

Command Reference

2 inch Compact KIOSK Face Mount Printer

NP – K 2 0 9 2

Revision 1.00 2011.10.24 1st edition

All specifications described are subject to change without prior notice.
Please contact us for double-checking if you find any descriptions unclear
or something which seems to be mistyped or mistranslated.

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1. Application

This reference describes command and character code page for NP-K2092.
Please refer to product specifications for specifications and precautions for NP-K2092.

2. Command

2.1 Command List

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2.2 Printer Driver

Driver (Windows XP(32bit) / Vista(32,64bit) / 7(32,64bit) / CE5.0 / CE6.0 / Linux(only sample))

2.3 Command Details

1)[Horizontal Tab] « HT »

Code: [09]h

Print position moves to the next horizontal tab position.

- Horizontal tab is set by [Horizontal Tab Position Setting] command.
- Default of [Horizontal Tab position] is every 8th character (9thdigits, 17thdigits, 25th digits) in font A.
- If the next [Horizontal Tab Position] is not set, this command is ignored.

2)[Print and Line Feed] « LF »

Code: [0A]h

Prints out data inside print line buffer and line feeds based on preset line feed quantity.

3)[Carriage Return] « CR »

Code: [0D]h

- This command is ignored.

4)[Software Reset] « DC1 »

Code: [11]h

Restarts firmware in the same process as turning the power ON.

- Since this command will be stored in internal reception input buffer and executes sequentially, timing of command receipt and execution will be different.
- If during cutter movement, software reset will be activated after autocutter finishes driving.

5) [Line Print Permission] « DC3 + »

Code: [13]h + [2B]h

Permits line buffer print.

- Prohibits line print when power ON or printer initialization.
- Line does not overlap with “Barcode”, “QR code”, “Fixed Bit Image”, “Raster Bit Image”.

6) [Line Print Prohibition] « DC3 – »

Code: [13]h + [2D]h

Prohibits line buffer print.

- Data in line buffer is not printed after prohibition.
- Line print is prohibited when power ON or printer initialization.

7) [Line Buffer A Selection] « DC3 A »

Code: [13]h + [41]h

Selects line buffer A.

- Line buffer has 2 individual buffer (A and B).
- Selected as default setting.

14) [Line Image Write-in] « DC3 V Dn »

Code: [13]h + [56]h + Dn

Writes-in image data of 1 dotline to the selected line buffer.

- “Dn” is raster bit image data.
- Raster bit image data (Dn) shall be “1” when assigned to print while “0” not assigned.
- Number of “Dn” will be number of Byte calculated by formula below.
Number of Byte of “Dn” = Printer head total number of dots / 8

15) [Barcode Termination Change] « ESC RS c n »

Code: [1B]h + [1E]h + [63] + n * [n = 00, 80]h

Change termination of [Barcode print] command with “n”.

- “n” is indicated as follows;

n(hex)	termination
00	[00]h
80	[FF]h

- Default of “n” is [00]h

16) [Character Right Space Quantity Setting] « ESC SP n »

Code: [1B]h + [20]h + n * [00 ≤ n ≤ 20]h

Sets right SPACE quantity of character by dot. (1/203 inch unit)

- Right SPACE is reflected with zoom when double width zoom mode.
- Default of “n” is [00]h.

17) [Print Mode Batch Setting] « ESC ! n »

Code: [1B]h + [21]h + n * [00 ≤ n ≤ FF]h

Sets print mode.

- “n” has the following meaning.

bit	function	value	
		0	1
0	Character font	Font A	Font B
1	Undefined		
2	Undefined		
3	Enhanced	UNSET	SET
4	Double height	UNSET	SET
5	Double width	UNSET	SET
6	Undefined		
7	Underline	UNSET	SET

- If double height and double width are set at the same time, quadruple character will be formed.
- All of the printed characters will be underlined except for the 90° clock-wise rotated characters and spaces created by [Horizontal Tab].
- Underline width is determined by the value set in [Underline SET/UNSET].
Default is “1dot” width.
- Enhanced print control is only effective when Kanji mode.
- Enables to print with different character sizes mixed e.g. double width and normal size etc.
- The default of “n” is [00]h.

18) [Line Overlap Mode] « ESC # n »

Code: [1B]h + [23]h + n

Selects overlap mode of line and character.

•“n” has the following meaning.

n(hex)	Mode
00	OR Overlap Mode
01	XOR Overlap Mode

•Default setting of “n” is [00]h.

•Line does not overlap with “Barcode”, “QR code”, “Fixed Bit Image”, “Raster Bit Image”.

19) [Absolute Position Setting] « ESC \$ n1 n2 »

Code: [1B]h + [24]h + n1 + n2 *[00 ≤ n1 ≤ FF]h

 *[00 ≤ n2 ≤ 02]h

Sets print start point from head of the line by number of dot. (by 1/203-inch position)

•Divide dots at print start point by 256 and quotient shall be “n2” while remainder is “n1”.

•Print start point is (n1 + n2 × 256) from head of the line.

•Ignores setting when beyond end of the line.

•When this command is received in the middle of line, it will be effective even not passing the current position.

20) [Download Characters Set SET/UNSET] « ESC % n »

Code: [1B]h + [25]h + n *[00 ≤ n ≤ FF]h

SET/UNSET download characters.

•Only least significant bit (b0) is effective to “n”.

•“b0” has the following meaning.

b0	Function
0	UNSET download character set
1	SET download character set

•Default of “n” is [00]h

21) [Download Characters Definition] « ESC & s n m a Dn »

