PRINTRONIX® PSA3

KSSM Emulation for the P8000 H-Series

Programmer's Reference Manual

Line Matrix Series Printers

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1 *Introduction*

About this Manual

This manual is designed so you can quickly find the information you need to operate your printer with the Korean Standard (KS) emulation.

This book does not explain how to operate the printer. For printer operation, see the *Administrator's Manual.*

Warnings and Special Information

Read and comply with all information highlighted under special headings:

WARNING **Conditions that could harm you.**

CAUTION **Conditions that could damage the printer or related equipment.**

IMPORTANT **Information vital to proper operation of the printer.**

NOTE: Information affecting printer operation.

Related Product Information

Refer to the following book for printer operation:

- *Administrator's Manual.* Provides configuration instructions, descriptions, and troubleshooting guidelines. Also describes the keys on the control panel and provides quick reference information on daily printer operations such as loading paper and replacing ribbons.

Software Features

The KSSM emulation software provides the following features:

- Graphics and print quality. You can enable graphics mode and specify a density mode (dots per inch), for either 8-pin or 24-pin images.
- Print Attributes. Characters can be bold, italic, double high, double wide, etc.
- Page Formatting. Commands which allow you to set line spacing, page length, and vertical tabbing.
- Font Typefaces. Also referred to as print modes. The six typefaces are LQ, Near LQ, Normal, Hi-Speed, Super Hi-Speed, and Ultra Hi-Speed.

2 Configuring with the Control Panel

Introduction

IMPORTANT **Configuration directly affects printer operation. Do not change the configuration of your printer until you are thoroughly familiar with the procedures in this chapter.**

In order to print data, the printer must respond correctly to signals and commands received from the host computer. Configuration is the process of matching the printer's operating characteristics to those of the host computer and to specific tasks, such as printing labels or printing on different sizes of paper. The characteristics that define the printer's response to signals and commands received from the host computer are called configuration parameters. Examples are line spacing, form length, etc.

You can change the parameters by sending appropriate control codes, or by pressing keys on the control panel. Control codes offer more versatility, and they override control panel settings.

This chapter explains how to use the control panel.

Chapter 3 provides information about control codes.

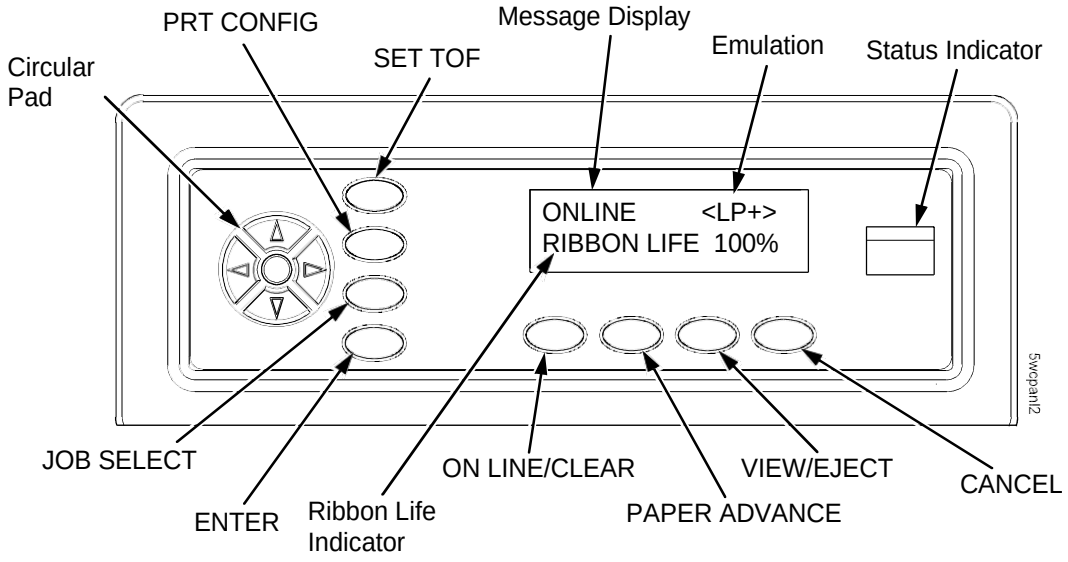
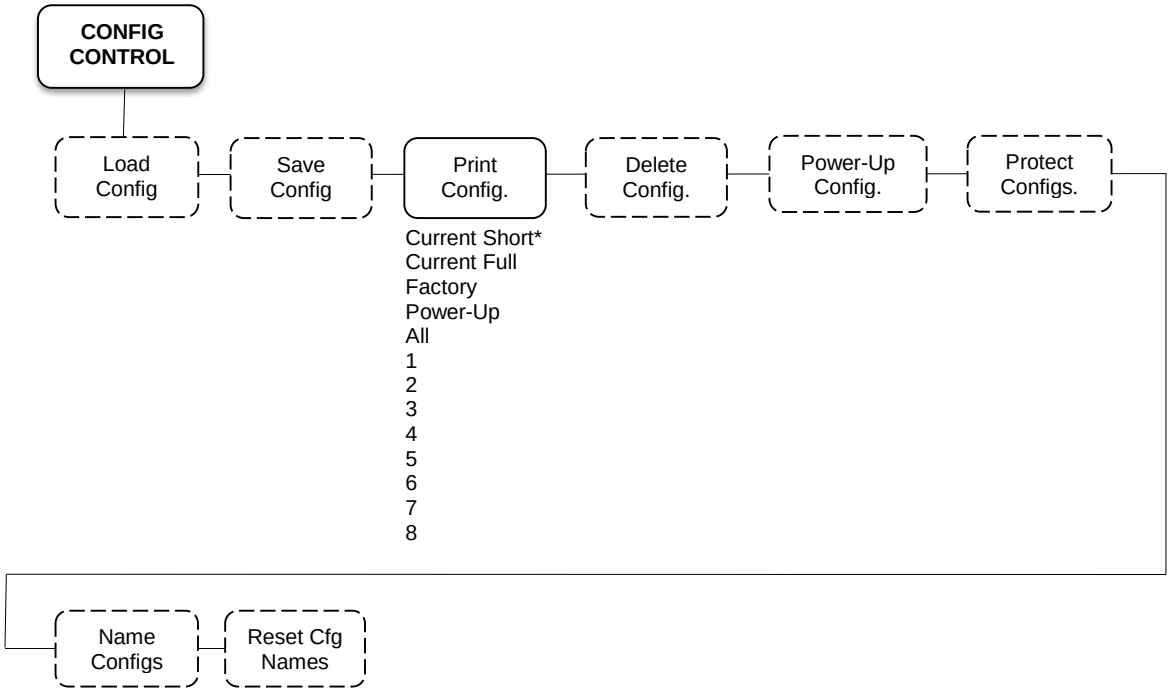


Figure 1. The Control Panel

Printing the Configuration

*= Factory Default



It is recommended you print a configuration to determine what is already stored and what needs to be modified.

You can print any or all of the configurations shown above. Configurations 1-8 are the customized configurations.

To print a configuration, follow the procedure in Table 1.

Table 1. Printing Configurations

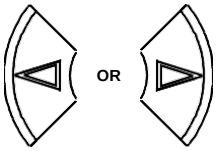
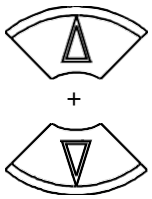
Step	Key	Result	Notes
1.	Make sure the printer is on.		
2.	ON LINE/CLEAR 	OFFLINE QUICK SETUP	
3.		ENTER SWITCH UNLOCKED	Allows you to make configuration changes.
	+ 	OFFLINE QUICK SETUP	
4.		OFFLINE CONFIG. CONTROL	
5.		CONFIG CONTROL Load Config.	
6.	 UNTIL	CONFIG. CONTROL Print Config.	
7.		Print Config. Current Short*	
8.	 OR	Print Config. All	Press until the desired option displays.
9.	ENTER 	OFFLINE CONFIG. CONTROL	The configuration listing begins printing.
10.	Carefully tear off the configuration printout.		

Table 1. Printing Configurations (continued)

Step	Key	Result	Notes
11		ENTER SWITCH LOCKED	Locks the ENTER key.
12	ON LINE/CLEAR 	ONLINE	
13	Store the printout in a safe place. The printer is ready for operation		

NOTE: Another way to print the current configuration is to go OFFLINE, press the PRT CONFIG key, and then press ENTER.

The Configuration Menu

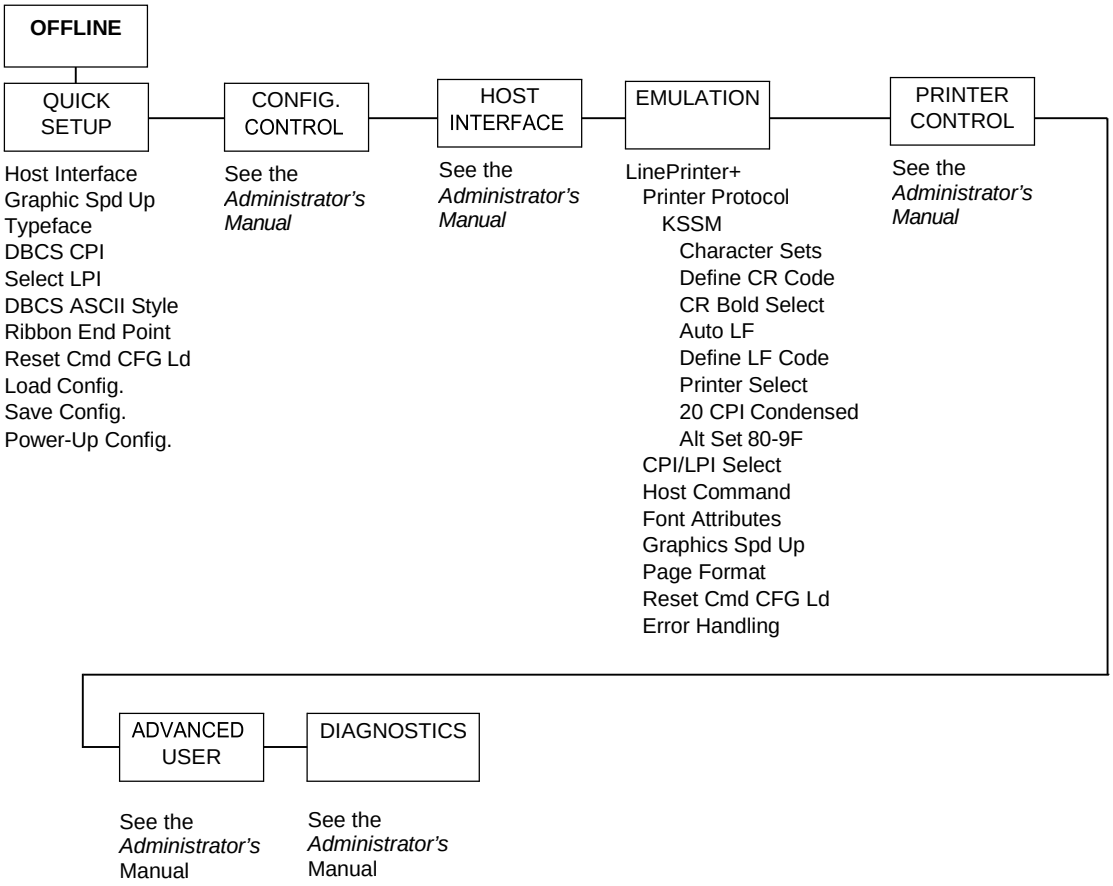


Figure 2. Configuration Menu Overview

Moving within the Configuration Menu

The example in Table 2 explains how to change the LPI value.

Table 2. Changing Configurations

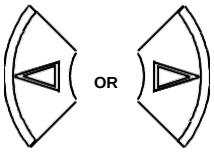
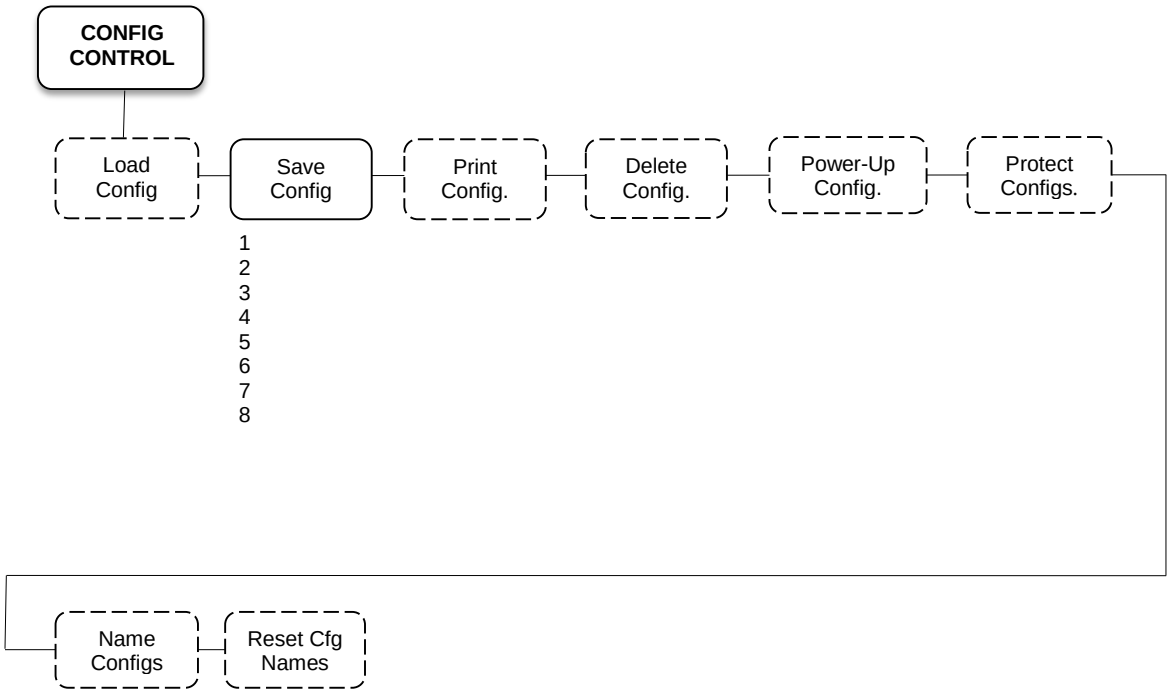
Step	Key	Result	Notes
1.	Make sure the printer is on.		
2.	ON LINE/CLEAR 	OFFLINE QUICK SETUP	
3.		ENTER SWITCH UNLOCKED	Allows you to make configuration changes.
	+ 	OFFLINE CONFIG. CONTROL	
4.	 UNTIL	OFFLINE EMULATION	
5.		EMULATION LinePrinter+	
6.		LinePrinter+ Printer Protocol	
7.		LinePrinter+ CPI/LPI Select	
8.		CPI/LPI Select Select LPI	
9.		Select LPI 6.0 LPI*	
10.	 OR	Select LPI 8.0 LPI	Press until the desired value displays.

Table 2. Changing Configurations (continued)

Step	Key	Result	Notes
11.	ENTER 	Select LPI 8.0 LPI*	An asterisk indicates the value selected.
12.	Use the diagrams on the following pages to navigate your way through the menu. Press △ or ▽ to move vertically; press ◁ or ▷ to move horizontally and to scroll through the values. Press ENTER to select a value. Press ONLINE/CLEAR, to move to the top of the menu.		
To SAVE CHANGES AS A CONFIGURATION that is stored in memory and can be loaded later:			
13.	 UNTIL	OFFLINE EMULATION	
14.	 UNTIL	OFFLINE CONFIG. CONTROL	
15.	Go to Table 3, step 4.		
To USE CURRENT CONFIGURATION WITHOUT SAVING:			
16.	 + 	ENTER SWITCH LOCKED	Locks the configuration parameters.
17.	ON LINE/CLEAR 	ONLINE	
18.	The printer is ready for operation. All parameters are effective as long as the printer is on. When you turn off the printer, the parameters will be erased from memory.		

Saving Your New Configuration

* = Factory Default



After changing all of the necessary parameters, it is recommended you save them as a configuration that can be stored for future use and loaded later. If you do not save your configuration before you power off the printer, all of your parameter changes will be erased. The Save Config. option allows you to save up to eight configurations to meet different print job requirements.

Configurations 1 through 8 are empty until you save values to them using the Save Config. option. For example:

Config 1: Selects LQ typeface, 5 cpi, 6 lpi

Config 2: Selects Near LQ typeface, 6 cpi, 8 lpi

Once you have saved a configuration using this option, it will not be lost if you power off the printer. You can load a configuration for a specific print job and modify and resave it. You may want to print your configurations and store them in a safe place, such as inside the printer cabinet.

NOTE: The Protect Configs. parameter must be set to disable before you can save a configuration. Once you save a configuration, the Protect Configs. parameter automatically returns to enable. Once you change active emulations, any changes to the previously selected emulation will be gone unless they have been saved.

Table 3. Saving Configurations

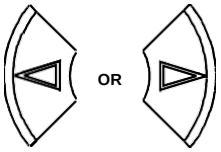
Step	Key	Result	Notes
1.	If you are already in the configuration menu, go to step 5.		
2.	ON LINE/CLEAR 	OFFLINE QUICK SETUP	
3.	 + 	ENTER SWITCH UNLOCKED OFFLINE QUICK SETUP	Allows you to make configuration changes.
4.		OFFLINE CONFIG. CONTROL	
5.		CONFIG. CONTROL Load Config.	
6.		CONFIG. CONTROL Save Config.	
7.		Save Config. 1*	
8.		Save Config. 2*	Press until the desired number (1-8) displays.
NOTE: Do not turn off the printer while Save is in progress because you might lose your configuration.			
9.	ENTER 	Save Config. 2*	The configuration is now saved in memory. (In this case, config. 2.)
10.	 UNTIL	CONFIG. CONTROL Save Config.	

Table 3. Saving Configurations (continued)

Step	Key	Result	Notes
NOTE: It is recommended you print the configuration. Go to page 11, step 5. If you decide not to print the configuration, then continue with the following steps.			
10.		ENTER SWITCH LOCKED	Locks the ENTER key.
11.	ON LINE/CLEAR 	ONLINE	
12.	The printer is ready for operation.		

