring command (SOH+ENQ) so please check the result by checking the return status.

**Print Start Request Command**

This command cancels print operation in hold, which was stopped by print stop command (SOH +DLE), then resume printing operation.

**[Command]**

SOH(HEX 01H) + DC1(HEX 11H)

**[Format]**

STX + SOH + DC1 + ETX

**[Example]**

STX SOH DC1 ETX

**[Supplementary Explanation]**

- This command shall not be used while sending other data like print data.
- Please note that there is no return data for this command. Host will send item acquiring command (SOH+ENQ) so please check the result by checking the return status.

**Status5 Return Error Cancellation Request Command**

This command cancels Item No. error or BCC error and resume printing operation from the item with error.

**[Command]**

SOH(HEX 01H) + SUB(HEX 1AH)

**[Format]**

STX + SOH + SUB + a + ETX

a     [Cancel]  
           0 : Cancel error data  
           1 : Print error data

**[Example]**

STX SOH SUB 0 ETX

**[Supplementary Explanation]**

- Do not include this command to print data (<A>-<Z>).
- Please note that there is no return data for this command. Host will send item acquiring command (SOH+ENQ) so please check the result by checking the return status.

**Starting Item No. Specifying Command**

This is a command to notify the item No. of the first print data to be sent to this product. This product regards the value of the item No. specified by this command + 1 as the item No. of print data sent afterwards.

**[Command]**

<IQ>

**[Format]**

<IQ>aaaaa

- Parameter  
           a           [Item No.]       Valid range   :   00000 to 99999 (necessary to put all 5 digits)

**[Example 1]**

<A>

```
<ID>*****
<IQ>00000
<Z>
<A>
<ID>00001
...
<Z>
```

#### **[Example 2]**

```
<A>
<ID>*****
<IQ>99999
<Z>
<A>
<ID>00000
...
<Z>
```

#### **[Supplementary Explanation]**

- Do not include this command to print data (<A>-<Z>).
- When "99999" is specified with this command, the next item No. will be "00000".

### **Protocol Switch Command in Status 5**

This command switches the communication protocol.

#### **[Command]**

ESC (HEX 1BH) + PL

#### **[Format]**

<PL>a

- Parameter
  - a "switches protocol"
    - 0 : READY/BUSY
    - 1 : XON/XOFF
    - 2 : Printer Status 2 Return
    - 3 : Printer Status 3 Return
    - 4 : Printer Status 4 Return
    - 5 : Printer Status 5 Return

#### **[Example]**

```
<A>
<ID>*****
<PL>5
<Z>
```

#### **[Supplementary Explanation]**

- This command cannot be used at the same time the print data.
- This setting is maintained after printer power off.

- This will become invalid when specifying protocols not supported in the used interfaces.
- When the protocol is changed, the printer needs to be rebooted. Without rebooting, data communication may be incorrect.

### **Status 5 Reply Check Command**

This is a command to set the check function of BCC and item No. in the status 5 return.

#### **[Command]**

ESC (HEX 1BH) + CR

#### **[Format]**

<CR>a,b

- Parameter
  - a [BCC check]
    - 0: BCC check disable (initial value)
    - 1: BCC check enable
  - b [Item number check]
    - 0: Item No. check disable (initial value)
    - 1: Item No. check enable

#### **[Example]**

```
<A>
<ID>*****
<CR>1,1
<Z>
```

#### **[Supplementary Explanation]**

- Do not include this command to print data (<A>-<Z>).

### **History Data Recuest Command**

Upon receive of this command, this product will send 500 history data to the host.

#### **[Command]**

ESC (HEX 01H) + LW

#### **[Format]**

STX + SOH + LW + ETX

#### **[Example]**

STX OH LW ETX

#### **[Return Status Format]**



[1] STX	[5] Item No.	[2] Status	[2] CR LF	.....	[5] Item No.	[2] Status	[1] ETX
STX(HEX 02H)		CR(HEX 0DH) LF(HEX 0AH)			ETX(HEX 03H)		

- Numerical number in [ ] indicates the number of bytes in use.
- Item No. is filled by "0."
- The history data will be separated by CRLF at every item, and there are a total of 500 items.
- Refer to the "History data configuration in History function".

#### **[Supplementary Explanation]**

- Do not include this command to print data (<A>-<Z>).
- Do not send any data to this product while the printer is sending history data to the host.

## Other Return Status (Common to Status 3, Status 4, and Status 5)

### Print Configuration Request

1. Command SOH (HEX 01H) + MG
2. Return status list

No.	Item	Contents	Number of bytes
1	Print method	00H: Thermal transfer 01H: Direct thermal	1
2	Head density	01H: 12 dot/mm	1
3	Print speed	01H: 3 (inch/sec) 75 (mm/sec) 02H: 4 (inch/sec) 100 (mm/sec) 03H: 5 (inch/sec) 125 (mm/sec) 04H: 6 (inch/sec) 150 (mm/sec)	1
4	Print mode	00H: Continuous 01H: Tearoff 02H: Cutter 03H: (Not used) 04H: Cut while printing	1
5	Cutter motion	00H: Motion 1 (at head place) 01H: Motion 2 (at cutter place) 02H: No backfeed	1
6	Not used	00H fixed	1
7	Not used	00H fixed	1
8	Print darkness	<b>Darkness range</b> A(41H): A B(42H): B (Reserved) C(43H): C (Reserved) D(44H): D (Reserved) E(45H): E (Reserved) F(46H): F (Reserved) <b>Darkness level</b> 01H: Darkness 1 02H: Darkness 2 03H: Darkness 3 04H: Darkness 4 05H: Darkness 5 06H: Darkness 6 07H: Darkness 7 08H: Darkness 8 09H: Darkness 9 0AH: Darkness 10	2
9	Sensor type	00H: I-Mark sensor 01H: Gap sensor 02H: Disable sensor	1
10	Zero slash	00H: Disable	1

No.	Item	Contents	Number of bytes
		01H: Enable	
11	Kanji code	00H: JIS code (initial value) 01H: Shift-JIS 02H: UTF-16 04H: BIG5 05H: GB18030	1
12	Not used	00H fixed	1
13	Initial feed	00H: Disable 01H: Enable	1
14	Proportional pitch	00H: Disable (Initial value) 01H: Enable	1
15	Height of label	Head density: 12 dots/mm Range (HEX): 168H to 13B0H Range (DEC): 360 to 5040 dots	2
16	Width of label	Head density: 12 dots/mm Range (HEX): 5DCH to C80H Range (DEC): 1500 to 3200 dots	2
17	Vertical start point correction (dots)	0000H to 13B0H (0 to 5040 dots) FFFFH to EC50H (-1 to -5040 dots)	2
18	Horizontal start point correction (dots)	0000H to 0C80H (0 to 3200 dots) FFFFH to F380H (-1 to -3200 dots)	2
19	Option Waiting Time (Unit: 100ms)	05H to C8H (5 to 200) Initial value: AH (10)	1
20	Time to LCD power saving (in minute)	00H to 0FH (0 to 15) Initial value: 0H (00)	1
21	Not used	00H fixed	1
22	Not used	00H fixed	1
23	Not used	00H fixed	1
24	Not used	00H fixed	1
25	Buzzer setting	00H: None 01H: Small 02H: Medium 03H: Large	1

### System Version Information Request

This command returns the system version information of this product.

1. Command SOH (HEX 01H) + SB
2. Return status/format  
[STX] + Printer system version +[ETX]  
STX (HEX 02H)  
ETX (HEX 03H)

STX	Printer firmware	Font	Reserved	ETX
-----	------------------	------	----------	-----

(Total: 52 bytes)

3. Return status list

No.	Item	Contents	Number of bytes
1	Printer firmware version	ASCII code	16
2	Font version	ASCII code	8
3	Reserved (HEX 20H fixed)	ASCII code	26

### Free Memory Space Information Request

This command returns the system version information of this product.

1. Command SOH (HEX 01H) + EB
2. Return status/format  
[STX] + free memory space + [ETX]  
STX (HEX 02H)  
ETX (HEX 03H)

STX	Font free space	Font total space	Foam overlay free space	Foam overlay total space	Graphic free space	Graphic total space	ETX
-----	-----------------	------------------	-------------------------	--------------------------	--------------------	---------------------	-----

(Total: 26 bytes)

3. Return status list

No.	Item	Contents	Number of bytes
1	Font free space	Binary data	4
2	Font total space	Binary data	4
3	Foam overlay free space	Binary data	4
4	Foam overlay total space	Binary data	4
5	Graphic free space	Binary data	4
6	Graphic total space	Binary data	4

### Form Overlay Registration Information Request

This command returns the form overlay registration information of this product.

1. Command SOH (HEX 01H) + FO
2. Return status/format  
[STX] + Form overlay registration content +[ETX]  
STX (HEX 02H)  
ETX (HEX 03H)

STX	Registration number	Registration name	ETX
-----	---------------------	-------------------	-----

(Total: 20 bytes)

3. Return status list

No.	Item	Contents	Number of bytes
1	Registration number	01 to 99 (ASCII code)	2

No.	Item	Contents	Number of bytes
2	Registration name	Registration name (ASCII code)	16

### LAN Specification Information Request (IPv4)

This command returns the LAN setting information of this product.

1. Command SOH (HEX 01H) + LA
2. Return status/format  
[STX] + MAC address + IP address + Subnet mask + Default gateway + DHCP + [ETX]  
STX (HEX 02H)  
ETX (HEX 03H)

STX	MAC address	IP address	Subnet mask	Default gateway	DHCP	Reserved	ETX
-----	-------------	------------	-------------	-----------------	------	----------	-----

(Total: 22 bytes)

3. Return status list

No.	Item	Contents	Number of bytes
1	MAC address (HEX)	Return MAC address that is set.	6
2	IP address (HEX)	Return IP address that is set.	4
3	Subnet mask (HEX)	Return Subnet mask that is set.	4
4	Default gateway (HEX)	Return default gateway address that is set.	4
5	DHCP	0 (00H): Disable (Initial value) 1 (01H): Enable	1
6	RARP	0 (00H): Disable (Initial value) 1 (01H): Enable	1

### LAN Specification Information Request (IPv6)

This command returns the LAN IPv6 setting information of this product.

1. Command SOH (HEX 01H) + IA
2. Return status/format  
[STX] + MAC address + IP address + Prefix + Default router + Address resolution + [ETX]  
STX (HEX 02H)  
ETX (HEX 03H)

STX	MAC address	IP address	Prefix	Default router	Address resolution	ETX
-----	-------------	------------	--------	----------------	--------------------	-----

(Total: 42 bytes)

3. Return status list

No.	Item	Contents	Number of bytes
1	MAC address (HEX)	Return MAC address that is set.	6
2	IP address (HEX)	Return IP address that is set.	16
3	Prefix (HEX)	Return prefix that is set.	1

No.	Item	Contents	Number of bytes
4	Default router (HEX)	Return default router address that is set.	16
5	DHCP	0 (00H): Manual 1 (01H): DHCP 2 (01H): Auto	1

### SNMP Agent Information Request

This command returns the SNMP agent information of this product.

1. Command SOH (HEX 01H) + LX
2. Return status/format  
[STX] + sysContact + sysName + sysLocation + [ETX]  
STX (HEX 02H)  
ETX (HEX 03H)

STX	sysContact	sysName	sysLocation	ETX
-----	------------	---------	-------------	-----

(Total: 770 bytes)

3. Return status list

No.	Item	Contents	Number of bytes
1	sysContact	Return sysContact that is set.	256
2	sysName	Return sysName that is set.	256
3	sysLocation	Return sysLocation that is set.	256

Each item is fixed to 256 bytes. If each item is less than 256 bytes, the remaining are filled with 0x00. It is possible to display because it is the contact at trouble, however, it is according to snmp rules.

In case of LAN, it is divided to multiple packets. In case of Status 4, packet size will be indicated at the beginning 4 bytes of each packet. There is no rules regarding the number of division. Make sure to take the packet including ETX.

Example) when divided into 5 packets

770 bytes + 4 bytes x 5 packets = total 790 bytes

### SNMP Function Status Request

This command returns the SNMP ON/OFF state of this product.

1. Command SOH (HEX 01H) + LY
2. Return status/format  
[STX] + SNMP ON/OFF state + [ETX]  
STX (HEX 02H)  
ETX (HEX 03H)

STX	SNMP ON/OFF	ETX
-----	-------------	-----

(Total: 3 bytes)

3. Return status list

No.	Item	Contents	Number of bytes
1	SNMP ON/OFF	0: OFF 1: ON	1

### SNMP Information Request

This command returns the SNMP information of this product.

1. Command SOH (HEX 01H) + LZ
2. Return status/format  
[STX] + SNMP setting values + [ETX]  
STX (HEX 02H)  
ETX (HEX 03H)

STX	SNMP settings	ETX
-----	---------------	-----

(Total: 723 bytes)

3. Return status list

No.	Item	Contents	Number of bytes
1	Community name 1	SNMP_COMMUNITY1_NAME	32
2	Writable 1	SNMP_COMMUNITY1_WRITABLE	1
3	Community name 2	SNMP_COMMUNITY2_NAME	32
4	Writable 2	SNMP_COMMUNITY2_WRITABLE	1
5	User name 1	SNMP_USER1_NAME	32
6	Authentication 1	SNMP_USER1_AUTH	1
7	Authentication key 1	SNMP_USER1_AUTHPASS	32
8	Privacy type 1	SNMP_USER1_PRIV	1
9	Privacy key 1	SNMP_USER1_PRIVPASS	32
10	Writable 1	SNMP_USER1_WRITABLE	1
11	User name 2	SNMP_USER2_NAME	32
12	Authentication 2	SNMP_USER2_AUTH	1
13	Authentication key 2	SNMP_USER2_AUTHPASS	32
14	Privacy type 2	SNMP_USER2_PRIV	1
15	Privacy key 2	SNMP_USER2_PRIVPASS	32
16	Writable 2	SNMP_USER2_WRITABLE	1
17	Trap 1 community name	SNMP_TRAP1_COMMUNITY_NAME	32
18	Trap 1 IPv4/6 select	SNMP_TRAP1_46SEL	1
19	Trap 1 trapped address	SNMP_TRAP1_IPADDRESS	4
20	Trap 1 trapped address	SNMP_TRAP1_IPV6_IPADDRESS	16
21	Trap 1 trap enable flag	SNMP_TRAP1_ENABLE	1
22	Trap 1 v1/v2c/v3 select	SNMP_TRAP1_VERSION	1
23	Trap 2 community name	SNMP_TRAP2_COMMUNITY_NAME	32
24	Trap 2 IPv4/6 select	SNMP_TRAP2_46SEL	1
25	Trap 2 trapped address	SNMP_TRAP2_IPADDRESS	4

No.	Item	Contents	Number of bytes
26	Trap 2 trapped address	SNMP_TRAP2_IPV6_IPADDRESS	16
27	Trap 2 trap enable flag	SNMP_TRAP2_ENABLE	1
28	Trap 2 v1/v2c/v3 select	SNMP_TRAP2_VERSION	1
29	Trap 3 community name	SNMP_TRAP3_COMMUNITY_NAME	32
30	Trap 3 IPv4/6 select	SNMP_TRAP3_46SEL	1
31	Trap 3 trapped address	SNMP_TRAP3_IPADDRESS	4
32	Trap 3 trapped address	SNMP_TRAP3_IPV6_IPADDRESS	16
33	Trap 3 trap enable flag	SNMP_TRAP3_ENABLE	1
34	Trap 3 v1/v2c/v3 select	SNMP_TRAP3_VERSION	1
35	Trap 1 authentication user name	SNMP_TAUTH_USER1_NAME	32
36	Trap 1 authentication authentication method	SNMP_TAUTH_USER1_AUTH	1
37	Trap 1 authentication authentication key	SNMP_TAUTH_USER1_AUTHPASS	32
38	Trap 1 authentication privacy type	SNMP_TAUTH_USER1_PRIV	1
39	Trap 1 authentication privacy key	SNMP_TAUTH_USER1_PRIVPASS	32
40	Trap 2 authentication user name	SNMP_TAUTH_USER2_NAME	32
41	Trap 2 authentication authentication method	SNMP_TAUTH_USER2_AUTH	1
42	Trap 2 authentication authentication key	SNMP_TAUTH_USER2_AUTHPASS	32
43	Trap 2 authentication privacy type	SNMP_TAUTH_USER2_PRIV	1
44	Trap 2 authentication privacy key	SNMP_TAUTH_USER2_PRIVPASS	32
45	Trap 3 authentication user name	SNMP_TAUTH_USER3_NAME	32
46	Trap 3 authentication authentication method	SNMP_TAUTH_USER3_AUTH	1
47	Trap 3 authentication authentication key	SNMP_TAUTH_USER3_AUTHPASS	32
48	Trap 3 authentication privacy type	SNMP_TAUTH_USER3_PRIV	1
49	Trap 3 authentication privacy key	SNMP_TAUTH_USER3_PRIVPASS	32

\* all are in binary data. The number of bytes are fixed, and it is filled with 0x00 when character string is less than 32 bytes.

\* In case of LAN, it is divided to multiple packets. In case of Status 4, packet size will be indicated at the beginning 4 bytes of each packet. There is no rules regarding the number of division. Make sure to take the packet including ETX.

Example) when divided into 6 packets

723 bytes + 4 bytes x 6 packets = total 749 bytes



---

## **READY/BUSY**

This communication protocol controls the reception of print data by the control of hard signal only.  
Refer to RS-232C for the details.

---

## XON/XOFF

This communication protocol communicates with the host to see if this product is ready to receive data by sending "XON" (HEX 11H) or "XOFF" (HEX 13H) codes to signal line.

Refer to RS-232C for the details.

---

## Status3

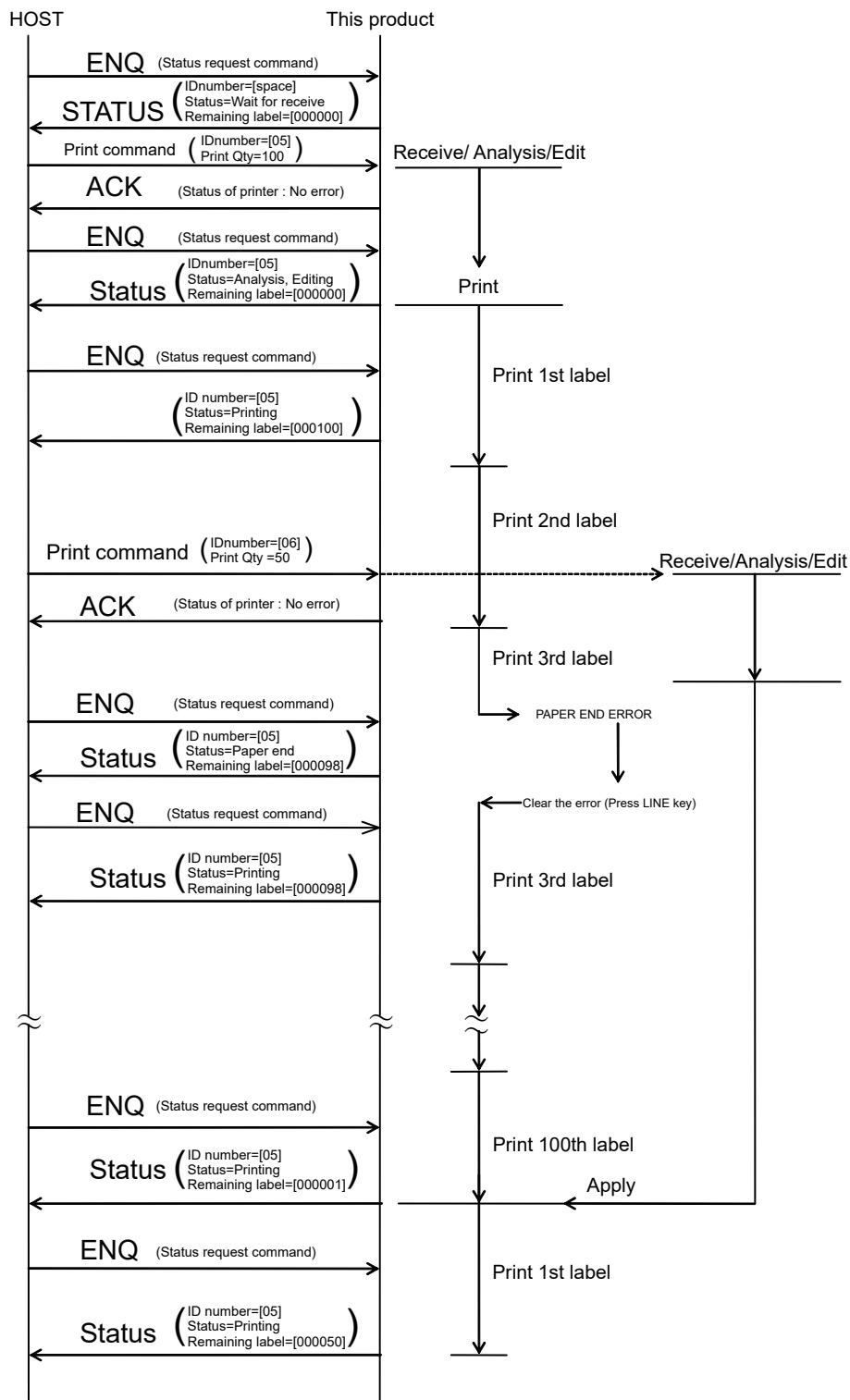
The purpose of this communication protocol is to control the status of this product on host and to return status from this product with request command from host.

Please refer to "Return status of Status3" for the details of request command and return status.

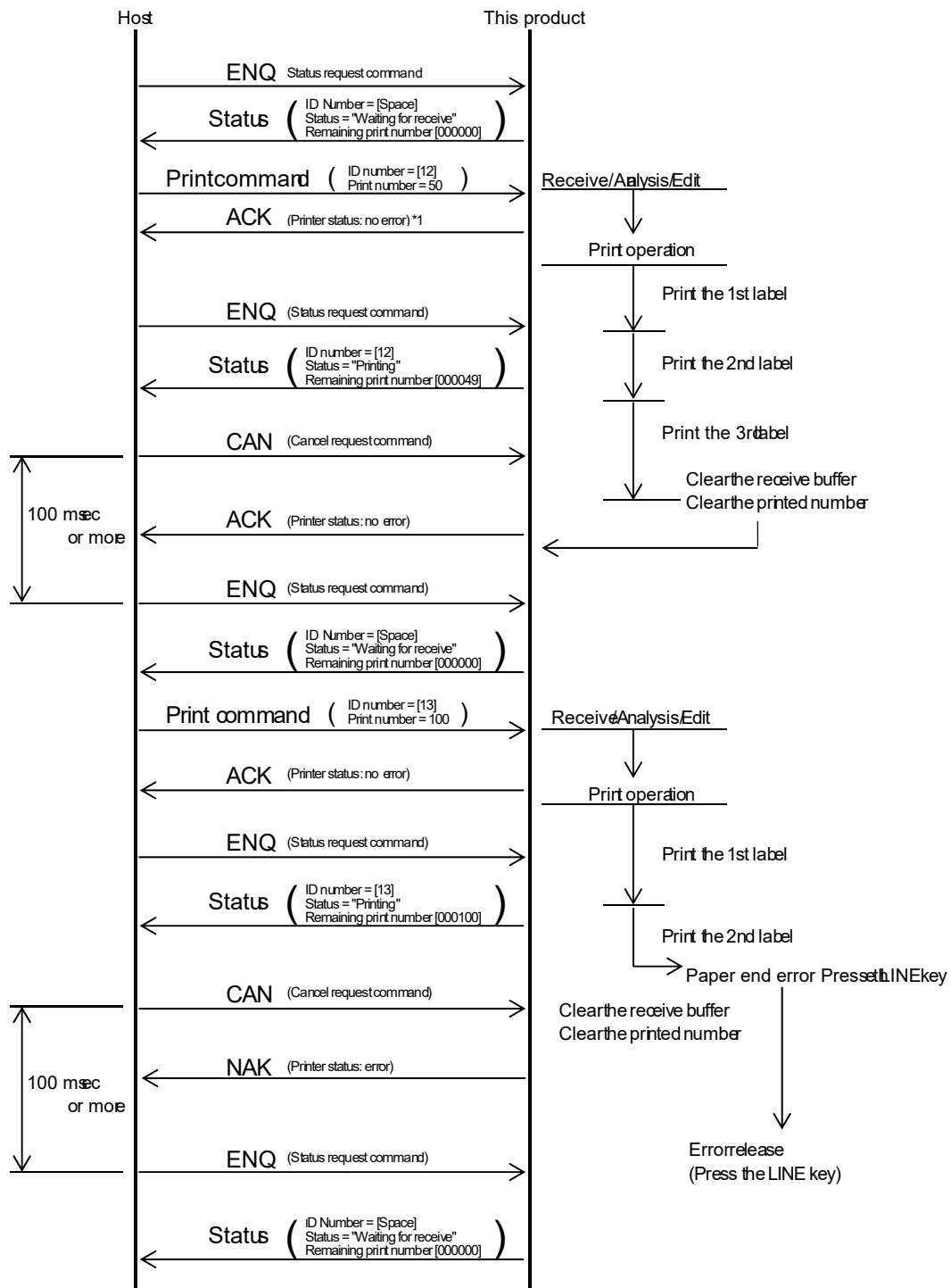
## Return Sequence

When LAN interface is used, please refer to "Printer Status" in "LAN" described below.