Code : [1B]h + [26]h + s + n + m + a + Dn * [s = 03]h

* [20 ≤ n ≤ 7E]h

* [20 ≤ m ≤ 7E]h

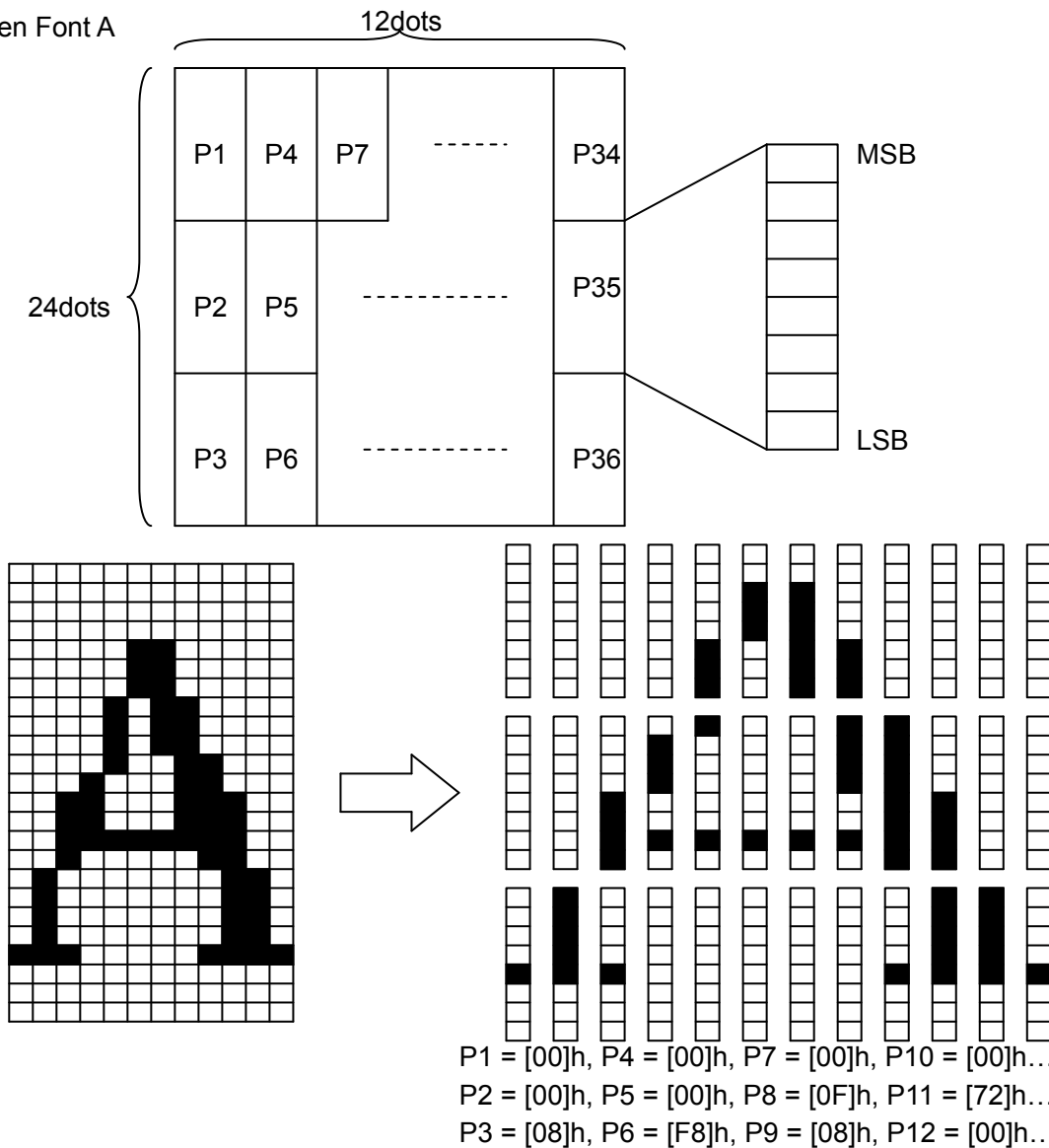
* Font A [01 ≤ a ≤ 0C]h

* Font B [01 ≤ a ≤ 09]h

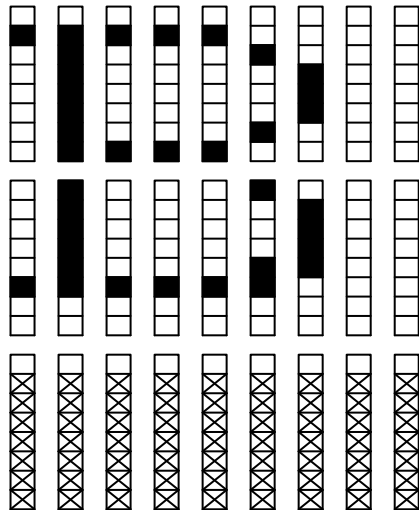
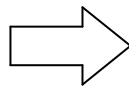
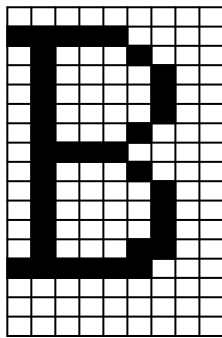
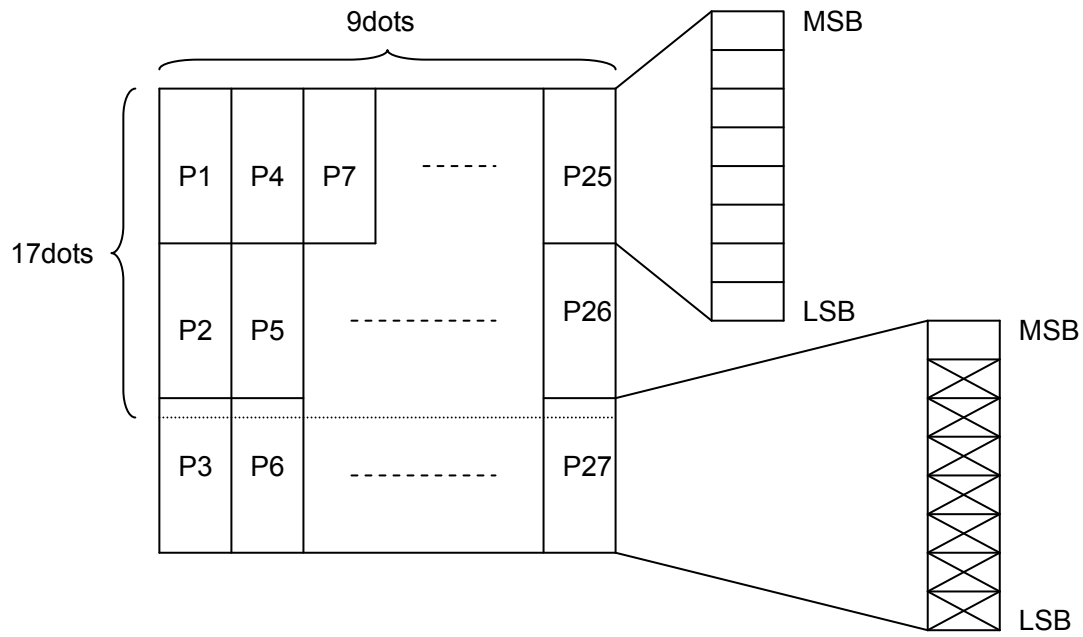
Defines font for download characters of alphanumeric characters.

- “s” indicates number of bytes that will be defined in vertical direction while “a” is number of dots in horizontal.
- “n” indicates the start character code and “m” means end character code. (when only 1 character definition, then “n” = “m”.)
- Definable characters are from [20]h ~ [7E]h on ASCII code. (95 characters)
- “Dn” indicates data to be defined and indicates horizontal direction “a” dots pattern from the left edge. Remaining area on the right side of character will be filled with SPACE.
- Download characters once defined by this command remain valid until execution of [Software Reset] or Reset Switch or turning the power OFF.
- Redefinition is only effective to designated area.

<Reference>
when Font A



<Reference>
when Font B



P1 = [40]h, P4 = [7F]h, P7 = [41]h, P10 = [41]h...
P2 = [04]h, P5 = [FC]h, P8 = [04]h, P11 = [04]h...
P3 = [00]h, P6 = [00]h, P9 = [00]h, P12 = [00]h...

22) [Bit Image Mode Set] «ESC * m n1 n2 Dn»

Code : [1B]h + [2A]h + m + n1 + n2 + Dn * [m = indicated below]h

* [00 ≤ n1 ≤ FF]h

* [00 ≤ n2 ≤ 01]h

Prints data in bit image with resolution designated in “m”.

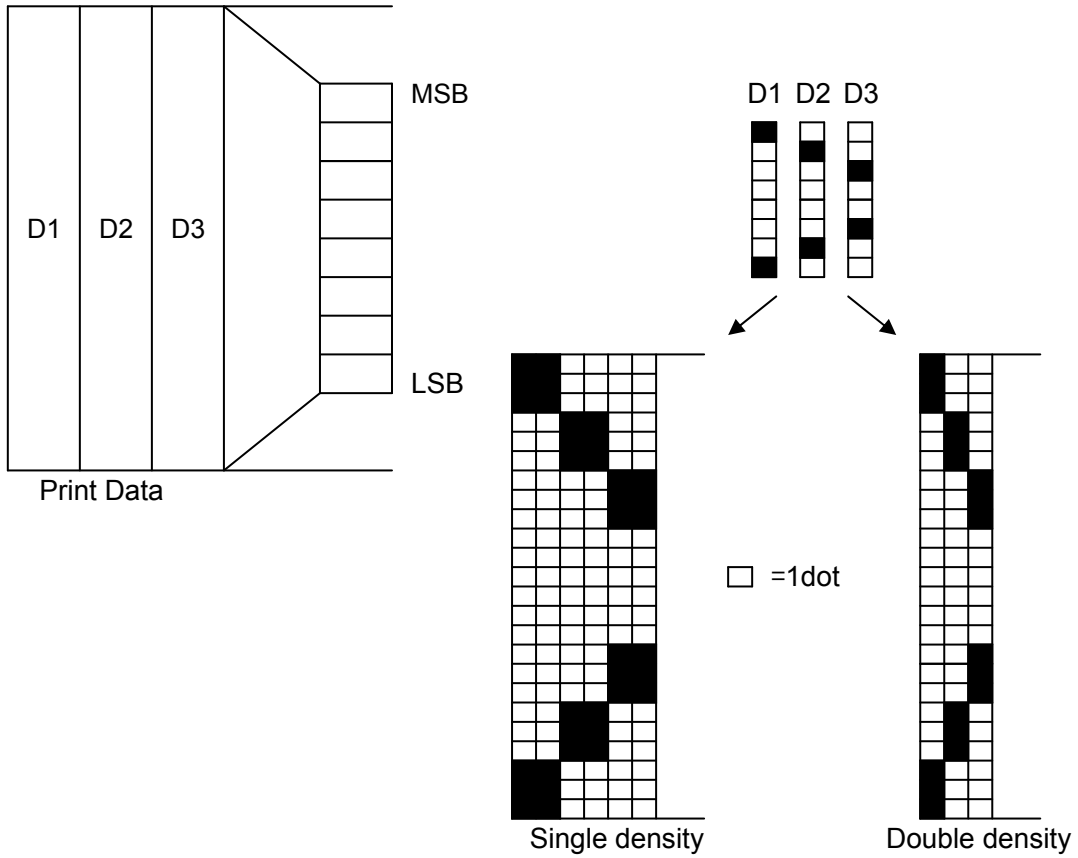
- Total print dots are divided by 256, quotient shall be “n2” and remainder is “n1”.
- Total print dots in bit image mode are n1 + (256 × n2).
- If the input bit image data (Dn) exceeds printable area, exceeded data will be disregarded.
- Bit image data (Dn) interprets bit “1” as print and bit “0” as not print.
- Bit image mode is indicated below.

<Standard Mode>

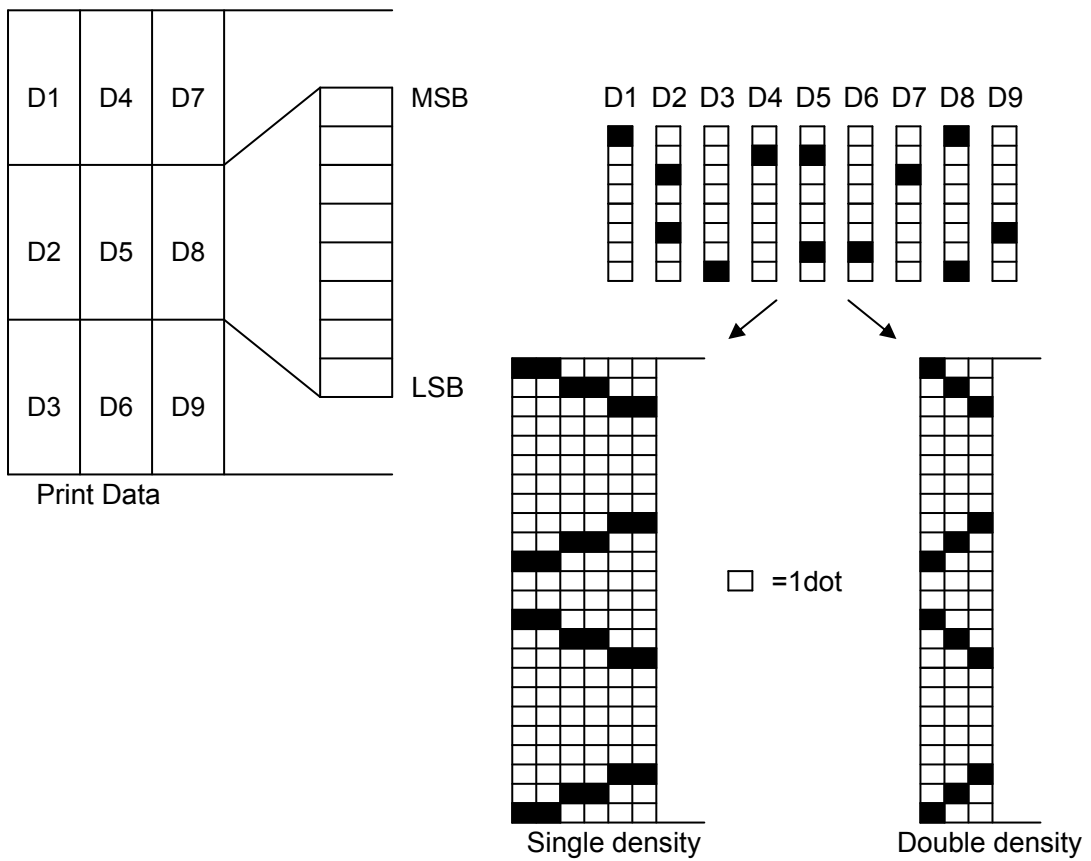
m(hex)	Bit Image Mode	Vertical Direction		Horizontal Direction	
		Dot Quantity	Dot Density	Dot Density	Max. Dots
00	8dot single density	8	67 dpi	101 dpi	192
01	8dot double density	8	67 dpi	203 dpi	384
20	24dot single density	24	203 dpi	101 dpi	192
21, 23	24dot double density	24	203 dpi	203 dpi	384

<Relationship between Bit Image data and Printed Dot>

•8dots bit image



•24dots image bit



23) [Underline SET/UNSET] « ESC – n »

Code: [1B]h + [2D]h + n *[00 ≤ n ≤ 02]h

SET/UNSET Underline.

- Underline is valid to all characters except for area skipped by [Horizontal Tab]. Also, underline is not valid to 90° clockwise rotated character.
- This command is not valid when Kanji mode.
- Underline is verified with “n” value as shown bellow.

n(hex)	Type
00	UNSET underline
01	SET one dot underline
02	SET two dot underline

- Default value of “n” is [00]h.