LinePrinter Plus Menu

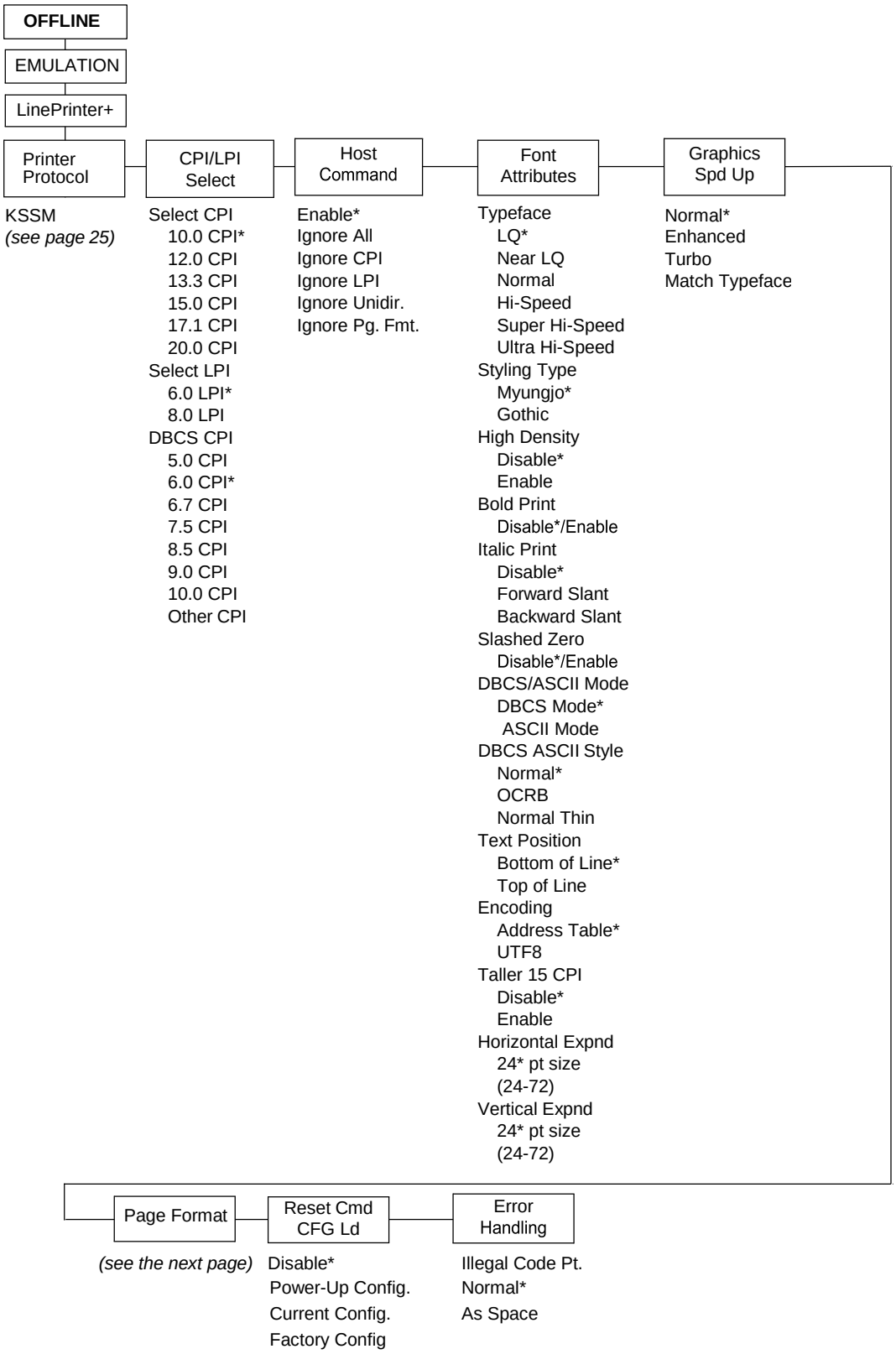
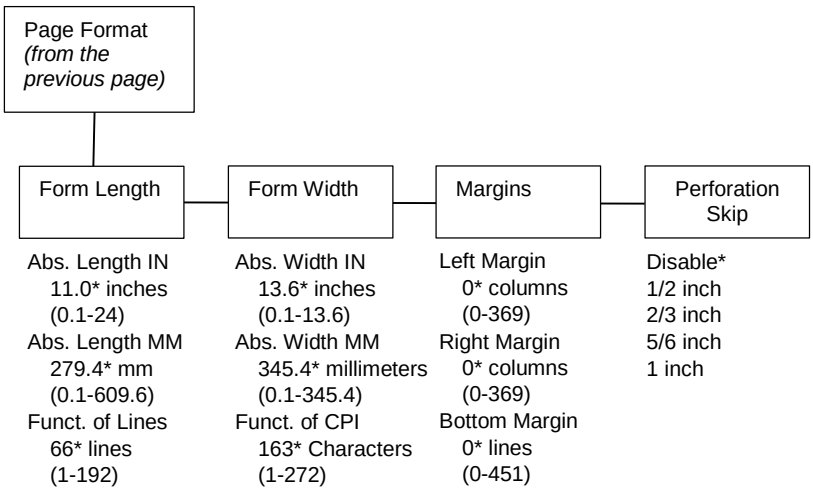


Figure 3. LinePrinter Plus Menu



CPI/LPI Select

This parameter lets you specify the characters per inch (cpi) and lines per inch (lpi) values. The defaults are:

- Select CPI - 10.0 cpi
- Select LPI - 6.0 lpi
- DBCS CPI - 6.0 cpi

Host Command

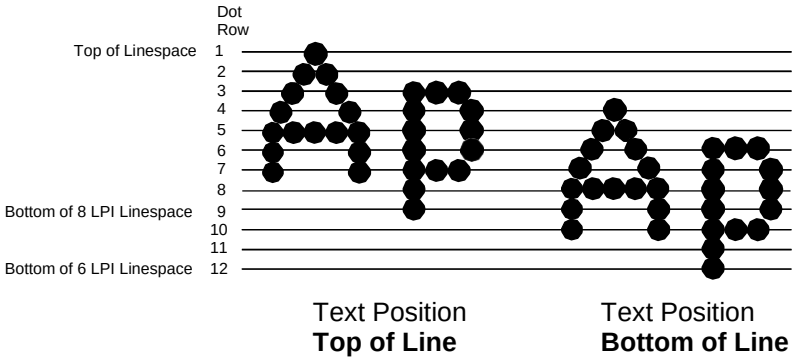
- **Enable**. The default. Enables all host printing commands.
- **Ignore All**. This function treats all control codes and printing commands as the data.
- **Ignore CPI**. This function ignores the CPI selection commands only (e.g., ESC M, ESC P, and ESC G).
- **Ignore LPI**. This function ignores the LPI selection commands only (e.g., ESC 2 and ESC 0).
- **Ignore Unidir**. All unidirectional commands sent by the host are ignored by the printer.
- **Ignore Pg. Fmt**. This function ignores all page format setting commands sent from the host.

Font Attributes

This submenu allows you to define the following font attributes: typeface, bold print, and italic print. You can also specify if the ASCII character will print with the OCRB mode. Also, specify if the zero character will print with a slash.

When High Density is enabled, the LQ Typeface will print in higher print density. It will not take effect when other typefaces are selected.

Text position specifies where the text will be positioned in the line space. When set to Top of Line, text will be positioned at the top of the line space. When set to Bottom of Line, the text will be positioned as if it were at the bottom of a 6 lpi line space. The following example shows both Top of Line and Bottom of Line text positions:



The option “DBCS/ASCII Mode” specifies the operating mode of the Hangul printer. If it is set to DBCS mode, it can print double-byte characters as well as a limited number of single-byte characters.

The option “Address Table” specifies the address table supported: KSC5601. The option “UTF8” allows the user to input UTF8 data stream.

The option “Taller 15cpi” specifies the appearance of ASCII character in 15cpi in Ascii mode. If it is set to “Enable”, the characters in 15cpi will be the same height with other CPIs like 10cpi. If it is set to “Disable”, the characters in 15cpi will appear shorter than other CPIs like 10cpi.

The option “Horizontal Expnd” specifies the character horizontal expansion in dot for both ASCII and DBCS characters in DBCS mode.

The option “Vertical Expnd” specifies the character vertical expansion in dot for both ASCII and DBCS characters in DBCS mode.

Graphics Spd Up

This menu is used to increase (speed up) graphic printing speed by turning on the Enhanced/Turbo mode.

- **Normal**. The default. The printer prints at the given input graphics resolution.
- **Enhanced**. The printer provides first-level speed up, which means the speed is faster than Normal mode.
- **Turbo**. The printer provides second-level speed up, which means the speed is faster than Enhanced mode.
- **Match Typeface**. The input 180x180 dpi grahics resolution will drop-dot to the resolution which matches the typeface selected.

Page Format

Form Length

Forms length is the number of lines that can be printed on a page. You can set forms length in inches or in print lines per page. The most accurate method is lines per page.

Form Width

When using paper that is 8 1/2 inches wide, selecting an 8-inch print width prevents printing beyond the right margin and damaging the hammer tips and platen.

Margins

You can set the bottom, left, and right form margins.

Perforation Skip

Perforation Skip allows or prevents printing on the page perforation. When enabled, it sets up a skip-over margin of 1/2," 2/3," 5/6," or 1." For example, a skip-over margin of 1" allows a 1" margin at the bottom of the page perforation. The default is Disable.

Reset Cmd CFG Ld

When the printer receives a host data stream reset command (ESC @ in addition to resetting printer variables, the selected configuration will be loaded.

- **Disable**. The default. The active emulation parameters are loaded when the reset command is executed.
- **Power-Up Config**. The power-up configuration is loaded when the reset command is executed.
- **Current Config**. The currently selected configuration is loaded when the reset command is executed.
- **Factory Config**. The factory installed configuration is loaded when the reset command is executed.

Error Handling of Illegal Code Point

This command determines the way illegal DBCS characters are processed:

- **Normal**. The default. Will ignore illegal DBCS characters.
- **As Space**. Will insert two space characters (0X20, 0X20) when the data stream contains error DBCS coding.

KSSM Emulation

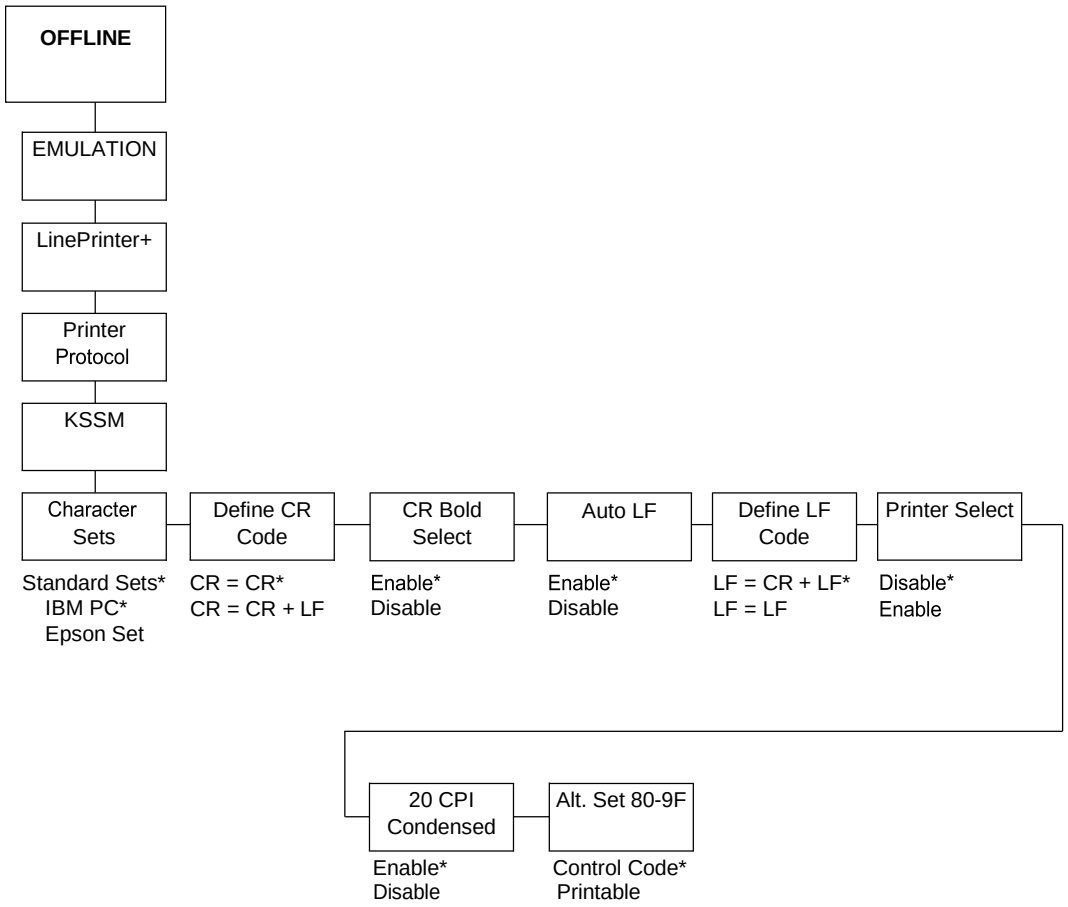


Figure 4. KSSM Emulation Menu

Character Sets

This parameter selects a character set for the KSSM emulation.

CR Bold Select

This option determines whether CR (0x0D) will turn on the bold attribute.

- **Enable**. The text after CR will be printed as bold together with the text before CR.
- **Disable**. Normal CR function.

Define CR Code

The Define CR code option controls the action of the printer when it receives a Carriage Return code (hex 0D) from the host computer. If this feature is enabled, each time the printer receives a Carriage Return, it inserts an additional Line Feed code (hex 0A) into the data stream. Do not use this feature if the host computer sends Line Feeds to the printer.

- **CR = CR**. Does not insert an extra Line Feed after each Carriage Return.
- **CR = CR + LF**. Inserts an extra Line Feed after each Carriage Return.

Auto LF

This option defines the printer actions when print data is received past the forms width setting.

- **Enable**. Performs an automatic carriage return and line feed when data is received past the forms width.
- **Disable**. Discards any data past the forms width.

Define LF Code

The Define LF code option controls the action of the printer when it receives a Line Feed code (hex 0A) from the host computer. If this feature is enabled, each time the printer receives a Line Feed, it inserts an additional Carriage Return code (hex 0D) into the data stream. This feature can be used in most installations, but it is required if the host computer does not send Carriage Returns to the printer.

- **LF = CR + LF**. Adds an extra Carriage Return with each Line Feed.
- **LF = LF**. Does not add a Carriage Return with a Line Feed.

Printer Select

- **Disable**. Ignores the ASCII DC1 and DC3 control codes.
- **Enable**. Disables the printer when a DC1 control code is received, and enables the printer when a DC3 control code is received.

20 CPI Condensed

Compressed print characters are narrower than the normal character set. This is helpful for applications for which you need to print the maximum amount of information on a page.

- **Enable**. Prints about 60 percent of the width of normal characters when compressed print is chosen by the host computer. For example, a 12 cpi font will compress to 20 cpi.
- **Disable**. Does not compress print widths, even if condensed print is chosen by the host.

Alt. Set 80-9F

- **Control Code**. Interprets data in the range of hex 80 through hex 9F as a control code.
- **Printable**. Prints data in the range of hex 80 through hex 9F.

3 *LinePrinter Plus KSSM Emulation*

KSSM Emulation

“Emulation” refers to the ability of a printer to execute the commands of other printer control languages.

Exceptions and Differences

Because of mechanical differences between your printer (a line matrix printer) and moving printhead serial matrix printers, some features are approximated or not supported.

- The KSSM emulation supports the following print modes: LQ, Near LQ, Normal, Hi-Speed, Super Hi-Speed, and Ultra Hi-Speed.
- Various character sets can be used including IBM-PC Graphics (IBM Code Page 437) and Epson.
- Commands not supported by our printer are:
    - Control paper loading/ejecting (ESC EM *n*)
    - Select user-defined set (ESC % *n*)
    - Define user-defined characters (ESC & NUL *n m*)
    - Copy ROM to RAM (ESC :)
    - Select justification (ESC a)
    - Select typeface (ESC k)
    - Select printing colour (ESC r *n*)
    - Select 17/180-inch line spacing (ESC 1)
    - One line unidirectional printing (ESC <)
    - Absolute position of Hangul and Hanji (FS $ *n*)
    - Multiple byte Hangul character printing (FS M *n1 n2*)
    - Print ASCII characters as in ASCII mode (FS a *n*)
    - Select Hangul completed/combined font (FS t *n*)

Default Values and States

Your printer stores a set of typical operating states and conditions in the flash memory. The first time you power up the printer, the factory settings in Table 4 are automatically invoked.

Table 4. Factory Settings

Characteristic	Default Setting
Select LPI	6.0
Select CPI	10.0
DBCS CPI	6.0
Host Command	Enable
Typeface	LQ
Styling Type	Myungjo
High Density	Disable
Bold Print	Disable
Italic Print	Disable
Slashed Zero	Disable
DBCS/ASCII Mode	DBCS Mode
DBCS ASCII Style	Normal
Text Position	Bottom of Line
Encoding	Address Table
Taller 15 CPI	Disable
Graphics Spd Up	Normal
Left Margin	0 columns
Right Margin	0 columns
Bottom Margin	0 lines
Perforation Skip	Disable
Form Length	11.0 inches 279.4 millimeters 66 lines
Form Width	13.6 inches 345.4 millimeters 163 characters
Reset Cmd CFG Ld	Disable
Illegal Code Pt.	Normal
Define CR Code	CR = CR

Table 4. Factory Settings

Characteristic	Default Setting
Auto LF	Enable
Define LF Code	LF = CR + LF
Printer Select	Disable
20 CPI Condensed	Enable
Alt Set 80-9F	Control Code

Escape Sequences

Some KS control codes consisting of more than one character are called escape sequences because the first character in the sequence is the ASCII ESCape character. ESC alerts the printer that a special function command— not printable characters—follows.

