

Dot Matrix Printer

SP2000 Series

Programmer's Manual



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1. Control Codes (Star Mode)

1-1. Control Codes List

The following tables show the Star Mode commands that are supported by this printer.

1-1-1. Character Selection

Control Codes	Hexadecimal Codes	Function	Page
<ESC> "R" <i>n</i>	1B 52 <i>n</i>	Selects the international character set	7
<ESC> "/" "1" <ESC> "/" <1>	1B 2F 31 1B 2F 01	Selects slash zero	7
<ESC> "/" "0" <ESC> "/" <0>	1B 2F 30 1B 2F 00	Selects normal zero	7
<ESC> <GS> "t" <i>n</i>	1B 1D 74 <i>n</i>	Selects the character code table	8
<ESC> "6"	1B 36	Selects character set #2	10
<ESC> "7"	1B 37	Selects character set #1	10
<ESC> "M"	1B 4D	Selects the 7 X 9 (half dot) font (Default)	10
<ESC> "P"	1B 50	Selects the 5 X 9 (2 pulses per dot) font	11
<ESC> ":"	1B 3A	Selects the 5 X 9 (3 pulses per dot) font	11
<ESC> <SP> <i>n</i>	1B 20 <i>n</i>	Sets character spacing	11
<SO>	0E	Sets the printing magnified double in character width	12
<DC4>	14	Resets the printing magnified in character width (Default)	12

Control Codes	Hexadecimal Codes	Function	Page
<ESC> "W" "1" <ESC> "W" <1>	1B 57 31 1B 57 01	Selects double magnification in character width	12
<ESC> "W" "0" <ESC> "W" <0>	1B 57 30 1B 57 00	Resets magnification in character width	12
<ESC> "h" "1" <ESC> "h" <1>	1B 68 31 1B 68 01	Selects double magnification in character height	12
<ESC> "h" "0" <ESC> "h" <0>	1B 68 30 1B 68 00	Resets magnification in character height	12
<ESC> "-" "1" <ESC> "-" <1>	1B 2D 31 1B 2D 01	Selects underlining	13
<ESC> "-" "0" <ESC> "-" <0>	1B 2D 30 1B 2D 00	Cancels underlining (Default)	13
<ESC> "_ " "1" <ESC> "_ " <1>	1B 5F 31 1B 5F 01	Selects upperlining	13
<ESC> "_ " "0" <ESC> "_ " <0>	1B 5F 30 1B 5F 00	Cancels upperlining (Default)	14
<ESC> "4"	1B 34	Selects red color printing (SP2360/2560) Selects highlight printing (SP2320/2520)	14
<ESC> "5"	1B 35	Cancels red color printing (SP2360/2560) Cancels highlight printing (SP2320/2520)	14
<SI>	0F	Inverted printing	14
<DC2>	12	Cancels inverted printing (Default)	15
<ESC> <RS> "i" "0" <ESC> <RS> "i" <0>	1B 1E 96 30 1B 1E 96 00	Cancels rotated print mode for text (Default)	15
<ESC> <RS> "i" "1" <ESC> <RS> "i" <1>	1B 1E 96 31 1B 1E 96 01	Specifies rotated print mode for text with a 270° rotation.	15
<ESC> <RS> "i" "2" <ESC> <RS> "i" <2>	1B 1E 96 32 1B 1E 96 02	Specifies rotated print mode for text with a 90° rotation.	15
<ESC> "E"	1B 45	Selects emphasized printing	15
<ESC> "F"	1B 46	Cancels emphasized printing (Default)	15
<ESC> "U" <i>n</i>	1B 55 <i>n</i>	Selects print direction	16

1-1-2. Print Position Control

Control Codes	Hexadecimal Codes	Function	Page
<LF>	0A	Line feed	17
<VT>	0B	Vertical tab	17
<FF>	0C	Form feed	17
<CR>	0D	Carriage Return	18
<ESC> "a" <i>n</i>	1B 61 <i>n</i>	Feeds paper <i>n</i> lines	18
<HT>	09	Horizontal tab	18
<ESC> "A" <i>n</i>	1B 41 <i>n</i>	Defines <i>n</i> /72-inch line spacing	19
<ESC> "2"	1B 32	Sets <i>n</i> /72-inch line spacing	19
<ESC> "z" "0"	1B 7A 30	Sets line spacing to 1/12-inch	19
<ESC> "z" <0>	1B 7A 00		
<ESC> "z" "1"	1B 7A 31	Sets line spacing to 1/6-inch (Default)	19
<ESC> "z" <1>	1B 7A 01		
<ESC> "0"	1B 30	Sets line spacing to 1/8-inch	19
<ESC> "1"	1B 31	Sets line spacing to 7/72-inch	20
<ESC> "J" <i>n</i>	1B 4A <i>n</i>	One time <i>n</i> /72-inch feed	20
<ESC> "3" <i>n</i>	1B 33 <i>n</i>	Sets line spacing to <i>n</i> /216-inch approximately	20
<ESC> "y"	1B 79 <i>n</i>	Sets line spacing to <i>n</i> /144-inch	20
<ESC> "D" <i>n1 n2 ... <0></i>	1B 44 <i>n1 n2 ... 00</i>	Sets horizontal tab stops	21
<ESC> "l" <i>n</i>	1B 6C <i>n</i>	Sets left margin	21
<ESC> "Q" <i>n</i>	1B 51 <i>n</i>	Sets right margin	22
<ESC> <GS> "a" "0"	1B 1D 61 30	Left justification (Default)	23
<ESC> <GS> "a" <0>	1B 1D 61 00		
<ESC> <GS> "a" "1"	1B 1D 61 31	Centering	23
<ESC> <GS> "a" <1>	1B 1D 61 01		
<ESC> <GS> "a" "2"	1B 1D 61 32	Right justification	23
<ESC> <GS> "a" <2>	1B 1D 61 02		
<ESC> "B" <i>n1 n2 ... <0></i>	1B 42 <i>n1 n2 ... 00</i>	Set vertical tab stops	24

1-1-3. Dot Graphics Control

Control Codes	Hexadecimal Codes	Function	Page
<ESC> "K" n <0> m1 m2 ...	1B 4B n 00 m1 m2 ...	8 dot normal density graphics	25
<ESC> "L" n1 n2 m1 m2 ...	1B 4C n1 n2 m1 m2 ...	8 dot high density graphics	26

1-1-4. Download Graphics Printing

Control Codes	Hexadecimal Codes	Function	Page
<ESC> "&" <0> n1 n2 ..	1B 26 00 n1 n2 ..	Defines download characters	28
<ESC> "%" "1" <ESC> "%" <1>	1B 25 31 1B 25 01	Enables download character set	29
<ESC> "%" "0" <ESC> "%" <0>	1B 25 30 1B 25 00	Disables download character set (Default)	29

1-1-5. Peripheral Device Control

Control Codes	Hexadecimal Codes	Function	Page
<ESC> <BEL> n1 n2	1B 07 n1 n2	Defines drive pulse width for peripheral device #1	31
<BEL>	07	Controls peripheral device #1	31
<FS>	1C	Controls peripheral device #1 immediately	32
	19	Controls peripheral device #2 immediately	32
<SUB>	1A	Controls peripheral device #2 immediately	32

1-1-6. Auto Cutter Control (SP2500 type printers only)

Control Codes	Hexadecimal Codes	Function	Page
<ESC> "d" "0" <ESC> "d" <0>	1B 64 30 1B 64 00	Full-cut command to the auto cutter	33
<ESC> "d" "1" <ESC> "d" <1>	1B 64 31 1B 64 01	Partial-cut command to the auto cutter	33
<ESC> "d" "2" <ESC> "d" <2>	1B 64 32 1B 64 02	Full-cut command to the auto cutter after paper feed	33
<ESC> "d" "3" <ESC> "d" <3>	1B 64 33 1B 64 03	Partial-cut command to the auto cutter after paper feed	34

1-1-7. Commands to Set the Page Format

Control Codes	Hexadecimal Codes	Function	Page
<ESC> "C" <i>n</i>	1B 43 <i>n</i>	Set page length <i>in</i> lines	35
<ESC> "C" <0> <i>n</i>	1B 43 00 <i>n</i>	Set page length <i>in</i> inches	35
<ESC> "N" <i>n</i>	1B 4E <i>n</i>	Set bottom margin	35
<ESC> "O"	1B 4F	Cancel bottom margin (Default)	35

1-1-8. Other Commands

Control Codes	Hexadecimal Codes	Function	Page
<CAN>	18	Cancels printer buffer & Initialize printer	36
<DC3>	13	Deselects printer	36
<DC1>	11	Sets select mode (Default)	36
<RS>	1E	Beeps the buzzer	36
<ESC> "#N, n1 n2 n3 n4" <LF> <NUL>	1B 23 N 2C n1 n2 n3 n4 0A 00	Sets memory switch	37
<ESC> "@"	1B 40	Initialize printer	43
<EOT>	04	Transmits EOT status	44
<ENQ>	05	Transmits ENQ status	45
<ETB>	17	Confirms finish of printing	46
<ESC> <ACK> <SOH>	IB 06 01	Transmits automatic status	46
<ESC> <RS> "a" n	IB IE 61 n	Enables/disables automatic status	47
<ESC> "?" <LF> <NUL>	1B 3F 0A 00	Resets printer hardware and produce a test print	47

1-2. Control Code Details

The following section explains the details of the printer control codes.

1-2-1. Character Selection

FUNCTION	Selects the international character set
CODE	<ESC> "R" <i>n</i> (1B)H (52)H <i>n</i>
DEFINITION RANGE	(00)H $\leq n \leq$ (0E)H or $n =$ (40)H
OUTLINE	Select the international character set corresponding to the value set for <i>n</i> . <i>n</i> = (00)H: U.S.A. (06)H: Italy (0C)H: Latin America (01)H: France (07)H: Spain-1 (0D)H: Korea (02)H: Germany (08)H: Japan (0E)H: Ireland (03)H: England (09)H: Norway (40)H: Legal (04)H: Denmark-1 (0A)H: Denmark-2 (05)H: Sweden (0B)H: Spain-2 Default abides by memory switches 1-0 to 1-3.
FUNCTION	Selects zero style
CODE	<ESC> "/" <i>n</i> 1B 2F <i>n</i>
OUTLINE	Selects zero style Causes subsequent zero characters to be printed with a slash when <i>n</i> is 1 and without a slash when <i>n</i> is 0. The value of <i>n</i> can be set to 0 (00H) or "0" (30)H or 1(0H) or "1" (31H). The default may differ depending on the memory switch setting.

FUNCTION**CODE****OUTLINE**

Selects the character code table

<ESC> <GS> "t" *n*

1B 1D 74 *n*

Selects the character code table

This function selects a character code table (as shown below).

The default settings follow the settings of the memory switches 3-8 to 3-5.

Value of <i>n</i>		Character Table
Hex.	Dec.	
00	0	Normal (Default)
01	1	Code Page 437 (USA, Std. Europe)/IBM Character Set #2
02	2	Katakana
03	3	IBM Character Set #1
04	4	Codepage 858 (Multilingual)
05	5	Codepage 852 (Latin-2)
06	6	Codepage 860 (Portuguese)
07	7	Codepage 861 (Icelandic)
08	8	Codepage 863 (Canadian French)
09	9	Codepage 865 (Nordic)
0A	10	Codepage 866 (Cyrillic Russian)
0B	11	Codepage 855 (Cyrillic Bulgarian)
0C	12	Codepage 857 (Turkish)
0D	13	Codepage 862 (Hebrew)
0E	14	Codepage 864 (Arabic)
0F	15	Codepage 737 (Greek)
10	16	Codepage 851 (Greek)
11	17	Codepage 869 (Greek)
12	18	Codepage 928 (Greek)
13	19	Codepage 772 (Lithuanian)
14	20	Codepage 774 (Lithuanian)
15	21	Codepage 874 (Thai)
20	32	Codepage 1252 (Windows Latin-1)
21	33	Codepage 1250 (Windows Latin-2)
22	34	Codepage 1251 (Windows Cyrillic)
40	64	Codepage 3840 (IBM-Russian)
41	65	Codepage 3841 (Gost)
42	66	Codepage 3843 (Polish)
43	67	Codepage 3844 (CS2)
44	68	Codepage 3845 (Hungarian)
45	69	Codepage 3846 (Turkish)
46	70	Codepage 3847 (Brazil-ABNT)
47	71	Codepage 3848 (Brazil-ABICOMP)
48	72	Codepage 1001 (Arabic)
49	73	Codepage 2001 (Lithuanian-KBL)
4A	74	Codepage 3001 (Estonian-1)
4B	75	Codepage 3002 (Estonian-2)
4C	76	Codepage 3011 (Latvian-1)
4D	77	Codepage 3012 (Latvian-2)
4E	78	Codepage 3021 (Bulgarian)
4F	79	Codepage 3041 (Maltese)

FUNCTION**CODE****OUTLINE**

Selects IBM character set #2

<ESC> "6"

(1B)H (36)H

Selects IBM character set #2.

Switches from IBM character set #1 to character set #2.

Subsequent 80H to 9FH codes are handled as character data.

This command is invalid when the character code table settings are other than #1.

FUNCTION**CODE****OUTLINE**

Selects IBM character set #1

<ESC> "7"

(1B)H (37)H

Selects IBM character set #1.

Switches from IBM character set #2 to character set #1.

Subsequent 80H to 9FH codes are handled as character data.

This command is invalid when the character code table settings are other than #2.

FUNCTION**CODE****OUTLINE**

Selects 7 X 9 (half dot) font (Default)

<ESC> "M"

(1B)H (4D)H

Selects 7 X 9 (half dot) font.

When the power of the printer is turned on, 7 X 9 (half dot) printing is automatically selected.

The number of digits per line is set by the DIP switches in the following way.

DSW 1 - 5	Digits Per Line
ON	42
OFF	40

(When right space of character is 0.)

FUNCTION

Selects 5 X 9 (2 pulses per dot) font

CODE

<ESC> "P"

(1B)H (50)H

OUTLINE

Selects 5 X 9 (2 pulses = 1 dot) font.

The number of digits per line is set by the DIP switches in the following way.

DSW 1 - 5	Digits Per Line
ON	35
OFF	33

(When right space of character is 0.)

FUNCTION

Selects 5 X 9 (3 pulses per dot) font

CODE

<ESC> "':"

(1B)H (3A)H

OUTLINE

Selects 5 X 9 (3 pulses = 1 dot) font.

The number of digits per line is set by the DIP switches in the following way.

DSW 1 - 5	Digits Per Line
ON	23
OFF	22

FUNCTION

Selects character spacing

CODE

<ESC> <SP> *n*

1B 20 *n*

OUTLINE

Sets the size of space to right of character. The value of *n* can be set from 0 through 15, or from "0" through 9" and "A" through "F."

Spaces are doubled when printing using Printing magnified double in character width.

The default value of *n* is 0.

FUNCTION**CODE****OUTLINE**

Sets the printing magnified double in character width

<SO>

(0E)H

Data following this code is printed in double-width characters.

Same as <ESC> "W" "1" or <ESC> "W" <1>.

FUNCTION**CODE****OUTLINE**

Resets the printing magnified in character width (Default)

<DC4>

(14)H

Cancels expanded character mode set by <SO> or <ESC> "W" "1" or <ESC> "W" <1> code. Data following this code is printed out in normal size characters.

Same as <ESC> "W" "0" or <ESC> "W" <0>.

FUNCTION**CODE****OUTLINE**

Selects double magnification in character width

<ESC> "W" "1" or <ESC> "W" <1>

(1B)H (57)H (31)H or (1B)H (57)H (01)H

Data following this code is printed in double-width characters.

Same as <SO>.

FUNCTION**CODE****OUTLINE**

Resets magnification in character width

<ESC> "W" "0" or <ESC> "W" <0>

(1B)H (57)H (30)H or (1B)H (57)H (00)H

Cancels expanded character mode set by <ESC> "W" "1" or <ESC> "W" <1> or <SO> code. Data following this code is printed out in normal size characters.

Same as <DC4>.