24) [1/6 inch Line Feed Amount Setting] « ESC 2 »

Code: [1B]h + [32]h

Sets one line feed to 1/6 inch.

25) [Line Feed Setting of Smallest Paper Feed Pitch Unit] « ESC 3 n »

Code: [1B]h + [33]h + n *[00 ≤ n ≤ FF]h

Sets a line feed amount to n/203 inch.

- Even setting lower value of character's height, it will line feed for the amount of character's height.
- Default value of “n” is [22]h.

26) [Printer Initialization] « ESC @ »

Code: [1B]h + [40]h

Clears data stored in the print line buffer and initializes (default status) each setting.

- Does not clear data stored in the internal receive input buffer.
- Does not clear data stored in the line buffer.
- Stores in receive buffer and executes sequentially.

27) [Back Feed] «ESC B n»

Code: [1B]h + [42]h + n *[00 ≤ n ≤ FF]h

This command is for forwarding paper in reverse direction.

- Set forwarding length in “n” dot line. When setting [00]h, no feeding.
- Do not sequentially input this command because paper may jam. When backfeeding more than [FF]h dots, use [Back Feed (mm unit)] instead.
- there may be a slight stir in platen rotation by backlash correction.
- In case there is print data in Print Line buffer, move to backfeed after printing.
- Tip of paper should not be exceeding the limit of back feed. (refer to “2.4 Cutter Specifications.” in this Production Specifications)

28) [Horizontal Tab Position Setting] « ESC D n1 n2 --- NUL »

Code: [1B]h + [44]h + n1 + n2 + - - - + [00]h *[00 ≤ n ≤ FF]h

Sets horizontal tab position.

- “n” indicates the digits from the head to the tab position.
In this case, it shall be [n = setting position – 1].
- Although tab position is set at the point of (character width × “n”) from head of the line, in this case, character width includes right SPACE amount of the character and when double width zoom is set, width becomes double of ordinary character.
- Enables to set max. 32 tab positions and settings exceeding this will be disregarded.
- « ESC D NUL » clears all set tab positions. After tab setting is cleared, tab movement by [Horizontal Tab] command will be invalid.
- Default value is set at every 8 characters of font A. (at 9th, 17th, 25thdigits)

29) [Enhanced Print SET/UNSET] « ESC E n »

Code: [1B]h + [45]h + n *[00 ≤ n ≤ FF]h

SET/UNSET Enhanced Print.

- Only LSB (least significant bit “b0”) is available to “n”.
- “b0” has the following meaning.

b0	Function
0	UNSET enhanced print
1	SET enhanced print

- When executing enhanced print, print result may be deformed.
- Default value of “n” is [00]h.

30) [Double Strike Print SET/UNSET] « ESC G n »

Code: [1B]h + [47]h + n *[00 ≤ n ≤ FF]h

SET/UNSET Double Strike Print.

- Only LSB (least significant bit “b0”) is available to “n”.
- “b0” has the following meaning.

b0	Descriptions
0	UNSET Double Strike print
1	SET Double Strike print

- **Since this printer can not perform double strike print, results will be the same as enhanced print.**
- Default value of “n” is [00]h.

31) [Print and Paper Feed at Smallest Pitch Unit] « ESC J n »

Code: [1B]h + [4A]h + n *[00 ≤ n ≤ FF]h

Prints data inside the print line buffer and feeds paper by n/203 inch.

- Line feed quantity does not remain.
- Beginning of the line shall be print start point.
- Executes line feed for the amount of character’s height, even if setting under value of character’s height in “n”.

32) [International Character Selection] « ESC R n »

Effective only when selecting either overseas or domestic code in [Character Code Table Selection].

Code: [1B]h + [52]h + n *[00 ≤ n ≤ 0A]h

Selects International Characters.

•“n” has the following meaning.

n(hex)	Character Set
00	U.S.A.
01	France
02	Germany
03	U.K.
04	Denmark I
05	Sweden
06	Italy
07	Spain
08	Japan
09	Norway
0A	Denmark II

•Default value of “n” is [08]h.

33) [90° Clockwise Rotated Character SET/UNSET] « ESC V n »

Code: [1B]h + [56]h + n *[00 ≤ n ≤ 01]h

SET/UNSET 90° clockwise rotated character.

•When 90° clockwise rotated character is set, [Underline Setting] is not available.

•“n” has the following meanings.

n(hex)	Descriptions
00	UNSET 90° rotated character
01	SET 90° rotated character

•Default value of “n” is [00]h.

34) [Relative Position Setting] « ESC ¥ n1 n2 »

Code: [1B]h + [5C]h + n1 + n2 *[00 ≤ n1 ≤ FF]h **[00 ≤ n2 ≤ FF]h

Sets print start position by dots in 1/203 inch unit counting from the current position.

•Divide dot number of print start position by 256 and quotient shall be “n2” while remainder is “n1”.

•Rightward defines plus while leftward defines minus.

•When “n” dot is set on rightwards, the value is (n1 + n2 × 256).

•When “n” dot is set on leftwards, the value is set by “n” complement.

“n” dot = 65536 – n

•Setting which exceeds end of the line is ignored.

35) [Position Alignment] « ESC a n »

Code: [1B]h + [61]h + n *[00 ≤ n ≤ 02]h

Aligns print data in a line at the designated position. (Except, fixed bit image.)

•“n” has the following meaning;

n(hex)	Position
00	Left alignment
01	Centering
02	Right alignment

•Effective only when input in beginning of the line.

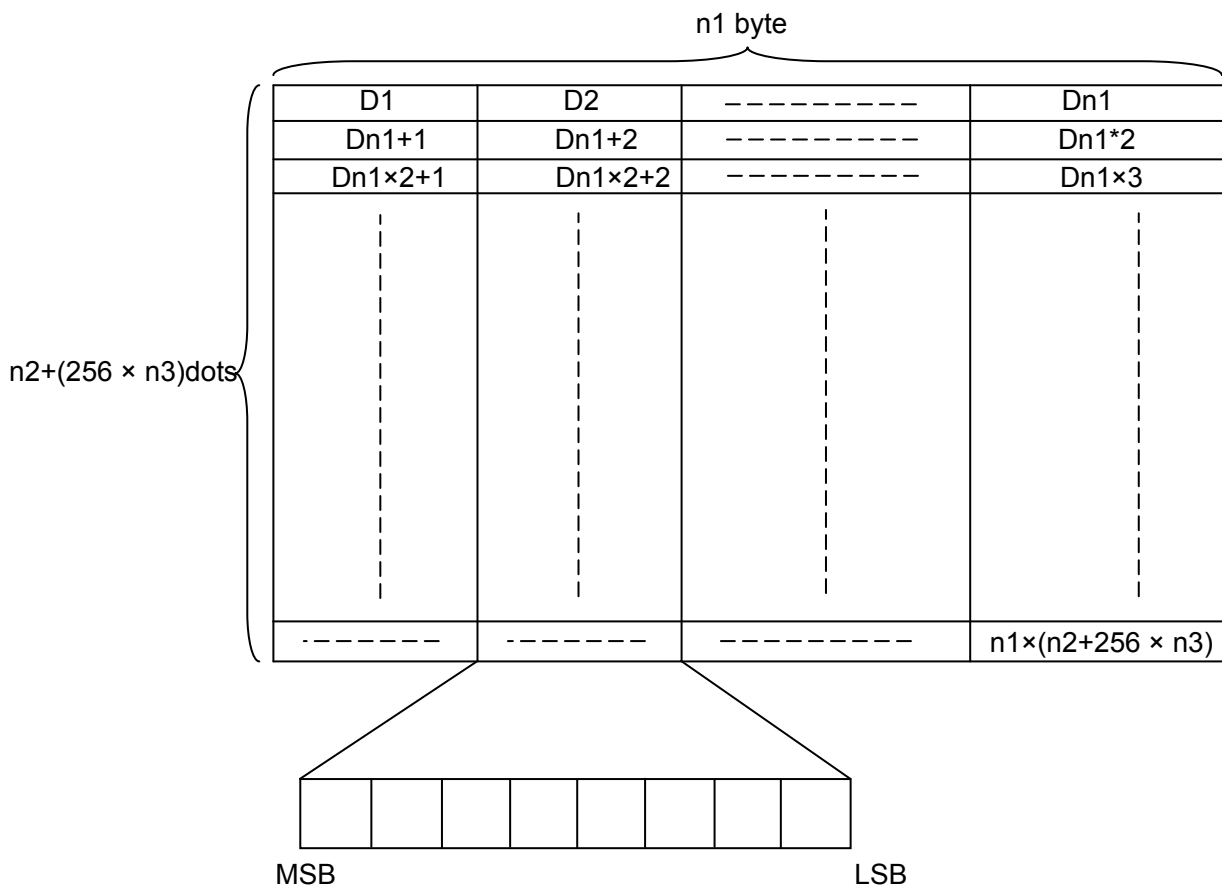
•Default value of “n” is [00]h

36) [Raster Bit Image] « ESC b n1 n2 n3 Dn »

Code: [1B]h + [62]h + n1 + n2 + n3 + Dn * $[01 \leq n1 \leq 30]$ h
 * $[00 \leq n2 \leq FF]$ h
 * $[00 \leq n3 \leq FF]$ h

Prints data in raster bit image.

- “Dn” is raster bit image data.
- Prints raster bit image of width “n1” byte by height $(n2 + 256 \times n3)$ dot lines.
- The total byte of the requested raster bit image data (Dn) is $\{n1 \times (n2 + 256 \times n3)\}$.
- Raster bit image data (Dn) exceeding the printing area will be disregarded.
- Raster bit image data (Dn) interprets bit “1” as print and bit “0” as not print.
- Relation between raster bit image data and printed dots are as follows.



37) [Feed Switch VALID/INVALID] « ESC c 5 n »

Code: [1B]h + [63]h + [35]h + n *[00 ≤ n ≤ FF]h

Changes the FEED switch valid or invalid

- Only LSB (least significant bit “b0”) is available to “n”.
- “b0” has the following meaning.

b0	Description
0	Enable FEED switch
1	Disable FEED switch

- Default value of “n” is [00]h.

38) [Print and “n” Line Feed] « ESC d n »

Code: [1B]h + [64]h + n *[00 ≤ n ≤ FF]h

Prints data inside print line buffer and feeds paper for “n” lines.

- Setting amount does not remain.
- Beginning of the line shall be the next print start position.
- If there is print data remained, it definitely performs line feed at least for the same height of the character.
- When n × line feed amount exceeds 100mm, feed amount will be 100mm.