### 1) Normal

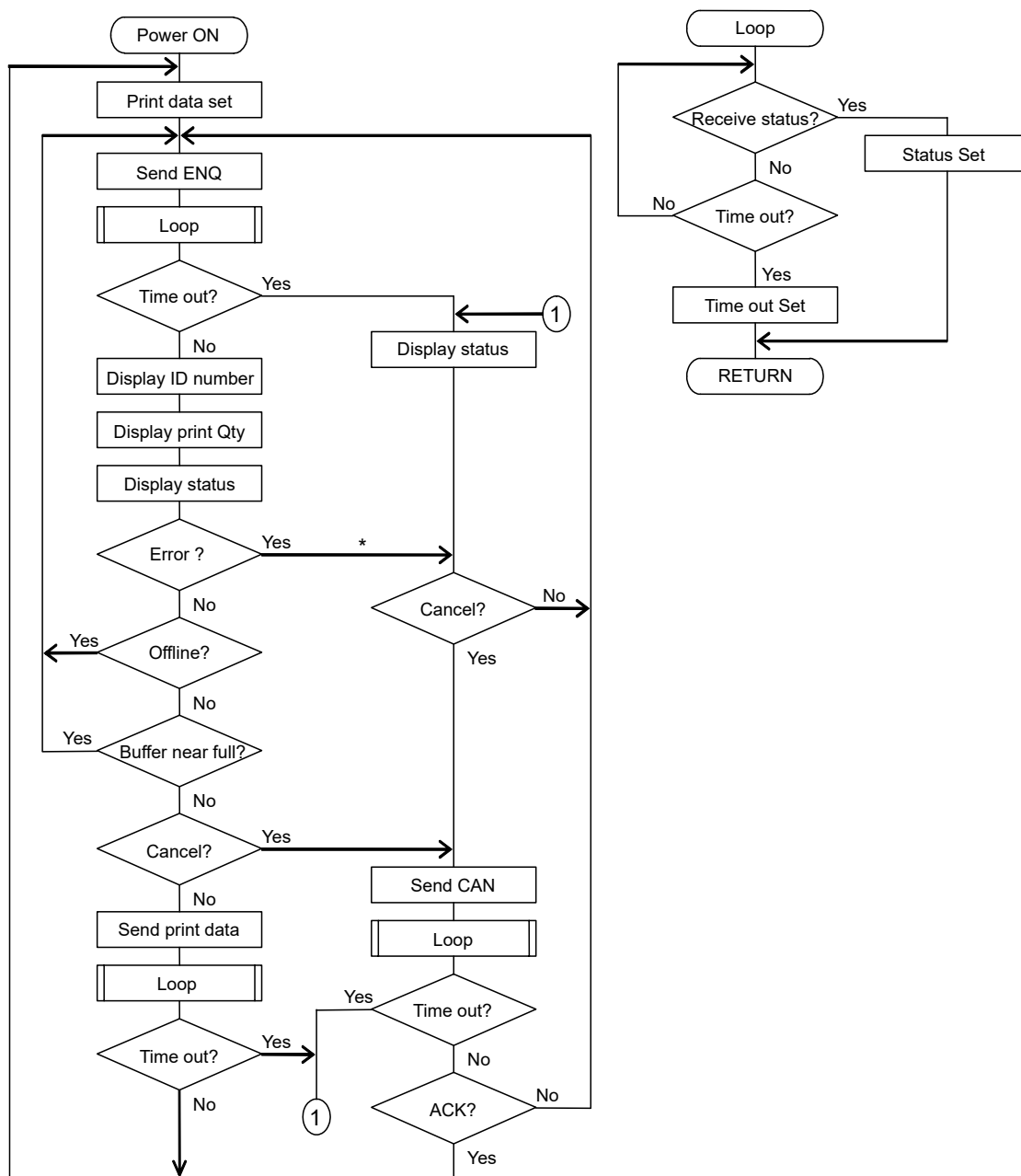


## 2) Cancel Request Command



### Reference flow chart

Please refer to the following flow chart for creating program at host with this protocol.



\* Please make sure that error in this product has been cleared by ENQ then send print data when this product detects an error by checking status.

---

## Status4

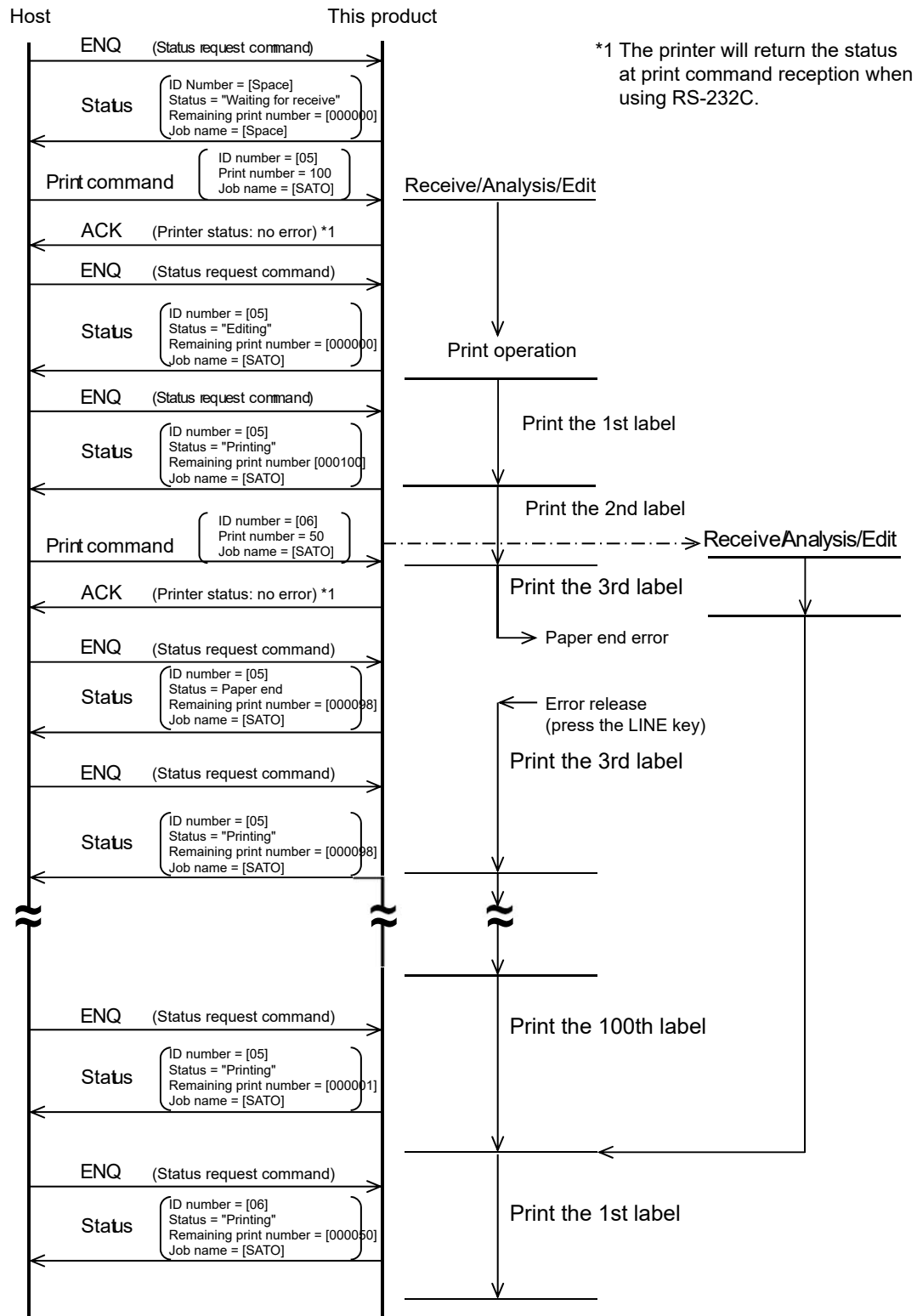
The purpose of this communication protocol is to control the status of this product on host and to return status from this product with request command from host.

Please refer to "Return status of Status4" and "Other Return Status" for the details of request command and return status.

## Return Sequence

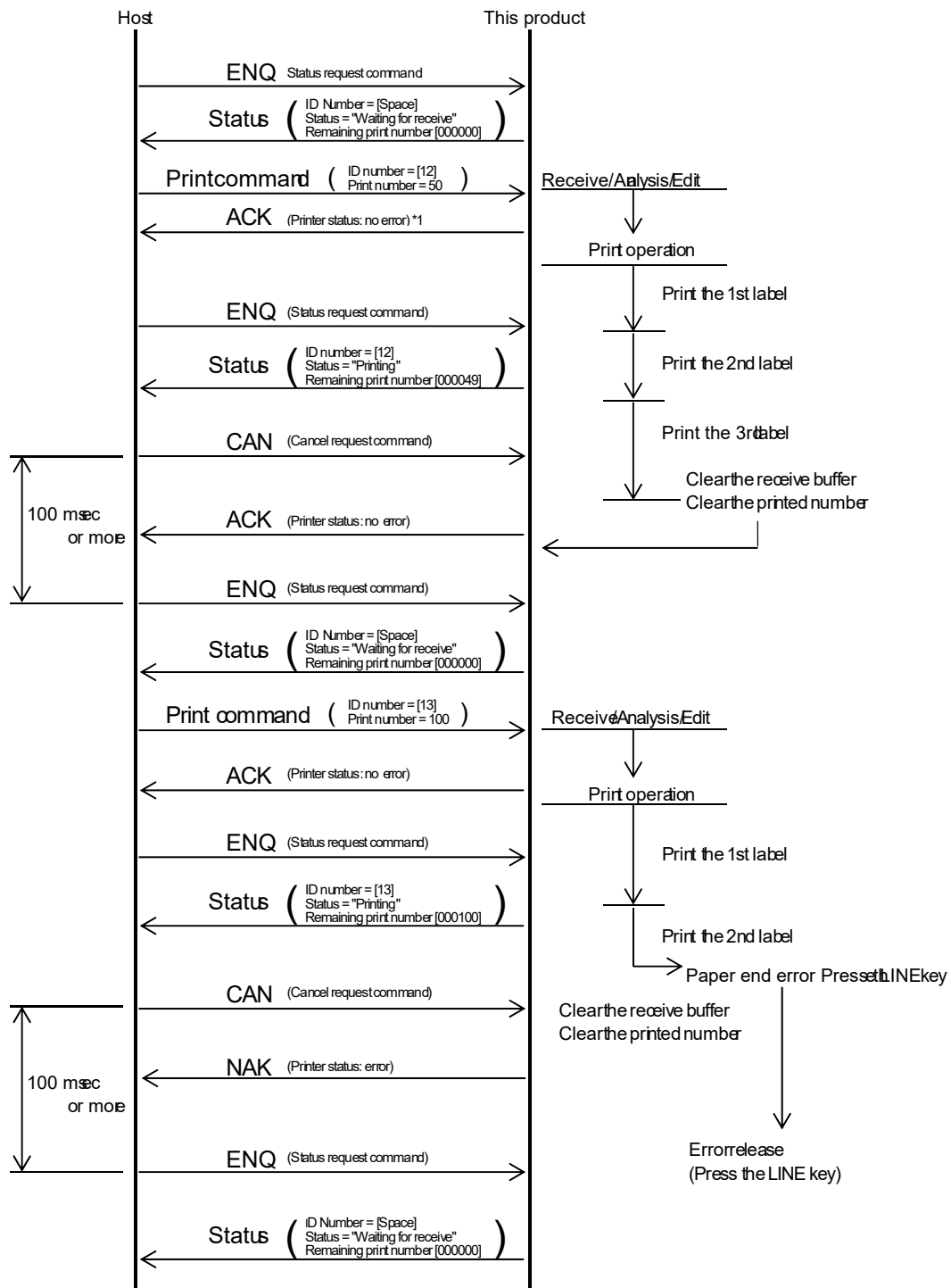
When LAN interface is used, please refer to "Printer Status" in "LAN" described below.

### 1) Normal Process





## 2) Cancel Request Command



---

## Status5

The purpose of this communication protocol is to monitor and to control the status of printer data on host, and this communication protocol has variety of functionalities.

Receive mode for this communication protocol is multi buffer mode.

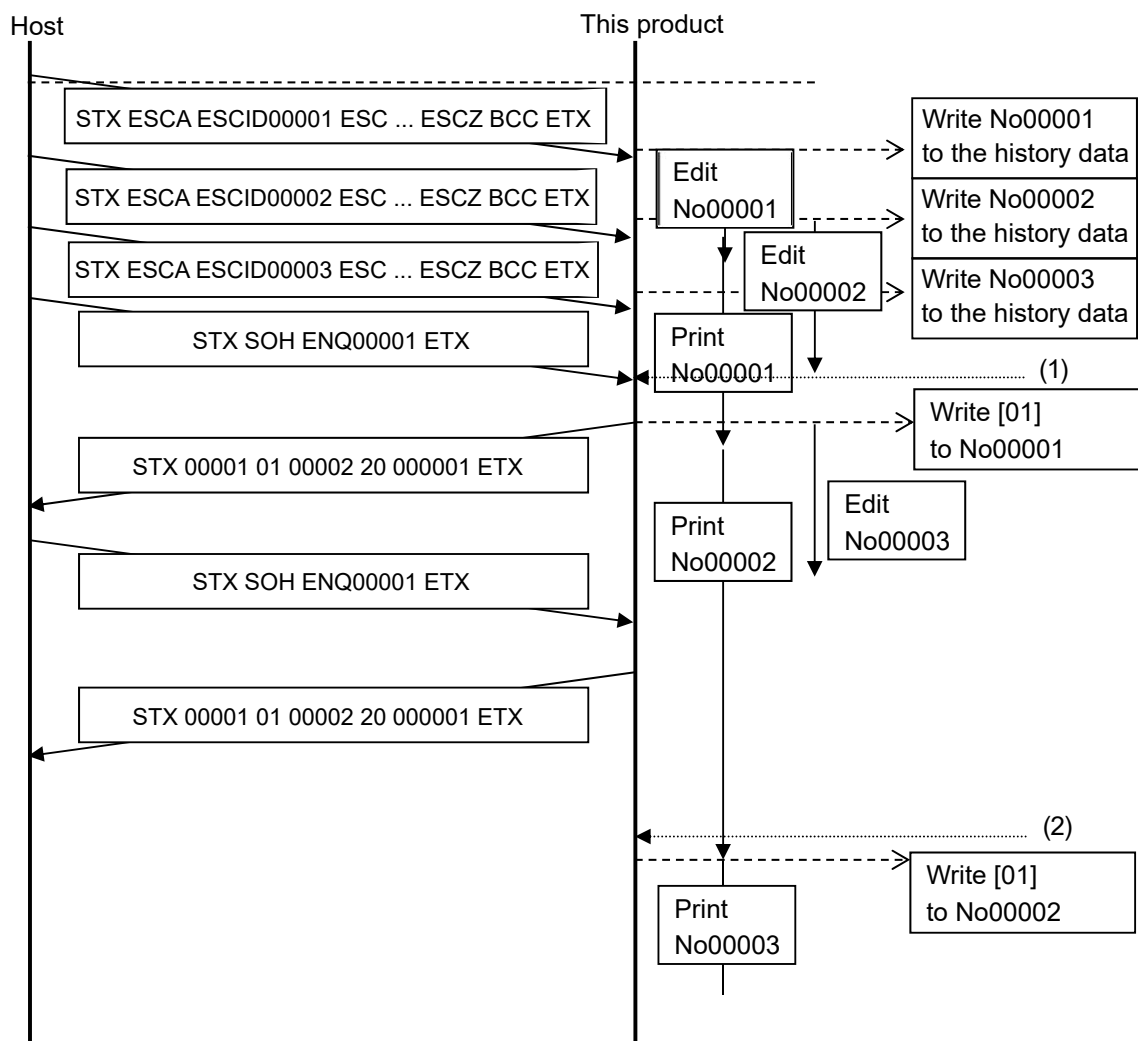
### Receiving Buffer Control

This protocol has 2 contributing factors to detect receive buffer near full to control information like receiving, print, cancel per item.

- **Contributing factor to receive buffer near full**
  - "Receive buffer near full" occurs when the buffer's free space goes down to 0.95 MB out of the 2.95 MB of receive buffer.
  - "Receive buffer near full" occurs when the buffer's free space goes down to 50 items out of 500 items of the history buffer.
- **Contributing factor to cancellation of receive buffer near full**
  - "Receive buffer near full" is cleared when the buffer's free space increased to 1.95 MB.
  - "Receive buffer near full" is cleared when the buffer's free space increased to 200 items of the history buffer.

## Return Sequence

Normal process (1)



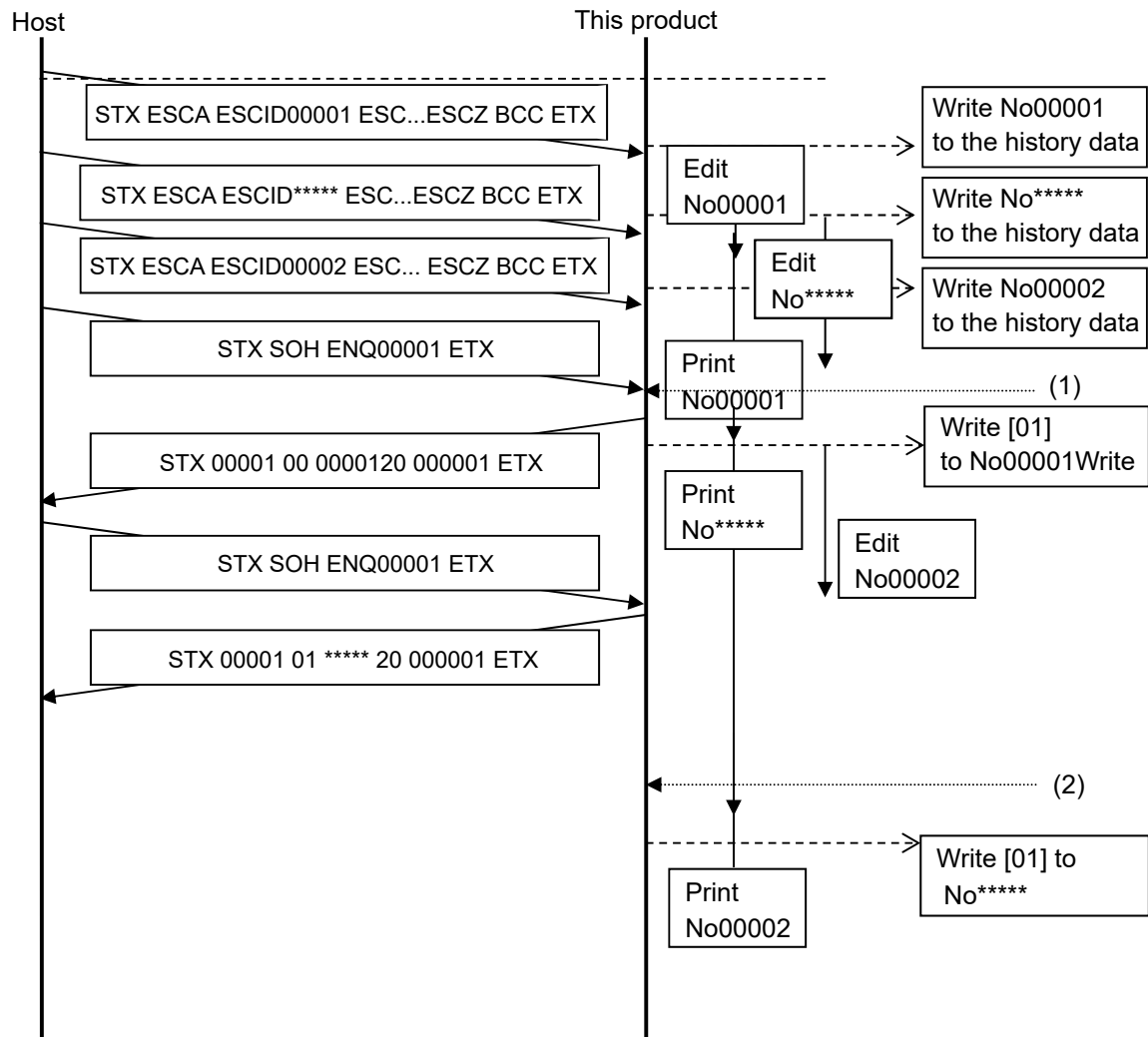
History status of (1)

00001 00
00002 00
00003 00

History status of (2)

00001 01
00002 00
00003 00

## Normal process (2)



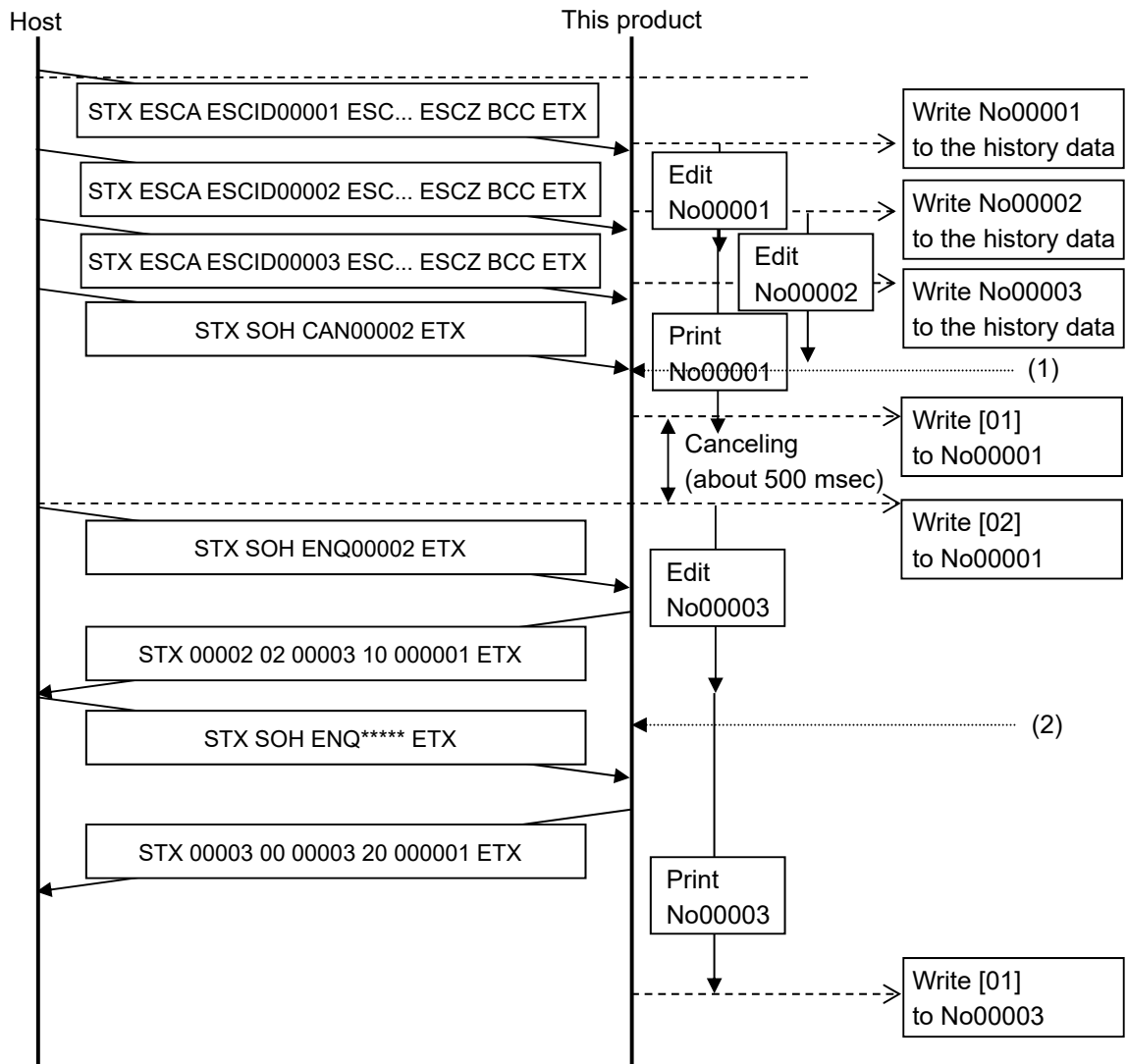
History status of (1)

00001 00
***** 00
00002 00

History status of (2)

00001 01
***** 00
00002 00

# Cancel process (1)



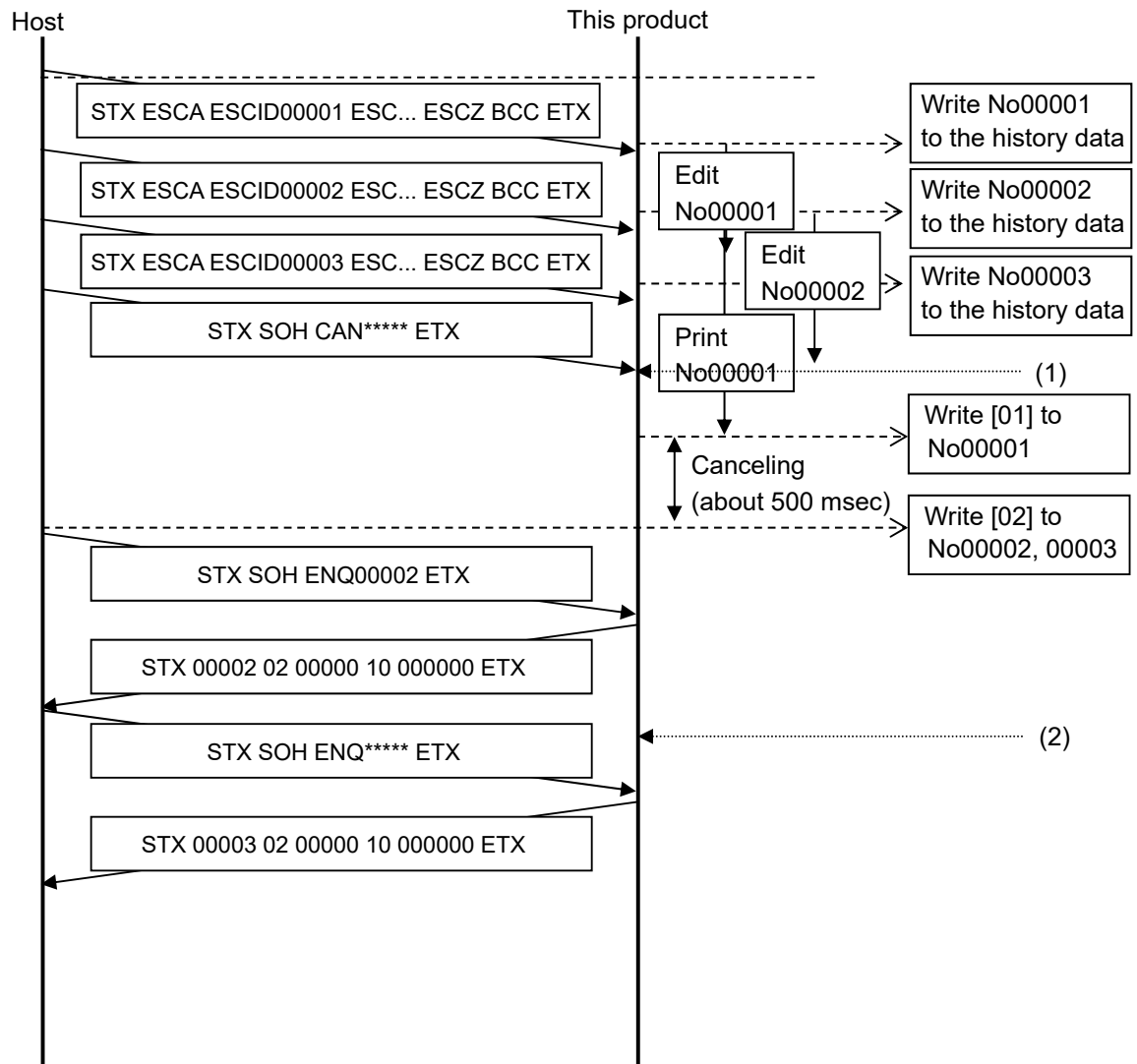
## History status of (1)