The format for an escape sequence is:

ESC (parameter 1)(parameter 2)...(parameter *n*)

For example, to select emphasized (offset) print, send the ESC character immediately followed by the E character (do not add a space character):

ASCII: ESC E **Hex**: 1B 45**Dec**: 27 69

FS Sequences

Another type of control code which consists of more than one character is called an “FS sequence,” because the first character is the ASCII FS character. This control code is used when the printer is printing Double Byte Character Set (DBCS) characters. The FS alerts the printer that a special function command (not printable characters) follows. Most FS commands work only on DBCS characters.

The format for an FS sequence is:

FS (parameter 1)(parameter 2)...(parameter *n*)

For example, to rotate DBCS characters by 90×counter-clockwise, send an FS character immediately followed by the J character:

ASCII: FS J **Hex**: 1C 4A**Dec**: 28 74

Super-Set Commands

The unique control code sequence for both SSCC and ASSC commands are defined in the table below:

Control Code	ASCII Value	Hex Value	Dec Value
SSCC	ESC | } ;	1B 7C 7D 3B	27 124 125 59
ASSC	ESC | } ; q	1B 7C 7D 3B 71	27 124 125 59 113

Set And Reset Codes

Set and reset are other ways of saying turn on and turn off; select and deselect; or enable and disable.

Some printer features are set and reset with an escape sequence and the numbers 1 or 0. In those cases, you can represent 1 and 0 as hexadecimal codes 01 and 00, or as the ASCII codes for the numerals 1 and 0 (hexadecimal 31 and 30).

Configuring the KSSM Emulation with Control Codes

The remainder of this chapter describes the KS printer control language codes that may be sent from a host computer attached to the printer in order to invoke and configure numerous KS emulation functions.

Format for Control Code Descriptions

The following information is listed for each code (where applicable and possible) in this chapter:

ASCII Mnemonic. The ASCII name for the control code.

Hex Code. The hexadecimal equivalent of the code. (For octal equivalents, refer to Appendix A.)

Dec Code. The decimal equivalent of the code.

Purpose. The function(s) of the control code.

Comment. A description of exceptions or limitations to normal use.

Example. A sample is provided for some control codes to illustrate how the code is used.

Control Code Index

The following index lists the control codes by function, ASCII mnemonic, and page number. Some control code functions can also be selected at the control panel.

Superset Command

FUNCTION	ASCII CODE	PAGE
Barcode Printing	SSCC c *t*	32
Graphics Printing: Select Bit Image	SSCC * *m nL nH d1…dk*	39
Turn On/Off OCRB Printing	ASSC 0 z *n*	69
Define User Defined Character	ASSC 0 2	36
Font Expansion	ASSC 0 e	38
Graphic Printing	ASSC 0 *	39
Master Select One-Line Attribute	ASSC 0 !	43

Advance Print Position Vertically

ASCII Code ESC J *n*

Hex Code 1B 4A *n*

Dec Code 27 74 *n*

Purpose Advances the vertical print position n/180 inch.

Where:

0 <= *n* <= 255

Comment This command does not affect the horizontal print position.

Advances paper to the top-of-form position on the next page if the ESC J command moves the print position below the bottom-margin position setting.

Align SBCS Character with DBCS Character

ASCII Code FS U

Hex Code 28 85

Dec Code 1C 55

Purpose Aligns two SBCS characters to fit the space normally occupied by a full-width DBCS character that does not have a half-width, subscript, or superscript feature.

Comment A DBCS character with half-width, subscript, or superscript feature is treated as an SBCS character.

The intercharacter space of the next character is set by the FS S command.

In the default mode, the SBCS character aligns with the DBCS character.

CanceltheAlignmentofSBCSCharacterwithDBCS Character

ASCII Code FS V

Hex Code 28 86

Dec Code 1C 86

Purpose Cancels the spacing adjustment of SBCS characters to fit the space normally occupied by a full-width DBCS character.

Comment This command cancels the effect of the FS U command.

This command makes the FS T command affect the spacing of the SBCS character.

In the default mode, the SBCS character aligns with the DBCS character.

Backspace

ASCII Code BS

Hex Code 08

Dec Code 8

Purpose Moves the print position to the left a distance equal to one character in the current pitch plus any additional intercharacter space.

Comment The printer ignores this command if the command would move the print position to the left of the left margin.

In DBCS mode, the command takes effect in double byte character setting.

Barcode Printing

ASCII Code SSCC c *t*; *d data d* [; N *n* ; *xxxx* ; *yyyy*][; X *mmmm*][; P *p*][; C] [; H *hh*][; D]
[; F *q data q*]

Hex Code SSCC 63 *t*; *d data d* [; 4E *n* ; *xxxx* ; *yyyy*][; 58 *mmmm*][; 50 *p*] [; 43][; 48 *hh*][; 44]
[; 46 *q data q*]

Dec Code SSCC 99 *t*; *d data d* [; 78 *n* ; *xxxx* ; *yyyy*][; 88 *mmmm*][; 80 *p*] [; 67][; 72 *hh*][; 68]
[; 70 *q data q*]

Where:

t = type of Barcode

***t* (ASCII)**	***t* (hex)**	**Selects Barcode**
B	42	Codabar
C	43	Code 39
9	39	Code 93
D	44	Code 128
8	38	EAN-8
1	31	EAN-13
F	46	FIM
G	47	German I-2/5
I	49	Interleaved 2/5
M	4D	MSI
4	34	PDF 417
O	4F	PostBar
P	50	POSTNET
R	52	Royal Mail
T	54	Telepen
V	56	UCC/EAN-128
A	41	UPC-A
E	45	UPC-E
S	53	UPC Shipping
U	55	UPS 11

Where:

d = barcode delimiter, which can be any character not used in the barcode data field.

Where:

data = variable length printable data field (PDF); character set is Alphanumeric

The following parameters are optional:

Where:

N = activates the offset

Where:

n = the *x* and *y* coordinate unit system

***n* (ASCII)**	**Selects Value**
0	Use current cpi and lpi values
1	Use ¼ inch value
2	Use ½ centimeter value : 1/(2.54x2)
3	Use 1 mm value : 1/(25.4)
4	Use target barcode dot (refer to the table below)

When *n* = **4**:

Front Panel Typeface	**x Offset unit (inch)**	**y Offset unit (inch)**
LQ	1/180	1/180
Near LQ	1/120	1/120
Normal	1/180	1/144
Hi-Speed	1/180	1/120
Super Hi-Speed	1/180	1/90
Ultra Hi-Speed	1/180	1/90

Where:

xxxx = 4-digit upper left corner x (horizontal axis)

Where:

yyyy = 4-digit upper left corner y (vertical axis)

Where:

X = activates magnification

Where:

mmmm = bar code magnification

The possible magnifications are listed in the table below:

Barcode Type	Magnification
Code 39	X4 X3 X2 X1 X1.5 X1A X1B *X1C *X1D *X1E
	X4 X3 X2 X2A X1 X1A X1B
Interleaved 2/5	X4 X3 X2 X2A X1 X1A X1B
German I-2/5	X4 X3 X2 X2A X1 X1A X1B
UPC Shipping	X4 X3 X2 X1 X1.5 X1A X1B *X1C *X1D *X1E
Telepen	X4 X3 X2 X1
	X4 X3 X2 X1 X1.5
MSI	X4 X3 X2 X1 X1.5
Code 128	X4 X3 X2 X1 X1.5
UCC/ EAN-128	X4 X3 X2 X1 X1.5
Code 93	X2 X1
UPS 11	X2 X1
UPC-A	X2 X1
UPC-E	X2 X1
EAN 8	X4 X3 X2 X1
EAN 13	X1
Codabar	X1 X1A
Postnet	X1 X1A
Royal Mail	X1
Postbar	X3 X2 X1
FIM	
PDF417	
***Note**: the X1C, X1D, and X1E values can only be printed for horizontal 180dpi barcodes. If these values are sent for horizontal 120dpi barcodes, they will print as value X1.	

Where:

P = activates printable data field variable

Where:

p = location of PDF ('A' (above), 'B' (below, default), 'N' (none))

(Note: FIM, Postbar, and PDF417 do not support this parameter.)

Where:

C = Calculate and plot check digit (if available as an option, the default is No).

Check digit if the check digit is allowed to be optional)

Where:

H = activates the height variable

Where:

hh = 2-digit barcode height in 1/10"

Where:

D = Dark barcode

(Note: This parameter does not take any effect under DBCS typefaces.)

Where:

[;F *q data q*] = secondary data field (optional). The secondary data field is only used to specify the barcode data when the primary data field is empty (two delimiters without any data). When the primary data field is not empty, the secondary data field is ignored.

Beeper

ASCII Code BEL

Hex Code 07

Dec Code 7

Purpose Sounds the printer's beeper for 1/10 second.

Cancel Line

ASCII Code CAN

Hex Code 18

Dec Code 24

Purpose Clears all printable characters and bit-image graphics on the current line.
Moves the print position to the left-margin position.

Carriage Return

ASCII Code CR

Hex Code 0D

Dec Code 13

Purpose Moves the print position to the left margin position.

Comment The user can define CR = CR or CR = CR + LF from the front panel.
If CR = CR + LF, the CR command is accompanied by a LF command.

Define Pattern for Special Printing Effect

ASCII Code ESC (X n_1 n_2 a_1 a_2 a_3

Hex Code 1B 28 58 n_1 n_2 a_1 a_2 a_3

Dec Code 27 40 88 n_1 n_2 a_1 a_2 a_3

Purpose Defines the pattern to be used in background or to fill up outlined characters.

a_1: 0 – To be filled as background
1 – To be used as fill pattern to fill outlined characters

a_2: 0 – Black on white, normal
1 – White on black
2 – Dotted

a_3: Treat different colours as all black

Where:

$n_1 = 3$

$n_2 = 0$

$a_1 = 0, 1$

$0 <= a_2 <= 2$

$0 <= a_3 <= 6$

Comment This command covers interline spacing for our printer in both DBCS and SBCS modes.

Define User-Defined Character

ASCII Code ASSC 0 2 *a1* *a2* *d1...d144*

Hex Code ASSC 30 32 *a1* *a2* *d1...d144*

Dec Code ASSC 48 50 *a1* *a2* *d1...d144*

Purpose Sets the ASCII format data for a user-friendly character. The user-defined characters can be printed by sending a1 a2 to the printer.

Where:

a1 = high byte code point

a2 = low byte code point

d1...d144 = 144 bytes ASCII format data

Comment This command takes effect only in DBCS mode.

Define User-Defined Chinese Character

ASCII Code FS 2 a_1 a_2 d_1 d_2 d_3 …d_{72}

Hex Code 1C 50 a_1 a_2 d_1 d_2 d_3 …d_{72}

Dec Code 28 32 a_1 a_2 d_1 d_2 d_3 …d_{72}

Purpose Sets the parameters for user-defined characters

a_1 a_2 Character code of the character to be user-defined.

d_1 d_2 d_3 … d_{72}

Data to define the character in which the cell size is 24x24.

Where:

C9A1H < a_1a_2 < C9FEH

FEA1H < a_1a_2 < FEFEH

Comment The user-defined character can be printed by sending a_1a_2 to the printer.

Delete Last Character in Buffer

ASCII Code DEL

Hex Code 7F

Dec Code 127

Purpose Deletes the last printable character in the print buffer's current line.

Comment This command deletes printable characters only; printer control codes are not affected.

The printer ignores this command if it follows a command that moves the horizontal print position (ESC $, ESC \, or HT).

Divided Hangul Double Height

ASCII Code FS X *n*

Hex Code 28 58 *n*

Dec Code 1C 88 *n*

Purpose Turns on/off divided double height printing of all characters as follows:

n = 0 Turns off divided double height

n = 1 Double height upper part of character

n = 2 Double height lower part of character

n = 3 Double height whole character

Where:

0 <= *n* <= 3

Comment The line spacing of the line with upper part double height (set by FS X 1) will change to 24/180 inch.

The baseline of the line including double-height characters (set by FS X 3) moves down 24/180 inch, and the line spacing also increases 24/180 inch.

The default is Normal (non double-width double-height) printing.

Enable Printing of Upper Control Codes

ASCII Code ESC 6

Hex Code 1B 36

Dec Code 27 54

Purpose Tells the printer to treat codes 128 to 159 as printable characters instead of control codes.

Comment This command affects the front panel setting of “Alt. Set 80-9F.”

This command works in ASCII mode only.

In the default mode, codes 128 to 159 are treated as printable characters.

Enable Upper Control Codes

ASCII Code ESC 7

Hex Code 1B 37

Dec Code 27 55

Purpose Tells the printer to treat codes from 128 to 159 as control codes instead of printable characters.

Comment This command affects the front panel setting of “Alt. Set 80-9F.”

In the default mode, codes 128 to 159 are treated as printable characters.

Font Expansion

ASCII Code	ASSC	0	e	n1	n2
Hex Code	ASSC	30	65	n1	n2
Dec Code	ASSC	48	101	n1	n2

Purpose Expand the DBCS character up to the size of 72.

For this command to work, n1 must be the same value as n2 (i.e. n1 = n2). When n1 and n2 = 25 to 72, this set font expansion mode is ON. The value of n1 and n2 will determine the bitmap size. For example, if the size of n1 is 50, then the size of the bitmap will be set to 50x50. For n1 and n2 = 24, the font expansion mode will reset to OFF and the bitmap size reverts to the default, 24x24.

Inter-line spacing and inter-character spacing calculations are based on standard setting as if bitmap is 24x24. This command will only increase the size of the bitmap and not affect inter- character spacing or inter-line spacing. For example, if inter- line spacing is 6 dot rows, when the bitmap is expanded from 24x24 to 72x72, the inter-line spacing still remains as 6 dot rows. This is the same for inter-character spacing.

Other commands, such as double height, double width, 2x2 times, left/right margin etc., will not function when font expansion mode is set on. For different typefaces, the characters will expand based on approximate typeface resolution. All commands affecting LPI and CPI will still take effect and is set based on the bitmap being 24x24.

Where:

n1 = 24 ~ 72

n2 = 24 ~ 72

This control code does not function while in non-DBCS mode.

Form Feed

ASCII Code	FF
Hex Code	0C
Dec Code	12

Purpose Advances the vertical print position on continuous paper to the top-margin position of the next page.

Moves the horizontal print position to the left-margin position.

Comment The FF command cancels one-line double-width printing selected with the SO, ESC SO, or FS SO commands.

Graphic Printing

ASCII Code	ASSC	0	*	m	nL	nH	d1...dk
Hex Code	ASSC	30	2A	m	nL	nH	d1...dk
Dec Code	ASSC	48	42	m	nN	nH	d1...dk

Purpose Prints dot-grphics in 16 or 24-dot columns, depending on the following parameters:

Where:

m specifies the dot density

nL, nH specifies the total number of columns or graphics data that follow (number of dot columns) = ((nHx256) + nL)

d1...dk specifies bytes of graphics data; k is determined by multiplying the total number of columns times the number of bytes required for each column.

Parameter m is ASSC*	Horizontal Density (dpi)	Vertical Density (dpi)	Dots Per Column	Bytes Per Column
0	180	180	24	3
1	90	180	24	3
2	120	120	16	2
3	90	144	24	3
4	90	120	16	2
5	90	90	16	2

Graphics Printing: Select Bit Image

ASCII Code SSCC * *m nL nH d1…dk*

Hex Code SSCC 2A *m nL nH d1…dk*

Dec Code SSCC 42 *m nL nH d1…dk*

Purpose Prints dot-graphics in 12- or 16-dot columns, depending on the following parameters:

- *m* Specifies the dot density
- n_L, n_H Specifies the total number of columns of graphics data that follow (number of dot columns) = ((n_Hx 256) + n_L)
- d_1 …d_k Bytes of graphics data; *k* is determined by multiplying the total number of columns times the number of bytes required for each column

Where:

0 <= n_L <= 255

0 <= n_H <= 31

m = 48, 49, 50

Comment Dot density:

Parameter *m* in ESC *	Horizontal Density (dpi)	Vertical Density (dpi)	Dots per column	Bytes per column
48	90	90	12	2
49	120	120	16	2
50	90	90	16	2

Initialize Printer

ASCII Code ESC @

Hex Code 1B 40

Dec Code 27 64

Purpose Reloads the power-up configuration if “Reset Cmd CFG Ld” is Enable. Otherwise, resets to the internal default value.

Line Feed

ASCII Code LF

Hex Code 0A

Dec Code 10

Purpose Advances the vertical print position one line (in the currently set line spacing).

The LF command cancels one-line double-width printing selected with the SO, ESC SO, or FS SO commands.

Comment The user can define LF = LF or LF = CR + LF from the front panel.

If LF = CR + LF, the printer moves the horizontal print position to the left-margin position.

If the LF command moves the print position below the bottom margin on continuous paper, the printer advances to the top-of- form position on the next page.

Master Select

ASCII Code ESC ! *n*

Hex Code 1B 21 *n*

Dec Code 27 33 *n*

Purpose Selects any combination of several font attributes and enhancements by setting or clearing the appropriate bit in the *n* parameter, as shown in the table below:

Where:

0 <= *n* <= 255

Bit	On/Off	Hex	Dec	Function	Equivalent
0	Off	00	0	Select 10 cpi	ESC P
	On	01	1	Select 12 cpi	ESC M
1	Off	00	0	Cancels proportional	ESC p 0
	On	02	1	Selects proportional	ESC p 1
2	Off	00	0	Cancels condensed	DC2
	On	04	1	Selects condensed	SI
3	Off	00	0	Cancels bold	ESC F
	On	08	1	Selects bold	ESC E
4	Off	00	0	Cancels double-strike	ESC H
	On	10	16	Selects double-strike	ESC G
5	Off	00	0	Cancels double-width	ESC W 0
	On	20	32	Selects double-width	ESC W 1
6	Off	00	0	Cancels italics	ESC 5
	On	40	64	Selects italics	ESC 4
7	Off	00	0	Cancel underline	ESC - 0
	On	80	128	Selects underline	ESC - 1

Comment This command cancels any attributes or enhancements that are not selected.