39) [Full Cut] « ESC i »

Code: [1B]h + [69]h

- Executes full cut of the paper.
- Effective only in beginning of the line.

40) [Partial Cut] « ESC m »

Code: [1B]h + [6D]h

- Executes partial cut (center will be left uncut) of the paper.
- Effective only in beginning of the line.

41) [QR Code Print (model 2)] « ESC q S E V M »

Code: [1B]h + [71]h + S + E + V + M + n1 + n2 + Dn

«Parameter Explanation»

(1) S : Module Size

- Sets size of 1module of QR code with dot numbers of the printer.
- 1 ~ 20 dots can be set.
- 4 dots will be set when invalid size is set.

(Depending on resolution of printer mechanism, readout can not be guaranteed when module size 1, 2, 3.)

(2) E : Error Correction Level

- Selects error correction level for symbol restoration.
- Values can be set are mentioned below.
- Error correction level "L" will be set when invalid value is set.

E	Error Correction Level	Restoration Ability (%)
0	L	7
1	M	15
2	Q	25
3	H	30

(3) V : Model № (version)

- Assign number of modules of QR code in model №.
- Model № that can be assigned are "0" ~ "40".
- "0" will automatically set smallest version depending on number of data.
- "1" ~ "40" assign module of 21×21 ~ 177×177.

(Increases 4 modules in every increase of the model №.)

- When invalid value is assigned, it will automatically set to model № "0".
- When assigning string more than capacity of assigned model №, it automatically extends the model № and print.

(4) M : Mask Pattern

- Mask patterns that can be assigned are "0" ~ "8".
- "0" will assign optimum mask pattern. ^{*NOTE1}
- When invalid value is assigned, mask pattern "5" will be set.

^{*NOTE1}: Although optimum process of mask pattern is based on specifications of QR code, since it will take time for process, make sure to use with model № below "10" when using optimization process.

Refer to [Optimization Process Time for Mask Patter] for process time.

(5) n1 n2 : Number of data Byte

- Assign Byte number of data ($n2 \times 256 + n1$)

(6) Dn : String Data

- Assign character code to print.
- KANJI data will be input by SHIFT JIS code.

«Restriction»

When exceeding print area, it will not print the QR code.

[Optimization Process Time for Mask Pattern]

1. Print Conditions

Size (S)	Correction Level (E)	Mask (M)	Number of Byte (B)	Data (Dn)
4	L	0	20	漢漢漢漢漢漢漢漢漢漢

2. Process Time

Model № (V)	1	2	3	4	5	6	7	8	9	10
Time (sec)	0.4	0.5	0.7	0.9	1.0	1.3	1.5	1.7	2.0	2.3

Model № (V)	11	12	13	14	15	16	17	18	19	20
Time (sec)	2.7	3.0	3.4	3.8	4.2	4.7	5.1	5.7	6.2	6.7

Model № (V)	21	22	23	24	25	26	27	28	29	30
Time (sec)	7.3	7.8	8.5	9.1	9.7	10.5	11.2	11.8	12.6	13.4

Model № (V)	31	32	33	34	35	36	37	38	39	40
Time (sec)	14.1	15.0	15.8	16.7	17.5	18.4	19.4	20.4	21.3	22.3

*Process time depends on model №

Beware that process time when fixing the mask (no optimization) will be approx. 1/10 comparing to when optimization.

*The above mentioned times are just for reference.

42) [Printer Information Transmission] « ESC s n »

Code: [1B]h + [73]h + n

Transmits printer information.

•“n” and details of returned data are as follows.

n(hex)	Printer Information	Returned data format	Returned data length
02	Model Info.	Variable-length string (terminal NULL=00h)	Max. 32Byte
03	F/W version info.	Fixed-length string	8Byte
04	Boot version info.	Fixed-length string	8Byte
05	SW setting info.	Fixed-length Hex data (MS1set+MS2set+00h+00h)	4Byte
1C	Check SUM info.	Fixed-length Hex data	2Byte

Returned format

[FF]h + n(*1) + returned data

(*1) → designated “n” in command.

• Please refer to 4.1.1 Switch Setting in this product specifications when interface setting is SERIAL with using XON/XOFF control.

43) [Character Code Table Selection] « ESC t n »

Code: [1B]h + [74]h + n * [00 ≤ n ≤ 07]h

Selects character code table

•“n” has the following meaning.

n(hex)	Font Table
00	International Code page
01	Japanese Code page
02	Code Page 858
03	Code Page 1250
04	Code Page 1251
05	Code Page 1252
06	Code Page 1254
07	User Code Page

• Default value of “n” is [01]h

44) [Printer Status Transmission] « ESC v »

Code: [1B]h + [76]h

Transmits current printer status.

- Status transmit is 1 byte. Refer to error detection details for contents.
- Transmit 1 byte after confirmation of receivable status on host. (CTS signal: SPACE status)
- When host is unreceivable status (CTS signal: MARK status), printer waits until host turns to receivable.
- This command is effective only for SERIAL interface.
- Command should be issued before transmit of print data. (Stored into internal receipt input buffer and executes sequentially.)
- Receivable except when internal receipt input buffer is full.

*Please refer to 4.1.1 Switch Setting in this product specifications when interface setting is SERIAL with using XON/XOFF control.

45) [Inverted Character SET/UNSET] « ESC { n »

Code: [1B]h + [7B]h + n *[00 ≤ n ≤ FF]h

SET/UNSET Inverted Character function.

- Only LSB (least significant bit “b0”) is available to “n”.
- “b0” has the following meaning.

b0	Descriptions
0	UNSET inverted character
1	SET inverted character

- The command is only valid when it is assigned at the beginning of a line.
- Default value of “n” is [00]h.

46) [Partition Drive Selection] « GS % n »

Code: [1D]h + [25]h + n *[00 ≤ n ≤ 05]h

Selects partition drive.

- “n” has the following meaning.

n(hex)	Partition	Number of dots when conducting ATST
00	Optimization (anomaly)	64
01	Fix without partition	384
02	Fix in 2 partition	192
03	Fix in 3 partition	128
04	Fix in 6 partition	64
05	Optimization	64

- Default value of “n” is [05]h.
- When out of range, it will be ignored and do not change.

47) [User Code Page Registration] « GS & n Dn»

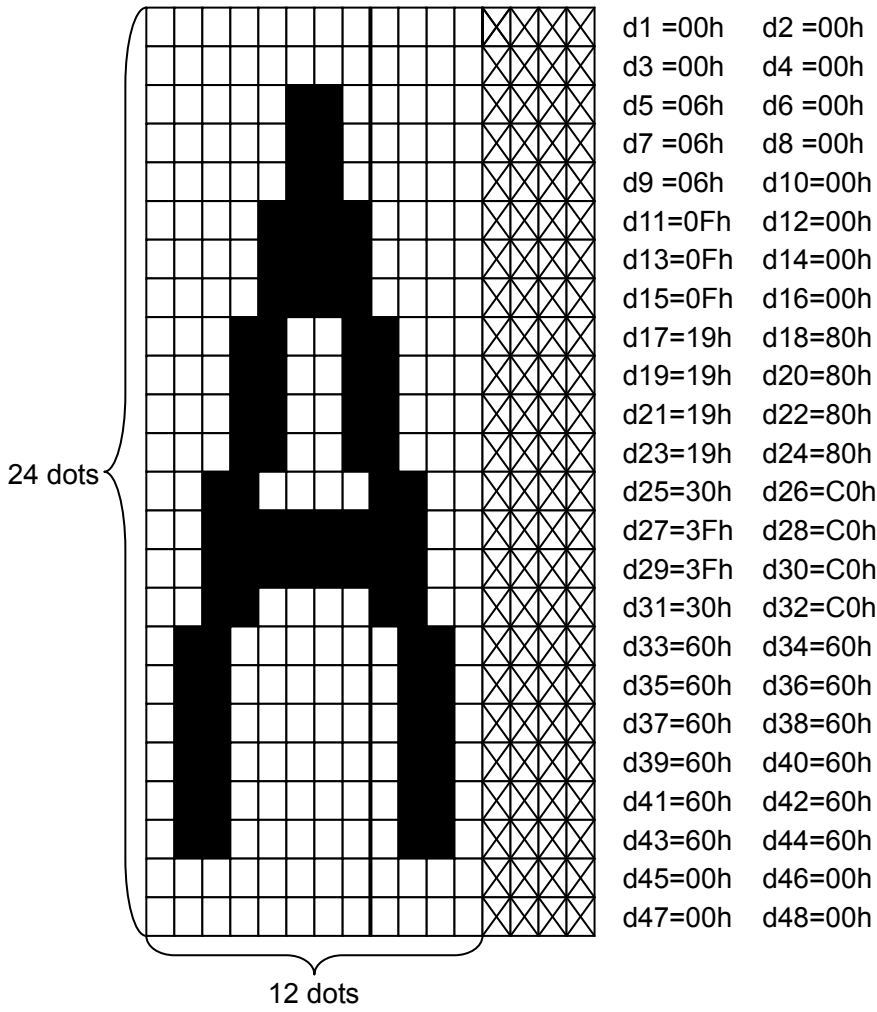
Code: [1D]h + [26]h + n + Dn *[00 ≤ n ≤ 01]h

Registers User Code Page.

n(Hex)	Registration Font Type
00	User Code Page Font A (12×24)
01	User Code Page Font B (9×17)