FUNCTION**CODE**

Selects double magnification in character height

<ESC> "h" *n*

1B 68 *n*

OUTLINE

Sets the magnification rate in character height

Prints the subsequent data with a character height magnified by a rate specified by the value of *n*.

n = 0 and "0": Reset magnification

n = 1 and "1": Double magnification

Note:

- You can print in quadruple magnification by combining horizontal and vertical double magnification commands.
- You cannot combine with the inverted printed command.
- Line feeds of lines including vertical expansion characters are doubled.
- When font configuration is 6 X 12 dots of IBM block graphics characters, only the line amount is doubled.
- The bottom of the characters are aligned when one line contains both vertical expanded characters and regular character sizes.

FUNCTION

CODE

Selects underlining

<ESC> "-" "1" or <ESC> "-" <1>

(1B)H (2D)H (31)H or (1B)H (2D)H (01)H

OUTLINE

Data following this code is printed out underlined. (However, the spaces generated by horizontal tab are not underlined.)

FUNCTION

CODE

Cancels underlining (Default)

<ESC> "-" "0" or <ESC> "-" <0>

(1B)H (2D)H (30)H or (1B)H (2D)H (00)H

OUTLINE

Cancels underlined mode.

FUNCTION

CODE

Selects upperlining

<ESC> "_" "1" or <ESC> "_" <1>

(1B)H (5F)H (31)H or (1B)H (5F)H (01)H

OUTLINE

Data following this code is printed out with an upperline. (However the spaces generated by horizontal tab are not upperlined.)

FUNCTION**CODE****OUTLINE**

Cancels upperlining (Default)

<ESC> "_" "0" or <ESC> "_" <0>

(1B)H (5F)H (30)H or (1B)H (5F)H (00)H

Cancels upperline mode.

FUNCTION**CODE****OUTLINE**

Selects red color printing (SP2360/2560)

Selects highlight printing (SP2320/2520)

<ESC> "4"

(1B)H (34)H

(SP2360/2560) Specifies red printing

Prints subsequent characters in red. You can print both red and black characters on the same line.

Unidirectional when switching red and black.

(SP2320/2520) Specifies black and white inverted printing

Inverts black and white and prints subsequent characters including the character pitch. Printing is unidirectional. Do not use when ANK font setting is 5 X 9 (3P = 1). (Printing quality is not guaranteed with 5 X 9 (3P = 1)).

FUNCTION**CODE****OUTLINE**

Cancels red color printing (SP2360/2560)

Cancel highlighted print mode (SP2320/2520)

<ESC> "5"

(1B)H (35)H

(SP2360/2560) Cancels red color printing and prints subsequent characters in black.

(SP2320/2520) Cancels highlighted printing. (Default)

FUNCTION**CODE****OUTLINE**

Inverted printing

<SI>

(0F)H

Data following this code is printed out in inverted characters. This code is valid only when input at the beginning of a line, so, normal and inverted characters cannot be mixed in on the same line.

FUNCTION

Cancels inverted printing (Default)

CODE

<DC2>

(12)H

OUTLINE

Cancels the inverted character mode. This code is valid only when input at the beginning of a line.

FUNCTION

Specifies rotated print mode for text with a rotation

CODE

<ESC> <RS> "i" *n*

1B 1E 96 *n*

OUTLINE

This rotates and prints subsequent data 90° or 270° in the clockwise direction or cancels it and prints. The *n* value determines whether a rotational direction or a cancellation of the rotation is specified.

<i>n</i> Value	Rotation Specification
00H or "0"	Cancel rotation (0° rotation, default)
01H or "1"	270° rotation
02H or "2"	90° rotation

Underline or overline cannot be applied for rotated text. The relationship of the vertical ratio and horizontal ratio for rotated text is the reverse of when the rotation is cancelled.

FUNCTION

Selects emphasized printing

CODE

<ESC> "E"

(1B)H (45)H

OUTLINE

Data following this code is printed in the emphasized print mode. In this mode, printing is uni-directional.

FUNCTION

Cancels emphasized printing (Default)

CODE

<ESC> "F"

(1B)H (46)H

OUTLINE

Cancels emphasized print mode.

FUNCTION**CODE****OUTLINE**

Selects uni-directional print mode

<ESC> "U" "1" or <ESC> "U" <1>

(1B)H (55)H (31)H or (1B)H (55)H (01)H

Prints only when the print head moves from left to right.

FUNCTION**CODE****OUTLINE**

Selects bi-directional print mode

<ESC> "U" "0" or <ESC> "U" <0>

(1B)H (55)H (30)H or (1B)H (55)H (00)H

Returns to the standard bi-directional print mode. (This mode is set automatically when the printer power is turned on.)

1-2-2. Ptint Position Control

FUNCTION

Line feed

CODE

<LF>

(0A)H

OUTLINE

Data in the line buffer is printed out and one line is fed. If data does not exist before this code is received, the printer only feeds one line.

FUNCTION

Vertical tab

CODE

<VT>

(0B)H

OUTLINE

Feeds the paper to the next vertical tab set position.

When a vertical tab is not set, line feed is not performed. If the current line is at or below the last vertical tab set position, the paper feeds to the top of the next page.

FUNCTION

Form feed

CODE

<FF>

(0C)H

OUTLINE

Inputting this code executes a page feed, on SP2320/2360 series printers, after printing the data in the line buffer. On SP2520/2560 series printers this code performs the following according to the settings of the memory switches 0-2 and 0-3.

MSW 0-3	MSW 0-2	<FF> Command Function SP2520/2560
0	0	Executes page feed
0	1	Executes full cut (*1) after feeding paper to the cutting position.
1	0	Executes page feed
1	1	Executes partial cut (*1) after feeding paper to the cutting position.

*1: Paper feed to the cutting position is executed in inches.

FUNCTION**CODE****OUTLINE**

Carriage return

<CR>

(0D)H

The <CR> code is valid when the memory switch 3-1 = 1 (set to 0 at exfactory). When the <CR> code is valid, setting the memory switch 3-0 will cause the <CR> to function as shown in the table below.

Memory Switch Setting		<CR> Code Function
MSW 3-1 = 0	—————	Ignored (at exfactory)
MSW 3-1 = 1	MSW 3-0 = 0	Same as <LF>
	MSW 3-0 = 1	Prints only. No paper feed

FUNCTION**CODE****OUTLINE**

Feed paper *n* lines

<ESC> "a" *n*

(1B)H (61)H *n*

$1 \leq n \leq 127$

After data in the line buffer is printed out, feeds the paper *n* lines.

FUNCTION**CODE****OUTLINE**

Horizontal tab

<HT>

(09)H

The print position skips to the next horizontal tab position in line.

If the current position is after the final horizontal tab position that can be executed, this code is ignored. (Underlining and overlining do not take place in the spaces between characters set with the horizontal tab function.)

FUNCTION**CODE****DEFINITION RANGE****OUTLINE**

Define $n/72$ -inch line spacing

<ESC> "A" n

(1B)H (41)H n

$0 \leq n \leq 85$ (Default $n = 12$)

Line feed is defined at $n/72$ -inch after this code is received.

This code sets the feed at $n/72$ -inch with the <ESC> "2" code.

FUNCTION**CODE****OUTLINE**

Set $n/72$ -inch line spacing

<ESC> "2"

1B)H (32)H

This code sets the line feed at a defined value with the <ESC> "A" previously described. Line feed pitch is 1/6 inch when <ESC> "A" n is not set.

FUNCTION**CODE****OUTLINE**

Sets line spacing to 1/12-inch

<ESC> "z" "0" or <ESC> "z" <0>

(1B)H (7A)H (30)H or (1B)H (7A)H (00)H

Line feed is set at 1/12-inch after this code is received.

FUNCTION**CODE****OUTLINE**

Sets line spacing to 1/6-inch (Default)

<ESC> "z" "1" or <ESC> "z" <1>

(1B)H (7A)H (31)H or (1B)H (7A)H (01)H

Line feed is set at 1/6-inch after this code is received.

FUNCTION**CODE****OUTLINE**

Sets line spacing to 1/8-inch

<ESC> "0"

(1B)H (30)H

Line feed is set at 1/8-inch after this code is received.

FUNCTION**CODE****OUTLINE**

Sets line spacing to $7/72$ inch

<ESC> "1"

(1B)H (31)H

Line feed is set at $7/72$ -inch after this code is received.

FUNCTION**CODE****DEFINITION RANGE****OUTLINE**

One time $n/72$ -inch feed

<ESC> "J" n

(1B)H (4A)H n

$1 \leq n \leq 255$

This code activates the $n/72$ -inch paper feed once.

FUNCTION**CODE****DEFINITION RANGE****OUTLINE**

Sets line spacing to $n/216$ -inch approximately

<ESC> "3" n

(1B)H (33)H n

$1 \leq n \leq 255$

Setting value is approximated using the following equation because the minimum pitch of the paper feed mechanism is $1/144$ inch.

$\text{INT}(n \times 2/3 + 0.5)/144$ inches

FUNCTION**CODE****DEFINITION RANGE****OUTLINE**

Sets line spacing to $n/144$ -inch

<ESC> "y" n

(1B)H (79)H n

$1 \leq n \leq 255$

Line feed is set at $n/144$ -inch after this code is received.

Default is $n = 24$.

FUNCTION

CODE

DEFINITION RANGE

OUTLINE

Sets horizontal tab stops

<ESC> "D" $n_1 n_2 \dots n_k$ <0>

(1B)H (44)H $n_1 n_2 \dots n_k$ (00)H

$1 \leq n_1 \leq n_2 \leq n_3 \dots < n_k \leq$ (Maximum print columns -1),

$1 \leq k \leq 16$

Cancels all horizontal tab stops and sets new tab stops within the character pitch at n_1 , n_2 , etc. You can set up to 16 individual tab stops ($1 \leq n_1 \leq n_2 \leq n_3 \dots n_{16} \leq$ maximum printing digits). Tab stops must be set in ascending order. If tab stops are set in an order which differs from this, it will end. A <0> code is added as the ending edge. All tab stops are cleared by inputting <ESC> "D" <0>. The reference point for the tab positions is left edge of the paper, regardless of the settings for the left margin. When you turn ON the power, the horizontal tabs are not set.

FUNCTION

CODE

OUTLINE

Sets left margin

<ESC> "I" n

1B 6C n

Sets the non-printable range with the current character pitch up to the n th position with the left edge as the reference, after printing the data in the line buffer.

Settings changed partway through a line take effect from the subsequent line. Changing the character pitch after setting does not change the left margin. The left margin is the left edge is when the power is turned ON.

The left margin must be at least 18 dots within the following values in the left edge of the right margin. Also, if there is less than one character including the space between characters in the printable range set for the left and right margins, a "?" will be printed instead of the character because printing is not possible there.

The range of n is $0 \leq n \leq$ (right margin -2) ≤ 255 . The default is $n = 0$.

FUNCTION**CODE****OUTLINE**

Sets right margin

<ESC> "Q" *n*

1B 51 *n*

Sets the non-printable range with the current character pitch up to the *n*th position with the left edge as the reference, after printing the data in the line buffer.

Settings changed partway through a line take effect from the subsequent line. Changing the character pitch after setting does not change the right margin. The right margin is the right edge is when the power is turned ON.

The right margin must be at least 18 dots within the following values. Also, if there is less than one character including the space between characters in the printable range set for the left and right margins, a "?" will be printed instead of the character because printing is not possible there.

The range of *n* is $2 \leq n \leq \langle \text{maximum number of printable digits} \rangle \leq 255$. The default is $n = \langle \text{maximum number of printable digits} \rangle$.

FUNCTION

CODE

OUTLINE

Aligns position

<ESC> <GS> "a" *n*

(1B)H (1D)H (61)H *n*

Sets the alignment of the positions.

Aligns all print data of one line to the specified position.

<i>n</i> =	(00)H, "0":	Left edge alignment (default)
	(01)H, "1":	Center alignment
	(02)H, "2":	Right edge alignment

ABC
ABCD
ABCDE } <ESC> <GS> "a" "0"

<ESC> <GS> "a" "1" {
ABC
ABCD
ABCDE

<ESC> <GS> "a" "2" {
ABC
ABCD
ABCDE

Note:

- Effective only when input at the beginning of the line.
- Align positions within the printable range that has been set.
- Skipped areas by the horizontal tab are also targeted for position alignment.

FUNCTION

Sets vertical tab stops

CODE

<ESC> "B" $n_1 n_2 \dots n_k$ <0>

(1B)H (42)H $n_1 n_2 \dots n_k$ (00)H

DEFINITION RANGE

$1 \leq n_1 \leq n_2 \leq n_3 \dots < n_k \leq 255 \leq 1 \leq k \leq 16$

OUTLINE

Cancels all current vertical tab stops and sets new vertical tab stops at lines n_1, n_2 , etc. where n_1, n_2 , etc. are numbers between 1 and 255. A maximum number of 16 vertical tab positions can be set. Tab positions must be specified in ascending order; any violation of ascending order terminates the tab position list. Standard termination is by the <0> control code. Vertical tab positions are set in terms of the current line spacing and do not move if the line spacing is changed later.

NOTE

If a tab set position < n_k > is equivalent or smaller than < n_{k-1} > just preceding the tab set position, setting of vertical tab is assumed as complete.

1-2-3. Dot Graphics Control

FUNCTION

8 dot normal density graphics

CODE

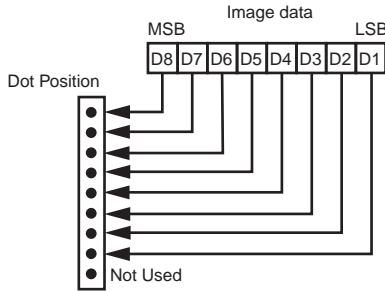
<ESC> "K" *n1* <0> *m1 m2* ...
 (1B)H (4B)H *n1* (00)H *m1 m2* ...

DEFINITION RANGE

$1 \leq n1 \leq 200$ (DIP SW 1 - 5 = ON) or $1 \leq n1 \leq 210$ (DIP SW = OFF)

OUTLINE

Executes 8 dot bit image print determined by "*n1*." The total number of bit image data bytes in one line is equal to *n1*. Printing is uni-directional. The printer ignores any data bytes over the specified amount allowed in one line. When the bit image print is finished the printer automatically returns to the character mode.



EXAMPLE

Actually, let us consider printing as a means of bit image. We will create the design below using bit image.

	m1	m2	m3	m4	m5	m6	m7	m8	m9	m10	m11	m12	m13	m14	m15	m16	m17	m18	m19	m20	m21	m22	m23	m24	m25	m26	m27	m28	m29	m30
D8																														
D7				•		•																								
D6			•		•		•		•		•		•		•		•		•		•		•		•		•		•	
D5	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
D4	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
D3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
D2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
D1	•		•	•		•	•		•	•		•	•		•	•		•	•		•	•		•	•		•	•		•

First, since the volume of data is 30, $n1 = (1E)H$. If the data m1 to m30 is converted to hexadecimal, it appears as shown below.

Data	Binary	Hex	Data	Binary	Hex	Data	Binary	Hex
m1	00000001	01	m11	00111110	3E	m21	00111110	3E
m2	00011110	1E	m12	00000010	02	m22	00101110	2E
m3	00111110	3E	m13	00000010	02	m23	00101110	2E
m4	01011111	5F	m14	00111110	3E	m24	00111110	3E
m5	00011111	1F	m15	00111110	3E	m25	00101111	2F
m6	01011110	5E	m16	00101111	2F	m26	00101111	2F
m7	00011110	1E	m17	00101111	2F	m27	00111110	3E
m8	00111111	3F	m18	00111110	3E	m28	00111110	3E
m9	00101111	2F	m19	00101110	2E	m29	00000010	02
m10	00111110	3E	m20	00101110	2E	m30	00000010	02

Print Sample



FUNCTION

8 dot high density graphics

CODE

<ESC> "L" $n1$ $n2$ m1 m2...

(1B)H (4C)H $n1$ $n2$ m1 m2...