Master Select In DBCS Mode

ASCII Code FS ! *n*

Hex Code 1C 21 *n*

Dec Code 28 33 *n*

Purpose Selects any combination of several font attributes and enhancements by setting or clearing the appropriate bit in the *n* parameter, as shown below:

Bit	On/Off	Hex	Dec	Function	Equivalent
0	Off	00	0	Cancel vertical printing	FS K
	On	01	1	Select Vertical printing	FS J
1	Off	00	0	Cancel half width	FS DC2
	On	02	1	Select half width	FS SI
2	Off	00	0	Cancel double width	ESC W 0
	On	04	1	Select double width	ESC W 1
3	Off	00	0	Cancel double height	FS X 0
	On	08	1	Select double height	FS X 3
4	Off	00	0	Select quarter printing	FS r n
	On	10	16	Cancel quarter printing	FS DC2
5	Off	00	0	Select superscript	FS r 0
	On	20	32	Select subscript	FS r 1
6	Off	00	0		
	On	40	64		
7	Off	00	0	Cancel underline	FS - 0
	On	80	128	Selects underline	FS - 1

Where:

0 <= *n* <= 255

Comment This command cancels any attributes or enhancements that are not selected.

Master Select One-Line Attribute In DBCS Mode

ASCII Code ASSC 0 ! *n*

Hex Code ASSC 30 21 *n*

Dec Code ASSC 48 33 *n*

Purpose Where:

0 < = *n* < = 255

Select any combination of several one-line attributes by setting or clearing the appropriate bit in the n parameter, as show in the table below.

Bit	On/Off	Hex	Dec	Function
2	Off On	00 04	0 4	Cancel double width Select double width
3	Off On	00 08	0 8	Cancel double height Select double height

Comment These attributes are canceled when the printer receives the following commands: LF, FF, VT, and CR.

This command takes effect only in DBCS mode.

Pair Two Characters in Vertical Printing

ASCII Code FS D d_1 d_2

Hex Code 1C 44 d_1 d_2

Dec Code 28 68 d_1 d_2

Purpose Aligns two rotated characters to fit the space occupied by a normal size rotated character where d_1 is the lower character and d_2 is the upper character. Both d_1 and d_2 can be SBCS characters or DBCS characters. If the character is a DBCS character, it will automatically be half-width.

Comment This command has an effect only in vertical printing mode.

Only two characters are combined at a time.

Reassign Bit-image Mode

ASCII Code ESC ? *n m*

Hex Code 1B 3F *n m*

Dec Code 27 63 *n m*

Purpose Assigns the dot density used during the ESC K, ESC L, ESC Y, or ESC Z commands to the density specified by parameter *m* in the ESC * command.

Where:

n = 75, 76, 89, 90

0 <= *m* <= 40

Comment The default settings are as follows:

ESC K is assigned density 0

ESC L is assigned density 1

ESC Y is assigned density 2

ESC Z is assigned density 3

Select 1/6-inch Line Spacing

ASCII Code ESC 2

Hex Code 1B 32

Dec Code 27 50

Purpose Sets the line spacing to 1/6 inch.

Comment Changing the line spacing does not affect previous settings for vertical tabs or page length.

This command affects the front panel setting of “Select LPI.”

Select 1/8-inch Line Spacing

ASCII Code ESC 0

Hex Code 1B 30

Dec Code 27 48

Purpose Sets the line spacing to 1/8 inch.

Comment Changing the line spacing does not affect previous settings for vertical tabs or page length.

This command affects the front panel setting of “Select LPI.”

Select 10CPI

ASCII Code ESC P

Hex Code 1B 50

Dec Code 27 80

Purpose Selects 10-cpi character pitch.

Comment If you change the fixed-pitch setting with this command during proportional mode (selected with the ESC p command), the change takes effect when the printer exits proportional mode.

This command affects “Select CPI” on the front panel.

This command takes effect only in SBCS mode.

Select 12CPI

ASCII Code ESC M

Hex Code 1B 4D

Dec Code 27 77

Purpose Selects 12-cpi character pitch.

Comment If you change the fixed-pitch setting with this command during proportional mode (selected with the ESC p command), the change takes effect when the printer exits proportional mode.

This command affects “Select CPI” on the front panel.

This command takes effect only in SBCS mode.

Select 15CPI

ASCII Code ESC g

Hex Code 1B 67

Dec Code 27 103

Purpose Selects 15-cpi character pitch.

Comment If you change the fixed-pitch setting with this command during proportional mode (selected with the ESC p command), the change takes effect when the printer exits proportional mode.

Characters from 0x80 to 0xFE cannot be printed in this mode.

This command affects “Select CPI” on the front panel.

This command takes effect only in SBCS mode.

Select 60-dpi Graphics

ASCII Code ESC K n_L n_H d_1 d_2 … d_k

Hex Code 1B 4B n_L n_H d_1 d_2 … d_k

Dec Code 27 75 n_L n_H d_1 d_2 … d_k

Purpose Prints bit-image graphics in 8-dot columns, at a density of 60 horizontal by 60 vertical dpi, according to the following parameters:

n_L , n_H Specifies the total number of columns (k) of graphics data.

k = ((n_H x 256) + n_L)

d_1 … d_k Bytes of graphic data

Where:

0 <= n_L <= 255

0 <= n_H <= 31

0 <= d <= 255

Comment The ESC * 0 command is identical to this command.

Select 120-dpi Graphics

ASCII Code ESC L n_L n_H d_1 d_2 … d_k

Hex Code 1B 4C n_L n_H d_1 d_2 … d_k

Dec Code 27 76 n_L n_H d_1 d_2 … d_k

Purpose Prints bit-image graphics in 8-dot columns, at a density of 120 horizontal by 60 vertical dpi, according to the following parameters:

n_L , n_H Specifies the total number of columns (k) of graphics data.

k = ((n_H x 256) + n_L)

d_1 … d_k Bytes of graphic data

Where:

0 <= n_L <= 255

0 <= n_H <= 31

0 <= d <= 255

Comment The ESC * 1 command is identical to this command.

Select 120-dpi Graphics

ASCII Code ESC Y n_L n_H d_1 d_2 … d_k

Hex Code 1B 59 n_L n_H d_1 d_2 … d_k

Dec Code 27 89 n_L n_H d_1 d_2 … d_k

Purpose Prints bit-image graphics in 8-dot columns, at a density of 120 horizontal by 60 vertical dpi, according to the following parameters:

n_L , n_H Specifies the total number of columns (k) of graphics data.

k = ((n_H x 256) + n_L)

d_1 … d_k Bytes of graphic data

Where:

0 <= n_L <= 255

0 <= n_H <= 31

0 <= d <= 255

Comment The ESC * 2 command is identical to this command.

Select 240-dpi Graphics

ASCII Code ESC Z n_L n_H d_1 d_2 … d_k

Hex Code 1B 5A n_L n_H d_1 d_2 … d_k

Dec Code 27 90 n_L n_H d_1 d_2 … d_k

Purpose Prints bit-image graphics in 8-dot columns, at a density of 240 horizontal by 60 vertical dpi, according to the following parameters:

n_L, n_H Specifies the total number of columns (k) of graphics data.

k = ((n_H x 256) + n_L)

d_1 … d_k Bytes of graphic data

Where:

0 <= n_L <= 255

0 <= n_H <= 31

0 <= d <= 255

Comment The ESC * 3 command is identical to this command.

Select an International Character Set

ASCII Code ESC R *n*

Hex Code 1B 52 *n*

Dec Code 27 82 *n*

Purpose Selects the set of characters printed for specific character codes, as listed below:

n = 0 USA
= 1 France
= 2 Germany
= 3 United Kingdom
= 4 Denmark
= 5 Sweden
= 6 Italy
= 7 Spain I
= 8 Japan (English)
= 9 Norway
= 10 Denmark II
= 11 Spain II
= 12 Latin America
= 13 Korean

Where:

0 <= *n* <= 13

Select Bit Image

ASCII Code ESC * *m* n_L n_H d_1 ... d_k

Hex Code 1B 2A *m* n_L n_H d_1 ... d_k

Dec Code 27 42 *m* n_L n_H d_1 ... d_k

Purpose Prints dot-graphics in 8- or 24-dot columns, depending on the following parameters:

m	Specifies the dot density
n_L, n_H	Specifies the total number of columns of graphics data that follows (number of dot columns) = ((n_Hx256) + n_L)
d_1 ... d_k	Bytes of graphics data; *k* is determined by multiplying the total number of columns times the number of bytes required for each column

Dot density is described in the table below:

Parameter *m* in ESC *	Horizontal density (dpi)	Vertical density (dpi)	Dots per column	Bytes per column
0	60	60	8	1
1	120	60	8	1
2	120	60	8	1
3	240	60	8	1
4	80	60	8	1
6	90	60	8	1
32	60	180	24	3
33	120	180	24	3
38	90	180	24	3
39	180	180	24	3
40	360	180	24	3

Where:

0 <= n_L <= 255

0 <= n_H <= 31

m = 0, 1, 2, 3, 4, 6, 32, 33, 38, 39 40

Select Bold Font

ASCII Code ESC E

Hex Code 1B 45

Dec Code 27 69

Purpose Sets the weight attribute of the font to Bold.

Comment This command increases the weight of printed lines and characters, resulting in bolder printing.

This command affects “Bold Print” on the front panel.

The default is Normal (non-bold) print.

Cancel Bold Font

ASCII Code ESC F

Hex Code 1B 46

Dec Code 27 70

Purpose Sets the font to Normal (cancels the bold print previously set with the ESC E command).

Comment This command affects “Bold Print” on the front panel.

The default is Normal (non-bold) print.

Select Character Style

ASCII Code ESC q *n*

Hex Code 1B 71 *n*

Dec Code 27 113 *n*

Purpose Turns on/off outline and shadow printing, according to the parameters below:

n = 0 Turns off outline/shadow printing

n = 1 Turns on outline printing

n = 2 Turns on shadow printing

n = 3 Turns on outline and shadow printing

Where:

0 <= *n* <= 3

Comment This command does not affect graphics characters.

Select Character Table

ASCII Code ESC t *n*

Hex Code 1B 74 *n*

Dec Code 27 116 *n*

Purpose Selects the character table to be used for printing among the two character tables described below:

n = 0 or 48	Character table 0	0x80-0x9f Control code, 0xa0-0xff Italic
n = 1 or 49	Character table 1	0x80-0xff Printable code, IBM PC437

Where:

0 <= *n* <= 1, 48 <= *n* <= 49

Currently, the setting on the front panel of “Alt. Set 80-9F” determines whether *n* = 0 would be treated as Control Code or Printable Code. Thus, this determines the setting *n* = 1.

Comment This command affects the front panel setting of “Character Set.”

Select Condensed Printing

ASCII Code SI

Hex Code 0F

Dec Code 15

Purpose Enters condensed mode, in which character width is reduced as follows:

Selected pitch	Condensed pitch
10 cpi	17.14 cpi
12 cpi	20 cpi
Proportional	½ width

Comment This command is ignored under the following two conditions:

15-cpi printing has been selected with the ESC g command.

This command reduces character width by about 50% when proportional spacing is selected with the ESC p command.

Cancel condensed printing with the DC2 command.

This command only takes effect in SBCS mode.

The default is Non-condensed printing.

Select Condensed Printing

ASCII Code ESC SI

Hex Code 1B 0F

Dec Code 27 15

Purpose Enters condensed mode, in which character width is reduced as follows:

Selected pitch	Condensed pitch
10 cpi	17.14 cpi
12 cpi	20 cpi
Proportional	½ width

Comment This command is ignored under the following two conditions: 15-cpi printing has been selected with the ESC g command.

This command reduces character width by about 50% when proportional spacing is selected with the ESC p command.

Cancel condensed printing with the DC2 command.

If the front panel setting of “20 CPI Condensed” is Disable, 12-cpi printing will ignore the Condense command.

The default is Non-condensed printing.

Cancel Condensed Printing

ASCII Code DC2

Hex Code 12

Dec Code 18

Purpose Cancels condensed printing selected by the SI or ESC SI commands.

Comment The default is Normal (non-condensed) printing.

Select DBCS Print Quality

ASCII Code FS x *n*

Hex Code 1C 78 *n*

Dec Code 28 120 *n*

Purpose Selects different print quality according to the following values:

n = 0 or 48LQ

n = 1 or 49Hi-Speed

n = 2 or 50Near LQ

n = 3 or 51Super Hi-Speed

n = 4 or 52Normal

n = 5 or 53Ultra Hi-Speed

Where:

n = 0, 1, 2, 3, 4, 5, 48, 49, 50, 51, 52, 53

Comment This command affects the front panel selection of “Typeface.”

This command only works in DBCS mode.

The default mode is according to the setting of front panel.

Select Double-strike Printing

ASCII Code ESC G

Hex Code 1B 47

Dec Code 27 71

Purpose Prints each dot twice, with the second slightly below and right to the first, creating a bolder character.

Comment The default is Normal (non double-strike) style.

Cancel Double-strike Printing

ASCII Code ESC H

Hex Code 1B 48

Dec Code 27 72

Purpose Cancels double-strike printing selected with the ESC G command.

Comment The default is Normal (non double-strike) style.

Select Double-width Printing (One Line)

ASCII Code SO

Hex Code 0E

Dec Code 14

Purpose Doubles the width of all characters, spaces, and intercharacter spacing (set with the ESC SP command) on the same line as the command.

Comment This command is cancelled when the printer receives the following commands: LF, FF, VT, DC4, ESC W 0, and CR.

This command works under both ASCII and Hangul modes.

The default is Normal (non double-width) printing.

Cancel Double-width Printing (One Line)

ASCII Code ESC SO

Hex Code 1B 0E

Dec Code 27 14

Purpose Cancels the double-width printing of all characters, spaces, and intercharacter spacing (set with the SO command).

Comment This command works under both ASCII and Hangul modes.

Cancel Double-width Printing (One Line)

ASCII Code DC4

Hex Code 14

Dec Code 20

Purpose Cancels double-width printing selected by the SO or ESC SO commands.

Comment This command does not cancel double-width printing selected with the ESC W command.

The default is Normal (non double-width) printing.

Select Double-width Printing in DBCS Mode (One Line)

ASCII Code FS SO

Hex Code 1C 0E

Dec Code 28 14

Purpose Doubles the width of all characters, spaces, and intercharacter spacing (set with the FS S or FS T commands) on the same line as the command.

Comment This command is cancelled when the printer receives the following commands: LF, FF, VT, DC4, FS W 0, and CR.

This command can be cancelled by FS W 0 and FS !

This command works under ASCII mode, and it works the same as the SO or ESC SO commands.

The default is Normal (non double-width) printing.

Cancel Double-width Printing in DBCS Mode (One Line)

ASCII Code FS DC4

Hex Code 28 14

Dec Code 1C 20

Purpose Cancels double-width printing selected by the FS SO command.

Comment This command does not cancel double-width printing selected by the FS W command.

The default is Normal (non double-width) printing.

Select DBCS Mode

ASCII Code FS &

Hex Code 1C 26

Dec Code 28 38

Purpose Sets the printer in DBCS mode.

Comment In DBCS mode, all the data received by the printer with the MSB set will be paired with the next character to be a DBCS (double byte character system) character. Otherwise, the character will be treated individually as SBCS (single byte character system) character and printed accordingly.

The DBCS mode should be set before processing Hangul characters.

This command affects the front panel setting of “DBCS/ASCII mode.”

The default is DBCS mode.

Cancel DBCS Mode

ASCII Code FS .

Hex Code 1C 2E

Dec Code 28 46

Purpose Cancels DBCS mode. The printer is set back to ASCII mode.

Comment A few ESC commands only work in ASCII mode.

This command affects the front panel setting of “DBCS/ ASCII MODE.”

The default is DBCS mode.

Select Hangul Myunjo/Gothic Style

ASCII Code FS k *n*

Hex Code 1C 6B *n*

Dec Code 28 107 *n*

Purpose Selects Myunjo/Gothic style according to the following values:

n = 0 or 2 Set Myunjo style

n = 1 or 3 Set Gothic style

Where:

0 <= *n* <= 3

Comment The default is Myunjo style.

Select Italic Font

ASCII Code ESC 4

Hex Code 1B 34

Dec Code 27 52

Purpose Sets the style attribute of the font to Italics.

Comment This command selects italic printing even if the italic character table is not selected.

This command affects “Italic Print” on the front panel.

The default is Normal (non-italic) style.

Cancel Italic Font

ASCII Code ESC 5

Hex Code 1B 35

Dec Code 27 53

Purpose Sets the font style to Normal (cancels the italic style previously selected with the ESC 4 command).

Comment This command affects “Italic Print” on the front panel.

The default is Normal (non-italic) style.

Select Print Quality

ASCII Code ESC x *n*

Hex Code 1B 78 *n*

Dec Code 27 120 *n*

Purpose Selects the print quality according to the following values:

n = 0 or 48Hi-Speed

n = 1 or 49LQ

n = 2 or 50Near LQ

n = 3 or 51Super Hi-Speed

n = 4 or 52Normal

n = 5 or 53Ultra Hi-Speed

Where:

n = 0, 1, 2, 3, 4, 5, 48, 49, 50, 51, 52, 53

Comment This command affects the front panel setting of “Typeface.”

Select Printer

ASCII Code DC1

Hex Code 11

Dec Code 17

Purpose Selects the printer after it has been deselected with the DC3 command.

Comment The printer ignores this command if the user has set the printer offline by pressing the online button.

Deselect Printer

ASCII Code DC3

Hex Code 13

Dec Code 19

Purpose Deselects the printer.

Comment The printer cannot be reselected by pressing the online button.

Select Superscript/Subscript Printing

ASCII Code ESC S *n*

Hex Code 1B 53 *n*

Dec Code 27 83 *n*

Purpose Prints characters that follow at about 2/3 their normal height; the printing location depends on the value of *n* as follows:

n = 1 or 49Lower part of the character space

n = 0 or 48Upper part of the character space

Where:

n = 0, 1, 48, 49

Comment This command does not affect graphics characters.

The width of super/subscript characters when using proportional spacing is the same as that of normal characters.

The underline strikes through the descenders on subscript characters during underline mode.

Use the ESC T command to cancel super/subscript printing.

This command only takes effect in SBCS mode.

The default is Normal (non-super/subscript) printing.

Cancel Superscript/Subscript Printing

ASCII Code ESC T

Hex Code 1B 54

Dec Code 27 84

Purpose Cancels super/subscript printing selected by the ESC S command.