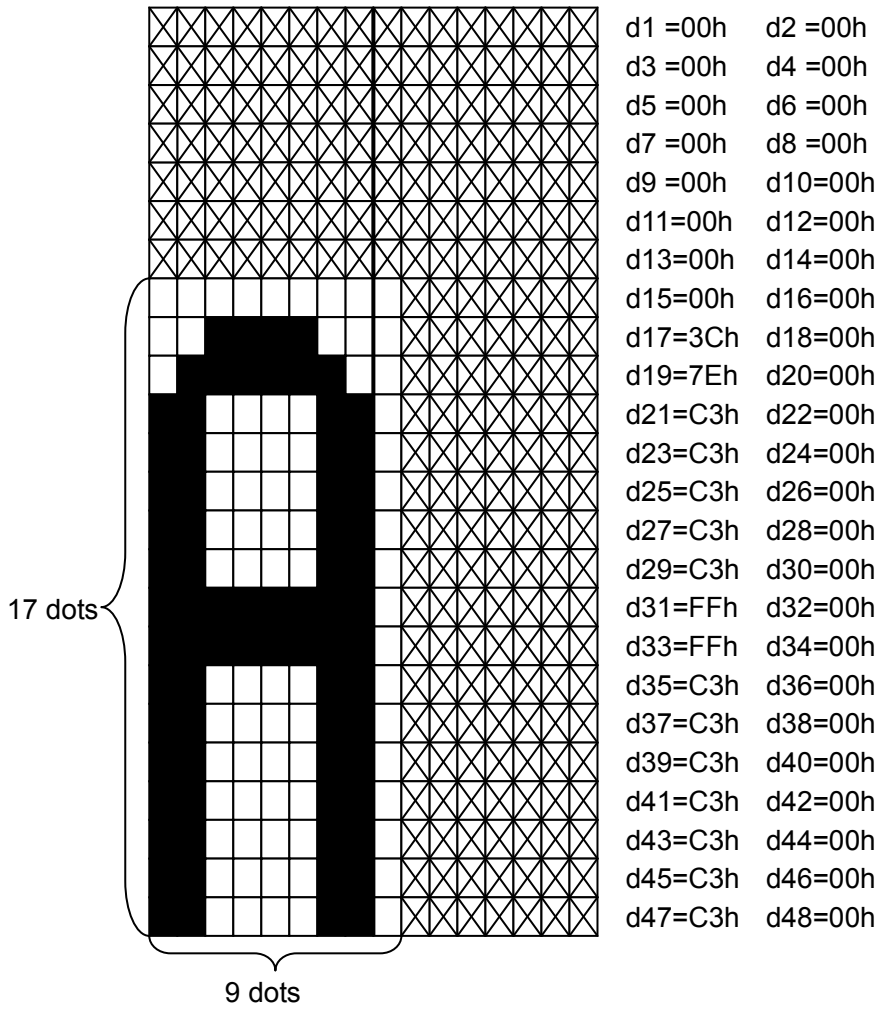
- Dn is registration font data. Data format is raster format.
Since it definitely requires data (10752 bytes) for the amount of 224 characters, please set [00]h to all of the unregistered data part.
(horizontal 2 bytes × vertical 24 bytes) × 224 characters ([20]h ~ [FF]h)
- *Also registerable to [7F]h, [FF]h.

«Reference example»
 In case of Font A



⊠ : Dummy data part. Set as "0 fix" when registration.

«Reference example»
 In case of Font B



⊠ : Dummy data part. Set as “0 fix” when registration.

48) [Black and White Reverse Print SET/UNSET] « GS B n »

Code: [1D]h + [42] + n *[00 ≤ n ≤ FF]h

SET/UNSET black and white reverse print.

- Only LSB (least significant bit “b0”) is available to “n”.
- “b0” has the following meaning.

b0	Functions
0	UNSET Black and White reverse print
1	SET Black and White reverse print

- Black/white reverse print is applicable to built-in characters and downloaded characters.
- Right side SPACE of set character in [Character Right Space Quantity] is also applied to black/white reverse print. However, it does not affect bit image, raster bit image, fixed bit image, barcode, QR code, HRI character and the skipped SPACE created by [Horizontal Tab], [Absolute Position Setting], [Relative Position Setting].
- Does not affect to SPACE between the lines.
- Setting black and white reverse print has priority over underline setting. Thus, even when underline is set, underline will not be added to black/white reverse character. However, underline setting remains effective.
- When black/white reverse print, print result may be crushed.
- Default value of “n” is [00]h.

49) [Print START/FINISH Setting] « GS G n »

Enables to judge whether print operation is finished or not by monitoring bit 7 of printer status.

1. Print START/FINISH Setting (n = [00]h, [01]h, [10]h, [11]h)

- When print stop error occurred during printing data pinched by Print Start Setting and Print Finish Setting, print data to Print Finish Setting is not discarded.

(1) [Print START Setting (w/o JOB ID)]

Code : [1D]h + [47]h + [01]h

Sets "1" in bit 7 of printer status.

(2) [Print FINISH Setting (w/o JOB ID)]

Code : [1D]h + [47]h + [00]h

Sets "0" in bit 7 of printer status.

(3) [Print START Setting (w/ JOB ID)]

Code : [1D]h + [47]h + [11]h + ID1 + ID2 + ID3 + ID4

Sets "1" in bit 7 of printer status.

- Sets JOB ID (4Byte)

- Holds logical add (OR) printer status from START setting to FINISH setting as finish status.

(4) [Print FINISH Setting (w/JOB ID)]

Code : [1D]h + [47]h + [10]h

Set "0" in bit 7 of printer status.

- Sends print finish notification in the following format.

[FF]h + [13]h + JOB ID(4Byte) + finish status(1Byte) + reserve(3Byte)

2. Buffer Print START/FINISH Setting (n = [20]h, [21]h, [30]h, [31]h)

- Received data is once buffered in print image to page buffer and prints out buffered image when receiving print finish setting.
- Although there is a certain time lag from "Reception Start" to "Print Start", print operation will be stabled at the maximum print speed.
However, since there is a limit in buffer memory, when printing out image that exceeds print length of 160mm, memory storages in every 160mm and repeats print operation. Operation will pause and re-print at the turning point of repetition.
- When a print stop error is found while printing the data between "Print start setting" and "Print finish setting", print data until "Print finish setting" will be discarded.

(1) [Buffer Print START Setting (w/o JOB ID)]

Code : [1D]h + [47]h + [21]h

Sets "1" in bit 7 of printer status and starts buffering.

(2) [Buffer Print FINISH Setting (w/o JOB ID)]

Code : [1D]h + [47]h + [20]h

Prints buffered image inside page buffer and sets "0" in bit 7 of printer status.

- Clears page buffer.

- (3) [Buffer Print START Setting (with JOB ID)]
 Code : [1D]h + [47]h + [31]h + ID1 + ID2 + ID3 + ID4
 Sets "1" in bit 7 of printer status and starts buffering.
 • Sets JOB ID (4Byte)
 • Holds logical add (OR) printer status from START setting to FINISH setting as finish status.

- (4) [Buffer Print FINISH Setting (with JOB ID)]
 Code : [1D]h + [47]h + [30]h
 Prints buffered image inside page buffer and sets "0" in bit 7 of printer status.
 • Clears page buffer
 • Sends print finish notification in the following format.
 [FF]h + [13]h + JOB ID(4Byte) + finish status(1Byte) + reserve(3Byte)

*When sequentially using this command in USB interface, use only n=[31]h, [30]h and make sure to send the next print start setting command after receiving finish status.

50) [HRI Character Printing Position Selection] « GS H n »

Code: [1D]h + [48]h + n *[00 ≤ n ≤ 03]h

Selects printing position of HRI character when printing barcode.

• "n" has the following meaning.

n(hex)	Printing position
00	No printing
01	Above barcode
02	Under barcode
03	Above & Under barcode

- HRI character will be printed by font selected in [HRI Character Font Selection].
- Default value of "n" is [00]h.

51) [Back Feed (mm unit)] «Gs J n»

Code: [1D]h + [4A]h + n *[00 ≤ n ≤ FF]h

Feeds paper in reverse direction when receiving this command.

- Assigns feeding amount "n" in "mm" unit. Does not feed when setting [00]h.
- Backlash correction may affect assigned feeding amount to be incorrected.
- In case there is print data remained inside the print line buffer memory, it will shift to the back feed after printing.
- Make sure tip of the paper does not exceed the back feed limit (Please refer to [2.4 Cutter Specifications]).

52) [Memory Switch Setting and Printing] « GS M n d1 d2 »

Code: [1D]h + [4D]h + n + d1 + d2 * [00 ≤ n ≤ 01]h
 * [00 ≤ d1 ≤ FF]h
 * [00 ≤ d2 ≤ FF]h

Prints out setting or contents of MS1 and MS2 Memory Switches.

• “n” has the following meaning.

n(hex)	Function
00	Print of Memory Switch Setting Content
01	Memory Switch Setting

- Designation of “d1” and “d2” will be available when assigning “n=01”.
- Prints out setting contents after setting memory switch and validates setting after automatically resetting software.
- Designated character decoration will be temporarily printed with “upright + fontA” when printing out memory switch setting contents and returns to designated setting after finish printing. However, designated enhanced print character will be printed as it is.
- “d1” designates setting in bytes for memory switch MS1 while “d2” is for MS2.
 “d1” and “d2” have the following meanings.

“d1” (Memory Switch MS1)

bit	Switch №	Value	
		0	1
b0	MS1-1	OFF	ON
b1	MS1-2	OFF	ON
b2	MS1-3	OFF	ON
b3	MS1-4	OFF	ON
b4	MS1-5	OFF	ON
b5	MS1-6	OFF	ON
b6	MS1-7	OFF	ON
b7	MS1-8	OFF	ON

“d2” (Memory Switch MS2)

bit	Switch №	Value	
		0	1
b0	MS2-1	OFF	ON
b1	MS2-2	OFF	ON
b2	MS2-3	OFF	ON
b3	MS2-4	OFF	ON
b4	MS2-5	OFF	ON
b5	MS2-6	OFF	ON
b6	MS2-7	OFF	ON
b7	MS2-8	OFF	ON

53) [Fixed Bit Image Print] « GS P n »

Code: [1D]h + [50]h + n *[00 ≤ n ≤ 02]h, [10 ≤ n ≤ 12]h

Prints print data of registered bit image.

- Selects one of the three registered print patterns by assigning 00 ~ 02 values in “n”.
- “n” has the following meaning.

n(hex)	Print Pattern
00	Pattern 0
01	Pattern 1
02	Pattern 2

54) [Fixed Bit Image Registration] « GS T n »

Code: [1D]h + [54]h + n

Registers print data of predetermined bit image/raster bit image.

- Enables to register 3 patterns of “0” ~ “2”.
- Each pattern can be registered up to max. 64kBytes. (Part of exceeding max. value will be discarded.)
- Refer to the following formula for registered data size.
Registered data size = print area (mm) × Dot number of vertical bit image × number of bit image
- Registered data will not be erased either by turning the power OFF/ON, commanding [Printer Initialization] or [Software Reset] or executing RESET switch.
- “n” has the following meaning.

n(hex)	Function
0	START registration of pattern “0”
1	START registration of pattern “1”
2	START registration of pattern “2”
FF	FINISH registration

- When starting registration in the middle of a line, all of the line will be registered in bit image.
- When finishing registration in the middle of a line, the line will not be registered in bit image.

<Command sequence for registering pattern “0”>

When registering only bit image.

GS T 00h + (Bit image data by ESC *) × n line + GS T FF h

When registering only raster bit image.

GS T 00h + (raster bit image by ESC b) + GS T FFh

When registering bit image/raster bit image mixture.