DEFINITION RANGE

$1 \leq n1 + 256 \times n2 \leq 420$ (DIP SW 1-5 = ON)

$1 \leq n1 + 256 \times n2 \leq 400$ (DIP SW 1-5 = OFF)

OUTLINE

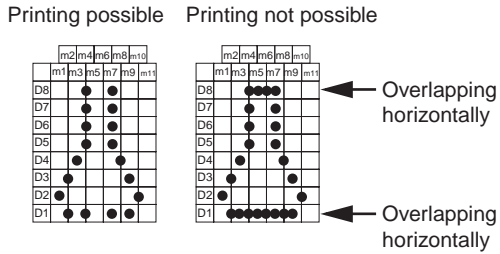
Executes double density bit image printing (half-dot printing) determined by "n1" and "n2". The total number of bit image data bytes in one line is equal to $n1 + n2 \times 256$. Refer to <ESC> K as to the relation between the dot position and the bit number. The printer ignores any data bytes over the specified amount allowed in one line. Printing is uni-directional.

The printer does not print adjacent dots. When the bit image printing is finished, the printer automatically returns to the character mode.

NOTE

For double density bit image printing, dots cannot be printed overlapping each other in the horizontal direction.

The following is an example of this.



When printing one graphic image of a minimum of two lines with <ESC> K or <ESC>L, feed the paper a minimum of one line before printing so that the line spacing becomes identical between the lines.

1-2-4. Download Graphics Printing

FUNCTION

Defines download characters

CODE

When the 7 X 9 (half dot) font is set (default setting):

<ESC> "&" <0> $n1\ n2$ [m0 m1 m2 m3 m4 m5 m6 m7] $n2 - n1 + 1$
 (1B)H (26)H (00)H $n1\ n2$ [m0 m1 m2 m3 m4 m5 m6 m7] $n2 - n1 + 1$

When the 5 X 9 font is set:

<ESC> "&" <0> $n1\ n2$ [m0 m1 m2 m3 m4 m5] $n2 - n1 + 1$
 (1B)H (26)H (00)H $n1\ n2$ [m0 m1 m2 m3 m4 m5] $n2 - n1 + 1$

DEFINITION RANGE

$(21)H \leq n1 \leq n2$ (7F)H, m0 = (00)H or m0 = (80)H

OUTLINE

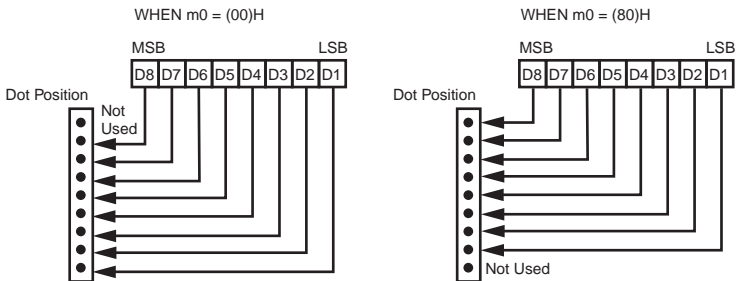
Defines download characters

Up to 10 download characters can be defined and the defined character patterns can be stored in the printer's RAM.

Defining of download characters begins with character code $n1$ and completes with $n2$. When only one character is defined, $n1 = n2$.

m0 indicates the relationship between the character pattern and print head.

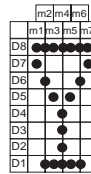
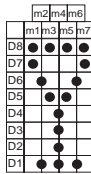
m1 = m2...Indicate the character pattern



NOTE

When the 7 X 9 (half dot) font is set (the default setting), printing of adjacent horizontal dots is not allowed.

Printing possible Printing not possible



FUNCTION

Enables download character set

CODE

<ESC> "%" "1" or <ESC> "%" <1>

(1B)H (25)H (31)H or (1B)H (25)H (01)H

OUTLINE

Enables the download character set

Download characters defined by the ESC & 0 code cannot be printed until enabled by this command.

FUNCTION

Disables download character set (Default)

CODE

<ESC> "%" "0" or <ESC> "%" <0>

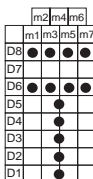
(1B)H (25)H (30)H or (1B)H (25)H (00)H

OUTLINE

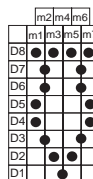
Disables the selected download character set and selects the built-in character set. When the power of the printer is initially turned on, the built-in character set is selected.

To print a download character when the $7 \leq 9$ (half dot) font character size is set.

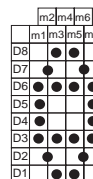
- Design the download character to be used at code positions (21)H, (22)H, and (23)H.



Char. Code = (21)H



Char. Code = (22)H



Char. Code = (23)H

(2) Define the download characters.

When character codes where the download character is written are specified as (21)H, (22)H, (23)H, $n1 = (21)H$, $n2 = (23)H$ are obtained.

If the relationship between the character pattern data and printing head is specified to "not use pin 9", $m0 = (80)H$ is obtained.

When data $m1$ to $m7$ are converted into hexadecimal data, they are indicated as follows.

Data	Binary	Hex	Data	Binary	Hex	Data	Binary	Hex
$m1$	10100000	A0	$m1$	10011000	98	$m1$	00111000	3C
$m2$	00000000	00	$m2$	01100100	64	$m2$	01000010	42
$m3$	10100000	A0	$m3$	10000010	82	$m3$	10100101	A5
$m4$	00011111	1F	$m4$	00000001	01	$m4$	00000000	00
$m5$	10100000	A0	$m5$	10000010	82	$m5$	10100101	A5
$m6$	00000000	00	$m6$	01100100	64	$m6$	01000010	42
$m7$	10100000	A0	$m7$	10011000	98	$m7$	00111000	3C

EXAMPLE of transmitting data

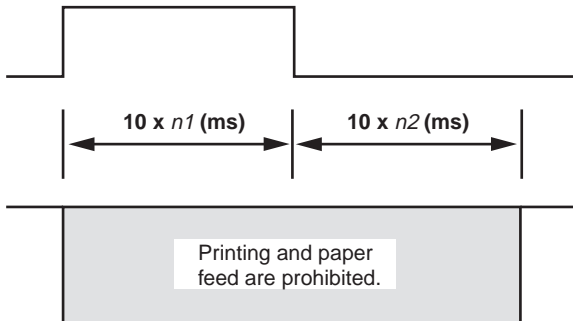
(1) Definition of download characters	(1B)H (26)H (00)H (21)H (23)H (80)H (A0)H (00)H (A0)H (1F)H (A0)H (00)H (A0)H (80)H (98)H (64)H (82)H (01)H (82)H (64)H (98)H (80)H (3C)H (42)H (A5)H (00)H (A5)H (42)H (3C)H
(2) Selecting the download character set	(1B)H (25)H (31)H
(3) Character codes	(21)H (22)H (23)H (0A)H
(4) Canceling the download character set	(1B)H (25)H (30)H
(5) Character codes	(21)H (22)H (23)H (0A)H

Print Sample



1-2-5. Peripheral Device Control

FUNCTION	Defines drive pulse width for peripheral device #1
CODE	<ESC> <BEL> <i>n1 n2</i> (1B)H (07)H <i>n1 n2</i>
DEFINITION RANGE	$1 \leq n1 \leq 127, 1 \leq n2 \leq 127$ (default setting $n1 = n2 = 20$)
OUTLINE	Adjusts drive pulse width for peripheral devices requiring other than standard 200 ms pulse time and delay time Energizing time = $10 \times n1$ (ms) Delay time = $10 \times n2$ (ms) Executed by <BEL>, <FS> codes.



FUNCTION	Controls peripheral device #1
CODE	<BEL> (07)H
OUTLINE	Executes drive pulse for peripheral unit 1 (deferred).
NOTE	Peripheral Units 1 and 2 cannot be driven simultaneously.

FUNCTION

Controls peripheral device #1 immediately

CODE

<FS>

(1C)H

OUTLINE

Executes drive pulse for peripheral unit 1 (immediate).

This code differs from the <BEL> code as follows:

When the printer receives an <FS> code, the command is executed immediately. The <BEL> code is stored in the data buffer in the same manner as other codes, and executed in the order in which they are received.

Immediate drive command for peripheral unit 2

NOTE

Peripheral Units 1 and 2 cannot be driven simultaneously.

FUNCTION

Controls peripheral device #2 immediately

CODE

(19)H

OUTLINE

Drives peripheral unit 2. Pulse width is fixed at 200 ms with a fixed delay time of 200 ms.

When the printer receives a code, the command is executed immediately. Same as <SUB>.

NOTE

Peripheral Units 1 and 2 cannot be driven simultaneously.

FUNCTION

Controls peripheral device #2 immediately

CODE

<SUB>

(1A)H

OUTLINE

Drives peripheral unit 2. Pulse width is fixed at 200ms with a fixed delay time of 200 ms.

When the printer receives a <SUB> code, the command is executed immediately. Same as

NOTE

Peripheral Units 1 and 2 cannot be driven simultaneously.

1-2-6. Auto Cutter Control (SP2500 type printers only)

FUNCTION

Full-cut command to the auto cutter

CODE

<ESC> "d" "0" or <ESC> "d" <0>

(1B)H (64)H (30)H or (1B)H (64)H (00)H

OUTLINE

Full cut command. Executes a full cut after printing the data in the line buffer.

This command is valid only on SP2520/SP2560 series printers and is ignored on SP2320/SP2360 series printers.

FUNCTION

Partial-cut command to the auto cutter

CODE

<ESC> "d" "1" or <ESC> "d" <1>

(1B)H (64)H (31)H or (1B)H (64)H (01)H

OUTLINE

Partial cut command. Executes a partial cut after printing the data in the line buffer.

This command is valid only on SP2520/SP2560 series printers and is ignored on SP2320/SP2360 series printers.

FUNCTION

Full-cut command to the auto cutter after paper feed

CODE

<ESC> "d" "2" or <ESC> "d" <2>

(1B)H (64)H (32)H or (1B)H (64)H (02)H

OUTLINE

Paper feed + full cut command

Executes the following actions after printing the data in the line buffer.

(SP2520/2560) Feeds paper to the cutting position and executes a full cut (Note 1).

(SP2320/2360) Feeds paper to the tear bar position (Note 2).

Note 1: Paper feed to cut position: Executed in 1 inch units.

Note 2: Paper feed to tear bar position: Executed in 7/6 inch units.

FUNCTION**CODE****OUTLINE**

Partial-cut command to the auto cutter after paper feed

<ESC> "d" "3" or <ESC> "d" <3>

(1B)H (64)H (33)H or (1B)H (64)H (03)H

Paper feed + full cut command

Executes the following actions after printing the data in the line buffer.

(SP2520/2560) Feeds paper to the cutting position and executes a full cut (Note 1).

(SP2320/2360) Feeds paper to the tear bar position (Note 2).

Note 1: Paper feed to cut position: Executed in 1 inch units.

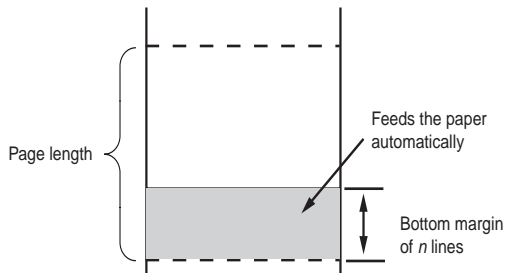
Note 2: Paper feed to tear bar position: Executed in 7/6 inch units.

1-2-7. Command to Set the Page Format

FUNCTION	Set page length in n lines
CODE	<ESC> "C" n (1B)H (43)H n
DEFINITION RANGE	$1 \leq n \leq 255$ (default: $n=42$)
OUTLINE	Sets page length in n lines.

FUNCTION	Set page length in n inches
CODE	<ESC> "C" <0> n (1B)H (43)H (00)H n
DEFINITION RANGE	$1 \leq n \leq 127$
OUTLINE	Sets page length in n inches.

FUNCTION	Set bottom margin
CODE	<ESC> "N" n (1B)H (4E)H n
DEFINITION RANGE	$0 \leq n \leq 255$ (Default $n = 0$)
OUTLINE	Sets bottom margin to n lines.



FUNCTION	Cancel bottom margin (Default)
CODE	<ESC> "O" (1B)H (4F)H
OUTLINE	Cancels bottom margin.

1-2-8. Other Commands

FUNCTION	Cancels printer buffer & Initialize printer
CODE	<CAN> (18)H
OUTLINE	Clears the data buffer and line buffer and initializes all commands that have already been set. <CAN> is executed not when taking data from the reception buffer, but when it is received from the host. The select/deselect states in the DC1 and DC3 modes, and external device drive conditions set by <ESC> <BEL> <i>n1</i> and <i>n2</i> do not affect the automatic status valid/invalid conditions.
Print Sample	Deselects printer
CODE	<DC3> (13)H
OUTLINE	Data following this code is ignored when the printer receives a <DC3> code. The deselect mode is canceled by <DC1> code.
FUNCTION	Set select mode (Default)
CODE	<DC1> (11)H
OUTLINE	When the printer receives a <DC1> code, the deselect mode is canceled and data following this code is input to the buffer.
FUNCTION	Beeeps the buzzer
CODE	<RS> (1E)H
OUTLINE	A short alarm is generated by the printer.

FUNCTION**CODE****HEX****OUTLINE**

Sets the memory switch

<ESC> “# N, n1 n2 n3 n4” <LF> <NUL>

1B 23 N 2C n1 n2 n3 n4 0A 00

In order to enable changed memory switch settings, turn the printer OFF and ON again or send the printer reset command (<ESC> “?” <LF> <NUL>) to the printer. Changed memory switch settings are stored in EEPROM and these settings will be stored until they are changed again.

N: Memory switch number (“0,” “1,” “2,” “3,” “4,” “5,” “6”)

n1 n2 n3 n4: Mode settings (For details see below.)

1) N = 0 (Star mode)

n1: Always “0”

n2: Always “0”

Parameter	Setting	“0” (Default)	“1”
n3	Destination	Standard	Asia Market
n4	FF command *1	See below	

n4	<FF> command *1
“0” to “3”	Feeds page
“4” to “7”	Executes full cut after feeding paper to the cut position. (*2)
“8” to “B”	Feeds page
“C” to “F”	Executes partial cut after feeding paper to the cut position. (*2)

*1: Only on printers that have an auto-cutter (SP2520/2560).

*2: Paper feed to cutting position is executed in 1 inch increments.

N = 0 (ESC/POS mode)

n1: Always “0”

n2: Always “0”

n4: Always “0”

Parameter	Setting	“0” (Default)	“1”
n3	Destination	Standard	Asia Market

2) N = 1 (Star mode only)

n1: Always "0"

n2: Always "0"

Parameter	Setting	"0" (Default)	"1"
n3	Zero style	Normal	Slashed
n4	International character set	See below	

n4	Country	n4	Country	n4	Country
"0"	USA	"3"	UK	"6"	Italy
"1"	France	"4"	Denmark #1	"7"	Spain #1
"2"	Germany	"5"	Sweden	"8"	Japan

n4	Country	n4	Country
"9"	Norway	"C"	Latin America
"A"	Denmark #2	"D"	Korea
"B"	Spain #2	"E"	Ireland
		"F"	Legal

When memory switch N = 0, n3 = "0" (Destination is standard), this setting is valid.

3) N = 2 (Star mode)

n1: Always "0"

n2: Always "0"

n3: Always "0"

Para.	Setting	"0" to "F"
n4	Comdex Dual Auto Cut mechanism (*1)	See below
	Paper near end sensor	

n4	Paper near end sensor
"0" or "4" or "8" or "C"	Invalid
"1" or "9" or "D"	Invalid
"2" or "A" or "E"	Reflects status of sensor to STATUS and when near end, does not go offline and does not stop printing.
"3" or "B" or "F"	Reflects status of sensor to STATUS and when near end, goes offline and stops printing.

n4	Comdex dual auto-cutter
"0" to "7"	Invalid
"8" to "F"	Valid

*1: Comdex Dual Auto Cut Mechanism (STAR mode only)

This mechanism automatically cuts when there is a consecutive paper feed exceeding 7/6 inch. Hosts that cannot send an escape sequence such as <ESC> "d" and 0, can cut the paper if a line feed code <LF> of 1/6 inch is sent 7 times consecutively.