Comment The default is Normal (non-super/subscript) printing.

Select DBCS Super/Subscript Printing

ASCII Code FS r *n*

Hex Code 28 72 *n*

Dec Code 1C 114 *n*

Purpose Prints characters that follow at about ½ their normal width and ½ their normal height; the printing location depends on the value of *n* as follows:

n = 1 or 49Lower part of the character space

n = 0 or 48Upper part of the character space

Where:

n = 0, 1, 48, 49

Comment Use the FS DC2 command to cancel super/subscript printing.

This command resets DBCS half-width printing set by the FS SI command.

The default is Normal (non-super/subscript).

Select Vertical Printing

ASCII Code FS J

Hex Code 28 4A

Dec Code 1C 74

Purpose The character is printed in the same position with 90 degrees rotation in a counter-clockwise direction under Hangul mode.

Comment Use the FS K command to cancel vertical printing.

This command does not take effect on single-byte characters.

The default is Normal (horizontal).

Cancel Vertical Printing (Select Horizontal Printing)

ASCII Code FS K

Hex Code 28 4B

Dec Code 1C 75

Purpose Prints all characters horizontally.

Comment This command cancels vertical printing set with the FS J command.

This is the default setting at power-up.

The default is Normal (horizontal).

Set *n*/60-inch Line Spacing

ASCII Code ESC A *n*

Hex Code 1B 41 *n*

Dec Code 27 65 *n*

Purpose Sets the line spacing to *n*/60 inch.

Where:

0 < *n* <= 85

Comment Changing the line spacing does not affect previous settings for vertical tabs or page length.

Does not support 0 lpi. When *n* = 0, the printer prints according to the previous LPI.

This command affects the front panel setting of “Select LPI.”

Set *n*/180-inch Line Spacing

ASCII Code ESC 3 *n*

Hex Code 1B 33 *n*

Dec Code 27 51 *n*

Purpose Sets the line spacing to *n*/180 inch.

Where:

0 < *n* <= 255

Comment Changing the line spacing does not affect previous settings for vertical tabs or page length.

Does not support 0 lpi. When *n* = 0, the printer prints according to the previous lpi.

This command affects the front panel setting of “Select LPI.”

Set Absolute Horizontal Print Position

ASCII Code ESC $ *n1 n2*

Hex Code 1B 24 *n1 n2*

Dec Code 27 36 *n1 n2*

Purpose Moves the horizontal print position to the position specified by the following formula:

Horizontal position = *n1* + (*n2* * 256) + left margin.

Where:

0 <= *n1* <= 127

0 <= *n2* <= 255

The unit setting for this command is 1/60 inch.

Comment The printer ignores this command if the specified position is to the right of the right margin.

Set Bottom Margin

ASCII Code ESC N *n*

Hex Code 1B 4E *n*

Dec Code 27 78 *n*

Purpose Sets the bottom margin on continuous paper to *n* lines (in the current line spacing) from the top-of-form position on the next page.

Where:

1 <= *n* <= 127

0 < *n* *(current line spacing) < page length

Comment This was formerly called the "Set skip-over-perforation" command.

This command affects the front panel setting of "Bottom Margin."

The default depends on the power-up configuration.

Cancel Bottom Margin

ASCII Code ESC O

Hex Code 1B 4F

Dec Code 27 79

Purpose Cancels the bottom margin settings.

Comment This was formerly called the "Cancel skip-over-perforation" command.

This command affects the front panel setting of "Bottom Margin."

Set DBCS Character Half Width

ASCII Code FS SI

Hex Code 28 0F

Dec Code 1C 15

Purpose Prints DBCS characters that follow at about half their normal width, and SBCS characters maintain their normal width.

Comment Use the FS DC2 command to cancel half-width DBCS character printing.

This command resets subscript/ superscript printing set by the FS r command.

The default is Normal (non half-width) printing.

Cancel DBCSCharacterHalf Widthand Super/Subscript Printing

ASCII Code FS DC2

Hex Code 28 12

Dec Code 1C 18

Purpose This command cancels the FS SI (half-width DBCS character) and FS r (set super/subscript printing) commands.

Comment The default is Normal (non half-width and non-super/subscript) printing.

Set Horizontal Tabs

ASCII Code ESC D n_1 n_2 … n_k NUL

Hex Code 1B 44 n_1 n_2 … n_k 00

Dec Code 27 68 n_1 n_2 … n_k 00

Purpose Sets horizontal tab positions (in the current character pitch) at the columns specified by n_1 to n_k as measured from the left- margin position.

The values for *n* must be in ascending order; a value of *n* less than the previous *n* ends tab setting (like the NUL code).

Where:

0 <= *k* <= 32

1 <= *n* <= 255

$n_k > n_{k-1}$

Comment Changing the character pitch does not affect current tab settings.

Send an ESC D NUL command to cancel all tab settings.

The tab settings move to match any movement in the left margin.

A maximum of 32 horizontal tabs can be set.

The printer does not move the print position to any tabs beyond the right-margin position. However, all tab settings are stored in the printer's memory; if you move the right margin, you can access previously ignored tabs.

The printer calculates tab positions based on 10 cpi if proportional spacing is selected with the ESC p command.

The default is every eight characters.

Set Intercharacter Space

ASCII Code ESC SP *n*

Hex Code 1B 20 *n*

Dec Code 27 32 *n*

Purpose Increases the space between characters; the unit is according to the current density.

Where:

0 <= *n* <= 127

Comment The extra space set with this command doubles during double width mode.

Set Intercharacter Spacing of DBCS Character (Hangul Extension)

ASCII Code FS S n_1 n_2

Hex Code 28 53 n_1 n_2

Dec Code 1C 83 n_1 n_2

Purpose Sets intercharacter space to the left and right of the DBCS character.

n_1 Specifies the space to the left of the printed character.

n_2 Specifies the space to the right of the printed character.

The dot size of n_1 and n_2 is 1/180 inch.

Where:

$0 < n_1 < 127$

$0 < n_2 < 127$

Comment A DBCS character with a half-width feature set by the FS SI command is treated as an SBCS character.

This command also affects an SBCS character if the character is aligned with DBCS by the FS U command.

If the SBCS character is aligned with the DBCS character, the intercharacter space of the SBCS character is half of n_1 and n_2.

This command affects the front panel setting of “DBCS CPI.”

The default is $n_1 = 0$, $n_2 = 3$.

Set Intercharacter Spacing Of SBCS Character (Hangul Extension)

ASCII Code FS T n_1 n_2

Hex Code 28 54 n_1 n_2

Dec Code 1C 84 n_1 n_2

Purpose Sets intercharacter space to the left and right of the SBCS character.

n_1 Specifies the space to the left of the printed character in 1/180 of an inch.

n_2 Specifies the space to the right of the printed character in 1/180 of an inch.

The units of n_1 and n_2 are 1/180 inch.

Where:

$0 < n_1 < 127$

$0 < n_2 < 127$

Comment A DBCS character with a half-width feature set by the FS SI command is treated as an SBCS character.

This command only affects SBCS characters when the FS V command is set.

The default is $n_1 = 0$, $n_2 = 2$.

Set Left Margin

ASCII Code ESC I *n*

Hex Code 1B 6C *n*

Dec Code 27 108 *n*

Purpose Sets the left margin to *n* columns in the current character pitch, as measured from the left-most printable column.

Where:

1 <= *n* <= 255

0 < left margin < right margin

Comment In DBCS mode, the character pitch is according to the width of the DBCS character.

This command affects the front panel setting of “Left Margin.”

The default depends on the power-up configuration.

Set Page Length In Inches

ASCII Code ESC C NUL *n*

Hex Code 1B 43 00 *n*

Dec Code 27 67 0 *n*

Purpose Sets the page length to *n* inches.

This command sets the page length in 1-inch increments only.

Sets the page length before paper is loaded or when the print position is at the top-of-form position. Otherwise, the current print position becomes the top-of-form position.

Where:

1 <= *n* <= 22

Comment Setting the page length cancels the bottom margin setting.

This command affects the front panel setting of “Abs. Length In.”

Set Page Length In Lines

ASCII Code ESC C *n*

Hex Code 1B 43 *n*

Dec Code 27 67 *n*

Purpose Sets the page length to *n* lines in the current line spacing.

Sets the page length before paper is loaded or when the print position is at the top-of-form position. Otherwise the current print position becomes the top-of-form position.

Where:

1<= *n* <= 127

0 < *n* *(current line spacing) <= 22 inches

Comment Setting the page length cancels the bottom margin setting.

Changing the line spacing does not affect the current page- length setting.

This command affects front panel setting of “Funct. Of Lines.”

Set Relative Horizontal Print Position

ASCII Code ESC \ *n1 n2*

Hex Code 1B 5C *n1 n2*

Dec Code 27 92 *n1 n2*

Purpose Moves the horizontal print position left or right from the current position.

For right movement: horizontal position = *n2* * 256 + *n1*.

For left movement: horizontal position = 65536 - (*n2**256 + *n1*).

Where:

0 <= *n1* <= 127

0 <= *n2* <= 255

Comment The printer ignores this command if the command would move the print position outside the printing area.

The default defined unit for this command is according to the current density: 1/120 inch for Near LQ and 1/180 inch for LQ, Normal, Hi-Speed, Super Hi-Speed, and Ultra Hi-Speed.

Set Right Margin

ASCII Code ESC Q *n*

Hex Code 1B 51 *n*

Dec Code 27 81 *n*

Purpose Sets the right margin to *n* columns in the current character pitch, as measured from the left-most printable column.

Where:

1 <= *n* <= 255

left margin < (current pitch) * *n* < printable area width

Comment In DBCS mode, the right margin will be set according to the width of the DBCS character.

This command affects the front panel setting of “Right Margin.”

The default depends on the power-up configuration.

Set Vertical Tab Channels

ASCII Code ESC / *m*

Hex Code 1B 2F *m*

Dec Code 27 47 *m*

Purpose The value for *m* specifies the number of the tab sets being changed; these sets of tabs are called vertical formatting unit (VFU) channels.

Where:

0 <= *m* <= 7

Comment You must use this command to select a tab set (VFU channel) other than set 0; the VT (tab vertically) command then uses the settings for the selected channel.

You can select from eight sets of tabs (VFU channels).

Set Vertical Tabs

ASCII Code ESC B n_1 n_2 … n_k NUL

Hex Code 1B 42 n_1 n_2 … n_k 00

Dec Code 27 66 n_1 n_2 … n_k 0

Purpose Sets vertical tab positions (in the current line spacing) at the lines specified by n_1 to n_k, as measured from the top-margin position.

The values for *n* must be in ascending order; a value of *n* less than the previous *n* ends tab setting (just like the NUL code).

Where:

$0 <= k <= 16$

$1 <= n <= 255$

$n_k > n_{k-1}$

Comment Changing the line spacing does not affect previous tab settings.

The tab settings move to match any subsequent movement in the top-margin position.

Send an ESC B NUL command to cancel all tab settings.

A maximum of 16 vertical tabs can be set.

The printer stores all tab settings, even if outside the printing area; if you increase the page length to include previously set tabs, you can move to those positions with the VT (tab vertically) command.

Sending the ESC B command clears any previous tab settings.

Set Vertical Tabs In VFU Channels

ASCII Code ESC b *m* n_1 … n_k NUL

Hex Code 1B 62 *m* n_1 … n_k 00

Dec Code 27 98 *m* n_1 … n_k 0

Purpose Sets vertical tab positions at the lines specified by n_1 to n_k (in the current line spacing) in tab set *m*, as measured from the top-of-form position.

The value for *m* specifies the number of the tab sets being changed; these sets of tabs are called vertical formatting unit (VFU) channels.

The values for *n* must be in ascending order; a value of *n* less than the previous *n* ends tab setting (just like the NUL code).

Where:

0 <= *m* <= 7

1 <= *n* <= 255

$n_k > n_{k-1}$

1 <= *k* <= 16

Comment Up to eight sets of tabs can be set.

Send the ESC / command to select a VFU channel other than channel 0; the VT (tab vertically) command then uses the settings for the selected channel.

Changing the line spacing does not affect previous settings for vertical tabs.

Sending the ESC b command clears any previous tab settings in that tab set.

Send an ESC b *m* NUL command to cancel all tab settings in the tab set *m*.

A maximum of 16 vertical tabs can be set in each VFU channel.

The printer stores all tab settings, even if outside the printing area; if you increase the page length to include previously set tabs, you can move to those positions with the VT (tab vertically) command.

Tab Horizontally

ASCII Code HT

Hex Code 09

Dec Code 09

Purpose Moves the horizontal print position to the next tab to the right of the current print position.

Comment The printer ignores this command if no tab is set to the right of the current position or if the next tab is to the right of the right margin.

Character scoring (underline, overscore, and strike through) is not printed between the current print position and the next tab when this command is sent.

In DBCS mode, the command takes effect in double byte character setting.

Tab Vertically

ASCII Code VT

Hex Code 0B

Dec Code 11

Purpose Moves the vertical print position to the next vertical below the current print position.

Moves the horizontal print position to the left-margin position.

Comment The printer advances to the top-margin position of the following page if the next tab is below the bottom-margin position or if no tab is set below the current position.

The VT command functions the same as a CR command (moves the horizontal print position to the left-margin position) if all tabs have been cancelled with the ESC B NUL command.

The VT command functions the same as an LF command (advances one line in the current line spacing and moves the horizontal print position to the left-margin position) if no tabs have been set since the printer was turned on or was reset with the ESC@ command.

The VT command functions the same as an FF command (advances to the top-margin position on the next page) if some tabs have been set, but no tab is set between the current print position and the bottom-margin position.

This command cancels double-width printing set with the SO, ESC SO, or FS SO commands.

Turn Auto-wrap Around On/Off

ASCII Code ESC d *n*

Hex Code 1B 64 *n*

Dec Code 27 100 *n*

Purpose Turns Auto-wrap Around on/off according to the following values:

n = 0 Turn off Auto-wrap Around. The characters beyond right margin will be cut.

n = 1 Turn on Auto-wrap Around. The characters beyond right margin will be printed on the next line.

Where:

n = 0, 1

Turn Double-Height Printing On/Off

ASCII Code ESC w *n*

Hex Code 1B 77 *n*

Dec Code 27 119 *n*

Purpose Turns on/off double-height printing of all characters, as measured from the current baseline:

n = 1 or 49Turns on double-height

n = 0 or 48Turns off double-height

Where:

n = 0, 1, 48, 49

Comment No change for line spacing.

This command only takes effect in SBCS mode.

The default is Normal (non double-height) printing.

Turn Double-Width, Double-Height Printing On/Off

ASCII Code FS W *n*

Hex Code 28 57 *n*

Dec Code 1C 87 *n*

Purpose Turns on/off double-width, double height printing of all characters, spaces, and intercharacter spacing (set with the FS S or FS T commands) on the same line as this command, as follows:

n = 0 or 48Turns off double-width double-height

n = 1 or 49Turns on double-width double-height

Where:

n = 0, 1, 48, 49

Comment The baseline of the line including double-width, double-height characters moves down 24/180 inch, and the line spacing also increases 24/180 inch.

The default is Normal (non double-width double-height) printing.

Turn Double-Width Printing On/Off

ASCII Code ESC W *n*

Hex Code 1B 57 *n*

Dec Code 27 87 *n*

Purpose Turns on/off double-width printing of all characters, spaces, and intercharacter spacing (set with the ESC SP command) following this command as follows:

n = 1 or 49Turns on double-width

n = 0 or 48Turns off double-width

Comment This command works under both ASCII and Hangul modes.

The default is Normal (non double-width) printing.

Turn Extending Table Character On/Off

ASCII Code FS v *n*

Hex Code 1C 76 *n*

Dec Code 28 118 *n*

Purpose Turns on/off extending table characters, as follows:

n = 0 or 48Cancels extending table characters

n = 1 or 49Selects extending table characters

Where:

n = 0, 1, 48, 49

Comment This command extends the table characters so they touch in both horizontal and vertical directions.

The limitation of extension is ½ inch.

Our printer could extend the table characters in the range of A6A1H to A6E4H in the Hangul Complete font.

The default is Table Character not extended.

Turn On/Off OCRB Selection

ASCII Code ASSC 0 z *n*

Hex Code ASSC 30 7A *n*

Dec Code ASSC 48 122 *n*

Purpose Turns on/off OCRB selection as follows:

n = 0 or 48Turns off OCRB selection

n = 1 or 49Turns on OCRB selection

Where:

n = 0, 1, 48, 49

Comment When OCRB selection is turned on, the OCRB character can be printed out.

This command affects the front panel setting of “OCRB Selection.”

This command works only in DBCS mode.

The default is *n* = 0.

Turn Proportional Mode On/Off

ASCII Code ESC p *n*

Hex Code 1B 70 *n*

Dec Code 27 112 *n*

Purpose Selects either proportional or fixed character spacing according to the following values:

n = 0 or 48Returns to current fixed character pitch.

n = 1 or 49Selects proportional spacing.

Comment Changes made to the fixed-pitch setting with the ESC P, ESC M, or ESC g commands during proportional mode take effect when the printer exits proportional mode.

Characters from 0x80 to 0xFE cannot be printed in this mode.

This command affects “Prop. Spacing” on the front panel.

This command only affects the character printing in ASCII mode.

Turn Underline On/Off

ASCII Code ESC - *n*

Hex Code 1B 2D *n*

Dec Code 27 45 *n*

Purpose Turns on/off printing of a line below all characters and spaces following the command:

n = 0 or 48 Turns underline off

n = 1 or 49 Turns underline on

Where:

n = 0, 1, 48, 49

Comment The underline does not print across the horizontal space with the following commands: ESC $, ESC \ (when the print position is moved to the left), and HT.

Graphics characters are not underlined.

This command does not change line spacing.

The default is Normal (non-underlined) style.

Turn Underline On/Off (Hangul Extension)

ASCII Code FS - *n*

Hex Code 1C 2D *n*

Dec Code 28 45 *n*

Purpose Turns on/off printing of a line below all characters and spaces following the command:

n = 0 or 48Turns underline off

n = 1 or 49Prints one dot underline

n = 2 or 50Prints two dot underline

Where:

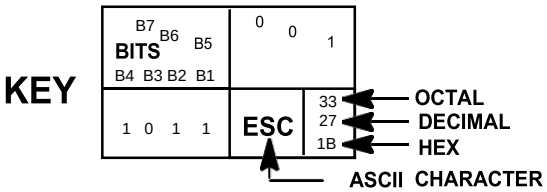
n = 0, 1, 48, 49

Comment If the character is in vertical printing mode, the line prints over the character and becomes overscored.