GS T 00h + (bit image data by ESC *) × n line + (raster bit image by ESC b) + GS T FFh

55) [Maximum Print Speed Setting] « GS S n »

Code: [1D]h + [53]h + n *[00 ≤ n ≤ 01]h

Sets Maximum Print Speed.

- “n” has the following meaning.

n(hex)	Maximum Print Speed
00	MAX. 90mm/sec
01	MAX.100mm/sec

- Default value of “n” is [00]h.

56) [Firmware Download] « GS d Dn »

Code: [1D]h + [64]h + Dn

Downloads printer firmware in hexadecimal code and rewrites firmware according to the outcome, and reboots.

- “Dn” is HEX code of firmware and complies with INTELLEX HEX format.

57) [HRI Character Style Selection] « GS f n »

Code: [1D]h + [66]h + n *[00 ≤ n ≤ 01]h

- Selects font of HRI character when printing barcode.
- “n” has the following meaning.

n(hex)	Font style
00	Font A
01	Font B

- Default value of “n” is [00]h.

58) [Barcode Height Selection] « GS h n »

Code: [1D]h + [68]h + n *[01 ≤ n ≤ FF]h

- Sets the height of barcode by dot.
- “n” indicates dot for vertical direction.
- Default value of “n” is [A2]h. (162dots)

59) [Barcode Print] « GS k n Dn NUL »

Code: [1D]h + [6B]h + n + Dn + [00]h *[00 ≤ n ≤ 07]h

Selects barcode symbology and prints barcode.

- Next beginning of the line shall be print start position.
- Selects following barcode symbology with “n” value.

n(hex)	Barcode Symbology
00	UPC-A
01	UPC-E
02	JAN-13 (EAN-13)
03	JAN-8 (EAN-8)
04	CODE39
05	ITF
06	CODABAR (NW-7)
07	CODE128

- “Dn” indicates the character code to print.
- When character code “Dn” is not printable character, following data after “Dn” will be treated as normal print data.
- When selecting barcode symbology that print character number is fixed, character number must be matched to the print character number.
- Does not print barcode when horizontal data exceeds length of a line.
- [00]h at the end of this command can be changed to [FF]h in [Barcode End Change].
- Details for each barcode is described in the next page “Barcode Specifications Details”.

Appendix: Barcode Detail Specifications

Name	Number	Types of Character	Remarks
UPC-A	12	Numbers (0~9)	*Check digit that has calculated inside printer will be automatically added to 12 th digit. *Calculated value will be prioritized if numerical value differs from 12 th digit.
UPC-E	8	Numbers (0~9)	*Compress 12 digits data to 8 digits inside printer *Check digit that has calculated inside printer will be automatically added to 8 th digit. *Calculated value will be prioritized if numerical value differs from 12 th digit.
JAN-13 (EAN-13)	13	Numbers (0~9)	*Check digit that has calculated inside printer will be automatically added to 13 th digit. *Calculated value will be prioritized if numerical value differs from 13 th digit.
JAN-8 (EAN-8)	8	Numbers (0~9)	*Check digit that has calculated inside printer will be automatically added to 8 th digit. *Calculated value will be prioritized if numerical value differs from 8 th digit.
CODE39	Variable length	Number (0~9) Alphabet (A~Z) Marks (\$%*+ -./:SPACE) Start/Stop Code (*)	*Make sure to enter Start/Stop Code "*".
ITF	Even	Number: 0~9	*Does not print when letters are odd numbers.
CODABAR (NW-7)	Variable length	Number (0~9) Marks (\$%*+ -./:SPACE) Start/Stop Code (ABCD) (abcd)	*Please make sure to input "Start/Stop Code" *Although can be printed out without "Start/Stop Code", it cannot to read-out by scanner etc.

*Refer to next page for "CODE128".

CODE128

1. Overview

2 digits-characters are rendered by ASCII 128 characters (numeric characters, capitals/lower cases, symbols and control codes) with one bar pattern. A number of numeric characters to render is variable-length. Stop code and check digit are automatically attached.

2. Character types

- Code set A: able to render ASCII character of [00]h ~ [5F]h
- Code set B: able to render ASCII character of [20]h ~ [7F]h
- Code set C: able to render numeric double digits(00-99) by 1 bar pattern.
- Special characters:
 - 1) Start code / code selection character (CODE A, CODE B and CODE C)
The barcode data has to start with this character.
You can change the code set from one to the other in middle of the data.
 - 2) Shift character (SHIFT)
Code set A: One character right after SHIFT is treated as code set B.
Code set B: One character right after SHIFT is treated as code set A.
Code set C: N/A
 - 3) Function characters (FNC1, FNC2, FNC3, and FNC4)
These characters depend on an application.
Code set C can handle only "FNC1."

3. Detail Specifications

- Command execution is halted if the barcode data does not start with a "start code."
- Command execution is halted if the combination of "{" and the next character is not a defined special character.
- To use "{" as a character, the string has to be "{{" ([7B]h + [7B]h).
- If there is character unable to use in selected code set, it can be printed but not readable by a scanner.
- To use [00]h as a code, change the barcode termination character to [FF]h with "Barcode termination change."command.
- HRI character specifications of control/special characters:
 - 1) Control characters ([00]h~[1F]h, [7F]h)
A space character is printed.
 - 2) Start code / code definition character (CODE A, CODE B and CODE C)
No printing.
 - 3) Shift character (SHIFT)
No printing.
 - 4) Function characters (FNC1, FNC2, FNC3, and FNC4)
A space character is printed.

4. Character Table

Special Characters

	ASCII	Hexadecimal
CODE A	{A	[7B]h + [41]h
CODE B	{B	[7B]h + [42]h
CODE C	{C	[7B]h + [43]h
SHIFT	{S	[7B]h + [53]h
FNC 1	{1	[7B]h + [31]h
FNC 2	{2	[7B]h + [32]h
FNC 3	{3	[7B]h + [33]h
FNC 4	{4	[7B]h + [34]h

Code Set A

HEX	0	1	2	3	4	5
0	NULL	DLE	SP	0	@	P
1	SOH	DC1	!	1	A	Q
2	STX	DC2	"	2	B	R
3	ETX	DC3	#	3	C	S
4	EOT	DC4	\$	4	D	T
5	ENQ	NAK	%	5	E	U
6	ACK	SYN	&	6	F	V
7	BEL	ETB	'	7	G	W
8	BS	CAN	(	8	H	X
9	HT	EM	)	9	I	Y
A	LF	SUB	*	:	J	Z
B	VT	ESC	+	;	K	[
C	FF	FS	,	<	L	¥
D	CR	GS	-	=	M]
E	SO	RS	.	>	N	^
F	SI	US	/	?	O	_

Code Set B

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

Code Set C

HEX	0	1	2	3	4	5	6
0	00	16	32	48	64	80	96
1	01	17	33	49	65	81	97
2	02	18	34	50	66	82	98
3	03	19	35	51	67	83	99
4	04	20	36	52	68	84	
5	05	21	37	53	69	85	
6	06	22	38	54	70	86	
7	07	23	39	55	71	87	
8	08	24	40	56	72	88	
9	09	25	41	57	73	89	
A	10	26	42	58	74	90	
B	11	27	43	59	75	91	
C	12	28	44	60	76	92	
D	13	29	45	61	77	93	
E	14	30	46	62	78	94	
F	15	31	47	63	79	95	

60) [Auto-transmitting of Printer Status] « GS v NUL »

Code: [1D]h + [76]h + [00]h

Auto-transmits status when printer status changed.

- Status that will be transmitted is 1 byte. Refer to “Error Detection Details” for contents.
- Once the setting is done, it is effective until executing [Software Reset], reset switch or turning the power OFF.
- This command is stored in internal reception input buffer and executes sequentially.
- Only SERIAL interface is valid to this command.
- * Refer to 4.1.1 Switch Setting, Product Specifications when interface setting is SERIAL with using XON/XOFF control.

61) [Barcode Width Selection] « GS w n »

Code: [1D]h + [77]h + n * [02 ≤ n ≤ 04]h

Selects horizontal size of barcode.

- Default value of “n” is [03]h

62) [Print Density Setting] « GS ~ n »

Code: [1D]h + [7E]h + n * [41 ≤ n ≤ A5]h

Sets print density in the range from 65% to 165%.

- Although “n” range is [41]h (65%) ~ [A5]h (165%), set in the range of [41]h (65%) ~ [87]h (135%) in actual use.
- Default value of “n” is [64]h (100%).
- When using this command while [Print Start/Finish Setting] command, the setting is disregarded and do not affect print density.

63) [Batch Setting of Japanese Kanji Print Mode] « FS ! n »

Code: [1C]h + [21]h + n * [00 ≤ n ≤ FF]h

Sets print modes of Japanese Kanji all at once.

- “n” has the following meaning.

Bit	Function	Value	
		0	1
0	Undefined		
1	Undefined		
2	Double width	UNSET	SET
3	Double height	UNSET	SET
4	Undefined		
5	Undefined		
6	Undefined		
7	Underline	UNSET	SET

- When setting double height and double width at the same time, quadruple character will be formed.
- All of the printed characters will be underlined except for the 90° clockwise rotated characters and spaces created by [Horizontal Tab] command.
- Underline width is determined by the value set in [Japanese Kanji Underline SET/UNSET].
- Default value is 1dot width.
- Different sizes of characters mixed such as normal size, double height, double width and quadruple can be printed.
- Combined print with ANK Character is also available.
- Default value of “n” is [00]h.

64) [Japanese Kanji Mode Setting] « FS & »

Code: [1C]h + [26]h

Sets Japanese Kanji mode.

- It will be ineffective, when Japanese is selected with Shift JIS in Japanese Kanji Code system.
- Default status is release of Japanese Kanji mode.

65) [Japanese Kanji Underline SET/UNSET] « FS – n »

Code: [1C]h + [2D]h + n *[00 ≤ n ≤ 02]h

SET/UNSET underline of Japanese Kanji

- All of the printed characters will be underlined except for the 90° clockwise rotated characters and spaces created by [Horizontal Tab] command.
- This command is not effective when release status of Japanese Kanji mode.
- “n” has the following meaning.

n(hex)	Function
00	UNSET underline of Japanese Kanji
01	Set “1” dot underline of Japanese Kanji
02	Set “2” dot underline of Japanese Kanji

- Default value of “n” is [00]h.

66) [Japanese Kanji Mode UNSET] « FS . »

Code: [1C]h + [2E]h

UNSET Japanese Kanji mode.

- It will be ineffective, when Japanese is selected with Shift JIS in Japanese Kanji Code system.
- Default status is in release of Japanese Kanji mode.