00001 00
00002 02
00003 00

## History status of (2)

00001 01
00002 02
00003 00

## Cancel process (2)



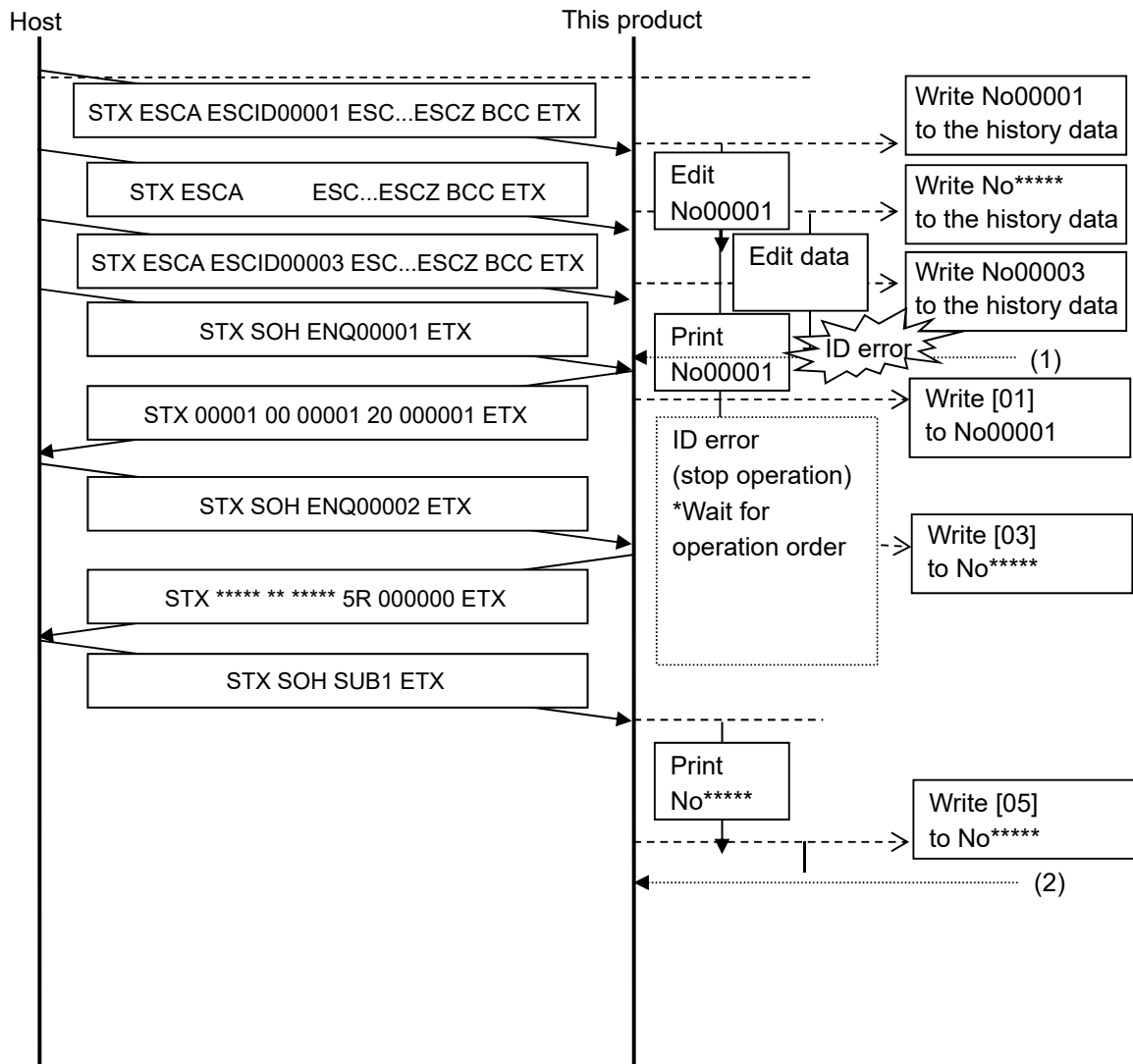
History status of (1)

00001	00
00002	02
00003	02

History status of (2)

00001	01
00002	02
00003	02

## Error process (1)



### History status of (1)

```

00001 00
***** 03
00003 00

```

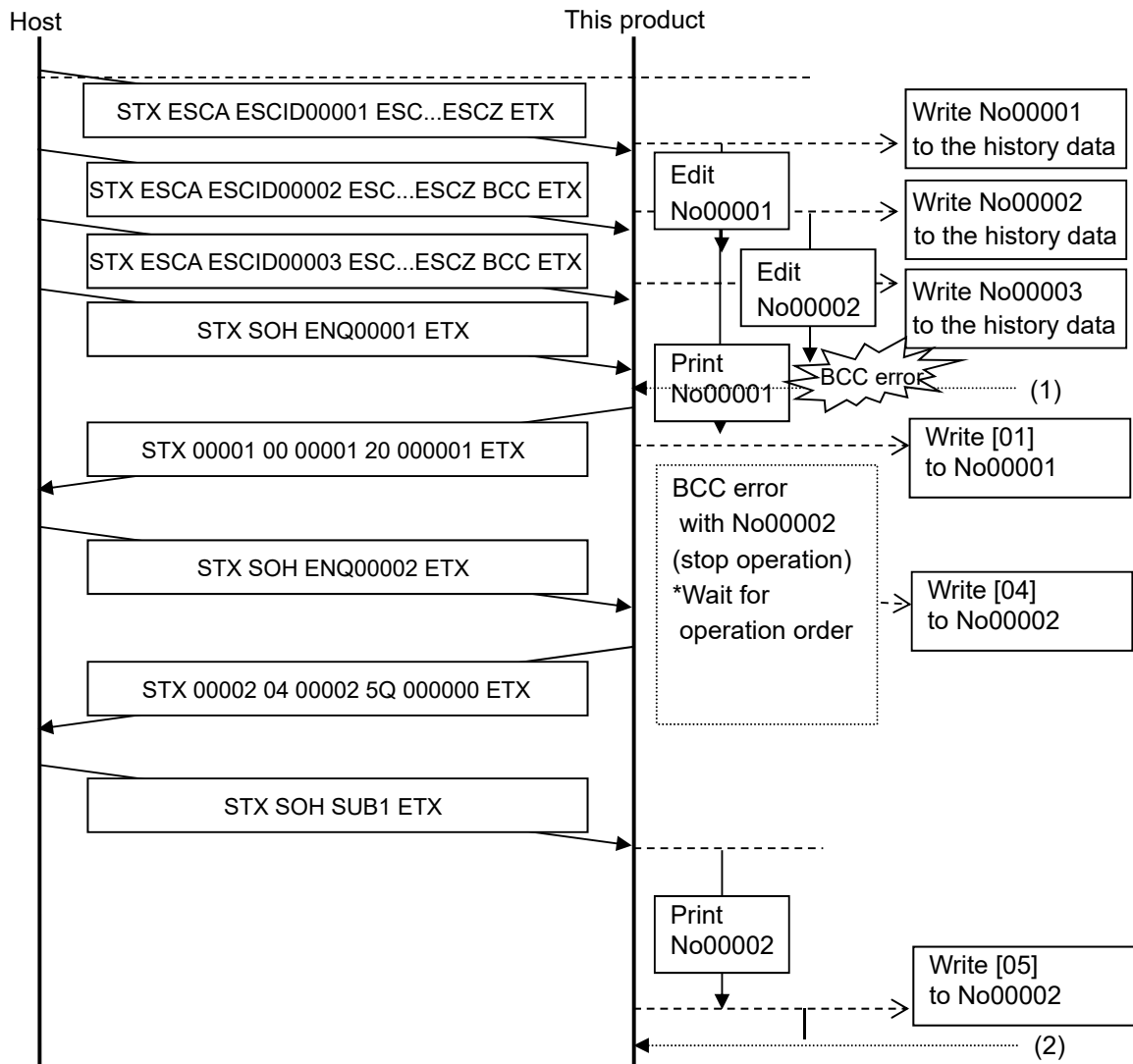
### History status of (2)

```

00001 01
***** 05
00003 00

```

## Error process (2)



History status of (1)

0 00001 00
0 00002 04
0 00003 00

History status of (2)

0 00001 01
0 00002 05
0 00003 00



---

# RS-232C

---

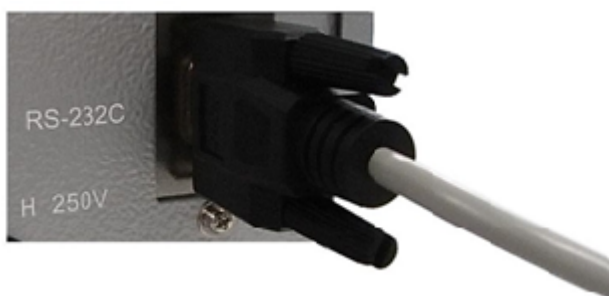
## Basic Specifications

This interface complies with RS-232C standard.

Various communication settings are available by the interface mode of this product.

### Interface

D-sub 9pin Female



### Communication Settings

Setting range in communication settings mode

Item	Configuration	Initial value
Data bit length	7, 8 (bit)	8 bit
Parity bit	NONE, ODD, EVEN	NONE
Stop bit	1, 2 (bit)	1 bit
Baud rate	2400, 4800, 9600, 19200, 38400, 57600, 115200 (bps)	19200bps
Protocol	READY/BUSY, XON/XOFF, Status2, Status3, Status4, Status5	Status4
BCC check for status5	Enable / Disable	Disable

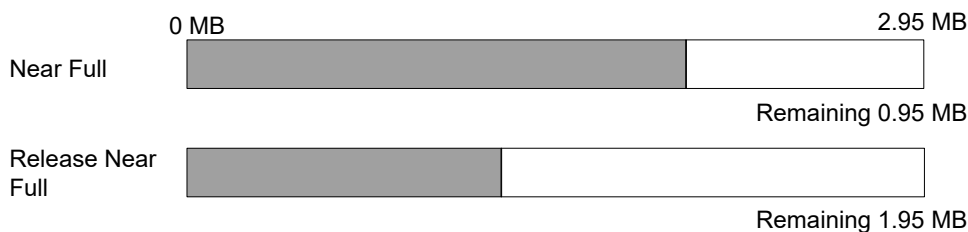
\* Single item or multiple item receive can be selected on the communication setting mode when READY/BUSY or XON/XOFF is configured.

### Synchronization method

Asynchronous method

### Receive buffer size

2.95 MB



**Code**

ASCII (7 bits) Graphic (8 bits)

**Connector**

Product side: DSUB9 pin (female)

Cable side: DSUB9 pin (male)

Cable length: Equal to or less than 5 m

**Transmission format**

Start	b1	b2	b3	b4	b5	b6	b7	b8	Stop
-------	----	----	----	----	----	----	----	----	------

When 7bit format is used, b8 is omitted.

**Signal Level**

High level: +5 to +12 V

Low level: -5 to -12 V

## READY/BUSY

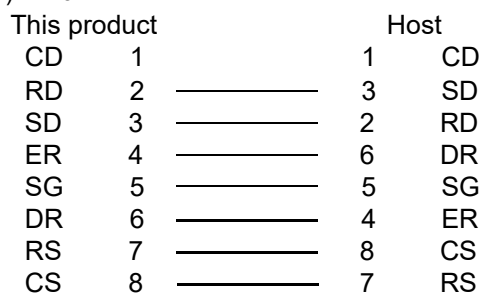
This communication protocol controls the reception of print data by the control of hard signal only. Single item receive and multiple buffer can be switched in the interface mode of this product.

When the print data (STX <A> ~ <Z> ETX) has been sent from the host in the conditions below, received data may not be accurate:

- 1) When the printer is in offline state.
- 2) When an error has occurred in the printer.

### Connection diagram

1) DB-9P

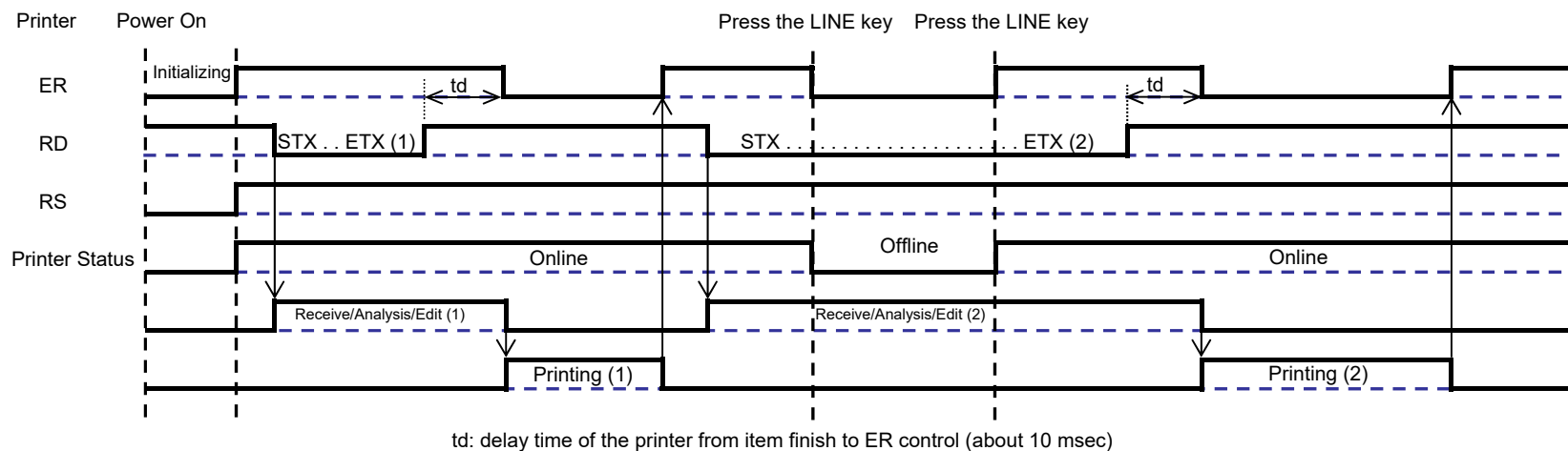


### I/O signal

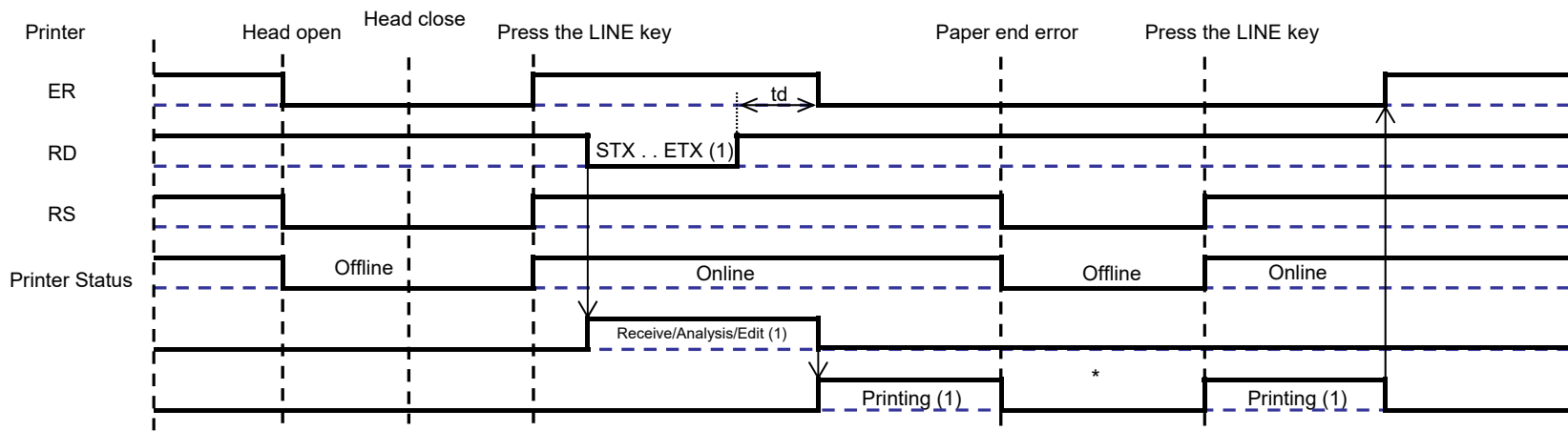
Pin no.	Signal name	I/O	Contents
2	RD	Input	Data transferred from the host to this product
3	SD	Output	Data transferred from this product to the host
4	ER	Output	Data device ready
5	SG	-	Signal ground
6	DR	Input	Data set ready
7	RS	Output	Transmission request
8	CS	Input	Transmission available

### Timing chart of single item receive

1) Normal process



## 2) Error process



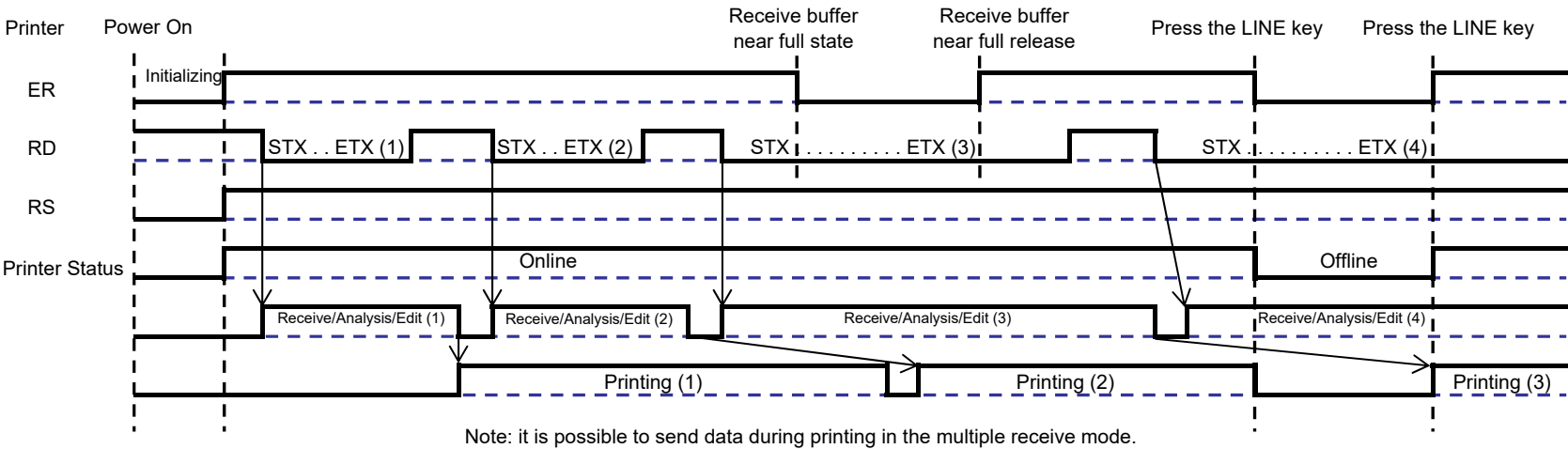
※ When the paper end error occurs, open the head, set label, close the head and feed.

Note: (1) The paper end error will be released when the head is closed.

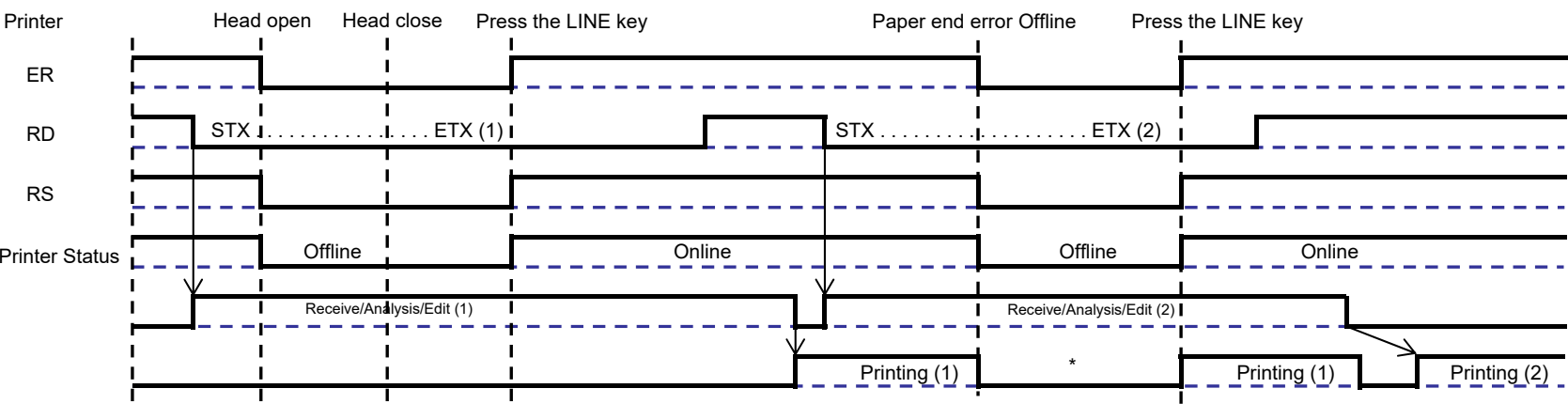
(2) RS signal will be Low at the head open error detection, and Hi at the offline state.

# Timing chart of multiple receive

## 1) Normal process



## 2) Error process



※ When the paper end error occurs, open the head, set label, close the head and feed.  
 Note: (1) The paper end error will be released when the head is closed.

## XON/XOFF

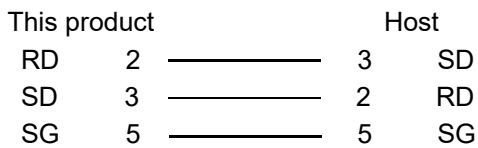
This communication protocol communicates with the host to see if this product is ready to receive data by sending "XON" (HEX 11H) or "XOFF" (HEX 13H) codes to SD line. Single item receive and multiple buffer can be switched in the interface mode of this product.

When the print data (STX <A> ~ <Z> ETX) has been sent from the host in the conditions below, received data may not be accurate:

- 1) When this product is in offline state.
- 2) When an error has occurred in this product.

### Connection diagram

1) DB-9P



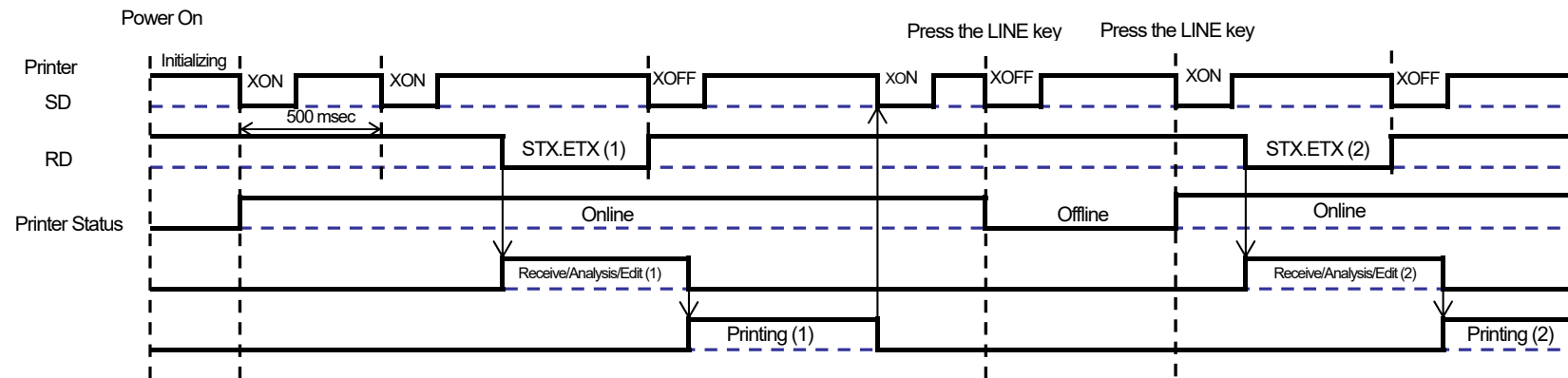
IMPORTANT: Depending on the host used, it may need to loop CS and RS (constantly maintain at "High" level) on the host side. For more details, refer to your host computer documentation.

### I/O signal

Pin no.	Signal name	I/O	Contents
2	RD	Input	Data transferred from the host to this product
3	SD	Output	Data transferred from this product to the host
5	SG	-	Signal ground

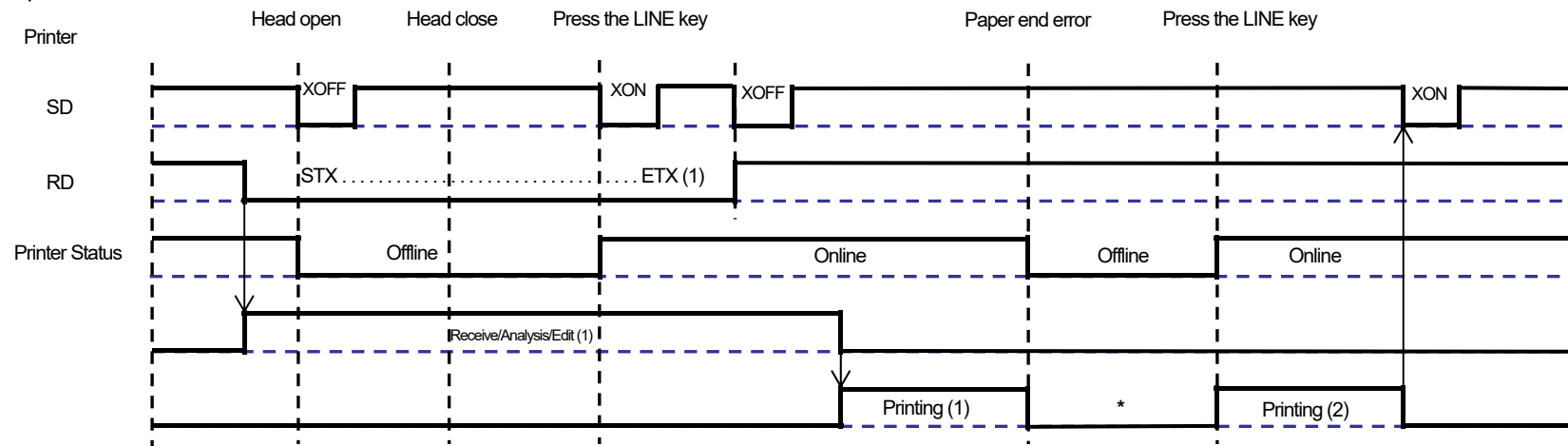
## Timing chart of single item receive

### 1) Normal process



Note: the printer will be polled by XON at intervals of 500 msec from the initializing to the first data reception.