N = 2 (ESC/POS mode)

n1: Always "0"

n2: Always "0"

n3: Always "0"

Parameter	Setting	"0" to "F"
n4	Paper near end sensor	See below

n4	Paper near end sensor
"0" or "4" or "8" or "C"	Invalid
"1" or "9" or "D"	Invalid
"2" or "A" or "E"	Reflects status of sensor to STATUS and when near end, does not go offline and does not stop printing.
"3" or "B" or "F"	Reflects status of sensor to STATUS and when near end, goes offline and stops printing.

4) N = 3 (Star mode)

n3: Always "0"

Parameter	Setting	"0" to "F"
n1	Character table	See below
n2	Character table	
n4	CR code	

Value of <i>n</i>		Character Table
<i>n1</i>	<i>n2</i>	
"0" or "8"	"0"	Normal (Default)
"0" or "8"	"1"	Code Page 437 (USA, Std. Europe)/IBM Character Set #2
"0" or "8"	"2"	Katakana
"0" or "8"	"3"	IBM Character Set #1
"0" or "8"	"4"	Codepage 858 (Multilingual)
"0" or "8"	"5"	Codepage 852 (Latin-2)
"0" or "8"	"6"	Codepage 860 (Portuguese)
"0" or "8"	"7"	Codepage 861 (Icelandic)
"0" or "8"	"8"	Codepage 863 (Canadian French)
"0" or "8"	"9"	Codepage 865 (Nordic)
"0" or "8"	"A"	Codepage 866 (Cyrillic Russian)
"0" or "8"	"B"	Codepage 855 (Cyrillic Bulgarian)
"0" or "8"	"C"	Codepage 857 (Turkish)
"0" or "8"	"D"	Codepage 862 (Hebrew)
"0" or "8"	"E"	Codepage 864 (Arabic)
"0" or "8"	"F"	Codepage 737 (Greek)
"1" or "9"	"0"	Codepage 851 (Greek)
"1" or "9"	"1"	Codepage 869 (Greek)
"1" or "9"	"2"	Codepage 928 (Greek)
"1" or "9"	"3"	Codepage 772 (Lithuanian)
"1" or "9"	"4"	Codepage 774 (Lithuanian)
"1" or "9"	"5"	Codepage 874 (Thai)
"2" or "A"	"0"	Codepage 1252 (Windows Latin-1)
"2" or "A"	"1"	Codepage 1250 (Windows Latin-2)
"2" or "A"	"2"	Codepage 1251 (Windows Cyrillic)
"4" or "C"	"0"	Codepage 3840 (IBM-Russian)
"4" or "C"	"1"	Codepage 3841 (Gost)
"4" or "C"	"2"	Codepage 3843 (Polish)
"4" or "C"	"3"	Codepage 3844 (CS2)
"4" or "C"	"4"	Codepage 3845 (Hungarian)
"4" or "C"	"5"	Codepage 3846 (Turkish)
"4" or "C"	"6"	Codepage 3847 (Brazil-ABNT)
"4" or "C"	"7"	Codepage 3848 (Brazil-ABICOMP)
"4" or "C"	"8"	Codepage 1001 (Arabic)
"4" or "C"	"9"	Codepage 2001 (Lithuanian-KBL)
"4" or "C"	"A"	Codepage 3001 (Esornian-1)
"4" or "C"	"B"	Codepage 3002 (Esornian-2)
"4" or "C"	"C"	Codepage 3011 (Latvian-1)
"4" or "C"	"D"	Codepage 3012 (Latvian-2)
"4" or "C"	"E"	Codepage 3021 (Bulgarian)
"4" or "C"	"F"	Codepage 3041 (Maltese)

n4	CR code
"0"	Ignores
"1"	Ignores
"2"	Feeds line after printing (same as <LF>)
"3"	Prints (no line feed.)

N = 3 (ESC/POS mode)

n1: Always "0"

n2: Always "0"

n3: Always "0"

Parameter	Setting	"1" to "3"
<i>n4</i>	CR code	See below

n4	CR code
"0"	Prints (no line feed.)
"1"	Feeds line after printing (same as <LF>)
"2"	(Parallel Interface) Prints and feeds line when <i>nAutoFd</i> signal is "LOW". Does not feed line when "HIGH." (Serial Interface) Ignores
"3"	Ignores

5) N = 4 (Star mode)

n3: Always "0"

Para.	Setting	"0"	"1"	"2"	"3"
<i>n1</i>	X on/X off Timing	When Toggled	Every 3 sec	When Toggled	Every 3 sec
	RTS Signal Condition DTR	Save as DTR	Save as SPACE	Always SPACE	Always
<i>n2</i>	Receive buffer size	4 kbytes	4 kbytes	256 bytes	256 bytes
<i>n4</i>	Data receipt error	"?" Printed	Ignored	"?" Printed	Ignored

N = 4 (ESC/POS mode)

n3: Always "0"

Para.	Setting	"0"	"1"	"2"	"3"
n1	RTS signal condition	Save as DTR	Save as DTR	Always SPACE	Always SPACE
n2	Receive buffer size	4 k bytes	4 k bytes	40 bytes	40 bytes
n3	DSR signal check during setting status transmission	Checked	Checked	Not Checked	Not Checked

6) N = 5

n1: Always "0"

n2: Always "0"

n3: Always "0"

n4: Always "0"

7) N = 6

n3: Always "0"

n4: Always "0"

Para.	Setting	"0" to "F"
n1	Device ID (Parallel I/F only)	See below
	nPErrror signal (Parallel I/F only)	
n2	Busy condition (Star mode only) *1	
	Treatment of missing data during reverse mode.*2	

n1	Device ID
"0" or "2" or "4" or "6" or "8" or "A" or "C" or "E"	Invalid
"1" or "3" or "5" or "7" or "9" or "B" or "D" or "F"	Valid

n1	nPErrror signal
"0" to "7"	Paper end sensor
"8" to "F"	Paper end sensor and+ Paper near end sensor

n2	Busy condition
"0" or "2" or "4" or "6" or "8" or "A" or "C" or "E"	Receive buffer full or offline
"1" or "3" or "5" or "7" or "9" or "B" or "D" or "F"	Receive buffer full

n2	Treatment of missing data during reverse mode
"0" to "7"	Store
"8" to "F"	Delete

*1: Valid only when using a parallel interface.
 Set DIP SW 1-2 if you are using a serial interface.
 Also, the conditions for BUSY and the automatic status are disregarded.

*2: Valid only when using a parallel interface.
 For example, if you exit the reverse mode without the host receiving the trailing data of the automatic status the remainder of the status data will be handled as described below.

Store: Stores the remaining data and transmits it at the next time the reverse mode is entered. If the automatic status occurs, the new status will be transmitted after that remaining data.

Delete: Deletes the remaining data. It does not transmit that data the next time the reverse mode is entered. The new status data is transmitted from the header field.

FUNCTION

CODE

OUTLINE

Initialize printer

<ESC> "@"

(1B)H (40)H

Initializes all the commands already set. However the following parameters are not initialized: online switch valid/invalid selection. Also, the line and data buffers are not cleared. The DIP switches and the memory switches are not read in again. The select/deselect state for addressable mode and DC1/DC3 mode is not affected.

FUNCTION

CODE

OUTLINE

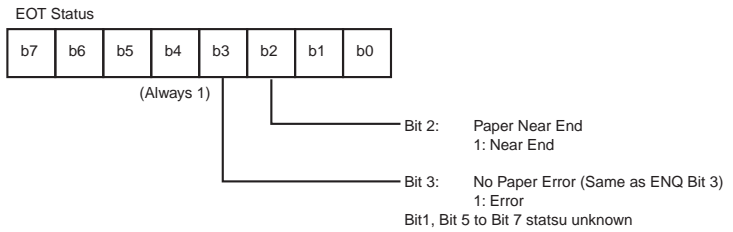
Transmits EOT status

<EOT>

(04)H

Transmits the EOT status of the printer to the host in real-time. (Does not execute after taking from reception buffer, but immediately upon receiving from the host.) It is in a "Data ready" state when using a bi-directional parallel interface.

- When one <EOT> command is sent to the printer, it will not send the next <EOT> command until the EOT status is received.
- When using the <EOT> command, always set the automatic status function to invalid.



FUNCTION

CODE

OUTLINE

Transmits ENQ status

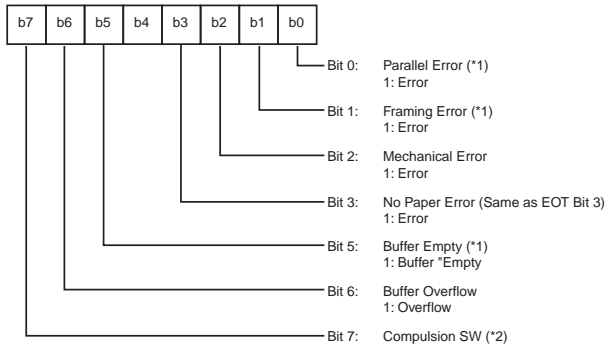
<ENQ>

(05)H

Transmits the ENQ status of the printer to the host in real-time. (Does not execute after taking from reception buffer, but immediately upon receiving from the host.) It is in a "Data ready" state when using a bi-directional parallel interface.

- When one <ENQ> command is sent to the printer, it will not send the next <ENQ> command until the ENQ status is received.
- When using the <ENQ> command, always set the automatic status function to invalid.

ENQ Status



*1: Bit 0 and Bit 1 are valid only with a serial interface. Bit0 = Bit1= 0 when using a parallel interface.

*2: Compulsion Switch

When the pin No. 6 on the connector for external device drive circuit is HIGH (Switch ON), Bit 7 = 1.

FUNCTION**CODE****OUTLINE**

Confirms finish of printing

<ETB>

(17)H

This command cause the printer to wait until all printing is completed (the printing motor stops) and sets the printer status 1-1 of the automatic status (<ETB> command) to "1" (only execute ETB).

Also, if print data still remains in the line buffer, it executes this command after printing the remaining data.

The host will know that the printing of the transmitted data is completed by confirming that the bit is "1." When the status bit is cleared to "0" when returned to the host.

FUNCTION**CODE****OUTLINE**

Transmits automatic status

<ESC> <ACK> <SOH>

(1B)H (06)H (01)H

This command transmits the contents of the printer's automatic status one time. (When using a bi-directional parallel interface, it is "Data Ready")

- When in the DTR mode for a serial interface, you need to set DIP switch 1-3 to OFF so that the printer status can be inquired during an error as well.
- When in the DTR mode for a parallel interface, you need to set DIP switch 6-9 to "1" so that the printer status can be inquired during an error as well.
- Always use the <ESC> <ACK> and <SOH> commands when the automatic status function is set to invalid. Also, when the <ESC> <ACK> and <SOH> commands are transmitted one time, you must not send the next <ESC> <ACK> and <SOH> commands until the automatic status is completely received.

FUNCTION

Enables/disables automatic status

CODE

<ESC> <RS> "a" *n*

(1B)H (1E)H (61)H *n*

OUTLINE

This command sets the transmission conditions of the automatic status. Initial values are according to DIP switch 1-6. See Chapter 2 Automatic Status Specifications for details on the contents of the automatic status.

Value of <i>n</i>	Hex	Automatic Status Valid/Invalid
0 or "0"	(00H) or (30H)	Invalid
1 or "1"	(01H) or (31H)	Valid

FUNCTION

Resets printer hardware and produces a test print

CODE

<ESC> "?" <LF> <NUL>

(1B)H (3F)H (0A)H (00)H

OUTLINE

Resets the printers hardware and executes one self-test print. After this command is sent, the next data is not sent until the printer is confirmed to be back online.

2. ESC/POS Mode Commands

The following table lists the TM-U200 and TM-U300 emulation commands that are supported by this printer.

2-1. Control Codes List

Control Codes	Hexadecimal Codes	Function	TM-U200	TM-U300
<HT>	09	Horizontal tab	OK	OK
<LF>	0A	Line feed	OK	OK
<CR>	0D	Prints and carriage return	OK	OK
<DLE> <EOT>	10 04	Enables real-time status send	OK	
<DLE> <ENQ>	10 05	Real-time request to printer	OK	
<ESC> SP	1B 20	Sets size of space to right of character	OK	OK
<ESC> !	1B 21	Enables batch print mode	OK	OK
<ESC> #	1B 23	Sets memory switch		
<ESC> %	1B 25	Enables/disables download character set	OK	OK
<ESC> &	1B 26	Defines download character	OK	OK
<ESC> *	1B 2A	Selects bit image mode	OK	OK
<ESC> -	1B 2D	Selects/cancels underlining	OK	OK
<ESC> 2	1B 32	Selects 1/6-inch line spacing	OK	OK
<ESC> 3	1B 33	Selects n/144-inch line spacing	OK	OK
<ESC> =	1B 3D	Selects peripheral device	OK	
<ESC> ?	1B 3F	Cancels download character	OK	OK
<ESC> @	1B 40	Initializes the printer	OK	OK
<ESC> D	1B 44	Sets horizontal tab position	OK	OK
<ESC> E	1B 45	Enables/disables emphasized mode	OK	OK
<ESC> G	1B 47	Enables/disables double-strike mode	OK	OK
<ESC> J	1B 4A	Prints and n/144-inch paper feed	OK	OK
<ESC> K	1B 4B	Prints and n/144-inch reverse paper feed	OK	OK

Control Codes	Hexadecimal Codes	Function	TM-U200	TM-U300
<ESC> R	1B 52	Selects international character set	OK	OK
<ESC> U	1B 55	Selects/cancels unidirectional printing mode	OK	OK
<ESC> V	1B 56	Designates/cancels 90° character rotation		
<ESC> a	1B 61	Aligns position	OK	
<ESC> c 3	1B 63 33	Selects the paper-end sensor for sending the no-paper signal	OK	OK
<ESC> c 4	1B 63 34	Selects the paper-end sensor for stopping printing	OK	OK
<ESC> c 5	1B 63 35	Enables/disables control panel switches	OK	OK
<ESC> d	1B 64	Prints or feeds n lines	OK	OK
<ESC> e	1B 65	Prints or reverse feeds n lines	OK	OK
<ESC> i	1B 69	Full-cut command to the auto cutter		OK
<ESC> m	1B 6D	Partial-cut command to the auto cutter		OK
<ESC> p	1B 70	Generates specified pulse	OK	OK
<ESC> r	1B 72	Selects print color		OK
<ESC> t	1B 74	Selects character code table	OK	OK
<ESC> u	1B 75	Sends peripheral status		OK
<ESC> v	1B 76	Sends paper sensor status		OK
<ESC> {	1B 7B	Enables/disables inverted printing	OK	OK
<GS> l	1D 49	Sends printer ID	OK	
<GS> V	1D 56	Cut command to the auto cutter	OK	
<GS> a	1D 61	Enables/disables automatic status	OK	
<GS> r	1D 72	Sends printer status	OK	
<GS> z 0	1D 7A 30	Setting of on-line recovery wait time	OK	

Ignored Commands

Control Codes	Hexadecimal Codes	Function	TM-U200	TM-U300
<ESC> <	1B 3c	Ignored (Returns home)	OK	
<ESC> c 0 n	1B 63 30 n	Ignored (Selects paper type(s) for printing)		OK
<ESC> f t1 t2	1B 66 t1 t2	Ignored (Sets cut sheet wait time)		OK
<GS> E n	1D 45 n	Ignored (Selects head control method)		OK

3. Auto Status Specifications

3-1. Auto Status

Auto status is a function that automatically relays any changes that occur in the status of the printer from the printer to the host. It is composed of the "Header -1," "Header - 2" and "a plurality of bytes of printer states."

The host always identifies the data using the method of identification for each byte received. (For example: This is necessary in consideration of the receiving side because there is the possibility that the X on/X off code could be included in the automatic status part way through transmission when in the Xon/Xoff mode [Serial I/F]).