67) [Definition of Extra Characters] « FS 2 a1 a2 Dn »

Code: [1C]h + [32]h + a1 + a2 + Dn

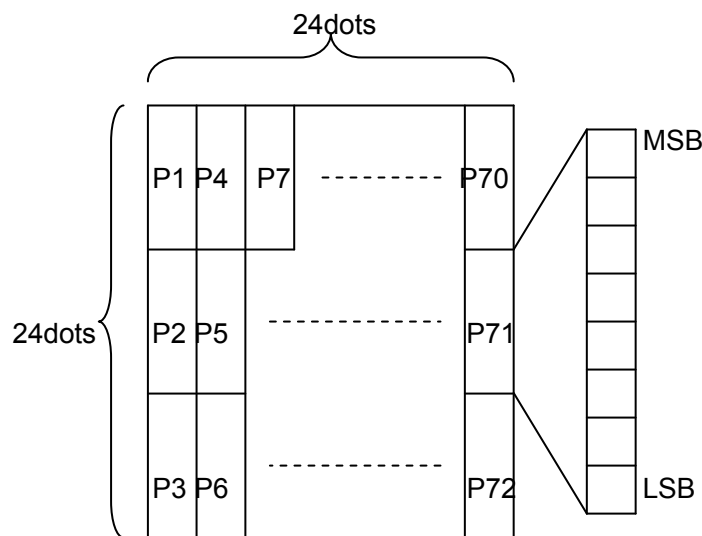
JIS code system: *[a1 = 77]h
 *[21 ≤ a2 ≤ 7E]h

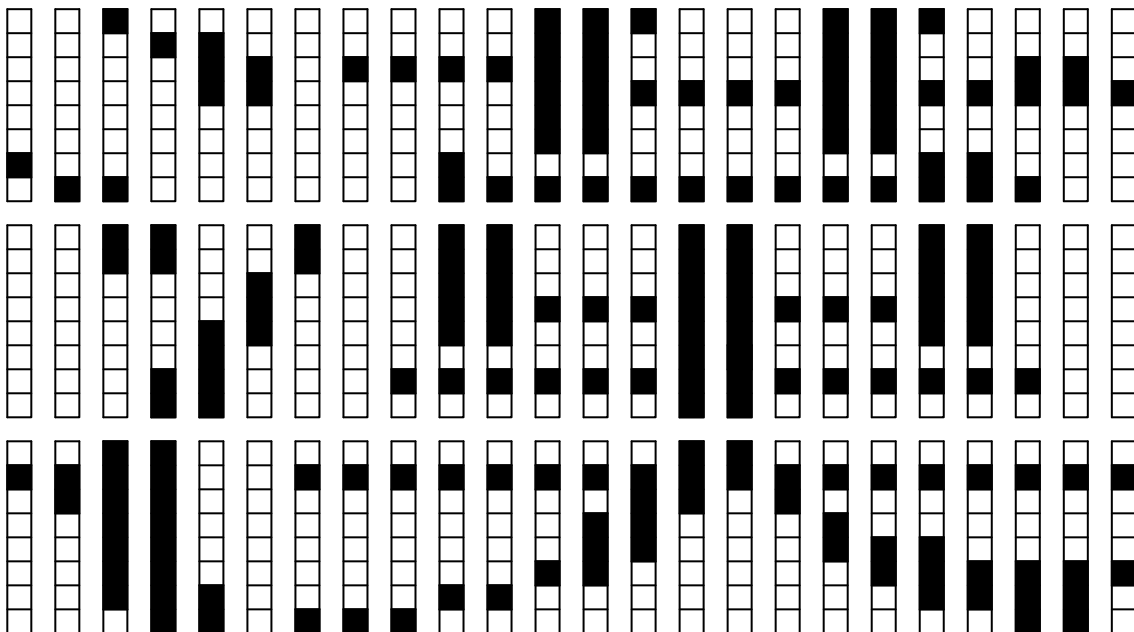
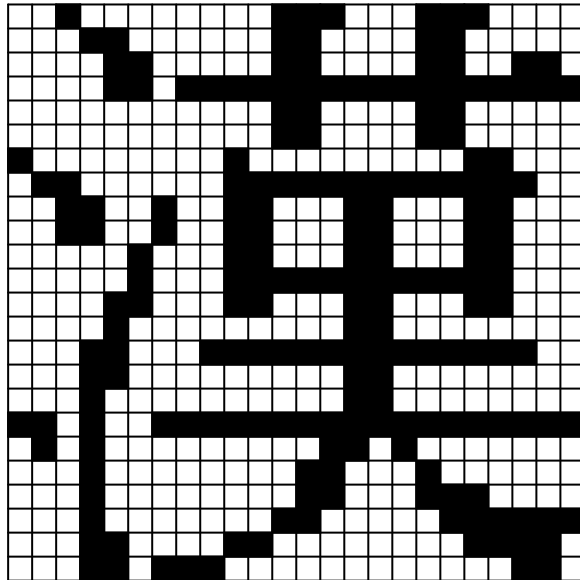
Shift JIS code system: *[a1 = EC]h
 *[40 ≤ a2 ≤ 7E, 80 ≤ a2 ≤ 9E]h

Defines Additional Kanji Character.

- Enables to define up to 94 characters.
- "Dn" is data to be defined. Data will be 3 bytes(vertical) × 24 dots(horizontal) = 72 Bytes
- All of the default statuses are "SPACE".
- Once defined by this command, it will be effective until execution of [Software Reset] and RESET switch or turning OFF the power.
- Only designated area will be redefined.

<Example>





P1 = [02]h, P4 = [01]h, P7 = [81]h, P10 = [40]h, P13 = [70]h, P16 = [30]h...
 P2 = [00]h, P5 = [00]h, P8 = [C0]h, P11 = [C3]h, P14 = [0F]h, P17 = [38]h...
 P3 = [40]h, P6 = [60]h, P9 = [FE]h, P12 = [FF]h, P15 = [03]h, P18 = [00]h...

68) [Japanese Kanji Code Selection] « FS C n »

Code: [1C]h + [43]h + n *[00 ≤ n ≤ 01]h

Selects Japanese Kanji code system.

•“n” has the following meaning.

n(hex)	Code
00	JIS code
01	Shift JIS code

•Default status is code system reflecting setting in 4.1.1 Switch Setting.

69) [Japanese Kanji Space Setting] « FS S n1 n2 »

Code: [1C]h + [53]h + n1 + n2 *[00 ≤ n1 ≤ 20]h

 *[00 ≤ n2 ≤ 20]h

Sets right/left sides spaces of Japanese Kanji by dot unit.

•“n1” sets left SPACE. Default value is [00]h.

•“n2” sets right SPACE. Default value is [00]h.

•Width of SPACE will be double when double width mode is selected.

70) [Quadruple Japanese Kanji Size SET/UNSET] « FS W n »

Code: [1C]h + [57]h + n *[00 ≤ n ≤ FF]h

SET/UNSET Quadruple Japanese Kanji Character.

•Only LSB (least significant bit “b0”) is available to “n”.

•“b0” has the following meaning.

b0	Function
0	UNSET Quadruple
1	SET Quadruple

•Default value of “n” is [00]h.

3. Character Code Table

3.1 Domestic Character Code Table (International Character Set: Japanese)

	HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111		
0	0000	NUL		SP	0	@	P	`	p	_	⊥		-	夕	三	=	X		
1	0001		DC1	!	1	A	Q	a	q	▀	⊥	。	ア	チ	ム	ト	円		
2	0010			”	2	B	R	b	r	▀	⊥	「	イ	ツ	メ	キ	年		
3	0011		DC3	#	3	C	S	c	s	▀	⊥	」	ウ	テ	モ	ト	月		
4	0100			\$	4	D	T	d	t	▀	⊥	、	エ	ト	ヤ	▲	日		
5	0101			%	5	E	U	e	u	▀	⊥	、	オ	ナ	工	▲	時		
6	0110			&	6	F	V	f	v	▀	⊥	ヲ	カ	ニ	ヨ	▼	分		
7	0111			'	7	G	W	g	w	▀	⊥	ヲ	キ	ヌ	ウ	▼	秒		
8	1000			(8	H	X	h	x	▀	⊥	「	イ	ク	ネ	リ	♠	〒	
9	1001	HT)	9	I	Y	i	y	▀	⊥	「	ウ	ケ	ノ	ル	♥	市	
A	1010	LF		*	:	J	Z	j	z	▀	⊥	「	エ	コ	ハ	レ	♦	区	
B	1011		ESC	+	;	K	[k	{	▀	⊥	「	オ	サ	ヒ	□	♣	町	
C	1100	FF	FS	,	<	L	¥	!	!	▀	⊥	「	ヤ	シ	フ	フ	●	村	
D	1101	CR	GS	-	=	M]	m	}	▀	⊥	「	、	ユ	ス	ハ	ソ	〇	人
E	1110		RS	.	>	N	^	n	~	▀	⊥	「	ヨ	セ	ホ	”	/	☼	
F	1111			/	?	0	_	o	SP	⊥	ノ	ツ	ソ	マ	°	、	SP		

*“SP” indicated SPACE

*“CR” is ignored.

*Printer operation cannot be guaranteed if the blank control code (codes below [1F]h) is transmitted to printer.

*This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

3.2 Overseas Character Code (International Character Set: USA)

	HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111	
0	0000	NUL		SP	0	@	P	`	p	€	É	á	☼	ℓ	⊥	α	≡	
1	0001		DC1	!	1	A	Q	a	q	ü	æ	í	☼	⊥	τ	β	±	
2	0010			”	2	B	R	b	r	é	Æ	ó	☼	τ	π	Γ	≤	
3	0011		DC3	#	3	C	S	c	s	â	ô	ú	ı	ı	⊥	π	≥	
4	0100			\$	4	D	T	d	t	ä	ö	ñ	ı	-	⊥	Σ	ı	
5	0101			%	5	E	U	e	u	à	ò	Ñ	ı	ı	F	Ó	J	
6	0110			&	6	F	V	f	v	ã	û	ä	ı	ı	π	μ	÷	
7	0111			'	7	G	W	g	w	ç	ù	ó	ı	ı	ı	ı	≈	
8	1000			(	8	H	X	h	x	ê	ÿ	ı	ı	⊥	⊥	Φ	°
9	1001	HT		)	9	I	Y	i	y	ë	ö	ı	ı	ı	ı	θ	•
A	1010	LF		*	:	J	Z	j	z	è	ü	ı	ı	⊥	ı	Ω	•	
B	1011		ESC	+	;	K	[	k	{	ï	φ	½	ı	ı	■	δ	√
C	1100	FF	FS	,	<	L	¥	ı	ı	î	£	¼	ı	ı	■	ω	ñ	
D	1101	CR	GS	-	=	M]	m	}	ï	¥	ı	ı	⊥	=	ı	∅	²
E	1110		RS	.	>	N	^	n	~	Ä	ℙ	«	ı	ı	ı	ı	ı	
F	1111			/	?	O	_	o	SP	À	f	»	ı	⊥	■	ı	SP	

*“SP” indicated SPACE

*“CR” is ignored.