### 2) Error process



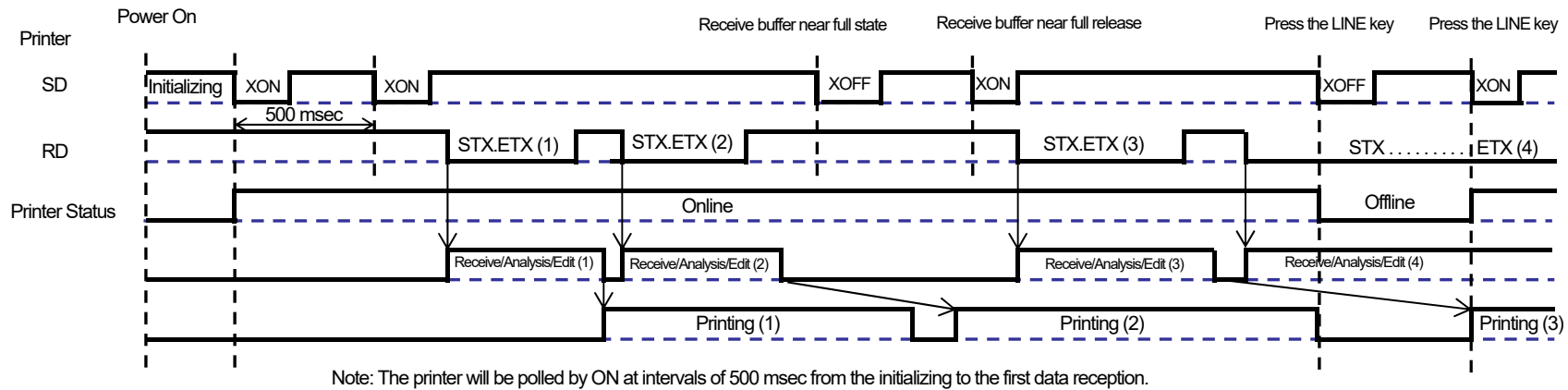
\* When the paper end error occurs, open the head, set label, close the head and feed.

Note: (1) The paper end error will be released when the head is closed.

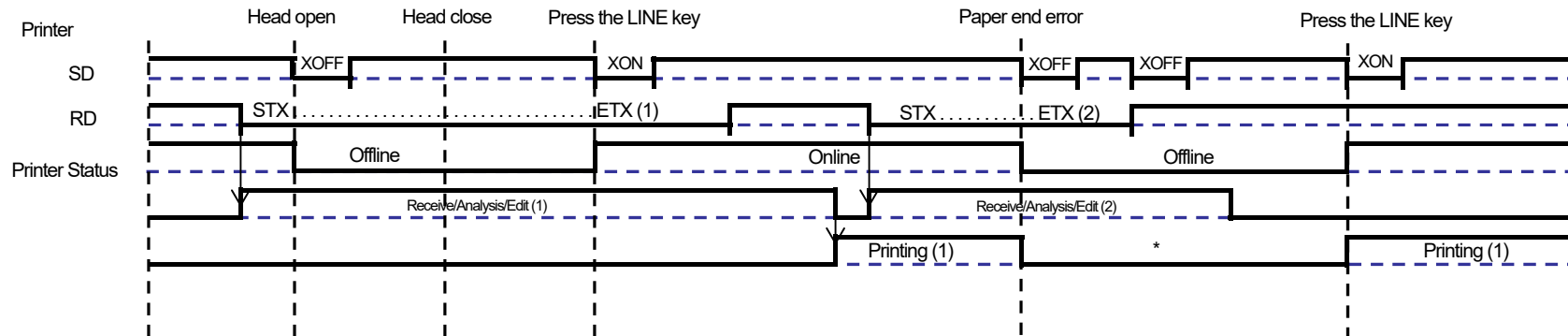
(2) XOFF will be sent when data is received during an error.

## Timing chart of multiple receive

### 1) Normal process



### 2) Error process



\* When the paper end error occurs, open the head, set label, close the head and feed.

Note: (1) The paper end error will be released when the head is closed.

(2) XOFF will be sent when data is received during an error.



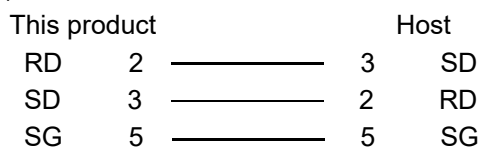
## Status5 return

The purpose of this communication protocol is to monitor and to control the status of printer data on host, and this communication protocol has variety of functionalities.

Receive mode for this communication protocol is multi buffer mode.

### Connection diagram

1) DB-9P



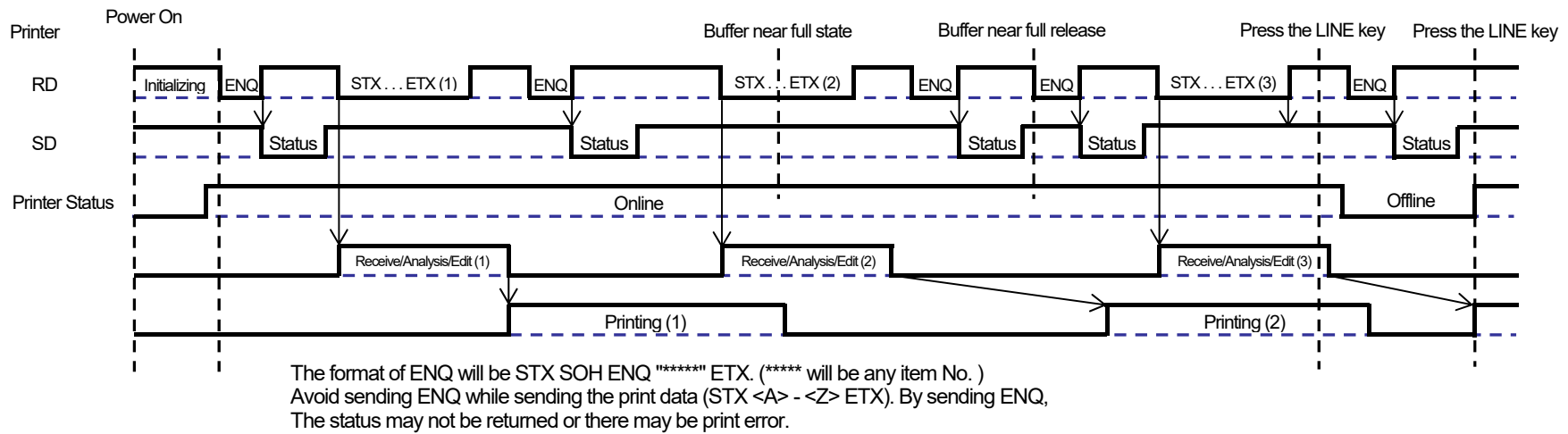
IMPORTANT: Depending on the host used, it may need to loop CS and RS (constantly maintain at “High” level) on the host side. For more details, refer to your host computer documentation.

### I/O signal

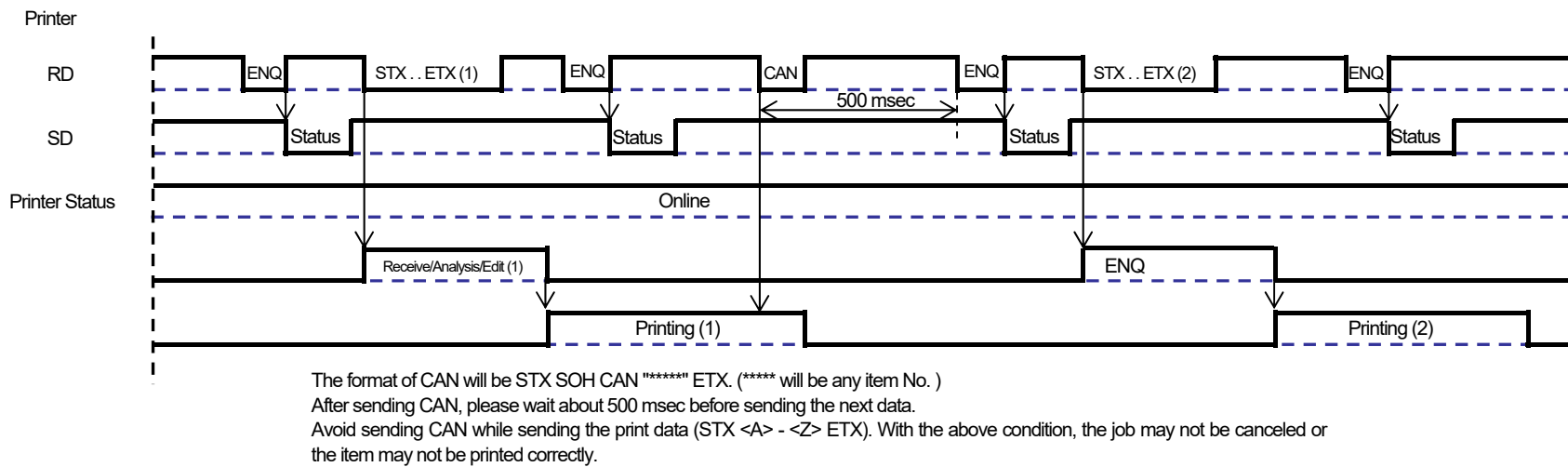
Pin no.	Signal name	I/O	Contents
2	RD	Input	Data transferred from the host to this product
3	SD	Output	Data transferred from this product to the host
5	SG	-	Signal ground

## Timing Chart

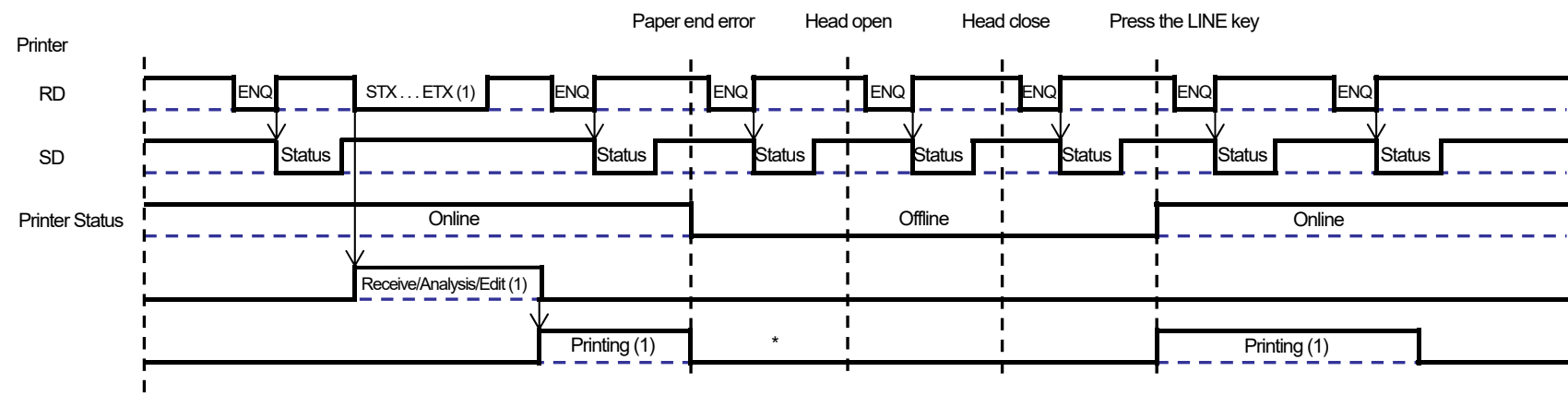
### 1) Normal process



### 2) Cancel process

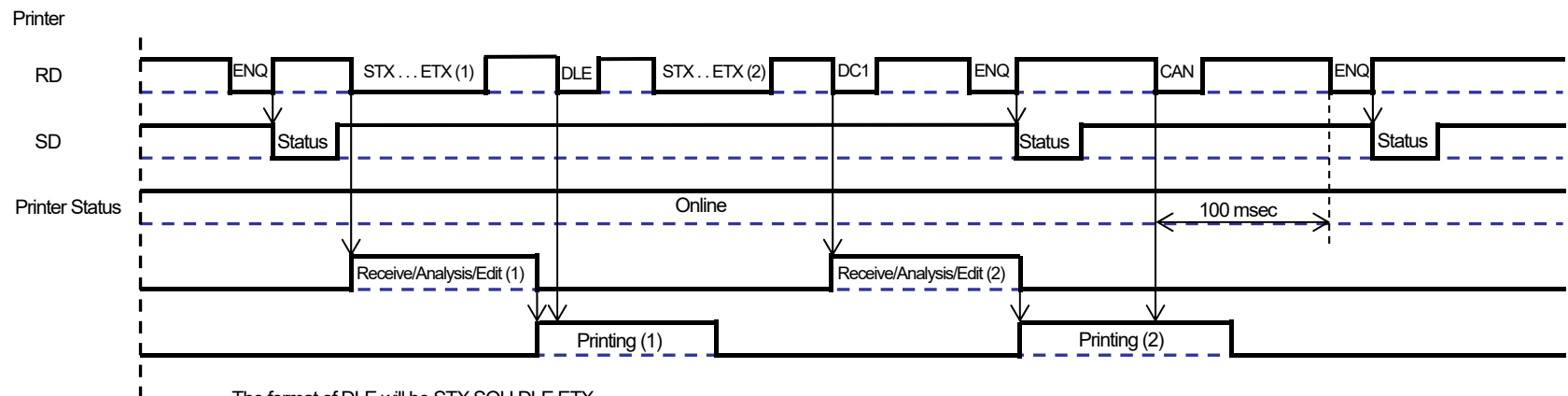


3) Error process



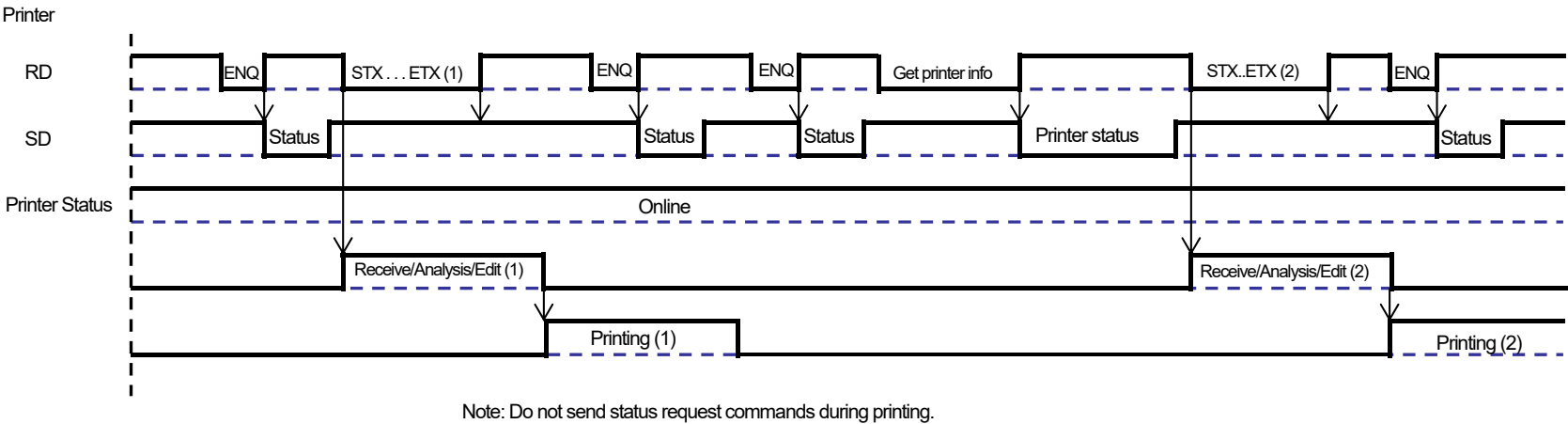
\* When the paper end error occurs, open the head, set label, close the head and feed.  
Note: (1) The paper end error will be released when the head is closed.

4) Print pause, print resume process

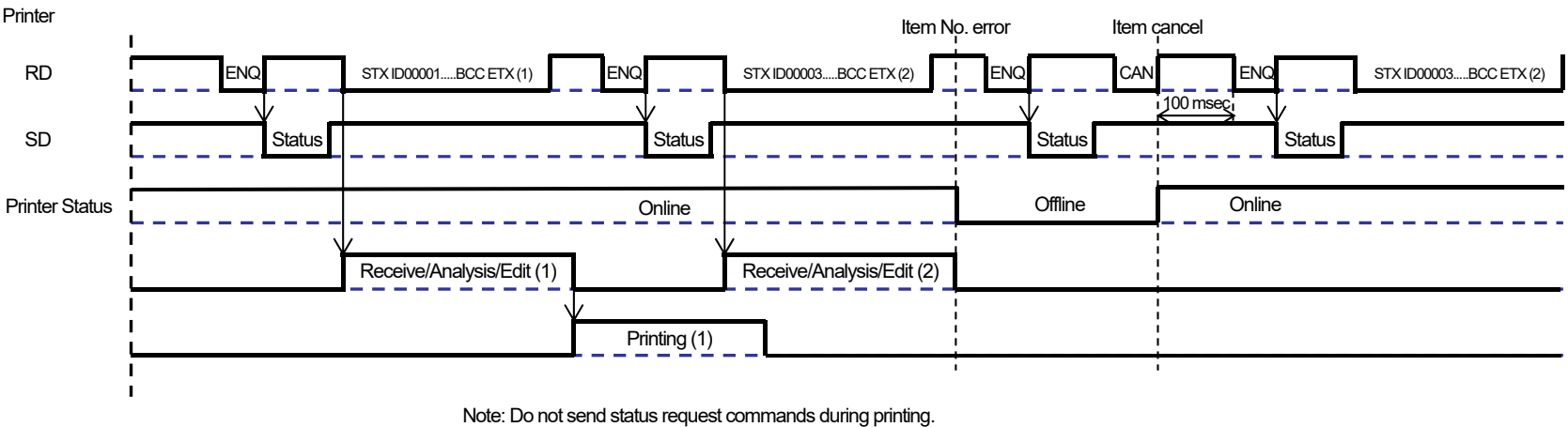


The format of DLE will be STX SOH DLE ETX.  
The format of DC1 will be STX SOH DC1 ETX.

5) Information request command process



6) Item No. error (BCC error) process



## Status4 return

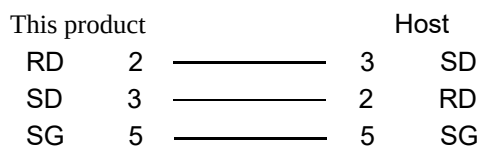
The purpose of this communication protocol is to control the status of this product on host and to return status from this product with request command from host.

Status is returned immediately after receiving request command.

Receive mode for this communication protocol is multi buffer mode.

### Connection diagram

1)DB-9P



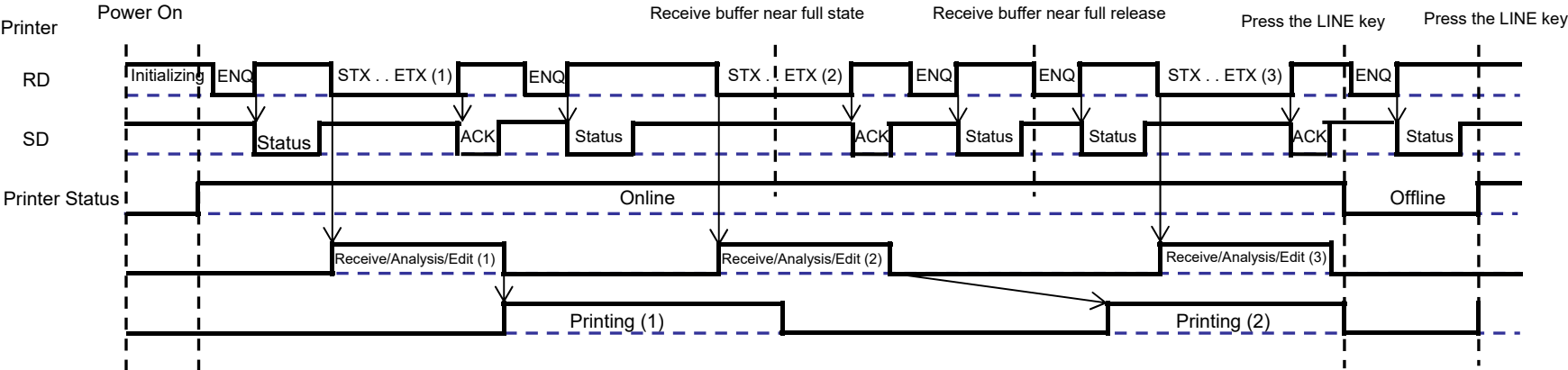
IMPORTANT: Depending on the host used, it may need to loop CS and RS (constantly maintain at “High” level) on the host side. For more details, refer to your host computer documentation.

### I/O signal

Pin no.	Signal name	I/O	Contents
2	RD	Input	Data transferred from the host to this product
3	SD	Output	Data transferred from this product to the host
5	SG	-	Signal ground

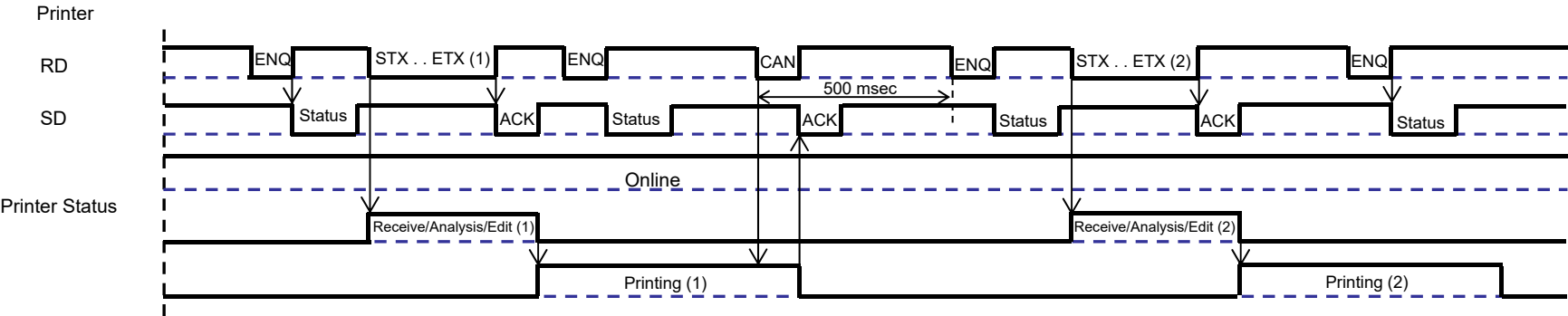
# Timing Chart

## 1) Normal process



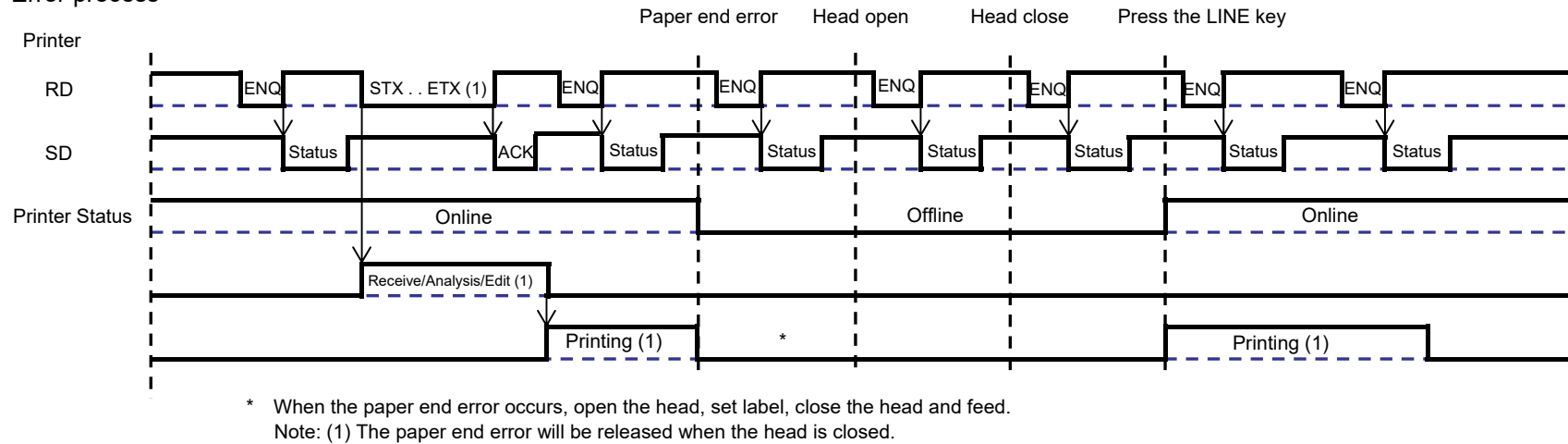
Note: Avoid sending ENQ while sending the print data (STX <A> - <Z> ETX).  
This may cause return status error or print error.