Conditions for the validity and invalidity of the automatic status abide by the initial values of the settings of DIP switch 1-6. You can change the condition using the <ESC> <RS> "a" n command after turning ON the power.

You can acquire the automatic status regardless of it being valid or invalid using the <ESC> <ACK> <SOH> command.

Header 1

Header 1 is 1 byte of information heading the automatic status. Header 1 is composed of the items in Table 3-1 below. Header 1 indicates the byte count of the transmission of the entire status including Header 1 with bits 1 to 3 and bit 5. The host gets the information of the transmitted byte count and always receives the status data of the amount of the transmitted byte count. For reference, Table 3-2 shows the relationship of the actual transmitted byte count and the Header 1.

Bit 0 is always 1 (always 0 after the second byte) to indicate that it is the header data of Header 1 so when detecting Header 1, you can check that bit 0 = 1 and bit 4 = 0.

Bit 6 is for future expansion, so it is ignored in the processing on the host.

Table 3-1 Header 1 (First Byte)

Bit	Content	Status 0	Status 1
0	Always 1	_____	
1			
2	Printer Status Byte Count		
3			
4	Always 0		_____
5	Printer Status Byte Count		
6	Reserved (Fixed at 0)		_____
7	Not Used (Fixed at 0)		_____

Table 3-2 Relationship of Actual Transmitted Byte Count and Header 1

Transmitted Byte Count n (7 n 15)	Header 1
7	00001111B (0F Hex)
8	00100001B (21 Hex)
9	00100011B (23 Hex)
10	00100101B (25 Hex)
11	00100111B (27 Hex)
12	00101001B (29 Hex)
13	00101011B (2B Hex)
14	00101101B (2D Hex)
15	00101111B (2F Hex)

Header 2

Header 2 is the information of the length of one byte transmitted in the second byte of the automatic status. Table 3-3 shows the composition of the Header 2. Header 2 shows the version of the automatic status with bits 1 to 3 and bit 5 (called automatic status version below). For reference, Table 3-3 shows the relationship between the actual version and the Header 2.

The automatic status version will be upgraded when new information is added to the currently empty printer status bit positions through the addition of new functions in the future. When the host does not manage the automatic status version, it is acceptable that Header 2 be ignored.

Table 3-3 Header 2 (Second Byte)

Bit	Content	Status 0	Status 1
0	Always 0	_____	
1	Automatic Status Ver. Number		
2			
3			
4	Always 0		_____
5	Automatic Status Ver. Number		
6			_____
7	Not Used (Fixed at 0)		_____

Table 3-4 Relationship of Actual Automatic Status Version and Header 2

Version Number n	Header 2
1	00000010B (02 Hex)
2	00000100B (04 Hex)
3	00000110B (06 Hex)
4	00001000B (08 Hex)
5	00001010B (0A Hex)
6	00001100B (0C Hex)
7	00001110B (0E Hex)
8	00100000B (20 Hex)
9	00100010B (22 Hex)
10	00100100B (24 Hex)
•	•
•	•
•	•
16	01000000B (40 Hex)
•	•
•	•
•	•
30	01101100B (6C Hex)
31	01101110B (6E Hex)

Printer Status

Printer Status is the overall status transmitted in the third byte of the automatic status. Printer status is returned as transmission byte count -2 added by the Header 1. It always updates with new information. (There is no historical record existing.) Tables 3-5 to 3-9 show the composition of the overall status. The status of bits described as "Invalid" in the tables are always "unknown."

Table 3-5 Printer Status 1 <Printer Status> (Third Byte)

Bit	Content	Status 0	Status 1
0	Always 0		_____
1	<ETB> Command	Not Executed	Executed
2	Compulsion SW Status	Open	Closed
3	Online/Offline Status	Online	Offline
4	Always 0		_____
5	Invalid		
6	Offline using the Online SW	Does not occur	Occurs
7	Not Used (Fixed at 0)		_____

* Bit 1 is cleared to 0 when returned to the host. (Clearing bit 1 to 0 is not a target for the automatic status.)

Table 3-6 Printer Status 2 (Error Information) (Fourth Byte)

Bit	Content	Status 0	Status 1
0	Always 0		_____
1	Invalid		
2	Mechanical Error	No Error	Error Occurred
3	Auto Cutter Error	No Error	Error Occurred
4	Always 0		_____
5	Reset Not Possible Error	No Error	Error Occurred
6	Stopped Because of Hot Print Head	Not Stopped	Stopped
7	Not Used (Fixed at 0)		_____

Table 3-7 Printer Status 3 <Error Information> (Fifth Byte)

Bit	Content	Status 0	Status 1
0	Always 0		_____
1	Invalid		
2	Invalid		
3	Invalid		
4	Always 0		_____
5	Invalid		
6	Reception Buffer Overflow Error (*)	Does not occur	Occurs
7	Not Used (Fixed at 0)		_____

* Bit 6 is cleared to 0 when returned to the host.

Table 3-8 Printer Status 4 <Sensor Information> (Sixth Byte)

Bit	Content	Status 0	Status 1
0	Always 0		_____
1	Invalid		
2	Receipt Paper Near End	Has Paper	No Paper
3	Receipt Paper End	Has Paper	No Paper
4	Always 0		_____
5	Invalid		
6	Invalid		
7	Not Used (Fixed at 0)		_____

Table 3-9 Printer Status 5 <Sensor Information> (Seventh Byte)

Bit	Content	Status 0	Status 1
0	Always 0		_____
1	Invalid		
2	Invalid		
3	Invalid		
4	Always 0		_____
5	Invalid		
6	Invalid		
7	Not Used (Fixed at 0)		_____

(2) Precautions

Do not use the <ENQ>, <EOT>, <ESC>, <ACK> or <SOH> commands when the automatic status is valid. You must first invalidate the use of the automatic status function using the DIP switches or the <ESC> <RS> "a" n command to use these inquiry commands.

(3) Method to Identify States

<Control Code>	<Reception Data>
XON	<00010001>B
XOFF	<00010011>B

<Status>	<Reception Data>
ENQ Status	<***0***>B
EOT Status	<***1***0>B
Automatic Status (First Byte <Header 1>)	<0**0***1>B
Automatic Status (Second Byte and Beyond)	<0**0***0>B

0 = indicates bit fixed to 0.

1 = indicates bit fixed to 1.

* = indicates bit changed.

Appendix : Character Code Tables

Star Mode

(Character table: Normal)

Hexa- decimal	0	1	2	3	4	5	6	7
0	<NUL> 0	16	SP 32	0 48	@ 64	P 80	' 96	p 112
1	1	<DC1> 17	! 33	1 49	A 65	Q 81	a 97	q 113
2	<STX> 2	<DC2> 18	" 34	2 50	B 66	R 82	b 98	r 114
3	<ETX> 3	<DC3> 19	# 35	3 51	C 67	S 83	c 99	s 115
4	4	<DC4> 20	\$ 36	4 52	D 68	T 84	d 100	t 116
5	<ENQ> 5	21	% 37	5 53	E 69	U 85	e 101	u 117
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118
7	<BEL> 7	23	' 39	7 55	G 71	W 87	g 103	w 119
8	8	<CAN> 24	(40	8 56	H 72	X 88	h 104	x 120
9	<HT> 9	 25) 41	9 57	I 73	Y 89	i 105	y 121
A	<LF> 10	<SUB> 26	* 42	: 58	J 74	Z 90	j 106	z 122
B	<VT> 11	<ESC> 27	+ 43	; 59	K 75	[91	k 107	{ 123
C	<FF> 12	<FS> 28	, 44	< 60	L 76	\ 92	l 108	; 124
D	<CR> 13	<GS> 29	- 45	= 61	M 77	] 93	m 109	} 125
E	<SO> 14	<RS> 30	. 46	> 62	N 78	^ 94	n 110	~ 126
F	<SI> 15	31	/ 47	? 63	O 79	_ 95	o 111	⌘ 127

Note: The (7F)H code is a space when neither normal nor katakana.

Star Mode

(Character table: Normal)

Hexa- decimal	8	9	A	B	C	D	E	F
0	┘ 128	┘ 144	Ä 160	é 176	ù 192	ā 208	┘ 224	┘ 240
1	┘ 129	┘ 145	Ö 161	è 177	ū 193	â 209	┘ 225	┘ 241
2	┘ 130	· 146	Ü 162	ē 178	û 194	° 210	┘ 226	┘ 242
3	┘ 131	· 147	ß 163	ê 179	ç 195	°C 211	┘ 227	┘ 243
4	┘ 132	· 148	§ 164	ï 180	ı 196	°F 212	┘ 228	┘ 244
5	┘ 133	· 149	à 165	í 181	ñ 197	Ω 213	┘ 229	┘ 245
6	┘ 134	/ 150	ó 166	ì 182	ņ 198	μ 214	┘ 230	┘ 246
7	┘ 135	\ 151	f 167	ï 183	Ē 199	Σ 215	┘ 231	┘ 247
8	┘ 136	▼ 152	ç 168	î 184	Ɔ 200	σ 216	■ 232	┘ 248
9	┘ 137	▲ 153	½ 169	ö 185	ı 201	ā 217	■ 233	▲ 249
A	┘ 138	┘ 154	N T 170	ó 186	Å 202	TL 218	┘ 234	▲ 250
B	┘ 139	┘ 155	T X 171	ò 187	φ 203	X 219	← 235	= 251
C	┘ 140	┘ 156	¥ 172	ō 188	θ 204	∞ 220	↑ 236	|| 252
D	┘ 141	┘ 157	¼ 173	ô 189	ä 205	± 221	→ 237	┘ 253
E	┘ 142	· 158	Ā 174	ü 190	á 206	÷ 222	↓ 238	┘ 254
F	┘ 143	× 159	ë 175	ú 191	à 207	π 223	┘ 239	┘ 255

Star Mode

(Character table: IBM Character set #2 (Code page 437))

Hexa-decimal	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	⋮ 176	Ł 192	⋮ 208	α 224	≡ 240
1	ü 129	æ 145	í 161	⋮ 177	Ł 193	ƒ 209	β 225	± 241
2	é 130	Æ 146	ó 162	⋮ 178	ƒ 194	π 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	| 179	ƒ 195	⋮ 211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	ƒ 180	- 196	ƒ 212	Σ 228	∫ 244
5	à 133	ò 149	Ñ 165	ƒ 181	ƒ 197	F 213	σ 229	J 245
6	á 134	û 150	à 166	ƒ 182	ƒ 198	π 214	μ 230	÷ 246
7	ç 135	ù 151	ó 167	π 183	ƒ 199	ƒ 215	τ 231	≈ 247
8	è 136	ÿ 152	ı 168	ƒ 184	ƒ 200	ƒ 216	Φ 232	° 248
9	ë 137	Ö 153	ƒ 169	ƒ 185	ƒ 201	ƒ 217	Θ 233	· 249
A	è 138	Ü 154	ƒ 170	ƒ 186	ƒ 202	ƒ 218	Ω 234	- 250
B	ï 139	Ç 155	½ 171	ƒ 187	ƒ 203	■ 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	ƒ 188	ƒ 204	■ 220	∞ 236	∩ 252
D	ì 141	¥ 157	ı 173	⋮ 189	= 205	| 221	φ 237	² 253
E	Ä 142	ƒ 158	« 174	ƒ 190	ƒ 206	| 222	ε 238	' 254
F	Å 143	f 159	» 175	ƒ 191	ƒ 207	■ 223	∩ 239	

Note: Other characters are the same as those for Character table: Normal.

Star Mode

(Character table: Katakana)

Hexa-decimal	8	9	A	B	C	D	E	F
0	128	144	160	176	192	208	224	240
1	129	145	161	177	193	209	225	241
2	130	146	162	178	194	210	226	242
3	131	147	163	179	195	211	227	243
4	132	148	164	180	196	212	228	244
5	133	149	165	181	197	213	229	245
6	134	150	166	182	198	214	230	246
7	135	151	167	183	199	215	231	247
8	136	152	168	184	200	216	232	248
9	137	153	169	185	201	217	233	249
A	138	154	170	186	202	218	234	250
B	139	155	171	187	203	219	235	251
C	140	156	172	188	204	220	236	252
D	141	157	173	189	205	221	237	253
E	142	158	174	190	206	222	238	254
F	143	159	175	191	207	223	239	255

Note: Other characters are the same as those for Character table: Normal.

Star Mode

(Character table: IBM Character set #1)

	0	1
0	<NUL>	
1		
2		<DC1>
3		<DC2>
4	<EOT>	<DC3>
5	<ENQ>	<DC4>
6	<ACK>	
7	<BEL>	
8	<BS>	<CAN>
9	<HT>	<EM>
A	<LF>	
B	<VT>	<ESC>
C	<FF>	
D	<CR>	<GS>
E	<SO>	<RS>
F	<SI>	

	8	9
0	<NUL>	
1		
2		<DC1>
3		<DC2>
4	<EOT>	<DC3>
5	<ENQ>	<DC4>
6	<ACK>	
7	<BEL>	
8	<BS>	<CAN>
9	<HT>	<EM>
A	<LF>	
B	<VT>	<ESC>
C	<FF>	
D	<CR>	<GS>
E	<SO>	<RS>
F	<SI>	

Note: Other characters are the same as those for IBM Character Set #2.

Star Mode

Code Page #858

Multi-lingual

	8	9	A	B	C	D	E	F
0	Ç	É	á	⌘	Ł	ö	ó	-
1	ü	æ	í	⌘	ł	ð	β	±
2	é	Æ	ó	⌘	Ť	È	ò	=
3	â	ô	ú	|	†	È	ò	≠
4	ä	ö	ñ	†	-	È	ò	¶
5	à	ò	Ñ	A	†	€	Ö	§
6	â	û	æ	A	ā	í	μ	÷
7	ç	ù	ø	A	Ā	ī	þ	°
8	ê	ÿ	ı	©	ℓ	ℓ	þ	°
9	ë	ö	ø	⌘	†	Ť	Ů	°
A	è	Û	ı	||	||	Ť	Ů	°
B	ï	ø	ı	||	||	■	Ů	ı
C	î	£	ı	||	||	■	Ÿ	ı
D	ï	Ø	ı	¢	=	ı	Ÿ	ı
E	Ā	×	«	¥	†	†	ı	■
F	Ā	f	»	‡	‡	■	ı	ı

Code Page #852

Latin-2

	8	9	A	B	C	D	E	F
0	Ç	É	á	⌘	Ł	đ	Ó	-
1	ü	Ĺ	í	⌘	ł	Đ	β	"
2	é	Í	ó	⌘	Ť	Đ	Ó	˘
3	â	ô	ú	|	†	Đ	Ń	˘
4	ä	ö	Ā	†	-	đ	ń	˘
5	û	Ĺ	ā	A	†	Ń	ń	§
6	ć	ĩ	z	A	Ā	í	š	÷
7	ç	š	ž	E	ā	ī	š	°
8	ł	ś	ę	š	ℓ	ℓ	ř	°
9	ë	ö	ę	⌘	†	Ť	Ů	°
A	ö	Ů	ı	||	||	Ť	ř	°
B	ó	T	z	||	||	■	Ů	ú
C	ı	č	č	||	||	■	Ÿ	ř
D	Z	Ł	š	Z	=	T	Ÿ	ř
E	Ā	×	«	z	†	Ů	ı	■
F	Ā	č	»	‡	‡	■	ı	ı

Code Page #860

Portuguese

	8	9	A	B	C	D	E	F
0	Ç	É	á	⌘	Ł	α	≡	
1	ü	Α	í	⌘	ł	β	±	
2	é	È	ó	⌘	Ť	Γ	π	≤
3	â	ô	ú	|	†	π	π	≤
4	ä	ö	ñ	†	-	Σ	σ	∫
5	à	ò	Ñ	A	†	F	σ	J
6	Ā	Ů	æ	A	ā	π	μ	÷
7	ç	ù	ø	π	†	†	τ	≈
8	ê	ÿ	ı	†	†	†	Φ	°
9	ë	ö	ø	⌘	†	Ť	θ	°
A	è	Û	ı	||	||	Ť	Ω	°
B	ï	φ	ı	||	||	■	δ	√
C	î	£	ı	||	||	■	∞	n
D	ï	Ø	ı	||	||	=	∅	2
E	Ā	ℓ	«	†	†	†	ε	■
F	Ā	ó	»	‡	‡	■	∩	

Code Page #861

Icelandic

	8	9	A	B	C	D	E	F
0	Ç	É	á	⌘	Ł	α	≡	
1	ü	æ	í	⌘	ł	β	±	
2	é	Æ	ó	⌘	Ť	π	π	≤
3	â	ô	ú	|	†	π	π	≤
4	ä	ö	Ā	†	-	ℓ	Σ	∫
5	à	ò	Ā	A	†	F	σ	J
6	Ā	Ů	æ	A	ā	π	μ	÷
7	ç	ù	ø	π	†	†	τ	≈
8	ê	ÿ	ı	†	†	†	Φ	°
9	ë	ö	ø	⌘	†	Ť	θ	°
A	è	Û	ı	||	||	Ť	Ω	°
B	Đ	φ	ı	||	||	■	δ	√
C	ð	£	ı	||	||	■	∞	n
D	Þ	Ø	ı	||	||	=	∅	2
E	Ā	ℓ	«	†	†	†	ε	■
F	Ā	f	»	‡	‡	■	∩	

Note: Other characters are the same as those for Character table: Normal.