Underline and overscore each increase 4/180 inch line spacing.

The default is Normal (non-underlined) style.

A Standard ASCII Character Set

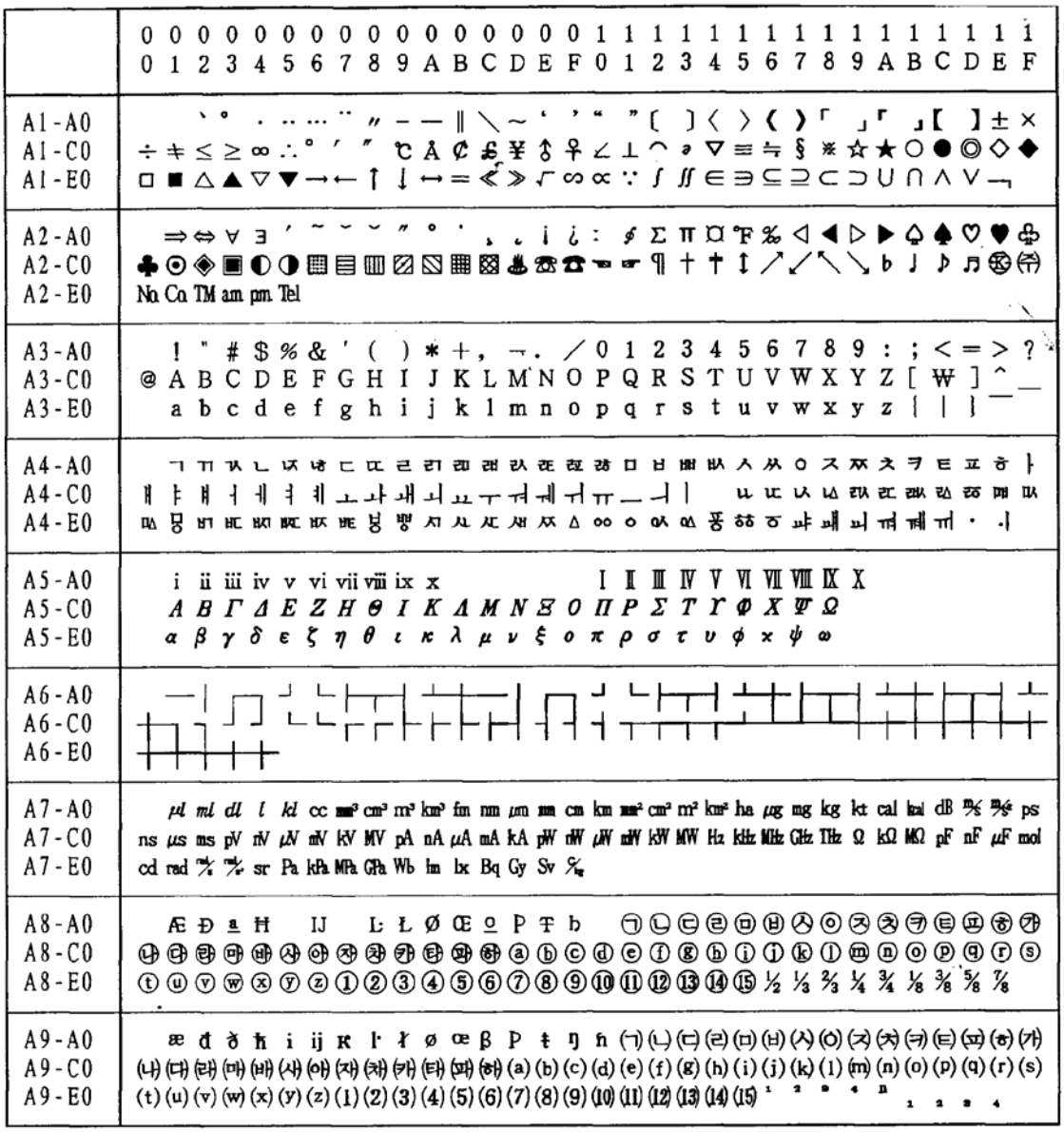


B7 B6 B5 / BITS B4 B3 B2 B1 / ROW	0 0 0 / COLUMN 0		0 0 1 / 1		0 1 0 / 2		0 1 1 / 3		1 0 0 / 4		1 0 1 / 5		1 1 0 / 6		1 1 1 / 7	
0 0 0 0 / 0	NUL	0 0 0	DLE	20 16 10	SP	40 32 20	0	60 48 30	@	100 64 40	P	120 80 50	`	140 96 60	p	160 112 70
0 0 0 1 / 1	SOH	1 1 1	DC1 (XON)	21 17 11	!	41 33 21	1	61 49 31	A	101 65 41	Q	121 81 51	a	141 97 61	q	161 113 71
0 0 1 0 / 2	STX	2 2 2	DC2	22 18 12	"	42 34 22	2	62 50 32	B	102 66 42	R	122 82 52	b	142 98 62	r	162 114 72
0 0 1 1 / 3	ETX	3 3 3	DC3 (XOFF)	23 19 13	#	43 35 23	3	63 51 33	C	103 67 43	S	123 83 53	c	143 99 63	s	163 115 73
0 1 0 0 / 4	EOT	4 4 4	DC4	24 20 14	$	44 36 24	4	64 52 34	D	104 68 44	T	124 84 54	d	144 100 64	t	164 116 74
0 1 0 1 / 5	ENQ	5 5 5	NAK	25 21 15	%	45 37 25	5	65 53 35	E	105 69 45	U	125 85 55	e	145 101 65	u	165 117 75
0 1 1 0 / 6	ACK	6 6 6	SYN	26 22 16	&	46 38 26	6	66 54 36	F	106 70 46	V	126 86 56	f	146 102 66	v	166 118 76
0 1 1 1 / 7	BEL	7 7 7	ETB	27 23 17	'	47 39 27	7	67 55 37	G	107 71 47	W	127 87 57	g	147 103 67	w	167 119 77
1 0 0 0 / 8	BS	10 8 8	CAN	30 24 18	(	50 40 28	8	70 56 38	H	110 72 48	X	130 88 58	h	150 104 68	x	170 120 78
1 0 0 1 / 9	HT	11 9 9	EM	31 25 19	)	51 41 29	9	71 57 39	I	111 73 49	Y	131 89 59	i	151 105 69	y	171 121 79
1 0 1 0 / 10	LF	12 10 0 A	SUB	32 26 1A	*	52 42 2A	:	72 58 3A	J	112 74 4A	Z	132 90 5A	j	152 106 6A	z	172 122 7A
1 0 1 1 / 11	VT	13 11 0 B	ESC	33 27 1B	+	53 43 2B	;	73 59 3B	K	113 75 4B	[	133 91 5B	k	153 107 6B	{	173 123 7B
1 1 0 0 / 12	FF	14 12 0 C	FS	34 28 1C	,	54 44 2C	<	74 60 3C	L	114 76 4C	\	134 92 5C	l	154 108 6C	|	174 124 7C
1 1 0 1 / 13	CR	15 13 0 D	GS	35 29 1D	-	55 45 2D	=	75 61 3D	M	115 77 4D	]	135 93 5D	m	155 109 6D	}	175 125 7D
1 1 1 0 / 14	SO	16 14 0 E	RS	36 30 1E	.	56 46 2E	>	76 62 3E	N	116 78 4E	^	136 94 5E	n	156 110 6E	~	176 126 7E
1 1 1 1 / 15	SI	17 15 0 F	US	37 31 1F	/	57 47 2F	?	77 63 3F	O	117 79 4F	_	137 95 5F	o	157 111 6F	DEL	177 127 7F

B *Code Table*

Korean Standard Code Table (KSC5601)

Range: hex A1A1 through hex FFFE



	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 2 3 4 5 6 7 8 9 A B C D E F 0 1 2 3 4 5 6 7 8 9 A B C D E F
AA-A0 AA-C0 AA-E0	ぁあぃいぅうぇえぉおかがきぎくぐけげこごさざしじすずせぜそぞた だちぢっつづてでとどなにぬねのはばぱひびぴふぶぷへべぺほぼぽまみ むめもゃやゅゆょよらりるれろゎわゐゑをん
AB-A0 AB-C0 AB-E0	ァアィイゥウェエォオカガキギクグケゲコゴサザシジスズセゼソゾタ ダチヂッツヅテデトドナニヌネノハバパヒビピフブプヘベペホボポマミ ムメモャヤュユョヨラリルレロヮワヰヱヲンヴカケ
AC-A0 AC-C0 AC-E0	А Б В Г Д Е Ё Ж З И Й К Л М Н О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ы Ь Э Ю Я а б в г д е ё ж з и й к л м н о п р с т у ф х ц ч ш щ ъ ы ь э ю я
AD-A0 AD-C0 AD-E0	
AE-A0 AE-C0 AE-E0	
AF-A0 AF-C0 AF-E0	

	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 2 3 4 5 6 7 8 9 A B C D E F 0 1 2 3 4 5 6 7 8 9 A B C D E F
B0-A0	가각간갇갈갉갊감갑값갓갔강갖갗같갚갛개객갠갤갬갭갯갰갱갸갹갼걀걉
B0-C0	걋걍걔걘걜거걱건걷걸걺검겁것겄겅겆겉겊겋게겐겔겜겝겟겠겡겨격겪견
B0-E0	결겹겸겹겻겼경곁계곈곌곕곗고곡곤곧골곪곬곯곰곱곳공곶과곽관괄괆
B1-A0	괌괍괏광괘괜괠괩괬괭괴괵괸괼굄굅굇굉교굔굘굡굣구국군굳굴굵굶굻
B1-C0	굼굽굿궁궂궈궉권궐궜궝궤궷귀귁귄귈귐귑귓규균귤그극근귿글긁금급긋
B1-E0	긍긔기긱긴긷길긺김깁깃깅깆깊까깍깎깐깔깖깜깝깟깠깡깥깨깩깬깰깸
B2-A0	깹깻깼깽꺄꺅꺌꺼꺽꺾껀껄껌껍껏껐껑께껙껜껨껫껭껴껸껼껿꼈꼇꼍꼐꼬
B2-C0	꼭꼰꼲꼴꼼꼽꼿꽁꽂꽃꽈꽉꽐꽜꽝꽤꽥꽨꽫꽴꾀꾄꾈꾐꾑꾕꾜꾸꾹꾼꿀꿇꿈꿉
B2-E0	꿋꿍꿎꿔꿜뀄뀅뀌뀍뀐뀔뀜뀝뀠뀨뀬뀰뀸끄끅끈끊끌끎끔끕끗끙
B3-A0	끝끼끽낀낄낌낍낏낑나낙낚난낟날낡낢남납낫났낭낮낯낱낳내낵낸낼냄
B3-C0	냅냇냈냉냐냑냔냘냠냥너넉넋넌널넓넓넘넙넛넜넝넣네넥넨넬넴넵넷넸넹
B3-E0	녀녁년녈념녑녔녕녘녜녠노녹논놀놂놈놉놋농높놓놔놘놜놨뇌뇐뇔뇜뇝
B4-A0	뇟뇨뇩뇬뇰뇹뇻뇽누눅눈눋눌눔눕눗눙눠눴눼뉘뉜뉠뉨뉩뉴뉵뉼늄늅늉
B4-C0	느늑는늘늙늚늠늡늣능늦늪늬늰늴니닉닌닐닒님닙닛닝닢다닥닦단닫달닭
B4-E0	닮닯닳담답닷닸당닺닻닿대댁댄댈댐댑댓댔댕댜더덕덖던덛덜덞덟덤덥
B5-A0	덧덩덫덮데덱덴델뎀뎁뎃뎄뎅뎌던뎔뎠뎡뎨뎬도독돈돋돌돎돐돔돕돗동
B5-C0	돛돝돠돤돨돼됐되된될됨됩됫됴두둑둔둘둠둡둣둥뒤뒀뒈뒝뒤뒨뒬뒵뒷뒹
B5-E0	듀듄듈듐등드득든듣들듦듬듭듯둥듸디딕딘딛딜딤딥딧딨딩딪따딱딴딸
B6-A0	땀땁땃땄땅땋때땍땐땔땜땝땟땠땡떠떡떤떨떪떰떱떳떴떵떻떼떽뗀뗄
B6-C0	뗌뗍뗏뗐뗑뗘뗬또똑똔똘똥뙈뙤뙨뚜뚝뚠뚤뚫뚬뚱뛔뛰뛴뛸뜀뜁뜅뜌뜨
B6-E0	뜩뜬뜯뜰뜸뜹뜻띄띈띌띔띕띠띤띨띰띱띳띵라락란랄람랍랏랐랑랒랖랗
B7-A0	래랙랜랠램랩랫랬랭랴략랸랻량러럭런럴럼럽럿렀렁렇레렉렌렐렘렙렛
B7-C0	렝려력련렬렴렵렷렸령례롄롑롓로록론롤롬롭롯롱롸뢴뢍뢨뢸룀룁룃룅
B7-E0	룅료룐룔룝룟룡루룩룬룰룸룹룻룽뤄뤘뤠뤼뤽뤤뤨뤳뤵류륙륜률륨륩
B8-A0	륫륭르륵른를름릅릇룽릊릍릎리릭린릴림립릿링마막만많맏말맑맒맘맙
B8-C0	맛망맞맡맣매맥맨맬맴맵맷맸맹맺먀먁먈먕머먹먼멀멂멈멉멋멍멎멓메멕
B8-E0	멘멜멤멥멧멨멩며멱면멸몃몄명몇메모목몫몬몰몲몸몹못몽뫄뫈뫘뫙뫼
B9-A0	묀묄묍묏묑묘묜묠묩묫무묵묶문묻물묽묾묻묩묫묭뭄뭅뭇뭉뭍뭏뭐뭔뭘뭡뭣뭬뮈
B9-C0	뮌뮐뮤뮨뮬뮴뮷므믄믈믐믓미믹민믿밀밂밈밉밋밌밍밎밑바박밖밗반받발
B9-E0	밝밞밟밤밥밧방밭배백밴밸뱀뱁뱃뱄뱅뱉뱌뱍뱐뱝버벅번벋벌벎범법벗