## 2) Cancel process

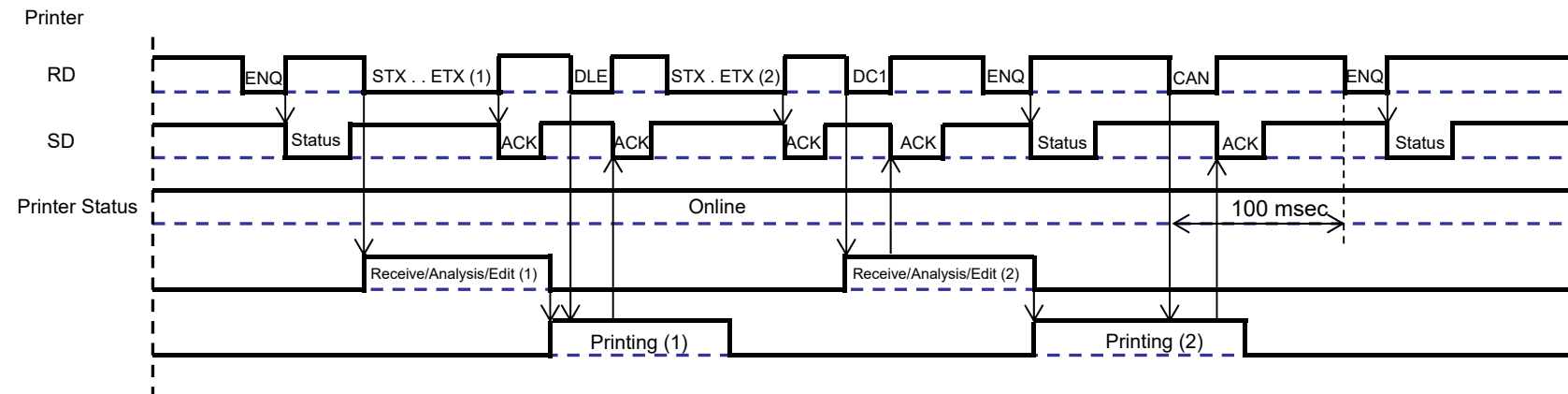


Note: When the cancel request command has sent, wait more than 500 ms before sending the next data.  
Avoid sending CAN while sending the print data (STX <A> - <Z> ETX). This may cause cancel error or print error.  
With the above condition, the job may not be canceled or the item may not be printed correctly.

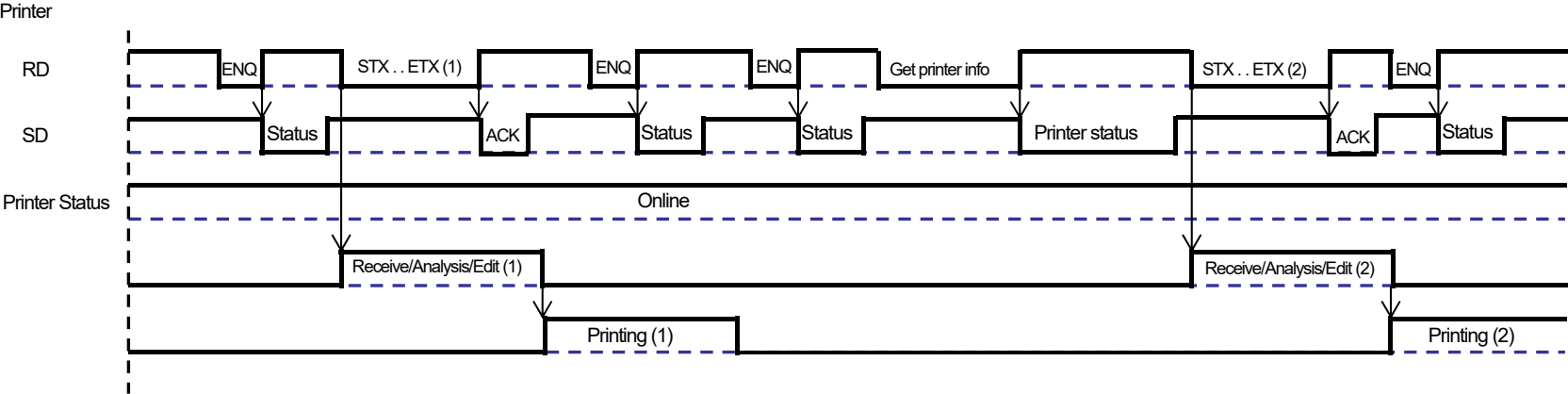
### 3) Error process



### 4) Print pause, print resume process



5) Information request command process



Note: Do not send status request commands during printing.



## Status3 return

The purpose of this communication protocol is to control the status of this product on host and to return status from this product with request command from host.

Status is returned immediately after receiving request command.

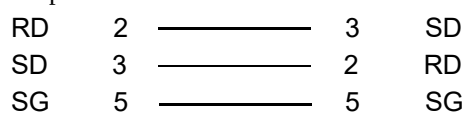
Receive mode for this communication protocol is multi buffer mode.

### Connection diagram

1)DB-9P

This product

Host

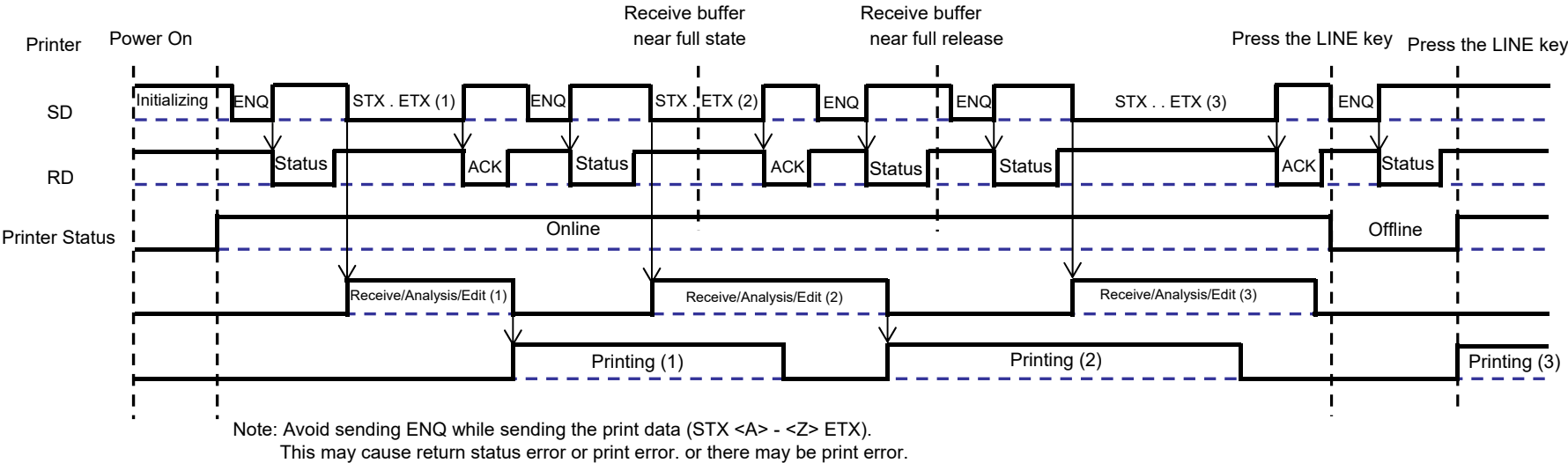


### I/O signal

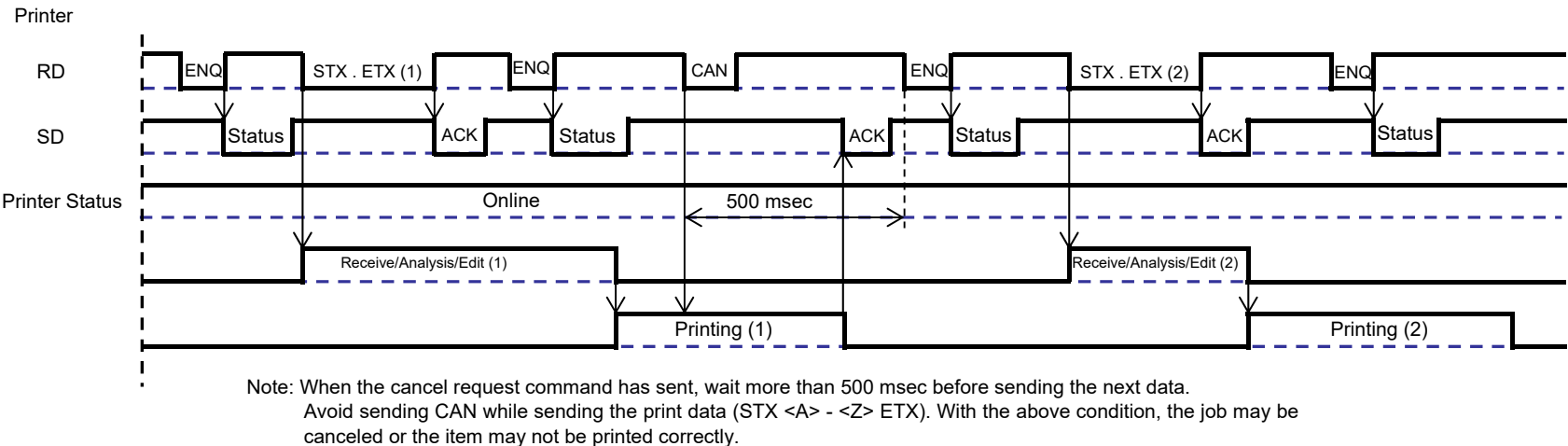
Pin no.	Signal name	I/O	Contents
2	RD	Input	Data transferred from the host to this product
3	SD	Output	Data transferred from this product to the host
5	SG	-	Signal ground

# Timing Chart

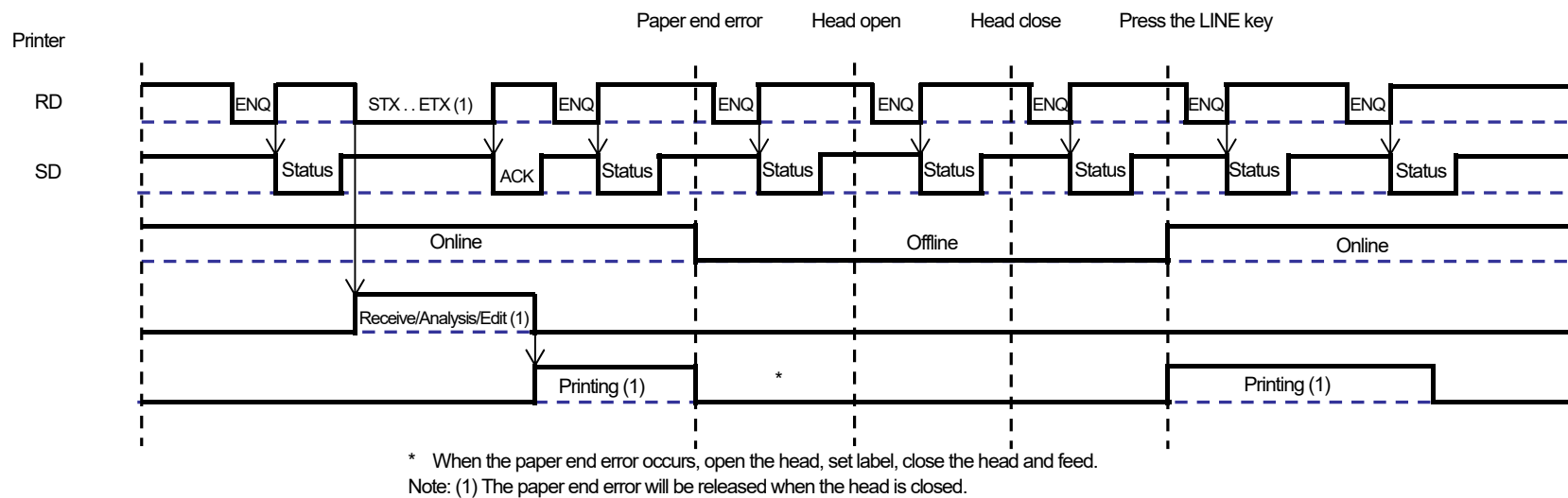
## 1) Normal process



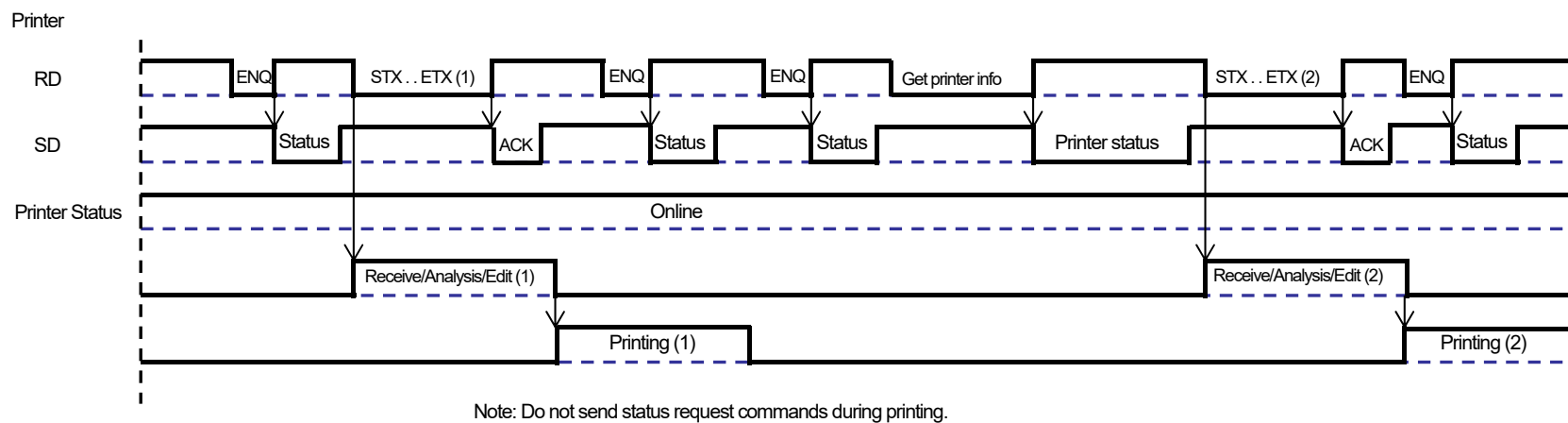
## 2) Cancel process



### 3) Error process



#### 4) Information request command process



## Status2

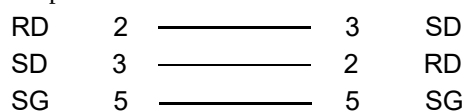
This communication protocol is for compatibility with the old model. The receive mode is single item receive.

### Connection diagram

1)DB-9P

This product

Host

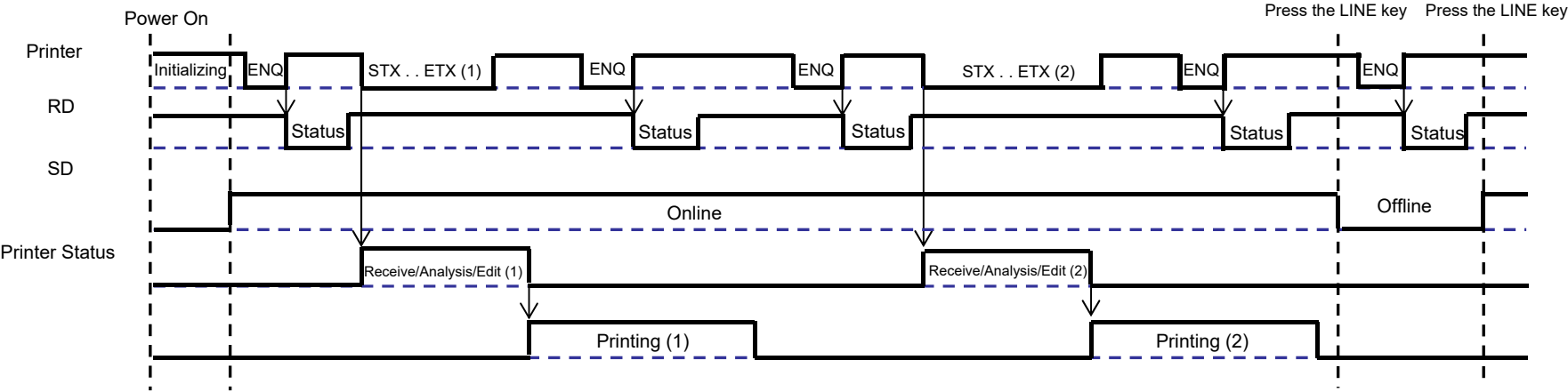


### I/O signal

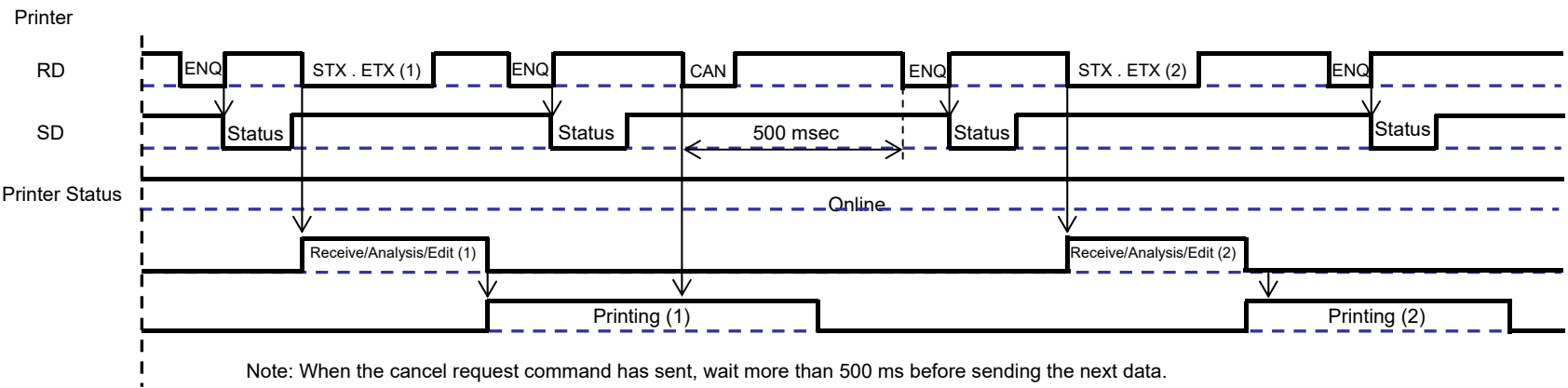
Pin no.	Signal name	I/O	Contents
2	RD	Input	Data transferred from the host to this product
3	SD	Output	Data transferred from this product to the host
5	SG	-	Signal ground

# Timing Chart

## (1) Normal process

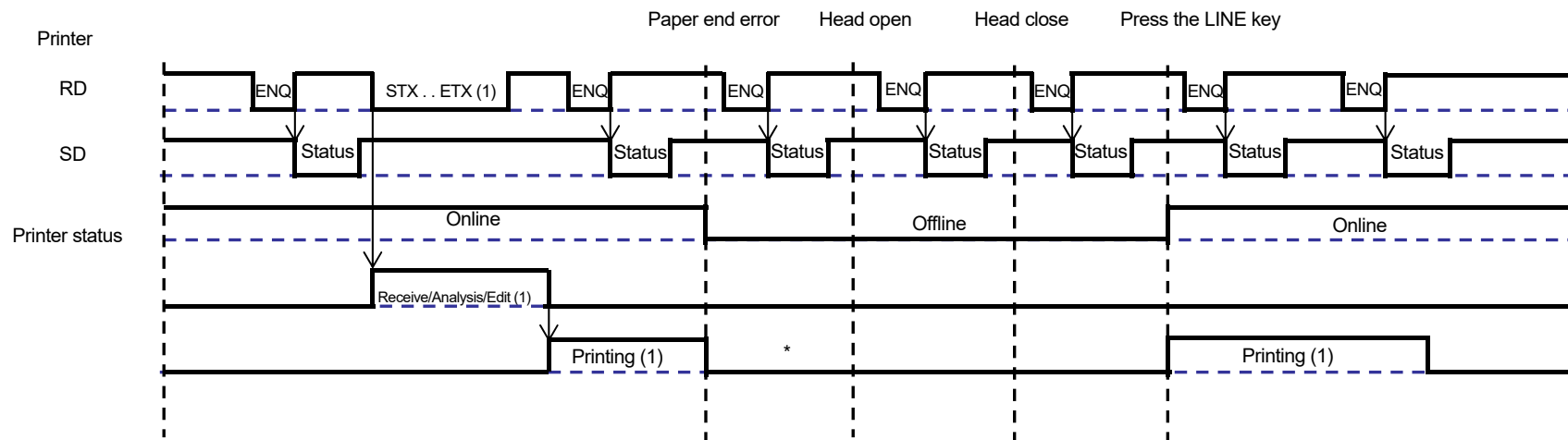


## (2) Cancel process



Note: When the cancel request command has sent, wait more than 500 ms before sending the next data.  
 Avoid sending CAN while sending the print data (STX <A> - <Z> ETX). With the above condition, the job may not be canceled or the item may not be printed correctly.

### (3) Error process



\* When the paper end error occurs, open the head, set label, close the head and feed.

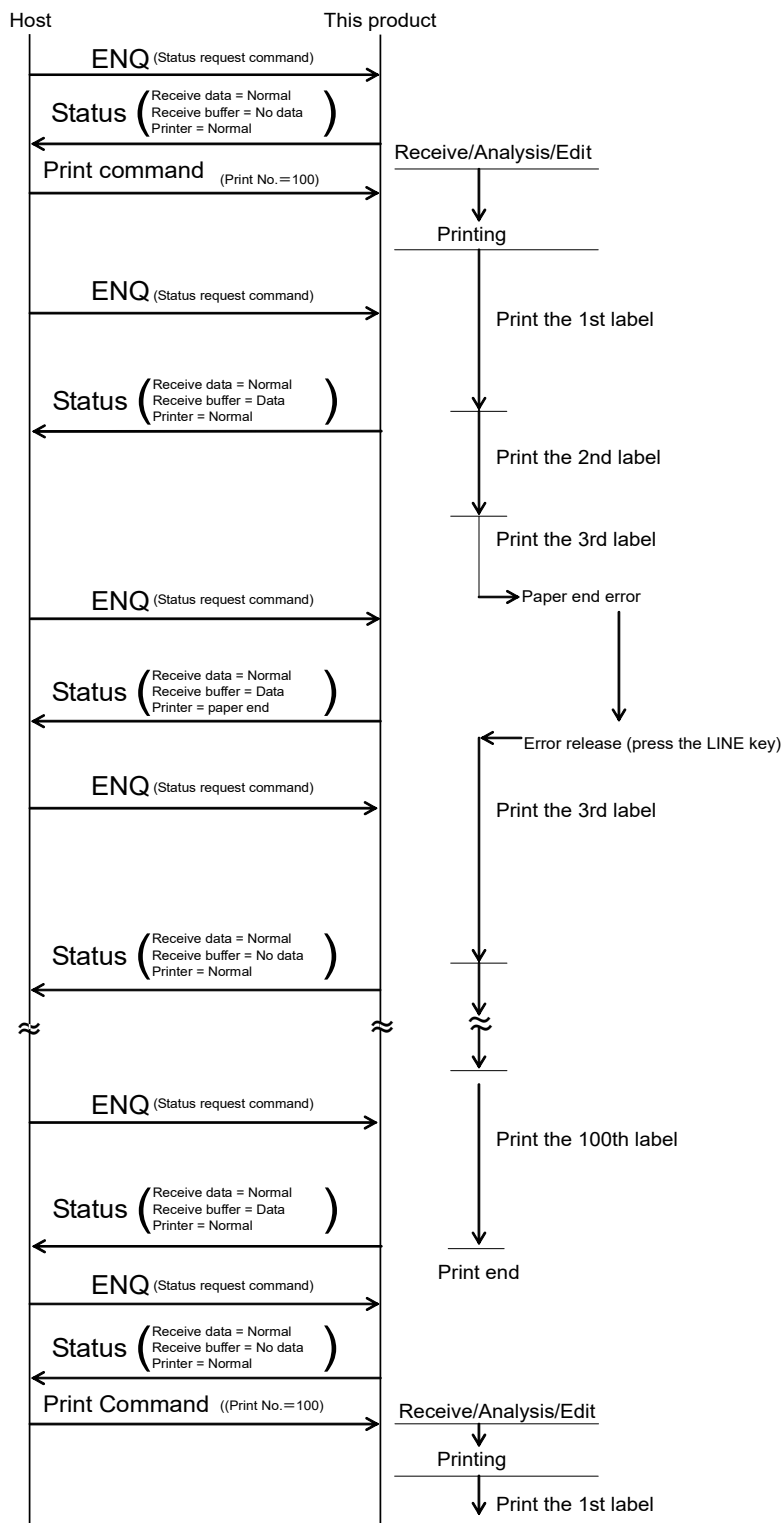
Note: (1) The paper end error will be released when the head is closed.

## Return Status

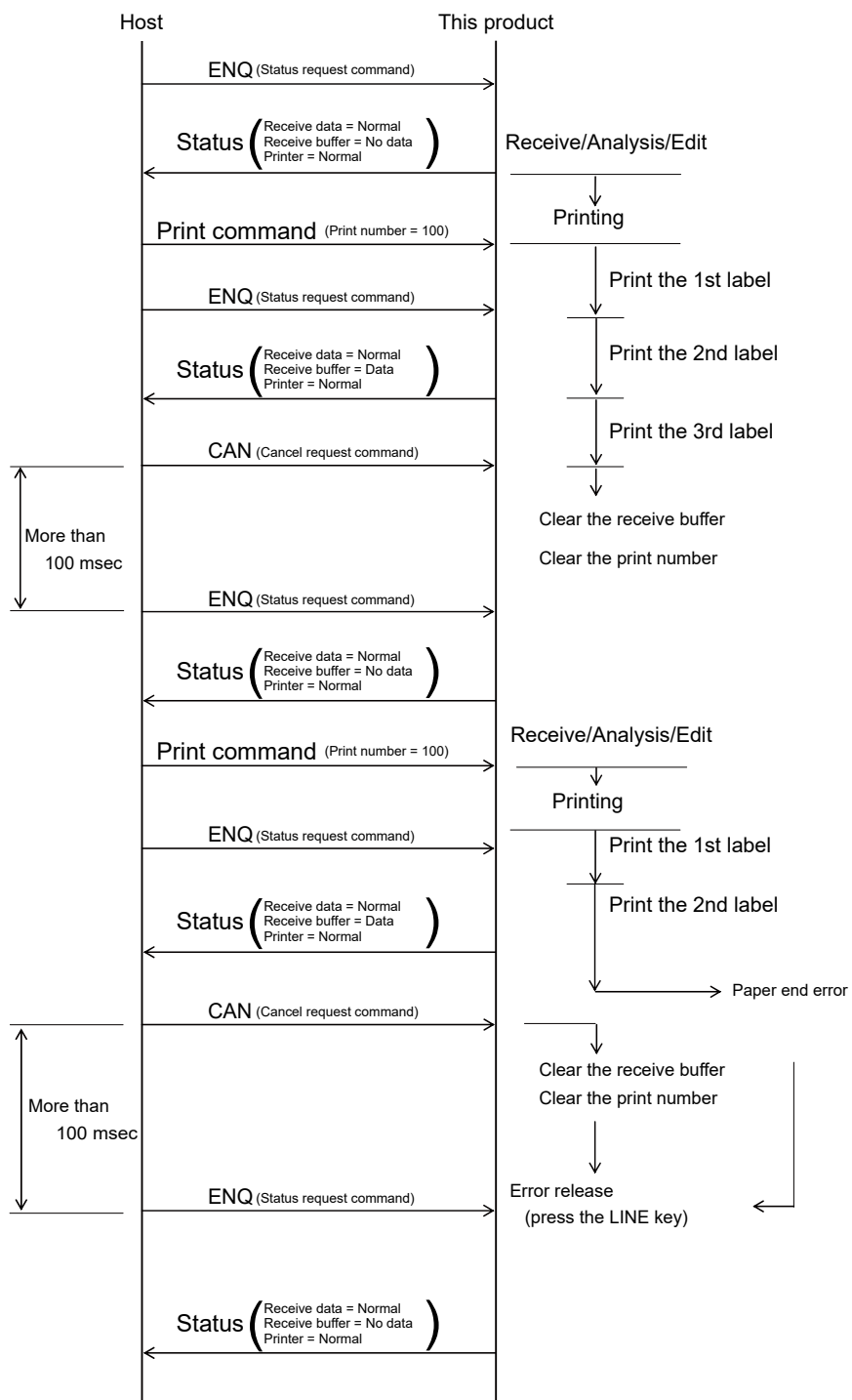
For details of return status of status 2, refer to “Return Status of Status 2” of “Return Status” in “Communication Protocol”.