Star Mode

Code Page #863
Canadian French

	8	9	A	B	C	D	E	F
0	Ç	É	Í	Ï	Ł	Ш	α	≡
1	ü	È	´	Û	⊥	⊥	β	±
2	é	Ê	ó	⊥	⊥	⊥	Γ	≥
3	â	ô	ú	|	|	|	π	≤
4	À	È	¨	†	†	†	Σ	∫
5	à	ÿ	˙	†	†	†	σ	∫
6	ŋ	û	˙	†	†	†	μ	÷
7	ç	ù	˙	†	†	†	τ	≈
8	ê	œ	î	‡	‡	‡	Φ	°
9	ë	ö	ï	‡	‡	‡	Θ	•
A	è	Û	˙	‡	‡	‡	Ω	•
B	ÿ	ø	˙	‡	‡	‡	δ	√
C	î	œ	˙	‡	‡	‡	∞	n
D	=	Û	˙	‡	‡	‡	∅	²
E	À	Û	«	‡	‡	‡	ε	■
F	Š	f	»	‡	‡	‡	∩	

Code Page #865
Nordic

	8	9	A	B	C	D	E	F
0	Ç	É	á	Ï	Ł	Ш	α	≡
1	ü	æ	í	Û	⊥	⊥	β	±
2	é	Æ	ó	⊥	⊥	⊥	Γ	≥
3	â	ô	ú	|	|	|	π	≤
4	ä	ö	ñ	†	†	†	Σ	∫
5	à	ò	Ñ	†	†	†	σ	∫
6	ä	û	˙	†	†	†	μ	÷
7	ç	ù	˙	†	†	†	τ	≈
8	ê	ÿ	˙	†	†	†	Φ	°
9	ë	ö	˙	†	†	†	Θ	•
A	è	Û	˙	†	†	†	Ω	•
B	ÿ	ø	˙	†	†	†	δ	√
C	î	œ	˙	†	†	†	∞	n
D	i	Ø	i	†	†	†	∅	²
E	À	Û	«	†	†	†	ε	■
F	À	f	»	†	†	†	∩	

Code Page #866
Cyrillic Russian

	8	9	A	B	C	D	E	F
0	А	Р	а	Ï	Ł	Ш	р	È
1	Б	С	б	Û	⊥	⊥	с	ë
2	В	Т	в	⊥	⊥	⊥	т	Є
3	Г	У	г	|	|	|	у	е
4	Д	Ф	д	†	†	†	ф	ÿ
5	Е	Х	е	†	†	†	х	ï
6	Ж	Ц	ж	‡	‡	‡	ц	ÿ
7	З	Ч	з	‡	‡	‡	ч	ÿ
8	И	Ш	и	‡	‡	‡	ш	°
9	Й	Щ	й	‡	‡	‡	щ	•
A	К	Ъ	к	‡	‡	‡	ъ	•
B	Л	Ы	л	‡	‡	‡	ы	√
C	М	Ь	м	‡	‡	‡	ь	№
D	Н	Э	н	‡	‡	‡	э	κ
E	О	Ю	о	‡	‡	‡	ю	■
F	П	Я	п	‡	‡	‡	я	

Note: Other characters are the same as those for Character table: Normal.

Star Mode

Code Page #855

Cyrillic Bulgarian

	8	9	A	B	C	D	E	F
0	ђ	љ	а	⋮	Л	Я	-	
1	ћ	љ	А	⋮	Л	Р	ы	
2	ѓ	њ	б	⋮	Т	М	Ы	
3	ѓ	њ	Б	⋮	Т	М	С	э
4	ё	ћ	ц	⋮	—	Н	С	З
5	ё	ћ	Ц	⋮	—	Н	Т	Ш
6	е	к	д	⋮	К	О	Т	Ш
7	Е	К	Д	⋮	К	О	У	э
8	s	у	е	⋮	И	Ц	У	Э
9	S	У	Е	⋮	И	Ц	У	Э
A	i	ц	ф	⋮	И	Ж	Щ	Ч
B	I	Ц	Ф	⋮	И	Ж	Щ	Ч
C	i	ю	г	⋮	И	В	В	Ч
D	i	Ю	Г	⋮	И	В	В	Ч
E	j	ь	«	⋮	И	Я	Б	■
F	J	Ь	»	⋮	И	Я	Б	■

Code Page #857

Turkish

	8	9	A	B	C	D	E	F
0	Ç	É	á	⋮	Л	О	Ó	-
1	Ü	æ	í	⋮	Л	ø	±	
2	ç	Æ	ó	⋮	—	È	Ò	
3	â	ò	ú	⋮	—	È	Ò	¾
4	ä	ö	ñ	⋮	—	È	Ö	¾
5	à	ò	Ñ	⋮	—	È	Ö	¾
6	ã	û	ğ	⋮	—	İ	ı	+
7	ç	ù	ğ	⋮	—	İ	ı	+
8	ç	İ	ı	⋮	—	İ	ı	+
9	ë	ü	ı	⋮	—	İ	ı	+
A	ì	ø	½	⋮	—	İ	ı	+
B	İ	ø	½	⋮	—	İ	ı	+
C	İ	ø	½	⋮	—	İ	ı	+
D	ı	ø	ı	⋮	—	İ	ı	+
E	Ä	Ş	«	⋮	—	İ	ı	+
F	Ä	Ş	»	⋮	—	İ	ı	+

Code Page #862

Hebrew

	8	9	A	B	C	D	E	F
0	כ	י	á	⋮	Л	α	≡	
1	כ	י	í	⋮	Л	β	±	
2	ג	ו	ó	⋮	—	Γ	≥	
3	ג	ו	Ó	⋮	—	Γ	≥	
4	ה	פ	ñ	⋮	—	Σ	↑	
5	ו	י	Ñ	⋮	—	σ	↓	
6	ו	ז	ø	⋮	—	μ	+	
7	פ	ז	ø	⋮	—	τ	≈	
8	צ	ך	ç	⋮	—	φ	°	
9	צ	ך	ç	⋮	—	φ	°	
A	ך	ל	ı	⋮	—	Ω	·	
B	ך	ל	ı	⋮	—	Ω	·	
C	ל	£	¼	⋮	—	ø	√	
D	ל	£	¼	⋮	—	ø	√	
E	מ	פ	«	⋮	—	ε	■	
F	מ	פ	»	⋮	—	ε	■	

Code Page #864

Arabic

	8	9	A	B	C	D	E	F
0	˘	β	·	ø	ذ	—	ٲ	
1	·	ø	-	ı	ء	ر	ظ	ٲ
2	·	ø	ل	ر	ٲ	ظ	ن	ن
3	√	±	£	ر	ٲ	ظ	ن	ن
4	⋮	¼	£	£	ظ	ظ	ظ	ظ
5	—	¼	ل	و	ظ	ظ	ظ	ظ
6	—	≈	ل	ظ	ظ	ظ	ظ	ظ
7	—	«	£	ظ	ظ	ظ	ظ	ظ
8	—	»	ل	ظ	ظ	ظ	ظ	ظ
9	—	ظ	ظ	ظ	ظ	ظ	ظ	ظ
A	—	ظ	ظ	ظ	ظ	ظ	ظ	ظ
B	—	ظ	ظ	ظ	ظ	ظ	ظ	ظ
C	—	ظ	ظ	ظ	ظ	ظ	ظ	ظ
D	—	ظ	ظ	ظ	ظ	ظ	ظ	ظ
E	—	ظ	ظ	ظ	ظ	ظ	ظ	ظ
F	—	ظ	ظ	ظ	ظ	ظ	ظ	ظ

Note: Other characters are the same as those for Character table: Normal.

Star Mode

Code Page #737

Greek

	8	9	A	B	C	D	E	F
0	Α	Ρ	ι	⋮	Λ	μ	ω	Ω
1	Β	Σ	κ	⋮	⊥	̄	ά	±
2	Γ	Τ	λ	⋮	Τ	Π	έ	≥
3	Δ	Υ	μ	|	⊥	μ	ή	≤
4	Ε	Φ	ν	⊥	—	ε	ι	Υ
5	Ζ	Χ	ξ	⊥	⊥	ϕ	ι	Υ
6	Η	Ψ	ο	⋮	⊥	π	ό	÷
7	Θ	Ω	π	⋮	⊥	⋮	ύ	≈
8	Ι	α	ρ	⊥	⊥	⊥	ώ	°
9	Κ	β	σ	⋮	⊥	⋮	ύ	•
A	Λ	γ	ς	⋮	⊥	⋮	Ά	•
B	Μ	δ	τ	⋮	⊥	■	Ε	√
C	Ν	ε	υ	⋮	⊥	■	Η	n
D	Ξ	ξ	φ	⋮	⊥	■	Ι	²
E	Ο	η	χ	⊥	⊥	⋮	Ό	■
F	Π	θ	ψ	⊥	⊥	⋮	Υ	

Code Page #851

Greek

	8	9	A	B	C	D	E	F
0	Ç	Ι	ι	⋮	Λ	Τ	ξ	—
1	ü		ι	⋮	⊥	Υ	η	±
2	é	Ο	ό	⋮	Τ	Φ	θ	υ
3	â	δ	ύ	|	⊥	Χ	ι	φ
4	ä	ö	Α	⊥	—	Ψ	κ	χ
5	à	Υ	Β	Κ	⊥	Ω	λ	ξ
6	À	ù	Γ	Λ	Π	α	μ	ψ
7	ç	ù	Δ	Μ	Ρ	β	ν	,
8	è	Ω	Ε	Ν	⊥	⊥	ξ	°
9	ë	ö	Ζ	⋮	⋮	⋮	ύ	°
A	è	Ü	Η	⋮	⊥	⋮	π	ω
B	ÿ	á	ξ	⋮	⊥	■	ρ	ü
C	î	£	θ	⋮	⊥	■	σ	ü
D	E	é	Ι	Ξ	=	δ	ς	ώ
E	Ä	ή	«	Ο	⋮	ε	τ	■
F	H	ι	»	⊥	⋮	■		

Code Page #869

Greek

	8	9	A	B	C	D	E	F
0		Ι	ι	⋮	Λ	Τ	ξ	—
1		Υ	ι	⋮	⊥	Υ	η	±
2		Ü	ό	⋮	Τ	Φ	θ	υ
3			ύ	|	⊥	Χ	ι	φ
4			Α	⊥	—	Ψ	κ	χ
5		Υ	Β	Κ	⊥	Ω	λ	ξ
6	A	ÿ	Γ	Λ	Π	α	μ	ψ
7		⊙	Δ	Μ	Ρ	β	ν	~
8	•	Ω	Ε	Ν	⊥	γ	ξ	°
9	⊥	²	Ζ	⋮	⊥	⋮	ο	°
A	|	³	Η	⋮	⊥	⋮	π	ω
B	'	ά	ξ	⋮	⊥	■	ρ	ü
C	'	£	θ	⋮	⊥	■	σ	ü
D	E	é	Ι	Ξ	=	δ	ς	ώ
E	—	ή	«	Ο	⋮	ε	τ	■
F	H	ι	»	⊥	⋮	■		

Code Page #928

Greek

	8	9	A	B	C	D	E	F
0					ι	Π	ü	π
1				±	A	P	α	ρ
2				²	B	β	ς	
3			£	³	Γ	Σ	γ	σ
4				'	Δ	T	δ	τ
5				~	E	Y	e	υ
6			‡		A	Z	ξ	φ
7			§	•	H	X	η	χ
8			°		E	θ	ψ	ψ
9			⊙		H	I	Ω	ι
A					I	K	ι	ι
B					«	»	Λ	Υ
C					⊥	Ο	M	ά
D						½	N	έ
E						Υ	Ξ	ή
F						Ω	O	ι

Note: Other characters are the same as those for Character table: Normal.

Star Mode

Code Page #772

Lithuanian

	8	9	A	B	C	D	E	F
0	А	Р	а	⌘	Л	а	р	Ё
1	Б	С	б	⌘	л	с	ё	
2	В	Т	в	⌘	т	е	т	≥
3	Г	У	г	|	т	ё	у	≤
4	Д	Ф	д	†	—	і	ф	”
5	Е	Х	е	А	†	š	х	“
6	Ж	Ц	ж	С	Ū	ц	ц	+
7	З	Ч	з	Е	Ū	ч	ч	≈
8	И	Ш	и	Е	Ц	ш	ш	°
9	Й	Щ	й	†	†	щ	щ	•
A	К	Ь	к	†	†	ь	ь	•
B	Л	Ы	л	†	†	ы	ы	†
C	М	Ь	м	†	†	ь	ь	n
D	Н	Э	н	†	=	э	э	z
E	О	Ю	о	Š	†	ю	ю	■
F	П	Я	п	†	ž	я	я	

Code Page #774

Lithuanian

	8	9	A	B	C	D	E	F
0	Ç	É	Á	⌘	Л	ą	α	≡
1	ü	æ	í	⌘	л	ę	β	±
2	é	Æ	ó	⌘	т	ę	Γ	≥
3	à	ò	ú	|	†	è	π	≤
4	ä	ö	ñ	†	—	ì	Σ	”
5	â	ô	ñ	A	†	š	σ	“
6	á	û	š	Č	Ū	ų	μ	+
7	ç	ù	ó	É	Ū	ū	τ	≈
8	é	ý	í	É	Ц	ž	Φ	°
9	ë	ö	í	†	†	ž	θ	•
A	è	Ū	†	†	†	†	Ω	•
B	ï	ç	š	†	†	■	δ	†
C	í	£	š	†	†	■	∞	n
D	ì	¥	í	†	=	■	∅	z
E	ˆ	£	«	Š	†	■	ε	■
F	À	f	»	†	ž	■	∩	

Note: Other characters are the same as those for Character table: Normal.