*Printer operation cannot be guaranteed if the blank control code (codes below [1F]h) is transmitted to printer.

*This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

3.3 CODE PAGE858

	HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	NUL		SP	0	@	P	`	p	Ç	É	á	▒	L	ř	Ó	-
1	0001		DC1	!	1	A	Q	a	q	ü	æ	í	▒	⊥	Ð	β	±
2	0010			"	2	B	R	b	r	é	Æ	ó	▒	⊥	Ê	Ô	=
3	0011		DC3	#	3	C	S	c	s	â	ô	ú	|	|	Ë	Ò	¾
4	0100			\$	4	D	T	d	t	ä	ö	ñ	|	—	È	õ	¶
5	0101			%	5	E	U	e	u	à	ò	Ñ	Á	†	€	õ	§
6	0110			&	6	F	V	f	v	å	û	ä	Â	ã	î	μ	÷
7	0111			'	7	G	W	g	w	ç	ù	ó	À	Ã	ï	þ	,
8	1000			(	8	H	X	h	x	ê	ÿ	¿	©	ℒ	ï	þ	°
9	1001	HT		)	9	I	Y	i	y	ë	ö	®	¶	¶	⋈	Ú	”
A	1010	LF		*	:	J	Z	j	z	è	ü	¬	||	⊥	⊥	Ů	-
B	1011		ESC	+	;	K	[	k	{	ï	ø	½	¶	¶	■	Ù	¹
C	1100	FF	FS	,	<	L	\	|	|	î	£	¼	¶	¶	■	Ý	³
D	1101	CR	GS	-	=	M	]	m	}	ì	ø	ï	ø	=	!	Ý	²
E	1110		RS	.	>	N	^	n	~	Ä	×	«	¥	¶	Ï	—	■
F	1111			/	?	0	_	o	SP	Å	f	»	¶	α	■	'	SP

*“SP” indicated SPACE

*“CR” is ignored.

*Printer operation cannot be guaranteed if the blank control code (codes below [1F]h) is transmitted to printer.

*This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

3.4 International Character Code Table

n	Character set	23h	24h	40h	5Bh	5Ch	5Dh	5Eh	60h	7Bh	7Ch	7Dh	7Eh
00h	U.S.A	#	\$	@	[	\	\]	^	`	{	|	}	~
01h	France	#	\$	à	°	ç	§	^	`	é	ù	è	¨
02h	Germany	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
03h	U.K.	£	\$	@	[	\	\]	^	`	{	|	}	~
04h	Denmark I	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	~
05h	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
06h	Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
07h	Spain	¤	\$	@	í	ñ	¿	^	`	¨	ñ	}	~
08h	Japan	#	\$	@	[	¥	]	^	`	{	|	}	~
09h	Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
0Ah	Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü

*This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

3.5 CODE PAGE1250

	HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	NUL		SP	0	@	P	`	p	€	SP	SP	°	Ř	Đ	ř	ď
1	0001		DC1	!	1	A	Q	a	q	SP	‘	˘	±	Á	Ń	á	ń
2	0010			"	2	B	R	b	r	,	'	˘	˘	Â	Ń	â	ň
3	0011		DC3	#	3	C	S	c	s	SP	“	‡	†	Ǻ	Ó	ǻ	ó
4	0100			\$	4	D	T	d	t	„	”	¤	´	Ä	Ô	ä	ô
5	0101			%	5	E	U	e	u	---	•	À	µ	Í	Õ	í	õ
6	0110			&	6	F	V	f	v	†	-	ı	¶	Ć	Ö	ć	ö
7	0111			'	7	G	W	g	w	‡	-	§	•	Ç	×	ç	÷
8	1000			(	8	H	X	h	x	SP	SP	¨	,	Č	Ř	č	ř
9	1001	HT		)	9	I	Y	i	y	‰	™	©	ą	É	Ů	é	ů
A	1010	LF		*	:	J	Z	j	z	Š	š	Ş	ş	Ę	Ú	e	ú
B	1011		ESC	+	;	K	[	k	{	<	>	«	»	Ě	Ů	ě	ů
C	1100	FF	FS	,	<	L	\	|	|	Ś	ś	¬	Ł	Ě	Ü	ě	ü
D	1101	CR	GS	-	=	M	]	m	}	Ť	ť	-	“	Í	Ý	í	ý
E	1110		RS	.	>	N	^	n	~	Ž	ž	®	ı	Î	Ť	î	ț
F	1111			/	?	O	_	o	SP	Ž	ž	Ž	ž	Ď	ß	đ	˘

*“SP” indicated SPACE

*“CR” is ignored.

*Printer operation cannot be guaranteed if the blank control code (codes below [1F]h) is transmitted to printer.

*This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

3.6 CODE PAGE1251

	HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	NUL		SP	0	@	P	`	р	ћ	ћ	SP	°	А	Р	а	р
1	0001		DC1	!	1	А	Q	а	q	ѓ	'	ў	±	Б	С	б	с
2	0010			"	2	В	R	в	г	,	'	ў	І	В	Т	в	т
3	0011		DC3	#	3	С	S	с	ѕ	ѓ	"	Ј	і	Г	У	г	у
4	0100			\$	4	D	T	d	t	,	"	ѣ	Г	Д	Ф	д	ф
5	0101			%	5	E	U	e	u	…	•	Г	μ	Е	Х	е	х
6	0110			&	6	F	V	f	v	†	-	і	Ч	Ж	Ц	ж	ц
7	0111			'	7	G	W	g	w	‡	-	§	·	З	Ч	з	ч
8	1000			(	8	H	X	h	x	€	SP	Ё	ё	И	Ш	и	ш
9	1001	HT		)	9	I	Y	i	y	‰	™	©	№	Й	Щ	й	щ
A	1010	LF		*	:	J	Z	j	z	љ	љ	Е	е	К	Ь	к	ь
B	1011		ESC	+	;	K	[	k	{	<	>	«	»	Л	Ы	л	ы
C	1100	FF	FS	,	<	L	\	|	|	љ	љ	¬	ј	М	Ь	м	ь
D	1101	CR	GS	-	=	M	]	m	}	ќ	ќ	-	Š	Н	Э	н	э
E	1110		RS	.	>	N	^	п	~	ћ	ћ	®	š	О	Ю	о	ю
F	1111			/	?	0	_	о	SP	Ц	Ц	Ї	ї	П	Я	п	я

*"SP" indicated SPACE

*"CR" is ignored.

*Printer operation cannot be guaranteed if the blank control code (codes below [1F]h) is transmitted to printer.

*This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

3.7 CODE PAGE1252

	HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	NUL		SP	0	@	P	`	p	€	SP	SP	°	À	Ð	à	ð
1	0001		DC1	!	1	A	Q	a	q	SP	'	i	±	Á	Ñ	á	ñ
2	0010			"	2	B	R	b	r	,	'	ç	²	Â	Ò	â	ò
3	0011		DC3	#	3	C	S	c	s	f	"	£	³	Ã	Ó	ã	ó
4	0100			\$	4	D	T	d	t	,	"	¤	´	Ä	Ô	ä	ô
5	0101			%	5	E	U	e	u	---	•	¥	µ	Å	Õ	å	õ
6	0110			&	6	F	V	f	v	†	-	!¶	Æ	Ö	æ	ö	
7	0111			'	7	G	W	g	w	‡	-	§	•	Ç	×	ç	÷
8	1000			(	8	H	X	h	x	^	~	"	,	È	Ø	è	ø
9	1001	HT		)	9	I	Y	i	y	%	™	©	'	É	Ù	é	ù
A	1010	LF		*	:	J	Z	j	z	Š	š	à	ó	Ê	Ú	ê	ú
B	1011		ESC	+	;	K	[	k	{	<	>	«	»	Ë	Û	ë	û
C	1100	FF	FS	,	<	L	\	|	|	Œ	œ	¬	¼	Ì	Ü	ì	ü
D	1101	CR	GS	-	=	M	]	m	}	SP	SP	-	½	Í	Ý	í	ý
E	1110		RS	.	>	N	^	n	~	Ž	ž	®	¾	Î	Û	î	Û
F	1111			/	?	O	_	o	SP	SP	ÿ	¯	¿	Ï	ß	ï	ÿ

*"SP" indicated SPACE

*"CR" is ignored.

*Printer operation cannot be guaranteed if the blank control code (codes below [1F]h) is transmitted to printer.

*This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.

3.8 CODE PAGE1254

	HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	NUL		SP	0	@	P	`	p	€	SP	SP	°	À	Ĝ	à	ğ
1	0001		DC1	!	1	A	Q	a	q	SP	'	i	±	Á	Ñ	á	ñ
2	0010			"	2	B	R	b	r	,	'	ø	²	Â	Ò	â	ò
3	0011		DC3	#	3	C	S	c	s	f	"	£	³	Ã	Ó	ã	ó
4	0100			\$	4	D	T	d	t	„	"	¤	'	Ä	Ô	ä	ô
5	0101			%	5	E	U	e	u	…	•	¥	µ	Å	Õ	å	õ
6	0110			&	6	F	V	f	v	†	-	!¶	Æ	Ö	æ	ö	
7	0111			'	7	G	W	g	w	‡	-	§	•	Ç	×	ç	÷
8	1000			(	8	H	X	h	x	^	~	¨	,	È	Ø	è	ø
9	1001	HT		)	9	I	Y	i	y	%	™	©	'	É	Ù	é	ù
A	1010	LF		*	:	J	Z	j	z	Š	š	à	ó	Ê	Ú	ê	ú
B	1011		ESC	+	;	K	[	k	{	<	>	«	»	Ë	Û	ë	û
C	1100	FF	FS	,	<	L	\	|	|	Œ	œ	¬	¼	Ì	Ü	ì	ü
D	1101	CR	GS	-	=	M	]	m	}	SP	SP	-	½	Í	İ	í	ı
E	1110		RS	.	>	N	^	n	~	SP	SP	®	¾	Î	Ş	î	ş
F	1111			/	?	O	_	o	SP	SP	ÿ	-	¿	Ï	ß	ï	ÿ

*“SP” indicated SPACE

*“CR” is ignored.

*Printer operation cannot be guaranteed if the blank control code (codes below [1F]h) is transmitted to printer.

*This code table indicates simplified symbol and is not print result. There may be some difference from the actual print.