## Return sequence

1) Normal



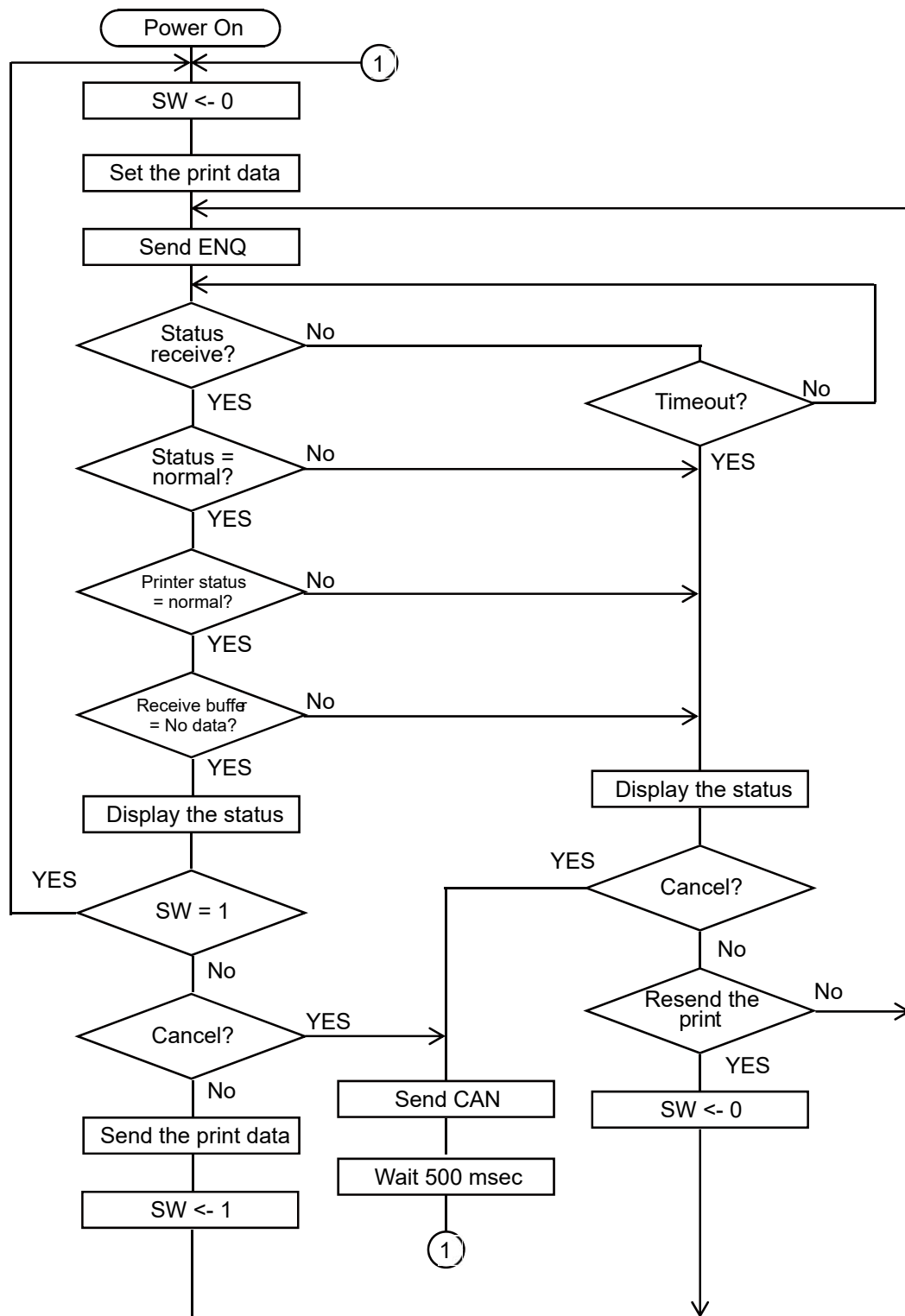
## 2) Cancel request command





## Reference Flow Chart

Please refer to the following flow chart for creating program at host with this protocol.



---

## Notes

- Please mind the following items when using READY/BUSY control.  
Make sure this product is powered when sending print data from host.
- “Receive buffer full” error will occur if you send data larger than receive buffer size (2.95 MB) using XON/XOFF, Status2, Status3, Status4, Status5, so make sure to send data equal to or less than 2.9 MB and send data while monitoring printer status.

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# IEEE1284

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## Basic Specifications

This interface complies with Centronics/IEEE1284 standard. Single item receive or multiple receive can be switched on the interface mode of the printer.

### Interface



### Protocol

Status4, Status5

Refer to Communication protocol for details.

### Connector

Product side: Amphenol 36 pin (Female)

Cable side: Amphenol 36 pin (Male)

### Cable Length

Equal to or less than 1.5 m

### Signal Level

High level: +2.4 to +5.0 V

Low level: +0.0 to +0.4V

### Recieve Mode

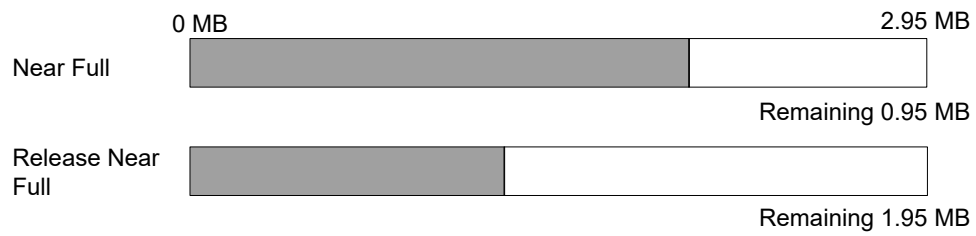
Single item receive

Multiple buffer

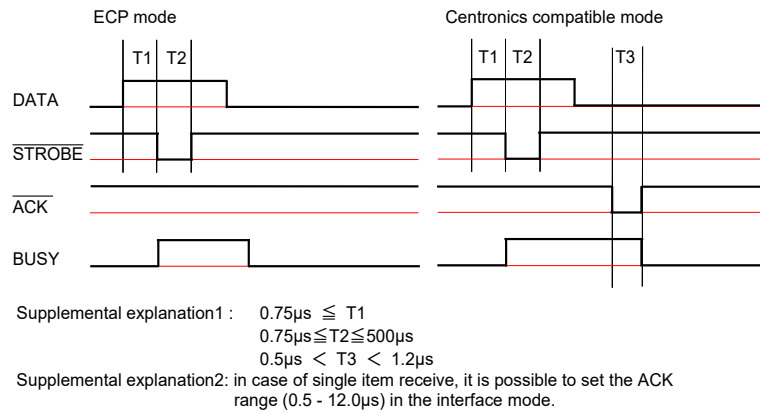
buffer mode available by the interface mode of this product.

### Receive Buffer Size

2.95 MB



## Timing Chart



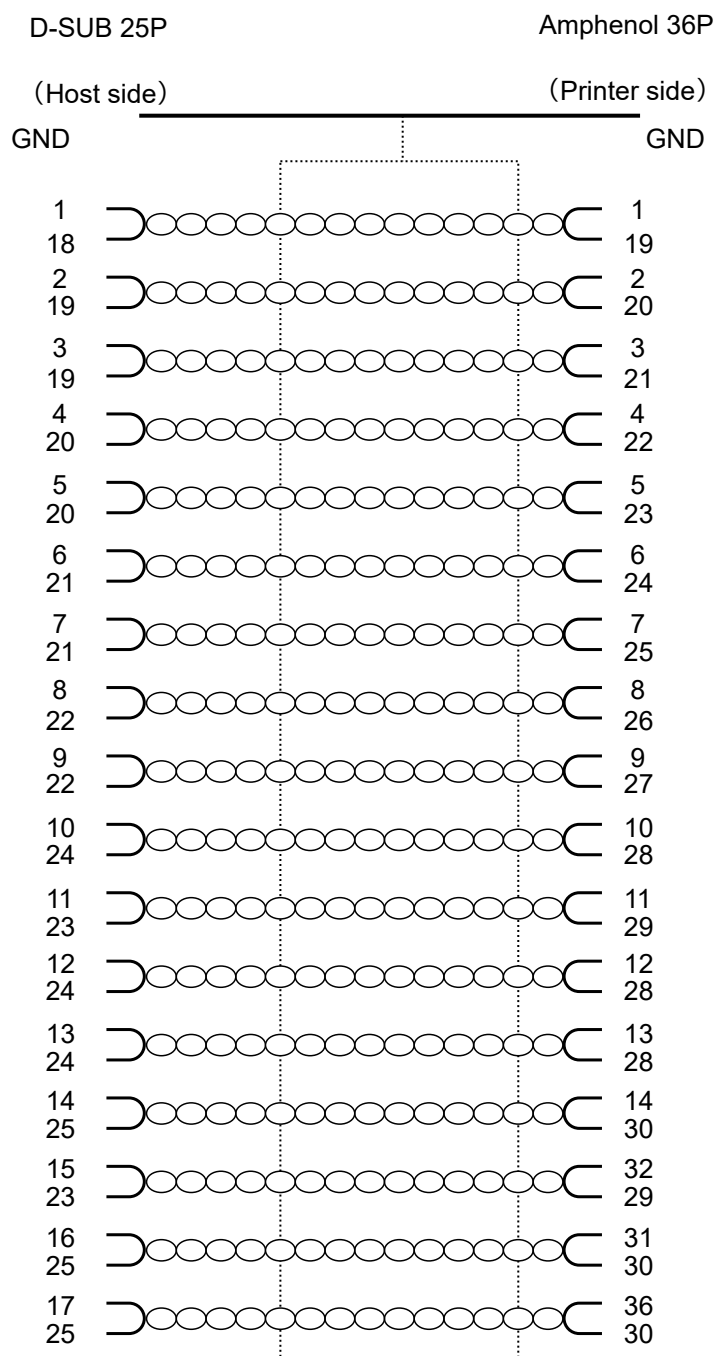
Send print data while the power of this product is ON.

Turn off this product when you disconnect interface cable

## Connection diagram

Following is a parallel cable connection diagram.

Use a cable complies with IEEE1284 standard.



## Connector pin assignment

See below for the connector pin assignment of Centronics standard (compatible mode).

When IEEE1284 standard connector is used, connection complies with IEEE1284-B type connector.

Pin no.	Signal name	Contents	Pin no.	Signal name	Contents
1	STROBE	Input	19	STROBE-RETURN	
2	DATA 1	Input	20	DATA 1-RETURN	
3	DATA 2	Input	21	DATA 2-RETURN	
4	DATA 3	Input	22	DATA 3-RETURN	
5	DATA 4	Input	23	DATA 4-RETURN	
6	DATA 5	Input	24	DATA 5-RETURN	
7	DATA 6	Input	25	DATA 6-RETURN	
8	DATA 7	Input	26	DATA 7-RETURN	
9	DATA 8	Input	27	DATA 8-RETURN	
10	ACK	Output	28	ACK-RETURN	
11	BUSY	Output	29	BUSY-RETURN	
12	PE	Output	30	PE-RETURN	
13	SELECT	Output	31	INIT	Input
14	AUTOFD	Input	32	FAULT	Output
15			33		
16	LOGIC GND		34		
17	CHASSIS GND		35		
18	PERIPHERAL LOGIC HIGH	Input	36	SELECTION	Input

## I/O signal

The details of each signal line for the Centronics standard (compatible mode) are as follows.

Note that each signal line complies with the IEEE1284 standard.

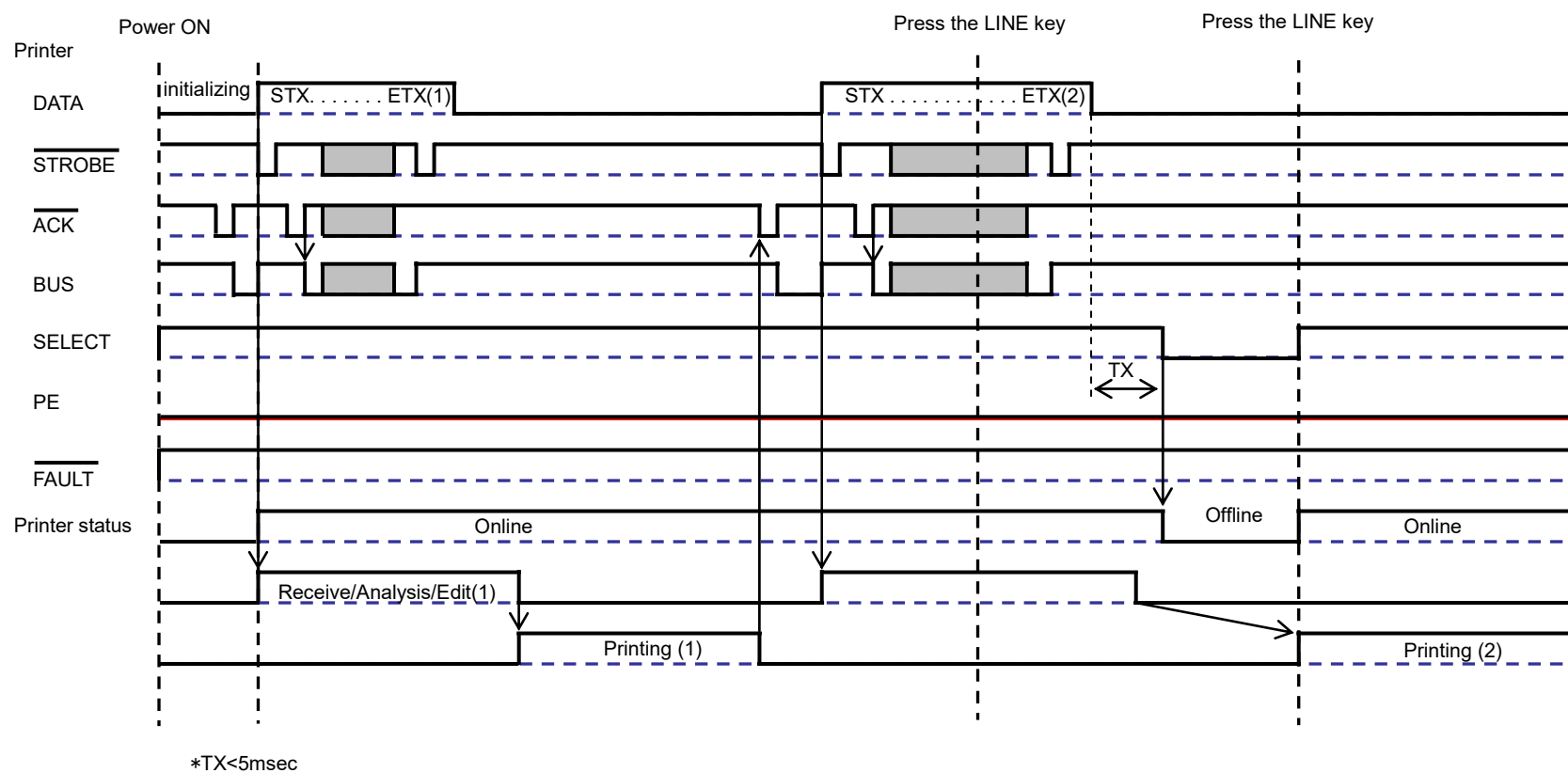
Pin no.	Signal name	I/O	Contents
1	STROBE	Input	Synchronization signal that requires low active pulse to read DATA1 to DATA8
2 to 9	DATA 1~DATA 8	Input	Data entry of 8 bits parallel: DATA1 is LSB (lowest bit) and DATA8 is MSB (highest bit).
10	ACK	Output	Low active pulse signal indicating the completion of receive data import
11	BUSY	Output	High active signal indicating that the printer is not ready to receive data
12	PE	Output	High active signal indicating paper shortage
13	SELECT	Output	High active signal indicating that the printer is ready to receive data
14	AUTOFD	Input	Signal for the IEEE1284 standard
17	CHASSIS GND		Connecting to the chassis ground
18	PERIPHERAL LOGIC HIGH	Output	+5V voltage on the printer side
19 to 30	SIGNAL GROUND		Connecting to each signal ground
31	INIT	Input	Low active pulse signal initializing the printer
32	FAULT	Output	Low active pulse signal indicating an error in the printer
36	SELECTIN	Input	Signal for the IEEE1284 standard



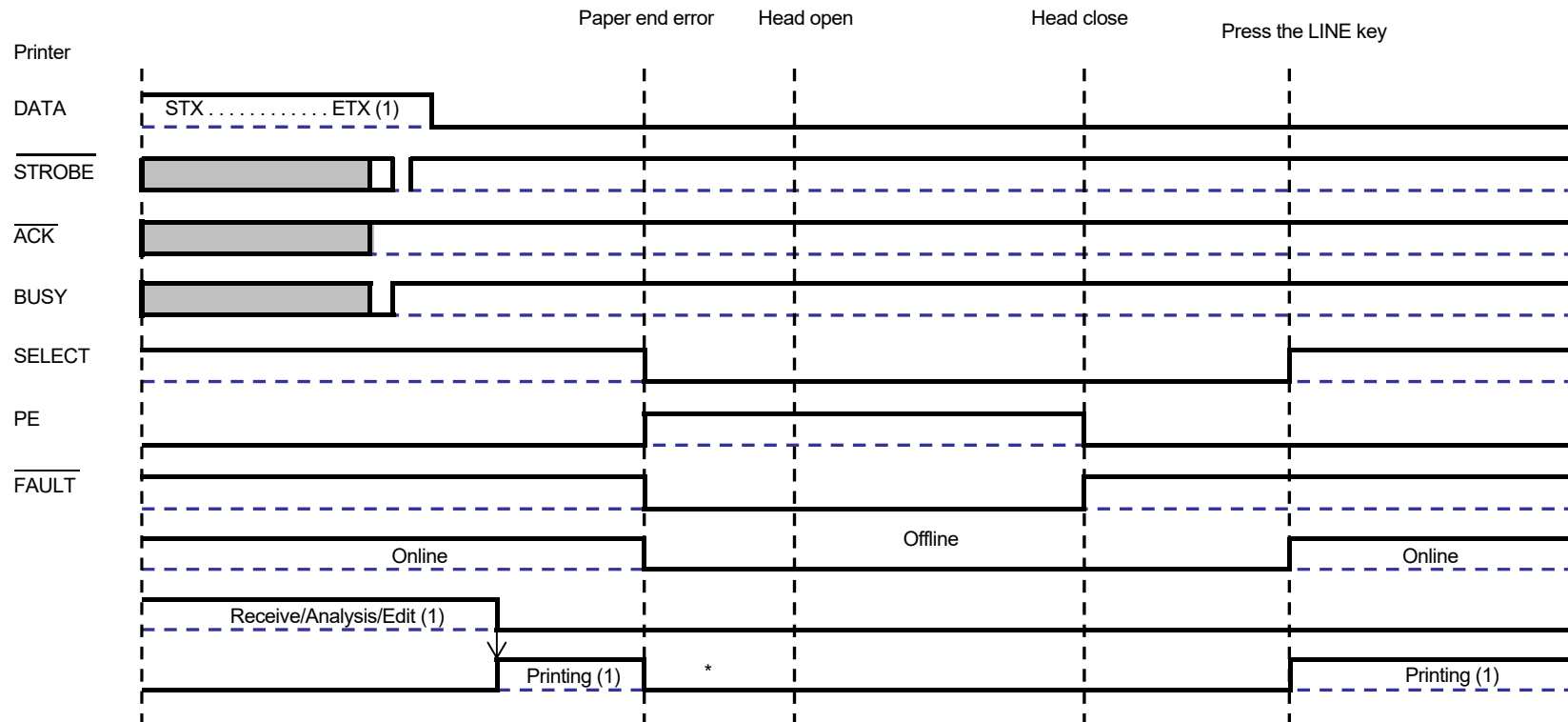
## Timing chart

### Timing chart of single item receive

1) Normal process



## 2) Process at the paper end

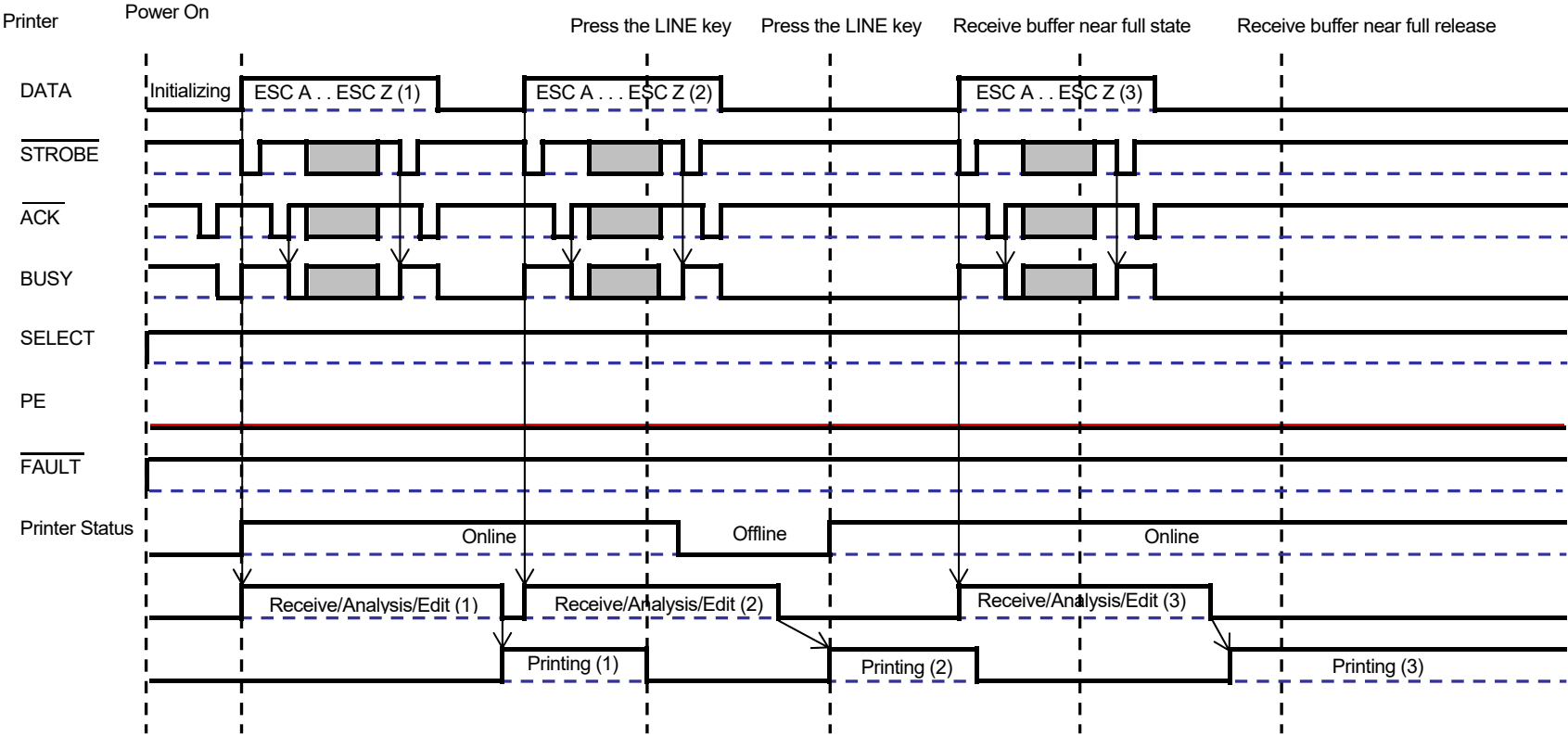


\*When the paper end error occurs, open the head, set label, close the head and feed.

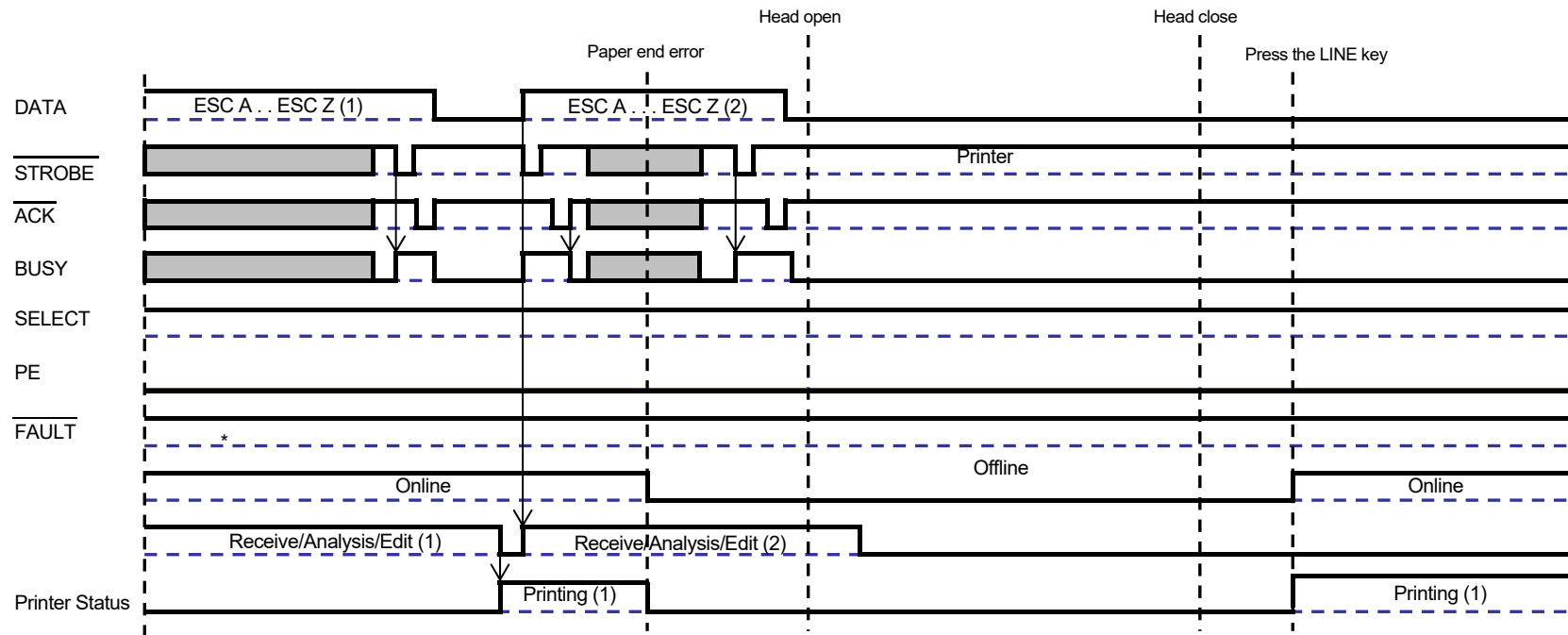
Note: The paper end error will be released when the head is closed.