Star Mode

Code Page #874

Thai

	8	9	A	B	C	D	E	F
0	€		ฐ	ภ	ะ	เ	อ	
1			ก	ท	ม	ุ	แ	ด
2			ข	ฃ	ย	า	ไ	ธ
3			ช	ฅ	ร	ำ	ใ	ถ
4			ค	ค	ถ	อ	ั	ใ
5			ค	ค	ล	อ	ั	ใ
6			ม	ถ	ภ	ำ	ใ	ย
7			ง	ท	ว	อ	อ	ย
8			จ	ช	ศ	อ	อ	ย
9			ฉ	น	ษ	อ	อ	ย
A			ช	บ	ล	อ	อ	ย
B			ช	บ	ห	อ	อ	ย
C			ฅ	ฝ	พ	อ	อ	ย
D			ฅ	ฝ	อ	อ	อ	ย
E			ฅ	ฝ	อ	อ	อ	ย
F			ฅ	ฝ	อ	อ	อ	ย

Code Page #1250

Windows Latin-2

	8	9	A	B	C	D	E	F
0	€		´	Á	Đ	ř	đ	
1			˘	Á	Ñ	á	ñ	
2			˙	Á	Ñ	â	ñ	
3			˚	Á	Ó	ă	ó	
4			˛	Ä	Ö	ä	ö	
5			•	Å	Ł	ł	ı	õ
6			†	ı	Ń	ć	ć	ö
7			‡	ı	Ś	ç	ç	+
8			ˆ	Č	Ř	č	ř	
9			‰	É	Ú	é	ú	
A			Š	Š	Š	Š	Š	ú
B			<	>	<	>	È	Ú
C			Š	Š	Š	Š	È	Ú
D			†	†	-	˘	ı	ı
E			ž	ž	ž	ž	ı	ı
F			ž	ž	ž	ž	ı	ı

Code Page #1251

Windows Cyrillic

	8	9	A	B	C	D	E	F
0	Ђ	ђ	˘	А	Р	а	р	
1	Ѓ	ѓ	˘	Б	С	б	с	
2	„	„	˘	І	В	Т	в	т
3	ѓ	“	Ј	і	Г	У	г	у
4	„	”	ѣ	Г	Д	Ф	д	ф
5	…	•	Г	М	Е	Х	е	х
6	†	-	ı	Ж	Ц	ж	ц	
7	‡	-	Ś	З	Ч	з	ч	
8	€		Ё	ё	И	и	ш	
9	‰	™	®	№	Й	й	щ	
A	Љ	љ	Є	є	К	к	ь	
B	<	>	<	>	Л	л	ы	
C	Њ	њ	ı	М	В	м	ь	
D	К	к	-	С	Н	Э	н	э
E	ћ	ћ	®	О	Ю	о	ю	
F	џ	џ	ı	П	Я	п	я	

Code Page #1252

Windows Latin-1

	8	9	A	B	C	D	E	F
0	€		´	Á	Đ	à	ă	
1			˘	Á	Ñ	á	ñ	
2			˙	Á	Ò	â	ò	
3			˚	Á	Ó	ă	ó	
4			˛	Ä	Ö	ä	ö	
5			•	Å	Ł	ł	ı	õ
6			†	ı	Ń	œ	œ	ö
7			‡	ı	Ś	ç	ç	÷
8			ˆ	Č	Ø	è	ø	
9			‰	É	Ú	é	ú	
A			Š	Š	Š	Š	Š	ú
B			<	>	<	>	È	Ú
C			Œ	œ	ı	¼	ı	ı
D			–	–	½	ı	ı	ı
E			ž	ž	ž	ı	ı	ı
F			ÿ	ÿ	ÿ	ı	ı	ı

Note: Other characters are the same as those for Character table: Normal.

Star Mode

Code Page #3840
IBM-Russian

	8	9	A	B	C	D	E	F
0	А	Р	а	▯	Л	ш	р	≡
1	Б	С	б	▯	л	ш	с	±
2	В	Т	в	▯	т	ш	т	≥
3	Г	У	г	|	т	ш	у	≤
4	Д	Ф	д	┆	—	т	ф	┆
5	Е	Х	е	┆	+	т	х	J
6	Ж	Ц	ж	▯	┆	т	ц	÷
7	З	Ч	з	▯	▯	т	ч	≈
8	И	Ш	и	┆	▯	т	ш	°
9	Й	Щ	й	┆	▯	т	щ	•
A	К	Ъ	к	▯	▯	т	ъ	•
B	Л	Ы	л	▯	▯	т	ы	√
C	М	Ь	м	▯	▯	т	ь	n
D	Н	Э	н	▯	▯	т	э	z
E	О	Ю	о	┆	▯	т	ю	■
F	П	Я	п	┆	▯	т	я	

Code Page #3841
Gost

	8	9	A	B	C	D	E	F
0	Р	Ф	0	ю	п	Ю	П	
1	э	Э	!	і	а	я	А	Я
2	ё	Ё	"	2	б	р	Б	Р
3	і	І	#	3	ц	с	Ц	С
4	ї	Ї	и	4	д	т	Д	Т
5	ј	Ј	%	5	е	у	Е	У
6	к	К	&	6	ф	ж	Ф	Ж
7	е	Ө	'	7	г	в	Г	В
8	у	У	(	8	х	ь	Х	Ь
9	ү	Ү	)	9	и	ы	И	Ы
A	х	Х	*	:	й	э	Й	Э
B	ң	Ң	+	;	к	ш	К	Ш
C	ч	Ч	,	<	л	э	Л	Э
D	ц	Ц	-	=	м	щ	М	Щ
E	е	Є	.	>	н	ч	Н	Ч
F	£	£	/	?	о	ь	О	Ө

Code Page #3843
Polish

	8	9	A	B	C	D	E	F
0	Ç	È	Ž	▯	Л	ш	α	≡
1	ü	ę	Z	▯	л	ш	β	±
2	é	ł	ó	▯	т	ш	Γ	≥
3	â	ô	Ó	|	т	ш	π	≤
4	ä	ö	ń	┆	—	т	Σ	┆
5	à	Ċ	N	┆	+	т	σ	J
6	ą	û	ź	┆	┆	т	μ	÷
7	ç	ù	ż	▯	▯	т	τ	≈
8	ê	ś	Ź	┆	▯	т	Φ	°
9	ë	ö	ŕ	┆	▯	т	Θ	•
A	è	Û	ŕ	▯	▯	т	Ω	•
B	ĩ	ż	½	▯	▯	т	δ	√
C	î	Ł	¼	▯	▯	т	∞	n
D	ć	Ź	ı	▯	▯	т	∅	z
E	Ā	ś	«	┆	▯	т	€	■
F	Ą	ŕ	»	┆	▯	т	∩	

Code Page #3844
CS2

	8	9	A	B	C	D	E	F
0	Č	Ě	á	▯	Л	ш	α	≡
1	ú	ž	í	▯	л	ш	β	±
2	é	Z	ó	▯	т	ш	Γ	≥
3	ď	ô	ú	|	т	ш	π	≤
4	ä	ö	ň	┆	—	т	Σ	┆
5	Ď	ó	N	┆	+	т	σ	J
6	T	û	Ů	┆	┆	т	μ	÷
7	č	ú	ô	▯	▯	т	τ	≈
8	ě	ý	š	┆	▯	т	Φ	°
9	E	ö	ř	┆	▯	т	Θ	•
A	l	Û	ř	▯	▯	т	Ω	•
B	í	S	R	▯	▯	т	δ	√
C	í	L	¼	▯	▯	т	∞	n
D	í	Ÿ	š	▯	▯	т	∅	z
E	Ā	R	«	┆	▯	т	€	■
F	Ā	ř	»	┆	▯	т	∩	

Note: Other characters are the same as those for Character table: Normal.

Star Mode

Code Page #3845

Hungarian

	8	9	A	B	C	D	E	F
0	Ç	É	á	☐	Ł	μ	α	≡
1	ü	æ	í	☐	ł	ȳ	β	±
2	é	Æ	ó	☐	Ț	Π	Γ	≥
3	â	ô	ú	|	ı	π	π	≤
4	ä	ö	ñ	|	-	ı	Σ	∫
5	à	ó	Ñ	|	+	F	σ	J
6	â	ú	ä	|	ı	ı	μ	÷
7	ç	ű	ő	ı	ı	ı	τ	≈
8	ê	ű	ı	ı	ı	ı	Φ	°
9	ë	ö	ı	ı	ı	J	Θ	•
A	è	ü	ı	ı	ı	ı	Ω	•
B	ï	ç	ı	ı	ı	ı	δ	√
C	î	£	ı	ı	ı	ı	∞	n
D	í	¥	ı	ı	ı	ı	∅	²
E	Ë	ı	ı	ı	ı	ı	€	■
F	Á	f	ı	ı	ı	ı	ı	ı

Code Page #3846

Turkish

	8	9	A	B	C	D	E	F
0	Ç	É	á	☐	Ł	μ	α	≡
1	ü	æ	í	☐	ł	ȳ	β	±
2	é	Æ	ó	☐	Ț	Π	Γ	≥
3	â	ô	ú	|	ı	π	π	≤
4	ä	ö	ñ	|	-	ı	Σ	∫
5	à	ò	Ñ	|	+	F	σ	J
6	â	û	G	|	ı	ı	μ	÷
7	ç	ù	ğ	ı	ı	ı	τ	≈
8	ê	İ	ı	ı	ı	ı	Φ	°
9	ë	Ö	ı	ı	ı	ı	Θ	•
A	è	Ü	ı	ı	ı	ı	Ω	•
B	ï	ç	ı	ı	ı	ı	δ	√
C	î	£	ı	ı	ı	ı	∞	n
D	ı	¥	ı	ı	ı	ı	∅	²
E	Ë	ı	ı	ı	ı	ı	€	■
F	Á	ı	ı	ı	ı	ı	ı	ı

Code Page #3847

Brazil-ABNT

	8	9	A	B	C	D	E	F
0			°	À	Ð	à	d	
1		ı	±	Á	Ñ	á	ñ	
2		ç	²	Â	Ò	â	ò	
3		£	³	Ã	Ó	ã	ó	
4		¤	´	Ä	Ô	ä	ô	
5		¥	µ	Å	Õ	å	õ	
6		ı	¶	Æ	Ö	æ	ö	
7		§	•	Ç		ç		
8		¨	,	È	Ø	è	ø	
9		©	ı	É	Ù	é	ù	
A		ª	º	Ê	Ú	ê	ú	
B		«	»	Ë	Û	ë	û	
C		¬	¼	Ï	Ü	ï	ü	
D		¬	½	Í	Ý	í	ý	
E		®	¾	Î	Þ	î	þ	
F		™	¿	Ï	ß	ï	ÿ	

Code Page #3848

Brazil-ABICOMP

	8	9	A	B	C	D	E	F
0			ò	ı	ò			
1			À	Ó	à	ó		
2			Á	Ô	á	ô		
3			Â	Õ	â	õ		
4			Ã	Ö	ã	ö		
5			Ä	Æ	ä	æ		
6			Ç	Û	ç	ù		
7			È	Ü	è	ú		
8			É	Û	é	û		
9			Ê	Ü	ê	ü		
A			Ë	Ý	ë	ý		
B			Ì		ì	β		
C			Í	£	í	æ		
D			Î	ı	î	ø		
E			Ï	§	ï	ı		
F			Ñ	°	ñ	±		

Note: Other characters are the same as those for Character table: Normal.

Star Mode

Code Page #1001

Arabic

	8	9	A	B	C	D	E	F
0	ء	ر	ع	م	ل	و	ن	هـ
1	آ	ز	ع	ن	ج	و	:	±
2	أ	س	غ	ث	ق	ـ	لا	≥
3	ؤ	س	غ	هـ	ح	ـ	لا	≤
4	أ	س	ف	د	ش	ـ	لا	∫
5	ث	ش	و	و	خ	ا	د	∫
6	ا	ق	ي	خ	ق	ز	د	+
7	ب	ق	ع	ع	ي	ز	±	≈
8	ب	ي	ك	ي	ع	ف	θ	·
9	ب	ي	ك	ي	ع	ف	θ	·
A	ت	ل	غ	ل	غ	ل	Ω	-
B	ت	ل	غ	ل	غ	ل	Ω	-
C	ث	ل	غ	ل	غ	ل	Ω	-
D	ث	ل	غ	ل	غ	ل	Ω	-
E	ط	ل	غ	ل	غ	ل	Ω	-
F	ظ	م	ق	ق	ق	ق	ق	ق

Code Page #2001

Lithuanian-KBL

	8	9	A	B	C	D	E	F
0	А	Р	а	а	Л	ц	р	Е
1	Б	С	б	б	л	с	е	е
2	В	Т	в	в	т	п	т	ё
3	Г	У	г	г	т	ц	у	ё
4	Д	Ф	д	д	ф	е	ф	ї
5	Е	Х	е	е	х	ф	х	і
6	Ж	Ц	ж	ж	ц	п	ц	š
7	З	Ч	з	з	ч	п	ч	š
8	И	Ш	и	и	ш	ц	ш	ų
9	Й	Щ	й	й	щ	ц	щ	ų
A	К	Ь	к	к	ь	г	ь	ū
B	Л	Н	л	л	н	■	н	ū
C	М	Ь	м	м	ь	■	ь	ž
D	Н	Э	н	н	э	■	э	ž
E	О	Ю	о	о	ю	■	ю	■
F	П	Я	п	п	я	■	я	■

Code Page #3001

Estonian-1

	8	9	A	B	C	D	E	F
0	Ç	È	á	■	Л	š	ó	-
1	Ù	æ	í	■	л	š	ö	±
2	é	Æ	ó	■	Т	Б	õ	=
3	ä	ö	ú	|	т	б	õ	¾
4	ä	ö	ñ	|	т	б	õ	¶
5	à	ò	ñ	А	†	ı	õ	§
6	ä	ü	ä	А	ä	ı	μ	+
7	ç	ù	ó	А	А	ı	ž	·
8	é	ý	ı	©	■	ı	ž	°
9	ë	ö	©	■	■	ı	ú	°
A	è	ü	ı	■	■	ı	ú	·
B	ï	ø	½	■	■	ı	ú	ı
C	ı	£	¾	■	■	ı	ú	ı
D	ı	ø	ı	■	■	ı	ú	ı
E	Ä	×	«	■	■	ı	ú	ı
F	Ä	f	»	ı	■	ı	ú	ı

Code Page #3002

Estonian-2

	8	9	A	B	C	D	E	F
0			·	А	Š	à	š	
1		ı	±	А	Ń	á	ñ	
2		ç	²	А	ò	á	ò	
3		£	³	А	ó	ä	ó	
4		■	´	А	ô	ä	ô	
5		¥	μ	А	õ	ä	õ	
6		ı	¶	Æ	ö	æ	ö	
7		§	·	Ç	×	ç	+	
8		°	,	Б	ø	ø	ø	
9		°	ı	Б	ú	é	ú	
A			а	о	Б	ú	é	ú
B			«	»	Б	ú	é	ú
C			ı	¾	ı	ú	ı	ú
D			¾	ı	ı	ı	ı	ı
E			°	¾	ı	ž	ı	ž
F			ı	ı	ı	ı	ı	ı

Note: Other characters are the same as those for Character table: Normal.

Star Mode

Code Page #3011

Latvian-1

	8	9	A	B	C	D	E	F
0	Ç	É	á	⋮	Ł	Š	α	Ē
1	ú	æ	í	⋮	ł	š	β	ē
2	é	Æ	ó	⋮	Т	ĉ	Γ	Ģ
3	á	ó	ú	|	†	Ĉ	π	ķ
4	ä	ö	ñ	†	-	ĸ	Σ	ķ
5	à	ò	ñ	Ā	†	F	σ	Ķ
6	â	û	â	||	ā	ğ	μ	Ļ
7	ç	ù	ó	ŋ	||	ī	τ	ž
8	ē	ÿ	ı	ŋ	||	ī	φ	ž
9	ë	ö	ı	ŋ	||	Ĵ	θ	•
A	è	Û	ı	||	||	Γ	Ω	•
B	ï	φ	½	||	||	■	δ	√
C	ı	£	¼	||	||	■	∞	N
D	ı	¥	ı	||	=	ū	∅	š
E	X	₪	«	||	||	Ū	ε	■
F	Λ	f	»	||	±	■	∩	

Code Page #3012

Latvian-2

	8	9	A	B	C	D	E	F
0	А	Р	а	⋮	Ł	Š	р	Ē
1	Б	С	б	⋮	ł	š	с	ē
2	В	Т	в	⋮	Т	ĉ	т	Ģ
3	Г	У	г	|	†	Ĉ	у	ķ
4	Д	Ф	д	†	-	ĸ	ф	ķ
5	Е	Х	е	Ā	†	F	х	Ķ
6	Ж	Ц	ж	||	ā	ğ	ц	Ļ
7	З	Ч	з	ŋ	||	ī	ч	ž
8	И	Ш	и	ŋ	||	ī	ш	ž
9	Й	Щ	й	ŋ	||	Ĵ	щ	•
A	К	Ъ	к	||	||	Γ	ъ	•
B	Л	Н	л	||	||	■	н	√
C	М	Ь	м	||	||	■	ь	N
D	Н	Э	н	○	=	ū	э	š
E	О	Ю	о	||	||	Ū	ю	■
F	П	Я	п	||	±	■	я	

Note: Other characters are the same as those for Character table: Normal.