	0 0	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	0 A	0 B	0 C	0 D	0 E	0 F	1 0	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	1 A	1 B	1 C	1 D	1 E	1 F
BA-A0		벙	벚	베	벡	밴	벧	벨	벰	벱	벳	벴	벵	벼	벽	변	별	볍	볏	볐	병	볕	볘	볜	보	복	볶	본	볼	봄	봅	봇
BA-C0	봉	봐	봔	봤	봬	뵀	뵈	뵉	뵌	뵐	뵘	뵙	뵤	뵨	부	북	분	붇	불	붉	붊	붐	붑	붓	붕	붙	붚	붜	붤	붰	붸	뷔
BA-E0	뷕	뷘	뷜	뷩	류	뷴	뷸	븀	븃	븅	브	븍	븐	블	븜	븝	븟	비	빅	빈	빌	빎	빔	빕	빗	빙	빚	빛	빠	빡	빤	
BB-A0		빨	빪	빰	빱	빳	빴	빵	빻	빼	빽	뺀	뺄	뺌	뺍	뺏	뺐	뺑	뺘	뺙	뺨	뺴	뻑	뻔	뻘	뻠	뻣	뻤	뻥	뻬	뼙	뼁
BB-C0	뼈	뼉	뼘	뼙	뼛	뼜	뼝	뽀	뽁	뽄	뽈	뽐	뽑	뽕	뾔	뾰	뿅	뿌	뿍	뿐	뿔	뿜	뿟	뿡	쀼	쁑	쁘	쁜	쁠	쁨	삡	삐
BB-E0	삑	삔	삘	삠	삡	삣	삥	사	삭	삯	산	삳	살	삵	삶	삼	삽	삿	샀	상	샅	새	색	샌	샐	샘	샙	샛	샜	생	샤	
BC-A0		샥	샨	샬	샴	샵	샷	샹	섀	섄	섈	섐	섑	서	석	섞	섟	선	섣	설	섦	섧	섬	섭	섯	섰	성	섶	세	섹	센	셀
BC-C0	샘	셉	셋	셌	셍	셔	셕	션	셜	셤	셥	셧	셨	셩	셰	셴	셸	소	속	솎	손	솔	솖	솜	솝	솟	송	솥	솨	솩	솬	
BC-E0	솰	솽	쇄	쇈	쇌	쇔	쇗	쇘	쇠	쇤	쇨	쇰	쇱	쇳	쇼	쇽	숀	숄	숌	숍	숏	숑	수	숙	순	숟	술	숨	숩	숫	숭	
BD-A0		숯	숱	숲	숴	쉈	쉐	쉑	쉔	쉘	쉠	쉥	쉬	쉭	쉰	쉴	쉼	쉽	쉿	슁	슈	슉	슐	슘	슛	슝	스	슥	슨	슬	슭	슴
BD-C0	습	슷	승	시	식	신	싣	실	싫	심	십	싯	싱	싶	싸	싹	싻	싼	쌀	쌈	쌉	쌌	쌍	쌓	쌔	쌕	쌘	쌜	쌤	쌥	쌨	쌩
BD-E0	썅	써	썩	썬	썰	썲	썸	썹	썼	썽	쎄	쎈	쎌	쏀	쏘	쏙	쏜	쏟	쏠	쏨	쏩	쏭	쏴	쏵	쏸	쐈	쐐	쐤	쐬	쐰		
BE-A0		쐴	쐼	쐽	쑈	쑤	쑥	쑨	쑬	쑴	쑵	쑹	쒀	쒔	쒜	쒸	쒼	쓩	쓰	쓱	쓴	쓸	쓺	쓿	씀	씁	씌	씐	씔	씜	씨	씩
BE-C0	씬	씰	씸	씹	씻	씽	아	악	안	앉	않	알	앍	앎	앓	암	압	앗	았	앙	앝	앞	애	액	앤	앨	앰	앱	앳	앴	앵	야
BE-E0	약	얀	얄	얇	얌	얍	얏	양	얕	얗	얘	얜	얠	얩	어	억	언	얹	얻	얼	얽	얾	엄	업	없	엇	었	엉	엊	엌	엎	
BF-A0		에	엑	엔	엘	엠	엡	엣	엥	여	역	엮	연	열	엶	엷	염	엽	엾	엿	였	영	옅	옆	옇	예	옌	옐	옘	옙	옛	옜
BF-C0	오	옥	온	올	옭	옮	옰	옳	옴	옵	옷	옹	옻	와	왁	완	왈	왐	왑	왓	왔	왕	왜	왝	왠	왬	왯	왱	외	왹	왼	욀
BF-E0	욈	욉	욋	욍	요	욕	욘	욜	욤	욥	욧	용	우	욱	운	울	욹	욺	움	웁	웃	웅	워	웍	원	월	웜	웝	웠	웡	웨	
C0-A0		웩	웬	웰	웸	웹	웽	위	윅	윈	윌	윔	웝	윗	윙	유	육	윤	율	윰	윱	윳	융	윷	으	윽	은	을	읊	음	읍	웃
C0-C0	응	읒	읓	읔	읕	읖	읗	의	읜	읠	읨	읫	이	익	인	일	읽	읾	잃	임	입	잇	있	잉	잊	잎	자	작	잔	잖	잗	잘
C0-E0	잚	잠	잡	잣	잤	장	잦	재	잭	잰	잴	잼	잽	잿	쟀	쟁	쟈	쟉	쟌	쟎	쟐	쟘	쟝	쟤	쟨	쟬	저	적	전	절	젊	
C1-A0		점	접	젓	정	젖	제	젝	젠	젤	젬	젭	젯	젱	져	젼	졀	졈	졉	졌	졍	졔	조	족	존	졸	졺	좀	좁	좃	종	좇
C1-C0	좋	좌	좍	좔	좝	좟	좡	좨	좼	죄	죈	죌	죔	죕	죗	죙	죠	죡	죤	죵	주	죽	준	줄	줅	줆	줌	줍	줏	중		
C1-E0	줘	줬	줴	쥐	쥑	쥔	쥘	쥠	쥡	쥣	쥬	쥰	쥴	쥼	즈	즉	즌	즐	즘	즙	즛	증	지	직	진	짇	질	짊	짐	집	짓	
C2-A0		징	짖	짙	짚	짜	짝	짠	짢	짤	짧	짬	짭	짯	짰	짱	째	짹	짼	쨀	쨈	쨉	쨋	쨍	쨔	쨘	쨩	쩌	쩍	쩐	쩔	
C2-C0	쩜	쩝	쩟	쩠	쩡	쩨	쩽	쪄	쪘	쪼	쪽	쫀	쫄	쫌	쫍	쫏	쫑	쫓	쫘	쫙	쫠	쫬	쫴	쬈	쬐	쬔	쬘	쬠	쬡	쭈	쭉	
C2-E0	쭌	쭐	쭘	쭙	쭝	쭤	쭸	쭹	쮜	쮸	쯔	쯤	쯧	쯩	찌	찍	찐	찔	찜	찝	찡	찢	찧	차	착	찬	찮	찰	참	찹	찻	
C3-A0		찼	창	찾	채	책	챈	챌	챔	챕	챗	챘	챙	챠	챤	챦	챨	챰	챵	처	척	천	철	첨	첩	첫	첬	청	체	첵	첸	첼	
C3-C0	쳄	쳅	쳇	쳉	쳐	천	쳤	쳬	쳰	쳴	쵸	촉	촌	촐	촘	촙	촛	총	촤	촨	촬	촹	최	쵠	쵤	쵬	쵭	쵯	쵱	쵸	춈	추
C3-E0	축	춘	출	춤	춥	춧	충	춰	췄	췌	췐	취	췬	췰	췸	췹	췻	췽	츄	츈	츌	츔	츙	츠	측	츤	츨	츰	츱	츳	층	

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
C4-A0		치	칙	친	칟	칠	칡	침	칩	칫	칭	카	칵	칸	칼	캄	캅	캇	캉	캐	캑	캔	캘	캠	캡	캣	캤	캥	캬	캭	컁	커
C4-C0	컥	컨	컫	컬	컴	컵	컷	컸	컹	케	켁	켄	켈	켐	켑	켓	켕	켜	켠	켤	켬	켭	켯	켰	켱	켸	코	콕	콘	콜	콤	콥
C4-E0	콧	콩	콰	콱	콴	콸	쾀	쾅	쾌	쾡	쾨	쾰	쿄	쿠	쿡	쿤	쿨	쿰	쿱	쿳	쿵	쿼	퀀	퀄	퀑	퀘	퀭	퀴	퀵	퀸	퀼	
C5-A0		큄	큅	큇	큉	큐	큔	큘	큠	크	큭	큰	클	큼	큽	킁	키	킥	킨	킬	킴	킵	킷	킹	타	탁	탄	탈	탉	탐	탑	탓
C5-C0	탔	탕	태	택	탠	탤	탬	탭	탯	탰	탱	탸	턍	터	턱	턴	털	턺	텀	텁	텃	텄	텅	테	텍	텐	텔	템	텝	텟	텡	텨
C5-E0	텬	텼	톄	톈	토	톡	톤	톨	톰	톱	톳	통	톺	톼	퇀	퇘	퇴	퇸	툇	툉	툐	투	툭	툰	툴	툼	툽	툿	퉁	퉈	퉜	
C6-A0		퉤	튀	튁	튄	튈	튐	튑	튕	튜	튠	튤	튬	튱	트	특	튼	튿	틀	틂	틈	틉	틋	틔	틘	틜	틤	틥	티	틱	틴	틸
C6-C0	팀	팁	팃	팅	파	팍	팎	판	팔	팖	팜	팝	팟	팠	팡	팥	패	팩	팬	팰	팸	팹	팻	팼	팽	퍄	퍅	퍼	퍽	펀	펄	펌
C6-E0	펍	펏	펐	펑	페	펙	펜	펠	펨	펩	펫	펭	펴	편	펼	폄	폅	폈	평	폐	폘	폡	폣	포	폭	폰	폴	폼	폽	폿	퐁	
C7-A0		퐈	퐝	푀	푄	표	푠	푤	푭	푯	푸	푹	푼	푿	풀	풂	품	풉	풋	풍	풔	풩	퓌	퓐	퓔	퓜	퓟	퓨	퓬	퓰	퓸	퓻
C7-C0	퓽	프	픈	플	픔	픕	픗	피	픽	핀	필	핌	핍	핏	핑	하	학	한	할	핥	함	합	핫	항	해	핵	핸	핼	햄	햅	햇	했
C7-E0	행	햐	향	허	헉	헌	헐	헒	험	헙	헛	헝	헤	헥	헨	헬	헴	헵	헷	헹	혀	혁	현	혈	혐	협	혓	혔	형	혜	혠	
C8-A0		혤	혭	호	혹	혼	홀	홅	홈	홉	홋	홍	홑	화	확	환	활	홧	황	홰	홱	홴	횃	횅	회	획	횐	횔	횝	횟	횡	효
C8-C0	횬	횰	횹	횻	후	훅	훈	훌	훑	훔	훗	훙	훠	훤	훨	훰	훵	훼	훽	휀	휄	휑	휘	휙	휜	휠	휨	휩	휫	휭	휴	휵
C8-E0	휸	휼	흄	흇	흉	흐	흑	흔	흖	흗	흘	흙	흠	흡	흣	흥	흩	희	흰	흴	흼	흽	힁	히	힉	힌	힐	힘	힙	힛	힝	
C9-A0																																
C9-C0																																
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CA-A0	伽佳假價加可呵哥嘉嫁家暇架枷柯歌珂痂稼苛茄街袈訶賈跏軻迦駕刻却
CA-C0	各恪慤殼珏脚覺角閣侃刊墾奸姦干幹懇揀杆柬桿澗癎看磵稈竿簡肝艮艱諫
CA-E0	間乫喝曷渴碣竭葛褐蝎鞨勘坎堪嵌感憾戡敢柑橄減甘疳監瞰紺邯鑑鑒龕
CB-A0	匣岬甲胛鉀閘剛堈姜岡崗康强彊慷江畺疆糠絳綱羌腔舡薑襁講鋼降鱇介
CB-C0	价個凱塏愷愾慨改槪漑疥皆盖箇芥蓋豈鎧開喀客坑更梗羹醵倨去居巨拒据
CB-E0	據擧渠炬祛距踞車遽鉅鋸乾件健巾建愆楗腱虔蹇鍵騫乞傑杰桀儉劍劒檢
CC-A0	瞼鉗黔劫怯迲偈憩揭擊格檄激膈覡隔堅牽犬甄絹繭肩見譴遣鵑抉決潔結
CC-C0	缺訣兼慊箝謙鉗鎌京俓倞傾儆勁勍卿堷境庚徑慶憬擎敬景暻更梗涇炅烱璟
CC-E0	璥瓊痙硬磬竟競網經耕耿脛莖警輕逕鏡頃頸驚鯨係啓堺契季屆悸戒桂械
CD-A0	棨溪界癸磎稽系繫繼計誡谿階鷄古叩告呱固姑孤尻庫拷攷故敲暠枯槁沽
CD-C0	痼皐睾稿羔考股膏苦苽菰藁蠱袴誥賈辜錮雇顧高鼓哭斛曲梏穀谷鵠困坤崑
CD-E0	昆梱棍滾琨袞鯤汨滑骨供公共功孔工恐恭拱控攻珙空蛩貢鞏串寡戈果瓜
CE-A0	科菓誇課跨過鍋顆廓槨藿郭串冠官寬慣棺款灌琯瓘管罐菅觀貫關館刮恝
CE-C0	括适侊光匡壙廣曠洸昿狂珖筐胱鑛卦掛罫乖傀塊壞怪愧拐槐魁宏紘肱轟交
CE-E0	僑咬喬嬌嶠巧攪敎校橋狡皎矯絞翹膠蕎蛟較轎郊餃驕鮫丘久九仇俱具勾
CF-A0	區口句咎嘔坵垢寇嶇廐懼拘救枸柩構歐毆毬求溝灸狗玖球鞠矩究絿耉臼
CF-C0	舅舊苟衢謳購軀逑邱鉤銶駒驅鳩鷗龜國局菊鞫鞠麴君窘群裙軍郡堀屈掘窟
CF-E0	宮弓穹窮芎躬倦券勸卷圈拳捲權淃眷厥獗蕨蹶闕机櫃潰詭軌饋句晷歸貴
D0-A0	鬼龜叫圭奎揆槻珪硅窺竅糾葵規赳逵閨勻均畇筠菌鈞龜橘克剋劇戟棘極
D0-C0	隙僅劤勤懃斤根槿瑾筋芹菫覲謹近饉契今妗擒昤檎琴禁禽芩衾衿襟金錦伋
D0-E0	及急扱汲級給亘兢矜肯企伎其冀嗜器圻基埼夔奇妓寄岐崎己幾忌技旗既
D1-A0	朞期杞棋棄機欺氣汽沂淇玘琦琪琦璣畸畿碁磯祁祇祈祺箕紀綺羈耆饑肌
D1-C0	記譏豈起錡錤飢饑騎騏驥麒緊佶吉拮桔金喫儺喇奈娜儒懶拏拿癩羅蘿螺裸
D1-E0	邏那樂洛烙珞落諾酪駱亂卵暖欄煖爛蘭難鸞捏捺南嵐枏楠湳濫男藍襤拉
D2-A0	納臘蠟衲囊娘廊朗浪狼郎乃來內奈奈耐冷女年撚秊念恬拈捻寧寗努勞奴
D2-C0	弩怒擄櫓爐瑙盧老蘆虜路露駑魯鷺碌祿綠菉錄鹿論壟弄濃籠聾膿農惱牢磊
D2-E0	腦賂雷尿壘屢樓淚漏累縷陋嫩訥杻紐勒肋凜凌稜綾能菱陵尼泥匿溺多茶
D3-A0	丹亶但單團壇彖斷旦檀段湍短端簞緞蛋袒鄲鍛撻達獺疸達啖坍憺擔曇淡
D3-C0	湛潭澹痰聃膽蕈覃談譚錟沓畓答踏遝唐堂塘幢戇撞棠當糖螳黨代垈坮大對
D3-E0	岱帶待戴擡玳臺袋貸隊黛宅德悳倒刀到圖堵塗導屠島嶋度徒悼挑掉搗桃

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D4-A0	棹櫂淘渡滔濤燾盜睹禱稻萄覩賭跳蹈逃途道都鍍陶韜毒瀆牘犢獨督禿篤
D4-C0	黷讀墩惇敦盹噸沌焞燉豚頓乭突仝冬凍動同憧東桐棟洞潼疼瞳童胴董銅兜
D4-E0	斗杜枓痘竇荳讀豆逗頭屯臀芚遁遯鈍得嶝橙燈登等藤謄鄧騰喇懶拏癩羅
D5-A0	蘿螺裸邏樂洛烙珞絡落諾酪駱丹亂卵欄欒瀾爛蘭鸞剌辣嵐擥攬欖濫籃纜
D5-C0	藍襤覽拉臘蠟廊朗浪狼琅瑯螂郎來崍徠萊冷掠略亮倆兩凉梁樑粮粱糧良諒
D5-E0	輛量侶儷勵呂廬慮戾旅櫚濾礪藜蠣閭驢驪麗黎力曆歷瀝礫轢靂憐戀攣漣
D6-A0	煉璉練聯蓮蘲連鍊冽列劣洌烈裂廉斂殮濂簾獵令伶囹寧岑嶺怜玲笭羚翎
D6-C0	聆逞鈴零靈領齡例澧禮醴隷勞怒撈擄櫓潞瀘爐盧老蘆虜路輅露魯鷺鹵碌祿
D6-E0	綠菉錄鹿麓論壟弄朧瀧瓏籠聾儡瀨牢磊賂賚賴雷了僚寮廖料燎療瞭聊蓼
D7-A0	遼鬧龍壘婁屢樓淚漏瘻累縷蔞褸鏤陋劉旒柳榴流溜瀏琉瑠留瘤硫謬類六
D7-C0	戮陸侖倫崙淪綸輪律慄栗率隆勒肋凜凌楞稜綾菱陵俚利厘吏唎履悧李梨浬
D7-E0	犁狸理璃異痢籬罹羸莉裏裡里釐離鯉吝潾燐璘藺躪隣鱗麟林淋琳臨霖砬
D8-A0	立笠粒摩瑪痲碼磨馬魔麻寞幕漠膜莫邈万卍娩巒彎慢挽晩曼滿漫灣瞞萬
D8-C0	蔓蠻輓饅鰻唜抹末沫茉襪靺亡妄忘忙望網罔芒茫莽輞邙埋妹媒寐昧枚梅每
D8-E0	煤罵買賣邁魅脈貊陌驀麥孟氓猛盲盟萌冪覓免冕勉棉沔眄眠綿緬面麵滅
D9-A0	蔑冥名命明暝椧溟皿瞑茗蓂螟酩銘鳴袂侮冒募姆帽慕摸摹暮某模母毛牟
D9-C0	牡瑁眸矛耗芼茅謀謨貌木沐牧目睦穆鶩歿沒夢朦蒙卯墓妙廟描昴杳渺猫妙
D9-E0	苗錨務巫憮懋戊拇撫无楙武毋無珷畝繆舞茂蕪誣貿霧鵡墨默們刎吻問文
DA-A0	汶紊紋聞蚊門雯勿沕物味媚尾嵋彌微未梶楣渼湄眉米美薇謎迷靡黴岷悶
DA-C0	愍憫敏旻旼民泯玟珉緡閔密蜜謐剝博拍搏撲朴樸泊珀璞箔粕縛膊舶薄迫雹
DA-E0	駁伴半反叛拌搬攀斑槃泮潘班畔瘢盤盼磐磻礬絆般蟠返頒飯勃拔撥渤潑
DB-A0	發跋醱鉢髮魃倣傍坊妨尨幇彷房放方旁昉枋榜滂磅紡肪膀舫芳蒡蚌訪謗
DB-C0	邦防龐倍俳北培徘拜排杯湃焙盃背胚裴裵褙賠輩配陪伯佰帛柏栢白百魄幡
DB-E0	樊煩燔番磻繁蕃藩飜伐筏罰閥凡帆梵氾汎泛犯範范法琺僻劈壁擘檗璧癖
DC-A0	碧蘗闢霹便卞弁變辨辯邊別鼈鰲鼈丙倂兵屛幷昞昺柄棟炳甁病秉竝輧餅
DC-C0	騈保堡報寶普步洑湺潽珤甫菩補褓譜輔伏僕匐卜宓復服福腹茯葡複覆輹輻
DC-E0	馥鰒本乶俸奉封峯峰捧棒烽熢琫縫蓬蜂逢鋒鳳不付俯傅剖副否咐埠夫婦
DD-A0	孚孵富府復扶敷斧浮溥父符簿缶腐腑膚艀芙莩訃負賦賻赴趺部釜阜附駙
DD-C0	鳧北分吩噴墳奔奮忿憤扮昐汾焚盆粉糞紛芬賁雰不佛弗彿拂崩朋棚硼繃鵬
DD-E0	丕備匕匪卑妃婢庇悲憊扉批斐枇榧比毖毗毘沸泌琵痺砒碑秕秘枇緋翡肥