Timing chart of multiple receive

1) Normal process

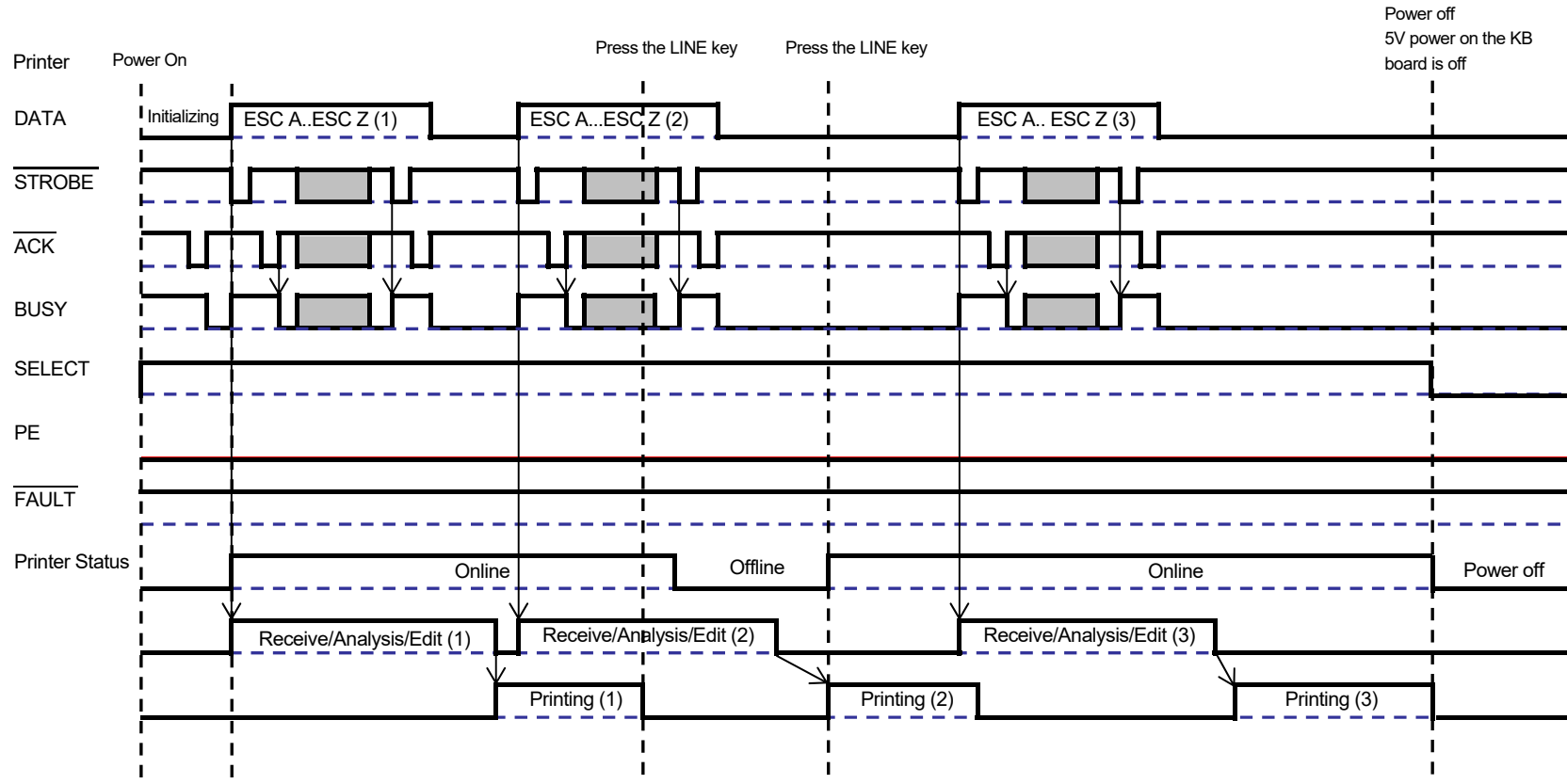


## 2) Process at the paper end



\*When the paper end error occurs, open the head, set label, close the head and feed.  
 Note: The paper end error will be released when the head is closed.

### 3) Process at the power off



\* Regardless of the state of signal line just before the power off, all signal line will be ground (0V) when 5V supplied by KB board is shut.

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# USB

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## Basic Specifications

USB interface of this product complies with USB2.0 standard.

### Interface



### Protocol

Status4, Status5

Refer to “Communication Protocol” for details.

### Connector

Series B plug

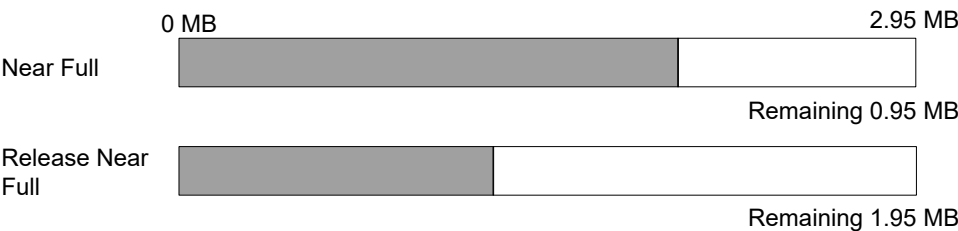
Length of cable: 5m or less (Twisted Pair Shielded)

### Version

USB2.0 High-speed

### Receive Buffer Size

2.95 MB



## Connector Pin Assignment

Pin No.	Name
1	VBus
2	-Data(D-)
3	+Data(D+)
4	GND

---

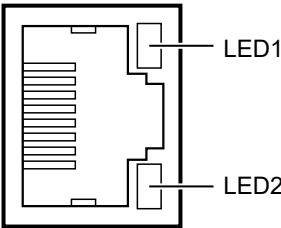
# LAN

---

## Basic Specifications (LAN)

### Interface

RJ45



### Protocol

Status3, Status4, Status5

Refer to Communication protocol for details.

### Connector

Connector Type: RJ-45

Cable Type: For 10BASE-T, 100BASE-TX (Category 5 or upper)

Cable length: Equal to or less than 100 m

### Link/Status LED

Lights when link is established with Ethernet device or when packet is received.

LED	Color	Operation
LED1	Green	Lights at a moment after receiving packet (10 ms).
LED2	Yellow	Lights off when access point is recognized as 10BASE-T.
		Lights on when access point is recognized as 100BASE-TX.
		Lights on when cable is disconnected.



## Communication settings

The following communication setting can be done on the communication setting mode of this product.

### Common settings

Setting item	Setting range
Protocol	Status3 return Status4 return (Cycle response mode) Status4 return (ENQ response mode) (Initial value) Status5 return

### IPv4 settings

Setting items	Setting range
IP address	0.0.0.0 to 255.255.255.255 Initial value: 192.168.1.1
Subnet mask	0.0.0.0 to 255.255.255.255 Initial value: 255.255.255.0
Gateway address	0.0.0.0 to 255.255.255.255 Initial value: 0.0.0.0
IP Address settings	DISABLE (manual setting) ENABLE Initial value: DISABLE (manual setting)
RARP	RARP Disable RARP Enable Initial value: Disabled

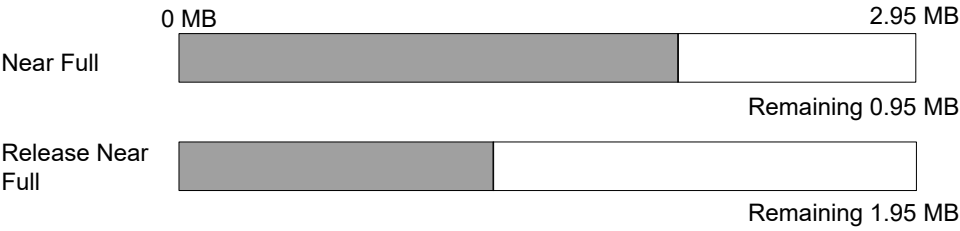
### IPv6 settings

Setting items	Setting range
Address resolution	MANUAL/DHCP/AUTOMATIC Initial value: AUTOMATIC
IP address	0000:0000:0000:0000:0000:0000:0000:0000 to FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF Initial value: 0000:0000:0000:0000:0000:0000:0000:0000
Prefix	0 to 128 Initial value: 64
Default router	0000:0000:0000:0000:0000:0000:0000:0000 to FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF Initial value: 0000:0000:0000:0000:0000:0000:0000:0000

\* Switching of IPv4/IPv6 cannot be done because IPv4/IPv6 dual stack is adopted.

**Receive buffer size**

2.95 MB



## Software Specifications

Supported protocol: TCP/IP

Network layer: ARP, RARP, IP, ICMP

Session layer: TCP, UDP

Application layer: LPD, FTP, TELNET, BOOTP, DHCP, HTTP, SNMP, SNTP

1. LPR, FTP and Dedicated Socket protocol of TCP/IP can be used for sending print data.
2. Status of product can be obtained by dedicated Socket protocol.

## Specifications of TCP/IP

TCP/IP protocol environment has LPD and FTP for printing, and TELNET for setting each variables. BOOTP/DHCP can be used for setting address.

For WindowsXP, Windows Vista, Windows7, Windows Server2003, Windows Server2008, Windows Server2008R2, IP address and other options can be set by using the printer setup tool on the Accessory CD-ROM. Please refer to the Network Utility section in the CD-ROM for the printer setup tool.

For Socket communication, "Printer Driver" and "Printer Status Monitor" in CD-ROM can be used for sending print data and monitoring printer status. However multiple concurrent sessions are not allowed. Please refer to the description in each section of the CD-ROM for "Printer Driver" and "Printer Status Monitor."

## LPD

LPD protocol complies with RFC1179 and handles a list of theoretical printer names as queue name. The cue name has 3 names: lp, sjis, euc

Cue name	Kanji filter	Kanji code
lp	x	N/A
sjis	o	Shift-JIS
euc	o	EUC

Send sequence of data file and control file in the job does not affect on print operation when the job is sent by LPR.

\* Job deletion is not supported by LPR.

\* LPD specification is only available in Status4 (Driver protocol).

\* Missing label or duplicated image may occur when many labels are printed by LPR due to the specifications of Windows.

\* Banner page print is not supported.

## Specifications of FTP

FTP protocol complies with RFC959. FTP protocol handles the list of theoretical printer names as a transfer directory, and file transfer to this directory executes print operation. Note that it is possible to specify ASCII (A) and BINARY (I) and TENEX (L8) as transfer mode, and mode varies by the client.

Banner page can be printed according to the settings.

The cue name has 3 names: lp, sjis, euc

Cue name	Kanji filter	Kanji code
lp	x	N/A
sjis	o	Shift-JIS
euc	o	EUC

\* Multiple sessions cannot be established at the same time.

## TELNET

TELNET complies with RFC854. Operations are done by interactive menu. Changing and referring internal settings and displaying status are available. You need to log in as a "root" user and enter password to change the settings. Initial setting of root password is only line feed.

<TELNET command example>

Enter [TELNET xxx.xxx.xxx.xxx (IP address)] from the MS-DOS command prompt, and enter user name and password, then following message will appear.

SATO PRINTER Model Name TELNET server.

Copyright 2010(C) SATO Corporation.

login:root

'root' user needs password to login.

password:

User 'root' logged in.

No. Item Value (level.1)

-----  
1 : Setup TCP/IP

2 : Disply status

99 : EXIT setup

Please select(1-99)?

\* Model name this product is displayed in [Model Name].

\* Please refer to "Setting/Display items" described later for the setting of [1: Setup TCP/IP].

## Setting/Display Items

Following chart lists configurable and referable sections and variables.

TCP/IP-related setting

Variable name	Setting range	Initial value (Factory setting)
IP address	0.0.0.0 to 255.255.255.255	192.168.1.1
Subnet mask	0.0.0.0 to 255.255.255.255	255.255.255.0 (calculated from the IP address)
Gateway address	0.0.0.0 to 255.255.255.255	0.0.0.0
RARP protocol	ENABLE/DISABLE	DISABLE

Variable name	Setting range	Initial value (Factory setting)
DHCP protocol	ENABLE/DISABLE	DISABLE
Keepalive time	30 to 300	180 (seconds)
Keepalive retry	1 to 99	17 (times)
Socket cancel	Normal/Compatible	Normal
ROOT password	Any alphanumeric [16] <sup>*1</sup>	NULL (no password)
IPv6 address	0000:0000:0000:0000:0000:0000:0000 to FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF	0000:0000:0000:0000:0000:0000:0000:0000
IPv6 prefix	0 to 128	64
IPv6 default router	0000:0000:0000:0000:0000:0000:0000 to FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF	0000:0000:0000:0000:0000:0000:0000:0000
IPv6 address resolve	MANUAL/DHCP/AUTO	AUTO

\*1 Numbers in [ ] are upper limit.

## SNMP (Simple Network Management Protocol)

SNMP Agent that supports UDP/IP, IPX and manages a range of printer information is implemented. SNMPv2 which is based on the RFC 1902 - RFC 1908 is supported.

About errors:

They are assigned to "hrPrinterDetectedErrorState" object of Host Resources MIB Printer Status.

Error state	Bit number	Error state of this product
lowPaper	0	-
noPaper	1	Paper End
lowToner	2	Ribbon Near End
noToner	3	Ribbon End
doorOpen	4	Head Open
jammed	5	-
offline	6	Offline
serviceRequested	7	-
inputTrayMissing	8	-
outputTrayMissing	9	-
markerSupplyMissing	10	-
outputNearFull	11	-
outputFull	12	-
inputTrayEmpty	13	-
overduePreventMaint	14	-

\* Errors that are not mentioned in the above table are assigned to Alert Group.

---

## SNTP (Simple Network Time Protocol)

SNTP corrects time of calendar IC when calendar IC is equipped.

Note that Wireless LAN is not supported.

### Function

This function acquires the current time from the NTP server and corrects time of the calendar IC at the printer power on when a calendar IC is mounted on the printer and LAN is selected as [data port] at the [communication setting]. ENABLE/DISABLE the SNTP and IP address setting of the NTP server can be done on the communication setting mode.

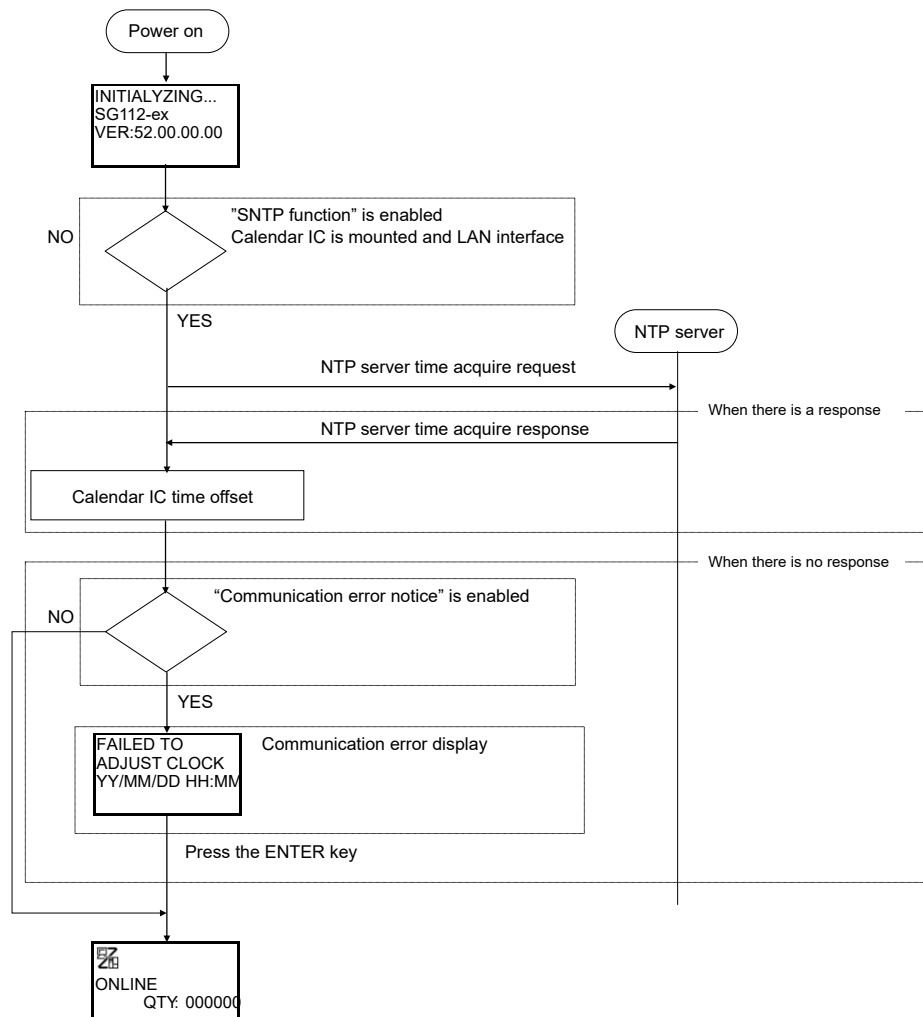
This function is available only when a calendar IC is mounted to the printer.

### Operating Conditions

The operating conditions of the SNTP function are as follows.

- A calendar IC is mounted to the printer.
- Communication setting is LAN.  
Select LAN at the [communication setting] - [data port].
- Available only in the Normal mode.

## Operation Sequence



### [Supplemental explanation]

- Time correction is only when printer is turned on. Time correction will fail when NTP server doesn't respond (timeout period is 4 sec).
- The following display will be shown and there will be buzzer sound when time correction has failed and "Setting of communication error notice" is "ENABLE".

```

FAILED TO
ADJUST CLOCK
YY/MM/DD hh:mm

```

## HTTP (HyperText Transfer Protocol)

The settings of LAN and printer are received via HTTP and set accordingly.

### Main Information

No.	Item	Setting items		Initial value
1	Firmware version	52.XX.XX.XX	Display only	None
2	MAC Address	XX:XX:XX:XX:XX:XX	Display only	None
3	IP Address Setting	Manual, DHCP, RARP, DHCP/RARP	Display only	None

### Network Settings

No.	Item	Setting items		Initial value
1	IP Address Setting	Manual, DHCP, RARP, DHCP/RARP	Display/Input	Manual
2	Local IP address	0.0.0.0	Display/Input	192.168.1.1
3	Subnet mask	0.0.0.0	Display/Input	255.255.255.0
4	Gateway address	0.0.0.0	Display/Input	0.0.0.0



## Socket Communication

In the socket server of TCP/IP, Port1024 is used for print data reception, Port1025 is used for 2-port connection of printer status return, and Port9100 is used for 1-port connection for both receiving print data and printer status return.

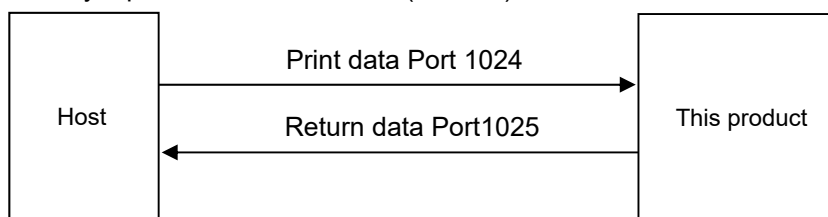
When Port9100 is used, only status return data and printer operation setting request data are returned to host.

It is not possible to use 2 port connection and 1 port connection at the same time.

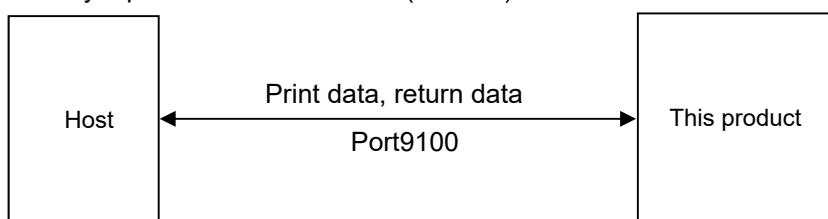
It is not possible to have few sessions connected at once to each Socket.

Besides Socket, it is possible to use LPR and FTP for sending print data. It is not allowed to connect to print data port (Port 1 or Port 3) while LRP and/or FTP is connected due to Socket communication.

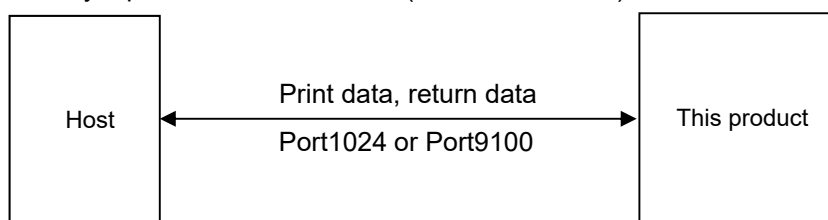
### 1. Print by 2 port connection/Socket (Status4)



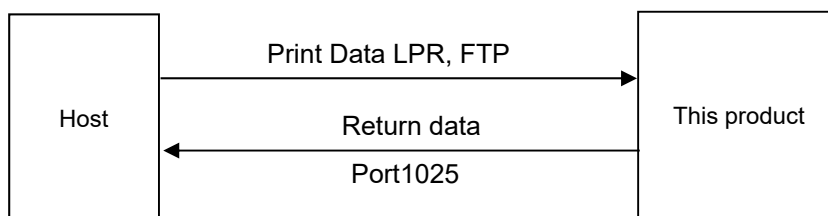
### 2. Print by 1 port connection/Socket (Status4)



### 3. Print by 1 port connection/Socket (Return status3, 5)



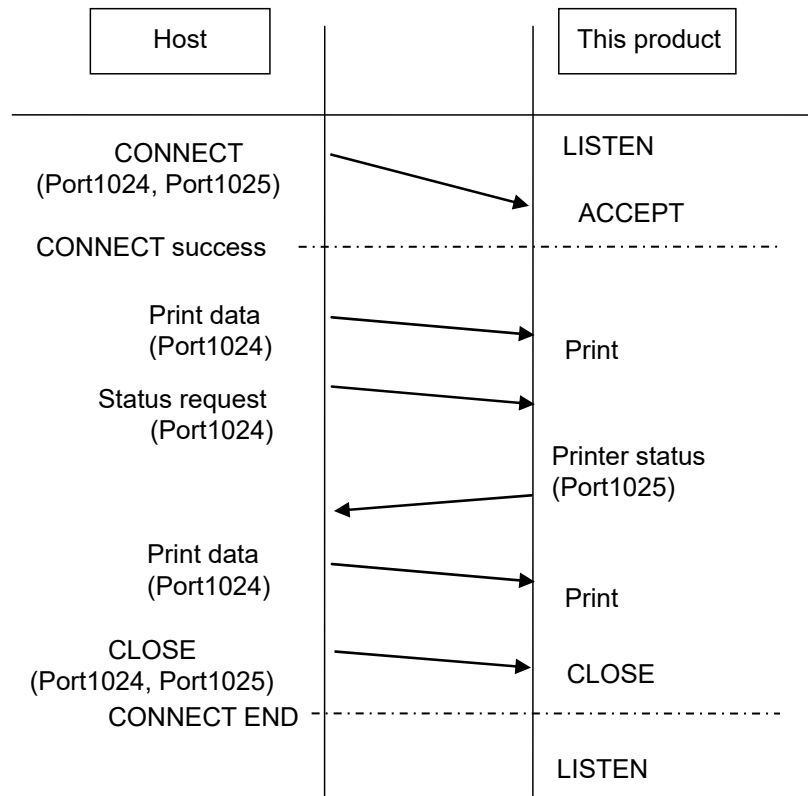
### 4. Print with LPR and FTP



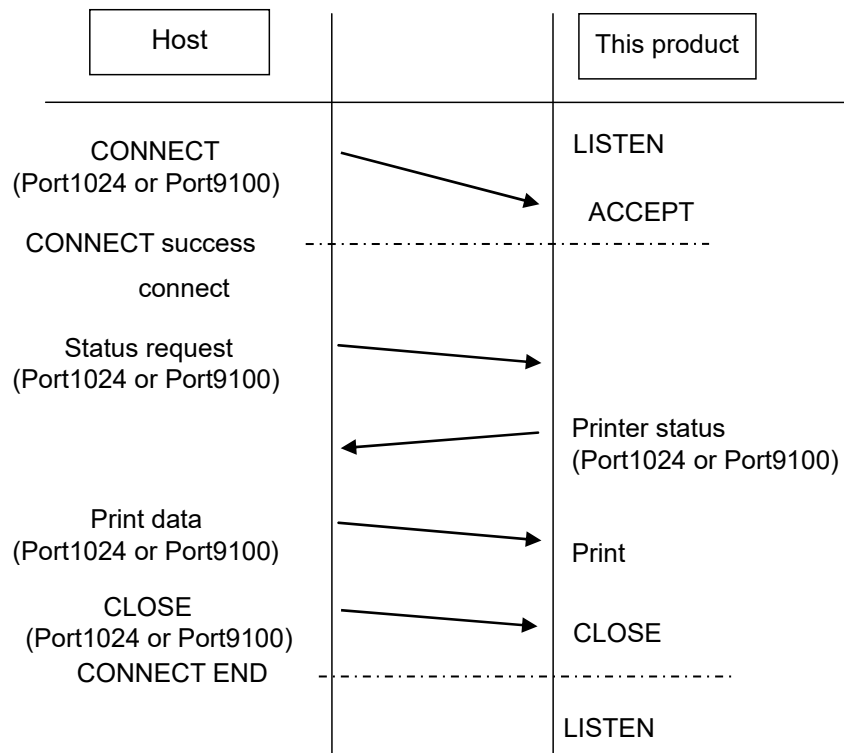
## Connection and Disconnection of Session

Following is the procedure for connection and disconnection of Port1024 (for print data) and Port1025 (for status return) and Port9100 or Port1024 (for send/return port) in socket server functions.