Code Page #3021

Bulgarian

	8	9	A	B	C	D	E	F
0	А	Р	а	р	Ł	Š	α	≡
1	Б	С	б	с	ł	š	β	±
2	В	Т	в	т	Т	ĉ	Γ	≥
3	Г	У	г	у	†	Ĉ	π	≤
4	Д	Ф	д	ф	-	†	Σ	↑
5	Е	Х	е	х	†	№	σ	↓
6	Ж	Ц	ж	ц	||	§	μ	+
7	З	Ч	з	ч	||	||	τ	≈
8	И	Ш	и	ш	||	||	φ	°
9	Й	Щ	й	щ	||	||	θ	•
A	К	Ъ	к	ъ	||	||	Ω	•
B	Л	Н	л	н	||	||	δ	√
C	М	Ь	м	ь	||	||	∞	n
D	Н	Э	н	э	=	||	∅	²
E	О	Ю	о	ю	||	||	ε	■
F	П	Я	п	я	||	±	∩	

Note: Other characters are the same as those for Character table: Normal.

Code Page #3041

Maltese

	0	1	2	3	4	5	6	7
0				0	@	P	c	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	G	k	G	
C		,	<	L	Z	l	Z	
D		-	=	M	N	m	N	
E		.	>	N	^	n	C	
F		/	?	O	_	o		

Note: Other characters are the same as those for Code Page #437.

Star Mode

International Character Set

The character codes shown in the table are hexadecimal.

Country	23	24	40	58	5A	5B	5C	5D	5E	60	7B	7C	7D	7E
U.S.A.	#	\$	@	X	Z	[	\	\]	^	`	{	|	}	~
FRANCE	#	\$	à	X	Z	°	ç	§	^	`	é	ù	è	™
GERMANY	#	\$	§	X	Z	À	Ö	Ü	^	`	ä	ö	ü	ß
ENGLAND	£	\$	@	X	Z	[	\	\]	^	`	{	|	}	~
DENMARK 1	#	\$	@	X	Z	Æ	Ø	Å	^	`	æ	ø	å	~
SWEDEN	#	¤	É	X	Z	À	Ö	Å	Ü	é	ä	ö	å	ü
ITALY	#	\$	@	X	Z	°	\	é	^	ù	à	ò	è	ì
SPAIN 1	₧	\$	@	X	Z	í	ñ	¿	^	´	¨	ñ	}	~
JAPAN	#	\$	@	X	Z	[	¥	]	^	`	{	|	}	~
NORWAY	#	¤	É	X	Z	Æ	Ø	Å	Ü	é	æ	ø	å	ü
DENMARK 2	#	\$	É	X	Z	Æ	Ø	Å	Ü	é	æ	ø	å	ü
SPAIN 2	#	\$	á	X	Z	í	ñ	¿	é	´	í	ñ	ó	ú
LATIN AMERICA	#	\$	á	X	Z	í	ñ	¿	é	ü	í	ñ	ó	ú
KOREA	#	\$	@	X	Z	[	₩	]	^	`	{	|	}	~
IRELAND	#	\$	@	Ú	´	[	\	\]	^	`	Á	É	Ó	~
LEGAL	#	\$	§	X	Z	°	'	"	¶	`	©	®	†	™

ESC/POS Mode

Page 0 (PC437)

Hexa-decimal	0	1	2	3	4	5	6	7
0	<NUL> 0	<DLE> 16	SP 32	0 48	@ 64	P 80	` 96	p 112
1	1	<XON> 17	! 33	1 49	A 65	Q 81	a 97	q 113
2	2	18	" 34	2 50	B 66	R 82	b 98	r 114
3	3	<XOFF> 19	# 35	3 51	C 67	S 83	c 99	s 115
4	<EOT> 4	20	\$ 36	4 52	D 68	T 84	d 100	t 116
5	<ENQ> 5	21	% 37	5 53	E 69	U 85	e 101	u 117
6	6	22	& 38	6 54	F 70	V 86	f 102	v 118
7	7	23	' 39	7 55	G 71	W 87	g 103	w 119
8	8	<CAN> 24	(40	8 56	H 72	X 88	h 104	x 120
9	<HT> 9	25	) 41	9 57	I 73	Y 89	i 105	y 121
A	<LF> 10	26	* 42	: 58	J 74	Z 90	j 106	z 122
B	11	<ESC> 27	+ 43	; 59	K 75	[91	k 107	{ 123
C	<FF> 12	28	, 44	< 60	L 76	\ 92	l 108	; 124
D	13	<GS> 29	- 45	= 61	M 77	] 93	m 109	} 125
E	14	30	. 46	> 62	N 78	^ 94	n 110	~ 126
F	15	31	/ 47	? 63	O 79	- 95	o 111	SP 127

ESC/POS Mode

Page 0 (PC437)

Hexa- decimal	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	176	L 192	⋈ 208	α 224	≡ 240
1	ü 129	æ 145	í 161	177	⊥ 193	⌒ 209	β 225	± 241
2	é 130	Æ 146	ó 162	178	⊤ 194	⊖ 210	Γ 226	≥ 242
3	â 131	ô 147	ú 163	| 179	⊢ 195	⋈ 211	π 227	≤ 243
4	ä 132	ö 148	ñ 164	| 180	- 196	⋈ 212	Σ 228	∫ 244
5	à 133	ò 149	Ñ 165	| 181	⊢ 197	F 213	σ 229	J 245
6	â 134	û 150	à 166	|| 182	F 198	⊖ 214	μ 230	÷ 246
7	ç 135	ù 151	o 167	⊖ 183	|| 199	|| 215	τ 231	≈ 247
8	ê 136	ÿ 152	ı 168	⊢ 184	⋈ 200	⊢ 216	Φ 232	° 248
9	ë 137	Ö 153	ƒ 169	|| 185	⊖ 201	⊢ 217	Θ 233	• 249
A	è 138	Ü 154	ˆ 170	|| 186	⋈ 202	⊢ 218	Ω 234	˙ 250
B	ï 139	Ç 155	½ 171	⊖ 187	⌒ 203	■ 219	δ 235	√ 251
C	î 140	£ 156	¼ 172	⊢ 188	|| 204	■ 220	∞ 236	n 252
D	ì 141	¥ 157	ı 173	⋈ 189	= 205	| 221	φ 237	² 253
E	Ä 142	Ŕ 158	« 174	⊢ 190	|| 206	| 222	ε 238	ˆ 254
F	Å 143	f 159	» 175	⊢ 191	⋈ 207	■ 223	∩ 239	SP 255

ESC/POS Mode

Page 1 (Katakana)

Hexa- decimal	8	9	A	B	C	D	E	F
0	— 128	⊥ 144	SP 160	— 176	タ 192	ミ 208	= 224	× 240
1	— 129	⊥ 145	。○ 161	ア 177	チ 193	ム 209	⊥ 225	円 241
2	— 130	⊥ 146	「 162	イ 178	ツ 194	メ 210	⊥ 226	年 242
3	— 131	⊥ 147	」 163	ウ 179	テ 195	モ 211	⊥ 227	月 243
4	■ 132	— 148	、 164	エ 180	ト 196	ヤ 212	▲ 228	日 244
5	■ 133	— 149	・ 165	オ 181	ナ 197	ユ 213	▲ 229	時 245
6	■ 134	丨 150	ヲ 166	カ 182	ニ 198	ヨ 214	▼ 230	分 246
7	■ 135	丨 151	ア 167	キ 183	ヌ 199	ラ 215	▼ 231	秒 247
8	丨 136	┌ 152	イ 168	ク 184	ネ 200	リ 216	♠ 232	〒 248
9	丨 137	┌ 153	ウ 169	ケ 185	ノ 201	ル 217	♥ 233	市 249
A	丨 138	┌ 154	エ 170	コ 186	ハ 202	レ 218	♦ 234	区 250
B	■ 139	┌ 155	オ 171	サ 187	ヒ 203	ロ 219	♣ 235	町 251
C	■ 140	┌ 156	ヤ 172	シ 188	フ 204	ワ 220	● 236	村 252
D	■ 141	┌ 157	ユ 173	ス 189	ヘ 205	ン 221	○ 237	人 253
E	■ 142	┌ 158	ヨ 174	セ 190	ホ 206	、 222	/ 238	☼ 254
F	+ 143	┌ 159	ツ 175	ソ 191	マ 207	。 223	、 239	SP 255

Note: Other characters are the same as those for Page 0.

ESC/POS Mode

Page 2 (PC858: Multilingual)

Hexa-decimal	8	9	A	B	C	D	E	F
0	Ç 128	É 144	á 160	⋮ 176	L 192	ø 208	α 224	— 240
1	ü 129	æ 145	í 161	⋮ 177	⌞ 193	Ð 209	β 225	± 241
2	é 130	Æ 146	ó 162	⋮ 178	T 194	Ê 210	Ô 226	= 242
3	â 131	ô 147	ú 163	⌞ 179	⌞ 195	Ë 211	Ò 227	³ / ₄ 243
4	ä 132	ö 148	ñ 164	⌞ 180	— 196	È 212	õ 228	¶ 244
5	à 133	ò 149	Ñ 165	Á 181	+ 197	€ 213	Õ 229	§ 245
6	á 134	û 150	à 166	Â 182	ã 198	Í 214	μ 230	÷ 246
7	ç 135	ù 151	ó 167	À 183	Ã 199	Î 215	ƒ 231	⌞ 247
8	ê 136	ÿ 152	ı 168	© 184	℔ 200	Ï 216	ƒ 232	° 248
9	ë 137	Ö 153	® 169	⌞ 185	℔ 201	⌞ 217	Ú 233	” 249
A	è 138	Ü 154	¬ 170	⌞ 186	℔ 202	⌞ 218	Û 234	· 250
B	ï 139	ø 155	½ 171	¶ 187	℔ 203	■ 219	Ü 235	¹ 251
C	î 140	£ 156	¼ 172	¶ 188	℔ 204	■ 220	Ý 236	³ 252
D	ì 141	Ø 157	ı 173	Ç 189	= 205	ı 221	Ý 237	² 253
E	Ä 142	× 158	« 174	¥ 190	℔ 206	Ï 222	— 238	· 254
F	Å 143	f 159	» 175	¶ 191	Ω 207	■ 223	· 239	SP 255

Note: Other characters are the same as those for Page 0.

ESC/POS Mode

Page 3 (PC860: Portuguese)

	8	9	A	B	C	D	E	F
0	Ç	É	á	⋮	Ł	ł	α	≡
1	ü	À	í	⋮	ł	ł	β	±
2	é	È	ó	⋮	ł	ł	Γ	≥
3	â	ô	ú	|	ł	ł	π	≤
4	ã	õ	ñ	|	ł	ł	Σ	∫
5	ä	ö	Ñ	|	ł	ł	σ	∫
6	À	Ú	æ	||	ł	ł	μ	÷
7	ç	ù	ø	||	ł	ł	τ	≈
8	ê	Ï	¿	||	ł	ł	Φ	°
9	É	Ö	Ò	||	ł	ł	Θ	•
A	è	Û	¬	||	ł	ł	Ω	•
B	Í	Ç	½	||	ł	ł	δ	√
C	Ò	£	¼	||	ł	ł	∞	n
D	ì	Û	;	||	ł	ł	∅	z
E	Ä	Ð	«	||	ł	ł	€	■
F	Å	Ó	»	||	ł	ł	∩	

Page 4 (PC863: Canadian-French)

Hexa-decimal	8	9	A	B	C	D	E	F
0	Ç	É	á	⋮	Ł	ł	α	≡
1	ü	À	í	⋮	ł	ł	β	±
2	é	È	ó	⋮	ł	ł	Γ	≥
3	â	ô	ú	|	ł	ł	π	≤
4	ã	õ	ñ	|	ł	ł	Σ	∫
5	ä	ö	Ñ	|	ł	ł	σ	∫
6	À	Ú	æ	||	ł	ł	μ	÷
7	ç	ù	ø	||	ł	ł	τ	≈
8	ê	Ï	¿	||	ł	ł	Φ	°
9	É	Ö	Ò	||	ł	ł	Θ	•
A	è	Û	¬	||	ł	ł	Ω	•
B	Í	Ç	½	||	ł	ł	δ	√
C	Ò	£	¼	||	ł	ł	∞	n
D	ì	Û	;	||	ł	ł	∅	z
E	Ä	Ð	«	||	ł	ł	€	■
F	Å	Ó	»	||	ł	ł	∩	

Page 5 (PC865: Nordic)

Hexa-decimal	8	9	A	B	C	D	E	F
0	Ç	É	á	⋮	Ł	ł	α	≡
1	ü	À	í	⋮	ł	ł	β	±
2	é	È	ó	⋮	ł	ł	Γ	≥
3	â	ô	ú	|	ł	ł	π	≤
4	ã	õ	ñ	|	ł	ł	Σ	∫
5	ä	ö	Ñ	|	ł	ł	σ	∫
6	À	Ú	æ	||	ł	ł	μ	÷
7	ç	ù	ø	||	ł	ł	τ	≈
8	ê	Ï	¿	||	ł	ł	Φ	°
9	É	Ö	Ò	||	ł	ł	Θ	•
A	è	Û	¬	||	ł	ł	Ω	•
B	Í	Ç	½	||	ł	ł	δ	√
C	Ò	£	¼	||	ł	ł	∞	n
D	ì	Û	;	||	ł	ł	∅	z
E	Ä	Ð	«	||	ł	ł	€	■
F	Å	Ó	»	||	ł	ł	∩	

Note: Other characters are the same as those for Page 0.

ESC/POS Mode

International Character Set

The character codes shown in the table are hexadecimal.

Conuntry	23	24	40	58	5A	5B	5C	5D	5E	60	7B	7C	7D	7E
U.S.A.	#	\$	@	X	Z	[	\	\]	^	`	{	|	}	~
FRANCE	#	\$	à	X	Z	°	ç	§	^	`	é	ù	è	..
GERMANY	#	\$	§	X	Z	Ä	Ö	Ü	^	`	ä	ö	ü	ß
ENGLAND	£	\$	@	X	Z	[	\	\]	^	`	{	|	}	~
DENMARK 1	#	\$	@	X	Z	Æ	Ø	Å	^	`	æ	ø	å	~
SWEDEN	#	¤	É	X	Z	Ä	Ö	Å	Ü	é	ä	ö	å	ü
ITALY	#	\$	@	X	Z	°	\	é	^	ù	à	ò	è	ì
SPAIN 1	₧	\$	@	X	Z	;	Ñ	¿	^	´	..	ñ	}	~
JAPAN	#	\$	@	X	Z	[	¥	]	^	`	{	|	}	~
NORWAY	#	¤	É	X	Z	Æ	Ø	Å	Ü	é	æ	ø	å	ü
DENMARK 2	#	\$	É	X	Z	Æ	Ø	Å	Ü	é	æ	ø	å	ü
SPAIN 2	#	\$	á	X	Z	;	Ñ	¿	é	´	í	ñ	ó	ú
LATIN AMERICA	#	\$	á	X	Z	;	Ñ	¿	é	ü	í	ñ	ó	ú
KOREA	#	\$	@	X	Z	[	₩	]	^	`	{	|	}	~



HEAD OFFICE
STAR MICRONICS CO., LTD.

536 Nanatsushinnya, Shimizu, Shizuoka
424-0066 Japan

Tel: 0543-47-0112, Fax: 0543-48-5013

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1150 King Georges Post Road
Edison, New Jersey 08837-3729 U.S.A

Tel: 732-623-5555, Fax: 732-623-5590

STAR MICRONICS U.K. LTD.

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