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DE-A0	脾臂菲蜚神誹豐費鄙非飛鼻嚬嬪彬斌檳殯浜濱瀕牡玭貧賓頻憑氷聘騁乍
DE-C0	事些仕伺似使俟僿史司唆嗣四士奢娑寫寺射巳師徒思捨斜斯柶査梭死沙泗
DE-E0	渣瀉獅砂社祀祠私篩紗絲肆舍莎蓑蛇裟詐詞謝賜赦辭邪飼駟麝削數朔索
DF-A0	傘刪山散汕珊産疝算蒜酸霰乞撒殺煞薩三參杉森滲芟蔘衫揷澁鈒颯上傷
DF-C0	像償商喪嘗孀尙峠常床庠廂想桑橡湘爽牀狀相祥箱翔裳觴詳象賞霜塞璽賽
DF-E0	嗇塞穡素色牲生甥省笙墅壻嶼序庶徐恕抒捿敍暑曙書栖棲犀瑞筮絮緖署
E0-A0	胥舒薯西誓逝鋤黍鼠夕奭席惜昔晳析汐淅潟石碩蓆釋錫仙僊先善嬋宣扇
E0-C0	敾旋渲煽琁瑄璇璿癬禪線繕羨腺膳船蘚蟬詵跣選銑鐥饍鮮卨屑楔泄洩渫舌
E0-E0	薛褻設說雪齧剡暹殲纖蟾贍閃陝攝涉燮葉城姓宬性惺成星晟猩珹盛省筬
E1-A0	聖聲腥誠醒世勢歲洗稅笹細說貰召嘯塑宵小少巢所掃搔昭梳沼消溯瀟炤
E1-C0	燒甦疏疎瘙笑篠簫素紹蔬蕭蘇訴逍遡邵銷韶騷俗屬束涑粟續謖贖速孫巽損
E1-E0	蓀遜飡率宋悚松淞訟誦送頌刷殺灑碎鎖衰釗修受嗽囚垂壽嫂守岫峀帥愁
E2-A0	戍手授搜收數樹殊水洙漱燧狩獸琇璲瘦睡秀穗竪粹綏綬繡羞脩茱蒐蓚藪
E2-C0	袖誰讐輸遂邃酬銖銹隋隧隨雖需須首髓鬚叔塾夙孰宿淑潚熟琡璹庸萩巡徇
E2-E0	循恂旬栒楯橓殉洵淳珣盾瞬筍純脣舜荀蓴蕣詢諄醇錞順馴戌術述鉥崇崧
E3-A0	嵩瑟膝蝨濕拾習褶襲丞乘僧勝升承昇繩蠅陞侍匙嘶始嫂尸屎屍市弑恃施
E3-C0	是時柿柴猜矢示翅蒔著視試詩諡豕豺埴寔式息拭植殖湜熄篒蝕識軾食飾伸
E3-E0	侁信呻娠宸愼新晨燼申神紳腎臣莘薪藎蜃訊身辛辰迅失室實悉審尋心沁
E4-A0	沈深瀋甚芯諶什十拾雙氏亞俄兒啞娥峨我牙芽莪蛾衙訝阿雅餓鴉鵝堊岳
E4-C0	嶽幄惡愕握樂渥鄂鍔顎鰐齷安岸按晏案眼雁鞍顔鮟斡謁軋閼唵岩巖庵暗癌
E4-E0	菴闇壓押狎鴨仰央怏昂殃秧鴦厓哀埃崖愛曖涯碍艾隘靄厄扼掖液縊腋額
E5-A0	櫻罌鶯鸚也倻冶夜惹揶椰爺耶若野弱掠略約若葯蒻藥躍亮佯兩凉壤孃恙
E5-C0	揚攘敭暘梁楊樣洋瀁煬痒瘍禳穰糧羊良襄諒譲釀陽量養圄御於漁瘀禦語馭
E5-E0	魚語億憶抑檍臆偃堰彦焉言諺孽蘖俺儼嚴奄掩淹嶪業円予余勵呂女如廬
E6-A0	旅欷汝濾璵礖礪與艅茹輿轝閭餘驪麗黎亦力域役易曆歷疫繹譯轢逆驛嚥
E6-C0	堧妍娟宴年延憐戀捐挺撚椽沇沿涎涓淵演漣烟然煙煉燃燕璉研硯秊筵緣練
E6-E0	縯聯衍軟輦蓮連鉛鍊鳶列劣咽悅涅烈熱裂說閱厭廉念捻染殮炎焰琰艷苒
E7-A0	簾閻髯鹽曄獵燁葉令囹塋寧嶺嶸影怜映暎楹榮永泳渙潁濚瀛瀯煐營獰玲
E7-C0	瑛瑩瓔盈穎纓羚聆英詠迎鈴鍈零霙霊領乂倪例刈叡曳汭濊猊睿穢芮藝蘂禮
E7-E0	裔詣譽豫醴銳隷霓預五伍俉傲午吾吳鳴塢墺奧娛寤悟惡懊敖昨晤梧汚澳

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
E8-A0		烏	熬	獒	筽	蜈	誤	鰲	鼇	屋	沃	獄	玉	鈺	溫	瑥	瘟	穩	縕	蘊	兀	壅	擁	瓮	甕	癰	翁	邕	雍	饔	渦	瓦
E8-C0	窩	窪	臥	蛙	蝸	訛	婉	完	宛	梡	椀	浣	玩	琓	琬	碗	緩	翫	脘	腕	莞	豌	阮	頑	曰	往	旺	枉	汪	王	倭	娃
E8-E0	歪	矮	外	嵬	巍	猥	畏	了	僚	僥	凹	堯	夭	妖	姚	寥	寮	尿	嶢	拗	搖	撓	擾	料	曜	樂	橈	燎	燿	瑤	療	
E9-A0		窈	窯	繇	繞	耀	腰	蓼	蟯	要	謠	遙	遼	邀	饒	慾	欲	浴	縟	褥	辱	俑	傭	冗	勇	埇	墉	容	庸	慂	榕	涌
E9-C0	湧	溶	熔	瑢	用	甬	聳	茸	蓉	踊	鎔	鏞	龍	于	佑	偶	優	又	友	右	宇	寓	尤	愚	憂	旴	牛	玗	瑀	盂	祐	禑
E9-E0	禹	紆	羽	芋	藕	虞	迂	遇	郵	釪	隅	雨	雩	勖	彧	旭	昱	栯	煜	稶	郁	頊	云	暈	橒	殞	澐	熉	耘	芸	蕓	
EA-A0		運	隕	雲	韻	蔚	鬱	亐	熊	雄	元	原	員	圓	園	垣	媛	嫄	寃	怨	愿	援	沅	洹	湲	源	爰	猿	瑗	苑	袁	轅
EA-C0	遠	阮	院	願	鴛	月	越	鉞	位	偉	僞	危	圍	委	威	尉	慰	暐	渭	爲	瑋	緯	胃	萎	葦	蔿	蝟	衛	褘	謂	違	韋
EA-E0	魏	乳	侑	儒	兪	劉	唯	喩	孺	宥	幼	幽	庾	悠	惟	愈	愉	揄	攸	有	杻	柔	柚	柳	楡	楢	油	洧	流	游	溜	
EB-A0		濡	猶	猷	琉	瑜	由	留	癒	硫	紐	維	臾	萸	裕	誘	諛	諭	踰	蹂	遊	逾	遺	酉	釉	鍮	類	六	堉	戮	毓	肉
EB-C0	育	陸	倫	允	奫	尹	崙	淪	潤	玧	胤	贇	輪	鈗	閏	律	慄	栗	率	聿	戎	瀜	絨	融	隆	垠	恩	慇	殷	誾	銀	隱
EB-E0	乙	吟	淫	蔭	陰	音	飮	揖	泣	邑	凝	應	膺	鷹	依	倚	儀	宜	意	懿	擬	椅	毅	疑	矣	義	艤	薏	蟻	衣	誼	
EC-A0		議	醫	二	以	伊	利	吏	夷	姨	履	已	弛	彛	怡	易	李	梨	泥	爾	珥	理	異	痍	痢	移	罹	而	耳	肄	苡	荑
EC-C0	裏	裡	貽	貳	邇	里	離	飴	餌	匿	溺	瀷	益	翊	翌	翼	謚	人	仁	刃	印	吝	咽	因	姻	寅	引	忍	湮	燐	璘	絪
EC-E0	茵	藺	蚓	認	隣	靭	靷	鱗	麟	一	佚	佾	壹	日	溢	逸	鎰	馹	任	壬	妊	姙	恁	林	淋	稔	臨	荏	賃	入	卄	
ED-A0		立	笠	粒	仍	剩	孕	芿	仔	刺	咨	姉	姿	子	字	孜	恣	慈	滋	炙	煮	玆	瓷	疵	磁	紫	者	自	茨	蔗	藉	諮
ED-C0	資	雌	作	勺	嚼	斫	昨	灼	炸	爵	綽	芍	酌	雀	鵲	孱	棧	殘	潺	盞	岑	暫	潛	箴	簪	蠶	雜	丈	仗	匠	場	墻
ED-E0	壯	奬	將	帳	庄	張	掌	暲	杖	樟	檣	欌	漿	牆	狀	獐	璋	章	粧	腸	臟	臧	莊	葬	蔣	薔	藏	裝	贓	醬	長	
EE-A0		障	再	哉	在	宰	才	材	栽	梓	渽	滓	災	縡	裁	財	載	齋	齎	爭	箏	諍	錚	佇	低	儲	咀	姐	底	抵	杵	楮
EE-C0	樗	沮	渚	狙	猪	疽	箸	紵	苧	菹	著	藷	詛	貯	躇	這	邸	雎	齟	勣	吊	嫡	寂	摘	敵	滴	狄	炙	的	積	笛	籍
EE-E0	績	翟	荻	謫	賊	赤	跡	蹟	迪	迹	適	鏑	佃	佺	傳	全	典	前	剪	塡	塼	奠	專	展	廛	悛	戰	栓	殿	氈	澱	
EF-A0		煎	琠	田	甸	畑	癲	筌	箋	箭	篆	纏	詮	輾	轉	鈿	銓	錢	鐫	電	顚	顫	餞	切	截	折	浙	癤	竊	節	絶	占
EF-C0	岾	店	漸	点	粘	霑	鮎	點	接	摺	蝶	丁	井	亭	停	偵	呈	姃	定	幀	庭	廷	征	情	挺	政	整	旌	晶	晸	柾	楨
EF-E0	檉	正	汀	淀	淨	渟	湞	瀞	炡	玎	珽	町	睛	碇	禎	程	穽	精	綎	艇	訂	諪	貞	鄭	酊	釘	鉦	鋌	錠	霆	靖	
F0-A0		靜	頂	鼎	制	劑	啼	堤	帝	弟	悌	提	梯	濟	祭	第	臍	薺	製	諸	蹄	醍	除	際	霽	題	齊	俎	兆	凋	助	嘲
F0-C0	弔	彫	措	操	早	晁	曺	曹	朝	條	棗	槽	漕	潮	照	燥	爪	璪	眺	祖	祚	租	稠	窕	粗	糟	組	繰	肇	藻	蚤	詔
F0-E0	調	趙	躁	造	遭	釣	阻	雕	鳥	族	簇	足	鏃	存	尊	卒	拙	猝	倧	宗	從	悰	慫	棕	淙	琮	種	終	綜	縱	腫	
F1-A0		踪	踵	鍾	鐘	佐	坐	左	座	挫	罪	主	住	侏	做	姝	胄	呪	周	嗾	奏	宙	州	廚	晝	朱	柱	株	注	洲	湊	澍
F1-C0	炷	珠	疇	籌	紂	紬	綢	舟	蛛	註	誅	走	躊	輳	週	酎	酒	鑄	駐	竹	粥	俊	儁	准	埈	寯	峻	晙	樽	浚	準	濬
F1-E0	焌	畯	竣	蠢	逡	遵	雋	駿	茁	中	仲	衆	重	卽	櫛	楫	汁	葺	增	憎	曾	拯	烝	甑	症	繒	蒸	證	贈	之	只	

	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 2 3 4 5 6 7 8 9 A B C D E F 0 1 2 3 4 5 6 7 8 9 A B C D E F
F2-A0 F2-C0 F2-E0	咫地址志持指摯支旨智枝枳止池沚漬知砥祉祇紙肢脂至芝芷蜘誌識贄趾 遲直植殖織職唇嗔塵振搾晉晋桭榛殄津溱珍瑨璡畛疹盡眞瞋秦縉縝臻蔯袗 診賑軫辰進鎭陣陳震侄叱姪嫉帙桎瑼疾秩窒膣蛭質跌迭斟朕什執潗緻輯
F3-A0 F3-C0 F3-E0	鏶集徵懲澄且侘借叉嗟嵯差次此磋箚茶蹉車遮捉搾着窄錯鑿齪撰澪燦璨 瓚竄簒纂粲纘讃贊鑽餐饌刹察擦札紮僭參塹慘懴懺斬站讒讖倉倡創唱娼廠 彰愴敞昌昶暢槍滄漲猖瘡窓腰艙莒蒼債埰寀寨彩採砦綵菜蔡采釵冊柵策
F4-A0 F4-C0 F4-E0	責凄妻悽處倜刺剔尺慽戚拓擲斥滌瘠脊蹠陟隻仟千喘天川擅泉淺玔穿舛 薦賤踐遷釧闡阡韆凸哲喆徹撤澈綴輟轍鐵僉尖沾添甜諂妾帖捷 牒疊睫諜貼輒廳晴淸聽菁請靑鯖切剃替涕滯締諦逮遞體初剿哨憔抄招梢
F5-A0 F5-C0 F5-E0	椒楚樵炒焦硝礁礎秒稍肖艸苕草蕉貂超酢醋醮促噭燭矗蜀觸寸忖村邨叢 塚寵悤憁摠總聰蔥銃撮催崔最墜抽推椎楸樞湫皺秋芻萩諏趨追鄒酋醜錐錘 錐贅騶鰍丑畜祝竺筑築縮蓄蹙蹴軸逐春椿瑃出朮黜充忠沖蟲衝衷悴膵萃
F6-A0 F6-C0 F6-E0	贅取吹嘴娶就炊翠聚脆臭趣醉驟鷲側仄厠惻測層侈値嗤峙幟恥梔治淄熾 痔痴癡稚穉緇緻置致蚩輜雉馳齒則勅飭親七柒漆侵寢枕沈浸琛砧針鍼蟄秤 稱快他咤唾墮妥楕打拖朶惰舵陀馱駝倬卓啄坼度托拓擢晫柝濁濯琢琸託
F7-A0 F7-C0 F7-E0	鐸呑嘆坦彈憚歎灘炭綻誕奪脫探眈耽貪塔搭榻宕帑湯糖蕩兌台太怠態殆 汰泰笞胎苔跆邰颱宅擇澤撑攄兎吐土討慟桶洞痛筒統通堆槌腿褪退頽偸套 妬投透鬪慝特闍坡婆巴把播擺杷波派爬琶破罷芭跛頗判坂板版瓣販辦鈑
F8-A0 F8-C0 F8-E0	阪八叭捌佩唄悖敗沛浿牌狽稗覇貝彭澎烹膨愎便偏扁片篇編翩遍鞭騙貶 坪平枰萍評吠陛幣廢弊斃肺蔽閉陛佈包匍匏咆哺圃布怖抛抱捕暴泡浦疱砲 胞脯葩葡蒲袍褒逋鋪飽鮑幅暴曝瀑爆輻俵剽彪慓杓標漂瓢票表豹飇飄驃
F9-A0 F9-C0 F9-E0	品稟楓諷豊風馮彼披疲皮被避陂匹弼必泌珌畢疋筆苾馝乏逼下何厦夏廈 昰河瑕荷蝦賀遐霞鰕堅學虐謔鶴寒恨悍旱汗漢澣瀚罕翰閑開限韓割轄函含 咸啣喊檻涵緘艦銜陷鹹合哈盒蛤閤闔陜亢伉姮嫦巷恒抗杭桁沆港缸肛航
FA-A0 FA-C0 FA-E0	行降項亥偕咳垓奚孩害懈楷海瀣蟹解該諧邂駭骸劾核倖幸杏荇行享向嚮 珦鄕響餉饗香噓墟虛許憲櫶獻軒歇險驗奕爀赫革俔峴弦懸晛泫炫玄玆現眩 睨絃絢縣舷衒見賢鉉顯孑穴血頁嫌俠協夾峽挾浹狹脅脇莢鋏頰亨兄刑型
FB-A0 FB-C0 FB-E0	形泂桁滎瀅瀯炯熒珩瑩荊螢衡逈邢鎣馨兮彗惠慧暳蕙蹊醯鞋乎互呼壕壺好 岵弧戶扈昊晧毫浩淏湖滸澔濠濩瀤弧虓瑚瓠皓祜糊縞胡芦葫蒿虎號蝴護豪 鎬鏬顥惑或酷婚昏混渾琿魂忽惚笏哄弘汞泓洪烘紅虹訌鴻化和嬅樺火畵

	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 2 3 4 5 6 7 8 9 A B C D E F 0 1 2 3 4 5 6 7 8 9 A B C D E F
FC-A0 FC-C0 FC-E0	禍禾花華話譁貨靴廓擴攫確碻穫丸喚奐宦幻患換歡晥桓渙煥環紈還驩鰥 活滑猾豁闊鳳幌徨恍惶愰慌晃晄榥況湟滉潢煌璜皇篁簧荒蝗遑隍黃匯回廻 徊恢悔懷晦會檜淮澮灰獪繪膾茴蛔誨賄劃獲宖橫鐄哮嘻孝效斆曉梟涍淆
FD-A0 FD-C0 FD-E0	爻肴酵驍侯候厚后吼喉嗅帿後朽煦珝逅勛勳塊壎焄熏燻薰訓暈薨喧暄煊 萱卉喙毀彙徽揮暉煇諱輝毇依携烋畦虧恤譎鷸兇凶匈洶胸黑昕欣炘痕吃屹 紇訖欠欽歆吸恰洽翕興僖凞喜噫囍姬嬉希憙憘戲晞曦熙熹熇犧禧稀羲詰
FE-A0 FE-C0 FE-E0	
FF-A0 FF-C0 FF-E0	

C Contact Information

Printronix Customer Support Center

IMPORTANT

Please have the following information available prior to calling the Printronix Customer Support Center:

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout:

  Line Matrix Printer
  Press PRT CONFIG on the control panel, then press Enter.
- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing or emailing of these samples may be required)

Americas	(714) 368-2686
Europe, Middle East, and Africa	(31) 24 6489 311
Asia Pacific	(65) 6548 4114
China	(86) 800-999-6836

http://www.printronix.com/support.aspx

Printronix Supplies Department

Contact the Printronix Supplies Department for genuine Printronix supplies.

Americas	(800) 733-1900
Europe, Middle East, and Africa	(33) 1 46 25 19 07
Asia Pacific	(65) 6548 4100
China	(86) 400-886-5598

http://www.printronix.com/supplies-parts.aspx

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