1) Print data port (Port1024), Status return port (Port1025)



## 2) Sent/Received port (Port9100 or Port1024)



# Printer Status

## 1) Status Mode

There are three types of mode for status return when using LAN interface.

1. Status4/Cycle response mode (2port connection or 1 port connection)  
Port1024 is used for print data port, Port1025 is used for status return, Port9100 is used for print data port and status return.  
Printer status is output at certain period (500 to 1000 ms interval). Printer Status is returned when this product receives status request command from host.
2. Status4/ENQ response mode (2port connection or 1 port connection)  
Port1024 is used for print data port, Port1025 is used for status return, Port9100 is used for print data port and status return.  
Printer Status is returned when this product receives status request command from host.
3. Status3, Status5/ENQ response mode (1 port connection)  
Port1024 is used for both print data port and status return port. Port9100 is used for both print data port and status return port.  
ACK is returned when this product receives print request command from host, and Printer Status is returned when this product receives status request command from host.  
When the Status3 is used, label printing using a printer driver is unavailable.

Status modes are switched by changing the setting of communication protocol and timing of Printer Status return in communication setting mode of this product. Following chart shows the relationship between the types of status mode, setting items of communication setting mode.

Types of status mode	Setting item of communication setting mode	
	Communication protocol (PROTOCOL)	Timing of Printer Status return (REPLY TIMING)
1 port or 2 ports connection Cycle response mode	STATUS4	CYCLE
1 port or 2 ports connection ENQ response mode	STATUS4	ENQ
1 port connection ENQ response mode	STATUS3	-
	STATUS5	

## 2) Data Format of Status Return

1. 2 ports connection (Status4 return)

Number of byte to send 4 bytes 0000001CH	ENQ 1 byte 05H	STX 1 byte 02H	ID number 2 bytes	Status 1 byte	Remaining labels 6 bytes	JOB name 16 bytes	ETX 1 byte 03H
------------------------------------------------	----------------------	----------------------	-------------------------	------------------	--------------------------------	-------------------------	----------------------

(Total 32 bytes)

Please refer to [Return status of Status4] for the description of [Status].

2. 1 port connection (Status5 return)

STX 1byte 02H	Specified item No. 5 byte	Specified item status 2 bytes	Currently processing item No 5 bytes	Currently processing item status 2 bytes	Number of currently processing item to be printed 6 bytes	ETX 03H 1 byte
---------------------	------------------------------	-------------------------------------	--------------------------------------------	------------------------------------------------	--------------------------------------------------------------------	----------------------

(Total 22bytes)

Please refer to [Return status of Status5] for the description of [Status].

### 3. 1 port connection (Status3 return)

STX 1 byte 02H	ID number 2 bytes	Status 1 byte	Remaining labels 6 bytes	ETX 1byte 03H
----------------------	-------------------------	------------------	--------------------------------	---------------------

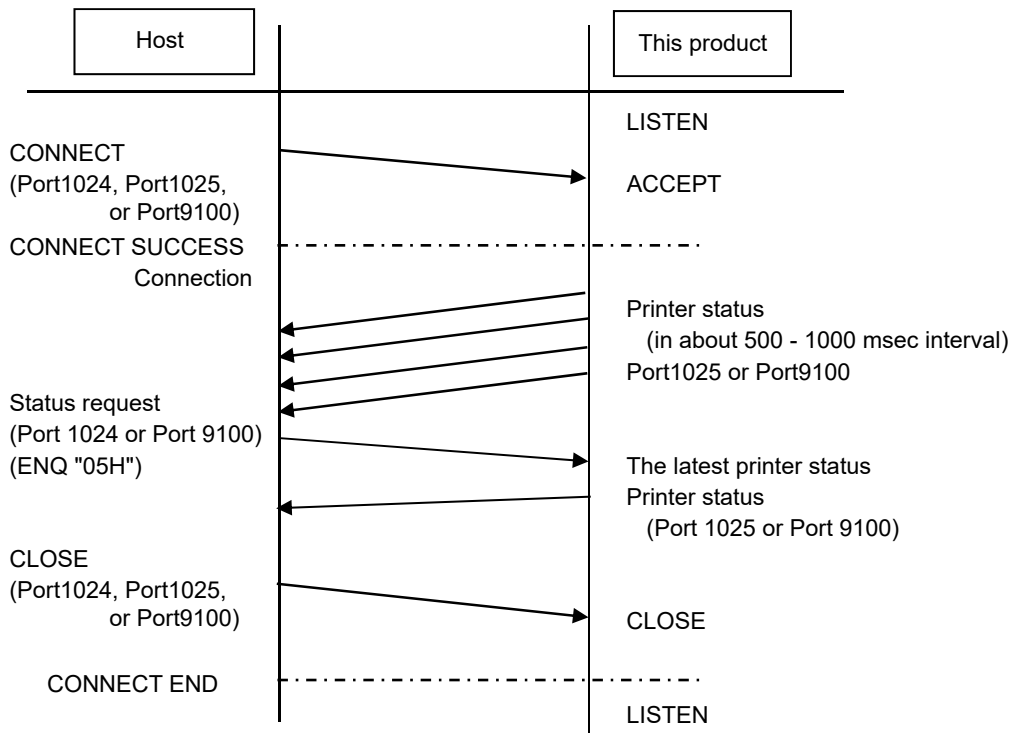
(Total 11 bytes)

Please refer to [Return status of Status3] for the description of [Status].

## 3) Sequence

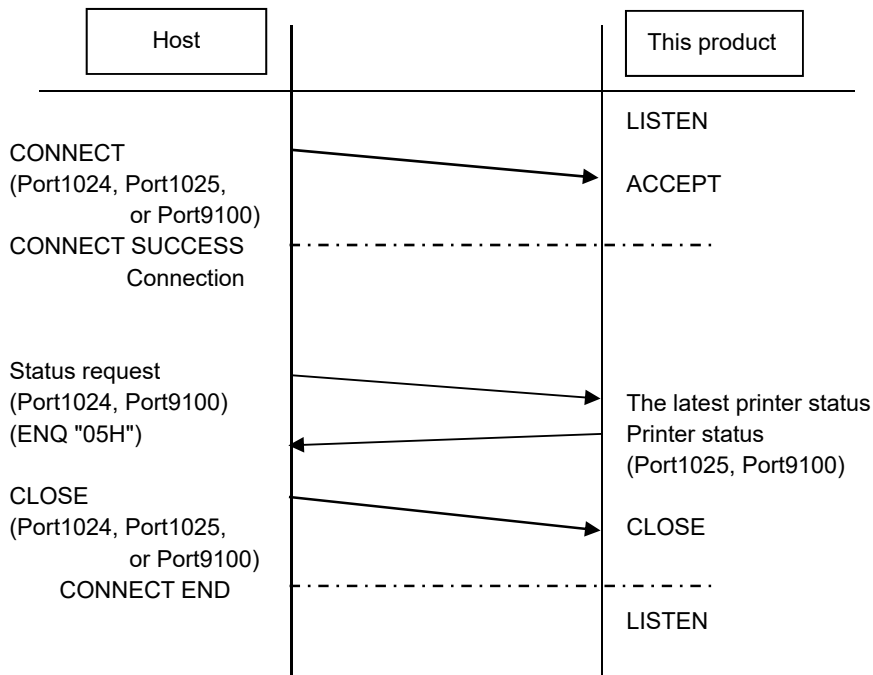
### 1. Status4/Cycle response mode (2 ports connection or 1 port connection)

This product returns status in the interval of 500 to 1000 ms. The latest Printer Status is returned when this product receives status request command (ENQ:05H) from host.



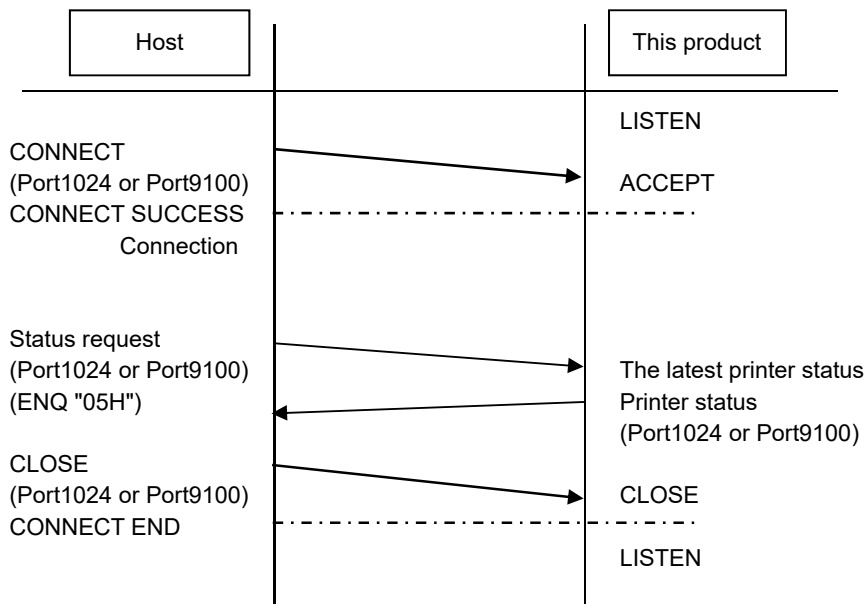
### 2. Status4/ENQ response mode (2 ports connection or 1 port connection)

The latest Printer Status is returned after this product receives status request command (ENQ:05H) from host.



### 3. Status3, Status5/ENQ response mode (1 port connection)

This product sends ACK after receiving print request command from host and sends Printer Status after receiving status request command (ENQ:05H) from host.



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## Notes for LAN Interface

- Please refer to the Operator Manual for LAN interface setting.
- 150 ms to 200 ms interval is required to close port then open port, if you want to open and close print data port (Port1024), status port (Port1025) and send/received port (Port9100). Short interval setting may cause double connection. Request for double connection occurs when [CONNECT] request is made to Port (Port1024, Port1025 or Port9100) in addition to the request [CONNECT (Socket OPEN)] which has already been made to Port (Port1024, Port1025 or Port9100). When printer receives request for double connection, it sends response of disconnection (Socket CLOSE) to the request.
- Communication may not be established if you plug in/out LAN cable while PC is connected. Do not plug in/out LAN cable while starting up printer. When LAN cable is removed/inserted and it caused communication loss, please turn off and turn on the power of this product.

# External signal interface

## Basic Specifications

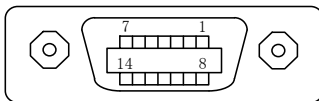
External signal interface is designed to connect the printer to external peripheral devices.

External signal interface works only in pulse input mode (print by external signal input) with Continuous or Cutter. Error signal is output in any mode if an error occurs in the printer.

External signal setting is set in the Intelligent mode of this product.

### Connector

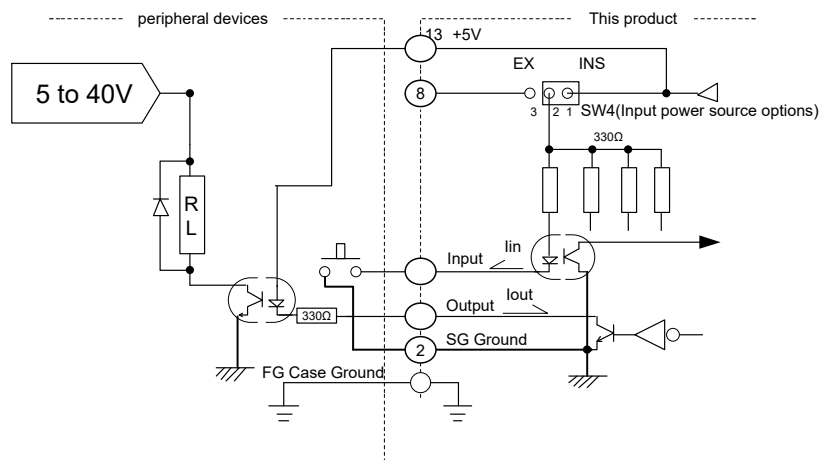
Amphenol 14 pin receptacle (female)



For connector, use DDK's 57 series 14-pin (57-30130 etc.) or the like.

### I/O Circuit Diagram

14PIN type  
IO connection



### Signal Level

High +4.2 - 5 V: Input terminal:  $I_{in} \approx 0$  mA, Output terminal:  $I_{out} \approx 0$  mA

Low 0 - 0.7 V or less: Input terminal  $I_{in} \approx 10$  mA Output terminal  $I_{out} \approx 50$  mA

### Print by External Signal

Set "ENABLE/DISABLE" in the Intelligent mode.



### Reissuing EXT Signal

Following signal types are available in the Intelligent mode.

Type	Operation
TYPE I	Print end signal (PREND) is "High" before printing labels. The signal level is "Low" after the completion of print. The signal level will be "High" 20 ms later.
TYPE II	Print end signal (PREND) is "Low" before printing labels. The signal level is "High" after the completion of print. The signal level will be "Low" 20 ms later.
TYPE III	Print end signal (PREND) is "High" before printing labels. The signal level is "Low" from the start to the end of print and will be "High" after the completion of print.
TYPE IV	Print end signal (PREND) is "Low" before printing labels. The signal level is "High" from the start to the end of print and will be "Low" after the completion of print.

### Reissuing EXT Signal

Set "Enable/Disable" in the Intelligent mode.

Enable: Reprint the same content

Disable: No reprint

# Connector Pin Assignment

14 pin external signal interface

Pin no.	Signal name	Contents	Input/Output	Level	Electric condition (voltage, current (MAX))
1	PAPER END	Output when paper end is detected.	Output	Low	5 V 400 mA
2	GND	SIGNAL GROUND	-	-	-
3	RIBBON END	Output when detect ribbon end.	Output	High	5 V 400 mA
4	MACHINE ERROR	Output when Head open, Head error or communication error occurs.	Output	Low	5V 400 mA
5	Print start (PRIN)	Print one label every time when this signal is input.	Input	Low	High: Hi-impedance Low: -15 mA<, 0 V
6	Print end (PREND) <sup>*1 *2</sup>	Output when this product prints one label.	Output	Low	5 V 400 mA
7	Re-print (PRIN2)	Print the same content again by input this signal.	Input	Low	High: Hi-impedance Low: -15 mA<, 0 V
8	EXT5V_IN	For external power supply	Input	-	5 V
9	Offline	Output when this product becomes offline.	Output	Low	5 V 400 mA
10	RIBBON NEAR END	Output when detecting ribbon is near end.	Output	Low	5 V 400 mA
11	-	-	-	-	-
12	+24V	-	-	-	2A
13	+5V	-	-	-	500 mA
14	-	-	-	-	-

\*1 Select TYPE I-TYPE IV for No.6 pin "PREND" output signal. For details, refer to external signal type in Basic specification.

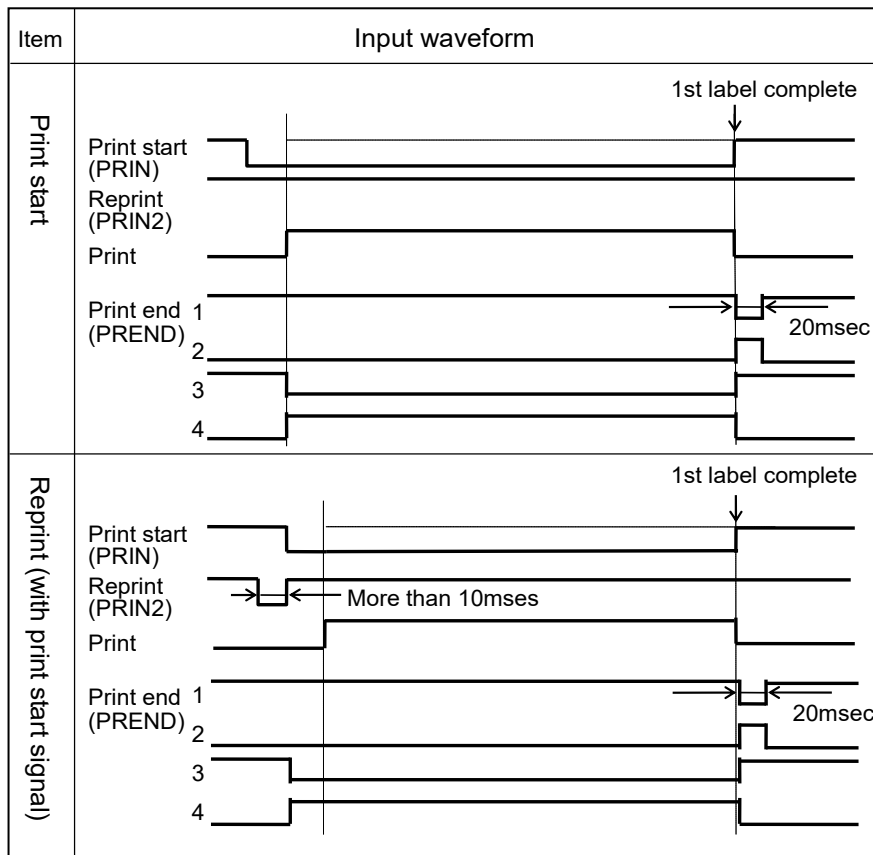
\*2 No. 6 pin "PREND" output signal is not output when "0" is specified as number of cuts for cut unit number command in cutter operation.

\*3 When SW4 on CONT board is set to EX, the printer operates by power supply from EXT5V\_IN (No. 8 pin). When JP1 is set to INS side, Operation is done by internal power supply.

\*4 When SW3 on CONT board is set to EXO6, the no.9 pin operates as offline output. If it is set to EXI side, it operates as input.

# I/O signal

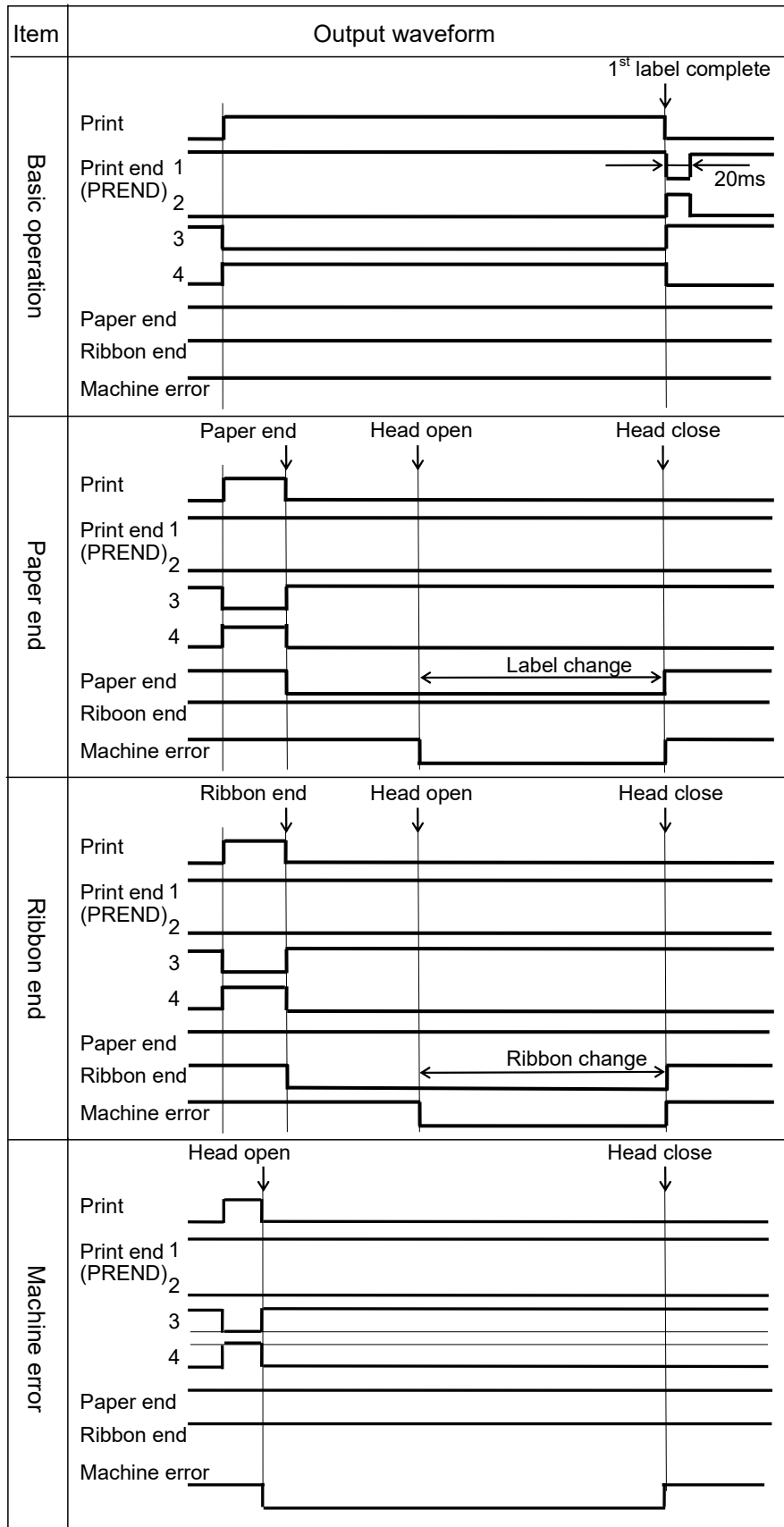
## 1) Input Signal



### [Supplementary Explanation]

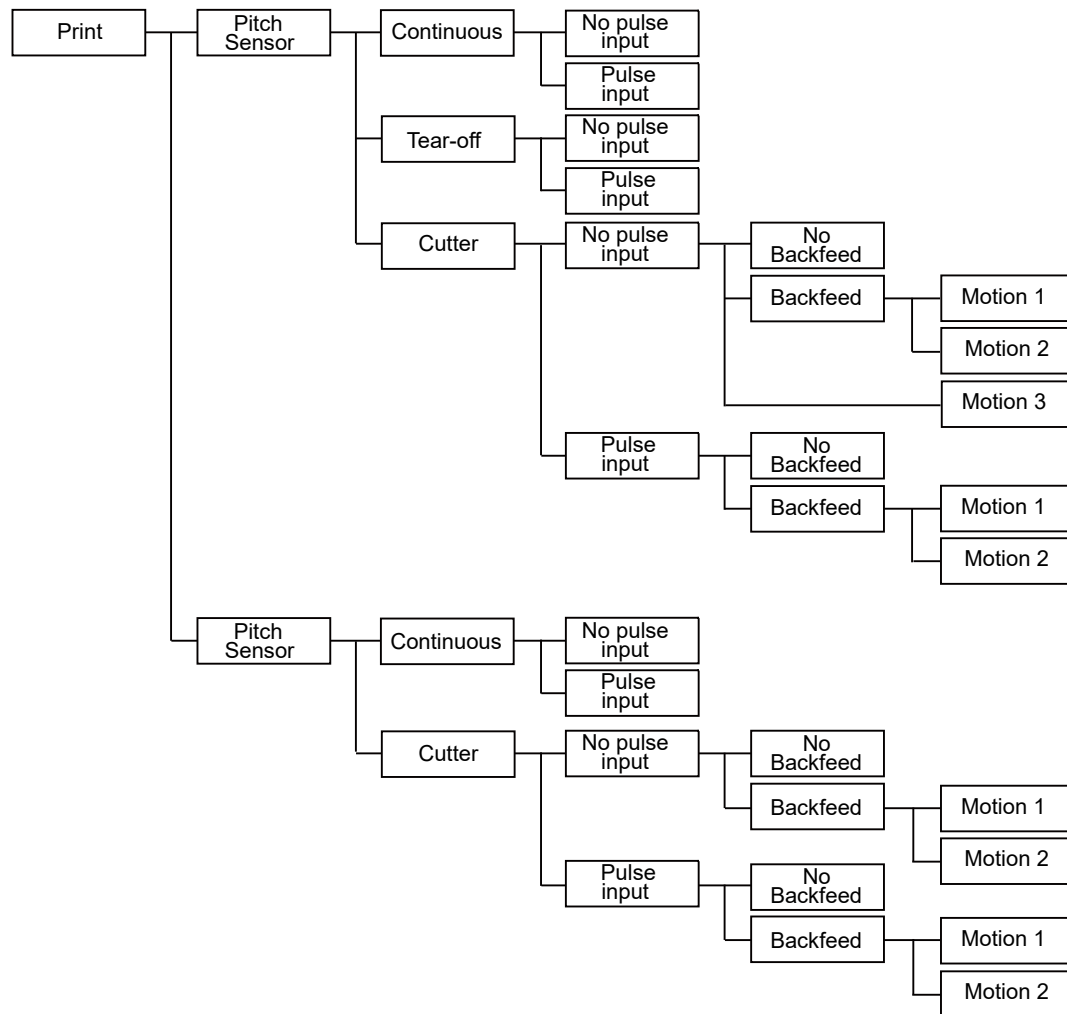
- Keep “Low” for print start signal (PRIN) until print end signal (PREND) is output.  
Make sure to output 10 ms or more for reprint signal (PRIN2).  
Printer will not reprint if reprint signal cannot be detected from 10 ms and under.
- When print start signal and reprint signal is emitted at the same time, print start signal is enabled and reprints.
- The reprint signal is valid from the point of print completion (QTY=0) until the next print data is received. This product will not reprint other than that time.

## 2) Output signal



## Operation Waveform

Operation mode of external signal input is as follows;



Motion 1: Backfeed after print  
 Motion 2: Backfeed before print  
 Motion 3: Cut & Print

---

# USB HOST

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## Basic Specifications

USB interface of this product comply with USB2.0 standard.

### Interface



### Connector

Series A plug

Length of cable: 5 m or less (Twisted Pair Shielded)

### Version

USB2.0 High-speed

### Device class

Mass storage class

### Purpose of use

USB memory

## Connector pin assignment

Pin no.	Name
1	VBus
2	-Data(D-)
3	+Data(D+)
4	GND



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